

Comprehensive Plan

City of Hartford, CT Energy Improvement District Board

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Introduction

We share a vision for cleaner, cheaper, and more reliable energy that reduces the likelihood of power outages during storms, creates green jobs, reduces fossil fuel dependence, and manages energy costs for all. The board of the City of Hartford energy improvement district (EID) has developed and adopted this Comprehensive Plan to focus on implementing this overall vision. In particular, we focus on three primary statute-driven reasons for adopting this plan: to increase environmental stewardship, efficiency, and reliability; to advance commerce and industry citywide; and to guide decisions of the EID.[1]

During the last ten years, many planning documents and stakeholder groups have focused on energy planning within the city. The EID Comprehensive Plan aims to be highly consistent with, and draw heavily from, the city's Comprehensive Plan of Development, called "One City, One Plan" (2010) and with the city's Climate Action Plan (2017), as well as the fruitful work of the Clean Energy Task Force and the Climate Stewardship Council.

Balancing the need to provide appropriate context with the need to identify specific aspirations for future growth, there are four major components of this EID Comprehensive Plan: Context & Analysis, Past Successes, Strategies for EID Projects and Identification of Possible EID Projects.

Context

Historically a center of mercantilism, by the 1800s Hartford had become a major center of industry. This industrial transition, coupled with a growing population, increased the city's need for energy. Originally, energy for heat was provided by coal, and there was no electric energy. In 1881, electric energy was brought to Hartford with the city's first electric generator, powered by steam.[2] By the late 1800s, this generator allowed Hartford to replace one thousand gas lamp streetlights, illuminating 80 miles of the city, with electric lamps.[3] Hartford was one of the few cities of the time to be able to accomplish this citywide conversion.[4]

As its population continued to grow into the early twentieth century, Hartford met its electricity demand through utilization of hydroelectric power plants along the Farmington River and the continued utilization of steam-powered electric energy.[5] Today, much of Hartford's electrical supply is generated by natural gas.[6]

In recent years, Hartford has made steady, incremental progress in diversifying the energy sources on which it relies beyond natural gas. For example, the City of Hartford has installed solar panels on the capped landfill, encouraged distributed generation through fuel cells, supported efficient generation through combined cooling, heating and power systems and three district heating and cooling systems in the city, and created this EID to maximize the benefits of local generation.

Beyond City operations, some attempts to diversify energy sources have not been as successful. For example, from 2016 to present, the City partnered with two private solar providers (PosiGen Solar Solutions and C-TEC Solar) through Connecticut Green Bank programs aiming to provide solar power to homeowners. Programs such as shared solar, which do not require the financing or local installation of equipment, may be better options to scale adoption of solar for low-income households.

It is important to note that many of these initiatives have been done in partnership with the energy utility company, Eversource. In addition, Eversource has been a critical part of a team led by City staff that helped improve the energy efficiency of public buildings, finalize a greenhouse gas inventory, and raise public awareness about energy conservation through programs like a light bulb exchange.

Connecticut Natural Gas, the local gas utility, also participates in City initiatives, along with Graybar and Colliers, both private firms, which have also helped with energy conservation measures in municipal buildings.

In addition, Hartford has been able to take advantage of state policies promoting renewable energy. Specifically, it has benefitted from the CO2 auction proceeds of the state's Regional Greenhouse Gas Initiative (RGGI), which established a cap and trade system that raises money for states.[7] Those proceeds are disbursed to Hartford through the Connecticut Energy Efficiency Fund and the Connecticut Green Bank, to finance specific projects and to promote renewable energy development.[8]

Unfortunately, given the budget crisis at the State of Connecticut, both the efficiency fund and RGGI funding consistently face being "swept" or reallocated for another use. As Hartford's energy needs continue to grow, these sources of financing will become increasingly important.

Attempts to reduce demand for energy have seen mixed success in Hartford. A streetlight bulb replacement program will reduce demand and save the City millions in energy costs, and some public schools and other facilities have benefitted from energy efficiency improvements. However, many public buildings require a variety of upgrades to become efficient. Inefficiencies (and unnecessarily higher energy usage) are passed on to taxpayers. Private buildings, too, tend to be very old, and too few property owners have taken advantage of state or utility company subsidies for energy efficiency improvements.

Striving for changes in the way we produce and consume energy can help to reduce the above-average cost of electricity that Hartford citizens currently pay. As one nonprofit report has found, "for households with incomes in 'Deep Poverty,' home energy costs threaten not only the ability... to retain access to energy services, but also threaten access to housing, food, medical care and other necessities of life." [9]

Need

In Hartford, the average energy burden (energy bill as a percent of income) for households at the 50% federal poverty level is a huge 33%, and the average per-household home energy affordability gap is \$1,922 per year.[10] The federal Low-Income Home Energy Assistance Program covers only 21% of the state's total home energy affordability gap.[11] With climate change and more severe weather, the need for residents to have energy efficient homes powered by greener energy will only get greater.

33%

energy burden

\$1,922

energy affordability gap

Goals



We're Still In commitment, agreeing to reduce greenhouse gas emissions associated with municipal operations by 26-28% below 2005 levels.



The Energy Improvement District Board aims for greenhouse gas emissions reductions of 45 percent below 2001 levels by 2030 throughout our Energy Improvement District, which is all of Hartford.



The EID Board aims to have a 4 MW shared clean energy facility or facilities located in Hartford by 2025.



Reduce transportation emissions by encouraging mode shift to public transportation, carpools, biking, walking, and electric vehicles.



1,250 more Hartford households participating in utility-sponsored weatherization programs as the result of City of Hartford's Energy Equity Challenge.



Commitment

Notably, in 2017, Mayor Bronin signed onto the We're Still In commitment, agreeing to reduce greenhouse gas emissions associated with municipal operations by 26-28% below 2005 levels. The target date for meeting this goal is 2025. The City currently benchmarks its buildings in partnership with Eversource, CNG, and an online energy dashboard tool. This allows for integration with ENERGY STAR Portfolio Manager, which also tracks greenhouse gas emissions.

The Energy Improvement District Board also recognizes recommendations from the Governor's Council on Climate Change's 2018 report, and aims for similar GHG reductions 45 percent below 2001 levels by 2030 throughout our Energy Improvement District, which is all of Hartford. To establish the current emissions in Hartford, a recent greenhouse gas emissions inventory, available at insights.sustainability.google, has a snapshot of local emissions in 2018. The Google inventory was completed in partnership with local volunteers and City staff. Local volunteers are also helping to calculate the baseline emissions as well.

With this context in mind, it is important to document specific past successes of the City in the area of energy policy. In these efforts, we have had numerous partners, including the Connecticut Department of Energy & Environmental Protection, Eversource, Connecticut Green Bank, Energy Star, the SolarizeCT program, City boards and commissions, and private firms (such as CTEC Solar and Colliers). The creation of this EID is certainly itself a positive step, as it will improve our ability to manage energy generation within city limits. Here are some other successes:

A. Adoption of an Energy Friendly Zoning Code

Hartford's new, award-winning zoning code, implemented in 2016, is now considered one of the most sustainable in the country. It provides for height bonuses for buildings if renewable energy meets 25% of building need or cogeneration is used. It also allows for building-mounted solar and wind power and prohibits new trees from shading these solar collectors. Finally, it requires for large parking lots to designate a certain number of spaces for electric vehicles and to provide charging stations for those spaces.

B. Installation of Solar on the Hartford Landfill

When the Hartford landfill was capped in 2008, approximately 35 acres of its capped area were developed as a one megawatt capacity solar array – the largest of its type in the state. It has even won awards, including a 2015 Bronze Medal from the Solid Waste Association of North America.

C. Designation as a SolSmart City

Hartford was one of the first fourteen cities nationwide to achieve the Gold designation for its commitment to increasing accessibility to solar power. The city received special recognition within the award for solar-friendly planning, zoning, and development.

D. Reduction in Energy Consumption of Some Public Buildings

In 2010, Eversource began partnering with the city to measure energy consumption and to develop strategies for conservation in select Hartford Public School buildings. Conservation methods utilized include air sealing and insulation repair, equipment replacement, and lighting replacement. The program has been successful in reducing the energy consumption in those buildings. Additional benchmarking of the most energy-intensive buildings is occurring with the help of the Eastern Connecticut State University Institute of Sustainable Energy.

The incorporation of a 400-kilowatt fuel cell at the City's Public Safety Complex, which houses both the police and fire department headquarters, is also worth noting. It helps improve the efficiency of that complex, while delivering cooling through its absorption chiller. As of November 2019, Hartford's new school buildings are being constructed according to state standards outlined in High Performance (Green) Building Standards for State Agency Buildings and School Buildings.

E. Retrofit of Exterior Lights

Working with Eversource and the Department of Energy and Environmental Protection, the City of Hartford received a \$5 million state grant to replace thousands of streetlights with high-efficiency LED models. Part of the streetlight infrastructure in Hartford is owned by Eversource, and part is owned by the City. As of November 2019, all of the streetlights have been upgraded. In addition, park lights and exterior building lights are also going to be replaced. These upgrades will result in significant savings and reduced emissions.

F. Construction of the Parkville Microgrid

Hartford has powered up one of the first public-private microgrids in the country, an 800 kilowatt system powered by a fuel cell, which will ensure that critical facilities in the Parkville neighborhood have an energy supply even when the electric grid goes down. It supplies power to the Parkville Elementary School, Dwight Branch Library, Parkville Senior Center, Charter Oak Health Center, a gas station, and a grocery store.

G. Adoption of Historic Preservation Guidelines Promoting Solar

Hartford regulates alterations to historic properties, or new construction in historic districts, listed on the local, state, and National Registers of Historic Places. To facilitate the adoption of renewable energy that makes the grid more resilient, the City's Historic Properties Commission adopted guidelines that "fast-tracked" certain solar installations. These guidelines, posted online and familiar to staff, improve the odds that solar panels will be installed on Hartford's many historic buildings.

H. Participation in SolarizeCT

The City of Hartford was selected to participate in the SolarizeCT campaign, a program sponsored by the Connecticut Green Bank, which aims to expand solar access to residents. It involved community-selected, certified local solar installers; protection against rising energy costs; town-wide educational solar workshops from a neutral nonprofit (Smart Power); \$0 down financing options that require no out-of-pocket expenses; and City-approved, high quality equipment at reduced group pricing.

I. Support for Shared Solar

In part to address the issue identified in the previous section, the push to expand shared or “community” solar has grown. The Climate Stewardship Council and City Council endorsed a campaign to change state law to enable shared solar. Establishing “shared clean energy facilities” in Connecticut is a critical step, as Hartford residents pay far more into the Residential Solar Investment Program than they get out of it. Most Hartford residents do not own their homes; as renters, they cannot make the decision to install solar. In addition, residential lots in Hartford are much smaller than in suburban areas, which means there is less space to put a solar energy installation, even when a family might be able to afford one. And many families just can’t afford solar. The state’s shared solar program design is currently under review. It will allow subscribers with an electric bill to buy a portion of energy produced from a solar array located elsewhere. In addition, savings would automatically be credited on electric bills. Shared solar helps residents, but it also creates local jobs for installers, maintenance personnel, and others.

J. LRECs, Virtual Net Metering and Demand Response

The City has three contracts that involve financial mechanisms to save money and use more renewable power. These credits include Low-Emission Renewable Energy Credits, virtual net metering, and demand response. These contracts incentivize renewable energy use, reduce our energy bills, and offset our current electricity consumption with cleaner renewable energy sources.

K. District Heating and Cooling Systems

Three district energy systems exist in the city of Hartford; (i) the Hartford Steam Downtown District Heating and Cooling System; (ii) Hartford Steam / Hartford Hospital South End District Heating System; and (iii) the Capital Area District Heating and Cooling System. Each of these systems uses a mix of highly efficient, clean and/or renewable energy systems to provide reliable energy to a majority of the downtown commercial and government buildings, including City Hall, UConn Hartford, the Hartford Hospital complex of buildings, the Institute of Living, and the Learning Corridor.



Strategies

This Comprehensive Plan has three primary rationales: (A) to increase environmental stewardship, efficiency, and reliability; (B) to advance commerce and industry citywide; and (C) to guide decisions of the EID. This section aims to delve deeper into each of these rationales, incorporating language from relevant prior planning efforts and identifying specific strategies.

A. Increase Efficiency and Reliability

We must have cleaner, cheaper, and more reliable energy production. We therefore are looking to incent and develop clean and renewable energy, including distributed generation (including solar & fuel cell opportunities) and combined heat and power systems, particularly those systems with potential energy and cost savings for the city and its taxpayers.

Reliability is an additional, though perhaps secondary concern. Hartford is fortunate to have more reliable energy infrastructure than most cities in Connecticut during grid outage, due to the nature of its energy infrastructure (including that many of its power lines are buried). But we can do more when it comes to reliability to ensure everyone in Hartford can rebound when a power outage occurs. Reliability is important not only for businesses who need to keep running during a storm, but also for residents who need electricity to meet basic needs. Hospitals, senior centers, and grocery stores are the kinds of critical facilities that need reliability most.

We have already begun to make significant strides in efficiency and reliability in Hartford. A microgrid developed by the City, which opened in 2017, is making sure that this happens for the Parkville neighborhood.

Using a clean-burning fuel cell, the microgrid supplies power to the Parkville Elementary School, Dwight Branch Library, Parkville Senior Center, and Charter Oak Health Center on a daily basis, and can power a gas station and a grocery store during an outage. Other strategies discussed above, including the fuel cell at the City’s Public Safety Complex and streetlight and building retrofits, also help. And still other strategies, like the combined heat and power used at the XL Center and other private buildings, reduce overall energy consumption in the city.

Another aspect of resiliency unique and available to Hartford is the ability to provide all forms of energy needed during an outage, electricity, heating and cooling. Without all forms of energy, business cannot run their data centers and government offices cannot function. Ensuring that there is a continuous flow of electricity, heat and cooling allows business to continue when normal supplies of energy are not available.

Here are four strategies for improving efficiency and reliability, most of which are in the Climate Action Plan, along with their rationales:

Strategy	Rationale
Promote Construction of More Microgrids, Separate from the Primary Grid	Strengthen resiliency of neighborhoods during grid outages.
Utilize Energy Improvement District to Explore Resiliency Projects	Explore how public energy district can enhance resiliency through new projects.
Advocate for Changes in Net Metering Cap for Cities	Enable the City to expand solar on the landfill and other renewable energy projects, saving taxpayer costs and diversifying local energy generation.
Create a glide path towards energy efficiency standards that promote benchmarking, utility bill transparency for rentals, reduced utility bills, and improved occupant comfort	Measuring and reducing energy efficiency is a key component to stabilizing energy bills, reducing emissions, and ensuring high-quality housing stock.

In addition, the EID can promote leveraging existing district assets to expand and incorporate resiliency. Hartford Steam and Hartford Hospital have generation already installed and are located in dense areas with buildings that can serve critical needs in the event of power outage. In addition to power, they can continue to provide heating and cooling services.

Another way to achieve efficiency and reliability is to diversify our sources of energy. We rely heavily on natural gas, but Hartford must do its part in promoting policies and programs that facilitate access to renewable energy.

Through government incentives, technological innovation, and the free market, renewable energy—and particularly solar energy—is becoming more readily available. Already, the City has developed several solar projects and brought discounted solar programs to residents.

Here are five strategies for increasing renewable energy use, embedded in the Climate Action Plan, along with their rationales:

Strategy	Rationale
Improve Approval Process for Public Renewable Energy Projects	Formalize team-based approach to vetting projects in accordance with procurement, legal, and engineering policies.
Reduce Permitting Costs for Private Renewable Energy Projects	Reduce financial barriers to private use of renewable energy, particularly solar.
Enroll as a City in SolarizeCT Campaign	Encourage homeowners to sign up within 18-week window for discounted bulk solar.
Encourage Homeowner Enrollment in Solar for All Campaign	Encourage homeowners to sign up within 18-month window for low-cost solar leasing.
Advocate for Shared Solar for All	To change state law so Hartford families can share solar when they cannot have their own solar because of income, rental status, or property characteristics.

Overarching each of these strategies is the possibility of public-private partnerships. More specifically, the EID Board aims to have a 4 MW shared clean energy facility or facilities located in Hartford by 2025.

B. Advance Commerce and Industry

Increasing efficiency and reliability of the energy grid, as described in Part A, will encourage commerce and industry. Making energy cleaner, cheaper, and more reliable can ensure that Hartford's businesses can be competitive over the long term – while at the same time improving quality of life for Hartford residents of all income levels.

To support additional economic growth in Hartford, the EID Board's supplier diversity policy, posted on hartfordclimate.org will be incorporated into future EID Board solicitations. This policy recognizes the value of considering and the need to support women-owned and minority-owned businesses in the EID Board's purchasing process.

The EID Board also supports critical local workforce development programs such as Green S.T.E.P., which is administered by local utilities in partnership with area schools. In Hartford, 121 students from A.I. Prince Technical High School participated in the Green S.T.E.P. workforce development program during the 2018-2019 school year. The program is provided by Eversource, United Illuminating, Connecticut Natural Gas and Southern Connecticut Gas.

Green S.T.E.P. (Sustainability Technical Education Program) is an Energize Connecticut initiative for Connecticut technical high schools across the State. It is designed to prepare students in the construction career cluster for green-industry jobs. One to three milestones per year in a four-year cycle bridges concepts of sustainability, energy efficiency, renewable and green buildings. Students will bring the sustainable building and technology concepts they learn in the classroom into the field, where they will work with industry experts.

C. Guide Decisions of the EID

Decisions made by the EID should be guided by three questions: (1) Does it increase efficiency or reliability?; (2) Does it advance commerce or industry; and (3) Does it advance one or more of the three values in the Climate Action Plan?

1. Efficiency & Reliability and
2. Commerce & Industry

Types of projects that might satisfy questions (1) and/or (2) include:

- Large combined heat and power projects
- Increased use of existing district heating and cooling systems
- Microgrid projects that protect critical loads for multiple users, including large projects on "anchor" university, hospital, or commercial campuses
- Renewable energy generation combined with battery storage and / or managed EV chargers so the project could offer grid services to Eversource as well as clean power to subscribers Fuel cell opportunities (like the fuel cell project at the City's Public Safety Complex) could offer grid services to Eversource as well as clean power to subscribers Fuel cell opportunities (like the fuel cell project at the City's Public Safety Complex)
- Potential for projects involving the trash-to-energy facility conversion in the South Meadows
- Focus on large number of multi-family apartment buildings, supporting legislation for shared solar, which distribute costs of solar among multiple parties, and energy efficiency incentives, which reduce the cost of operating a building



Future Projects

Finally, we come to the identification of possible sites for EID projects. As a Board, we intend these possible sites as a starting point for discussion, and not as a final or exhaustive list of projects. Additional sites and projects may be identified as opportunities arise, and will be evaluated subject to the criteria discussed in Part IV above. For now, we identify two types of possible projects: general projects and shared solar projects.

Of critical importance is the recognition that no subjective technical feasibility / capability analysis been conducted on any of the “Possible EID Projects” as a group or as specific individual projects. Essential to the development and successful operation of the “Possible EID Projects” is a site specific comprehensive technical assessment and analysis (including costs / benefit analysis) wherein each project is evaluated based on grid (circuit) electric reliability performance.

Such comprehensive analysis is the responsibility of the public or private site developer working in coordination with the host utility (Eversource, Connecticut Natural Gas, Hartford Steam or the appropriate utility entity) and submitted to the EID for review prior to submission to the Connecticut Siting Council and the Department of Energy and Environmental Protection for regulatory authority and approval.

A. General Projects

The general EID projects focus on critical facilities clustered in areas of high density and/or high need, without identifying specific technology that might be used. Broadly, these projects are intended to increase efficiency and resiliency, advance commerce and industry citywide, and advance the goals of the Climate Action Plan. We categorize them into high-priority sites, mid-priority sites, and lower-priority sites, with relevant facilities in the area listed below the site name. The corresponding map, called "Potential EID Priority Sites," is attached.

HIGH PRIORITY

1. North Meadows

An industrial neighborhood located in the northeastern portion of the city, the North Meadows has been discussed as a site for energy generation for years. In fact, the City of Hartford submitted an unsuccessful microgrid grant application in 2013 to the Connecticut Department of Energy & Environmental Protection. The project area includes a City-owned landfill with 1MW solar, which was recently subject to a City RFP to add additional 2-3MW solar to the site. The North Meadows is also close to the Connecticut River, where there may be opportunities to harness tidal power and/or wind power.

Key sites in this potential project area include:

- Department of Public Works Offices and Yard, which includes a building, vehicles, fuel, emergency response crews for weather events
- Fire Training Academy
- Former Police Headquarters
- New Pride rest stop, convenience store, fueling stations including hydrogen
- New Tesla superchargers coming in next six months (pre-configured to accept solar feed)
- CT Department of Transportation Office and Bus fueling- electric bus fueling stations planned
- Future data center planned on DPW site

2. South Meadows

Like the North Meadows, the South Meadows neighborhood is in the industrial part of the city. Located in the southeastern portion of Hartford, the project area includes a large trash to energy plant, which is currently the subject to an RFP being run by the Department of Energy & Environmental Protection, and sits directly adjacent to the Hartford Brainard Airport. Discussions about repurposing some parts of the project area from industrial to other uses are ongoing. The South Meadows is also close to the Connecticut River, where there may be opportunities to harness tidal power and/or wind power. Key sites in this potential project area include:

- MIRA Trash to Energy Plant
- Hartford Materials Recovery Facility recycling
- Hartford Regional Market- 24/7 wholesale food distribution, processing, retail, restaurant, and offices, food rescue (State-owned land)
- Mobil Gas Station
- U.S. Post Office
- Numerous industrial and building supply warehouses including: Grainger, Hartford Granite & Marble, Universal Ceramic Tile, Nutmeg Trucks, Reliable Electric Motor, Hilti, Classic Restaurant Supply, CT Lighting Center, O&G Earth Products
- Hotels: Best Western and Days Inn

3. West End

The West End project site is located in the western portion of Hartford, in an area that is primarily mid-density residential, with some retail and service uses included. A fire station in the project area is a critical facility; the public school and elderly housing complex are also important to keep online in the case of grid outage.

Key sites in this potential project area include:

- Shepherd Park Elderly Subsidized Housing
- Clemens Park Apartments
- Hartford Public High School: Academy of Engineering and Green Technology, Nursing Academy, Law and Government Academy (City of Hartford property)
- Mark Twain House and Museum
- Harriet Beecher Stowe Center
- Catherine Day House
- Across Forrest Street- Salvation Army Family Shelter
- Hartford Community Center
- Restaurants and retail along Sisson and Farmington Avenues
- Hartford Fire Department Engine #1 (City-owned property)

4. North End (West)

The North End (West) project site is located in the northwestern portion of the city, mostly in the Blue Hills neighborhood. There are a large number of institutional uses, including several large-scale medical facilities, which are critical facilities. In addition, low-income senior housing and single-family housing occupied by low- and middle-income families, is included in the project area.

Key sites in this potential project area include:

- Ida B. Wells low-income senior housing (40-units)
- North End Senior Center
- Blue Hills Treatment Center
- Institute for the Blind
- Mount Sinai Rehabilitation Hospital
- New England Assistive Technology
- National Multiple Sclerosis Society
- Hartford City WIC Office
- Hartford Infant Toddler Center
- St Francis Medical Group
- Single-family housing

5. Bellevue Square

The Bellevue Square project area is located in the high-poverty, high-need neighborhood of Clay Arsenal, just north of downtown. Its anchor site is Bellevue Square itself, an apartment building dedicated to low-income tenants and owned and operated by the Hartford Housing Authority. It also includes several City-owned properties.

Key sites in this potential project area include:

- Bellevue Square Apartments
- Grocery Stores: Sav-A-Lot and Family Dollar
- CRT, nonprofit housing, food, energy savings and weatherization, veterans services, education, childcare, senior, mental health, employment training

6. South Green

The South Green area is dominated by critical needs facilities, including hospitals and temporary shelter facilities. Hartford Hospital's existing district heating system, mentioned above, could kickstart a larger energy installation.

Key sites in this potential project area include:

- Hartford Hospital
- Connecticut Children's Medical Center
- Institute of Living
- Learning Corridor
- South Park Inn
- St. Elizabeth House (Mercy Housing)

MID PRIORITY

7. Willow Creek

The Willow Creek project area is located in the Blue Hills neighborhood of Hartford, in the northwestern corner of the city. The largest lot in this project area is a 60-acre parcel owned by the Hartford Housing Authority, which is being subdivided by a developer. Over the next ten years, the parcel is expected to house 300-400 mixed-income rental and home-ownership and community facilities. In addition, the redevelopment of Weaver High School presents opportunities for energy generating development.

Key sites in this potential project area include:

- Willow Creek Redevelopment
- Weaver High School
- Potential reactivation of Griffin Line and new train station
- Hartford Boys and Girls Club
- Breakthrough II Magnet School (City-owned property)

8. Westbrook Village

The Westbrook Village project area is located in the Blue Hills neighborhood of Hartford, in the northwestern corner of the city, and just below the Willow Creek project area. The largest lot in this project area is a 65-acre parcel owned by the Hartford Housing Authority, which is being subdivided by a developer. Over the next ten years, the parcel is expected to include mixed-income rental and home-ownership, community facilities, job and commercial centers, and cultural and recreational amenities. Two schools and an important community nonprofit can provide shelter in times of grid outage.

Key sites in this potential project area include:

- Westbrook Village
- Annie Fisher Montessori School (City-owned property)
- The Village for Families and Children, which includes nonprofit foster care, out-patient trauma center
- Unitarian Church
- Watkinson Private School
- Eversource substation across street

9. Behind the Rocks

The Behind the Rocks project area is located in the southwestern corner of Hartford. It has a large number of residential homes, as well as three schools and other youth-focused sites. Publicly owned property could provide good locations for energy generation, as well as shelter facilities in the case of a grid outage.

Key sites in this potential project area include:

- Al Prince Technical High School (State-owned property)
- Warburton Community Day Care
- Hartford Boys and Girls Club
- Environmental Sciences Magnet School (City-owned property)
- Breakthrough Magnet School (City-owned property)
- Private single family housing

10. Sheldon Charter Oak

The Sheldon Charter Oak site is located in a neighborhood just south of downtown. With three schools, a major rehabilitation apartment building, and an increasing number of businesses relocating there, this site is burgeoning with activity. Key sites in this potential project area include:

- Sports and Medical Sciences Academy (City-owned property)
- Richard J. Kinsella Magnet School (City-owned property)
- CREC Greater Hartford Academy of the Arts Middle School and High School
- Colt Gateway Apartments
- Insurity Software Company

11. Downtown

Another cluster of facilities that provide for critical needs and shelter during weather events are a group of public buildings downtown, many of which are already served by a district heating and cooling system.

There is the potential for a high-profile microgrid or renewable energy project in this location. Key sites in this potential project area include:

- Marriott Hotel
- Convention Center
- Hartford Steam Company
- UConn Hartford
- City Hall

LOWER PRIORITY

12. North End (East)

Key sites in this potential project area include:

- Wish Elementary School
- Stowe Village, Hartford Housing Authority
- Cencap Federal Credit Union
- DATTCO Bus Depot

13. Charter Oak Marketplace

Key sites in this potential project area include:

- Charter Oak Marketplace with Walmart Supercenter (potential for rooftop solar), restaurants and retail
- Hartford Jobs Corps Academy- dorms, career training
- Hartford Housing Authority Administrative Offices
- 13-acre site owned by Hartford Housing Authority- potential future mixed-use development

14. Colt Park South

Key sites in this potential project area include:

- Bulkeley High School
- City-owned brownfield site (Ledyard & Elliott Streets)- could be future mixed-use development
- Hartford Courant offices

B. Shared Solar Projects

These shared solar projects were selected as having the potential to serve families who might not otherwise have access to solar energy through existing programs. Accordingly, all include residential areas where there is a large flat roof, usually publicly owned, where solar might be installed. Some project areas include locations where residential housing also has flat roofs.

For all sites, there remains a question as to whether the roofs are large enough to provide enough solar both to meet the needs of the host and to share beyond the host site. In addition, there is a question about the age of the roofs as well as their capacity to hold both the weight of the solar equipment and any snow that might accrue during winter.

Broadly, these projects are intended to increase efficiency and resiliency, advance commerce and industry citywide, and advance the goals of the Climate Action Plan. The corresponding map, called "Potential Shared Solar Sites," is attached.

1. Frog Hollow

The flat roof at Burns Elementary could provide power to the densely-populated, largely low-income Frog Hollow neighborhood. In addition, the homes in the project area have flat roofs that, with proper coordination, could be used for solar panels.

2. Barry Square

Several large roofs from both public and private users might provide energy to both the institutions and to residential property owners in the relatively densely-populated, largely low-income Barry Square neighborhood. These include flat roofs at: Connecticut Children's Medical Center, Hartford Hospital, Trinity College Magnet School, Greater Hartford Academy of the Arts, and the Montessori Magnet School. In addition, the homes in the project area have flat roofs that, with proper coordination, could be used for solar panels.

3. Albany Avenue

The project area on Albany Avenue, straddling the neighborhoods of Blue Hills and Upper Albany, could be served by solar provided at the flat roofs of the Martin Luther King School and Achievement First Academy. The surrounding neighborhood does not have homes with flat roofs.

4. West End

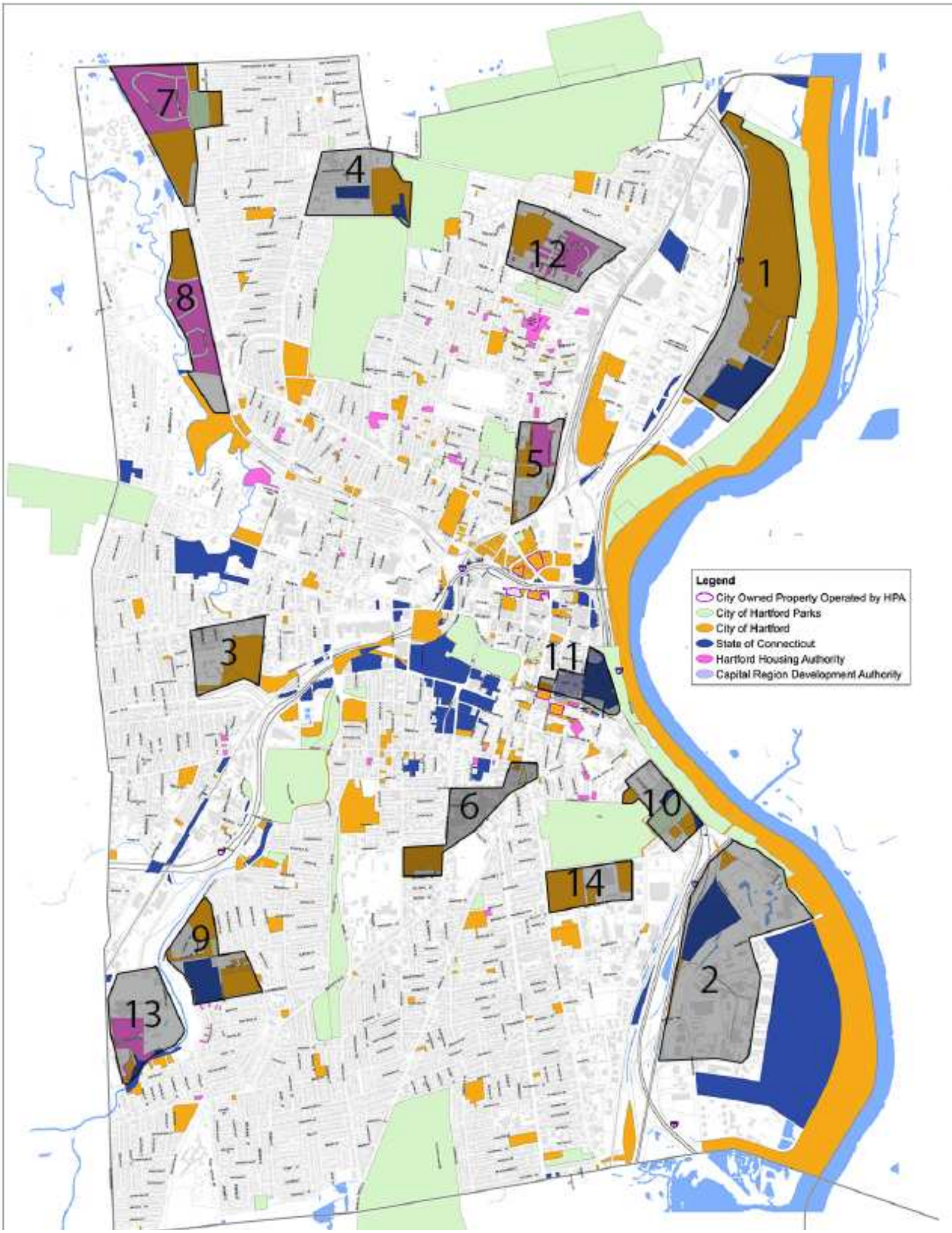
This project area, located in the southern part of the West End neighborhood, has the potential for large-scale solar either on the roof of Hartford Public High School, or on the roofs of two privately owned apartment buildings: Shepherd Park Elderly Housing and Clemens Place. This area of the West End tends to be lower-income, with higher-density housing on smaller lots than the northern portion of the West End. Shared solar would benefit these property owners.

5. South End

The South End project site encompasses lots in several neighborhoods, including Barry Square, South Meadows, and the South End neighborhoods. This area has densely populated residential neighborhoods to the west, but these do not have flat roofs. Shared solar would have to be located either on the roof of Bulkeley High School or on the roof of Burr School, both City-owned.

Note, however, that these roofs are not new roofs, and that they (like other City facilities) would have to be replaced to the newest building code standards, with high weight capacity, before they can be used for solar infrastructure.

Notably, in 2018, the Energy Improvement District Board issued a Request for Proposals, asking for proposals to add solar to Hartford's capped landfill. A contractor was selected in October 2019. If this project moves forward, it would allow for a shared clean energy facility to serve local residents.



- Legend**
- City Owned Property Operated by HPA
 - City of Hartford Parks
 - City of Hartford
 - State of Connecticut
 - Hartford Housing Authority
 - Capital Region Development Authority

7

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12

1

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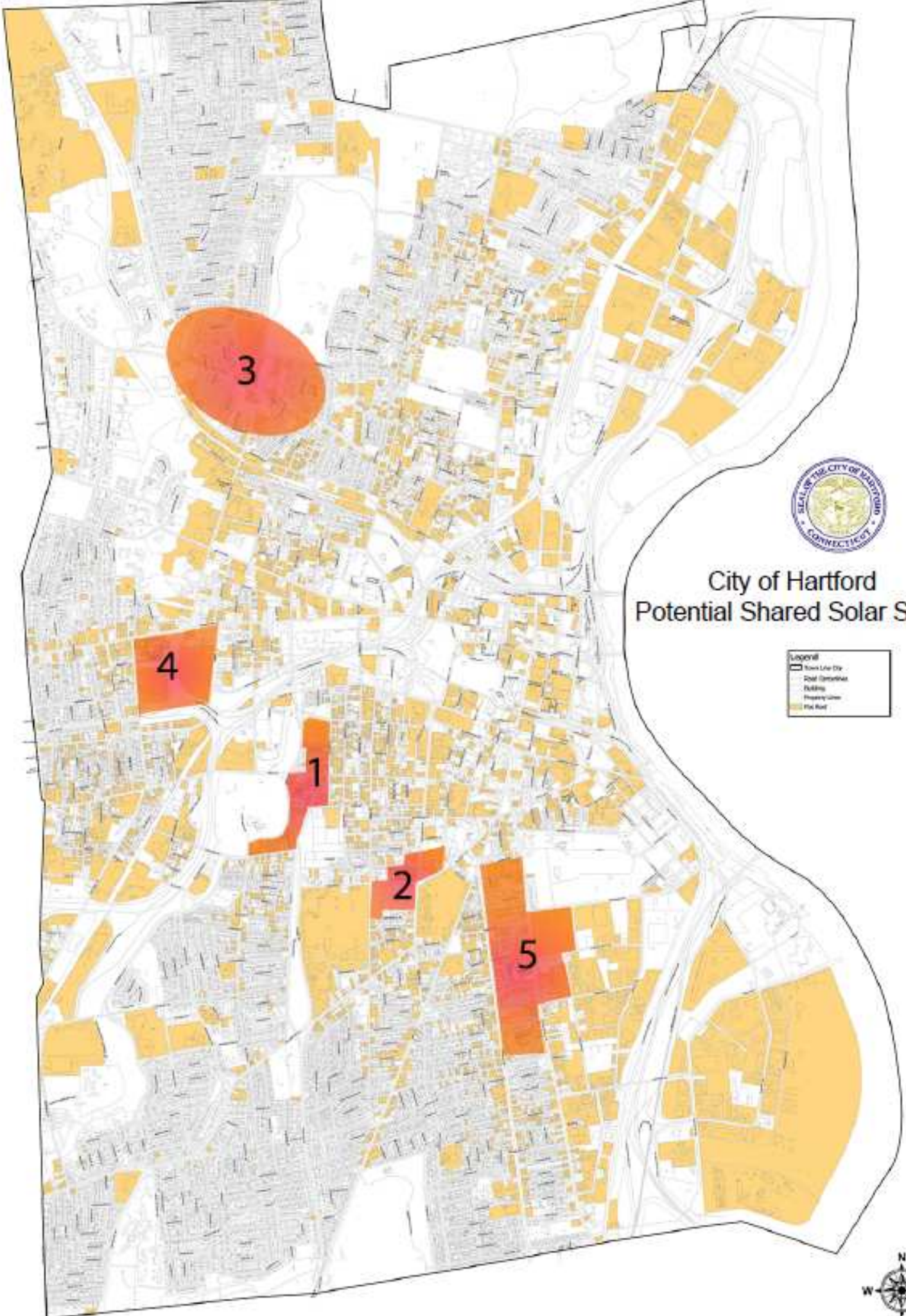
10

9

14

13

2



City of Hartford Potential Shared Solar Sites

Legend	
[Symbol]	Town Line City
[Symbol]	Street Names
[Symbol]	Buildings
[Symbol]	Property Lines
[Symbol]	The River



Recognition



In 2019, American Council for an Energy-Efficient Economy ranked Hartford #24 / 75 cities across the nation on energy, and named one of just three "to watch" in the country given the big jump from 2017.



The US Department of Energy awarded Hartford SolSmart Gold certification in 2016, one of just 14 communities to achieve the recognition that year.



Hartford was one of five communities in 2018 to be certified by Sustainable CT at the highest level (Silver).



Capitol Region Council of Governments awarded Hartford recognition twice, in 2017 and 2018.

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Mayor's Office of Sustainability: Shubhada Kambli and Grace Yi
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Sebastian Lombardi (Vice Chair)
Thomas E. Swarr (Secretary)
Claudio Bazzano
Erik Johnson
Frank Dellaripa
Jim Del Visco
Kate Kowalyshyn
Leo Garrison
Michael Looney
Michelle Lauterwasser
Rodney Powell
Walter Veselka

Endnotes

[1] Conn. Gen. Stat. § 32-80a(c) (2014) (stating that the plan must concern “the development and financing of such [EID] resources... with a view to increasing efficiency and reliability and the furtherance of commerce and industry in the energy improvement district”).

[2] Ann Street Historic District. National Register of Historic Places Inventory- Nomination Form, U.S. Dep’t Interior, 18 (1983), <http://npgallery.nps.gov/nrhp/GetAsset?assetID=9e1c0361-bfaa-4aa4-857d-7b03317028e4>; Ben Gammell, A Revolution in Horse Power, WNPR (Mar. 8, 2013), <http://wnpr.org/post/revolution-horse-power>.

[3] Zac Mirecki, Let There Be Light (in Hartford), WNPR (Jan. 11, 2013), <http://wnpr.org/post/let-there-be-light-hartford>.

[4] Id.

[5] Id.

[6] Connecticut State Profile and Energy Estimates, U.S. Energy Info. Admin., <http://eia.gov/state/?sid=CT> (last visited Nov. 14, 2016).

[7] Regional Greenhouse Gas Initiative, <https://www.rggi.org/> (last visited Nov.14, 2016).

[8] The Investment of RGGI Proceeds Through 2014, Regional Greenhouse Gas Initiative (Sept. 2016), https://www.rggi.org/docs/ProceedsReport/RGGI_Proceeds_Report_2014.pdf.

[9] Roger D. Colton, Home Energy Affordability in Connecticut: The Affordability Gap, Hartford Business Journal (2016), <http://www.hartfordbusiness.com/assets/pdf/HB13276128.PDF>.

[10] Id. at app. A.

[11] Id at 8.

