Environment and Climate Change
APPENDIX

SURVEY RESPONSES
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BACKGROUND MATERIALS

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- Websites
- Renewable-New Haven: Goals & Action Steps
- Just Transition
- APPRISE: Meeting the Energy Needs of Low-Income Households in Connecticut Final Report
- BGreen 2020 Appendices
- Citizens Campaign for the Environment: Environmental Policy Recommendations Justin Elicker Transition
- CT Green New Deal
- How Energy Efficiency Creates Jobs
- New Haven 12.17.18 Final Mayor Meeting
- New Haven Climate Response 2020
- NH CC Brochure
- PEAC Jobs Flier
- PEAC: Recommendations, Benefits, Existing Programs

SURVEY RESPONSES

How does this topic area impact you?

- I developed an art & environmental education program that has and will continue to host Summer Youth Employment worksites. Our goal is to continue to develop our program AND work with and inspire other sustainable and environmental organizations to also host worksites for youth as part of a New Haven Green Jobs for Youth Program. If 80% of the summer youth jobs in New Haven can be converted to green jobs, it will attract national attention and inspire other communities to do the same! I hope Mayor Elicker will adopt this approach as part of the Youth Services Dept. Like most cities, Summer Youth Employment is an existing City program and it would not take that much effort to transform it to be part of the City's sustainability efforts. New Haven can spearhead turning these jobs into creating more informed "green" workforce within our community and for our youth who will soon be inheriting the effort to problem-solve toward sustainability in our own community and the planet.
- I live within 1/4 mile of the sewage sludge incinerator in East Shore. I breathe the toxic pollutants that damage my health. I pay for sewage treatment that does not promote beneficial use of sewage sludge and contributes to excess greenhouse gas emissions.
- I live one block from the Quinnipiac River and I see how the river has risen over the past few years and the frequent and severe flooding on Middletown Avenue. The flooding is a danger to pedestrians and vehicles as there is no sidewalk through that area.
- It impacts all of us, but some more than others. I'm lucky to have financial security and mobility. Others in our community aren't and face dangers from increased health risks and food price shocks.
- It impacts all of us and I'd be keen to see a STRONG partnership between New Haven and Yale to be a leading national city in fighting climate change. I'd also like to address public safety and find a way to clean up downtown so it feels safe to walk around town, to and from work, and attract local businesses to grow. I walk by drug deals in the town green almost daily to and from work. New Haven needs to feel safe and like a proud place to live.
- Climate change impacts all of us.
- I'm concerned about the impacts of climate change on all animals, human and nonhuman.

What are some suggestions you have for this administration related to this topic area?

- I'd like a plant-based-eating initiative to address climate, health, and animal well-being issues. The office could follow that of Deputy Strategist Rachel Atcheson in Eric Adams' Brooklyn Borough. It could involve plant-based menus at all public functions and increased plant-based options and meatless Mondays in schools and other institutions, for example.
- Commission a waste inventory and circular economy program
- Invest in urban trails like the MRT in addition to the final extension of the Canal Trail
- Moratorium on new construction in the flood zones, especially along the Mill River
- Some towns have begun teaming up with utilities to purchase electric school buses, the batteries of which can be used as back up storage for solar power. Not only do you improve the efficiency of the grid, but you also get rid of some of the worst polluters in

town -- the dirty, noxious school buses of Student First (an ironic name if ever there was). You can fight air pollution on two fronts at the same time, and save the city a lot of money in the long run.

- Provide support for residents (esp. Latin American immigrants) to repurpose vacant lots into hyper-productive community farms & ecological education centers. Provide food subsidies/stamps to NH residents for buying local food at farmers markets.
- Create Request for Proposal for Solar Companies to win an award to be the preferred provider of community/residential/commercial solar in New Haven. By going through the RFP process, you can vet the same company for permitting, allowing more efficient permitting and install processes, and you can pool interested customers, thus reducing their customer acquisition costs. The overall effect is lower costs to procure solar for the community + increased business for the solar providers
- Spur Green Growth in New Haven by launching efforts to make New Haven the Greenest City in America (See examples from http://www.oberlinproject.org/). Make NH a center of sustainable culture/innovation.
- This can be accomplished by reaching out to the many sustainability-oriented organizations and businesses in New Haven, having group info sessions and encouraging them to participate in the Summer Youth Employment worksite program (soon). Of course it will first take getting the Youth Services Dept. a little more functional than it currently is. With the number of employees in that office it seems the summer youth employment program could be better run in general. But if there is a greater goal, it may help to inspire reevaluation of how it functions or does not. Some of my suggestions: The Youth Work program should have a survey that both worksites and youth participants have to fill out before and after the program. Currently there is no way of ascertaining if the youth have gained any skills or knowledge from their summer job. As a worksite, someone from Youth Services was supposed to visit our site, no one ever did. There is very little communication from the office to worksites and little, if any, social media participation from the department to share this exciting opportunity and accomplishments for youth in New Haven. That said, lack of social media participation is common throughout many of the City offices (I hope you will address that and bring the City into the 20th century so it can reach out to the community more effectively). I know of one student who was "employed" at an attorney's office for the summer and was charged with shredding documents for a few days a week. This seems like an abuse of the program and the student. Worksites should be vetted better and be able to list the skills and education the youth will be able to gain/explore while employed. I believe the Youth Services Dept. can have a broader positive impact on the city's youth if it is more efficient and organized. They are the not-so-distant future of the New Haven!
- The sewage sludge incinerator is reaching the end of its life. We need to stop importing sludge from around the region to be incinerated in New Haven (we are like the toilet bowl for Synagro to conduct their business in our town with the permission of GNHWPCA). The EPA has recommended using the organic waste of sewage to create methane that can be used to power the activities of the wastewater treatment plant (pumping, solids separation and dewatering). Not only would using anaerobic digestion reduce harmful air emissions from incineration, it would save on fossil fuel use to incinerate the waste. Current greenhouse gas calculations do not take into account the

emissions from 15 semi truck loads of sewage being trucked into New Haven to burn in our incinerator. We don't need an entity that was built for the purpose of running a sewage incineration business in New Haven increasing our pollution load by almost 100% (roughly half of what we incinerate is from out of our region and trucked in). It is time for better planning now, before we are confronted with "what are we going to do?" when the current outside sludge contracts run out in 2024.

- Save the Quinnipiac River: assess the climate change impacts on the river, the neighborhoods and infrastructure adjacent to the river, create and fund a resiliency plan, and get the neighborhoods involved through the schools and Management Teams.
- DIVEST PENSION PLANS (https://www.theguardian.com/us-news/2018/jan/10/new-york-city-plans-to-divest-5bn-from-fossil-fuels-and-sue-oil-companies). By rough math, New Haven has ~$20-50 million invested in fossil fuels via the pension plans. New Haven divesting can help put pressure on Yale to divest its 100s of millions, if not billions, in fossil fuels.
- Partner with the School of Public Health and the Environmental Studies to develop 1-2 tangible partner-led initiatives to fight climate change. Partner with Yale Psychiatry (my department) to address mental health city-wide.
- Schools need to be recycling. I hear that even if building level people sort into recycling bins, that material all goes into the trash because the new removal company did not provide outdoor recycling bins for anything other than cardboard. Schools have so much recyclable waste. This is a huge problem. Insist on recycling in schools.

<u>What is currently being done well that the new administration should encourage and/or strengthen?</u>

- Continuing the Summer Youth employment program. Using the online tools to apply to be a worksite.
- The current administration appoints board members to the GNHWPCA. They select an environmental stakeholder; never once has this board member voted to protect the health and well being of New Haven residents exposed to harmful chemicals from the incinerator. It is time to select an environmental stakeholder that cares more about public health and is willing to push for anaerobic digestion moving forward. The current administration can also challenge GNHWPCA to divulge current thinking and planning around stopping sludge incineration in our community.
- Bike Lanes.
- Still needs to be assessed since I've only very recently returned to New Haven, but this is a smart question.
- Food Policy Council. Also, possibly work with the newly formed LEAP (Law, Ethics, and Animals Program) at Yale Law School.

<u>Is there a way in which you'd like to help or contribute? Or do you have any other comments, questions, or concerns?</u>

- I would like to help in some way to initiate the proposed New Haven Green Jobs for Youth summer program or just be part of making a more effective Summer Youth Employment program.

- Yes, I'd like to be involved in any way I can to develop partnerships between Yale and New Haven, serve on advisory committees, or generally assist with being part of positive change.
- I would like to help develop and apply for the position of Deputy Strategist for Plant-Based Nutrition Initiatives. Thank you for this opportunity to engage and help New Haven become a leader in climate, health, and animal well-being!

ADDITIONAL SUGGESTIONS

- Throughout the country, cities such as Miami-Dade County have an Office of Resilience to identify and mitigate climate impacts as well as coordinate stakeholders. Hiring staffers in the areas of energy policy and environmental justice can provide additional support and expertise. In alignment with the Climate Emergency Resolution, the Mayor can work with the BOA to allocate the appropriate resources to staff and execute the Climate & Sustainability Framework.
- As our environment deteriorates, frontline low-income and marginalized communities of color will continue to bear a disproportionate burden and increasingly become the most vulnerable to the adverse effects of climate change. Youth will also experience the repercussions of climate change more than any other generation.
    - Address public housing indoor environmental concerns (i.e. flooding during heavy rainfall). If not corrected, these environmental issues lead to poor health outcomes and undue economic and personal costs that further compound cumulative burdens.
    - Energy efficiency programs disproportionately benefit higher-income neighborhoods (see article).
    - The State of Connecticut spent $4 million to help families displaced by Hurricane Maria.
    - A recent article affirms that 80% of US parents support the teaching of climate change
    - The definition of "environment" must be inclusive and strategies must be tailored to reflect the unique particularities and local knowledge of these communities to promote awareness of the climate crisis. This historical moment is an opportunity to lay the building blocks needed to continue the fight against these issues.
    - Reduce greenhouse emissions to decrease New Haven's carbon footprint.
- Using Bridgeport's BGreen2020 initiative as a model, create a multi-pronged effort toward energy-efficiency.
- Create a Climate Emergency Cabinet – Include Mayor/Mayor's Office, Chief Administrative Officer (CAO), Economic Development Administrator (EDA), Engineering, City Plan, Transportation Traffic and Parking, Health, LCI/Housing, any other dept as needed (1st 100 days)
- Establish the Climate Emergency Task Force (as part of Board of Alders climate emergency resolution) (1st 100 days)
- Use Climate and Sustainability Framework to guide engagement and implementation, with SustainableCT as a reporting/metric tool to compare with other communities statewide
- Improve Climate Emergency Communications (i.e. website)

- Reduce City energy consumption by 10% over 2 years.
    - Convert all lighting to LED
    - Decrease transportation fuel use
    - Improve HVAC controls
- Explore option of Municipial Utility District (MUD) or Community Choice Aggregation (CCA) for providing 100% renewable energy option
    - Currently City is purchasing Renewable Energy Certificates (RECs) for 100% renewable for City operations
- Residential Energy Efficiency – Address the ~70% of New Haven housing that is rental. Explore ways to create a price signal in the rental market that reflects the energy efficiency and cost of a particular unit, thereby making efficient housing units more attractive.
    - Home Energy Score for rental properties (DOE Home Energy Score https://www.energy.gov/eere/buildings/downloads/home-energy-score)
    - Home audits and energy efficiency improvements
- Revise zoning ordinance to incorporate sustainability and resiliency concepts (also expand these concepts in upcoming Plan of Conservation and Development (POCD) revision)
    - No parking minimums, revise existing green ordinances, commercial corridors concepts
- Develop environmentally conscious policies related to internal city transportation
    - Purchase electric vehicles, set up city buildings for electric vehicles, create system for car sharing & bike sharing, anti-idling for both City vehicles and for the wider community
- Continue to support City's Complete Streets program, in particular encourage greater participation in active transportation (also addressed in other parts of Transition Report).
- Improve materials management communications
    - Improved website, prevent illegal dumping
- Improve recyclables capture rate
    - More strategically-scheduled, item-specific drop-off/pick-up events such as electronics recycling
    - Education on recyclable materials- promote RecycleCT resources
    - Explore alternatives to single-stream recycling given the collapse of the mixed recyclables market.
- Support and expand existing food systems policy initiatives and collaboration.
- Continue to seek funding for green infrastructure implementation
    - Implement an in-lieu-fee for properties that cannot meet the Section 60 retention requirement as per Municipal Separated Storm Sewer System (MS4) permit
- Complete resilient infrastructure plan for the City
- Maintain and improve FEMA Community Rating System (CRS) status

- Create an emissions threshold for a New Haven central business district(s): This would mean drawing a radius around the Green or other areas in New Haven that would have an upper limit of emissions (i.e. cars would get tickets, etc.). London and Amsterdam have created these zones.
- Develop internal city policies around city vehicles and city employee vehicles: This would mean 1) Moving towards no more gas powered vehicles purchased by city; 2) Becoming a member of electric vehicle car-share; 3) And no longer having free parking for city employees.
- Prohibit natural gas hookups in new developments or incentivize shift to all-electric developments (e.g. density bonuses)
- Set near term (2 and 4 year) goals for City facility and City-wide greenhouse gas reductions. These will be easier to work with than longer term goals.
- Ban the use of polystyrene at restaurants and food trucks as Norwalk has done
- Consider restricting free parking to all-electric vehicles rather than electric vehicles and hybrids
- Purchase a large amount of the City and BOE electricity demand directly from a utility-scale solar energy facility, as Philadelphia has done. This will lead to cost savings and rate stability
- Incorporate a municipal electric utility. The threat of moving New Haven ratepayers to a municipal utility may push United Illuminating to increase renewable procurement
- Provide opportunities for local companies and farmers to obtain contracts so that food can be sourced locally.
- To avoid a surplus of food, orders must adequately reflect demand.
- Refer to best practices of municipalities that successfully redirect food waste.
- The big blue bins with mixed recycling seemed such a great easy way to recycle easily and efficiently, encouraging more recycling. Now I suspect that this big blue bin mashup is a problem. China says our stuff is not clean. Ok so now we wash more (water is precious too...yikes). Plus there is no clear directive on what exactly can be recycled. Plenty of individual items are “mixed materials.” I’ve seen the Stratford center where all the recyclables are scooped up by payloaders like trash, all jammed together. Who’s sorting all that! Talk about dirty. I think it’s time to figure this all out. And aren’t we spending city funds now rather than earning money on recyclables? Is this too hard to figure out? Who’s doing it? What department? We need more than a sticky note placed on the bin.
- One idea I have interest in pursuing is ward based where every ward would be challenged to have at least one solar installation and ward's could buddy up so as to support each other in this effort. I think it would be good to have a visual representation of this publicly on the website and in or in front of City hall somewhere - I was thinking of rays

of the sun- that would help people follow the progress and be an uplifting symbol. If we are already there, I would look for ways to expand it.

- The first is climate change and global warming. It is painfully obvious that the reductions in carbon dioxide, methane, and other greenhouse gases that are needed are aspirational at-best. We, New Haven, can do better. Let's commit to implementing strategies and processes that make New Haven carbon-neutral at least, but preferably carbon-negative. I would be more than happy to work with you on this issue.
- I believe you should act to address the issues below, and I ask you to provide me with information on what the government is doing to reduce greenhouse gas emissions in the following areas:
    - 1. Reducing carbon dioxide emissions from coal fired power plants
    - 2. Reducing emissions from the transport sector
    - 3. Funding initiatives for alternative and renewable energy technology
    - 4. Incentives for the uptake of renewable energy
    - 5. Removal of subsidies for fossil based fuel sources

BACKGROUND MATERIALS

LETTERS AND EMAILS:

I work for the Department of Social Services in the long term care unit. Many of my clients use the bus system to get to our office. They utilize wheelchairs and walkers to ambulate. Standing in the cold or hot sun can be a challenge individuals with health concerns. Despite our efforts as a State Agency with technology to access benefits, many residents prefer face to face services from our office workers.

Across the street from our building, I see many New Haven residents shivering while waiting for the bus. They must stand outside in the elements for the bus. I would like to see a bus shelter so the residents do not have to wait in the mud or rain. Please point me in the right direction so I can effectively advocate for those who rely on public transportation.

Perhaps we can utilize solar power to help illuminate the shelter, provide estimates of arrival times, and assistance to those with visual impairments.

A quick google search tells me I am not the only person who believes this is a fundamental necessity. Please view:

https://usa.streetsblog.org/2018/10/01/opinion-we-should-put-a-bus-shelter-at-every-stop-in-america/

I am writing to express my concern about the imminent threat climate change poses to our country, to our people and the future of our children. An overwhelming number of scientists agree, and signs abound that climate change is occurring much faster than was initially predicted. We have only a few critical years before the changes become irreversible. I hope that you will make this a foremost concern in your new administration.

More than 2,000 scientists contributing to the Intergovernmental Panel on Climate Change (IPCC) have made it clear that cuts of at least 50% to 70% in global greenhouse gas emissions are necessary to allow our climate to re-stabilise. Therefore, the Government should be making every effort to reduce greenhouse gas emissions – now.

Specifically, I believe you should act to address the issues below, and I ask you to provide me with information on what the government is doing to reduce greenhouse gas emissions in the following areas:

1. Reducing carbon dioxide emissions from coal fired power plants
2. Reducing emissions from the transport sector
3. Funding initiatives for alternative and renewable energy technology
4. Incentives for the uptake of renewable energy
5. Removal of subsidies for fossil based fuel sources

To secure a future for our nation and our children now is the time to set a new and positive direction for our national energy policy. We need policies that will lead our nation away from fossil based fuels.

Our addiction to fossil fuel harms human health, causes global warming, degrades land and marine ecosystems, and pollutes the earth. We need energy systems that provide clean, renewable, and reliable energy that does not threaten human health or the environment. We do create our futures, and not to reach for it would be a gross abdication of our moral responsibility.

Launch a local “Green New Deal”: commitment to sustainable economic development, including green jobs. Climate change and climate crisis are the issue of our time. Develop the local economy in ways that are environmentally-focused and inclusive. More investment in renewable energy jobs and infrastructure. Climate justice approach to economic development – transportation away from cars, prioritize pedestrians, buses, bikes. Climate justice – clean energy that creates jobs, make structures more energy efficient. Restart tree nursery we had in East Rock Park. Workforce initiative around hydroponic gardens to grow vegetables.

I would like to add to the list to support State Level activities:

- I think it is very important to support Tolls in CT. I understand this will also be a source of income for the city.
- Also, I suggest that the city support the carbon fee and dividend for the state, and I am wondering if we can do this at a city level. (could truly promote equity as poor people will get money back applying this program).
- I think we should really push to expand convenient transportation to Bradley Airport. (support Lamont vision to have a train stop there).
- Additionally, locally, we need to include the issue of pesticide and herbicide use in the city. I would like to see a ban on local use (currently we have agreed on a voluntary ban). This is impacting our water resources and is currently going under the radar.

I'd just stress the importance of linking climate issues with economic justice. The place where these come together is jobs: Green Jobs.

The entire city needs better insulation. Many many roofs and parking lots ought to have solar panels. There is also a need for better, more extensive public transportation. All these projects require labor. New Haven residents can be trained, then hired.This is very much a "two birds with one stone" scenario.

Green Jobs.

The question, of course, as always, is where the funding will come from.

Initially, it will be from Yale, I think. We need to get the Alders and the unions on board.

I came across this good news story of how Australian University of Sunshine Coast is making significant progress to be carbon neutral by 2025 with a “water battery” that holds geothermal energy generated by solar that then powers their electricity.
https://www.goodnewsnetwork.org/water-battery-slashes-universitys-electrical-costs/

Perhaps where those oil tanks by the harbor are now could be replaced, and all the brown fields and flat roofs turned to solar fields.

I'm a New Haven resident who is writing to convey my concerns about the present state of recycling in Downtown New Haven, as uncovered by my email chain with city officials. I began by requesting the location of all recycling bins in the downtown area because I noticed a large discrepancy between the number of trash cans and recycling bins and I believed this imbalance was having the effect of discouraging recycling. So my original goal was to help bring awareness to this imbalance and advocate the acquisition of additional recycling bins.

However through my conversations with city officials I have learned that there is a much larger issue - namely that the material being thrown in recycling bins is not actually getting recycled. Given most people assume what they throw in the recycling bins will be recycled, if the material is not actually being recycled, I think pedestrians have a right to know this, and they have a right to know why.

Parks and Rec officials says the material being thrown in the bins doesn't pass the standards of being recyclable, and if this is the case, perhaps we should conduct an informational campaign and/or improve signage to better educate the public about recycling standards. Perhaps the news outlets can help in this effort.

Alternatively, I have read news reports (vox, nytimes) that the cost of municipal recycling has risen since 2017, and if this is the reason why recycling bin material is not getting recycled, then I would suggest you investigate this policy decision further. Personally, if I had the choice to pay higher taxes to ensure material gets recycled, then I would make the decision to do so. But regardless, I believe the people have a right to know what is going on so they can make their own informed decisions.

I was reading this..
https://www.newhavenindependent.org/index.php/archives/entry/comm_choice_agg/

...and it reminded me of a conversation I had with Wallingford stet rep Mary Muchinsky, who is, by the way, the senior Democrat in the legislature.

http://www.housedems.ct.gov/Mushinsky/Biography

Anyway; I asked her why CT doesn't have a residential program that incentivizes green improvements (such as geothermal or solar or some combination thereof) by allowing the costs to be paid over time as an addition to the property tax (so the cost stays with the property and not the owner, and therefore mitigates the worry that one might move away from a property before it amortizes and then lose the value of the investment.) She told me that CT does have such a program for commercial property called C-Pace.

https://slate.com/business/2015/04/c-pace-green-investments-how-financial-instruments-are-helping-more-homeowners-switch-to-renewables.html

She also told me that she had queued up a similar program for residential property but it never made it through the legislature (budget hawks were worried because the state effectively fund the loans.)

I think such a program could create a lot of jobs and save a lot of energy. Means expending political capital at the Legislature but its a worthy thing to poke at if you're making a list of things to poke at.

Policies:

Education: To the extent not already in place, New Haven schools should implement grade-appropriate modules in its science curricula at every grade level. These should present global warming (the scientific basis), climate change (the resulting effects), indirect consequences (ecological, socioeconomic), and what can/should be done to minimize these effects and consequences.

Economy: To the extent not already in place, workforce development programs should include instruction on the skills needed to implement/expand renewable energy in New Haven.

Challenges:

In view of the perceived financial constraints the city is under the Elicker administration should implement ongoing, intensive efforts in endeavors such as the following.

Outreach and communication: To the extent not already in place, set up continuing information campaigns among New Haven residents to acquaint all with the climate emergency we face, and the need to address this starting as soon as possible. There can be talks in all library branches, and in schools and civic and faith organizations. The city should develop web pages on this topic and have a presence on social media. It should also develop close relationships with the local press and radio and TV outlets.

Finance, and interactions with New Haven businesses and nonprofit organizations. To the extent not already in place, New Haven will need to develop public/private partnerships to promote efforts to combat global warming and resulting climate change effects. It will need to seek ways to present this issue as having favorable outcomes to all parties in such partnerships. This need is especially pronounced concerning deep energy efficiency retrofits among homeowners and rental property owners.

Energy and Environment "Buckets"
New Haven's Energy and Environment issues fit into several big buckets:

- Connection with the Natural World
- Pollution
- Energy Equity and Resilience in the face of Climate Change

These buckets all have environmental justice and equity issues embedded within them, are interconnected, and link to other transition team priority areas as well. I will sketch that out a little below, then focus on Energy Equity and Resilience.

Connection with and Access to the Natural World
The association of environmentalism with white privilege stems in part from the fallacious belief that connection with and access to the natural world is nothing more than a leisure activity. We know that is not the case. There are studies showing that spending free time in nature helps children develop cognitively and emotionally and increases the health of humans of all ages through immune system boosting and stress reduction. Furthermore, connection with and access to the natural world helps to counteract the false narrative that pollution and climate devastation are "externalities" that have nothing to do with the "important business" of economic development, education, health, etc. It is foundational.

Connection with and Access to the Natural World shows up, connects with, and sometimes could be bolstered, in the following areas:

- Food Systems Food Access, and Food Security work
- Parks and Parks Friends groups
- Watershed Associations
- Community Greenspace Groups
- Alternative Transportation Infrastructure (ped. and bike trails, bridges)
- Schools

One example of embedded EJ/Equity issues:
When access to parkland is limited facing some communities, but open to others, natural spaces serve as barriers between neighborhoods rather than linkages among the City's residents. Beaver Pond Park is one of many examples.

100 days:

A project that is already "in the works" which touches on multiple priorities could begin and perhaps even be completed within the first 100 days is the bridges project, replacing the pedestrian bridge off of Valley Street (connecting the walking trail through the Narrows section along the West River to the area of HANH's Valley Townhouses on one end and East Ramsdell Street on the other) and placing (or at least starting) a new pedestrian bridge across the West at the area near where the Pond Lily dam was recently removed, connecting the community near HANH's McConaughy Terrace to that same trail system as well as the Walgreen's Plaza and retail area beyond.

Access to Natural Environment, EJ and Community Connectivity, Multimodal transportation, HANH, Watershed, and numerous other priorities are all impacted.

Pollution

Exposure to pollution poses health threats to humans and other species. Multiple types of pollution often occur at the same site. Forms of pollution we have in New Haven include:

- Air
- Soil
- Water
- Light
- Noise

Indoor air quality is an area where housing, health, and pollution intersect. The presence of asbestos, mold, radon, lead dust, and other indoor air hazards are a particular problem in a City with high asthma rates and predatory absentee landlords.

The presence of poisons such as the chemicals found in lawn care products may cause multiple hazards: in air, soil, and water, for example.

An example of a polluting site and its EJ issues: Wheeler Street Transfer Station – Air, Noise, Water, Soil – via truck traffic through neighborhood bringing in putrescible waste from other municipalities -dust, stench, use of tap water for sprinkling system, runoff into storm drain and Q River, expansion of impervious paved area.

Often people in communities affected by polluters feel powerless to have any impact on the sources of the pollution and frustrated that their concerns have no clear way to be raised and heard. Sources, impacts, knowledge of pollution threats and of potential remedies can be disparate from community to community, but none of our neighborhoods are immune.

People in some neighborhoods are more comfortable raising their concerns to the City, and insisting that the City address them. Meanwhile people in other neighborhoods may have never been asked to catalog their concerns. And the City itself often does not have the ability to do much to regulate the activities of polluters, but needs to coordinate with state or other entities to address issues raised.

Helping raise the unheard voices from our communities, amplify them at the neighborhood level, direct the concerns to state and federal regulators, and corporate offenders, and coordinate and advocate for our residents, is largely left to volunteers at present. Additionally, the City has made some environmental policies and organized some resources on behalf of its residents that are not being fully disseminated to the communities, such as the voluntary ban on lawn chemicals and the materials about it produced by the health department.

In the first 100 days, it would be great if an EJ staffer were hired to conduct community conversations, and coordinate communications with existing City Departments, the City's Environmental Advisory Council and neighborhood and grassroots groups. Within two years that person should:

- have developed experience advocating for community residents' pollution concerns with state agencies and other entities;
- have developed a clear sense of the regulatory or legal challenges and recourses available to our communities with regard to their specific concerns;
- have become able to advise residents and City alike on best avenues to pursue for addressing those concerns; and
- have conducted as much of the legwork for specific cases as deemed appropriate. It would be great if that person also could develop the capacity to advise on when legal challenges can be brought by the City against offending polluters on behalf of community residents.

First 100 days:

- Publicly acknowledge the number of residents living in severe energy instability – high rates of utility disconnection, utility arrears and disconnections (my estimate – at least 2,000 households disconnected from electricity annually – I can provide data if need be) – which has serious physical and mental health consequences and is a predictor of housing instability including eviction.
- Publicly acknowledge that energy efficiency measures disproportionately benefit higher income neighborhoods (see this article).
- Identify potential ways to address the above, including: i) asking UI to be more transparent about and improve its low-income programs, i) asking UI to provide annual data about arrears/disconnections, iii) explore what can be done at municipal level to help people afford utilities, iv) research low-income energy efficiency programs that have worked and can be replicated in New Haven.
- Create energy justice taskforce to address the above (see assistance from, among others, Operation Fuel, CAANH, New Haven Hospital Utility Clinic)

First 2 years

- Energy justice task force up and running
- Provide annually updated map showing, by census tract, utility arrears, disconnections and use of energy efficiency programs (Data from UI)
- Low-income utility assistance programs researched and recommendations made for New Haven

First 5 years

- Either UI has more effective programs to assist low income residents, and/or city is providing support to supplement UI programs
- Demonstrate clear reduction in utility disconnections
- Clear improvements in equitable use of energy efficiency programs

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Links:

- Federal GND resolution, itself. One possibility is for the alders + mayor here in NH to pass a similar resolution (which would be "symbolic" but could set priorities for a policy agenda).
- Info on the GND for Public Housing (Act), also introduced in Congress, as a first plank of more GND-style policy proposals to come.

Values & messaging:

- The City's climate policy should be "climate justice" policy, with a focus on *optimistic* policies like *investments in the community*—which a GND is. This is smart policy but also *the necessary kind of politics,* as investments make people want to organize for them, politically.
- GND investments focus on JOBS via improvements to (public, affordable) housing, other kinds of building retrofits, renewable energy generation & installation, and transit reforms, among others.
- Too much climate policy is felt as a punishment, as "cutting back", whereas the GND says NO, climate policy can involve active investment in the right kinds of sectors. (Especially compared to the NH Sustainability Framework, which is comprehensive about emissions sources but not nearly investment/GND-focused enough.)
- Democratic input from communities, particularly Black, Brown, and low-income, is key to crafting the right kinds of & places for investments.
- Working class labor must be valued—particularly in investing in jobs that are *unionized* and *CERTAINLY pay a living wage*.
- These policies require funding, and Yale is where the $ is; Yale must be pressured to put up $ to be *democratically* decided how to invest.

Ban cars citywide, or at least downtown

- permanently close specific streets to thru traffic (eg. Orange St as bus/bike-only boulevard) like the hugely successful 14th Street Busway in New York City and the planned Better Market Street in San Francisco
- allowing cars to only make the first right turn on a street (to allow local access) will be most effective if it is coupled with improved transit service along the corridor, especially on weekends and late nights when service is currently poor.

Protect pedestrians

- No turn on red citywide (must be enforced)
- Implement red light cameras

- Mandate curb extensions during street reconstruction (see bill pending in DC Council)

Buy additional transit service from CT Transit (cf. Seattle)

- People don't ride the bus in New Haven unless they have no other choice because the service is infrequent, slow, has no crosstown routes, and is generally opaque difficult to understand for outsiders
- Send a free GoCT card to every resident or **make transit free for New Haveners** (would cost ~$6 million/year; I can provide a detailed calculation if that would be helpful). Kansas City just became the first American city to do this.
- Promote stop consolidation, bus-only lanes, and increased span and frequency
- Negotiate with Yale to abolish the Yale Shuttle system and transition them to CTT with the popular Connecticut UPass system (already in use at Gateway and Southern)

Slow down cars

- Implement a citywide 20 mph speed limit
- Petition the state to allow speed and red light cameras
- Add a city surcharge for moving violations so the city has a greater incentive to issue tickets for traffic safety violations, and direct revenue towards transit/bike improvements
- Moratorium on new parking infrastructure (Route 34 garage, Union Station garage), abolish parking minimums (this serves economic development as well as developers loathe our city's parking minimums)

Champion bicycling

- Our city is small and mostly flat—it's ideal for bicycles.
- Devote capital funds toward protected bicycle infrastructure in a comprehensive, equitable network. **Commit to building 20+ miles of protected bike lanes by 2024**. Require (as the city of Cambridge has done) all street upgrades/repavings to include protected bicycle infrastructure
- Change the rhetoric on street parking so that residents don't feel entitled to have a parking spot on the street in front of their home if it means that a bike lane could be installed instead. Current zoning requires residential units to have off-street parking so it's not like people will have nowhere to park.
- Emphasize sustainability benefits of bicycling
- Cycling is suitable for all trips—bike share cargo bikes!
- Cycling safety increases when more people do it. More people do it when bikes are given dedicated infrastructure.
- Implement an Idaho Stop law.

Make City Hall an example for sustainable transportation

- Provide transit and bicycling benefits to all city employees.
- Purchase (electric?) cargo bikes for city departments and incentivize biking/taking transit to work functions.
- Electric cars/trucks are cleaner than gas vehicles, but they still cause air pollution, are dangerous, and cause traffic. Avoid "fleet electrification" as a panacea.

The West River Watershed Coalition (I'm attaching our brochure in case you don't know about us.) is interested in improving pedestrian (and bicycle) access in the West Hills Neighborhood. (This initiative connects well with other pedestrian/bicycle/public transportation projects and plans in West Hills/West Rock, poor, underserved neighborhoods that have historically been cut off from the city.)

The project includes two bridges - the replacement of an already existing, but broken, impassable pedestrian bridge that connects Valley St. (and the West Hills Stream Academy school) to a trail in the West River Open Space (Dept. of Parks property) leading to E. Ramsdell St. And the construction of a new pedestrian bridge across the West River from the Amity Walgreen's/Pond Lily Preserve to S. Genesee St., the McConaughy Terrace public housing project, and Valley St. This bridge would allow pedestrians and bikers to access the commercial corridor of Whalley Ave. directly, without having to walk/ride either to Pond Lily Ave. or E. Ramsdell St. We consider these bridges as links to a complete West River Greenway pedestrian/bicycle trail from Bethany to the Long Island Sound.

The City's Engineering Department is familiar with these proposals. They have told us that there are funds to replace the existing bridge, but there could be cost savings if both bridges were done as part of the same project using the same design.

I'm attaching two maps that I hope will help. Thank you for your interest and attention.

WHAT WE DO

The ALL-VOLUNTEER Coalition

CONVENES a network of people and entities working together

LEADS free, public, walking, biking and paddling tours, and guided visits to the water and wastewater treatment plants

ADVOCATES to local, state and federal agencies for improved water quality and public access

SUPPORTS watershed education and outreach

SERVES as a model for community engagement and best management practices

Together We Have

SECURED CT Greenway status -2014

CONTRIBUTED to the West River Watershed Management Plan - 2015

SUPPORTED many members' projects, such as the Pond Lily dam removal and subsequent habitat restoration - 2015 to present

INITIATED planning conversations with CTDOT and municipalities about pedestrian and bike access, and management of highway water run-off - 2015 to present

PARTNERED with the South Central Regional Council of Governments to develop a comprehensive Greenway map - 2016 to present

DEVELOPED Greenway Trail signage - 2018

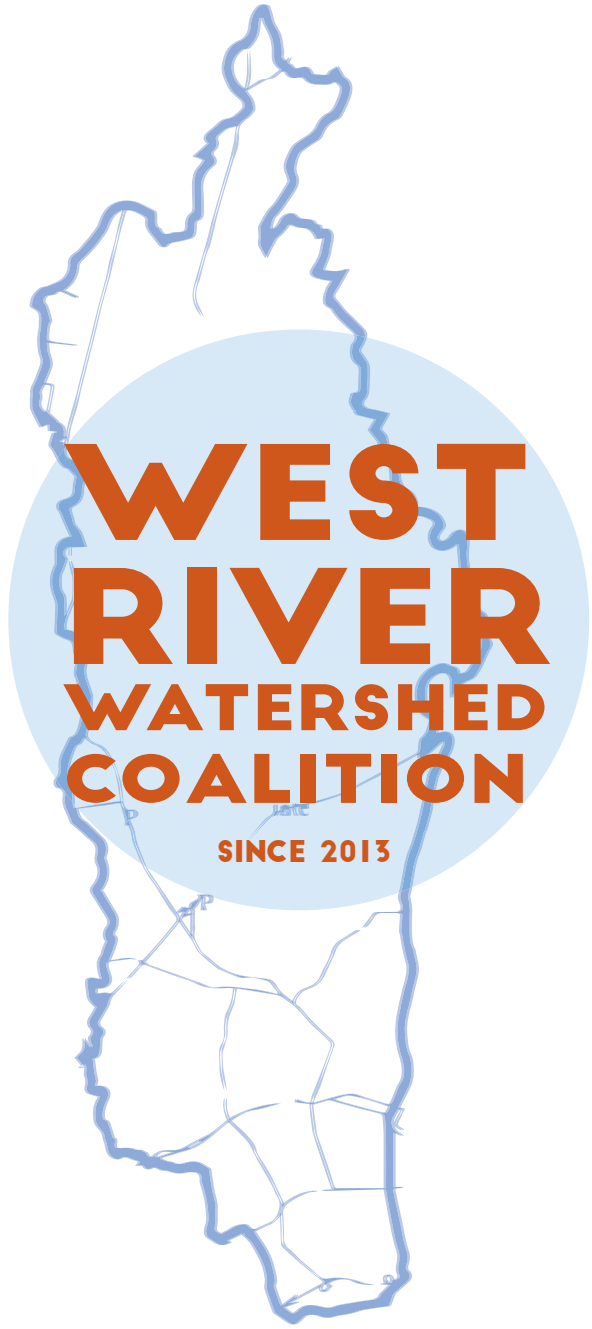
PARTNERS AND PARTICIPANTS

Municipal offices of Bethany, Hamden, New Haven, West Haven and Woodbridge
Audubon CT
Barnard Environmental Studies Magnet School
Common Ground/New Haven Ecology Project
Connecticut Department of Energy and Environmental Protection
Elm City Cycling
Friends of Beaver Ponds Park
Friends of Edgewood Park
Greater New Haven Bioregional Group
Greater New Haven Water Pollution Control Authority
Menunkatuck Audubon Society
Neighborhood Housing Services (NHS) of New Haven
New Haven Bird Club
New Haven Environmental Justice Network
New Haven Land Trust
Regional Water Authority
River Advocates of South Central Connecticut
Save the Sound/CT Fund for the Environment
Solar Youth
South Central Regional Council of Governments
Southern Connecticut State University
Sound School
Urban Resources Initiative (URI)
West Haven Watershed Restoration Committee
West Rock Ridge Park Association
West River Neighborhood Services Corporation
West River Restoration & Flood Mitigation Committee (Woodbridge)
West River Watershed Partnership
Westville Village Renaissance Alliance (WVRA)
Woodbridge Land Trust
and many dedicated individuals

September 2018

MORE INFORMATION

www.westriverwatershed.org
www.facebook.com/groups/westrivercoalition/
westriverwatershedcoalition@gmail.com
(203) 500-7777



WEST RIVER WATERSHED COALITION

SINCE 2013

Bethany, Hamden, New Haven, West Haven & Woodbridge

THE WEST RIVER WATERSHED COALITION

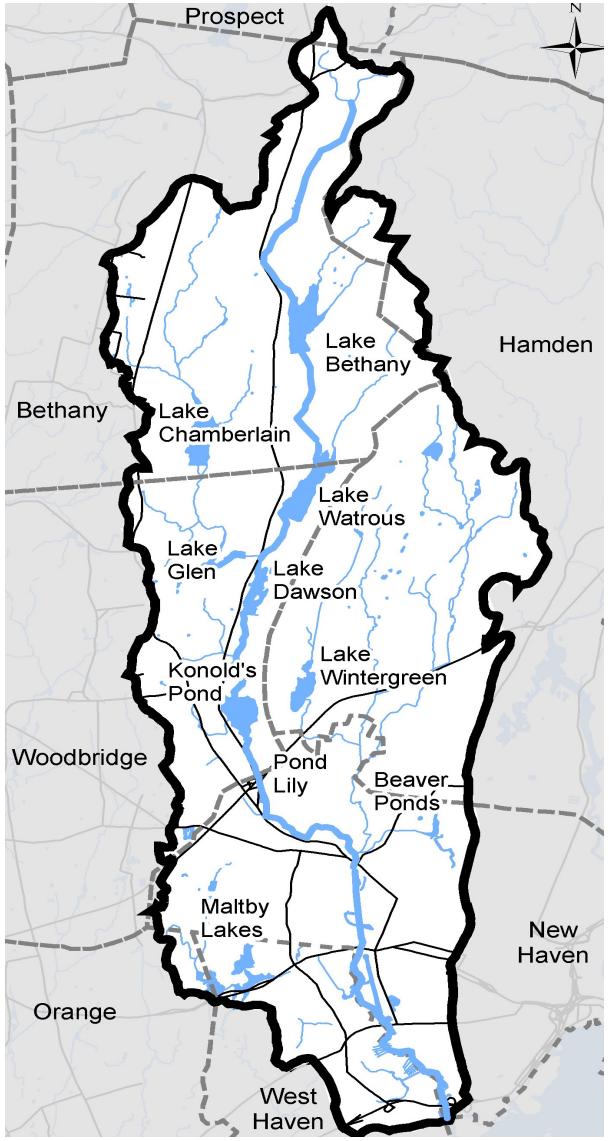
OUR VISION

A restored, safe, accessible and clean West River that connects people and places from source to Sound.

OUR MISSION AND GOALS

Our mission is to connect the West River with the parks, neighborhoods and towns in its watershed, add recreational opportunities, and improve human, ecological and economic health of our region. Our goals are to:

- o Develop safe, convenient access to the river and to the parks along the river.
- o Strengthen and connect neighborhoods and communities along the river.
- o Address pollution and improve water quality and habitats for plants and animals.
- o Create learning opportunities to encourage community stewardship of the river.
- o Create contiguous, multi-use trails along the river and its tributaries.
- o Celebrate the river's history and evolving uses.



COMMITTEES

STEERING: Stephanie Ciarleglio, Frank DeLeo, Kathy Fay, Stephanie FitzGerald, Anna Marshall, Chris Malik, Mary Mushinsky, Marc Sizer, Martha Smith

ACCESS: Philip Arnold, Frank Cochran, Frank DeLeo, Lizzy Donius, Kathie Hebert, Tom Lehtonen, Doreen Abubakar

THE WATERSHED

The West River and its tributaries flow through Prospect, Bethany, Woodbridge, Hamden, Orange, New Haven and West Haven before entering New Haven Harbor and eventually the Long Island Sound. The watershed drains approximately 35 square miles and is roughly 25 miles in length from source to Sound. 75,000 people live within this watershed.

WHO WE ARE

The West River Watershed Coalition is a group of individuals, organizations, and towns working together to improve the West River, its watershed, and its tributaries.

MEETING NOTES:

- We all need to be on the same page on climate change: It's important to "help people understand why climate change is important."
- Addressing asthma
- Transportation issues
- Migratory experiences as it relates to climate change-induced disaster (e.g. Puerto Rican climate migrants that migrated to New Haven following Hurricane Maria).
- Everyone should come to the table on the climate crisis
- Harvesting solar energy/addressing energy insecurity to help with poverty alleviation.
    - "These communities can hold onto more resources."

- Cutting greenhouse gases as a top priority for the City of New Haven.
- Budgetary Concerns: City's energy efficiency measures - where does the money go?
- Could use greenback, and water efficiency to save money
- Staffing Concerns: Need a green energy position
    - Economic Development through energy production → community solar
    - Gave examples as to cities with efficient staffing for environment issues. https://www.fcgov.com/environmentalservices/aboutenvserv
    - Also mentioned Cambridge, Mass
    - We need to get some department heads and other staff to do the work, intersecting departments, need to set measures in each department.
- Energy Audit of City Government: Recommends that every department in City measure greenhouse gases.
- Best Practices (to cut greenhouse gases): Boulder, CO; Cambridge; NYC
- Recommends that any new construction require no gas/no oil → runs entirely on electric
- Also, mentioned Transportation, Traffic, NY- 1.2 billion on bike lanes removed 6,000 parking spaces.
- Emergency Management- Living Shoreline
- Public Announcements: Recommends that the Mayor-Elect have formal announcements publicly confirming a climate emergency and committing to solutions that address climate mitigation/adaptation and introduce climate emergency initiatives.
- Big Polluters: Need to address the impact of big polluters in New Haven (i.e. Yale and other institutions).
- On Taxes:
    - Raise Car Taxes/Fund Green-Initiatives: Recommends that taxes collected from car ownership be used to fund green initiatives (i.e. bike lanes).

    - Best practices: Philadelphia has a sugar tax that funds pre-k. More on this here: Similar to the Sugar tax in Philly, perhaps New Haven can adopt a tax that funds green initiatives while improving health outcomes or narrows other disparities.
- CCA: Run your own utility-centralized energy production in New Haven, we could also buy solar in other cities.
- Climate Education a Necessity: Public education of the current climate crisis is a necessity as well as incorporating climate education into NHPS education.
- Suggested Resources: Check out CT Green Bank (i.e. community solar)

- Most New Haveners are renters.
    - Housing Authority: how does Section 8 housing meet energy standards? Inspections are needed. Once a property becomes available, it must have an energy building threshold.
- West River Watershed Coalition: Rebuild trails as these green spaces pose a divider between Beaver Hills and Newhallville and improvements will increase access to the river and trails by both communities.
- Stormwater Management: Sewage overflows contaminate local water sources.
    - Combined water pipes: managed by WPCA
    - Separated water pipes: managed by the City of New Haven and URI
    - Conclusion: This is important and a potential EJ issue as people fish in contaminated water sites.
    - Recommendation: Need an EJ staffer in City Hall to go beyond just talking to management teams.

Recommendations for Elicker's Transition Team: Energy and Housing (via Infrastructure)

- Landlord Accountability
    - Collaboration between departments
    - Benefits of moving to deep energy retrofits for both landlord and tenant.
    - Best Practices: Sommerville, MA
- Address Absentee Landlords
    - Need code upgrades
    - Health & Safety issues
- Recommendation: Need an Energy staffer in LCI to develop meaningful energy policy. This new position will ensure that landlords follow code, where energy thresholds are embedded into existing housing standards. Through statutes, landlords can be mandated to be compliant, if not they will risk receiving an 'energy violation.'

        - Tenants, especially socioeconomically disadvantaged communities, will benefit from the implementation of energy thresholds in housing code, as their overall energy costs could decrease, lifting some of their total monthly costs.
        - The energy staffer will ensure that inspections take place to enforce codes and mitigate the impact of 'bad landlords/buildings.'
            - This staffer must have an understanding of marketing principles to ensure that there is effective community outreach.
    - Recommendation: Hire an EJ staffer to work with communities identify EJ issues.
        - The EJ staffer must be 'part listener, part agitator' to connect with community and advocate to make bold changes.
    - Recommendation: Need a cohesive and robust website that serves as a communication tool with links to the various task forces, working groups and City programs working on environmental causes in the City of New Haven.

- Take a look at the BGreen 2020 project in Bridgeport that was pitched by then-Mayor Bill Finch. As a "green" Mayor, Bill got a lot done to mitigate climate change in Bridgeport: created the largest hydrogen fuel cell in the state, spearheaded getting the Bridgeport thermal loop in order, and got PSEG to commit to replacing the coal plant with a natural gas plant by 2021.

- In the First 100 Days: Improve The Learning Corridor - Water and electricity needs to be turned on before her growing season which begins in April and runs through October 2020.
- Improve Youth Services: Build infrastructure for youth (i.e. after school programs that provide green education).
- Community Services Administration (CSA): Recommends that representatives from the Community Services Administration (CSA) conduct community outreach activities where the Newhallville community can learn more about the human services offered by CSA.
    - Important as the Newhallville community doesn't get access.
- New Haven Parks/Vacant Lots: There are over 130+ parks and some are not operational. How can the community access the non-operational or vacant lots to activate into vibrant greenspaces?
    - Access to vacant lots would support pollinator pathways/greens spaces in New Haven.
- Environmental Advisory Commission (EAC): similar to recommendations for the CSA, Doreen recommends that the EAC begin participating in community events.

- Community Placemaking Engagement Network (CPEN): The Learning Corridor and CPEN will provide a green marketplace for urban agriculture and will serve as an economic development initiative providing green jobs, agricultural businesses and workforce training.
- Community Emergency Response Team (CERT): This could prepare residents to become emergency responders in times of climate emergency/disaster.

WEBSITES:

https://www.cleanenergyfinanceforum.com/2019/10/01/part-i-searching-for-new-deal-on-climate-look-to-the-states

Urban Heat Island (UHI) effect

Climate Activism in New Haven / Elicker Upholding the Climate Resolution

https://www.citylab.com/equity/2019/11/minority-utility-costs-burden-energy-discimination-research/602452/

https://sustainablect.org/communities-partners-impact/participating-communities/certification-report/?tx_sjcert_certification[certification][__identity]=48&tx_sjcert_certification[action]=show&tx_sjcert_certification[controller]=Certification&cHash=ba152b37e8afa03a50d003158ceaad09.

https://www.ct.gov/deep/lib/deep/climatechange/publications/city_of_new_haven_climate_and_sustainability.pdf

https://www.newhavenct.gov/gov/depts/comm/environmental_advisory_council.htm

Renewable-New Haven: Goals & Action Steps

The IPCC and others have recently issued reports emphasizing the critical need for all nations to achieve net zero emissions of greenhouse gases by about two decades from now. They consider this is essential to keep global average temperatures from rising above dangerous, catastrophic levels. In the U.S., in the absence of climate change policy at the federal level, states and localities must provide the needed leadership.

This program sets forth a set of goals and action steps proposed for New Haven that will help the city attain 100% renewable energy. Essentially, all sectors of the city's energy economy must decarbonize over this time period, a daunting task indeed! This proposal is not exclusive; others may approach this effort with different strategies and steps; there is no one right answer.

I. Renewable Electricity

A.. Develop a relationship with UI/Avangrid as demand for electricity likely grows 2-3-fold over the next 1-2 decades

B. Encourage residents to choose a renewable energy provider for their electricity through United Illuminating: choose your renewable electricity provider here

C. Promote behind-the-meter residential solar power (net metering is Connecticut law through 2021)

D. Promote community (shared) solar collective entities in New Haven

E. New Haven may consider setting up Community Choice Aggregation if authorized by the Legislature, or a municipal utility

II. The Built Environment: Residential, Commercial & Industrial

A. Municipal Buildings - see IV. Energy Efficiency

B. Municipal Buildings: Lead By Example

C. Use Energy Service Companies (ESCOs) for Municipal Efficiency Projects

D. Public School System & Private Schools - see IV. Energy Efficiency

E. Residential Buildings: Owned/Rented - see IV. Energy Efficiency

F. Commercial & Industrial Buildings - see IV. Energy Efficiency

III. Transportation: Cars, Trucks, Buses; Personal Mobility

A. Electric Vehicles for Cars, Trucks and Buses

B. Hydrogen Fuel Cell Cars (HVs are safe and much easier to refuel than EVs)

C. Municipal Vehicle Fleet To Be Electric (EV) or Hydrogen Fuel Cell (HV) Vehicles: Cars and heavy-duty trucks (e.g. waste collection)

1. Department service cars, vans and pickups

2. Coordinate service vehicles across departments to maximize usage and minimize number of vehicles needed.
3. Public safety fleet (?); fire department auxiliary vehicles, ambulances
4. Heavy-duty trucks, winter plowing, waste collection, (fire-fighting vehicles?)
5. HVs for municipal fleets as above
6. Ordinance proposal: City contractors must use electric vehicles
7. Ordinance proposal: Taxi and ridesharing licenses/permits should be restricted to EVs and HVs
8. All electric charging stations in New Haven must use renewable electricity
9. Provide a municipal hydrogen fueling station for municipal HVs

D. Bus Service (Public Transportation) Is Run By A State Agency
1. Encourage increased ridership
2. Optimize route structure and scheduling
3. Transition to EV buses and wired trackless trolleys

E. Promote Transition to EVs and HVs Among Residents and Businesses
1. Outreach - Publicize environmental and product advantages
2. Outreach - Affordability - publicize federal and state credits and rebates
3. Ordinance proposal: free parking for EVs and HVs at municipal meters
4. Curbside EV charging stations
5. Distribute EV charging stations throughout residential neighborhoods, especially LMI, to provide convenient charging to renters
6. Add hydrogen fueling stations, e.g. at current gasoline stations

F. Personal Mobility – Encourage Walking, Cycling, Jitney Services to Reduce Vehicle Miles Traveled
1. Walking: Upgrade sidewalks
2. Cycling: Expand bike lanes throughout the city
3. EV Jitney Service: Develop municipal jitney routes that complement public transportation; convenient routes, fixed schedules
4. Prepare for future trends: electric bicycles, scooters, avoid pedestrians
5. Consider coordinating taxis, Uber and Lyft with municipal mobility policy

IV. Energy Efficiency and Retrofits In The Built Environment

A. State Building Code Should Require Highest Feasible Efficiency Measures

B. Municipal buildings: Lead By Example program for building retrofits.

C. Lead By Example projects should provide useful publicity throughout the city that raises public awareness of energy efficiency in New Haven

1. Energy Service Companies (ESCOs) typically finance a project up front, then rely on monthly savings to pay off the debt, could be about 5-7 years

D. Home Energy Solutions (HES), a subsidized program of United Illuminating for homeowners and renters that identifies specific energy efficiency steps.

E. Property Owners: Deep efficiency retrofits save energy costs

1. Payback for renewable energy retrofits is typically about 5-7 years

2. Eliminate fossil fuel heating by replacing with air-sourced or ground-sourced heat pumps, powered by renewable electricity

3. Add insulation to the building envelope

4. Publicize community solar participation to property owners who can't install rooftop solar panels

E. Rental Property Owners

1. Outreach: publicize value of undertaking deep efficiency retrofits

2. Develop comprehensive list of rental property owners from the city grand list

3. Clarify expenses and/or savings between owner and renters

4. Amend state statute to offer limited time tax incentives for rental retrofits

5. Publicize community solar participation to property owners and tenants

6. Consider single (common) electric meter vs individual submeters for units

V. Finance -- Public-Private Partnerships

A. Encourage Local And State Banks And Institutions To Provide Financing For Projects

B. Local and regional banks

1. CT Green Bank, especially C-PACE

2. CT Green Bank's multi-family group (Kim Stevenson is very knowledgeable

C. Renewable-New Haven: Establish an operating budget to support this program's activities

D. Workforce Development and Job Training

VI.. Outreach and Publicity – Informing New Haven Residents

A. The internet: Set up a website and a presence on social media

B. Presentations in the city: libraries, schools, nonprofits

C. Encourage press and media coverage of our activities and programs; write letters to the editor and op-ed articles

Just Transition: **http://jtalliance.org/ https://climatejusticealliance.org**

- Principles, processes, and practices that build economic and political power to shift from an extractive economy to a regenerative economy.
- Approaching production and consumption cycles holistically and waste-free.
- The transition itself must be just and equitable; redressing past harms and creating new relationships of power for the future through reparations.
- Intersectional cooperation is key
- A healthy economy and a clean environment can and should co-exist. The process for achieving this vision should be a fair one that should not cost workers or community residents their health, environment, jobs, or economic assets. Any losses should be fairly compensated. And the practice of just transition means that the people who are most affected by pollution – the frontline workers and the fenceline communities – should be in the leadership of crafting policy solutions.

Components:

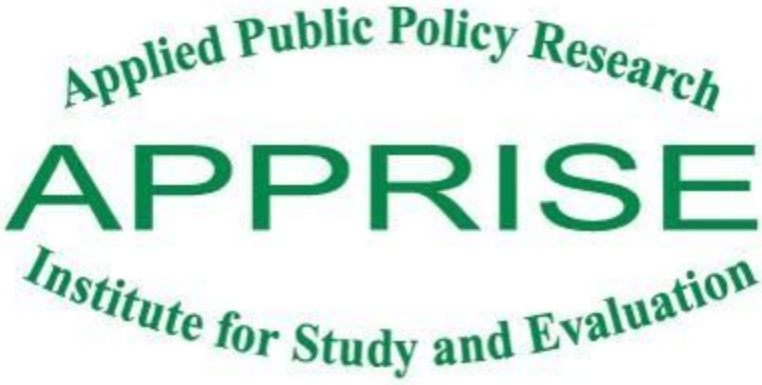
- Energy Democracy: a shift from the corporate, centralized fossil fuel economy to one that is governed by communities, is designed on the principle of no harm to the environment, supports local economies, and contributes to the health and well-being for all peoples
    - What this looks like: carbon pricing
- Food Sovereignty: the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems; localize food systems & value providers
    - What this looks like: community gardens, worker-owned cooperatives, agroecology schools
- Changing Chemicals Policy: many people are exposed to poisonous chemicals at work and in products
    - What this looks like: nontoxic chemicals and manufacturing processes can and should be used
- Reinvest in Our Power: in order to build local, living, regenerative economies, we must divest from the extractive economy and reinvest in community projects that are democratically-controlled and that ecologically meet community needs
    - What this looks like: a democratically-governed cooperative of local, non-extractive revolving loan funds that invest in projects owned/operated by frontline communities to build economic democracy rooted in ecological integrity

Cities like New Haven have implemented the following policies with success:

- Conservation-style development uses creative landscape design to conserve natural resources and protect sensitive environmental features, while at the same time reducing construction and maintenance costs and raising property values. Often cities have zoning and subdivision policies that discourage or prohibit these practices, so you have to eliminate these outdated policies, and replace them with newer performance-based

standards, for which good model codes already exist. Cities can also offer a 'density bonus' that further incentivizes conservation development.

- Green infrastructure practices include the protection and maintenance of open space, wildlife corridors, riparian zones, etc., as well as stormwater management strategies such as bioswales, rain gardens, pervious pavement, etc.
- Offer subsidies, tax rebates, or other incentives to residents and businesses to create a more robust market base for renewable companies & the green building industry (e.g. LEED certification).
- Strategies to help green businesses: mixed use developments, transit-oriented developments, active transportation infrastructure, high quality public open space.
- Investments in pedestrian traffic: convenient bus & train stops, tall plantings, narrower roads, crossing islands, connected bicycle routes, and bicycle parking.
- Increasing native plantings and riparian buffers within cities to help with climate change impacts.
- Subsidies for mass transit, both to assist people who cannot afford their regular use and for great and more frequent service. Lower income people often have long commutes, often in non-energy efficient automobiles because of costs; and these trips, essential to their livelihood, create considerable emissions.
- Waste management innovations to limit waste and process it in an ecofriendly way. New systems can save the cities money in landfill management and lead to exportable technology revenues.
- This website shows the greenest cities in the US and it was published last month: https://wallethub.com/edu/most-least-green-cities/16246/#
- This policy center in Rhode Island (city similar to New Haven) does research/education: https://environmentrhodeislandcenter.org
    - Renewable energy
    - Electric buses
    - Ensuring lead-free drinking water



Meeting the Energy Needs of Low-Income Households in Connecticut
Final Report

Prepared for Operation Fuel, Inc / November 2016

Table of Contents

Executive Summary

The purpose of this report is to furnish Operation Fuel and other interested parties with information that they can use to understand the energy needs of Connecticut's low-income households, assess the effectiveness of existing low-income energy assistance and energy efficiency programs, and consider whether there are options and alternatives that could enhance the effectiveness of those programs.

Study Methodology

The information presented in this report was developed from a number of different sources.

- Energy Needs of Low Income Households – The primary source of information on low-income households in Connecticut was the Census Bureau's American Community Survey (ACS).
- Program Design, Funding, and Participation – Multiple sources of information were used to understand the design, funding, and participation in the publicly-funded and ratepayer-funded programs in Connecticut, including documents available from the Department of Social Services (DSS), the Department of Energy & Environmental Protection, (DEEP), the Energy Efficiency Board, and the Public Utilities Regulatory Authority.
- Programs Implemented in Other Jurisdictions – In this report, Connecticut's programs are compared to and contrasted with programs implemented by other states and/or utilities. This information was developed by APPRISE as part of a comprehensive study of low-income energy assistance and energy efficiency programs across the country.

At the initiation of this study, Operation Fuel convened a meeting with many of the low-income program partners in the state, including DSS, utility companies, and a community-based organization that serves as a local service provider for energy assistance and energy efficiency purposes. These individuals furnished important information on Connecticut's program operations and made valuable suggestions for information sources that could help us to better understand the programs. Operation Fuel circulated this report for comment. This report addresses comments made by those knowledgeable individuals.

Context for the Study

APPRISE is a nonprofit research institute. Our mission is to furnish high quality and unbiased information that policymakers and program managers can use to better understand the needs of the populations that they serve, the efficiency and effectiveness of the programs they implement, and the options and alternatives that might be available to help them enhance program efficiency and/or effectiveness.

In this report we look at five important questions related to Connecticut's low-income programs.

1. *Who are Connecticut's low-income households and what are their energy needs?*
2. *What evidence is there that Connecticut's low-income programs are efficient in terms of the cost to the public and ratepayers, as well as for the low-income program participants?*
3. *What evidence is there that Connecticut's low-income programs are effective in meeting their stated objectives, as well as any other objectives that are in the public interest?*
4. *What evidence is there that the low-income programs give all low-income households an opportunity to participate and target the highest benefits to households with the greatest needs?*

5. *What other options and alternatives are available to Connecticut that might improve their low-income programs in terms of efficiency, effectiveness, or fairness?*

In the report, we do not advocate for a particular approach to Connecticut's programs. Rather, based on the available information and the findings from programs implemented in other jurisdictions, we identify options and alternatives that Connecticut policymakers might consider if they wish to improve their programs' performance with respect to a particular objective.

We do, however, make recommendations related to the information and performance measures that are tracked by program managers. To effectively manage programs against objectives, it is critical for programs to generate ongoing performance management statistics. As American businesses have learned, developing an effective information tracking system is one essential ingredient to ensuring success. We have found that public programs are the same; the programs that are most successful are those that develop good quality and timely information on program performance.

Energy Needs of Low Income Households

Publicly-funded and ratepayer-funded low-income energy programs in Connecticut are available to households with incomes at or below 60% of state median income; for a one-person household the income limit is $33,132 and for a four-person household the income limit is $63,716. Data from the American Community Survey shows that 436,483 of Connecticut's 1,356,206 households are income-eligible for these programs.

The low-income population is diverse; it includes all types of households in all different types of housing units. However, there are certain populations that are particularly at risk for having energy affordability problems, including:

- About 29% (127,970) have income below the HHS poverty guidelines.
- About 25% (110,312) have a single elderly person living alone.
- About 12% (53,457) include a non-elderly disabled individual.
- About 16% (70,603) include a child younger than age 6.

The energy needs of these households are significant. The average energy bill for Connecticut low-income households - based on self-reported ACS data - is over $3,000. Since the average income for Connecticut low-income households is $25,810, the energy burden for the average household is 11.8% of income. However, for some the energy burden is substantially higher.

- It is 13.3% for low-income households who heat with fuel oil.
- It is 30.6% for households with income below the HHS poverty guideline.
- It is 58.2% for households with income of less than $10,000.

Connecticut is not unique in having households that face these energy affordability challenges. However, when compared to national averages, Connecticut energy bills for low-income households are about 60% higher than the national average and the average energy burden is over 30% higher.

Energy Assistance Programs

The Connecticut Energy Assistance Program, also known as CEAP, is funded by a grant from the federal government and administered through the Low Income Home Energy Assistance Program (LIHEAP). In program year 2015, the program used over $47 million to furnish proactive heating assistance grants to 97,752 low-income households with an average grant of about $486. In addition, the program delivered almost $21 million to furnish responsive crisis assistance benefits to households that heat with a delivered fuel. Combining the CEAP program statistics with the information on low-income energy needs demonstrates the following:

- The program delivers regular benefits to about 22% of low-income households (97,752 of 436,483) and covers about 16% of the average energy bill ($486 of $3,034).
- In addition to regular grants, delivered fuel households are eligible to receive Winter Crisis benefits (over 90% of delivered fuel households receiving regular benefits also received Winter Crisis) and Safety Net Benefits (about 49% of delivered fuel CEAP clients). On average, households who receive a Heating Assistance benefit, a Winter Crisis benefit, and one or more Safety Net Assistance benefits, receive an average of about $1,405 in assistance.
- The CEAP program also delivers Renters Benefits to 1,336 households with heat included in rent and delivers "nominal benefits" to 95,299 Supplemental Nutrition Assistance Program (SNAP) recipients who have heat included in rent. The "nominal benefits" can allow SNAP recipients to qualify for higher SNAP benefits that then frees up other funds for paying rent and energy bills.

The CEAP program is effective in reducing energy burdens for low-income households. However, certain population groups still have very high energy burdens even after receiving energy assistance.

- Natural Gas Main Heat – Households with income below the HHS poverty guidelines have average post-CEAP energy burdens of almost 25% of income, and those with income between 100% and 150% have energy burdens of over 11% of income.
- Electric Main Heat - Households with income below the HHS poverty guidelines have average post-CEAP energy burdens of almost 14% of income, and those with income between 100% and 150% have energy burdens of almost 8% of income.
- Fuel Oil Main Heat – Households with income below the HHS poverty guidelines have average post-CEAP energy burdens of 29% of income, and those with income between 100% and 150% have energy burdens of over 12% of income, even accounting for the receipt of Winter Crisis benefits. Even after accounting for Safety Net Assistance benefits, households with income below the HHS poverty guidelines have a net energy burden over 20% of income.[1]

These high post-CEAP energy burdens mean that many low-income households who participate in CEAP still have affordability problems. Households who participate in CEAP, heat with natural gas or electricity, and have overdue electric and/or gas bills can participate in the ratepayer-funded Matching Payment Program (MPP). [Note: Customers of United Illuminating companies are not required to have an arrearage to participate.] In addition, Eversource and United Illuminating offer electric arrearage forgiveness program for their non-heating electric customers (MaPP and New Start). [Note: To participate in this program, customers of United Illuminating are required to have an arrearage.]

[1] http://www.liheapch.acf.hhs.gov/profiles/povertytables/FY2015/ctsmi.htm

- Funding – The ratepayer-funded programs are estimated to have furnished $65,600,241 in benefits in 2014. [Note: There is no one document that clearly states the amount of program funding. We made these estimates from a number of different reports.]

- Benefits – These programs offer benefits to clients who successfully complete a payment plan. In 2014, the MPP programs reported having 68,471 participants and 36,693 successful participants (54%). We did not locate information on the number of successful participants for the New Start and MaPP programs.

- "Below Budget" Bills – These programs also have a special procedure for customers who are concerned that they cannot pay the requested budget bill amount. They work with a social service agency to complete a financial assessment form that determines an affordable payment amount. This program is likely to increase the success rate for customers. However, we were unable to find information on how many customers use this program option or how it relates to success.

These programs offer substantial benefits to low-income households with affordability problems. However, the limited availability of program statistics makes it difficult to assess which low-income households are receiving assistance and which are not able to receive benefits because they are unsuccessful at meeting the requirements of the payment plans.

Energy Efficiency Programs

The Weatherization Assistance Program (WAP) is funded by a grant from the federal government. In 2014, the program used about $2.5 million in funding to furnish weatherization services to 433 households with average spending per home of about $5,690. Results from the National WAP Evaluation suggest that WAP program savings for states in Connecticut's climate zone is about 18.5% of heating fuel usage and about 7% of electric usage. For low-income households in Connecticut, that would represent about $385 per year in long-term energy savings.

The Home Energy Solutions – Income Eligible program (HES-IE) is a ratepayer-funded low-income energy efficiency program that is part of Connecticut's comprehensive Energize CT program. In 2014, the program used about $33.5 million in funding to furnish energy efficiency services to 19,659 low-income customers with an average spending per home of about $1,700. An evaluation of the program showed that natural gas heating savings were 9% of pre-program usage, baseload electrics savings were about 14% of pre-program usage, and electric heating savings were about 14% of pre-program usage. Those percentages would represent about $135 per year in natural gas savings, about $210 in electric baseload savings, and about $280 in electric heating savings.

The HES-IE program serves about 5% of Connecticut's low-income households each year and, if it were targeted to customers who participate in energy assistance programs, it could serve about 20% of those customers each year. However, while the WAP and HES-IE programs are coordinated, there is no direct connection between the energy assistance programs and the energy efficiency programs (i.e. clients apply separately for CEAP and the energy efficiency programs). [Note: The utilities conduct extensive outreach to CEAP households encouraging them to apply for the HES-IE program.] And, there are no reports on the number of low-income households in each population segment that are served by the programs.

Summary of Findings

This study developed statistics on the energy needs of Connecticut's low-income households. It found that most low-income households face challenges with respect to energy affordability - the average low income household has an annual income of $25,810 and an annual energy bill of over $3,000 resulting in an energy burden of almost 12% of income. However, it found that certain groups of households face much larger challenges than others.

Using federal LIHEAP and WAP funds, and ratepayer funds, Connecticut spends about $134 million on low-income energy assistance programs and about $36 million on low-income energy efficiency programs. This represents a significant investment in helping Connecticut's low-income households to meet their energy needs. However, it is important to consider whether those funds are being used in an efficient and effective way, and whether they are targeted to the households with the greatest needs.

What evidence is there that Connecticut's low-income programs are efficient in terms of the cost to the public and ratepayers, as well as for the low-income program participants?

Within each type of program, the Connecticut programs appear to be striking an appropriate balance between administrative efficiency and program integrity. Since federal funds and ratepayer funds are used for these programs, it is appropriate to ensure that households receiving benefits meet the eligibility requirements; that imposes some costs on the programs and some costs on the participating households. However, it appears that all programs use the same income-eligibility criteria and that once a household has completed the required financial statement, they are able to use that certification to participate in all of the available programs.

In some other jurisdictions, state agencies and utilities have a more direct link between energy assistance programs and energy efficiency programs. For example, in New Jersey and Ohio, the energy assistance households with the highest energy usage are targeted for outreach and recruitment into the energy efficiency programs, thereby reducing recruitment costs. However, working in partnership with local CEAP/WAP agencies, the utilities have encouraged at least some coordination between the programs.

What evidence is there that Connecticut's low-income programs are effective in meeting their stated objectives, as well as any other objectives that are in the public interest?

The CEAP program furnishes detailed statistics on which households are served and what benefits they receive. The program serves about 22% of income eligible households with LIHEAP funds, and also ensures that another 22% of low-income households receive higher SNAP benefits to help address energy affordability problems. This program clearly has a proactive impact on energy affordability for low-income households.

Only limited information is available for the MPP, New Start, and MaPP programs. The MPP program statistics show that there is a very high overlap between the CEAP program and the MPP program. Further, the program statistics show that 54% of MPP program participants are successful; that is a relatively high rate that compares favorably with programs implemented in other jurisdictions. However, there is almost no information on which low-income customers are served by the program and which customers are successful on the program.

The other concern about the effectiveness of the ratepayer-funded programs is that they are mostly reactive - most only serve customers after they have arrearages - rather than proactive - working to address affordability problems before the customer builds up arrearages. [Note: Only the United

Illuminating company MPP programs allow clients to enroll with a zero balance.] In most other jurisdictions, such reactive programs were replaced with proactive rate discount programs.

The energy efficiency programs appears to reach a large number of households and to deliver good savings. However, we were unable to locate any information that documents which low-income households receive the program benefits and to determine how the programs affect energy affordability.

What evidence is there that the low-income programs give all low-income households an opportunity to participate and that they target the highest benefits to the households with the greatest needs?

The CEAP program is restricted to households who pay directly for their main heating fuel and to renters with heat included in rent that pay more than 30% of their income for rent. In addition, it helps certain SNAP households to receive higher benefits. However, the benefits to households with heat included in rent are modest and the Renter Assistance program has a very low participation rate. It may be appropriate for Connecticut to consider the actual energy burden of households with heat included in rent and to consider whether the existing program treats all households fairly.

The CEAP program furnishes higher benefits to lower income households as required by the federal LIHEAP statute. However, statistics suggest that, even after receipt of CEAP benefits, the lowest income households still have substantially higher energy burdens than other CEAP recipients. [Note: DSS should have better information on this for the FY 2016 program year for which they will be collecting energy expenditure data for program participants.]

We were unable to locate any information on the distribution of benefits by household group for the ratepayer-funded energy assistance program (MPP, New Start, and MaPP) or for the ratepayer-funded energy efficiency programs. Therefore, we cannot comment on whether those programs are available to all low-income population segments, nor whether they serve the households with the greatest need.

What other options and alternatives are available to Connecticut that might improve their low-income programs in terms of efficiency, effectiveness, and fairness?

Connecticut makes a significant investment in addressing the energy affordability problems faced by their low-income households. About $170 million is spent on low-income energy assistance and energy efficiency programs. That investment is comparable to or higher than the investments made in most other jurisdictions. However, it is impossible to judge whether those funds are spent in a way that is efficient, effective, and fair. There is simply not enough information on which households are served and what kinds of benefits they receive to identify whether any changes are warranted to meet program objectives.

Summary of Recommendations

One important recommendation to policymakers and program managers in Connecticut is that all programs need to have better performance management information.

- The CEAP program has the most effective information system; it tracks the number and types of benefits granted, and the characteristics of the households that receive benefits. In addition, the program is increasing the amount of information available for program management by collecting energy expenditure data for clients in FY 2016.

- The HES-IE program has conducted a program evaluation. That evaluation appears to furnish good quality information on program impacts. However, it did not appear to furnish information on the characteristics of households served by the program, nor did it look at questions of whether there were important population segments that have not been served.

- The ratepayer-funded energy assistance programs furnish very little information on program performance or on program participants. There are some excellent examples of standard reporting procedures from other jurisdictions, most notably Pennsylvania which requires a comprehensive evaluation of all ratepayer-funded low-income programs every five years.

- The low-income information system is fragmented. The CEAP program has the core geographic and demographic information on participating low-income households. The electric and natural gas utilities have information on which CEAP households participate in the ratepayer-funded energy assistance programs, the retail value of the energy they use, the amount each participant has paid on their accounts, and which households have been successful in making the required payments. The HES-IE program implementers have the required information on which low-income households received energy efficiency services. Starting with the core information on CEAP participant households, it is feasible for each party to furnish information to a central repository that could integrate that information and develop the program performance statistics.

- The Connecticut Low Income Energy Advisory Board (LIEAB) includes all of the parties that have one or more of the required sets of information. It is recommended that the LIEAB members work together to find an appropriate strategy for integrating the different data sources and developing an annual report on the population served by the combined set of programs.

The taxpayers and ratepayers in Connecticut would be well-served by the development of a comprehensive information system that furnishes performance management data on how the $170 million in taxpayer and ratepayer dollars are being spent to meet the needs of Connecticut's low-income households. Using the information that could be developed using ***existing data sources,*** Connecticut's policymakers could then consider whether to make other changes in the energy assistance and/or energy efficiency programs that could increase the effectiveness of those programs in meeting the needs of the diverse population of low-income households in the state. Examples of potential enhancements include:

- Targeting the highest LIHEAP benefits to the households with the highest home energy needs as required by the federal LIHEAP statute.

- Allocating as much as 15 percent of LIHEAP funds for weatherization services that can target LIHEAP households with the highest energy usage and that can complement the ratepayer-funded Home Energy Solutions - Income Eligible by addressing health and safety barriers.

- Developing ratepayer-funded energy assistance programs that work more proactively with low-income households that have high energy burdens to resolve their affordability problems before they have bill payment problems.

- Making sure that both publicly-funded and ratepayer-funded energy efficiency programs address the needs of all types of low-income households, including both homeowners and renters, and treating both single family and multifamily homes.

Connecticut's publicly-funded and ratepayer-funded programs deliver substantial benefits to low-income households. But, it is appropriate to consider how those benefits could be increased by looking more carefully at who is served, how they are served, and whether the current program designs maximize the benefits from the public and ratepayer dollars that are spent.

Section 1. Introduction

The purpose of this report is to furnish Operation Fuel and other interested parties with information that they can use to understand the energy needs of Connecticut's low-income households, assess the effectiveness of existing low-income energy assistance and energy efficiency programs, and consider whether there are options and alternatives that could enhance the effectiveness of those programs.

This introduction is followed by four report sections.

- Energy Needs of Low Income Households – Furnishes information on low-income households, including: number of households, demographics, housing unit characteristics, and energy expenditures and burden.
- Energy Assistance Programs – Describes the publicly-funded and ratepayer-funded ***energy assistance*** programs available to low-income households in Connecticut, including: program eligibility guidelines, funding levels, and participation rates.
- Energy Efficiency Programs – Documents the publicly-funded and ratepayer-funded ***energy efficiency*** programs available to low-income households in Connecticut, including: program eligibility guidelines, 2014 funding levels, and participation rates.
- Summary of Findings – Identifies the information that we perceive is most important for Connecticut's program managers and policymakers to consider when examining options and alternatives for program design, implementation, and funding.

The information presented in this report was developed from a number of different sources.

- Energy Needs of Low Income Households – The primary source of information on low-income households in Connecticut was the Census Bureau's American Community Survey (ACS). This national survey is conducted annually and collects detailed information on households and housing units. In 2014, over 23,000 households in Connecticut were interviewed for the ACS. We used a data file published by Census that covers the time period from 2010 to 2014 and has records for over 100,000 Connecticut households.
- Program Design, Funding, and Participation – We obtained Low Income Heating Assistance Program (LIHEAP) data from the Department of Social Services, WAP data from the Weatherization Assistance Program Technical Assistance Center (WAPTAC), and other program data from reports filed with the CT Department of Energy & Environmental Protection (DEEP) and the CT Public Utilities Regulatory Authority (PURA).
- Best Practice Research - APPRISE has developed information on the program designs, funding levels, participation rates, and impacts of energy assistance and energy efficiency programs in twenty other states. That information was compared and contrasted with the information developed for Connecticut.

We reviewed information with Operation Fuel and with other interested parties in Connecticut. However, APPRISE is solely responsible for the content of this report. The views and opinions expressed herein do not necessarily reflect those of Operation Fuel or any other party who furnished information for this study.

Section 2. Energy Needs of Low-Income Households

This section of the report furnishes information on Connecticut's low-income households, including the number of low-income households, the demographic characteristics of those households, the characteristics of the housing units occupied by low-income households, energy expenditures, and energy burden. The primary source of information used to develop these statistics is the Census 5-year ACS public use microdata file (2010-2014) that has information on over 110,000 Connecticut households, about 36,000 of which can be classified as low-income.

2.1 Low-Income Households

The federal statute limits the LIHEAP income eligibility threshold to the greater of 60% of state median income and 150% of the HHS poverty guidelines. Any state can use federal LIHEAP funds to serve households with incomes up to the higher of those limits. Table 2.1 shows that the median income published by HHS in 2016 for Connecticut for a family of four was $106,193 and that the LIHEAP income limit for a household of 4 was $63,716 (60% of state median). Table 2.1 also shows 150% of the HHS poverty guidelines by household size. For some states, 150% of poverty is above 60% of state median income. However, for Connecticut, 60% of state median is higher.

Table 2.1
Income Eligibility Requirements[2]

FY 2016 HHS Guidelines	
Median Income (family of 4)	$106,193
60% of Median Income	$63,716
60% of Median in Connecticut	
1 person	$33,132
2 people	$43,327
3 people	$53,521
4 people	$63,716
5 people	$73,910
6 people	$84,105
150% of HHS Poverty Guidelines *(all states except AK and HI)*	
1 person	$17,655
2 people	$23,895
3 people	$30,135
4 people	$36,375
5 people	$42,615
6 people	$48,855

Source: 2010-2014 ACS Public Use Microdata Sample (PUMS)

Since the federal maximum income standard is 60% of state median income, the definition of low-income household used in this section of the report is households with income at or below 60% of state median income. This also can be referred to as Connecticut's "income-eligible" households. Table 2.2 shows that,

[2] The energy burden findings for households heating with fuel oil reflect the experiences of low-income households during the period from 2010-2014 as reported in the American Community Survey. Recently, fuel oil prices have declined and the energy burdens for low-income households heating with fuel oil also have declined. However, they are still higher than the energy burdens for households that heat with natural gas or electricity.

out of the 1.4 million households in Connecticut, about 436 thousand households (32%) are "low-income" according to this definition.

Table 2.2
Income-Eligible Households

Household Group	# of Households	% of Households
Low-Income	436,483	32%
All Households	1,356,206	100%

Source: 2010-2014 ACS PUMS

However, like many other states, Connecticut policymakers have chosen to set additional limits on LIHEAP program eligibility. For households that pay their energy supplier directly for their main heating fuel, the income limits are 60% of state median income (i.e., the federal maximum income threshold). However, for households with heat included in rent, the income limit is set at 150% of poverty. (See Table 2.1 for the values by household size.) In addition, such households are only eligible for assistance under two conditions. First, a household whose rent is greater than 30% of their income can receive a benefit. Second, if a household's rent is not greater than 30% of income, but the household receives benefits from the Supplemental Nutrition Assistance Program (SNAP) and pays at least part of their electric bills, they are eligible for a LIHEAP benefit that triggers an additional benefit from SNAP.

Table 2.3 shows the complete set of income requirements and other program requirements for LIHEAP eligibility in Connecticut. These guidelines are referred to as program eligibility requirements.

Table 2.3
Program Eligibility Requirements[3]

FY 2016 HHS Guidelines	
Median Income (family of 4) in CT	$106,193
60% of Median Income in CT	$63,716
CT Income Guidelines for Households that Pay Directly for Heat	
1 person	$33,132
2 people	$43,327
3 people	$53,521
4 people	$63,716
5 people	$73,910
6 people*	$84,105
CT Income Guidelines for Households with Heat Included in Rent *[Rent Greater Than 30% of Income]*	
1 person	$17,655
2 people	$23,895
3 people	$30,135
4 people	$36,375
5 people	$42,615
6 people*	$48,855
SNAP Households with Heat Included in Rent *[Rent Less Than 30% of Income / With Shelter or Energy Obligation*	

[3] http://www.ct.gov/dss/lib/dss/pdfs/energy/liheapallocationplan.pdf

Source: 2010-2014 ACS PUMS
* Households with additional people have higher guidelines

Table 2.4 shows what share of the income-eligible households identified in Table 2.2 fall into each program eligible population group. In total the ACS estimates that about 436 thousand households are "income-eligible" for LIHEAP using the 60% of state median income standard. Among those households, Table 2.4 shows that about 85% make direct payments to vendors and are "program-eligible" for LIHEAP, while 15% have heat included in rent and are subject to additional program requirements, including:

- Additional Income Limits – Among 67,154 households with heat included in rent, 37% have incomes above 150% of the HHS poverty guidelines and are not eligible for LIHEAP.
- Rent Requirements – Among 42,096 households with heating included in rent and incomes below 150% of poverty, about 69% are estimated to pay more than 30% of their income for rent and therefore are eligible for LIHEAP benefits.

In total, about 369 thousand of the 436 thousand "income-eligible" are "program-eligible" for LIHEAP. As will be discussed in more detail in Section III of the report, about 98 thousand of those households received LIHEAP benefits in FY 2015.

Table 2.4
Program-Eligible Households

Household Group	# of Households	% of Households
Low-Income Households	436,483	100%
Energy Bill Payment Type		
Direct Payment to Vendor	369,329	85%
Heat in Rent	67,154	15%
Heat in Rent Households		
Income > 150% Poverty	25,058	37%
Income <= 150% Poverty	42,096	63%
Heat in Rent < 150% Poverty		
Rent > 30% of Income	27,441	69%
Rent < 30% of Income	12,135	31%

Source: 2010-2014 ACS PUMS

The remainder of this section of the report will focus on the population of "income-eligible"' households. Tables for important subgroups identified in Table 2.4 are furnished in the Appendices to the report.

2.2 Demographic Characteristics of Low-Income Households

In order to better understand the population of low-income households, it is important to look at some of the demographic characteristics of these households.

Tables 2.5 and 2.6 furnish two different ways of looking at the incomes of these households. Table 2.5 shows the number of households by their poverty group and Table 2.6 shows the number of households by income group.

The federal government sets a poverty guideline that takes into account income and family size; a one-person household with income of $11,770 is considered to be at the poverty line, as is a four-person household with income of $24,250. Table 2.5 shows that about 29% of Connecticut's low-income households have income below the poverty line (average income = $8,913). 27% have income at or above 200% of the poverty line (average income = $39,076).

Table 2.5
Low-Income Households by Poverty Group

Poverty Group	# of Households	% of Households	Average Income
Less than 100% FPL	127,970	29%	$8,913
100-150% FPL	91,322	21%	$20,944
150%-200% FPL	98,096	22%	$30,006
>200% FPL	119,095	27%	$39,076
Total	436,483	100%	$24,134

Table 2.6 shows how households are distributed by income group. About 18% of Connecticut's low-income households have income of less than $10,000. About 15% have income of more than $40,000 per year. The definition of "low-income" household includes some households with incomes above $80,000. However, most Connecticut households defined as being "low-income" have incomes below $40,000.

Table 2.6
Low-Income Households by Income Group

Income Group	# of Households	% of Households	Average Income
Less than $10,000	77,789	18%	$4,752
$10,000 to less than $20,000	109,403	25%	$15,106
$20,000 to less than $30,000	108,348	25%	$24,791
$30,000 to less than $40,000	74,292	17%	$34,274
$40,000 or more	66,651	15%	$50,949
Total	436,483	100%	$24,134

Table 2.7 furnishes information on the types of households in the low-income population. It shows that about one-third (34%) of low-income households have children, a little over one-third (38%) have a senior head of households, and that a little less than one-third have only non-elderly adults (28%). Of those households with children, about 40% have two parents in the home while the other 60% only have one parent in the home interview for the ACS. Among elderly households, about two-thirds are elderly individuals, while the other one-third have an elderly head of household and more than one person in the home.

Table 2.7
Low-Income Households by Type of Household

Type of Household	# of Households	% of Households	Average Household Size
Elderly Head of Household	165,460	38%	1.4
Elderly Individual	110,312	25%	1.0
Elderly Household	55,148	13%	2.2
Households with Children	147,269	34%	3.8
Two Parent Household	57,735	13%	4.5
Other Circumstances	89,534	21%	3.5

Other Households	123,754	28%	1.6
Total	436,483	100%	2.3

One reason that it is important to understand the type of households in the low-income population is that it furnishes a better understanding of the longer term services that income-eligible households might need. For example, most elderly households have fixed incomes; that means that they are likely to need the same services year after year. That would be particularly true for one-person elderly households. However, the households with children are likely to see their needs change over time as the number of children changes or as children get older and start attending school. Those changes can result in changes in economic circumstances and may affect the need for energy assistance.

Table 2.8 shows the percent of households with a vulnerable household members as defined by the LIHEAP program; 42% of households have an elderly individual; 16% have a young child; and, 36% have a disabled individual. About 70% of households have at least one vulnerable household member.

Table 2.8
Low-Income Households by Vulnerable Household Member

Vulnerable Households	# of Households	% of Households
Elderly Member (60+)	182,127	42%
Young Child (< 6)	70,603	16%
Disabled Individual	155,791	36%
Any Vulnerable Member*	306,187	70%
Total	436,483	100%

*At least one member who is elderly, disabled, or a young child.

Table 2.9 furnishes information on the language spoken at home by low-income households. It shows that about two-thirds (67%) of low-income households speak English at home and that one-third speak a different language. The most common other language is Spanish spoken by 21% of the population. However, 12% of households speak another language, including Asian or Pacific Islander, Other Indo-European, and other.

Table 2.9
Low-Income Households by Language Spoken at Home

Language	# of Households	% of Households
English	292,582	67%
Spanish	89,825	21%
Asian and Pacific Islander	8,191	2%
Other	45,885	10%
Total	436,483	100%

Language can be a barrier to participation in public programs. While most program literature is now available in English and Spanish, it is less common for materials to be available in other languages that might be spoken by a significant share of the population.

2.3 Housing Characteristics of Low-Income Households

Housing characteristics of low-income households also affect the way that households can be served. For example, working with a household who owns their own home makes it easier to work with the household on improving the energy efficiency of the home. Households in multi-family buildings have less control

over their energy use than households in single family homes because they are affected by the energy practices of their neighbors.

Table 2.10 shows how Connecticut low-income households are distributed in terms of building type. Table 2.11 shows how they are distributed in terms of tenure (i.e., own vs. rent). Table 2.12 shows how those two factors are related.

Table 2.10 shows that the most common types of housing units are single family detached homes (37%), apartments in small multifamily buildings (27%), and apartments in large multifamily buildings (29%). About one-third of low-income households live in each of these housing unit types.

Table 2.10
Low-Income Households by Building Type

Building Type	# of Households	% of Households
Single Family Detached	161,231	37%
Single Family Attached	25,438	6%
Small Multifamily (2-4 units)	119,488	27%
Large Multifamily (5+ units)	125,108	29%
Other	5,218	1%
Total	436,483	100%

Table 2.11 shows that the majority of low-income households (60%) live in rental housing. However, a substantial share (40%) own their homes.

Table 2.11
Low-Income Households by Tenure

Tenure	# of Households	% of Households
Own	176,507	40%
Rent	259,976	60%
Total	436,483	100%

Table 2.12 shows that the tenure of households is very different by building type. Most low-income households who live in single family homes are owners, while most low-income households who live in multifamily buildings are renters. [Note: For purposes of this and following tables, we have combined the categories of single family detached, single family attached, and other.]

Table 2.12
Low-Income Households by Building Type and Tenure

Building Type	Own		Rent		Total	
	N	%	N	%	N	%
Single Family	147,601	77%	44,286	23%	191,887	100%
Small Multifamily	16,560	14%	102,928	86%	119,488	100%
Large Multifamily	12,346	10%	112,762	90%	125,108	100%
Total	176,507	40%	259,976	60%	436,483	100%

Tables 2.13 through 2.16 show how the households in each housing unit type are different. Table 2.13 shows the average household size for each group. Table 2.14 shows the average income for each group. Table 2.15 shows the average percent of poverty for each group. Table 2.16 shows the percent of households that are elderly and the percent of households with children in each group.

Table 2.13 shows that households in large multifamily buildings have fewer members than households that live in other types of housing. And, it shows that renters have larger household sizes than owners.

Table 2.13
Average Household Size by Building Type and Tenure

Building Type	Own	Rent	Total
Single Family	2.2	2.8	2.4
Small Multifamily	2.2	2.8	2.6
Large Multifamily	1.6	1.8	1.8

Table 2.14 shows that owners are generally higher income than renters, and households in large multifamily buildings have lower incomes than households in other types of housing. When put together with the information from 2.13, it appears that renters in large multifamily buildings are likely to have the greatest need with respect to assistance programs; they have larger household sizes and lower incomes.

Table 2.14
Average Income by Building Type and Tenure

Building Type	Own	Rent	Total
Single Family	$28,595	$26,242	$28,052
Small Multifamily	$28,640	$23,427	$24,150
Large Multifamily	$22,293	$18,682	$19,038

Table 2.15 shows the combined effect of household size and income. The average renter has income below 150% of poverty, while the average homeowner has income above 150% of poverty. The lower poverty groups are likely to have greater needs for energy assistance.

Table 2.15
Average Percent of Poverty by Building Type and Tenure

Building Type	Own	Rent	Total
Single Family	168%	138%	161%
Small Multifamily	170%	129%	134%
Large Multifamily	158%	125%	129%

Table 2.16 shows how two important vulnerable population groups are distributed. In Table 2.8 we saw that about 42% of households had an elderly household member. However, about 60% of single family homeowners have an elderly household member, while only 25% of renters do. We also see that 39% of renters in large multifamily buildings have an elderly household member; that is likely to be related to the number of affordable housing projects for senior citizens.

Table 2.16
Percent with Elderly and Percent with Children by Building Type and Tenure

Building Type	Own		Rent		Total	
	% Elderly	% Children	% Elderly	% Children	% Elderly	% Children
Single Family	60%	10%	25%	25%	52%	13%
Small Multifamily	55%	12%	21%	26%	26%	24%
Large Multifamily	58%	6%	39%	14%	41%	13%

2.4 Energy Needs of Low-Income Households

The ACS has information that helps to develop a better understanding of the energy needs of low-income households. It includes information on the household's main heating fuel type, their electricity bills, and their main heating fuel bills. Part of the information that it collects with respect to the household's energy bill is whether the household pays their bill directly to the energy supplier, or if their energy costs are included in the household's rent or condominium fee. These data, in combination with the household income data, allow us to characterize households in terms of annual energy cost and burden.

Table 2.17 shows how Connecticut low-income households are distributed in terms of main heating fuel. Table 2.18 shows how they are distributed in terms of bill payment for their main heating fuel (i.e., direct vs. in rent or fee). Table 2.19 shows how those two factors are related.

Table 2.17 shows that the most common main heating fuels are natural gas (38%), fuel oil (34%), and electricity (23%). Other fuels include propane, wood, coal, and kerosene.

Table 2.17
Low-Income Households by Main Heating Fuel

Main Heating Fuel	# of Households	% of Households
Natural Gas	167,567	38%
Electricity	99,354	23%
Fuel Oil	147,353	34%
Other Fuels	22,209	5%
Total	436,483	100%

Table 2.18 shows that the majority of low-income households (85%) pay directly for their main heating fuel. However, a substantial share (15%) have their heating fuel included in their rent or fee.

Table 2.18
Low-Income Households by Payment of Main Heating Fuel Bill

Tenure	# of Households	% of Households
Direct to Vendor	369,329	85%
Included in Rent or Fee	67,154	15%
Total	436,483	100%

Table 2.19 shows that the share of households that have heat included in rent does not vary much by main heating fuel type. About 20% of households with electric main heating fuel have their heat included in rent, somewhat higher than the average of 15% for all low-income households.

Table 2.19
Payment of Main Heating Fuel by Main Heating Fuel

Main Heating Fuel	Pay Directly		Included in Rent or Fee		Total	
	N	%	N	%	N	%
Natural Gas	142,312	85%	25,255	15%	167,567	100%
Electricity	79,508	80%	19,846	20%	99,354	100%
Fuel Oil	127,440	86%	19,913	14%	147,353	100%
Other	20,069	90%	2,140	10%	22,209	100%
Total	369,329	85%	67,154	15%	436,483	100%

Tables 2.20 and 2.21 shows how housing unit characteristics related to energy characteristics for low-income households. Table 2.20 shows how bill payment type varies by housing unit type. Table 2.21 shows how main heating fuel varies by housing unit type.

Table 2.20 shows that housing type has a significant impact on the payment of a household's main heating fuel. Households in large multifamily buildings have the highest rate of having their heat included in rent; 37% have heat included in rent compared to only 3% for single family homes. However, even for those households, the majority of households pay directly for their main heating fuel.

Table 2.20
Payment of Main Heating Fuel by Building Type

Building Type	Pay Directly		Included in Rent or Fee		Total	
	N	%	N	%	N	%
Single Family	186,809	97%	5,078	3%	191,887	100%
Small Multifamily	103,135	86%	16,353	14%	119,488	100%
Large Multifamily	79,385	63%	45,723	37%	125,108	100%
Total	369,329	85%	67,154	15%	436,483	100%

Table 2.21 shows the distribution of main heating fuel by building type. More than 60% of low-income households in single family homes use delivered fuels as their main heat, while only 16% of households in large multifamily buildings use delivered fuels. In contrast, only 9% of single family homes have electric main heating fuel while 46% of large multifamily buildings have electric main heat. Electric heat is common in large multifamily buildings because electric heat does not require ducting; both fuel oil and natural gas need ducting of some type to exhaust the combustion gases. Elimination of those ducts can reduce the cost of constructing large multifamily buildings.

Table 2.21
Main Heating Fuel by Building Type

Building Type	Natural Gas		Electricity		Delivered Fuels	
	N	%	N	%	N	%
Single Family	55,581	29%	17,971	9%	118,102	62%
Small Multifamily	66,010	55%	24,096	20%	29,119	24%
Large Multifamily	45,976	37%	57,287	46%	20,325	16%
Total	167,567	39%	99,354	22%	167,546	39%

2.4.1 Energy Burden for Households with Direct Payment for Main Heat

The American Community Survey collects data on the household's main heating fuel and electric bills. For those households that pay a main heating fuel bill directly to the energy supplier, Table 2.22 shows an estimate of the average main heating fuel bill and electric bill by main heating fuel type. [Note: Based on data from the national Residential Energy Consumption Survey, we allocate one-third of electricity expenditures to heating and two-thirds to other uses for electric heat households.] The average energy expenditures for low-income households in Connecticut who pay directly for their heating fuel is just over $3,000. Households that heat with fuel oil report the highest average expenditures – $3,719 – while households that heat with electricity report the lowest average expenditures – $1,919.

Table 2.22
Energy Expenditures by Main Heating Fuel [Direct Payment Only]

Main Heating Fuel	Heating Expenditures	Other Electric Expenditures	Total Energy Expenditures
Natural Gas	$1,513	$1,578	$3,091
Electricity	$639	$1,279	$1,919
Fuel Oil[4]	$2,003	$1,716	$3,719
Other Delivered Fuels	$1,778	$1,777	$3,555
Total	$1,473	$1,560	$3,033

Table 2.23 shows how energy expenditure levels translate into energy burden (i.e., the share of income spent on energy). Households with electric main heat have the lowest reported energy burden – 8.8% of income – while households with fuel oil main heat have the highest reported energy burden – 13.3%.

Table 2.23
Energy Burden by Main Heating Fuel [Direct Payment Only]

Main Heating Fuel	Total Energy Expenditures	Average Income	Average Energy Burden
Natural Gas	$3,091	$26,144	11.8%
Electricity	$1,919	$21,876	8.8%
Fuel Oil	$3,719	$28,019	13.3%
Other	$3,555	$27,977	12.7%
Total	$3,034	$25,810	11.8%

Table 2.24 shows how energy expenditures and burden vary by poverty group. Households with income at or above 200% of poverty have the highest energy bills, they also have the highest average income and the lowest energy burden – an average of 8.2%. Households with income less than the poverty line have energy bills that are about 10% lower than households with incomes at or above 200% of the poverty line. However, because their income is lower, their average energy burden is over 30%.

Table 2.24
Energy Burden by Poverty Group [Direct Payment Only]

Poverty Group	Average Energy Expenditures	Average Income	Average Energy Burden
Less Than 100%	$2,842	$9,275	30.6%
100% to < 150%	$2,970	$21,849	13.6%
150% to < 200%	$3,058	$30,509	10.0%
200% or More	$3,231	$36,602	8.2%
All Households	$3,034	$25,810	11.8%

Table 2.25 shows that low-income households with incomes of less than $10,000 per year have average energy burdens of 58.2% of income. In comparison, low-income households with incomes of $40,000 or more have average energy burden of 7.5% of income.

[4]The energy burden findings for households heating with fuel oil reflect the experiences of low-income households during the period from 2010-2104 as reported in the American Community Survey. Recently, fuel oil prices have declined and the energy burdens for low-income households heating with fuel oil also have declined. However, they are still higher than the energy burdens for households that heat with natural gas or electricity.

Table 2.25
Energy Burden by Income Group [Direct Payment Only]

Income Group	Total Energy Expenditures	Average Income	Average Energy Burden
Less than $10,000	$2,667	$4,582	58.2%
$10,000 to < $20,000	$2,718	$15,287	17.8%
$20,000 to < $30,000	$2,914	$24,811	11.7%
$30,000 to < $40,000	$3,176	$34,382	9.2%
$40,000 or More	$3,802	$51,007	7.5%
All Households	$3,034	$25,810	11.8%

These statistics are useful in understanding the impacts of the publicly-funded LIHEAP program – which targets reduction of heating burdens – and the ratepayer-funded Matching Payment Programs (MPPs) which help low-income households to address arrearages for their gas and electric heating bills. They also are useful in understanding the participation of direct payment households in the New Start programs which help low-income households with their electric bills when electricity is not their main heating fuel.

2.4.2 Energy Burden for Households with Direct Payment for Electricity

Table 2.4 shows that about 15% of low-income households have their heat included in their rent. However, many of those households have direct payment for their electricity bills. Table 2.26 shows the number and percentage of low-income households with direct payment for heat, direct payment for non-heating electric only, and those with all energy bills included in rent. Of the total of households with heat in rent, about one-half pay for electricity and the other one-half have all energy payments included in rent.

Table 2.26
Energy Payment Type

Payment Group	Number of Households	Percent of Households
Direct Payment for Main Heat	369,329	85%
Direct Payment for Non-Heating Electric Only	30,938	7%
All Energy Payments in Rent	36,216	8%
All Low-Income Households	436,483	100%

Table 2.27 shows how these energy payment patterns vary by Poverty Group. It shows that households with income less than poverty have the lowest direct bill payment rate; about 80% pay directly for their main heating fuel. Households with income of 200% of poverty or more have the highest direct bill payment rate; almost 90% pay directly for their main heating fuel. About 12% of the lowest income households have all of their energy bills included in rent while only 5% of households in the highest income group have all of their energy bills included in rent.

Table 2.27
Energy Payment by Poverty Group

Poverty Group	Pay Directly for Main Heat		Pay Directly for Electric Only		All Energy Included in Rent		Total	
	N	%	N	%	N	%	N	%
Less than 100%	102,313	80%	10,341	8%	15,316	12%	125,503	100%
100% to < 150%	74,883	82%	7,348	8%	9,091	10%	90,708	100%
150% to < 200%	85,634	87%	6,128	6%	6,334	6%	98,096	100%
200% or More	106,499	89%	7,121	6%	5,475	5%	119,095	100%
Total	369,392	85%	30,938	7%	36,216	8%	436,483	100%

Tables 2.28 and 2.29 shows the electric energy burden for households who pay directly for non-heating electricity use only. Table 2.28 shows the burden by poverty group and Table 2.29 shows the burden by income group. It shows that, even for households with heat included in rent, energy bills are significant. Households with income below 100% of the poverty line pay over 13% of their income for their electric use. The average energy burden for all low-income households with heat included in rent is 5.2% of income. Similarly, Table 2.29 shows that the average electric energy burden for households with income of less than $10,000 per year is 21.8% of income.

Table 2.28
Energy Burden by Poverty Group [Direct Payment of Non-Heating Electric Only]

Poverty Group	Percent of Households in Group	Total Energy Expenditures	Average Income	Average Energy Burden
Less Than 100%	33%	$1,137	$8,405	13.5%
100% to < 150%	24%	$1,023	$18,185	5.3%
150% to < 200%	20%	$1,139	$27,574	4.1%
200% or More	23%	$1,102	$37,130	3.0%
All Households	100%	$1,102	$21,379	5.2%

Table 2.29
Energy Burden by Income Group [Direct Payment of Non-Heating Electric Only]

Income Group	Percent of Households in Group	Total Energy Expenditures	Average Income	Average Energy Burden
Less than $10,000	21%	$1,061	$4,865	21.8%
$10,000 to < $20,000	30%	$1,015	$14,714	6.9%
$20,000 to < $30,000	23%	$982	$24,439	3.4%
$30,000 to < $40,000	16%	$1,135	$33,626	3.4%
$40,000 or More	9%	$1,706	$48,865	3.4%
All Households	100%	$1,102	$21,379	5.2%

Section 3. Low-Income Energy Assistance Programs

This section of the report furnishes information on the publicly-funded and ratepayer-funded energy assistance programs that are available to Connecticut's low-income households. Connecticut receives a substantial amount of funding from the federal LIHEAP program. Connecticut ratepayers also make a significant contribution to energy affordability for low-income households. In the past, there was funding for energy assistance from state taxpayers; however, that program has been discontinued.

3.1 Publicly-Funded LIHEAP Energy Assistance

Connecticut's Department of Social Services (DSS) manages the state's LIHEAP funds through the Connecticut Energy Assistance Program (CEAP) and the Connecticut Heating Assistance Program (CHAP). Connecticut's Community Action Agencies (CAA) are responsible for intake and for assisting with program administration.

In FY 2015, Connecticut had $87.8 million available for LIHEAP assistance. The sources of these funds are listed in Table 3.1. The primary source of funding was the LIHEAP Block Grant of $85.8 million. Connecticut received an additional $90 thousand in block grant funds that were returned to the federal government by other grantees and the program carried over about $2.0 million from the prior fiscal year.

Table 3.1
Sources of LIHEAP FY2015 Funds

Source of Funds	Dollars	Percent
FY2015 Block Grant	$85,764,007	98%
FY2014 Reallotment	$90,300	<1%
Carry Over from FY2014	$1,977,926	2%
Total	$87,832,233	100%

Table 3.2 shows how the available funds were used for each type of assistance and the number of households served by each type of assistance.

- Heating Assistance - About one-half of the funds were used for Heating Assistance and distributed benefits to over 99,000 households.
- Crisis Assistance - About one-fourth of the funds were used for Crisis Assistance. About 32,000 of the households who received Heating Assistance also received a Winter Crisis grant. About 17,000 households who received a Heating Assistance grant and a Winter Crisis grant also received one or more Safety Net Assistance grants.
- Nominal Benefits - Over 95,000 SNAP households with heat included in rent who pay less than 30% of their income for rent received small grants called "nominal payments." Those payments help SNAP households to verify that they have an energy payment obligation. Those households receive additional benefits from the SNAP program because they receive the LIHEAP "nominal payment."
- Other Purposes - About one-fourth of the LIHEAP funds were used for other purposes.
    - Carryover - About 10 percent was carried over to FY 2016 to make sure that the program could start on time in the next fiscal year.

- Program Administration - About 9 percent was used for Program Administration.
- Assurance 16 - About 1 percent was used for Assurance 16 case management services delivered to clients by the service delivery agency.

Connecticut is allowed to carry over up to 10% of funds, to spend up to 10% of funds on Program Administration, and to spend up to 5% of funds on Assurance 16 activities. Connecticut also is allowed by the LIHEAP statute to spend funds for Cooling Assistance, to transfer up to 15% of funds to the Weatherization Assistance Program (WAP), and to spend up to 0.08% of their funds on leveraging activities. Connecticut does not currently spend funds on any of those activities. For FY 2016, Connecticut added an equipment repair and replacement program for households with inoperable or unsafe heating equipment.

Table 3.2
Uses of LIHEAP FY2015 Funds

Uses of Funds	Dollars	Percent	Households	Percent
Heating Assistance	$47,493,534	54%	99,088	100%
Cooling Assistance	$0	0%	0	0%
Any Crisis Assistance	$20,558,988	24%	31,888	32%
Winter Crisis	$10,330,867	12%	31,888	32%
Safety Net Assistance	$10,228,121	12%	16,960	17%
Transfer to Weatherization	$0	0%	0	0%
Nominal Payments to SNAP Households	$1,998,119	2%	(95,229)*	N/A
Carryover to FY 2016	$8,471,338	10%	**	**
Development of Leveraging Resources	$0	0%	**	**
Assurance 16 Activities	$985,380	1%	**	**
Administrative and Planning Costs	$8,324,874	9%	**	**
Other	$0	0%	**	**
Total	$87,832,233	100%	99,088	100%

* Nominal Payment SNAP households not included in total recipients

In total, about 194,000 of the 436,000 low-income households in Connecticut receive some type of LIHEAP assistance (44%). The type of benefits and total amount received by low-income households varies considerably by income, vulnerability, and bill payment type[5].

For FY 2016, all households that pay their utilities direct-to-vendor are eligible to apply for LIHEAP if their income is at or below 60% of State Median Income (SMI). As required by the LIHEAP statute, vulnerable households (i.e., households with an individual 60 or older, with a disabled individual, or a child under age 6) are eligible for higher benefit. The heating assistance benefits matrix for those who pay their utilities direct-to-vendor is documented in Table 3.3. In FY 2015, 97,752 households received this assistance.

[5] Conn. Gen. Stat. §16-262c(b)(2) https://www.cga.ct.gov/current/pub/chap_283.htm

Table 3.3
FY2016 LIHEAP Heating Assistance Benefit Matrix
for Households that Pay Utilities Directly

Program Name	Income	Benefits for Vulnerable Households	Benefits for Non-Vulnerable Households
CEAP	Up to 100% FPL	$585	$535
	101% - 125% FPL	$500	$450
	126% - 150% FPL	$425	$375
	151% - 200% FPL	$350	$300
CEAP	201% - 60% SMI*	$290	$240

Households that pay their heat as part of their rent and have a housing burden of more than 30% are also eligible for CEAP if their income is at or below 150% FPG. The heating assistance benefits matrix for those who pay their utilities through their rent documented in Table 3.4. In FY 2015, 1,336 households received this assistance.

Table 3.4
FY2016 LIHEAP Heating Assistance Benefit Matrix
for Households with Energy Bills Included in Rent

Program Name	Income	Rental Assistance Benefits
CEAP	Up to 100% FPL	$120
	101% - 125% FPL	$110
	126% - 150% FPL	$100

Winter Crisis assistance is available to delivered fuel low-income households who have exhausted their benefits under the heating assistance program. CEAP participants are eligible to receive up to $550 in crisis assistance, while CHAP participants are eligible to receive up to $250 in crisis assistance. In FY 2015, 31,888 delivered fuel households received Winter Crisis benefits.

Delivered fuel households with incomes at or below 200% of the poverty line (CEAP participants) that exhaust both their heating assistance funds and their crisis assistance funds may be eligible for safety net assistance if they are in a life-threatening situation. Vulnerable households can receive a safety net assistance of $415 up to three times a year, and non-vulnerable households can receive that amount up to twice a year. CHAP participants many not receive safety net assistance.

Table 3.5 displays the total amount of funds allocated to Bill Payment assistance (Heating Assistance, Winter Crisis, and Safety Net Assistance) and the total number of households served by those programs in FY 2015 (excluding nominal payment households). It shows that Connecticut LIHEAP participants received an average benefit of $687.

Table 3.5
Total Bill Assistance Funds & Total Households Served in FY2015

Statistic	FY2015 Totals
Funding for Bill Assistance	$68,052,522
Households Served	99,088
Average Benefit	$687

Table 3.6 displays the FY2015 funds, households served, and average benefit for each type of benefit. While the numbers are not strictly additive (e.g., the average Heating Assistance benefit for households that received Winter Crisis Assistance could be either higher than or lower than the average heating assistance benefit), it is useful to consider the approximate size of the benefit for each type of household.

- Households that received only Heating Assistance received a benefit of about $479.
- Households that received Heating Assistance and Winter Crisis received a benefit of about $802.
- Households that received Heating Assistance, Winter Crisis Assistance, and Safety Net Assistance received benefits of about $1,405.

It is important to remember that only delivered fuel households can receive Winter Crisis benefits and only delivered fuel households with income at or below 200% of Poverty can receive Safety Net Assistance. As was demonstrated in Table 2.22, the average energy costs for households who heat with delivered fuels are higher than for households who heat with natural gas, and much higher than those who heat with electricity.

Table 3.6
Funding, Households Served, And Average Benefit by Benefit Type in FY 2015

Type of Assistance	FY2015 Funds	FY2015 Households	Average Benefit	Estimated Total Benefit
Heating Assistance	$47,493,534	99,088	$479	$479
Winter Crisis Assistance	$10,330,867	31,888	$323	$802
Safety Net Assistance	$10,228,121	16,960	$603	$1,405
All Benefits	$68,052,522	99,088	N/A	$687

3.1.1 LIHEAP Impacts for Households Who Pay Directly for Main Heat

The combination of information from the American Community Survey and the reports from the Connecticut LIHEAP office allow us to look at some important statistics regarding the share of the population served and the effectiveness of the LIHEAP program in reducing home energy burden for the population of low-income households in Connecticut.

Table 3.7 shows the number of households who pay the vendor directly for their main heating fuel, the number of LIHEAP recipients, and percent of program eligible households served by vulnerable population group. It shows that about 31% of households with a young child are served by LIHEAP, while only about 20% of households with an elderly individual are served.

Table 3.7
Direct Payment Households Served by LIHEAP by Vulnerable Group in FY 2015

Vulnerable Group	Direct Pay Households	LIHEAP Recipients	Percent Served
Elderly	152,808	31,014	20%
Disabled	125,830	31,399	25%
Young Child	62,764	19,296	31%
Any Vulnerable Member	256,514	66,641	26%

Table 3.8 shows the number of households who pay the vendor directly for their main heating fuel, the number of LIHEAP recipients, and percent of program eligible households served by poverty group. It

shows that 39% of households with income below the poverty guideline who pay directly for their main heating fuel receive LIHEAP. In comparison, only 19% of eligible households with incomes greater than 200% of the poverty guideline receive LIHEAP.

Table 3.8
Direct Payment Households Served by LIHEAP by Poverty Group in FY 2015

Poverty Group	Direct Pay Households	LIHEAP Recipients	Percent Served
Less than 100%	102,313	39,541	39%
100% to less than 150%	74,883	25,627	34%
150% to less than 200%	85,634	12,187	14%
More than 200%	106,499	20,397	19%
All Direct Pay Households	369,329	97,752	26%

Table 3.9 shows the total number of households who pay the vendor directly for their main heating fuel, the number of LIHEAP recipients, and percent of program eligible households served by main heating fuel. For most types of heating fuels - natural gas, electricity, and fuel oil - about one-fourth of direct payment households are served by the program. But, only about 15% of households who use other types of delivered fuels (i.e., wood, kerosene, and propane) are served.

Table 3.9
Direct Payment Households Served by LIHEAP by Main Heating Fuel in FY 2015

Main Heating Fuel	Direct Pay Households	LIHEAP Recipients	Percent Served
Natural Gas	142,312	41,408	29%
Electricity	79,508	21,991	28%
Fuel Oil	127,440	31,324	25%
Other Delivered Fuel	20,069	3,029	15%
All Direct Pay Households	369,329	97,752	26%

Tables 3.10a through 3.10d show the gross and net energy burden for each of three most common main heating fuels, based on the estimates of energy bills from the ACS and the specified benefits from the LIHEAP state plan. Each table shows the gross energy burden for households (i.e., burden before receiving LIHEAP) and the net energy burden (i.e., the energy burden after receiving LIHEAP).

As was observed in tables 2.23 through 2.25, gross energy burdens are highest for households who heat their home with fuel oil and for households with incomes below 100% of the poverty guideline. Even after taking into account LIHEAP Heating Assistance benefits for homes heated with natural gas and electricity, and taking into account LIHEAP Heating Assistance and Winter Crisis benefits for homes heated with fuel oil, those same patterns remain. Net energy burdens are highest for households who heat their homes with fuel oil, next highest for households who heat their homes with natural gas, and lowest for households who heat their homes with electricity. And, even though households with income less than 100% of the poverty guideline get higher benefits, their net energy burdens are still considerably higher than households in the other poverty groups.

Table 3.10a
Gross and Net Energy Burden by Poverty Group in FY 2015 - Natural Gas Main Heat

Poverty Group	Average Energy Bill	Average Income	Gross Burden	Average Benefit	Net Burden
Less than 100%	$3,097	$10,271	30.2%	$568	24.6%
100% to less than 150%	$3,022	$23,170	13.0%	$446	11.1%
150% to less than 200%	$3,089	$32,108	9.6%	$333	8.6%
More than 200%	$3,141	$40,561	7.7%	$273	7.1%

Table 3.10b
Gross and Net Energy Burden by Poverty Group in FY 2015 - Electric Main Heat

Poverty Group	Average Energy Bill	Average Income	Gross Burden	Average Benefit	Net Burden
Less than 100%	$1,676	$8,125	20.6%	$568	13.6%
100% to less than 150%	$1,974	$19,712	10.0%	$446	7.8%
150% to less than 200%	$1,996	$28,156	7.1%	$333	5.9%
More than 200%	$2,141	$37,247	5.7%	$273	5.0%

Table 3.10c
Gross and Net Energy Burden by Poverty Group in FY 2015 - Fuel Oil Main Heat[6]

Poverty Group	Average Energy Bill	Average Income	Gross Burden	Average Benefit*	Net Burden
Less than 100%	$3,714	$8,933	41.6%	$1,118	29.1%
100% to less than 150%	$3,661	$21,712	16.9%	$996	12.3%
150% to less than 200%	$3,689	$30,485	12.1%	$883	9.2%
More than 200%	$3,771	$39,559	9.5%	$523	8.2%

* Note: Includes Winter Crisis Benefit

Table 3.10d shows the net energy burden for fuel oil households who receive a Heating Assistance benefit, a Winter Crisis benefit, and at least one Safety Net Assistance benefit. For those households, it appears that the added benefits reduce their energy bills enough that their net energy burden (i.e., energy burden after receipt of LIHEAP) is similar to the net energy burdens for households who heat their homes with natural gas. However, their net energy burdens are still greater than those for households who heat their homes with electricity.

[6] Applications of the Connecticut Natural Gas Company, the Southern Connecticut Gas Company, and the Yankee Gas Services Company for Approval of Implementation Plans for Hardship Customers Arrearage Amortization Policy Pursuant to Public Act 91-150, Decision, Docket Nos. 93-06-20, 93-06-21, 93-07-03 (consolidated), Decision, September 29, 1993. http://www.dpuc.state.ct.us/FINALDEC.NSF/0d1e102026cb64d98525644800691cfe/518715835ba0b9e085255fb3005085e4?OpenDocument

Table 3.10d
Gross and Net Energy Burden by Poverty Group in FY 2015 - Fuel Oil Main Heat

Poverty Group	Average Energy Bill	Average Income	Gross Burden	Average Benefit*	Net Burden
Less than 100%	$3,714	$8,933	41.6%	$1,716	22.4%
100% to less than 150%	$3,661	$21,712	16.9%	$1,599	9.5%
150% to less than 200%	$3,689	$30,485	12.1%	$1,486	7.2%
More than 200%	$3,771	$39,559	9.5%	$523	8.2%

* Note: Includes Winter Crisis and Safety Net Assistance grants for households with income less than 200%

3.1.2 LIHEAP Impacts for Households with Heat Included in Rent

The LIHEAP program offers two benefits for households with heat included in rent. First, all households with heat included in rent can apply for Rental Assistance Benefits. Those households with income at or below 150% of the HHS poverty guideline who document that their rent payments are greater than 30% of their income can receive a benefit. The benefit amounts are $120, $110, or $100 depending on the household's poverty level. Second, all households who receive SNAP benefits, have their heat included in rent, and pay less than 30% of the income for rent can receive a "nominal benefit" of $20.01.

Table 2.4 shows that 42,096 households have income at or below 150% of poverty and have their heat included in rent. Table 2.4 further shows that – based on responses to the ACS – 27,441 of those households have rent payments that are greater than 30% of their income. In FY 2015, the LIHEAP program reported serving 1,336 households with Rental Assistance Benefits, about 5% of the low-income households who appear to be eligible for the program.

Recent administrative statistics from the SNAP program show that 248,368 Connecticut low-income households received SNAP in January, 2015. That represents about 56% of all low-income households in Connecticut. The LIHEAP office reported that they furnished "nominal benefits" to 95,299 SNAP households in FY 2015; that is about 38% of all SNAP recipients. It is important to remember that SNAP recipients who pay directly for the main heating fuel and SNAP recipients who paid more than 30% of their income for rent also were eligible to receive other types of LIHEAP assistance.

3.2 Ratepayer-Funded Energy Assistance Programs

There are a number of types of assistance that are offered to low-income households who have energy affordability problems. These include:

- Shut-Off Restrictions – Gas and electric companies may not refuse to provide service at any time during the year where a lack of service is life-threatening. Each fall electric utility customers and gas utility heating customers can apply for "hardship" status that - if they are eligible - protects them from shutoff during the period from November 1 to May 1.
- Heating Assistance Arrearage Forgiveness – The investor-owned electric and natural gas utilities administer arrearage forgiveness programs for their heating customers who receive LIHEAP heating assistance.
- Electric Arrearage Forgiveness – The investor-owned electric utilities administer arrearage forgiveness programs for their electric non-heating customers for hardship customers.

In addition to these assistance programs, ratepayers incur other costs related to serving low-income customers, including write-offs of uncollectible accounts and active charge-offs.

In this section of the report we focus on the Arrearage Forgiveness programs and show how these programs interact with the LIHEAP program in terms of the number of households served and the impact on energy affordability.

3.2.1 Heating Assistance Arrearage Forgiveness - Matching Payment Plan

All five investor-owned utilities in Connecticut offer an arrearage forgiveness program called Matching Payment Plan (MPP). The Investor-Owned Utilities (IOUs) are required by law to offer an arrearage forgiveness program to low-income customers; specifically, they must "provide such residential customer whose account is delinquent an opportunity to enter into a reasonable amortization agreement."[7]

The arrearage amortization plans offered by the two electric utilities and the three natural gas utilities follow a fundamentally similar design. Though the utilities were initially asked to submit separate plans, the Public Utility Regulatory Authority (PURA, formerly the Department of Public Utility Control) decided early on that all utilities should align their plans so that a customer's benefits did not vary according to their service provider. After examining the separate plans submitted by the gas utilities in 1993, the PURA released the following decision:

> "For reasons of equity, a customer's monthly payment amount should depend on the amount of the arrearage and the fuel assistance benefit, not on whether he or she happens to live in Hartford, Meriden or Bridgeport. We conclude that there should be uniformity in the formulas used by the Companies in determining a customer's monthly payment amount, and, by extension, the formulas used in calculating the forgiveness applied to a customer's arrearage."[8]

In 2004, the PURA decided that the electric utilities' arrearage forgiveness programs should "mirror and achieve parity with the existing gas utility programs."[9] As a result, from 2006 onward, all five of Connecticut's electric and gas utilities have submitted a single joint plan for their arrearage forgiveness programs.

The MPP eligibility requirements are as follows:[10]

- Customers must have applied and been deemed eligible for CEAP, even if no benefits were available at the time they applied. This means that maximum income eligibility is 60% of SMI for households that pay their energy bills directly to the utility.
- Customers must enter into and comply with an amortization agreement that is consistent with MPP program policies.
- Customers must have a delinquent account. For example, Eversource customers must have an account balance of $100 or more that is at least 60 days overdue.[11] [Note: United Illuminating

[7] http://www.dpuc.state.ct.us/FINALDEC.NSF/2b40c6ef76b67c438525644800692943/db801f8e7b3638a985256ef50066c62d?OpenDocument

[8] Arrearage Forgiveness Program Joint Plan Submission for 2015-2016

[9] https://www.eversource.com/Content/ct-c/residential/programs-services/financial-assistance/nu-start

[10] Arrearage Forgiveness Program Joint Plan Submission for 2015-2016.

[11] Docket No. 15-06-25, Sept. 15 2015.

(UI), Southern CT Gas (SCG), and Connecticut Natural Gas (CNG) customers are not required to have an arrearage to participate in the MPP program.]

The MPP programs all operate as follows:[12]

- Customers can apply to join the program when their account becomes delinquent. They must also apply for energy assistance at the same time. This means that, in practice, arrearage forgiveness eligibility matches state CEAP (LIHEAP) eligibility. [Note: UI, SCG, and CNG customers do not have to have an arrearage to participate. UI has not been able to furnish statistic on what share of MPP customers start the program with a $0 balance.]
- The utility calculates the customer's monthly payment based on 1/12th of their annual electric or gas consumption minus the amount of bill payment assistance they expect to receive, then adds on an affordable payment towards their arrears. Utilities must include CEAP (LIHEAP) funds as well as energy assistance payments from non-traditional sources such as "community based organizations, Operation Fuel, the Salvation Army, the American Red Cross, churches and other faith-based and civic organizations when CEAP funds are not available and the customer has completed the CEAP application process and been deemed eligible to receive CEAP funding."[13]
- On April 30th, if the customer has made their payments since November 1st (or since joining the program, if they joined after November 1st), the utility will forgive an amount equal to the total amount of the customer's payment plus the amount of bill payment assistance they have received. This is referred to as Phase I of the program. Any payments missed during Phase I must be made up by May 1st in order for the customer to qualify for a matching payment.
- If customer compliance continues from April 30th to October 31st, the utility must again forgive an amount equal to the customer's total payments plus their assistance payments. This is referred to as Phase II of the program. Any payments missed in Phase II must be made up by October 31st.
- Customers may participate in a Matching Payment Program until their balance is zero, but they may not receive a credit to their account through the program.

Funding for the electric utilities' arrearage forgiveness programs comes from a Systems Benefits Charge (SBC). Connecticut's public electric utilities collect funds for a variety of programs through the Combined Public Benefits (CPB) charge on all electric bills. The CPB charge is a combination of three separate fees -- the System Benefits Charge (SBC), the Conservation and Load Management (C&LM) charge, and the Renewable Energy Investment charge – all of which were authorized in Connecticut's 1998 electric utility restructuring legislation.[14] Section 18 of the restructuring act allows the PURA to set the amount of the SBC. PURA reviews electric utilities' SBC annually to reconcile the amount collected with the amount spent.

The gas utilities are also permitted to recover the costs of their arrearage forgiveness programs. However, there is no SBC on gas bills. Instead, the cost of the program is included in the gas companies' rates. Utilities provide the PURA with information on program costs during their rate case negotiations.

Table 3.11 shows each utility's spending on MPP in 2014. In total, the five IOUs in Connecticut spent at least $43.3 million on the MPP program. We estimate that the CEAP LIHEAP program furnished

[12] https://www.cga.ct.gov/ps98/Act/pa/1998PA-00028-R00HB-05005-PA.htm
[13] 2015-2016 Joint Arrearage Forgiveness Plan http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5b157084549b863585257e7500710da2?OpenDocument
[14] http://www.operationfuel.org/wp-content/uploads/FINAL-Proof-Operation-Fuel-2014-2015-Annual-Report1.pdf

about $33.8 million in heating assistance to households that heat with natural gas or electricity. So, the MPP program more than doubles the amount of energy assistance available to low-income households in Connecticut. However, those funds are only available to households who have arrearages on their accounts.

Table 3.11
2014-15 MPP Funding by Utility

Utility	2014-15 Funding	% of Total Funding
United Illuminating	$6,886,547*	16%
Connecticut Light & Power (Eversource)	$7,384,053	17%
Southern Connecticut Gas	$21,065,678	49%
Connecticut Natural Gas	$7,968,815	18%
Yankee Gas (Eversource)	N/A	N/A
Total	$43,305,093	100%

Source: 2016 Report of the Low-Income Advisory Board.
Source for CL&P: Filing to PURA dated 1/8/2015 re: Docket No. 99-03-36RE15.
* Funding for MPP for electric heating customers and MaPP for non-heating electric customers.

Table 3.12 shows levels of MPP program participation for 2014-2015.[15] It shows that the utilities reported serving 68,471 customers. It is useful to note that the LIHEAP program reported serving 63,399 natural gas and electric heat clients during that same time period. This suggests that there was a very high rate of overlap between LIHEAP program participation and MPP program participation.

Table 3.12
2014-15 MPP Participants by Utility

Utility	Participating Households	Successful Households	Success Rate
United Illuminating	3,255	1,701	52%
Connecticut Light & Power (Eversource)	18,039	11,579	64%
Southern Connecticut Gas	14,625	6,815	47%
Connecticut Natural Gas	14,964	7,406	49%
Yankee Gas (Eversource)	17,588	9,192	52%
Total	68,471	36,693	54%

It is unclear whether the funding levels presented in Table 3.11 represent "commitments" by the utilities to forgive arrearages for participants, or if they represent actual program matching cost "expenditures" for successful program participants. Tables 3.13a and 3.13b show estimates of the average benefits per customer. Table 3.13a shows the average "potential" benefit to customers if they are successful on the program assuming that the reporting funding levels represent "commitments." Table 3.13b shows the average "actual" benefit to customers that were successful on the program assuming that the reported funding levels represent actual customer credits.

[15] This report was required by Section 112(e) of Public Act 11-80, An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future.

Table 3.13a shows that the "commitments" for forgiveness (assuming that reported funding represents commitments rather than credits) made by the different utilities vary considerably, from an estimated $409 per customer for CL&P to an estimated $1,442 per customer for Southern Connecticut Gas. Since the two statistics used to develop this table came from different sources, it is possible that they are not reporting on the same populations. However, the spending levels came from data submitted by the utilities to the Low Income Energy Advisory Board (LIEAB) and the number of participants came from the utilities' Joint Plan Submission to PURA. So, it seems that they should be consistent.

Table 3.13a
Benefits per Customer: Funding = Commitments

Utility	Program Funding	Participants	Commitment per Customer
United Illuminating	N/A*	3,255	N/A
Connecticut Light & Power (Eversource)	$7,384,053	18,039	$409
Southern Connecticut Gas	$21,065,678	14,625	$1,442
Connecticut Natural Gas	$7,968,815	14,964	$534
Yankee Gas (Eversource)	N/A	N/A	N/A
Total	$43,305,093	50,883	$851

* MPP electric heating funding not separated from MaPP funding in LIEAB Report.

Similarly, Table 3.13b shows considerable variation in the benefits granted to each successful participant (assuming that the reported funding represents credits granted to customers), from $636 per customer for CL&P to over $3,000 per participant for Southern Connecticut Gas.

Table 3.13b
Benefits per Customer: Funding = Actual Forgiveness

Utility	Program Funding	Successful Participants	Spending per Customers
United Illuminating	N/A*	1,701	N/A
Connecticut Light & Power	$7,384,053	11,579	$636
Southern Connecticut Gas	$21,065,678	6,815	$3,090
Connecticut Natural Gas	$7,968,815	7,406	$1,075
Yankee Gas	N/A	N/A	N/A
Total	$43,305,093	36,693	$1,180

*MPP electric heating funding not separated from MaPP funding in LIEAB Report.

Based on these statistics, it appears that the benefits offered through the arrearage forgiveness program are considerably higher than those paid through CEAP/CHAP energy assistance by the LIHEAP program. And, it appears that almost all LIHEAP heating assistance recipients who use natural gas or electricity for their main heating fuel are likely to participate in the arrearage forgiveness program.

It is important to note that the Matching Payment Program has one component that is particularly proactive in helping to make payments for low-income customers affordable. Households who cannot afford to pay the amount requested by the utility for the arrearage forgiveness program "can ask to be referred to a social service agency for a review of the household's income and expenses to determine if a lower payment will be allowed." If such a household makes all required payments, they will have their

arrearage (the shortfall between their retail bill and their "below budget") payment forgiven. We were not able to locate any information that documents the number of MPP participants who are granted these "below budget" payments.

United Illuminating company customers who enroll in the program and do not have an arrearage can receive a "below budget" payment amount. The program matching payments are applied to the difference between the customer's budget amount and the "below budget" payment amount. The combination of the customer's CEAP payment, their "below budget" bill payments, and their matching payments can result in a zero balance at the end of the payment period. However, if those three amounts are less than the total customer bill, the customer will end the payment period with a positive balance.

3.2.2 Non-Heating Electric Arrearage Forgiveness Programs

The two investor-owned electric utilities in Connecticut offer an arrearage forgiveness program for customers with electric accounts who do not heat with electricity. The CL&P/Eversource program is called the New Start Program. The United Illuminating Program is called the MaPP program. The following statistics are available for the programs.

- UI MaPP - Funding for the UI MaPP program was included in the funding reported to the LIEAB in their January 2016 report. We do not have additional details on this program.
- CL&P/Eversource New Start - In a filing to PURA on 1/8/2015, CL&P/Eversource furnished detailed information on the New Start program. CL&P reported that the New Start program had 33,232 program participants in the 2013-2014 program year and that the "New Start balances as of November 2014" were $22,295,148 – about $670 per participant.

It is important to note that the "Matching Payments" for the New Start 2013-2014 program year were much higher than they were for the 2012-2013 program year. The report notes that "New Start was converted from a 3 year program to a 1 year program, resulting in an increase in monthly write-offs."

3.3 Operation Fuel Assistance Programs

Operation Fuel is a nonprofit fuel fund in Connecticut that is funded in part by ratepayer dollars. It partners with local community-based organizations to provide energy assistance grants. Table 3.14 shows the total amount of energy assistance funds and the total number of households that received assistance from Operation Fuel from July 2014 through June 2015. During that time period, Operation Fuel provided about $3.6 million in energy assistance to 8,314 Connecticut low-income households.

Table 3.14
Total 2014-15 Operation Fuel Energy Assistance Funds & Recipient Households

	2014-15 Total
Energy Assistance Funds	$3,614,809
Households Served	8,314
Average Benefit	$435

Operation Fuel currently has a contract with the state of Connecticut to distribute some of the money collected through the Systems Benefit Charge (SBC) on electric bills. In the period from July 2014 through June 2015, Operation Fuel received $2,100,000 from the SBC. This represents 60% of its total income for

residential programs, which was $3,506,886 during the same period.[16] Utility customers can also contribute to Operation Fuel through the Add-a-Dollar option on their monthly bills. As of 2015, municipal utilities in Connecticut were also required to include the Add-a-Dollar option on their customers' bills. Two utilities, Eversource and United Illuminating, match their customers' Add-a-Dollar contributions. Table 3.14 shows the sources of funding for residential programs for Operation Fuel for July 2014 through June 2015.

Table 3.14
Operation Fuel 2014-2015 Residential Program Funding

Source of Funds	Dollars	%
Systems Benefit Charge	$2,100,000	60%
Add-a-Dollar	$460,010	13%
Utility Shareholder Match	$124,599	4%
Foundation Grants	$305,770	9%
Individuals	$382,077	11%
Energy Related Industry	$53,610	2%
Corporations & Small Business	$46,156	1%
Faith Communities	$21,820	<1%
Special Events	$7,760	<1%
Interest Income	$5,075	<1%
Total	$3,506,886	100%

More than 100 community-based organizations conduct intake for Operation Fuel. These organizations also provide referrals for food, clothing, health services, childcare, and other forms of assistance. The organizations that work with Operation Fuel are not part of the CAA network that implements MPP and CEAP.

3.4 Low Income Energy Assistance Program Evaluations

Our research did not identify an independent evaluation of Connecticut's ratepayer-funded energy assistance programs. However, the program has twice been reviewed by other parts of the state government.

The Department of Energy and Environmental Protection reviewed MPP in order to determine if SBC funds should be used to fund a low-income discount rate instead of an arrearage forgiveness program.[17] The goals of this report were to analyze:

- "possible impacts [of a discount rate] on existing customers who qualify for state assistance"
- "any recommended modifications to current state assistance programs [MPP]"
- "steps to achieve a low-income rate no less than ninety per cent of the standard service rate"

The report concluded that "the longstanding Matching Payment Program for low income utility customers has worthy attributes and goals, but may be underperforming in terms of reducing utility uncollectible expenses, improving customer payment habits, and other factors."

[16] http://www.ct.gov/deep/cwp/view.asp?a=4405&q=509366&deepNav_GID=2121
[17] Connecticut Public Act No. 11-80, Section 33 https://www.cga.ct.gov/2011/act/pa/pdf/2011PA-00080-R00SB-01243-PA.pdf

The Low-Income Energy Advisory Board (LIEAB) also conducted a review of the ratepayer-funded energy assistance and energy efficiency programs and made recommendations to improve the program implementation. That report furnishes an excellent overview of and statistics about the different publicly-funded and ratepayer-funded programs that assist low-income households in Connecticut. The LIEAB made a series of recommendations to make these programs more efficient and more effective.

Section 4. Low-Income Energy Efficiency Programs

This section of the report furnishes information on the publicly-funded and ratepayer-funded energy efficiency programs that are available to Connecticut's low-income households. Connecticut receives some funding from the federal government for the WAP program. Connecticut ratepayers make a significant contribution to energy efficiency programs for low-income households.

Energy efficiency programs complement the impact of energy assistance by helping to reduce the energy usage in homes and make energy more affordable for low-income households over the long run. Energy efficiency programs are demonstrated to reduce energy usage in low-income households by between 5% and 25% depending on the level of investment made in the home and the type of energy efficiency measures installed. That reduction can have a significant impact on energy affordability for low-income households.

4.1 Publicly-Funded Energy Efficiency Programs - Weatherization Assistance Program

The Department of Energy & Environmental Protection has administered WAP funds in Connecticut since 2012. Prior to 2012, WAP was run by the Department of Social Services. DSS was also responsible for administering all American Recovery and Reinvestment Act (ARRA) funds. Five CAAs implement the program as sub-grantees to DEEP.

The WAP funds available to Connecticut have historically been low when compared to the other low-income energy efficiency programs in the state. The following table shows the total amount of funding and households served by WAP in 2014. In 2014, the WAP program spent an average of about $5,690 per home it served. However, the program was only able to serve 433 households, less than 0.1% of the 434,000 low-income households in Connecticut.

Table 4.1
Total WAP Funds & Total Households Served in 2014

	2014 Totals
WAP Funds	$2,463,560
Households Served	433
Average per Household	$5,690

The WAP eligibility requirements in Connecticut are as follows.[18]

- Income must be at or below 60% SMI for single-family buildings; at least two-thirds of tenants must be at or below 60% SMI for multi-family buildings.
- The dwelling cannot have been weatherized by the Connecticut Weatherization Program at any point after September 30, 1994.
- The dwelling cannot be for sale or listed for sale within six months of the work's completion.
- The dwelling cannot be in foreclosure or loan mediation.

Households that live in rental units are eligible for WAP. However, landlords of rental applicants may be asked for a landlord contribution of 20% of the material cost, up to a maximum of $500 per eligible unit.

[18] https://www.cga.ct.gov/2013/act/pa/pdf/2013PA-00298-R00HB-06360-PA.pdf

Connecticut has not used any of its LIHEAP grant to fund weatherization services. [LIHEAP is allowed to transfer up to 15% of its LIHEAP grant to the WAP program.] A small amount of LIHEAP funds are spent on energy education through Assurance 16. Using Assurance 16 funds, CAAs offer educational brochures and/or workshops on energy efficiency. They also provide referrals to weatherization services that provide energy saving measures like high efficiency light bulbs. [Note: In the FY 2017 State Plan, the LIHEAP program indicates that they are planning to make some LIHEAP funds available for WAP.]

The FY 2016 LIHEAP State Plan indicates that the LIHEAP program intends to spend $1.5 million on a heating equipment repair and replacement program. However, the purpose of a heating equipment repair and replacement program is not to increase energy efficiency in the home. Rather, the purpose is to ensure that the household can heat its home safely.

4.2 Ratepayer-Funded Energy Efficiency Programs

Connecticut's main ratepayer-funded low-income energy efficiency program is the Home Energy Solutions – Income-Eligible (HES-IE). Like Connecticut's other ratepayer-funded energy efficiency programs, HES-IE is run by Energize CT, the state's energy efficiency administrator. Along with the non-low-income Home Energy Solutions program, HES-IE is seen as a way to comply with the legislature's 2011 goal of weatherizing 80% of Connecticut homes by 2030.[19]

Low-income customers can apply to the program either through their utility or through their local agency. The basic HES-IE eligibility guidelines are the same as WAP eligibility guidelines. Customers are eligible if their household is at or below 60% SMI. Multi-family buildings are eligible if two-thirds of the residents are at or below 60% SMI. Low-income customers who live in rental units are eligible to participate in the HES-IE program, but landlords are required to sign off on the program application and may be required to provide a co-pay.

HES-IE is one of a number of programs funded by the Connecticut Energy Efficiency Fund (CEEF) which in turn is funded by Connecticut ratepayers, the Regional Greenhouse Gas Initiative (RGGI), and the ISO New England forward capacity market. Connecticut's electric and natural gas utilities develop a triennial plan for energy efficiency programs, including HES-IE. The Connecticut Energy Efficiency Board (EEB) advises and assists the utilities in the development of the plan. The Department of Energy and Environmental Protection reviews and approves or modifies the plan.

Until 2005, there was no statutory requirement that any energy efficiency money be spent on low-income customers. In 2005, a bill[20] was passed that required the inclusion of low-income customers in gas utilities' conservation programs. This language was eventually also applied to the statewide conservation and load management plan, and thus to electric utilities as well as gas utilities. Specifically, the statute says that energy conservation funds must be used for "conservation and load management programs, including programs that benefit low-income individuals."[21]

[19] Conn. Gen. Stat. §16-245m https://www.cga.ct.gov/current/pub/chap_283.htm
[20] Energy Efficiency Board 2014 Programs and Operations Report. 1 Mar 2015. http://www.energizect.com/sites/default/files/uploads/Final%20ALR%202014%20Pages.2.26.15.pdf
[21] Energy Efficiency Board 2014 Programs and Operations Report. 1 Mar 2015. http://www.energizect.com/sites/default/files/uploads/Final%20ALR%202014%20Pages.2.26.15.pdf

Table 4.2 displays the total funds and total households served by the HES-IE program in 2014.[22] The program received approximately $33 million in 2014.

Table 4.2
Total HES-IE Funds & Total Households Served in 2014

	2014 Totals
HES-IE Funds	$33,453,293
Households Served	19,659
Spending per Household	$1,702

Table 4.3 displays the sources of funding for the HES-IE program. [23] In 2014, the program received significantly more money from the electric C&LM charge than from the natural gas CAM.

Table 4.3
Sources of 2014 HES-IE Funds

Source	2014 Funds
Electric Utilities	$21,385,612
Gas Utilities	$12,067,681
Total	$33,453,293

Table 4.4 shows that the HES-IE program served 5% of Connecticut's income-eligible population in 2014.

Table 4.4
Percent of Income-Eligible Population Served by HES-IE

	2014 Totals
2014 Households Served	19,659
Income-Eligible Population	436,483
% of Eligible Population Served	5%

4.3 Low Income Energy Efficiency Program Evaluations

The HES-IE program was evaluated in 2014 by the NMR Group and the Cadmus Group.[24] The evaluation covered the 2010 and 2011 program years for both the market-rate Home Energy Solutions (HES) program and the low-income HES-IE program. The evaluation includes two sections:

- A whole-house bill analysis
- Estimates of measure-level savings

In the first section, the evaluators used billing data to calculate whole-house energy savings. The change in energy usage was calculated for 2011 program participants as well as for a comparison group of later program participants. To find the net savings that result from the program, the difference between the

[22] http://www.neep.org/sites/default/files/resources/HES%20and%20HES-IE%20Impact%20Evaluation%20(R16),%20Final%20Report,%2012-31-14.pdf

[23] 2015-2016 Joint Arrearage Forgiveness Plan http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5b157084549b863585257e7500710da2?OpenDocument

[24]

2011 participant group's savings and the comparison group's savings was calculated. These net savings results are summarized in Table 4.5 below.

Table 4.5
2011 HES-IE Energy Savings from 2014 Evaluation Report

Account Type		Pre-Program Usage	Savings	Savings as % of Pre-Usage
Electric	Electric Heating	8,918 kWh	1,231 kWh	14%
	Non-Electric Heating	6,485 kWh	905 kWh	14%
Natural Gas		840 ccf	73 ccf	9%

In the second section, the evaluators used several methods to estimate measure-level savings. First, they used a fixed-effects savings regression model to estimate measure-level savings based on billing data. These estimates had large margins of error. Next, they used an engineering analysis to predict measure-level savings using the characteristics reported about each home. This method does not make use of any real usage data. The evaluation also reports the installation rate for each measure. These are displayed in the table 4.6.

Table 4.6
HES-IE Measure Installation Rates from 2014 Evaluation Report

Measure Type	Measure Category	Measure	Installation Rate by Utility	
			CL&P	UI
Electric	Lighting	CFLs	84%	96%
	Water Heat	Water heating bundle (low-flow showerheads, faucet aerators, pipe insulation)	40%	21%
		Water heater replacement	3%	0%
	Shell	Air sealing	32%	53%
		Attic insulation	9%	2%
		Wall insulation	2%	<1%
		Other insulation	2%	0%
		Windows	2%	0%
	HVAC	Ductless heat pump	21%	7%
		Duct sealing	<1%	4%
		Window AC	4%	n/a
		Central AC	0%	<1%
	Appliance	Refrigerator	26%	0%
		Freezer	3%	0%
		Other appliance	0%	13%

Measure Type	Measure Category	Measure	Installation Rate by Utility		
			CNG	SCG	YGS
Natural Gas	Shell	Air sealing	77%	96%	68%
		Attic insulation	5%	4%	26%
		Wall insulation	12%	3%	22%
		Windows	2%	0%	5%
	Water Heating	Water heating bundle (low-flow showerheads, faucet aerators, pipe insulation)	82%	90%	63%
		Water heater temperature setback	32%	<1%	5%
	HVAC	Duct sealing			
		Heating system replacement	<1%	0%	12%
	Appliance	Other appliance	<1%	0%	1%

4.4 Equitable Distribution Data

DEEP is required by statute to furnish an annual report to the legislature regarding the "Equitable Distribution of Conservation and Renewable Energy Funds." The 2013 report noted that it "considers whether funding is distributed on an equitable basis to "small load" customers in distressed census tracts." That report focuses on the geographic distribution of all energy efficiency funds.

This study is focused on the demographic distribution of energy efficiency spending on low-income households. It accepts that DEEP reviews and reports on the geographic distribution of spending on energy efficiency programs. However, it finds that DEEP does not assess or report on the demographic distribution of spending on energy efficiency programs.

Section 5 – Summary of Findings and Recommendations

The purpose of this report is to furnish Operation Fuel and other interested parties with information that they can use to understand the energy needs of Connecticut's low-income households, assess the effectiveness of existing low-income energy assistance and energy efficiency programs, and consider whether there are options and alternatives that could enhance the effectiveness of those programs. In this section of the report we review the key findings from the study and identify opportunities for program managers and policymakers in Connecticut to further expand their understanding of the low-income population and the programs that serve them. We also compare and contrast the Connecticut programs with those implemented in other jurisdictions, and discuss the extent to which the Connecticut programs have adopted "best practices" in their energy assistance and energy efficiency programs.

5.1 Energy Needs of Low-Income Households

Connecticut defines low-income households as those with incomes at or below 60% of state median income. About 32% of Connecticut's households (436,483) are income-eligible for low-income energy assistance and energy efficiency programs. [Note: Previously Connecticut's income threshold was 150% of the HHS poverty guidelines; about 16% of Connecticut's households (219,292) qualified for low-income programs under those guidelines.] The current guideline is the maximum allowable for the Federal LIHEAP program. About one-half of states set their income guidelines above 150% of poverty, about one-fourth set them at 150% of poverty, and one-fourth set them below 150% of poverty. Most states in the Northeast and Midwest set their income guidelines at or above 150% percent of poverty.

The following are some important demographic and housing statistics related to Connecticut's low-income households.

- Income – The average income for low-income households in Connecticut is $24,134. Almost one-half of these households have income of less than $20,000. The income limit for some larger households is above $80,000. However, only 15% of the households who are defined as low-income have income of $40,000 or more.
- Types of Households – The two most common types of households in the low-income population are elderly individuals (25%) and one parent families (21%). However, there are a substantial number of households with two or more elderly individuals, two-parent families, and non-elderly individuals without children.
- Vulnerable Household Members – About 70% of low-income households have a vulnerable member, including an elderly individual, a disabled person, or a child under age 6.
- Housing Unit Type – About 40% of low-income households live in single family homes while 60% live in apartments in multifamily buildings. Of those in multifamily buildings, about one-half are in small buildings (2-4 units) and the other one-half are in large buildings (5+ units).
- Ownership Status – About 40% of low-income households own their homes, while 60% are renters. Over three fourths of the households in single family homes are owners, while almost 90% of the households in multifamily buildings are renters.

No one type of household or housing units typifies low-income households in Connecticut. They are a diverse population that has diverse needs. However, there are certain population segments that might serve as a focus for various types of initiatives. For example, about 60% of low-income households live in multifamily buildings. Delivery of energy efficiency programs to these households would need to be different from delivery of those services to single family homes since building owners would need to be engaged in the process for multifamily buildings.

The following are some important energy statistics related to Connecticut's low-income households.

- Main Heating Fuel – Almost 40% of low-income households use natural gas as their main heating fuel, one-third use fuel oil, and about one-fourth use electricity. However, that varies by housing unit type. Delivered fuels are the main heating source for over 60% of single family homes. Natural gas is the main heating fuel for over 50% of small multifamily buildings. Electricity is the main heating fuel for almost one-half of large multifamily buildings.
- Payment for Fuels – About 85% of low-income households pay for their main heating fuel directly, while 15% have their heat included in their rent or fee. Almost all low-income households in single family homes pay for their main heat directly, but only 60% of low-income households in large multifamily buildings pay directly.
- Average Energy Bills – The average total energy bill for low-income households that pay for their main heating fuel directly is $3,033; about one-half of that is for their heating fuel and about one-half is for their electricity. Households whose main heating fuel is fuel oil have the highest average bills of $3,719. Those whose main heating fuel is electricity have the lowest average energy bills of $1,919.
- Energy Burden – On average, low-income households in Connecticut who pay directly for their main heating fuel have a "group mean energy burden" of 11.8%. [Group mean is obtained by dividing the average energy expenditures for the group by the average income for the group.] Households with income less than 100% of the poverty guidelines have group mean energy burden of over 30% of income, while those with income that is 200% of the poverty guideline or higher have group mean energy burden of about 8%.

The energy needs of low-income households in Connecticut are similar to those in neighboring states, but are quite different from those of low-income households in other regions. About 80% of low-income households nationally use natural gas or electricity as their main heating fuel. But, in Connecticut and most other New England states, only about 60% of low-income households use those fuels, while 40% use delivered fuels. The national average energy expenditures for low-income households is about $1,850, while the average for Connecticut is over $3,000, about 60% higher than the national average.

The differences between Connecticut and other states are important when considering "best practices" for energy assistance and energy efficiency programs. First, the higher energy costs in Connecticut will make it more expensive to implement energy affordability programs for Connecticut than it would for states in lower cost regions. Second, the higher energy costs in Connecticut make energy efficiency measures comparatively more competitive as an affordability strategy; households in Connecticut have greater benefits from any therm of natural gas, kWh of electricity, or gallon of fuel oil saved through energy efficiency measures.

5.2 Effectiveness of Publicly-Funded Energy Assistance Programs

There are 436,483 low-income households in Connecticut. Of those, 99,088 were served with LIHEAP energy assistance in the 2014-2015 program year, and another 95,229 SNAP households received a "nominal benefit" that helps the household to qualify for higher SNAP benefits. Overall, about 45% of low-income households received a LIHEAP grant of some type and about 23% received a grant of $100 or more. At the national level, about 16% of low-income households received LIHEAP grants. With respect to nearby states, Massachusetts served about 21% of eligible households, New York served about 25% of eligible households, New Jersey served about 28% of eligible households, and New

Hampshire served about 24% of eligible households. [Note: In all cases the statistic represents the number of households served with benefits of $100 or more.]

There are two important considerations with respect to the benefit determination procedures for LIHEAP. First, it is important to consider whether lower-income households who have higher energy burden receive higher benefits to offset their higher burden. Second, it is important to consider whether low-income households who use higher priced fuels receive higher benefits.

Table 5.1 shows the gross (i.e. pre-LIHEAP) and net (i.e., post-LIHEAP) energy burdens for households that heat with natural gas. It shows that the lowest income households have the highest gross energy burden and that these households receive the highest benefits. However, even after accounting for receipt of LIHEAP, the average energy burden for the lowest income households is still almost 25% of income, while households with incomes at or above 150% of the poverty guideline have average energy burdens of less than 10% of income. In some other states, the benefit matrix has a greater differential in terms of the benefit size by income.

Table 5.1
Gross and Net Energy Burden by Poverty Group in FY 2015 - Natural Gas Main Heat

Poverty Group	Average Energy Bill	Average Income	Gross Burden	Average Benefit	Net Burden
Less than 100%	$3,097	$10,271	30.2%	$568	24.6%
100% to less than 150%	$3,022	$23,170	13.0%	$446	11.1%
150% to less than 200%	$3,089	$32,108	9.6%	$333	8.6%
More than 200%	$3,141	$40,561	7.7%	$273	7.1%

Table 5.2 shows the gross and net energy burdens for the lower-income households by main heating fuel. Since it appears that almost all households that use fuel oil as their main heat receive a Winter Crisis benefit, we have included that benefit in the analysis. And, we also look at the gross and net energy burdens for households who receive Winter Crisis and Safety Net Assistance benefits. Households with income at or below 100% of the poverty guideline receive the same Heating Assistance benefit for all fuels. However, after receipt of assistance, the net energy burden for households with natural gas as their main heating fuel is almost 2 times the net burden for households who heat with electricity. And, even after receiving a Winter Crisis benefit, the average net burden for households who heat with fuel oil is still higher than either the net burden for natural gas main heaters or electric main heaters. It is only when the household receives additional Safety Net Assistance grants that the net burden for fuel oil main heat households falls below that of natural gas main heat households.

Table 5.2
Gross and Net Energy Burden by Main Heat in FY 2015
Households with Income < 100% of Poverty

Main Heating Fuel	Average Energy Bill	Average Income	Gross Burden	Average Benefit	Net Burden
Natural Gas	$3,097	$10,271	30.2%	$568	24.6%
Electricity	$1,676	$8,125	20.6%	$568	13.6%
Fuel Oil	$3,714	$8,933	41.6%	$1,118	29.1%
Fuel Oil w/ Safety Net	$3,174	$8,933	41.6%	$1,716	22.4%

It is important to note that the statistics presented in these tables are based on self-reported energy expenditures for all income-eligible households in Connecticut who report paying a heating bill directly to

their energy vendor. These data could be subject to reporting error. For FY 2016, the Connecticut LIHEAP office is required by the federal LIHEAP office to collect and report energy expenditure data for LIHEAP recipients served in FY 2016 (i.e., program year 2015-2016). Those data can be expected to furnish better quality data on actual energy expenditures for LIHEAP recipient households.

In many other states, the benefit matrix will furnish higher benefits to households who use higher priced main heating fuels. However, a Connecticut statute prevents the LIHEAP office from offering different benefits to households that have different main heating fuels. In some states, the benefit determination for LIHEAP uses the household's actual energy bills to set benefit levels so that benefits are more closely targeted to individual household need. The data being collection by the Connecticut LIHEAP office for FY 2016 could be used to set benefit levels that are more closely aligned with individual household energy needs. However, it is unclear whether setting benefits based on actual bills would be consistent with or contrary to the Connecticut statute.

5.3 Effectiveness of Ratepayer-Funded Energy Assistance Programs

The ratepayer-funded energy assistance programs include the MPP programs offered by the IOUs to hardship customers who heat with natural gas and electricity and have arrearages, the New Start and MaPP programs offered by the electric IOUs to their non-heating electric hardship customers, and the supplemental programs offered by Operation Fuel.

One important question is whether the publicly-funded and ratepayer-funded programs are coordinated. In general, Connecticut's program receive high marks from that perspective. In order to be eligible for the ratepayer-funded programs, natural gas and electric customers must apply for and be determined to be eligible for energy assistance through the CEAP/LIHEAP program. That coordination helps to ensure that households receive all of the benefits for which they are eligible. The approach used by Connecticut is consistent with programs implemented by New Jersey, Ohio, Wisconsin, and Nevada from that perspective. In Pennsylvania, the ratepayer-funded programs are not consistently coordinated with the publicly-funded programs; a fact that sometimes results in eligible households not receiving LIHEAP benefits and instead relying completely on ratepayer-funded benefits.

A second important question is whether program participants are successful on the ratepayer-funded program. Table 5.3 shows levels of MPP program participation for 2014-2015.[25] It shows that the utilities reported serving 68,471 customers and that 36,693 households successfully made their required payments. Overall, the program success rate was 54%. That compares favorably with the success rate of programs implemented in other jurisdictions. However, as will be discussed below, the interpretation of success is quite different for programs implemented in other jurisdictions.

[25]

Table 5.3
2014-15 MPP Participants by Utility

Utility	Participating Households	Successful Households	Success Rate
United Illuminating	3,255	1,701	52%
Connecticut Light & Power (Eversource)	18,039	11,579	64%
Southern Connecticut Gas	14,625	6,815	47%
Connecticut Natural Gas	14,964	7,406	49%
Yankee Gas (Eversource)	17,588	9,192	52%
Total	68,471	36,693	54%

However, there are several questions related to the program success rate that are unanswered by the utilities' Joint Plan Submissions.

- First, what are the characteristics of the households who are successful on the program? Are the successful participants evenly distributed across income groups? Or, is one income group more likely to succeed than another?
- Second, how does the "Below Budget" payment option affect program success? If a household believes that they are unable to make the requested budget payment amount, they are allowed to complete a financial statement and thereby receive a "Below Budget" payment amount that can be as low as $50 per month. It seems the households who take advantage of this option would be more likely to be successful on the program. However, the submission does not look at that question.
- Third, it is unclear how many households use this program just for one year, compared to the number who participated year after year. As noted in Section 3 of the report, the LIHEAP program served 63,399 households who have natural gas or electric main heat. This suggests that there is a very high overlap between the MPP program and the LIHEAP program.

Most ratepayer-funded energy assistance programs in other jurisdictions are "proactive" affordable payment programs. In those programs, low-income customers are assigned a payment amount based on some type of affordable payment determination procedure. One common approach is to ask customers to pay a certain percentage of their income for their energy; New Jersey targets 6% of income, Ohio targets 12% of income, and the Pennsylvania Bureau of Consumer Services sets different targets by income level that are in the range of 15% of income. In other jurisdictions, low-income customers are given a rate discount; California offers a discount of 25% and Massachusetts offers a discount of 25%.

There are two very important differences between the programs in other jurisdictions and the Connecticut MPP program.

- Proactive vs. Reactive – The programs in other jurisdictions acknowledge that many low-income customers face challenges in paying their energy bill, offer an "affordable" bill, and define program success as the share of customers who pay their "affordable" bill. The MPP and MaPP programs, in comparison, only offer benefits to customers after they have incurred an arrearage. [Note: The UI MPP programs are the exception.] So, first the customer has to "demonstrate" that they cannot afford to pay the bill, and then they are offered an opportunity to receive what amounts to a "retroactive discount" on their bill. Moreover, once they have incurred an arrearage, they are allowed to receive a "Below Budget" monthly payment amount that is based on what is determined to be "affordable."

- Incremental vs. Episodic – The programs in other jurisdictions usually grant low-income program participants benefits for each successful payment they make to the utility. If the customer has a budget bill of $150 and is assigned a payment amount of $100, they receive a $50 credit each time they make their $100 payment. The Connecticut MPP and MaPP programs are "all or nothing." If the customer successfully makes all of their payments during Phase 1 of the program, they receive a matching arrearage forgiveness amount. However, if they do not make all payments, they receive no benefit. While the Connecticut program furnishes the customer a very strong incentive to make all payments, it is unclear whether the program success is evenly distributed across the different types of customers.

The Connecticut program offers certain advantages over ratepayer-funded energy assistance programs that have been implemented in other jurisdictions.

- Demonstrated Affordability Problems – Some households may be low-income, but have sufficient resources to pay their energy bills; they might have a home with no mortgage, might be healthy and have few medical bills, and/or they receive financial support from a relative. Other households may have higher income, but do not have sufficient resources to pay their energy bill; they might have to live in an expensive community to retain their job, they might have a health problem and high out of pocket health care costs, they might be paying education costs for their child. One advantage of the Connecticut program is that it furnishes benefits only to those households with a "demonstrated" need.
- Short Term Cost Minimization Strategy – In the short run, the Connecticut program is likely to be the lowest cost. It only serves those customers who have an arrearage; it doesn't give benefits to customers who pay their bills.
- Below Budget Assessment – The below budget financial assessment tailors payments to the circumstances of individual clients. Rather than assign a simple "percent of income" payment amount, it looks more carefully at the client's actual financial circumstances before assigning a payment amount.

However, the Connecticut program appears to have disadvantages in other respects.

- Penalty for Customers Who Pay Bills – All customers, including low-income customers, are paying for the energy assistance programs. Those low-income customers who pay their bills on time even when they must do without other basic necessities to do so, receive no benefit from the program.
- Fairness – Under other types of programs, all customers are treated in the same way. If the target percent of income is 10%, a customer with $10,000 in income is expected to pay $1,000 per year, a customer with $20,000 in income is expected to pay $2,000 per year, and a customer with $40,000 in income is expected to pay $4,000 year. If the bill discount is 25%, every customer who documents that they are income-eligible for the program receives a 25% discount. Under the Connecticut program, the amount received is dependent on the size of the customer's original arrearage and the amount they pay during the program period.
- Long-Term Cost – In the long run, it is unclear how Connecticut's low-income customers will respond to the incentives implicit in the Connecticut program. Since a customer can only receive program benefits if they are in an arrearage situation, it appears that, over the long run, the program would encourage low-income customers to build up an arrearage on their bills. While there is no evidence that this actually occurs, there also is no evidence that it does not occur.

Additional data and statistics would be needed to more effectively compare and contrast the Connecticut energy assistance programs with those implemented in other jurisdictions.

5.4 Effectiveness of Publicly-Funded Energy Efficiency Programs

The primary source of funding for publicly-funded energy efficiency is the Department of Energy Weatherization Assistance Program. In 2014, the program used $2,463,560 in funding and served 433 households.

The LIHEAP program is allowed to transfer up to 15% of the LIHEAP allocation to the WAP program. (Note: The share is 25% if the program applies for and is granted a waiver from the federal LIHEAP office). LIHEAP statistics show that about one-half of state programs transfer 10% or more of their funds to WAP. In a recent program year, only ten state LIHEAP programs did not transfer any funds to WAP.

If the Connecticut LIHEAP program had transferred 15% of funds to the WAP program, about $12.9 million would have been transferred. That would have served about 2,250 households. However, that would have meant either that the LIHEAP program would have served about 20% fewer households or that the program would have needed to cut benefits by about 20%.

The National WAP Evaluation showed that the WAP program saved about 18.5% of natural gas usage and about 7.1% of electric usage for single family homes treated by the program in the Cold Region. Applying those percentages to the Connecticut low-income energy expenditures for natural gas, it is likely that the delivery of WAP services would generate about $392 per household in energy savings.

It is difficult to make the trade-off between the very important short-term benefits of energy assistance and the equally important long-term benefits of energy efficiency. However, it is certainly important for Connecticut policymakers to periodically review those choices.

5.5 Effectiveness of Ratepayer-Funded Energy Efficiency Programs

Connecticut ratepayers have made a significant investment in low-income energy efficiency programs. In 2014, the programs served 19,659 with $33,453,293 in funding. The average investment per home - $1,702 - is somewhat lower than the investment per home through the WAP program. However, program funding is more than 13 times the funding for the WAP program and the number of households served is more than 45 times the number served by the WAP program. Over a five-year period, the Connecticut ratepayer-funded energy efficiency programs will serve close to 100,000 households. That is over 20% of all low-income households in the state, and is approximately equal to the number of households served each year by ratepayer-funded energy assistance programs.

The investment that Connecticut ratepayers make in low-income energy efficiency programs is one of the highest in the country among the twenty states that we have studied. In 2014, Connecticut spent about $77 per low-income household; that is higher than all of the other states we studied except for Wisconsin ($77) and Vermont ($138). On average, the twenty states that we studied spent about $35 per low-income household, less than one-half the amount spent by Connecticut. However, the average amount spent per participant in the twenty states that we studied was about $3,400 per household, about twice the amount invested per participant in Connecticut.

There are a number of best practices that have been implemented in other states that Connecticut policymakers and program managers might consider.

- Targeting of Energy Assistance Customers – In a number of states (e.g., New Jersey, Ohio, Pennsylvania), the low-income energy efficiency programs target services to the households who receive ratepayer-funded energy assistance. In that way, the energy savings realized by low-income households who receive benefits from the ratepayer energy assistance program are likely to reduce those households' needs for energy assistance and thereby create a synergy between spending for low-income energy efficiency programs and low-income energy assistance programs.
- Targeting the Highest Usage Customers – The National Weatherization Assistance Program evaluation, as well as other evaluations of weatherization and electric energy efficiency programs consistently demonstrate that programs that target the highest usage homes achieve the highest energy savings and percentage savings per dollar spent on the program. And, since those households with the highest usage are likely to have the highest energy burden and the greatest need for energy assistance, targeting these high usage customers again achieves program synergies. When the data on energy usage become available through the LIHEAP program, there may be an opportunity to identify the highest usage energy assistance customers, provided that client confidentiality restrictions can be addressed.

The ratepayer energy efficiency programs might face both technical and regulatory/statutory challenges in implementing these practices. However, it might be useful for policymakers and program managers to consider these as options for future program design.

5.6 Information Needs

Good policymaking requires good information. In conducting this research, we obtained information on the LIHEAP program from the Department of Social Services, information on the ratepayer-funded energy assistance programs from the LIEAB report and from filings to PURA, information on the WAP program from the Weatherization Assistance Program Technical Assistance Center, and information on the ratepayer funded energy efficiency programs from publications of the Connecticut Energy Efficiency Board. The comprehensiveness of the information available from those sources varied considerably, particularly with respect to details needed to assess the effectiveness of different programs in meeting the needs of different parts of the population of low-income households.

5.6.1 Information on Energy Assistance Programs

The Department of Social Services had extensive information on both CEAP funding and on the households served by CEAP. The funding information allowed us to develop statistics on the share of funding that were used for different purposes, and to estimate how those funds were distributed by income group and main heating fuel type. In addition, the household-level data tracked by DSS allowed us to develop statistics on the share of income-eligible households served by the program by income group. Those data were very valuable in terms of developing information on program targeting.

The only information missing from the DSS data was information on the energy expenditures and burden of low-income households served by the program. For our analysis of gross and net energy burden, we used the self-reported energy expenditures from the ACS as a proxy for the expenditures of recipient households. Once DSS completes collection of energy expenditure data for recipient households for FY 2016, that information gap will be filled.

One other useful set of information would be to track year-over-year participation in the CEAP program. Some households are expected to participate consistently over time (e.g., elderly and other fixed income households), while other households are likely to use benefits for only one or two years. It would be useful to have a better understanding of these program dynamics.

The information on the ratepayer-energy assistance programs was very limited. The joint filing submitted to PURA furnished comprehensive information on program design and implementation, but very limited information on program funding and program participants. The filing to PURA by CL&P did furnish additional information on total program funding and the number of program participants. However it did not furnish details on program participants.

The following information would help policymakers and program managers to better understand who the program is serving and what benefits they are receiving:

- Demographic and Housing Characteristics of Participating and Successful Customers
  - Distribution by Income Group
  - Distribution by Household Size
  - Distribution by Poverty Group
  - Percent with Vulnerable Household Members
  - Distribution by Housing Unit Type
  - Percent that are Renters
  - Distribution by Race/Ethnicity
- Energy, Arrearage, and Benefit Information on Participating and Successful Customers
  - Mean and Distribution of Budget Bill by Demographic and Housing Characteristics
  - Mean and Distribution of Pre-Program Arrearages by Demographic and Housing Characteristics
  - Mean and Distribution of Matching Payments by Demographic and Housing Characteristics
  - Mean and Distribution of Post-Program Arrearages by Demographic and Housing Characteristics

In addition, it would be extremely valuable to have information on year-over-year program participation. For example, in their most recent filing CL&P noted that they had changed the New Start program from a three-year arrearage retirement plan to a one-year arrearage retirement plan. It would be useful to track program participants to assess whether that program change was effective in reducing the number of repeat program participants.

5.6.2 Information on Energy Efficiency Programs

We make use of the WAPTAC resource for looking at state WAP programs because it furnishes consistent information on program funding and program production over time. That resource does not furnish information on the types of housing units or the types of households that are served by the program. We expect that the Connecticut WAP program has that type of information. However, since the program serves a small share of the income-eligible population, we did not seek to obtain those data.

The HES-IE program served close to 20,000 low-income households in 2014, which is about 5% of low-income households and about 20% of the number of low-income households that receive energy assistance. Since those programs deliver substantial benefits to individual low-income households, it is important to have more detailed information on the demographic and housing characteristics of those

households. In addition, since program effectiveness and program cost-effectiveness is directly related to the pre-program energy usage and energy burden of participating households, those data also would be useful to give Connecticut policymakers a comprehensive account of program benefits. The following information would help policymakers and program managers to assess the performance of the program.

- Distribution of Program Spending and Measures by Income Group
- Distribution of Program Spending and Measures by Poverty Group
- Distribution of Program Spending and Measures by Building Type and Renter Status
- Average and Distribution of Pre-Program Energy Usage
- Average and Distribution of Post-Program Energy Usage
- Average and Distribution of Spending per Household

These data also would help Connecticut policymakers and program mangers to compare and contrast the HES-IE program with those implemented in other jurisdictions.

BGreen 2020

Appendices

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BILL FINCH
Mayor

EXECUTIVE ORDER # 08-001

B-GREEN 2020

An Order Relative to Sustainability in Bridgeport

Whereas, the City of Bridgeport has been a leader in recognizing the threat of climate change by signing the U.S. Mayors Climate Protection Agreement and joining the ICLEI – Cities for Climate Protection campaign;

Whereas, the United Nations' Intergovernmental Panel on Climate Change has concluded that "Warming of the climate system is unequivocal" and that "Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations";

Whereas, negative trends in urban and environmental quality pose risks to Bridgeport residents, visitors, businesses, institutions, and infrastructure, including risks associated with environmentally impaired properties, and risks from climate change including urban heat island, public health, sea-level rise, changing precipitation patterns, increased severity of storms and flooding, and stress on water and energy systems and the public infrastructure;

Whereas, the City of Bridgeport has one of the highest concentrations of environmentally impaired properties (Brownfields) in the State and nearly 40% of all Bridgeport's properties are tax exempt, it is critical for the City to return these Brownfields to productive economic use and taxation as soon as possible;

Whereas, the City of Bridgeport spends more than $20 million on energy to heat and light its older, inefficient public facilities and other public services, and does not have a comprehensive energy conservation and management program;

Whereas, the City of Bridgeport's unemployment rate has been higher than regional norms and its median income level per household significantly lower than Fairfield County, and has the potential to be a leader in the green jobs revolution that can help create jobs, alleviate poverty and build wealth in the economy;

Whereas, actions that the City of Bridgeport can take to reduce the threat of climate change will save money, improve energy efficiency, reduce the emission of air pollutants, create a cleaner and greener city, improve transportation and other infrastructure, expand business and educational opportunities, create jobs, strengthen the economy, and minimize the environmental justice concerns that burden city residents; and

Whereas, the City of Bridgeport is developing a Sustainability Action Plan, which describes the greenhouse gas emissions of municipal operations and the community as a whole and actions that the City can take to reduce such emissions and improve the local environment.

NOW, THEREFORE, pursuant to the authority vested in me as chief executive officer of the City of Bridgeport, I hereby order and direct as follows:

1. The City of Bridgeport, consistent with the U.S. Mayors Climate Protection Agreement, shall strive to meet or exceed the goal of reducing its annual greenhouse gas emissions seven percent below 1990 levels by 2012, and shall further strive to reduce the City's annual greenhouse gas emissions by ten percent below 1990 levels by 2020 in accordance with the goals set forth in the City's Master Plan of Conservation and Development.

2. The City shall establish a Sustainability Community Advisory Committee (SCAC). Upon appointment, the SCAC shall:

    a. Oversee the completion of a community-wide and municipal greenhouse gas emissions inventory and set goals for community-wide reductions;
    b. Make recommendations to the Mayor and the community concerning actions necessary to meet sustainability goals and to identify the advantages of associated opportunities;
    c. Prepare educational materials for households and businesses in Bridgeport describing global climate change, sustainability, and the actions that they can take; and
    d. Identify economic and workforce development opportunities associated with green jobs and the clean technology sector
    e. Ensure that community stakeholders have a voice in the sustainability planning process through their representation;

3. The City shall launch a Sustainability Initiative in partnership with the Bridgeport Regional Business Council. The first phase of this initiative shall include a planning effort to establish the long-range sustainability framework for the initiative, as well as several early action items, including analysis of:

    a. The city's Brownfields, and prioritization of remediation and redevelopment to clean the environmental condition of these properties and transition them into productive, community enhancing uses. It is conservatively estimated that the city can recover at least $15 – 20 million dollars in tax revenue from placing environmentally impaired properties back on the property tax rolls.

    b. An energy audit and retrofit of all appropriate municipal properties with an identification for potential efficiency and carbon reduction improvements focusing on municipal consolidation to reduce the physical footprint of city operations by at least 25% over the next 5 - 10 years, thereby reducing energy cost expenditures of approximately $2.5 million per year over the remaining life of the facilities.

    c. Lowering energy costs by forming an energy improvement district in the city including an evaluation of the feasibility of installing solar, wind, bio-energy, combined heat and power, and geothermal in all existing municipal structures and incentivizing the same in private structures.

    d. The state of the city's open spaces and tree canopy and goals for new neighborhood open spaces and tree planting.

    e. The potential for recycling within the city to divert the flow of trash away from the waste to energy facility and landfills.

    f. The use of advanced waste management solutions to treat organic waste through composting or anaerobic digestion and capture of methane gas from existing landfills and sewage treatment facilities and its conversion to energy.

    g. The ability to manage storm water in the city through low-impact design and innovative natural solutions to help the city manage volume and improve water quality in the harbor and the Sound.

    h. Green building standards that can be adopted for structures built publicly and privately within the city limits and permitting processes to expedite the construction of green buildings.

    i. Land-use policies that reduce sprawl, preserve open space, and create compact, walk-able urban communities.

    j. Transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.

k. The creation of a green jobs initiative and opportunities to expand investments in the green technology sector.

l. The utilization of green cleaning supplies, paints, carpets, and furniture to improve the indoor air quality of the city's buildings; and the use of environmentally-friendly fuels, motor oils, lubricants, cleaners, pesticides and other products to improve outdoor air and water quality.

m. Green purchasing programs to use the city's buying power to influence the ecological footprint of the marketplace.

4. Planning for all new municipal construction and major renovations of City-owned facilities and other major municipal projects shall include an estimate of annual energy use and greenhouse gas emissions. Such planning shall also include an evaluation of the risks posed by the likely effects of climate change through 2050 to the project itself and related infrastructure and a description of potential steps to avoid, minimize or mitigate those risks.

5. All new construction and major renovation of City facilities shall obtain Leadership in Energy and Environmental Design (LEED) Green Building Rating System Silver level certification from the U.S. Green Building Council or equivalent as is presently mandated by the Connecticut General Statutes for school facilities.

6. By 2012, at least 25 percent of electricity purchased by municipal departments shall come from green-e certified renewable sources, which combined with spatial consolidation, and on-site renewable generation could result in a savings of approximately $750,000 per year over the next 20 years.

7. All purchases of new motor vehicles shall be alternative fuel, flexible fuel, or hybrid vehicles, unless they are not available for the needed function. New motor vehicles shall be the most fuel-efficient within their vehicle class. By 2025, the City shall endeavor to replace its 60 passenger cars and SUVs resulting in a total fuel savings of over $2 million.

8. The City shall increase the fuel efficiency of its municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; and convert diesel vehicles to bio-diesel.

9. The City shall begin a recycling program and target a diversion rate of 30 percent by 2009, 35% by 2010, and 40% by 2015, which will be equivalent to an annual savings by diversion reaching over $800,000 and additional revenue reaching $130,000 annually by 2015.

10. The City shall quantify annually by department all energy consumption and greenhouse gas emissions.

11. The City of Bridgeport Sustainability Initiative and Sustainability Action Plan shall be implemented in conformity with all federal, state, and local laws.

12. The provisions of this Order are severable, and if any provision, or portion thereof, should be held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such unconstitutionality or invalidity will not affect the remaining provisions, which will remain in full force and effect.

13. The provisions of this Order shall take immediate effect.

I further direct all Department Heads and City Employees to render such aid and assistance as is required for the implementation of the foregoing policy.

Dated this 24th day of October, 2008 at Bridgeport, Connecticut.

_____

Bill Finch
Mayor

SUSTAINABILITY COMMUNITY ADVISORY COMMITTEE

1. Eric Anderson, Principal, Urban Green Builders
2. Cindy Bigelow, President, R.C. Bigelow Incorporated
3. Dorcas Blue, Program Director, Fairfield County Community Foundation
4. Kevin Byrnes, President, Fairfield County Building Trades
5. Charles "Don" Clemons, State Representative, 124th District, State of Connecticut
6. Joseph M. Carbone, President and CEO, The Workplace, Inc.
7. Edith Cassidy, Chair, Bridgeport Child Advocacy Coalition
8. Leticia Colon, City Council member, 131st District, City of Bridgeport
9. Gregg Dancho, Director, Connecticut's Beardsley Zoo
10. Susan L. Davis, President & CEO, St. Vincent's Medical Center
11. Dan Esty, Director of Environmental Law, Yale University ; Mary Fischer, Director of Sustainability Environmental Film Festival, Yale University
12. Dr. Marian Evans, Director of Health and Social Services, City of Bridgeport
13. Donald Eversley, Director of OPED, City of Bridgeport
14. Gretchen Hancock, Manager of Environmental Programs, General Electric
15. Shante Hanks, Congressman Jim Himes Office
16. Robert Henry, Chief of Staff, Board of Education, City of Bridgeport
17. James Holloway, City Council Member, 139th District, City of Bridgeport
18. Adrienne Houel, Program Manager, Greater Bridgeport Community Enterprises (Green Team)
19. Curt Johnson, Executive Director, CT Fund for the Environment
20. Alanna Kabel, Deputy CAO, City of Bridgeport
21. Ron Kilcoyne, General Manager/CEO, Greater Bridgeport Transit
22. Debbie Kuchmas, Housatonic Community College
23. Martin Mador, Legislative Chair, Sierra Club
24. Glenn Marshall, President, Carpenters Union Local 210
25. Alma Maya, Town Clerk, City of Bridgeport
26. Ted Meekins, Board Member, Neighborhood Revitalization Zone
27. Patrick F. McDonnell, Director of Conservation and Load Management, United Illuminating
28. Gina McCarthy, DEP Commissioner, State of Connecticut
29. Thomas McCarthy, City Council President, 133rd District, City of Bridgeport
30. John McKinney (R), State Senator, 28th District, State of Connecticut
31. Sheri Neely, Organizer, CT Coalition for Environmental Justice
32. Andrew Nunn, Chief Administrative Officer, City of Bridgeport
33. Homer Purcell, Vice President Sales, UTC Power
34. Thomas Santa, President & CEO, Santa Energy
35. Melissa Spear, Common Ground
36. Ross Spiegel, Sustainability Architect, Fletcher Thompson Architects
37. Thomas Stilley, Project Director, Dupont Corporation
38. Rick Thigpen, VP Government Affairs, PSE&G
39. Dick Tiani, Executive Director, Groundworks Bridgeport
40. Paul S. Timpanelli, President and CEO, Bridgeport Regional Business Counci

B-Green Technical Committee Membership

Greenfields & Green Wheels:

Barbara Miller, Co-chair	Attorney
Ron Kilcoyne, Co-chair	Greater Bridgeport Transit
Tom Stilley	Dupont
Carolyn Gonzales	Community Capital
Marian Whiteman	General Electric
Peter Simmons	State of Connecticut DECD, Brownfields office
Maya Loewenberg	State of Connecticut DECD, Brownfields office
Michael Stone	Steel Point Development Team
Frank Borres	West End NRZ
Kevin Nunn	BERC
Mark Nielsen	GBRPA
Karen Burnaska	Transit for Connecticut Coalition
Lou Rinaldi	Bridgeport & Port Jefferson Steamboat Co.
Garrett Sheehan	United Illuminating Company
Mike Taylor	VitaNuova
Franco Evangelio	MetroPool
Max Perez	Planning & Economic Development, City of Bridgeport
Rich McHugh	Economic Development, City of Bridgeport
Doug Holcomb	Greater Bridgeport Transit
Bruce Wettenstein	Real Estate
William Pollack	Landscape Architect
John Wilkins	Bicycle Coalition
David Kooris	Program Management Representative
Evelyn Lee	Program Management Representative

Green Energy / Green Buildings:

Bill Leahy, Co-chair	Institute of Sustainable Energy
Tom McCarthy, Co-chair	City Council President
Ross Spiegel	Fletcher Thompson
Pat McDonnell	UI
Tom Santa	Santa Fuels
Rick Thigpen	PSE&G
Bob Tierney	UTC Power
Martin Mador	Sierra Club
Terry Backer	State Representative, Stratford
Gretchen Hancock	General Electric
Steve Israel	Developer
Iris Molina	Dept of Social Services, City of Bridgeport
Mike Smalec	Southern Connecticut Gas Company
Paul Boucher	South End NRZ
Al Hinds	Board of Education
Maryanne Evans	Health Director, City of Bridgeport
Bob Wall	Connecticut Clean Energy Fund
Peter Hance	Bridgeport Housing Authority
John Cottell	Public Facilities, Bridgeport
Fahim Uddin	ITS, City of Bridgeport
Ray Wiley (O&G)	City of Bridgeport
Jeff Leichtman	Program Management Representative

B-Green Technical Committee Membership

Green Spaces, Recycling & Water Resources:

Dick Tiani, Co-chair	Groundwork Bridgeport
Gregg Dancho, Co-chair	Beardsley Zoo
Maria Valle	City Council
Sheri Neely	CT Coalition for Environmental Justice
Curt Johnson,	CT Fund for the Environment
Stuart Sachs	Landscape Architect
Lillian Wade	East End NRZ
Tony DePrimo	Public Facilities-Recycling
Karolyn Egbert	Trefz Corporation
Melissa Spear	Green spaces advocate
Erik Bernard	Aquarion Water Company
Dorcas Blue	Fairfield County Community Foundation
Bill Robinson	WPCA
Bob Halstead	Bridgeport Community Land Trust
Kim Barber	GEI Associates
Lynne Werner	Housatonic Valley Watershed Association
Julio Reinoso	Community Activist
Angie Staltaro	Neighborhood Revitalization, City of Bridgeport
Steve Hladun	Parks Department, City of Bridgeport
Armindo Videira	Recycling, City of Bridgeport
Jay Curran	GEI Consultants
Alfred Kovalik	Geodesign Incorporated
Jeanne Yuckienuz	Beardsley Zoo
David Kooris	Program Management Representative
Evelyn Lee	Program Management Representative

Green Businesses, Green Jobs & Green Purchasing:

Susan Davis, Co-chair	St. Vincent's Hospital
Ann Robinson, Co-chair	Community Capital
Debbie Kuchmas	Housatonic Community College
Adrianne Houel	ABCD
Mike McCarthy	Workplace Inc
Kevin Byrnes	Fairfield County Building Trades
Bob Pinciaro	Toro & Pinciaro
Garrett Gizowski	GE Credit Union
Diane Dimino	UI
Lisa Renkowsky	AllPhase Construction
Erin Buckley	Center for Green Building
Jesse Stratton	Environment Northeast
Deb Caviness	Small Business Director, City of Bridgeport
Janet Hinterneder	Eastern Bag & Paper
Edith Cassidy	Bridgeport Child Advocacy Coalition
Bernd Tardy	City staff
Beth Royer	City staff
Veronica Ortiz	City staff
Jeff Leichtman	Program Management Representative

B-Green Technical Committee Membership

Green Marketing and Education:

Ralph Buzzard, Co-chair	Board of Education
Shante Hanks, Co-chair	Congressman Himes Office
James Horne	UWGUC
Marge Hiller	BCAC
Cynthia Fernandes	Board of Education
Alma Maya	City of Bridgeport
Tyfannie Mack	UI
Scott Hughes	Bridgeport Public Library
Tammy Pappa	Director, The Lighthouse Program
Stephanie Barnes	Higgins Real Estate
Hugh McCann	Identification Products Incorporation
Jere Eaton	Printabilities
Kate Bouicort	Yale
Susan Tabachnick	Leap Program Manager
Shere Neely	CT Coalition for Environmental Justice
Stephanie Barnes	
Tammy Pappa	The Lighthouse
Leila Lawrence	
Elaine Ficarro	Office of the Mayor, City of Bridgeport
Beth Royer	Planning, City of Bridgeport
Michelle Sapp	Program Management Representative

Greenfields and Green Wheels Committee

Goal:

To reduce automobile trips, vehicles miles traveled, and the city's transportation emissions through coordinated land use and transportation planning.

Objectives:

- Determine current vehicle miles traveled originating in and destined to the city, transit ridership, and per capita transportation emissions as a baseline measurement tool.
- Build upon previous planning efforts with additional analysis to identify a land use and transportation infrastructure investment strategy for the city.
- Recommend zoning adjustments and capital improvement priorities necessary to implement the coordinated land use and transportation vision.

Goal:

To facilitate the redevelopment of underutilized sites throughout the city, transitioning blighted properties into neighborhood amenities and adding to the city's tax rolls.

Objectives:

- Compile a citywide list of underutilized sites and identify their particular barriers to redevelopment including, but not limited to, needing environmental remediation.
- Use the coordinated land use and transportation plan as a filter to identify those sites that yield the greatest potential for redevelopment that will reinforce neighborhood character and provide tax revenue.
- Develop a marketing and divestment strategy that will result in the redevelopment of those targeted sites and their addition to the city's tax roll.
- Identify funding sources for the initial phase environmental testing of the highest priority sites in city ownership or through partnerships with private owners.

Goal:

To provide city residents, workers, and visitors with a wide range of mobility options that connect origins with desired destinations with least carbon intensive mode.

Objectives:

- Create a prioritized list of mass transit capital and operating improvements with a financing strategy for those within the city's and the transit agency's control and an advocacy plan to institute those that are not.
- Identify deficits in the city's pedestrian infrastructure, prioritize improvements, and create an implementation plan.
- Create a bike plan for the city with prioritized improvements and an implementation strategy.

Green Energy / Green Buildings Committee

Goal - Analysis

To utilize sustainable energy practices and production as a driver for economic development, to generate significant savings for municipal facilities, businesses and residents, and to reduce the carbon footprint of the community.

Objectives:

- Create a carbon footprint analysis for the city and benchmark all municipal buildings, schools and public housing projects as a baseline measurement tool
- Create a plan that projects the potential savings from the renovation of existing municipal facilities by improving their energy efficiency to Energy Star standards
- Create a plan that evaluates the saving from developing potential renewable energy projects in the city, both small scale and larger integrated projects
- Evaluate the benefits of establishing an Energy Improvement District

Goal – Sustainable Energy

To improve the energy efficiency of both public and private sector facilities and residences, creating real dollar savings from these efficiencies.

Objectives:

- Determine the potential savings from a broad-based weatherization/energy efficiency programs for residential, small/medium-sized business customers, and for public facilities (municipal buildings, schools and public housing)
- Implement a plan which develops potential renewable energy projects in the city, both small scale and larger integrated projects
- Identify key sources of public & private sector funding, shared savings programs, and loan assistance mechanisms to support the city's energy efficiency goals
- Identify training and retraining opportunities for workers and cost-effective management vehicles or private sector business opportunities to do the work
- Adopt a set of Green Building standards for all new construction and renovation projects

Goal - Purchasing

To lower energy costs for groups of energy users through aggregation programs and other bulk purchasing opportunities

Objectives:

- Identify key user groups for purchasing energy commodities by matching load requirements to create maximum savings opportunities
- Create a template of standard contractual terms for use by potential partners
- Conduct a procurement process to realize savings

Green Space, Recycling and Water Resources

Goal:

To ensure that the city's residents have access to abundant, high quality, interconnected open spaces that foster community cohesion and stewardship.

Objectives:

- Establish a citywide Conservation Commission, conservancy group, or other body able to lead the implementation of the recommendations pertaining to green spaces and water resources within the city.
- Develop a Green Space Master Plan that includes an inventory of protected and unprotected parks and open spaces, urban forestry strategy, management and maintenance budgets and design guidelines.
- Promote the protection of undeveloped open spaces, particularly in underserved areas.
- Encourage the creation of new open spaces through zoning, particularly along waterfronts.
- Identify opportunities for small-scale community green spaces such as community gardens and public plazas.
- Create connections between green spaces through greenways, urban trails and public transportation routes such as the Pequonnock River Greenway.
- Ensure adequate public access to open spaces and waterfront for all potential users.
- Promote community involvement at green spaces through design and programming, including facilities, events and stewardship opportunities.

Goal:

To develop a "smart" waste management strategy that identifies efficiencies within the city's waste stream, improving recycling rates and reducing overall solid waste output, while seizing opportunities for recycled and solid waste industries.

Objectives:

- Propose strategies for improving recycling performance of residents, businesses and city agencies.
- Ensure that demolition and construction projects recycle most or all eligible materials.
- Help to drive the market for recycled material products by encouraging their purchase through public and private sector procurement processes and requirements for new construction.
- Propose strategies to reduce city-wide solid waste output considering both carrot and stick approaches potentially including a citywide contest for neighborhoods to receive funding for local projects in proportion to money saved through local recycling.
- Develop a composting program in conjunction with the parks department, community gardens, and neighborhood groups.
- Ensure that recycling and garbage pick up staff are trained to inform residents and employees throughout the city on proper recycling guidelines at time of pick up if requested.

Water Resources

Goal:

To ensure that residents have access to safe, clean drinking water and healthy coastal resources.

Objectives:

- Assess the city's water supply and wastewater infrastructure with respect to reliability, age, efficiency, security and capacity while taking into account projected population increases.
- Promote water efficiency through educational campaigns; incentivizing use of grey water & drought tolerant plantings; developing city-wide programs to encourage low-flow toilets, shower and faucet heads, amongst other strategies.
- Develop and implement strategies to capture stormwater runoff and reduce nonpoint source pollution using built and natural systems.
- Reduce the number of overflow events at the WPCA plants into Long Island Sound.
- Protect and restore critical coastal and riverfront habitat.

Green Businesses, Jobs & Purchasing Committee

Goal:

To assist Green Businesses grow and prosper in Bridgeport, creating green collar jobs and helping the city diversify its business base and improve its environmental footprint.

Objectives:

- Identify existing barriers to green businesses growth and work to eliminate them
- Create a green business incubator to support the growth of environmentally friendly business enterprises, either through expansion of an existing business incubator or in the creation of a new green-focused one
- Identify existing local, state and federal incentive programs and policies to grow small, green businesses and create new green-collar jobs.
- Research best practices in other U.S. municipalities to determine relevant applications

Goal:

To create 1000 new green collar jobs in Bridgeport by 2011 by recruiting green businesses and training workers for the new green economy.

Objectives:

- Create an inventory of existing green jobs and identify potential sectors for expansion
- Bring educators from the vocational, community college, and college sectors together to create training and retraining opportunities
- Create and / or utilize federal, state and local policies and incentive programs to stimulate green jobs creation.
- Research best practices in other U.S. municipalities to determine relevant applications

Goal:

To utilize the purchasing power of the public & private sectors to buy green products, including but not limited to recycled materials, green cleaning products, green energy, and other eco-friendly products and materials

Objectives:

- Identify the universe of materials, products, and services that fit this criteria and determine whether green products are readily available and in a reasonably similar cost range
- Create public, private and non-profit buying groups to reduce costs and increase green purchasing power
- Create green recognition and rewards programs to encourage participation
- Research best practices in other U.S. municipalities to determine relevant applications

Green Marketing & Education Committee

Goal:

Develop an integrated plan to educate youth/students on sustainability that will assist them in better understanding on how energy efficiencies and conservation contributes to a healthier environment and generates cost savings.

Objectives:

- In conjunction with the Green Businesses, Jobs & Purchasing Committee, develop a green jobs career ladder for students – a Conversation Corps of energy auditors – and work with the Green Jobs committee to have students do audits of their school.
- Develop a database of educational resources to use in schools: U. I. Programs. DEP programs, EPA programs, etc.
- Develop promotional items for students with a B-Green2020 theme to use as prizes (Back Pack, Shopping Bag, Aluminum water jug etc.).
- Focus student attention in schools on B-Green2020 at specific time periods (EARTH DAY programs etc.) and continue through out the school year.
- Partner with community base organizations to develop interactive opportunities that will engage the youth in energy-saving activities using hands-on, real-world projects.
- Work with school officials to identify opportunities to incorporate sustainability into the Bridgeport School curriculum.

Goal:

Increase the awareness and introduce best practices to Bridgeport residential households on living in a more sustainable manner.

Objectives:

- Call to action at church and community groups
- Develop resource materials that will provide the residential communities with information regarding programs that will assist in energy and cost savings to improve sustainability in our communities.
- Develop promotional materials regarding B-Green2020 to be sent home by students
- Develop new PR materials about B-Green2020

Goal:

Brand the B-Green initiative as a vital component of the city's revitalization plan

Objectives:

- Create a B-Green2020 logo
- Have students design bill boards that use the logo and pass the message within the community
- Gather research to identify key insights to support the B-Green2020 initiative and benchmark findings in comparison to similar initiatives outside of the Bridgeport community
- Create targeted communications to key decision makers and stakeholders highlighting the economic and social value of sustainability
- Develop an overall marketing plan to generate awareness and support for the B-Green 2020 initiative

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREENFIELDS ACTION PLAN					
A. Land Use Planning Initiatives to Reduce VMT					
Initiative #1 Use zoning regulations as enabler for reduced automobile use and for residential and commercial redevelopment					
1-1. Enable mixed-use development through rezoning	Zoning City Council	a. Enact zoning amendments			39
1-2. Promote transit-oriented development	Zoning City Council	a. Enact zoning amendments			
1-3. Rezone underutilized industrial areas for mixed and other use	Zoning City Council	a. Enact zoning amendments			
1-4. Reduce parking requirements and create incentives for reduction in automobile use	Zoning City Council	a. Enact zoning amendments			
1-5. Promote form-based design in conformance with form-based standards	Zoning City Council	a. Enact zoning amendments			
Initiative #2 Create new opportunities for mixed use on municipal properties					
2-1. Adapt outdated buildings to new uses	Public Facilities City Council	a. Sell 2 unused City buildings for redevelopment as residential/commercial mixed uses	a. Prioritize properties for continued disposition in conjunction with green space, stormwater and development planning		19
2-2. Expand co-locations with government agencies	Public Facilities	a. Identify partner agencies and site opportunities for co-location		a. Consider construction of new Municipal Government Center	
Initiative #3 Provide housing ladder to enable continuum of work/live opportunities to reduce travel needs					
3-1. Expand affordability programs	Zoning OPED	a. Develop housing overlay to enable development of additional affordable housing units			30
3-2. Encourage homeownership by creating new housing on public land	Community Land Trust Bridgeport Housing Authority	a. Establish community "land trust" for housing opportunity, work toward *Bridgeport 2020* targets			
3-3. Provide housing ladder	Planning and Zoning City Council OPED	a. Enact zoning amendments to enable continuum of housing opportunities			

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREENFIELDS ACTION PLAN					
Initiative #4 Create neighborhoods of choice to capitalize on combined work/live opportunities and reduce travel needs					
4-1. Promote safe and attractive neighborhoods	a. Reap benefits of Complete Streets planning and Mobility options identified in Green Wheels Action Plan and Green Spaces planning in Green Spaces Action Plan				37
4-2. Preserve historic structures to enhance neighborhoods	Multi-stakeholder Historic Preservation Task Force	a. Establish single multi-stakeholder task force to unify historic preservation efforts b. Create uniform database of historic resources	a. Create plan to strengthen, clarify and unify historic district controls for coordinated, long-term protection		
4-3. Coordinate development and promotion of arts and cultural resources	Bridgeport Cultural Council	a. Establish single multi-stakeholder task force on arts, entertainment and cultural resources (Bridgeport Cultural Council established) b. Create uniform cultural data base c. Initiate comprehensive planning for coordinated arts development and marketing	a. Initiate comprehensive marketing strategy for arts, entertainment and cultural resources		
4-4. Coordinate development of educational resources	Multi-stakeholder Educational Task Force	a. Establish single multijurisdictional task force on post-secondary education opportunities b. Create framework for ongoing coordination of post-secondary educational opportunities and marketing of Bridgeport's comprehensive educational offerings and opportunities			
4-5. Establish BGreen Educational Kiosks in libraries and community centers to promote sustainable actions	Greenfields and Green Wheels Subcommittee Education and Outreach Subcommittee Libraries Community Centers	a. Incorporate land use and transportation materials in BGreen Educational Kiosks (pilot at Burroughs Library)			
Initiative #5 Promote opportunities for business and Class A office space to reduce tax burden and provide work/live options					
5-1. Enact zone changes to promote increased Class A office space development	Zoning City Council	a. Enact zoning amendments			27
5-2. Use City's comprehensive BGreen initiative as marketing tool to attract Class A office development	OPED BRBC	a. Market Bridgeport as an emerging Model Green City to attract coordinated Class A business development and residential opportunities			

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREENFIELDS ACTION PLAN					
B. Coordinated Redevelopment of Vacant Lands to Reduce VMT and Meet Multiple Needs					
Initiative #1 Use GIS as comprehensive planning tool					
1-1. Identify all underutilized sites and identify barriers to redevelopment, including environmental impediments	Greenfields Subcommittee OPED Tax Assessor Office of Blight State DECD GIS NRZs DEP EPA	a. Create initial database of sites and translate into GIS format b. Create GIS data layer of sites with i) no known environmental constraints; and ii) known environmental constraints c. Optimize GIS capability as a comprehensive planning tool by expanding information links, creating near real-time updating methodology and optimizing data accessibility	a. Using expanded GIS capability, coordinate economic, environmental and social development needs for housing, business, open space, natural resource protection, stormwater and mobility b. Host GIS educational forum for municipal agencies to expand capacity of GIS as planning tool c. Host GIS educational forum for NRZ's and community groups to better enable coordination of community goals and land use	a. Develop comprehensive long range plan for multi-need redevelopment b. Conduct semi-annual assessment of site development potential in conjunction with longer term City planning goals	36
Initiative #2 Enable action for development of underutilized sites					
2-1.Eliminate environmental barriers to development	OPED DECD EPA DEP	a. Within larger planning process, and using GIS planning filters, prioritize Brownfield site remediation and redevelopment and establish timeline for assessments and remediation as well as funding strategy b. Identify neighborhood development "drivers" c. Identify site similarities in terms of barriers to expedite redevelopment	a. Continue to secure funding for assessments and clean ups	a. Continue prioritization, assessments and clean ups	35 (2-1 to 2-7)
2-2.Create "planning visions" for larger vacant properties to promote redevelopment	Private property owners OPED BRBC NRZs Consultant	a. Identify pilot "visions project"	a. Develop redevelopment proposal	a. Implement all actions needed for successful redevelopment	
2-3. Facilitate cleanup of private property	Brownfields Working Group OPED DEP DECD EPA Private property owners National municipalities Community Groups	a. Conduct community outreach to solicit support of site inventory, assessment, clean-up and community redevelopment	a. Continued community outreach to solicit support of site inventory, assessment, clean-up and community redevelopment	a. Continued community outreach to solicit support of site inventory, assessment, clean-up and community redevelopment	
2-4. Promote streamlined cleanup process under State guidelines	Brownfields Working Group EPA DEP DECD NYC Brownfields	a. Collaborate with EPA, NYC and State in ensuring use of most efficient cleanup methods; propose Bridgeport as a pilot site	Pilot clean-up methods		

BGREEN 2020 ACTION PLAN

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREENFIELDS ACTION PLAN					
2-5. Help make Brownfields funding a national redevelopment priority	Regional, Northeastern, National Cities DEP DECD	a. Spearhead coalition of former industrial cities to effect change in national funding for Brownfield remediation and site development			35 (2-1 to 2-7)
2-6. Investigate tax lien sale and other strategies as revenue source	Brownfields Working Group OPED Tax Assessor	a. Investigate revenue source strategies			
2-7. Expand City Brownfields personnel		a. Assess Brownfields personnel needs in context of data collection, assessment, clean up and redevelopment needs b. Increase Brownfields personnel as recommended			
GREEN WHEELS ACTION PLAN					
Initiative #1 Reduce single ride VMT by actively promoting Transit First policy and programs					
1-1. Establish Transit First Policy as guideline for all City activities and actions	Green Wheels Subcommittee GBRPA GBT MetroPool DOT City Council	a. Adopt Policy Statement which supports broadly-outlined Transit First Policy	a. Establish interagency municipal process and guidelines for implementing Transit First Policy in all planning and development activities b. Use education and outreach to inform citizenry, municipal agencies, and private sector of Transit First implications		29
1-2.Conduct comprehensive transportation demand planning to develop Alternate Transit Strategy and target reductions in automobile travel and emissions	Green Wheels Subcommittee Regional municipalities and employers GBRPA DOT Consultant	a. Determine baseline emissions for citywide automobile travel and identify travel patterns and contributing VMT subsectors b. Identify transportation and emissions impacts of zoning and projected land use patterns c. Develop comprehensive Alternate Transit Strategy to accommodate expected demands and transfer existing automobile use to alternate mobility options d. Identify transportation constraints that limit development	a. Identify funding strategies and prioritize mass transit and alternate transit development based on Alternate Transit Strategy b. Advocate for local, regional and state policies, programs,infrastructure and operations funding in accordance with Alternative Transit Strategy	a. Continue rollout of Alternate Transit Strategy b. Update demand models and review Alternate Transit Strategy annually	33

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN WHEELS ACTION PLAN					
1-3. Reduce single ride VMT from city's largest employers	Green Wheels Subcommittee Human Resources GBRPA BTA MetroPool Regional municipalities & employers ZipCar/HourCar DOT EPA	a. Host transportation summit for City's largest employers to develop strategies for single ride reduction b. Gain commitment from 4 employers to identify travel demand and pilot reduction programs; provide bi-monthly support program to foster initiative development.	a. Expand program to 4 additional employers and/or employment nodes	a. Expand program to meet additional employer needs	33
1-4. Reduce VMT through education on transportation choice and raise awareness of links between emissions, air quality and health	Green Wheels Subcommittee City Human Resources Larger employers Health Department State of CT BTA Bridgeport Hospital St. Vincents Hospital	a. Include land use and transportation planning information in BGreen educational kiosks (pilot at Burroughs Library)	a. Initiate educational campaign on links between emissions, air quality and quality of life	a. Assess campaign impact; adjust as recommended	24
Initiative 1-5 Reap the benefits of Transit Oriented Development and Mixed Use Zoning to reduce VMT	Zoning City Council	a. Planning and Zoning initiatives to support reduced VMT (See Greenfields Initiatives)			
Initiative #2 Make Complete Streets an integral part of city planning and development to capture alternate forms of transportation					
2-1.Make "Complete Streets" part of City planning and development to best capture potential for pedestrian and bicycle activity, promote green space development and optimize stormwater management	"Complete Streets" multi-stakeholder Steering Committee to include: Green Wheels Subcommittee Green Spaces, Water Resources Subcommittee Roadway Engineering Parks Zoning GBRPA BTA ConnDOT CT Urban Forester Landscape Architects Bicycle Advocacy group Pedestrian Advocacy group WPCA Aquarion UI Phone utilities SCG AIA EPA NRZs Community organizations consultant	a. Establish Steering Committee to formulate Complete Streets guidelines and establish Complete Streets as an integral part of all planning, development, infrastructure maintenance and development and land use activities	a. Adopt Complete Streets Guidelines b. Educate all municipal departments on Complete Streets guidelines c. Conduct Complete Streets forum for utilities and city contract organizations to coordinate street activities in adherence with Complete Streets guidelines	a. Ensure all roadway, pedestrian and bicycle infrastructure upgrades conform to Complete Streets guidelines	41

BGREEN 2020 ACTION PLAN

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN WHEELS ACTION PLAN					
Initiative #3 Promote walking					
3-1. Conduct pedestrian awareness and promotion program	BGreen Outreach and Education Share the Road DOT Education Safe Walks to School Bridgeport Hospital St. Vincents Hospital Community Health Centers NRZs Community organizations Parks Department	a. Hold 1 event to launch pedestrian promotion campaign b. Conduct crosswalk striping at 1 intersection per community c. Promote school participation in State's walk/ride to school program (non-infrastructure-based)	a. Monthly “school walk,” neighborhood walk,” and/or “walk to work” events		38
3-2. Provide adequate pedestrian infrastructure	Green Wheels Subcommittee Complete Streets Steering Committee Roadway Engineering Education NRZs BTA GBRPA DOT EPA	a. Pilot 1 pedestrian improvement/Complete Streets project b. Use 3 existing Safe Routes to School sites as foundation for enlisting additional schools in the Safe Routes to School Program c. Identify most critical deficits in pedestrian infrastructure and complete top 10 priority projects d. Establish multi-stakeholder steering committee to establish policy for upgrading pedestrian infrastructure in coordination with Complete Streets guidelines and utility initiatives e. Investigate incentive mechanisms for sidewalk repair and maintenance	a. Develop Pedestrian infrastructure improvement master plan to address condition, location, lighting, signage, maintenance and funding, coordinate with “complete street” planning b. Repair specified linear feet of sidewalk per year as recommended by master plan	a. Continue upgrades as recommended by Pedestrian Infrastructure Improvement Master Plan	
Initiative #4 Promote biking					
4-1. Conduct bike awareness and promotion program	BGreen Outreach and Education Subcommittee Safe Routes to Schools Education State of CT Share the Road Bike Advocacy Group Community groups NRZs Bridgeport Hospital St. Vincents Hospital Community Health Centers Large employers BRBC	a. Hold Park to Park bike ride to launch bike awareness program b. Conduct bike safety and awareness program in all schools twice a year.	a. Continue bike safety and awareness programs al all schools annually b. Commence bike to work initiative		37 4-1 to 4-3

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN WHEELS ACTION PLAN					
4-2. Provide adequate bicycle infrastructure	Green Wheels Subcommittee Public Works Roadway Education Engineering City Council Bike Advocacy Group GBRPA ConnDOT University of Bridgeport Housatonic Community College Sacred Heart University	a. Stripe bike lane in 1 location (Downtown to Seaside Park or St. Mary's as possibilities) b. Map existing bike rack infrastructure and publicize c. Identify gaps in bike routes and bike parking infrastructure near schools and parks d. Stripe and sign bike lanes near 3 schools and 1 park e. Establish bike racks at 4 additional city locations f. Initiate comprehensive Master Bike Plan to address in-city bike potential and regional bikeway connections; coordinate with Complete Streets planning	a. Provide bike parking and stripe and sign routes near 5 schools b. Commit to striping and signing 3-5 miles of new bike lane; coordinate with Complete Streets guidelines c. Bike rack installations-additional locations d. Complete Master Bike Plan	a. Continue commitment to striping and signing 3-5 new miles of bike lane per year b. Stripe, sign and install parking infrastructure at remaining schools c. Bike rack installation-additional locations d. Bike lane/infrastructure development in accordance with Bike Master Plan recommendations	37 4-1 to 4-3
4-3. Bike sharing program	Green Wheels Subcommittee Public Works Roadway Bike Advocacy Group GBRPA University of Bridgeport Housatonic Community College Sacred Heart University Large employers NRZs Community organizations		a. Investigate bike sharing program for Downtown and other neighborhoods		
Initiative #5 Coordinate parking, mobility and congestion management					
5-1. Revise management structure for parking and mobility management	OPED DSSD GBRPA	a. Establish Steering Committee to formulate plan for restructuring singularly-focused Parking Authority into more inclusive department of parking, mobility and congestion management			32
5-2. Plan for parking and mobility demand	OPED DSSD GIS Parking & Mobility Traffic Engineer	a. Conduct Transportation Modeling Plans with traffic analyses for large development projects b. Prepare parking and congestion management plan for special events	a. Develop comprehensive parking, mobility and congestion management plan in conjunction with green spaces, Complete Streets, stormwater management and development planning		

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Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN WHEELS ACTION PLAN					
Initiative # 6 Reduce automobile emissions					
6-1. Reduce idling	Mobility Management DEP EPA	a. Reinstate office of Traffic Engineer or establish per diem contract to enable traffic signaling optimization for daily operations and special events b. Promote anti-idling education at all schools in support of State's anti-idling regulations for buses			15
6-2. Set standards for fuel use	Green Wheels working group Green Energy Subcommittee DEP EPA GBRPA Education Public Facilities Parks Consultant Private contractors	a. Investigate incentives for improved fuel efficiency in private cars (no sales tax on clean vehicles; preferential parking) b. Investigate potential for alternative fuel infrastructure development c. Replace, retrofit, and refuel diesel trucks and buses d. Investigate emissions, retirement and age standards for municipal fleet e. Investigate standards for fuel type and emissions in vehicles used for services supplied under contract to City f. Investigate guidelines for emissions reductions from construction vehicles			

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN SPACES ACTION PLAN					
Initiative #1 Ensure Access to Green Space for All Residents					
1-1. Create green space database	Parks Education GIS Planning Bridgeport Community Land Trust-Community Gardeners	a. Develop GIS green space layer for existing parks, outdoor school spaces and community gardens b. Develop GIS vacant lands layer			19
1-2. Prioritize green space development for least served communities	Green Spaces Subcommittee Education Parks Public Works WPCA NRZ groups Consultants	a. Using GIS filtering capability, develop map to reflect least served areas b. Establish one park in least served community consistent with other City needs c. Initiate talks on open access at school sites for after school recreational opportunities d. Create plaza amenities at City Hall Annex Plaza e. Explore opportunities for plaza amenities on sidewalks on Stratford Avenue Bridge and/or riverfront boardwalk near train station	a. Identify additional sites for green space in least served areas, and consistent with other City land use goals; permanently protect for green space use b. Pilot 1 school site for open access after school hours c. Explore opportunities for plaza amenities at People's Plaza per City Plan recommendation	a. Create 1-2 new pocket parks per year	30
1-3. Provide community gardening opportunities to all neighborhoods	Green Spaces Subcommittee Parks - GIS Bridgeport Community Land Trust Groundwork Bridgeport Neighborhood Organizations and NRZs Health Department Farmers Market Education Meals on Wheels	a. Create Community Garden and Urban Farms Master Plan to provide community gardening opportunities to all neighborhoods b. Continue planned development of 2 new gardens and improvements to 8 existing gardens	a. Provide permanent protection for community garden property b. Create new community gardens as recommended by Community Garden and Urban Farms Master Plan	a. Create community gardens as recommended by Community Garden Master Plan	25
1-5. Provide waterfront access	Zoning Parks HVWA or other similar/new watershed protection entity GIS TPL Private landowners Consultant NRZs DEP EPA	a. Enact zoning amendment to require waterfront access easement b. Develop database of parcel ownership and site condition for all waterfront parcels and easement potential (partnership with nonprofit) c. Investigate creation of 501(c)(3) for easement acceptance d. Commence waterfront easement acquisition program	a. Create waterfront access easements on 1-5 parcels b. Develop signage and support for comprehensive waterfront access program	a. Create waterfront access easements on 1-5 parcels per year	28

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Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN SPACES ACTION PLAN					
1-6. Incorporate street trees into city land use and planning	Green Spaces Subcommittee Green Energy Subcommittee Green Wheels and Greenfields Subcommittee Green Jobs Subcommittee Tree Warden Parks Zoning Building Permitting Engineering Public Works GIS Neighborhood Revitalization Health Friends Groups Existing community parks groups and NRZ groups Groundwork Bridgeport CT DEP Forestry and Urban Forester Garden Centers Landscape architects Private landowners Health service providers Corporate and commercial property owners Olmsted Foundation Historical preservation groups Carbon registries Scouts Community centers University of Bridgeport Housatonic Community College Sacred Heart University The Lighthouse The Workplace	a. Conduct Public Tree Forum b. Educate public on tree requirements and space needs c. Create necessary site development guidelines and Green Building Standards to establish minimum planting requirements for new sites d. Develop guidelines on best practices for street tree planting e. Commence establishment of nonprofit/public tree nursery partnership f. Continue planned tree plantings-plant 200 trees citywide g. Continue data collection on street trees and formalize street tree inventory program h. Establish community parks and tree adoption and partnership support program	a. Develop comprehensive street tree program and planting and maintenance plan in conjunction with development of Comprehensive Green Spaces Master Plan b. Engage communities in consolidated planting and stewardship program c. Expand planting and replacement of nursery stock in public/nonprofit nursery partnership program d. Conduct comprehensive urban forest inventory as part of Street Tree/Urban Forest Master Plan under the umbrella of larger Green Spaces Master Plan e. Plant additional 200 trees citywide.	a. Plant additional 300 trees per year citywide b. Establish timeline, administrative framework, and commitment for pursuing implementation of Street Tree/Urban Forest Master Plan as part of Comprehensive Green Spaces Master Plan	34
1-7. Streetscape plan/Complete Streets	Green Spaces Subcommittee Greenfields and Green Wheels Subcommittee Complete Streets multistakeholer steering committee including: Zoning Department WPCA Roadway Engineering Parks BRBC GBRPA UI Aquarion SCG Phone companies Historical preservation groups DSSD ConnDOT Bicycle advocacy group NRZs CT. Urban Forester DEP EPA Pedestrian advocacy group	a. Establish Complete Streets Task Force to develop Complete Streets guidelines (see Green Wheels Subcommittee action matrix 2.1) and establish Complete Streets as an integral part of all planning, development, infrastructure maintenance, development and land use activities b. Indentify Complete Street pilot project c. Identify 1-5 Streetscape pilot projects	a. Adopt Complete Streets guidelines (See Green Wheels Item 2-1) b. Conduct educational forums for Municipal Departments and General Public on Complete Streets (see Green Wheels Item 2-1) c. Establish Complete Street pilot project d. Install 1-5 identified Streetscape pilot projects	a. Commit to 5 new streetscape projects per year b. Commit to Complete Streets guidelines	40

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN SPACES ACTION PLAN					
1-8. Provide linkages between green spaces	Green Spaces Subcommittee Greenfields and Green Wheels Subcommittee Parks Public Facilities-Roadway Engineering Umbrella "Friends" Group Bicycle Advocacy group NRZ groups Consultant Connecticut State Urban Forester National Park Service-Rivers and Trails Groundwork Bridgeport	a. Identify linkage gaps from existing plans and new GIS green space maps b. Identify impediments to linkages and develop strategy for overcoming impediments	a. In conjunction with Green Space Master Planning Initiative specify action items and establish timeframe for establishing required linkages	a. Establish timeline, administrative framework, and commitment for pursuing implementation of Green Spaces Linkages Plan as part of Comprehensive Green Spaces Master Plan Implementation	29
Initiative #2 Strengthen organizational framework for green space and environmental resources protection and management					
2-1. Establish Conservation Commission	Green Spaces Subcommittee - Task Force for Conservation Commission establishment City Attorney City Council	a. Establish Conservation Commission based on Task Force findings b. Make recommendation on Conservation Administrative position(s)			29
2-2. Create nonprofit/private partnership opportunities	Green Spaces Subcommittee Parks Bridgeport Community Land Trust - community gardeners Community green space and parks support organizations Pequonnock watershed association Local fisheries organizations Local marinas and yacht clubs Aquaculture School NOAA Fisheries-Milford Sierra Club HVWA Ash Creek Conservation Association CT Audubon Society Beardsley Zoo NRZs Garden clubs	a. Create unified advocate for City Green Spaces and natural resources protection, to strengthen existing nonprofits and community groups and establish technical support network as recommended	a. Help coordinate initial phases of Green Spaces Planning initiative and Master Plan development	a. Continued oversight of Green Spaces Plan action items	29
2-3. Invest in equipment for effective management and maintenance of city green spaces and urban forest resources	Parks and Recreation Public Works-Roadways Green Spaces Advocacy Group Groundwork Bridgeport	a. Identify and prioritize needs short term and long term	a. Commit to securing adequate funding and equipment for city green space management and maintenance	a. Continued commitment to securing adequate funding and equipment for city green space management and maintenance	18

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Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN SPACES ACTION PLAN					
Initiative #3 Ensure community participation in stewardship					
3-1. Promote education and stewardship in schools and communities	Green Spaces Subcommittee Green Jobs Subcommittee Umbrella "Friends" Group (as recommended) Groundwork Bridgeport Parks Engineering Tree Warden WPCA Aquarion UI Education Neighborhood Revitalization NRZ groups Beardsley Zoo Connecticut Audubon Society Sierra Club Garden Clubs University of Bridgeport - HCC - Sacred Heart	a. Establish environmental demonstration site at Luis Marin School and formalize plan of development b. Inventory existing school environmental programs for all ages and corporate-sponsored environmental education initiatives c. Inventory programs of all existing green spaces groups c. Create opportunities for Green Workforce training and certification programs in the areas of tree work, forestry and land management. d. Host Arbor Day	a. Develop coordinated land stewardship program for citizen stewardship of biological resources, street trees and water resources (coordinate in part with street tree initiatives)	a. Establish outdoor environmental classrooms at 3 additional school locations b. Create green spaces unit in school sustainability curriculum, building on existing work of Groundwork Green Team	31
3-2. Establish Youth Conservation Corps	Mayor's Conservation Corps- citizens education and advocacy group for recycling, green spaces, water resource protection, energy efficiency and sustainable living	a. Provide green spaces materials for dispersal through Conservation Corps and solicit green spaces advocates b. Coordinate activities of Conservation Corps with existing Green Team (Ground-work Bridgeport program) and Parks Department Camp	a. Continue materials distribution and volunteer recruitment	a. Expand Conservation Corps by 50 students	31
3-3. Provide Green Spaces education at BGreen Educational Kiosks in community centers	Green Spaces Subcommittee Libraries Community Centers	a. Include green spaces, street tree, community garden information at BGreen educational kiosk (pilot at Burroughs Library)	a. Expand BGreen Kiosk network		30
3-4. Develop watchdog program to reduce "dumping" on green spaces	Public Facilities Neighborhood Revitalization and Blight Control Police Fire Parks Community organizations and NRZs Groundwork Bridgeport	a. Pilot video surveillance and/or community or personal incentive program for phone pix/videos of dumping at 5 dumping "hot spots" b. Develop best practices for streamlining "rapid response" to dumping c. Pilot "Post-Cleanup" signs at clean sweep locations as possible deterrent to future dumping (personalize clean up efforts)	a. Expand anti-dumping strategy to 5 additional locations	a. Expand anti-dumping strategy to 5 additional locations	21

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
WATER RESOURCES ACTION PLAN					
A. Water Supply					
Initiative #1 Ensure continued access to safe water supply					
1-1. Ensure water supply will continue to meet demand	Water Resources Subcommittee Aquarion GBRPA Zoning GIS Regional Municipalities USGS	a. Assess municipal and regional water demand and availability (Aquarion has long term plan in place) b. Spearhead regional initiative to link zoning, land development and expected build out to water demand c. Determine potable demand vs. outside/landscaping demand for city and region	a. Conduct annual assessment of water demand with respect to zoning, land development and expected build out	a. Conduct annual assessment of demand with respect to zoning, land development and expected build out	31
Initiative #2 Promote water conservation and efficiency					
2-1. Promote citywide water conservation and efficiency through policy, incentives and regulations	Water Resources Subcommittee Green Buildings Subcommittee Aquarion EPA University of Bridgeport Housatonic Community College Sacred Heart University WPCA DEP EPA	a. Establish Green Building Standards which include conservation and efficiency provisions for water b. Report on water conservation potential of variable pricing for water supply and wastewater and zoning incentives c. Embark on fixture rebate program to enable efficiency retrofits in 50-80 residences	a. Expand fixture rebate program to enable efficiency retrofits in 200 more residences b. Conduct water audit of 10 largest water use customers	a. Expand fixture rebate program to 300 additional residences per year b. Conduct water audit of 15 additional large water customers per year	29
2-2. Promote water conservation in City operations	Public Facilities Parks Aquarion WPCA DEP EPA	a. Conduct water audit and develop water conservation plan including infrastructure and fixture upgrades for all indoor and outdoor uses at 1/3 City properties and operations b. Commence water efficiency upgrades at 2 municipal buildings.	a. Conduct annual municipal water audit on 1/3 of municipal facilities b. Continue efficiency upgrades at 6 more municipal facilities	a. Conduct annual municipal water audit on 1/3 of municipal facilities on revolving basis b. Continued efficiency upgrades at 6 additional municipal facilities per year	29
2-3. Promote water conservation in City's Educational Facilities	Education Aquarion WPCA DEP EPA	a. Conduct water audit and develop water conservation plan including infrastructure and fixture upgrades and funding strategy for all indoor and outdoor uses at all Board of Education properties b. Commence water efficiency upgrades at 4 school sites	a. Continue efficiency upgrades at 10 more school sites	a. Continue efficiency upgrades at 10 more school sites per year until all facilities completed b. Conduct annual facilities water audit on 1/3 of school facilities per year on revolving basis	29

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
WATER RESOURCES ACTION PLAN					
2-4. Promote water conservation and efficiency through education	Aquarion Education Discovery Museum Outreach and Education Subcommittee Community Centers Religious and Community Organizations Health Conservation Corps Save the Sound CFE UB HCC Sacred Heart University Libraries	a. Build on existing water company materials and educational programming to convey water efficiency and conservation education to at least 200 residents per year b. Establish educational rain barrel at 3 locations within city to illustrate rain barrel impact; distribute rain barrels through Conservation Corps canvassing effort c. Include educational materials at all BGreen environmental kiosks established citywide (pilot at Burroughs Library) d. Explore opportunities for water education partnerships with existing environmental education organizations, community centers, community and religious organizations e. Develop water resources unit in school sustainability curriculum with take home materials; pilot in 1 early grade at all schools f. Develop case for promoting water conservation in financial, environmental, social and health terms	a. Expand educational programming with goal of reaching 400 additional residents b. Expand use of water resources unit 1 grade upward into formal educational curriculum at all schools c. Expand rain barrel distribution through Conservation Corps canvassing effort	a. Expand educational programming with goal of reaching additional 400 residents b. Expand use of water resources unit 1 additional grade upward per year into formal educational curriculum at all schools	27
B. Wastewater					
Initiative #1 Ensure wastewater infrastructure and management operations meet demand					
1-1. Upgrade infrastructure	Water Resources Subcommittee WPCA Engineering Public Works CFE Save the Sound State DEP EPA Consultants	a. Continue capital improvements to separate combined sanitary/storm water system b. Assess merits of “in place” capital improvement program and modified plan in Bridgeport 2020	a. Continue capital improvements to separate combined sanitary/storm water system b. Establish Task Force on Climate Change to assess potential impacts to wastewater and other infrastructure		33
1-2. Demand top notch system management	WPCA Engineering Public Works-Roadways DEP EPA CFE	a. Provide equipment and manpower for adequate management of City’s 10,000 storm basins b. Provide adequate manpower for operation of City’s WPCA facilities			

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
WATER RESOURCES ACTION PLAN					
Initiative #2 Implement strategies to capture and reduce stormwater runoff					
2-1. Establish baseline data on stormwater sources	WPCA Public Works Engineering Zoning GIS EPA DEP USGS Consultant	a. Conduct source and impact assessment of impervious surface and sewer tie-ins; coordinate with flooding data to identify areas for prioritized action; review all land use in context of FEMA updated mapping			36 (2-1 TO 2-2)
2-2. Institute best practices for on-site and non-point source stormwater management-capture and reduction plus filtration	Green Buildings Subcommittee Green Spaces Subcommittee Zoning GIS OPED Engineering WPCA Public Works DEP EPA USGS	a. Adopt stormwater regulations to reduce additional discharge to storm system b. Adopt Green Building Code to include water resource provisions c. Pilot site-specific stormwater management bioswale project at 1 site (coordinate with Complete Streets) d. Distribute rain barrels for stormwater collection and outside water supply e. Undertake stormwater management study for Seaside Village as pilot for on-site controls f. Investigate merits of stormwater disconnect program g. In conjunction with water supply planning, conduct multi-stakeholder water resources forum to commence development of new vision for comprehensive regional water supply and stormwater management plan: new roles and opportunities for water supply company, waste water treatment, private and public landowners in light of 300 million gallons of rainwater resulting from 1” rainfall on Bridgeport	a. Plan multi-site and community wide capture, reduction and filtration strategies in concert with GIS data and land use planning. b. Identify regulatory mechanisms (and incentives in particular) for on-site or multi-site stormwater control c. Secure funding, implement on-site water management at Seaside Village pilot d. Establish bioswales and/or storage and recapture system on 3 additional sites e. Establish stormwater disconnect program as recommended f. Continue rain barrel distribution		36 (2-1 TO 2-2)

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
WATER RESOURCES ACTION PLAN					
Initiative #3 Protect aquatic resources in rivers, wetlands and Long Island Sound					
3-1. Protect resources through regulation	Green Buildings Subcommittee WPCA DEP Zoning	a. Adopt stormwater regulations to regulate flow and influx of materials into waterways (regulations adopted 2009) b. Conduct interagency municipal forum on stormwater regulations to ensure coordinated review of development proposals and better enable public education and adoption in building and development planning c. Enact zoning amendments, including creation of Green Building Code, which includes water resource provisions, to reduce stormwater runoff and mandate on-site infiltration d. Consider enacting municipal regulation preventing use of most plastic shopping bags-a leading garbage source in storm drains e. Continue water quality sampling program mandated by DEP	a. Expand incentives for on-site controls		33
3-2. Protect resources through education and community stewardship	Parks Public Facilities-Roadway Public Facilities-Recycling Save the Sound Pequonnock Watershed Community Group UB Sacred Heart University HCC Community naturalists HVWA Ash Creek Conservation Association Aquaculture School Commercial fisheries and shellfish industry Marinas and Yacht Clubs Bridgeport-Port Jefferson Steamboat Co. State Aquaculture DEP Connecticut Audubon Society Discovery Museum Commercial entities EPA Youth Conservation Corps	a. Promote awareness of personal impact on water resources by painting BGreen logo on all storm water catch basins b. Promote awareness of personal impact on water resources through distribution of rain barrels through Conservation Corps (goal 100 rain barrels) c. Educate on impact of plastic bags on stormwater management (Recycling Initiative #2) d. Develop educational material for BGreen Environmental Kiosks (pilot at Burroughs Library) e. Create stormwater unit of sustainability curriculum in schools and pilot in middle grade at all schools f. Establish stormwater collection display at 1 school and 1-2 other locations within city g. In conjunction with Green Spaces Initiatives, establish citizen stewardship groups for watershed and water resources protection h. Begin to establish database of current and historical watershed and water resources conditions	a. Continue catch basin painting b. Continue rain barrel distribution c. Develop plan for natural resource protection and restoration d. Develop watershed monitoring program		32
3-3. Protect resources through comprehensive planning	a. Piggyback on Green Spaces Initiative 1-3: Create Green Space Master Plan, to include resource inventory and plan for coastal area, inland wetlands and watercourses, and watershed protection b. Piggyback on Greenfields Initiative B 1-1: Using expanded GIS capability, coordinate economic, environmental and social development needs for housing, business, open space, natural resource protection, stormwater and mobility				37

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
RECYCLING ACTION PLAN					
Initiative #1 Improve recycling performance in residential sector					
1-1. Invest in equipment and establish social infrastructure necessary to expand residential recycling	Green Recycling Subcommittee Public Facilities/Recycling Conservation Corps Neighborhood organizations Community centers NRZs Salvation Army Goodwill Industries DEP EPA Environmental Justice Coalition	a. Increase distribution of “blue boxes”/toters and target 2 lowest performing neighborhoods for comprehensive recycling education and support program. b. Conduct needs analyses with 2 large high rise/condominium associations and pilot programs at these sites c. Create Task Force to investigate community drop locations and bulk pickup d. Create Task Force on Single Stream Recycling and single site source separation alternatives	a. Expand distribution of “blue boxes”/toters and conduct comprehensive education program in 4 additional neighborhoods. b. Expand comprehensive recycling programs into 6 additional high rises/condominiums. c. Switch to weekly pick-up (if necessary by adding 3 trucks, 4 employees and economizing routes); or switch to single stream or alternative recycling program as recommended c. Reinstitute bulk pickup as recommended d. Develop network of community drop locations as recommended	a. Expand distribution of “blue boxes”/toters into remaining neighborhoods b. Expand comprehensive recycling at 10 more high rises/condominiums	22 27 12
1-2. Education to promote recycling	Community recycling networks with local contacts Public Facilities Recycling Conservation Corps Public libraries Community and Religious Centers Environmental Justice Coalition	a. Establish citizen neighborhood recycling networks and work with Conservation Corps to launch widespread educational campaign in 2 targeted communities to promote recycling b. Engage existing community groups in recycling projects and education c. Include recycling materials in BGreen environmental kiosks at community locations and libraries (pilot at Burroughs Library) d. Conduct inventory of recycling education currently conducted at each school site	a. Establish recycling networks and conduct widespread educational campaign in 6 more neighborhoods b. Establish recycling component to broader sustainability curriculum for school system with “take home” lessons	a. Establish recycling networks and conduct widespread educational campaigns in remaining neighborhoods	21
1-3. Recruit recycling operators into educational initiative		a. Conduct training program to enable recycling operators to be effective public educators and provide sufficient recycling education materials for distribution in the field	a. Conduct semi-annual training update; continued educational material distribution		14
1-4. Address special needs/non-drivers		a. Create Task Force to report on potential for community drop program and bulk pick up (described above)	a. Reinstitute bulk pick up as recommended b. Develop community drop network as recommended		14

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Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
RECYCLING ACTION PLAN					
Initiative # 2 Increase recycling in the Commercial Sector					
2-1. Determine feasibility of widespread commercial recycling program	Bridgeport Regional Business Council Green Recycling Subcommittee Private companies Downtown Special Services District Private haulers Private custodial service companies responsible for commercial cleaning	a. Conduct Commercial Recycling Forum to share best practices and identify Commercial Recycling Action Plan, including needs assessment (piggyback with Green Purchasing agenda) b. Semi-annual Commercial Recycling follow-up to assess ongoing needs and accomplishments c. Pilot Commercial Recycling at 10 Middle Street	a. Semi-annual follow-up on commercial recycling in Bridgeport, with ongoing needs assessment and improvement planning		25
2-2. Broaden commercial recycling constituency to include small business and retail		a. Conduct Commercial Recycling Forum for this sector b. Establish representative network for this sector			
2-3. Promote recyclable materials purchase in business community/ commercial sector (restaurants)	Green Marketing Subcommittee Green Purchase Subcommittee BRBC DEP EPA	a. Identify policy and incentives to promote recyclable materials and impediments to recyclable materials use; coordinate with Green Purchasing programs (Green Purchasing Initiative #4) b. Pilot Group Purchase			21
2-4. Establish comprehensive recycling program in Downtown Special Services District (DSSD)	DSSD Private hauler Private custodial services Recycling Department Private corporations	a. Conduct recycling needs analysis and create DSSD recycling plan for interior and exterior spaces	a. Create comprehensive interior and exterior recycling infrastructure for DSSD b. Develop supportive educational programs for DSSD businesses		23
Initiative #3 Increase recycling in the Municipal Sector and School System					
3-1. Promote recyclable materials purchase and recycling at public events	Public Facilities Recycling Parks Corporate Partners DEP EPA	a. Establish policy enabling and requiring recycling at public events b. Create Task Force to conduct needs assessment and create logistics plan and guidelines for MSW and recycling management for all public events c. Pilot program to provide containers for 2 indoor and 2 outdoor events	a. Provide guidelines and support program for all event planning agencies and all indoor and outdoor events b. Conduct follow-up assessments following all events to enable continued program improvement		22

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
RECYCLING ACTION PLAN					
3-2. Promote recycling at municipal properties and facilities	Public Facilities/Recycling Parks and Recreation Public Works Public Libraries Community Centers Custodians	a. Conduct needs assessment related to establishment of recycling in all municipal facilities. b. Install additional solid waste and recycling bins in 2 large parks; pilot program at 4 other community or public facilities sites, all with recycling education program, and creation of recycling network. c. Install inside and outside recycling bins, provide recycling education, and establish recycling network at 2 libraries. d. Review recycling program at 999 Broad Street	a. Establish inside bin infrastructure, provide recycling training program to employees and custodians and set up recycling program network with point persons, and provide exterior recycling containers at 6 parks, 2 libraries, municipal facilities.	a. Expand municipal recycling program and recycling networks to remaining municipal parks and facilities	20
3-3. Promote recycling at schools	Education Public Facilities/Recycling Board of Education Curriculum Board of Education Custodial Services Private haulers	a. Conduct needs assessment related to establishment of recycling programs at all school sites b. Pilot comprehensive recycling program at 2-4 schools: provide bins in all classrooms and cafeterias, provide necessary exterior bins; conduct student, staff, custodial and hauler education; consider incentive program; b. Create “School Green Team” for all schools in preparation of school wide sustainability program.	a. Establish inside bin infrastructure, provide recycling training program to school community and custodians, establish network with point persons, oversee outside collection at 6 more school sites. b. With Education, include recycling education in larger sustainability curriculum (see residential recycling Initiative #1-2 above)	a. Establish recycling infrastructure and programs at remaining school sites	23
Initiative #4 Increase Recycling of Construction Materials and Debris					
4-1. Institute policy to increase C and D recycling	Green Recycling Subcommittee Green Buildings Subcommittee Public Facilities/Recycling NRZs Contractors Architects Landscape architects Private sector businesses EPA DEP	a. Task Force to explore policy/regulatory actions to increase C and D recycling facility location or program in Bridgeport or outside of Bridgeport	a. Implement C and D recycling ordinances and policies as recommended by task force		21 (4-1 TO 4-1)
4-2. Provide facilities to enable efficient C and D recycling	Green Resources Subcommittee Public Facilities Recycling	a. Task Force to explore new facility location, partnership or program (such as IRN) in Bridgeport or outside of Bridgeport	a. Develop C & D program and/or facilities as recommended		

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Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
RECYCLING ACTION PLAN					
4-3. Education to increase C and D recycling	Green Recycling Subcommittee Public Facilities Recycling Zoning Permitting Departments	a. Training for City regulatory and permitting bodies to educate permit holders on C and D recycling options at time of permitting			21 (4-1 TO 4-2)
Initiative #5-Decrease incidents of illegal dumping & littering					
5-1. Increase monitoring and enforcement of illegal dumping	Public Facilities Recycling and Roadway Neighborhood Revitalization and Anti-Blight NRZs Neighborhood groups Police	a. Conduct analysis of dumping "hot spots" to identify possible sites for additional monitoring equipment b. Solicit help from neighborhoods via cell phone reporting c. Task Force to review illegal dumping, and streamline enforcement and correction procedures			13
5-2. Initiate Pride in Community Program to reduce litter in front of businesses	BRBC Parks Public Facilities Recycling Neighborhood Revitalization and Anti-Blight Local businesses Neighborhood Organizations NRZs Groundwork Bridgeport	a. Educational and promotion program for businesses to "sweep up" outside establishments and monitor outside littering b. Create sponsorship program for joint trash/recycling bins outside businesses	a. Expand program		18
GREEN ENERGY AND GREEN BUILDINGS ACTION PLAN					
Initiative #1 Create Energy Improvement District previously enabled by local and state legislation to act as Energy Manager for the City of Bridgeport					
1-1. Create Energy Improvement District	City Council; Energy Improvement District Board; City staff BRBC Institute for Sustainable Energy CT Center for Advance Technology Independent Consultants Project Developers UI SCG	a. Create the Energy Improvement District board and establish mission in compliance with existing local and state enabling legislation b. Create energy plan for the City of Bridgeport c. Place energy projects under EID Board authority d. Identify funding strategy for EID Board operations and EID projects and activities e. Obtain energy consultant to support EID Board activities	a. Investigate aggregation, solar leasing, renewable, and/or multi-site project opportunities in context of EID bonding capabilities b. work closely with state and federal agencies to support EID mission and operations c. work with community organizations, non-profits, and private sector to identify project needs and opportunities		32

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN ENERGY AND GREEN BUILDINGS ACTION PLAN					
Initiative #2 Promote Renewable Energy Development in Bridgeport					
2-1. Establish Renewable Energy Park at closed landfill for generation of renewable energy	EID City Council United Illuminating GE PSE&G Other potential private partners CT Clean Energy Fund CT State Legislature US Dept of Energy EPA CT Congressional delegation	a. Conduct feasibility study b. Draft investment grade RFP and solicit consultants c. Identify investment partners	a. Develop state and federal support, policy and legislation for private investment in renewable energy park b. Develop RFP for renewable power developer c. Undertake contract and permitting processes	a. Establish Renewable Energy Park as energy supplier to grid b. Establish energy education center at Energy Park	30
2-2. Promote Connecticut Clean Choice.	CT Clean Energy Fund Conservation Corp	a. Alert residents to clean energy options b. Conduct a community campaign	a. Alert residents to clean energy options b. Conduct a community campaign		14
2-3. Promote solar hot water and solar pv use	CT Clean Energy Fund Conservation Corp	a. Alert residents to clean energy options b. Conduct a community campaign c. Conduct workshops for local contractors.	a. Alert residents to clean energy options b. Conduct a community campaign		x
Initiative #3 Perform energy efficiency measures and biomass retrofits at wastewater treatment facilities					
3-1. Implement energy efficiency measures	WPCA and other city staff EPA DEP United Illuminating Private Consultants	a. Perform energy audit of facilities and operations b. Identify funding strategy for efficiency measures	a. Implement efficiency measures as recommended by audit		24
3-2. Implement biomass power and heat generating retrofit and/or combined energy/resource sharing with adjacent industrial operations	WPCA and other city staff EPA DEP UI RESCO Synegro Private Consultants	a. Perform feasibility study for biomass power and heat generating retrofit b. Perform feasibility study for cooperative water/waste products sharing with adjacent industry c. Identify funding strategy for retrofit and/or resource sharing	a. Undertake permitting process b. Implement biomass retrofits and/or energy retrofit measures as recommended		

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN ENERGY AND GREEN BUILDINGS ACTION PLAN					
Initiative #4 Promote energy efficiency in municipal buildings and operations					
4-1. Perform energy benchmarking and prioritize building retrofits	Public Facilities Institute for Sustainable Energy EPA Region 1 United Illuminating Co. PSE&G SCG	a. Determine Energy Star Ratings of all facilities as benchmark b. Prioritize building retrofits and develop funding strategy c. Track energy consumption and energy star rating with Portfolio Manager. b. Recognize buildings that are Energy Stars	a. Continue to track building performance energy consumption and energy star rating with Portfolio Manager. b. Recognize buildings that are Energy Stars	a. Continue to track building performance and energy consumption and energy star rating with Portfolio Manager. b. Recognize buildings that are Energy Stars	26 (4-1 TO 4-3)
4-2. Perform municipal building retrofits	Public Facilities Public Library United Illuminating CO. National Energy Performance Company CT DEP Aquarion Green Marketing and Outreach Subcommittee Institute for Sustainable Energy	a. Commence Burroughs Library retrofit as energy efficiency/green energy model; incorporate public education component on site on building-specific retrofit impacts b. Retrofit 2 additional buildings; coordinate with water conservation and efficiency measures c. Incorporate on-site, site-specific public education component on retrofit impact at each retrofit site d. Contract for year-2 retrofits e. Utilize performance contracts and ESCO. to retrofit additional buildings	a. Retrofit 2 buildings b. Incorporate public education component on site on site-specific retrofit impacts c. Utilize performance contracts and ESCO. to retrofit additional buildings.	a. Retrofit 2 buildings per year; b. Incorporate public education component on site on site-specific retrofit impacts c. Utilize performance contracts and ESCO. to retrofit additional buildings.	26 (4-1 TO 4-3)
4-3. Consolidate municipal building operations to reduce energy use	Public Facilities City Council	a. Determine consolidation opportunities and prioritize consolidation based on Energy Star Ratings, building retrofit prioritization and operations management		a. Consider construction of new Municipal Government Center	
Initiative #5 Promote energy efficiency in school facilities and operations					
5-1 . Perform energy benchmarking and energy auditing to prioritize retrofits	Institute for Sustainable Energy Department of Education United Illuminating Co. PSE&G SCG National Energy Performance Company Aquarion EPA Region 1 Bridgeport Board of Education	a. Determine Energy Star ratings for all facilities as benchmark b. Prioritize building retrofits c. Develop funding strategy d. Recognize buildings that are Energy Stars	a. Continue Energy Star ratings for all facilities as benchmark b. Prioritize building retrofits c. Develop funding strategy d. Recognize buildings that are Energy Stars	a. Continue Energy Star ratings for all facilities as benchmark b. Prioritize building retrofits c. Develop funding strategy d. Recognize buildings that are Energy Stars	26
5-2. Perform Educational Facilities retrofits	United Illuminating Co. SCG National Energy Performance Company CT Department of Education	a. Contract and submit grant proposals for 3-4 year-two retrofits; incorporate green components in each project b. Plan to incorporate on-site, site-specific public education component on retrofit impact at each retrofit site	a. Retrofit 3-4 educational buildings; coordinate with water conservation and efficiency measures; submit an additional 3-4 projects for state / local funding b. Incorporate public education component on-site on site-specific retrofit impacts	a. Retrofit 2-3 educational buildings per year	

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN ENERGY AND GREEN BUILDINGS ACTION PLAN					
Initiative #6 Promote energy efficiency in the residential sector					
6-1. Create residential weatherization and renewable loan program	United Illuminating GE Capital Electric and Gas Industry Association CHFA and CHIF Federal agencies including DOE	a. Establish reduced interest loan program for unserved moderate income population (above 200% percent of poverty) with goal of serving 300 homeowners	a. Identify strategy for expanding residential weatherization and renewable loan program		25
6-2. Host home energy makeover contest to build energy efficiency awareness	City staff and Sustainability Committee staff Institute for Sustainable Energy United Illuminating	a. Host annual home energy makeover contest for kickoff of residential weatherization and renewable loan program	a. Host annual home energy makeover contest for kickoff of residential weatherization and renewable loan program		9
6-3. Promote energy efficiency measures in Bridgeport's large multi-unit residential structures	BHA HUD United Illuminating Aquarion Large residential & commercial property owners; Energy Performance Contracting company Institute for Sustainable Energy	a. Expand upon Bridgeport Housing Authority actions (currently implementing comprehensive weatherization, energy and water efficiency measures at 2,500 units) through outreach to other large multi-unit residential structures	a. Continue to expand upon Bridgeport Housing Authority actions (currently implementing comprehensive weatherization, energy and water efficiency measures at 2,500 units) through outreach to other large multi-unit residential structures		25
6.4 Encourage residential energy audits and follow-up measures to increase energy efficiency and energy conservation	United Illuminating Conservation Corps SCG Heating Oil companies ABCD	a. Initiate Conservation Corps residential canvassing campaign to support UI home energy audit program b. Identify funding strategy for year 2 initiate canvassing program	a Continue Conservation Corps residential canvassing campaign to support UI home energy audit program b. Identify long term funding strategy to continue canvassing program	a. Continue Conservation Corps residential canvassing campaign to support UI home energy audit program b. Identify funding strategy for years 3-5 and longer term to continue canvassing program	25
6-5. Smaller scale residential programs; light bulb distribution	United Illuminating Conservation Corps Fire Department Meals on Wheels Other Neighborhood and community groups	a. Equip and train the Conservation Corps to promote the installation of CFLs b. Enlist additional public agencies and community groups to promote residential programs			
Initiative #7 Promote green building and healthy indoor environments					
7-1. Create Green Buildings Standards to direct future construction activities towards energy and water conservation and efficiency, supportive landscaping, healthy indoor air quality and sustainable materials use and re-use	Multi-stakeholder Task Force with representatives from: Green Energy and Green Buildings Subcommittee Green Spaces and Water Resources Subcommittee Greenfields Subcommittee Zoning WPCA Engineering Parks Health and Social Services AIA CT AILA Region 1 EPA CT DEP,CT DECD Institute for Sustainable Energy CT Green Building Council	a. Establish task force for green buildings standards to identify best practices and incentives; and develop green building standards; possible support from AIA b. Adopt Green Building Standards as recommended c. Conduct educational forum for municipal departments on green building standards d. Conduct educational forum for public and contractors on green building standards e. Conduct educational forum for elected officials on green building standards f. Incorporate green building standards into RFP process and establish related guidelines	a. Incorporate green building standards into RFP process for new development projects	a. Incorporate green building standards into RFP process for new development projects	23
GREEN ENERGY AND GREEN BUILDINGS ACTION PLAN					

BGREEN 2020 ACTION PLAN

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
7-2. Promote use of green products to help ensure healthy indoor environments	Green Procurement Subcommittee Environmental Justice Health DEP EPA Bridgeport Hospital St. Vincent's Hospital Community Centers NRZ's Community organizations	a. Utilize EPA and DEP training opportunities to train residents to teach others about green products and indoor air quality (coordinate with Green Purchasing Initiative #5-1) b. Establish educational program on green products to be presented to community centers and community organizations			18
Initiative #8 Use educational initiatives to promote energy conservation					
8-1. Provide energy education in the school system	Green Education and Outreach Subcommittee Board of Education United Illuminating CO. Institute for Sustainable Energy Aquarion PSE&G	a. Create energy efficiency and renewable energy unit as part of comprehensive sustainability curriculum in school system b. Expand upon existing private company educational opportunities related to energy	a. Integrate energy efficiency and renewable energy unit as part of comprehensive sustainability curriculum in school system b. Expand upon existing private company educational opportunities related to energy	a. Update and Integrate energy efficiency and renewable energy unit as part of comprehensive sustainability curriculum in school system b. Expand upon existing private company educational opportunities related to energy	23
8-2. Establish student green teams in schools	Board of Education Conservation Corps Institute for Sustainable Energy	a. Pilot student green teams in all high schools to support energy conservation and efficiency and energy education measures b. Have teams enter "Keep CT Cool!" contest			
8-3. Use municipal and educational facilities as teaching resources	Board of Education Public Facilities United Illuminating CO Aquarion	a. Provide site-specific educational materials for all buildings undergoing energy retrofit	a. Expand educational materials to additional retrofitted buildings using the school as a Learning Laboratory	a. Expand educational materials to additional retrofitted buildings using the school as a Learning Laboratory	
8-4. Use BGreen Environmental Kiosks in community centers as educational outlets	Green Education, Marketing and Outreach Subcommittee United Illuminating CO. Aquarion SCG	a. Incorporate energy efficiency educational materials into BGreen Environmental Kiosks	a. Incorporate energy efficiency educational materials into BGreen Environmental Kiosks	a. Incorporate energy efficiency educational materials into BGreen Environmental Kiosks	
8-5. Use Conservation Corps to promote energy education	Conservation Corps United Illuminating Co. Aquarion SCG	a. Use newly-established Conservation Corps to educate and enable residents to participate in energy-saving and sustainable activities			
Initiative # 9 Promote energy efficiency in the commercial/industrial sector					
9-1 Promote energy efficiency in commercial and industrial sectors	United Illuminating Aquarion Commercial and industrial property owners; Energy Performance Contracting company Institute for Sustainable Energy	a. Conduct forum for commercial and industrial sectors to promote energy audits and retrofits			

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN BUSINESS, GREEN JOBS AND GREEN PURCHASING ACTION PLAN					
Implementation Steps	**Potential Partners**	**1st year**	**2nd year**	**Within 5 Years**	**Sustainability Rating from TBL Matrix**
Initiative #1 Create Green Business Incubator in Bridgeport (state/national model)					
1-1. Bring Green Jobs to Bridgeport and foster Green Industry research, manufacture and development through creation of model comprehensive Green Business Incubator	BRBC the Workplace, Inc. GE Institute for Sustainable Energy Yale UCONN or Central Connecticut DECD EPA National Foundations	a. Create white paper defining proposed green business incubator b. Identify corporate and university partner, business and service prospects, funding opportunities, marketing strategy, identify a facility and bring in 10 start-up companies	a. Bring additional businesses into incubator; goal of 5-8 businesses	a. Expand participation to 20 businesses	25
Initiative #2 Establish Green Jobs education and training program in Bridgeport					
2-1. Create weatherization training and certification program	Bullard Havens Housatonic Community College DSS ABCD United Illuminating Co.	a. Establish multi-school, multi-sector partnership to create weatherization education and training program b. Develop curriculum and facilities; secure funding to enable training of 100 students	a. Fold education and training program into Green Collar Jobs Career ladder continuum (Initiative #3)		35
Initiative #3 Create Green Collar Jobs training continuum and jobs ladder					
3-1. Establish formalized program for Green Collar Jobs Career-ladder training continuum	The Workplace Business community University community Institute for Sustainable Energy Municipal agencies Neighborhood organizations Groundwork Bridgeport Department of Labor EPA Federal elected officials in CT Congressional delegation	a. Multi-stakeholder effort to solicit funding ($4m request to DOL) to enable creation of green training and certification programs and green jobs ladder b. Clarify curriculum c. Identify participants d. Immediate commencement of program if awarded grant	a. Continued training and employment efforts under conditions of DOL grant (if awarded) with expectation of training and employing several hundred people; office of training in green business incubator (see Initiative #1)		34
Initiative #4 Green existing businesses					
4-1. Ensure all businesses have the information and tools to conduct business in as green a manner as possible	Small and Minority Business Office BRBC and local Chambers DEP EPA Corporate interests including Dupont, Eastern Bag & Paper, UI, and Aquarion	a. Host forum for businesses on greening opportunities b. Develop ongoing program to educate businesses on energy efficiency, green product use, and green business procedures; coordinate with Green Recycling Initiative 2-3, Water Conservation Initiative 2-1, and Green Energy initiatives) c. Identify impediments and strategic opportunities to greening business operations d. Develop green business strategies specific to existing Bridgeport businesses	a. Incorporate program into green Business incubator and make a regular part of its programming		27

BGREEN 2020 ACTION PLAN

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN BUSINESS, GREEN JOBS AND GREEN PURCHASING ACTION PLAN					
Initiative #5 Promote green purchasing in the residential sector					
5-1. Assist residents in creating healthy indoor environments through green products education	Green Energy and Green Buildings Subcommittee Health and Social Services Environmental Justice EPA DEP Community organizations NRZs Bridgeport Hospital St. Vincent's Hospital	a. Expand existing program of training trainers who can educate residents on use of green products and improving indoor environmental quality			19
Initiative #6 Promote green purchasing in municipal operations and citywide					
6-1. Pursue Green purchasing opportunities in the municipal sector	City Purchasing dept City Parks dept Key corporate (Dupont, Eastern Bag & Paper, etc) and non profit organizations (Deirdre Imus, Center for Green Building, etc) DEP EPA	a.Compare EPA list of green purchasing opportunities with existing municipal purchasing program , identify barriers to green purchasing and develop optimal municipal green purchasing program	b. Regionalize green purchasing through coordinated efforts with other municipalities		23
6-2. Optimize green operations of all municipal equipment	Public Facilities Engineering OPM EPA DOE	a. Establish task force to investigate opportunities for greening equipment operations b. Pilot green equipment use and operations in Parks Department	a. Expand green operations into additional City operations		21
GREEN MARKETING, OUTREACH AND EDUCATION ACTION PLAN					
Initiative #1 Create comprehensive, citywide educational program on BGreen Sustainability Initiative and sustainable living					
1-1. Promote green education within the school curriculum	Green Marketing and Education Subcommittee with input from other BGreen Subcommittees Education School community Institute for Sustainable Energy United Illuminating Aquarion SCG Oil Heating companies Recycling WPCA Zoning GIS GBRPA GBT	a. Create education inventory of current school curriculum Green lessons b. Develop industry-standard "green" educational benchmarks to compare to Bridgeport current "green" curriculum c. Develop key recommendations for Green Education based on industry benchmarks and communicate findings to BGreen Committee Members d. Develop BGreen Logo by instituting a high school contest with Mayor's Office	a. Work with BOE to develop a "Green" education task force to work with BGreen Marketing & Education committee to develop a strategic plan to implement an industry-standard "green" curriculum b. Establish subcommittee comprised of education and/or businesses to develop local benchmarks and measurements criteria c. Develop key metrics that can be measured to ensure the "green" curriculum is changing behavior amongst the test group d. Expand Bridgeport Schools BGreen contests and activities to include students in K-12	a. Develop and implement "green" curriculums across all grade levels and track change in student behavior b. Track the results of schools recycling efforts to assist with the overall recycling participation in Bridgeport, CT	36

Implementation Steps	Potential Partners	1st year	2nd year	Within 5 years	Sustainability Score from TBL Analysis
GREEN MARKETING, OUTREACH AND EDUCATION ACTION PLAN					
1-2. Engage youth in BGreen Initiative and green activities	Green Marketing and Education Subcommittee Board of Education Mayor's Office The Workplace Parks Recycling Aquarion UI	a. Establish Youth Conservation Corps to canvas all neighborhoods and raise awareness of BGreen initiatives and Sustainable opportunities in Bridgeport b. Expand Parks Department program for street trees and trails b. Consider opportunities for involving youth in all BGreen actions and projects of the other BGreen Technical Subcommittees	a. Develop a year long year contest across all Bridgeport Schools for recycling		37
Initiative #2 Develop Extensive Outreach Program to Engage Entire Community in BGreen Initiative					
2-1. Mobilize neighborhoods	United Illuminating (UI) Aquarion Faith based organizations Community outreach organizations BGreen Technical Subcommittees City departments	a. Create and co-sponsor community events to drive awareness of "BGreen" concepts and support specific projects of the BGreen Technical Subcommittees	a. Develop a direct-mail outreach campaign to highlight stand alone BGreen initiatives and in conjunction with other conservation efforts		38
2-2. Capture residential interest in greening their communities and their city		a. Engage residents identified in Conservation Corps canvassing efforts in specific BGreen action items and projects b. Continually reach out to community members to participate in and lead specific projects and action items envisioned by other multi-stakeholder BGreen Technical Subcommittees	a. Create BGreen panel or other mechanism for continued input from residents that "opt-in" to the BGreen initiative	a. Utilize residents for various research and program development efforts	38
2-3. Develop community awareness of BGreen Initiative, projects and action opportunities	B-Green Partnership Mayor's Office BRBC	a. Brainstorm on different promotional items and communications mechanisms that will persuade consumer behavior	a. Develop community based BGreen workshops and other participatory mechanisms		38
2-4. Establish BGreen environmental kiosks in community centers	All BGreen Technical Subcommittees Libraries Community Centers Private corporations and business community	a. Establish BGreen environmental kiosk in Burroughs Library to link residents to BGreen Initiative and provide education on building retrofit impact and sustainable opportunities	a. Establish BGreen environmental kiosks in 2-4 more locations		38
Initiative #3 Market BGreen and Bridgeport's Sustainability Initiative to community, regional and broader business, environmental and social audiences					
3-1. Research most effective BGreen marketing strategies	Consumer Product Companies i.e., Bigelow	a. Develop key insights for Green Initiatives	a. Create co-branding events and campaigns that will generate partnerships that will assist with program funding and drive a broader professional audience to the BGreen concept	a. Develop a monitoring system to ensure the BGreen initiative is in-sync with overall Green concept	40
3-2. Brand BGreen		a. Create the overall BGreen key understandable messaging that can be utilized across all technical committees b. Create marketing materials that will drive awareness to the BGreen concept	a. Collect information on BGreen initiatives with success stories b. Create a 1-3 year marketing campaign on BGreen concepts c. Conduct status meetings to gather input for overall marketing campaign d. Identify media coverage that will reach targeted audience and deliver a return on investment		40

BGreen Triple Bottom Line Accounting	
SOCIAL ACCOUNTING:	
S1-Diversity and inclusion Goal: equal access and equal opportunity to use services	**How will this impact access by all sectors of the community?** a. Does this address diverse needs of all sectors of community, and is it equally accessible to and affordable to all sectors regardless of age, income, culture, first language, employment responsibilities or physical ability? b. Will user fees affect the ability of all to participate?
S2-Public amenities and community services Goal: enhanced physical amenities and service amenities	**How will this impact physical amenities or community services?** a. Will this enhance public space and be consistent with the existing public space? b. Will this enhance services including education, leisure, recreation and health services?
S3-Public health, safety and security Goal: enhance public health, safety and security	**How will this impact public health, safety and security?** a. Will this enhance safety of sidewalks, streets, parks and gardens, residences or businesses? b Will this enhance perceived safety? c. Will this enhance public health through programs or physical facilities related to air quality, water quality or hazardous material abatement? d. Will this enhance public health through recreational services or facilities? e. Will this enhance public health through food or agricultural services or facilities?
S4-Culture and heritage Goal: enhance cultural resources and heritage preservation	**How will this impact culture and heritage?** a. Will this enhance cultural opportunities including artistic, literary, sporting and entertainment opportunities? b. Will this help preserve heritage, traditions and diverse cultures?
S5-Community vitality and citizen activity Goal: Citizens actively involved in vibrant communities	**How will this impact citizen participation in communities and community vitality?** a. Will this promote a strong community core by providing easy access to and availability of a mix of compatible uses? b. Will this promote business involvement or investment in community? c. Will this promote local participation, leadership or sense of responsibility for self or neighborhood?

Rating Scale				
	Strong positive	3	Strong negative	-3
	Moderate positive	2	Moderate negative	-2
	Slight positive	1	Slight negative	-1
	No impact or N/A	0		

Adapted from TBL accounting materials developed by ICLEI and Melbourne, Calgary and Hamilton, Ontario

BGreen Triple Bottom Line Accounting	
ENVIRONMENTAL ACCOUNTING: DETERMINING IMPACTS ON NATURAL RESOURCES	
E1-Energy use and greenhouse gas emissions Goal: reduce GHG emissions by: a. reducing energy use; b. increasing energy efficiency; or c. increasing use of cleaner fuels	**How will this impact energy use and emission of greenhouse gases?** a. Will this increase or decrease energy consumption? b. Will this promote energy efficiency? c. Will this use lower emission fuels or green energy? d. Will this decrease emissions through filtering mechanisms? e. Will this increase/decrease greenhouse gas emissions?
E2-Materials use and waste generation Goal: minimize materials use and maximize recovery, reuse and recycling	**How will this impact amount and types of materials used and waste generated?** a. Will this increase/decrease the use of non-renewable or hazardous materials? b. Will this promote the use of renewable or recycled materials? c. Will this reduce/increase the total quantity of waste? d. Will this promote composting of waste materials?
E3-Water resources: consumption, collection and disposal Goal: protection of water supply and efficient and sustainable management of water resources	**How will this impact water supply, consumption, collection and disposal?** a. Will this reduce/increase water consumption or water disposal? b. Will this promote water conservation or efficiency? c. Will this increase water collection or diversion? d. Will this promote wastewater or stormwater recovery, recycling and/or reuse?
E4-Pollution and resource impairment Goal: protect air, water, soil and rock resources from pollution or other degradation	**How will this impact quality, condition and function of air, water, soil or rock resources?** a. AIR: Will this increase/decrease local air quality? b. SOIL: Will this increase/decrease soil quality, stability or function? c. WATER: Will this promote increased quality of ground or surface water resources?
E5-Flora, fauna and greenspace Goal: protect biological resources and green space and promote citizen stewardship of the same	**How will this impact wild plants and animals and green space?** a. Will this increase/decrease quality or amount of flora, fauna or greenspace? b. Will this promote efficient land use so as to decrease impact on the natural environment and green space? c. Will this increase access to and care of flora, fauna and/or greenspace?

Rating Scale				
	Strong positive	3	Strong negative	-3
	Moderate positive	2	Moderate negative	-2
	Slight positive	1	Slight negative	-1
	No impact or N/A	0		

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BGreen Triple Bottom Line Accounting	
DETERMINING IMPACTS ON ECONOMIC RESOURCES	
F1-Financial resources: combine F1-a and F1-b for impact on financial resources	**How will this impact financial resources?** a. Refer to F1-a-Life cycle costs and F1-b-Cost recovery
F1-a-Life cycle costs Goal: financially-cost effective projects and operations	**What are the expected life cycle costs?** a. What is initial cost? b. What are on-going costs and can have these been minimized? c. Will there be any costs at end of life cycle? d. Based on expected number of persons to be served by this, what is the per capita financial cost?
F1-b-Cost recovery Goal: maximize cost recovery	**How will costs be recouped over time?** a. How will this be funded? b. Will this provide revenue-raising opportunity? c. Will this provide charitable giving opportunities to defray costs? d. Will this provide a return on investment? e. Will this increase/decrease the cost of services or goods as a whole or on a per capita basis for those served or supplied?
F2-City assets Goal: enhance and protect value of assets	**How will this impact value of city assets?** a. Will this protect/enhance/diminish the value of city assets owned publicly or privately?
F3-Business sector investment and growth Goal: attract, retain, nurture strong business sector	**How will this impact business sector investment and growth?** a. Will this attract new businesses or promote additional need for services? b. Will this improve business opportunity by adding to the supply of zoned land for business or mixed-use, by providing incentives or reducing impediments to business development, or by promoting an attractive and desirable environment? c. Will this increase business revenue? d. Will this promote job creation/loss?

Rating Scale				
	Strong positive	3	Strong negative	-3
	Moderate positive	2	Moderate negative	-2
	Slight positive	1	Slight negative	-1
	No impact or N/A	0		

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BGreen Triple Bottom Line Accounting	
DETERMINING IMPACTS ON ECONOMIC RESOURCES	
F4-Business support services and workforce training Goal: enhance services to support business development	**How will this impact support to business?** a. Will this promote skills training for specific business growth or a skilled in-demand workforce? b. Will this provide educational or other support services directly to businesses, or alliances which enable business growth? c. Will this promote community as a place where businesses want to operate and participate? d. Will this promote relocation by residents whose skills could help business development?
F5-Inrastructure Goal: provide state-of-the-art transport and telecommunications infrastructure	**How will this impact infrastructure?** a. Will this provide transport users with more/fewer transport options? b. Will this increase/decrease number or frequency of transport connections (sea, air, water, road? c. Will this reduce/increase transport costs? d. Will this increase/decrease speed, availability and cost of telecommunication connections? e. Will this increase/decrease provision of water utility infrastructure? f. Will this increase/decrease provision of electrical utility infrastructure? g. Will this increase/decrease provision of natural gas, oil or other fuels and/or related infrastructure?

Rating Scale				
	Strong positive	3	Strong negative	-3
	Moderate positive	2	Moderate negative	-2
	Slight positive	1	Slight negative	-1
	No impact or N/A	0		

Adapted from TBL accounting materials developed by ICLEI and Melbourne, Calgary and Hamilton, Ontario

BGreen Triple Bottom Line (TBL) analysis

	Social factors					Environmental factors					Financial factors					Category totals			
Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Greenfields																			
A. Land planning to reduce VMT																			
1-1 to 1-5 Mixed use, TOD, rezones, parking, design regulations	3	3	3	3	3	3	2	1	3	3	x	3	3	3	3	15	12	12	39
2-1 to 2-2 Municipal property planning	3	3	1	0	1	3	1	0	1	0	x	3	3	0	0	9	4	6	19
3-1 to 3-3 Housing ladder	3	0	2	3	3	3	2	1	2	0	x	3	3	3	2	11	8	11	30
4-1 to 4-5 Neighborhoods of choice w historical, cultural, educational amenities	3	3	3	3	3	3	2	1	2	2	x	3	3	3	3	15	10	12	37
5-1 to 5-2 Class A office opportunities	3	3	2	1	2	2	0	1	1	2	x	3	3	3	1	11	6	10	27
B. Coordinated redevelopment of underutilized sites																			
1-1 Use GIS as planning tool	3	3	3	2	3	3	0	3	3	3	x	2	3	3	2	14	12	10	36
2-1 to 2-7 Enable development	3	3	3	3	3	2	0	2	3	2	x	3	3	3	1	15	9	10	35

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Green Wheels																			
1-1 Transit First Policy	3	2	2	1	2	3	2	0	3	1	x	3	2	2	3	10	9	10	29
1-2 Transportation demand & Alternate Transit Strategy	3	3	3	2	2	3	2	0	3	1	x	3	3	2	3	13	9	11	33
1-3 Large hub/large employer VMT reductions	3	2	2	2	3	3	2	0	3	1	x	3	3	3	3	12	9	12	33
1-4 Transportation Choice Education	3	1	2	1	3	3	1	0	3	1	x	3	2	1	0	10	8	6	24
2-1 Complete Streets, integrated land use, water,green space, transportation planning	3	3	3	3	3	3	2	3	3	3	x	3	3	3	3	15	14	12	41
3-1 to 3-2 Walking and Pedestrian infrastructure	3	3	3	2	3	3	2	3	3	1	x	3	3	3	3	14	12	12	38
4-1 to 4-3 Bicycling, Bicycle infrastructure & bike sharing	2	3	3	2	3	3	2	3	3	1	x	3	3	3	3	13	12	12	37
5-1 to 5-2 Parking, congestion, mobility management	3	3	1	2	3	3	1	0	3	1	x	3	3	3	3	12	8	12	32
6-1 to 6-2 Reduced emissions - anti-idling and fuel standards	3	0	2	0	1	3	1	0	2	1	x	1	1	0	0	6	7	2	15

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Green Spaces																			
1-1 Green spaces, vacant lands GIS data layers	3	3	3	1	1	2	0	1	1	2	x	2	1	0	0	11	5	3	19
1-2 Prioritized green spaces for least served	3	3	3	2	3	2	1	3	2	2	x	3	1	2	0	14	10	6	30
1-3 Community gardens and urban farms	2	3	3	2	3	2	1	1	2	1	x	3	1	1	0	13	7	5	25
1-4 Green spaces master plan	3	3	3	2	3	3	1	3	3	3	x	3	2	1	0	14	13	6	33
1-5 Waterfront Access	3	3	3	2	3	1	0	2	3	1	x	3	2	1	1	14	7	7	28
1-6 Street Trees	2	3	3	3	3	3	1	3	3	3	x	3	2	2	0	14	13	7	34
1-7 Streetscape and Complete Streets	3	3	3	3	3	3	2	3	3	3	x	3	3	3	2	15	14	11	40
1-8 Green Space linkages	3	3	3	2	3	3	1	1	2	2	x	3	1	1	1	14	9	6	29
2-1 Conservation Commission	3	2	2	1	3	2	1	3	3	3	x	3	2	1	0	11	12	6	29
2-2 Partnerships	3	3	2	1	3	3	1	3	3	3	x	3	1	1	0	12	12	5	29
2-3 Equipment	0	3	2	1	2	-1	-1	0	2	2	x	3	3	2	0	8	2	8	18
3-1 Community participation, stewardship - schools, community	3	2	2	2	3	3	1	1	3	3	x	3	2	3	0	12	11	8	31
3-2 Community participation - Youth Conservation Corps	3	2	1	1	3	3	2	3	3	3	x	2	2	3	0	10	14	7	31
3-3 Community participation - BGreen Kiosks	3	3	1	1	3	3	2	3	3	3	x	3	2	1	0	10	14	6	30
3-4 C ommunity participation - clean up watchdog program	3	3	2	1	3	0	0	0	2	1	x	2	2	2	0	12	3	6	21

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Recycling																			
1-1 Residential programs	3	2	1	0	3	2	3	2	2	1	x	1	1	1	0	9	10	3	22
1-1 Residential single stream	3	3	2	0	3	3	3	3	3	2	x	0	2	1	0	11	13	3	27
1-1 Residential bulk pick up	3	2	0	0	1	1	1	1	1	1	x	0	1	0	0	6	5	1	12
1-2 Resident education	3	2	1	0	3	3	3	2	2	1	x	0	0	1	0	9	11	1	21
1-3 Recycling operator education	3	2	1	0	2	1	2	0	1	1	x	0	0	1	0	8	5	1	14
1-4 Special needs and bulk pick up	3	2	1	0	1	1	1	1	1	1	x	0	1	1	0	7	5	2	14
2-1 to 2-2 Commercial recycling	3	2	1	2	3	2	3	2	2	2	x	0	1	2	0	11	11	3	25
2-3 Recycled & recyclable materials purchase-business sector	3	2	1	1	3	2	2	1	2	2	x	0	0	2	0	10	9	2	21
2-4 DSSD reycling	3	2	1	2	3	2	2	1	2	2	x	0	1	2	0	11	9	3	23
3-1 Municipal recyling - events	3	2	1	3	3	2	2	1	1	1	x	0	2	1	0	12	7	3	22
3-2 Municipal facilities recycling	3	2	1	2	3	2	2	2	1	1	x	0	0	1	0	11	8	1	20
3-3 School recycling	3	2	2	0	3	2	3	2	2	2	x	0	1	1	0	10	11	2	23
4-1 to 4-3 C & D Recycling	2	2	1	3	2	2	3	1	2	2	x	1	0	0	0	10	10	1	21
5-1 Illegal dumping - monitoring	3	2	1	0	2	0	0	0	1	1	x	1	1	1	0	8	2	3	13
5-2 Pride in community anti-litter	3	3	1	1	3	0	0	0	1	1	x	1	2	2	0	11	2	5	18

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Water Resources																			
A. Water Supply																			
1-1 Water demand planning	3	3	3	2	1	2	0	3	3	3	x	3	1	1	3	12	11	8	31
2-1 Community conservation and efficiency	3	2	3	2	2	2	0	3	3	3	x	3	1	1	1	12	11	6	29
2-2 Municipal conservation and efficiency	3	2	3	2	2	2	0	3	3	3	x	3	1	1	1	12	11	6	29
2-3 Educational facilities conservation and efficiency	3	2	3	2	2	2	0	3	3	3	x	3	1	1	1	12	11	6	29
2-4 Directed conservation and efficiency education	3	2	3	2	3	2	0	3	3	3	x	2	1	0	0	13	11	3	27
B. Waste water																			
1-1 to 1-2 Infrastructure, management, manpower	3	3	3	2	1	3	0	3	3	3	x	3	2	1	3	12	12	9	33
2-1 to 2-2 Stormwater capture: baseline data and non-point source programs	3	3	3	2	3	3	0	3	3	3	x	3	2	2	3	14	12	10	36
3-1 Water resources protection: regulatory	3	3	3	2	2	3	0	3	3	3	x	3	2	0	3	13	12	8	33
3-2 Water resources protection: education and stewardship	3	3	3	2	3	2	0	3	3	3	x	3	1	1	2	14	11	7	32
3-3 Water resources protection: coordinated land planning	3	3	3	3	3	3	0	3	3	3	x	3	3	1	3	15	12	10	37

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Green Energy & Buildings																			
1-1 Energy Improvement District	3	3	3	2	3	3	0	1	3	2	x	3	3	1	3	14	9	9	32
2-1 Green Energy Park	3	3	3	0	3	3	0	1	3	1	x	3	3	1	3	12	8	10	30
2-2 Clean energy choice	-1	1	3	0	3	3	0	1	0	1	x	0	0	0	3	6	5	3	14
2-3 Residential solar																			
3-1 to 3-2 Wastewater facilites:EE, biomass retrofit, resource sharing	3	2	1	0	1	3	2	3	3	2	x	2	1	0	1	7	13	4	24
4-1 to 4-3 Municipal facilities benchmark, retrofit, consolidation	3	3	1	0	2	3	0	3	3	1	x	3	2	1	1	9	10	7	26
5-1 - 5-2 Educational facilities benchmark and efficiency retrofits	3	3	1	0	2	3	0	3	3	1	x	3	2	1	1	9	10	7	26
6-1 Residential weatherization program	2	1	2	1	3	3	0	2	3	1	x	3	3	0	1	9	9	7	25
6-2 Home energy contest	3	0	0	0	3	1	0	1	1	0	x	0	0	0	0	6	3	0	9
6-3 Large residential E/weatherization	2	1	2	1	3	3	0	2	3	1	x	3	3	0	1	9	9	7	25
6-4 Energy audits	2	1	2	1	3	3	0	2	3	1	x	3	3	0	1	9	9	7	25
7-1 Green Building Standards	-1	1	2	2	2	3	0	3	3	2	x	3	1	1	1	6	11	6	23
7-2 Green products - healthy indoor environment	3	1	3	0	2	1	1	1	3	1	x	1	1	0	0	9	7	2	18
8-1 to 8-5 EE education: schools, municipal facilities,kiosks, YCC	3	2	3	0	3	3	1	3	3	1	x	1	0	0	0	11	11	1	23

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Green Business, Green Jobs & Green Purchasing																			
1-1 Green Business Incubator	3	1	2	0	3	3	2	0	1	1	x	3	3	3	0	9	7	9	25
2-1 Weatherization training and certification	3	3	3	2	3	3	1	2	3	2	x	3	3	3	1	14	11	10	35
3-1 Green collar jobs career ladder training continuum	2	3	3	2	3	3	1	2	3	2	x	3	3	3	1	13	11	10	34
4-1 Green existing businesses	3	0	3	0	3	3	3	2	2	1	x	3	1	2	1	9	11	7	27
5-1 Green purchasing -residential	3	0	3	0	3	1	3	2	2	1	x	1	0	0	0	9	9	1	19
6-1 Green purchasing - municipal	3	1	3	0	3	3	3	2	2	1	x	2	0	0	0	10	11	2	23
6-2 Green operations - municipal	3	1	3	0	3	3	3	2	2	1	x	0	0	0	0	10	11	0	21

Initiative	Diversity Inclusion	Public amenities and services	Health, safety, security	Culture & heritage	Commmunity vitality, citizen activity	Energy GHG emissions	Materials use, waste generation	Water	Pollution, re-source impairment	Plants, animals, greenspace	Cost	City assets	Business investment and growth	Business support, workforce training	Infrastructure	Social total	Environmental total	Financial total	TBL Rating
	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5				
Green Marketing, Education and Outreach supportive actions																			
1-1 Green curriculum - schools	3	3	3	1	3	3	3	3	3	3	x	3	1	3	1	13	15	8	36
1-2 Youth engagement	3	3	3	1	3	3	3	3	3	3	x	3	2	3	1	13	15	9	37
2-1 Neighborhood outreach	3	3	3	1	3	3	3	3	3	3	x	3	3	3	1	13	15	10	38
2-2 Resident engagement	3	3	3	1	3	3	3	3	3	3	x	3	3	3	1	13	15	10	38
2-3 BGreen Awareness	3	3	3	1	3	3	3	3	3	3	x	3	3	3	1	13	15	10	38
2-4 BGreen Kiosks: education,outreach, engagement	3	3	3	1	3	3	3	3	3	3	x	3	3	3	1	13	15	10	38
3-1 Marketing research & strategy	3	3	3	3	3	3	3	3	3	3	x	3	3	3	1	15	15	10	40
3-2 Branding BGreen	3	3	3	3	3	3	3	3	3	3	x	3	3	3	1	15	15	10	40

Summary of Bridgeport's Early Climate Protection Efforts

Bridgeport's comprehensive sustainability initiative, known as B-Green 2020, builds upon many early and ongoing initiatives, as described below.

- Early initiatives (These were recognized in the first *Energy and Environment Best Practices Guide* of the United States Conference of Mayors, published in June 2007):
    - Municipal energy efficiency and conservation programs
        - Utility bill usage analysis performed with in-house personnel to identify abnormalities among similar buildings or negative trends for specific buildings.
        - Operational time changes with installed energy management systems.
        - Employee awareness to change habits regarding turning off lighting and computers not in use.
        - Installation of lighting controls switches and occupancy sensors.
        - Lighting fixture retrofit upgrades.
        - Replacement of antiquated major HVAC components.
        - Change over to LED traffic lights.
        - Replacement of vehicles with alternate fuel vehicles—natural gas and hybrids.
    - Community programs
        - 2006-Lighting Fair hosted by City of Bridgeport and TechniArt to sell compact fluorescent lights and fixtures, at reduced prices, to employees and the general public. Sales merchandise was subsidized by the state's energy conservation fund managed by two state electrical utility companies (United Illuminating and Connecticut Light and Power). Due to the success of the Fair the City hosted a second Lighting Fair later in that same year.
        - Compressed natural gas fueling station opened for public use at the Santa Fuel fueling station. It is the only station available to the public between New York City and Hartford and was the result of a combined effort between the City of Bridgeport, Iroquois Gas Transmission System, Santa Energy Corporation, the State of Connecticut, Southern Connecticut Gas Company and the Clean Cities Coalition of Southwest Connecticut. Federal and private funding was used.
    - As a result of these programs:
        - From 2003 to 2007 annual electricity usage for street lights declined by 2.9 Million kWh
        - From 2005 to 2007 annual electricity usage for traffic lights declined by 42,000 kWh (no figures for 2003-2005)
        - Street lights and traffic lights combined showed annual GHG reduction from 2005 to 2007 of 220 metric tons CO2e (18 for traffic lights and 202 for street lights)
        - From 2005 to 2007 GHG from electricity use in municipal buildings

    - The City of Bridgeport contracted to purchase 4,200 MWh;
    - Bridgeport Board of Education contracted to purchase 4,700 MWH as “green power” from Constellation NewEnergy
- 2008 Mayor Finch participates in Mayors’ Institute on Climate Change in New York City to discuss innovative solutions to local climate mitigation and adaptation with peers from across the tri-state region and professionals from across the nation. This program was funded by the Rockefeller Brothers Fund and managed by Regional Plan Association (RPA) with support from ICLEI.
- 2008-baseline inventory of city and community GHG emissions completed through contract with RPA, thus completing Milestone 1 of the CCP Campaign
- 2008-Energy Improvement District enabled through local legislative approval allowing for future development of localized green energy supply
- 2008-Mayor Finch signs Executive Order calling for sustainability planning through a public/private partnership to achieve environmental, economic and social planning goals. As part of this, Bridgeport launches its *B-Green 2020 Initiative* as comprehensive program to decrease carbon emissions, green the City of Bridgeport and promote green jobs and technology along with other business growth
- Ongoing-Educational efforts to boost recycling; program piloting large toters instead of recycling bins introduced to one neighborhood in 2008
- Ongoing-Street tree planting program in public right-of-ways; incorporates conservation education and work program for high school students
- Ongoing-Municipal solid waste disposed of through controlled incineration, which is considered a carbon-neutral means of waste disposal of many types of waste by accepted inventory accounting methods
- Ongoing-Brownfield site assessment and cleanup on city-owned sites
- Ongoing-Hybrid fuel (gasoline/CNG) vehicles brought into use in municipal fleet
- CNG-fueled Bookmobile bus brought into municipal fleet
- 2008-Bridgeport Master Plan, known as *Bridgeport 2020*, completed; incorporates full requirements of the State Plan of Conservation and Development including provisions for smart growth and adherence to environmentally-sustainable land use and transportation practices
- 2008-09 -Draft zoning regulation changes created in accord with *Bridgeport 2020* goals
- 2008 Storm Water Management Regulations created in accord with *Bridgeport 2020* goals
- 2008 GPS installations in portion of municipal city fleet to manage VMT, raise awareness of VMT by municipal drivers, and reduce GHG emissions
- 2009 Bridgeport Housing Authority commits to energy-saving measures expected to reduce emissions by more than 3,000 metric tons CO2e per year in its 2500 units and save almost 96 million gallons of water per year
- 2009 Conservation Corps established as dual green job opportunity for young adults/community environmental canvassing and outreach program

Energy Efficiency • Recycling • Green Jobs
Complete Streets • Green Collar Institute
Transit First • Neighborhood pocket parks
Composting • Urban farming • Bioswales
Green Business Incubator • Green Roofs
Weatherization • Solar energy • Energy
Improvement District • Energy Efficiency
Recycling • Green Jobs • Complete
Streets • Green Collar Institute • Transit
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Empowering Communities, Advocating Solutions.

Environmental Policy Recommendations
Justin Elicker Transition

Citizens Campaign for the Environment (CCE) appreciates the opportunity to submit the following recommendations to the Elicker transition team. CCE has outlined a multi-tier strategy the Mayor's office can implement to continue progress in achieving the City of New Haven's energy efficiency goals, increasing recycling and protecting our coastal environment- while saving taxpayers' money and promoting green job growth. This cross-cutting strategy provides the administration with a visionary path forward on major environmental challenges impacting Elm City:

1) Rising energy costs;
2) High cost of recycling, due to the lack of efficient end markets for post consumer recycled materials (exacerbated by the Chinese National Green Sword policy);
3) Incomplete coverage of all waste types by the MSW system.

To better prepare the City to address these challenges, CCE has chosen to focus on proven strategies including: source reduction, solid waste diversion, increasing public education around recycling and improving energy efficiency in City-owned buildings. Specific strategies include:

ENERGY EFFICIENCY

Energy efficiency is a critical component of any plan to reduce New Haven's carbon footprint. The cleanest energy is energy that we don't use. According to Efficiency for All, by upgrading municipal building and street lighting to cost-efficient LED bulbs, the City of New Haven can reduce electric costs by up to 66%[1]. These upgrades often pay for themselves within the first year, and utility programs to help offset those costs are available through EnergizeCT.com.

In addition to upgrading to energy efficient lighting, the City could engage in a partnership with EnergizeCT to encourage residents to participate in residential efficiency programs that reduce energy waste in homes and multifamily buildings. According to the U.S. Energy Information Administration (EIA), the residential sector makes approximately 18% of Connecticut's fossil fuel use[2]. Additionally, the City can save up to 30% on heating and cooling fuels by bringing the public building's insulation and envelope standards in line with modern building codes[3].

SOLID WASTE/RECYCLING

One of the greatest challenges affecting Connecticut's municipal solid waste (MSW) system today is the lack of efficient and profitable end markets for contaminated paper and low grade plastics. This reality is further exacerbated by the Chinese National Green Sword Policy, which has resulted in the Chinese effectively closing their doors to most recyclable materials from the U.S. The Elicker administration can help address this problem locally and work towards reducing the City's MSW and recycling budgets by

[1] U.S. Dept. of Energy https://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/led-lighting
[2] U.S. Energy Information Administration https://www.eia.gov/state/analysis.php?sid=CT#12
[3] https://www.energy.gov/eere/why-energy-efficiency-upgrades

increasing public education, promoting source reduction, reducing contamination and eliminating wasteful and environmentally harmful single use plastics.

Promote RecycleCT
This administration can support effective recycling in New Haven by promoting the existing "RecycleCT" program. RecycleCT is a successful public education campaign that informs CT residents about "What's IN, What's OUT" of the curbside recycling bin, how to properly recycle plastic film and prevent contamination, and additionally provides information about electronics recycling and other specialized programs.

By partnering with DEEP to promote RecycleCT, the new administration will be providing enhanced public education to promote good recycling habits, reduce waste and help Connecticut continue progress on meeting its 60% by 2024 MSW diversion goals. Importantly, addressing issues surrounding contaminated material in the waste stream, increasing recycling and reducing MSW all depend on robust public education.

Eliminate Single Use Plastics
In addition to increasing public education around recycling, the administration can promote source reduction and cut MSW and recycling budgets by eliminating wasteful and environmentally harmful single use plastics, including plastic checkout bags, straws, tableware, drink cups, and expanded polystyrene (EPS) food service containers.

Prohibit Plastic Checkout Bags
The State of Connecticut established a phase-out on plastic checkout bags in the 2019-2020 biennium budget, recognizing that disposable checkout bags were a significant source of plastic pollution threatening our environment. Additionally, plastic bags routinely clog municipal recycling infrastructure, which can force a single Municipal Recovery Facility (MRF) to shut down operations for 10 hours/week (520 hours annually) or longer. With a staff of four, delays related to problems with plastic bags can create more than 2,080 wasted man hours per year *for a single MRF*[4]. This contributes significantly to inflated municipal solid waste budgets and wasteful taxpayer spending.

A growing number of territories across the U.S. have begun to address these problems by passing legislation to reduce consumption of plastic checkout bags, including the States of California, New York, Vermont, Maine, Oregon, Delaware, and each of the County Governments of Hawaii. Connecticut has opted to address this problem by establishing a 10-cent charge on plastic checkout bags, which would sunset after a period of 2 years. Effective July of 2021, the distribution of plastic checkout bags will be prohibited in Connecticut.

Additionally, the CT General Assembly crafted Connecticut's bag law in a way that allows municipalities to pass local legislation on plastic shopping bags that goes farther than the policy prescribed at the state level. **The city of New Haven could expedite this phase-out by passing a local ordinance prohibiting plastic checkout bags. As of December 2019, at least 20 Connecticut municipalities have passed local bans on plastic bags that are stricter than the statewide bag law, with at least 12 more cities and towns considering bag ordinances of their own.**

Establish a Fee on Paper Bags
In addition to passing a local ban on disposable plastic bags, the city can significantly reduce the amount of paper entering the waste stream by putting a charge on paper bags (the 2019 biennium budget included enabling legislation permitting municipalities to establish and collect a fee on paper). Revenue from paper bag fee can be directed towards supporting public education and recycling, but should not be viewed as a sustainable revenue stream for programs that require long-term funding.

[4] Materials Innovation & Recycling Authority, Rocky Hill, CT.

Experience tells us that by establishing a fee on paper bags, communities will see a measurable shift in consumer behavior, leading to reduced paper bag consumption and increased reusable bag use. **By coupling a ban on plastic checkout bags and a fee on paper with increased public education about proper recycling practices, the city can reduce system inefficiencies, increase recycling, and reduce taxpayer spending, all while protecting our waterways and urban environment.**

Eliminating Expanded Polystyrene Food Containers

EPS foam is also a significant contributor to the plastic pollution crisis choking our marine environment. EPS packaging does not biodegrade; instead, it breaks up into tiny pieces which persist for hundreds of years. These pieces are frequently mistaken for food and eaten by a wide range of marine species, including fish, sea turtles and aquatic birds.

Polystyrene waste also presents a real problem for municipal recyclers. EPS foam cannot be easily recycled, if at all. Phasing out EPS foam carryout containers, cups and other types of packaging at food service establishments would make Connecticut a trailblazer in eliminating polystyrene waste. Cities and municipalities that have passed similar bans in the U.S. include New York City, Washington, D.C., Nantucket, MA, Portland, ME, Freeport, ME, Portland, OR, Seattle, WA, Los Angeles Co., CA, and San Francisco, CA.

Finally, EPS foam also poses a threat to human health. Styrene, a chemical in EPS foam, was listed by US Department of Health and Human Services' National Toxicology Program as "reasonably anticipated to be a human carcinogen." It is known to leach from food packaging containers into food or drinks, especially when exposed to heat. There is no reason to continue using EPS containers for food packaging when safer, more environmentally friendly alternatives exist and are widely available.

Increase Food Waste Diversion/Organics Composting

According to DEEP, food waste and organics make up a growing percentage of the total solid waste generated in state (over 33%). Increasing food waste diversion and local composting programs can help generate revenue through avoided MSW costs and create other opportunities, including energy generation through anaerobic digestion. Diversion of food waste and organics will require buy-in from the private sector on scaling & logistics, however, businesses like Blue Earth Compost are already active in Connecticut and providing composting services to municipal customers.

CT Green New Deal

"A better world is possible." *From alter globalization movement manifesto*

Goals:
Recognize climate crisis as urgent existential threat to Connecticut's future well being.

Develop plan to respond to climate emergency designed to meet the scale of the problem.

State to play leadership role in moving public, region, nation to create appropriate response.

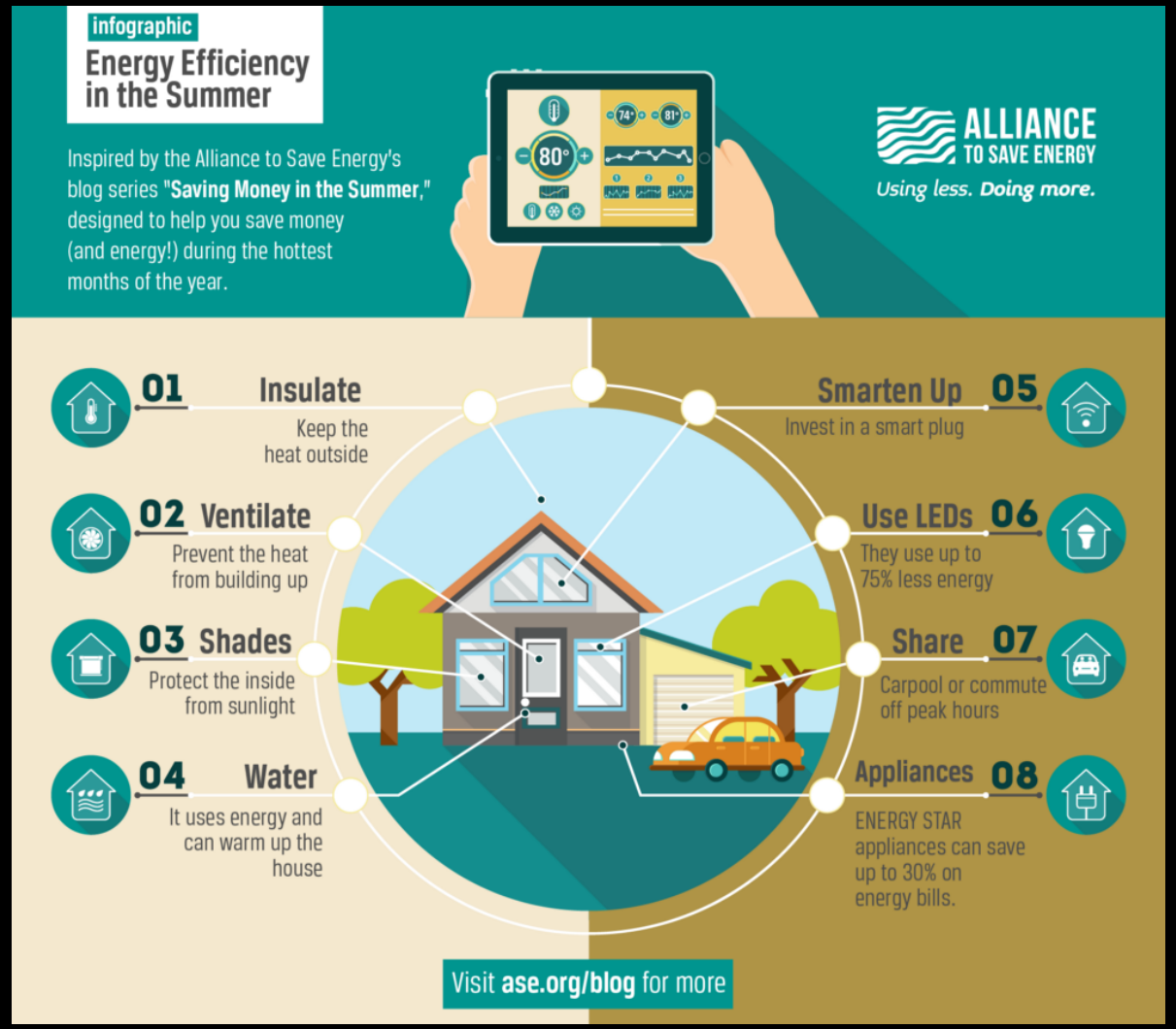
*Recognize critical role for government to guide policy that can effectively address crisis.

*Begin to structure economy in way that recognizes ecosystem limits (Planetary Boundaries)….not just GHG.

Reason for GND

- FIRST: A Green New Deal is necessary to meet the scale and urgency of environmental challenges facing the United States, based on the best available research.
- SECOND: A Green New Deal can bring job growth and economic opportunity, with particular focus on historically disadvantaged and vulnerable communities.
- THIRD: A Green New Deal is popular among American voters and can mobilize them in 2018.
- FOURTH: A Green New Deal can be executed in a way that is environmentally just and distributes benefits equitably.
- FINALLY: A Green New Deal is financially feasible and necessary

(https://www.dataforprogress.org/green-new-deal/)



Center for Biological Diversity on GND

"As the world teeters on the brink of climate catastrophe, we're calling on Congress to take large-scale action ….Americans want a livable future for their children, and that requires keeping fossil fuels in the ground while greening the economy on a wartime footing."

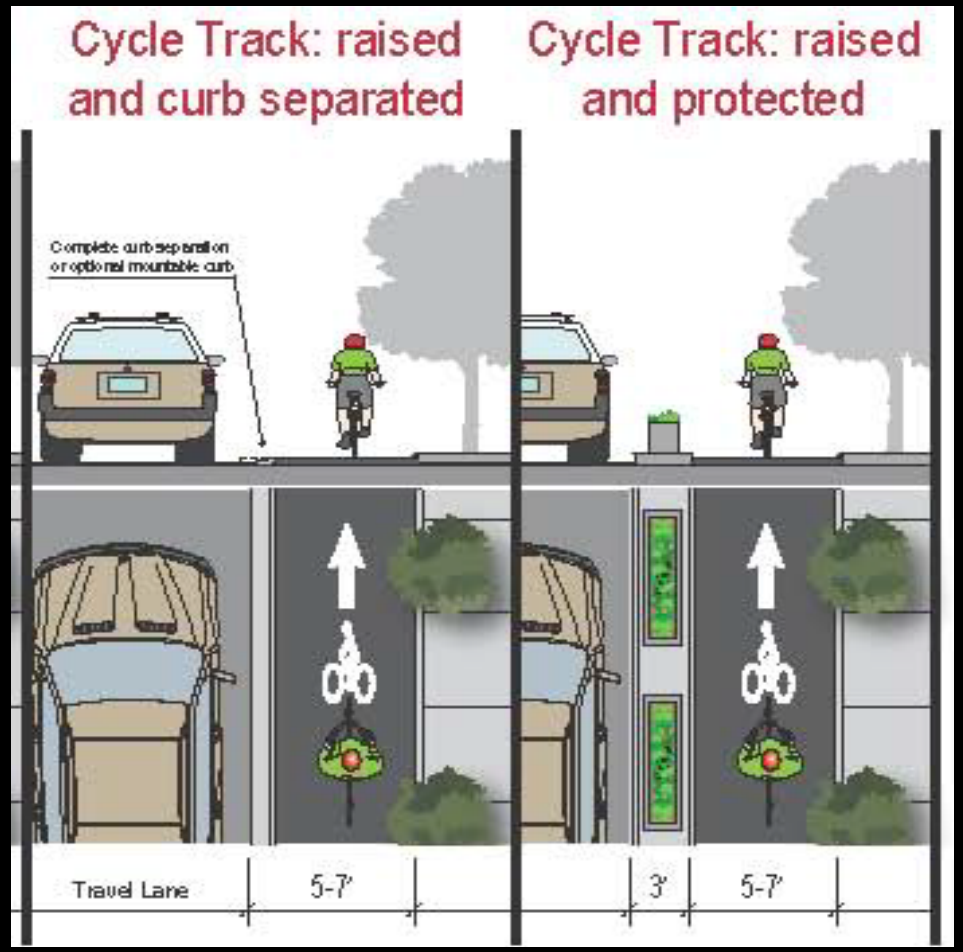
Halt all fossil fuel leasing, phase out all fossil fuel extraction, and end fossil fuel and other dirty energy subsidies.

- Transition power generation to 100 percent renewable energy;
- Expand public transportation and phase out fossil fuel vehicles;
- Harness the full power of the Clean Air Act;
- Ensure a just transition led by impacted communities and workers; and
- Uphold Indigenous rights.

Short term (to 2021) CT GND Possible Actions

1. Fund regional planning for 2020 grants for projects.

2. Increase funding for DEEP and other appropriate state agencies to support statewide and local ghg reduction efforts.
3. Support programs that reduce GHG emissions and reduce government costs, like Pay as You Throw to free up funds.
4. Expand existing successful programs like Energize CT, Green Bank to reduce building energy use.
   Fund local alternative transportation projects. Accelerate pace of project implementation, i.e.,
   cycle tracks, bus shelters, transportation alternatives communication campaigns (CTrides), etc.
5. Pass legislation freeing municipalities to implement GHG reduction projects, like energy efficiency ordinances, or create statewide legislation.



Short Term (to 2021) CT GND …continued….

1. Pass legislation freeing municipalities to implement GHG reduction projects, like energy efficiency ordinances, or create statewide legislation.
2. Do analysis - and community consultation - on which projects to prioritize for job creation, public health and other co-benefits. Prioritize projects that create CT jobs and have public health and other co-benefits.
3. Support national advocacy for national Green New Deal.
4. State provide small grants for NGOs to lead GHG reduction projects.
5. State grants for GHG reduction projects identified in Sustainable CT plan. Invite private foundations and corporate giving to do likewise.
6. Pass legislation allowing community choice aggregation for clean energy purchase.

Long Term Possible CT GND Actions

1. Significantly decrease overall energy use aiming for carbon neutral (“carbon zero”) ASAP or 2030.
2. Plan should respect wide range of planetary and local environmental boundaries. Include “polluter pays” policies.
3. Expand public education on climate change, ecological boundaries, and support creation of ecological culture.
4. Create local clean sources of energy; replace importation of fossil fuels with CT based energy industry; explore state/local ownership of energy production.
5. Support just transition to clean energy economy giving priority to vulnerable communities.
6. Support community resiliency projects to limit impacts of climate change.
7. Recognizing Connecticut’s climate debt,,
   adopt international sister climate justice communities (Puerto Rico, Ecuador, Haiti, etc) and coordinate projects that help them reduce GHG emissions and build resiliency.
8. Create beauty, projects that create pride and last.

New Haven needs ....

Sustainability Department

Energy efficiency coordinator to grow energy efficiency communication and projects.

Energy staff with Economic Development Department to work with businesses and building owners on EE, clean energy conversion and job creation.

Transportation Engineer/Planner to work on infrastructure development.

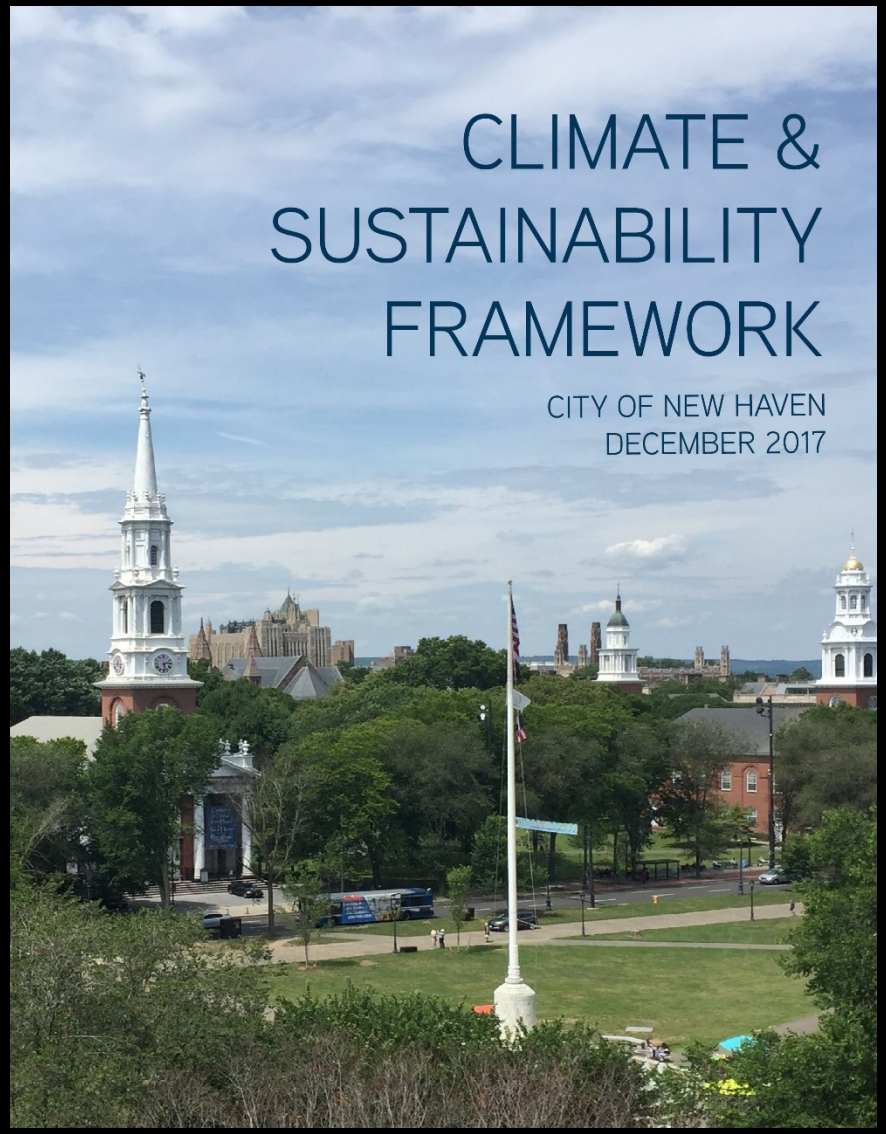
Alternative Transportation Outreach/Communications.

Funds for transportation projects including cycle tracks, bus shelters.

Options for city to raise funds locally.

State allow local action/ordinances to promote energy efficiency

…..PLUS….



Get Involved

NEW HAVEN CLIMATE MOVEMENT

SUNRISE MOVEMENT

New Haven Leon Sister City Project

goNewHavengo

THE CLIMATE MOBILIZATION

NH Energy Task Force

Department of
ENERGY & ENVIRONMENTAL PROTECTION

December 2018

Projected Impact of SMART on New Haven, CT

Prepared by WasteZero, Inc. for the CT Department of Energy and Environmental Protection (DEEP)

Today's Discussion

1. Current Situation
2. What is SMART?
3. How SMART Could Work in New Haven
4. Compliance with SMART
5. Next Steps

Source:: US EPA

Current Situation

New Haven

High-Level SMART Benefits Analyses

	Key Starting Data
Effective Population	79,200 people, 33,000 in served households
Annual Trash Tonnage	24,650
Annual Recycling Tonnage	6,564

- **Weekly trash and recycling curbside collection:**
  - Brown 48-gallon toter for trash, blue 96-gallon toter for recycling
  - Available to residences 6 units or less; more than 6 units must use a private hauler
  - Single stream recycling; DPW will not empty toter if it has non-recyclable items in it
  - Special electronic recycling collections throughout the year
  - Residents have a variety of waste drop off services at the transfer station – yard waste, construction debris, hazardous waste, mattresses, bulk waste, metals, textiles, C&D
  - Transfer station available to residents with proof of address through ticket system
  - New Haven placed "what's in what's out" recycling stickers on all city recycling toters – huge undertaking
- **Curbside Recycling Rate is 21%; better than the estimated CT curbside average of 19%**
- **Per capita disposal is 622 (lbs per person per year); better than the estimated CT average of 720**
- **The City released a Sustainability Framework report in January of 2018**
  - 7 Goals related to waste
- **Waste is responsible for 11% of the City's direct emissions**
  - The City framework is designed to help departments prioritize goals
  - Tackling New Haven's waste production can have public health benefits, including improving air quality and reducing hospitalizations
- **The City is embracing a 'zero waste' approach to materials management**. Zero waste approach aims to eliminate waste rather than manage it, recognizes the importance of producer responsibility, and provides opportunities for the reuse and recycling of discarded products.

New Haven

High-Level SMART Benefits Analyses

Goal 1: Reduce production of waste

- Phase in a tax or ban on certain single use items (e.g. plastic bags, plastic utensils, straws, single-serve plastic water bottles)
- Create a policy whereby all city-permitted events must follow Zero Waste guidelines
- Encourage organizations to pursue Zero Waste Facility Certification - a third-party certification program that meets Zero Waste International Alliance standards
- Implement a Pay-As-You-Throw program where households pay a variable rate for trash removal depending on the amount of waste produced
- Create and implement a sustainable purchasing guide for City operations

Goal 2: Increase opportunities to reuse products

- Recover waste after catastrophic disasters (such as felled trees and building debris) that could be reused or recycled
- Evaluate options for promoting deconstruction, as opposed to demolition, and the reuse of materials from buildings

Goal 3: Increase recycling opportunities

- Improve recyclables' capture rate in public buildings, parks, schools and other public locations

Goal 4: Increase composting opportunities

- Expand community-level composting

Goal 5: Dispose of waste more efficiently

Goal 6: Improve and enforce compliance

- Enforce the "Styrofoam Ordinance"
- Enforce recycling for municipal, residential, and commercial properties

Goal 7: Increase outreach and awareness of material management

- Create public awareness campaigns regarding littering, illegal dumping, bringing your own bag, waste reduction, proper recycling, textile recycling, hazardous waste recycling, e-waste, composting
- Expand participation in Extended Producer Responsibility (EPR) program where the producer is given significant responsibility for the treatment and/or disposal of post-consumer products
- Promote See-Click-Fix, a web-based platform, as the tool to use to report and track material management related issues

Capacity is Decreasing and Costs are Rising

The northeast's capacity for trash disposal is maxing out and it is difficult to site new facilities. Continuing to generate the same amount of waste is a costly option.

Landfills

Americans generate 65% more waste per capita than we did in 1960

Purchasing habits & lifestyles have changed

Products are disposable; 30% of waste is packaging

Incineration

Few landfills remain that accept residential waste in the Northeast

Incineration converts trash to energy; however, the process emits more CO_2 per unit than coal-fired power

Incineration capacity in the northeast is decreasing

Materials Management

The goal is:

To manage materials differently

To promote a circular economy - jobs

To reuse & recycle

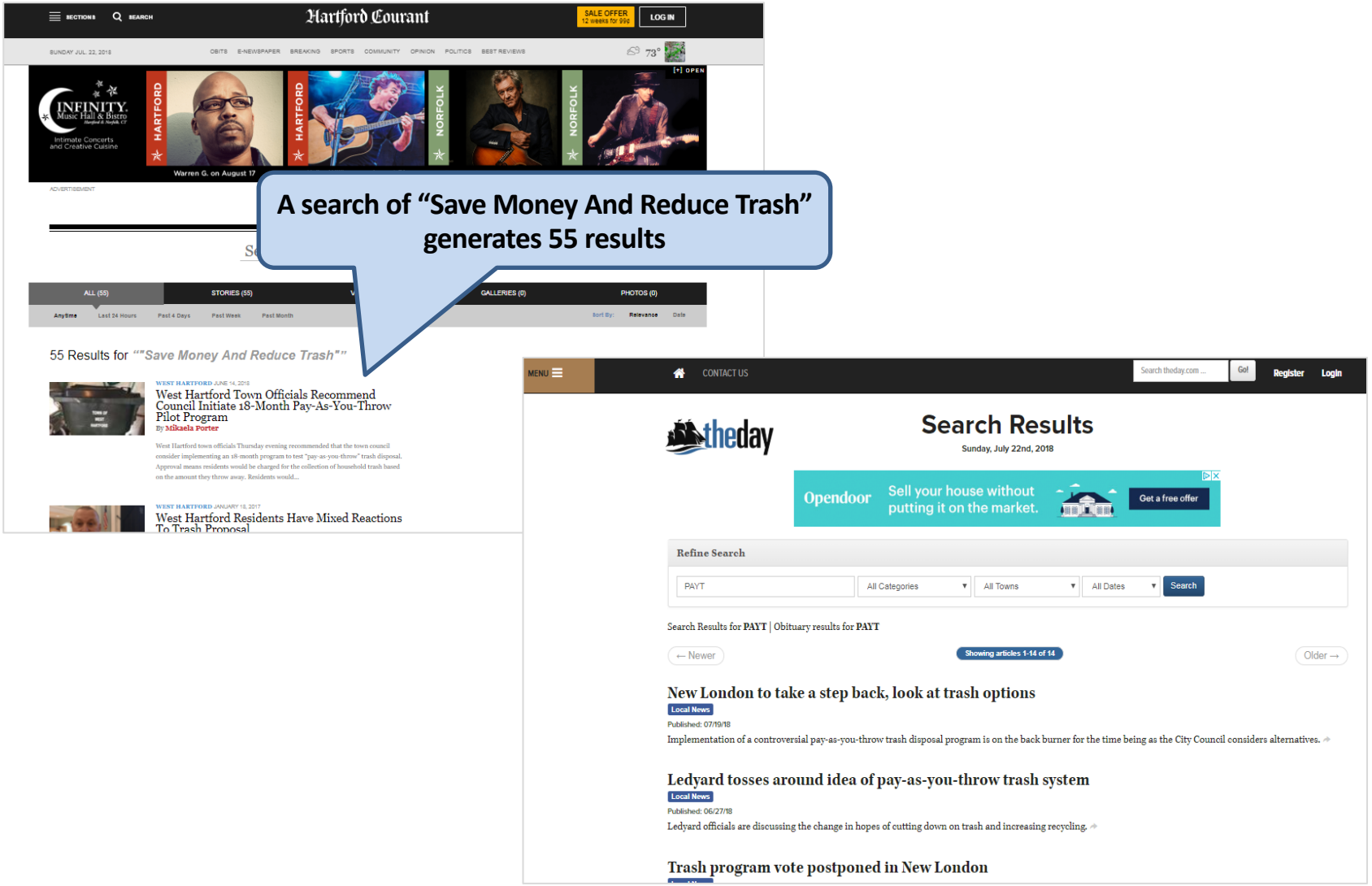
To compost / convert

Source: US EPA

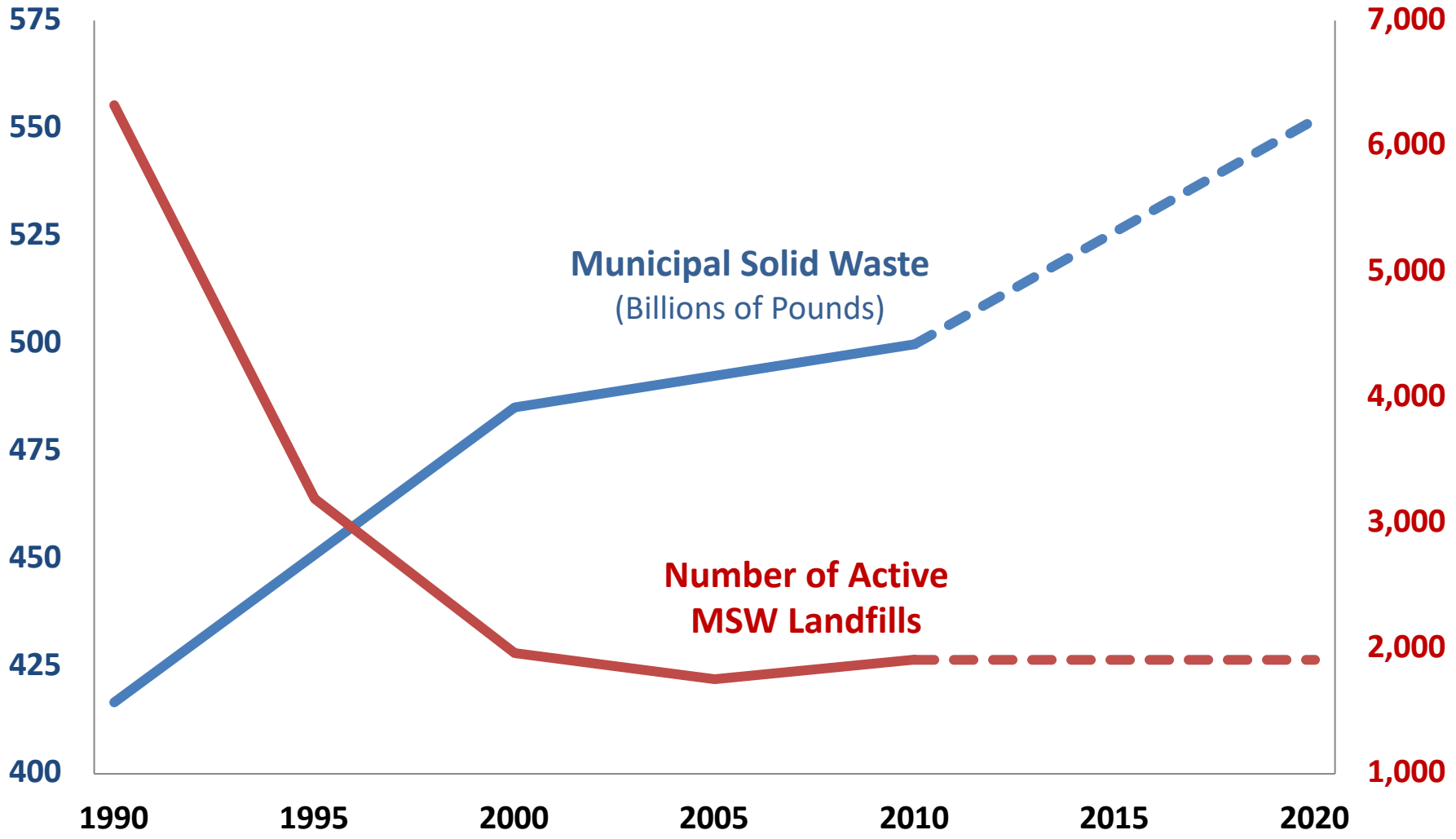
DEEP CMMS

- Public Act 14-94 established a 60% statewide diversion goal by 2024 and required DEEP to update its Solid Waste Management Plan
  - Total Capacity at CT's Waste-To-Energy (WTE) facilities is decreasing
  - One facility shut down a few years ago
  - Mid-Conn facility in Hartford in could potentially be closing or downsizing in the next decade
  - WTE facilities in CT are getting old, resulting in an increased frequency of unscheduled shutdowns (for repair)
- Reduced capacity leads to increased disposal (or tipping) costs per ton of trash disposed
- **DEEP has identified that Save Money And Reduce Trash (SMART) pricings systems are the #1 strategy to achieve significant statewide increases in recycling and decreases in disposal**
- **It is also the top strategy for towns to adopt to improve the performance of their municipal recycling system and reduce their materials management-related expenditures**

SMART Is Generating Media Coverage Throughout Connecticut

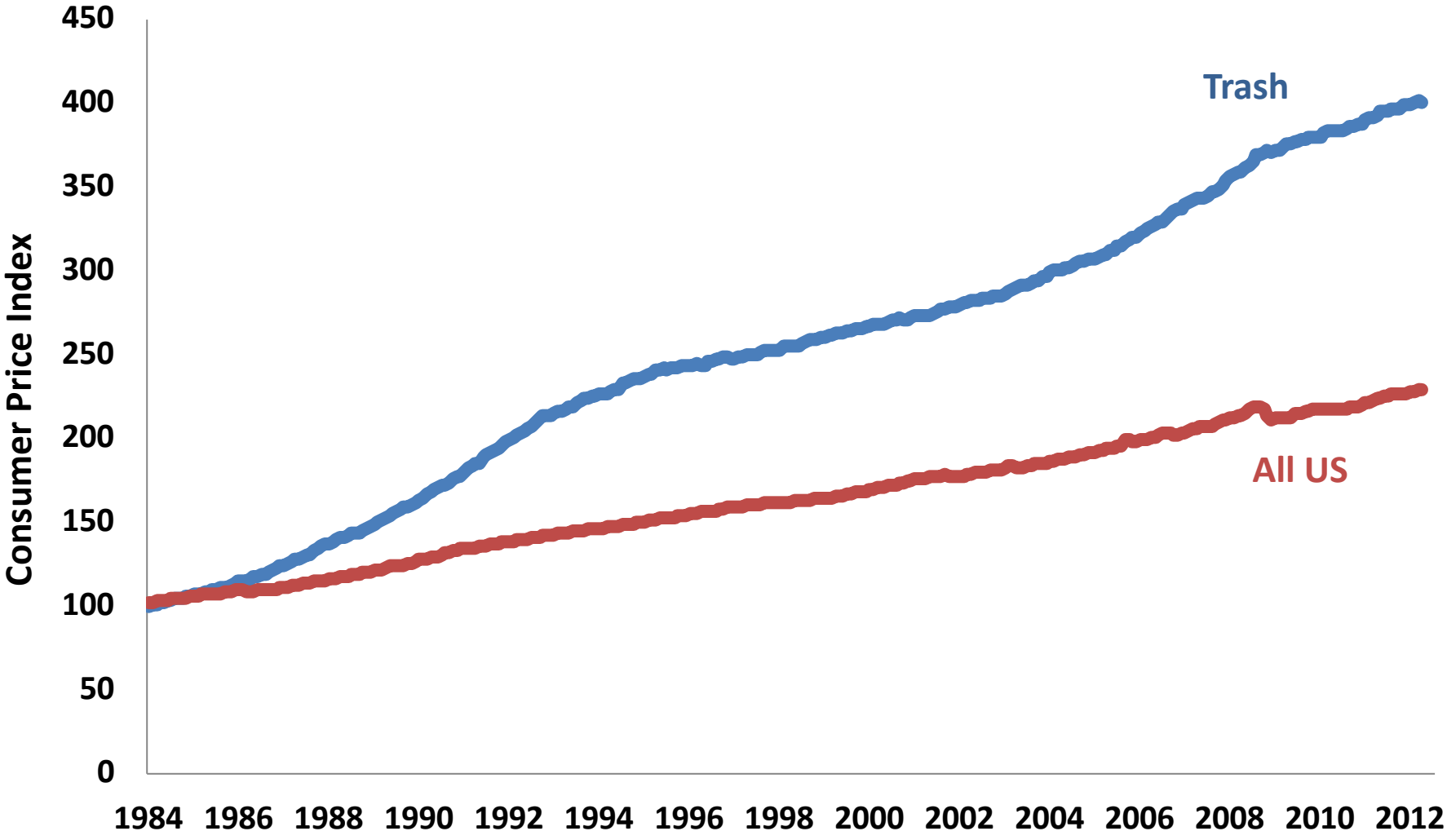


More Trash, Fewer Landfills



Source: US EPA, Municipal Solid Waste: Facts and Figures

The Increasing Cost of Trash

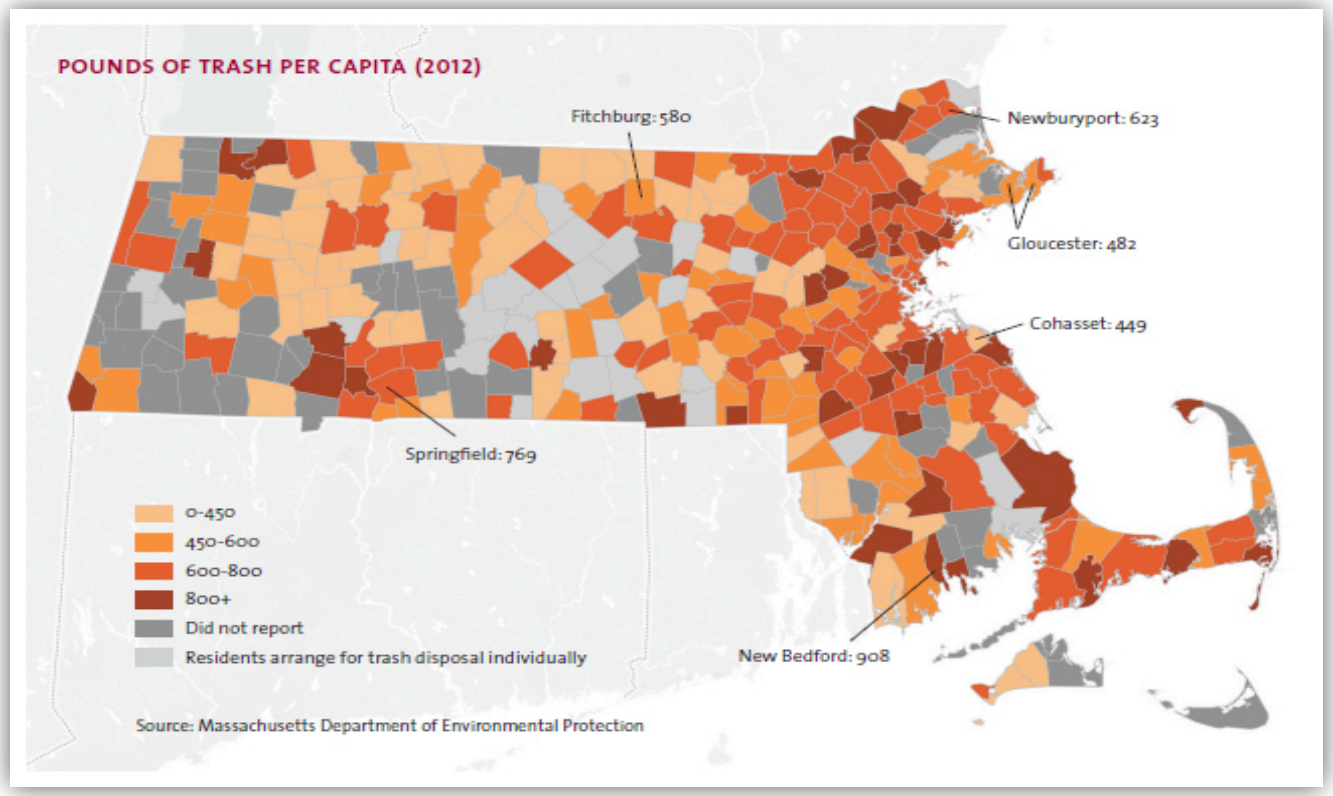


What Is SMART?

With SMART, people think twice about what they throw away – and choose to reduce, reuse, donate, recycle, or compost instead.

Benchmarking Waste: Annual Residential Per Capita Disposal

For maximum accuracy, Annual Per Capita Waste Disposal is the best way benchmark the amount of waste disposed after recyclables and other materials are diverted from the waste stream.



Source: *Seriously, Is This the Best We Can Do?,* Commonwealth Magazine*, Winter 2015*

- EPA SMART BET uses per capita disposal.
- Zero Waste Europe uses per capita disposal.
- 432 lbs. per capita is the MA average for SMART communities.

Using recycling rates as a benchmark can create a false sense of accomplishment.

Forms of SMART

SMART programs can take many different forms.

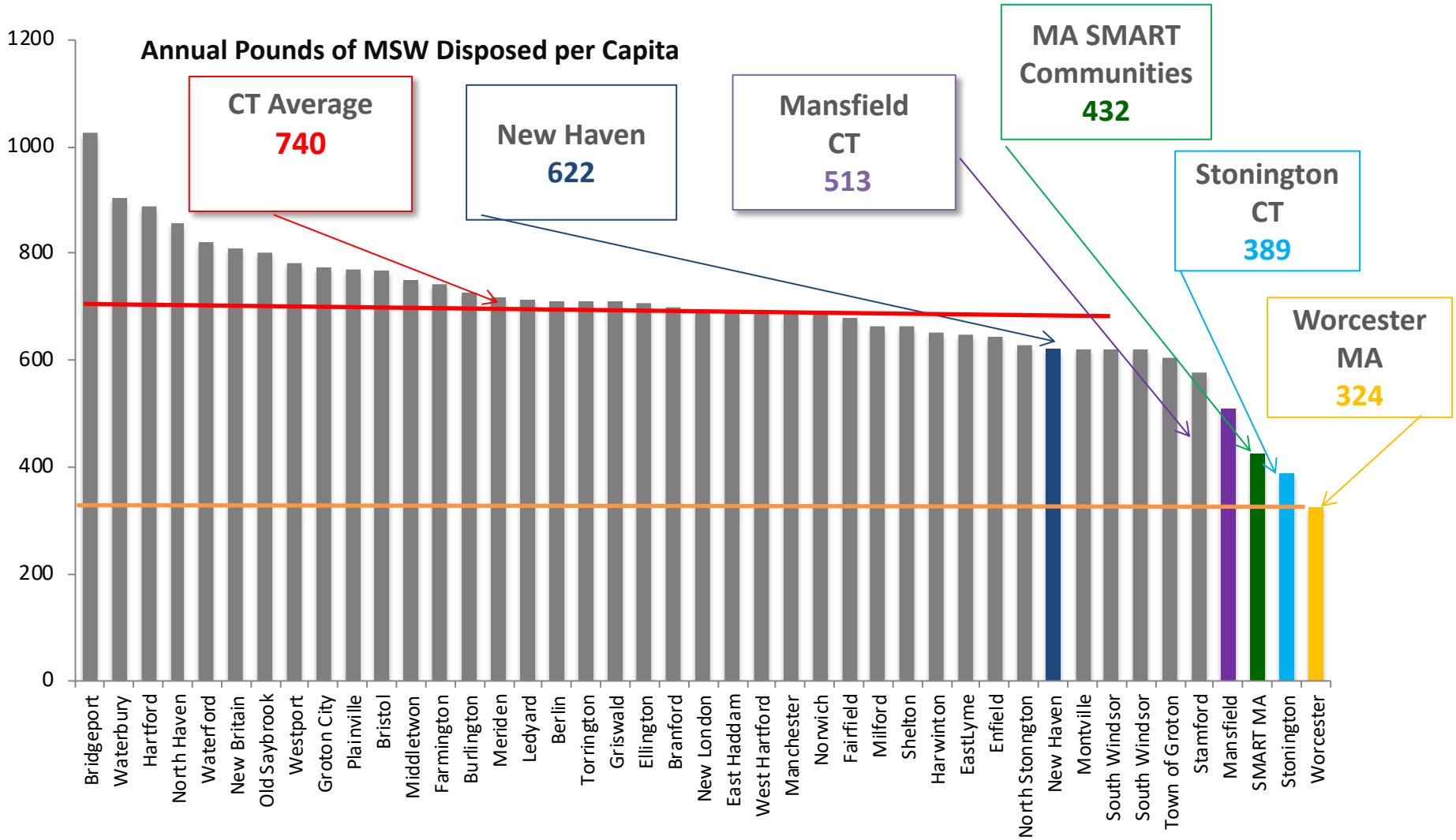
	**Variable-Rate Carts (VRCs)**	Residents choose from among different sizes of carts, paying more for larger carts	**500-600 +** *pounds per capita*
	**Stickers/Tags**	Residents pay by the bag by affixing a pre-paid tag or sticker to each bag of trash.	**500-600** *pounds per capita*
	**Bags or Bags in Carts**	Residents dispose of waste in official municipal bags. Bags can be used with **manual or cart-based** collection systems.	**Avg. 280-432** *pounds per capita*

SMART

1. **Cut taxes, increase services, close deficits**
2. **Pay per unit for trash**
3. **No extra fee for recycling**

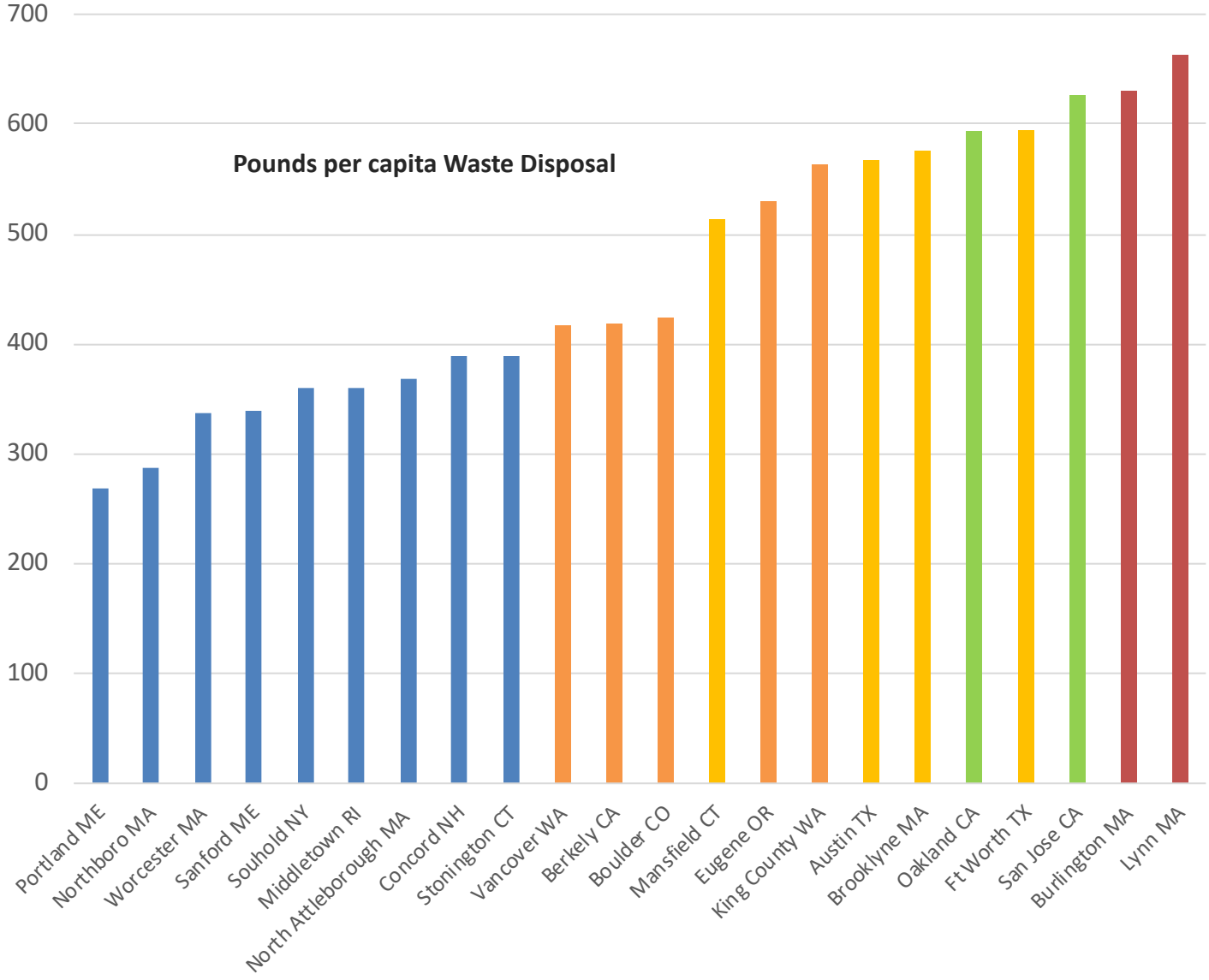
Disposal /Capita

SMART Communities dispose of less residential MSW per capita than many other Connecticut cities.



Note: Figures are calculated using MSW tonnage data provided by the municipalities themselves

Portland Maine ranked # ONE disposing of less waste per person and moving closer to Zero Waste than peer communities.



PAYT with Bags (Average 344lbs per capita)

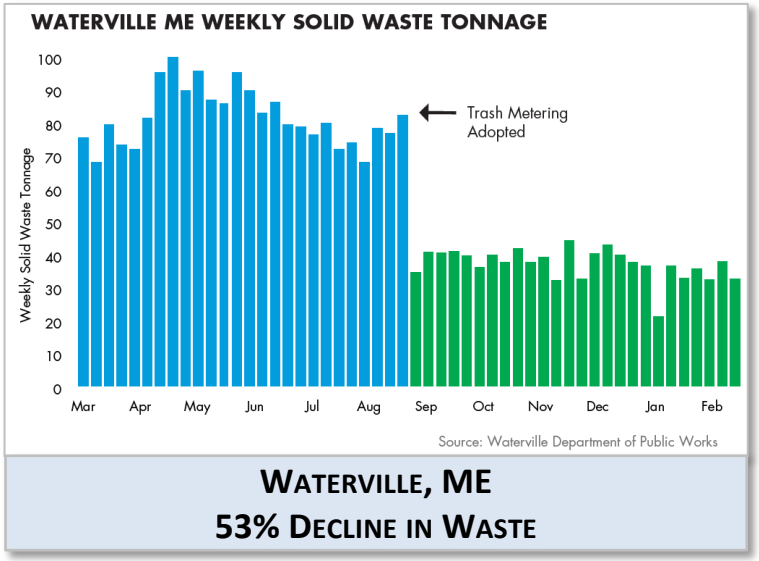
PAYT with variable carts plus curbside food collection (Average 510lbs per capita)

PAYT with Variable Carts no Curbside Food Collection (Average xx per capita)

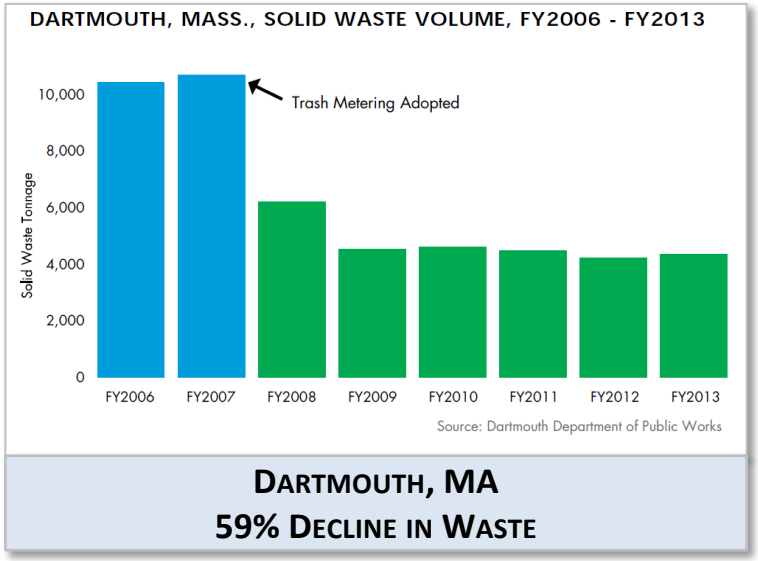
64 gallon Overflow Cart (Average 662lbs per capita)

Note: Institute for Local Self Reliance 2017 Study

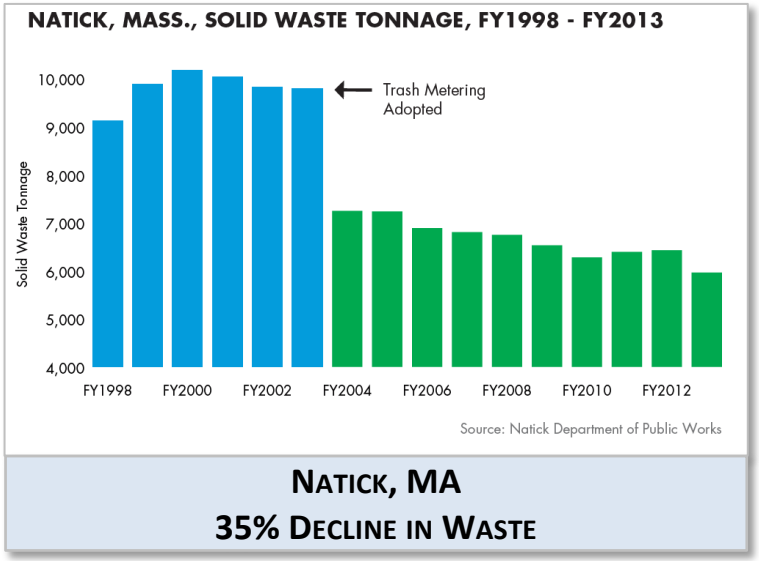
Results: MSW Reduction of 44% on Average



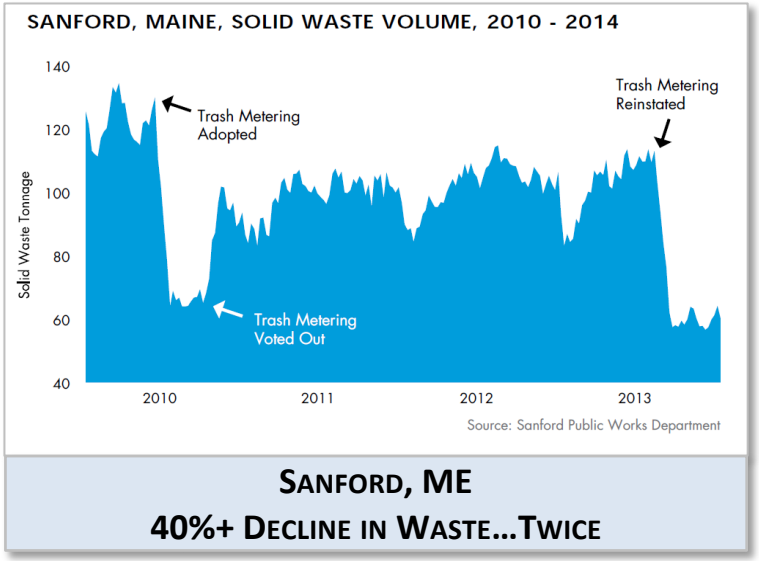
WATERVILLE, ME
53% DECLINE IN WASTE



DARTMOUTH, MA
59% DECLINE IN WASTE



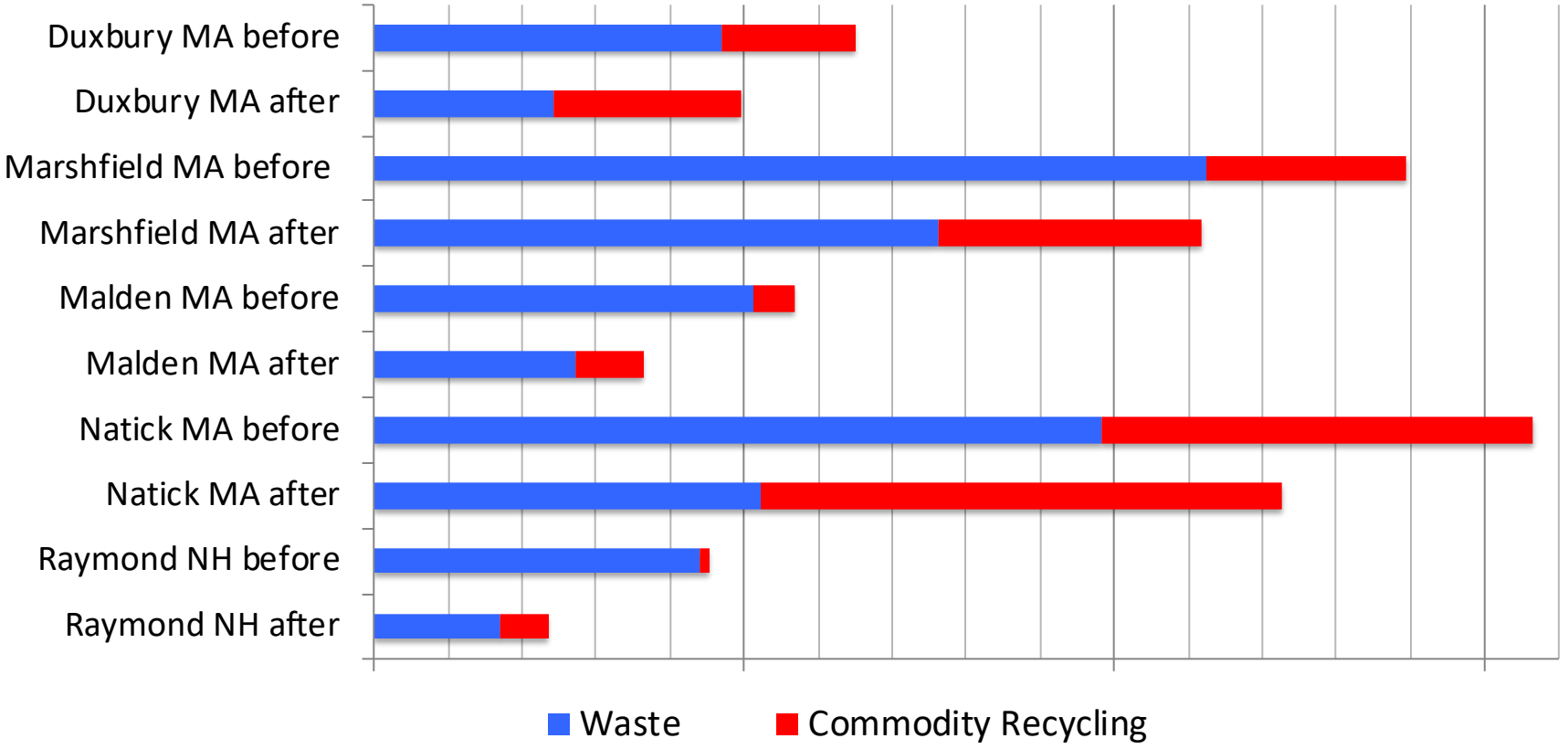
NATICK, MA
35% DECLINE IN WASTE



SANFORD, ME
40%+ DECLINE IN WASTE…TWICE

SMART – Decreases Overall Generation – 20+%

SMART's price signal produces source reduction and moves materials into all other programs, increases donations and home composting.

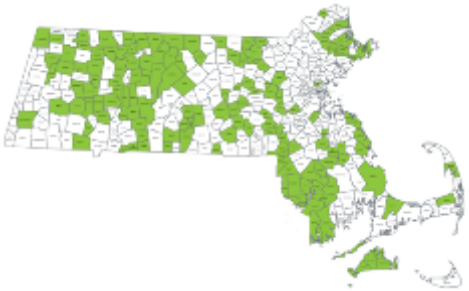


Lower overall generation means less materials (waste and recycling) to manage, transport and tip in years to come.

Similar Efforts in Other States

SMART has a strong presence in the Northeast. The experience of municipalities in this region can be productively applied in Connecticut.

Massachusetts



- 41% of municipalities use SMART.
- Average waste reduction of 44% with bag-based SMART.

Rhode Island

- 6 of RI's 39 municipalities have some form of SMART.
- Rhode Island Resource Recovery Corporation (RIRRC) is designing a statewide SMART option.

Maine

- 31% of ME's 1.33 million people live in SMART towns.
- Average waste reduction of 44% with bag-based SMART

In addition, unit-based pricing for solid waste is mandatory in Minnesota, Oregon, Vermont, & Washington.

Global SMART Efforts (Selected Examples)

Europe

- ZeroWaste Europe's 1st Category Municipalities must use SMART.
- Low per capita disposal (300-500 lbs./yr) with SMART in
  - Austria
  - Belgium
  - Estonia
  - France
  - Italy
  - Switzerland
  - Others

South Korea & Japan

- Seoul reduced waste 42%.
- Kyoto reduced waste more than 40%.

Taiwan

- Taipei uses bag-based SMART.
  - Reduced waste by 33%
  - Recycling rate is >50%

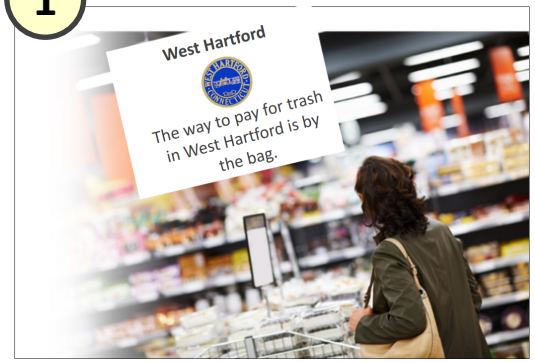
SMART – Zurich Reduced Waste 41%

- ***Best Environmental Management Practices in the Waste Management Sector.***
  - Report to the European Commission's Joint Research Center
  - May 2016

How Would SMART Work in New Haven

How SMART Works: It's Simple!

1



Purchase official SMART trash bags at the same stores where you shop today.

2

Put trash in official SMART trash bags.

3

Place trash in container, same as today.

4

Place recycling in container, same as today.

1. Trash collection works the same as today (from the municipality or hauler).
2. Recycling collection remains free and works the same as today (from the municipality or hauler).
3. SMART trash bags would be available at convenient locations (all grocery, hardware, drugs stores)
4. The SMART bag draws attention to waste while providing residents an economic incentive to recycle more and throw away less.

Number of SMART Bags the Average Home will Use per Week

With SMART, the average home will use less than one 33-gallon bag per week.

The average home will use…

…less than one bag per week

Based on data collected from hundreds of SMART programs:

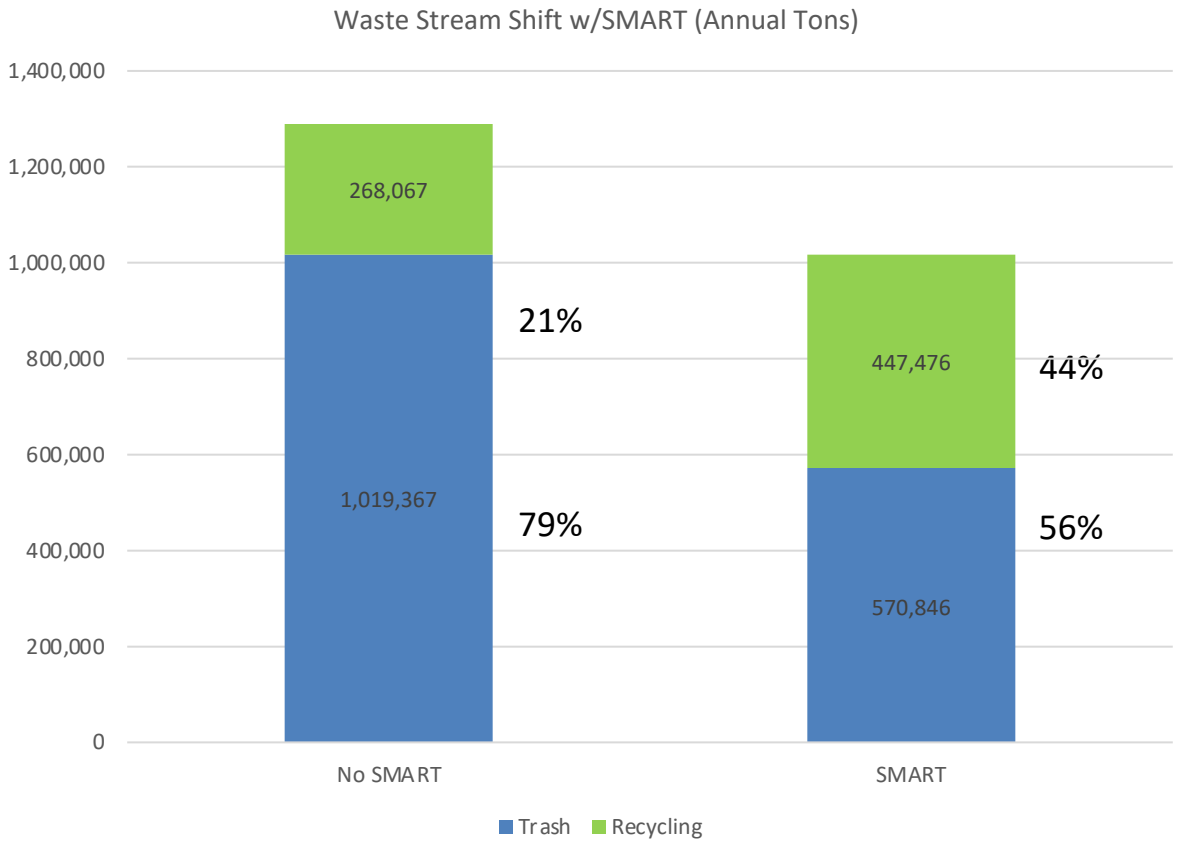
- Residential trash will drop by 44% (from 24,650 tons/yr. to 13,804 tons/yr.)
- 13,804 tons per year equals
  - 836 lbs. per home per year
  - 16.08 lbs. per home each week
- A 33-gallon bag collected through a SMART program contains 21.25 lbs. of trash
- That's less than one bag per week per household, $40* per year, $56** per year

*Based on Option Two, ** based on Option One

New Haven

Projected Waste Stream Shift with SMART

In New Haven, SMART would reduce annual trash tonnage by 44%, or about 10,846 tons. This equates to annual tip fee savings of $954,448 at $88 per ton.



With SMART, annual pounds of trash per capita (PPC) would drop from 622 to 349.

Now is the Best Time for SMART

Recycling markets have been weak for the past few years due to a combination of single stream contamination and China's policy. The recycling infrastructure in the US is adjusting and markets are predicted to rebound. Recycling is a commodity and there will always be highs and lows; however, SMART is the best way to manage waste regardless of the recycling costs because it promotes source reduction and reuse. The recycling tip fee could go as high as $170 per ton, and a SMART system will still cost less money.

	No SMART	SMART	No SMART	SMART	No SMART	SMART	No SMART	SMART
Waste Tonnage	24,650	13,804	24,650	13,804	$24,650	$13,804	$24,650	$13,804
Recycling Tonnage	6,564	10,902	6,564	10,902	$6,564	$10,902	$6,564	$10,902
Waste Tip	$88	$88	$88	$88	$88	$88	$88	$88
Recycling Tip	**$36.80**	**$36.80**	**$0.00**	**$0.00**	**$80.00**	**$80.00**	**$170**	**$170**
Trash Disposal $	$2,169,200	$1,214,752	$2,169,200	$1,214,752	$2,169,200	$1,214,752	$2,169,200	$1,214,752
Recycling $	$241,555	$401,208	$0	$0	$525,120	$872,192	$1,115,880	$1,853,408
Total Cost	$2,410,755	$1,615,960	$2,169,200	$1,214,752	$2,694,320	$2,086,944	$3,285,080	$3,068,160
Savings - Comparison		**$794,795**		**$954,448**		**$607,376**		**$216,920**

The waste tip fee is expected to rise significantly over the next decade. The average waste tip fee for the 40 DEEP communities was $70 per ton. Communities that have negotiated new contracts since the start of the DEEP Dive have seen much greater increases than CPI.

SMART Pricing Options for New Haven

SMART Bags Cover a Portion of the Cost of Solid Waste (Option One)

The average home will spend $56 on bag fees annually.

$1.50 per Bag	
Bag & Bag Distribution	$0.31
Trash Incineration + some operational costs	$1.19
Total	$1.50

$.80 per Bag	
Bag & Bag Distribution	$0.21
Trash Incineration + some operational costs	$0.59
Total	$0.80

Estimated Annual Financial Impact of SMART* (Option One)

Bag purchase price:
Mini: $0.60
Small: $0.80
Large: $1.50

	1 Year	3 Years	5 Years	10 Years
Revenue Bag Sales[1]	$1,462,777	$4,388,332	$7,313,887	$14,627,775
Savings Tipping Fees	$954,448	$2,863,344	$4,772,240	$9,544,480
New Recycling Tip Cost	-$159,653	-$478,959	-$798,266	-$1,596,531
Net Program Impact	**$2,257,572**	**$6,772,717**	**$11,287,862**	**$22,575,723**

Notes:
1. Benefits and Savings for Years 3,5, and 10 are cumulative
2. Revenues are net of program services and supplies
3. Assumes tip escalation based based on projected disposal costs
4. Recycling tip is volatile right now - the current tip is $36.50 per ton
5. The trash tip is$88 per ton

New Haven would realize over $22.5 Million in benefits and savings over the next ten years.

SMART Bags Cover a Portion of the Cost of Solid Waste (Option Two)

The average home will spend $40.13 on bag fees annually.

$1.00 per Bag	
Bag & Bag Distribution	$0.31
Trash Incineration+ some operational costs	$.69
Total	$1.00

$.65 per Bag	
Bag & Bag Distribution	$0.21
Trash Incineration + some operational costs	$0.44
Total	$0.65

Estimated Annual Financial Impact of SMART* (Option Two)

Bag purchase price:
Mini: $0.45
Small: $0.65
Large: $1.00

	1 Year	3 Years	5 Years	10 Years
Revenue Bag Sales[1]	$908,462	$2,725,385	$4,542,309	$9,084,618
Savings Tipping Fees	$954,448	$2,863,344	$4,772,240	$9,544,480
New Recycling Tip Cost	-$159,653	-$478,959	-$798,266	-$1,596,531
Net Program Impact	**$1,703,257**	**$5,109,770**	**$8,516,283**	**$17,032,567**

Notes:
1. Benefits and Savings for Years 3,5, and 10 are cumulative
2. Revenues are net of program services and supplies
3. Assumes tip escalation based based on projected disposal costs
4. Recycling tip is volatile right now - the current tip is $36.50 per ton
5. The trash tip is$88 per ton

New Haven would realize over $17 Million in benefits and savings over the next ten years.

SMART Bags Cover a Portion of the Cost of Solid Waste (Option Three)

The average home will spend $79.32 on bag fees annually.

$2.00 per Bag	
Bag & Bag Distribution	$0.31
Trash Incineration+ some operational costs	$1.69
Total	$2.00

$1.25 per Bag	
Bag & Bag Distribution	$0.21
Trash Incineration + some operational costs	$1.04
Total	$1.25

Estimated Annual Financial Impact of SMART* (Option Three)

Bag purchase price:
Mini: $0.85
Small: $1.25
Large: $2.00

	1 Year	3 Years	5 Years	10 Years
Revenue Bag Sales[1]	$2,201,865	$6,605,595	$11,009,325	$22,018,650
Savings Tipping Fees	$954,448	$2,863,344	$4,772,240	$9,544,480
New Recycling Tip Cost	-$159,653	-$478,959	-$798,266	-$1,596,531
Net Program Impact	**$2,996,660**	**$8,989,980**	**$14,983,300**	**$29,966,599**

Notes:
1. Benefits and Savings for Years 3,5, and 10 are cumulative
2. Revenues are net of program services and supplies
3. Assumes tip escalation based based on projected disposal costs
4. Recycling tip is volatile right now - the current tip is $36.50 per ton
5. The trash tip is$88 per ton

New Haven would realize nearly $30 Million in benefits and savings over the next ten years.

A SMART Rate Structure is a More Cost Effective Way to Fund Solid Waste

- ✓ 145% ROI
- ✓ Lower Disposal Costs $954,000 annually
- ✓ 10% Lower DPW Department Costs
- ✓ Decreased Exposure to Waste and Recycling Cost Increases

SMART provides a return on investment (ROI) of 145% (option One)

A SMART program asks residents for less. The annual benefit to the town is over $2.4 Million (tip savings and bag revenue), but the total cost to residents is of less than $1 Million

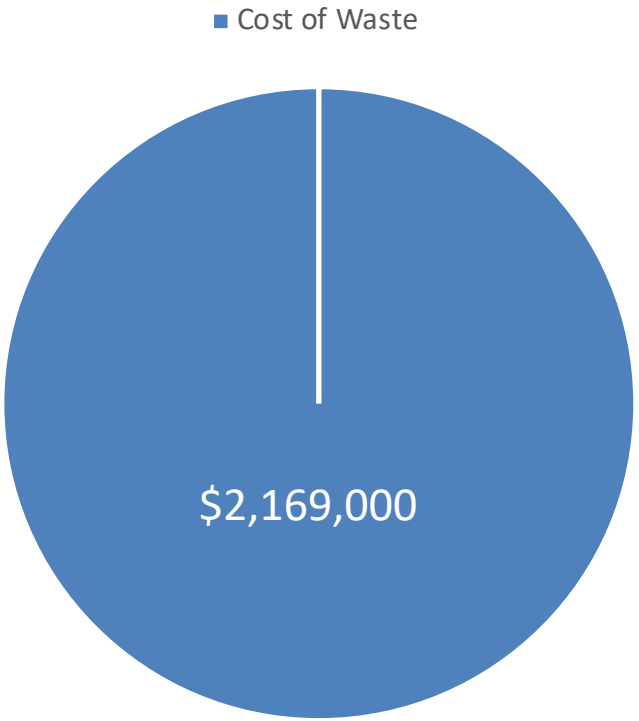
Average HH SMART bag annual expense		$56.92
Average HH regular trash bag annual expense	minus (-)	$27.00
Average additional out of pocket (since regular trash bags are no longer needed)	equals (=)	$29.92
Total out of pocket cost from all 33,000 homes	times (x)	**$987,514**
Return on investment for residents		**114%**

The average household will spend an additional $29.92, and receive $73.25 in positive community impact.

SMART Funds the Cost of Waste Differently

Status Quo

Trash Disposal is funded
100% Through Taxes



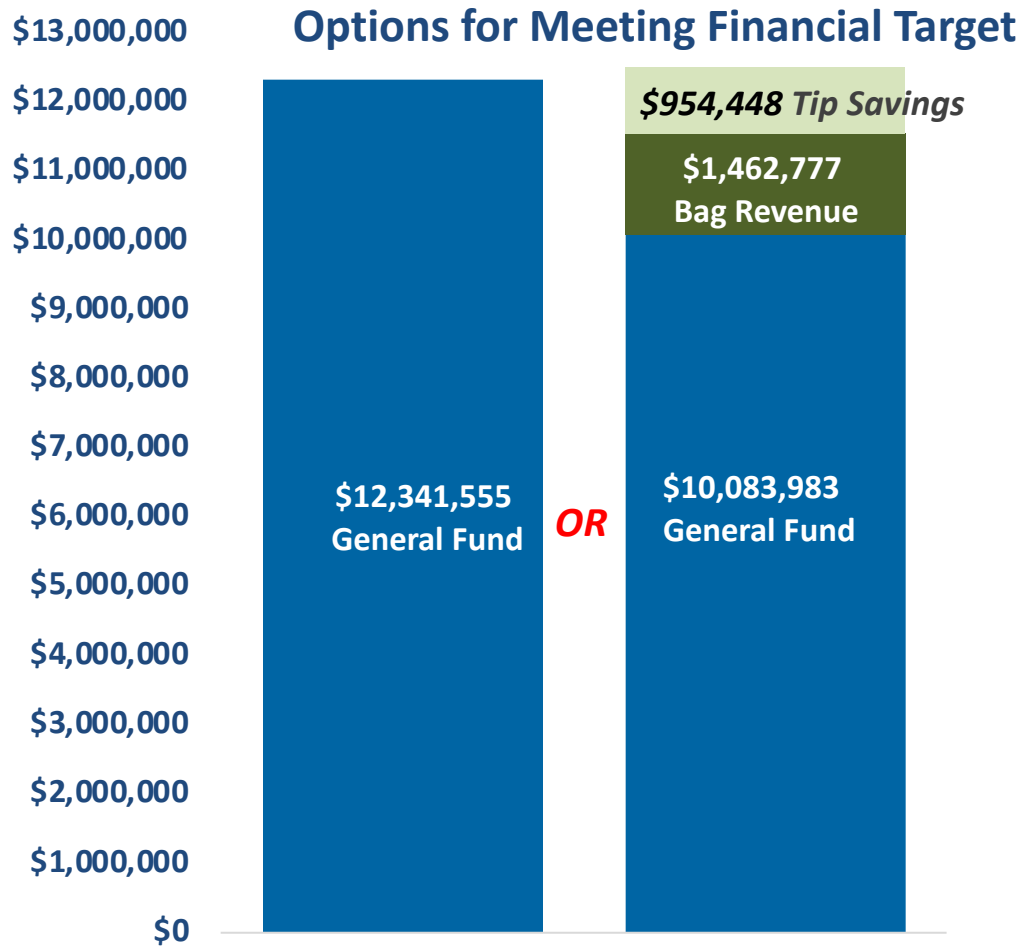
SMART

Trash Disposal is Funded
100% Through a Bag Fee

Residents will spend $945,000 less each year to incinerate trash

Switching to SMART Saves the Department 9.4%

SMART is a more efficient and fiscally responsible way to fund solid waste services. Residents pay for trash services differently: Partly through taxes and partly through a bag fee.



	Status Quo	With SMART ONE
Total Expense	**$12,341,555**	**$11,546,740**

Source: New Haven 2018 Budget

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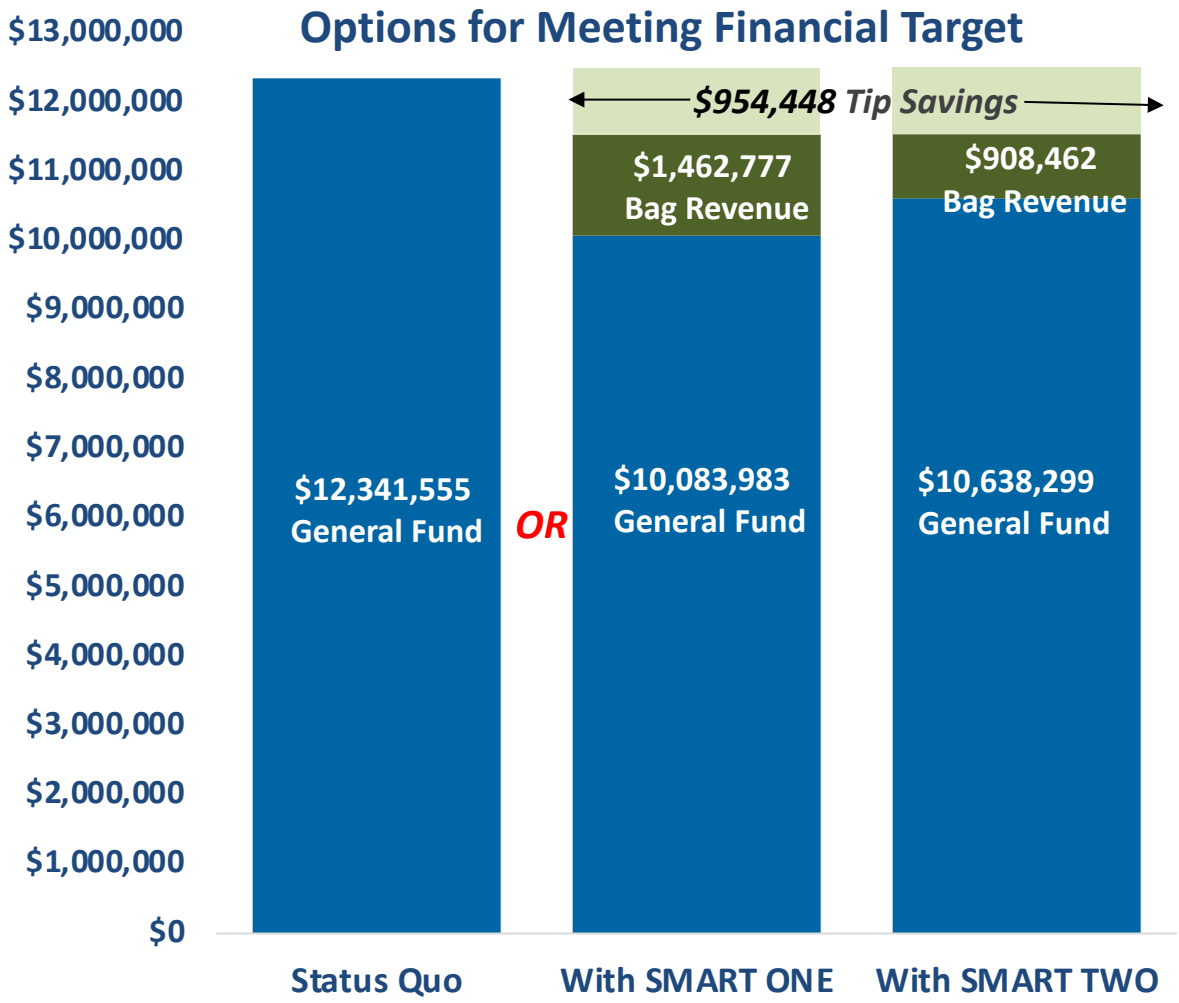

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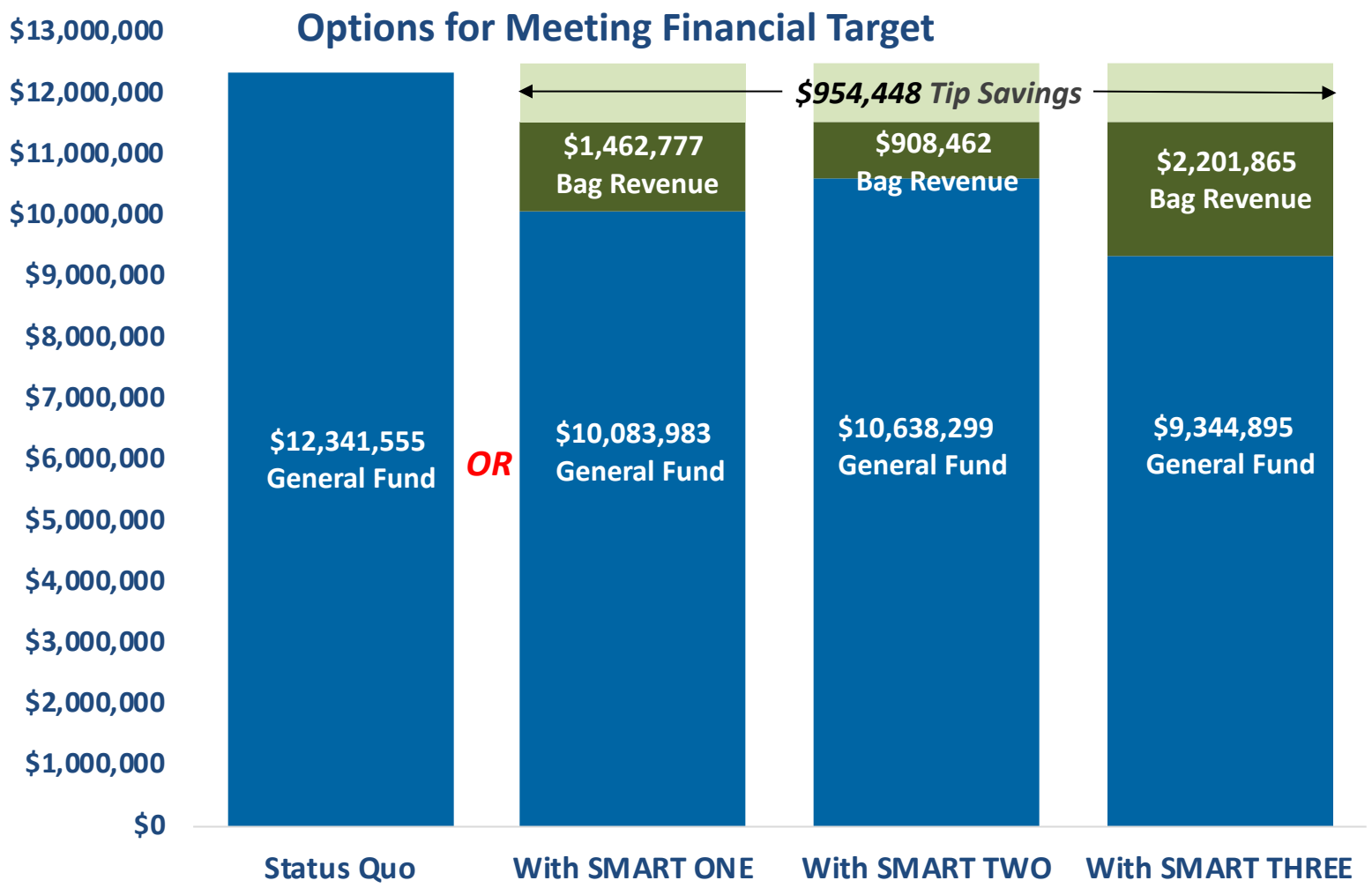


	Status Quo	With SMART ONE
Total Expense	**$12,341,555**	**$11,546,740**

Source: New Haven 2018 Budget

Financial Savings for Households

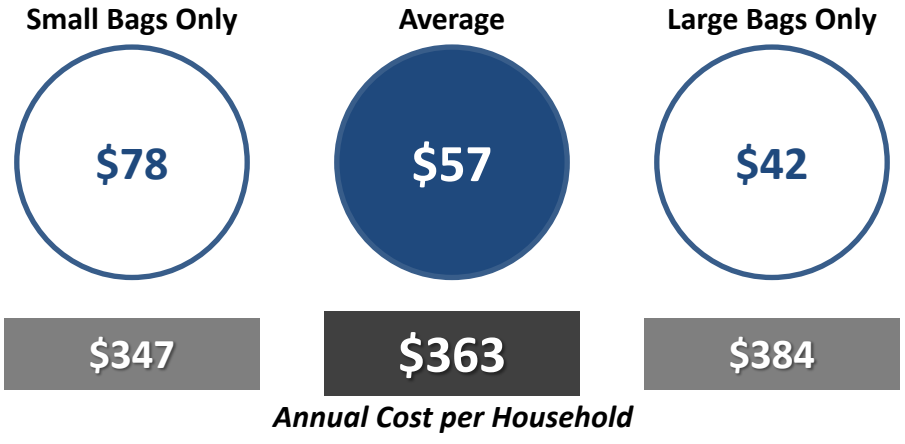
Residents using the average number of SMART bags—or even slightly more than that—would still pay less for solid waste services with SMART than with the current system.

Baseline Tax per HH
$373
+
Regular Trash Bags
$27
=
409

OR

Baseline Tax per HH
$305

+



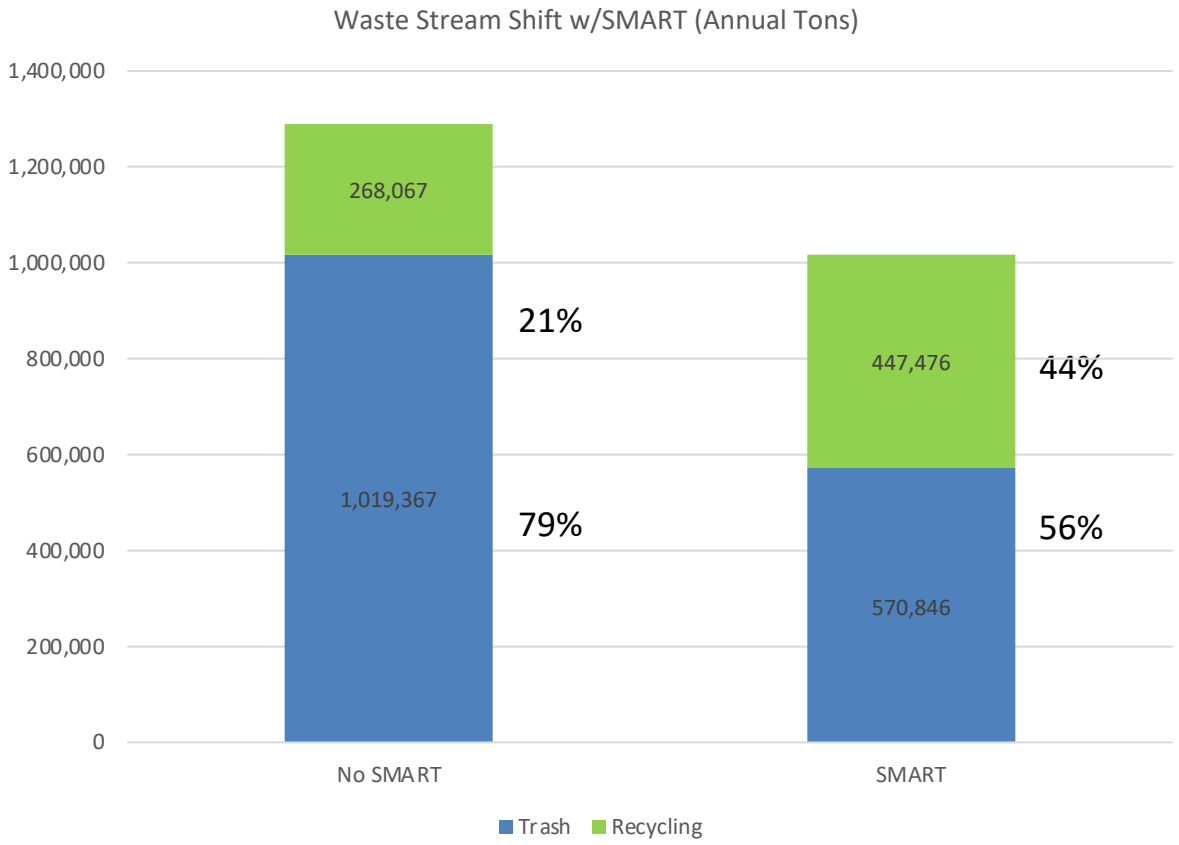
SMART gives residents control over their costs, and makes it easy to save money on trash services.

Bag purchase price: *Small: $0.80 Large: $1.50*

New Haven

Projected Waste Stream Shift with SMART

In New Haven, SMART would reduce annual trash tonnage by 44%, or about 10,846 tons. This equates to annual tip fee savings of $2,169,200 at $88 per ton.



With SMART, annual pounds of trash per capita (PPC) would drop from 622 to 349.

New Haven

Annual Environmental Impact of SMART

CO_2e (Greenhouse Gas)

Annual Reduction

20,400 Metric Tons

- Reduced carbon footprint
- Less pollution
- Healthier environment for residents

Equivalent to:

Removing

4,100

passenger vehicles from the road

or

Reducing gasoline consumption by

2,300,000

gallons

BTUs (Energy Used)

Annual Reduction

170,000 Million Units

- Reduced costs
- Reduced carbon footprint
- Increased energy security

Equivalent to:

Powering

1,500

residential homes

or

Installing

21,000

rooftop solar panel arrays

Source: EPA WARM Model

Strong Support for Pay-as-You-Throw

In a Public Policy Polling survey of ~1,000 PAYT participants from 10 communities, significant majorities said they are satisfied with PAYT, see it as fair and easy, and believe it is effective.

- ***Favorability***
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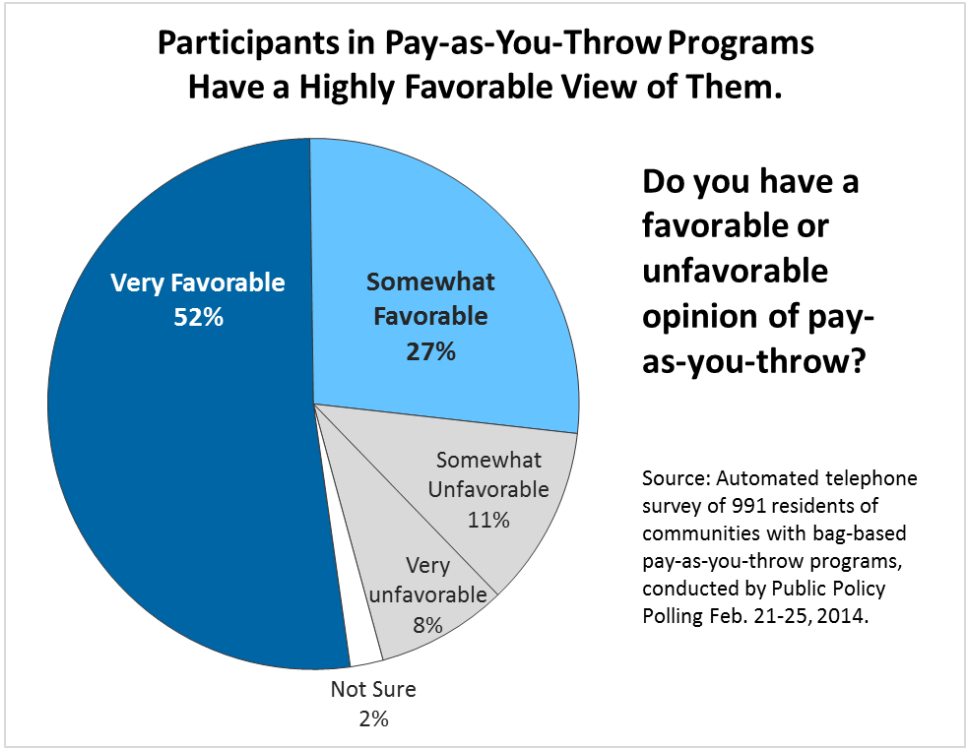
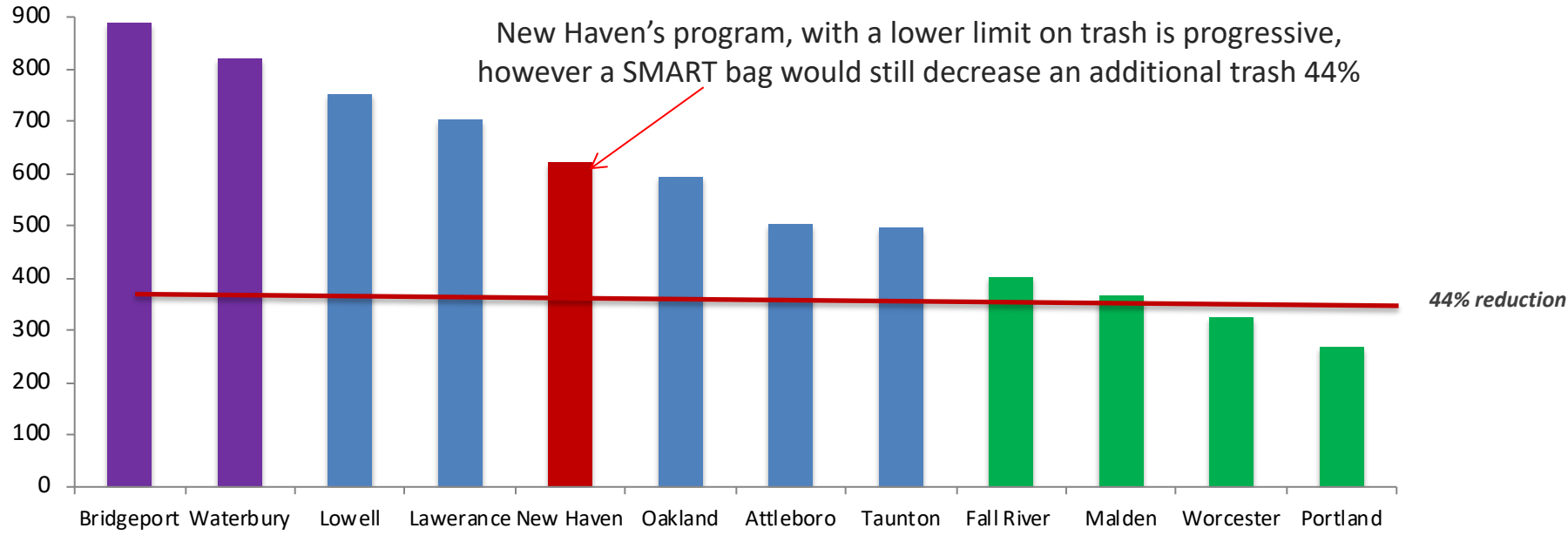


Trash Program Comparison (per capita disposal)



	Trash Container Size	Owner Occupied Homes	Per Capita Income	Median Home Value
Bridgeport, CT	96 Gallon (unlimited)	42%	$22,806	$170,300
Waterbury, CT	96 Gallon (unlimited)	43%	$21,605	$128,600
Lowell, MA	64 Gallon (overflow bag)	42%	$23,768	$240,500
Lawrence, MA	64 Gallon (overflow bag)	28%	$18,069	$238,200
New Haven, CT	48 Gallon	28%	$24,600	$189,000
Oakland, CA	SMART Carts	40%	$37,256	$564,500
Attleboro, MA	32 Gallon (overflow bag)	66%	$33,965	$273,900
Taunton, MA	40 Gallon Bag (limit)	64%	$29,787	$246,500
Fall River, MA	SMART Bags	36%	$23,650	$231,300
Malden, MA	SMART Bags	41%	$29,830	$359,700
Worcester, MA	SMART Bags	39%	$26,000	$210,000
Portland ME	SMART Bags	44%	$32,221	$261,100

Next Steps

1. Answer questions
2. Work with DPW to tweak design
3. Work with DEEP to reach the following Sustainable CT milestones:
    - Build a SMART Task Force to work through evaluation steps for SMART
    - Use Task Force visit SMART communities in New England, educate all council members and get feedback from councilors, evaluate objections and gain support from environmental groups, local AARP, district groups, or other advocacy groups, brief media
    - Hold public public meetings to gain resident general feedback
    - Tweak final design plan and make recommendation to council.
4. Develop key message and FAQ documents for public and media
5. Write ordinance or adapt current ordinance

Common Concerns Raised on Social Media

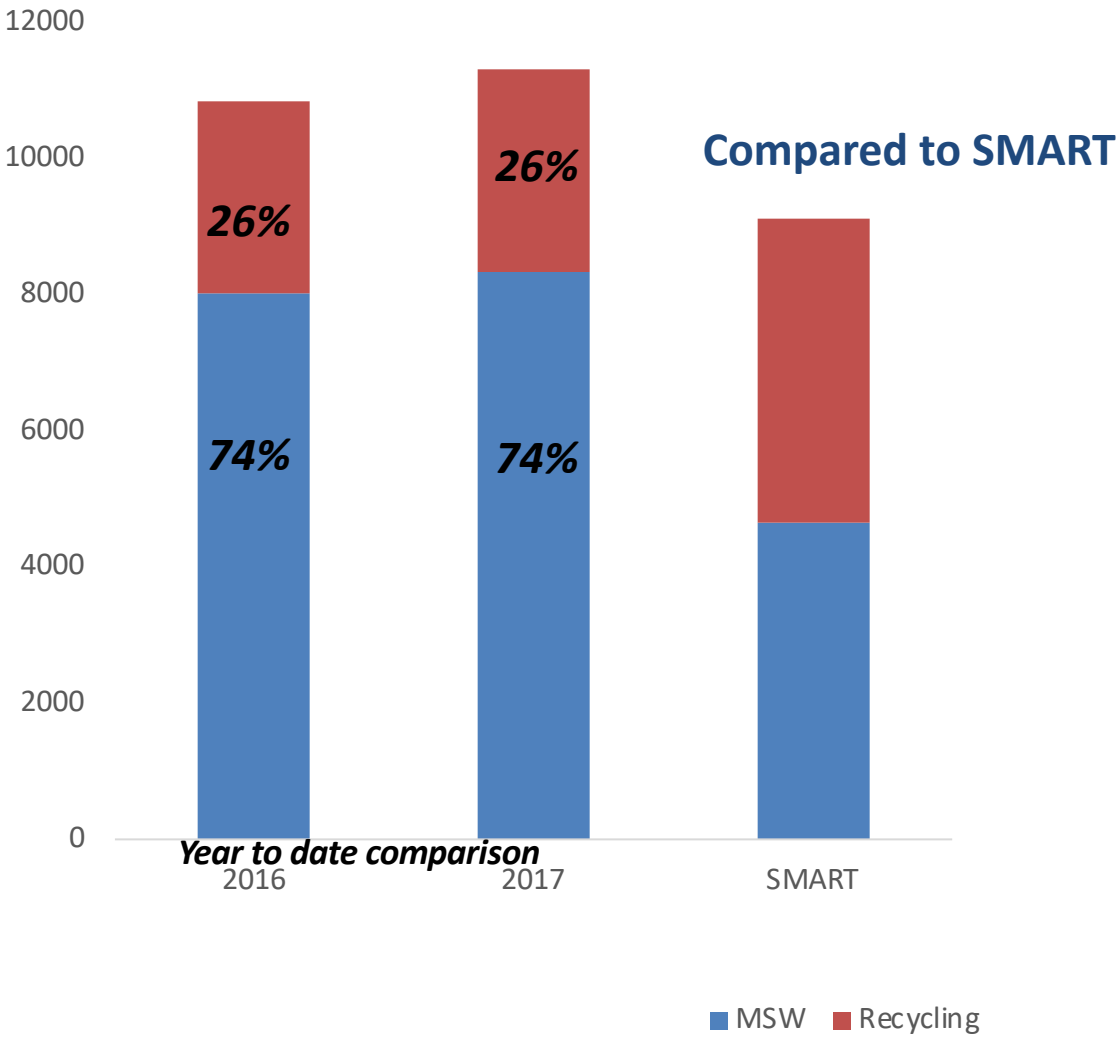
Frequent Objections

There must be a better way. We should study this more thoroughly and try other solutions first.

The State of Connecticut, as well as other states and cities around the country have worked for decades to find programs that increase recycling and reduce waste.

SMART is the single most effective way to reduce trash while also saving money.

West Hartford Switch from Bi-weekly to Weekly Recycling



SMART: Big Impact

Westport banned plastic bags about 10 years ago. Banning plastic bags is also a difficult political action. Although the ban was important for multiple reasons, it's effect on waste volume is minimal.

10-Year Estimated Plastic Bag Ban Results:

390 tons

$27,300 in disposal savings

10 Year Estimated SMART Results:

80,000 tons

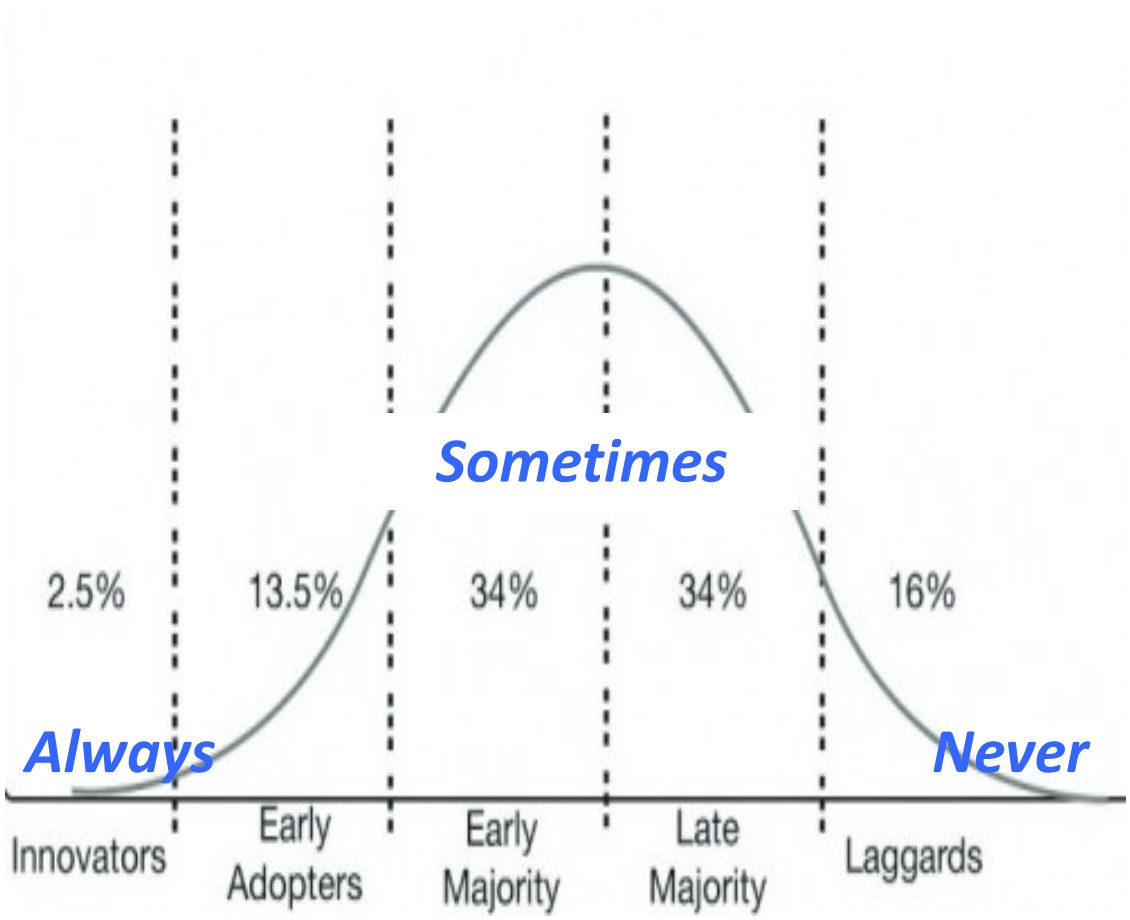
$7 million in disposal savings

Frequent Objections

This is unfair to the good recyclers because they will pay more.

This is not the case. Currently the good recyclers are subsidizing everyone else and as the cost of waste increases the subsidy increases.

Curbside Value Partnership



- ***When trash is hidden in the taxes, the 'Always Recyclers' are covering up the behavior of those that are not participating.***
- ***The as tip costs rise the 'Always Recyclers' will be paying disproportionally more per ton for trash than the sometimes recyclers.***

2.5% are always recyclers, another 13.5% are frequent recyclers but 68% are only recycling sometimes.

Frequent Objections

This information does not tell the entire picture. What about all the programs that failed?

There are hundreds of SMART bag programs around the world.

Only a handful of programs that have been discontinued. Two are located in Connecticut. The programs were discontinued for political reasons, not because of poor results.

Case Study: East Lyme, CT

The East Lyme Selectman Decided to Discontinue the Program in 1998 for political reasons

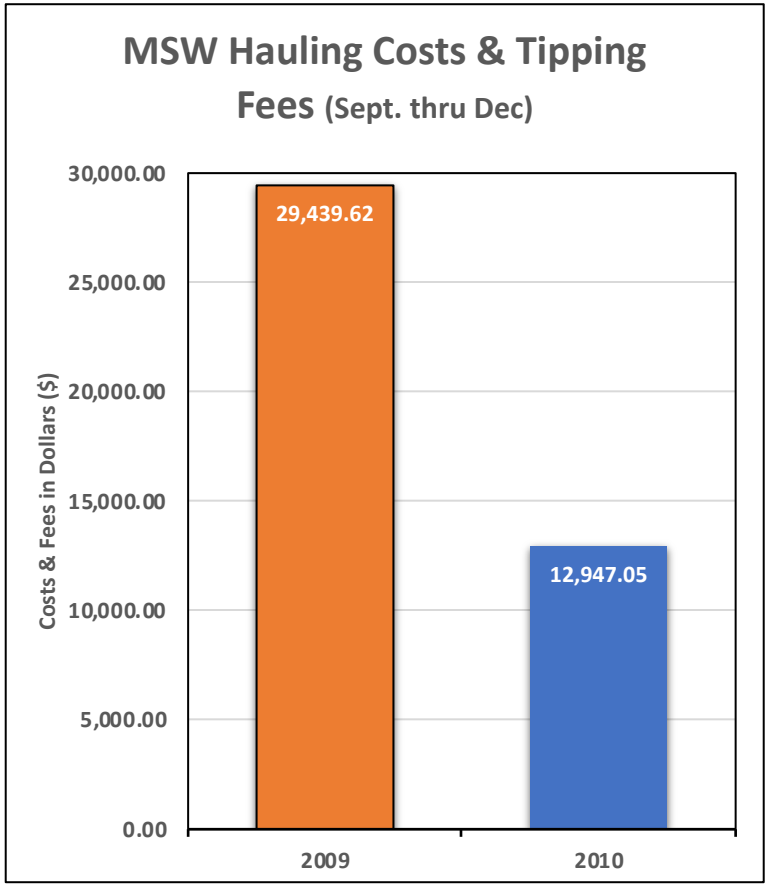
- When East Lyme's Selectman discontinued the program, trash went up from 4,571 tons (1997) to 7,179 tons (1998).
- **East Lyme's current per capita trash is 650.**
- Stonington implemented the program at the same time as East Lyme, has a similar demographic make up, and nearly the same population. **Stonington's current per capita trash is 389.**
- Stonington had a referendum and the strong majority of residents chose to keep the program.
- Stonington has saved approximately 6.5 Million dollars since the program's inception.

Case Study: Columbia CT

Columbia voted at a Town Hall Meeting to Eliminate the Program

Program Results:

- Municipal Solid Waste Decreased by 54%
- MSW Hauling Costs and tipping fees reduced by 49%
- Recycling hauling costs and tipping fees reduced by $7,481.72 in just four months
- Bag Revenue exceeded previous expectations:
  - $25,000 was budgeted for the entire 6 month trial and, only 4 months into the trial, net bag revenues exceeded this number at $28,000
- Recycling rate increased from 27% to 41%
- Despite the SWRAC recommendations, and overall program results, the town of Columbia voted to eliminate the program at a local town meeting in February 2011



Frequent Objections

My neighbors will not comply and therefore it will cost me more and not them.

Compliance from neighboring state programs, as well as Stonington, is approximately 99%.

Studies also show that there is no notable increase in illegal dumping.

How Can the Town Enforce the SMART Program?

SMART compliance is very high and enforcement is usually not a challenge.

Most compliance issues happen during the first 6 weeks of a new program.

Most communities manage these with existing staff.

- Additional support can be provided if compliance is a concern.

A tiered enforcement system is recommended where one is not in place.

In all instances, the cost of enforcement has been a fraction of the financial savings related to SMART.

Sanford, ME – City-Reported Compliance Rates				
Week 1	96.3%		Week 6	99.65%
Week 2	98.52%		Week 7	99.79%
Week 3	99.52%		Week 8	99.76%
Week 4	99.38%		Week 9	99.94%
Week 5	99.43%		Week 10	99.86%

Frequent Objections

Residents will not like it.

Actually, residents like the program once they have given it a try.

Strong Support for Pay-as-You-Throw

In a Public Policy Polling survey of ~1,000 PAYT participants from 10 communities, significant majorities said they are satisfied with PAYT, see it as fair and easy, and believe it is effective.

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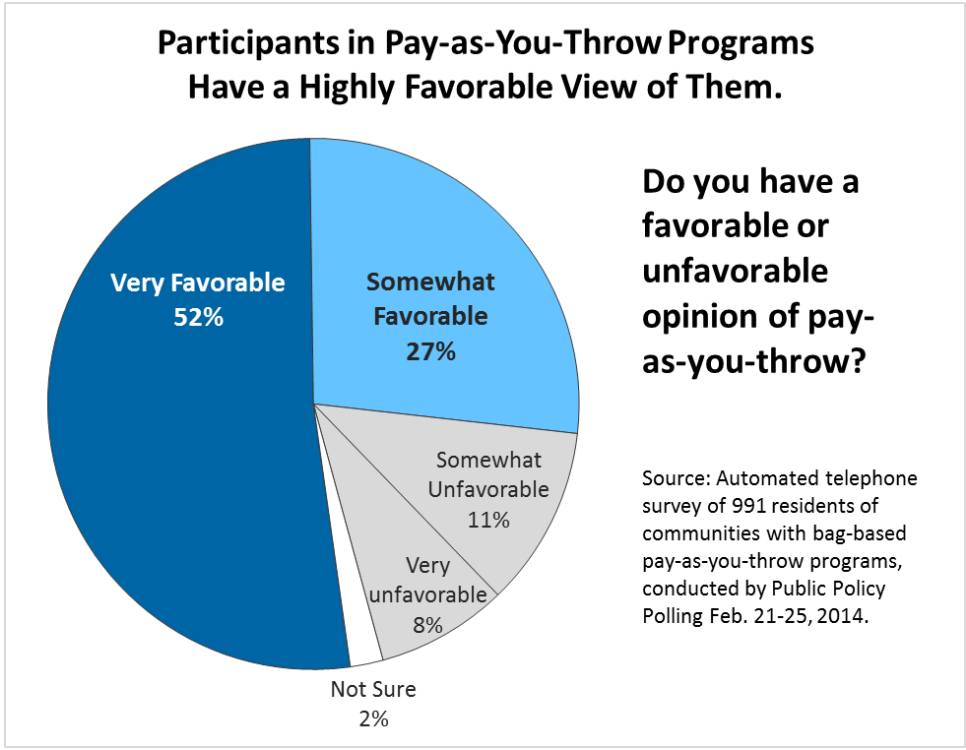

THE WALL STREET JOURNAL

‘Kicking the Cans’ July 29, 2008

Should people who throw out more trash pay higher disposal bills?

84% - YES 16% - NO

How energy efficiency creates jobs (Source: ACEEE)

An investment in energy efficiency will first **create opportunities for workers in industries that are more labor intensive** than average (as you will see in our example, a retrofit project will create jobs in the construction sector, which supports approximately 20 jobs per $1 million, compared to the all-sector average of 17). Then, it will **continue to support jobs year after year by saving energy.** The energy savings generated by the investment redirects spending away from the energy industry, which supports just under 10 total jobs per $1 million (see Figure 1), back into the overall economy (which supports 17 jobs per $1 million).

In other words, a net increase in jobs from energy efficiency, for the most part, is the result of two major changes: 1) an **initial expenditure or effort that drives energy bill savings**; and 2) the **subsequent adjustment in spending patterns brought about by that initial expenditure or effort**.

Ripple effect: Three types of jobs are created from this investment. First, a **construction contractor** will have to **hire workers** to install the desired energy efficiency measures. These contractor jobs are the direct jobs resulting from the investment. In addition, the workers will **require materials that they have to purchase from other companies** (e.g., insula on, tools). These **purchases create jobs throughout the economy for manufacturers and service providers that supply the building industry**. These supply-chain jobs are the indirect jobs resulting from the investment. Finally, **workers in these direct and indirect industries may choose to spend their earnings on goods and services in the local economy, creating induced jobs.**

Energy efficiency generates **energy bill savings** over the life of the investment, which frees up **funds to support more jobs in the economy** by **shifting jobs in the energy generation and distribution industries**

http://aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf

Clean Energy Jobs Growth

As of December 2016, the U.S. had 2.5 million workers employed in roles related to clean energy. Of those 2.5 million workers, 1.9 million have jobs that support energy efficiency efforts. These workers are employed by more than 165,000 companies which are involved in manufacturing, selling, or installing energy-efficient heating, ventilation, and air conditioning (HVAC) equipment, lighting, ENERGY STAR™ appliances, and building materials.

As this industry continues to expand throughout the U.S., more people will find employment, resulting in more homes enjoying the advantages of energy-efficient HVACs and more effort being made to reduce their environmental impact. There are many future opportunities for workers who pursue the skills, training, or certifications needed to fill these roles. It has been estimated that the economy could add more than a million energy efficiency jobs by 2030, and up to 2 million of these jobs by 2050.
http://www.contractingbusiness.com/residential-hvac/how-energy-efficiency-creates-jobs

Climate Disruption in New Haven:

Threats, Opportunities,

And Need to Act Now

New Haven Climate Movement

New Haven Leon Sister City Project

Why a Climate Emergency?

Global warming/climate change has already set in motion disastrous changes to the Earth system including: accelerating melting of the Arctic and other ice sheets, thawing of the permafrost, ocean acidification, accelerating species extinction, and year round forest fires, sea level rise, and extreme weather events like Hurricane Maria.

In addition, 19,000 scientists, agree that the only way to avoid **"vast human misery"** is to greatly change our quality of stewardship to the earth. The extreme urgency of the challenge was underlined by the most recent Intergovernmental Panel on Climate Change which said we **have less that 10 years** to radically reduce greenhouse gas emissions if we want to avoid disastrous impacts

From the **New Haven Climate Emergency Resolution** passed in September: *"The City of New Haven declares an existential climate emergency that threatens our city, region, state, nation, civilization, the natural world, and humanity."* The Resolution commits to end GHG emissions by 2030.

Vision of Healthy Future

We have the chance to create a community and local economy that respects Earth's very real limits and move us back to a safe climate.

A vision for New Haven is one where we:
- move to clean energy and produce much of our energy locally, instead of sending billions of dollars each year out of state to buy oil and gas.
- create an affordable expansive healthy transportation system that reduces costs and improves public health.
- expands green spaces and green streets to reduce air pollution, cool neighborhoods, and create a vibrant healthy home.

At the State and Federal level, there is an urgent need for a **Green New Deal** - a big, bold transformation of the economy to tackle the twin crises of inequality and climate change. It would mobilize vast public resources to help us transition from an economy built on exploitation and fossil fuels to one driven by dignified work and clean energy.

OPEN

Actions to Grow Impact

Most people in Connecticut know and care about climate change. To create an effective response we need to:

Learn about the climate emergency.

Discuss this growing threats with friends, family, organizations, co-workers.

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Local Climate Impacts

We have already created dangerous amounts of greenhouse gas (GHG) emissions, which have permanently damaged critical ecosystems and shifted Earth climate systems into uncharted territory.

Here in New Haven area we have seen:

- Increased rain events - the City has already invested over $1 million in bio-swales to limit flooding.
- Sea level has already gone up and the City will be building an $8 million Living Shoreline Project to limit future ocean impacts.
- Many Puerto Rican families were displaced by Hurricane Maria, and Connecticut spent $4 million helping families resettle here.
- New Haven invested $1 million in new snow equipment as the warming climate increased precipitation and large snow events.

New Haven Future Vulnerabilities

Coastal and river flooding - Connecticut expects to see close to 2 foot sea level rise by 2050. The last time the Earth had GHG levels this high, sea level was 20 feet higher, a huge threat to coastal communities.

More street flooding from more intense rain events and storms. As the climate warms the atmosphere holds more moisture and warmer oceans are increasing thwe threat that major hurricanes will hit Connecticut.

Increased air pollution (ground level ozone and particulate matter)related to warming temperatures and forest fires. Connecticut will also see more intense heat waves in the future.

A significant low income population means that a lot of New Haven families are particularly vulnerable to weather related work interruptions, heat waves, and displacement

Responding to Climate Emergency in New Haven

Climate change is caused primarily by human burning of fossil fuels (oil, gas, coal) and impacts are happening now. These impacts extend well beyond an increase in temperature, affecting ecosystems and communities in the United States and around the world. Things that we depend upon and value — water, energy, transportation, wildlife, agriculture, ecosystems, and human health — are experiencing the effects of a changing climate.

Call for Climate Justice/Just Transition

For years, industrialization has contributed to rising levels of carbon dioxide and environmental damages that have caused inequality and hardship across societal and racial lines. Many marginalized communities that did not create this crisis are having to deal with droughts, floods, and heat waves.

Climate justice demands that those in the Global North (and wealthier communities in general) take responsibility for the damage caused and help limited income communities adapt.

Just Transition Principles

A just climate transition - like a Green New Deal - should include:

Energy Democracy represents a shift from the corporate, centralized fossil fuel economy to one that is governed by communities, is designed on the principle of no harm to the environment, supports local economies, and contributes to the health and well-being for all peoples.

Solidarity A Just Transition must be liberatory and transformative. We must work to build new systems that are good for all people, and not just a few. The impacts of the extractive economy knows no borders. We recognize the interconnectedness of our communities as well as our issues.

Buen Vivir means that we can live well without living better at the expense of others. Workers, community residents, women and peoples around the world have a fundamental human right to clean, healthy and adequate air, water, land, food, education, and shelter.

Equitable Redistribution of Resources and Power We must work to build new systems that are good for all people, and not just a few. Just Transition must actively work against and transform current and historic social inequities based on race, class, gender, immigrant status and other forms of oppression.

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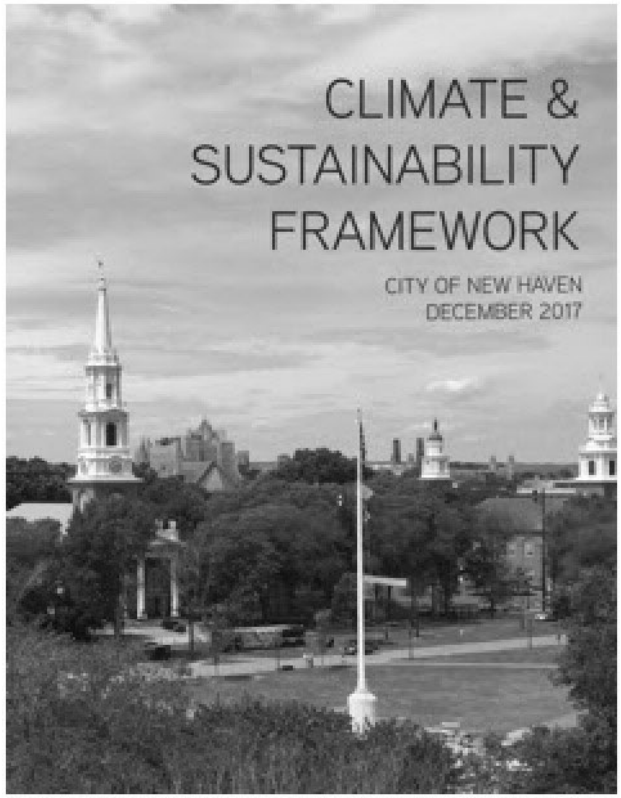

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Creating Jobs Benefiting Public Health Reducing Poverty

NEW HAVEN People's Energy Action Coalition

CT Residents Spend $167 million - almost $1300 per person - per year on importing energy into CT for their homes (US DOE).

Energy Efficiency programs can create healthier homes paid for by energy savings, and long term can save us a lot of money which can go to other local needs (home improvement, education, etc).

Job Creation

The energy efficiency and renewable energy sectors can provide well paid jobs to low and mid-level skilled workers. Wages are higher than average, and many employed in the sector have a high school diploma or less. With the right combination of policies and programs streamlined into a jobs pipeline, New Haven's unemployed and underemployed stand to benefit the most from a growth in New Haven's home energy efficiency programs.

Public Health Benefits

Retrofitting a home to make it more energy efficient is the perfect opportunity to address health and safety problems such as mold, gas leaks, old electric systems, and lead paint, commonly found in low-income housing. Also, reducing fossil fuel powered energy will reduce local air pollution, important here as New Haven regularly ranks in the top twenty of "the most challenging places to live with asthma." (2014 Rankings - Details for 100 Metro Areas)

Poverty Alleviation

Lower energy bills enable poor people to keep their homes comfortable, reduces disconnection
rates, frees up income to spend on satisfying other critical needs such as food and rent, and reduces anxiety related to utility costs.

More Info contact nh@newhavenleon.org

Creating Jobs Benefiting Public Health Reducing Poverty

NEW HAVEN People's Energy Action Coalition

CT Residents Spend $167 million - almost $1300 per person - per year on importing energy into CT for their homes (US DOE).

Energy Efficiency programs can create healthier homes paid for by energy savings, and long term can save us a lot of money which can go to other local needs (home improvement, education, etc).

Job Creation

The energy efficiency and renewable energy sectors can provide well paid jobs to low and mid-level skilled workers. Wages are higher than average, and many employed in the sector have a high school diploma or less. With the right combination of policies and programs streamlined into a jobs pipeline, New Haven's unemployed and underemployed stand to benefit the most from a growth in New Haven's home energy efficiency programs.

Public Health Benefits

Retrofitting a home to make it more energy efficient is the perfect opportunity to address health and safety problems such as mold, gas leaks, old electric systems, and lead paint, commonly found in low-income housing. Also, reducing fossil fuel powered energy will reduce local air pollution, important here as New Haven regularly ranks in the top twenty of "the most challenging places to live with asthma." (2014 Rankings - Details for 100 Metro Areas)

Poverty Alleviation

Lower energy bills enable poor people to keep their homes comfortable, reduces disconnection
rates, frees up income to spend on satisfying other critical needs such as food and rent, and reduces anxiety related to utility costs.

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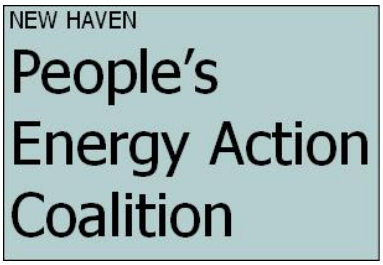
People's Energy Action Coalition

Recommendations, Benefits, Existing Programs



Policy Recommendations

Recommendation 1: Hire a full time city based Energy Coordinator

According to census data, 68% of New Haven residents are renters, most of them living in multi-family buildings. New approaches are needed to reach these residents. The City of New Haven could take a first step towards better cooperation by hosting a locally-based Energy Coordinator to work with NGOs, energy utilities, and contractors and provide support to residents applying for and moving through energy efficiency programs.

Current Livable City Initiative staff responsible for residential energy efficiency have other responsibilities and are unable to concentrate full-time on energy efficiency. Comparable cities such as Bridgeport have full-time energy efficiency or sustainability positions and promote community-wide energy efficiency strategies.

Specific tasks of the City Energy Coordinator would include:

Tackle barriers to multi-family energy efficiency. Streamlined, Coordinated Services: An energy coordinator would provide a streamlined service, reducing the hassle involved in applying and going through energy efficiency programs.

Improve Loan products: New Haven should work with CEFIA to market loan products to landlords, including green leases that incentivize landlords and tenants.

Streamline energy efficiency program application process

A streamlined application process, managed by the proposed Energy Coordinator position and accompanied by an updated website listing all available resources, would improve uptake by New Haven residents.

Better Marketing/Use results as success stories

Previous participants in energy efficiency programs should be asked to share their quantitative data regarding energy savings to act as success stories.

Recommendation 2: Integrate energy efficiency and healthy homes

Target New Haven's poorest residents for greatest impact: High energy costs force many residents to cut back on basic needs and risk eviction due to nonpayment of rent. High rates of electricity and gas disconnections and inability to refill oil tanks leave people without light and heat, and at risk of using unsafe heating methods. More energy efficient homes are cheaper to light and heat.

Institute healthy homes workgroup to coordinate energy efficiency and health work: Many public health problems (for example asthma, which New Haven residents suffer from 5

times more than the rest of the state) are related to in-home living conditions, such as lead, asbestos, mold, and high CO or gas levels. These problems often come to light during energy efficiency work, which cannot then proceed. Improved coordination between energy efficiency programs and healthy homes remediation programs could result in a larger number of homes being made simultaneously healthier, more comfortable, and with lower energy bills.

Integrate energy efficiency into inspections: Energy efficiency standards should be included in current LCI inspections, including of section 8 properties.

Scoring: Property owners in New Haven should be required to track and report annual energy usage to the city and publicly report the data.

Publicize ward-level energy efficiency data.

Energy data transparency and timely disclosure are crucial to program success. Census-tract level data is available that could be presented to allow ward-by-ward comparisons and to allocate funds where most needed.

Recommendation 3: Capitalize on economic development opportunities related to energy efficiency

Bring energy efficiency jobs to New Haven residents: More energy efficiency work occurring in New Haven will increase local job opportunities, particularly if the city plays a role in directing New Haven residents to those opportunities. A major cause of poverty and unemployment in New Haven is the decline in entry-level jobs; Connecticut has, between 1990-2010, experienced the worst job creation record in the nation. Energy efficiency jobs are ideal for entry-level workers, like many of the un- or underemployed of New Haven, with little training needed beyond a high-school graduation. The city should work with local workforce agencies to connect local residents to these jobs.

Leverage energy efficiency funding to address neighborhood blight: Low-income tenants often lack bargaining power to demand that landlords improve conditions. As a result, many areas of New Haven suffer from underinvestment in housing stock resulting in substandard living conditions. The resulting blighted neighborhoods are unattractive to investors, and the cycle continues. State/municipal energy efficiency and healthy homes funding can be leveraged to encourage investment in neighborhood beautification. Together with more and better job opportunities, this will encourage a virtuous circle of investment and growth, including increasing tax revenue.

Reasons for Investing in Energy Efficient Homes

Job Creation

Green jobs have particular potential to provide well paid jobs to low and mid-level skilled workers. Median wages in green jobs are higher than median US wages, and yet nearly half of them also are held by those with just a high school diploma or less. New Haven's majority-

minority neighborhoods have a high level of unemployment and underemployment, a situation compounded by race, especially for those with relatively low levels of education (Hellerstein et al 2008). With the right combination of policies and programs streamlined into a jobs pipeline, these individuals stand to benefit the most from a growth in New Haven's green economy.

Other economic benefits include:

● The green economy is important not simply because of the environmental benefits, but because a strong green economy promotes resource security, and is the key area in which innovation is taking place. Future economic transformation and development will be centered on the green economy.

● The Brookings Institution estimated in 2011 that over 5,600 green jobs exist in the New Haven metropolitan region. Compared to the other 100 largest metropolitan regions in the US, New Haven ranks low on the scale of number and growth of green jobs – it stands at about 75/100 on both counts. There is clearly great potential for growth in New Haven's green economy. One of the fast areas of growth nationally is clean energy and energy efficiency, including weatherization, which is most likely to create local jobs.

● In late 2013 a residential energy efficiency company, Next Step Living, set up an office in New Haven, supported with a social investment of $3 million from a private family foundation with the goal of creating local jobs in the city.

● A 2009 study by Environment Northeast estimated that an annual investment of $432 million in energy efficiency in Connecticut would generate about 3,000 jobs per year in energy efficiency work and another 17,000 jobs per year due to lower energy costs. As the economic center of Southern Connecticut, New Haven residents could get a disproportionate amount of that work, but critically, they are not currently trained to do it.

(additional job resources/information below)

Public Health Benefits

The savings from energy efficiency retrofits can also serve to help address the breadth of health and safety issues - have problems with asbestos, old electric systems, mold, lead paint, etc - that can be alleviated by addressing substandard housing occupied disproportionately by minority and poor populations. Also, reducing fossil fuel powered energy will reduce local air pollution, important here as New Haven regularly ranks in the top twenty of "the most challenging places to live with asthma." (2014 Rankings - Details for 100 Metro Areas (PDF))

According to the IEA/OECD energy efficiency benefits report 2012, "a particularly strong case is developing about the positive impacts that energy efficiency in the residential sector has for public health and associated social impacts. A broad range of illnesses, particularly respiratory

illness and asthma among children, has been strongly associated to cold indoor temperatures and damp and mould in housing. Improved energy efficiency in the buildings sector, in particular, can bring a wide array of appreciable benefits for the health of residential occupants, office workers, and many other groups, as well as the population as a whole."

Reducing energy waste by increasing energy efficiency can reduce the amount of fuel burned, simultaneously reducing the pollutants such as nitrogen oxides (NOx), sulfur dioxides (SO2), particulates, mercury, and potentially, greenhouse gases that come from power plants and industrial facilities. (ACEEE)

There are not only the direct public health benefits but also indirect benefits as a result of reduction in some pollutants. This has been examined in detail in Berkeley National Laboratory's study "Public Health Benefits of end-use Electrical Energy Efficiency in California: an Exploratory Study". They proposed a program to assess health benefits of energy efficiency.

Greenhouse Gas Emission Savings

Energy efficiency can help reduce GHG emissions and the risks of climate change. EPA's article, Energy Efficiency as a Low-Cost Resource for Achieving Carbon Emissions Reductions, lists six different studies that assess the impacts that energy efficiency could have on reducing U.S. CO2 emissions. The studies' estimates range from less than 300 million metric tons to over 1 billion metric tons in 2030.

For example, IPCC's report "shows that more than 2.5 gigatons of CO2 emissions reductions are available through end-use energy efficiency in the countries belonging to the Organization for Economic Co-operation and Development (OECD), at costs less than $20 per ton of CO2."

"The 2007 American Solar Energy Society (ASES) report shows energy efficiency accounting for a large fraction of the CO2 emissions reductions necessary in 2030 to meet goals of reducing CO2 emissions by 60 to 80 percent by 2050."

The McKinsey Company's model estimates the emission savings to be 27% by 2020 in the residential sector.

According to a study published in Science, energy efficiency is the top contributor (28%) to the emissions reduction for the 2030 and 2050 mitigation cases. (See Appendix B & Appendix C).

Poverty Alleviation

"As energy demand and bills are reduced for the poor, these households have the ability to acquire more and better energy services, as well as free up income to spend on satisfying other critical needs. In addition, as utilities (notably in developing countries) improve their supply-side efficiency, they can provide more electricity to more households, thereby supporting increased access initiatives which is often an important stated objective of supply-side energy efficiency activities in developing countries." OECD/IEA, 2012 report

Low Income Home Energy Assistance Program (LIHEAP): Ninety percent of LIHEAP recipients in CT have an elderly household member, a disabled household member, or a child in the home. Only 36% of LIHEAP recipients in CT own their homes as compared to 45% in the Northeast and 46% in the U.S. The lower rate of home ownership in CT probably relates to the high cost of housing in the state. LIHEAP recipients in CT had medical and health problems during the previous five years as a result of their energy bills.

- 25% said that they went without food for at least one day
- 29% said that they went without medical or dental care
- 31% said that they did not take their prescription medication
- 12% became sick and needed to go to the doctor or hospital because their home was too cold

Source: 2011 National Energy Assistance Survey- Connecticut Study

Additional resources on job creation

Some general information about the job creation in the energy efficiency sector:

- In McKinsey and Company's US energy efficiency report 2009, energy efficiency jobs are categorized as direct, indirect, and induced jobs. Direct jobs include construction workers (approximately 60%), trade professionals (app. 25%), and their managers (app. 15%). Indirect jobs include suppliers of materials, such as insulation or appliance manufacturers. These can be in the United States and overseas. Induced jobs are the local jobs created by direct workers spending their paychecks, such as grocery stores. McKinsey and Company estimated direct jobs to be 30 to 40 percent, indirect jobs to be 25 to 40 percent, and induced jobs to be 25 to 40 percent of the total jobs. Their estimation is that if $290 billion is invested, this will create between 500,000 and 750,000 jobs between 2009 and 2020.

- According to the article, Economic Impact Analysis of Property Assessed Clean Energy Programs (PACE), "there appears to be a somewhat greater local impact associated with the energy efficiency versus the solar photovoltaic project types. This is consistent with the fact that the specialized products and labor needed to produce photovoltaic products are not likely to be as localized as are the products used in energy efficiency improvements.Their analysis suggests that such programs have the potential of generating significant economic and fiscal impacts. Specifically, $4 million in total PACE project spending, across the four cities included in their analysis ($1 million in spending in each city) will on average generate:

    - $10 million in gross economic output;
    - $1 million in combined Federal, State and Local tax revenue;
    - 60 jobs."

- According to the American Council for an Energy-Efficient Economy's article, "an investment in energy efficiency will first create opportunities for workers in industries that are more labor intensive than average. Then, it will continue to support jobs year after year by saving energy. The energy savings generated by the investment redirects spending away from the energy industry which supports just under 10 total jobs per $1 million, back into the overall economy which supports 17 jobs per $1 million." (Appendix A)
- A study suggests that "all renewable energy and low carbon sources generate more jobs than the fossil fuel sector per unit of energy delivered while the type of employment differs between technologies (e.g. manufacturing vs. resource extraction) and the timing and location of employment may differ within a given country or geography. Energy efficiency investment offers a high pay off in induced jobs and is generally the least cost and often the most readily implementable approach. More energy efficiency can diminish the need for both additional fossil fuel plants and new renewable energy sources."
- The 2014 ACEEE Summer Study on Energy Efficiency in Buildings uses the programs in Louisiana and Mississippi to understand the economic impacts of the statewide energy efficiency programs. Their results suggest that "these programs would result in the following annual impacts in 2031:
    - $3.7 billion in economic output, including $1.2 billion in wages,
    - $775 million in business income to small business owners, and
    - 32,000 person-years of employment in 2031."

- What are the Economic Benefits of Clean Energy? http://www.epa.gov/statelocalclimate/state/activities/quantifying-econ.html

- The Public Benefit of Energy Efficiency to the State of Massachusetts | RAND http://www.rand.org/pubs/monograph_reports/MR1588.html The authors show that savings from commercial and industrial energy-efficiency programs have provided a positive return on utility investment, and they demonstrate benefits of energy efficiency for Massachusetts households, particularly for low-income households.
- Acadia Center | Connecticut Energy Efficiency Programs Empowering and Benefiting Consumers http://acadiacenter.org/connecticut-energy-efficiency-programs-empowering-and-benefiting-consumers/

Existing Programs in New Haven and Connecticut

Livable City Initiative : *Energy Efficiency Rehabilitation Assistance Program*

It is part of Livable City Initiative. It provides "financial assistance for costs related to housing energy efficiency and rehabilitation for the purpose of providing safe, decent and energy efficient living conditions." Only households whose income does not exceed 120% of median family income for the New Haven/Meriden MSA, as adjusted for family size can apply for this program.

• Owner-Occupant (Owner principal place of residence) Up to Maximum Allowance of $25,000.00 ($10,000 Homeowner Unit and $5,000 each additional unit) deferred loan with a term of 10 years if in the first 5 years the property is sold, transferred or refinanced 100% of the allowance is due and payable. On the 6th anniversary date of the loan and each anniversary thereafter 20% of the allowance will be forgiven until the term expiration, however, if the Owner sells, transfers title or refinances the balance at that time of the allowance is due and payable.

Energize Connecticut "***Energize CT*** is an initiative dedicated to empowering Connecticut citizens to make smart energy choices, now and in the future. We provide Connecticut consumers, businesses and communities the resources and information they need to make it easy to save energy and build a clean energy future for everyone in the state. It is an initiative of the Connecticut Energy Efficiency Fund, the Clean Energy Finance and Investment Authority/ Green Bank, the state, and your local electric and gas utilities. The initiative has funding support from a charge on customer energy bills."

Energize CT has 30 residential programs in total. There are various options for both homeowners and renters.

"Residential programs include the Home Energy Solutions (HES) program, which provides heavily subsidized energy audits and rebates on follow up deeper measures. The Home Energy Solutions – Income Eligible (HES-IE) program offers free energy audits and ~~insulation~~ some energy-saving measures -- sealing air leaks, energy-efficient lighting, faucet aerators and low-flow showerheads -- to low-income people." (Annie Harper)

Some other residential programs/financing solutions are:

Smart-E loans: Smart-E Loans offer long-term, low-interest financing to help you upgrade your home's energy performance. Eligible improvements include insulation, duct sealing, air sealing, and window replacement.

Cozy Home Loan: The Cozy Home Loan is a 10-year, 2.99% APR loan (for 1 to 4 unit owner-occupied homes) that makes energy improvements affordable. Eligible improvements include insulation, sealing up or replacing drafty doors and windows, or upgrading outdated appliances and equipment.

Energize CT Heating Loan Program: It provides zero-interest financing for a new energy-efficient heating system for the customers of UI, CL&P, CNG, SCG or YG.

Energy Conservation Loan Program: It provides financing at below market rates to single family and multi-family residential property owners for the purchase and installation of energy saving improvements.

Residential Energy Efficiency Financing Program: It provides fixed-rate, low-interest financing. Repayment period is up to 12 years.

Smart-E Bundle: Energize Connecticut's partnership with lenders in the community to offer a special, lower interest rate for qualified energy improvement bundles, including energy efficient windows, ductless mini-split, and attic/wall insulation.

Tax Credits: Home energy improvements, such as windows, insulation, and envelope and duct sealing, installing energy-efficient air conditioners, heat pumps, gas or oil furnaces and furnace fans, and gas, oil or electric heat pump water heaters in new or existing homes qualify for tax credits, and reduce your tax liability. They can also be coupled with rebates and incentives.

CT Department of Energy and Environmental Protection: ***The Connecticut Weatherization Assistance Program*** CT Department of Energy and Environmental Protection has its own program which is funded by the US Department of Energy, and assists low-income persons to minimize energy-related costs and fuel usage in their homes through retrofits and home improvement measures."

"The statewide Community Action Agency (CAA) network operates the Weatherization Assistance Program. Applications are taken at the same time as the Connecticut Energy Assistance Program as part of a joint application process."

Clean Energy Finance and Investment Authority (***CEFIA)/ CT Green Bank*** ***The Clean Energy Finance and Investment Authority*** (CEFIA)/ Green Bank offers property assessed clean energy financing and program services to municipalities and commercial property owners throughout the state. **Mission** To support the Governor's and Legislature's energy strategy to achieve cleaner, cheaper, and more reliable sources of energy while creating jobs and supporting local economic development. **Vision** To lead the green bank movement by accelerating private investment in clean energy deployment for Connecticut to achieve economic prosperity, create jobs, promote energy security and address climate change.

Connecticut Energy Efficiency Fund "The ***The Connecticut Energy Efficiency Fund*** is supported by all Connecticut Light and Power and United Illuminating customers on their electricity bills through the Combined Public Benefits Charge; and by Connecticut Natural Gas, Southern Connecticut Gas Company and Yankee Gas Services Company customers through a conservation charge included in their rates." "CEEF supports a variety of programs that provide financial incentives to help Connecticut consumers reduce the amount of energy used in their

homes and businesses." The 'Combined Public Benefits Charge' is a surcharge on all gas and electric bills. However, according to the Energy Efficiency Fund Residential Program participation data for years between 2010-2014, the percentage of participation in New Haven is 15.7%, while the percentages are 19.9% in Bridgeport, 20.2% in East Hartford, 23.4% in Middletown, and 26% in Mansfield.