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## **CIRCA PRESENTATION**

**UConn**



**SUPREME COURT OF THE UNITED STATES**

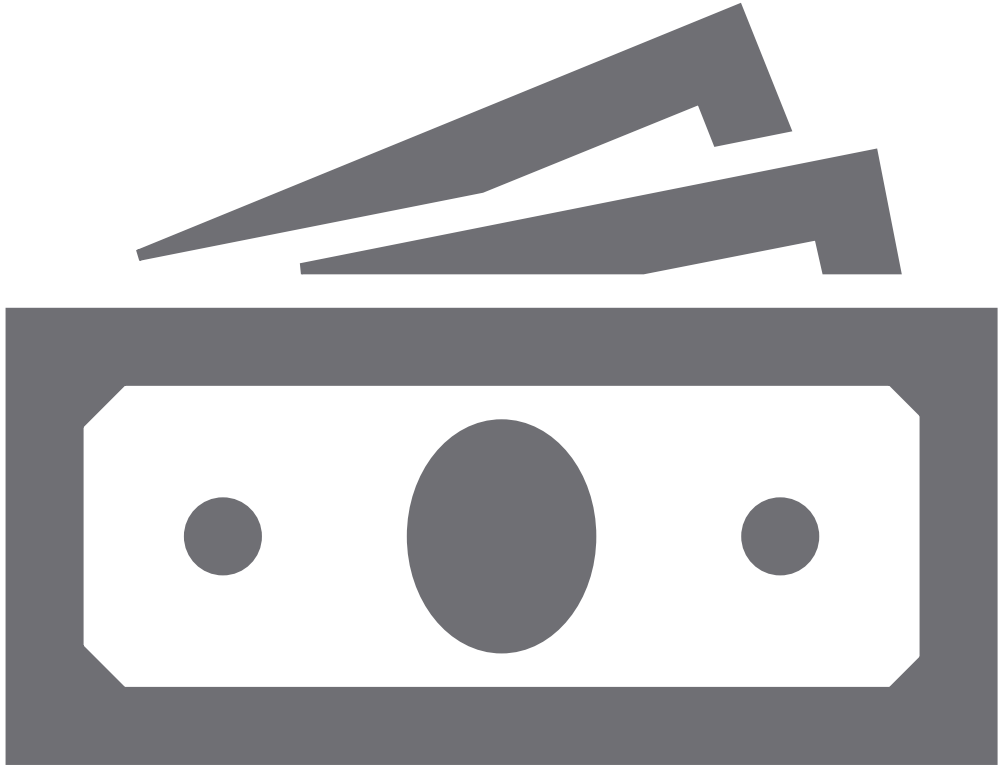
Syllabus

**WEST VIRGINIA ET AL. *v.* ENVIRONMENTAL  
PROTECTION AGENCY ET AL.**

**CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR  
THE DISTRICT OF COLUMBIA CIRCUIT**

No. 20–1530. Argued February 28, 2022—Decided June 30, 2022\*





Inflation Reduction  
Act



plus

New CT Programs

# Energy Resilience for Connecticut Municipalities

Text & Design by Christine O'Neill, Advised by Kirt Mayland

CT Public Act 20-5 defines resilience as "the ability to **prepare for and adapt** to changing conditions and **withstand and recover** rapidly from deliberate attacks, accidents or **naturally occurring threats or incidents**, including, but not limited to, threats or incidents associated with the **impacts of climate change**."

## What does this mean for towns?

Comprehensive energy planning for both government operations and the town as a whole is a necessity. Climate change is only one of the reasons this is important.

## Strategies

- Distributed generation
  - Renewables
  - Microgrids
- Electrification
- Efficiency
- Storage
- Demand-Response



## Resources

- [Federal Grants for Resilience Activities](#)
- [EnergizeCT for Towns](#)
- [DOE's Efficiency-Resilience Nexus](#)
- [Resilient Power Planning Guide](#)



## Goals of Resilience

- **Reliable:** Every time you turn the switch, the lights come on.
- **Sustainable:** The strategies you're using now will still work in 10, 25, or 50 years. This means not relying on non-renewable resources.
- **Affordable & accessible:** Everyone in the community should have access to power.
- **Mindful:** The energy sources we use should not be making climate change worse - that is self-defeating.

## What does a good energy plan look like?

**State:** The State completed its latest [Comprehensive Energy Strategy \(CES\) in 2018](#), and is currently working on its [2023 update](#).

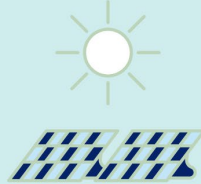
**Large cities:** [Hartford's 2017 Climate Action Plan](#) | [New Britain's 2016 Energy & Innovation Roadmap for the Future](#) | [West Hartford's 2020 Energy Plan](#)

**Mid-size communities:** [Simsbury's 2019 Energy Plan](#) | [Middletown's 2019 Energy Plan](#) | [South Windsor's 2019 Municipal, Residential & Business Energy Plan](#)

**Small towns:** [Ashford Clean Energy Task Force's 2019 Municipal Action Plan](#)

## Distributed Generation: Renewables

The electrical grid - the term we use for the network of cables, substations, and other infrastructure that deliver electricity - is outdated and overburdened, especially during windows of peak demand. To take some of the stress off the grid, municipalities should invest in creating their own power with renewables. These small operations that create energy in the same place it is being consumed (like a wind turbine on a farm or solar panels on a roof) are referred to as distributed generation. Drawing electricity from the grid also means that power must travel long distances over cables, which are highly susceptible to being knocked down by winds or falling trees in storms. With climate change amplifying the frequency and intensity of such storms, towns are increasingly likely to face outages when reliant on the grid. Renewables also have important co-benefits, like the fact that they are sustainable in the long term as opposed to non-renewable fossil fuels.



## Distributed Generation: Microgrids



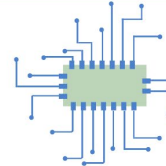
The U.S. Department of Energy defines microgrids as "a local energy grid with control capability, which means it can disconnect from the traditional grid and operate autonomously." The scale of a microgrid could be a few buildings, or an entire neighborhood. They are popular on university campuses (like the [University of Bridgeport](#)) or municipal complexes (like [Fairfield](#), [Woodbridge](#), and [Milford](#)).

In the climate change era, an energy source able to function independently of the grid is extremely valuable for municipal resilience. Cooling centers with charging stations can remain online during summer heatwaves - the municipal emergency operations center can remain up and running in blizzard. An added benefit is that microgrids tend to have opportunities for "smart grid" tech, such as the Wi-Fi connected thermostats or energy storage capabilities. Even if a microgrid only serves a small portion of your community, it removes strain and demand from the electrical grid, better allowing it to serve other residences and facilities.

Connecticut DEEP even has a [Microgrid Grant & Loan Program](#) to help you get started.

## Electrification

New England is moving towards a decarbonized, more renewable-based grid, which is better for environmental and economic sustainability. In order to access these benefits, municipal buildings and vehicles should electrify. By continuing to use oil to heat a recreation center or gas-fired stoves in cafeterias, municipalities remain dependent upon harmful fossil fuels. CT DEEP committed in their [2022-2024 Conservation and Load Management Plan](#) to transition their Residential New Construction program into an all-electric offering, with their [CHEAPR](#) rebate making fleet electrification more affordable as well. Electrification also pairs perfectly with distributed generation and microgrids, as it allows facilities and fleets to subsist on energy produced at the source rather than on oil and gas delivered from other sources. With pipeline attacks making recent [headlines](#), and it makes sense for municipalities to build resilience against such threats.



## Efficiency

Energy efficiency is the use of less energy to perform the same task or produce the same result. It is quite likely that your municipality has already engaged in some kind of efficiency measure - whether it was replacing CFL lightbulbs with LEDs, adding weather stripping to maintain indoor temperatures, or adding a fuel-efficient vehicle to the fleet. The U.S. Department of Energy describes efficiency as "one of the easiest and most cost-effective ways to combat climate change, reduce energy costs for consumers, and improve the competitiveness of U.S. businesses." Because energy efficiency is in everyone's best interest, the State of Connecticut codified in Section 33 of [Public Act 11-80](#) an Energy Conservation Management Board that assists electric utilities in providing incentives and programs to save energy. [Energize CT](#) is a vehicle for much of this work, in partnership with the [CT DEEP](#) and the [Connecticut Green Bank](#). Before beginning work on public projects, it is well worth reaching out to these entities to understand if funding or guidance is available to your municipality.



Energy Star (ES) is the EPA-backed certification program for energy efficiency in appliances and technology. It can be an excellent tool in identifying upgrades to existing buildings from small scale (lightbulbs, computer monitors) to large scale (heating systems, data center equipment). For instance, switching from conventional phones to [ES phones](#) can result in 40% energy savings, while upgrading to [ES ductless heat pumps](#) can cut heating costs by 60% and cooling costs by 30%. The EPA's "[Energy Efficiency in Local Government Operations](#)" strategy guide contains excellent planning resources for crafting your own energy efficiency program.

Just like with any other commodity, the less energy you use, the smaller your bill is. Efficiency isn't just resilient - it makes economic sense.



There are numerous federal and state incentives for municipalities to implement these strategies. For more information, [click here to contact CIRCA](#).

## Storage




Energy sources that can be deployed specifically when needed are referred to as "dispatchable." Oil, coal, natural gas, and nuclear are dispatchable; but wind and solar are not, instead called "intermittent." This becomes an issue when there is a mismatch between supply (no sun shining at night) and demand (subzero weather, where everyone has the heat running). The key to making these intermittent resources available when demand spikes is energy storage.

Energy storage allows ongoing power when an extreme weather event disconnects a facility from the grid. It is also a great way for municipalities to save money. When demand is high but supply is low, if you are on a peak pricing plan, your prices go up. Having a reserve of power to use at these critical times means municipalities can avoid peak pricing, while also reducing strain on the rest of the community's supply.

There are several types of storage including [fuel cells](#) and [lithium-ion batteries](#). New technologies in this field are still emerging, and one of the most important areas of research is how to scale energy storage to accommodate more capacity.

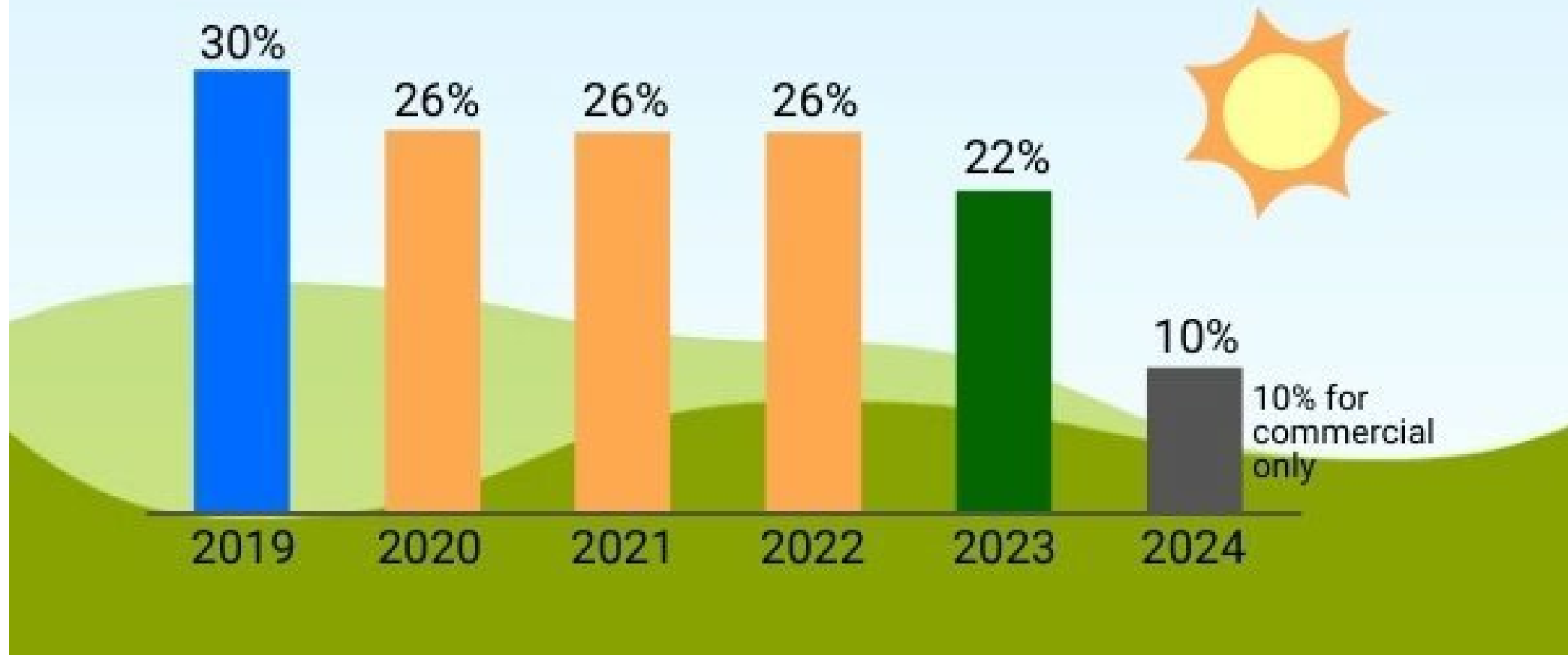
## Demand Response

Local energy resilience can also come from encouraging residents and businesses to lower their power usage during stressful times for the grid - such as hot, humid summer afternoons. This encouragement typically involves a utility increasing prices during these peak periods thereby [discouraging power consumption](#). Communications from the utility or even a municipality, often through social media, to its customers or residents has proven to be helpful in reducing consumption when it is the most needed. Municipalities could work with utilities on communicating with residents and local businesses in this regard similar to how they do with water companies and drought guidelines.

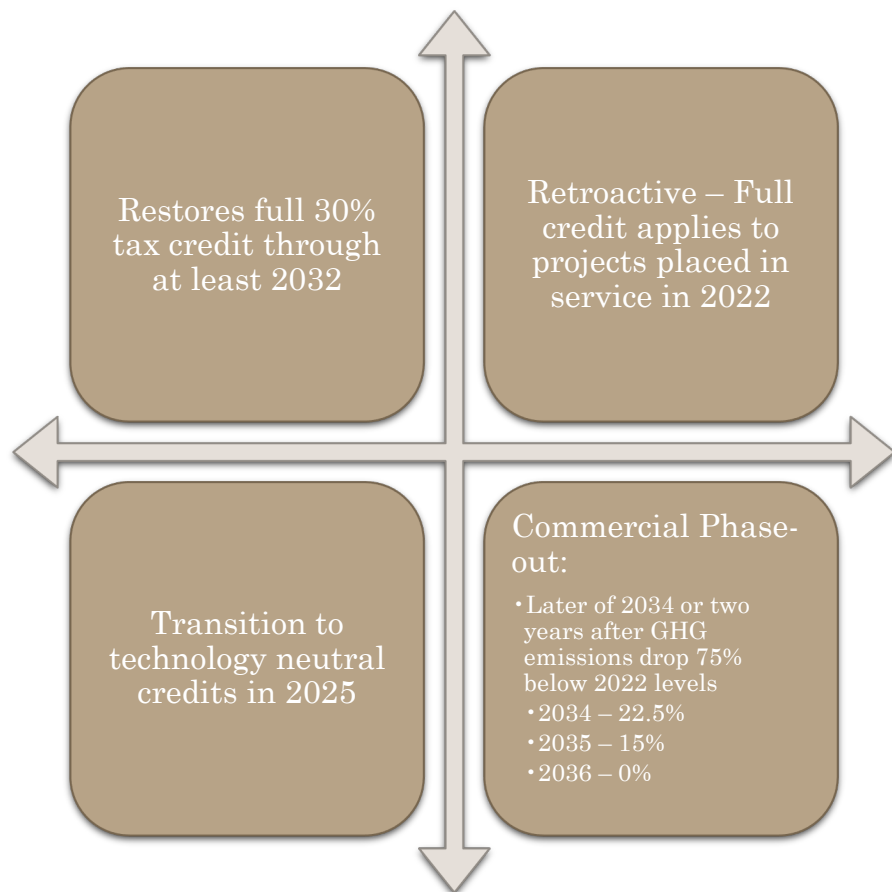
An aerial photograph of a forest fire. The ground is covered in dark, charred vegetation, and thick white smoke rises from several points, partially obscuring the sky. The overall scene is one of destruction and environmental impact.

# Inflation Reconciliation Act

# Federal Solar Tax Credit



# Immediate Changes and Timeline



## Inflation Reduction Act

# Inflation Reduction Act

Summary of immediate changes to commercial tax credits

Changes slated to take effect in 2023, subject to further IRS guidance:

1. Transferability and Direct Pay
2. Storage ITC
3. Interconnection Costs
4. Prevailing Wage and Apprenticeship Requirements
5. ITC bonus for domestic content, brownfield sites, and low-income projects
6. PTC



# Starting in 2023 - New Ways to Monetize Credits

## Direct Pay

Receive cash for credits through  
IRS refund process  
Eligible entities: tax-exempt  
entities, rural electric co-ops, and  
states/munis  
Eligible entities cannot transfer  
Fine print ... “domestic content”  
stick

## Transferability

Sale of credits to unrelated parties  
Credits can only be sold once  
Still subject to recapture  
Passive activity loss rules likely  
still apply, awaiting IRS guidance  
Transfer market will take time to  
mature

# Energy Storage ITC

Stand-alone ITC without any obligation to charge with renewable power



Broad definition: “property . . . which receives, stores, and delivers energy for conversion to electricity . . . and has a nameplate capacity of not less than 5 kilowatt hours”

- Would include pumped-hydro storage
- 

Residential credit available provided battery has at least 3 KWh of capacity

# Interconnection Costs

For projects up to 5 MW (AC) in capacity, interconnection costs are eligible for ITC

Includes upgrades and facilities owned by the utility

Applies to energy storage facilities and all other facilities that qualify for the ITC

Cannot claim PTC on interconnection costs

Single-plant risks?

Transmission ITC did not make it into the bill

# Prevailing Wage and Apprenticeship

## **Do these apply to your project?**

< 1 MW (AC) are exempt  
Projects that “begin construction”  
within 59 days of IRS Guidance  
Maybe 4-6 Months for Guidance?  
Rely on existing construction start  
guidance?

## **What are the consequences if they apply?**

Comply or 30% drops to 6%  
Pay Davis-Bacon wages paid on  
federal construction jobs  
Qualified apprentices for 10% to  
15% of total labor hours  
Requirements apply during first 5  
years post-commissioning for  
alterations/repairs (not O&M)

# Bonus ITC: Domestic Content

- Certify that any steel, iron, or manufactured products was produced in the US
- Steel and Iron: Must be 100% US, applied consistent with Buy American Act regs:
- Manufactured Products: Deemed US made if “*adjusted percentage*” of the total cost of products and subcomponents “are mined, produced, or manufactured in the United States”

CONSTRUCTION BEGINS	ADJUSTED PERCENTAGE
Before 2025	40%
In 2025	45%
In 2026	50%
In 2027 or later	55%

# Bonus ITC: Energy Communities

Includes (i) “brownfield sites,” (ii) census tracts with shuttered coal mines/generation, and (iii) areas with high unemployment and a fossil-fuel industry presence.

Incorporates the brownfield site definition from CERCLA:

- “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”

Be mindful of brownfield exclusions under CERCLA which include:

- Superfund sites (listed or proposed for listing);
- Sites subject to court orders, consent decrees, or admin orders; and
- Sites subject to certain permits, e.g., RCRA, TSCA, and the Safe Drinking Water Act.

Legend

Coal Closure Energy Communities

- Census tract with a coal closure
- Directly adjoins a tract with a coal closure
- Meets the Fossil Fuel Employment Threshold

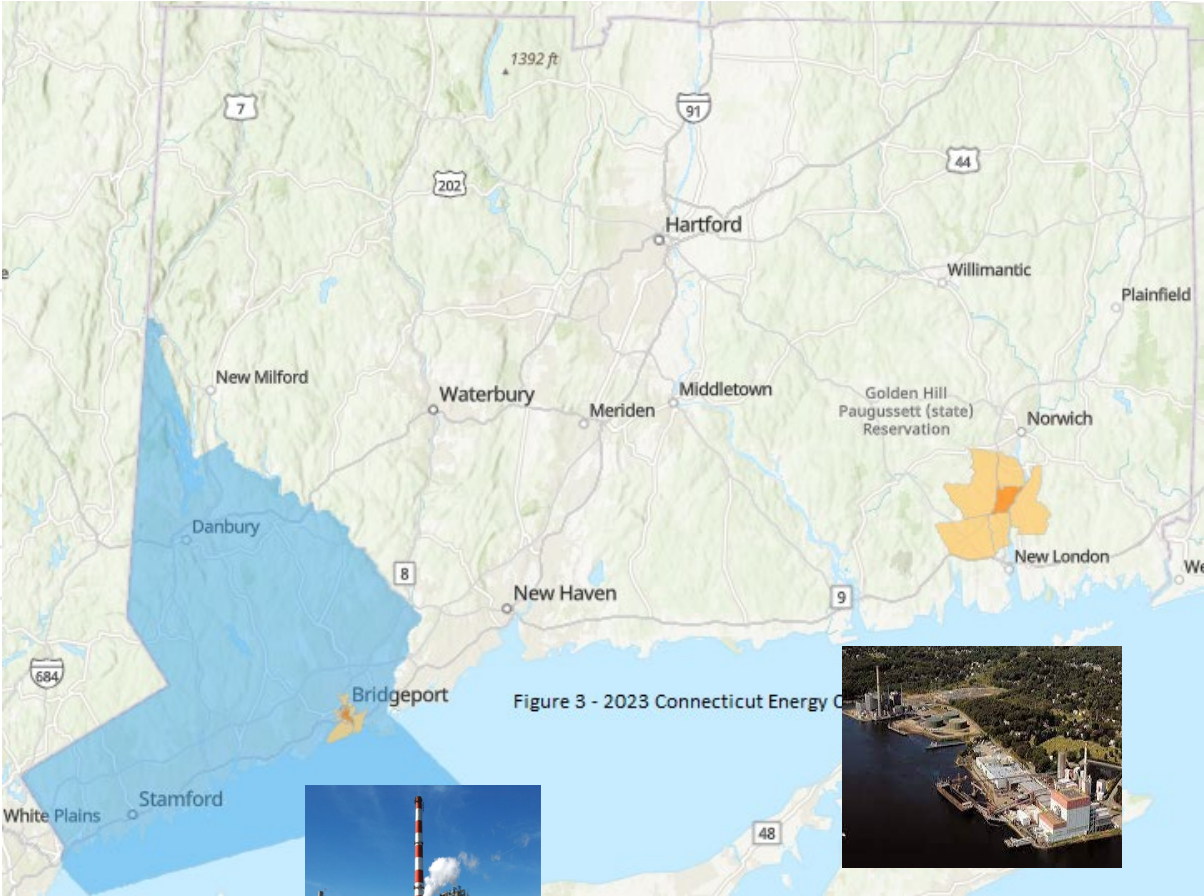


Figure 3 - 2023 Connecticut Energy C



# Bonus ITC: Low-Income Solar and Wind Projects

## General Restrictions

Application > Award  
1,800 MW (DC)/year  
Under 5 MW (AC)  
Only solar or wind,  
and integrated  
storage  
No PTC bonus

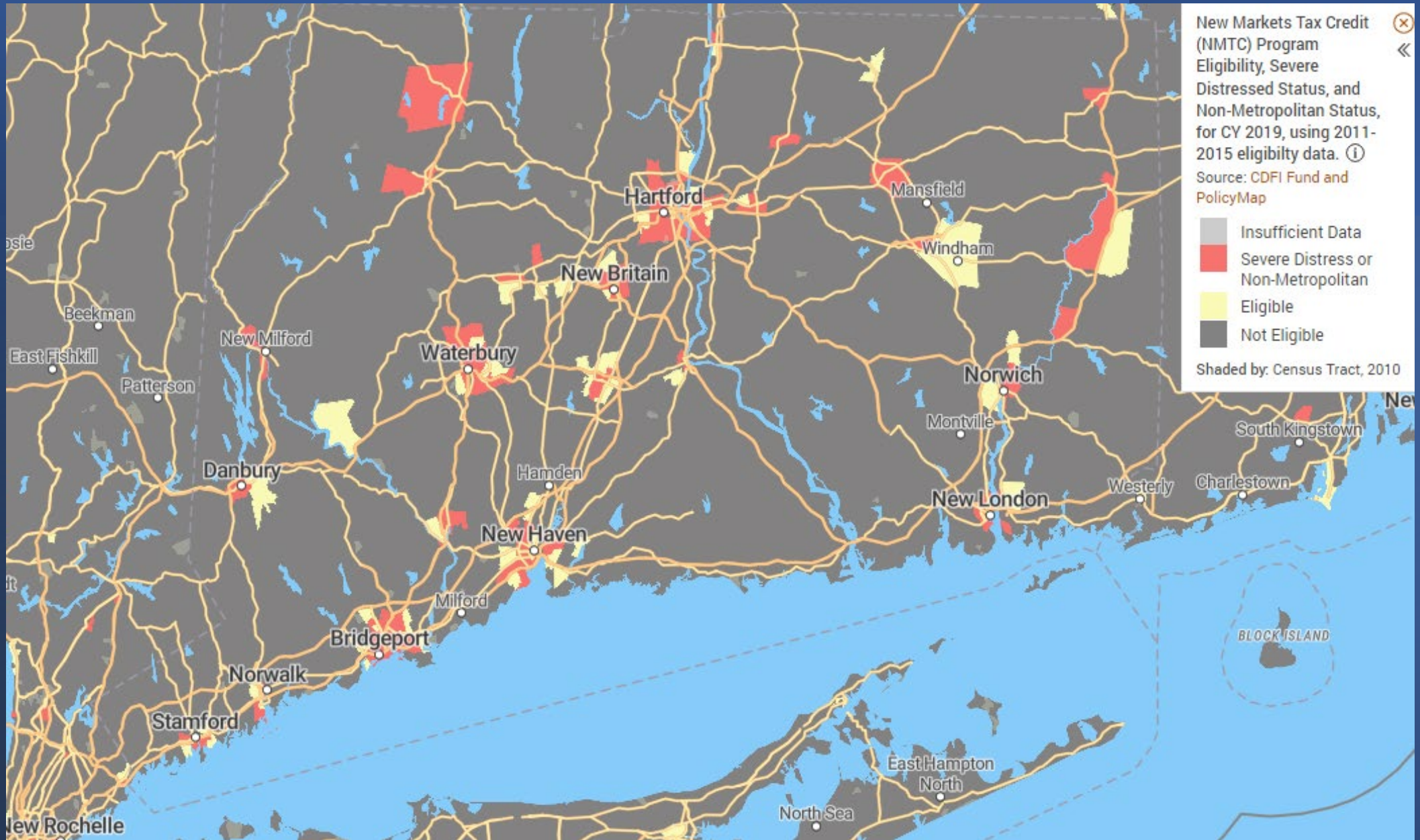
## Low-Income Project

20% bonus – 2 Types  
Installed on  
affordable housing  
AND tenants  
receive financial  
benefits.  
At least 50% of  
financial benefits  
provided to low-  
income households

## Low-Income Site

10% bonus  
Located in a “low-  
income community”  
Relies on NMTC  
mapping





# Investment Tax Credit Components



	Base Credit	Wage/Apprenticeship Requirement (>1MW)	Domestic Content Bonus Credit	Energy Community Bonus Credit	Low-Income Community Bonus Credit
Projects Under 1 MW	30%	N/A	10%	10%	10% – 20%
	Base Credit <b>6%</b> , if project is <1 MW AC, base credit is <b>30%</b> since apprenticeship credit is not required	<b>24%</b> for taxpayers that pay prevailing wages & use apprenticeship programs – laborers must be paid during construction and 5 years after project is placed in service	<b>10%</b> for using steel, iron, or products mad in the U.S. – start at 20% of materials for offshore wind, 40% for all else		<b>10%</b> for projects located in low-income community, Indian land, multifamily housing – <b>20%</b> for projects with 50% of financial benefit for low-income persons <b>Capped at 1.8 GW</b>
Projects Between 1-5 MW	6%	24%	10%	10%	10% – 20%

\* [https://arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?data\\_id=dataSource\\_3-1874df6f076-layer-10%3A415&id=a2ce47d4721a477a8701bd0e08495e1d](https://arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?data_id=dataSource_3-1874df6f076-layer-10%3A415&id=a2ce47d4721a477a8701bd0e08495e1d)

# Solar Production Tax Credit

Solar projects placed in service in 2022 or later may elect for the PTC for the first ten years of operations instead of the ITC.

Current PTC rate is 2.6 cents/kWh. Adjusted for inflation annually.

Potential factors to consider when evaluating PTC vs ITC:

- Project's capacity factor
- Interconnection costs only eligible for ITC, not PTC
- Low-income bonuses only eligible for ITC, not PTC

# CT Solar/Fuel Cell Programs



- *NRES* (solar and fuel cells)
  - Different tranches for fuel cells and solar
  - Behind the meter, and
  - VNM mandates projects on **municipal** (and state and ag) land/buildings
  - Favors projects located in **distressed municipalities, brownfields and landfills** (20%) and carports (30%) **OR where all the benefits flow there**
  - potential municipal benefits in terms of lease payments and electricity savings
- *SCEF* (community solar – sort of)
  - **Low-income** customers
  - **Carports, canopies, brownfields and landfills**

	<b>NRES Program</b>	<b>SCEF Program</b>
Project Maximum Size (MW)	5	5
MW offered per year	110	50
Total Program Size (MW)	500	300
Program Years Remaining	5	5
Different Environmental Rules		No construction in core forest or on slopes > 15°
Structure	Virtual net metering or direct sale to utility	Direct sale to utility w/utility distributing some financial benefit back to community
Pricing differences based on size	Different tranches/auction for different project sizes	One tranche/auction regardless of size
Special ground siting restrictions	State, farm or municipal land only	
Siting incentives	Distressed municipalities, brownfields, carports and landfills	Brownfields, carports and landfills

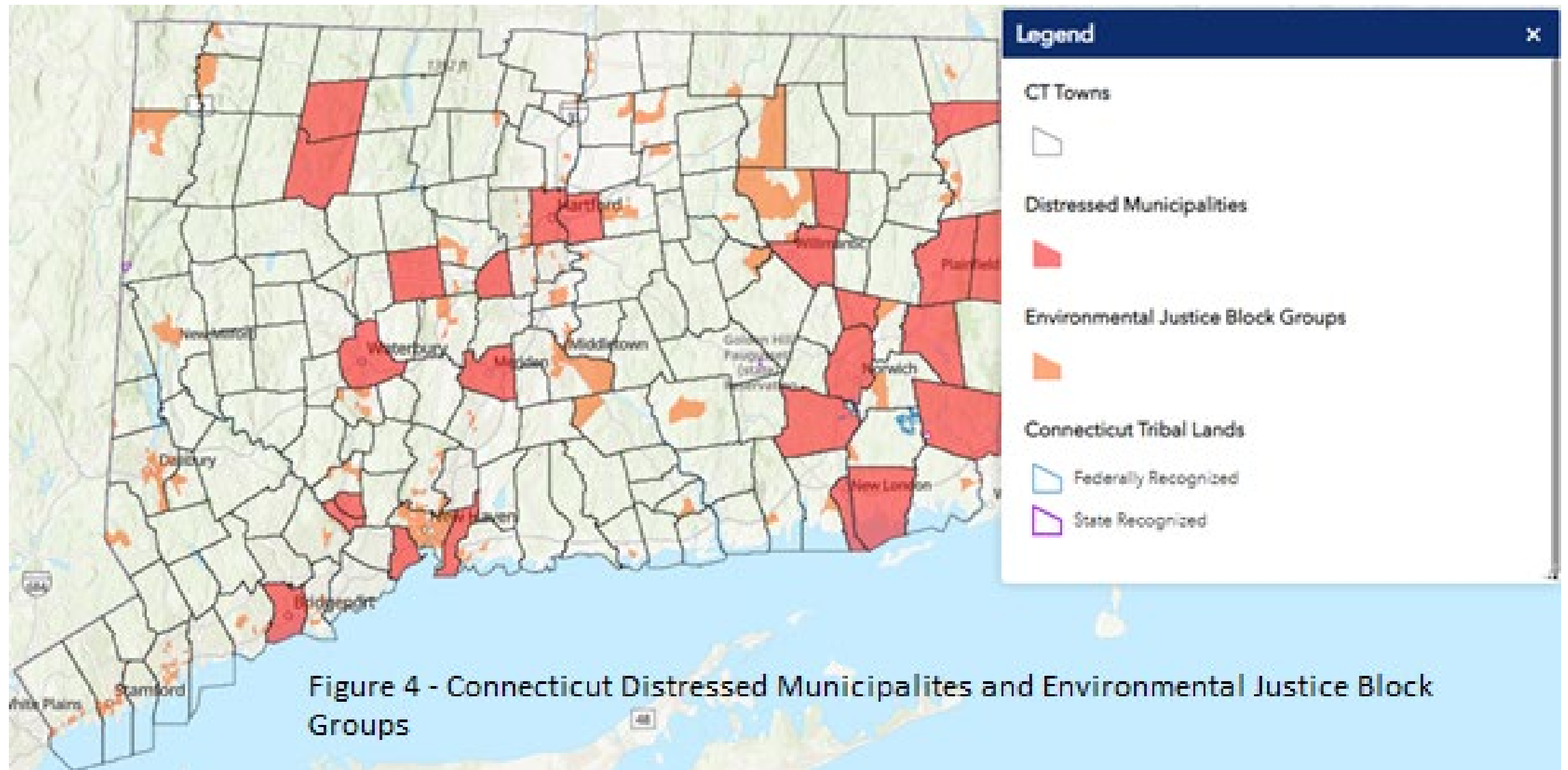


Figure 4 - Connecticut Distressed Municipalities and Environmental Justice Block Groups

Potential Stacking Value of Projects Under 1 MW

Federal

Percentage

1. Starting ITC Bonus (assuming wage threshold met)

30%

2. Energy Community Bonus

10%

3. Low Income Project or Community Bonus

10% or 20%

4. Domestic Content Bonus

10%

Plus ITC applies to interconnection costs

Potential Tax Credit or Direct Pay Value

60% to 70% of Project Costs

No Prevailing Wage or Apprenticeship Requirement

State

Favorable Pricing in NRES Middle Tranche

20% to 30% (Carports)

CT Low income/Landfill/Carport Bonus Pricing Preference

Nonfinancial Benefits

Local permitting (no CT Siting Council)

Less stringent (less expensive) stormwater compliance

