



# IBO Calculations of Federal Environmental Impacts and Progress on Solar Energy Goals for New York City

In 2025, the Trump administration announced major changes to federal environmental budget and regulatory policy. The New York City Independent Budget Office (IBO) wrote a [report](#) on environmental-related federal policy changes as they relate to New York City as part of its [Federal Changes, Local Impacts](#) series. This includes impacts to the City's progress reducing greenhouse gas emissions and air pollution and moving to alternative forms of energy such as solar and wind.

IBO also presents a [report](#) on New York City and State progress towards solar goals, including Local Law 99, which requires solar energy capacity to be added to City-owned properties.

IBO presented several estimates; the data and methodologies for those estimates are presented here.

## Calculations in Federal Changes, Local Impacts

The following sections relate to estimates made in IBO's Federal Changes, Local Impacts report on environmental regulations and incentives.

### Out-of-State Energy Imports

On page 7, IBO estimated that in calendar year 2024, 13.6% of New York State's energy was imported from out-of-state grids. (This report uses calendar years unless otherwise noted.) To calculate this, IBO used data from the New York Independent System Operator's (NYISO) [2025 Load & Capacity Data Gold Book](#). NYISO is responsible for managing New York's electric grid and electricity marketplace. IBO's estimate was a result of dividing the net import of energy (20,637 GWh, from table III-3d on page 105) by the sum of net imports and the total energy generated in-state (130,642.7 GWh, from table III-3c on page 104).

### Impact of Cancellation of Offshore Wind Projects

EPA already cancelled five large-scale wind energy projects in or near New York City in 2025. To provide perspective, on page 10 IBO estimated that, if these wind projects were online in 2025, large-scale wind capacity would have expanded by roughly 6,400

FIGURE 1

## Cancelled Capacity from Large-Scale Wind Energy Projects

Project Name	Estimated Year Project Would Come Online	Capacity (MW)	Connection Point
Empire Wind 2	2029	1,260	Long Island
Beacon Wind 1	2028	1,230	Queens
Attentive Energy One	2035	1,275	Brooklyn
Community Offshore Wind	2034	1,300	Brooklyn
Excelsior Wind	2031	1,350	Long Island
<b>Total Cancelled Capacity</b>		<b>6,415</b>	

SOURCE: OMB New York City Climate Budgeting Technical Appendices FY 2026

NOTES: Another large wind project, Empire Wind 1, has been halted by the federal government, introducing additional risks to the in-process project continuing forward. Empire Wind 1 is estimated to add 816 MW in capacity.

New York City Independent Budget Office

megawatts (MW), increasing wind's 2025 grid capacity share from 7% to 20%, holding all other energy types equal. While the wind projects were not scheduled to come online in 2025, and it is likely the mix of energy will shift when wind capacity expands, IBO made simplifying assumptions to create a measurable baseline for estimating the increase in wind capacity. To calculate this, IBO used data from NYISO's [2025 Power Trends Annual Grid and Markets Report](#).

- The 7% estimate came from dividing 2025's wind capacity of 2,586 MW by 2025's total capacity of 37,699 MW (both from the Grid and Markets Report, figure 22 on page 44).
- IBO calculated the 20% potential wind capacity figure by adding the cancelled capacity of 6,415 MW (see Figure 1) to both the numerator and the denominator from the 7% calculation, assuming that the additional capacity was added with all other energy generation held constant.
- This was a simplifying assumption because it is unclear what the other sources of energy and overall demand will look like when wind expands.

## NYC Transportation Greenhouse Gas Emissions

On page 10, IBO estimated that New York City would need to cut an additional 6 million metric tons of carbon dioxide equivalent (tCO<sub>2</sub>e) from 2023 levels to reach its goal of reducing transportation emissions in half by 2030, compared with 2005 levels, as stated on page 95 of the [PlaNYC: Getting Sustainability Done](#) report from April 2023. (tCO<sub>2</sub>e is a standard unit for measuring greenhouse gas emissions.) The total reduction goal is an 8.4 million tCO<sub>2</sub>e reduction from 2005 levels.

IBO calculated these figures using data from the Mayor's Office of Climate and Environmental Justice's (MOCEJ) [Greenhouse Gas Inventories](#). To estimate the emissions reduction needed to reach the citywide 2030 goal, IBO first divided citywide transportation emissions from 2005 in half to estimate the reduction goal, which is measured from 2005 levels. Then IBO subtracted the 2030 tCO<sub>2</sub>e reduction goal from the

FIGURE 2

## New York City Transportation Greenhouse Gas Emissions

	Transportation Emissions (tCO <sub>2</sub> e)
2005 Citywide Transportation Emissions	16,925,733
2023 Citywide Transportation Emissions	14,468,075
2030 Goal (50% of 2005 emissions)	8,462,866
Emissions cuts needed (2023 emissions, less 2030 goal)	6,005,208

SOURCE: Mayor's Office of Climate and Environmental Justice

NOTE: IBO used the Citywide Climate Leadership and Community Protection Act Greenhouse Gas Inventory for all estimates.

New York City Independent Budget Office

total Citywide emissions in 2023 to estimate the remaining emissions reductions needed to hit the 2030 goal, as shown in Figure 2. (IBO used 2023 data because 2024 data are scheduled to be finalized in winter 2025.)

## Data Sources for IBO's Solar Industry Investment and Employment Estimates

IBO used the following data sources in its estimates related to solar energy production in its Federal Changes, Local Impacts Environmental [report](#) and IBO's Solar Power Progress Report: Analysis of Local Law 99 Solar Energy Goals [report](#).

### New York State Energy Research and Development Authority

IBO used New York State Energy Research and Development Authority (NYSERDA) [Solar Electric Programs data](#) and [Statewide Distributed Solar data](#). Data were reported at the project level. Across both datasets, variables utilized by IBO for this analysis include:

- Estimated energy capacity in MW
- Total project cost
- Residential and non-residential indicators
- Climate and Economic Justice Disadvantaged Community indicators

NYSERDA Solar Electric Programs data provide information on solar photovoltaic (PV) installations in New York state that receive funding from NYSERDA. NYSERDA Statewide Distributed Solar data provide details on all known installed solar PV systems in New York state. Per NYSERDA, the Solar Electric Programs data capture about 80% of the City's municipal solar capacity, 90% of citywide capacity, and 80% of statewide capacity through 2025. IBO extrapolated project costs to account for the remaining 10-20% of solar PV to generate its estimates.

The Solar Electric Programs dataset (which includes project-level costs) is a subset of the Statewide Distributed Solar dataset. IBO used the share of total capacity represented by NYSERDA-incentivized projects to scale total project costs and approximate the cost of all installations completed since passage of the Inflation Reduction Act (IRA) in 2022.

## Quarterly Census of Employment and Wages

IBO used New York State Department of Labor Quarterly Census of Employment and Wages (QCEW) data for New York City-based establishments to estimate solar PV sector job employment and wages from 2015 through 2025.

IBO's job estimates used North American Industry Classification System (NAICS) codes for Solar Electric Power Generation (NAICS code [221114](#)) and Power and Communication Line and Related Structures Construction (NAICS code [237130](#)). These industry codes include solar electric power generation, solar power structure construction, and solar panel installations. IBO combined jobs reported in these codes as a proxy for the City's solar industry.

## New York Independent System Operator

IBO utilized data and reports from NYISO, which coordinates and monitors the New York State electrical grid. Sources include the following:

- [2025 Load & Capacity Gold Book](#)
- [2025 Power Trends Annual Grid and Markets Report](#)

## Mayor's Office of Climate and Environmental Justice

IBO also made use of the [NYC Greenhouse Gas Inventories](#) from MOCEJ. These inventories track activities that produce greenhouse gases in all five boroughs and includes breakouts of which activities result from City government operations.

## Data Limitations

NYSERDA data include all solar projects, but only those receiving NYSERDA incentives report project-level costs. Total costs for all projects are approximated by scaling from the incentivized subset for which IBO had cost reporting. Similarly, eligibility for the Low-Income Community Bonus Credit was applied proportionally based on project cost data reported for incentivized projects.

Quarterly data reporting for Solar Electric Power Generation (NAICS code 221114) is limited from calendar years 2014 through 2016. Due to the small number of establishments and privacy requirements, the Department of Labor issued less granular data in these years. IBO created City fiscal year estimates during this period by annualizing available quarters across City fiscal years. Starting with calendar year 2017, IBO used complete quarterly data.

While NAICS code 221114 pertains specifically to solar energy generation, code 237130 encompasses solar power structure construction, solar panel installations, but also solar reflective roof coatings and geothermal or wind construction, potentially overstating solar-related employment. There may also be firms associated with the solar power industry in New York City not captured in the two NAICS codes used by IBO.

Forecast projections for solar PV capacity growth assume stable costs; changes in economic and policy factors may cause changes that are not captured. IBO projections do not account for any behavioral changes resulting from the sunset of federal solar tax credits enacted in the One Big Beautiful Bill Act.

## Residential and Non-Residential Federal Solar Credits

IBO estimates that solar projects in New York City qualified for about \$400 million in federal tax credits. IBO quantified the dollar value of projects it estimates would qualify for the credits but cannot say whether tax filers linked to those investments claimed the tax credit. This was calculated using the following formulas and data from NYSERDA by borough. Data are available for residential, commercial, and municipal projects, allowing for a finer level of cost granularity than if all projects were grouped together. IBO grouped these costs as residential and non-residential in calculating its cost estimates. IBO's estimates are broken out across the following categories:

- Residential Costs = Residential Cost Share × Total Project Costs
- Residential Clean Energy Credit Credit Value = Residential Costs × Base Credit
- Non-Residential Costs = Non-Residential Cost Share × Total Project Costs
- Clean Electricity Investment Credit (CEIC) Credit Value = (Non-Residential Costs × Base Credit) + (Non-Residential Costs × Low Income Communities Bonus Credit Qualifying Share × Low Income Communities Bonus Credit)

## Total Federal Incentives

- Total Federal Incentives = (Total Project Costs × Base Credit) + (Total Project Costs × Low Income Communities Bonus Credit Qualifying Share × Low Income Communities Bonus Credit)

## CEIC in Disadvantaged Communities

- Incentives in Disadvantaged Communities (DAC) = Non-Residential Costs × Low Income Communities Bonus Credit Qualifying Share × (Base Credit + Low Income Communities Bonus Credit)

## IBO's Calculations of New York Solar Capacity and Installations

The estimates in this section are presented in IBO's [Solar Power Progress Report: Analysis of Local Law 99 Solar Energy Goals](#). IBO used NYSERDA data to determine the total MW of solar energy capacity installed in New York City and the total dollars spent on solar projects.

NYSERDA reports data by county. IBO aggregated the five borough-level values to produce its citywide estimate. The borough-level breakout in IBO's calculations better captures the distribution of incentives. Because the effective CEIC benefit percentage varies by borough (reflecting differences in the share of DACs), this provides a more accurate estimate than applying one citywide average to each borough based on its share of total capacity or project costs.

## Total Project Costs, Calculated by Borough

- Total Project Costs = Cost of NYSERDA-Incentivized Projects ÷ Share of Capacity from NYSERDA-Incentivized Projects

## Municipal Project Costs, Calculated by Borough

IBO matched NYSERDA-incentivized municipal projects with [Department of Citywide Administrative Services \(DCAS\) Clean Energy data](#). The share of total municipal capacity represented by NYSERDA-incentivized projects was then used to scale costs to all municipal projects since the passage of IRA in 2022.

- Total Municipal Costs = Cost of NYSERDA-Incentivized Municipal Projects ÷ Share of Municipal Capacity from NYSERDA-Incentivized Projects
- Federal Incentives for Municipal Projects = (Total Municipal Costs × Base Credit) + (Total Municipal Costs × Municipal Low Income Communities Bonus Credit Qualifying Share × Low Income Communities Bonus Credit)
- Incentives for Municipal Projects in DACs = Total Municipal Costs × Municipal Low Income Communities Bonus Credit Qualifying Share × (Base Credit + Low Income Communities Bonus Credit)

## Completed Projects

- Completed Residential Projects = Share of Projects ≤0.025 MW in NYSERDA-Incentivized Data × All Projects ≤0.025 MW
- Completed Non-Residential Projects = Total Projects – Completed Residential Projects
- Completed Municipal Projects = Counted directly from DCAS data
- Completed Municipal Projects in DACs = Share of NYSERDA-Incentivized Municipal Projects in DACs × Total Municipal Projects

## Capacity and Jobs Impact

To estimate jobs supported by federal incentives, IBO used [QCEW data](#) for City fiscal years 2022–2025, grouping NAICS 221114 (Solar Electric Power Generation) and 237160 (Power and Communication Line and Related Structures Construction) as a proxy for the solar workforce.

- Jobs per MW = Total MW added since IRA ÷ Jobs added since IRA
- Cost per Watt = Total Project Costs ÷ Total Capacity (calculated with and without federal credits)
- Estimated Capacity Without Federal Incentives = Total Project Costs with credits ÷ Cost per Watt without credits
- Jobs Attributable to Federal Incentives = (Actual Capacity – Estimated Capacity Without Federal Incentives) × Jobs per MW

- Total Wages Supported = Jobs Attributable to Federal Incentives × Average Solar Industry Wages

## Cost to Reach Local Law 99 Target

To estimate additional capital funds needed to reach the Local Law 99 target of 150 MW by 2035, IBO multiplied the remaining MW required after the CEIC eligibility deadline by the cost per watt, both with and without federal incentives.

- Estimated Costs Without Federal Incentives = (150 MW – Estimated Capacity Through December 31, 2027, Without Federal Incentives) × Cost per Watt Without Federal Incentives
- Estimated Costs With Federal Incentives = (150 MW – Estimated Capacity Through December 31, 2027, With Federal Incentives) × Cost per Watt With Federal Incentives

Prepared By:  
**Cameron Chapman**  
**Ryan Dougherty**



**Follow IBO**  
@nycibo



[info@ibo.nyc.gov](mailto:info@ibo.nyc.gov)



[www.ibo.nyc.gov](http://www.ibo.nyc.gov)