Erie County Low-Income Program for Sustainable Energy

(ECLIPSE)

LMI Existing Programs and Opportunities Report:

Addressing Energy Burden in Erie County

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Pace Energy and Climate Center
Craig Hart
Emma Lagle

Hallmark Planning & Development
Arthur Hall
Deeksha Nagaraj

Urban Fruits & Veggies
Rachel Grandit
Marilyn Rodgers
Allison DeHonney

Heart of the City Neighborhoods
Stephanie Simeon

Erie County Department of Environment & Planning
Nolan Kukla

Foreword and Executive Summary

With support from the New York State Energy Research & Development Authority (NYSERDA), Erie County launched the Erie County Low-Income Program for Sustainable Energy (ECLIPSE) to expand access to renewable energy and to lower the energy burden for low- to moderate-income households. Erie County through ECLIPSE seeks to provide low- and moderate-income households with guaranteed savings to consumers in their monthly electricity bills.

ECLIPSE will establish community energy programs to promote development and delivery of the benefits of solar energy to Erie County's low- and moderate-income households at reduced cost. A community energy program is defined broadly to include an opt-in or out-out community choice aggregation for delivery of energy supply or community distributed generation credits (a.k.a., community solar), and/or an opt-in community distributed program outside of a community choice aggregation. ECLIPSE may deliver additional energy programs, such as energy efficiency services. ECLIPSE's design and implementation should reflect the goal of achieving equitable outcomes for Erie County residents in sharing in those opportunities.

ECLIPSE is both timely and important. Utility bills for electricity and home heating represent a significant portion Erie County household income. At the time of writing of this report, inflation of the price of fuels, electricity, food, and other essentials is further straining low- and middle-income households. For the most vulnerable, utility bills contribute to poverty, and potentially even homelessness.

This report is one of two assessments conducted to inform the development of ECLIPSE. This report is intended to be used by Erie County leadership and staff in evaluating options for designing ECLIPSE, and by community stakeholders to engage with Erie County to help shape the design and implementation of the program, including by integrating ECLIPSE with the delivery of other government services. The second report focuses on possible program paths for implementing community energy programs as part of ECLIPSE.

Pursuant to NYSERDA's requirements in developing the ECLIPSE program, this report addresses four objectives:

- Clearly defining "low-income" for purposes of determining ECLPSE program eligibility.
- Outlining current local, state, and federal energy and health related service programs policies, delivery, and uptake for low- to moderate-income (LMI) communities.
- Assessing current gaps and opportunities for integration of existing programs with ECLIPSE.
- Recommendations for integration of energy efficiency and renewable energy strategies, such as community solar, into existing programs.

Section 1 of this report summarizes the status of energy burden in Erie County, explaining the need for ECLIPSE.

Section 2 of this report evaluates program eligibility criteria based on household income and makes recommendations concerning adoption of a primary eligibility dataset to operationalize the definition of low-income based on established government program criteria.

With respect to the remaining report objectives, Section 2 further considers how ECLIPSE can integrate with Erie County's social support programs in serving LMI communities. Towards this

goal, the report explored other programs serving LMI communities within Erie County to inform the ECLIPSE program design. The LMI programs examined include the utility Energy Assistance Program (EAP), the Home Energy Assistance Program (HEAP), and Community Development Block Grant (CDBG).

In additional to these objectives, this report also addresses ECLIPSE program benchmarks. The benchmark analysis also informs ECLIPSE program design, which will be further addressed in a separate assessment of ECLIPSE design options conducted by Pace Energy and Climate Center together with Sustainable Westchester, an association of Westchester County municipalities that pioneered the first community choice aggregation program in New York State.

To support those objectives, this report is organized in three sections:

- How Erie County residents' energy burden drive the need for the ECLIPSE program;
- Evaluation of the potential to integrate ECLIPSE with existing Erie County energy assistance programs to more effectively and efficiently counter energy poverty in Erie County; and
- Identification of potential performance indicators to benchmark the ECLIPSE program to ensure it is effective in serving Erie County low- and moderate-income households. Performance indicators will be essential for Erie County and community stakeholders to evaluate ECLIPSE performance to improve and potentially expand the program.

Recommendations

This report makes recommendations concerning community energy programs that can serve LMI communities under New York State law and regulation. These community energy programs contemplate offering community distributed generation (CDG) credits on an opt-out basis specifically intended to guarantee cost-savings for LMI households. These community energy programs may further include opt-in community solar programs that can be designed to prioritize LMI households.

In relation to these programs, this report makes the following recommendations:

Program Eligibility. The report recommends that ECLIPSE eligibility criteria should initially be based on household income based both on legal considerations and practical considerations of data availability. As New York State progresses in defining "Disadvantaged Communities" under the Climate Leadership and Community Protection Act, ECLIPSE might consider adopting this definition as part of its eligibility criteria.

Primary Eligibility Dataset. Implementing ECLIPSE based on household income requires a reliable, updated and legally compliant dataset to identify eligible households. This report recommends that ECLIPSE adopt a single, comprehensive government dataset to determine program eligibility. Based on these criteria, if the PSC approves opt-out CDG, the report recommends the Energy Assistance Program (EAP) should be adopted as the primary eligibility dataset because it is the most comprehensive dataset available, subsuming other datasets, it incorporates household self-enrollment data, and it offers a New York Public Service Commission-governed path for improvement and expansion. If not approved, the report recommends that the Home Energy Assistance Program (HEAP) should be adopted as the

primary eligibility data set because the EAP dataset would be unavailable, and the HEAP dataset is the next most comprehensive dataset. The primary eligibility dataset can be supplemented by other government and community datasets as a check to validate the EAP primary eligibility dataset is rendering results consistent with ECLIPSE objectives.

Benchmarking ECLIPSE Outcomes. The performance of ECLIPSE will be assessed by three primary benchmarks: greenhouse gas emissions, poverty reduction, and health. This report recommends adopting benchmark metrics that are relevant to ECLIPSE goals, based on reliable data, practical to develop and maintain, responsive to community stakeholder concerns, and focused to isolate causality to the extent possible. The report identifies specific possible metrics that ECLIPSE might adopt to benchmark the program's contribution to addressing Erie County's greenhouse gas emissions, poverty reduction, and health conditions. The report recommends that additional benchmarks should be evaluated and selected based on a community consultation process.

Note on Terminology

This report uses the term "low- to moderate-income" (LMI) households or communities to refer to those Erie County residents ECLIPSE intends to support. Other terms and concepts are evaluated in the report, specifically New York State's "disadvantaged community" terminology under the Climate Leadership and Community Protection Act (CLCPA). This term, however, is not used for purposes of description because it is yet to be definitively defined and operationalized.

Our Team

To conduct this assessment, Erie County has engaged Pace Energy and Climate Center, who has engaged Hallmark Planning & Development, Heart of the City Neighborhoods, Urban Fruits & Veggies and Sustainable Westchester as partners. Prospect Hill Consulting provided support with graphics and visualization. Our partners have deep experience working with and serving Erie County and its residents, engaging significant issues ranging from community planning and development, equity in economic opportunity, food insecurity and public health. Significantly, their principals are all lifelong residents of Erie County, enriching our team with unique, local insight.

Erie County provided oversight and support in the development of this report. In particular, Erie County's Departments of Environment and Planning, Social Services, and Public Works provided critical support to this report.

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1 Erie County and Its People

This first part of this report tells the demographic story of Erie County and its people, culminating in the current experience of high household energy burden amongst its residents.

Erie County, located on New York State's western border at the eastern end of Lake Erie, covers 1,043 square miles of land[1] Erie County comprises 949,715 people and more than 400,000 households spread throughout urban, suburban, and rural communities.[2] The county consists of the two Indian reservations of Cattaraugus and Tonawanda, 25 town governments, 14 incorporated villages, and 3 cities. Buffalo, the second largest city in New York State, serves as the county seat.[3] Appendix A.1 shows Erie County municipalities categorized by urban, suburban, and rural areas.

Two major utilities – National Grid and New York State Electric & Gas (NYSEG) – provide electricity to all Erie County residents outside of the villages of Springville and Akron, which operate municipal utilities. Generally, National Grid serves Erie County's urban eastern municipalities, representing roughly three quarters of Erie County's residents, and NYSEG serves its rural western areas, with their territory boundaries splitting certain central municipalities in half.[4] National Fuel Gas Distribution Corporation provides gas services throughout Erie County, except to the towns of Alden and Lancaster which are served by the Reserve Gas Company. Appendix A.2 shows Erie County electric utility coverage.

The history of socio-economic development in Erie County is a complex story. From its apex during the Erie Canal trade and construction Niagara Fall's hydropower facilities through the height of post-World War II manufacturing, Erie County and its main metropolis – the City of Buffalo – helped drive technological innovation and economic opportunity in the Northeastern United States.[5] By the end of the 1950s, the landscape began to shift.[6]

In the later 20th-Century, once thriving factories and large manufacturers closed, jobs disappeared, and workers migrated away. Changing industry also accelerated the exodus of working-class Whites to surrounding suburbs, reinforcing longstanding practices of segregation that worked to consolidate minority communities within denser urban cities. This exodus deepened poverty in both urban and rural settings, although of distinct racial communities. The result is a modern Erie County with LMI communities spread throughout its rural, suburban, and urban regions, all heavily burdened by high and rising energy rates.

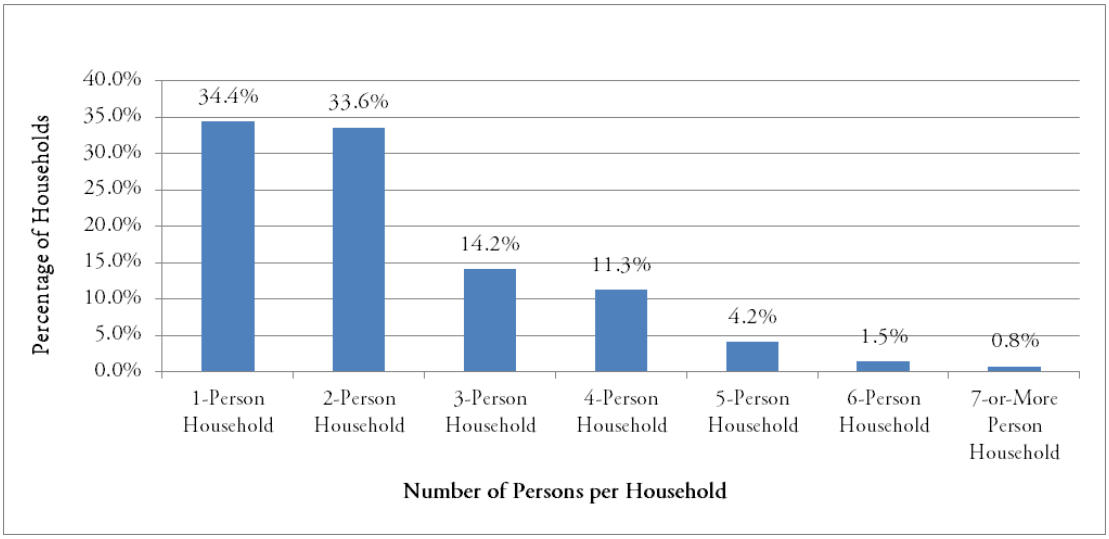
1.1 Energy Burden

[1] ACS2021_5yr. (A00002_03): Area (Land).
[2] ACS2021_5yr. (A00001): Total Population. The ACS provides two alternative figures for total households: 412,870 (ACS2021) and 403,064 (ACS2021_5yr.) (A10008): Households by Household Type.
[3] NYS, *Greater Niagara – Erie County*, https://www.ny.gov/counties/erie#:~:text=Erie%20County%20is%20a%20metropolitan,largest%20city%20in%20the%20State.
[4] NYSEG, *Municipalities in Service Territory by County*, https://www.nyseg.com/documents/40132/5890332/PSC120Section_1.pdf/41355a45-cfdd-d258-43ab-105e05615921.
[5] Steve Cichon (2010) "Made in Buffalo, 1951: Manufacturing in Buffalo from Fortune Magazine", *Buffalo Stories Archive and Blog,* http://blog.buffalostories.com/made-in-buffalo-1951-manufacturing-in-buffalo-from-fortune-magazine/.
[6] Carmen J. Bartolotta (2011) "The Decline of Buffalo, New York in the Postwar Era: Causes, Effects, and Proposed Solutions", History Theses. 4. https://digitalcommons.buffalostate.edu/history_theses/4

Low-to-moderate income (LMI) households, whether located in dense urban areas or widespread rural communities, all experience persistently high energy burdens.

For this Report, low-to-moderate (LMI) households are all households that earn up to 60% of State Median Income (60% of SMI) for the household's size.[7] The average household size in Erie County is 2.3 people, so 60% of SMI for households of two people is utilized for the present discussion.[8] Based on recent U.S. Census data, statewide median income in New York is $75,157, and 60% of SMI equals about $45,000 for a 2-person household.[9]

Figure 1: Household Type by Household Size



Source: American Community Survey 2021

Energy burden describes the percentage of income a household spends on its energy bills and is best understood in the context of the housing affordability crisis.[10]

A household is **rent burdened** (for renters) or **owner cost burdened** (for owners) when residents pay between 30 to 49 percent of their monthly income towards gross rent or monthly owner costs. Any household that pays more than 50 percent of their income towards rent or owner costs is considered **severely rent burdened** or **severely owner cost burdened**. Energy burden is a key contributor to total rent or owner-cost burdens, as energy-related expenses for space heating, space cooling, and cooking continue to increase every year.[11]

[7] The 60% of SMI threshold determines household eligibility for such existing energy cost reduction programs as the federal Low-Income Home Energy Assistance Program (LIHEAP) and utility Energy Affordability Programs (EAP), discussed further in Chapter 2.
[8] ACS2021_5yr. (A10003): Average Household Size.
[9] ACS2021_5yr. (A14006): Median Household Income (In 2021 Inflation Adjusted Dollars).
[10] Drehobl, Ross, & Ayala (2020) "An Assessment of National and Metropolitan Energy Burden across the United States", *American Council for an Energy Efficient Economy*, https://www.aceee.org/sites/default/files/pdfs/u2006.pdf; Drehobl & Ross (2016) "Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities", *ACEEE*, https://www.aceee.org/research-report/u1602.
[11] The ACS defines both rent burden and owner cost burden to include utility payments, including electricity costs. ACS defines "gross rent" as "the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) …" if paid by the renter or someone on the renter's behalf. Similarly, "monthly owner costs" considered in the ACS includes "the sum of payments for mortgages, deeds of trust, contracts to purchase, or similar debts on the property…; real estate taxes; …insurance on the property; [and] utilities …". See Documentation: ACS

In its May 2016 *Order Adopting Low Income Program Modifications and Directing Utility Filings* (Low Income Order), the New York State Public Service Commission (NYS PSC) established that energy bills for LMI households should not exceed 6% of household income.[12] Energy burden above 6% of household income is generally considered high, while severe energy burden describes households with energy costs above 10% of total income.[13]

Despite longstanding government and utility programs meant to reduce energy-related costs for LMI households, many require further assistance.[14]

Households that already qualify as LMI for programs like the Weatherization Assistance Program (WAP) and the Low-Income Home Energy Assistance Program (LIHEAP) continue to face difficult choices about prioritizing their limited budgets.[15] The lower a household's income, the higher the percentage of that income is spent on housing and energy costs. As energy prices rise and utility bills consume greater shares of household budgets, LMI households must choose between paying their housing costs and other necessities, such as food, transportation, healthcare, medicine, and childcare.[16]

Households unable to afford electricity and heat are vulnerable from a safety and well-being perspective. People need electricity for physical safety, food security, water, medical care, and telecommunications. Power shutoffs prevent medical device use and cause food and medications to spoil. Water can become contaminated and without charged phones and computers, maintaining employment and access to support services become greater struggles.[17]

When energy bills go unpaid, households accumulate utility debt and eventually face shutoffs. Utility arrears can damage credit scores, which prevents people from obtaining loans. If unable to access credit, people may turn to payday loans and can become trapped in a perpetual cycle of poverty.

During the COVID-19 pandemic, New York passed one of the country's most ambitious COVID-related shutoff moratoriums.[18] Essentially no shutoffs occurred during the moratorium, which ended in 2021**.** Despite statutory protections for New Yorkers with medical emergencies, the elderly, blind and disabled, and a continuing moratorium during the winter months from November 1 to April 15, New York utilities implemented 41,235 disconnections in the first 10

2021 (5-Year Estimates: Subject Definitions), https://www.socialexplorer.com/data/ACS2021_5yr/documentation/325d015f-7128-4d47-85c5-db6072253de9#cb1d3428-abca-440a-a830-a34d944089f9.

[12] NY PSC Case 14-M-0565, *Low Income Order* at 7-8 (Issued & effective May 20, 2016).

[13] *Id*.

[14] See Marilyn Brown et al. (2020) "High Energy Burden and Low-Income Energy Affordability: Conclusions from a Literature Review", *Prog. Energy* 2, 042003, https://iopscience.iop.org/article/10.1088/2516-1083/abb954/pdf; and Fisher, Sheehan & Colton (2022) "New York 2021 HEAG Fact Sheet", http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html.

[15] The WAP and LIHEAP programs created by the U.S. Congress in the 1970s are discussed further in Chapter 2.

[16] Bell et al. (2023) "Powerless in the United States: How Utilities Drive Shutoffs and Energy Injustice", *Center for Biological Diversity* at 16, https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Powerless-in-the-US_Report.pdf.

[17] *Id*.

[18] *Id*.

months of 2022 alone.[19] Following the COVID-19 pandemic, New York State forgave $672 million of unpaid electric and gas utility bills for almost half a million residential customers.[20]

Existing sources of energy assistance available to Erie County residents do not adequately address the worsening crisis of home energy affordability. According to a 2021 Home Energy Affordability Gap (HEAG) Analysis for New York State, with over 1.6 million households statewide earning less than 150 percent of the federal poverty level (150% of FPL),[21] the $339.7 million allocated to New York State by LIHEAP applied to just 297,489 utility accounts for LMI residents statewide.[22]

The need of Erie County's LMI households for the cost saving benefits of ECLIPSE is evident.

1.1.1 Energy Burden for LMI Households

When energy burden is considered for LMI households, the average energy burden of LMI households making up to 60% of SMI reveals the dire need for the cost saving benefits of ECLIPSE.

Nationally, LMI households "spend three times more of their income on energy costs compared to the median spending of non-low-income households."[23] LMI household energy burdens are much higher than the national average; consequently, LMI households spend approximately 8.1% of income on energy, whereas the average household spends only 2.3% of income on energy. [24]

Average energy burden of all households in Erie County are comparable to or higher than national averages. The federal Department of Energy's (DOE) Low-Income Energy Affordability Data (LEAD) Tool lists Erie County's average energy burden for gas and electricity as 2%.[25] Buffalo State University estimates energy burden values for all Erie County census tracts at 5.5% of income based on the raw data, using individual-level 2018 PUMS census data.[26]

This data suggests that the average or median energy burden for Erie County households for all earning levels likely falls between 2% to 5.5% of income, and may or may not be higher than the statewide average or median of 3%.

For purposes of evaluating Erie County energy burden and the need for policies and programs to alleviate energy burden, one must analyze energy burden for low- to middle-income cohorts. Average or median energy burden rates for residents calculated over all income levels masks the high energy burden experienced by LMI households. Energy burden therefore should be evaluated specifically for low- to moderate-income households only, and not on averaged data that includes high-income households in the average.

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[19] *Id.*, citing NYS DPS, *COVID-19 Moratorium on Utility and Municipal Shutoffs* (last updated Dec. 29, 2021); N.Y. Pub. Serv. § 32.
[20] Reuters (2023) New York State to forgive $672 million of overdue gas, electric bills. January 19. Available at: https://www.reuters.com/world/us/new-york-state-forgive-672-million-overdue-gas-electric-bills-2023-01-19/ (accessed April 12, 2023).
[21] Equal to $26,130 (2-person household), or the bottom 64% of LMI-eligible incomes using a 60% of SMI threshold.
[22] New York 2021 HEAP Fact Sheet at 2.
[23] Drehobl, Ross, & Ayala (2020) at iii.
[24] *Id.*
[25] US DOE, *Low-Income Energy Affordability Data (LEAD) Tool*, https://www.energy.gov/scep/slsc/lead-tool.
[26] Greenlink Analytics (GLA) Raw Energy Burden Data (on file with Erie County).

Based on U.S. Department of Energy LEAD data, Erie County households making between 30-60% of SMI have an average energy burden of 6%. Households earning between 0-30% of SMI spend an average of 17% of income on energy bills, far greater than the statewide average.[27]

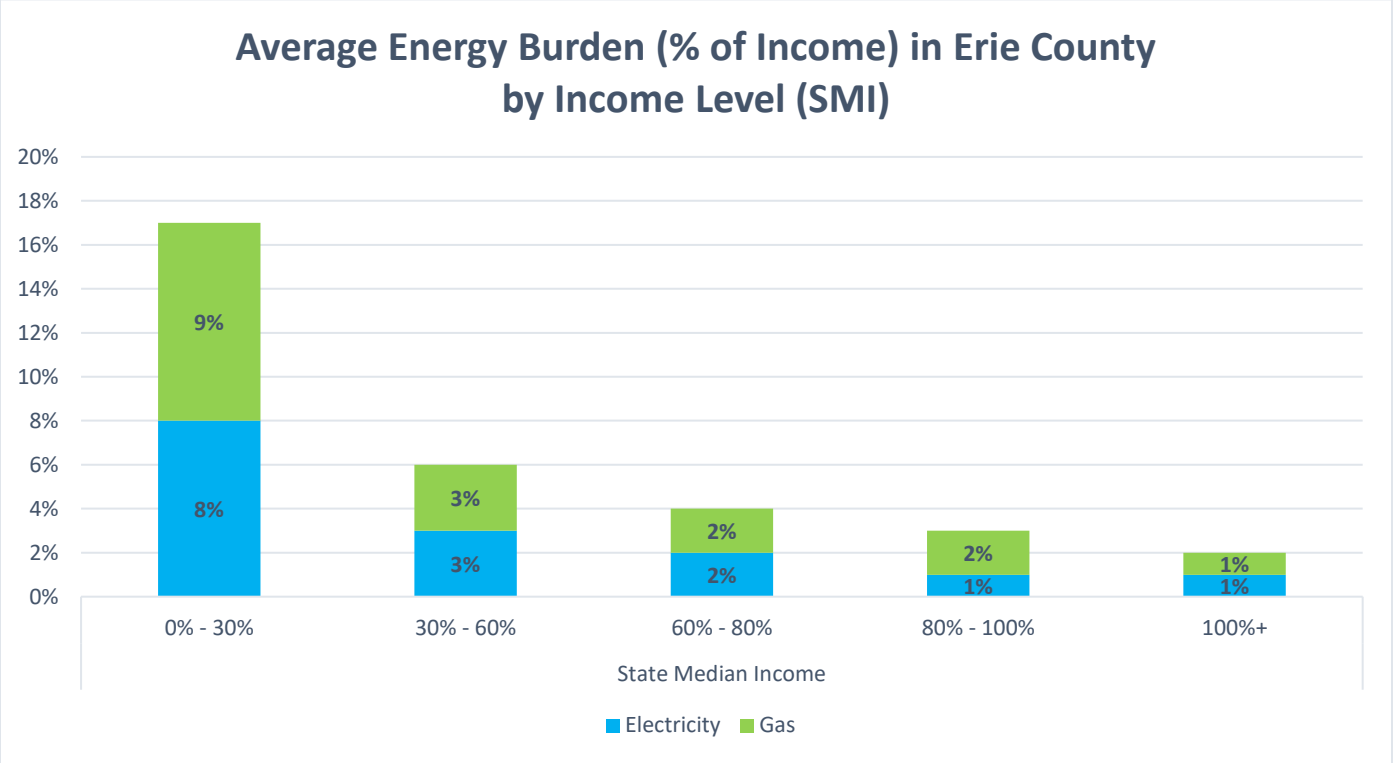
The 2021 Home Energy Affordability Gap (HEAG) Analysis for New York State assessed every county's average household energy burden by income bracket,[28] with a maximum income of 200% of federal poverty level (200% of FPL) in 2021.[29] The average energy burden rate in Erie County was comparable to the statewide average and the reported averages in other highly populated counties (New York, Queens, Kings, and Bronx) for each income bracket. Importantly, the average energy burden for Erie County households in each income bracket sits above 6% of income, with the average energy burden for households earning between 185-200% of FPL reported as 7.3% in 2021.[30]

LEAD and HEAG both confirm energy burden for LMI households in Erie County is significant, with small differences in estimates due to data sources, measurement criteria (SMI, FPL), and methodologies. Both LEAD and HEAG confirm the need for enhancing support programs to meet energy costs among LMI households.

[27] US DOE, *Low-Income Energy Affordability Data (LEAD) Tool*, https://www.energy.gov/scep/slsc/lead-tool.
[28] Fisher, Sheehan & Colton (2022) "New York HEAG2021 XL Detail", http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html. The six income brackets are (i) less than 50% of FPL; (ii) 50-99% of FPL; (iii) 100-124% of FPL; (iv) 125-149% of FPL; (v) 150-184% of FPL; and (vi) 185-200% of FPL.
[29] 200% of FPL in 2021 equaled an annual income of $36,465.80 for a household of 2, while 60% of SMI for HEAP qualification was $40,954 for the same year and household size. See US DHHS, *Federal Poverty Level (FPL)*, https://www.healthcare.gov/glossary/federal-poverty-level-fpl/, and *State Median Income (SMI) by Household Size for Mandatory Use in LIHEAP for FFY 2021*, https://www.acf.hhs.gov/sites/default/files/documents/ocs/comm_liheap_im2002smiattachment_fy2021.pdf.
[30] New York HEAG 2021 XL Detail (2022).

Figure *2* shows DOE LEAD estimates for Erie County energy burden among LMI cohorts relative to New York State-specific SMI.

Figure 2: Average Energy Burden in Erie County by Income Level (SMI)



Source: US DOE LEAD Tool

1.2 Erie County Vulnerable Populations

Certain households, groups, and communities are more susceptible to high energy burdens.[31] The following attributes are correlated with high energy burden:

- Low-Income/Poverty
- Race and Ethnicity
- Rural LMI Communities
- Renters
- Housing Age and Type
- Age
    - Older adults (65+)
    - Young Children (Under 10)

In the following section, the presence of each characteristic within Erie County is analyzed and areas – municipalities and census tracts – with elevated vulnerability are identified and discussed.

[31] Bell et al. (2023); Drehobl, Ross, & Ayala (2020) at iv.

1.2.1 Low-Income/Poverty

Income is the strongest indicator of high or severe energy burden, and energy burdens are intrinsically related to deep cycles of poverty.[32] Households with histories of energy burden are twice as likely to transition into poverty and 60% more likely to transition within 200% of FPL.[33]

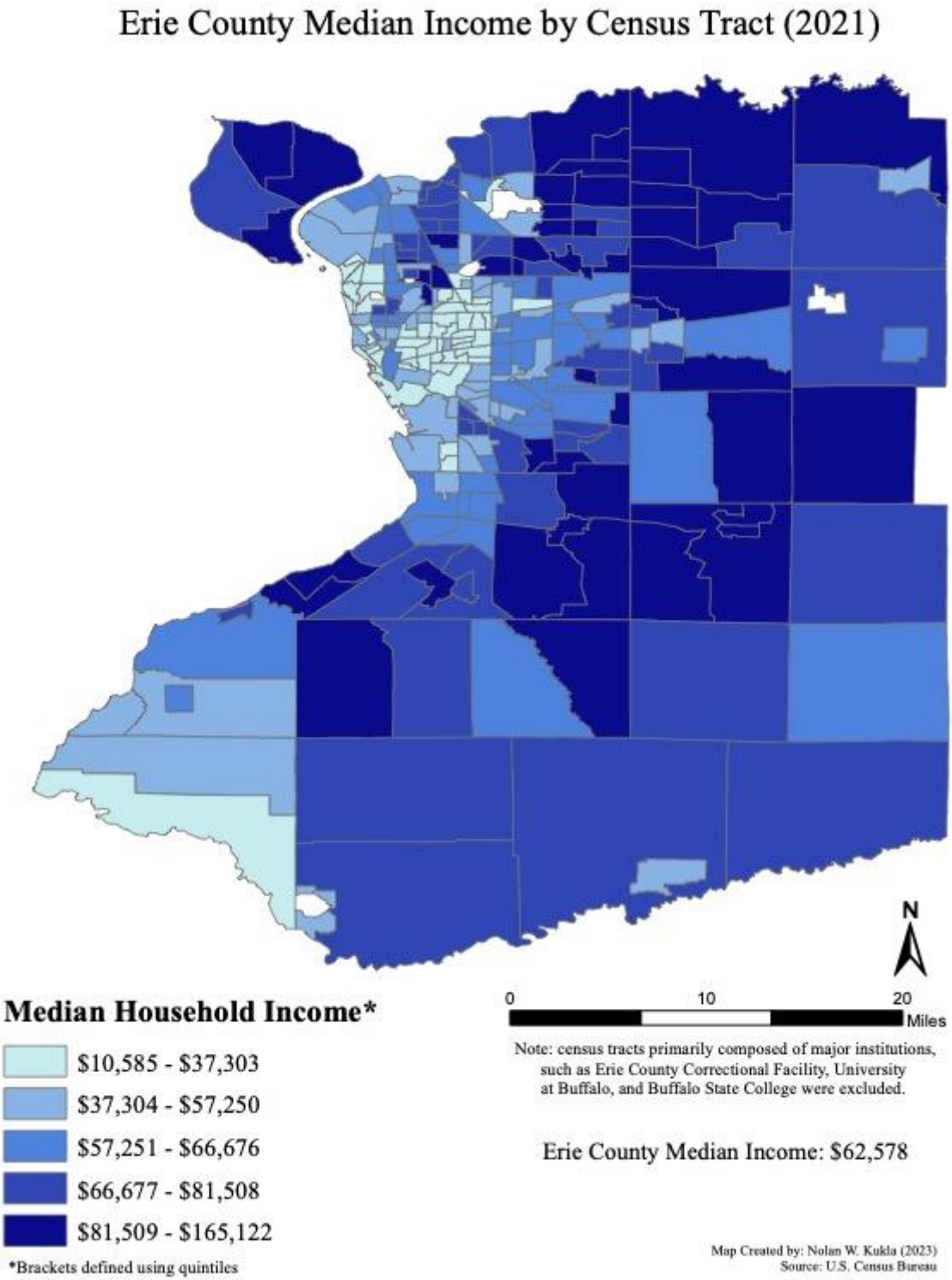
Based on U.S. census data, the median income for a 2-person household in Erie County of $62,578 is $12,579 less than the statewide median income of $75,157.[34] This means that Erie County households will fall at or below 60% of SMI with greater frequency than households in counties with median income at or above the statewide level. As demonstrated in Figure *3*, median household income generally trends lower in urban areas, peaks in surrounding suburbs, and decreases again in peripheral rural communities, with some exceptions in each community-type.

As with energy burden rates, an area's median income does not tell the whole story of household income and poverty, particularly for LMI households who earn less than the median. While urban households in Erie County do generally earn less than their suburban and rural counterparts, pockets of LMI households exist in rural and suburban communities as well.[35]

According to the Economic Policy Institute's Family Budget Calculator, a 2-person household in Erie County (1 parent and 1 child) must budget $4,830 per month, or $57,960 per year, to "secure a modest yet adequate standard of living."[36] Based on the median incomes presented in Figure *3* for the county and by census tract, many Erie County households cannot afford the EPI budget. The 60% of SMI threshold to qualifying as LMI is approximately $45,000, or $13,000 less than the EPI's "adequate" budget. These numbers strongly indicate that LMI households throughout Erie County's urban, suburban, or rural communities struggle to pay their bills and regularly make difficult budgeting choices.

[32] *Id*.
[33] J. Bohr & A. C. McCreery (2020) "Do energy burdens contribute to economic poverty in the United States? A panel analysis", *Social Forces*, *99*(1), 155-177.
[34] ACS2021_5yr. (A14006) – Median Household Income (In 2021 Inflation Adjusted Dollars).
[35] See Section 1.2.3 for further discussion on Rural LMI Communities.
[36] Economic Policy Institute, *Family Budget Map Fact Sheet*, https://www.epi.org/resources/budget/budget-factsheets/#/1870. The EPI Budget includes estimates for housing, food, childcare, transportation, health care, taxes, and other necessities.

Figure 3: Median Income by Census Tract

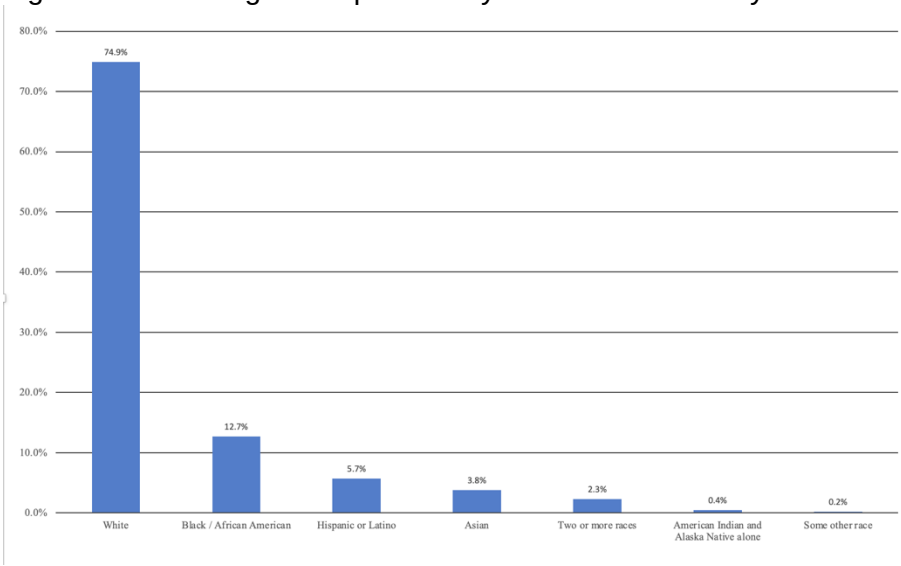


1.2.2 Race and Ethnicity

Existing energy burden and utility disconnection research regularly report that Black, Hispanic, and Native American households experience higher energy burden and disconnection rates than White households.[37] According to ACEEE, national median energy burden for Black households is 43% higher than for non-Hispanic White households (4.2% versus 2.9%), while the median energy burden for Hispanic households is 20% higher than that for non-Hispanic White households (3.5% versus 2.9%).”[38]

Within Erie County, 75% of the population are non-Hispanic White. Black residents are the next largest group, with 13% of the population, followed by Hispanic (almost 6%), and a growing Asian community currently stands at 3.8% of the county’s population.[39]

Figure 4: Percentage of Population by Race in Erie County



Source: American Community Survey 2021

The highest concentrations of Black, Hispanic, and Asian American populations reside in the City of Buffalo and immediately contiguous urban and suburban communities.[40] Within Buffalo, 32% (89,189 of 276,011 residents) of the population is Black, 12% (33,567 residents) are Hispanic, and 7% (18,470 residents) are Asian.[41] Whites comprise the largest group within Buffalo’s population at 45% (123,255 of residents), but represent a smaller segment in Buffalo than in the other Erie County municipalities.[42]

When these statistics are compared with the median income by census tract data in Figure *3*, urban census tracts and municipalities with large minority populations are generally those with low median incomes. As discussed above, low-income correlates to high poverty rates and higher energy burdens. Additionally, housing structures in these urban areas tend to be older

[37] Bell et al. (2023), citing Drehobl, Ross, & Ayala (2020); Energy Burdens in Rochester (2020).
[38] *Id*.
[39] ACS2020_5yr. (A03001): Race.
[40] *Id*.; also see Indiana Business Research Center (2021) “USA Counties in Profile: Overview for Erie County, NY”, *StatsAmerica,* https://www.statsamerica.org/USCP/.
[41] ACS2021_5yr. (A03001): Race.
[42] *Id*. The City of Lackawanna has the next smallest population of White residents with 73.22% (14,423 of 19,697).

single and 2-unit multifamily homes, as well as low-income multifamily buildings, all of which are housing types documented as being poorly insulated and highly energy inefficient.[43]

For these reasons, the vulnerable LMI households in Erie County's urban communities are priority beneficiaries of ECLIPSE anticipated cost-saving benefits.

1.2.3 Rural LMI Communities

Rural energy burden not only exists in New York but is higher here than elsewhere across the U.S.[44] According to ACEEE, the Mid-Atlantic's median rural energy burden of 5.1%, and low-income median rural energy burden of 9.5% are the highest in the country.[45]

Importantly, LMI households may not be identified in classifications like Community Development Block Grants, Potential Environmental Justice Areas, and New York's interim Disadvantaged Communities definitions due to rural communities having low densities of LMI households. Certain assistance programs like the federal Community Development Block Grant (CDBG) program, which provides grants to municipalities with LMI households, are meant specifically for *urban* communities. (See Section 2.3.3.2). Most of Erie County's municipal CDBG programs are in Buffalo and surrounding high density areas. Appendix A.3 shows eligible Community Development Block Grant groups in Erie County.

In addition to density, community ethnic composition also contributes to determining New York State's classification of rural LMI communities. Prior to passage of the 2019 Climate Leadership and Community Protection Act (CLCPA), the New York State Department of Environmental Conservation (NYS DEC) designated certain U.S. Census block groups as Potential Environmental Justice Areas (PEJAs).[46] To qualify as a PEJA, at least 26.28% of a rural area's population must include minorities or, alternatively, at least 22.82% of the population earns below the federal poverty level. Based on this threshold, only two rural block groups qualify as PEJAs outside of the Cattaraugus Reservation — in Angola on the Lake and another located within the Town of Collins partly in Gowanda village —both contain prisons with high numbers of minority inmates.[47]

With the CLCPA's passage, NYS' PEJAs continue to under-identify LMI households in poor rural communities from government assistance programs focused on energy and the environment. Under the CLCPA, New York State developed definitions of Disadvantaged Communities (DACs) with the intent that households that reside within DACs will receive at least 40% of funds made available under the law. The DACs definition, discussed in greater detail in Section 2.3.4.1, weights more heavily high-density areas with larger minority populations, as well as previously designated PEJAs. The DACs definition also weights other factors, such as a history of discrimination through siting of polluting infrastructure, employment opportunities, and

[43] ACS2021_5yr. (A10032): Housing Units in Structure; Drehobl, Ross, & Ayala (2020).
[44] Lauren Ross, Ariel Drehobl, & Brian Stickles (2018) "The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency", *ACEEE*, https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf; Khalil Shahyd (2018), "Rural Families Overburdened with Higher Energy Costs", *NRDC* (Blog), https://www.nrdc.org/experts/khalil-shahyd/rural-families-overburdened-higher-energy-costs.
[45] Ross, Drehobl, & Stickles (2018) at 3.
[46] NYSDEC, *Maps & Geospatial Information System (GIS) Tools for Environmental Justice*, https://www.dec.ny.gov/public/911.html.
[47] *Id*. PEJA in block group 15000US360290149041 contains the Wende Correctional Facility and PEJA in block group 15000US360290161001 contains the Collins Correctional Facility.

morbidity. As a result, only two rural census tracts in Erie County that cover areas like Angola on the Lake and Gowanda/Collins PEJAs received DAC status.[48]

Rural LMI households may also be under-registered in assistance programs like HEAP and WAP due to high transportation costs or limited use of Internet. To register for many social services, residents previously were required travel to administrative offices located in urban centers. Although these services are now accessible via online platforms, the uptake among rural LMI households still lag behind communities in urban areas, due potentially to historically limited public transportation options, limited access to reliable internet, and cultural factors that result in hesitancy to enroll in social service programs. Appendix A.4 shows the distribution of HEAP households in Erie County.

According to the Center for Neighborhood Technology's Housing and Transportation (H+T®) Affordability Index, an average household in Erie County spends 22% of their income on transportation. LMI households in rural areas spend more.[49] The average household spends 27% of income on transportation in the Town of Holland, 30% in the Town of Concord, and 29% in the Town of Newstead, all municipalities that lack public transit and rely on personal cars as the only means of transportation. In rural areas, driving distances to services and work are generally greater than in urban areas. Advocates for Erie County's rural LMI communities have long argued that lack of transportation forces rural residents to forego registering for support programs, making LMI households spread over wide areas of the county's rural communities "invisible" to providers of supportive services.[50]

Notwithstanding any potential issues of capturing rural LMI households in DACs, all households, regardless of whether they reside in a geographic DAC, qualify for public assistance from DAC funds if their income is below 60% SMI.[51] Further, other programs specifically for rural communities are funded by state and federal government.

1.2.4 Renters

Another group disproportionately energy burdened and unable to access certain clean energy and energy efficiency programs structured for property owners are renters. According to 2021 Census data, there are 140,339 renter-occupied housing units in Erie County, representing 35% of the County's 403,064 housing units. The high proportion of renters strongly suggests the need for the ECLIPSE program, as renters typically cannot access rooftop solar and have less access to other clean energy or energy efficiency programs.

Whether a housing unit is renter or owner occupied impacts the ease with which residents can access clean energy and energy efficiency opportunities. Renters cannot decide to install rooftop solar and other clean energy technologies like heat pumps without permission from

[48] *Id*. Census Tract 36029015503 Angola on the Lake CDP; and Census Tract 36029017501 Gowanda Village; NYS CJWG, *Draft List of Disadvantaged Communities*, https://climate.ny.gov/-/media/project/climate/files/Draft-List-of-Disadvantaged-Communities.pdf; NYS CJWG, *Disadvantaged Communities Criteria*, https://climate.ny.gov/resources/climate-justice-working-group/#disadvantaged-communities-map.
[49] CNT, *Housing and Transportation (H+T®) Affordability Index*, https://htaindex.cnt.org/map/#.
[50] Terra Harter (2017) "Rural Poverty in Erie County "invisible" to Many, Advocate Asserts", *WBFO-NPR,* https://www.wbfo.org/local/2017-12-15/rural-poverty-in-erie-county-invisible-to-many-advocate-asserts (quoting representatives from the Rural Outreach Center in East Aurora).
[51] NYS CJWG (2022) *New York State's Draft Disadvantaged Communities Criteria Fact Sheet*, https://climate.ny.gov/-/media/project/climate/files/LMI-dac-criteria-fact-sheet.pdf.

landlords; without owning their housing unit, renters have little economic incentive to make these capital improvements. Subsequently, NYSERDA promotes community solar as the primary means for renters to "access the economic benefits of clean energy without purchasing or installing solar panels."[52]

Nationally, 30% of renters shoulder high or severe energy burden.[53] Based on review of 25 metro areas, ACEEE determined that in almost all areas studied, renters experience higher energy burdens than owners. Further, the median energy burden of renters in these regions was 13% higher than that of owners.[54] Rentals are less energy efficient than owner-occupied units, with ACEEE finding rentals consume an average of 15% more energy per square foot.[55]

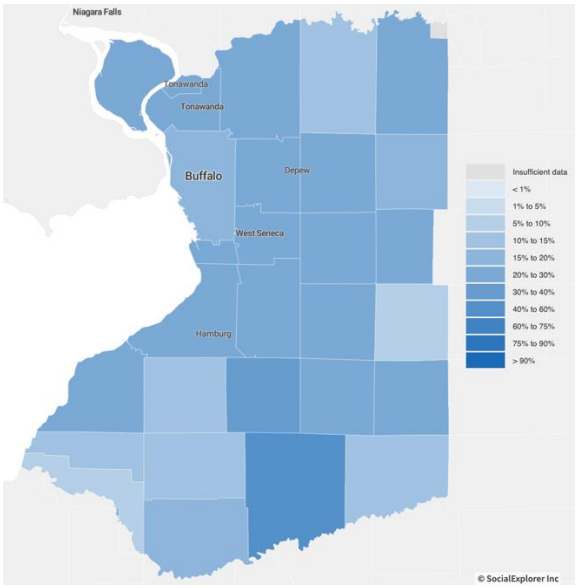
Urban census tracts generally contain higher numbers of rental units than suburban and rural tracts. The census tracts where rentals make up between 60-75% of housing units are all located within the City of Buffalo or urban environments.[56] Within these urban areas, the data shows clear overlap between low-income, large minority populations, and the presence of rental housing.[57] The map in Appendix A.5 shows the distribution of rental units in Erie County.

Comparatively, the rates of rental units increase in rural LMI communities as median income decreases. In Southern Newstead, 16%, or 278 of 1,725 occupied housing units, are rentals. In Holland, rentals comprise 19%, or 271 of 1,407 occupied housing units. Finally, in Northern Gowanda Village, 31%, or 248 of 792 occupied housing units, are rentals.[58] As discussed below, 2021 census data shows that renters throughout Erie County, whether located in rural, suburban, or urban LMI communities, are more heavily housing cost burdened than homeowners.

Monthly housing cost data together with income data provides a measure of housing affordability for renters versus homeowners. In Erie County, 46% of households that rent are rent burdened (21%, or 29,761 of 140,339 rental households) or severely rent burdened (25%, or 35,370 of 140,339 rental households). Comparatively, less than a quarter of Erie County homeowners (24%) are owner cost burdened (17%, or 44,307 of 262,725 owner occupied households) or severely owner cost burdened (7%, or 18,392 of 262,725 owner occupied households). The disproportionate housing cost burden experienced by renters correlate to a disproportionate energy burden, demonstrating the need for a community energy programs like ECLIPSE to provide renters with meaningful utility cost savings and access to clean energy production.

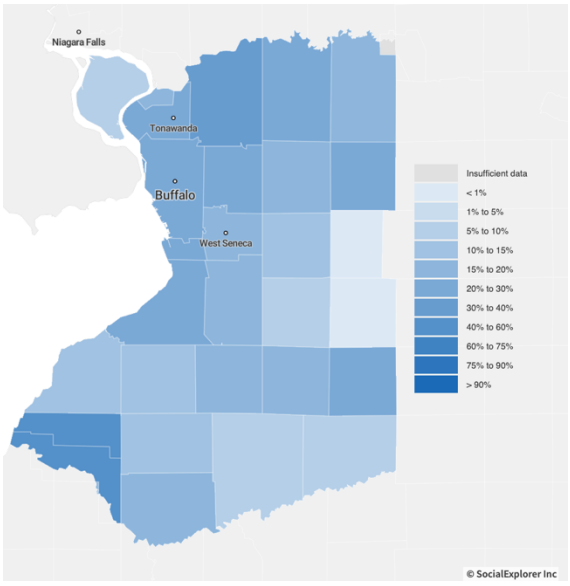
Figure 5: Rent Burden by Municipality — Households paying 30 to 49% of Income

[52] NYSERDA, *Save Energy in Your Apartment: For Renters*, https://www.nyserda.ny.gov/Residents-and-Homeowners/Save-Energy-in-Your-Apartment.
[53] Drehobl, Ross, & Ayala (2020).
[54] *Id*. at 15.
[55] ACEEE, *Energy Equity for Renters*, https://www.aceee.org/energy-equity-for-renters; NYSERDA, *Save Energy in Your Apartment: For Renters*.
[56] ACS 21_5yr (B25003): Tenure.
[57] *Id*.; ACS2021_5yr. (A14006); and ACS2020_5yr. (A03001).
[58] ACS 21_5yr (A10060): Tenure. Other rural areas with high rental occupancy include census tract 9803 (73.53% rentals), which contains the Collins Correctional Facility and immediately surrounding neighborhood, and the villages serviced by municipal electricity corporations – Akron (48,89% rentals) and Springville (33.5% rentals).



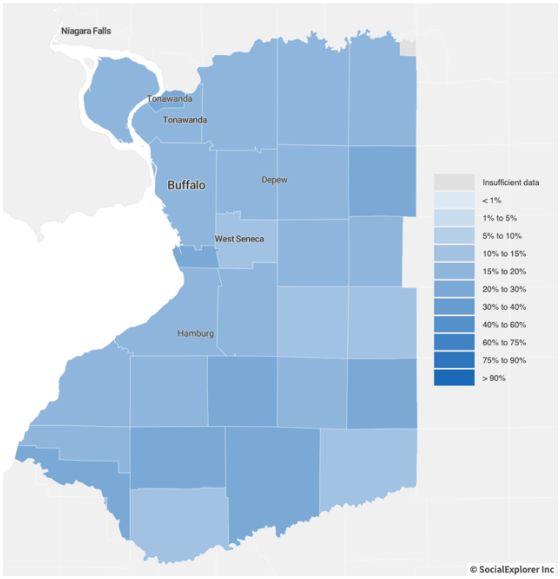
Source: American Community Survey 2021

Figure 6: Rent Burden by Municipality — Households paying 50%+ of Income



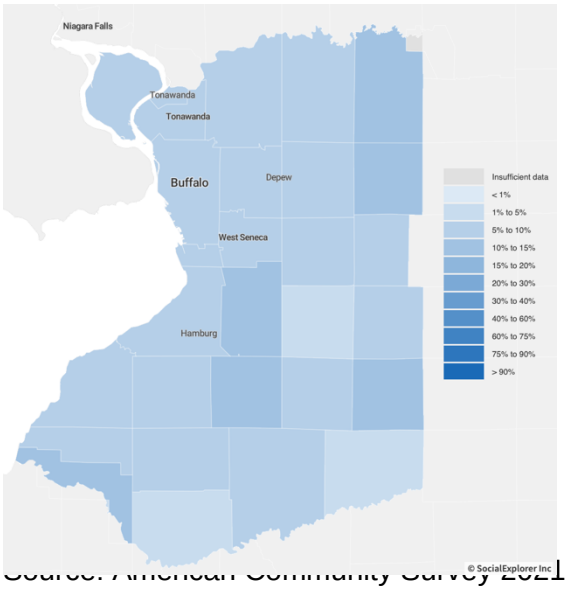
Source: American Community Survey 2021

Figure 7: Owner Cost Burden by Municipality — Homeowners paying 30 to 49 % of Income



Source: American Community Survey 2021

Figure 8: Severe Owner Cost Burden by Municipality — Homeowners paying 50%± of Income



Source: American Community Survey 2021

1.2.5 Building Characteristics

The presence of certain building characteristics have been demonstrated to increase the risk of experiencing high energy burden. Specifically, the most important physical determinants of a building's energy consumption are its age, type, and size.[59]

Various studies confirm that older homes consume more energy than newer homes, and Erie County contains many older homes.[60] The 25 metro-area study conducted by ACEEE found that in almost all U.S. regions, energy consumption of buildings built before 1980 is 21% higher than post-1980 buildings.[61]

Housing type also impacts energy consumption and certain housing types correlate with energy burden vulnerability. ACEEE's research concluded that, at the national, regional, and metro area levels, households in older buildings, low-income multifamily housing, and manufactured mobile homes experience disparately high energy burdens.[62]

Finally, single-family homes and larger housing units that require more energy to heat and cool tend to consumer more energy and at greater cost.[63] Single-family homes make up 62.16%, or 271,626 of 436,986 units) of Erie County's entire housing stock.[64] The rate of single-family homes increases further from the County's urban core, with the highest rates of single family homes located in the rural Towns of Sardinia (92%, or 1,098 of 1,194 units) and Colden (92%, or 1,179 of 1,281 units).[65] While higher income households tend to consume more energy due to living in larger, detached homes, their homes tend to be well insulated, energy-efficient models of appliances are more likely used, and most importantly, such households can afford their energy bills despite increased consumption.[66]

Erie County's LMI residents reside in older, inefficient single-family and two-family homes, low-income multi-family housing, and mobile homes, many of which are rentals.

The City of Buffalo contains the smallest rate of single-family homes of any municipality, though they are still the dominant housing type. The primary types of housing in Buffalo are single-family homes (39%, or 53,427 of 136,664 units), two-family homes (36%, or 49,538 units), 3-4 unit multifamily (7%, or 10,169 units), and large (50+ unit) multifamily (7%, or 9,036 units).

Comparatively, Buffalo's housing stock contains more two-family homes than any other municipality in Erie County. In multiple census tracts within Buffalo, between 40-60% of residential units are two-family homes, and in census tract 49.02, two-family units represent

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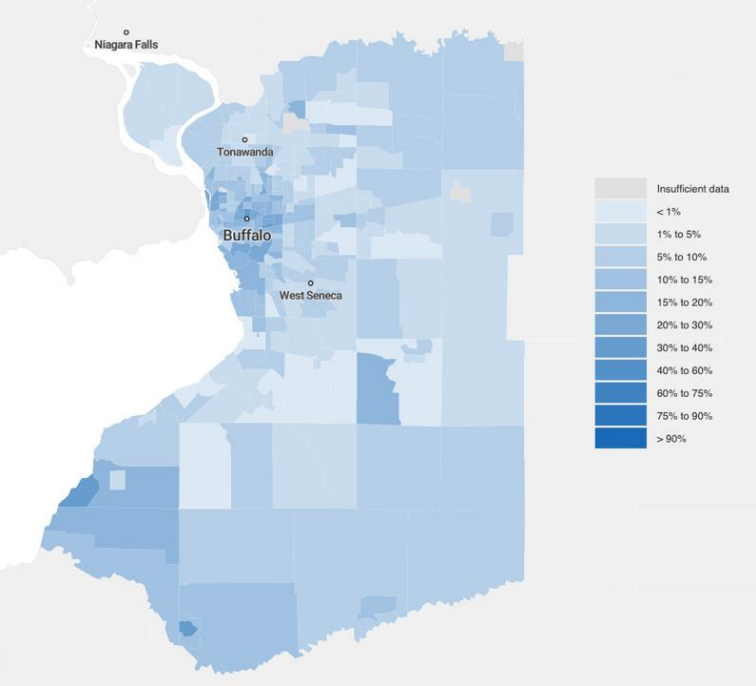
[59] Hossein Estiri & Emilio Zagheni (2019) "Age Matters: Ageing and Household Energy Demand in the U.S." *Energy Research and Social Science* 55, at 62-70.
[60] *Id.*, citing Hossein Estiri (2015) "A Structural Equation Model of Energy Consumption in the United States: Untangling the Complexity of Per-Capita Residential Energy Use", *Energy Research & Social Science* 6, 109-20, https://doi.org/10.1016/j.erss.2015.01.002.
[61] Drehobl, Ross, & Ayala (2020) at 15.
[62] *Id*. at iii-iv.
[63] Amir Kavousian et al. (2013) "Determinants of Residential Electricity Consumption: Using Smart Meter Data to Examine the Effect of Climate, Building Characteristics, Appliance Stock, and Occupants' Behavior", *Energy* 55, 184-94.
[64] ACS21_5yr. (A10032).
[65] ACS21_5yr. (A10032).
[66] Amir Kavousian et al. (2013) ("In the winter, households who live in multifamily apartments have the lowest daily maximum consumption, followed by town houses; finally, detached (free-standing) houses have the highest daily maximum consumption in the winter. Similar results have been reported previously …".).

63.04% of available homes. Buffalo also contains larger low-income multifamily buildings than any other municipality in Erie County.[67]

Importantly, Buffalo and its immediately adjacent municipalities are home to some of the oldest housing stocks of a large metro area in the country, with over 60% of residences built before 1940.[68] This suggests that many of the single family and small multi-family units in the County's urban areas are not energy efficient new construction, but older, inefficient units located in LMI communities.

The highest rates of vacant housing in Erie County are in urban census tracts within the cities of Buffalo and Lackawanna, as well as in certain rural communities in the top and bottom of the County, some of which surround the Cattaraugus Reservation. If high vacancy rates indicate homes in disrepair, occupied units in these urban and rural areas are more likely to be older, inefficient, and in need of upgrades in contrast to occupied suburban neighborhoods where vacancy rates are low.

Figure 9: Vacant Housing Units by Census Tract



Source: American Community Survey 2021

Manufactured mobile homes are a third housing type with recorded high energy burden vulnerability. Nationally, ACEEE found the median energy burden of mobile housing residents to be 39% greater than that of single family households.[69] While only 1.47% of the Erie County's housing units are mobile homes, high concentrations of mobile homes are found in certain of the County's rural (and limited suburban) census tracts, including in Southern Newstead,

[67] ACS21_5yr. (A10032).
[68] ACS2019_5yr. (A10055): Occupied Housing Units by Year Structure Built; Jeff Preval (2019) "Buffalo housing stock named the oldest in the country", *WGRZ*, https://www.wgrz.com/article/news/local/buffalo-housing-stock-the-oldest-in-the-country/71-5c470297-533f-4180-ab84-f7980c2bfa90.
[69] Drehobl, Ross, & Ayala (2020) at 15.

census tract 100.02 just south of the Buffalo Niagara Airport in Cheektowaga, and in rural communities near the Cattaraugus Reservation, including census tract 13.02 in the Town of Hamburg.[70] The high concentration of mobile homes in these areas suggests low income, high energy burden vulnerability, and presence of LMI households that would benefit highly from the ECLIPSE program.

1.2.6 Occupant Age

1.2.6.1 Older Adults Age 65+

The ACEEE report found that older adults have disproportionately higher energy burdens than the average household in every region across the U.S.[71] In fact, when the national energy burden of vulnerable subgroups were compared, low-income households that include adults 65 or older had the highest average burden of 9.3%.[72]

Older adults are at particular risk for a few reasons. First, many elderly citizens live on fixed incomes, so any increase in housing-related costs threatens to diminish their ability to live independently. Seniors also tend to live in older homes that are less energy efficient. When faced with an untenable budget and some of the impossible choices discussed above, seniors may lower their thermostats in winter or turn off AC in summer to save money, risking hypothermia or hyperthermia.[73]

Within Erie County, higher percentages of older adults live in suburban and rural communities. The largest populations reside in the suburban towns of Orchard Park (23.32%, or 6,919 of 29,668 residents) and Aurora (22.29%, or 3,106 of 13,936 residents).[74] Of the communities with the next six largest populations, one is suburban – West Seneca (20.45%, or 9,280 of 45,390 residents) – and five are rural – Concord (21.02%, or 1,751 of 8,331 residents), Hamburg (20.52%, or 12,499 of 59,764 residents), Newstead (20.52%, or 1,781 of 8,681 residents), Evans (20.25%, or 3,121 of 15,414 residents), and Holland (19.57%, or 644 of 3,290). Comparatively, older adults make up just 12% of the City of Buffalo's population. This suggests that to aid vulnerable LMI households with senior members, ECLIPSE needs to target rural LMI households as customers.

[70] ACS2021_5yr. (A10032).
[71] Drehobl, Ross, & Ayala (2020) at 13.
[72] *Id*. at iv, Figure ES1.
[73] Knight & Weaver (2021) at 73.
[74] ACS2021_5yr. (A01001): Age.

1.2.6.2 Young Children Under Age 10

Another vulnerable population includes households with young children. According to ACEEE, LMI households with children under 6 have a median energy burden of 7.1% at the national level.[75] According to the ACS, children under the age of 18 live in poverty at a higher rate (19.93%), than adults 18 to 65 (13.07%), or 65 and over (9.19%).[76] A recent report on demographic trends in Erie County shows households with children under 18 remain vulnerable to energy burden, with vulnerability highest amongst households with children under 10.[77]

Across Erie County, 105,431 of 949,715 residents (11.1%) are young children under 10 years old. Young children live at higher rates in urban areas like Lackawanna (15.11%)[78] and Buffalo (12.81%),[79] as well as in suburban – Town of Elma (13.82%) – and rural – Northern Gowanda Village census tract (175.01) in the Town of Collins (17.82%) – pockets.[80] As a result, offering the cost-saving benefits of ECLIPSE to all LMI households in urban, suburban, and rural communities will likely benefit vulnerable households with young children.

1.3 Community Solar Development in Erie County

Erie County is among the top ten counties in New York State by installed solar PV capacity.[81] Erie County's success has been aided by individual municipalities that have sought to develop community solar programs. For example, in 2021, the suburban Town of Lancaster developed a community solar project in which more than 700 residents and local businesses participate.[82] Similarly, the Town of Amherst Planning Board approved a 5 MW community solar project and is considering approval of a 7 MW project to serve area homes and businesses.[83]

National Grid offers community solar cost savings to its Erie County customers through the Solar for All program, discussed further in Chapter 2. Although it provides only limited savings, the program is fully subscribed. National Grid and the PSC are developing an Expanded Solar For All program, but anticipated savings will be similarly limited. NYSEG presently has no similar programs for its customers.

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[75] Drehobl, Ross, & Ayala (2020) at iv, Figure ES1.
[76] The United States Census Bureaus' poverty threshold represents extreme poverty and does not capture all LMI households in Erie County that qualify for HEAP, EAP, and similar programs. As captured in the ACS, a family of 2 lives in poverty if their income does not exceed $19,597 (for 2 adults) or $20,172 (for 1 adult and 1 child). Comparatively, a 2-person household making up to $44,760 annually (60% of SMI in NYS) qualifies as LMI for the purpose of receiving HEAP and EAP benefits.
[77] Knight & Weaver (2021) at 73.
[78] ACS2021_5yr. (A01001) (equal to 2,977 of Lackawanna's 19,697 residents).
[79] *Id*. (equal to 35,355 of Buffalo's 276,011 residents).
[80] *Id*.
[81] NYSERDA NY-SUN Statewide Solar Projects. Available at: https://www.nyserda.ny.gov/All-Programs/NY-Sun/Solar-Data-Maps/Statewide-Projects (accessed June 10, 2023).
[82] Solar Simplified (2022), "Solar Simplified and the Town of Lancaster Bring Community Solar and Energy Savings to New York Residents", GlobeNewswire, https://www.globenewswire.com/en/news-release/2022/04/05/2416389/0/en/Solar-Simplified-and-the-Town-of-Lancaster-Bring-Community-Solar-and-Energy-Savings-to-New-York-Residents.html; Solar Simplified, *Lancaster NY Community Solar Program Registration*, https://www.solarsimplified.com/solar/signup?municipality=lancaster&lead[partner_code]=LANCASTER.
[83] Amherst Industrial Development Agency (2021), *Project Profile: Amherst Community Solar*; Jonathan Epstein (2023), "Energy Company Seeks Rezoning of Rural Land in Amherst for New Solar Farm Project", Buffalo News, https://buffalonews.com/business/local/energy-company-seeks-rezoning-of-rural-land-in-amherst-for-new-solar-farm-project/article_14cb9b80-9dae-11ed-9e95-9fa483143237.html.

Although solar is expanding in Erie County, rooftop solar has had limited success. Project Sunroof estimates that approximately 87% of Erie County's buildings are solar-viable.[84] This aligns with NREL's findings that between 70-90% of small buildings within Erie County zip codes are suitable for PV development.[85] However, at the time of writing, fewer than 3,000 rooftop installations had been completed, representing about one percent of the county's 254,000 viable roofs, with most located in First Ring Suburbs, which are generally higher median income communities.[86]

This gap suggests that cost and other barriers, such as older housing stock, present barriers to rooftop solar adoption in the county. First, median annual income of all households in Erie County is $62,578, whereas the national median income of solar adopters is $120,000.[87] While prices have declined for rooftop solar over the past decade, soft costs such as installation labor, customer acquisition, permitting and inspection, and interconnection have remained high and even increased. Even with the new federal tax credit and state tax incentives, an average-size residential solar PV system costs roughly $25,000.[88] Additionally, the condition of older housing stock in the county's urban and rural communities could prevent solar installation, even if a household could otherwise afford it.

For many Erie County residents, community solar is the sole path to clean energy production and cost reduction benefits.

1.4 Conclusion

Households throughout Erie County are vulnerable to energy burden and, in many cases, severe energy burden. Urban LMI households are disproportionately minority renters in aging, energy inefficient multifamily residences, and existing cost saving programs do not provide sufficient relief or are difficult to access. Concurrently, many LMI households in Erie County's rural communities with low population densities have been overlooked by federal and state assistance programs, and most LMI households remain unable to access clean energy programs or upgrades due to home tenure, home type, or cost limitations. As energy rates continuously rise along with other housing and transportation costs, already high household energy burdens worsen.

[84] Pieter Gagnon et al. (2016), "Rooftop Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment", NREL at vi, figure ES-1, https://www.nrel.gov/docs/fy16osti/65298.pdf.
[85] *Id*.
[86] NYSERDA-Supported Solar Projects. Available at: https://www.nyserda.ny.gov/All-Programs/NY-Sun/Solar-Data-Maps/NYSERDA-Supported-Solar-Projects (accessed June 2, 2023).
[87] Naïm R Darghouth et al. (2022), "Characterizing Local Rooftop Solar Adoption Inequity in the US", *Environmental Research Ltrs.* 17(*3*), https://iopscience.iop.org/article/10.1088/1748-9326/ac4fdc.
[88] SEIA, *Solar Industry Research Data*. Available at: https://www.seia.org/solar-industry-research-data (accessed June 10, 2023).

2 ECLIPSE Eligibility and Integration

This chapter evaluates pathways to integrate ECLIPSE into existing Erie County programs, focusing on the critical issues of availability of data to determine eligibility, data limitations, potential organizational synergies, and external partnerships.

Specifically, this section evaluates the foundational issue of program eligibility criteria based on household income and makes recommendations concerning adoption of a primary eligibility dataset to operationalize the definition of low-income based on established government program criteria. This section further considers how ECLIPSE can integrate with Erie County's social support programs in serving LMI communities. This analysis will inform evaluation of ECLIPSE program design in a companion report on such integration.

Eligibility criteria should be selected based on legal and practical operational considerations, the latter including the availability of a robust dataset to support eligibility decisions. The choice of eligibility criteria must be defensible if subject to legal challenge based on selection of citizens to receive benefits and use of data vis privacy and other constraints. Further, the dataset chosen to determine eligibility should ideally be accessible to Erie County officials to confirm data is comprehensive, reliable, and regularly updated.

To evaluate possible datasets, this report identified criteria representing legally necessary and desirable characteristics for a dataset to support the ECLIPSE program and evaluate known government datasets against that criteria to frame options for consideration by Erie County.

The report highlights analysis of two government datasets identified as the most capable of supporting ECLIPSE — the Energy Assistance Program (EAP)[89] dataset and the Home Energy Assistance Program (HEAP) dataset. Other government programs and their datasets are evaluated using our study criteria to assess their potential to supplement and expand the primary eligibility dataset.

Based on an evaluation of available datasets, this report recommends that eligibility be based primarily on household income, and that the New York Energy Assistance Program (EAP) data should be adopted by ECLIPSE, with the potential to expand that dataset based on precedent set by New York City and existing CCA administrators like Sustainable Westchester.

Finally, potential synergies with other Erie County programs and external organizations are evaluated for further consideration as the ECLIPSE program evolves.

2.1 ECLIPSE Eligibility Criteria

This section evaluates the possible options for enrolling ECLIPSE customers based on household, census tract, or municipality.

[89] Otherwise called the Assistance Program Participant (APP) dataset. NY PSC Case 14-M-0224, Proceeding on Motion of the Commission to Enable Community Choice Aggregation Programs, *Straw Proposal on Opt-Out Community Distributed Generation* at 4 (filed March 29, 2022) ("CCA Straw Proposal").

At the time of writing, the New York Public Service Commission (NY PSC) is considering rules governing how low-income households may be recruited into community distributed generation (CDG) projects on an opt-out basis through a CCA program.[90]

If ECLIPSE is permitted to offer opt-out CDG, Erie County must adopt criteria to identify potential ECLIPSE participants, that can be operationalized on an opt-out basis by municipality or some other appropriate recruitment method that complies with future NY PSC rules.

If opt-out CDG is not permitted, this same analysis might still inform how ECLIPSE could potentially pursue opt-in CDG using data available to Erie County.

2.1.1 Individual or Household Characteristics

As described in the first part of this report, for historical reasons, household income and race are highly correlated. Both might be considered as possible criteria for ECLIPSE eligibility.

Household income is a criterion that ECLIPSE administrators may lawfully employ to define ECLIPSE eligibility and minimize the potential for successful legal challenge. Programs and datasets assessed below, including EAP, HEAP, and Temporary Assistance, determine eligibility based primarily on gross monthly and annual household income.

Eligibility criteria adopted by any government assistance program would be subject to challenge under the Constitution's equal protection clause, which mandates that government bodies may not deny individuals equal protection of their laws.[91] The 14th Amendment of the U.S. Constitution extends this right to the codes, regulations, and express policies and practices of state and local governments.[92]

The level of equal protection review applied is determined by whether the characteristic relates to a suspect classification. Suspect classifications are those marked by immutable characteristics or likely to be the subject of discrimination.[93] Race is a suspect classification when used to determine beneficiaries of a government program.

Equal protection review of race as a criterion for program eligibility employs a heightened strict scrutiny test.[94] The strict scrutiny test requires the government to demonstrate a compelling justification for the use of the suspect classification in achieving the government's objective. Courts will also require government agencies to demonstrate that no alternative, less protected classification, can be employed to achieve that objective.[95]

The characteristic of household income (or wealth) is not a suspect classification, and its use is therefore subject to the rational basis test. A substantially less arduous review, if a rational

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[90] NY PSC Case 14-M-0224, In the Proceeding on Motion of the Commission to Enable Community Choice Aggregation Programs, *Order Identifying Further Procedural Steps Regarding the Development of Opt-Out Community Distributed Generation* (Issued & effective November 22, 2021) ("Opt-Out CDG Order").
[91] U.S. Const. amends. V and XIV; NY Jur. 2d *Relation between classification and government objective* § 378 (2022); NY Jur. 2d *Relation between classification and government objective – Rational basis* § 379 (2022); NY Jur. 2d *Relation between classification and government objective - Strict scrutiny* § 380 (2022).
[92] U.S. Const. amend. XIV, § 1.
[93] Additional suspect classifications include national origin, alienage, and religion.
[94] Susannah W. Pollvogt (2014) "Beyond Suspect Classifications", 16 *University of Pennsylvania Journal of Constitutional Law* 739, at 744, 755.
[95] *People v. Salazar*, 973 N.Y.S.2d 140, at 143 (2013).

relationship exists between the characteristic and a legitimate governmental purpose, the classification will withstand legal challenge.[96]

New York courts have applied an intermediate level of scrutiny to the use of race classification in affirmative action programs and other circumstances of "benign discrimination" in which the use of race criteria serves a public policy goal.[9798] Referred to as the substantial interest test, when benign discrimination is challenged, government must show that ""a substantial interest underlies the polices and practice and … that no nonracial, or less objectionable racial, classifications will serve the same purpose."[99]

Under either the strict scrutiny or substantial interest tests, the use of race as a characteristic to determine ECLIPSE eligibility would be subject to heightened judicial review should a resident claim an equal protection violation. Income classification can achieve ECLIPSE's intended objective of alleviating energy burden by low- and moderate-income Erie County residents, suggesting that the use of race criteria might not withstand heightened review. Further, as discussed in Section 2.3 below of this report, most datasets used to administer public assistance programs in New York State employ income criteria without race classifications. Use of an existing dataset to determine ECLIPSE eligibility that is already employed to administer public assistance programs would strongly establish that the criterion do not violate constitutional protections.

All the databases considered below are based on income as the primary criteria for eligibility. CCA administrators, including Sustainable Westchester, have petitioned the NY PSC for access to utility EAP household data in order to enable those customers becoming the primary recipients of opt-out CDG integrated into existing CCA programs.[100] The potentially identifiable information (PII) of EAP recipients is currently protected under NY PSC precedent.[101] If approved by the NY PSC, this would enable greater economy of administration by allowing the CDG administrator to identify LMI program recipients and directly communicate with Opt-Out CDG eligible households within the utilities' service area.

2.1.2 Community Characteristics

A CCA administer might also use community-based factors as a criterion for program eligibility. For example, Sustainable Westchester's petition to enroll households that receive utility EAP

[96] *Id.*; Pollvogt (2014) at 743.
[97] Jur. 2d *Relation between classification and government objective* § 378 (2022); NY Jur. 2d *Relation between classification and government objective – Rational basis* § 379 (2022); NY Jur. 2d *Relation between classification and government objective - Strict scrutiny* § 380 (2022).
[98] Kevin E. Jason (2020) "Dismantling the Pillars of White Supremacy: Obstacles in Eliminating Disparities and Achieving Racial Justice", 23 CUNY Law Review 139, at 152.
[99] *Alevy v. Downstate Med. Ctr.*, 39 N.Y.2d 326, at 336–37, 545–46 (1976).
[100] Sustainable Westchester administers Westchester Power, the first CCA program the NY PSC approved in 2015 that now serves over 110,000 customers in Westchester County. See NY PSC Case 14-M-0224, *Opt-Out CDG Order* (Issued & effective November 22, 2021)*;* NY PSC Case 14-M-0564 (Petition of Sustainable Westchester for Expedited Approval for the Implementation of a Pilot Community Choice Aggregation Program within the County of Westchester) and Case 14-M-0224, *Petition for Approval to Integrate Opt-Out Community Distributed Generation as Part of Community Choice Aggregation Program* (Filed August 10, 2021) ("SW Opt-Out CDG Petition"); NY PSC Case 14-M-0564, Sustainable Westchester – Community Aggregation Program, *Order Granting Petition in Part* (Issued & effective February 26, 2015) ("SW CCA Pilot Order").
[101] NY PSC Case 12-M-0476, Proceeding on Motion of the Commission to Assess Certain Aspects of the Residential and Small Non-Residential Retail Energy Markets in New York State, *Order Regarding the Provision of Service to Low Income Customers by Energy Service Companies* (Issued & effective July 15, 2016) ("ESCO Block Order") (holding that ESCOs will not be provided with customers' low-income status due to Federal and State laws).

discounts into its proposed Opt-Out CDG seeks NY PSC approval to expand eligibility based on two *community-based characteristics*: low- to moderate-income (LMI) areas and environmental justice areas (EJAs).[102]

Under the Sustainable Westchester proposal, areas would be defined based on their being LMI or EJAs, and all households within those areas, regardless of HEAP enrollment or income status, would be admitted to the Opt-Out CDG program based on their location within a designated area.[103]

Use of community characteristics to enroll participants potentially enables broader criteria than income to be employed. New York State has developed its definition of "disadvantaged communities" (DACs) based on analysis of every census tract in the State based on multiple factors, including income, race, and vulnerability to climate risks. These designated census tracts provide another potential set of criteria for Opt-Out CDG enrollment.

The use of community-based criterion such as LMI, EJA or DAC concepts will also be subject to the same Equal Protection review described above in Section 2.1.1 above for individual and household characteristics, probably under an intermediate substantial interest standard of scrutiny.

2.1.3 Municipality Characteristics

Community Choice Aggregation programs that supply electricity to the general public without a low-income consumer focus have based eligibility on residency in a participating municipality.[104] Sustainable Westchester developed the first such program in New York State, entering into agreements with municipalities to offer electricity supply on a municipal-wide opt-out basis.[105]

The pending NY PSC determination in Case 14-M-0244 as to whether Opt-Out CDG may be integrated with CCAs or offered as stand-alone programs will also decide the characteristic level that ECLIPSE administrators may offer enrollment – by household, community, and/or municipality. Irrespective of that determination, municipalities have potential roles to play in the ECLIPSE community energy initiatives as partners in outreach.

2.1.4 Federal Funding Restrictions

[102] Sustainable Westchester, *Westchester Power Community Choice Aggregation Master Implementation Plan* at 23, tb. 1 (Revision filed August 6, 2021). The revised proposal indicates Sustainable Westchester's plan to apply NYS definitions for LMI and EJA, which includes the "NYSERDA Inclusive Community Solar Adder interim disadvantaged areas"); Case 14-M-0564, *SW Opt-Out CDG Petition* (August 10, 2021).
[103] Sustainable Westchester, *Westchester Power Community Choice Aggregation Master Implementation Plan* at 23, tb. 1 (Revision filed August 6, 2021).
[104] NY PSC Case 14-M-0564, *SW CCA Pilot Order* (Issued & effective February 26, 2015); Case 16-M-0015, et al., Municipal Gas and Electric Alliance, Inc. - Community Choice Aggregation Pilot Program, *Order Approving Community Choice Aggregation Program and Utility Data Security Agreement with Modifications* (Issued & effective October 19, 2017); Case 14-M-0224, *Order Approving Community Choice Aggregation Programs with Modifications* (Issued & effective January 18, 2018) ("Good Energy Order"); and Case 14-M-0224, et al., *Order Approving Joule Assets' Community Choice Aggregation Program with Modifications* (issued March 16, 2018) ("Joule Order").
[105] NY PSC Case 14-M-0564, SW *CCA Pilot Order* (Issued & effective February 26, 2015); and NY PSC Case 14-M-0654, et al., *Order Approving Renewal of Sustainable Westchester Community Choice Aggregation Program* (Issued & effective November 15, 2018).

Explicit provisions prohibiting use of certain characteristics to administer potentially related government programs should be considered in selecting a dataset.

In certain cases, use of race or other characteristics as criteria for program benefits may be explicitly prohibited. As a result, the source of funds and the selection of database might also restrict the use of area-based eligibility criteria for ECLIPSE if area-based eligibility were found to base eligibility on a protected class. For example, the Federal Government's LIHEAP program, which funds Erie County's HEAP program, contains specific provisions prohibiting distribution of LIHEAP funds on the grounds of race, color, national origin, or sex. 42 U.S.C. § 8625 (2008). Although this provision relates to use of LIHEAP funds, it is an open question whether the use of a LIHEAP-supported database for a program that bases eligibility on membership in a protected class criteria would violate Erie County's obligations under the LIHEAP program.

2.1.5 New York State Welfare and Social Service Records Laws and Regulations

Most of the datasets considered are derived – directly or indirectly – from welfare records provided to the Erie County Department of Social Services (Erie DSS) or the public utilities by the NYS OTDA. Their use will be subject to the various state and federal regulations that govern social service records.

Welfare records are subject to confidentiality requirements under N.Y. Social Service Law (SSL) § 136 and in state regulations at 18 NYCRR 357.[106][107] If social service records are used to administer ECLIPSE, all social service information secured by Erie County to administer ECLIPSE is considered safeguarded and shall only be disclosed to County Officers and employees for administration of public assistance.[108] Use of information for commercial or political purposes is prohibited and all use must maintain the information's confidential character, although a client may authorize disclosure if no medical, child welfare, HIV, or domestic violence records are involved.[109] In addition, the general regulations require all communications concerning clients be directly related to an assistance program's administration when confidential information is used.[110]

Authority, Confidentiality, and Use of the Welfare Management System

Erie County DSS uses the NYS Welfare Management System (WMS) to access records needed to administer social service and welfare programs, including determining eligibility and program management.[111] The NYS OTDA holds the authority to specify the methods of collection, transmittal, and procedures for utilization of all information within the WMS.[112]

Under N.Y. SSL § 21(3), information in the WMS is subject to confidentiality and disclosure restrictions established in N.Y. SSL §136.[113] While access to the WMS terminals is controlled by Erie DSS, Erie DSS can register information in a central index or social service exchange to coordinate the work of multiple agencies. This flexibility is potentially meaningful for ECLIPSE,

[106] N.Y. SSL § 136
[107] 18 NYCRR 357
[108] 18 NYCRR 357.1(a), 357.2(a) (subject to exceptions in N.Y. SSL § 136).
[109] 18 NYCRR 357.3(a), (c)(2)
[110] 18 NYCRR 357.4
[111] N.Y. SSL § 21(1); 18 NYCRR 655
[112] N.Y. SSL § 21(2)
[113] N.Y. SSL §§ 21(3) and 136.

as it allows for the disclosure of WMS information to other public or private agencies contracted for social service operations.[114]

The application for OTDA-administered benefit programs (form LDSS-2021) contains notice and consent language that the applicant agrees to when they apply.[115] By signing, the applicant consents to being auto-enrolled in HEAP and allows the information they provide to be used in referrals to utility low-income programs (e.g., EAP) and weatherization assistance programs.[116] The consent language further permits utilities to release statistics on such items as a customer's energy usage, costs, and fuel type to OTDA and Erie DSS for performance measurement.[117] These consents cross-connect HEAP and EAP, authorize other agencies to access client data for other purposes related to benefit administration, and are potentially critical for understanding the extent to which special permissions are needed with NYS OTDA to administer ECLIPSE using WMS datasets.

Home Energy Assistance Program Dataset Regulations

The HEAP and other low income clean energy programs are further controlled by N.Y. Social Service Law § 97 and regulations at 18 NYCRR 352.5 and 392 et seq.[118] The OTDA must develop and submit a state plan to operate low income energy assistance programs and administer the benefits available under Title XXVI of the Federal Omnibus Budget Reconciliation Act of 1981, also known as the Low-Income Home Energy Assistance Act of 1981.[119] Erie County's administration of HEAP must comply with New York's federally approved State Plan, the HEAP manual, and Federal and State law, including relevant NYS Department of Social Services releases.[120] Use of the HEAP or the EAP dataset, the latter derived primarily from the HEAP recipients, will need to ensure compliance with applicable regulations, in particular those governing general, administrative, application, eligibility, communications, and hearing requirements.

[114] N.Y. SSL §136(3)
[115] NYS Application for Certain Benefits and Services, LDSS-2921 at 23.
[116] Id.
[117] Id.
[118] N.Y. SSL § 97; 18 NYCRR 352.5; 18 NYCRR 393
[119] 42 U.S.C.A. §§ 8621 et seq.; N.Y. SSL § 97(1)
[120] 18 NYCRR 393.1

2.2 Criteria for Evaluating Datasets

This section evaluates available datasets based on several criteria that reflect both practicality and desirability. These criteria are:

- **Appropriateness.** The dataset contains the relevant information required to serve as the foundation for ECLIPSE eligibility. Does the database provide the household income information, preferably specific or alternatively in ranges, that will allow it to serve as the primary source of ECLIPSE admission?

- **Comprehensiveness.** Based on methodology of collection, including human factors such as initiative and barriers to application, how complete is the dataset?

- **Reliability and Currency**. Based on methodology of collection and frequency of updates, how reliable and current is the dataset?

- **Restrictions on Use or Access**. What legal barriers or conditions, including privacy laws, are placed on access or use of the dataset?

- **Data Cut-Off**. At what point does the dataset stop including households based on income? In other words, beyond what maximum does the database exclude households? This is important in limiting eligibility for ECLIPSE due to data considerations.

- **Adaptability to New Information**. How does the architecture of the database – closed or open – enable information to be updated and improved by Erie County?

- **Control over Eligibility**. To what degree does the selection of the database enable or preclude Erie County's ability to control eligibility for ECLIPSE?

- **Verifiability of Need**. To what degree does the database provide or allow access to information to verify that target LMI households are served by ECLIPSE?

- **Ability to Assess Housing Conditions**. To what degree does the database provide or allow access to information to assess the housing conditions of households enrolled in ECLIPSE?

Additional data or combination of data may be identified that would help improve the initial dataset. We assume that Erie County will initially adopt an existing dataset, and if that dataset is adaptable and allows for control over eligibility, it can be modified or expanded as ECLIPSE progresses. However, if the dataset lacks these characteristics, it may preclude meaningful and strategic improvements on the dataset.

2.3 Evaluating Potential Primary and Supplemental Datasets

Using the above criteria, this section evaluates the EAP and HEAP datasets as possible primary eligibility datasets to support ECLIPSE. Based on this assessment, the Energy Assistance Program dataset is recommended as the most appropriate and comprehensive dataset, with potential for expansion through precedent established by the New York City Human Resource Administration (NYC HRA) and the NY PSC proceedings in Case 14-M-0244.

2.3.1 Energy Assistance Program

The EAP (or APP) dataset is developed and maintained by utilities based on eligibility criteria approved by the NY PSC.[121] Eligible households receive a discount on their energy bill based on benefit tiers 1-4 depending on their income, and the discounts are supported by funds provided by general residential ratepayers.[122]

In its May 2016 *Order Adopting Low Income Program Modifications and Directing Utility Filing*s (Low Income Order), the NY PSC established the EAP with the current goal of keeping LMI household energy bills under 6% of overall household budgets.[123] The 6% goal was adopted based on the principle that total shelter costs should not exceed 30% of income and utility costs should not exceed 20% of shelter costs, thus: 30% x 20% = 6%.[124]

Towards this end, the NY PSC revised the EAP program in its August 2021 *Order Adopting Energy Affordability Policy Modifications and Directing Utility Filings* (EAP Order).[125] The EAP Order adjusted the methodologies for calculating benefit levels to better align their effects with the goal of achieving 6% energy burden for LMI households.[126] Importantly, the EAP Order focuses on standardization of utility programs across the state and data sharing.

The EAP Order specifies that low-income customers will be identified for inclusion in the program based on the following data sources:

- Home Energy Assistance Program (HEAP) recipient data from the NYS Office of Temporary and Disability Assistance (OTDA).
- Customer self-certification, a mechanism that allows households to qualify through participation in other public assistance programs with income eligibility, an enrollment option especially important for households in multi-unit housing that lack submeters.[127]

Households are categorized according to at least four income tiers, using the midpoint of each tier to determine eligibility for EAP benefits. This is a meaningful shift implemented in the EAP Order, which changed the income assumptions upon which EAP discounts are based on the upper limit eligible income to the median income in each range. The benefits for Tiers 1, 3, and 4 are based on the median income for a household eligible for each respective tier, and Tier 2 is the average of Tiers 1 and 3.[128] Tier 1 is the median of 150% FPL and 60% state median income (SMI), and Tier 3 is the median income for families under 150% FPL.[129]

Table 1: National Grid EAP Program Discounts as of September 2021

	Eligibility Criteria	Electric Heat	Electric Non-Heat	Gas Heat	Gas Non-Heat
Tier 1	150% of FPL and 60% SMI	$6.00	$6.00	$3.00	$3.00

[121] NY DPS Case 14-M-0224, *CCA Straw* Proposal at 4 (filed March 29, 2022).
[122] NY PSC Case 14-M-0565 (Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers) and Case 20-M-0266 (Proceeding on Motion of the Commission Regarding the Effects of COVID-19 on Utility Service) *Order Adopting Energy Affordability Policy Modifications and Directing Utility Filings* (Issued & effective August 12, 2021) ("EAP Order").
[123] NY PSC Case 14-M-0565, *Low Income Order* at 7-8 (Issued & effective May 20, 2016).
[124] Id.
[125] NY PSC Case 14-M-0565 and Case 20-M-0266, *EAP Order* (Issued & effective August 12, 2021).
[126] Id. In the EAP Order, the NY PSC deferred addressing the full impacts of COVID for future orders.
[127] Id. at 20.
[128] Id. at 22-25; EAP Order, Appendix A at 12.
[129] Id.; NYS (2021) "Home Energy Assistance Program Manual", *OTDA* at 36-37.

Tier 2	Average of Tiers 1 and 3	$14.00	$14.00	$5.00	$3.00
Tier 3	Median income for families under 150% of FPL	$28.75	$28.75	$20.19	$3.00
Tier 4	Direct Voucher/Restriction or Guarantee program	$19.80	$19.80	$11.22	$3.00

Source: National Grid

The EAP Order calls for the stratification of low-income customers into additional tiers or usage groups to enhance bill discount targets, and the identification of highest usage low-income customers for participation in energy efficiency programs. The EAP Order also modified the bill discount methodology to better achieve the 6% energy burden goal, in part by shifting the income assumption basis to median incomes.[130]

Importantly, the EAP program is re-examined through a public docket, lending to a high degree of stakeholder participation and transparency that results in a wide range of factors being considered in policy formation. In the EAP Order alone, the PSC contemplated:

- Existing low-income bill discount methodology
- Data used in the discount calculations
- The automatic file match system employed by OTDA
- The low-income energy affordability program budget cap
- Expanding enrollment of low-income customers via identification and self-certification
- Treatment of income levels and HEAP benefits
- Modifications to utility reporting requirements
- Levelized budget billing program
- Application of deferred payment agreements and late payment fees
- Establishment of arrears management and arrears forgiveness
- Coordination of energy efficiency and clean energy programs for low-income consumers

The breadth of considerations indicates the PSC process is comprehensive and data collection is monitored by a public agency. The complexity and scope of coverage of the program, however, could also press the capacity of public resources, which could pose challenges for data quality control, and reduce transparency in the implementation of the program. For example, access to the program appears to be limited based on the ability of OTDA and the utility to match aid recipients to a utility account.[131] Finally, the provision of benefits is determined in part by methodologies, budget constraints for the program set in utility rate cases, and the program's own design including prioritization based on financial need.

Approved CCA and CDG program administrators at present do not have access to EAP data. The NY PSC is considering whether to require utilities to provide this information to CCA and CDG program administrators.[132] Specifically, Sustainable Westchester's application for its Integrated CCA with Opt-Out CDG program includes a request for the provision of this data at the household level, including names and addresses to enable them to send letters to LMI households as part of opt-out programs.[133] However, this information will likely only be made

[130] NY PSC Case 14-M-0565 and Case 20-M-0266, *EAP Order* (Issued & effective August 12, 2021).
[131] Id. at 13-21.
[132] Case 14-M-0224, *Opt-Out CDG Order* (Issued & effective November 22, 2021).
[133] Sustainable Westchester, *Data Protection Plan for Westchester Power Community Choice Aggregation Program Revised* (Revision filed August 2021).

available to administrators after the commencement of the program and enrollment of the individual LMI customers.

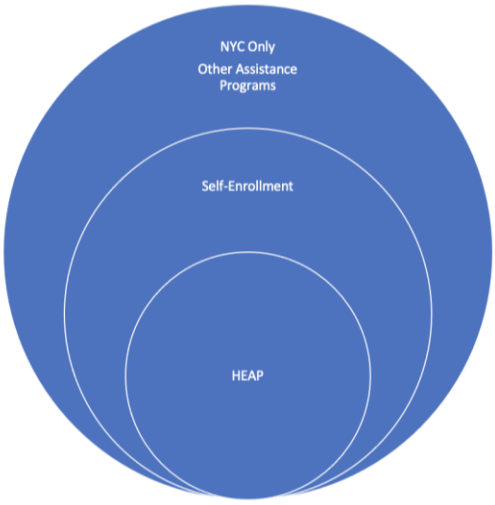
Utility practice has not been uniform concerning eligibility for EAP throughout New York State. Most New York utilities have limited eligibility to OTDA HEAP recipients. Where customers provide information confirming participation in other public assistance benefit programs, the utilities will generally enroll the customer in their low-income program, however, the programs and processes vary among utilities, leaving a great deal of discretion to the utility without transparency of process.[134]

The EAP Order established an EAP Working Group to consider further changes to the EAP program.[135] One of the primary goals of the Working Group is development of an automated file match process that uses a broader list of social service programs to affirmatively identify eligible low-income customers.[136] The EAP Working Group ultimately aims to develop a uniform state-wide process for induction into utility-run EAP programs.

The NYC HRA already engages in an additional customer file-matching process with the utilities that serve NYC residents: Consolidated Edison, KEDNY, and KEDLI (NYC utilities). Quarterly, the NYC HRA provides the NYC utilities a coded “yes” or “no” enrollment list of residents enrolled in NYC’s income-based public assistance benefit programs.[137] Each NYC utility compares the list to recipients of their respective EAP programs and automatically enrolls additional NYC households not yet enrolled through HEAP or self-certification in its respective EAP program. [138]

[134] NY PSC Case 14-M-0565 and Case 20-M-0266, *EAP Order*, Appendix A at 12.
[135] Id. at 18.
[136] Id.
[137] Id. at 16.
[138] NY PSC Case 19-G-0309 (Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of The Brooklyn Union Gas Company d/b/a National Grid NY for Gas Service) and Case 19-G-0310 (Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corp. d/b/a National Grid for Gas Service) et al., *Order Approving Joint Proposal, as Modified, and Imposing Additional Requirements* at 6 (Issued and effective August 12, 2021) (“KEDNY-KEDLI JP Order”).

Figure 10: Energy Assistance Project Dataset



Source: August 2021 EAP Order.

In August 2021, the NY PSC approved a Joint Proposal between NYC HRA, KEDNY, and KEDLI in which the parties agreed to increase the frequency of file matching from twice annually to quarterly.[139] In return, KEDNY and KEDLI continue to reimburse the NYC HRA up to $100,000 per year for costs associated with performing the file matches through the EAP deferral mechanism.[140] This increased frequency of enrollment of NYC customers in EAP helps the NYC EAP dataset remain comprehensive and current.

The KEDNY-KEDLI Joint Proposal also supported extension of file matching between KEDLI and social service agencies in Nassau and Suffolk Counties, with whom only limited file matching was occurring.[141] The NYC HRA recognized that low-income residents in KEDLI's NYC service areas would benefit from expanded file matching and EAP enrollment in KEDLI's Long Island territory. To facilitate potential expansion, KEDLI was directed to organize a collaborative meeting between itself, Nassau and Suffolk Counties, and the NYS OTDR to explore adoption of additional file matching. [142]

If EAP data serves as the basis of ECLIPSE, improvement of the dataset through additional file sharing between the Erie County Department of Social Services (Erie DSS) and National Grid or NYSEG would directly expand ECLIPSE eligibility, regardless of whether the NY PSC lifts the ban on CCA administrator access to low-income customer information. While the EAP Working Group develops a uniform, state-wide file match between OTDA and the utilities, the approach employed by the NYC HRA could provide a potential pathway for administrators to expand program eligibility if the EAP dataset is chosen to support ECLIPSE administration.

Erie County could seek admission to the EAP Working Group, which may be useful if it were to rely on the EAP data for ECLIPSE. Further, Erie County could replicate the approach adopted

[139] Id. at 185-186.
[140] Id.
[141] Id.
[142] Id. at 185-187 (If a file match was adopted, the KEDNY-KEDLI Joint Proposal directs KEDLI to provide County administrators with up to $25,000 in reimbursement).

by NYC HRA in tracking a broader set of data for inclusion into the EAP datasets used by National Grid and NYSEG. ECLIPSE administrators could meet with social service administrators in Nassau and Suffolk Counties to determine the success of the file match expansion and Erie DSS could seek approval to plan a similar collaborative meeting between Erie DSS, OTDA, National Grid, and NYSEG to determine whether an additional file match and reimbursement program can be established.

Appropriateness. EAP data is based on household participation in income-based public assistance programs. Utility EAPs are monitored by the NY PSC via public docket and capture datasets specifically of households most in-need of energy assistance. Further, approved administrators employ EAP data to determine CCA and CDG eligibility for existing programs.

Comprehensiveness. Basic dataset is HEAP, supplemented by customer self-certification, allowing households to qualify through participation in other public assistance programs and income documentation, an especially important enrollment means for households in multi-unit buildings that do not submeter. Accordingly, the EAP database should be broader and more inclusive than HEAP because anyone enrolled in HEAP or other public benefit program will be automatically enrolled in EAP. New York City has further expanded EAP data by tracking and reporting to the NYC utilities additional data of participation in other qualifying social service programs beyond HEAP.

Reliability and Currency. The EAP Order requires utilities to update EAP data on an annual basis, sending reminder notices to self-enrolled LMI households. Self-enrolled household data is evaluated by utilities with variation of practices across utilities, requiring discussions with National Grid and NYSEG to understand their specific practices.

Restrictions on Use or Access. CCA and CDG program administrators presently cannot access EAP data. The NY PSC is considering whether to require utilities to provide this information to CCA administrators for them to send letters as part of opt-out programs for LMI households. The EAP Order states: "actual anonymized participant income data is currently unavailable to use in the bill discount calculation, but it should be the goal to acquire the data to create a more direct link to the very customers the EAP is assisting."[143]
Data Cut-Off**.** Inclusion in the dataset is based on income limit thresholds of 60 SMI for households between 1-12 individuals or 150 FPL for households of 13 or more individuals.

Adaptability to New Information. Data from households that self-enroll for their utility's EAP program allows for some adaptability. However self-enrolled household data is evaluated by utilities with variation of practices across utilities, requiring discussions with National Grid and NYSEG to understand their specific practices. New York City has further expanded EAP data by tracking and reporting to its utilities additional data of participation in other qualifying programs beyond HEAP. Discussions with National Grid and NYSEG are required to determine whether they would accommodate such an approach in Erie County.

Control over Eligibility. If EAP data is used, the dataset will be entirely or partly (depending on the PSC Opt-Out CDG rulemaking) closed-architecture from the perspective of Erie County administrators. Under these circumstances, the best Erie County can do to influence the composition of the dataset for purpose of eligibility is to promote awareness of the EAP program and support households in applying for the EAP program, as well as explore potential for file matching between broader Erie DSS program participants and the utilities.

[143] NY PSC Case 14-M-0565 and Case 20-M-0266, *EAP Order* at 24 (Issued & effective August 12, 2021).

In relation to making data more usable for eligibility and program design, in the EAP Order, the NY PSC endorsed Staff recommendations that utilities leverage their customer data to identify the highest usage low-income customers and target delivery of service to these customers through NYSERDA and utility-administered energy efficiency programs. The NY PSC further endorsed further stratification of tiers within EAP to differentiate levels of eligibility and adjustment of benefits accordingly.

Verifiability of Need. Use of the EAP dataset implies delegation of verification of need to OTDA and the administering utility under current access restrictions upheld by the NY PSC. If EAP data at the household level that includes address information is made available to the CCA and CDG administrators, it would be possible to independently verify that the served households fall within areas of Erie County identified as most in-need, including areas officially designated a "disadvantaged community" by the State. It would not be possible, however, to confirm demographic data beyond income criteria as EAP data does not provide information beyond household income. If EAP data were not available, Erie County's HEAP data could still be used to verify need as a proxy dataset, although HEAP would be an incomplete approach as the HEAP dataset does not capture households that self-certify to receive EAP benefits.

Ability to Assess Housing Conditions. If EAP data at the household level that includes address information is made available to the Opt-Out CDG administrator, it would be possible to cross references the served households with other data that may be available to Erie County to assess housing conditions and need for housing improvements. Such an analysis would require an independent dataset and would be performed by Erie County or its contractor, not by the utility. If EAP data were not available, Erie County's HEAP data could still be used for ability to assess housing conditions as a proxy dataset, albeit a subset of the EAP dataset.

2.3.2 Home Energy Assistance Program

The HEAP dataset is developed and maintained by OTDA based on eligibility criteria set by New York State and shared by OTDA with Erie DSS.

HEAP is a federally funded energy program that helps low-income households with high energy burdens meet their immediate home energy needs. To receive funding through the U.S. Department of Health and Human Services' (HHS) LIHEAP program, OTDA submits the State Plan to HHS each year.[144]

LIHEAP program criteria are found in the United States Code at 42 U.S.C. § 8621-8630 (2008). As identified above, LIHEAP contains specific provisions prohibiting discrimination in the administration of LIHEAP benefits on the grounds of race, color, national origin, or sex. 42 U.S.C. § 8625 (2008). Further, LIHEAP funds are to be used for the following primary purposes:

- Conduct outreach activities and aid low-income households in meeting their home energy costs, particularly those with the lowest incomes that pay a high proportion of household income for home energy;

- Intervene in energy crisis situations; and

[144] OTDA, *HEAP State Plans,* https://otda.ny.gov/programs/heap/stateplan.asp.

- Provide low-cost residential weatherization and other cost-effective energy-related home repair. 42 U.S.C. § 8624 (2008).

Eligible households are those in which one or more individuals are receiving:

- Assistance or supplemental security income payments under the State program funded under the Social Security Act;
- Food stamps (New York SNAP program);
- Payments to Veterans' and Survivors' Pension Improvement Act of 1978; or
- Households with incomes which do not exceed the greater of an amount equal to 150 percent of the Federal Poverty Level for such State (150 FPL) for households with 13 or more individuals; or an amount equal to 60 percent of the State Median Income (60 SMI). 42 U.S.C. § 8624 (2008). Based on these criteria, NYS OTDA calculates HEAP maximum allowable income levels under federal statute for the 2022-2023 HEAP season.[145] This is the same criteria used in the EAP program as shown in Table 1 above in the EAP analysis.

For the 2022-2023 season, maximum income eligibility for an individual is $32,748, just slightly lower than the Erie County average income of $33,179. Current HEAP income thresholds for households of 1 to 5 members set out below.

Table 2: HEAP Income Thresholds

Household Size	Maximum Gross Monthly Income	Maximum Gross Annual Income
1	$2,852	$34,224
2	$3,730	$44,760
3	$4,608	$55,296
4	$5,485	$65,820
5	$6,363	$76,356

Source: Home Energy Assistance Program, OTDA[146]

To qualify for HEAP, individual households apply directly to Erie County, and acceptance into the program is based on the individual household proving they fall below the income thresholds. According to those familiar with the approval process by Erie DSS, the application for HEAP benefits requires the following to verify income requirements:

- Last four pay stubs (equivalent of 2 months)
- Bank statements

[145] OTDA, *2022-2023 Home Energy Assistance Program (HEAP)* Local Commissioners Memorandum at 4, https://otda.ny.gov/policy/directives/2022/LCM/22-LCM-12.pdf.
[146] OTDA, *Home Energy Assistance Program (HEAP)* https://otda.ny.gov/programs/heap/#overview.

- If self-employed, profit and loss statement
- Last Year's W2
- Project from a year out using 1040s.

Existing CCA and CDG administrators have not yet used HEAP data or their own dataset to administer community solar benefits. It remains unclear whether the NY PSC would require a utility to use HEAP data for a CCA CDG program. It remains unclear what the cost implications of operating a CCA CDG program would be based on a custom database.

Notwithstanding the foregoing, use of the HEAP dataset would enable Erie County to have full visibility and control over the program's data, recruitment, and eligibility. The open architecture of the HEAP dataset allows for Erie County to further refine and improve the dataset. It also provides the fullest accessibility as an open-architecture dataset, enabling Erie County to run analysis of verification and housing condition needs of ECLIPSE recipients.

Appropriateness. The HEAP database contains benefit levels that correspond to household income in broad ranges, thereby allowing qualification of eligibility, as well as indicator of relative levels of need amongst participants. As a result, the HEAP database would both enable Erie County to properly identify ECLIPSE recipient eligibility as well as select the neediest potential recipients if ECLIPSE resources are limited.

Comprehensiveness. The HEAP database captures households who apply for HEAP assistance for their heating bills, as well as those automatically enrolled in the past year because they have signed up through the New York State general application for benefits (TA, SNAP, Medicaid, etc.). As a result, there is a great deal of overlap in the criteria between EAP and HEAP, with EAP capturing all HEAP recipients. The application requires the provision of evidence of eligibility that may be onerous for some individuals, reducing the comprehensiveness of the database.

Reliability and Currency. The HEAP database is annually recertified, with all households being auto renewed for consideration each year. Because eligibility requires provision of financial and other documentation, the HEAP database appears to have a high degree of reliability.

Restrictions on Use or Access. Erie County utilizes a copy of the New York State master database for its residents, which it essentially clones under state license for purposes of customizing information for its social services programs. As a social service/welfare program, use of HEAP data is subject to the N.Y. Social Service Law and NYCRR regulations. Further research is required to confirm that Erie County's license permits it to use the HEAP database for the ECLIPSE program and how it is permitted to use the data for ECLIPSE. ECLIPSE should obtain specific approval to use this database from both the appropriate New York State and Erie County authorities. If the HEAP database contains any federal data, specific research and possibly authorization would be advisable to confirm there are no federal restrictions on use of the data. The specific conditions of the license may have implications for the ability of Erie County to outsource certain ECLIPSE operations, and by extension, implications for structuring ECLIPSE.

Data Cut-Off**.** As a practical matter, households that exceed the 2022-2023 program eligibility limits of $34,224 for individuals, escalating upward for households of more than one individual, are ineligible to apply and therefore the database is only comprehensive and reliable below the income limit thresholds of 60 SMI for households between 1-12 individuals or 150 FPL for households of 13 or more individuals.

Adaptability to New Information. The cloned HEAP database sits with and is maintained by Erie County. It is a completely open-architecture database for Erie County. As a result, the HEAP database would be highly adaptable, allowing Erie County to add data from other databases or information collected for the limited purpose of ECLIPSE.

Eligibility. If HEAP data is used, the dataset will be entirely open architecture from the perspective of Erie County. Erie County can therefore directly influence and improve upon the composition of the dataset for purpose of eligibility, potentially subject to approval by the NY PSC for use as the basis of a CCA CDG program.

Verifiability of Need. Compared to the EAP data held by the utilities, the HEAP dataset is provided to Erie DSS and would be open architecture, making it possible to verify that the served households fall within areas of Erie County that are defined by NYSERDA as a "disadvantaged community." It probably would not be possible, however, to confirm demographic data beyond income criteria if HEAP data does not provide information beyond household income.

Ability to Assess Housing Conditions. If HEAP data at the household level that includes address information is made available to the CCA CDG administrator, it would be possible to cross reference the served households with other data that may be available to Erie County to assess housing conditions and need for housing improvements. Such an analysis would require an independent dataset and would be performed by Erie County or its contractor, not by the utility.

2.3.3 Supplemental Government Datasets

Beyond EAP and HEAP, Erie County maintains or has access to other datasets that we evaluate to be ill-suited to serve as the primary databases for ECLIPSE. Some supplemental datasets fail to meet the threshold criteria of appropriate, comprehensive, reliable, and current, and legally available and unrestricted, while others are less adaptable, or are merely derivatives of the EAP and HEAP datasets.

Non-derivative databases that provide unique, additional data could be supplementary to the primary database to improve the primary database, such as a means of verifying that ECLIPSE assistance is reaching intended recipients. Based on their ability to provide additional and appropriate data, the following databases are recommended as supplementary databases for consideration by Erie County:

- Community Development Block Grants
- New York State Disadvantaged Communities

Notwithstanding the foregoing, this report provides the full analysis of all identified database, both derivative and non-derivative.

The NY PSC is considering the requests of Opt-Out CDG administrators to access low-income household data.[147] Should this request be approved, ECLIPSE administrators could expand enrollment using supplementary datasets to identify need through additional criterion, such as by being in a disadvantaged community. This approach mirrors Sustainable Westchester's

[147] Case 14-M-0224, *Opt-Out CDG Order* (Issued & effective November 22, 2021).

requested approach to build and expand a dataset to administer their proposed Integrated CCA with Opt-Out CDG in Westchester County.[148]

2.3.3.1 Temporary Assistance

The Temporary Assistance (TA) program administered by Erie DSS provides monetary relief after HEAP funds have been exhausted. Specific funding is available for various emergencies through the Emergency Services (ES) portion of TA through federal HHS programs.[149]

Unlike EAP and HEAP, the TA program's focus is broader than energy related costs. For example, TA funds may provide a one-time payment for the emergency repair or replacement of important household appliances like stoves and refrigerators, or to prevent eviction, foreclosure, and utility or water shutoffs.[150]

All TA benefits must be repaid by the recipient.[151] When approved for a TA benefit, the head of household must sign a repayment agreement, Confessions of Judgment, and other legally binding paperwork. While TA funds are loaned interest-free, repayment periods vary based on funding source and what need the payment covered.[152]

Multiple funding sources exist within the TA program, with eligibility dependent on the characteristics of the head of household, who resides with them, the reasons for the emergency need, and the income level of the family or household.[153] The two primary, non-emergency TA funding sources are:

- **Family Assistance (FA)** provides cash assistance to families with at least one minor dependent who meet the federal Temporary Assistance for Needy Families (TANF) guidelines for eligibility.

- **Safety Net Assistance (SNA)** provides cash assistance to those in need who are not eligible for FA, including single adults, childless couples, and children living without an adult.

In addition to these sources, ES funding sources under the TA program include:

- **Emergency Assistance to Adults (EAA)** is available to heads of households that receive Supplemental Security Income (SSI) or New York State Supplement Program (SSP) assistance.

- **Emergency Assistance to Families (EAF)** is available to families with pregnant females or at least 1 child. Income eligibility is 200 percent of the Federal Poverty Level (200 FPL).

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[148] Case 14-M-0564 and Case 14-M-0224, *SW Opt-Out CDG Petition* (filed August 10, 2021).
[149] OTDA, *Temporary Assistance*, https://otda.ny.gov/programs/temporary-assistance/.
[150] *Id*.
[151] Erie County, *Temporary Assistance: Emergency Services – Eligibility*, https://www3.erie.gov/temporaryassistance/emergency-services-eligibility.
[152] *Id*.
[153] "Family" includes the head of household and all dependents and relatives, by blood or marriage, living at the residence. "Household" includes the family, as well as all non-relatives who live at the residence.

- **Emergency Safety Net Assistance (ESNA)** is available to households ineligible for EAF, including single individuals and married couples without children. Income eligibility is 125 percent of the Federal Poverty Level (125 FPL).

Income thresholds for 2022-2023 for HEAP, EAF, and ESNA eligibility for families or households from 1 to 5 people, are compared in the table below. The income eligibility thresholds of EAF and ESNA are lower than those for HEAP (ESNA income thresholds are around 50% of HEAP maximums). While this makes the TA dataset narrower and subject to a greater degree of transiency than the EAP or HEAP datasets, those captured represent some of the most in-need Erie County residents.

Table 3: HEAP and TA Income Thresholds

Family or Household Size	Home Energy Assistance Program (HEAP)		Emergency Assistance to Families (EAF)		Emergency Safety Net Assistance (ESNA)	
	Maximum Gross Monthly Income	Maximum Gross Annual Income	Maximum Gross Monthly Income	Maximum Gross Annual Income	Maximum Gross Monthly Income	Maximum Gross Annual Income
1	$2,852	$34,224	$2,127	$27,180	$1,416	$16,988
2	$3,730	$44,760	$3,052	$36,620	$1,907	$22,888
3	$4,608	$55,296	$3,838	$46,060	$2,399	$28,788
4	$5,485	$65,820	$4,625	$55,500	$2,891	$34,688
5	$6,363	$76,356	$5,412	$64,940	$3,382	$40,588

Source: OTDA, Home Energy Assistance Program; Erie DSS, Emergency Services – Eligibility

Appropriateness. The TA dataset will include some of the lowest income earning individuals and families. While the TA dataset might capture in-need households in Erie County, it may also translate to a high degree of transiency that makes it difficult to use as the primary ECLIPSE dataset.

Comprehensiveness. Lower income thresholds and a potentially high degree of transiency means TA captures a narrower set of low-income Erie County residents compared to EAP or HEAP. The TA data would be limited to those who most recently received TA financial benefits. Further, the payback requirement and potential stigma around receiving TA may lead to eligible low-income households to not seek the benefit.

Reliability and Currency. The dataset is managed by the OTDA and is updated with regular frequency as families and households apply and are approved for assistance.

Restrictions on Use or Access. Erie DSS has access to the information about families or households that receive TA. As a social service/welfare program, use of TA data is subject to the N.Y. Social Service Law and NYCRR regulations.

Data Cut-Off. Income thresholds for emergency TA programs are up to 50 percent lower than HEAP and EAP, making the TA dataset narrower and limited to the most in-need residents.

Adaptability to New Information. TA is managed by the U.S. HHS and the NYS OTDA, with limited potential for adaptability by Erie County.

Control over Eligibility. Erie County has no control over TA eligibility criteria, which is controlled by federal and state guidelines.[154]

Verifiability of Need. The TA dataset is provided to Erie DSS, making it possible to verify that the served households fall within areas of Erie County that are defined by NYSERDA as a "disadvantaged community." It probably would not be possible, however, to confirm demographic data beyond income criteria if TA data does not provide information beyond household income.

Ability to Assess Housing Conditions. Limited to none.

2.3.3.2 Community Development Block Grants

The Community Development Block Grant (CDBG) Program provides annual grants to states, cities, and counties to help further develop viable urban communities. The program's main initiatives serve to provide decent housing and expand economic opportunities for LMI households. CDBG projects can be done at a municipal level or through home repairs for qualifying individuals.

Erie County operates the CDBG program for 34 communities and the HOME program for 37 communities. The list of participant municipalities is maintained by Erie DEP. Buffalo and the towns of Tonawanda, Amherst, and Hamburg administer their own CDBG programs.

CDBG awards for individual homeowners are loans., whereas awards for municipalities are grants. The average CDBG loan for homes is $17,000 with a 0% interest rate. Residential roofing repairs are the most common project type county-wide, with 80% to 90% of CDBG funds allocated to such residential projects. The loan usually becomes a lien on the house that is paid back when the house is sold. The CDBG program also regularly assists with repairs to mobile homes in rural areas.

Criteria for a potential project's eligibility and fund allocation includes subjective and objective criteria and employs a point system. Erie DEP staff scores several objective criteria, including location within a HUD high priority area, presence of senior citizens, potential remediation of code violations, presence of mobile homes, and property valued under $200,000. Municipal leaders and Erie DEP staff members local to various areas of the County then score subjective criteria. The more points awarded, the higher the proposed project's priority to receive funds.

Of Erie County's current $3.1 million annual CDBG budget, 27% must fund municipal projects. Municipal projects funded through CDBG include improvements to sewers, roads, or other infrastructure. Alternatively, municipal projects may benefit community pillars such as non-profit organizations and municipal buildings like senior centers. Grants to municipal projects cannot exceed $100,000 and usually must occur in a HUD-designated area. However, municipalities

[154] U.S. HHS, *HHS Poverty Guidelines for 2022*, https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines.

may apply for an identified area of need if no HUD-eligible areas are present. Municipal sites with large roofs could potentially host ECLIPSE solar installations.

CDBG grants potentially present synergies with ECLIPSE, such as supplementing the cost of energy efficient roofs, insulation, and weatherization.

Appropriateness. CDBG is used towards LMI households at or below 80% of the Area Median Income (AMI), which may be appropriate for serving ECLIPSE target households as a supplemental database. However, CDBG's focus is broader than energy, there is a long waiting list, the program does not advertise widely, is limited to homeowners or communities in HUD-designated areas, and does not capture households in municipalities that administer their own programs, including Buffalo.

Comprehensiveness. The data is not comprehensive for purposes of administering ECLIPSE. The benefit mostly applies to homeowners and has a limited benefit to renters. CDBG funds run out yearly, resulting in a long waiting list for grants and a dataset that potentially does not contain all in-need households who apply. In addition, because the program relies on homeowners and municipalities applying for benefits that the applicant then must be able to wait for, the characteristics of those who receive CDBG grants are less appropriate for ECLIPSE eligibility than households enrolled in EAP and HEAP.

Reliability and Currency. Older cases that benefitted from CDBG funds may not be as reliable or current as to where need exists, particularly if homes have transferred ownership. Eligible areas and incomes can fluctuate over time. Due to the limited funding, the dataset only contains a percentage of potentially in-need households who apply.

Restrictions on Use or Access. The Erie DEP possesses the CDBG data for the consortium of towns within Erie County that use the County as their CDBG administrator. Importantly, Erie County will not have CDBG data for municipalities like Buffalo, Amherst and Cheektowaga that administer their own CDBG programs, unless these municipalities are able and willing to provide their data to Erie County.

Data Cut-Off. The data cut off for CDBG is different than those used in EAP and HEAP (60% of SMI or 150% of FPL). The CDBG database contains households with income under 80% AMI in specific HUD-designated areas. Due to limited funding, the dataset only contains a percentage of potentially in-need households who apply.

***Adaptability to New Information*.** The database is controlled by the Erie County Department of Planning within Erie DEP. Thus, ECLIPSE administrators may be able to alter the information if provided a copy of the data.

Control over Eligibility. Eligibility is determined by the Federal and State parent programs. CDBG funds must go towards LMI home repairs or municipal infrastructure projects in specific areas, and the eligibility criteria cannot be changed.

Verifiability of Need. The CDBG database is unlikely to isolate ECLIPSE-eligible households, given the limitations of comprehensiveness. CDBG can be narrowed to identify households with extreme needs, but it is unlikely to approximate ECLIPSE target households without substantial adjustment.

Ability to Assess Housing Conditions. As part of the grant awards, the CDBG program documents housing conditions except in emergency situations. The Erie DEP possesses records of electrification, weatherization, and structure improvement projects funded under the residential and municipal programs, which include maps of housing and community improvements. ECLIPSE administrators should explore whether maps of completed single and multifamily housing and community infrastructure improvements from administration of the CDBG program are accessible. Given the high percentage of roof improvements funded through these programs, these maps may help identify potential locations for ECLIPSE solar development. Additionally, the CDBG program regularly assists with repairs to mobile homes, making this program the best data source for identifying housing conditions for that housing type.

2.3.3.3 Weatherization Assistance Program

The Weatherization Assistance Program is administered by the NYS Office of Homes and Community Renewal (NYS OHCR).[155] The program aims to assist income-eligible homeowners and renters by reducing heating and cooling costs. Achieved primarily through energy-conservation measures, the program also touches upon health and safety.

Appropriateness. The weatherization assistance program uses the same criterion as HEAP to qualify recipients and is derivative of the HEAP dataset.

Comprehensiveness. The dataset is unlikely to be comprehensive because recipients are limited to HEAP-eligible consumers who self-selectively seek support for weatherization measures. Further, the weatherization assistance program is not well known compared to utility EAP and HEAP discount programs.

Reliability and Currency. Unknown; the weatherization assistance program and dataset are maintained by NYS OHCR.

Restrictions on Use or Access. Same restrictions as HEAP.

Data Cut-Off. Cuts off after the highest HEAP threshold (60% of SMI or 150% of FPL).[156]

Adaptability to New Information. The weatherization assistance program does not lend itself to adaptability by Erie County, as it is maintained by NYS OHCR.

Control over Eligibility. Eligibility criterion is determined by the NYS OHCR.

Verifiability of Need. Given the overlap between the weatherization assistance program, HEAP and EAP datasets, the HEAP or EAP datasets are recommended to verify target customers are being served by ECLIPSE.

Ability to Assess Housing Conditions. The weatherization assistance program dataset may provide useful information about housing conditions or energy burden for low-income residents. However, it is unknown if the original condition of the house is documented or if only the service was documented. Discussion with NYS OHCR is recommended.

[155] NYS OHCR, *Weatherization Assistance Program*, https://hcr.ny.gov/weatherization.
[156] NYS OHCR, *Weatherization Applicants*, https://hcr.ny.gov/weatherization-applicants.

2.3.3.4 EmPower

EmPower is the largest weatherization program in New York State that is run by NYSERDA.[157] The EmPower program provides weatherization and heating mechanical retrofits at no-cost to income-eligible residents throughout New York. Further discussion with NYSERDA is recommended to determine to what extent EmPower data could be useable at the community level.

Appropriateness. The program already has a community solar enrollment aspect, and questions remain about how useable the dataset is at the community level. While the data is not useful in developing ECLIPSE, it could serve a purpose if ECLIPSE community solar benefits and EmPower energy savings from weatherization services are later combined.

Comprehensiveness. This program is run through NYSERDA and may not be well-known. Little is known about the quantity and quality of data related to the program.

Reliability and Currency. Due to the program being administered by NYSERDA and having a billing component, the program it is likely up to date and any data that they have would be reliable and current.

Restrictions on Use or Access. The program is not run through Erie County so it would be necessary to receive permission to use the information collected from NYSERDA.

Data Cut-Off. Cuts off after the highest HEAP threshold (60% of SMI or 150% of FPL).[158]

Adaptability to New Information. There is very little adaptability to new information, as the program is not operated by Erie County.

Control over Eligibility. Not in Erie County's control, eligibility is determined by NYSERDA.

Verifiability of Need. Program is operated by NYSERDA, making Erie County's ability to verify need limited.

Ability to Assess Housing Conditions. The dataset may provide useful information about housing conditions or energy burden for low-income residents. However, it is unknown if the original condition of the house is documented or if only the service was documented.

2.3.3.5 Assisted Home Performance with Energy Star

New York's Assisted Home Performance with Energy Star program is a government initiative aimed at helping low-income households reduce their energy costs and improve the energy efficiency of their homes. The program offers a range of benefits, including financial incentives, energy assessments, and installation of energy-efficient measures.

[157] NYSERDA, *EmPower: What to Expect*, https://www.nyserda.ny.gov/All-Programs/EmPower-New-York-Program/What-to-Expect.
[158] NYSERDA, *EmPower New York Eligibility Guidelines*, https://www.nyserda.ny.gov/All-Programs/EmPower-New-York-Program/Eligibility-Guidelines.

To be eligible for the program, households must meet certain income requirements and live in a single-family home or a building with no more than four units. Applicants must also own or rent the property and have a utility account in their name.

Once a household is accepted into the program, an energy assessment is conducted to identify areas where energy efficiency can be improved. The assessment includes an analysis of the home's heating and cooling systems, insulation, and lighting, among other things. Based on the assessment, the program may provide a range of energy-saving measures, such as insulation installation, air sealing, or high-efficiency lighting, at no cost to the homeowner.

In addition to these measures, the program offers financial incentives, including grants to offset the cost of energy-efficient upgrades. The program also provides low-interest loans for those who need additional funding to make energy improvements.

Appropriateness. The program is designed for homeowners who qualify based on household income below New York State SMI within designated pre-screened areas. This data could serve to supplement other data sets that might not include homeowners.

Comprehensiveness. This program is run through NYSERDA and may not be well-known. Little is known about the quantity and quality of data related to the program.

Reliability and Currency. Because the program is not an ongoing support program, but rather supports investments for qualifying homeowners, the program data would not track or update income eligibility.

Restrictions on Use or Access. The program is not run through Erie County so it would be necessary to receive permission to use the information collected from NYSERDA.

Data Cut-Off. Cuts off after the highest HEAP threshold (60% of SMI).

Adaptability to New Information. There is very little adaptability to new information, as the program is not operated by Erie County.

Control over Eligibility. Not in Erie County's control, eligibility is determined by NYSERDA.

Verifiability of Need. Program is operated by NYSERDA, making Erie County's ability to verify need limited.

Ability to Assess Housing Conditions. The dataset may provide useful information about housing conditions or energy burden for low-income homeowners.

2.3.3.6 Solar for All and Expanded Solar for All

Solar for All (SFA) is a utility bill assistance program funded by New York State. NYSERDA funds community solar projects and enrolls eligible low-income utility customers in a no-cost community solar subscription based on space availability.[159] Customers must elect to self-enroll in the program, though they may demonstrate eligibility through existing enrollment in HEAP, TA, or EmPower. The SFA program in National Grid territory is fully subscribed, meaning a waitlist may exist for eligible Erie County residents.

[159] NYSERDA, *Solar for All*, https://www.nyserda.ny.gov/solar-for-all.

Expanded Solar for All (E-SFA) is a similar utility bill assistance program specific to low-income customers in National Grid territory. The NY PSC approved the first steps of the E-SFA program in January 2022, which aims to offer community solar discounts to the nearly 160,000 low-income customers participating in National Grid's EAP.[160]

Appropriateness. The SFA program utilizes income eligibility based on monthly and annual household income, with current eligibility thresholds set at 60% of SMI. This income eligibility can be established through participation in social services programs like HEAP, TA, and EmPower. As NYSERDA (program provider) does not administer these social assistance programs, they may just perform a verification check that customers are enrolled in social services. Thus, their dataset likely does not contain granular income data.

E-SFA remains in development and will apply to all EAP customers in National Grid territory. Due to the current restrictions on utility data and the derivative nature of the E-SFA data of the EAP dataset, the E-SFA data is not an appropriate program dataset for ECLIPSE development.

Comprehensiveness. The SFA program relies on self-elected enrollment by low-income customers already enrolled in other social services, making it derivative and less comprehensive than the HEAP and EAP datasets.

Reliability and Currency. The SFA program requires periodic recertification to verify participants still receive social services, which suggests a degree of reliability and currency. It is unknown how the utility will recertify SFA participants in practice.

Restrictions on Use or Access. Both databases are not maintained by Erie County. Restrictions on use and access are limited due to utility restrictions and potentially by NYSERDA protocol.

Data Cut-Off. The SFA database only contains customers that elect to self-enroll in the program. In National Grid territory, a waitlist exists, so even with access, this is a limited dataset for capturing need in Erie County.

Adaptability to New Information. Neither SFA or E-SFA are owned by Erie County, and the County will not be able to alter the data.

Control over Eligibility. Erie County has no control over eligibility for both programs.

Verifiability of Need. Because the information collected is predominantly from social services and utility programs, it would be difficult to assess other demographic criteria beyond income and household size.

Ability to Assess Housing Conditions. Limited to none for both SFA and E-SFA.

2.3.3.7 Erie County's Public Assistance Cooperative for Energy (PACE)

PACE assists with the electrical and gas bills of the neediest (extremely low-income) households in Erie County.

[160] NY PSC Case 19-E-0735, NY-Sun Program Funding and Extension of Program Through 2025, *Order Approving Expanded Solar for All Program with Modifications* (issued January 20, 2022) ("E-SFA Order").

Appropriateness. Individuals enrolled in PACE are in the Temporary Assistance (TA) program, which captures those needing immediate, temporary assistance to maintain basic needs. Due to the changing group of temporary recipients in PACE, the dataset is recommended as a supplemental dataset for program development, not the primary dataset.

Comprehensiveness. The number of PACE recipients decreased in recent years. Enrollment comes through TA, which is a less comprehensive dataset than EAP or HEAP for capturing need in Erie County because it has a lower income threshold.

Reliability and Currency. Unknown as updating practices were called into question during the PACE resolutions, though potential transiency issues with the TA dataset suggests similar issues with reliability and currency.

Restrictions on Use or Access. The PACE dataset is a subset of TA and subject to all restrictions on welfare records. This dataset would capture a set of in-need Erie County residents, but the limited comprehensiveness of the dataset makes it more appropriate as a supplemental dataset.

Data Cut-Off. TA income limits.

Adaptability to New Information. Limited

Control over Eligibility. Limited to no control by Erie County.

Verifiability of Need. PACE utilizes TA as an eligibility basis. Additionally, it serves residents who are typically not fully capable of independent living. Thus, it is likely a category of individuals highly in-need of additional assistance.

Ability to Assess Housing Conditions. Limited to none.

2.3.3.8 American Community Survey

The ACS is an annual survey conducted by the U.S. Census Bureau. Survey respondents provide self-reported information regarding their age, race, sex, household composition, income, and other variables.[161]

The NYC HRA Petition suggested the use of Public Use Microdata Sample (PUMS) files from the ACS to estimate median incomes and monthly energy costs.[162] The NYC HRA defends ACS data as reliable and easily manipulated, highlighting its use to administer $675 billion in federal program funds, as well as multiple and varied control methods employed by the ACS survey administrators to: (i) vet survey questions for cognitive understanding; (ii) ensure respondent participation; (iii) select a statistically representative sample; and (iv) weigh the sample to guarantee representative data.[163]

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[161] *See* United States Census Bureau, *About the American Community Survey*, available at: https://www.census.gov/programs-surveys/acs/about.html.
[162] NY PSC Case 14-M-0565, Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers, *Petition of the City of New York to Re-Examine Statewide Utility Low Income Program Discounts* at 6 (filed January 31, 2020) ("NYC EAP Petition").
[163] *Id*.

The NY PSC did not adapt this approach due to multiple concerns.[164] First, PUMS geographical data is limited below the state level. Second, use of ACS data requires additional time and resources. According to the American Community Service Office, ACS PUMS data requires downloading large datasets that need specific statistical software to analyze. Third, ACS data is defined by family, not household size like EAP and HEAP discount eligibility.

Appropriateness. ACS data is not appropriate to administer ECLIPSE. The ACS is a public dataset with a much broader focus than energy burden. The NY PSC EAP Order specifically declined to direct the Joint Utilities to use ACS data to calculate tier discount benefits due to high costs associated with manipulating and using the data. Further, ACS's use of families is incompatible with eligibility based on households for energy assistance programs like EAP and HEAP.

Comprehensiveness. Surveyors take extra measures to ensure high respondent participation and selection of a statistically representative sample. However, this is sample data and no information about specific in-need households is provided. The dataset is not comprehensive to the level needed to administer ECLIPSE.

Reliability and Currency. The ACS dataset is updated annually through a rigorous survey process.

Restrictions on Use or Access. While data is publicly available, it requires time and cost to access and manipulate.

Data Cut-Off. Given the broad focus of the ACS survey, the data is much broader than necessary for administration of ECLIPSE.

Adaptability to New Information. Not in Erie County's control, not adaptable.

Control over Eligibility. Not applicable.

Verifiability of Need. Not in Erie County's control, verification of need not possible.

Ability to Assess Housing Conditions. Potentially limited.

2.3.4 Developing Datasets

The following datasets under development have potential to supplement the primary eligibility dataset.

2.3.4.1 Disadvantaged Communities (DACs)

New York's Climate Leadership and Community Protection Act (CLCPA) requires that at least 135% of overall benefits of spending on clean energy and energy efficiency programs, projects or investments benefit disadvantaged communities (DACs). CLCPA DACs may define Erie County's compliance obligations for disbursement of funds for clean energy and energy efficiency programs in the future.

[164] Case 14-M-0565 and Case 20-M-0266, *EAP Order* at 22- 25 (Issued & Effective August 12, 2021).

Tasked with developing the State's official definition for DACs, the Climate Justice Working Group (CJWG), "comprised of representatives from State Agencies and Environmental Justice groups across the State," first had to decide on a set of defining criteria and choose data points to measure each criterion. The CJWG initially identified more than 170 types of disadvantages that communities might experience. The initial criteria included both geographic and income-based components. With the help of consultants, the list was reduced to 45 indicators to inform the geographic criteria.[165] The DACs Criteria were finalized in March 2023.[166]

Communities were reviewed as census tracts, or statistical subdivisions of counties created by the U.S. Census Bureau. There are 4,918 census tracts in New York that each hold an average of 3,989 people and 1,488 households. Many metrics were dropped due to lack of reliable statewide or census tract-level data, or any data at all. The CJWG sought to craft workarounds for lack of statistics, use proxy measures, or press the state for better data collection wherever possible. Still, data limitations will inevitably shape New York's forthcoming definition of disadvantaged communities.

After identifying measurable criteria, the CJWG developed a method to combine data points to score and rank New York's census tracts that aligns with methods used in California.

The *DACs Criteria* adopts a six (6) step approach:

Step One:	Calculate indicator values per census tract
Step Two:	Calculate indicator percentile ranks (% of 0-100)
Step Three:	Calculate Factor Scores
Step Four:	Calculate Component Scores
Step Five:	Calculate Combined Score per census tract
Step Six:	Calculate Combined Score percentile rank and designate DACs

Step One: Calculate indicator values per census tract. For each census tract, each of the 45 indicators were assigned a "raw" value from the dataset. To determine this value, most datasets required cleaning, analysis, and transformation to normalize data points. Various custom analytic approaches were used to calculate the census tract value for indicators with data calculated or estimated at different levels.

Step Two: Calculate indicator percentile ranks (% of 0-100). With each indicator assigned a raw value per census tract, a common scale using percentile ranking was established. Raw values are scaled and converted to a percentage value for data measured in different units to be combined and compared within and across indicators. To calculate the percentile rank for each of the 45 indicators by census tract, the CJWG ranked all non-zero data points of each indicator from smallest to largest. Any observations of zero received a zero-percentile rank, while missing observations were excluded from the calculation.

[165] Sources on the DAC Criteria: New York State (2022) Draft Disadvantaged Communities Criteria and List Technical Documentation, *Climate Justice Working Group* ("DAC Criteria")*;* New York State (2022) Draft Disadvantaged Communities Criteria Overview, *Climate Justice Working Group;* NYS CJWG (2022) *New York State's Draft Disadvantaged Communities Criteria Fact Sheet*, https://climate.ny.gov/-/media/project/climate/files/LMI-dac-criteria-fact-sheet.pdf.

[166] New York Department of Environmental Conservation. Press Release, March 27, 2023. Available at: https://www.dec.ny.gov/press/127364.html (accessed April 14, 2023).

Step Three: Calculate Factor Scores. With each indicator assigned a percentile in each census tract, the indicators are then organized into one of seven sets called “Factors” that bundle similar concepts for weighting purposes.

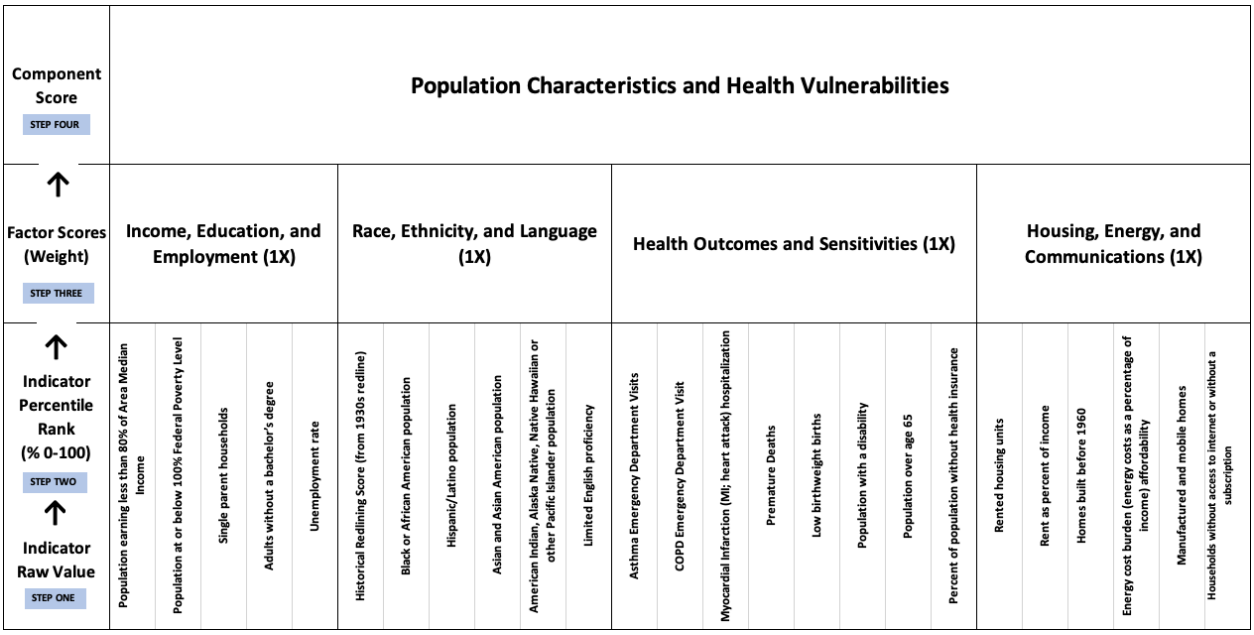
For example, the Factor Score for Potential Pollution Exposures (PPE) is derived from the percentile scores of five (5) indicators for a given census tract: (i) particulate matter air pollution; (ii) vehicle traffic density; (iii) benzene air concentration; (iv) diesel truck and bus traffic; and (v) proximity to wastewater discharge.

To calculate the PPE Factor Score, each indictor is scored as a percentile of magnitude, and then averaged to render a composite score. This same calculation is completed for each Factor Set in every census tract.

Step Four: Calculate Component Scores. The seven (7) Factor Sets are then grouped into one of two overarching Components: (i) Environmental Burdens and Climate Change Risks, and (ii) Population Characteristics and Health Vulnerabilities. The chart below shows how the 45 indicators are grouped first into Factor Sets with Factor Scores before being further combined into Components with Component Scores. Like the Factor Score calculation, the Component Score for each census tract is derived from the weighted average of Factor Scores from the Component’s associated Factor Sets.

Table 4: DAC Component Score Calculation

Component Score STEP FOUR	**Environmental Burdens and Climate Change Risks**																							
↑ **Factor Scores (Weight)** STEP THREE	**Potential Pollution Exposures (1X)**					**Land Use Associated with Historical Discrimination or Disinvestment (1X)**										**Potential Climate Change Risks (2X)**								
↑ **Indicator Percentile Rank (% 0-100)** STEP TWO ↑ **Indicator Raw Value** STEP ONE	Particulate matter (2.5) air concentration	Vehicle traffic density	Benzene air concentration	Diesel truck and bus traffic	Proximity to wastewater discharge	Proximity to remediation sites	Proximity to risk management plan (RMP) sites	Proximity to power generation facilities	Proximity to major oil storage facilities	Proximity to active landfills	Proximity to scrap metal processing and vehicle dismantlers	Proximity to municipal waste combustors	Industrial, mining, and manufacturing land area	Vacant housing units	Indigenous/Indian Nation territory	Flooding in coastal and tidally influenced areas (projected)	Flooding in inland areas (projected)	Projected high temperature (90+) days	Low Vegitative Cover	Agricultural Land Use	Drive time to healthcare facilities				



Source: DAC Criteria, Climate Justice Working Group

Step Five: Calculate Combined Score per census tract. Once both Component Scores are calculated for a census tract, a Combined Score is calculated by multiplying the two Component Scores together.

For example, for hypothetical Census Tract 001, assuming an "Environmental Burdens and Climate Change Risks" Component Score of 60 and a "Population Characteristics and Health Vulnerabilities" Component Score of 50, the Combined Score for this census tract 001 is 3,000 (60 * 50).

Step Six: Calculate Combined Score percentile rank and designate DACs. The second-to-last step in the CJWG's criteria calculation is assigning each census tract a Combined Score Percentile Rank. The Combined Score of each tract is compared to the Combined Scores for all tracts statewide and other tracts in the same region to determine (i) a Statewide Combined Score Percentile Rank, and (ii) a Regional Combined Score Percentile Rank. The highest value between the Statewide and Regional Percentile Rank is the Combined Score Percentile Rank for a given census tract.

These scores are then applied to determine whether each tract's combined score falls above the threshold for inclusion in the 35% of census tracts to be designated as Geographic DACs.

The CJWG's criteria designate 35% of census tracts – a total of 1,721 locations – as DACs across the state. Compared to other tracts in the same region and statewide, the 35% of tracts identified scored highest on the two Components scores. If formally adopted, each designated tract is set to receive at least 35%-40% of CLCPA benefits.

Presently, use of the DACs identified by NYSERDA is not recommended as the primary eligibility dataset to define ECLIPSE eligibility due to its methodological complexity, limited adaptability, access, or control by Erie County.

Importantly, the definition and analytic method may face potential legal challenges. Advocates for downstate urban areas have claimed that the criteria favor rural areas because its use of SMI fails to consider the higher cost of living downstate. In contrast, rural areas have voiced concerns that the data skews too heavily towards urban communities.

The geographic scoring approach did include several methods meant to balance rural and urban burdens and vulnerabilities, yet fewer rural tracts (15%) were identified on the DACs list compared with suburban (26%) and urban tracts (47%).[167] Additionally, advocates have called for a greater percentage of CLCPA investment to benefit DACs than the minimum required 35%. NYSERDA will track CLCPA investments with a policy target of 40% benefiting DACs. Legal challenges may also question the use of race-based indicators for the constitutional reasons discussed above.

Once any potential legal challenges conclude, the final DACs definition and list may provide opportunity for expansion of ECLIPSE eligibility to households in communities designated as DACs that are not yet enrolled.

Further, initial review of the DAC designated areas in Erie County suggests that it emphasizes urban areas, and may not fully capture poverty in suburban and rural areas. Poverty affects Erie County across its geography, yet the current DACs almost exclusively identify urban areas.

Finally, the methodology for calculating DACs is complex by necessity. However, the complexity precludes the public from being able to easily understand how specific designations were made, without considerable expenditure of time to understand methodology and its application to the available data. A simple metric that is easily grasped intuitively would be more transparent.

Further analysis, beyond the scope of this report, would be required to determine how other eligibility criteria considered in this report would contribute to meeting the New York State CLCPA mandate that 35% of overall benefits of spending on clean energy and energy efficiency programs, projects or investments benefit disadvantaged communities, yet in a more readily understandable manner. DAC criteria would, in this conception, be utilized as a means of verifying overall County compliance with CLCPA, not as eligibility criteria for certain programs.

Appropriateness. This dataset does not contain individual or household income data. Instead, it contains two aggregate income data points relating to communities based on the American Community Survey: population earning less than 80% AMI and the poverty rate (below the 100% of the Federal Poverty level). In the DAC process, these income scores are further summed together as a total score. As noted above, DAC designated areas in Erie County are mainly urban area. Because poverty affects Erie County across its geography, the current DACs may not adequately identify rural poverty if used as ECLIPSE's primary eligibility criteria.

Comprehensiveness. This dataset does not require individuals to apply to be classified as a Disadvantaged Community. In addition, households that meet 60% of the AMI are automatically qualified for energy efficiency assistance programs (even if they are located outside of eligible DAC Census Tracts). Thus, it may have the advantage of capturing the most low-income individuals in Erie County as it does not have any exclusions or barriers to applications. However, it would be limited to the scope and limits of ACS/Census data collection methods.

[167] Jackie Bowen (2022) "Adk Council to DEC: Rural communities' needs should be considered in 'disadvantaged' list", *Adirondack Almanack*, https://www.adirondackalmanack.com/2022/08/adk-council-rural-communities.html.

Reliability and Currency. Because the designation of DACs is based on Census Tracts, it is likely that some residents in the tracts are not low-income and will benefit from clean energy investments made in those communities. Additionally, much of the data used in the DAC criteria is from 2019 or older. Consequently, the data may already be outdated to some degree. In conjunction, these data collection years may not adequately account for the impacts of COVID-19 that occurred in 2020. There should be official updates to DAC eligibility in the future; however, the designated DACS are intended to remain constant for extended periods.

Restrictions on Use or Access. This database is not within the control of Erie County; thus, restrictions on usage would depend on NYSERDA's rules as well as ECLIPSE protocols for external programs.

Data Cut-Off. Individual and household data is not collected.

Adaptability to New Information. NYSERDA owns the dataset pertaining to disadvantaged communities. As it currently stands, Erie County would not be able to make any changes to the dataset.

Control over Eligibility. DAC does not define program eligibility, but rather defines census tract areas that may be counted towards compliance with New York State mandates for investment in disadvantaged communities. Erie County would have no control over these definitions. Per the CJWG's proposal, those who live in designated DACs or who make under 60% of SMI regardless of location would be counted. It remains to be determined whether CJWG contemplates developing a database of eligible households.

Verifiability of Need. This dataset contains numerous variables such as race, education, health, energy affordability that could help indicate geographic areas in need of assistance.

Ability to Assess Housing Conditions. Numerous variables in the dataset pertain to housing (e.g., Housing stock built before 1960, manufactured homes, housing cost burden, etc.). However, specific structures are not rated in terms of their individual conditions. These variables mostly come from the census and are reported at the census tract level; thus, giving us an idea of cost and building age at the neighborhood level.

2.3.4.2 Low-Income Community Solar Subscription Platform

The Low-Income Community Solar Subscription Platform is a federal program that aims to use community solar farms to bring clean energy to low-income residents. Currently, the program is being pilot tested in New York and four other states. This program was announced in July 2022 and available information about the workings of the program remain limited.

Appropriateness. This is a federal program that will be utilizing LIHEAP data as a basis of eligibility. Thus, income ranges would likely be based on LIHEAP data.

Comprehensiveness. TBD.

Reliability and Currency. TBD.

Restrictions on Use or Access. TBD.

Data Cut-Off. TBD.

Adaptability to New Information. TBD.

Control over Eligibility. Not in Erie County's control, the eligibility will likely be determined by the Federal office for the program.

Verifiability of Need. TBD.

Ability to Assess Housing Conditions. TBD

Table 5: Evaluation of Primary and Supplemental Government Datasets Options

	Appropriate	Comprehensive	Reliability and Currency	Restrictions	Data Cut-Off	Adaptability	Control over Eligibility	Verifiability of Need	Ability to Assess Housing Conditions
Primary Datasets									
Energy Assistance Program (EAP)	Highly	Highly	Highly	Utility restrictions, pending PSC determinations	150% of FPL or 60% of SMI	Somewhat; Collaboration with Utilities recommended	Closed-architecture pending PSC determinations	Currently OTDA pending PSC determinations	Potential to cross-reference pending PSC determinations
Home Energy Assistance Program (HEAP)	Highly	Highly but more limited than EAP	Highly	Accessible; N.Y. SSL & NYCRR; Approvals from NYSERDA	150% of FPL or 60% of SMI	Highly	Open-architecture	Erie DSS verification possible	Potential to cross-reference if addresses provided
Supplemental Datasets									
Temporary Assistance (TA)	Somewhat	Somewhat/Limited	Highly	Accessible; N.Y. SSL & NYCRR	Up to 50% lower than EAP/HEAP	Limited	Open-architecture	Erie DSS verification possible	Limited- to no-potential
Community Development Block Grants (CDBGs)	Somewhat/ Limited	Limited	Limited	Limited to municipalities in consortium, excludes Buffalo	80% of AMI	Somewhat	Limited	Limited	Potential
Weatherization Assistance Program (WAP)	Limited; Derivative of EAP/HEAP	Limited	Unknown	Limited; N.Y. SSL & NYCRR	150% of FPL or 60% of SMI	Limited	Limited; Closed-architecture	Limited	Potential
EmPower	Limited	Limited	Unknown	Approvals from NYSERDA	150% of FPL or 60% of SMI	Limited	Limited; Closed-architecture	Limited	Limited/Unknown potential
Assisted Home Performance with Energy Star	Limited	Limited	Unknown	Approvals from NYSERDA	60% of SMI	Limited	Limited; Closed-architecture	Limited	Possible for homes in program
Solar for All	Limited	Limited	Limited	Utility restrictions	60% of SMI	Limited	Limited; Closed-architecture	Limited	Limited- to no-potential
PACE	Limited	Limited	Limited	Automatic enrollment	TA Cut-Off	Limited	Limited	Highly	Limited- to no-potential
American Community Survey	Limited	Limited	Highly	Time and cost	Broad	Limited	N/A	Limited	Limited
Disadvantaged Communities	Somewhat/ Limited	Highly (potentially)	Somewhat/ Potentially Limited	Approvals from NYSERDA	Broad	Limited	Limited/ Unknown	Potential	Potential Census Tract level
LICSSP	Limited	Unknown	Unknown	Unknown	Unknown	Unknown	Limited	Unknown	Unknown

2.4 Potential Synergies Among Partners and Programs

This section evaluates the potential for partnerships with external organizations, as well as internal synergies with existing Erie County programs. The partnership and synergistic opportunities below were identified throughout the development of this report and represent a non-exhaustive list of potential partners and opportunities.

2.4.1 External Partnerships

As Erie County continues to develop its outreach and engagement plan for ECLIPSE, the groups and organizations below have been identified as possessing capabilities for supporting meaningful collaboration.

2.4.1.1 Erie County Clean Energy Hub

ECLIPSE will coordinate with NYSERDA's upcoming Erie County Clean Energy Hub led by PUSH Buffalo as an outreach partner. Efforts will focus on outreach and clean energy to target LMI communities for ECLIPSE participation. ECLIPSE community meetings already invite PUSH Buffalo to participate in its capacity both as a community group and as lead for the Erie County Clean Energy Hub.

2.4.1.2 Northland Workforce Training Center

The Northland Workforce Training Center (Northland), located on Buffalo's East Side, is an industry-driven partnership with the primary focus of closing the skills gap of the local labor pool. New York State's signature workforce program under the Buffalo Billion initiative, Northland presents potential as an informational resource around clean energy development and potentially for supplying ECLIPSE-driven community energy projects with local labor.

Northland offers students low-cost certificate and two-year degree program at its two co-located training facilities: the Advanced Manufacturing Training Center and the Utility of the Future & Clean Energy Training Center. For students from families with combined income of less than $80,000, tuition is free. Otherwise, tuition is kept affordable at the current rate of $3,500 a semester. In addition to affordable tuition, Northland keeps a lending library to provide students with otherwise high-cost tools and personal protective equipment (PPE).

The enrollment capacity for both programs is 320 students, whose ages from 18 to 65. Over 94% of currently enrolled students are male, with Northland actively seeking to recruit a greater percentage of female students.

Northland offers contract manufacturing services that generate revenue. Manufacturers engage Northland as a subcontractor, and Northland student's produce the products to specification. In addition, Northland regularly partners with local manufacturing businesses and utilities on training and employment placement. By creating local economic on-ramps for training, internships, and permanent employment in high-paying advanced manufacturing and energy careers, Northland increases the number and quality of local candidates prepared for energy and advanced manufacturing careers.

Northland offers additional for-credit courses through its educational partners SUNY Alfred State College (Alfred State) and SUNY Erie Community College (SUNY Erie). Teachers and

professors include retirees with long careers in energy infrastructure development and advanced manufacturing of energy technologies. The expertise of the educators may provide a valuable source of information and guidance for ECLIPSE program developers.

Northland's potential as a labor source depends on whether ECLIPSE drives projects and opportunities that expand the local solar industry with full-time permanent jobs that provide a living wage, not minimum wage.

2.4.1.3 Buffalo State College

As part of the development of ECLIPSE, Erie County and NYSERDA have partnered with Buffalo State College to develop a Data Dashboard. The Data Dashboard has been used to examine utility and related burdens in Erie County by census tracts.[168] As ECLIPSE is developed, the portal can help visualize and map key performance indicators to measure the program's impact over time.

2.4.1.4 University of Buffalo's Food Lab

The Food Systems Planning and Healthy Communities Lab (UB Food Lab) is a research group housed within the School of Architecture and Planning at the University of Buffalo (UB). Led by Dr. Samina Raja, the Lab focuses on research and critical examination of the role of local government policies in facilitation of equitable, healthy, and sustainable communities. Community food systems are the Lab's primary focus, but it regularly works in partnership with other planning and community groups, as well as local governments, to provide technical assistance and expertise on the use of policy and planning to build equitable food systems and healthy communities. The UB Food Lab possess specialized knowledge and data about local food production throughout Erie County and the health needs of low-income communities.

2.4.1.5 Community Health Providers

Erie County hospitals and community health providers will be essential partners for their highly specialized knowledge in developing metrics and outreach on health care aspects of ECLIPSE.

Buffalo Niagara Medical Campus (BNMC), located in the Fruit Belt neighborhood of Buffalo is the primary health care provider in East Buffalo, collocated in the one of the most impoverished communities in Erie County. Beyond serving as a front-line health care provider, BNMC brings significant resources to support the community as host to the University of Buffalo's Jacobs School of Medicine and Biomedical Science, as well as launching initiatives on food and health — the annual *Food as Medicine* symposium — and various other initiatives over the years, including past initiatives on solar in local communities. BNMC has significant health data collection and analytics capabilities, as well as an expressed shared interest in community engagement and intention to develop a broader health and sustainability approach throughout BNMC programs.

The Harvard School of Public Health has partnered with Go Green Buffalo in studying East Buffalo around the Tops Supermarket, in relation to health inequity, the built environment, and

[168] Burdens are calculated as the average household utility expenditure divided by the median household income.

impact on surrounding communities. The research suggests the long-term potential for health in the community can be enhanced through clean energy and improved housing.[169]

Additional partnerships potential exists with faith-based and secular community health centers and healthcare providers. Administrators at the Jericho Road Community Health Center and similar Centers regularly interact with local communities over matters of health and related social issues and possess potential as a conveners and facilitators.

Private health systems like Kaleida Health, one of the largest health systems in Western New York, produce regular reports that assess community health needs at the county level as required under New York law. Kaleida's *Community Health Needs Assessment Community Service Plan*, produced in partnership with Erie County Department of Health, provides knowledge and data resources specific to Erie and Niagara Counties.[170]

2.4.1.6 Cornell Cooperative Extension Erie County

Partnership and collaboration with the Cornell Cooperative Extension of Erie County (CCE Erie) can strengthen the program's connection with rural communities and their members, to help ensure the program responds to their needs.

Rural poverty exists throughout Erie County, including within the Seneca Nation's Cattaraugus Reservation. Existing datasets regularly have an urban skew and struggle to fully capture rural poverty. For example, around 70% of manufactured homes are in rural areas and though they consume 35% less energy than site-built homes due to their smaller size, yet their residents spend 70% more per square foot on energy. [171] Because existing datasets may more accurately capture urban LMI communities and households, ECLIPSE administrators may need to take additional steps to account for the needs of low-income rural residents.

ECLIPSE presents opportunities to rural communities both to register for the program and to host community energy projects.

Various Cornell Cooperative programs may provide partnership opportunity for marketing and outreach:

- *Taste NY Markets*. The Taste NY Markets are farmers markets held throughout Erie County. Tabling outreach potential may exist for rural communities.
- *Ag Energy NY*. The Ag Energy NY program began in 2020 as a state-wide agriculture and energy extension effort led by Cornell Cooperative Extension Tompkins County. The program is part of NYSERDA's Energy Best Practices for Agriculture project. Services include no cost assessments and consultations for farmers interested in agriculture energy improvements and conservation measures.
- *Master Gardeners*. There are currently some 100 Master Gardener volunteers with Cornell Cooperative Extension Erie throughout rural Erie County.

[169] Houghton (2022) Buffalo Go Green Pilot Site Health Situation Analysis for the Buffalo Go Green Wellness Center & Urban Farm Pilot Effort to Align Development Processes with Community Values and Local Climate, Health, and Equity Priorities, American Institute of Architects Upjohn Research Initiative and Harvard University.
[170] https://drive.tiny.cloud/1/fma0ckgi8l71unwv372o9bkc28qzcn65s72m80cndsw3awok/e64bbe01-e7a4-48b5-b87f-c14a44e6cacc
[171] Lauren Ross et al. (2018) "The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency", *American Council for an Energy-Efficient Economy* at 4, https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf.

- *Clean Energy Hubs*. The Erie and Niagara Counties Cornell Cooperative Extension will share outreach staff with NYSERDA's upcoming Regional Clean Energy Hubs. Clean Energy Hub outreach will focus on clean energy and cost sharing opportunities and target LMI communities using the final adopted DACs definition and map.

The Erie Cornell Cooperative Extension suggested that the Erie County Agriculture and Farmland Protection Board (Erie AFPB) could be a resource in reaching rural LMI communities as the Erie AFPB may review and comment on "notices of intent" to undertake development projects in agricultural districts.

2.4.1.7 Belmont Homes

Belmont Housing Resources for WNY (Belmont Homes) undertakes housing redevelopments in partnership with Erie County municipalities, including the Cities of Buffalo and North Tonawanda. Among other programs, Belmont Homes:

- Rehabilitates vacant properties which are then resold at market value.
- Runs a Section 8 voucher and rental program – the Housing Choice Voucher Program – to help Erie County residents in need secure affordable housing.
- Administers a first-time homebuyer program.
- Manages twenty-one (21) rental properties throughout western New York for seniors, individuals with disabilities, and families, and offers service coordination to link residents with various community resources.
- Seeks to expand affordable housing throughout WNY through both adaptive reuse of existing buildings and new construction.

Belmont Homes works closely with in-need Erie County residents in the realm of housing and housing-related affordability and has direct knowledge about specific neighborhoods and residential buildings.

In addition to the properties they manage, Belmont maintains a list of affordable residential buildings in Erie County, which includes approximately twenty MFAH buildings located in Buffalo and managed by the Buffalo Municipal Housing Authority (BMHA). Belmont's data and network may provide ECLIPSE with opportunities to develop rooftop solar to supply the program, including deploying community solar at BMHA properties.[172]

Further, Belmont-building residents and other Section 8 housing recipients may be eligible for participation in ECLIPSE.

2.4.1.8 Municipalities

There are various reasons to involve municipal governments in some form in the development and administration of ECLIPSE. Municipalities possess outreach and marketing pathways to their LMI neighborhoods. Municipalities understand housing conditions in their communities because they administer the building code and enforce violations, and those municipalities that

[172] National Renewable Energy Laboratory (2022) "Community Solar Barriers, Project Models, and Considerations for Multifamily Affordable Housing", *National Community Solar Partnership* at 2, https://www.nrel.gov/docs/fy22osti/82966.pdf ("NREL research suggests that about half of …[HUD]-subsidized buildings, including public housing, have a technical potential exceeding 10,000 MW).

administer their own CDBG programs may possess further information about planned housing repairs and projects.

Municipalities are required by the NY PSC to approve opt-out CCA programs for their communities. The NY PSC is currently reviewing the rules concerning community energy programs, including the role of municipalities in enabling these programs.[173]

2.4.2 Internal Synergies

The ECLIPSE program may also leverage potential synergies with existing Erie County programs, particularly those operated by Erie County departments having responsibilities relevant to ECLIPSE: Erie DEP, the Erie County Department of Social Services (Erie DSS), and the Erie County Department of Public Works (Erie DPW).

This section focuses on the potential synergies between two existing Erie County programs: Benlic Land Bank and Erie Net.

2.4.2.1 Benlic Land Bank

The Benlic Land Bank is a spinoff entity of Erie County DPW that provides funding for refurbishment of abandoned properties. As a result, Benlic may possess Information on the location of empty lots throughout Erie County, which could host a community energy project.

2.4.2.2 ErieNET

ErieNET, a new and developing municipal broadband company, is a spinoff entity of Erie County's Office of Economic Development in the Erie DEP. ErieNet's goals include expansion of broadband access in underserved communities throughout Erie County. Construction began in late 2022 on 400 miles of optical fiber backbone.

To lay broadband cable, ErieNet will possess certain rights of way between buildings that could host community energy projects connecting to electrical poles that may also carry cable lines that could potentially enable the development of community energy to supply the ECLIPSE program.

2.4.2.3 Community Development Block Grant Programs

Community Development Block Grant programs can serve as potential partners to synergize programming and funding. Erie County operates the CDBG program for 34 communities and the HOME program for 37 communities. Buffalo and the towns of Tonawanda, Amherst, and Hamburg administer their own CDBG programs.

CDBG can support individual homeowners, municipalities, and community group-led projects.

Community Development Block Grant programs are described in greater detail in Section 2.3.3.2 of this report.

[173] Case 14-M-0224, *Opt-Out CDG Order* at 5, 7 (Issued & effective November 22, 2021) ("[t]he ability to use opt-out enrollment for CDG would allow municipalities to offer a renewable energy program to constituents").

2.5 Recommendations

- In evaluating government datasets based on criteria that indicate necessary and desirable characteristics to support the ECLIPSE program, the Energy Assistance Program should be adopted as the primary eligibility dataset because it encompasses HEAP, incorporates household self-enrollment data, and offers a NY PSC-governed path for improvement and expansion.

- Additional government and community datasets can be used to supplement and validate the EAP primary eligibility dataset.

- New York Energy Assistance Program data could potentially be expanded based on precedent set by NYC HRA in tracking a broader set of data for inclusion into the EAP datasets, if Erie County desires to invest the resources in developing supplementary data and apply to the NY PSC to require National Grid and NYSEG to incorporate such data into the EAP dataset.

- Establish relationships with social service administrators in Nassau and Suffolk Counties to evaluate the success of their file match expansion. Erie DSS could engage OTDA, National Grid, and NYSEG to determine whether an additional file match and reimbursement program can be established.

- Erie County could seek admission to the NY PSC EAP Working Group, which may be useful if it were to rely on the EAP data for ECLIPSE.

- Eligibility criteria should initially be based on household income based both on legal considerations and practical considerations of data availability.

- Track New York State's progress in defining Disadvantaged Communities under the CLCPA, and, depending on the requirements of that process, integrate Disadvantaged Communities into ECLIPSE as either a performance metric to verify compliance with its requirements or possibly as a community-based eligibility criterion.

3 Benchmarking ECLIPSE Performance

The goal of benchmarking ECLIPSE performance is to measure its success at achieving the program's goals and to provide information to enable continuous improvements to ECLIPSE.

ECLIPSE identified three general goals for which indexes and indicators must be developed to inform the design of the program and measure the program's progress towards achieving those goals. ECLIPSE's goals are:

- Greenhouse Gas Reductions
- Poverty Alleviation through Reducing Energy Burden
- Health Improvements

3.1 Benchmark Design Principles

In designing benchmarks, certain principles should be observed to ensure the benchmarks adopted by ECLIPSE serve their intended purposes. The principles described in this section are adopted for purpose of this report's analysis and recommendations, and are proposed for consideration by ECLIPSE for its adoption. ECLIPSE benchmarks should be:

- **Relevant** — Provide meaningful information on program performance and improvements.
- **Reliable** – Based on reliable and credible data that is regularly updated.
- **Practical** — Within ECLIPSE staff and financial resources to develop and maintain.
- **Responsive** – To stakeholder needs especially community beneficiaries and County officials.
- **Focused** — On ECLIPSE, recognizing other programs maintain broader metrics.

While the rationale for most of these principles are self-evident, the principle of relevance and focus require explanation. Erie County and other governments will maintain statistics on a wider variety of metrics covering emissions, poverty, and health. The ECLIPSE benchmarks should be focused and limited to its own program, ideally focusing on causal factors that ECLIPSE can influence and conditions it can improve. ECLIPSE staff will have finite resources to collect and maintain statistics, and thus they should focus on those statistics relevant and focused on their program. Further, if ECLIPSE were to collect statistics on a broader set of benchmarks that are not directly affected by ECLIPSE, this would likely lead to flawed data collection and statistics generation due to lack of competence outside the scope of ECLIPSE.

This narrow focus does not preclude cooperation with other government and civil society groups in data coordination and statistics generation. Indeed, broader data and statistics maintained by Erie County and other governments, academic and civil society groups furnish the essential baseline against which ECLIPSE performance will be measured.

Selection and evaluation of benchmark metrics in consultation with community groups through ECLIPSE's existing and planned outreach efforts is strongly recommended to ensure the program achieves goals that are important to the community it serves. The evaluation of individual metrics will depend in part on the specific definition and implementation of the metric, as well as potentially judgment- or value-based appraisals by stakeholders. The potential for

improvement of metrics and the need for judgement- or value-based evaluation implies that evaluation of metrics will be a continuing process. Appendix B to this report provides an example of how selected metrics might be evaluated based on the above criteria. The example should be regarded as illustrative, perhaps a starting point, for a process that will be developed throughout ECLIPSE's implementation.

3.2 NYSERDA Cleaner Greener Communities Metrics

NYSERDA's Cleaner Greener Communities (CGC) program requires Erie County to track or predict the benefits of its entire portfolio of CGC projects, including ECLIPSE. These metrics include mandatory and optional metrics for CGC projects.

Erie County currently predicts the below mandatory and optional metrics to NYSERDA in its periodic Project Benefit Metric Reports for ECLIPSE.

Required Performance Metrics (RPMs) are as follows:

- GHG savings/year (MTCDE)
- Conventional Energy Savings (MMBTU / Year)
- Conventional Energy Cost Savings / Year ($)
- Number of Permanent Jobs Created
- NYSERDA CGC Investment ($)
- Investment by Others ($)

Optional metrics reported by Erie County include standardized Sector-Common Metrics:

- Renewable Energy Created (MWh/year)
- Installed Solar/Wind/Geothermal Capacity (MW)

Other optional metrics Erie County reports are:

- Community Solar Energy Created (MWh/year)
- Household savings by income bracket

The analysis in this section evaluates metrics including the above as well as a broader set of possible indicators that Erie County may wish to adopt as additional optional metrics.

3.3 Types of Indicators

Measuring program performance requires clear definitions of both the program's goals and the performance indicators to measure and analyze its impacts. Indicators may also relate to any part of the program's description or its logic model. [174]

The U.S. CDC defines indicators as "measurable information used to determine if a program is [being implemented] as expected and achieving [its] outcomes." [175] Indicators provide understanding about what happened or changed since a program's implementation and help

[174] MacDonald (2021) "Criteria for Selection of High-Performing Indicators A Checklist to Inform Monitoring and Evaluation, *US CDC*, https://wmich.edu/sites/default/files/attachments/u350/2014/Indicator_checklist.pdf.
[175] *Id*.

administrators ask further questions about how changes happened and what intended impacts remain unmet.

Indicator choices usually inform the entire program evaluation plan, including measurement methods, data analysis, and reporting. Indicators can be quantitative or qualitative. Indicators "should be reviewed and used for program improvement throughout the program's life cycle".[176]

Generally, all categories of indicators should possess the following desirable properties: unambiguity, consistency, specificity, sensitivity, and ease of collection.[177]

Prior to analyzing potential indexes and indicators by goal, this section reviews the types of indicators that ECLIPSE might adopt.

3.3.1 Input, Process, and Outcome or Impact

Performance indicators can be differentiated based on whether they measure resources required in achieving an objective— Input indicators; measure the process of achieving an objective —Process indicators; or measure the result in relation to the stated objective — Outcome or Impact indicators.

Project monitoring requires a balanced use of all three types of indicators.[178]

3.3.1.1 Input Indicators

Input Indicators measure the means that enable a program's implementation, and can include measures like funding, staff, key partners, and infrastructure.[179] Input Indicators may be quantitative or qualitative and are key in project management and identification of causes of potential problems. While necessary, Input Indicators must be coupled with the other classes of indicators to determine if the program resulted in the desired outputs.[180]

3.3.1.2 Process Indicators

Process Indicators include a program's activities and outputs. When activities and outputs are measured together, administrators can analyze whether a program is being implemented as planned. Whether administrators use output metrics as Process Indicators (i.e., strong outputs signal proper implementation of a program's activities), or measure activities relative to output, Process Indicators help evaluate whether activities are being reliably implemented, and by extension whether a program will achieve its intended outcomes. [181]

3.3.1.3 Outcome or Impact Indicators

Finally, Outcome Indicators measure if a program is successfully achieving the effects and changes expected in the short, intermediate, and long terms. Outcome Indicators measure

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[176] *Id*.
[177] and *World Bank Discussion Papers,* https://www.researchgate.net/publication/265010006_Indicators_for_M4onitoringg_Poverty_Reduction.
[178] *Id*.
[179] MacDonald (2021).
[180] Carvalho and White (1994) at 8.
[181] MacDonald (2021); Carvalho and White (1994) at 8-9.

changes that occur over time, so a baseline measurement should be taken before a project commences. Long-term Outcome Indicators are the most difficult to measure due to time lags between implementation and impact, measurement difficulties, and the ability to correctly attribute changes to the subject program.[182]

3.3.2 Direct versus Indirect Indicators

Indicators may be direct or indirect.

Direct indicators are formulated primarily for measurable facts or conditions. Direct indicators often emerge directly from the project objectives.[183]

In contrast, certain conditions are not always directly observable. In these cases, indirect indicators are used. Indirect indicators are used when qualitative states of affair, like changed living circumstances, cannot be directly observed and quantified. As Indirect indicators only point indirectly to observable states of affairs, their use is limited to when it is not possible, or the cost is too high, to collect directly observed quantitative data.[184]

3.4 Beneficiary Involvement

Program beneficiary involvement in program development and implementation is crucial for ensuring programs are successful in achieving their objectives. For ECLIPSE, this is especially important for poverty and health goals.

Community members may serve as respondents in beneficiary contact monitoring. They should also participate in program assessments.

Beneficiary involvement can be measured through “process” and indirect “impact” indicators, such as indicators measuring contact monitoring and beneficiary inputs.

Effective beneficiary involvement requires that ECLIPSE communications and services are accessible in the languages used among Erie County beneficiary communities.

3.5 ECLIPSE Benchmarking Indicators by Goal

3.5.1 Greenhouse Gas Emissions

Greenhouse gas emissions saved or avoided is a metric required for ECLIPSE by NYSERDA’s Cleaner, Greener Communities guidelines.

Measuring the ECLIPSE’s potential direct or indirect greenhouse gas reduction impacts requires quantitative analysis to determine the program’s emissions reductions.

This section adheres to the methodological approaches mandated by the NYSERDA’s Cleaner, Greener Communities guidelines and the World Resources Institute’s Greenhouse Gas Protocol in substantiating the performance indicator for ECLIPSE greenhouse gas reductions.

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[182] MacDonald (2021).
[183] Social Impact Navigator, *Types of Indicators, https://www.social-impact-navigator.org/impact-analysis/indicators/types-of-indicators/*.
[184] *Id*.

These methodological steps presented in simplified form are described in greater detail in the Greenhouse Gas Protocol's *Policy and Action Standard*[185] and supplemental tools.[186] Similar greenhouse gas accounting methodologies are promoted by the U.S. Environmental Protection Agency[187] and Canadian municipal governments.[188]

Assessment Boundary

Calculating greenhouse gas emissions for ECLIPSE requires defining the assessment boundary. In the ECLIPSE context, the boundary may include:

- Reduced emissions from electricity generation
- Reduced emissions from home fossil fuel use
- Reduced emissions due to energy efficiency upgrades
- Increased emissions from solar manufacturing and installation

ECLIPSE initially focuses on providing clean energy to Erie County households at reduced cost relative to conventional electricity supply. Given its focus, ECLIPSE is highly likely to affect a substantial reduction in emissions from electricity generation. The assessment boundary should therefore include reduced emissions from electricity generation.

Because ECLIPSE will initially focus on supplying electricity, ECLIPSE may not reduce emissions from home fossil fuel use without switching from fossil fuels to electrified heating. If switching heating modalities remains outside the scope of ECIPSE program objectives, the assessment boundary should exclude reduced emissions from home fossil fuel use.

ECLIPSE may purchase solar electricity and thereby encourage the development of community solar installations. The construction of new community solar installations will increase emissions from solar panel manufacturing and installation. Relative to the ECLIPSE program, these emissions would be "Scope 3" emissions, meaning that these emissions are only indirectly attributable to the program on account of its suppliers or end-users. As Scope 3 emissions are not mandatorily counted under the Greenhouse Gas Protocol, Erie County should exercise its discretion whether the assessment boundary includes or excludes emissions from solar panel manufacturing and installation. This determination may further depend on the nature of the solar installation, such as whether it is built directly because of the ECLIPSE program and exclusively supplies ECLIPSE or sells its power to other purchasers.

Calculation of Emissions Avoided

ECLIPSE's avoided greenhouse gas emissions can be measured by multiplying the solar electricity supplied under the ECLIPSE program times the emissions factor for conventional electricity supplied by the local utilities serving Erie County. Since, in the absence of ECLIPSE,

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[185] World Resource Institute (2016) *GHG Protocol Policy and Action Standard*, https://ghgprotocol.org/policy-and-action-standard.
[186] Resources include the WRI's Policy and Action Standard Calculation Tool, as well as a list of over 300 tools and methods.
[187] US EPA, *Greenhouse Gas Equivalencies Calculator*, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
[188] ICLEI Canada (2020) "Guidebook on Quantifying Greenhouse Gas Reductions at the Project Levels", *Partners for Climate Protection Program* at 3-5, 30-31.

utility electricity is sourced from the grid, the grid emissions factor represents the baseline emissions scenario.

According to NYSERDA's CGC Benefits Metrics Report Template, for GHG savings from grid electricity use, reporting is to use the NYSERDA state average GHG emission factor of 625 lbs. CO_2e/MWh.

The basis of measuring ECLIPSE's GHG emissions is straightforward:

Greenhouse Gas Emissions = Electricity Use × Grid GHG Emissions Factor (EF)[189]

Policy Interactions and Leakage

Because ECLIPSE discounts participant household electricity bills by up to 10%, there is a possibility that ECLIPSE may encourage participants to increase their electricity consumption, a kind of "rebound effect." For example, because electricity may be used for appliances and home heating, the discount could encourage consumers to purchase electric heating devices for supplemental heating.

The size of rebound effects due to energy efficiency programs remains uncertain and contested.[190] Resources freed by the ECLIPSE discount will find other priorities competing for them. Accordingly, any rebound effect in energy consumption is uncertain and likely too small to quantify. Further, NYSERDA Cleaner, Greener Communities reporting does not require considering leakage or rebound effects. Accordingly, ECLIPSE's avoided greenhouse gas emissions should be calculated based on the basic formula presented above, and any theoretical rebound effect should be disregarded, unless and until experience gained through ECLIPSE's implementation demonstrates that non-negligible rebound effects occur.

Other Greenhouse Gas Savings Metrics

Erie County currently reports the following optional metrics pursuant to its NYSERDA Cleaner, Greener Communities reporting obligations, which are distinct but relevant to ECLIPSE progress in greenhouse gas reductions:

- Community Solar Energy Created (MWh/year)
- Renewable Energy Created (MWh/year)
- Installed Solar/Wind/Geothermal Capacity (MW)

3.5.2 Poverty Alleviation

Poverty alleviation is one of the three primary goals of ECLIPSE, particularly alleviating energy poverty and burden.

While the contribution of a CCA or CDG program like ECLIPSE to alleviate poverty for LMI households in Erie County will be modest, evolution and expansion of the program should aim to increase ECLIPSE's impact in improving the lives of Erie County resident through reducing energy burden among low- and middle-come households.

[189] From Canada and WRI sources.
[190] Gillingham, Rapson, and Wagner (2016) "The Rebound Effect and Energy Efficiency Policy" *Resources for the Future*.

An understanding of poverty indicators and program impact measurement will aid administrators in the development of a poverty benchmarking system.

Further, existing data and statistics on poverty and health for Erie County establish the baseline conditions essential to evaluating the impacts of participation in ELCIPSE and the effectiveness of the program itself.

3.5.2.1 Quantitative Poverty Indicators

The primary means of the ECLIPSE program to achieve poverty alleviation is to reduce monthly energy bills, which may represent meaningful cost savings in participant households with a disproportionately high energy burden.

ECLIPSE benchmarks should therefore evaluate to what extent the ECLIPSE electricity discount reduces poverty and improves the lives of participants as compared with baseline poverty conditions in Erie County.

New York State's goal is to reduce New York household energy burden to below 6% of overall household budget. As a New York State goal directly relevant to ECLIPSE's goal of alleviating energy poverty, energy burden should be one of the primary poverty alleviation indices adopted by ECLIPSE. The cost of electricity, heating and cooking utilities are easily surveyed. Tracking overall energy burden will require additional household budget data. Guidance may be taken from methodologies developed for the Supplemental Poverty Measure (SPM), which accounts for family resources and expenses, as well as geographic variability in housing costs. It is a measure that seeks to provide information about the economic well-being of American families and is used to measure the effect of federal policies among those living in poverty.[191]

[191] Congressional Research Service (2022) The Supplemental Poverty Measure: Its Core Concepts, Development, and Use, *Library of Congress*; Liana Fox, Brian Glassman, and Jose Pacas (2020) "The supplemental poverty measure using the American community survey", *SEHSD Working Paper* 2020-09, https://www.census.gov/library/working-papers/2020/demo/SEHSD-WP2020-09.html.

Baselining Poverty

In Erie County, as per the 2020 Census data, 9.6 percent of total families in Erie County live below the poverty level. For Erie County, energy burden comprising electricity and gas bills account for an estimated 9.23% of household budget, compared to only 3.23% nationwide.[192]

According to the U.S. Census Bureau's most current 12-month poverty estimates, 31.1% and 43% of Buffalo's Black and Hispanic populations, respectively, are classified as poor. Altogether, both populations account for over 43,000 of Buffalo's residents that live below the poverty line. Classified as the "working poor," these individuals earn between 50-200% of the federal poverty rate (U.S. Census Bureau, 2022).

NYSERDA's Cleaner, Greener Communities program requires the following poverty-relevant metrics be tracked or predicted by ECLIPSE:

- Number of Permanent Jobs created
- Conventional Energy Savings (MMBTU / Year)
- Conventional Energy Cost Savings / Year ($)
- NYSERDA CGC Investment ($)
- Investment by Others ($)

In relation to energy burden metrics, Erie County is already reporting the following optional metrics as part of its Clean, Greener Communities reporting:

- Household savings by income brackets

Further, available Erie County data to baseline and track poverty alleviation could include:

- Utility Burden — Average percentage of electricity and gas bills of household income
- Utility Distress —Utility arrears and shut-offs
- Reduction in unemployment rates
- New businesses created (direct versus indirect)
- Erie County households receiving public assistance
- Reduction in eviction and homelessness rates

Further quantitative indicators of poverty that are available or can be developed to measure the magnitude of poverty include:

- **Headcount index** measures the proportion of the population below the poverty line. Though commonly used, the headcount index is of limited value to measure the magnitude of poverty — how far below the poverty line poor populations are.

- **Poverty gap index** measures extent to which individuals on average fall below the poverty line and expresses it as a percentage of the poverty line. It can be used to measures the total transfer required to bring all Erie County residents up to the poverty

[192] Erie County Energy Burden — Erie County ECLIPSE Project Utility Burden Maps. Available at: https://storymaps.arcgis.com/stories/6843e812d45e49ddb187c5fa1e7ca1db (accessed December 1, 2022).

line by summing of all the poverty gaps for that population or by multiplying the average poverty gap index times the population.[193]

- **Unskilled rural wages** measure weekly wages of casual laborers without any source of income. The wage indicator should be reported with a price deflator measuring changes in the purchasing power of prices of goods and services to evaluate the real purchasing power of those wages over time.

- **Unemployment** measures the number of persons in the workforce who are seeking work but not in paid employment or self-employed. Unemployment may be an unreliable indicator in low-income economies due to definitional problems.[194]

- **Squared poverty gap** measures the severity of poverty by giving greater weight to those further below the poverty line. This metric requires income or expenditure data.

ECLIPSE participants can be periodically surveyed based on selected indicators relevant and focused on ECLIPSE goals and conditions ECLIPSE can help to improve. Surveys could be conducted as part of regular communication with ECLIPSE participants, possibly through electronic means such as social media, and preferably in the form of brief surveys that are more likely to elicit responses than long-form questionnaires often used by utilities.

Beyond poverty metrics that are required by NYSERDA's Cleaner, Greener Communities reporting guidelines, which are identified above, the selection of additional optional quantitative poverty indicators should be responsive to the conditions of both urban and rural residents. The selection should be made in consultation with these community beneficiaries. Based on the guiding principles outlined in Section 3.1 of this report, New York State energy burden goals, and from the above list of indicators for which baseline data is collected and regularly maintained, the following are a representative sample of indicators that could be considered for adoption:

- Energy Burden — percentage of household income spent on gas and electricity
- Reduction in eviction and homelessness rates
- Housing conditions
- Headcount index
- Unskilled rural wages

Of the above potential indicators, housing conditions are especially important for resilience and readiness to host clean energy systems such as solar. Tracking housing conditions would enable ECLIPSE to support improvements to housing conditions, potentially synergizing with other stakeholders such as municipalities and programs such as Community Development Block Grant programs.

ECLIPSE-supported community energy projects and organizations directly engaged in supporting ECLIPSE should also be surveyed for the following indices:

- Both permanent and temporary jobs created
- New businesses created

[193] Areppim, *Poverty Gap Index*, https://stats.areppim.com/glossaire/poverty_gap_def.htm.
[194] Aaronson (2021) What does the unemployment rate measure?, *Brookings Institution*. Available at: https://www.brookings.edu/blog/up-front/2021/02/18/what-does-the-unemployment-rate-measure/ (accessed December 1, 2022).

In selecting quantitative poverty indicators, the broader socio-economic and historical context should be considered. Poverty, rates of eviction and homelessness in Erie County are intertwined with race. On average, Erie County families spend over a third of their income on rent or housing expenses. In particular, 30% of Black households in Buffalo are severely rent-burdened, paying more than 50% of household income on rent. Two-thirds of tenants in Buffalo Housing Court facing evictions are Black. An estimated 53% of Erie County's homeless population is Black, compared to only 13% of its overall population.[195] In 2017, of the 3,175 tenants represented by Neighborhood Legal Services and the Volunteer Lawyers Project in eviction proceedings, 40% of these tenants were concentrated in the predominantly Black and economically depressed 14215 or 14211 zip codes alone.[196]

Accordingly, indicators may be further disaggregated to focus on subsets of poverty that might otherwise be hidden, such as disaggregation by race, gender, family circumstances, or geography. Failure to disaggregate data may prevent fully identifying and measuring poverty.[197] Consultation with community beneficiaries can help ground these methodological decisions with real-world experience.

3.5.2.2 Qualitative Poverty Indicators

There are aspects of poverty that cannot be measured using quantitative data or indicators. Accordingly, we review qualitative and conceptual definitions of poverty.

Definitions of poverty are nuanced.[198] Cultural marginalization, social exclusion, and deprivation of opportunities shape poverty beyond the simple maldistribution of assets and resources. Poverty is also considered a lived experience that includes individual, cognitive and emotional experiences, albeit presented as a social or monetary proxy measured in terms of accessibility to services such as education and health programs. Research suggests successful poverty reduction requires economic, political, and social interventions and programs.[199]

Qualitative indicators seek to identify causal mechanisms and how poverty is experienced. A guiding principle for measuring poverty in the United States has been to determine whether an individual enjoys economic well-being or the resources necessary to pursue their desired living standard.[200] This approach maintains that fundamental well-being is the freedom needed to lead to the lifestyle that one may value and has reason to value; it suggests that poverty is a manifestation of inadequate human well-being.[201]

Social inclusion is also used to analyze poverty, specifically the way in which social institutions and processes play a role in how one exists within a society. A social exclusion approach

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[195] Partnership for the Public Good (2018) Evicted in Buffalo: The High Costs of Involuntary Mobility, *PUSH Buffalo*. P. 4. Available at: https://ppgbuffalo.org/files/documents/housing_neighborhoods/general/housingneighborhoods-_evicted_in_buffalo.pdf (accessed December 1, 2022).
[196] Id. at 21.
[197] Carvalho and White (1994).
[198] United Nations Development Programme (2010).
[199] Lichter and Ziliak (2017) The Rural-Urban Interface: New Patterns of Spatial Interdependence and Inequality in America, *The Annals of the American Academy of Political and Social Science*. [Online] 672 (1), 6–25.
[200] David S. Johnson et al. (2005) Economic inequality through the prisms of income and consumption, *Monthly Labor Review*. 128 (4), 11–24; Iceland (2003) Why Poverty Remains High: The Role of Income Growth, Economic Inequality, and Changes in Family Structure, 1949-1999, *Demography*. [Online] 40 (3), 499–519.
[201] Waglé (2008). Multidimensional poverty: An alternative measurement approach for the United States?, *Social science research*, *37*(2), at 559-80.

captures multiple dimensions of social inequality and refers to excluded groups in society such as the elderly, disabled, and ethnic minorities.[202]

Housing conditions can be an important qualitative indicator of poverty that ECLIPSE can potentially impact. Qualitative indicators of housing quality could include questions about household priorities to conduct home repairs, such as roof repairs, weatherization, as well as perceptions of home comfort.

A multidimensional approach to poverty is also widely used—it weighs poverty as a comprehensive set of information, incorporating economic well-being, capability, and social inclusion as separate dimensions of poverty. This approach is less practical for immediate use due to its need for collecting comprehensive data, aggregation, and potential loss of data information. Further, the transition from unidimensional to multidimensional approaches for poverty measurement has resulted in much advancement. Specifically, the multidimensional approach assesses the state of human well-being by emphasizing "what an individual has", "how much prospect an individual has" and "how advantaged or disadvantaged an individual is in a society". It then transitions toward emphasizing "what an individual can have" to acquire human well-being; this emphasis is particularly important as it identifies the degree of poverty experienced, leading to more effective policy targeting.[203]

3.5.3 Health

Health indicators typically measure the extent that targets in health programs are reached.

Indicators of health promotion actions seek to identify meaningful, intermediate factors that help or hinder program goals.

The use of health indicators contrasts with indicators of aggregate health status of a population, which can be affected by external factors, such as cultural, political, environmental factors, and demographics.

Health indicators pose a unique challenge in relation to evaluating ECLIPSE performance. Health is more general condition, indirectly and probably remotely related to energy costs. Notwithstanding the challenges of establishing a causal relationship between ECLIPSE bill discounts and health conditions, surveys of ECLIPSE participants can include health indices.

Because ECLIPSE contemplates synergizing with other Erie County programs by bundling or co-delivering services, ECLIPSE offers a means of establishing a closer relationship between Erie County and its residents. ECLIPSE could, for example, promote better health practices among its participants by advertising social services and building awareness among its participants through a periodic healthy living newsletter.

Presently, NYSERDA's Cleaner, Greener Communities reporting guidelines do not specify any health-related metrics.

Existing Erie County data would provide the baseline against which ECLIPSE effects are evaluated. ECLIPSE surveys could assess awareness of, access to, and spending on health

[202] Laderchi, Saith and Stewart (2003) Does it matter that we do not agree on the definition of poverty? A comparison of four approaches. *Oxford Development Studies*, 31(3), 243–274.
[203] Waglé (2008) at 559-80.

services. Survey results could be evaluated for how ECLIPSE supports improved community conditions, such as through a Result- Based Accountability framework appropriate to public health.[204]

3.5.3.1 Baseline Health Indicators in New York State and Erie County

New York State and Erie Country collect health indicators that could furnish the baseline against which to evaluate ECLIPSE participant impacts relative to the general population.

In 2012, the New York State Community Health Indicator Reports were created and are used to provide information regarding health indicators in the County Health Assessment Indicators (CHAI) for all communities within the state. The data in the CHIRS Dashboard tracks 350 indicators that are organized by health topics and is updated annually by most recent year of data. Some indicators tracked by the dashboard include:

- *Cancer indicators*
- *Cardiovascular disease indicators*
- *Child and Adolescent Health Indicators*
- *Cirrhosis, diabetes, and kidney indicators*
- *Communicable disease indicators*
- *Family planning/Natality Indicators*
- *HIV/AIDS and STI Indicators*
- *Injury indicators*
- *Maternal and Infant Health Indicators*
- *Obesity and Health Indicators*

Erie County tracks health impacts for its communities, including for the census tracts that make up Buffalo's majority-Black East Side, which can provide location-specific baselines. The following statistics reflect health conditions for the East Side:

- Up to 11.8% of adults have coronary heart disease.
- Up to 16.7% of adults have asthma.
- Up to 26.3% of adults suffer from depression.
- Up to 47.8% of adults have no leisure-time physical activity.
- Up to 23.1% of adults have no health insurance.[205]

These readily available baseline indicators could be positively influenced by ECLIPSE if it were to reduce household energy burden, free resources for health priorities, and raise awareness among its participants.

Erie County, in consultation with its various departments, university and health care providers, and community beneficiary partners, evaluate the appropriate selection of health indicators. Indicators may change over time depending upon specific priorities highlighted or promoted through ECLIPSE efforts. The program may foment opportunities with universities and health care providers to study the effects of the provision of information and co-delivery of social services on community health.

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[204] See, e.g., Camm and Strecker (2010) Analyzing the Operation of Performance-Based Accountability Systems for Public Services. Technical Report. Rand Corporation.
[205] U.S. CDC, *PLACES: Local Data for Better Health*, https://chronicdata.cdc.gov/browse?category=500+Cities+%26+Places.

3.5.3.2 Broader Health Indicators

ECLIPSE stakeholders may wish to expand the health indictors tracked in coordination with the program as the scope of ECLIPSE is fully defined and experience is gained with the benchmarking process.

This section briefly reviews issues that might be of interest to Erie County stakeholders.

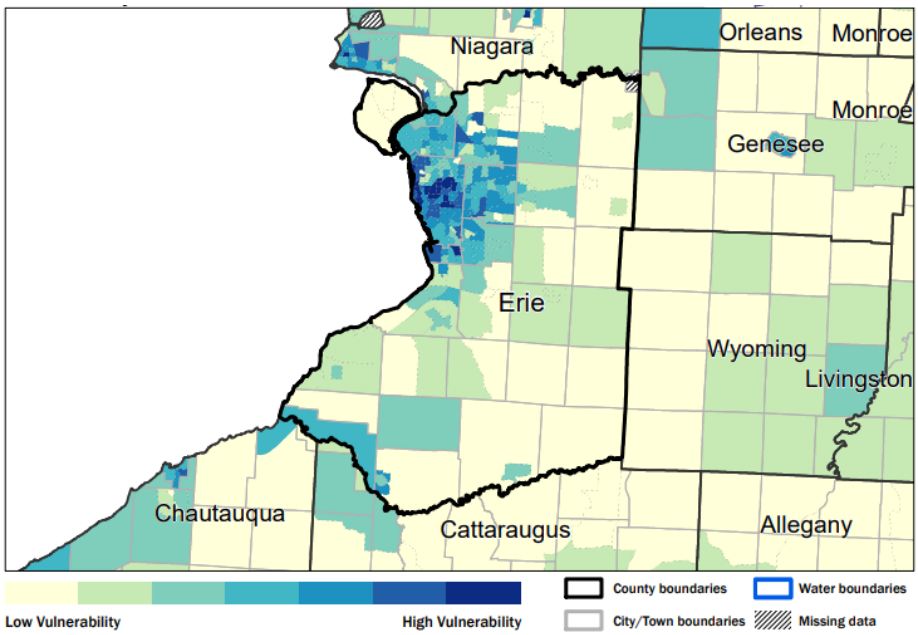
Local Health Conditions Including Climate and Environmental Vulnerabilities

Surveys conducted by the U.S. Center for Disease Control and Prevention (CDC) track community concern over air pollution and extreme heat vulnerability data by census tract, with specific data for Erie County.[206] The CDC's *500 Cities & Places Data Portal* provides model-based estimates for chronic diseases in municipalities, census tracts, and ZIP Codes within Erie County.[207] Additionally, the CDC's Climate and Health Program's *Heat & Health Tracker* for Erie County provides a profile on vulnerable populations and critical resources available to these populations during extreme heat events.[208] Further, the CDC developed the Building Resilience Against Climate Effects (BRACE) framework to assist municipal health departments respond to anticipated impacts of climate change on population health.[209]

The New York State Department of Health also conducted a Heat Vulnerability Index for Erie County (Erie County HVI) to identify and map heat-vulnerable areas and populations.[210] The Erie County HVI identified 13 environmental and socio-demographic factors from prior heat-health studies and obtained census tract data for each factor from the U.S. Census Bureau and the National Land Cover Database. In addition to grouping the factors into four categories representing different heat vulnerability aspects (language, socio-economic, environmental, and elderly), the Erie County HVI presented total heat vulnerability findings (see Figure 11). The HVI identified the urban, densely populated communities in Northwest Erie County as most vulnerable, along with some additional communities in the County's Southwest region.

Figure 11: Erie County Heat Vulnerability Index

[206] U.S. CDC, *CDC Places, https://www.cdc.gov/places.*
[207] U.S. CDC, *PLACES Arcgis Portal*, https://experience.arcgis.com/experience/22c7182a162d45788dd52a2362f8ed65.
[208] U.S. CDC, *Health & Heat Tracker: Erie County, NY*, https://ephtracking.cdc.gov/Applications/heatTracker/.
[209] Arie Ponce Manangan et al. (2014) "Assessing Health Vulnerability to Climate Change", *U.S. CDC* at 1, https://www.cdc.gov/climateandhealth/pubs/assessinghealthvulnerabilitytoclimatechange.pdf.
[210] NYS DOH (2017), *Heat Vulnerability Index Erie County, NY,* https://www.health.ny.gov/environmental/weather/vulnerability_index/docs/erie.pdf.



Source: New York State Department of Health (2017).

Further understanding of health drivers for Erie County is supported by the development of local Social Vulnerability Indices. Social Vulnerability Indices (SVI) measure and rank degrees of vulnerability within a community. These were created with the intention of measuring regional resiliency to environmental disasters based on socioeconomic and population characteristics in a specific region. The indices contain constructs that describe social and geographical determinants of health and have been validated, providing significant and important insights for health outcomes after injury.[211]

The University of Buffalo conducted an SVI for the Erie Niagara region using Geographic Information Systems (GIS) software to map and analyze community data to identify municipalities with higher population vulnerability.[212] Variables considered include:

- Percentage of population over 65 years
- Median dollar value of owner-occupied housing
- Percentage of African American population
- Percentage of unemployed labor force
- Percentage of population living in poverty
- Percentage of population 25 years or older with no high school diploma
- Percentage of female-headed, single-parent households
- Percentage of households receiving social security income
- Percentage of population employed in primary extraction industries (e.g., agriculture, forestry, mining, and fishing and hunting)

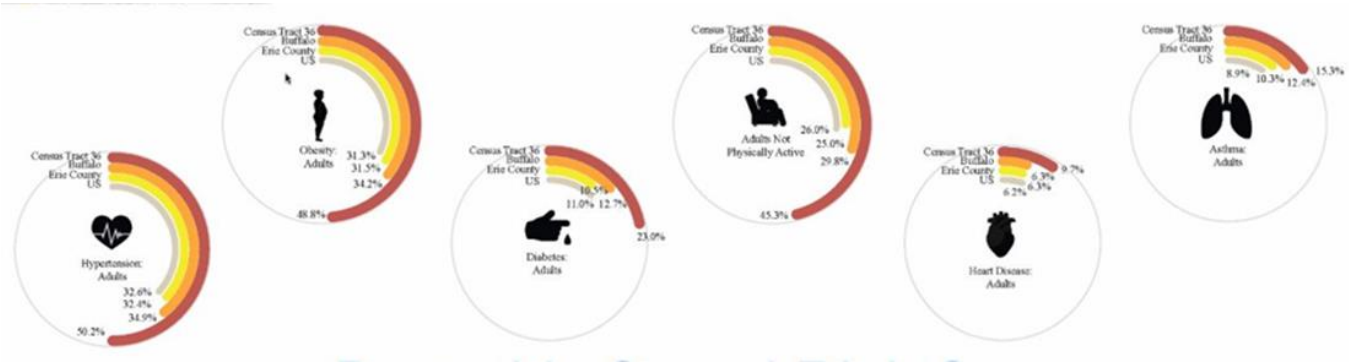
Based on these indicators of social vulnerability, a cumulative relative index of social vulnerability was developed for each of the communities within the region. Findings align with

[211] Phelos, H. M. et al. (2021) Can Social Vulnerability Indices Predict County Trauma Fatality Rates? *The Journal of Trauma and Acute Care Surgery. [Online]* 91 (2), 399–405.
[212] Grover, Smith, Cao, and Yang (2014) Resilient Buffalo Niagara: Strategies to Respond to Climate Change. Buffalo, NY: University at Buffalo Regional Institute, University at Buffalo, School of Architecture and Planning.

those from the Erie County HVI. In addition to identifying Buffalo and other urban areas as more vulnerable, the Erie Niagara SVI found that Erie County's southern communities are most likely to experience local weather changes.

Further study of Erie County health conditions has been conducted by community groups, local universities, and government agencies.[213] As shown in Figure 12, Erie County residents are concerned with a wide range of health conditions relative to the United States a whole, but generally less concerned than New Yorkers statewide.

Figure 12: Community Health Concerns in Buffalo



Source: Houghton (2022) Buffalo Go Green Pilot Site Health Situation Analysis for the Buffalo Go Green Wellness Center & Urban Farm Pilot Effort to Align Development Processes with Community Values and Local Climate, Health, and Equity Priorities, *American Institute of Architects Upjohn Research Initiative and Harvard University.*

General health conditions indicators that ECLIPSE could positively influence include:

- Reduction in heat island effects through expansion of conversion or conservation of land for greenspace and other lower density land uses.
- Expanding number of EV charging stations connected to ECLIPSE solar facilities that encourage adoption of electric vehicles.
- Overall sense of well-being and emotional health among ECLIPSE participants and residents living near ECLIPSE solar facilities, evaluated based on self-assessment.
- Sense of social inclusion and belonging among ECLIPSE participants.

Solar Energy, Improvements to the Built Environment and Health

Given longer time horizons, ECLIPSE can support improvements to the built environment in Erie County, leading to the redevelopment of neighborhoods with healthier housing and buildings, powered by clean energy, with more abundant green spaces.

[213] EPA EnviroAtlas (2021) https://enviroatlas.epa.gov/enviroatlas/interactivemap/; FEMA National Risk Index (2021) https://hazards.fema.gov/nri/; Houghton (2022) Buffalo Go Green Pilot Site Health Situation Analysis for the Buffalo Go Green Wellness Center & Urban Farm Pilot Effort to Align Development Processes with Community Values and Local Climate, Health, and Equity Priorities, *American Institute of Architects Upjohn Research Initiative and Harvard University.*

Distributed community energy can encourage through education and promotion of clean energy the electrification of homes, enabling the elimination of gas heating and cooking. Eliminating gas in homes is a quantifiable health and safety improvement.

Distributed community energy can also help catalyze renovation of building stock across a broader range of metrics with health implications, including improvements for insulation and weatherization, mold abatement, roof replacement, flood abatement and other common issues in older homes. Structural improvements are likely to be required for buildings that host rooftop solar. Weatherization and other improvement measures may also be catalyzed by ECLIPSE especially if the program co-markets community energy with weatherization and other support programs.

Through the processes of developing metrics for a planned wellness center in East Buffalo, Buffalo Go Green and the Harvard School of Public Health have started to capture health data throughout the community. While exploring the intersection between public health and the built environment, researchers have analyzed the impact of community design ideas on three environmental health focus areas: obesity, heat, and air pollution. While this may not be in the scope of the initial program design, a potential solar microgrid design is considered potentially impactful for all three health areas.[214] Most design ideas relate to potential impacts achievable through building stock renewal in the longer term. The data collected through this research may be meaningful for ECLIPSE benchmarking a broader set of health conditions.

Presently, building conditions data for Erie County is limited to plan and benchmark progress on healthier, energy efficient and clean buildings. Further, these issues remain beyond the scope of the ECLIPSE's influence. These issues are being addressed by NYSERDA and other government programs operating in Erie County, yet there is no comprehensive approach currently being deployed. ECLIPSE could play a role in elevating these as priorities County-wide in a coordinated manner, especially taking a long-term perspective on impacts.

In the long-term, ECLIPSE indices relating health to the built environment could include:

- Number of ECLIPSE homes electrified, eliminating gas cooking and heating.
- Number of buildings/properties renovated that host ECLIPSE community energy.
- Number of buildings/homes renovated that register for ECLIPSE community energy.
- Reduction of local air pollution from replacement of stationary fossil-combustion in and near communities due to replacement with ECLIPSE solar and battery storage

[214] Houghton (2022) Buffalo Go Green Pilot Site Health Situation Analysis for the Buffalo Go Green Wellness Center & Urban Farm Pilot Effort to Align Development Processes with Community Values and Local Climate, Health, and Equity Priorities, *American Institute of Architects Upjohn Research Initiative and Harvard University*.

Energy Resilience and Health

Distributed energy generation can enhance the energy resilience of communities and by extension health and safety of communities when the power grid fails, typically due to catastrophic weather conditions. Community energy generation paired with storage located within communities can be designed to continue to operate, shifting to an islanded microgrid mode, when the power grid shuts down, and returning to grid mode when grid operation can be restored.

Resilient and reliable power supply during natural catastrophes and other emergencies can provide preventative grid stabilization, keep essential services including lighting and heat on, and ensure that critical infrastructure such as hospitals continue operation during blackouts, enhancing public safety and potentially saving lives.

Protocols to ensure that the decision to island, thus switching from serving the grid and thus the CCA ECLIPSE program to serving the immediate community surrounding the generation facility, such as the building upon which the solar facility is installed, would be essential to ensure that islanding decisions are equitable and transparent.

Possible ECLIPSE benchmarks for energy resilience and health could include:

- Households supported by ECLIPSE distributed energy with islanding capabilities.
- Megawatt hours of ECLIPSE distributed energy generation enhancing grid resilience.

Food Security and Health

Access to healthy, affordable food is a driver of public health and major concern for Black and Brown communities, particularly in Buffalo's East Side. Low-income communities lacking access to local food resource also commonly lack access to transportation.

According to a recent survey conducted by the University at Buffalo Food Systems Planning and Healthy Communities Lab, 80% of survey respondents noted that supermarkets were their primary source of obtaining food. There were also an estimated 40,000 individuals residing in East Buffalo neighborhoods that live farther than a mile from a supermarket. In the same survey conducted, 37% of individuals had no access to a vehicle and 45% of these respondents were also food insecure.[215]

For many years, there has only been one supermarket in East Buffalo, the Tops supermarket on Jefferson Avenue. This supermarket was temporarily closed due to the May 2022 racially motivated mass shooting that occurred at the market's premises.

Greater access to affordable, healthy food is needed, particularly across Buffalo.

Two ways that community energy programs can support greater access to healthy food for communities in need are the strengthen the revenue streams of urban farms and local supermarkets by co-locating solar generation on their fields and rooftops. The additional revenue will help stabilize urban farms and local markets, help create jobs, and help ensure

[215] University at Buffalo Food Systems Planning and Healthy Communities Lab (2022) "Op-ed: East Buffalo Needs Community-Driven Structural Investments, Not Fly-In, Fly-Out Charity", *Civil Eats*.

healthy food is available in the local community. Solar facilities sited on local farms have been demonstrated to stabilize farm income and generate community opportunities.[216]

In an urban environment, urban farms paired with solar can promote green space in cities and serve as natural hubs for community participation and learning. Conversion of vacant lots to solar and solar/farming will also enhance the safety of neighborhoods as vacant, unused, or abandoned property in urban areas "corrosive effect on local communities, lowering property values, attracting criminal activity, creating health and safety hazards, and imposing extra costs on local governments due to the additional police, fire and building safety resources they require."[217] Solar on farms and other development can help support urban renewal.

With recent strengthened federal tax incentives for solar photovoltaic and other clean energy technologies, with enhanced incentives for community energy, in low-income and disadvantaged energy communities, and supporting affordable housing, the potential for community energy to drive investment supporting access to food are more robust than they have ever been.[218]

Table 6: Access to Supermarkets in Buffalo

Neighborhood	Total Population	Number of Supermarkets	Number of people outside 0.5 mile radius (this is a rough estimate that we are cleaning up this week)
Broadway Fillmore	11578	2	7191.096958
Delavan Grider	5128.55	0	5128.55
Ellicott	2783	0	2783
Fillmore-Leroy	6346.86	0	6346.86
Fruit Belt	3118.4	0	3067.330587
Genesee-Moselle	7512.3	0	7512.3
Hamlin Park	6224	0	6044.537184
Kenfield	7276.3	0	7153.027836
Kensington-Bailey	15154.7	0	15154.7
Lovejoy	8915.75	0	8915.75
Masten Park	6408	1 (Tops)	3279.380508
MLK Park	3367.45	0	3360.925566
Pratt-Willert	3917.6	0	2969.385271
Schiller Park	8763.7	1	4999.215857
Total	96494.61	4	83906.05977

Source: East Buffalo Food and Health Equity Dashboard (2022). FoodFutureNY. East Buffalo Food Dashboard (arcgis.com).

Possible ECLIPSE benchmarks for food security and health could include:

- Number of supermarkets that host ECLIPSE rooftop community energy.
- Acres of urban farms that host ECLIPSE community energy.
- Revenues of supermarkets and urban farms derived from ECLIPSE electricity sales.
- Changes in average distance between supermarkets in low-income communities.

[216] Hart (2022) *Strengthening Small Farms and Their Communities Through Solar Farming: Ridge View 350 MW Solar PV Project — Social and Economic Impact Assessment*, *Pace Energy and Climate Center*.
[217] New York State (2022) "Vacant and Abandoned Properties: What You Need to Know." Available at: https://www.dfs.ny.gov/consumers/help_for_homeowners/vacant_property (accessed December 1, 2022).
[218] Inflation Reduction Act of 2022, Public Law 117–169.

3.6 Benchmarking Recommendations

- ECLIPSE communications and services should be accessible in the languages used among Erie County beneficiary communities.

- ECLIPSE mandatory and optional reporting pursuant to NYSERDA's Cleaner Greener Communities (CGC) requirements provide appropriate metrics for greenhouse gas emissions reductions and poverty alleviation through energy burden reduction. ECLIPSE may elect to expand its set of metrics for greenhouse gas emissions reductions and poverty alleviation benchmarks.

- ECLIPSE should adopt a set of indicators for community health that are specifically relevant and meaningfully indicative for ECLIPSE, and for which reliable and regularly updated data is available or can be cost-effectively collected. NYSERDA's Cleaner Greener Communities (CGC) requirements do not provide any metrics for health.

- Consult community groups through ECLIPSE's existing and planned community outreach efforts to inform the selection of an appropriate set of indicators for ECLIPSE benchmarking. Community consultation can also serve to review the results produced by indicators periodically. Community and beneficiary perspectives will help ensure their priorities are reflected in ECLIPSE goals, indicators, and the overall benchmarking policy.

4 Summary of Recommendations

Dataset Selection

- In evaluating government datasets based on criteria that indicate necessary and desirable characteristics to support the ECLIPSE program, the Energy Assistance Program should be adopted as the primary eligibility dataset because it encompasses HEAP, incorporates household self-enrollment data, and offers a NY PSC-governed path for improvement and expansion.

- Additional government and community datasets can be used to supplement and validate the EAP primary eligibility dataset.

- New York Energy Assistance Program data could potentially be expanded based on precedent set by NYC HRA in tracking a broader set of data for inclusion into the EAP datasets, if Erie County desires to invest the resources in developing supplementary data and apply to the NY PSC to require National Grid to incorporate such data into the EAP dataset.

- Establish relationships with social service administrators in Nassau and Suffolk Counties to evaluate the success of their file match expansion. Erie DSS could engage OTDA, National Grid, and NYSEG to determine whether an additional file match and reimbursement program can be established.

- Erie County could seek admission to the NY PSC EAP Working Group, which may be useful if it were to rely on the EAP data for ECLIPSE.

Program Eligibility Criteria

- Eligibility criteria should initially be based on household income based both on legal considerations and practical considerations of data availability.

- Track New York State's progress in defining Disadvantaged Communities under the CLCPA, and, depending on the requirements of that process, integrate Disadvantaged Communities into ECLIPSE as either a performance metric to verify compliance with its requirements or possibly as a community-based eligibility criterion.

Benchmark Design Principles

Recommended principles for the design of ECLIPSE benchmarks should ensure that benchmarks are:

- **Relevant** — Providing meaningful information on ECLIPSE performance and improvements.

- **Reliable** – Based on reliable and credible data that is regularly updated.

- **Practical** — Within ECLIPSE staff and financial resources to develop and maintain.

- **Responsive** – To stakeholder needs especially community beneficiaries and County officials.

- **Focused** — On ECLIPSE, recognizing other programs maintain broader metrics.

Benchmarking Performance

- ECLIPSE communications and services should be accessible in the languages used among Erie County beneficiary communities.

- ECLIPSE mandatory and optional reporting pursuant to NYSERDA's Cleaner Greener Communities (CGC) requirements provide appropriate metrics for greenhouse gas emissions reductions and poverty alleviation through energy burden reduction. ECLIPSE may elect to expand its set of metrics for greenhouse gas emissions reductions and poverty alleviation benchmarks.

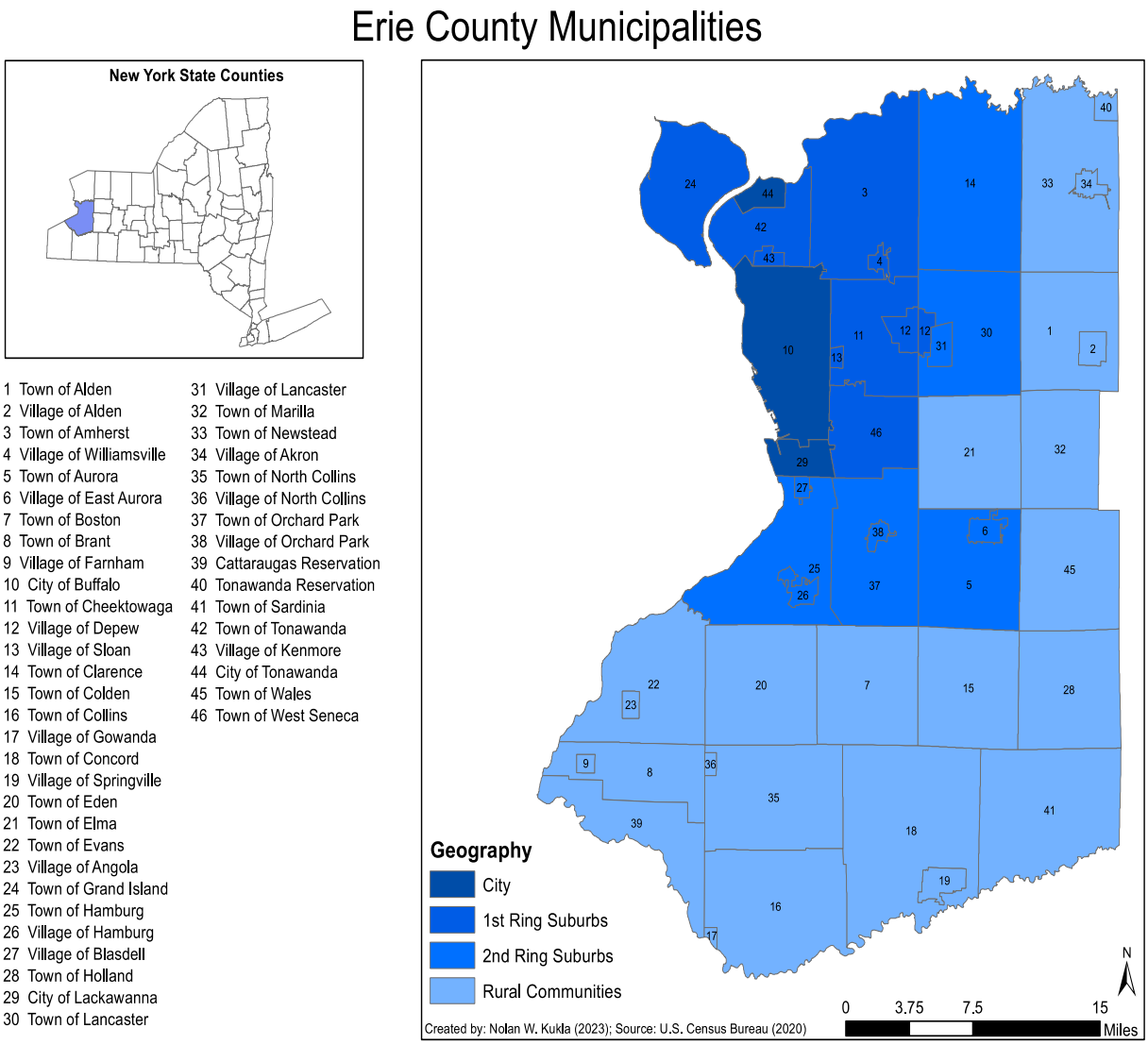
- Adopt a set of ECLIPSE indicators for community health that are specifically relevant and meaningfully indicative for ECLIPSE, and for which reliable and regularly updated data is available or can be cost-effectively collected. NYSERDA's Cleaner Greener Communities (CGC) requirements do not provide any metrics for health.

- Consult community groups through ECLIPSE's existing and planned community outreach efforts to inform the selection of an appropriate set of indicators for ECLIPSE benchmarking. Community consultation can also serve to review the results produced by indicators periodically. Community and beneficiary perspectives will help ensure their priorities are reflected in ECLIPSE goals, indicators, and the overall benchmarking policy.

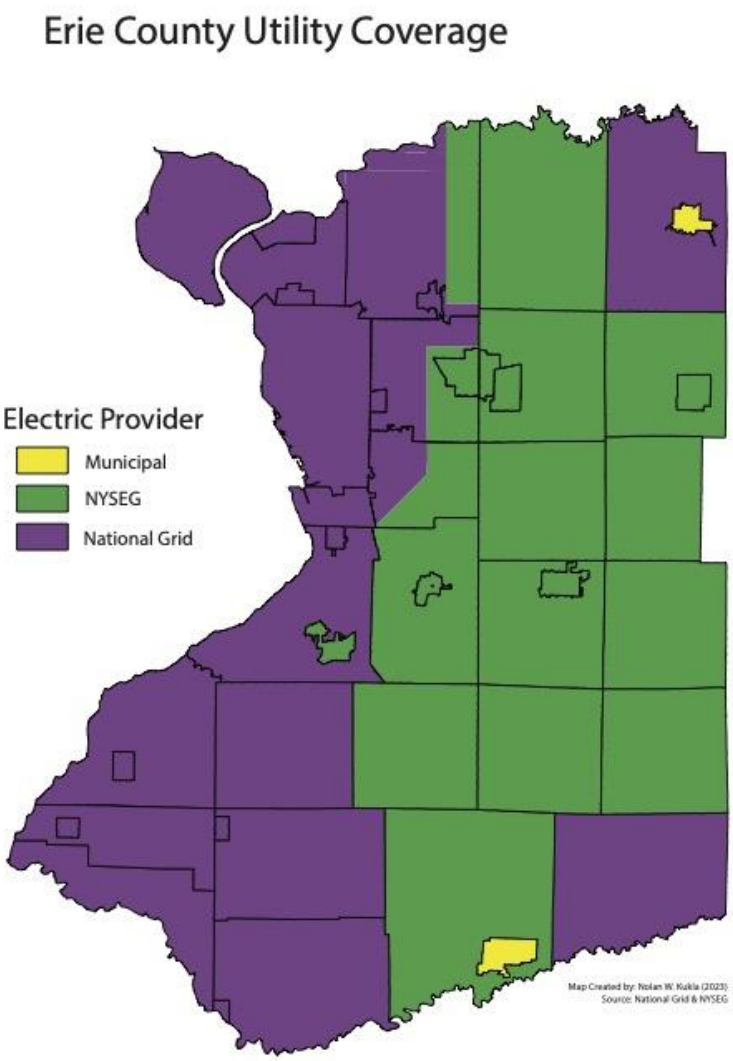
Appendix A

Maps

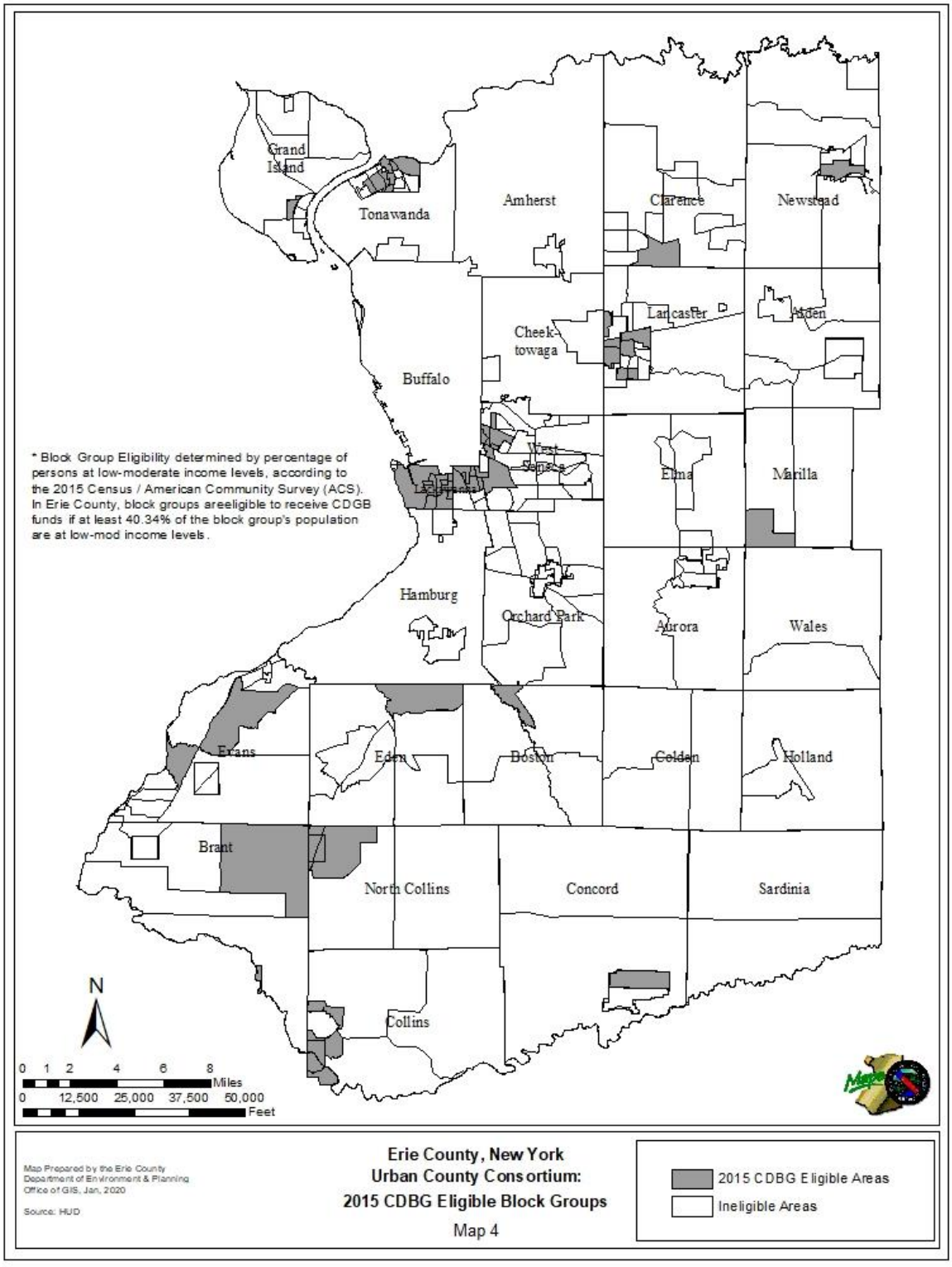
A.1 Erie County Municipalities by Type — Urban, Suburban, or Rural



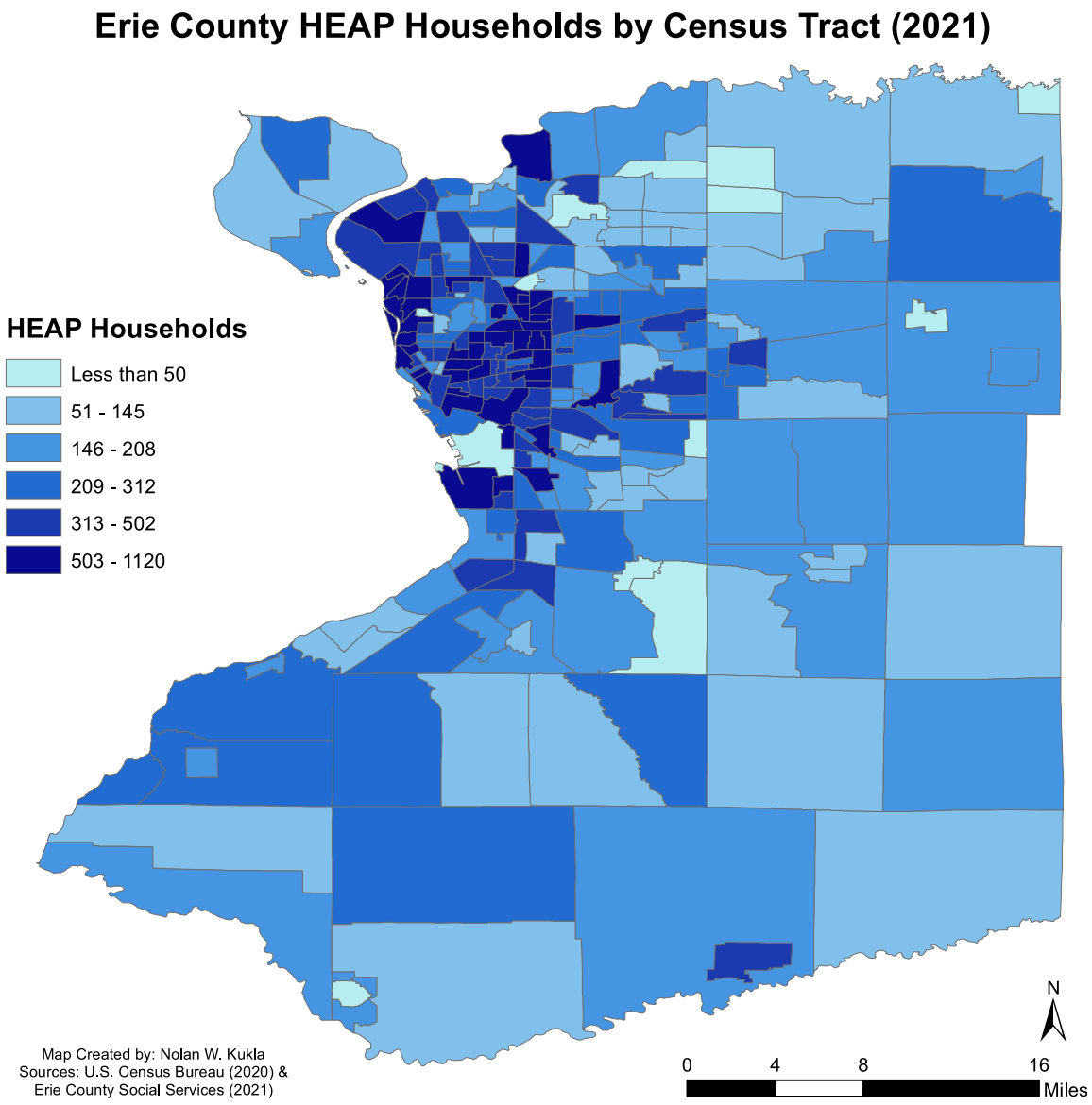
A.2 Erie County Utility Coverage Map



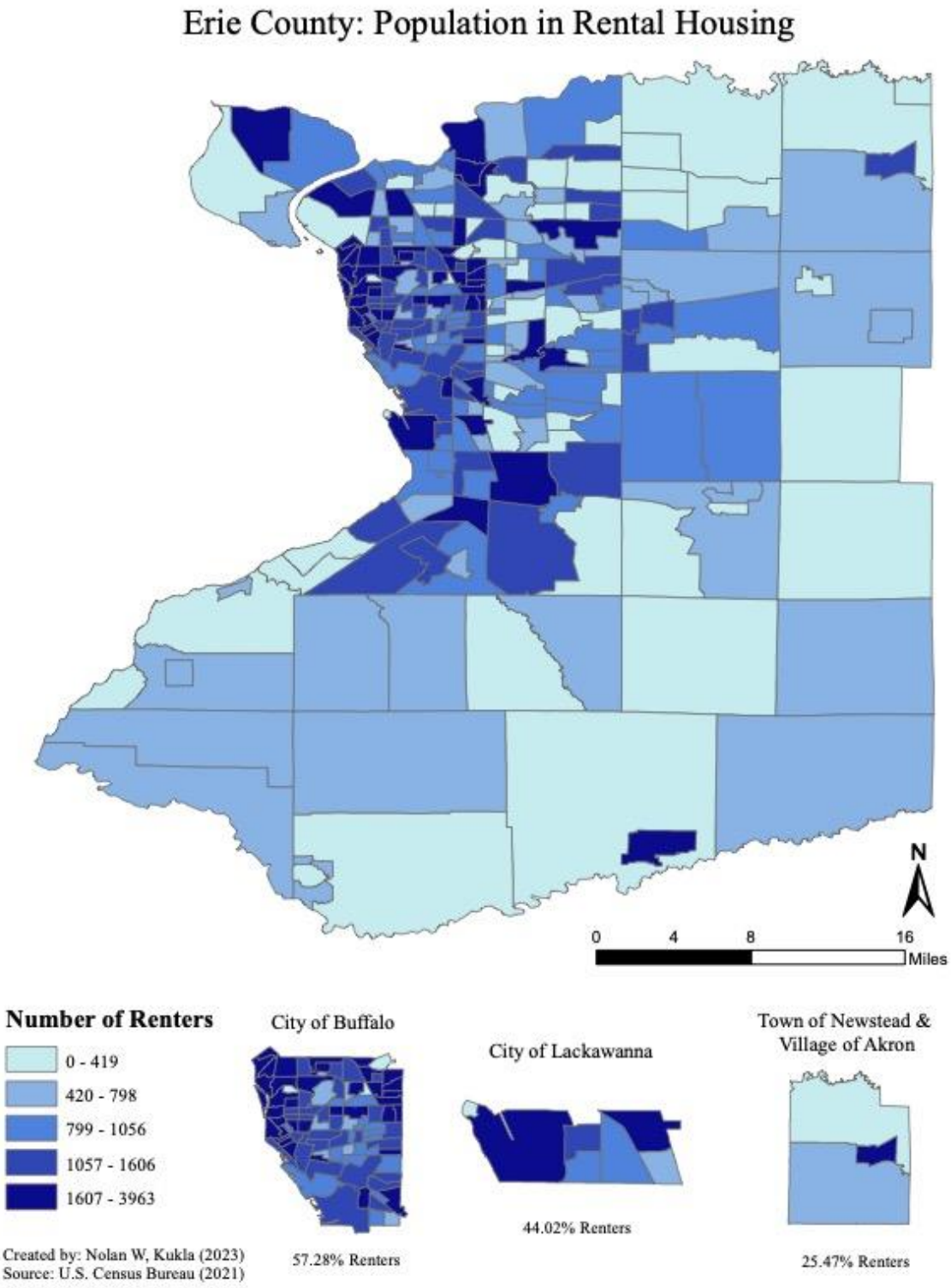
A.3 2015 Eligible Community Development Block Grant Groups



A.4 Erie County HEAP Households by Census Tract



A.5 Population in Rental Housing by Number of Renters



Source: ACS 21_5yr: B25003

Appendix B

Benchmark Evaluation Framework

The Benchmark Evaluation Framework set out below applied to selected potential benchmark metrics is intended for illustrative purposes only. The evaluation of metrics will depend in part on the specific definition and implementation of the metric, as well as potentially judgment- or value-based appraisals by stakeholders.

A solid dot (•) indicates that the metric is expected to meet that framework criteria, based on the study authors evaluation of the expected implementation of the metric. A hollow dot (o) indicates that that the criteria may be difficult satisfy depending on definition or implementation. A null set symbol (ø) indicates the metric does not satisfy the criteria. No symbol indicates inadequate information to evaluate.

Instead of a binary evaluation system, an ordinal scale can also be used to evaluate metrics, such as an evaluation based on 1 through 10 representing weakest to strongest relationship.

	Relevant	Reliable	Practical	Responsive	Focused
GHG Reductions	•	•	•	•	•
Energy Burden	•	o	o	•	•
Amount spent on health care	•	ø		•	o

Explanation of Evaluations

Greenhouse gas reduction is easily measured based on kilowatt hours of electricity supplied and the grid emissions factor. It meets all the criteria because it is directly relevant to ECLIPSE goal of emission reductions, reliable and practical due to its simplicity and ready availability of high-quality data, responsive to Erie County and NYSERDA needs, and focused on ECLIPSE objectives.

Energy burden — the measure of electricity and gas costs as a percentage of household income —is directly relevant to ECLIPSE goals of relieving poverty by addressing energy burden. Data for household income and medical expenses may be difficult to reliably quantify and to collect. Energy burden is highly responsive to all stakeholder concerns. Energy burden is well focused on ECLIPSE program capabilities.

Amount spent on health care measures the extent to which households can allocate funds to health care as an indicator of improvements in community health. While relevant to health outcomes, data for medical expenses may be difficult to reliably quantify and to collect. What constitutes an essential or discretionary medical expense may also vary. While this metric is likely to be responsive to community concerns, ECLIPSE might not be the best focal point to collect and evaluate this kind of data.