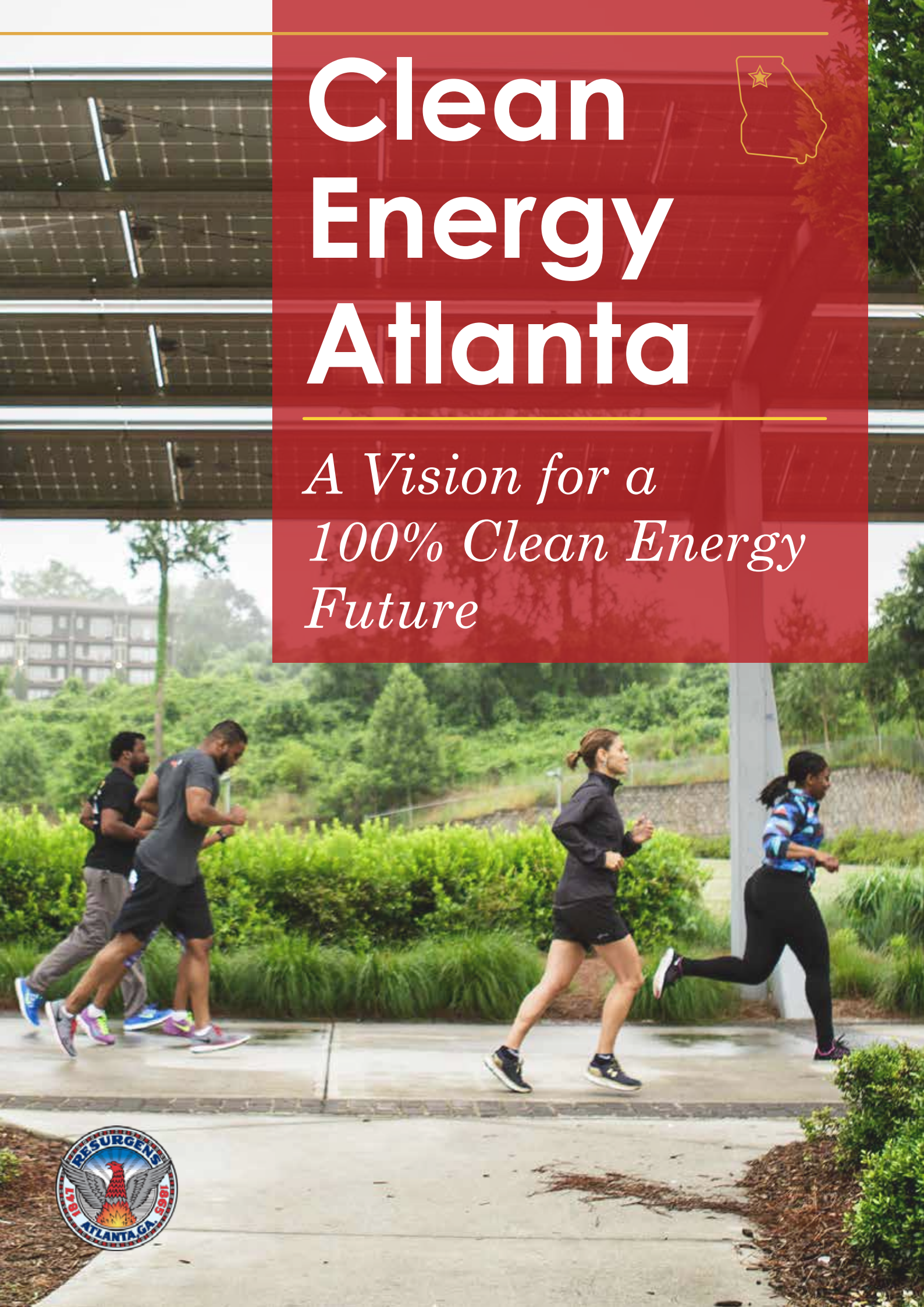
Clean Energy Atlanta

A Vision for a 100% Clean Energy Future



Please cite the following document as: *Clean Energy Atlanta*
Organization: City of Atlanta Mayor's Office of Resilience
Document Title: *Clean Energy Atlanta*
Address: 55 Trinity Ave. SW, Atlanta, GA 30303
Website: www.100atl.com

Contact: resilient@atlantaga.gov

Cover Photo by Christopher T. Martin. Reproduced with permission from Atlanta BeltLine, Inc.

Clean Energy Atlanta:

A Vision for a 100% Clean Energy Future

Solar panels on Atlanta's C. T. Martin Recreation Center. Photo by: Radiance Solar

TABLE OF CONTENTS

LETTER FROM MAYOR KEISHA LANCE BOTTOMS

On May 1, 2017, Atlanta became the 27th city in the United States to commit to transitioning to 100 percent clean energy, thanks to a resolution passed unanimously by the Atlanta City Council.

Atlanta is the biggest Southern city to set such an ambitious goal, and we are proud of our bold leadership at the regional, state, and global level in confronting the threat of climate change.

Cities must - and can - lead the way in accelerating this critical transition to clean and renewable energy sources. As home to half the world's population and accounting for 80 percent of global gross domestic product, cities are where the future is happening now. We not only have the capacity to act; it is morally incumbent that we do so. Low-income and minority communities are disproportionately affected by the adverse impacts of extreme weather. Our most vulnerable citizens, such as the youth and elderly populations, are the hardest hit by the public health consequences of toxic dumping, untreated brownfields, and air pollution. Climate action is not only about protecting our environment and our economy, it's about justice and quality of life for our communities.

Clean Energy Atlanta is a social contract to protect the health and welfare of its citizenry. As such, we call upon the people of Atlanta to join us in the clean energy movement.

This is not just a plan drafted in a vacuum at City Hall – our aim is to unlock the potential of Atlantans to take action to make our home more resilient to the shocks and stresses of a warming planet. Resilience and climate adaptation start with all of us. I invite you to join our team in executing this strategy to make 100 percent clean energy a reality for Atlanta. It is our hope that this strategy will inspire collaboration in order to create a world-class city of the future.

- Keisha Lance Bottoms
Mayor, City of Atlanta

LETTER FROM AMOL S. NAIK, CHIEF RESILIENCE OFFICER

The 2018 United Nations Intergovernmental Panel on Climate Change report advises that we have until 2030 to act to fight climate change or risk catastrophic consequences. Under the leadership of Mayor Keisha Lance Bottoms, Atlanta is putting forward a bold vision to address this existential threat. One Atlanta is proud to present *Clean Energy Atlanta*, a visionary plan for an equitable and resilient clean energy future.

Atlanta's commitment to transition to 100 percent clean energy by 2035 is an ambitious but achievable goal to ensure that Atlantans are shielded to the maximum extent possible from the adverse effects of climate change. While all Atlantans will be impacted by the climate crisis, the sad reality is that our most vulnerable residents will be must susceptible to harm. Indeed, it may well be that climate change is the equity issue of our time. *Clean Energy Atlanta* puts equity at the center of its plans and sets forth a path towards implementing the Bottoms Administration's commitment to an affordable, equitable and resilient future.

This Plan is the result of a year-long stakeholder development process, in which thousands of community members weighed in to distill our primary values for a clean energy transition: (1) energy equity must be a priority, (2) investments in energy efficiency must be increased, and (3) local investments in renewable energy must take precedence.

100 percent of Atlantans should have access to 100 percent clean energy. However, at present, Metro Atlanta has the 4th highest energy burden in the United States. In Atlanta's most burdened ZIP code, the median electricity burden is 9.6 percent, meaning that 50 percent of residents pay more than 9.6 percent of their monthly income on their electricity bills. This is a problem that must be addressed immediately, and Atlanta's 100% Clean Energy Plan identifies pathways that can make clean energy more available and more affordable than our current electricity supply is.

Atlanta currently receives 8 percent of its energy from clean energy sources. Achieving 100 percent clean energy by 2035 is no easy undertaking. But the City of Atlanta is already making great strides towards a cleaner energy supply with its best-in-class energy savings performance contract, as well as its growing municipal solar portfolio. The City's leadership in the Atlanta Better Buildings Challenge has resulted in a 19 percent reduction in energy use in 600 of Atlanta's largest buildings, a number that continues to grow. These programs have helped to reduce our region's dependence on fossil fuels, resulting in cleaner air quality and better public health outcomes for Atlantans.

The challenges ahead are formidable, but so are the opportunities for job creation, economic development, and improved affordability, as financial investments in clean energy lift up our entire community as One Atlanta.

Now more than ever, it is essential for cities to take action in the fight against climate change. Mayor Bottoms and Atlanta are leading the way with this commitment to community-wide 100 percent clean energy. But this Plan isn't merely a commitment; it is a call to action. In order to achieve our shared goals, the private sector, philanthropic community and every Atlanta resident must be a part of the effort. We must and can achieve 100 percent clean energy for Atlantans, and we call upon you to join us.

- Amol S. Naik
Chief Resilience Officer, City of Atlanta

EXECUTIVE SUMMARY

It is fitting that the symbol for Atlanta is the phoenix. Like the mythical bird that is cyclically reborn from ashes, Atlanta's history is marked by an ability to rise above challenges and emerge stronger and more resilient. From being reduced to ashes during the Civil War to becoming the economic hub of the Southeastern United States, from segregation and Jim Crow to the cradle of the Civil Rights Movement, from a railroad terminus to the most-traveled airport in the world – our progress has been hard-fought but always strongest when built together.

The City of Atlanta's response to climate change is no different. We recognize that the planet is warming at an unprecedented pace. Levels of greenhouse gas emissions, which heat up our atmosphere, are at the highest levels they've been in 800,000 years. Fourteen out of the 15 warmest years on record have occurred within the first 15 years of this century. As home to half the world's population, cities have a moral duty to act in the face of this climate crisis. We recognize that - as home to buildings and facilities that consume a tremendous amount of energy - cities are part of the problem. But cities can also be powerful agents of change.

To tackle the issues related to climate change, we must first understand the history of our energy consumption. The mid-20th century saw tremendous population and economic growth in the Metro Atlanta region, in no small part due to technological advances like air conditioning, which made the region a more comfortable place to live. The adoption of these new technologies created a need for increased electricity generation. That electricity was, and predominantly still is, produced by the burning of fossil fuels such as coal and natural gas, which releases pollutants such as carbon dioxide (CO_2), sulfur dioxide, nitrogen oxide, and particulate matter (soot) into our airshed. This has led to poor air quality, linked to public health problems like asthma, and civilization-scale problems like climate change. Those 20th century solutions have created 21st century problems.

To tackle the serious consequences of burning fossil fuels, in 2017, the City of Atlanta enacted the Clean Energy Resolution[1], a pledge to transition to 100 percent clean energy for City operations by 2025 and community-wide by 2035. The Resolution prioritizes energy efficiency, renewable energy, and eliminating reliance on burning fossil fuels to meet Atlanta's energy needs. Transforming the way electricity is produced and used is a tremendous opportunity to help the City develop in ways that are more equitable, resilient, sustainable, healthy, and profitable. Energy affects every part of the economy and has pronounced social impacts, from the hyper-local to the global scale. Increasing energy efficiency and moving electricity generation towards renewable sources can reduce and avoid damage caused by dirty energy. The choices we make now can serve as a stimulus to advance equity, create jobs, improve public health, and slash Atlanta's contribution to climate change.

The Clean Energy Resolution defines "clean energy" as "energy derived from wind, solar, existing and low-impact hydroelectric, geothermal, biogas, and wave technology sources" and directs the City of Atlanta Mayor's Office of Resilience to develop a plan for the city to transition to 100 percent clean energy by 2035. The legislation states that this transition plan must include "interim milestones, budget estimates, equity metrics (such as, but not limited to, energy burden), estimated financial impacts, financing mechanisms, and the percentage of clean energy that shall be locally and distributively generated."

In order to provide a clean energy future to a growing and changing city, Atlanta's clean energy transition plan must contain ambitious yet achievable actions and goals. The 2017 Clean Energy Resolution passed by the Atlanta City Council set a vision for a 100 percent clean energy transition and requested the development of a plan for how the City could accomplish that transition by 2025 for municipal operations and by 2035 community-wide, and this document identifies a framework by

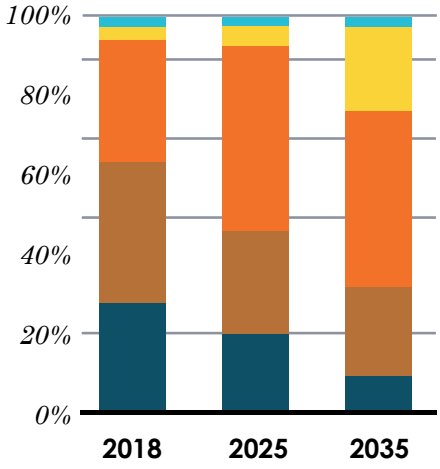
which to achieve a 2035 clean energy transition.

The Mayor's Office of Resilience is proud to present *Clean Energy Atlanta: A Vision for a 100% Clean Energy Future (Clean Energy Atlanta)*, an action-oriented plan for a clean energy future that is equitable, cost-effective, and sustainable. It outlines the opportunities and challenges the City will face in the coming years to achieve a 100 percent clean energy transition. To create the Plan, the Mayor's Office of Resilience and a consulting team composed of Southface, The Greenlink Group, Rocky Mountain Institute, and the Natural Resources Defense Council (collectively, the "Core Partners") embarked on a comprehensive planning, engagement, and writing process. To date, over 3,500 local stakeholders have been engaged in the planning process, including neighborhood representatives and leaders in academia, non-governmental organizations, government, faith, healthcare, development, and business communities. Experts from more than 25 cities and national organizations were consulted for best practices. Moreover, the Mayor's Office of Resilience and Core Partners engaged in deep quantitative analysis of current energy use by the City of Atlanta and the Atlanta community.

Based on stakeholder feedback, best practices, and analyses, *Clean Energy Atlanta* provides a series of models for how the whole city can transition to 100 percent clean energy by 2035. Our current understanding of the energy landscape, rapidly decreasing renewables costs, innovative new technologies, a changing local electricity supply, and complex regulations greatly informed the modeling and development of the Plan.

This Plan identifies numerous short-term and long-term actions the City of Atlanta can take to set us on a strong path towards 100 percent clean energy. Done well, these actions will cement Atlanta's role as a clean energy leader in the South, advancing equity and resilience. Progress towards this goal will be measured on several important metrics: equitable access to clean energy and the benefits that come with it, the creation of new clean energy jobs and businesses, energy savings, carbon emissions reductions and climate change mitigation, building local renewable energy infrastructure in Atlanta

Building on Atlanta's Clean Energy Successes



Current and Projected Sources of Atlanta's Electricity (%)
(Source: The Greenlink Group)

Hydro
Natural Gas
Coal
Nuclear
Solar

Atlanta has a strong record in the clean energy space, with several successful energy efficiency, renewable energy, and fleet electrification programs. However, Atlanta has many challenges ahead if it wants to reinvent its energy supply by 2035. As of 2018, clean energy only makes up 6 percent of the city's total energy supply, planned to grow to only 7 percent in the next 3-5 years under business as ususal conditions (see Current and Projected Sources of Atlanta's Electricity Table). These modest increases in clean energy are due to several factors: new federal tariffs placed on imported solar panels, policy uncertainty, a lack of public awareness about money-saving opportunities, limited financing options, regulatory barriers, and others.

Atlanta's continued growth presents another clean energy planning challenge. The City of Atlanta projects a significant increase in population in the coming years, growing from 500,000 residents in 2018 to as many as 1.2 million residents in 2035. Atlanta is a global center for business and commerce and is expected to continue to grow. Moreover, the city has among the highest income disparities in the U.S., along with energy burdens of up to 10 percent of monthly income in some ZIP codes. This means the City's clean energy planning effort must be an ongoing process that can be reevaluated as social, demographic, and economic conditions change.

These challenges can be overcome through policies and financing options that rapidly expand access to energy and water efficiency and that increase renewable energy generation. Collaboration with local, state-level, public, and private partners will be essential in navigating the challenges ahead.

and across Georgia, and the broader impact of a thriving, city-centered, new energy economy in Metro Atlanta and Georgia as a whole. Our analysis demonstrates that investing in clean energy can create local benefits such as improved public health and job creation, which lead to a more sustainable, resilient, and equitable city for all.

Clean Energy Atlanta is a first step and a promise to do more. The Mayor's Office of Resilience and partners will move forward with the implementation of the strategic actions outlined within it. The Plan in its current form cannot anticipate every impact that new technologies, new state and federal energy policies, and other new opportunities in clean energy will create in the future. Therefore, the City's Plan includes a structured, regular process to evaluate progress and to make appropriate adjustments in the years to come. The City of Atlanta will revisit this Plan every three years to refresh it with achievements, updated projections, and ideas for how we can progress towards 100 percent clean energy. *Clean Energy Atlanta* will be a living document that is accessible, referenced, and evaluated continuously to remain as relevant as possible for the City and community of Atlanta.

Effective management of this effort going forward is key to achieving a clean energy transition. In addition to a significant and growing set of initiatives on the community and municipal operations levels, ensuring that all community stakeholders have the right tools and teams in place to implement the Plan is essential. The City will also need to engage with Georgia Power, the Georgia Public Service Commission, and the State Legislature to enable the expansion of clean energy opportunities in Georgia. This Plan captures the hopes and priorities of many Atlantans – a cleaner, more sustainable, and more affordable energy system that will provide numerous community benefits, including improved public health and more local, high-quality jobs. There will undoubtedly be challenges, but together we can get there.

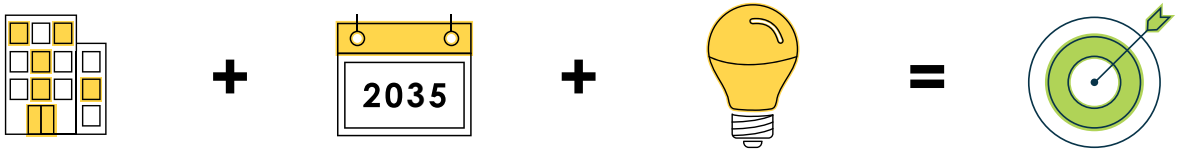
Setting Achievable Goals

Clean Energy Atlanta was created based off of the Atlanta City Council's Clean Energy Resolution that set the goals of achieving a 100 percent clean energy transition for municipal operations by 2025 and community-wide by 2035. Thus, all of the scenarios, analyses, and policies outlined in this Plan reflect those goals. However, there are concerns among city leadership that achieving these goals within the 2025/2035 timeframes under current state and federal policy would result in the City simply purchasing large amounts of renewable energy credits rather than achieving the goal through energy efficiency and in-state renewable generation. Therefore, the Mayor's Office of Resilience has decided to make a recommendation to the Atlanta City Council to adjust the targets for attaining 100 percent clean energy by 2035 for municipal operations and community-wide. This adjustment of target dates does not impact the short-term strategies and approaches referenced in this Plan; it gives City departments, partners, and stakeholders a more realistic timeline to not only achieve these goals, but to achieve them in a truly equitable, beneficial manner. The City will continue to use this Plan as a guide to advance clean energy in its operations and community-wide. Moreover, a key provision of this Plan is that it will be revisited every three years, so detailed cost/benefit analyses regarding clean energy pathways will continue to be revisited and updated. If there are changes in technology, policy, or market conditions that make an earlier date for a 100 percent clean energy transition achievable, the targets will be revisited as part of the review process.

A Vision for a 100% Clean Energy Future

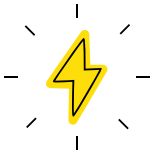
In 2017, Atlanta committed to transition to 100 percent clean energy by 2025 for municipal operations and 100 percent clean energy by 2035 community-wide. The Mayor's Office of Resilience was directed to develop a plan to achieve that transition.

How Do We Start?



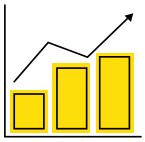
Current Energy Usage + Anticipated Future Energy Needs + Increased Energy Efficiency = Total Demand to Reach 100% Clean Energy

Current State of Atlanta's Energy



8.1 million

Atlanta currently uses 8.1 million MWh of electricity annually. That's enough electricity to power 150 indoor stadiums.

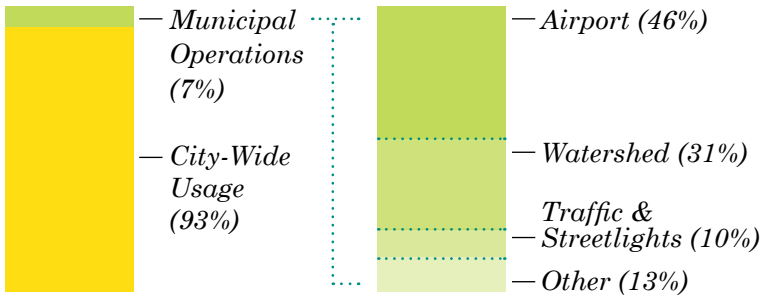


+11%

Electricity demand is expected to increase 11 percent by 2035 (enough to generate CO_2 emissions equivalent to adding 110,000 cars to city roadways).

Energy Distribution

7 percent of Atlanta's electricity is used for City of Atlanta municipal operations. 93 percent of electricity is used by the rest of Atlanta. (Source: The Greenlink Group)



Priorities

100% of Atlantans have a right to 100% clean energy

01 Energy equity must be a priority

02 Investments in energy efficiency must be increased

03 Local investments in renewable energy must be prioritized over investments outside of the Atlanta Metro

Benefits

Social + Economic

- New businesses to scale up and build skills, which will then be applied to the much broader base of electricity needs for the city as a whole.
- 8,000 new jobs, and benefits to housing quality, health, and other cost reductions.
- An estimated $545 million reduction in healthcare costs.

Energy Usage

- City-wide energy use from the grid could be as low as 4 million MWh.
- 440 MW of power produced from onsite and community solar, including solar initiatives at the City of Atlanta Department of Watershed Management and Department of Aviation sites.

Join Us!

To find out more about "Clean Energy Atlanta" and stay up to date with any updates, events, and opportunities to get involved, please visit www.100atl.com.

Section One

ABOUT CLEAN ENERGY ATLANTA

Emory students working in Emory's new water reclamation facility. The two Emory College students were part of the "Green Beat" journalism class that toured the plant dubbed the WaterHub to do research for a writing assignment. Photo by: Emory Photo/Video.

Emory University's WaterHub is a solar-powered wastewater treatment facility that processes 400,000 gallons of water per day, eliminating drinking water use for heating, cooling, toilet-flushing, and other non-potable uses of water on Emory's campus. Innovative renewable energy and water efficiency projects of this kind are helping Atlanta advance towards its 100 percent clean energy goal.

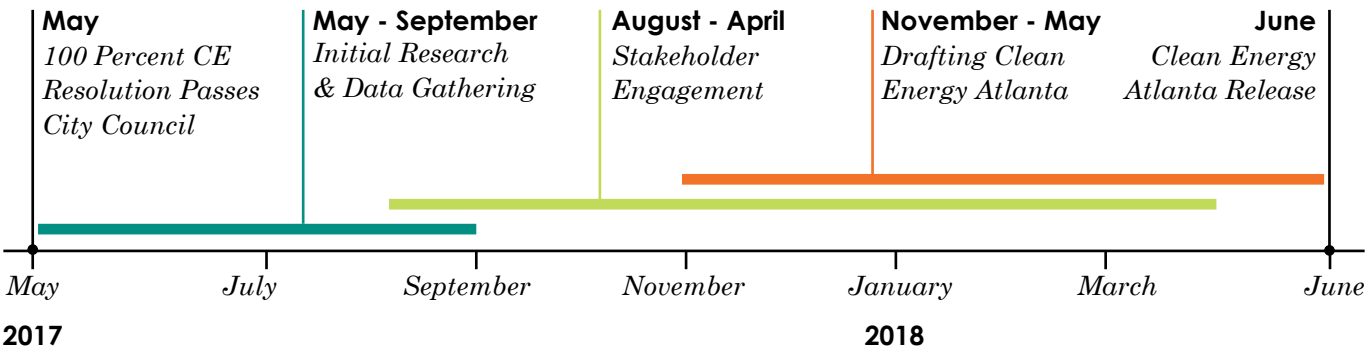
On May 1, 2017, the Atlanta City Council unanimously passed Resolution No. 17-R-3510, which directed the Mayor's Office of Resilience to develop a plan for City of Atlanta operations to achieve 100 percent clean energy by 2025 and community-wide 100 percent clean energy by 2035.

The Clean Energy Resolution calls for the electricity that powers Atlanta to come from clean energy sources, highlighting energy efficiency and renewable energy as preferred options to meet the goals. Specifically, the resolution defines clean energy as energy efficiency, wind, solar, existing and low-impact hydroelectric, geothermal, biogas, and wave technology sources. Energy efficiency includes traditional technology and behavioral measures, as well as cogeneration and district heating and cooling.

Why Now?

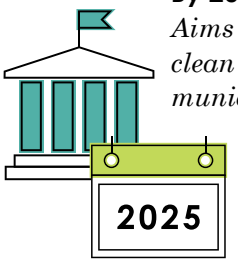
Atlanta has an imperative to act to reduce its emissions of greenhouse gases that contribute to climate change. The global community has called for a reduction in carbon dioxide (CO_2) emissions to avoid warming the planet 2°C above its current temperature, a target that was selected by the scientific community to represent the highest temperature increase permissible before catastrophic effects of climate change become more

Timeline of *Clean Energy Atlanta* Development

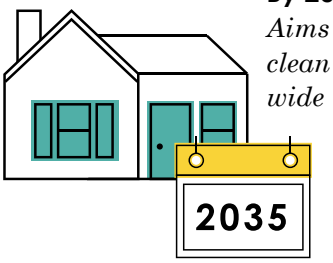


Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2035 for municpal operations and for city-wide operations. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

Distinction between the 2025 and 2035 100% clean energy targets



By 2025:
Aims to achieve 100% clean energy for municipal services



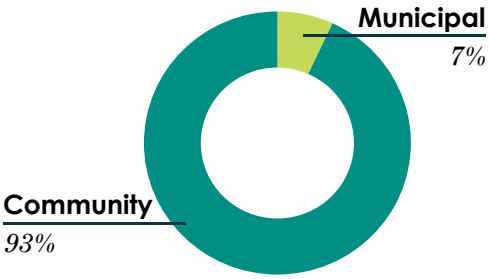
By 2035:
Aims to achieve 100% clean energy community-wide

likely. This target was commemorated in the 2015 Paris Agreement, which is the first international accord to establish a common cause for all nations, undertaking ambitious efforts to reduce CO_2 emissions and adjusting behaviors and policies to prepare for unavoidable climate change impacts. Atlanta was one of the few cities from the American South represented at the 2015 United Nations Climate Change Conference and joined 109 other U.S. cities to commit to the targets commemorated in the Agreement to keep greenhouse gas emissions from causing a warming increase of more than 2°C.

The effects of climate change pose risks to Atlanta, some of which are already being experienced. Extreme heat events are occurring more frequently in cities across the United States, but the rate of increase in Atlanta is particularly high, exposing vulnerable populations to life-threatening situations such as heat stroke. Atlanta ranks third nationally for increases in the urban heat island effect.[2] Health risks from disease are also increasing already, with the Atlanta-based Centers for Disease Control and Prevention reporting that diseases transmitted to people by mosquitoes, fleas, and ticks have more than tripled and nine new diseases have become a threat in the past twelve years alone.[3] The risk to health and wellbeing is acutely felt by vulnerable populations struggling with access to healthcare resources. These are only a few examples of the health challenges for Atlanta, which will only grow and become more pronounced if a rapid, just transition to clean energy is not achieved.

Atlanta is experiencing major losses to its ecosystem too, ranking first for the

Atlanta's tree canopy. Photo by: City of Atlanta



Atlanta's Electricity Consumption
Seven percent of all electricity used in Atlanta is used for municipal operations. (Source: The Greenlink Group)

number of tree species that can no longer survive within its borders and having lost 14 percent of native species already.[4] Due to current increases in temperature, Atlanta has lost many species, including the Eastern White Pine, and in the coming decades is expected to lose the Cucumbertree Magnolia and five species of oak trees once iconic to the treeline. Atlanta's reputation as a "city in the forest" is in jeopardy.

In addition, Atlanta is vulnerable to extremes in water availability, a vulnerability that will only be exacerbated by climate change. Droughts in 2007 and 2008 caused mandatory water restrictions, while floods in 2009 inflicted $193 million in damages and destroyed 16,900 homes in Georgia.[5,6] The regional drought problem is cyclical and is especially dire because City of Atlanta occupies a particularly small watershed for its population. With Atlanta's population expected to grow by more than 75,000 residents per year in coming decades[7], these threats and stresses are likely to increase in severity without significant planning and management efforts.

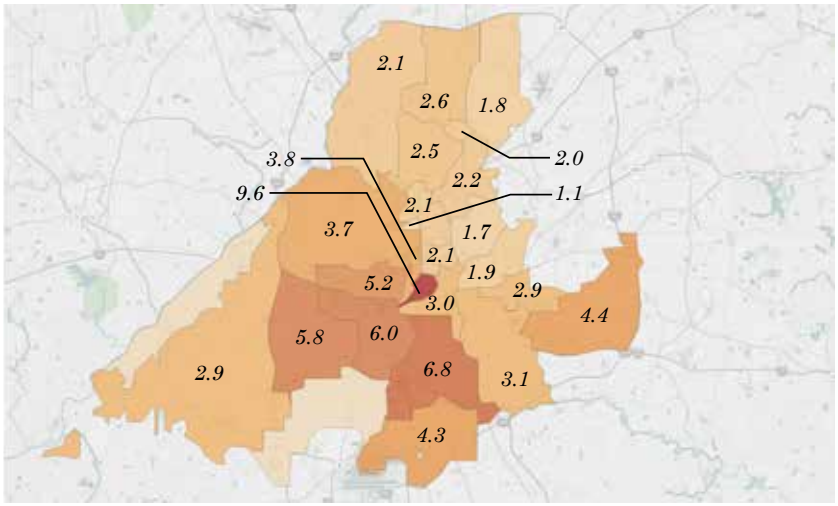
Energy use (for electricity, natural gas, and transportation fuels) is the largest single contributor to Atlanta's CO_2 emissions, representing 95 percent of Atlanta's carbon footprint. Of the energy sources, electricity is the most-used and is responsible for the majority of carbon emissions in Atlanta. Focusing first on electricity through this plan is a logical first step.

Critically, the City also has an imperative to improve equitable economic, environmental, and health outcomes for the citizens of Atlanta. A key equity metric for utilities is "burden," which refers to the percent of household income used to pay utility bills. Atlanta's electricity burden can be as high as 9.6 percent in some neighborhoods, while the national average is about 3 percent. In addition, water bills in Atlanta can exceed 5 percent, while the national average is about 1 percent. For Atlanta's three least-burdened neighborhoods, the average household income is $90,000 per year with average monthly electricity and water bills of $330. In Atlanta's three most-burdened neighborhoods, the average household income is $26,000 per year with average monthly electricity and water bills exceeding $245 a month.

As a global city, Atlanta is passionate about the transition to 100 percent clean energy for both local and international reasons

Locally
Reducing local CO_2 levels will help preserve species and conserve natural resources

Globally
Reducing global CO_2 levels will help reduce a rise in global temperatures



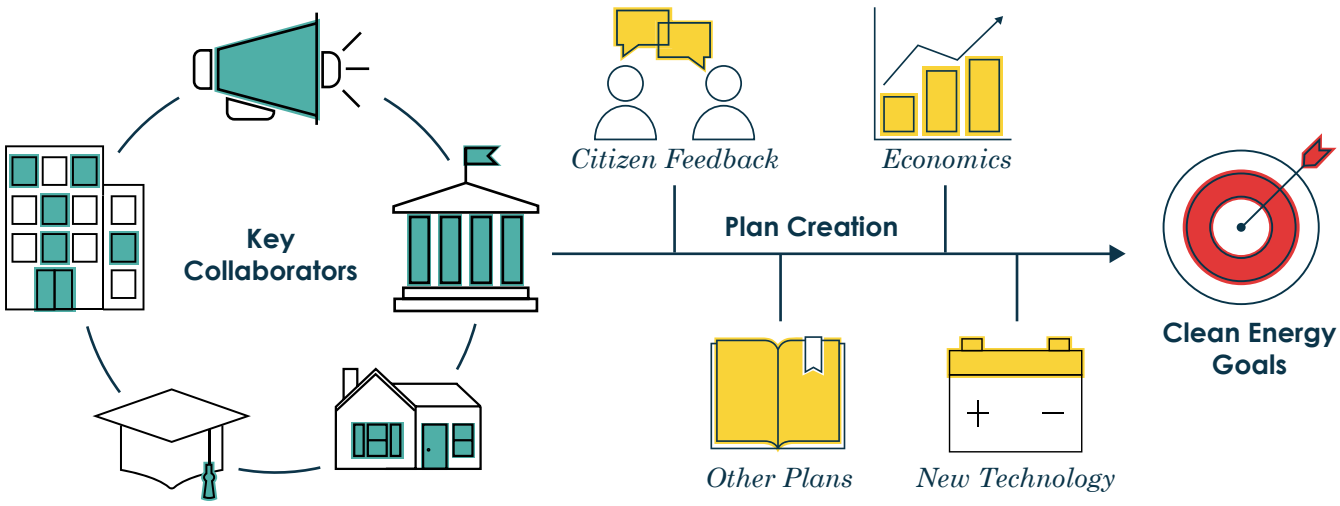
1.1% 9.6%

Atlanta Residential Electricity Burden By ZIP Code
(Source: The Greenlink Group)

In these neighborhoods, incomes are less than a third of the least-burdened areas, but energy burden are nearly 250 percent higher.

High burdens and the resulting financial constraints created by them can result in a decrease in home comfort as people choose to go without heating or air conditioning to save on bills, and increased levels of stress or health concerns, especially for elderly people and infants. High energy burden can result in bad credit and overall worsened financial health in a community as people struggle to pay. These disparities present a challenge and a call to action to increase equitable outcomes through clean energy access in Atlanta. Increasing energy efficiency and use of clean energy on-site could reduce energy burden for families and improve the quality of life in these communities.

The actions Atlanta takes to achieve its 100 percent clean energy target will affect the benefits and opportunities communities can enjoy. Energy is at the core of economic activity in Atlanta; if done thoughtfully, a transition to clean energy will have large payoffs for communities. This Plan shows how a transition to clean energy can advance equity, create tens of thousands of new jobs, and make Atlanta a healthier, more resilient community.

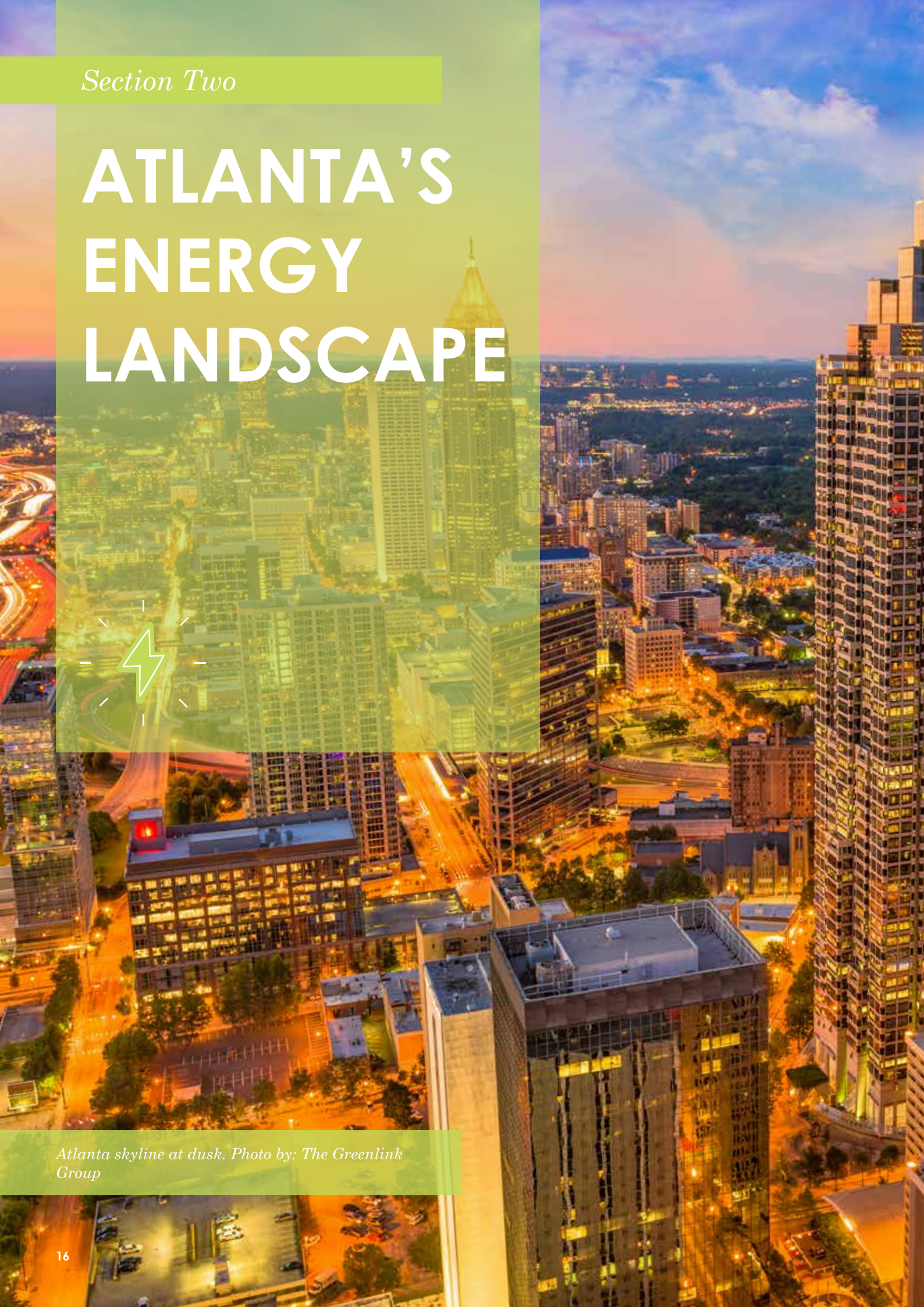


The creation of *Clean Energy Atlanta* thrived off of collaboration between many stakeholder groups

Community advocate at Atlanta's 2015 Clean Power Rally. Photo by: Erik Voss

Section Two

ATLANTA'S ENERGY LANDSCAPE



Atlanta skyline at dusk. Photo by: The Greenlink Group

Atlanta consumes about 8.1 million MWh of electricity annually, roughly the amount of electricity required to power 664,000 homes. Without efficiency programs of any sort, electricity consumption could increase to as much as 9 million MWh per year.

That increased electricity consumption would increase CO_2 emissions by an amount equivalent to putting an additional 110,000 cars on city roadways. Atlanta receives nearly all of its electricity from Georgia Power, an investor-owned utility and subsidiary of Southern Company. Currently, Atlanta is the largest city served by Georgia Power and represents 10 percent of Georgia Power's total electricity demand. Georgia Power is regulated by the Georgia Public Service Commission, which must ensure that electricity service is safe, reliable, and cost-effective while protecting the public interest through the oversight of electricity rates and approval of utility capital plans.

The largest electricity consumers in Atlanta are commercial buildings, which represent roughly 60 percent of electricity used within city limits. Residential (single-family and multifamily) users are the second-largest consumers of electricity (30 percent). Increased energy efficiency in commercial buildings has caused a reduction in Atlanta's overall electricity demand, but there are many more available improvements that can be implemented to further increase comfort, health, and efficiency.

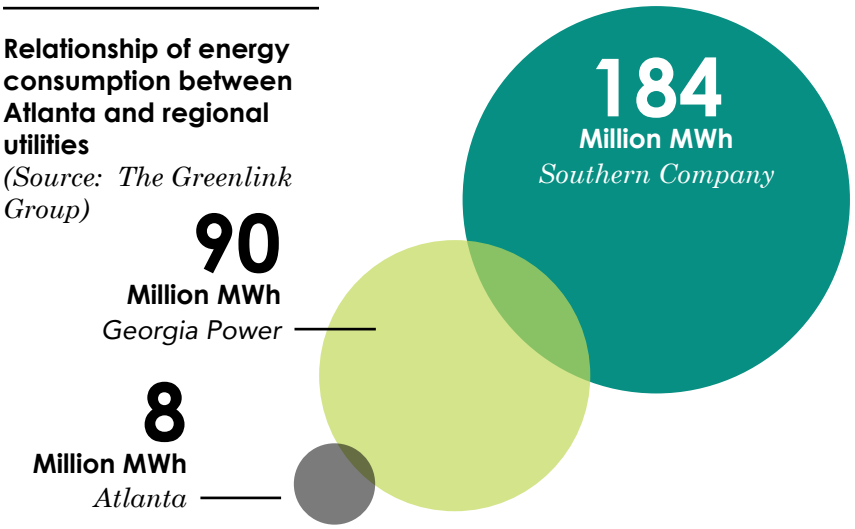
Atlanta's regulatory structure must be considered when evaluating energy options. Atlanta lies within the statutorily-defined service territory of Georgia Power Company. Thus, the City's energy portfolio is largely guided by Georgia Power's Integrated Resource Plan, a 20-year energy plan that is updated and approved by the Georgia Public Service Commission every three years. Georgia does not have a Renewable Portfolio Standard, nor does the State provide significant energy efficiency or renewable energy incentives. While there is net metering, the utility offers a payment that is roughly one-third of the retail rate and subjects participants to additional fees, so there is not a strong motive for solar customers to provide excess energy back to the grid.

Building On A Solid Foundation

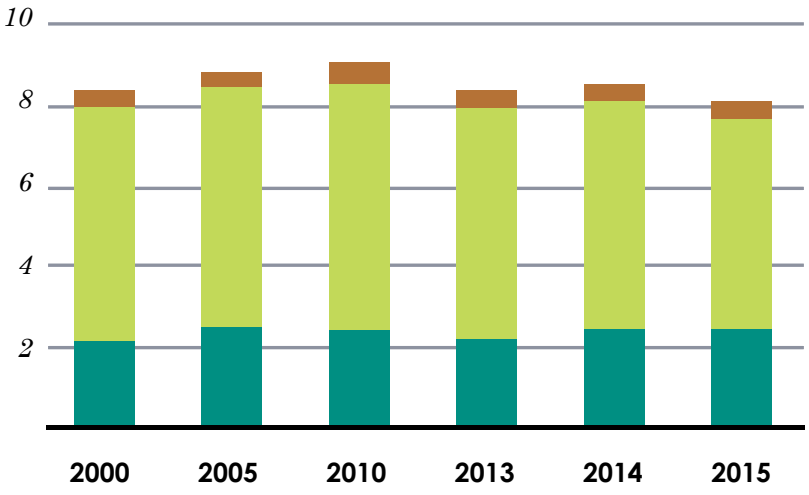
The City of Atlanta has already made great strides in promoting the use of clean energy. In the early 2000s, Atlanta City Council passed an ordinance requiring that all new City-owned buildings be constructed to meet

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and to 2050 community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2025 for municipal operations and 2035 community-wide. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

Relationship of energy consumption between Atlanta and regional utilities
(Source: The Greenlink Group)



Leadership in Energy and Environmental Design (LEED) Silver standards. In 2011, Atlanta launched its voluntary energy efficiency challenge for commercial buildings, the Atlanta Better Buildings Challenge (ABBC), in which participants have achieved a 19 percent reduction in energy consumption in just six years. Two years later, Power 2 Change, Atlanta's sustainability plan, was released. Shortly thereafter, Atlanta was selected as one of the ten original participants in the City Energy Project, a national initiative of the Natural Resources Defense Council and the Institute for Market Transformation, to improve energy efficiency in large existing buildings. Atlanta became the first city in the Southeast to promote community-wide energy efficiency through benchmarking, transparency, and periodic energy and water audits for commercial buildings and multifamily housing. Key City of Atlanta sustainability plans incorporate energy goals, such as the *Resilient Atlanta Strategy* and the *Climate Action Plan*, but *Clean Energy Atlanta* is the first to focus exclusively on achieving Atlanta's clean energy goals and to identify policy options for achieving them.



MWh Consumed by Sector (Millions)
(Source: The Greenlink Group)

Residential **Commercial** **Industrial**

This Plan is being introduced at a time of great change in the electricity sector, with clean energy options becoming more affordable and accessible every day. Now is the time for Atlanta to facilitate an energy transition to electricity derived exclusively from clean sources. City government, which includes the airport and water treatment facilities, uses only 7 percent of the electricity consumed in Atlanta. A move to 100 percent clean energy for the entire community will require significant effort from everyone in Atlanta, ensuring that the right steps are taken to make this community stronger, healthier, and more equitable.

The Resilient Atlanta Strategy is the overarching framework within which this Plan resides and from which it builds. Action 4.3.1 of *Resilient Atlanta* directly calls on the City to produce the *Clean Energy Atlanta* (see appendix), but the City of Atlanta has operated programs and pursued many of the activities required to achieve 100 percent clean energy for years. Atlanta is a national leader in commercial energy efficiency programs, with the ABBC and the

Clean Energy in Action: Shamrock Gardens by Legacy Community Housing Corporation

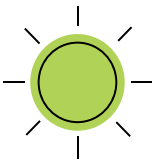
Shamrock Gardens is a deed restricted affordable housing complex with 344 units and an on-site 82 student child care center. In an effort to save low-income residents more money at the end of the month, Shamrock has made meaningful strategic improvements that lower their monthly electricity, natural gas, and water bills.

Blow fill insulation has been added above apartments to reach an R-35 level. Rolled insulation has been added below apartments to reach an R-30 level. Drafts have been sealed. Light fixtures inside the apartments have been converted to LED from incandescent. Appliances have been upgraded to ENERGY STAR® rated appliances. Low flow shower heads and aerators have also been installed. In addition, residents have received basic education on practices that can lower their bills. The energy efficiency upgrades were so successful that residents report reductions in their total energy bills across a range from 18 percent to 74 percent.

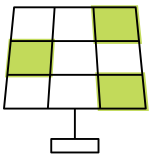
Commercial Buildings Energy & Water Efficiency Ordinance driving efficiency in public and private commercial buildings in Atlanta to better understand building performance and opportunities for improvement. While these efforts strive to overcome information barriers, short-term wins like $500 million in property-assessed clean energy (PACE) financing and City support for cost-reducing efforts like Solarize Atlanta programs will give private and nonprofit owners the ability to overcome financial barriers to clean energy as well.

The City leads by example through cost-effective and innovative programs. The Solar Atlanta program is adding 1.3 megawatts in rooftop solar to up to 24 municipal buildings via a solar energy procurement agreement (SEPA), one of the first applications of third-party financing for solar in Georgia. Guaranteed energy savings performance contracts are being used to increase energy and water efficiency in 100+ City-owned properties, including government office buildings, Hartsfield-Jackson Atlanta International Airport, and water treatment facilities. Existing municipal properties are undergoing a decade-long process to obtain LEED certification as a part of an update to the City's Sustainable Building Design Guidelines. Atlanta is proving that making progress on clean energy is cost-effective and achievable in both the public and private sectors.

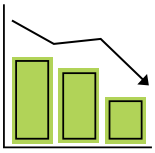
We need to build on this momentum if we are to reach our clean energy goals. Let's look at our options moving forward, including business as ususal projections.



Electricity generated from coal and natural gas is projected to decrease while solar and nuclear energy sources are projected to increase through business as ususal projections.
Costs associated with solar panel technology are expected to decrease as experience with installing solar panels grows, while demand met by nuclear power plants in Georgia may increase with the planned addition of two new large generators in the early 2020s. Georgia Power will continue to reduce its reliance on coal as a source of electricity and will expand the role of solar, regardless of what the City does, but this is not enough by itself to come close to meeting the City's goals.



Increased commercial and utility solar photovoltaic installations reduce the need for electricity from nonrenewable energy resources.
Reduced costs associated with larger solar installations by businesses and electric utilities could provide downward pressure on energy rates, decreasing the overall energy burden faced by many Atlanta residents. Installing more solar panels brings down energy bills and decreases greenhouse gas emissions produced by nonrenewable energy sources like coal and natural gas.



Business as ususal projections through 2035 show a decrease in electricity demand.
Initiatives such as the ABBC, PACE financing, and energy savings performance contracts will result in lower energy demand in 2035 compared to 2015. Deep energy efficiency retrofits and increased solar installations could bring these projections down even further.

Costs associated with clean energy's impact on public health are expected to decrease by 2035 using business as ususal projections.
Current efforts to reduce energy demand in residential, commercial, and industrial buildings will result in fewer emissions generated from upwind coal and natural gas power plants. Fewer emissions should, based on well-understood health correlations, reduce expected rates of asthma and other diseases tied to air quality. Increased use of clean energy could also produce non-energy related benefits such as improved occupant comfort and indoor air quality. Quantified estimates of benefits are presented in later sections of this plan.

Electricity generation requires a tremendous amount of water.
Water is used to cool power plants and to produce steam which is then used to generate electricity. Water taken from Georgia's rivers and streams is referred to as withdrawal. Most of this water is returned to the watershed after being used. If water is taken and not returned, this is called consumption. In 2010, power generation was responsible for 40 percent of freshwater withdrawals in Georgia.[8] To meet Atlanta's 2018 electricity demands, 2.2 billion gallons of water will be consumed, and 32 billion gallons of water will be withdrawn from Georgia's waterways. This will exceed Atlanta's direct use of water by more than 10 percent. The increasing use of renewable energy under business as ususal practices will reduce water needs for electricity. However, the planned addition of more nuclear power and combined-cycle natural gas power

plants removes some of these water-saving benefits. Under business as ususal, projected water consumption needed to meet Atlanta's electricity demand are 2 billion gallons in 2035, with corresponding water withdrawals hitting 28.6 billion gallons.

While there is slow progress towards clean energy and the health, economic development, and climate benefits clean energy provides in this business as ususal scenario, "Clean Energy Atlanta" provides models demonstrating the multitude of additional significant benefits for the entire community if a rapid transition to clean energy occurs by 2035. The potential opportunities to improve the conditions for all Atlantans make this Plan critical for the future of the city.

Southface's Eco Office in the evening. Photo by: Southface

Section Three

STAKEHOLDER ENGAGEMENT PROCESS

An economic inclusion stakeholder session. Photo by: Shan Arora

An inclusive and robust stakeholder process is a key component of this Plan. The release of this Plan is just the beginning. Public outreach is a critical part of the Clean Energy Atlanta strategy and the foundation upon which this Plan rests. The public will continue to be engaged as the implementation process moves forward.

Process

From September 2017 to May 2018, the Mayor's Office of Resilience engaged over 3,500 people to develop the direction, priorities, and initiatives of *Clean Energy Atlanta*. Diversity is a cornerstone of Atlanta's history and culture, so the City sought a broad range of input from Metro Atlanta communities, City of Atlanta neighborhoods, and various stakeholder groups.

The City's stakeholder process consisted of a series of public town hall-style community conversations, presenting at all 25 of the City's Neighborhood Planning Units (NPUs), discussions with subject matter experts, and a widely-distributed survey. Moreover, multiple stakeholder sessions focused on the intersection of energy, equity, and economic inclusion. Guidance from neighborhood representatives, academia, non-governmental organizations, government, faith leaders, healthcare institutions, the development community, and business leaders helped the City of Atlanta craft a plan that envisions a clean energy future that is equitable, cost-effective, and sustainable for all.

Findings

The majority of surveyed Atlantans overwhelmingly support the 100 percent clean energy goal, with 96 percent of survey respondents voicing support. When they hear the term "clean energy," most survey respondents think of protecting the environment, as well as low and no-carbon emission energy sources. Atlanta residents overwhelmingly agree that it is important to consider equity, local job creation, and cost-effectiveness as Atlanta transitions to 100 percent clean energy. Stakeholders provided extensive feedback and input. Below are summaries of the main themes.

Personal Effort

When deciding how they would personally get to 100 percent clean energy, Atlanta residents across race, age, and gender demographics stated that financial

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2035 for for municpal operations and for city-wide operations. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

81%

Of survey respondents would like their utility to provide customers additional solar purchasing options (e.g., buy solar electricity produced from local community solar farms)

78%

Of survey respondents would like their utility to create programs that allow customers to finance energy efficiency upgrades or solar panels through their monthly electricity bills

considerations such as upfront costs, long-term cost savings, and availability of incentives were most important. Most survey participants also recognize the benefits of clean energy and would be willing to assume some cost to get to 100 percent clean energy for their homes. It is important to note, however, that the analysis conducted for this Plan shows pathways to 100 percent clean energy that can result in cost savings for all Atlantans.

Buildings

Recognizing that buildings are the largest consumers of electricity in the city, stakeholders stated that it is very important for Atlanta to prioritize energy efficiency in this sector. They showed support for:

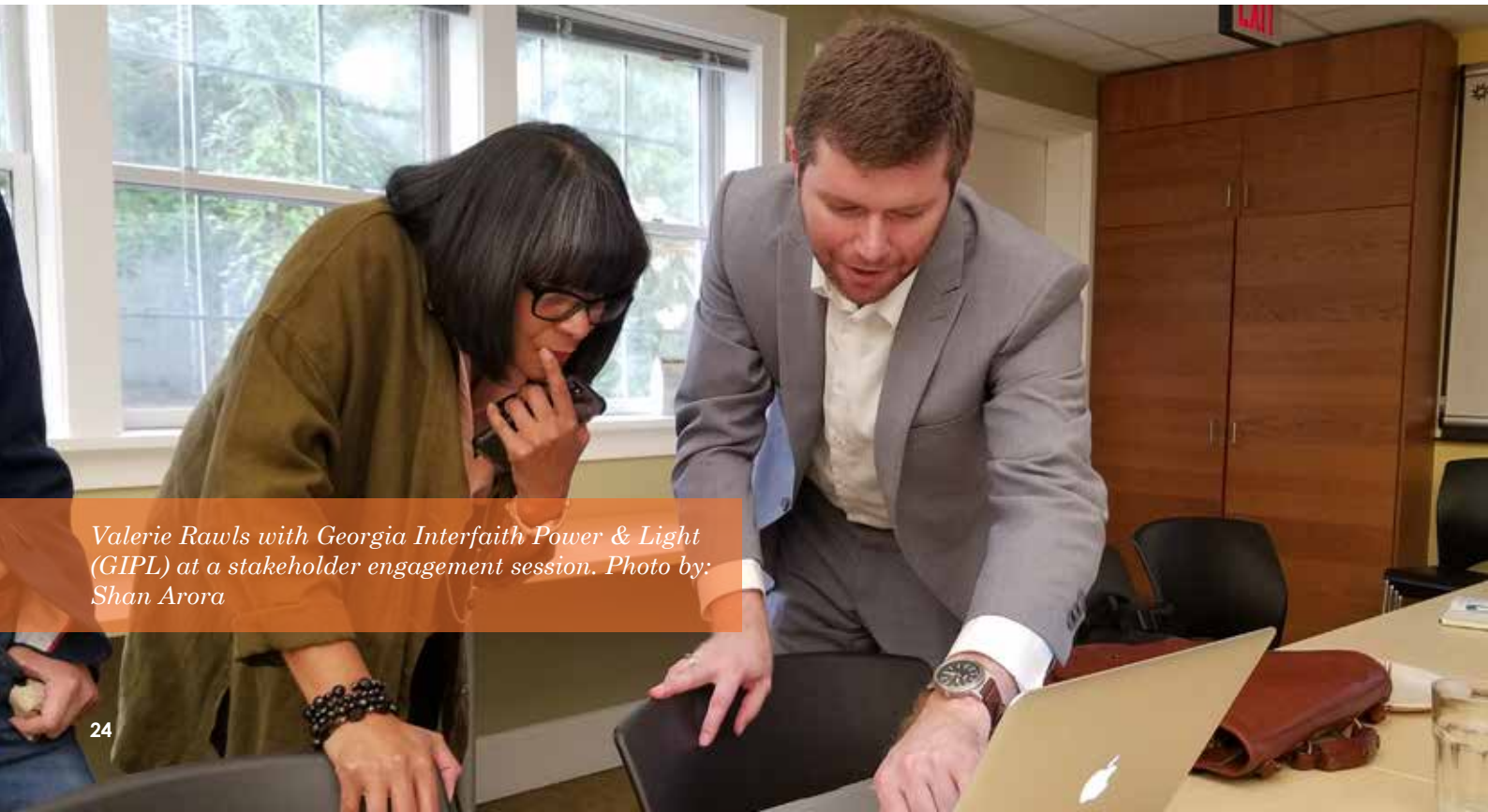
- Incentivizing voluntary clean energy upgrades in buildings.
- Establishing an ambitious, legally-required energy performance code for new buildings.
- Requiring that all existing buildings implement clean energy upgrades.

Sources of Energy

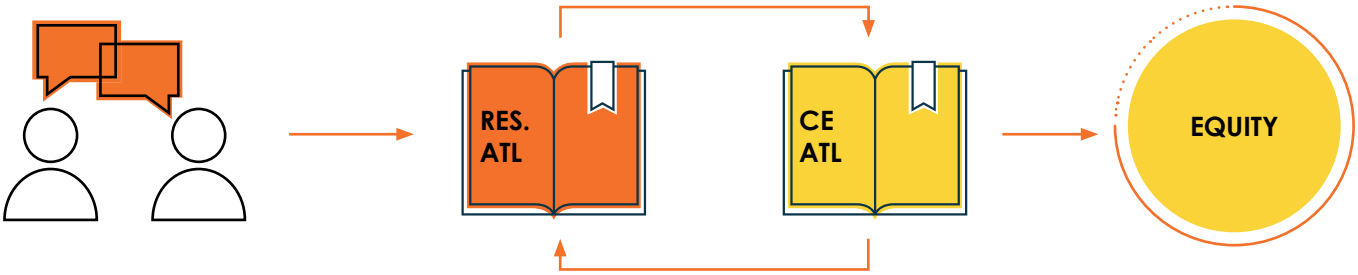
A clear majority of Atlantans are very supportive of local renewable energy generation, particularly solar, and stated that renewable energy access should be expanded. Many stakeholders said that renewable energy credits (RECs) should be the lowest-priority pathway to 100 percent clean energy, with a preference towards purchase of RECs from the Metro Atlanta region over RECs from out-of-state. Metro Atlanta residents have concerns about nuclear energy with regard to safety and are also concerned about rising construction costs for new nuclear power plants that are being passed on to ratepayers.

Equity

Stakeholders consistently emphasized that it is very important for Atlanta to improve residents' health and wellbeing, as well as to ensure all Atlantans receive



Valerie Rawls with Georgia Interfaith Power & Light (GIPL) at a stakeholder engagement session. Photo by: Shan Arora



Plan Creation
Stakeholder-Driven Development

How the Plans Work Together
"Resilient Atlanta Strategy" and "Clean Energy Atlanta" will work in tandem to develop a shared vision

Intended Outcome
Emphasis on Equity

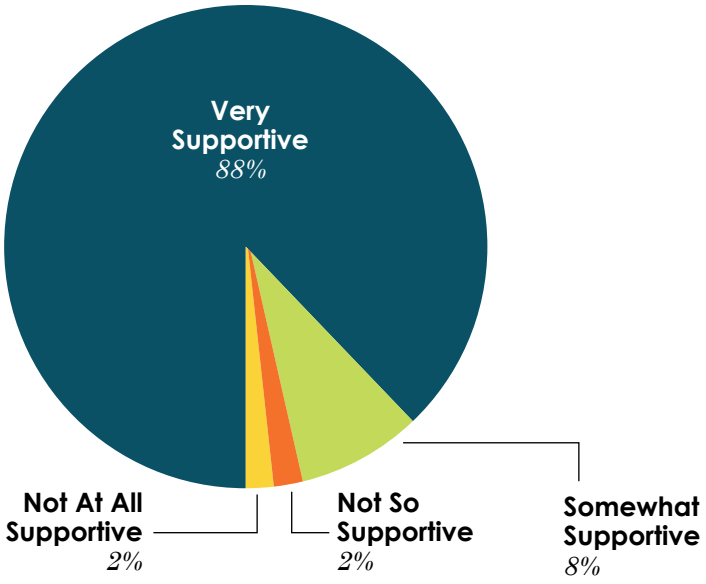
A Shared Vision for the *Resilient Atlanta Strategy* and *Clean Energy Atlanta*

the benefits of clean energy. Key equity-related comments include:

- Policies to encourage clean energy in new construction of buildings are not enough. Improvements need to be made in existing buildings, notably buildings occupied by low-income residents, many of whom live in rental housing.
- Clean energy should not result in higher electricity bills that could force low-income homeowners and renters out of their homes.
- The split incentive between landlords and tenants surrounding investments in clean energy limits accessibility to clean energy in low-income communities.
- The costs and benefits of clean energy must be equitable so that low-income residents do not disproportionately foot the bill.

Additional Themes

- Financing mechanisms are needed.
- Economic development and the creation of long-term local jobs



Public Support Of Atlanta's Clean Energy Goals from Survey
(Source: Southface / The Greenlink Group)

"Commercial developers and property owners would be wise to accommodate and pursue clean energy in their buildings due to risk of obsolescence. The cost of retrofits is high, and it will likely serve as a competitive advantage to be designing for and incorporating these clean energy technologies now."

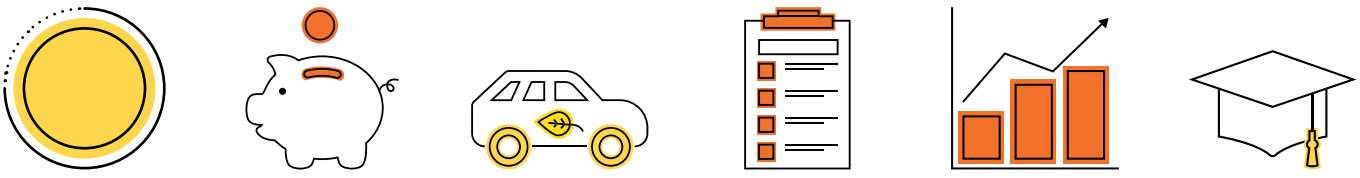
- Sarah Kirsch, Executive Director, Urban Land Institute Atlanta

should be prioritized.

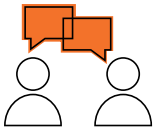
- Policies to grow the local economy and provide entrepreneurship opportunities are important.
- Electric vehicle adoption and charging infrastructure should be part of long-term energy planning.
- As consumer demand for it increases, clean energy planning mitigates risk for real estate investors.
- Nearly half of residents surveyed are unaware that energy savings and clean energy programs are available to them through their electric utility.
- Ongoing community-wide education on clean energy is required.

The vision, priorities, and actions contained in *Clean Energy Atlanta* are greatly informed by feedback from residents and stakeholders and are grounded in Atlanta's dream of realizing a socially, economically, and racially equitable city. A 100 percent clean energy goal is ambitious, but stakeholders provided guidance on how to think about this goal and identified immediate actions the City can take. All stakeholders, including City government, the electricity utility, community partners, businesses, institutions, and individual residents, must play a role if Atlanta is to achieve 100 percent clean energy.

Key Themes Identified Through Stakeholder Engagement Sessions

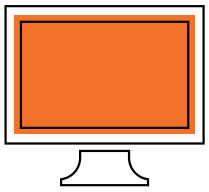


Concerns About Equity | **Financing Options** | **Planning for Electric Vehicles** | **Planning & Risk Management** | **Economic Development** | **Education**



OVERVIEW OF THE ENGAGEMENT PROCESS

Over
3,500
People Engaged



Survey

1,750 Responses

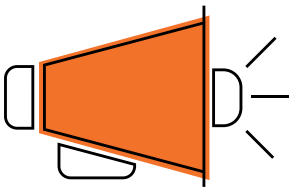
Broad cross-section of Atlanta residents and stakeholders.

25 NPU Meetings

over

1,000 Residents

Residents who participate in their local Neighborhood Planning Unit.

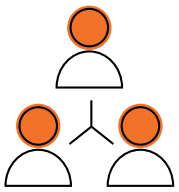


Seven Community Conversations & Three Partner Events

over

500 Participants

Individuals who live in the community where the conversation occurred, people from other parts of Atlanta, interested residents from neighboring cities, students, and representatives of companies that can assist Atlanta in achieving 100% clean energy.



Seven Stakeholder Sessions

over

100 Experts

Equity advocates, sustainability advocates, facilities managers, economic development professionals, representatives of technical colleges and local universities, and clean energy firms.

Dozens of Focus Meetings

over

100 Leaders

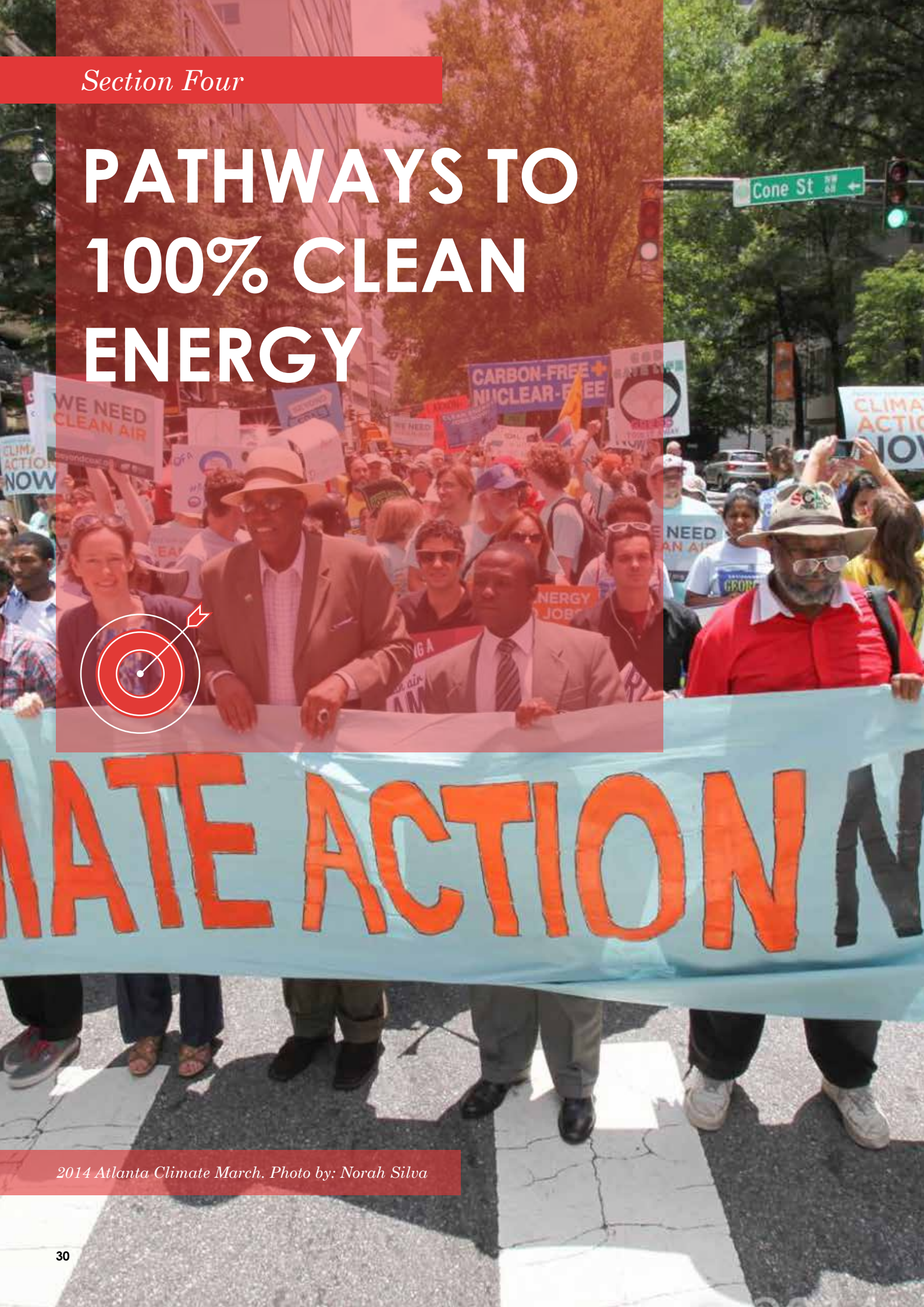
Personnel from key organizations including utilities, banks, sports venues, real estate firms, corporations, local nonprofits, federal government facilities, and universities.

Atlanta's Mercedes-Benz Stadium: the first professional sports stadium to achieve LEED Platinum in the U.S. Photo by: Brennan Cross

“Be aggressive. Atlanta can be a world leader and a beacon.”

Section Four

PATHWAYS TO 100% CLEAN ENERGY



2014 Atlanta Climate March. Photo by: Norah Silva

There are many possible pathways to achieving the 100 percent clean energy goal, but all are a combination of three key strategies: consuming less electricity through investing in energy efficiency, generating electricity from renewable sources, and purchasing renewable energy credits.

Based on the input of the Atlanta community (discussed in depth in Section 3), the City intends to prioritize equity, economic development, public health, and bill savings in the steps that are taken to realize the goal.

Equity is the respectful treatment and fair involvement of all people in a society, ensuring that everyone has the opportunity to reach their full potential. The barriers for communities to access clean energy are unequal, so meaningful effort is required to ensure participation in 100 percent clean energy initiatives is available to underserved communities. Because of this focus on equity, the City will take special care both to understand barriers to access and to help affected communities overcome such barriers as the City pursues the 100 percent clean energy goal.

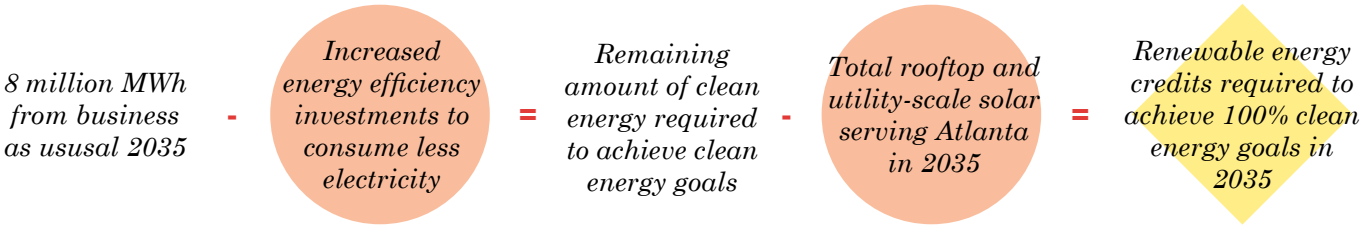
Economic Development includes more skilled jobs in clean energy sectors, like energy efficiency and rooftop solar, resulting in higher incomes and increased gross domestic product (GDP) in Atlanta. However, not all clean energy options have the same positive economic impacts for the Atlanta community, and the City aims to prioritize opportunities that will benefit the local economy.

Public Health is adversely impacted by pollutants from fossil-fueled power plants. By reducing consumption and changing sources of electricity, Atlanta could see better public health outcomes, improving wellbeing while decreasing energy burdens on our residents.

Finally, the pathways to 100 percent clean energy need to be **Cost-Effective** to ensure that chosen investments and efforts are smart uses of resources.

By 2035, the City of Atlanta's total electricity demand is expected to be about 8 million MWh per year in the business as ususal projection. This is the equivalent of 150 indoor sports stadiums. That demand can be met by a combination of different local clean energy sources, each of which has benefits and limitations based on the progression of technology and costs. The extent to which each of these clean energy sources is tapped produces pathways/scenarios that have differing costs and benefits.

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and to 2050 community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2025 for municipal operations and 2035 community-wide. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.



Policy changes proportional to required renewable energy credits needed to achieve 100 percent clean energy

- **Policy Changes**
- **RECs**

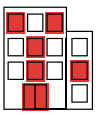
Exercising one clean energy strategy affects the need for others. For instance, if there is significant energy efficiency investment that drives down the total amount of electricity requiring clean energy, and/or there is significant local rooftop solar, then we would need fewer RECs to achieve 100 percent clean energy. The key is determining what is the right mix of clean energy strategies that provides the most benefits for all Atlanta residents.

In community conversations and stakeholder sessions, the Atlanta Clean Energy Scenario (ACES) modeling tool was used to help provide real-time policy analysis capability on these clean energy strategies by creating different scenarios. ACES can also determine the public health impacts of different investment strategies by analyzing where and when emissions change, how air pollution is dispersed, and the relationship between pollution levels and the associated healthcare costs of exposure. The tool has a financial model calibrated to the electric utility which can determine the total utility costs for each 100 percent clean energy scenario and produce rate and bill impacts for the residential and commercial sectors.

To better understand equity implications of various scenarios, the rate and bill impacts are further disaggregated into "participants" and "non-participants." "Participants" are electricity customers who take advantage of programs in energy efficiency or local solar that ACES anticipates being developed under the scenarios. "Non-participants" are customers who do not take advantage of the programs. An Atlanta-specific characterization of the economy calculates economic development

A Special Note About the Atlanta Clean Energy Scenario (ACES) Tool

ACES sits atop a machine-learning derived understanding of the electricity system that provides power to Atlanta. To understand the functioning of the electricity system, the tool constructs hourly electricity demand and supply profiles.



Electricity demand is constructed using 60 different hourly building demand profiles for Atlanta, accounting for differences in building type, age, occupancy patterns, and size. For electricity supply, the tool covers every power plant used to generate electricity for Atlanta, including operational characteristics and information about emissions, water usage, and waste streams.

The tool analyzes the price of different kinds of energy sources as well as how much of that source could eventually be on the grid. For example, the cost of solar is expected to decline into the future and decline faster as more solar is deployed in Atlanta. This analysis is then used to determine how much investment in different clean energy strategies could lead to 100 percent clean energy for Atlanta.

01 **The Business as Usual, Renewable Energy Credits Only Scenario**
Assumes that we take no action to reduce energy consumption or increase renewable energy generation. Rather, it assumes that in 2035, when Atlanta's consumption will be 8 million MWh, we will pay for renewable energy credits for renewable power produced outside of the Georgia Power service area to achieve 100 percent clean energy for the community.

02 **The Achieving 50% of Atlanta's Local Clean Energy Potential Scenario**
Assumes that we will achieve half of the maximum amount of local clean energy available (energy efficiency and rooftop solar) given current regulations in 2018.

03 **The Maximizing Atlanta's Local Clean Energy Potential Scenario**
Assumes that we will take advantage of all possible local clean energy available (energy efficiency and rooftop solar) given current regulations in 2018.

Three Possible 100% Clean Energy Scenarios

impacts, such as job creation, GDP, and income, of various investment pathways required to achieve 100 percent clean energy. Job creation is projected for twelve different industries that are closely affiliated with clean energy. Finally, ACES estimates each scenario's cost-effectiveness for the community, showing the net present value of all costs and benefits and the benefit-cost ratio.

For the purposes of community conversations and stakeholder meetings, we developed three scenarios to demonstrate the range of benefits and costs of going 100 percent clean energy.

- Business as Ususal, Renewable Energy Credits Only Scenario
- Achieving 50% of Atlanta's Local Clean Energy Potential Scenario
- Maximizing Atlanta's Local Clean Energy Potential Scenario

It's important to note that these scenarios are based upon the existing federal, state, and local policies in 2018 and assume that Georgia Power's planned power generation mix, including Plant Vogtle Units 3 and 4 coming online, moves forward. As the policy landscape shifts, these scenarios will need to be updated to remain relevant.

ACES analyses found that the Achieving 50% of Atlanta's Local Clean Energy Potential investment scenario is the most cost-effective, returning roughly $11 in Atlanta-based benefits for every dollar spent. More than 90 percent of these benefits come from energy savings through energy efficiency, especially in the residential sector. This scenario would increase local incomes in Atlanta by nearly $1 billion and save city residents at least $675 million in health expenses through 2035. Electricity bills of residents who participate in energy efficiency and solar programs by 2035 are expected to be reduced by up to 55 percent. Furthermore, ACES shows that every 0.5 cents per kWh in reduced rates would provide 3-4 percent savings on the electricity bills of those who do not participate in the clean energy programs directly because these programs would reduce overall electricity rates, as the most expensive electricity generation plants would be used less or not at all.

Since reducing electricity consumption also reduces water usage in Georgia, this scenario would improve Atlanta's -- and

4 Million

Megawatts of clean energy that could be used by 2035

$11.9B

Potential net benefits of clean energy programs in Atlanta by 2035

91B

The estimated billions of gallons of water that could be saved by 2035

Georgia's -- water resilience. Through 2035, 3.9 billion gallons of water would not be consumed, and 34 billion gallons of water would not be withdrawn from our rivers and streams to run power plants.

Of the three cases run, the Maximizing Atlanta's Local Clean Energy Potential scenario provides the greatest benefits to Atlanta, with the entire set of efforts yielding $11.9 billion in net benefits across the community through 2035. Here, commercial energy efficiency and rooftop solar see their roles expanded the most. This scenario would lead to the creation and support of up to 8,000 jobs and reduce overall CO_2 emissions by 29.8 million metric tons through 2035. Participating households nearly eliminate their electricity bills, and non-participants see a projected 28 percent reduction in their bills.

Water savings from this scenario are also substantially higher than in the 50 percent scenario. Through 2035, water consumption savings increase to 10.5 billion gallons, and water withdrawal savings increase to 91 billion gallons. These savings are roughly three times greater than the quantity of water used to meet Atlanta's anticipated 2018 electricity consumption.

The least-cost and least-benefit option is the Business as Ususal, Renewable Energy Credits Only scenario, where RECs are purchased from out-of-state to achieve the target, with a present value of negative $1 million. However, this pathway provides no benefits to equitable clean energy access, economic development, public health, utility bills, or water consumption.

The vast majority of in-person community conversations and stakeholder sessions favored a result somewhere between the Achieving 50% of Atlanta's Local Clean Energy Potential and the Maximizing Atlanta's Local Clean Energy Potential

Atlanta's 2015 Clean Power Plan Rally. Photo by: Erik Voss

Clean Energy in Action: Pulte Project by Georgia Power Company

Georgia Power and PulteGroup have partnered on a smart home development in northwest Atlanta, which incorporates a wide range of advanced clean energy technologies. The 46-townhouse community is located at the intersection of Marietta Boulevard and Bolton Drive. Homes will be equipped with the latest energy technologies such as optimal insulation for maximum efficiency, advanced heating and cooling systems and LED lighting, and home automation featuring smart thermostats, smart locks and voice control. Each technology-enhanced home in the Georgia Power Smart Neighborhood™ will also include individual rooftop solar installations and in-home battery energy storage, while remaining grid-connected for remaining power needs.

Georgia Power is collaborating with Southern Company research and development (R&D) to better understand the interactions between rooftop solar and in-home battery storage and the existing electric grid for energy efficient homes. Research partners include the U.S. Department of Energy's Oak Ridge National Laboratory, which will be developing the Smart Neighborhood™'s home energy optimization platform that will intelligently schedule each home's major appliances, in coordination with solar and batteries, to minimize cost while optimizing each homeowner's comfort. Additionally, the Electric Power Research Institute is providing design guidance, data analysis, and final reports for the Smart Neighborhood™ project.

scenarios. All scenarios include some reliance on RECs to hit the target given current federal, state, and local regulations, showing that without significant effort with partners at many levels of decision-making — from utilities, to the state, to federal levels — the City will have to purchase renewable energy credits from other renewable projects in order to achieve the goal.

The scenarios are based on the best information available today and will need periodic updates. Some of these findings are the result of indirect spillover effects, and therefore highly sensitive to the actions taken by others. These numbers could change for any number of political, policy, programmatic, or regulatory reasons and cause significant deviations from the values produced in ACES.

These models are starting points for 100 percent clean energy solutions that provide equitable outcomes, job opportunities, public health improvements, and cost-effective programs. Understanding the investments and the returns to the community as a whole helps provide a clearer picture of the benefits and tradeoffs associated with the approaches and targets available to Atlanta as it prepares its energy future for the next two decades.

The following three scenarios outline estimated impacts from clean energy investment with no change (0%), a 50% investment in clean energy, and a 100% investment.

Scenario No.1 *Business as Ususal - 0%*	Scenario No.2 *50% Clean Energy*	Scenario No.3 *100% Clean Energy*
18% of Atlanta's electricity is directly provided by clean energy sources.	38% of Atlanta's electricity is directly provided by clean energy.	66% of Atlanta's electricity is directly provided by clean energy.
No homes and commercial buildings undergo energy renovations.	45K homes undergo energy renovations.	90K homes undergo energy renovations.
No homes and commercial buildings install solar panels.	6.75K commercial buildings undergo energy renovations.	13.5K commercial buildings undergo energy renovations.
No homes powered by community solar.	24.2K home solar installs.	48.3K home solar installs.
Out-of-state wind farms financed by Atlanta.	715 commercial solar installs.	1,430 commercial solar installs.
	6.2K homes powered by community solar.	12.5K homes powered by community solar.
	15 out-of-state wind farms financed by Atlanta.	30 out-of-state wind farms financed by Atlanta.

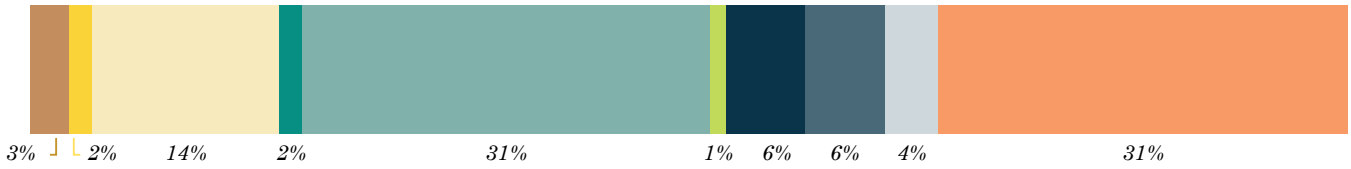
Renewable Energy Source Key

- Residential Solar
- Commercial Solar
- Utility Solar
- Hydro Con
- Imported REC Purchase
- Imported Wind
- Single Family Efficiency
- Multifamily Efficiency
- Commercial Efficiency
- GA SREC

Scenario No.1: Business As Usual, Renewable Energy Credits Only

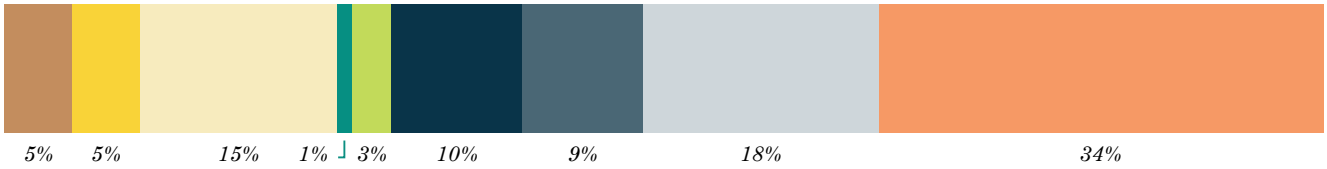
Cumulative Benefits	Through 2035	Full Impact		Equal To
$0	Local Jobs Created	0	0	Coca Cola HQ
Cumulative Costs	Local Incomes Increased By	$0	$0	Per Atl. Citizen per Year
$1,000,000	Local GDP Growth	$0	0%	Delta Global Revenue
Net Benefits	Public Health Savings	$0	$0	Months Health Ins. Savings
-$1,000,000	Metric Tons CO_2 Reduced	0	0	Months without Cars
Benefit to Cost Ratio				
0	**In 2035**			
	Household Bill Savings	$0		
	Monthly Bill Savings: Participants	$0	0%	Home Electricity Savings
	Monthly Bill Savings: Non Participants	$0	0%	
	Commercial Total Bill Savings	$0		
	Monthly Bill Savings: Participants	$0	0%	Commercial Electricity Savings
	Monthly Bill Savings: Non Participants	$0	0%	

Scenario No. 2: Achieving 50% of Atlanta's Local Clean Energy Potential



Cumulative Benefits	**Through 2035**	**Full Impact**		**Equal To**
$15.435 Billion	Local Jobs Created	4,250	1.9	Coca Cola HQ
Cumulative Costs	Local Incomes Increased By	$991 Million	$117	Per Atl. Citizen per Year
$373 Million	Local GDP Growth	$838 Million	13.7%	Delta Global Revenue
Net Benefits	Public Health Savings	$231 Million	$2.26	Months Health Ins. Savings
$15.062 Billion	Metric Tons CO_2 Reduced	5.3 million	7	Months without Cars
Benefit to Cost Ratio				
41.4	**In 2035**			
	Household Bill Savings	$1.3 Billion		
	Monthly Bill Savings: Participants	$141	57%	Home Electricity Savings
	Monthly Bill Savings: Non Participants	$35	14%	
	Commercial Total Bill Savings	$2.4 Billion		
	Monthly Bill Savings: Participants	$770	28%	Commercial Electricity Savings
	Monthly Bill Savings: Non Participants	$513	19%	

Scenario No.3: 100% Renewable Energy

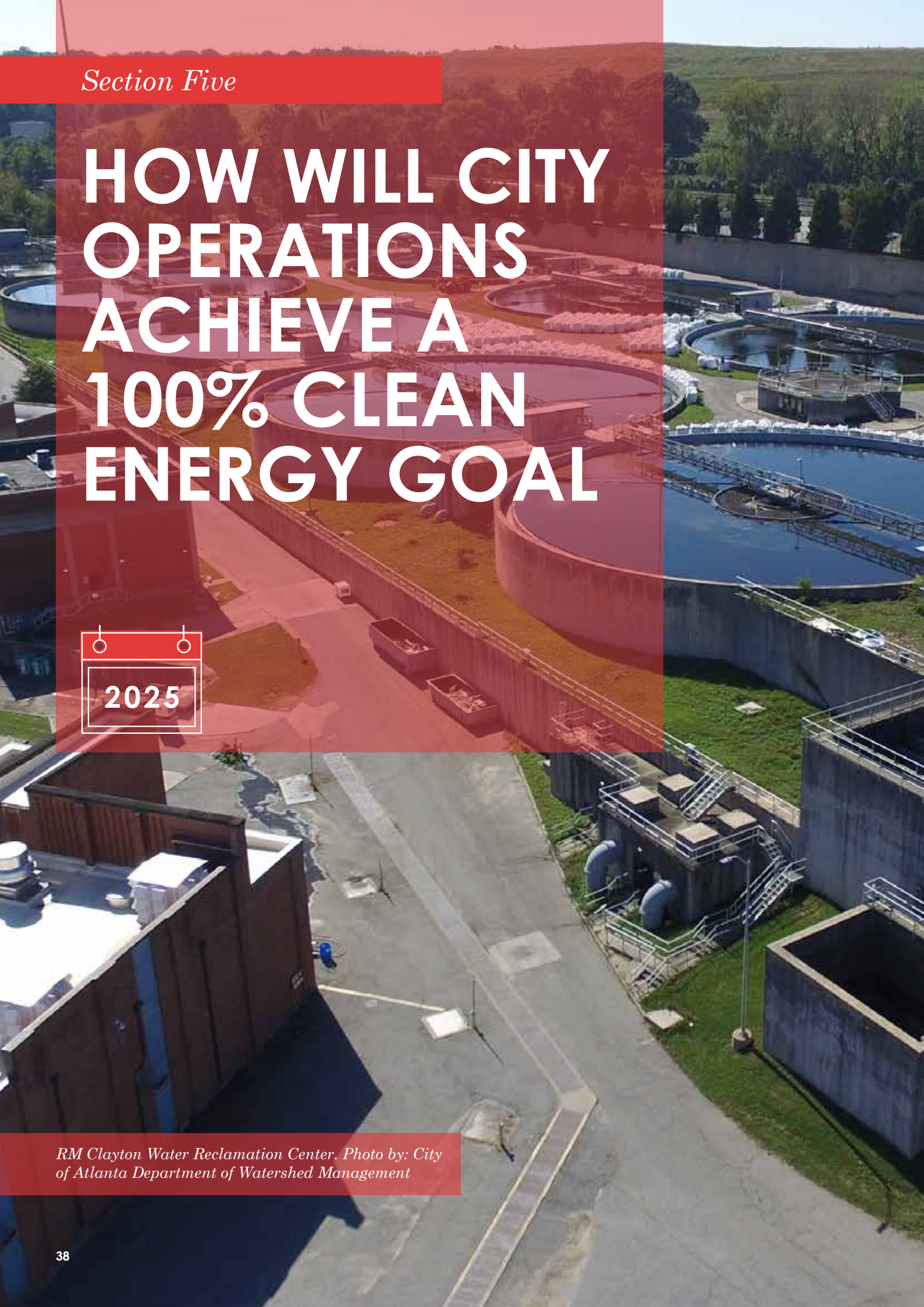


Cumulative Benefits	**Through 2035**	**Full Impact**		**Equal To**
$28.783 Billion	Local Jobs Created	7,775	3.5	Coca Cola HQ
Cumulative Costs	Local Incomes Increased By	$1.8 Billion	$213	Per Atl. Citizen per Year
$1.379 Billion	Local GDP Growth	$1.5 Billion	25.2%	Delta Global Revenue
Net Benefits	Public Health Savings	$594 Million	$5.82	Months Health Ins. Savings
$27.404 Billion	Metric Tons CO_2 Reduced	13.5 Million	17	Months without Cars
Benefit to Cost Ratio				
20.9	**In 2035**			
	Household Bill Savings	$2.3 Billion		
	Monthly Bill Savings: Participants	$234	95%	Home Electricity Savings
	Monthly Bill Savings: Non Participants	$63	26%	
	Commercial Total Bill Savings	$4.4 Billion		
	Monthly Bill Savings: Participants	$2,040	74%	Commercial Electricity Savings
	Monthly Bill Savings: Non Participants	$929	34%	

Section Five

HOW WILL CITY OPERATIONS ACHIEVE A 100% CLEAN ENERGY GOAL

2025



RM Clayton Water Reclamation Center. Photo by: City of Atlanta Department of Watershed Management

The City of Atlanta is the largest consumer of electricity in the city, with combined municipal operations accounting for 7 percent of all electricity consumed in Atlanta.

This section details current municipal building electricity use and identifies steps to help City operations achieve 100 percent clean energy by 2025.

Leading By Example: Energy Efficiency, Renewable Energy, and Battery Storage

The City of Atlanta owns and operates a tremendous assortment of building types, including government office buildings, recreation centers, fire stations, detention centers, Hartsfield-Jackson Atlanta International Airport, water treatment plants, police precincts, warehouses, and parking garages.

Understanding its responsibility to lead by example, the City put itself on a more aggressive timeline, committing to a 100 percent clean energy transition by 2025, 10 years sooner than the 2035 community-wide target. This decision was positively received in the stakeholder engagement process, with stakeholders suggesting the City establish a few "quick wins" in this space to provide community-wide visibility and build momentum in Plan implementation. The City's properties are diverse in type and geography throughout Atlanta. By implementing high-visibility clean energy demonstration projects on its facilities, the City will demonstrate to the community how to execute new kinds of projects such as rooftop solar and battery storage. In addition, the City's investment in clean energy will grow the local market of skilled clean energy services providers and demonstrate to local homeowners, businesses, and institutions some of what is possible.

The City has the capacity to influence market transformation through policy changes that can help decrease barriers to clean energy efforts. Beyond solar and energy efficiency, off-site as well as on-site clean energy generation opportunities such as geothermal, biogas, hydroelectric, or wind will be considered, and the City may help reframe the legal and regulatory barriers to such projects. Innovative financing mechanisms such as energy savings performance contracting, environmental

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2025 for municipal operations and 2035 community-wide. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

The City of Atlanta owns and operates a tremendous assortment of building types:

- *Government office buildings*
- *Recreation centers*
- *Fire stations*
- *Detention Center*
- *Hartsfield-Jackson Atlanta International Airport*
- *Water treatment plants*
- *Police precincts*
- *Warehouses*
- *Parking garages*

impact bonds, and 3rd-party solar financing are being utilized to provide these clean energy improvements in the most cost-effective manner possible for the City. Some projects already underway include solar installations on 24 City-owned buildings funded through a third-party solar energy procurement agreement, cogeneration at water treatment plants, and an assessment for solar opportunities at airport and water treatment sites.

Energy efficiency is the first-priority pathway to achieving 100 percent clean energy by 2025 for City operations. Additional key strategies will be on-site electricity generation and battery storage, particularly as those technologies become more cost-competitive over time.

Municipal Buildings

The top 20 City-owned buildings use more than 80,000 MWh of electricity per year, 13 percent of the municipal total, and their average electricity bill exceeds $250,000 per year. They represent a broad range of uses, from recreation centers to office buildings to courthouses. Many of these properties are already undergoing large-scale energy efficiency improvements as part of a guaranteed energy savings performance contract that addresses lighting, controls, water savings, and some essential system upgrades. Plenty of additional opportunities remain for larger buildings through deeper energy and water efficiency retrofits, along with on-site renewable energy installations. These more capital-intensive clean energy improvements may be easier to fund and install when it is time for a building to undergo a major renovation. Solar technologies continue to improve while their prices decrease, which will create future opportunities for the City to increase its solar capacity. The City's adoption of these technologies will build up the competence and competitiveness of the local energy service provider base, which will make it easier for the private and institutional sectors to scale up. There is tremendous potential through increased energy efficiency and solar deployment through 2025 in these large municipal buildings, which could translate to tens of thousands in taxpayer dollars saved.

For smaller City assets, an approach that standardizes or automates energy savings strategies will be needed. Over 700 small city buildings collectively use 30,000 MWh per year, but most are hard to study individually. Because new technologies that help with exactly this issue are emerging, a project to find savings in a rapid and efficient manner in these buildings will make sense.

Electrification

To help stabilize the grid and to ensure an orderly transition to renewable energy, the City will continue the process of electrifying its own transportation fleet through purchasing electric vehicles as part of fleet procurement processes. The City will also encourage MARTA and

Top 20

Top 20 buildings use 13% of all municipal energy

20+

Over 20 City buildings will get rooftop solar panels in 2018

10.5K MWh

Amount of energy savings that could be achieved through switching all remaining streetlights to LED fixtures

private sector owners of large vehicle fleets to consider similar plans for their fleet and bus systems. Public charging infrastructure is critical to expansion of electric vehicle usage, and Atlanta will continue to partner with Georgia Power to increase access to free or low-cost charging stations. Beneficial electrification in buildings (through switching to heat pumps and combined heat and power systems) will also be encouraged. All of these measures will make economic sense soon, and some of them already do.

The City's ability to blaze a trail in understanding the issues, working with important local players, and reducing barriers to electrification can expand access and help the whole Metro Atlanta area move forward. While some of these measures will increase electricity use, they can be done intentionally to help integrate additional renewables onto the grid -- making running the local grid easier -- and become key ingredients in the recipe for 100 percent clean energy.

These measures represent powerful opportunities to partner with local utilities to advance a clean energy transition.

Streetlights and Traffic Lights

Thanks to Georgia Power's streetlight conversion program, over 50 percent of Atlanta's streetlights were converted to LEDs in 2015 and 2016. But there remain 15,500 streetlights that have yet to be retrofitted with modern, efficient lighting upgrades. There's an incredible opportunity to transition those remaining streetlights to LEDs, which would offer incredible savings to the City, both from an energy and cost standpoint. There are roughly 10,500 MWh of annual savings available in converting the remainder of those streetlights. This conversion would save taxpayer dollars. There is an additional 5,000 MWh of savings available from retrofitting traffic signals with LED lights. Lighting technology continues to become more energy

Electric vehicle charging facilities at the International Terminal Parking Garage at Hartsfield-Jackson Atlanta International Airport. Photo by: Hartsfield-Jackson Atlanta International Airport

Mayor Keisha Lance Bottoms and Chief Resilience Officer Amol S. Naik with Vice President Al Gore.
Photo by: City of Atlanta

efficient and cost-effective, and there will be continued opportunities to capture energy savings in the 2025-2030 timeframe as lighting fixtures come to the end of their useful life. The City can share its insights into best types and sourcing for outdoor lighting to the community, making it easier for others to make the same transition and avoid issues like poor quality (once an issue with LEDs) or excessively blue lights that disturb human and animal populations at nighttime. A coordinated large-scale purchasing process may also be an opportunity, including teaming with other Metro Atlanta governments.

Overall Municipal 2025 Clean Electricity Mix

Clean energy measures such as energy efficiency savings, cogeneration, and solar energy generation can help the City work towards its 100 percent clean energy goal, but those measures alone will not get the City to the required 100 percent. To close that gap, the City will need to buy clean electricity, either directly from Georgia Power or from outside REC vendors. As options for green power purchasing are currently limited, regulatory shifts and increased diversity of financing mechanisms are expected as clean energy continues to gain momentum.

The best mix of efficiency, renewables, and REC purchases will be determined by City departments in the coming years and will depend in part on the regulatory landscape as dictated by the Georgia Public Service Commission. Unless major policy shifts from the Georgia Legislature occur by 2025, any green power arrangement or large-scale community

solar option will need to be structured within the confines of Georgia's current regulatory framework in partnership with Georgia Power. A key element of the City's plan for clean energy at its properties will be for Hartsfield-Jackson Atlanta International Airport, the Department of Watershed Management, and the City itself to engage with Georgia Power and the Public Service Commission to establish a pathway to 100 percent clean energy that provides a sufficient reliable supply that is both clean and affordable by 2025, if not sooner.

The Department of Watershed Management and Hartsfield-Jackson Atlanta International Airport each has its own dedicated clean energy planning initiatives, which are detailed separately on the following pages.

"The City can share its insights into best types and sourcing for outdoor lighting to the community, making it easier for others to make the same transition and avoid issues."

Councilmember Andrea L. Boone with City staff and attendees at the 2018 Solar Atlanta launch event. Photo by: Shan Arora

Water & Wastewater Treatment Facilities

The City of Atlanta Department of Watershed Management (DWM or Department) is responsible for providing drinking water, wastewater, and stormwater services to over one million people in the City of Atlanta and surrounding communities. Most of the energy used by the Department derives from its treatment facility operations – 94 percent of DWM's 191,000 MWh of energy use in 2016 was consumed at five of these sites. Significant progress toward the City's goal of 100 percent clean energy for municipal operations by 2025 will include investment in energy efficiency enhancements or energy production at DWM water and wastewater treatment facilities.

Historically, DWM has demonstrated a strong commitment to a sustainable and resilient future for the City of Atlanta and has prioritized energy conservation in implementing its previous and ongoing capital improvement programs (CIPs). In 2014, for example, the Department completed upgrades to the Hemphill Water Treatment Plant (WTP) pumping station that reduced on-site energy consumption by more than 50 percent. Beyond legacy initiatives, the Department's current CIP includes several projects that will result in significant offsets to the 191,000 MWh consumed annually across all of its facilities. Two large-scale energy saving performance contracts with Schneider Electric and NORESCO, planned for completion in 2019 and 2021, are expected to deliver energy savings in excess of 10,000 MWh annually through various energy conservation measures at multiple DWM water and wastewater treatment facilities.

Clean energy generation through resource recovery is another key component of the Department's ongoing capital program. DWM currently has projects underway and planned at its RM Clayton Water Reclamation Center (WRC) to capture methane gas generated during anaerobic digestion for electricity production. Phase I of the RM Clayton Digester Improvements Project, planned for completion by fiscal year (FY) 2020, is expected to contribute over 10,000 MWh of clean energy annually through the use of electricity generated on-site. Phases II and III of the project, planned for completion by FY 2023, include a co-generation system expansion that will contribute an additional 20,000 MWh of annual clean energy.

Atlanta Better Buildings Challenge 2017 Top-Performer: Hemphill Water Treatment Plant Pump Station

In 2017, DWM was recognized as a top performer in the Atlanta Better Buildings Challenges for energy savings realized from a recent pumping station upgrade to its Hemphill WTP. Completed in 2014, the upgrade cut on-site energy consumption in half.

Many other projects in the Department's CIP include energy savings components. For instance, DWM is investing in green infrastructure projects throughout the City to offset system capacity requirements during extreme wet weather events. DWM is also investing in the rehabilitation or replacement of large portions of its sewer systems to meet obligations under a federal Consent Decree order. These projects keep excess water out of the Department's sanitary and combined sewers, incrementally reducing the volume of wastewater delivered to its treatment facilities. This reduces electricity consumption to both pump and treat water. Similarly, ongoing investment in water main rehabilitation and replacement decreases leakage in the water distribution system. This reduces the amount of water that must be treated and pumped, reducing energy consumption in the process.

With all the investments in its current CIP, it is estimated DWM may realize up to 55,000 MWh in annual energy savings by 2023, a sizable step towards its clean energy goal for 2025.

Moving forward, energy-related project development and implementation will continue to be a component of the Department's broader capital program planning process. This process includes the analysis of renewal and/or replacement needs for the Department's entire array of water, wastewater, and stormwater assets to meet its multiple obligations as a public utility (obligations such as regulatory compliance, service delivery, financial stewardship of public assets, etc.). The capital planning process must evaluate and prioritize the Department's competing water resources projects and needs to establish a foundation of balanced and judicious

DWM In-Progress Energy Efficiency Improvements

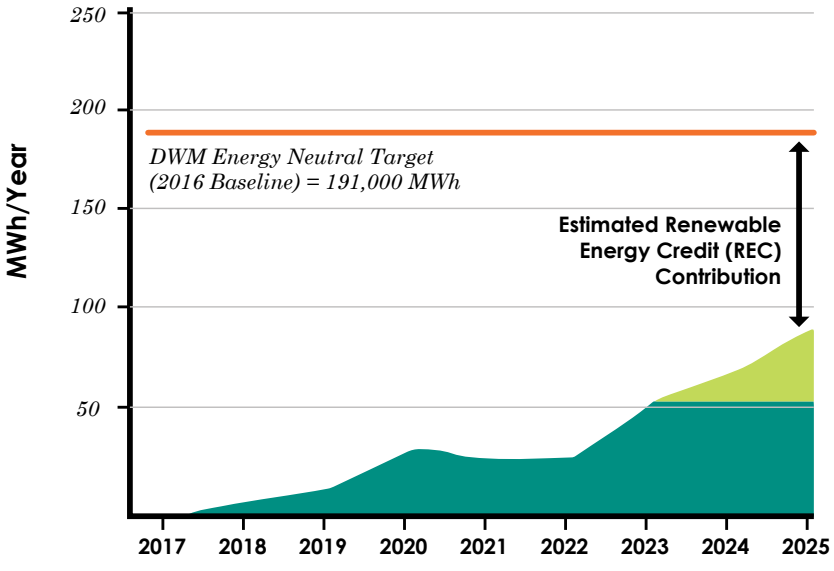
DWM's Schneider and NORESCO projects, currently underway, include implementation of over 20 energy conservation measures at various treatment facility locations, including ammonia-based aeration control at the South River WRC (left) and ultraviolet disinfection system upgrades at Utoy Creek WRC (right). In all, these projects will deliver over 10,000 MWh of annual energy savings.

DWM In-Progress and Future Clean Energy Production

Planned and future cogeneration projects at RM Clayton WRC and Utoy Creek WRC could potentially deliver the equivalent of up to 60,000 MWh of energy savings annually to DWM before 2025. RM Clayton Digester Improvements Phase I (left) is in progress and expected to be complete by 2020; phases II and III will follow. Utoy Creek WRC (right) is in the planning stages.

investment, wherein energy conservation is just one element.

Future energy projects or initiatives (similar to those already programmed) will focus on energy efficiency enhancements through new technologies or optimized operations, energy conservation, and clean energy production. Continued use of Energy Savings Contracts (ESCO) will allow for ongoing investment even under challenging financial circumstances. These ESCO projects will permit DWM to pursue energy efficiency measures such as water pumping and distribution system optimization, lighting upgrades, control system upgrades, and other process improvements with acceptable returns on investment and smaller capital outlay. Other potential energy saving opportunities include various water conservation programs to reduce customer water use and the generation of wastewater. Programs like incentivized installation of high-efficiency toilets provide benefits to both the customer, through lower bills, and DWM, through electricity savings from not having to pump or treat conserved water. On the power generation side, a potential future cogeneration project has already been identified for the Utoy Creek WRC, which could contribute 20,000 MWh of clean energy annually to the Department's goals. If determined to be cost effective, this project could be scheduled and completed prior to 2025. In addition to biogas cogeneration applications, solar energy represents another potential clean energy source under consideration by the Department. Looking ahead, DWM will continue to identify and evaluate opportunities for the use of solar applications at its facilities. However, future employment of any such measures will require an acceptable business case evaluation of each specific opportunity. One opportunity currently in review includes solar installations at six DWM facilities that would be funded through an amendment to the City's current third-party solar energy procurement agreement. These installations would offset current non-renewable energy consumption across these sites by up to 7-8%.



Estimated Contributions Toward City of Atlanta's 100% Clean Energy Goal for Municipal Operations by 2025
Department of Watershed Management

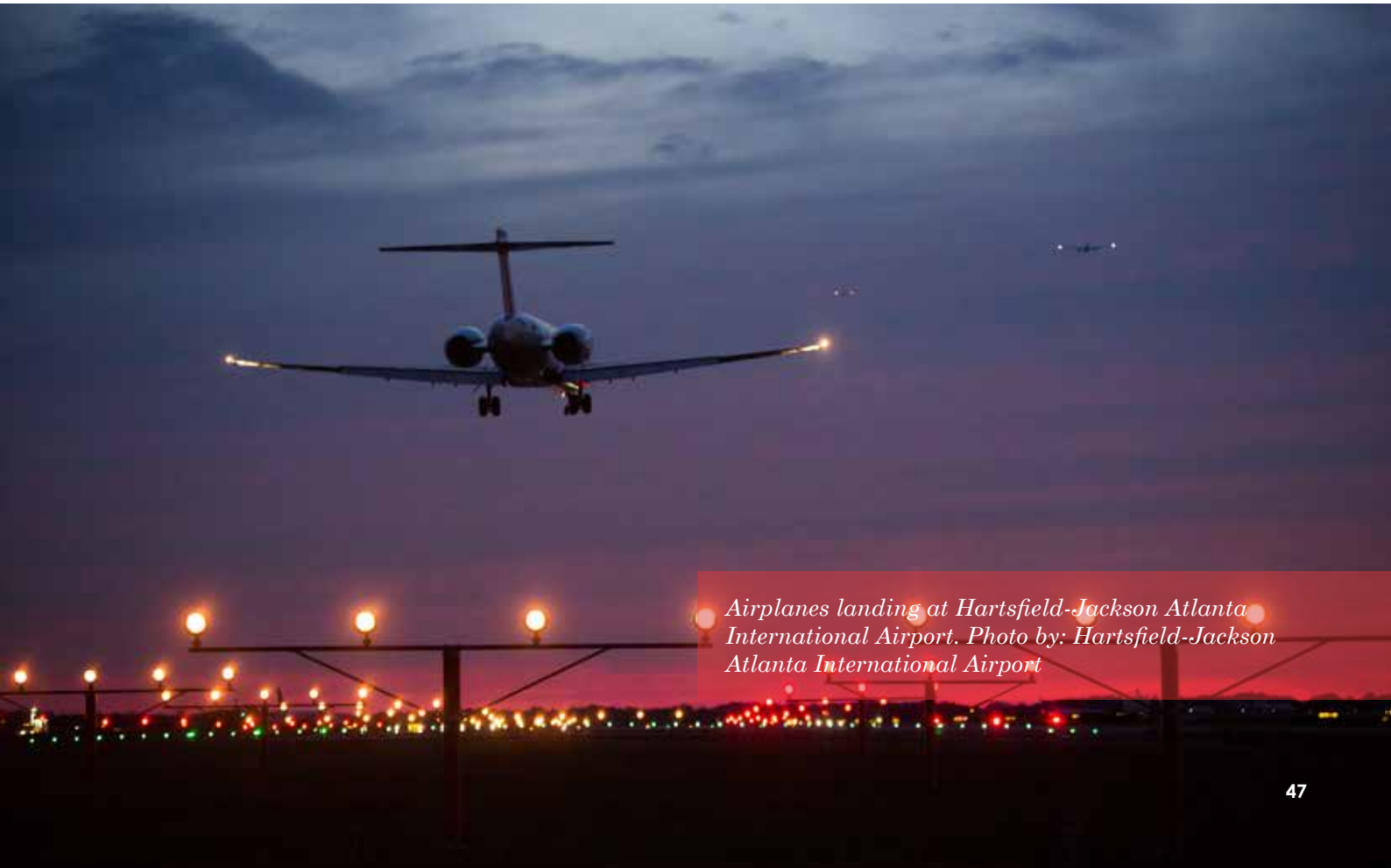
- **Cumulative Annual Energy Savings - Currently Identified Discretionary Projects**
- **Cumulative Annual Energy Savings - Currently Programmed/ Required Projects**

As outlined above, DWM is anticipating an annual clean energy contribution of up to 55,000 MWh over the next 4-6 years and may have opportunity for up to an additional 35,000 MWh depending on the level of needs related to DWM's compliance and service reliability obligations. DWM expects to continue to build on its strong track record of energy savings and clean energy generation in support of the City's clean energy goals.

Department of Aviation & Hartsfield-Jackson Atlanta International Airport

The City of Atlanta Department of Aviation oversees the operation of Hartsfield-Jackson Atlanta International Airport (HJAIA), the busiest and most efficient airport in the world with more than 100 million passengers traveling through each year. The airport is an economic powerhouse, generating a $34.8 billion economic impact for Metro Atlanta and providing more than 63,000 jobs on-site, making it the state's largest employer. It is also the largest user of electricity in Atlanta, responsible for nearly half of municipal electricity consumption in a given year. With current projections anticipating growth of 20 percent or more through 2025, the Department of Aviation takes the City's 100 percent clean energy goal seriously and intends to make thoughtful investments to continue to be an example for airports across the world.

HJAIA faces a unique set of challenges when implementing clean energy initiatives due to the complex set of airport stakeholders, legal structures, federal requirements, and competing capital priorities. However, the Department of Aviation has a proven record on delivering clean energy. For example, the 2016 energy use intensity (BTUs per square foot) of the airport's on-site demand was 10 percent better than in 2008. Additionally, two solar photovoltaic arrays with a combined capacity of nearly 400 kW have been installed in recent years, which will contribute over 500 MWh of clean energy. Efforts to improve passengers' clean energy options have



Airplanes landing at Hartsfield-Jackson Atlanta International Airport. Photo by: Hartsfield-Jackson Atlanta International Airport

resulted in expanded electric vehicle charging infrastructure, with over 200 chargers deployed and plans to add another 100. Electric buses, shuttles, and the electrification of other fleet vehicles are all part of near-term planning. Combined, these efforts represent nearly 30,000 MWh of clean energy, led by cost-effective energy efficiency.

"In the spirit of building on successes and recognizing that there is more work to be done, the Department of Aviation is committed to exploring opportunities for continuing to cut energy waste and increasing the use of renewable energy."

The Department of Aviation has been recognized for its work in developing and implementing best practices. HJAIA's energy management practices are certified under the prestigious ISO 50001 international standard, winning the airport the Institutional Energy Management Award from the Association of Energy Engineers. Since new buildings are required to meet the US Green Buildings Council's Leadership in Energy and Environmental Design (LEED) standards, overall performance will improve with building stock turnover. HJAIA is the first airport in the world to be awarded per-certification for LEED for Communities and the first to be EcoDistrict registered. Leading in the Atlanta Better Building Challenge, HJAIA has repeatedly won special recognition awards as a top performer for the energy efficiency improvements in the North and South Domestic Parking Decks and the airport Technical Campus. Numerous additional organizations, such as Smart Energy Decisions, Environmental Leader, and others, have recognized the innovation in clean energy around transportation and buildings at HJAIA.

In the spirit of building on successes and recognizing that there is more work to be done, the Department of Aviation is committed to exploring opportunities for continuing to cut energy waste and increasing the use of renewable energy. HJAIA is expanding energy savings through a guaranteed energy services performance contract that will also dramatically improve energy intelligence on-site through platform streamlining and communications technology advancements. An extensive energy audit program is planned for 2019 to identify significant short-term clean energy options, along with expected hires to assist in the development of an energy master plan.

Energy efficiency will play a prominent role in future clean energy efforts at HJAIA. All buildings will begin a uniform energy benchmarking practice to ensure that performance is being tracked, regardless of ownership structure. This is a proven strategy to improve energy-using behaviors. Fire stations 32 and 40, both located at HJAIA, will undergo deep energy retrofits as a part of building rehabilitation work that has been scheduled. Retrocommissioning, the process of "tuning up" equipment, delivers 15 percent savings on average with a payback of 8-9 months and is planned for many buildings at the airport. Following retrocommissioning, these buildings will become candidates for ongoing commissioning, where the freshly tuned-up equipment will be continuously monitored to ensure peak

performance going forward. Finally, opportunities to deploy innovative energy saving technologies like ground source heat pumps will be explored. In total, these efforts are expected to reduce energy costs and improve the performance of the entire campus at HJAIA.

Complementing the expanded efforts on energy intelligence and energy efficiency, HJAIA will regularly assess the ability of clean energy generation to add resilience value and achieve the City's goals. HJAIA has identified several sites as good candidates for solar photovoltaics and is developing a comprehensive plan to address opportunities. While these installations must pass rigorous Federal Aviation Administration glare studies, HJAIA may ultimately be a candidate to support a substantial increase in solar generation from today's levels. The ability of energy storage technologies such as batteries to expand and stabilize the contribution of solar generation, increase reliability and provide other valuable energy services, is an area of great interest that is currently under evaluation. Opportunities to increase solar + storage combinations across the HJAIA footprint, from replacing small diesel generators at specific sites, up to utility-scale resilience improvements, are all being assessed. The two electric utilities serving HJAIA may allow large users to access more Georgia-based solar generation, especially through cost-effective green tariffs and community solar programs, where the solar generation can be placed and maintained under optimal conditions. Purchasing renewable energy credits are another option that can be used to offset consumption from the electricity grid. HJAIA will continue to evaluate these partnership options to expand access to clean energy in the near term.

The Department of Aviation anticipates a substantial increase in the annual contributions of clean energy over the coming 6 years, eventually accounting for over 300,000 MWh per year. This is a large task, but one the Department embraces, building on its existing record of delivering on the City's energy, sustainability, and resilience goals.

63K

The number of onsight jobs at the Hartsfield-Jackson Atlanta International Airport

$34.8B

Airport's economic impact for the Atlanta region

46%

The percentage of municipal electricity used by Hartsfield-Jackson Atlanta International Airport

Clean Energy in Action: Spring @ 8th by Cousins Properties

In the heart of Atlanta's innovation hub, Technology Square, Cousins Properties developed the city's most cutting-edge office project. The 760,000 square-foot Spring @ 8th building serves as the global headquarters of NCR, a Fortune 500 technology and payment services company. The project will deliver industry-leading MEP efficiencies at a market-rate construction cost, ensuring that Spring @ 8th is both a permanent fixture in the Atlanta skyline and an industry leader in the adoption of sustainable technologies.

Tower I at Spring @ 8th was certified with a score of 84 points under USGBC's LEED: Core and Shell; awarding it the first Platinum Core & Shell commercial office building in the southeast. The property's groundwater, rainwater, and condensate harvesting offsets 80 percent of the non-potable water demand in the building which diverts demand for up to 10,000,000 gallons/year. The system provides for 62,000 gallons of storage and 14,400 gallons/day of groundwater supply. In addition, the parking facility is covered with a140 kW solar canopy that offsets power demand in the parking facility during the day and directly feeds a system of 40 electric vehicle charging stations. This system will help the building meet its target of 5 percent power generation through renewable energy.

Section Six

ACHIEVING 100% CLEAN ENERGY COMMUNITY-WIDE

2035

A view of Midtown Atlanta from Piedmont Park.
Photo by: Erik Voss

In general, the City of Atlanta has three approaches that can be taken to achieve the 100 percent clean energy community-wide target: use less energy, generate more clean energy, and buy RECs.

This plan emphasizes those options in that order. This will require some deviations from the City's 2015 Climate Action Plan and will take precedence over it.

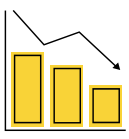
Within these three approaches, there are several policy options available. Equity, economic development, and cost-effectiveness are three aspects of clean energy policy that intersect with one another and can work symbiotically or at cross-purposes, depending on the policy and its implementation.

Equity

Equity must remain paramount. In total, 360,000 Atlantans live in ZIP codes where the average household spends a higher percentage of income on electricity bills than the national average. Under business as usual conditions, and using the Department of City Planning estimates for population growth in the coming decades, 800,000 to 1.2 million Atlantans may find themselves living with electricity burdens that exceed the national average in 2035. Policies that do not consider the impact on these residents may worsen these conditions. Therefore, access to clean energy benefits and a fair distribution of the costs are critical considerations, especially in thoughtful policy design.

There are strong models in other jurisdictions for Atlanta to consider. For example, "Round-It-Up" energy efficiency programs that round electricity bills up to the nearest dollar to fund energy efficiency efforts in low income communities have seen great success in other cities. Some successful programs include an opt-out

Atlanta has three approaches that can be taken to achieve the 100% clean energy targets



1st *Use less energy overall*

2nd *Generate more clean energy*

3rd *Buy renewable energy credits*

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and to 2050 community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2025 for municipal operations and 2035 community-wide. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

Clean Energy in Action: Mattie Branch by Abode

Located in the historic district and neighborhood of Reynoldstown, Mattie Branch is a departure from the traditional townhouses of Atlanta. Designed by award-winning architect and Reynoldstown resident, Christopher Leerssen with Abode, the project has a unique focus on local preservation, the environment, and affordability.

The exteriors use a variety of local aesthetics, from site-sawn siding made from trees on site to steel porches made by neighborhood icon Stein Steel. The project boasts resource conservation measures such as dual flush toilets, smart electrical dimmers, heat pump water heaters, and solar tubular daylighting devices. The units are solar-ready, and with all the efficient technologies in the base-builds, if the tenants choose to install solar panels, the homes could be net zero from move-in day.

The development is named for Mattie Faith, also known as Mother Faith, who was a leader in Reynoldstown and East Atlanta in her day, leading various civic boards.

provision, allowing residents to choose whether they participate. With a focus on program delivery to electricity-burdened areas of Atlanta, this policy option could be a way to increase clean energy access.

Economic Development

Economic development is also a critical component of this plan. Given today's macroeconomic climate, the Core Partners have prepared estimates of the economic development impact of using less energy and generating more clean energy. Using the *Maximizing Atlanta's Clean Energy Potential* scenario from Section 4 as an example, jobs are expected to increase in a number of industries. In 2025, more than 90 percent of the projected job creation in the clean energy sector will occur due to energy efficiency, with over 70 percent coming from commercial energy efficiency. Nearly a third of all jobs are in construction, followed by 15 percent in energy and environmental management and smart controls, 13 percent in heating, ventilation, air conditioning, and refrigeration, and about 10 percent in both program administration and architecture and engineering services. These are additional jobs that would be spurred with the corresponding level of effort on energy efficiency and solar generation called for by the *Maximizing Atlanta's Clean Energy Potential* scenario. In 2025, the modeling estimates that hundreds of additional clean energy positions may be required to achieve this level of clean energy activity. Coordinated efforts on workforce development between relevant City offices and departments, technical training programs, and employers could help grow a sustainable market for these services, producing long-term, stable employment and opportunities for new businesses and growth.

Cost-Effectiveness

Policy options can also be judged on their financial attractiveness. Clean energy actions spurred by policy with low cost and/or excellent return on investment yield strong economic benefits. Achieving success in other key areas of consideration, like equity and economic

development, can further improve cost-effectiveness. For example, targeted program delivery to communities that have historically lacked access to clean energy can leapfrog several generations of technology at a time, uncovering better-than-expected cost savings. Additionally, growing the market for clean energy activities could produce economies of scale and learning-by-doing that improve the business case for certain clean energy activities. This could enhance cost-effectiveness and produce a virtuous cycle of improvement.

Policy Recommendations

The 2017 Clean Energy Resolution passed by the Atlanta City Council set a vision for a 100 percent clean energy transition and placed the Mayor's Office of Resilience in charge of developing a plan for how the City could accomplish a 100 percent clean energy transition by 2025 for municipal operations and 2035 community-wide. After conducting extensive stakeholder engagement with community members and performing in-depth energy policy analysis on how to achieve a 100 percent clean energy transition in Georgia, the Mayor's Office of Resilience recommends that the target for attaining 100 percent clean energy for municipal operations be adjusted to 2035 to correspond to the 2035 target for community-wide 100 percent clean energy. While it is technically possible to achieve 100 percent clean energy by 2035, under each of the three scenarios assessed, meeting a community-wide 100 percent target by 2035 would require significant purchases of renewable energy credits. Adjusting Atlanta's municipal operations target to 2035 to match up with the 2035 community-wide target provides a realistic timeline in which to achieve an equitable, affordable, and cost-effective 100 percent clean energy future. All Policy Recommendations remain under the timelines outlined below. Should technology, policy, or market conditions improve, these timelines will be adjusted in revisions to this Plan.

Immediate

The following will be undertaken by the City within 90 days of adoption of the Plan.

Form an Advisory Board

In order to build public support for the Plan from a diversity of stakeholders and to leverage local expertise on clean energy issues, the City will establish an Advisory Board. The aim of the Board is to include a group of local and regional experts, who will act as a sounding board for strategies being considered for the Plan, contribute analytical and research support, and help the City analyze and select the initiatives for the Plan.

Recruit Board Members

To create a board with a cross section of expertise from both local and regional organizations and a variety of viewpoints, advisory board members will likely have backgrounds in the following areas: environmental justice, green buildings, environmental policy, real estate, business, labor, energy, and urban planning, along with local elected officials, and neighborhood leaders.

The Role of the Board

Will be to provide advice and ideas to the City on implementation of the plan. The board should not be consensus-based, rather it should hold an advisory

role to City staff and elected officials, who will have the ultimate decision-making authority. The board will help to develop intermediate goals, act as a critical sounding board for initiatives being considered and provide support in analyzing various strategies for achieving the goals.

Board Meetings

As it is critical to build trust and confidence in the process with the board members, a third-party facilitator will help develop presentations and run the initial board meetings. An unbiased third party will help to build consensus on the issues and to set the stage for the development of a close working relationship between the City and the advisory board. A regular advisory board meeting schedule will be established, and City staff will assume the facilitation role in the meetings and working groups.

Subcommittees / Task Forces / Working Groups

Following the initial board meetings, working groups will be established charged with the following duties: reviewing the research and recommendations from the Plan, brainstorming new strategies and initiatives, and responding to the policy ideas and recommendations put forward by City agencies.

Working groups will be staffed by members of the advisory board and facilitated by City staff.

Short-Term

The following policy options will be explored by the City between now and year-end 2020.

Energy Efficiency

Renters Energy Task Force

The City will establish a task force to explore high performance leasing and other ways to overcome split incentive barriers in rental housing.

Incentives Education Programming

The City will partner with Georgia Power and community stakeholders to provide education on existing energy efficiency and renewable energy programming so that residents can take advantage of the programs that are already in place.

Building Energy "Stretch" Code

The City will engage with stakeholders to identify opportunities to adjust the City's buildings energy codes to be more efficient than state code.

Building Retuning Policy

The City will explore policy supporting building energy tune-ups.

Small & Medium Building Retrofit Policy

The City will explore policy options to achieve energy savings in existing small and medium buildings.

Efficient Equipment Procurement Policy

The City will assess its municipal building portfolio to determine the extent to which it is feasible to require procurement of high-efficiency new and replacement equipment.

Property Assessed Clean Energy (PACE) Financing

The City will partner with Invest Atlanta to support a PACE financing program that will provide businesses and residents with an alternative mechanism for clean energy financing in their properties.

Electric Vehicle Integration

Support EV Charging Infrastructure Expansion
The City will partner with Georgia Power and the private sector to expand EV charging infrastructure.

Develop EV Carshare Program for Low-Income Residents
The City will work with partners to develop a carshare program to increase access to zero-emission transportation for low-income residents to help overcome the first mile/last mile problem to get to public transit.

Renewable Energy Deployment

Collaborative Large-scale and Community-scale Solar with Georgia Power
The City will work with Georgia Power to identify high-potential sites for additional solar development.

On-site Electricity Generation at RM Clayton Water Reclamation Center (WRC)
Phase I of the Department of Watershed Management's RM Clayton Digester Improvements Project is expected to contribute over 10,000 MWh of clean energy annually through the use of electricity generated on-site through captured methane gas generated during anaerobic digestion at the WRC. Phase I is slated for completion by fiscal year 2020.

Low-income Renewable Energy Pilot Project
The City will partner with neighborhood development organizations to develop a pilot program that will provide support to owners and tenants of residential properties in low-income communities in bringing clean energy to their communities.

Solar-ready Building Code
The City will engage with stakeholders to identify opportunities to adjust the City's building codes to promote solar adoption.

Assess Zoning Code for Additional Opportunities
The City will review the City's Zoning Code to identify opportunities to ease on-site solar development for property owners.

Streamline Solar Permitting
The City will work with the solar industry to address concerns relating to building and electrical permits.

Solar Bulk Purchasing
The City will support community bulk-purchasing programs for on-site solar installations, such as Solarize Atlanta.

Solar Storage
The City will work with contractors to ensure that the use of diesel generators is replaced by solar + storage combinations for City projects.

Water Efficiency

Commercial Buildings Water Audit Requirement
The City will develop a comprehensive water audit standard to be required for commercial buildings greater than 25,000 square feet as part of the City's existing Commercial Buildings Energy & Water Efficiency Ordinance.

Water Efficient Restaurant Certificate (WERC) Program
WERC is designed to help Atlanta restaurant owners reduce water usage and lower their water bills. Participants are asked to ensure that WaterSense toilets and urinals are installed and operating properly, to install a WaterSense pre-rinse spray valve, to fix all water leaks,

and to institute water efficiency training for restaurant staff.

Long-Term

Beyond 2020. The following options will be explored in partnership with stakeholders in the coming years to assess suitability, feasibility, and cost-effectiveness.

Energy Efficiency

Continue and Expand Deep Energy Retrofits Effort for Municipal Buildings
Continue to look for opportunities to cost-effectively reduce energy waste.

Round-it-up Energy Efficiency Program
Work with Georgia Power on a program to round up participant electricity bills to the nearest dollar to fund low-income energy efficiency initiatives.

Net-Zero Energy Code
Explore feasibility of phasing in an energy code that will require buildings to provide as much energy as they consume.

After conducting extensive stakeholder engagement with community members and performing in-depth energy policy analysis on how to achieve a 100 percent clean energy transition in Georgia, the Mayor's Office of Resilience recommends that the target for achieving 100 percent clean energy for municipal operations by adjusted to 2035 to correspond to the 2035 community-wide target.

Pay As You Save Program
Work with Georgia Power on a program to allow homeowners to finance energy efficiency projects through monthly payments on their electricity bills.

Electric Vehicle Integration

Explore Pilot with EV Manufacturers and Georgia Power
Explore the possibility of engaging in a technology pilot for vehicle-grid interconnectivity to increase grid reliance and capacity.

Renewable Energy Deployment

Equitable Community Solar Program
Develop a program through which payments for solar provided to the grid are credited to low-income bills.

Retail Net Metering
Building owners can sell the excess electricity produced by solar panels on their property back to their utility at retail cost.

Expand Combined Heat and Power (CHP) at Wastewater Treatment Plants
The City's Department of Watershed Management will incorporate plans to expand CHP at their water treatment facilities as part of their long-term Capital Improvement Plan.

Green Tariff
The City will support efforts to establish a special renewable electricity rate with Georgia Power.

Renewable Energy Credit Procurement
The City will assess options with Georgia Power and local partners for organized bulk purchases of credits for locally-generated renewable energy.

Water Efficiency

Water Conservation Programs
DWM will assess water conservation programs such as incentivized installation of high-efficiency toilets that will provide benefits to both the customer, through lower water bills, and DWM, through electricity savings from not having to pump or treat conserved water.

Energy Storage

EV Battery Reuse
Used EV batteries can provide grid services and resilience value.

Educate on Storage Opportunities
Establish partnerships to conduct educational sessions on the value of storage.

Cross-Cutting

Short-term and long-term initiatives for consideration.

Rate Improvements
Collaborate with Georgia Power to develop rates that provide real-time price signals and fair payments for real-time grid services.

Workforce Training
Collaborate with technical colleges and trades to develop a clean energy workforce.

Engagement and Communication Efforts
Conduct ongoing outreach to keep the public aware of progress towards the goal and to continue receiving stakeholder input.

Education on Programs and Technology Applications
Provide regular information sessions on clean energy opportunities.

Large Buyers Group
Work with major users where appropriate to produce economies of scale and reduce overall purchase prices for clean energy equipment and technologies.

Moving Forward

With the adoption of this Plan, the City of Atlanta, along with partners and stakeholders, will review the policies and programs identified in this section to develop and implement policies to drive Atlanta towards its 100 percent clean energy goal. As technology advances, society moves, and policy changes are made, this list will need to be updated and reassessed.

Combating climate change is a key consideration of a move to clean energy, so power supply options with zero carbon emissions will be continuously evaluated going forward. Ongoing efforts to keep up with the developments in all areas will be critical to ensuring that the options considered by Atlanta and for Atlanta are equitable, spur economic development, and achieve cost-effectiveness. Regardless of the policy options considered, engagement with the community will be necessary to garner citizen feedback to continue to shape policy proposals and implementation going forward. This is a key part of making the Plan a living document.

Policies Reviewed Based on Equity, Economic Development, and Cost Effectiveness Potential

The Policy Recommendations that appear in the preceding pages were selected through an analysis of nearly 70 possible policies, with each of those policies scored based on its equity, economic development, and cost effectiveness potential. This section presents all policies that were considered in the policy analysis process and identifies how all options scored on those criteria.

Equity, Economics, and Cost Effecitveness Key

The following pages highlight energy recommendations across seven categories which can be made at both the community and municipal level

Already In Place = **(Y)**

Score of 4 = ●

Policy Score	Overall Equity	Economic Development	Cost Effectiveness
1	*Unfair costs/benefits; may exacerbate inequities*	*Little/No development*	*High cost/slow return*
2	*Fair costs/benefits; unlikely to move the status quo*	*Some development*	*Average cost and return*
3	*Good costs/benefits; could improve the status quo*	*Strong development*	*Better than average cost and return*
4	*Very good costs/benefits; could greatly improve the status quo*	*Very strong development*	*Low Cost/Excellent return*

Georgia Institute of Technology Aquatic Center Solar Panels. Photo by: Georgia Institute of Technology

CLEAN ENERGY FINANCING

Short Term Policy

				
Municipal & Community				
Revolving Loan Fund (Y)	*Self-replenishing clean energy fund*	3	2	2
Incentives Education Programming	*Promoting awareness of existing programs and opportunities*	3	1	3
Commercial PACE (Y)	*Funds repaid through property taxes*	2	4	3
Green Bonds	*Bond funds designated for clean energy*	2	3	2
Energy Savings Performance (Y)	*Financing building improvements through a budget-neutral partnership between a contractor and an owner*	2	2	2

Long Term Policy

Municipal & Community				
On-Bill Financing	*Pay-as-you-save financing option*	4	2	2
Special Purpose Local Option Sales Tax	*An incremental sales tax provides funding for capital expenditures*	2	2	2
Net Metering	*Clean electricity is sold to the grid at or near retail rates*	3	1	2
Green Bank	*Public-private partnership operates with a focus on clean energy*	2	2	2
Clean Energy Local Products	*Collaborations with banking sector*	2	2	2

ELECTRIC VEHICLE INTEGRATION

Short Term Policy

				
Municipal				
Expand Municipal EV Fleet (Y)	*Expand EV Fleet*	2	1	2
Community				
EV-Ready Building Code (Y)	*Implement existing ordinance that calls for new buildings and homes to be EV-ready*	3	1	2
Support Reintroduction of EV Tax Credit (Y)	*Support state legislative efforts to re-establish the EV tax credit*	2	2	3
Support EV Charging Infrastructure Expansion (Y)	*Find ways to partner with the private sector to expand EV charging infrastructure*	2	1	2
Support for Low-Cost Rentals of Internal Combustion Engine Vehicles for EV Owners	*Reduce range anxiety by partnering with auto dealerships to offer EV owners low-cost rentals*	2	1	2

Long Term Policy

Community				
EV Fleet Challenge	*A voluntary challenge to increase EV adoption by government and businesses*	2	2	3
Support for Vehicle-Grid Integration	*Develop technology pilots for vehicle-grid communications*	2	1	2
EV Home Adoption Support	*Partnerships to show the benefits of integrated EVs with efficient housing*	2	1	2

RENEWABLE ENERGY DEPLOYMENT

Short Term Policy

Municipal				
Solar Energy Purchase Agreement (Y)	*Sign a long-term contract to buy solar built on municipal rooftops*	2	2	3
Collaborative Large-Scale Solar with Georgia Power	*Identify high-potential target sites for additional solar development*	2	2	3
Resilience Hub (Solar + Storage)	*A feasibility demonstration project for solar + storage*	2	1	2
Participate in the Georgia Power C&I REDI Program (Or Successors)	*Sign a long-term contract for renewable energy bill credits*	1	1	2
Community	*Bulk purchasing of rooftop solar for communities*			
Solarize (Y)		3	3	3
Solar Information & Commerce Program	*Develop an information and purchasing hub for residents and businesses*	3	1	2
Solar-Ready Building Code	*Adopt a code that requires new buildings to be ready for solar installation*	3	1	2
Ease Solar Permitting (Y)	*Improve the system for permitting solar installations*	2	1	2
Assess Zoning Code for Other Opportunities	*Evaluate zoning code for additional renewable energy policy options*	2	1	2
Georgia Power Community Solar	*Help identify good locations for new solar installations around Atlanta for Georgia Power's community solar program*	1	1	1

Long Term Policy

Municipal				
Expand Large Scale PV On-Site Footprint and Expand Rooftop PV	*Continue to look for opportunities to cost-effectively use solar energy*	2	3	3
Expand DWM CHP	*Use more combined heat and power technology at wastewater plants*	2	1	2
Explore Other Renewable Opportunities	*Evaluate other renewable options like small-scale hydro generation at DWM*	2	1	3
Community				
Equitable Community Solar Program	*Payments for solar provided to the grid are credited to low income bills*	4	1	3
Multiple Rounds of Solarize (Y)	*Bulk purchasing of rooftop solar for communities*	3	3	3
Green Tariff	*Support efforts to establish a special renewable electricity rate with Georgia Power*	3	2	3
Renewable Energy Credit Procurement	*Organized bulk purchases of credits for renewable energy generation*	2	1	2

ENERGY EFFICIENCY ADOPTION

Short Term Policy

				
Municipal				
Commercial Building Energy & Water Efficiency Ordinance (Y)	*Continue implementing the energy transparency and audit efforts*	3	2	3
Sustainable Building Ordinance	*Gradually LEED-certify all medium and large buildings*	3	2	3
Evaluate a requirement for high-efficiency new and replacement equipment	*Require high-efficiency new and replacement equipment*	3	1	2
Atlanta Better Buildings Challenge (Y)	*Continue energy and water benchmarking and education efforts with City staff*	2	2	4
Small & Medium Building Retrofit Policy	*Explore policy options to achieve energy-savings in small and medium buildings*	2	1	3
Energy Operations Manager Position	*Hire a full-time employee to oversee energy operations for municipal properties*	2	1	2
Community				
Commercial Building Energy & Water Efficiency Ordinance (Y)	*Continue phased-in roll-out of benchmarking, transparency, and energy audits*	3	2	3
Buildings Energy "Stretch" Code	*Adopt a code that requires new buildings to be 20 percent more efficient than state code*	3	1	2
Renters Energy Task Force	*Establish a task force to explore green leasing and other ways to overcome split incentive barriers in rental housing*	3	1	2
Retro-Commissioning Policy	*Explore policy supporting building energy tune-ups*	2	2	4
Atlanta Better Buildings Challenge (Y)	*The leading national voluntary program; focus on innovative efficiency efforts*	2	2	3
Support Existing Efficiency Efforts (Y)	*Support efficiency programs from other organizations that reduce energy burden*	2	2	3

Long Term Policy

Municipal				
Continue & Expand Deep Energy Retrofits Effort	*Continue to look for opportunities to cost-effectively reduce energy waste*	2	2	2
Community				
Round-It-Up Energy Efficiency Program	*Round up participant electricity bills to the nearest dollar to fund low income energy efficiency*	4	2	3
Net Zero Energy Code	*Phase-in energy code that requires new buildings to provide as much energy as they consume*	3	1	2

WATER EFFICIENCY ADOPTION

Short Term Policy

Municipal & Community **Commercial Building Energy & Water Efficiency Ordinance (Y)**	*Implement water audit requirements when national water audit standard is finalized*	3	2	3
Water Efficiency Bulk Purchasing	*Reduce cost by bulk-purchasing water-saving equipment*	3	1	3
Water Efficiency Restaurant Certification (Y)	*Continue efforts to certify water-efficient restaurants*	3	1	3
Atlanta Better Buildings Challenge (Y)	*The leading national voluntary program; continue to focus on innovative efficiency efforts*	2	2	4

Long Term Policy

Municipal & Community **On-Bill Financing for Water Efficiency Improvements**	*Pay-as-you-save financing option*	4	2	2
Rebate Programs	*Reduces the cost of water efficiency upgrades*	3	2	2
Net Zero Water Code	*Phase-in code requirements that new buildings match total water consumed with water obtained from rain, reuse, or returned to the original source*	2	1	2
Greywater & Rainwater Harvesting Incentives	*Investigate opportunities to increase greywater use and rainwater harvesting*	2	1	2

ENERGY STORAGE

Long Term Policy

Municipal & Community **EV Battery Reuse**	*Used EV batteries can provide grid services and resilience value*	2	1	3
Educate on Storage Opportunities	*Partner to hold educational sessions on the value of storage*	2	1	2
Storage Bulk Purchasing	*Partner to reduce cost through bulk purchasing*	3	2	3

CROSS CUTTING OPTIONS

Short & Long Term Policy

Municipal & Community **Rate Improvements**	*Collaborate to develop rates that provide real time price signals and fair payments for real time grid services*	4	3	4
Work Source Training Collaboration	*Collaborate with technical colleges and trades to develop a clean energy workforce*	4	3	2
Engagement and Communication on Efforts	*Ongoing outreach to keep the public aware of progress towards the goal and to continue receiving citizen input*	4	1	2
Education on Programs and Technology Applications	*Provide regular information sessions on clean energy opportunities*	3	1	2

Sierra Club Georgia Chapter Save the EPA Rally, 2017. Photo by: Yeou-Rong Jih

Section Seven

Conclusions and Next Steps

Solar panel installation at an Atlanta home. Photo by: Shan Arora

Clean Energy Atlanta is only the beginning. Its creation has been an opportunity for the Mayor's Office of Resilience to engage with the community and start conversations about what a clean energy future could look like.

The feedback we have received has been critical to guiding the direction of this Plan. Continued community and stakeholder engagement is needed for Atlanta to truly implement policies and programs that help us achieve 100 percent clean energy goals.

In 2018 and 2019 the Mayor's Office of Resilience plans to work with community members and stakeholders to convene some select working groups to identify more specific, actionable next steps towards the 100 percent clean energy goal. We already know several areas that are priorities:

Equity

It was clear across all channels of the stakeholder engagement process that the community wants all Atlantans to reap the benefits of a clean energy future. And the community is very concerned that, if not done properly, a clean energy transition could further disadvantage low-income Atlantans, with energy efficiency and local solar installations benefiting only wealthy homeowners and priming low-income neighborhoods for gentrification. While community members are very supportive of the 100 percent clean energy goal, they want it to be implemented in an equitable fashion, and there are many questions still present as to how best to ensure that happens. These are complex issues that will require further time, expertise, thoughtful discussion, and impactful action.

Multifamily Housing

Renters and condominium owners expressed excitement about the 100 percent clean energy goal, but many of them also expressed feelings of helplessness, stating that they are not personally able to take on energy efficiency improvements or rooftop solar due to living in multifamily housing. At present, nearly half of Atlantans live in multifamily dwellings, and that number is expected to skyrocket in the coming years, as Atlanta's population grows and an increasing number

Please note: While the Mayor's Office of Resilience recommends in this Plan that the targets for achieving 100 percent clean energy be adjusted to 2035 for municipal operations and to 2050 community-wide, Clean Energy Atlanta was drafted using the targets requested in the 2017 Clean Energy Resolution of 2025 for municipal operations and 2035 community-wide. This change in targets does not change short-term strategies and approaches referenced in this Plan, and the City will continue to use this Plan as a guide to advance clean energy throughout Atlanta.

Rendering of The Stitch in Downtown Atlanta. Rendering by: Jacobs

of multifamily dwellings are constructed. We cannot achieve the 100 percent clean energy goal if we leave these residents behind. We must work with our utility and state government to identify specific programs, incentives, best practices, and policies that can accelerate energy efficiency and renewable energy uptake in these dwellings.

City-Led Incentives and Policies

Stakeholders expressed an eagerness for the City to act quickly to develop incentive programs and requirements to ensure we achieve this ambitious goal. However, ideas ranged widely, and sequencing and packaging appropriate incentives and policies together is important. We must take the time to thoroughly think through what the City should do and what should be left for the market to determine.

Engagement with Georgia Power, the Georgia Public Service Commission, and the Georgia State Legislature

Stakeholders asked good questions about the degree of involvement Georgia Power, the Georgia Public Service Commission, and the Georgia State Legislature will have with this goal. This is a key question that this Plan does not try to answer given the time constraints on its development. Rather, this Plan is intended to demonstrate that it is feasible to achieve this aggressive goal, but that doing so will require changes in how Atlantans access energy efficiency and renewable energy. With the adoption of *Clean Energy Atlanta*, there will be planned conversations with key stakeholders and agencies to determine implementation strategies.

Public Awareness and Education

A nearly universal sentiment among stakeholders was that Atlantans need to hear from Atlantans about the 100 percent clean energy goal — what it means, why it's important, what are the benefits, and what they, personally, should do. That takes a massive outreach and education campaign, the likes of which the Mayor's Office of Resilience cannot do alone. To implement this goal, we need every resident and commuter involved. We need businesses, nonprofits, churches, schools, museums, and universities all talking about 100 percent clean energy.

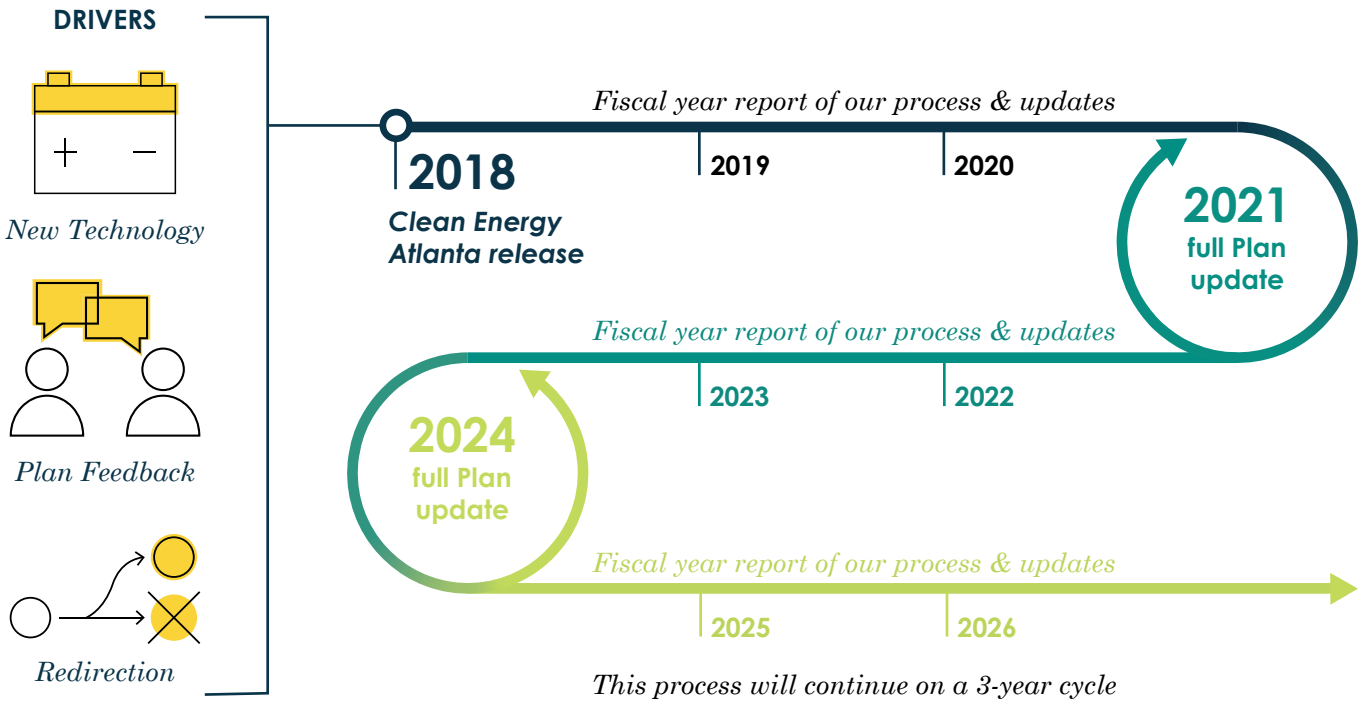
We need strong strategies identified to help build public awareness quickly and continually.

Clean Energy Atlanta as a Living Document

These priorities overlap with one another, so the Mayor's Office of Resilience will work with the community in 2018 and into 2019 to determine how best to ensure that each of these areas is covered appropriately in working groups.

To ensure this Plan adapts as the city grows and new energy technologies come online, the Plan will be a living document. To that end, the City of Atlanta will conduct full updates to the Plan every three years to refresh it with progress the City has achieved and with updated projections of how the City can get to 100 percent clean energy. To allow for ideal coordination between the City and the Georgia Power Integrated Resource Plan (IRP) process, we recommend the City's 3-year cycle for reassessing the Plan be timed to allow each reassessment to take place one year prior to each IRP, with the next update being delivered in January of 2021. We also commit to providing a report card of our progress and updates each fiscal year, beginning in July 2019 as part of the process outlined in the City of Atlanta's *Resilient Atlanta* Strategy.

The Revision Cycle of *Clean Energy Atlanta* & the Drivers That Will Influence these Revisions



Conclusions and Next Steps

The Atlanta City Council's 2017 commitment to achieve a 100 percent clean energy transition is an important and exciting first step in a long-term implementation process.

Moving from a 6 percent baseline for clean energy in 2017 to a city-wide 100 percent goal by 2050 will require strong leadership, robust partnerships, and the power of local communities coming together to ensure a just clean energy transition that leaves no Atlantans behind.

As this Plan demonstrates, there are multiple pathways the City of Atlanta can pursue to reach this ambitious target. The Mayor's Office of Resilience prepared this Plan at the request of the Atlanta City Council, and if Council votes to adopt this Plan, the Mayor's Office of Resilience will move forward with convening stakeholders and partners to identify and implement pathways and policy initiatives to help Atlanta achieve its 100 percent clean energy goal.

It is essential that if the City moves forward to implement this Plan, it prioritizes goals of equity, economic development, public health, and electricity bill savings throughout this process. The path ahead will consist of consuming less energy, generating electricity from renewable sources, and purchasing some amount of renewable energy credits. The balance between these three elements in *Clean Energy Atlanta* must be structured to maximize local benefits to create a cleaner, greener, and healthier city for all.

Photo by: Kelly Jordan

A CALL TO ACTION

Clean Energy Atlanta is a plan created by Atlantans, for Atlantans.

Our Plan's goals are the result of community feedback, as are the policy options identified in this Plan. We need your continued partnership to move this plan into implementation. Please join us by participating in this process, and help Atlanta achieve a clean energy future.

Visit Our Website

100atl.com, to follow the ongoing progress of the Plan. The interactive website is the primary source for updates, events, and opportunities related to 100 percent clean energy planning. Community members will also be able to submit requests to include new initiatives that support Plan implementation.

Share Your Comments

and thoughts with us via social media. This Plan was rooted in community input, and we appreciate your continued feedback. You can connect with us on Twitter and Instagram @ATLResilience, or with the hashtag #ResilientAtlanta. You can also contact our office at resilient@atlantaga.gov.

Start a Conversation

about *Clean Energy Atlanta* with your family, friends, and colleagues. This Plan will have the greatest impact by reaching as many Atlantans as possible.

APPENDIX: *RESILIENT ATLANTA* ACTION 4.3.1: CREATE AND IMPLEMENT A STRATEGY FOR THE CITY TO USE 100% CLEAN ENERGY

It was leadership's recognition of the potential for energy efficiency to help the City's bottom line that led to the initial formation of what is now known as the Mayor's Office of Resilience.

Energy efficiency upgrades to municipal building stock have saved millions of dollars in taxpayer money on utility expenses, and the City's leadership in building energy performance has led to groundbreaking policy initiatives, including the Atlanta Better Buildings Challenge, the largest program of its kind in the U.S.; the Commercial Buildings Energy & Water Efficiency Ordinance; updated sustainable design guidelines for the City's municipal building stock through the Sustainable Building Ordinance; the passage of the nation's largest municipal Property Assessed Clean Energy Financing program; the development of the nation's largest-ever energy savings performance contract for a municipality, with large-scale efficiency and capital upgrades in municipal office buildings, water and wastewater treatment plants, and airport sites; the commitment to expand the adoption of alternative fuel vehicles and infrastructure in Atlanta through a combination of leading by example with our own fleet and pursuing policies to ease the transition to alternative fuel vehicles (AFV) for Atlantans; and the creation of the first municipal Solar Energy Procurement Agreement in the State of Georgia, with the City putting 1.5 megawatts (MW) of rooftop solar panels across 24 City-owned facilities. It is because of these successful programs and the transformative impact they are having on building performance in the City that the Atlanta City Council felt comfortable in adopting the ambitious target of a 100 percent clean energy transition for the City, creating a 2025 target for municipal operations and a 2035 target for citywide energy consumption.

Action Summary

In May 2017, the City of Atlanta passed a resolution to develop a 100 percent clean energy plan by January 2018. The plan will be developed with robust input by the community with a pathway for continuous review to check progress and adapt approaches. The plan will emphasize carbon reductions, resilience, equity, improved public health, and economic development.

Potential Metrics/Measures of Success:

- *Reduction in # metric tons of carbon dioxide emissions*
- *# of MW of solar capacity installed on municipal buildings*
- *# of water audits conducted in commercial buildings >25,000 square ft*
- *$ available for energy-efficiency improvements*

EXISTING ACTIONS FEEDING INTO TARGET 4.3

Alternative Fuel Vehicle Adoption

Transitioning the City fleet to 20 percent electric vehicles and 12 percent other alternative fuel vehicles by 2020 while enacting policies to encourage public adoption of alternative fuel vehicles.

Lead Partners:
CoA Mayor's Office of Resilience, The Electrification Coalition

Atlanta Better Buildings Challenge

Atlanta is 1st in the nation in the Department of Energy's Better Buildings Challenge Program, with 114+ million square feet of commercial building space committed to improving their energy and water efficiency by 20 percent by 2020.

Lead Partners:
CoA Mayor's Office of Resilience, Central Atlanta Progress, Midtown Alliance, Livable Buckhead, and Southface Energy Institute

Sustainable Building Ordinance

City-owned properties required to obtain LEED Silver certification for new construction and major renovation in properties greater than 5,000 square feet; City-owned properties greater than 25,000 square feet required to obtain LEED Certification for Existing Buildings.

Lead Partner: CoA Mayor's Office of Resilience

Commercial Buildings Energy & Water Efficiency Ordinance

Encourages improvements in energy and water efficiency by requiring annual energy and water benchmarking, as well as energy and water audits, in commercial buildings greater than 25,000 square feet.

Lead Partner: CoA Mayor's Office of Resilience

Clean Energy Atlanta – PACE Financing

A $500 million commercial Property Assessed Clean Energy (PACE) financing program will make funding available to constituents for energy efficiency, on-site renewable energy, and water efficiency improvements.

Lead Partners:
Invest Atlanta, CoA Mayor's Office of Resilience

Energy Savings Performance Contract

Upgrading 100 municipal properties with energy efficiency, water efficiency, and operational improvements, reducing carbon emissions while saving millions in taxpayer dollars.

Lead Partners:
CoA Mayor's Office of Resilience, Office of Enterprise Assets Management, Department of Watershed Management, Hartsfield-Jackson Atlanta International Airport

Clean Energy & Equity

Support a long-term stakeholder engagement process to develop goals and strategies to accelerate clean energy access and development in the Atlanta community with a foundational emphasis on racial equity.

Lead Partner:
CoA Mayor's Office of Resilience

Solar Atlanta

The City is leading by example by installing 1.5 MW of solar capacity on 24 municipal properties.

Lead Partner:
CoA Mayor's Office of Resilience

APPENDIX: *CLEAN ENERGY ATLANTA* SURVEY RESULTS

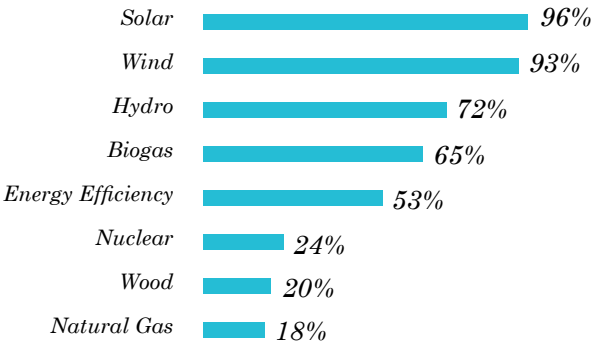
Background

In 2017, the City of Atlanta conducted a survey regarding Atlanta residents' perceptions on clean energy. The survey was provided in both digital and paper formats. In total, approximately 1,800 people engaged with the survey. 79 percent of respondents reside in Atlanta or Metro Atlanta. Across race, age, and gender, the sample population varied from the population by 0.3 percent on average. Sample responses were weighted to better represent population-level opinions.

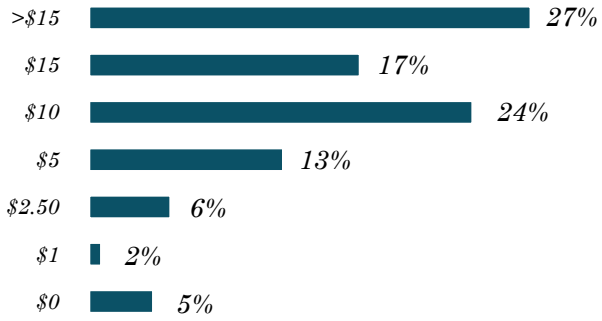
Survey Results

Overall, the survey found that 96 percent of survey respondents support Atlanta's 100 percent clean energy goals. Respondents were particularly interested in seeing more support for new solar programs and forms of on-bill financing for energy efficiency, especially those focused on addressing barriers to energy efficiency for low-income families.

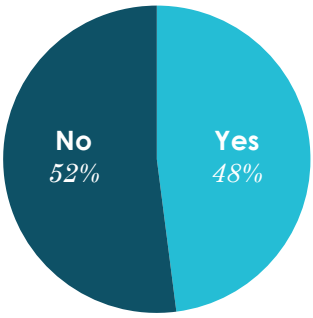
Which of the following do you consider as clean energy sources?



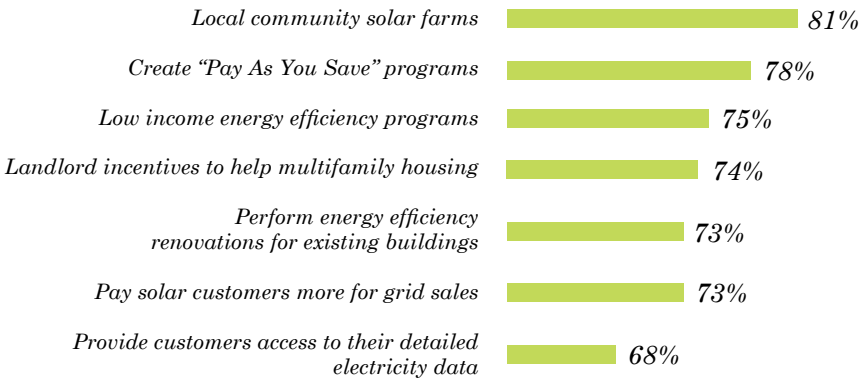
In addition to your current electricity bill, what is the maximum amount you would spend to receive 100% clean energy?



Are you aware of the energy savings and clean energy programs provided by your electric utility?



What should your electric utility do to help Atlanta residents achieve the 100% clean energy goal?



REFERENCES

1. Atlanta City Council. (2017). Resolution 17-R-3510. Retrieved February 8, 2019 from http://atlantacityga.iqm2.com/Citizens/Detail_LegiFile.aspx?ID=12113&highlightTerms=17-R-3510
2. Stone, B., Vargo, J., & Habeeb, D. (2012). Managing climate change in cities: Will climate action plans work? Landscape and Urban Planning, 107(3), 263–271. https://doi.org/10.1016/j.landurbplan.2012.05.014
3. Centers for Disease Control and Prevention. (2018). Illness on the Rise. Retrieved February 8, 2019 from https://www.cdc.gov/vitalsigns/vector-borne/index.html
4. Lanza, K., Stone, B. (2016). Climate adaptation in cities: What trees are suitable for urban heat management? Landscape and Urban Planning, 153: 74-82. https://doi.org/10.1016/j.landurbplan.2015.12.002
5. National Oceanic and Atmospheric Administration National Centers for Environmental Information. (2017). Billion-Dollar Weather and Climate Disasters. Retrieved February 8, 2019 from https://www.ncdc.noaa.gov/billions/
6. United States Geological Survey. (2010). Epic flooding in Georgia, 2009 Fact Sheet 2010-3107. Retrieved February 8, 2019 from https://pubs.usgs.gov/fs/2010/3107/pdf/fs2010-3107.pdf
7. Atlanta City Studio. (2017). Our Future City. Retrieved February 8, 2019 from https://www.atlantaga.gov/home/showdocument?id=30594
8. United States Geological Survey. (2014). Estimated Use of Water in the United States in 2010. Retrieved February 8, 2019 from https://pubs.usgs.gov/circ/1405/pdf/circ1405.pdf

GLOSSARY

Atlanta Better Buildings Challenge (ABBC): The Atlanta Better Buildings Challenge was launched in June 2011 at the Clinton Global Initiative as one of the inaugural projects of the Department of Energy's Better Buildings Challenge program. The goal of the ABBC is to reduce energy and water consumption by at least 20 percent in participating buildings across Atlanta by 2020. The ABBC utilizes substantive energy and water efficiency upgrades of municipal, university, hospital, and commercial buildings as a means of freeing up business capital for more productive uses, stimulating growth for communities, fostering new business opportunities, and creating more sustainable footprints. Atlanta currently leads the nation in the amount of square footage committed to the program, at just over 114 million square feet, representing over 600 participating buildings.

Atlanta Clean Energy Scenario Tool (ACES): A modeling tool developed for the City of Atlanta by The Greenlink Group to quickly assess the impacts of different approaches to achieving the 100 percent clean energy goal. It takes the existing state and federal policy and programmatic framework as a given, allowing the user to select a clean energy resource mix for Atlanta. The user is presented with a number of model outputs that describe the cost-effectiveness, the economic development potential, the public health and emissions implications, and the bill impacts of the user-defined scenario.

Barriers to Clean Energy: Challenges that inhibit the greater deployment of clean energy technologies.

British Thermal Unit (BTU): a customary unit of energy in the United States. It is the amount of energy required to raise the temperature of one pound of water by one degree Fahrenheit. In 2016 U.S. energy consumption was 97.4 quadrillion BTUs.

Clean Energy: Energy demand met through energy efficiency, wind, solar, existing and low-impact hydroelectric, geothermal, biogas, and wave technology sources. Energy efficiency includes traditional technology and behavioral measures, and also includes cogeneration and district heat and cooling.

Cogeneration: The simultaneous generation of electricity and useful heat.

Commercial Buildings Energy and Water Efficiency Ordinance: An ordinance passed unanimously by Atlanta City Council in 2015 that requires commercial and multifamily buildings in Atlanta over 25,000 square feet to benchmark energy and water consumption and report it. The ordinance also calls for periodic energy audits, and requires the City of Atlanta to undertake retrocommissioning efforts in its larger facilities.

Cost-Effective: An investment where the benefits outweigh the costs that may be, but is not necessarily, driven by policy or programmatic offerings.

District energy: Distribution system for energy, generally used for heating and cooling, that is generated in a central location.

Economic Development: The process by which a community improves the economic, political, and social wellbeing of its people.

Electricity: An energy resource resulting from the conversion of other primary energy resources, such as sunlight, wind, natural gas, and other sources, used for many applications in modern life.

Energy: The physical property that must be transferred to an object in order to perform work on, or to heat, the object.

Energy Burden: A key energy equity concept; the percent of household income used to pay energy bills.

Energy Efficiency: Reducing the amount of energy required to provide the same service.

Energy Equity: Fair and just access to energy services, including an equitable distribution of the costs and benefits of energy services.

Energy Savings Performance Contract: Financing building improvements through a budget-neutral partnership between a partner and owner in which upgrades are financed over a pre-determined period of time through the energy and/or operational cost savings that are realized.

Equity: Respectful treatment and fair involvement of all people in a society. It is the state in which everyone has the opportunity to reach their full potential. Additionally, the National Academy of Public Administration, which has been studying the use of equity as a means of evaluating public policy describes equity as the "fair, just, and equitable management of all institutions serving the public directly or by contract; the fair, just, and equitable distribution of public services and implementation of public policy; and the commitment to promote fairness, justice, and equity in the formation of public policy." This definition lays the groundwork for measuring equity in Resilient Atlanta's initiatives, including *Clean Energy Atlanta: A Vision for a 100% Clean Energy Future.*

Georgia Power Integrated Resource Plan (IRP): A plan filed by the Georgia Power Company with the Georgia Public Service Commission every three years, as required by Georgia law. The integrated resource plan contains the utility's electric demand and energy forecast for at least a 20 year period, the utility's plan for meeting the requirements shown in its forecast in an economical and reliable manner, the utility's analysis of all capacity resource options — including both demand-side and supply-side options, and sets forth the utility's assumptions and conclusions with respect to the effect of each capacity resource option on the future cost and reliability of electric service.

Georgia Public Service Commission (PSC): Statewide-elected officials charged with ensuring that electricity service is safe, reliable, and cost-effective while protecting the public interest through the oversight of electricity rates and approval of utility capital plans.

Job Creation: A full-time equivalent position created or sustained for one year.

Leadership in Energy and Environmental Design (LEED): A rating system devised by the United States Green Building Council (USGBC) to evaluate the environmental performance of a building and encourage market transformation towards sustainable design.

Megawatts (MW) / Megawatt-hours (MWh): A megawatt is 1 million watts. Watts are the standard unit for power, defined as 1 joule (an energy unit) per second. Most utility-scale power generators are rated in megawatts. A megawatt-hour is an energy unit, equal to a MW of power provided for an hour. 1 MW of power demand held constant for an hour would use 1 MWh of energy. Recent electricity demand in Atlanta has ranged from 8 to 9 million MWh per year.

Multifamily Housing: Residential dwellings with multiple, separate units within the same building. Common examples include apartments, condominiums, and townhomes.

Municipal Facility: Facilities owned and/or operated by City government. Some examples include:

- Government office buildings
- Recreation centers
- Fire stations
- Detention centers
- Airports
- Water treatment plants
- Police precincts
- Warehouses
- Parking garages

Neighborhood Planning Unit (NPU): The City of Atlanta is divided into 25 NPUs, which are citizen advisory councils that make recommendations to the Mayor and City Council on zoning, land use, and other planning issues.

Participant: Electricity customers who take advantage of programs in energy efficiency and local renewables that ACES anticipates being potentially developed under the scenarios.

Potential (maximum): The maximum amount of a resource that can be cost-effectively developed, given current best estimates of resource availability and future cost trends.

Property Assessed Clean Energy (PACE) Financing: A means of financing energy efficiency upgrades or renewable energy installations for residential, commercial, and industrial property owners. PACE differs from standard loans in that financing is repaid through property taxes, resulting in the debt obligation remaining with the property, not the owner.

Public Health Benefits: Public health benefits in *Clean Energy Atlanta: A Vision for a 100% Clean Energy Future* are the result of reducing population exposure to air pollution. Benefits are therefore avoided instances of expected bad health outcomes, such as asthma attacks, heart attacks, missed work days, and others. These results can be quantified as distinct outcomes or monetized to provide useful information about community benefits from different clean energy choices.

Renewable Energy Credit (REC): A tradable, non-tangible energy commodity that represents proof that 1 MWh of electricity was generated from an eligible renewable energy resource and was fed into the U.S. electric power grid.

Renewable Portfolio Standard (RPS): A regulation that requires the production of a certain amount of renewable energy in a jurisdiction. In the United States there is no federally-imposed RPS, but some states such as California, North Carolina, and Ohio have established their own RPS for electricity supply within their jurisdictions.

Resilient Atlanta Strategy: A roadmap to better prevent and adapt Atlanta to the challenges of the 21st century, which include extreme climate events such as major floods or heat waves, terrorist threats, and long-term chronic stresses such as income inequality, lack of affordable housing, or the effects of climate crisis.

Solar Energy Procurement Agreement : An energy contract where a solar project developer installs solar panels on-site and customers buy the energy produced from the panels at an agreed-upon rate.

Solarize: A community-based solar photovoltaic bulk-purchasing campaign that makes solar more affordable and accessible.

Water Consumption: Water taken from Georgia's rivers and streams that is not returned.

Water Withdrawals: Water taken from Georgia's rivers and streams for electricity generation, regardless of whether it is ultimately returned or not.

ACKNOWLEDGMENTS

The Mayor's Office of Resilience is proud to release *Clean Energy Atlanta* and this effort would not have been possible without the outpouring of support from Atlanta's residents as well as academic, faith-based, nonprofit, philanthropic, government, and business communities.

This Plan represents the collective ideas and insights of stakeholders throughout our region. The City of Atlanta Mayor's Office of Resilience offers heartfelt thanks and gratitude. The publication of this Plan does not symbolize the end of our stakeholder engagement but rather the beginning of a bright, collaborative future dedicated to achieving a 100 percent clean energy transition.

The generous support of the Turner Foundation was also instrumental in leveraging both local resources and industry-leading experts to guide this Plan to completion.

Clean Energy Atlanta Core Partner Team

Amol S. Naik, Chief Resilience Officer, City of Atlanta Mayor's Office of Resilience

Megan O'Neil, Energy Programs Director, City of Atlanta Mayor's Office of Resilience

Yeou-Rong Jih, Senior Manager of Reslience Policy and Programs, City of Atlanta Mayor's Office of Resilience

Kate Taber, Clean Energy Programs Associate

Matt Cox PhD, Chief Executive Officer and Founder, The Greenlink Group

Xiaojing Sun PhD, Chief Technology Officer, The Greenlink Group

Kimi Narita, Deputy Director of the City Energy Project, Natural Resources Defense Council

Jay Orfield, Senior Energy Analyst, Natural Resources Defense Council

Andrea Pinabell, President, Southface

Lisa Bianchi-Fossati, Director of Policy + Systems Technology, Southface

Bailey Shea, Coordinator, Policy + Systems Technology, Southface

Robert ("Hutch") Hutchinson, Senior Fellow, Rocky Mountain Institute

City of Atlanta Mayor's Office of Resilience

Elizabeth Beak, Sustainability + Food Systems Planner

Tyrone Brooks, Grants Manager

Mario Cambardella, Urban Agriculture Director

Natasha Dyer, Senior Recycling Program Coordinator

Cicely Garrett, Deputy Chief Resilience Officer

Valerie McKibben, Recycling Coordinator

Ernest Robinson, Recycling Education and Waste Diversion Specialist

John R. Seydel III, Director of Sustainability

Kate Taber, Clean Energy Programs Associate

Michelle Wiseman, Director of Waste Diversion & Outreach

City of Atlanta Executive Offices

The Mayor
Communications
Constituent Services
Emergency Preparedness
Enterprise Assets Management
Innovation & Performance
Intergovernmental Affairs
One Atlanta
The Chief of Staff
The Chief Operating Officer

City of Atlanta Departments

Atlanta City Council
Atlanta Information Management
Aviation
City Planning
Finance
Law
Parks, Recreation, and Community Affairs
Procurement
Watershed Management

ORGANIZATIONAL SUPPORTERS

Organizational supporters are community, nonprofit, and private sector organizations that have supported the Mayor's Office of Resilience with the development of *Clean Energy Atlanta*. Please know that if we missed anyone, it was not intentional. We appreciate the support from so many outstanding partners.

2KB Energy Services
350atl.org
7 Stages Theatre
Abode
Alternative Energy Southeast
American Institute of Architects - Georgia
American Lung Association
Annie E. Casey Foundation
Atlanta Apartment Association
Atlanta BeltLine, Inc.
Atlanta Commercial Board of REALTORS
Atlanta Food & Farm
Atlanta Housing Authority
Atlanta Public Schools
Atlanta Regional Commission
Atlanta Technical College
Atlanta-Fulton Public Library System
Boutte Tree
BSR
Building Owners and Managers Association - Georgia
Building Systems Design
Centers for Disease Control and Prevention
Central Atlanta Progress
Cherry Street Energy
City of Refuge
Clean Energy Group
Collective Wisdom Group
Columbia Residential
Core Property Capital
Cousins Properties
Cox Enterprises
Crawford Solar Power
Creative Solar USA
David Wasserman Engineering
Delta Airlines
ecoPreserve
Emory University
Emrgy
Energy Conservation Solutions
Energy Foundation
Environment Georgia
Environmental Community Action (ECO-Action)
Ernst & Young
Essex Consulting Group
EV Club of the South
Federal Reserve Bank of Atlanta
Fulton Atlanta Community Action Authority
Fulton County
Gables Residential
Georgia Chamber of Commerce
Georgia Department of Economic Development
Georgia Energy Services Coalition
Georgia Institute of Technology
Georgia Interfaith Power & Light
Georgia Piedmont Technical College - Newton Campus
Georgia Solar Energy Association
Georgia State University
Georgia WAND

Georgia Watch
Georgia World Congress Center Authority
GO2LED
Gwinnett Technical College
Habitat for Humanity
Hannah Solar
Highwoods Properties
ICF International – Atlanta
Inman Solar
Interdenominational Theological Center
Invest Atlanta
Jones Lang LaSalle
Kresge Foundation
Legacy Housing Corporation
Livable Buckhead
Lord Aeck Sargent
Massive Tech
McKenney's
McNaughton-McKay
Mercedes-Benz Stadium
Metro Atlanta Chamber of Commerce
Metropolitan Atlanta Rapid Transit Authority (MARTA)
Midtown Alliance
Mothers and Others for Clean Air
National Church Residences
Neighborhood Planning Units
Newcomb & Boyd
Nuclear Watch South
Partnership for Southern Equity
People United Foundation
Pluvial Solutions
Prosumer Grid
PulteGroup
PureRED Integrated Marketing
PV Heating & Air
Race Forward
Radiance Solar
Ray C. Anderson Foundation
Servidyne
Sierra Club's Ready for 100 Campaign
Sky Water Earth
Smart Energy Consumer Collaborative
Smith Dalia Architects
SolAmerica
Solar Concierge
Solar CrowdSource
Solar Plus – Installation & Consulting
sonnenBatterie
Southeast Energy Efficiency Alliance
Southern Alliance for Clean Energy
Southern Company
Southern Company Gas
Southern Environmental Law Center
Southern States Energy Board
Southface
Spelman College
Sterling Planet
SunTrust
The Center for Working Families
The Coca-Cola Company
The Episcopal Cathedral of St. Philip
The Home Depot
The Indigo Group
The Integral Group
The Nature Conservancy
The Solutions Project
The Trust for Public Land
Trees Atlanta
Turner Environmental Clinic
TwoFour Energy
U.S. Environmental Protection Agency – Region 4
U.S. General Services Administration – Region 4
USGBC Georgia Chapter
ULI Atlanta
United Methodist Committee on Relief
United Parcel Service
United Renewable Energy
Urban League of Greater Atlanta
Vote Solar
West Atlanta Resurgence
West Atlanta Watershed Alliance
Whitehead & Associates
Woodruff Arts Center
WorkSource Atlanta
You Are Here Corp