



A vehicle for Equity, Justice and Sustainable Prosperity

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CITY OF ITHACA
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MAYOR'S OFFICE

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ITHACA GREEN NEW DEAL

Carbon-neutral Community-wide by 2030

- The Ithaca Green New Deal was adopted unanimously by the City of Ithaca Common Council on June 5, 2019
- The Green New Deal addresses climate change, economic inequality and racial injustice

Ithaca Green New Deal Goals

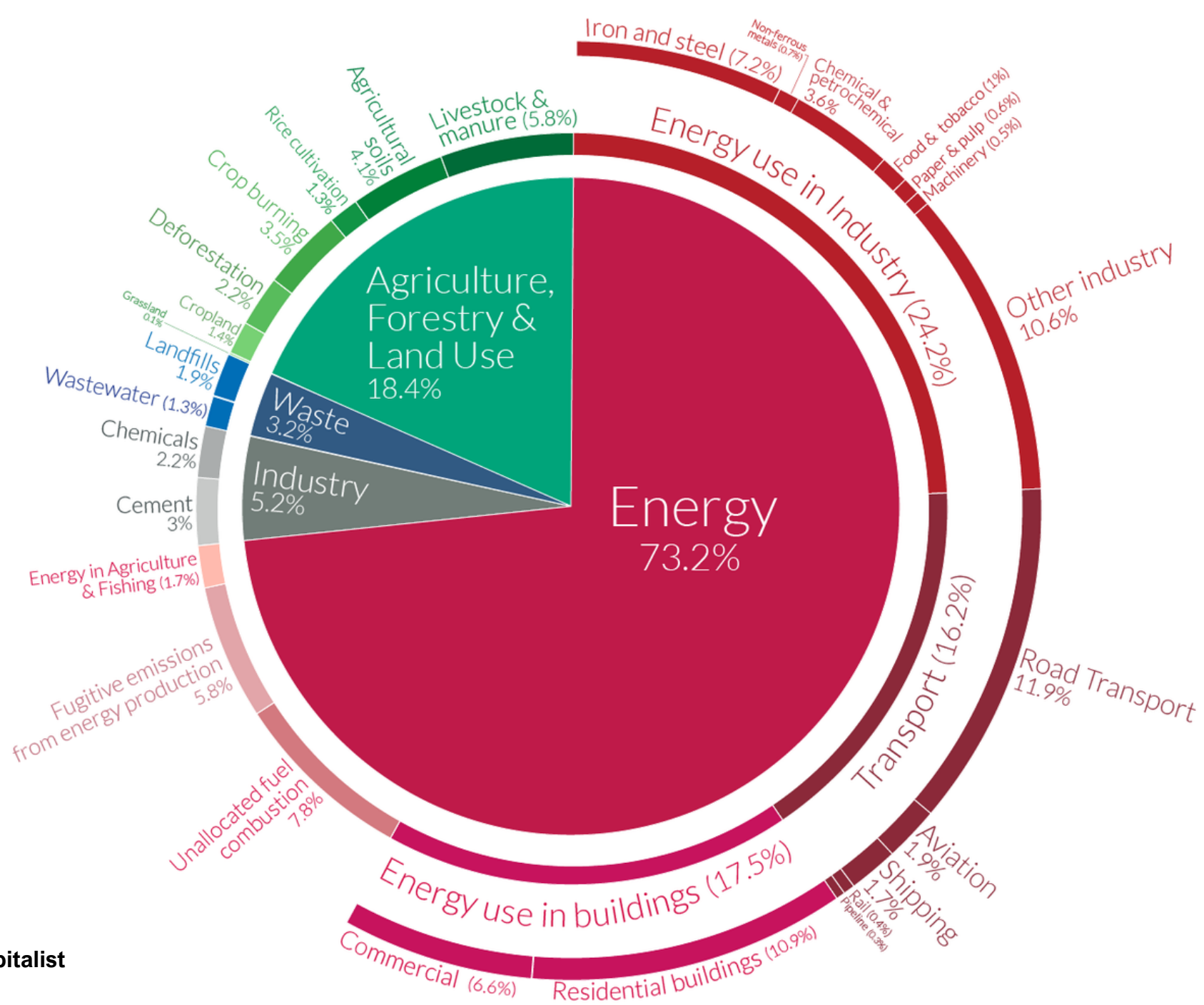
- Achieve carbon-neutrality community-wide by 2030
- Meet the electricity needs of City government operations with 100% renewable electricity by 2025
- Reduce emissions from City vehicle fleet by 50% by 2025
- Ensure benefits are shared among all local communities to reduce historical social and economic inequities
- Facilitate a comprehensive public engagement process

Actions to Achieve the Goals

- Create an action plan in 2020 to achieve these goals, and update regularly
- Annually report progress towards goals
- Adopt a Green Building Code for new buildings in 2019
- Adopt a Green Building Code for existing buildings by 2021
- Assign additional staff to implement the plan

Stay Engaged

- For IGND updates, visit <http://www.cityofithaca.org/642/Green-New-Deal>



Source: Visual Capitalist

NEW YORK'S CLIMATE LEADERSHIP and COMMUNITY PROTECTION ACT

By 2040: achieve 100% zero-emission electricity

By 2050: reduce emissions at least 85% below 1990 levels

New York's Nation-Leading Climate Targets

85% Reduction in GHG Emissions by 2050

100% Zero-emission Electricity by 2040

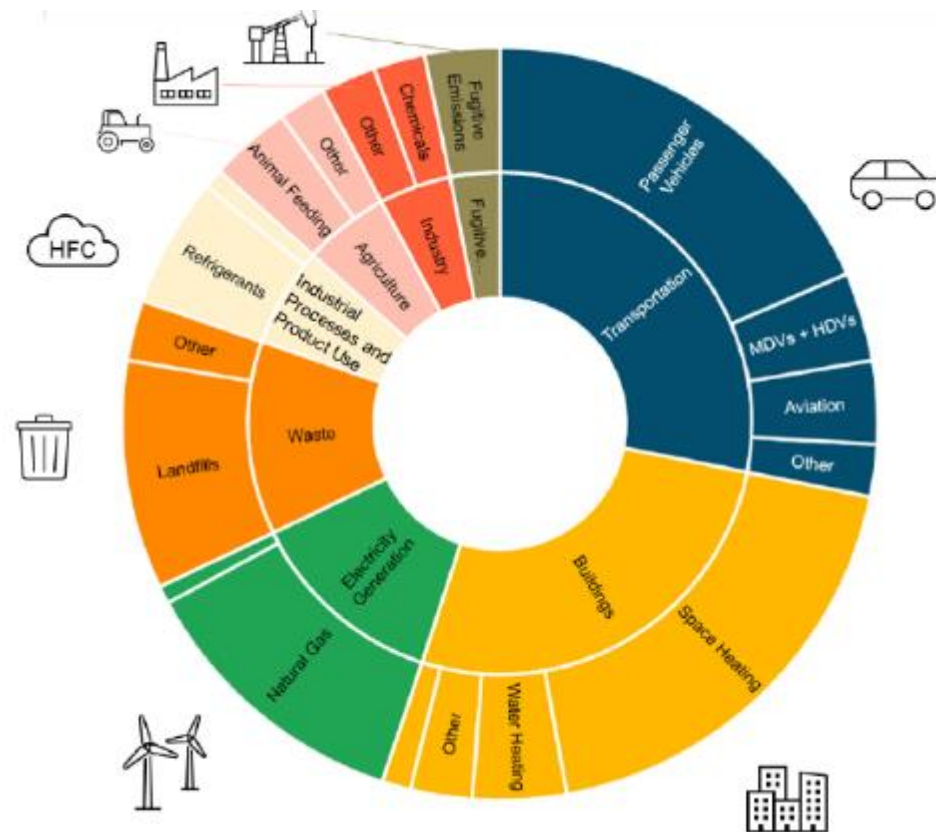
70% Renewable Energy by 2030

9,000 MW of Offshore Wind by 2035

3,000 MW of Energy Storage by 2030

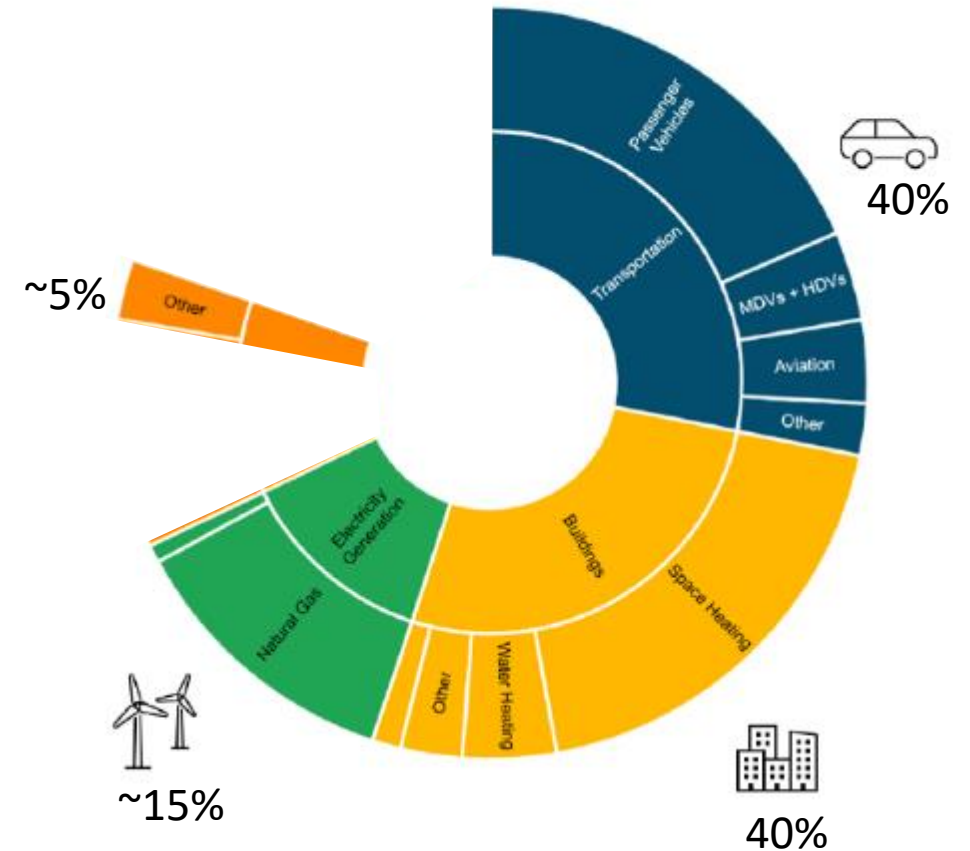
6,000 MW of Solar by 2025

22 Million Tons of Carbon Reduction through Energy Efficiency and Electrification



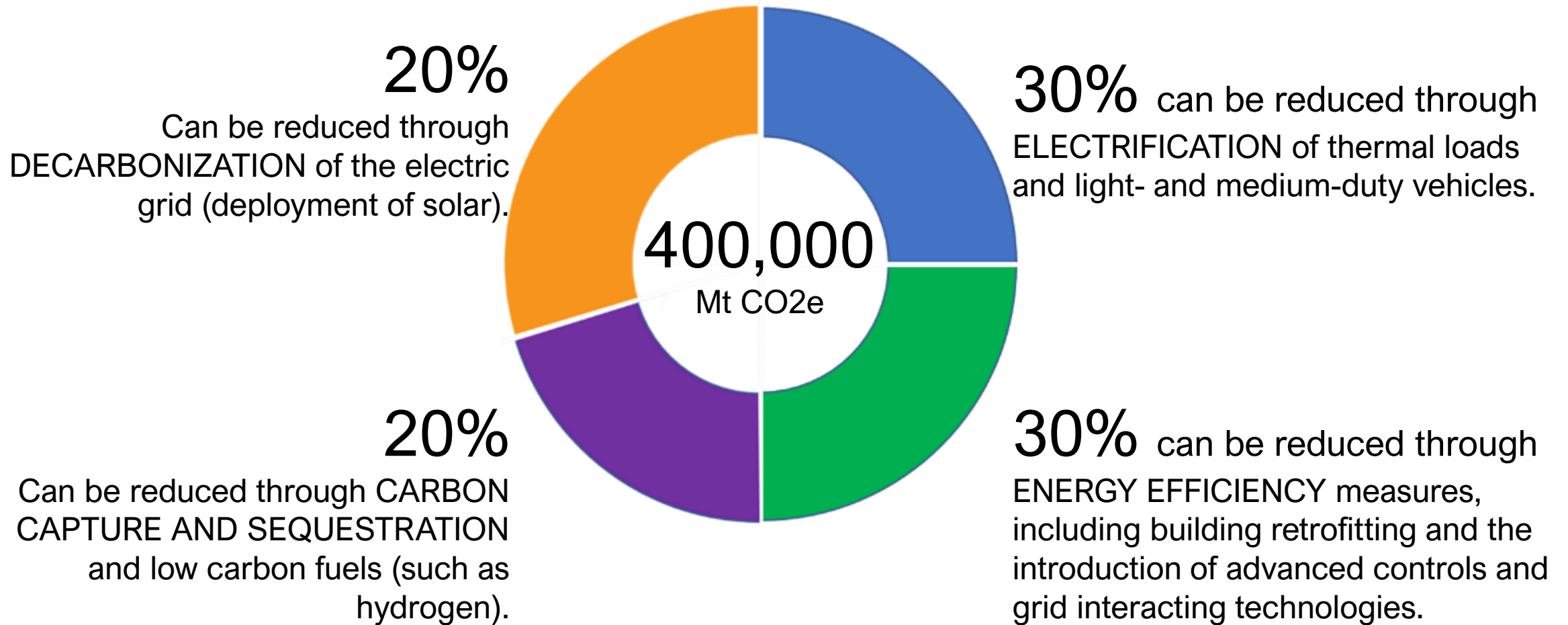
By 2030: Achieve 100% Carbon Neutrality

- In Ithaca, the sources of our emissions are different.
- Most emissions come from stationary sources (buildings) and transportation. A small amount come from organic waste.
- A cross-cutting strategy to reduce emissions, including four key areas, is being considered:
 1. Energy Efficiency
 2. Electrification
 3. Decarbonization
 4. Carbon Capture and Sequestration

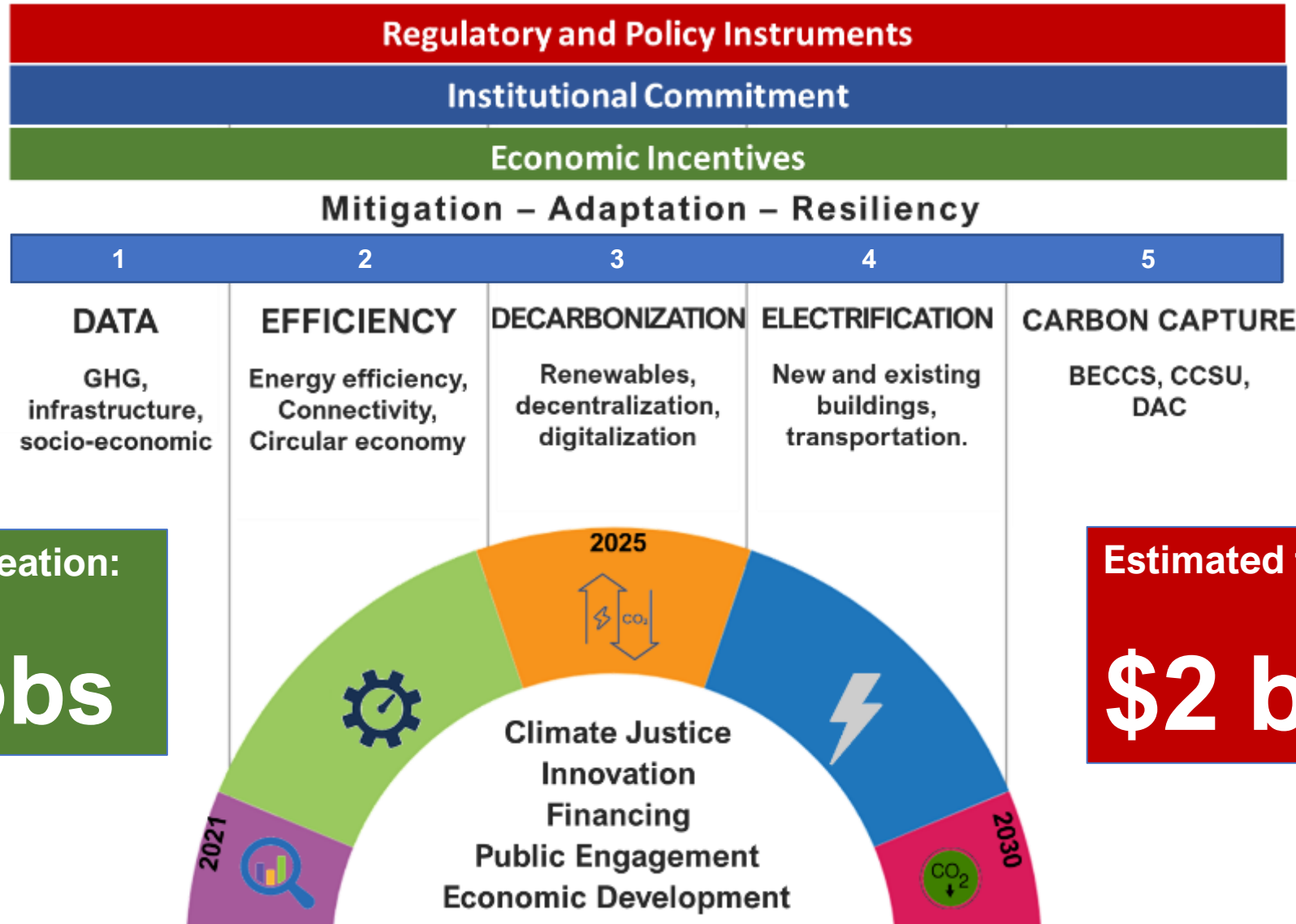


Strategies for Emissions Reduction

(estimated emissions)



Net-Zero Emissions 2030 Strategy

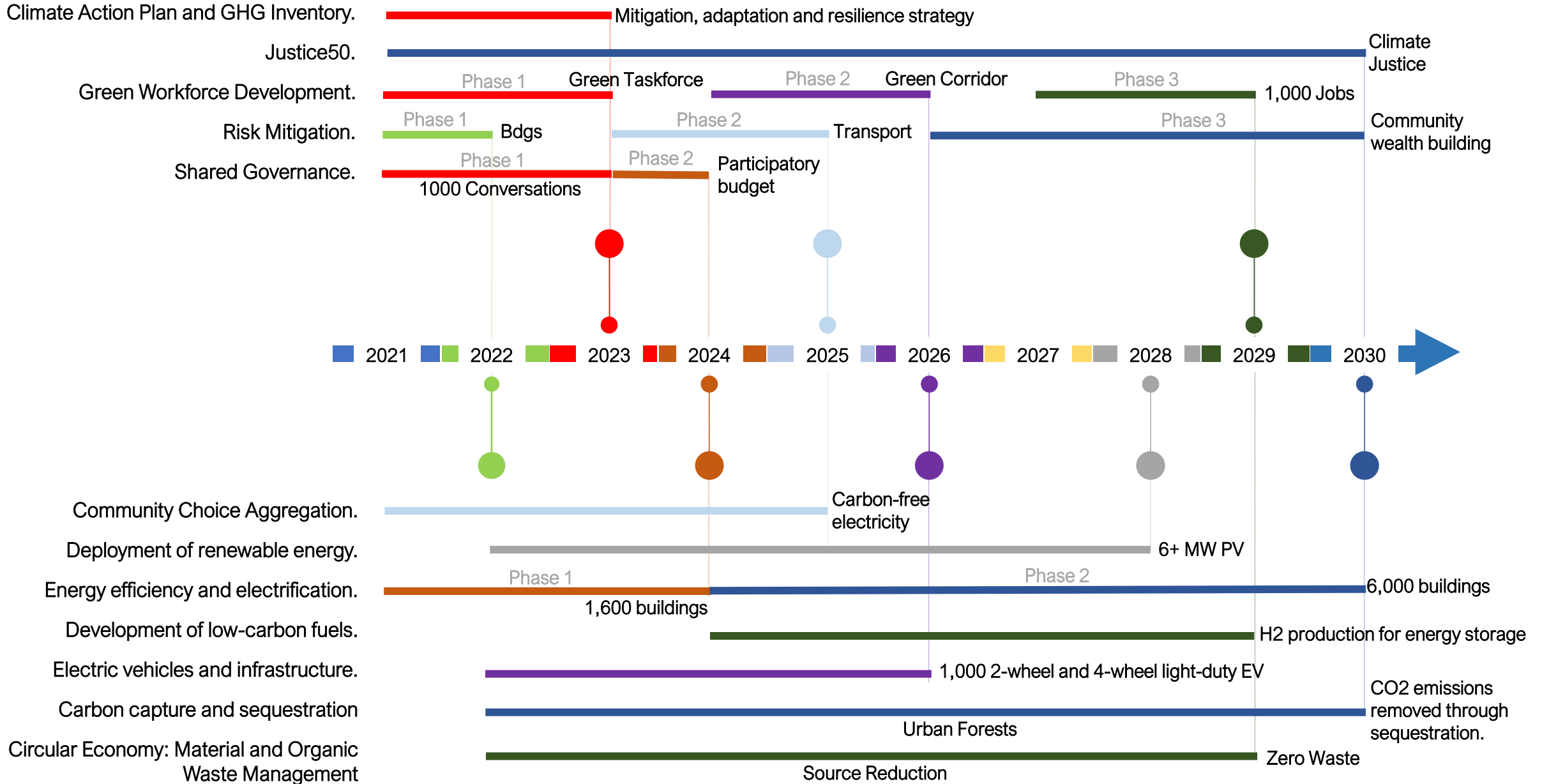


Potential for job creation:
1,000 jobs

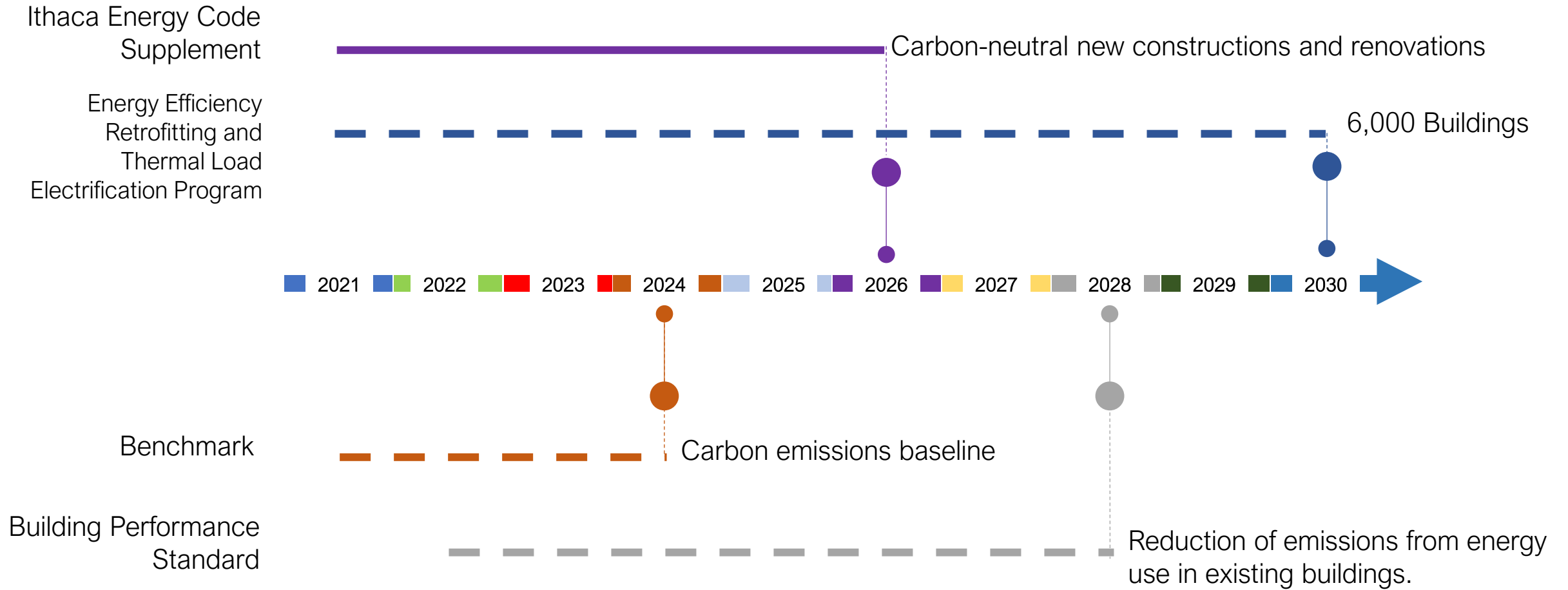
Estimated total investment:
\$2 billion

Local, regional, national and international engagement.

IGND Comprehensive Plan



IGND Comprehensive Green Building Policy

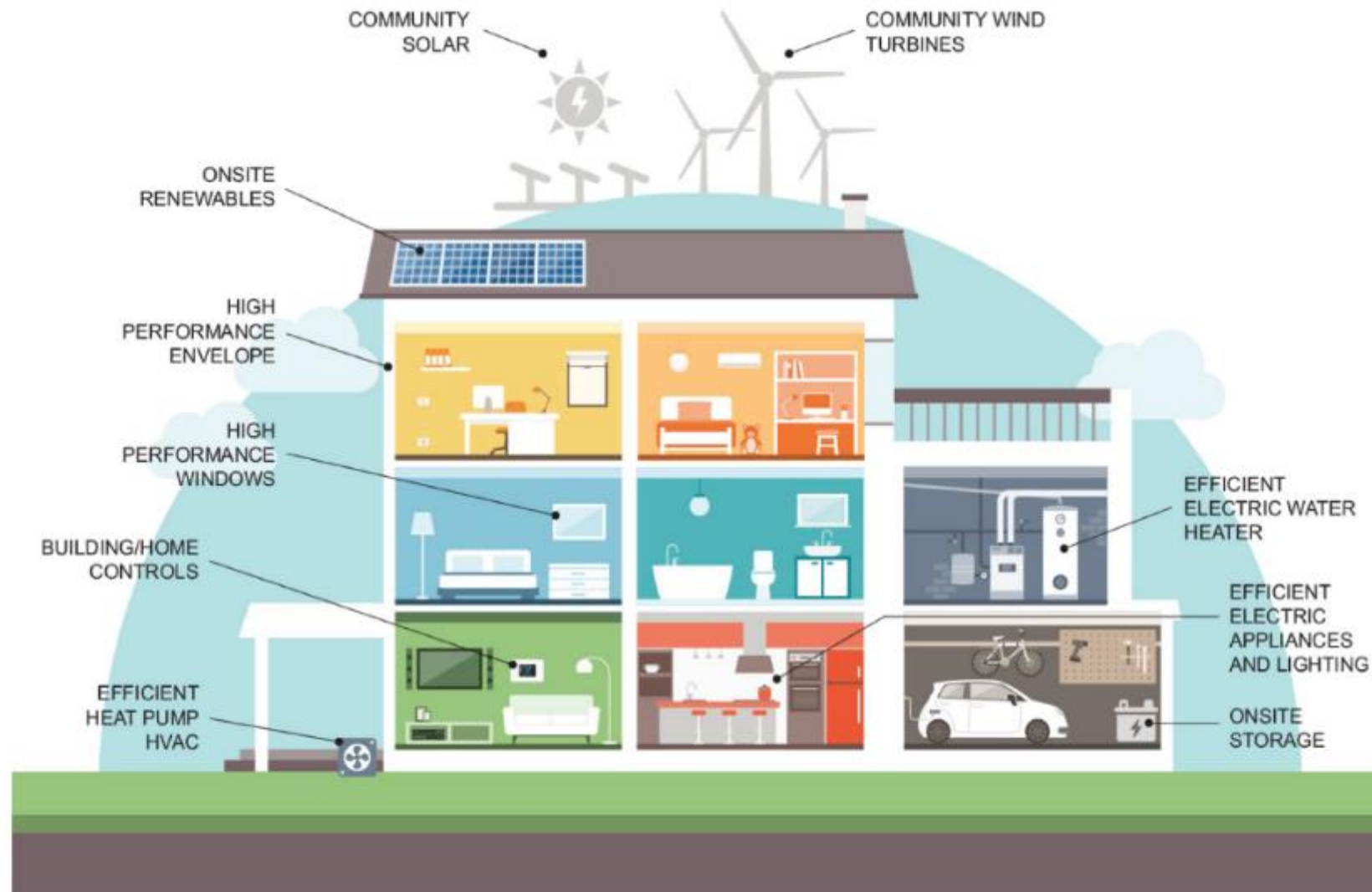


Carbon Neutral Buildings

- A carbon neutral building is one where the **design, construction,** and **operations** do not contribute to emissions of greenhouse gases that cause climate change.
- We address design and construction through the **Ithaca Energy Code Supplement** (June 2021), as well as through the **Deconstruction Ordinance** (expected March 2022).
- We expect to address operations through a **Building Standard Performance** (expected January 2023).

Carbon Neutral Buildings

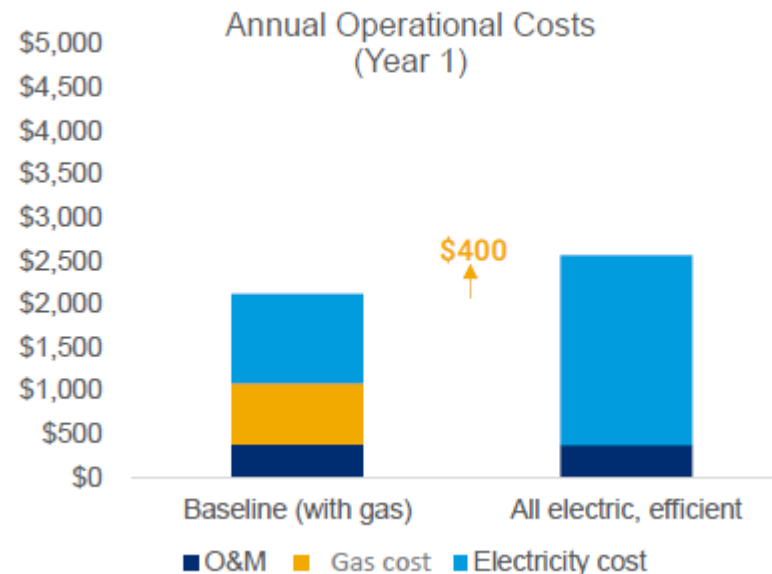
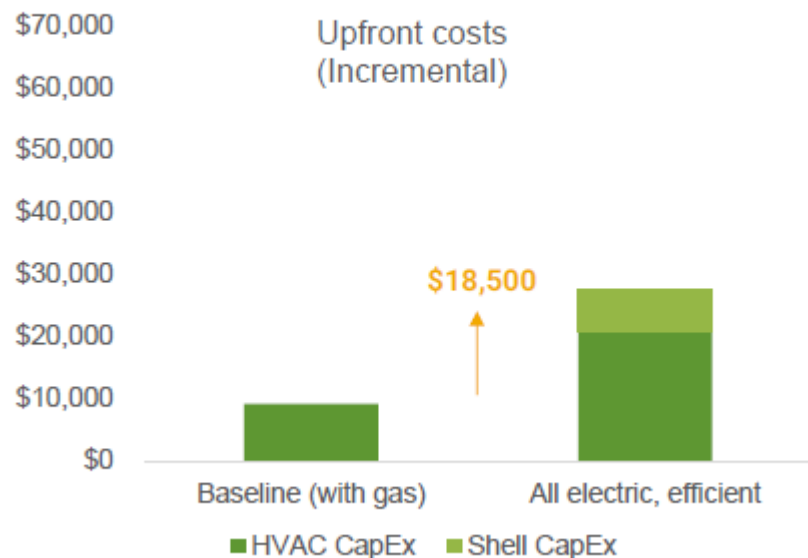
*Source: NYSERDA



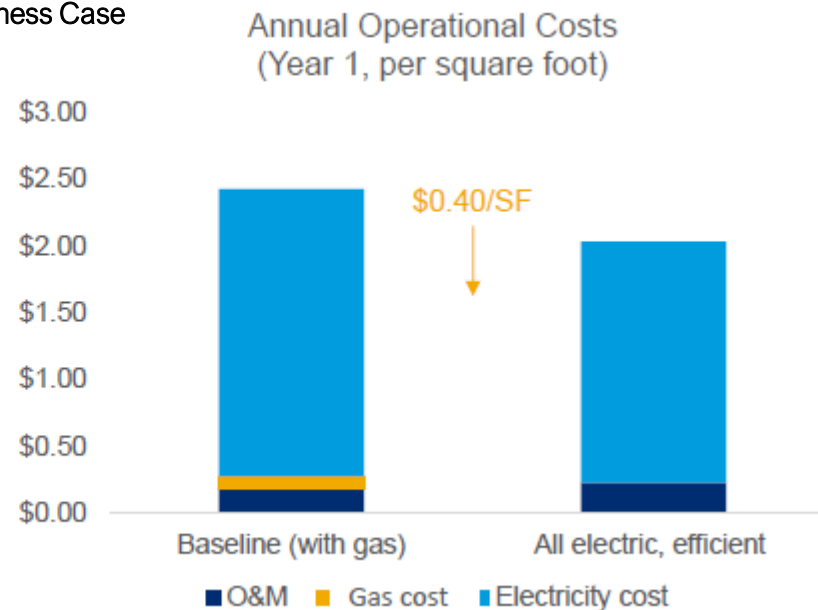
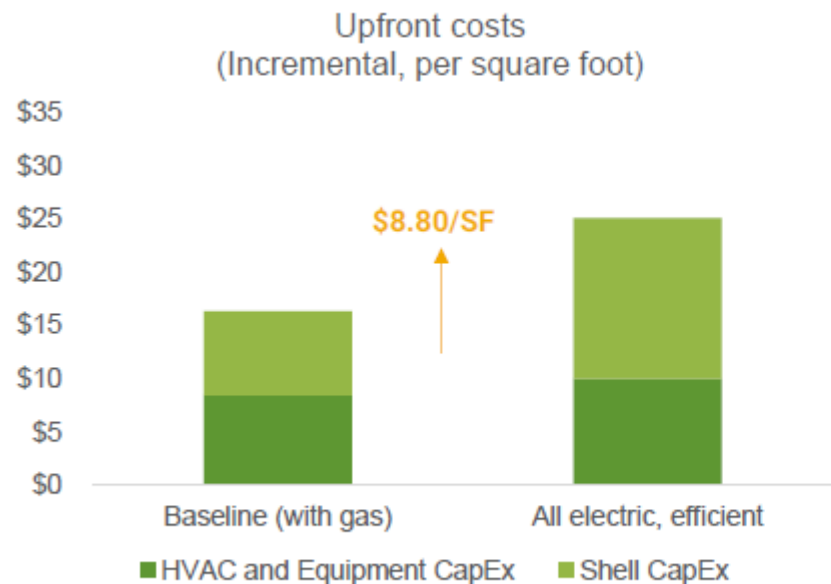
Energy Efficiency and Thermal Load Electrification

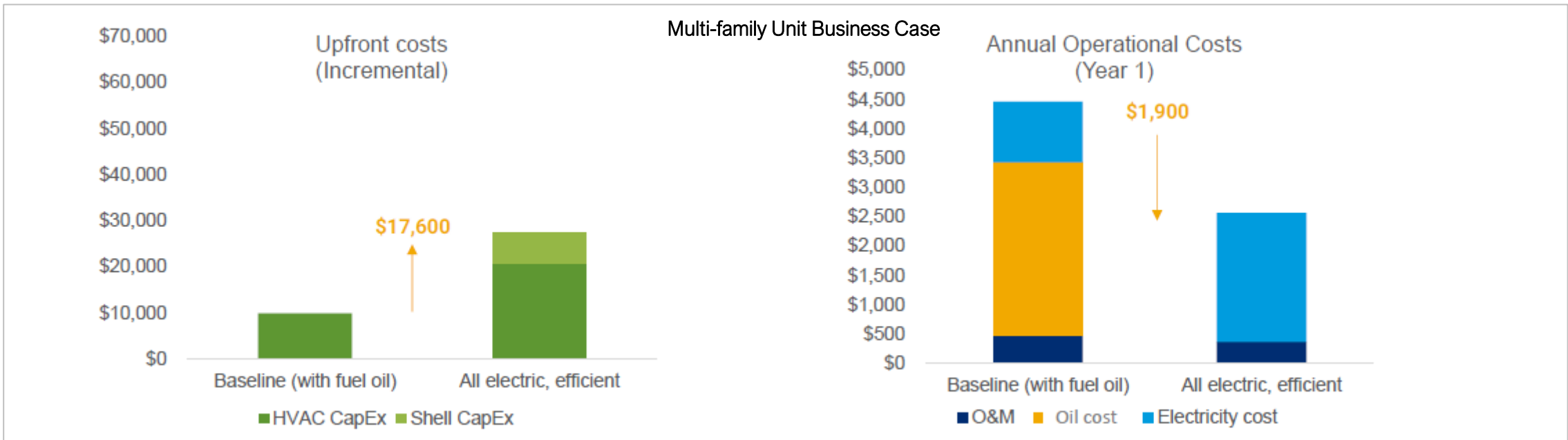
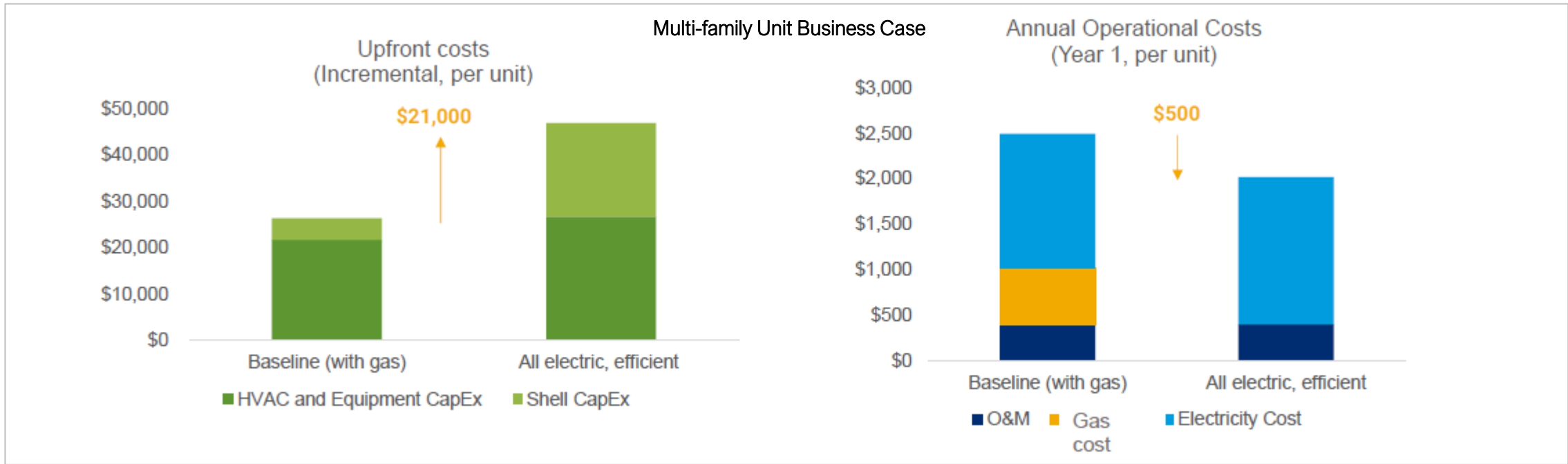
- Buildings account for **40% of the emissions** in the City of Ithaca, mostly from energy use.
 - The city relies on **natural gas (95%), propane (3%) and fuel oil (2%)** for space and water heating, cooking and drying clothes.
 - We estimate 3% penetration of electric baseboard heaters.
- We estimate that by performing energy efficiency retrofits to maximize thermal efficiency, combined with the replacement of thermal loads with electric alternatives, the City could **reduce a total of 200,000 metric tons of CO₂e.**

Single-family Unit Business Case



Commercial Unit Business Case





Focus of Electrification RFP

Energy Efficiency Retrofitting and Thermal Load Electrification Program

Request for Proposals

Submission Deadline: 12PM EST on August 27th, 2021.

Department of Planning and Development,
Sustainability Office,
City of Ithaca, N.Y.



- Envelope intervention to maximize performance and reduce energy loads.
- Replacement of low performance windows.
- Installation of energy recovery ventilation systems.
- Efficient and automated LED lighting.
- Electrical panel and installation upgrades.
- Substitution of electric appliances with highly efficient, smart electric alternatives.
- Substitution of natural gas, propane and fuel oil space heating systems with cold-climate air-source and ground-source heat pumps for space heating and cooling.
- Substitution of natural gas and propane water heaters with heat pump water heaters with storage tanks.
- Substitution of natural gas and propane cooking stoves with electric induction cooktops.
- Substitution of natural gas and propane clothes dryers with electric heat pump dryers.
- Load flexibility, grid interacting, advance control systems.
- Solar PV and onsite energy storage systems.
- Bi-directional electric vehicle charging systems.

Objectives of the EER-TLE Program

- Achieve **full decarbonization** of the building stock by 2030.
 - Achieve this by **performing energy assessments** of every building in the city, followed by specific recommendations in terms of potential **building intervention** and **replacement of thermal loads**.
 - Other recommendations may include the deployment of **rooftop solar** systems for water heating and electricity generation, as well as on-site **storage and EV charging** infrastructure.
 - Make considerations regarding **impact of these recommendations** on the distribution grid (based on load hosting capacity).
- Guarantee **climate justice** by redirecting 50% of the benefits (economic, social and environmental) of this program to CJ communities.



Specific Implementation Challenges

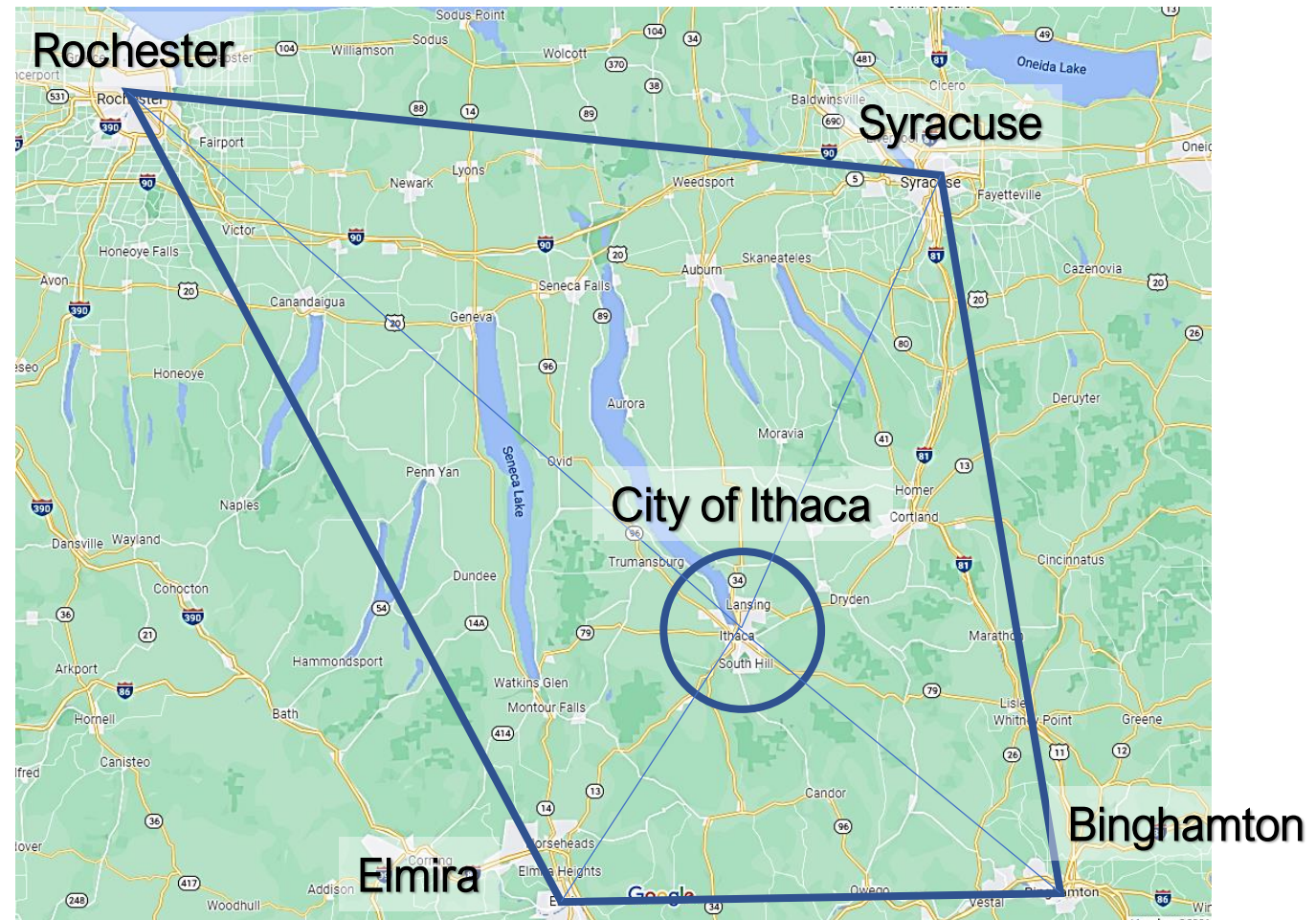
- **Financial**: The **potential cost** of retrofitting and electrification will vary between \$5,000 and \$35,000 for single family homes. In total, the overall program is expected to exceed \$400 million.
- **Economic**: While in most cases it will make sense to replace fuel oil, propane and baseboard electric resistance space heating systems, **in most of the cases replacement of natural gas systems will not yield economic benefits** in the short term.
- **Infrastructure**: The electrification of Ithaca's building stock is expected to **shift the load curve** from summer to winter, imposing new pressure on the distribution grid.
- **Workforce**: The City of Ithaca will require the development of a new workforce to match the needs of the Electrification program, expected to require the participation of at least 400 workers during the next five years.

A Note on Workforce Development

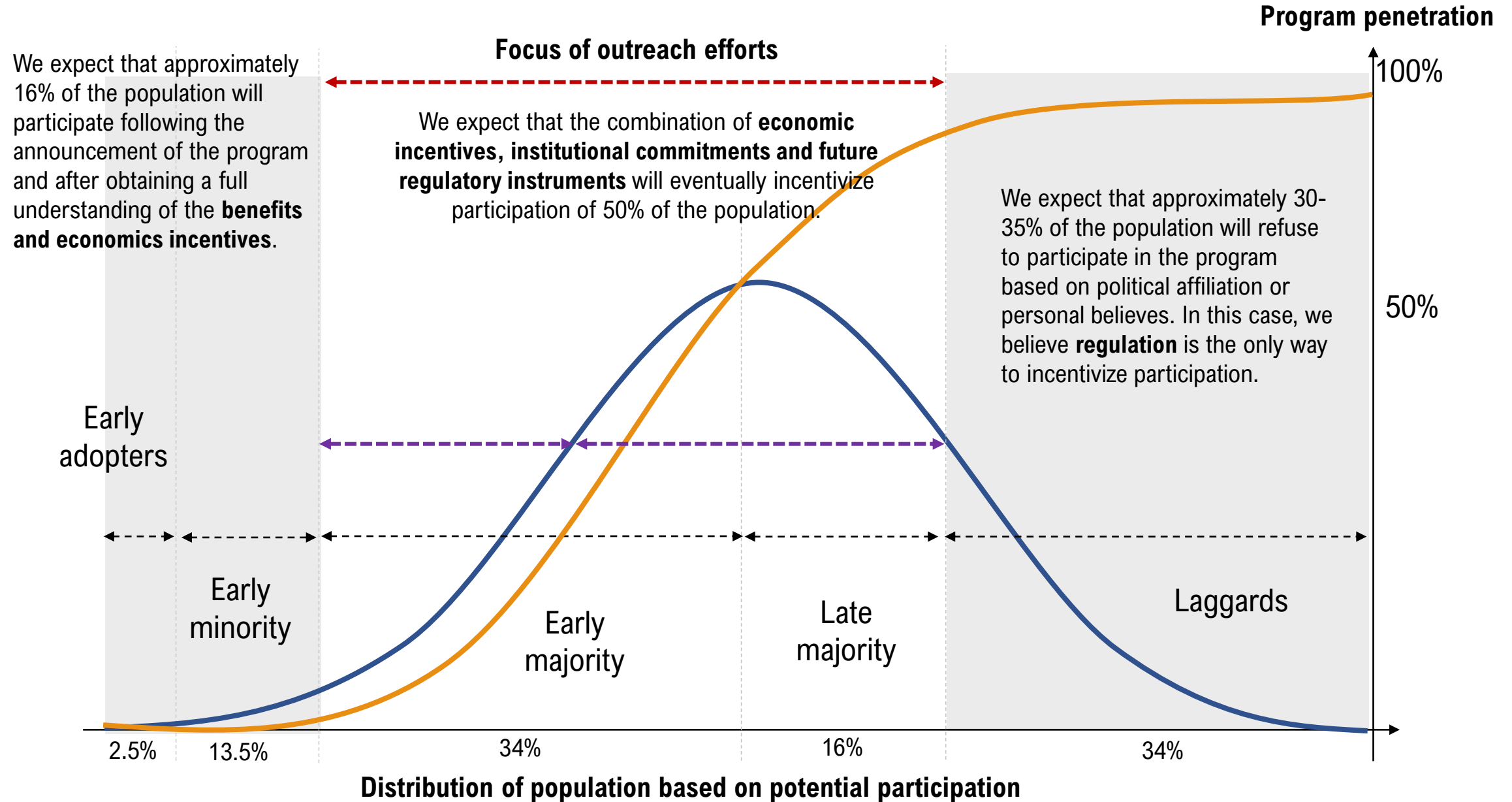
- Job creation is at the very core of the Ithaca Green New Deal.
- The Mayor has ordered the creation of a **Green Workforce Development Taskforce** to consolidate local efforts.
- We are working on the development of a **Green Jobs Corridor** in collaboration with other municipalities.
- We intend to rely on **Roots of Success and Environmental Literacy** program (California) as the basis of a new, vertically integrated curriculum (including pre-apprenticeship, apprenticeship, certification, micro-credentials).
- **Objective:** 1,000 jobs by 2030.

Green Jobs Corridor

- A regional workforce system, connecting the needs and opportunities across county and economic region boundaries.
- A unified training curriculum under the program **Roots of Success**.
 - Training curriculum.
 - Materials.
 - Certifications.
 - Micro-credentials.
- **Shared** wrap-around infrastructure.
 - Childcare.
 - Transportation.
 - Language support.
 - Access to technology.



Program Main Focus

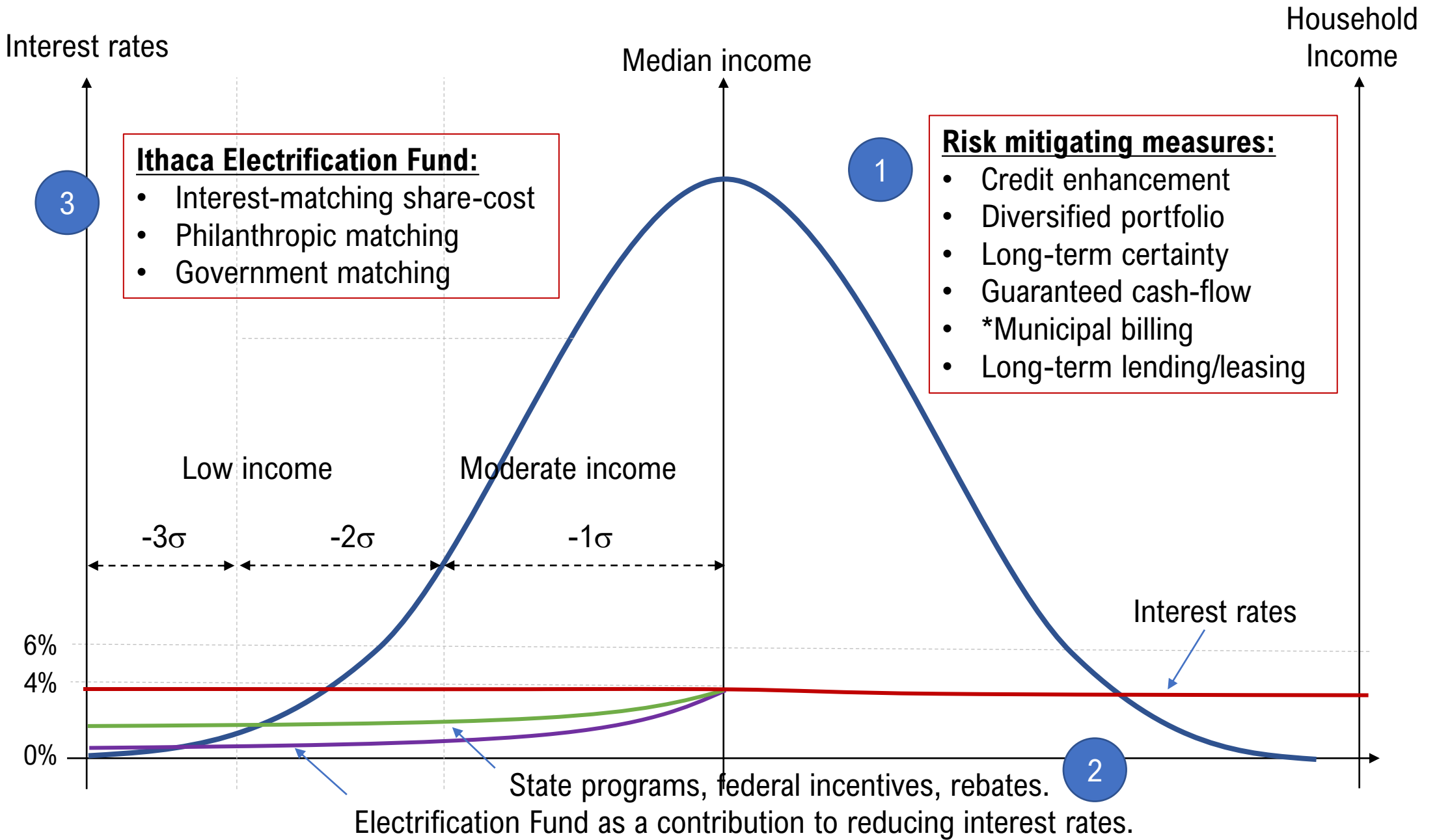


A Note on Climate Justice

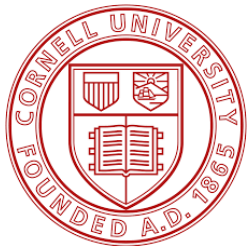
- A core element of the **Ithaca Green New Deal** is to guarantee that at least **50% of the economic, social and environmental benefits** are shared with those communities disproportionately affected by climate change, as well as those that may be more likely to be affected in the future.
- In recognition of the efforts by the **CLCPA and Justice40**, we intend to align to the **definitions provided by both state and federal governments**.
- We also intend to go beyond those definitions and add factors such as **historical inequities, homeownership, financial inclusion and access to health, education and unemployment benefits** to the City's Climate Justice Community definition.

Financial Components

- Financing has been committed by a four private equity funds (\$105 million)
 - Funds to be used to upfront capital expenditures.
 - Independent financing facilities, offering low-cost lending and leasing programs for residential and commercial building owners.
- Reduction of cost of capital by including state and federal incentives, as well as rebates from manufacturers.
- Minimizing risk and promoting financial inclusion through Loan Loss Reserve in partnership with NYSERDA, NY Green Bank and DOE LPO.
- Consideration for Stop-Loss Insurance to transfer risk away from the Program Manager.
- Expanded performance contracts for municipal buildings.
- Creation of the Ithaca Electrification Fund as a Public-Private-Philanthropic Partnership (4P), for crowdfunding and philanthropic/municipal matching.



Implementation Partners



Responsibility of Program Manager

- Manage “capital calls” for Financing Facility.
- Manage relationship with local contractors, while also acting as contractor (capped at 20% of total number of projects).
- Manage relationship with NYSERDA/DOE/EPA.
- Manage relationship with supply chain to achieve economy of scale and bulk purchasing power.
- Assist with workforce development.
- Work with the city on outreach and pipeline generation.



1000

D Electrified buildings
A Green new jobs
Y Electric vehicles
S Conversations



For more information:

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