



Clean Energy Vision Action Plan

WHY A CLEAN ENERGY VISION ACTION PLAN?

The **Clean Energy Vision Action Plan** is the result of feedback submitted through the public comment period for **Powering Our Future: A Clean Energy Vision for Philadelphia**. Residents and advocates acknowledged the value of a long-term vision for meeting Philadelphia’s climate and energy goals, but also recommended laying out concrete strategies that OOS and other City agencies can undertake today to begin working toward a clean energy future.

The Action Plan identifies key programs and policies within Powering Our Future and beyond it. The Plan includes actions that the City can push forward by 2020 to cut carbon pollution and move quickly toward a clean energy future that works for all Philadelphians.

POWERING OUR FUTURE

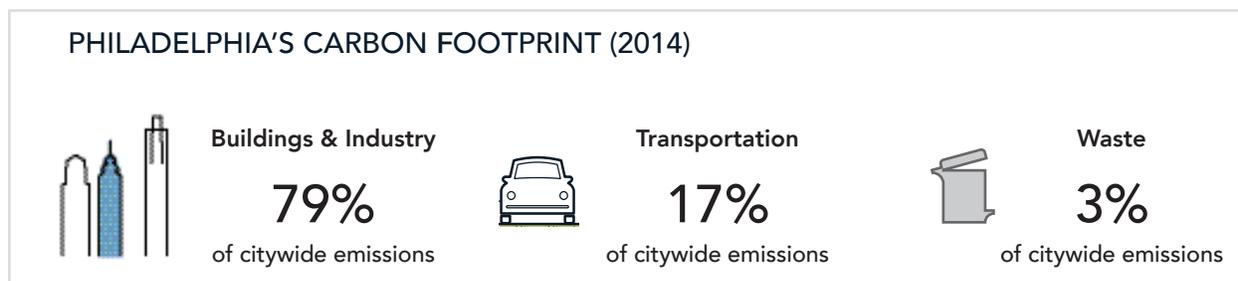
In August 2018 the Office of Sustainability (OOS) finalized Powering Our Future. The report outlines steps that the City of Philadelphia, other levels of governments, businesses and institutions, and individuals must undertake to achieve our vision of a clean energy future for Philadelphia.

All Philadelphians use energy, but not all Philadelphians can easily afford its costs. Using energy more efficiently in our homes and transitioning away from burning fossil fuels to create energy will save money and reduce carbon pollution, which causes climate change. Because our most vulnerable residents are disproportionately harmed by changes in our climate, the transition to a just energy system that is clean and affordable for all is critical to achieving an equitable Philadelphia.

Powering Our Future covers three major parts of Philadelphia’s energy system: our city’s 600,000 buildings, local industry, and the regional energy system that powers them. Taken together these sectors account for nearly 80 percent of carbon emissions in Philadelphia, and transforming them will be critical to achieving a clean and just energy future.



Powering Our Future is Philadelphia’s vision for a clean energy future. Read the full report at www.phila.gov/green.



Nearly 80% of Philadelphia carbon pollution comes from our buildings, industry, and the electricity grid that powers them. Much of the clean energy vision action plan focuses on these areas, though current and forthcoming work on transportation and waste is covered on page 8.



Clean Energy Vision Goals at a Glance

Through a series of stakeholder engagement sessions and climate modeling, the City of Philadelphia has identified new goals for meeting its climate action commitments. The **Clean Energy Vision Action Plan** will help to meet these carbon reduction and energy savings goals while delivering equity, health, and economic benefits to all Philadelphians.



Cut citywide carbon pollution 25 percent by 2025 from 2006 levels



Reduce carbon pollution from the City-owned buildings and streetlights 50 percent by 2030



Cut citywide carbon pollution 80 percent by 2050 from 2006 levels



Achieve a 100 percent carbon-free electricity grid by 2050



EQUITY: Building a clean energy future for Philadelphia means acknowledging historical and existing inequities in how the energy system impacts Philadelphians while working to eliminate those inequities.



HEALTH: Cutting air pollution from coal and oil-fired power plants in our region will improve local air quality and lessen the health impacts of climate change.



ECONOMY: Our clean energy future must work to eliminate the energy burden for the 33% of Philadelphians struggling to pay bills while creating clean energy job opportunities that pay a living wage.

What You Can Do

Achieving our clean energy vision will require action from all levels of government, major businesses and institutions, and individuals like you. For tips on how you can work toward a clean energy future, see pages 24, 31, 38, 50, and 55 of **Powering Our Future**.



Action Plan Focus Areas

The Office of Sustainability (OOS) has grouped the **Clean Energy Vision Action Plan** into six focus areas, which are discussed in depth on the following pages:

IMPLEMENTING THE MUNICIPAL ENERGY MASTER PLAN

OOS's Energy Office recently published the city's first energy master plan, which addresses centralized programs and actions that the City can take to reduce carbon emissions and improve efficiency in more than 600 City-owned facilities.

GROWING EXISTING CLEAN ENERGY PROGRAMS

The City of Philadelphia already has several programs in place that can have an impact on our built environment's energy use. OOS and other program implementers will work to improve their programs to maximize their climate impact and to ensure they better benefit all Philadelphians.

NEW LOCAL PROGRAMS AND POLICIES TO ADVANCE CLEAN ENERGY

In addition to growing existing programs, OOS and other partners will work with Philadelphia City Council to approve, develop, and launch new programs and policies that promote clean energy, cut energy waste, and create job and cost-saving opportunities for Philadelphia residents.

NEW STATE LEGISLATION TO ADVANCE CLEAN ENERGY

Philadelphia is a part of a regional energy system, and action at the state level can transform that system to help us meet our clean energy goals. Recent legislative successes in Harrisburg underscore the potential to find bi-partisan support for moving clean energy priorities forward.

BEYOND THE BUILT ENVIRONMENT

Achieving Philadelphia's climate goals must go beyond buildings and industry-focused efforts. Several recently completed or on-going initiatives will help lead the way toward a carbon-neutral Philadelphia.

PLANNING, EDUCATION, AND ADVOCACY

The Office of Sustainability will continue to plan, educate, and advocate at all levels of government on behalf of our clean energy vision, while working with residents and advocates to strengthen the vision in the years ahead.

For each of these focus areas, OOS has identified potential for carbon pollution reductions from these immediate action items. OOS will continue to report out on these focus areas as it works to implement this action plan.

Connecting the Action Plan to Powering Our Future

Throughout the Action Plan, you'll find page numbers referencing the Powering Our Future playbook sections, where you can get more information on proposed strategies.

POWERING OUR FUTURE: A CLEAN ENERGY VISION FOR PHILADELPHIA

Residential Energy Disclosure at Time of Sale

When you buy a home in Philadelphia, you receive a disclosure from the seller that covers the physical condition of the house. By adding a disclosure for energy performance (either through a rating system or through a direct sharing of recent utility bills), buyers would be better informed about the potential energy costs of their new homes, and sellers could improve the efficiency of a property before listing.

Several jurisdictions, including Chicago, Portland, Austin, Denver, and Berkeley, have adopted residential energy disclosure policies for existing homes. Portland, the latest city to approve residential energy disclosure, will require single-family home owners to obtain a home energy score through a professional and disclose the score at time of listing for sale. Factors to consider for a residential disclosure policy include:

- **Timing of disclosure:** at time of listing, contract period, or at closing.
- **Method of disclosure:** utility data, home energy rating system (HERS), or Home Energy Score.
- **Where disclosure is posted:** Multiple Listing Service listing or inspection.
- **Costs to the buyer, seller, and agent.**
- **Resource availability:** City staff for implementation, home energy professionals, access to utility data.

BY THE NUMBERS
Residential TDS Requirements
CARBON SAVINGS 1,125,830 MtCO ₂ e
ANNUAL COST SAVINGS \$311,223,662
BY THE NUMBERS
Commercial TDS Requirements
CARBON SAVINGS 1,533,550 MtCO ₂ e
ANNUAL COST SAVINGS \$432,233,682

A snapshot from the Powering Our Future playbook.



Implementing the Energy Master Plan

Since 2006 carbon emissions from City-owned and -operated buildings and streetlights have decreased by more than 26 percent. The City of Philadelphia will deepen this progress and demonstrate leadership in climate action by implementing its **Energy Master Plan** to reduce energy consumption and carbon emissions from City-owned buildings. In-progress and forthcoming implementation projects include:

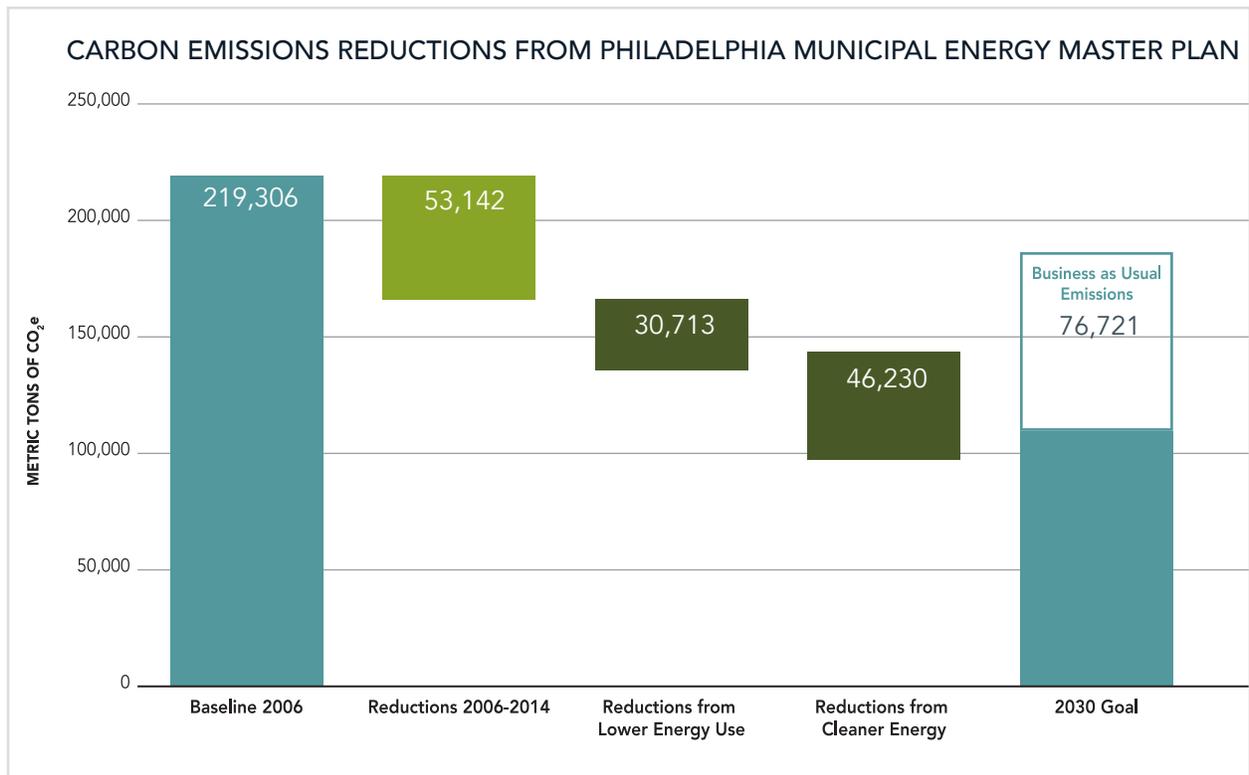
- **Philadelphia Museum of Art Energy Retrofit:** The City has begun construction on \$11.3 million of energy efficiency upgrades to the museum’s Main, Perelman and Rodin Museum buildings, among the largest energy users in the municipal portfolio. The project will cut museum energy usage by more than 20%.
- **Renewable Power Purchase Agreement:** The City is currently evaluating proposals from renewable energy developers and will work with City Council to finalize an agreement in Fall 2018.
- **LED Streetlighting Retrofit:** The City is developing a scope of work to convert the City’s more than 100,000 streetlights to LED fixtures. The retrofit will include a community engagement process and Smart City technology integration.
- **Energy Efficiency & Sustainability Fund:** The Office of Sustainability (OOS) will continue to provide funding to City departments to support energy efficiency projects.
- **Rebuild:** OOS is developing building performance guidelines for libraries and rec centers built or renovated through the City’s Rebuild initiative.

BY THE NUMBERS

Energy Master Plan through 2020

CARBON SAVINGS
62, 230 MtCO₂e

Check out the full Energy Master Plan online at www.phila.gov/green. The Energy Office will publish a one-year progress report on implementation later in Fall 2018.



The Municipal Energy Master Plan sets long-term energy and carbon reduction targets for City-owned buildings and streetlighting.



Growing Existing Clean Energy Programs

The City of Philadelphia already has several programs in place that can have an impact on energy use in our built environment. The Office of Sustainability (OOS) and other program implementers will grow these programs to maximize their climate impact and to ensure they better benefit all Philadelphians.

- Increase Energy Benchmarking Outreach (PAGE 38):** Philadelphia's energy benchmarking program helps large building owners and managers in Philadelphia better understand their energy and water use by comparing performance to peer buildings locally and nationally. OOS is working with consultants and with a university researcher to improve the efficiency of the program and to better target outreach opportunities to residents of large, underperforming multifamily properties.
- Grow Solar Adoption in Philadelphia to Meet 15 MW Annual Goal (PAGE 30):** In the past two years, Philadelphia has received a SolSmart Gold designation for efforts to improve permitting practices and launched the Solarize Philly program to help grow the solar industry. OOS, the Philadelphia Energy Authority (PEA), and other partners will continue to pilot new approaches to encouraging solar investment in 2019, including potential incentives for solar (see next page).
- Enforce 2018 Commercial Building Codes (PAGE 41):** Philadelphia became one of the first cities in the country to adopt the international 2018 commercial building energy codes, which will make new buildings and major retrofit projects in Philadelphia as much as 30 percent more efficient than under the previous 2009 codes. The City is working to educate code officials and developers on the new code.
- Support the Philadelphia 2030 District (PAGE 43):** The Philadelphia 2030 District is a private-sector led partnership managed by Green Building United (GBU), a local non-profit organization. The 2030 District aims to cut emissions from energy, water, and transportation. The City was among the first real estate owners to join the initiative, and is working with GBU and participants to help meet District-wide goals.
- Implement the Philadelphia Energy Campaign (PAGE 58):** Started in 2016, PEA's Energy Campaign is a 10-year initiative investing \$1 billion in energy efficiency and clean energy projects for city-owned buildings, schools, housing, and small businesses, with a goal of creating 10,000 jobs. To learn more about the Energy Campaign, visit www.philaenergy.org.

BY THE NUMBERS

Growing Existing Clean Energy Programs through 2020

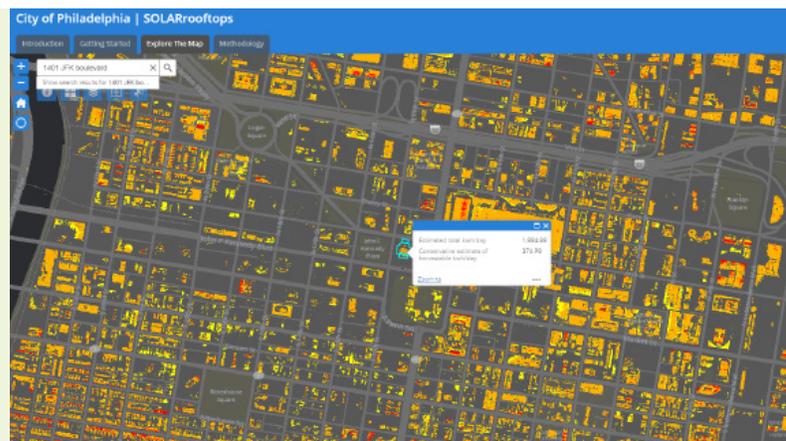
CARBON SAVINGS

139,100 MtCO₂e

Philadelphia SOLARrooftops Mapping Tool

The City published the SOLAR-rooftops application in September 2018 to help residents, businesses, and city agencies understand the solar potential from existing rooftops. Check out the map at

www.phila.gov/solarmap





New Local Programs and Policies to Advance Clean Energy

Powering Our Future identified several opportunities for new initiatives to advance Philadelphia's clean energy goals. Several of these initiatives will require legislative action by Philadelphia City Council. City Council has already taken an important step toward achieving Philadelphia's clean energy vision by passing updated building codes in June 2018. Additional high-impact opportunities for legislative action could include:

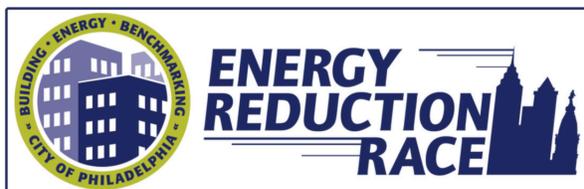
- **Commercial PACE Program (PAGE 43):** C-PACE programs finance clean energy investments through property assessments, helping building owners to invest in energy efficiency, renewable energy, and water conservation projects. The state enabled Philadelphia and other municipalities to launch PACE programs in Spring 2018, but authorization and program funding requires City Council approval.
- **Building Tune-up Program (PAGE 46):** Building Tune-up programs require building owners to identify and implement energy- and cost-saving measures. By optimizing buildings' controls, systems, and maintenance, tune-ups can save between 5 and 20 percent annually on energy costs while improving comfort for tenants.
- **Home Energy Disclosure Requirement (PAGE 47):** Building on the success of energy reporting for large buildings, City Council could consider a similar requirement to rate single-family residential properties when buying or selling a home. Adding a disclosure requirement would ensure buyers are informed about the potential costs of homes, and sellers could improve efficiency prior to listing.
- **Landlord Disclosure Requirement (PAGE 47):** Most Philadelphia renters currently have no reliable data on the potential cost and quality of energy and related infrastructure in homes and apartments during the leasing process. A disclosure requirement would provide this information to the marketplace, encouraging landlords to invest in energy improvements prior to leasing and helping prospective tenants compare utility costs.
- **New Development Incentives (PAGES 33 AND 44):** The City currently provides density bonuses for buildings meeting LEED standards for design. With new building codes boosting the baseline of efficiency, City Council could revisit these incentives and consider new opportunities, including adding solar incentives to the Philadelphia code.

BY THE NUMBERS

New Local Clean Energy Policies through 2020

CARBON SAVINGS

184,400 MtCO₂e



Participants the 2014-15 Energy Reduction Race cut 5% or more in energy usage in just one year. A building tune-up program would help all large buildings citywide achieve similar savings, cutting utility costs and carbon pollution.



New State Legislation to Advance Clean Energy

During the 2017-18 legislative cycle, the Pennsylvania Legislature passed three bills that will help move Philadelphia toward our clean energy vision: **new commercial building codes (PAGE 41)** enabling Philadelphia to adopt 2018 standards; **solar border closure (PAGE 34)**, which will spur solar development in Pennsylvania, and; **Commercial PACE (PAGE 43)**, a program to help building owners invest in energy efficiency, renewable energy, and water conservation projects.

These successes underscore the potential to find bi-partisan support for moving clean energy priorities in Harrisburg. Building on these successes, the Pennsylvania Department of Environmental Protection is leading a planning process called **Finding Pennsylvania's Solar Future**. A draft plan is currently available, and the final report may produce additional policy recommendations for Harrisburg to take up in the next legislative cycle.

To achieve our clean energy vision, the Office of Sustainability (OOS) has identified key legislative opportunities for Pennsylvania in the coming years. These include:

- **Re-authorization and expansion of the Alternative Energy Portfolio Standard (AEPS) (PAGE 28):** The AEPS requires 18% of electricity in Pennsylvania to come from alternative energy resources, which include but are not limited to renewable generation. The current AEPS is set to expire in 2021. In addition to extending the life of the program, the state could further strengthen the AEPS by increasing the total requirement above 18% and increasing the percentage of this requirement which must be met by solar generation or credit purchases (currently 0.5%).
- **Preservation of existing nuclear power generation (PAGE 29):** The Pennsylvania legislature may also weigh in on the preservation of the state's nuclear power plants, which currently produce nearly all the zero-carbon electricity in our grid.
- **Community solar enabling legislation (PAGE 35):** Community solar allows multiple customers to benefit directly from energy produced by a single, large solar array. Participants typically own or lease a portion of a system, or purchase a portion of the electricity generated. Pennsylvania does not currently allow shared or community solar configuration, though the state is considering changes to this rule.

OOS will monitor the progress of these priorities in Harrisburg and provide information to Philadelphia residents and advocates on opportunities to speak out in support of clean energy priorities.



Participants in the Philadelphia Energy Authority and School District of Philadelphia's solar training program, Find Your Power. State incentives for clean energy will create new opportunities for Philadelphians to take advantage of low-cost solar energy and take part in the economic opportunities spurred by these incentives.

BY THE NUMBERS

New Local Clean Energy Policies through 2020

CARBON SAVINGS
515,800 MtCO₂e



Beyond the Built Environment

As described in the Beyond 80 by 50 section of **Powering Our Future** (PAGE 9), achieving Philadelphia's climate goals will take effort beyond the buildings and industry-focused efforts in this plan. Several recently completed or on-going initiatives will help lead the way toward a carbon-neutral Philadelphia:

- **Zero Waste and Litter Plan:** Approximately 3% of Philadelphia's carbon pollution comes from waste. The City's Zero Waste and Litter Cabinet has put forth a plan to reduce waste by 90% by 2035, which will also help beautify and strengthen our communities. The plan also aims to reduce Philadelphia's dependence on landfills and incineration, the main sources of carbon pollution from waste.
- **Connect: A Philadelphia Transportation Project:** Transportation is the second-largest source of carbon emissions in Philadelphia. The Office of Transportation and Infrastructure Systems (oTIS) will publish a strategic transportation plan, Connect, in Fall 2018. Connect will prioritize public transit and improve walking and biking infrastructure, which are keys to lowering transportation emissions. oTIS and the Office of Sustainability (OOS) are also working toward a longer-term vision for the role of transportation in cutting carbon emissions.
- **Clean Fleet Plan:** The City of Philadelphia owns and operates more than 6,000 vehicles, nearly all of which burn fossil fuels for energy. The Office of Fleet Management (OFM) is leading efforts to align the City's Fleet with our clean energy goals by purchasing 17 electric vehicles for the Police Department in 2017 and issuing a bid for a mobile solar charging station in August 2018. OOS and OFM received a Pennsylvania Department of Environmental Protection grant in spring 2018 to assess options for developing a clean vehicle fleet, and expects to issue a plan for this transition in 2019.



Philadelphia's Zero Waste and Litter Plan.



Philadelphia's Office of Fleet Management is working with City departments to add electric vehicles and charging infrastructure to the municipal fleet and on city-owned properties.



Planning, Education, and Advocacy

The Office of Sustainability (OOS) will continue to plan, educate, and advocate at all levels of government on behalf of our clean energy vision.

- **Climate and Energy Planning:** OOS monitors developments in climate science, and will adjust climate goals and priorities in the years ahead. As part of the C40 Cities network, Philadelphia and its peers around the globe are committing to leading by example to cut carbon pollution quickly as part of the Deadline 2020 Initiative. As part of this initiative, OOS will publish a follow-up to Powering Our Future in 2019 focused on climate action across every sector of the city's carbon emissions profile.
- **PGW Business Operations Evaluation (PAGE 53):** PGW is the largest municipally-owned gas utility in the country, putting it in a unique position to help with the transition to a low-carbon future in line with the City's goals. PGW and OOS are working to understand opportunities to meet these goals while positioning the utility to thrive in a clean energy future.
- **Technical Advisory Support:** The City will provide technical support to large institutions, businesses, community partners, and other municipalities in the region looking to replicate or partner on work with shared goals. We will also continue our involvement in the Urban Sustainability Directors Network, the C40 Cities Network, and other peer exchange networks to learn and share best practices.
- **State and Federal Advocacy:** The City will continue to push for action at the state and federal levels and provide residents with the tools to push for change, including up-to-date action guides and venues for comment like the recent public hearings on the Clean Power Plan and federal fuel efficiency standard rollbacks.

Implementation Working Groups (PAGE 57)

The Office of Sustainability is currently pursuing funding opportunities to coordinate implementation working groups. These groups would include:

- **Community and Neighborhood Engagement:** Local organizations working to educate and motivate individual and community clean energy action.
- **Policy and Advocacy:** Advocates collaborating on priorities at the local, state, and federal level, create diverse coalitions of supporters, and build political support for action.
- **Community of Practice:** Large institutions working together to share lessons learned and collaborate to work toward a clean energy future.

Join our newsletter at www.phila.gov/green to keep up to date on the progress of the implementation working groups and other efforts to advance our clean energy vision.



Carbon Impact of the Clean Energy Vision Action Plan

IMPLEMENTING THE MUNICIPAL ENERGY MASTER PLAN	62,320	Metric Tons of CO ₂ e
GROWING EXISTING CLEAN ENERGY PROGRAMS	139,100	Metric Tons of CO ₂ e
NEW LOCAL PROGRAMS AND POLICIES TO ADVANCE CLEAN ENERGY	184,000	Metric Tons of CO ₂ e
NEW STATE LEGISLATION TO ADVANCE CLEAN ENERGY	515,800	Metric Tons of CO ₂ e
TOTAL CARBON IMPACT FROM ACTION PLAN	901,220	Metric Tons of CO₂e
	10%	Reduction from 2006 Baseline

Fully implemented, the Clean Energy Vision Action Plan will build on the carbon reductions to date and take advantage of expected grid cleaning (the transition of our regional electricity grid toward less-carbon intensive energy generation) to **cut carbon pollution by more than 900,000 metric tons of carbon dioxide-equivalent -- a reduction of nearly 10% -- through 2020.**

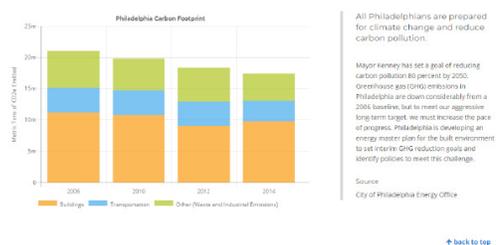
What's Next: Monitoring Progress and Revisiting Goals

The Office of Sustainability (OOS) will report out regularly on progress on the Clean Energy Vision Action Plan between now and 2020. As described on page 9, OOS intends to work with residents, issue experts and advocates, and institutions to implement the strategies in the Action Plan, and will continue to seek new partnerships to strengthen this work.

As part of Philadelphia's commitment to the C40 Cities network, OOS will publish a follow-up to Powering Our Future by 2020 that further integrates opportunities to cut carbon pollution from the transportation and waste sectors, while reflecting updated climate projections and adjusting the scope of the plan accordingly.

OOS is also working to revamp the Greenworks Dashboard, a resource for Philadelphia-specific sustainability data, and will provide further updates on climate action in the upcoming annual update to Greenworks: A Vision for a Sustainable Philadelphia.

Vision 4: Climate Prepared and Carbon Neutral Communities



OOS maintains the Greenworks Dashboard to regularly report out on climate and other sustainability data. You can find it at www.phila.gov/green.