

2019 Equitable Distribution Report



**Connecticut Department of Energy
and Environmental Protection**

DEEP has prepared this Report to
satisfy the reporting requirements
of Conn. Gen. Stat. § 16-245ee.

/ About



Goal of this Report

Section 16-245ee of the Connecticut General Statutes requires the Department of Energy and Environmental Protection (“DEEP”) to annually evaluate whether small load customers in distressed census tracts have received investment and services from the Conservation and Load Management (“C&LM”) programs and Connecticut Green Bank (the “Green Bank”) programs commensurate with the financial contribution of those customers through the surcharges on their utility bills (called “billed collections”).

DEEP has prepared this Report to satisfy the reporting requirements of Conn. Gen. Stat. § 16- 245ee and evaluate:

1

The 2019 funding distribution for the C&LM programs administered by Eversource and UI, which together will be referred to as the electric distribution companies or (“EDCs”)

2

The 2019 funding distribution for the Clean Energy Operations Plan implemented by the Green Bank.

As proposed in Phase 1 of the Equitable Energy Efficiency Proceeding, this year’s report delivers alternative methods of gauging equitable distribution beyond distressed vs. non-distressed census tracts to further enhance DEEP’s ability to share progress on the distributive equity of C&LM program incentives in CT. These methods are based on additional factors such as a tract’s racial diversity, moderate income levels, and the prevalence of high energy burdens or high arrearages or shut offs.

This year’s report also shares HES and the Home Energy Solutions-Income Eligible (“HES-IE”) programs as an indicator of the level of participation achieved by each company in 2019 with residential customers in distressed municipalities, according to housing stock.

How do Collections and Incentives Work?

All residential, and commercial and industrial (“C&I”) customers contribute to the C&LM fund by paying a surcharge on their electric bill that combines the “3 Mill Charge” (established in 2000) and an additional 3 mills in the form of a Conservation Adjustment Mechanism (“CAM”) (established in 2013). Together, these two collections are referred to as “billed collections”. Customers can apply for and receive incentives funded by these billed collections to implement energy efficiency and clean energy measures.

What does Equitable Distribution mean?

Equitable distribution in this report should be distinguished from a broader parity analysis by customer class that electric distribution companies (EDCs) use in setting the C&LM budgets. Both analyses compare a customer segment’s revenue contributions to programmatic incentives, but equitable distribution focuses on the most at-risk census tracts in the state, while parity analysis focuses on customer segments (i.e., low-income residential customers, non-low income residential, and Commercial & Industrial (C&I)). Equitable distribution is an important and granular analysis of low-income access to energy efficiency programs, but it does not necessarily demonstrate the entire scale of the programs’ reach.

Key Definitions

Distributive Equity

Relates to the distribution of benefits and costs and calls for directing resources to the most vulnerable communities.

“Small load” Customers

“Small load” Customers refers specifically to customers with a maximum, average, monthly peak demand less than one hundred kilowatts

“Large load” Customers

Specifically, this refers to customers with a maximum, average, monthly peak demand greater than one hundred kilowatts

Moderately Distressed Census Tract

In the context of the Conservation and Load Management (C&LM Plan), a moderately distressed census tract is any census tract where “the median income is at or below 80% of the state median income (SMI) and greater than 60% SMI.”

Distressed Census Tract

As defined by the Department of Economic and Community Development, a distressed census tract is any census tract where “the median income is not more than 60% of the state median income (SMI).”

Equitable Distribution

Achieved when distressed census tracts receive an equal or greater percentage of total incentives than that same tract’s C&LM contributions as a percentage of total billed collections. For an EDC to have achieved equitable distribution, small load distressed census tracts in its territory will collectively meet that definition.

Evaluation Methodology

To evaluate and judge whether funds have been distributed equitably, DEEP compares customer billed collections to program spending. This linking of customer contributions to specific program spending creates several methodological challenges including:

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The C&LM programs administered by the utilities are not funded solely by proceeds from 3 Mill Billed collections from that program year. Other funding sources that also support the total budgets for those programs include auction proceeds from the sale of Regional Greenhouse Gas Initiative (“RGGI”) allowances, grant funds, Forward Capacity Market proceeds, and more. Likewise, the Green Bank’s renewable energy projects are funded by more than just the Renewable Energy Investment charge of \$.001/ kWh (“Billed collections”) on the EDCs’ electric bills.

For this analysis, customer contributions are limited to revenues collected through the C&LM Program charge on customers’ electric bills (the Conservation Adjustment Mechanism and billed collections), even though all customers also indirectly contribute to RGGI and FCM proceeds through other costs and charges on their electric bills.

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Funds and incentives are allocated not only to programs that benefit specific customers or communities, but also to programs and expenses that have a generalized impact across Connecticut, such as administrative costs, planning, research and development programs, and education and outreach programs. Therefore, the billed collections do not necessarily match what is expended to a given census tracts in the form of program incentives.

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More importantly, the total amount of incentives allocated to a given census tract is not directly controlled by the EDCs or by the Green Bank. Rather, fund allocation is driven by the level of customer participation in each census tract.

Recognizing the importance decoupling the portion of program costs, including funding for incentives provided by ratepayer and these other sources of funding, DEEP adopted the following procedure for determining equitable distribution among the EDCs:

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Separate customers into the following groupings for each EDC: small load distressed census tracts, large load distressed census tracts, small load other tracts, and large load other tracts, where “other” indicates a non-distressed tract.

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Calculate each customer grouping’s 3 Mill contributions amount as a percentage of their EDC’s total amount of 3 Mill Billed collections.

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Then calculate that same customer grouping’s incentive disbursement as a percentage of their EDC’s total incentives disbursed.

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Finally comparing the two resulting percentages for equivalence.

In other words, to determine if the funds distributed to small load residential customers in identified distressed census tracts is equitable, the ratio of those distributed funds to the total billed 3 Mill contributions is computed and then compared to the same ratio for all tracts. If the ratio of distributed funds to 3 Mill billed contributions for distressed tracts is equal to or exceeds the ratio for all census tracts, the distributions are considered equitable. An example of this calculation for hypothetical census tracts is presented in Table A below.

Example of Equitable Distribution Calculations

	Incentives	Billed Collections	Ratio
All Census Tracts	\$1800	\$2000	90%
Distressed Tract “0001”	\$95	\$100	95%
Distressed Tract “0002”	\$105	\$120	88%
All Distressed Tracts	\$200	\$220	91%

For an EDC to be considered to have equitable distribution of funds, this must be true for distressed census tracts in aggregate, in the example above, the distributions for the EDC would be considered equitable, because the ratio of incentives to collections for the distressed tracts is at least as large as the ratio for all census tracts even though this may not be true for each individual distressed tract. For Calendar year 2019, DEEP will continue to use this definition of equitable distribution for the purposes of satisfying §16-245ee.

New Methods of Gauging Equitable Distribution of Funds

DEEP's current methodology for judging the equitable distribution of funds is severely limited in that only distribution of funds in a narrowly defined set of distressed census tracts is considered for compliance under §16-245ee. To examine how C&LM program funds are distributed among Connecticut communities more broadly, DEEP has begun developing supplementary metrics of equitableness defined below with preliminary results for calendar year 2019 presented in this report.

Racial Diversity

This metric relies on racial demographic data for each of Connecticut's census tracts for 2019 obtained from the American Communities Survey (ACS) conducted by the United States Census Bureau. Using ACS data DEEP has developed a racial diversity index to measure the prevalence of communities of color in each of the State's census tracts. The computation of the racial diversity index closely follows the methodology of similar calculations for census-based studies in other states, specifically the Diversity, Equity and Inclusion Data and Baseline Analysis study published by the Energy Trust of Oregon in 2018.

As in the Oregon energy trust study, DEEP determined the non-Caucasian percentage of the population for each census tract using the Race and Ethnicity variables included in the ACS data. A table of these variable codes and their descriptions are included below.

Description	ACS Variable
Total	B02001001
White Alone	B02001002
Black or African American Alone	B02001003
American Indian and Alaska Native Alone	B02001004
Asian Alone	B02001005
Native Hawaiian and Other Pacific Islander Alone	B02001006
Other Race Alone	B02001007
Two or More Races	B02001008

To determine the percentage of people of color in each census tract, DEEP calculated the sum of percentages for each of the ACS variable codes B02001003 - B02001008. DEEP then calculated the quintiles for the census tracts and assigned each tract a score from 1 to 5 where an index of 1 would represent the least racially diverse tracts while an index of 5 would represent census tracts containing the largest fraction of people of color. Because quintiles were chosen as the basis of this index, the scores are evenly distributed.

For the basis of determining equitable distribution based on racial diversity, DEEP opted to compare the ratio of distributions to collections from residential customers in census tracts with a high diversity index (4 and 5) to the same ratio for less diverse census tracts.

Census Tracts with a High Energy Burden

In addition to comparing census tracts based on whether the tract qualifies as distressed or not, DEEP also identified a set of census tracts within the State in which the annual energy burden, defined as the total cost of energy (including electricity, gas, and other fuels such as fuel oil and wood) is equal to or exceeds 6% of the median household income for the census tract. Census tracts meeting this criterion were flagged as burdened by high energy costs. Equitability based on energy burden for the census tracts was determined similarly to other previously described metrics.

Moderately Distressed Census Tracts

Along with the list of distressed census tracts provided by the EDCs, DEEP has used data from the ACS to identify census tracts where:

- The median household income for the census tract is below 60% of the state median income (SMI.)
- The median household income is below 80% of SMI.
- The median household income is between 60% and 80% of SMI.

Tracts in this third tier, where median household income of the census tract is between 60% - 80% SMI are considered moderately distressed for the purposes of comparison in this report. For SMI, DEEP adopts the 2019 ACS 1-year survey value of \$78,833. For this comparison, Census tracts where the median household income falls between \$47,300 - \$63,066 are considered moderately distressed. Similarly, to other considerations, DEEP compares the distribution of funds to identified moderately distressed census tracts compared to completely non-distressed census tracts where the median household income exceeds 80% of SMI.

Municipalities with a High Number of Arrearages and Service Shutoffs

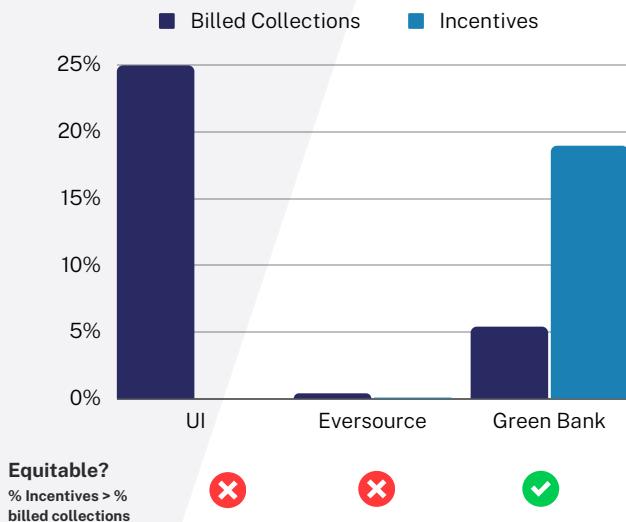
To evaluate the distribution of funds in communities with higher arrearages and service shutoffs, DEEP identified the top five municipalities in each service territory by number of shutoffs and arrearages using data from the EDCs. In 2019, the five municipalities with the highest number of service shutoffs were the same as the five municipalities with the highest number of arrearages. DEEP then calculated ratio of residential C&LM billed collections vs. incentives disbursed in those five municipalities and compared that ratio to the same calculations for the entire service territory.

Connecticut Green Bank

Since the Green Bank reports its distribution by SMI band rather than by census tract, DEEP filtered census tracts by income band to determine equitable distribution based on the proportions of billed collections and incentive distributions by income bands. To extract Green Bank billed collection vs. incentive data, DEEP used the C&LM ratios as a proxy – since C&LM billed collections are technically a total of 6 Mills, Green Bank's 1 Mill billed collections is equal to one sixth of that.

/ Main Findings

Distressed Tracts | Small and Large Load Customers 2019 C&LM Funding Distribution



1

Connecticut's two electric distribution companies, Eversource Energy ("Eversource") and The United Illuminating ("UI"), did not meet the statutory definition of equitable distribution for 2019.

2

While the Green Bank does not track billed collections on a census tract basis, DEEP's modified methodology demonstrates that the Green Bank did meet the statutory definition of equitable distribution for 2019.

3

In 2019, a total of 20,650 customers participated in the HES program; almost all customers were in non-distressed tracts. Likewise, a total of 14,083 participated in HES-IE in 2019, with all customers located in non-distressed census tracts.

4

For HES participants in the most racially diverse census tracts in the state, equitable distribution was not achieved. However, the opposite is true for HES-IE participants, in which the most racially diverse communities saw an equitable distribution of funds.

5

Overall, in 2019, the towns with the greatest number of shutoffs received more in incentives than funds that were collected.

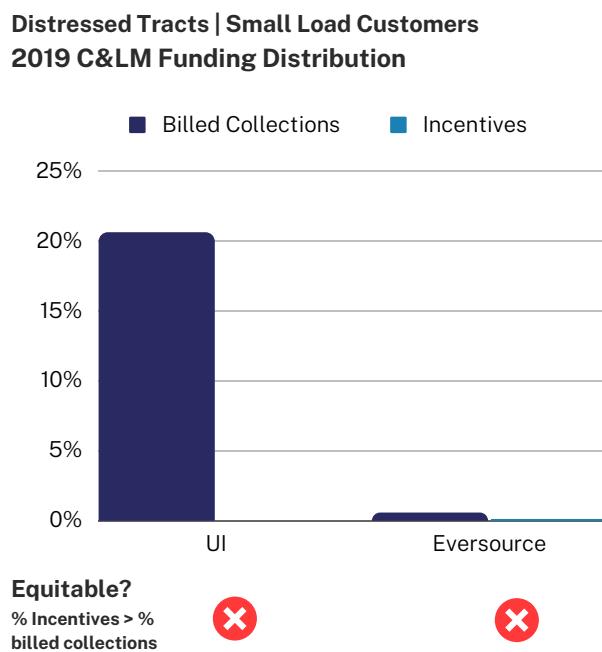
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For HES, equitable distribution was not achieved for energy-burdened tracts but was achieved for HES-IE participants in energy-burdened census tracts.

/ Areas of Equitable Distribution Analysis

Small Load Customers

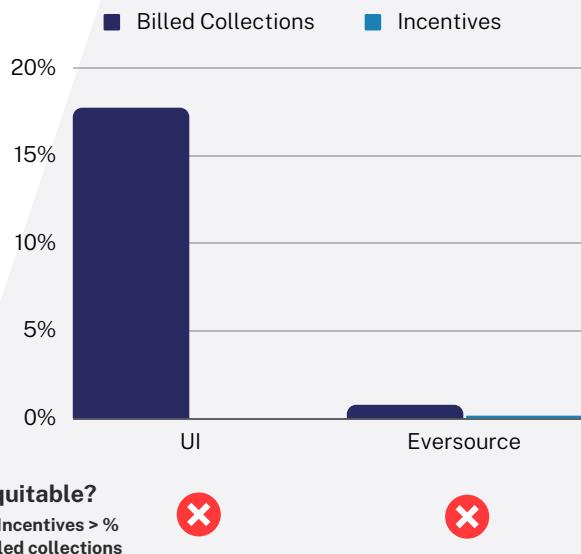
As required by § 16-245ee, this report evaluates whether small load customers in distressed census tracts have received investment and services from the Conservation and Load Management (“C&LM”) programs and Connecticut Green Bank (the “Green Bank”) programs commensurate with the financial contribution of those customers through the surcharges on their utility bills (called “billed collections”). This section also provides an analysis and breakdown of Eversource and UI billed collections and incentives by customer class (Residential or C&I) in distressed census tracts.



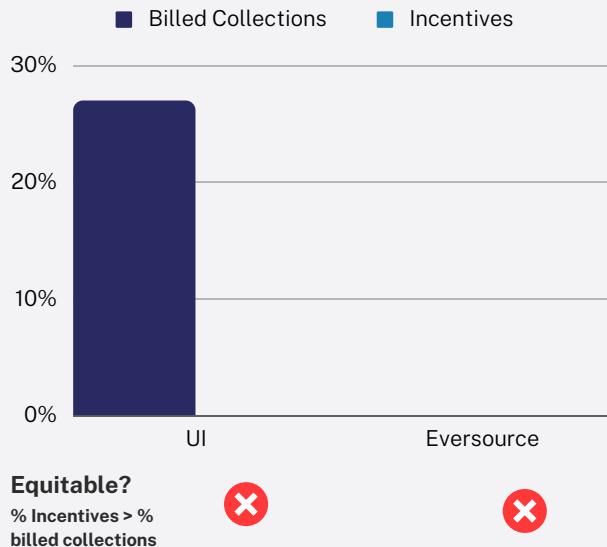
UI collected approximately 20.51% of its budget, from small load customers in distressed census tracts, of which \$0 was returned in the form of incentives.

Eversource collected approximately 0.34% of its total budget, from small load customers in distressed census tracts, of which \$52,144 was returned in the form of incentives or 0.06% of total Eversource incentives for small load customers.

Distressed Tracts | Residential Small Load Customers 2019 C&LM Funding Distribution



Distressed Tracts | C&I Small Load Customers 2019 C&LM Funding Distribution



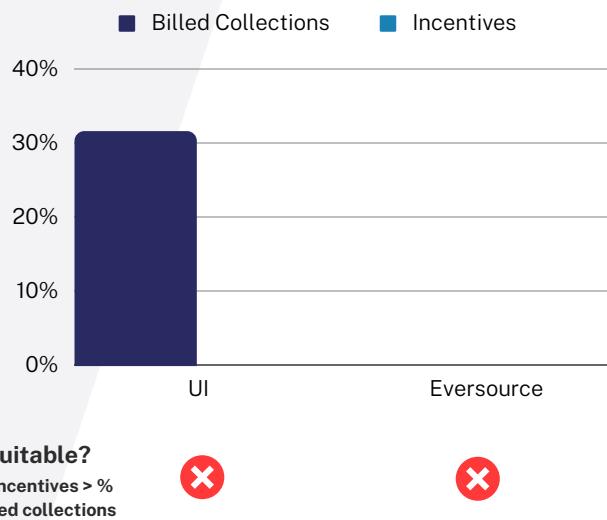
Disaggregating small load customers by sector, residential and commercial/industrial, yields similar results with respect to equitable distribution in distressed census tracts.

Large Load Customers

DEEP has expanded its review of equitable distribution for customers that have an average monthly peak greater than one hundred kW's (large load) in distressed census tracts. This section also provides an analysis and breakdown of Eversource and UI billed collections and incentives by customer class (Residential or C&I) in distressed census tracts.

Eversource and UI collect a relatively small portion of incentives from large load customers in distressed census tracks, with both utilities collecting less than 1% of their overall budgets from these customers.

Distressed Tracts | Large Load Customers
2019 C&LM Funding Distribution

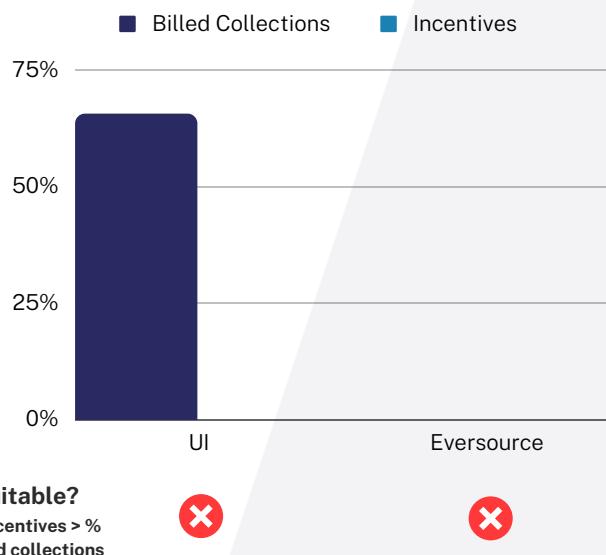


UI paid out no incentives to these customers, and therefore they do not meet the standard of equitable distribution defined above.

Unlike Eversource, relative collection and incentive percentages for large load customers in non-distressed census tracts were near parity for UI in 2019, though slightly under-indexed.

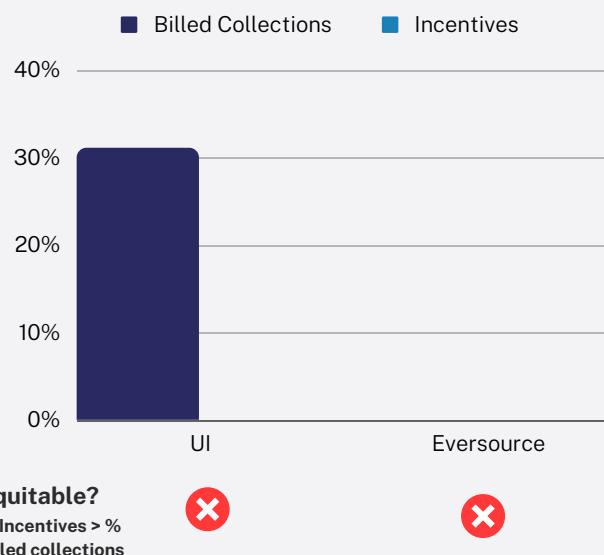


**Distressed Tracts | Residential Large Load Customers
2019 C&LM Funding Distribution**



Both utilities collected a relatively small portion of their total revenues from large load residential customers (1.2% for UI and 0.5% for Eversource), however almost no funds were returned to this customer class in the form of incentives.

**Distressed Tracts | C&I Large Load Customers
2019 C&LM Funding Distribution**



While a more significant portion of both utilities' budgets went to large load C&I customers, both utilities collected and distributed a negligible amount of funding to customers in this class that are located in distressed census tracts.

Home Energy Solutions Participation in Distressed Communities

This report presents the level of HES and HES-IE program participation achieved by each company with residential customers in distressed municipalities. The Connecticut Department of Economic and Community Development (DECD) maintains a list of municipalities considered “distressed” based on “high unemployment and poverty, aging housing stock and low or declining rates of growth in job creation, population, and per capita income.”[1] DECD ranks all 169 municipalities on several related criteria and designates the top 25 ranked municipalities as distressed.[2]

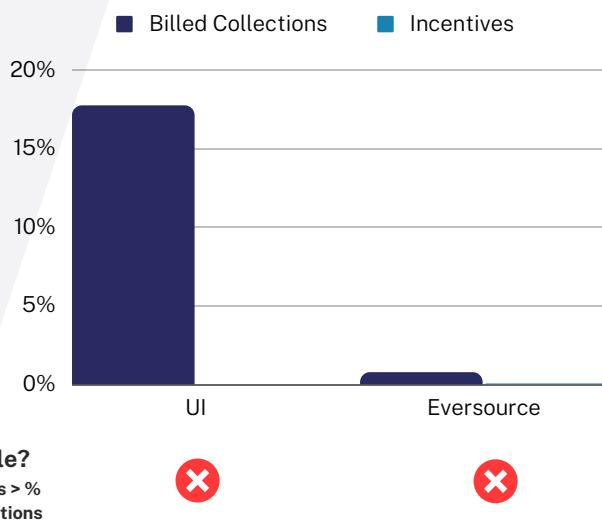
[1] C.G.S. Section 32-9p

[2] DECD ranking and selection methodology and a list of distressed municipalities can be found [here](#)

2019 HES Participation		Total Units	Single Family	2-4 Units	>4 Units
UI	Distressed Tracts	0	0	0	41
	Other Tracts	2,950	2,732	177	0
Eversource	Distressed Tracts	9	8	1	0
	Other Tracts	17,700	9,973	168	7,559

In 2019, a total of 20,650 customers participated in the HES program. Almost all customers were located in non-distressed census tracts.

**Distressed Tracts | Home Energy Solutions Customers
2019 C&LM Funding Distribution**

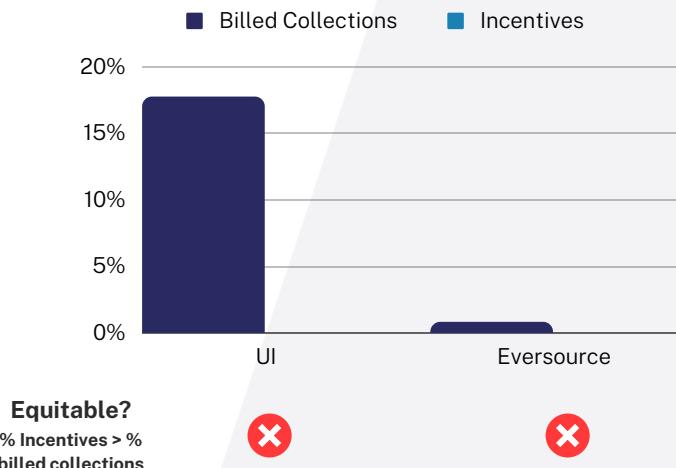


For the HES program,
equitable distribution
was not achieved in
distressed tracts.

2019 HES-IE Participation		Total Units	Single Family	2-4 Units	>4 Units
UI	Distressed Tracts	0	0	0	0
	Other Tracts	1,555	868	651	36
Eversource	Distressed Tracts	0	0	0	0
	Other Tracts	12,528	4,976	87	7,465

In 2019, a total of 14,083 customers participated in the HES-IE program which were all located in non-distressed census tracts.

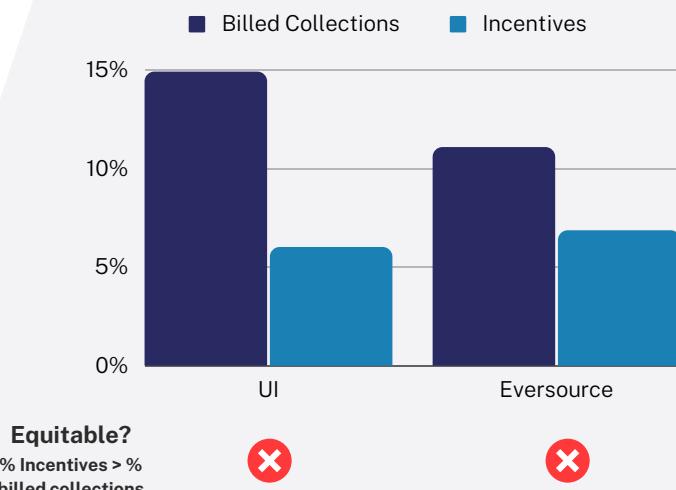
**Distressed Tracts | Home Energy Solutions Income-Eligible Customers
2019 C&LM Funding Distribution**



**For the HES-IE program,
equitable distribution was
not achieved in distressed
tracts.**

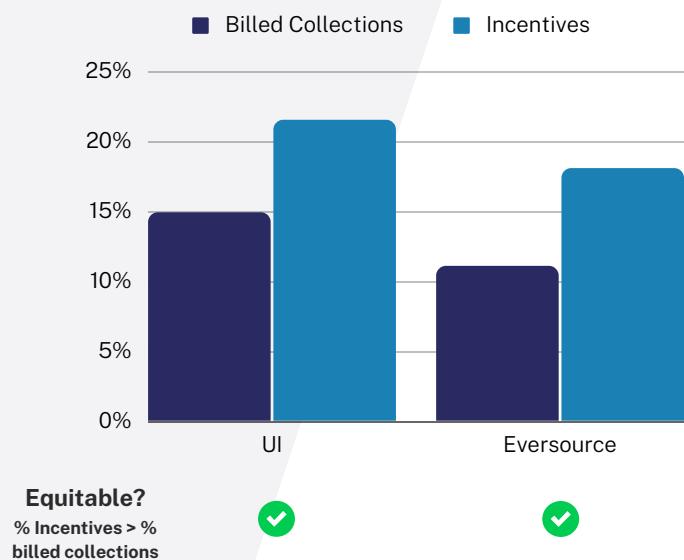
Home Energy Solutions Participation in Moderately Distressed Communities

**Moderately Distressed Tracts | Home Energy Solutions Customers
2019 C&LM Funding Distribution**



**Following the trend of
distressed census
tracts, equitable
distribution was not
achieved for moderately
distressed tracts for
both Companies for the
HES program.**

Moderately Distressed Tracts | HES-IE Customers 2019 C&LM Funding Distribution



For HES-IE, equitable distribution was achieved in moderately distressed tracts.

E3 Priority Communities

As shared in Action 2.1 of DEEP's Equitable Energy Efficiency (E3) Proceeding, this report demonstrates retrospectively and moving forward -the extent to which priority communities are served by energy efficiency programs. This included determining whether the following priority communities are underserved by energy efficiency programs.

1

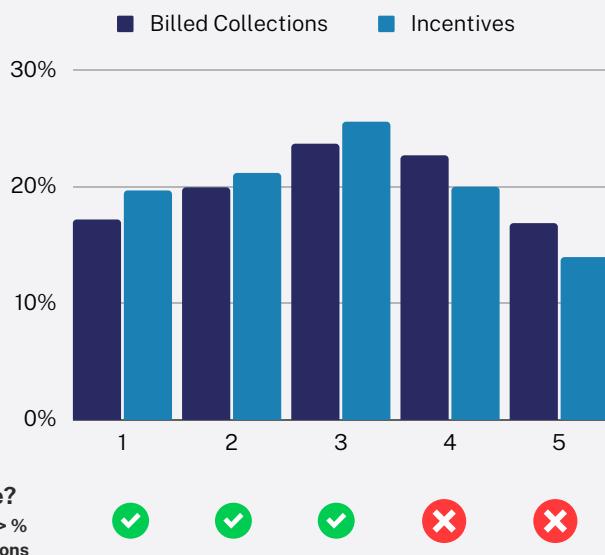
Communities of Color

Communities of color face higher exposures to environmental hazards, including air pollution and the effects of climate change, than other communities. Therefore, it is important to assess the extent to which communities of color benefit from programs like those contained in the C&LM Plan. Other jurisdictions, notably the Energy Trust of Oregon, have developed models for assessing the equitable distribution of energy efficiency funds specifically to communities of color.^[3] This report borrows from the Energy Trust of Oregon's methodology, using census data to assess the distribution of funds to communities of color in Connecticut.

[3] See Energy Trust of Oregon, 2018 Diversity, Equity, and Inclusion Data and Baseline Analysis, available [here](#)

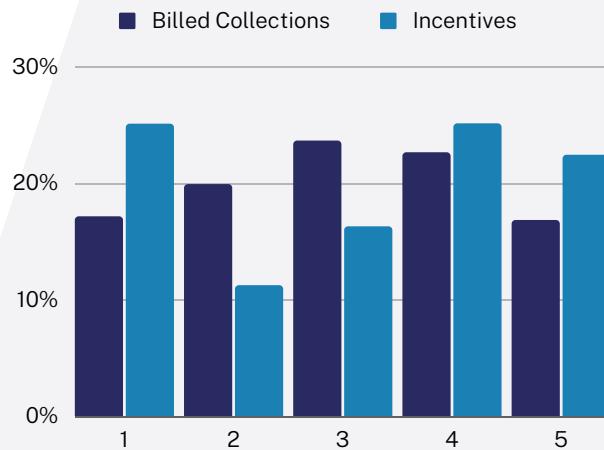
Communities of Color | Home Energy Solutions Customers 2019 C&LM Funding Distribution

Equitable distribution was achieved in some quintiles and not in others. For the HES program, funds were equitably distributed in quintiles 1-3, but not 4 or 5, which include the most racially diverse areas of the state – though index 4 is close to being equitable.



Communities of Color | Home Energy Solutions Customers 2019 C&LM Funding Distribution

Equitable?
% Incentives > %
billed collections



For the HES-IE program, nearly the opposite is true; equitable distribution was achieved in quintiles 4, 5, and 1, but not in 2 and 3.

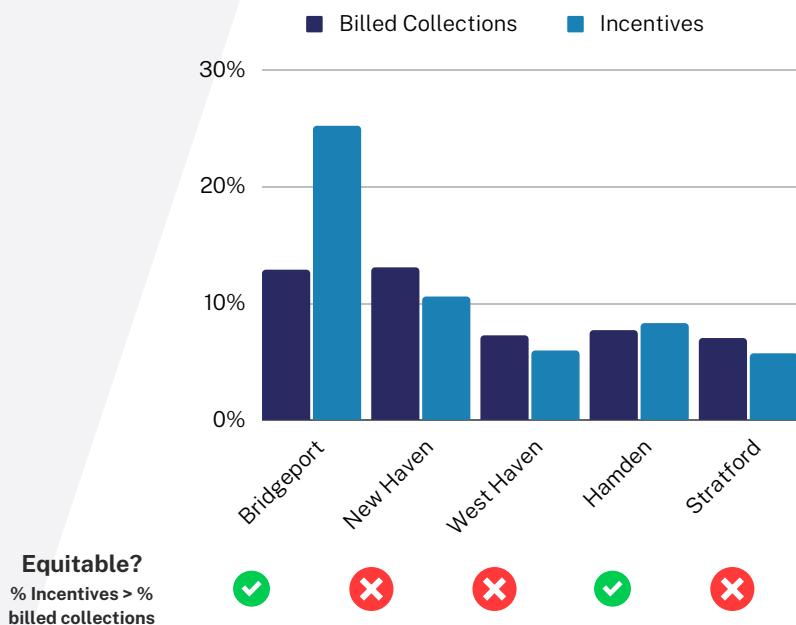
2

Areas with high rates of utility shutoffs/arrearages

Customers who are in arrears or at risk of utility shutoffs stand to benefit the most from energy efficiency programs. Additionally, reducing the number of customers in arrears benefits all customers, as these costs are distributed among all ratepayers. The utilities have identified communities that face the highest rates of arrearages and utility shutoff through other dockets before the Public Utilities Regulatory Authority (PURA). This report uses those identified communities in its analysis.

2019 UI Service Area Shutoffs		Number of Shutoffs	Number of HES/HES-IE homes
UI	Bridgeport	16,799	899
	New Haven	11,218	593
	West Haven	4,133	269
	Hamden	3,468	426
	Stratford	3,207	406

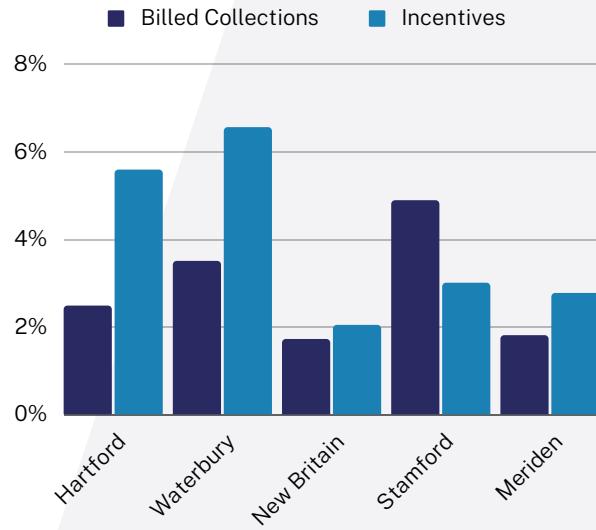
**UI Service Areas with High Rates of Shutoffs | Home Energy Solutions Customers
2019 C&LM Funding Distribution**



In 2019, the top 5 towns for utility shutoffs/arrearages in UI's service territory were Bridgeport, New Haven, West Haven, Hamden, and Stratford. Of this list, only Bridgeport and Hamden saw incentives return that were higher than collected funds.

2019 Eversource Service Area Shutoffs		Number of Shutoffs	Number of HES/HES-IE homes
Eversource	Hartford	10,445	2,043
	Waterbury	8,219	2,478
	New Britain	4,786	1,493
	Stamford	3,603	1,832
	Meriden	3,174	758

Eversource Service Areas with High Rates of Shutoffs | Home Energy Solutions Customers 2019 C&LM Funding Distribution



Equitable?
% Incentives > %
billed collections



In 2019, the top 5 towns for utility shutoffs/arrearages in Eversource's service territory were Hartford, Waterbury, New Britain, Stamford, and Meriden. Of this list, all towns except Stamford saw incentives return that were higher than collected funds.

Overall, the towns with the greatest number of shutoffs are generally receiving more in incentives than funds that were collected.

3

Households with energy burdens greater than 6%

Energy burden is a measure of total household income that is spent on energy bills, and an energy-burden of 6% is a commonly accepted threshold for affordability.[4] This is based on the assumption that affordable housing costs should total no more than 30% of household income and energy costs should be no more than 20% of housing costs.[5] While Connecticut has an average energy burden of 3%, there are 106 census tracts statewide with average energy burdens of 6% or higher.[6]

[4] See for instance, ACEEE, Understanding Energy Affordability, available [here](#)

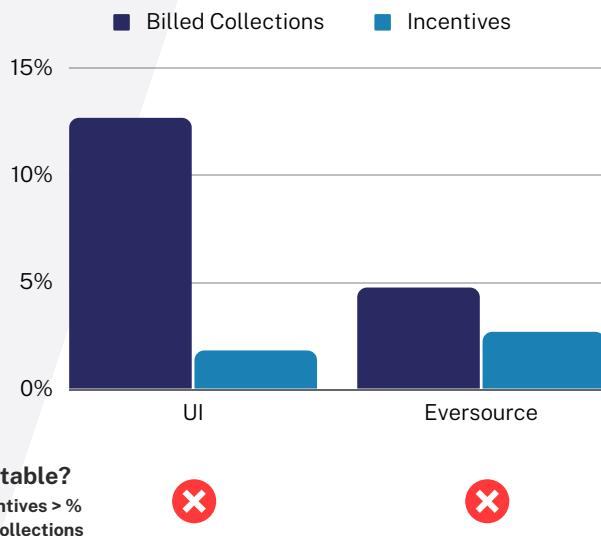
[5] See Fisher, Sheehan & Colton, Home Energy Affordability Gap, available [here](#)

[6] See U.S. Department of Energy Low Income Energy Affordability Data (LEAD) tool, available [here](#)

2019 HES Participation		Number of Homes
UI	Energy Burdened	138
	Non-Energy Burdened	2,812
Eversource	Energy Burdened	599
	Non-Energy Burdened	17,088

Energy Burdened Tracts | Home Energy Solutions Customers

2019 C&LM Funding Distribution



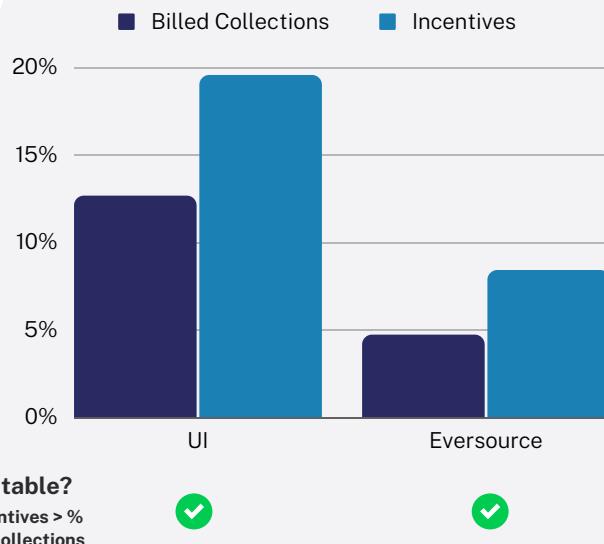
Overall, 3.57% of homes that participated in HES are in energy-burdened census tracts whereas 96.33% of homes are in non-energy-burdened census tracts.

Further broken down, 4.68% of UI's HES participants were in energy-burdened census tracts and 3.38% of Eversource's HES participants were in energy-burdened census tracts. For the HES program, equitable distribution was not achieved in energy burdened census tracts for both Companies.

2019 HES-IE Participation		Number of Homes
UI	Energy Burdened	535
	Non-Energy Burdened	1,020
Eversource	Energy Burdened	1,538
	Non-Energy Burdened	10,983



**Energy Burdened Tracts | Home Energy Solutions Customers
2019 C&LM Funding Distribution**



Overall, 14.72% of homes that participated in HES-IE are in energy-burdened census tracts whereas 85.23% of homes are in non-energy-burdened census tracts.

Further broken down, 34.41% of UI's HES-IE participants were in energy-burdened census tracts and 12.28% of Eversource's HES-IE participants were in energy-burdened census tracts. For the HES-IE program, incentives were higher than collections in energy burdened census tracts for both Companies.

/ Secondary Equity Metrics



/ 01 Matching Payment Plan/Hardship Customer Participation

The 2021 C&LM Plan Update [7] required the utilities to develop secondary equity metrics, the first which involves tracking 2021 participation in HES and HES-IE among hardship customers with the goal of achieving 2.1% participation in this customer group. This metric recognizes Connecticut's significant energy affordability challenge and aims to relieve some of the most burdened ratepayers. The 2022-2024 C&LM Plan, which was filed by the utilities with DEEP on November 1, 2021 includes an updated 2021 secondary residential equity metric that accounts for all hardship customers. [8]

DEEP will start including this equity metric in 2021.

/ 02 E3B Metric

The University of Michigan's Energy Efficiency Equity baseline (E3b) metric estimates equitable utility investment in proportion to the low-income population in a service territory and as a percentage of the total residential energy efficiency investment portfolio. [9]

	2019 Eversource	2019 UI	2019 Statewide
Goal E3b Investment	\$15,724,367	\$3,765,744	\$28,659,327
Actual low-income Investment	\$15,971,230	\$4,251,647	\$31,476,299
E3b Achieved	102%	113%	110%



[7] See DEEP Determination, Approval with Conditions of the 2021 Plan Update to the 2019-2021 Conservation and Load Management Plan, and Approval of the 2020 PMI Adjustment Pro-Ration Modified Approach, March 4, 2021, available [here](#)

[8] See 2022-2024 Conservation and Load Management Plan, November 1, 2021, available [here](#)

[9] See University of Michigan, A Multi-State Analysis of Equity in Utility-Sponsored Energy Efficiency Investments for Residential Electric Customers, April 2019, available [here](#)