

**Resiliency and
Sustainability
Advisory
Committee
Meeting**

June 11, 2020 (Virtual Meeting)

Agenda

1. Welcome and Moment of Silence
Mayor John Tecklenburg
2. Sustainability Next Steps
Katie McKain
 - a. Greenhouse Gas Inventory- in progress
 - b. Climate Action Plan- starting soon
3. Earth Day 2020 Resolution
Katie McKain
4. Single-Use Plastic Regulations: 6 Month Review
Katie McKain
5. Vulnerability Assessment Update
Mark Wilbert
6. USACE Peninsula Flood Risk Management Study
Mark Wilbert
7. “Action Today for Tomorrow”
Danny Kassis,
Dominion Energy SC
8. Public Comment Period

New Committee Members

Please welcome Doug and Scott

DOUG JAMES - Homebuilders
Association

(Thank you, Andy Barber, for your service)

SCOTT BARHIGHT- Metro Chamber
of Commerce

(Thank you, Ian Scott, for your service)

Sustainability Next Steps

Greenhouse Gas Inventory

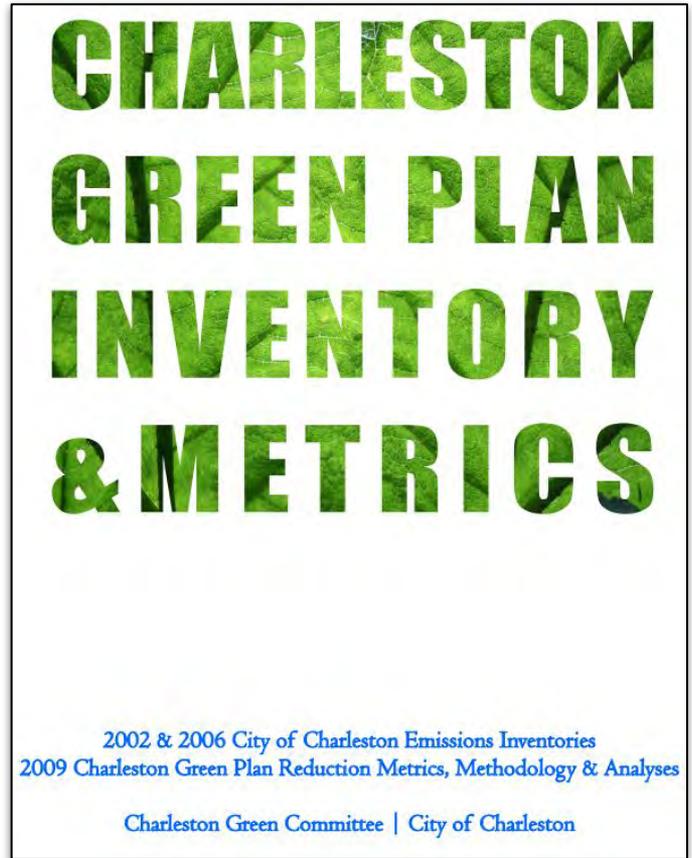
By: Katie McKain,
City of Charleston, Director of Sustainability

Why Perform a Greenhouse Gas Inventory?

- Identify greatest sources of emissions
- Understand trends
- Set goals and targets for future reductions
- Track progress on meeting goals
 - If you can't measure it, you can't manage it
- Climate Action Planning
 - Next Step: Climate Action Plan!

GHG Data Inventories

- 2002
- 2006
- 2010
- 2018 coming soon!



Download at: <https://www.charleston-sc.gov/DocumentCenter/View/1462/Green-Plan-Inventory-and-Metrics?bidId=>

How a Greenhouse Gas Inventory Works

Raw data is converted into a common unit: CO₂e (Carbon Dioxide Equivalent)

i.e. for energy data, we apply a factor set (grid information) then calculate CO₂e

- kWh for electricity → CO₂e
- therms for gas → CO₂e

Note, to compare inventories over time: Data in the Green Plan is based on older 2nd Assessment criteria, standard at the time, and will be updated to the 5th Assessment.

This means the exact numbers listed in the Green Plan will appear different in the 2018 update to ensure the most accurate apples to apples comparison.

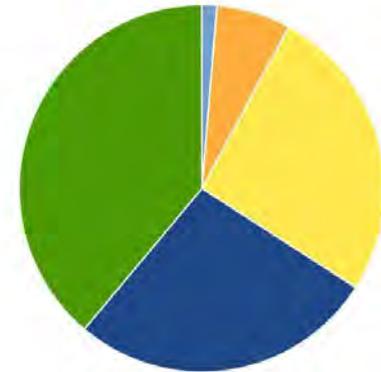
Community Inventory

Includes all emissions within City limits (including gov't)

Notable Trend: Overall DECREASE

Res. & Comm. Energy (Buildings) ↓ Transpor. ↓

- Population increases, development increases
- Heating and cooling needs change based on weather
- Vehicle Miles Traveled (VMT) increases
- Vehicle efficiency also increases
- International Energy Conservation Code changes
 - 2009 IECC in effect January 1, 2013 (requires statutory amend.)
 - 2006 IECC in effect July 1, 2008
 - 2003 IECC in effect January 1, 2005
- Other?



2018
preliminary
data

● Industrial Energy ● Solid Waste ● Transportation & Mobile Sources
● Residential Energy ● Commercial Energy

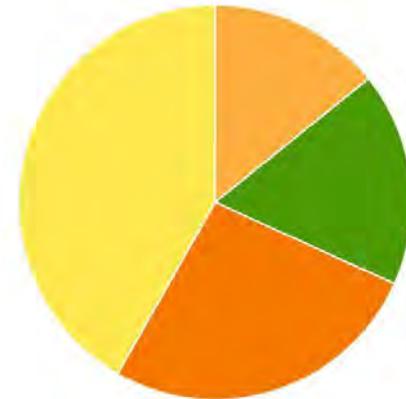
Government Inventory

Includes all emissions from City operations and facilities

Notable Trend: Overall DECREASE

City Buildings and Facilities ↓

- Energy Performance Contract
- Other Energy Effic. Improvements: Parks Dept.
- Increase in City Staff
- Increase in City Vehicles
- Increase in number of City facilities
- Other?



2018
preliminary
data

- Street Lights & Traffic Signals
- Employee Commute
- Vehicle Fleet
- Buildings & Facilities

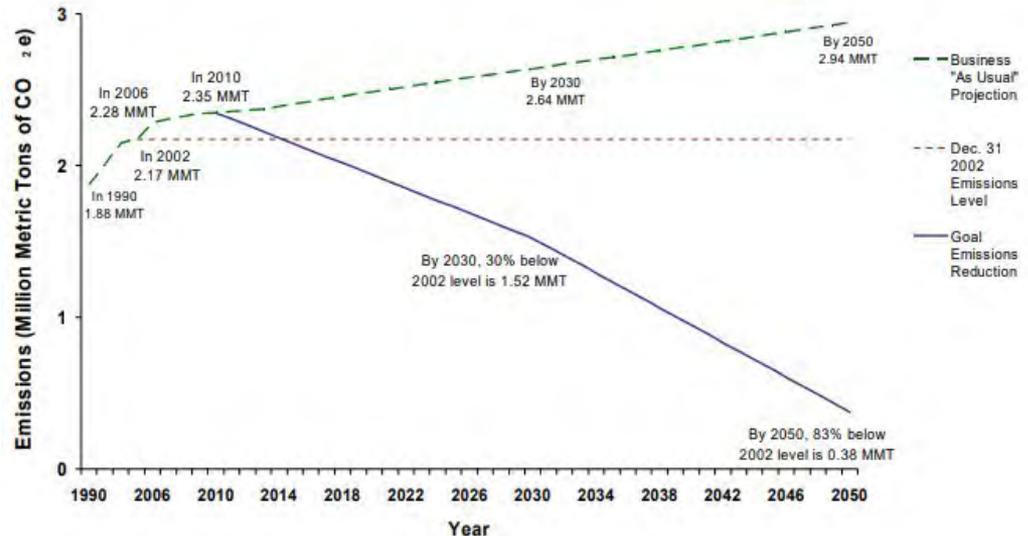
Preliminary Findings in 2018 Inventories

- Emissions in general are lower
- Emissions per capita are lower
- We are not trending along the dreaded Business “As Usual” Projection

THIS IS GOOD NEWS! but...

there is much more work to do.

Charleston Green Plan ICLEI CACP CO₂e Reduction Metrics and Methodology



Sustainability Next Steps

Climate Action Plan

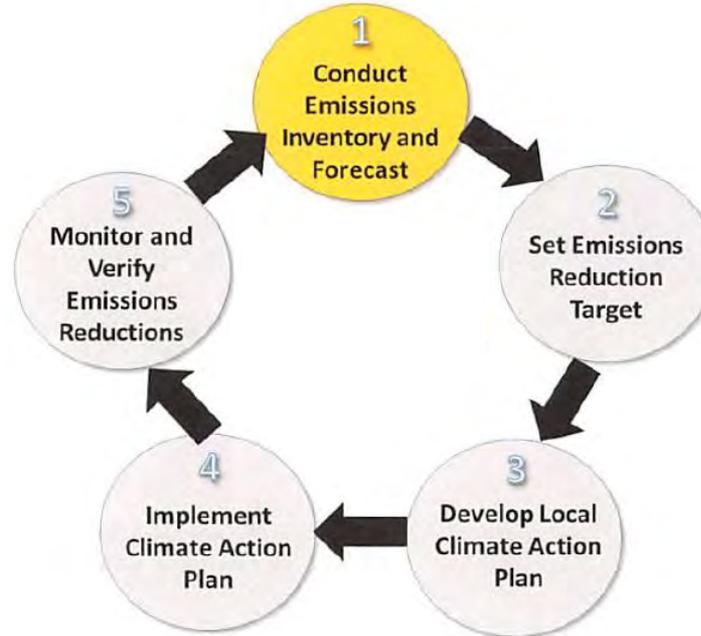
By: Katie McKain,
City of Charleston, Director of Sustainability

Climate Action Planning Process

A Climate Action Plan (CAP) prioritizes actions to reduce greenhouse gas emissions (mitigation)

A CAP uses metrics from emissions inventories

A CAP serves as the roadmap to implement municipal and community-wide programs, projects and policies.



Develop CAP Taskforce

- Committee
- City Council
- Residents
- Businesses
- Organizations

NEW! Climate Action Planning Taskforce



You Can Help!

Input from the community is vital to create a successful Climate Action Plan!

If you are interested in participating in the climate action planning process, please contact Katie at mckaink@charleston-sc.gov or 843-724-3789

Earth Day Resolutions

By: Katie McKain,
City of Charleston, Director of Sustainability

A RESOLUTION

A RESOLUTION TO ACKNOWLEDGE AND CELEBRATE EARTH DAY 2020, TO REAFFIRM THE CITY'S LONG-STANDING COMMITMENT TO CONTINUOUS IMPROVEMENT IN ENVIRONMENTAL STEWARDSHIP, AND TO EXPRESS THE CITY'S COMMITMENT TO CONTINUING TO SUPPORT AND PROTECT THE ENVIRONMENT.

WHEREAS, Earth Day was first celebrated on April 22, 1970, with the goal of inspiring an appreciation of our nation's natural resources through conservation and protection; and,

WHEREAS, Earth Day provides an annual opportunity for the City to reaffirm its long-standing commitment to environmental stewardship and to the implementation of sustainability efforts; and,

WHEREAS, on April 22, 2020, Earth Day's 50th anniversary; was celebrated across the globe even in the midst of a global pandemic; and,

WHEREAS, the global community now faces extraordinary challenges, such as environmental degradation, global health issues, climate change, food and water shortages; and,

WHEREAS, the City of Charleston recognizes the importance of environmental quality to our economic prosperity, physical, and spiritual health, and overall quality-of-life; and,

WHEREAS, all species play a unique role in the complex web of life and contribute to the ecosystem services on which all life on Earth depends, and hence, protecting our species is crucial to the survival of this planet and its inhabitants; and,

WHEREAS, one of the City's most potent environmental management tools is the development, implementation, and sharing of "sustainable management practices"; and,

WHEREAS, when it leads by example, the City can help transform markets and mindsets, and leverage wide-ranging improvements in environmental quality and quality-of-life in the community and region; and,

WHEREAS, the City of Charleston, its employees, the business community, and residents are encouraged to implement practices designed to preserve and protect our environment and shape the future of our environmental security.

Copy available on agenda:

https://www.charleston-sc.gov/AgendaCenter/ViewFile/Agenda/_06112020-5550

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF CHARLESTON, IN COUNCIL ASSEMBLED, THAT THEY DO HEREBY SUPPORT AND ENCOURAGE THE FOLLOWING POLICIES AND ACTIONS:

1. City staff recycle all products accepted by the Charleston County Recycling Program in their single stream recycling collection program, including, but not limited to, paper, cardboard, plastic bottles and containers, aluminum, steel, glass and more;
2. City staff recycle printer cartridges;
3. City staff utilize double sided printing;
4. City staff use recycled copier paper for routine use;
5. City staff to utilize reusable products, such as mugs and utensils;
6. City staff to identify and clearly advertise the CARTA route on which all City events are located;
7. Increase alternative transportation options for City employees to commute during and to/from the office, including pedestrian, bicycle, and transit, and promote the City's policy of providing CARTA passes to employees who choose a CARTA pass in lieu of a parking garage pass to new and current employees;
8. New City parking lots and garages are designed to be ready for electric vehicles by providing pre-installed conduit and enough electrical panel space to modify at least half of the total spaces to facilitate the future demand;
9. City owned construction and renovations to existing buildings are energy efficient and pursue LEED best practices;
10. Investigate renewable energy opportunities for City facilities;
11. Continue to monitor and reduce energy consumption from City buildings and facilities and increase energy efficiency;
12. Limit Fleet vehicles from idling for more than 5 minutes unless necessary for emergency purposes;
13. Analyze City Fleet and establish policy and/or plan to transition outdated vehicles to more efficient and electric vehicles, including supporting alternative fuel stations and/or electric charging infrastructure;
14. Continue to pursue opportunities to detain rainwater on City property and expand demonstration rain gardens and rainwater harvesting systems with educational signage;
15. Continue exploring opportunities to convert the City's gas powered leaf blowers and other maintenance equipment to electric;
16. Reduce the environmental impact of City events and activities by considering overall energy and water consumption, sourcing sustainable food and beverage items, and reducing and diverting waste through composting and recycling;
17. Begin the process of converting applicable streetlights to LED fixtures with Dominion Energy's new incentive program;
18. Source and purchase environmentally friendly products as fiscally responsible;
19. Inspire community members to take action and encourage participation in the City's new "Pledge". This pledge is part of an initiative to involve the entire Charleston community in eliminating the pollution that causes global climate change, while ensuring Charleston continues to be a healthy and vibrant city. Collectively the Charleston community is strong, innovative and creative - and only together can we produce the significant carbon reductions needed to mitigate climate change.

Government Action 1-18 Community Action 19

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Community Action

Climate Action Pledge: 113 signed

**SIGN THE CLIMATE
ACTION PLEDGE!**



<https://forms.gle/H7j2AVU1striZbEc8>



You Can Help!

Charleston Climate Action Pledge

This pledge is part of an initiative to involve the entire Charleston community in eliminating the pollution that causes global climate change, while ensuring Charleston continues to be a healthy and vibrant city.

Collectively the Charleston community is strong, innovative and creative - and only together can we produce the significant carbon reductions needed to mitigate climate change.

We all have an important role to play. Sign the pledge and commit to taking action now!

I pledge to do my best to: *

- ENERGY: Improve energy efficiency in my home and use less energy.
- TRANSPORTATION: Reduce car trips per week by choosing to combine trips or get there by walking, biking,...
- WASTE: Reduce what I throw away by either not purchasing it in the first place or increasing my recycling, ...
- AIR & WATER: Reduce idling. Protect forests, wetlands, and aquatic life that already capture and store car...
- SUSTAINABLE LIFESTYLE: Support my local economy by shopping closer to home, eating more locally pro...
- RESILIENCE: Adapt and be prepared for conditions caused by our changing climate. Harvest rainwater in ...

Single-Use Plastics: Six Month Review

By: Katie McKain,
City of Charleston, Director of Sustainability

Plastic Transition Program

- 2 Business/Non-profit Transition Workshops
- 2 Resident Transition Workshops

Giveaways to Residents and Businesses/Organiz.:

- 6,500 Reusable Bags
- 1,000 Reusable Straws
- 1,000 Tabletop signs for cashier area
- 50 Large poster signs
- 300 Small poster signs
- Starter Inventory for non-profits/soup kitchens
 - Disposable service-ware: 18 cases cups, 30 cases plates, 35 cases clamshells (all fiber products)
 - Reusable cups, bowls, trays: 7 cases



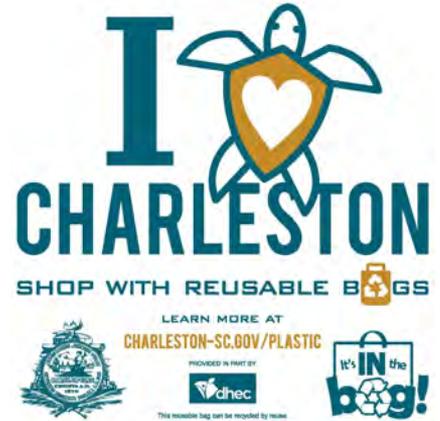
Giveaways were locally sourced!

Nearly \$35,000 (grant funds) were reinvested in our local economy!



Single-Use Plastic Ordinance Effects

- Lots of behavioral change is evident!
 - Including residents, businesses and organizations!
- Potential amendments to consider
 - Disallowing the “extra thick” single-use plastic bags
 - Allowing paper straws without a requirement to compost
- Some data was collected the end of January (post-ban) showing a decrease in plastic bags picked up from last year (pre-ban)
 - COVID-19 quickly slowed down efforts to track data
 - As litter sweeps start again, this data will continue to be tracked by non-profit partners and Keep Charleston Beautiful



Single-Use Plastic Ordinance COVID-19 Update

- March 20, 2020 City Council enacted an emergency ordinance to stop enforcement of the regulations for 60 days due to COVID-19
 - Supply-chain challenges
- In May, City Council extended this emergency ordinance until June 30, 2020
- Next steps?



Vulnerability Assessment Update

By: Mark Wilbert,
City of Charleston, Chief Resilience Officer

USACE Peninsula Flood Risk Management Study

By: Mark Wilbert,
City of Charleston, Chief Resilience Officer

USACE Peninsula Flood Risk Mgmt. Study

The US Army Corps of Engineers is seeking public comment and feedback to their study for a 60-day period beginning on April 20th and ending on June 19th.

The City of Charleston encourages our citizens and businesses to **engage in the process by visiting the link below** to review the project, gain a better understanding of the proposed alternative, timelines, benefits and estimated costs of the project and if inclined, provide comments via the US Army Corps of Engineers process.

www.sac.usace.army.mil/charlestonpeninsulastudy



You Can Help!

PUBLIC COMMENT PERIOD

April 20, 2020 - June 19, 2020

Vast Website Resources www.sac.usace.army.mil/charlestonpeninsulastudy

Public Feedback

Click [here](#) to submit feedback on the Draft Report until June 19, 2020.



Thank you to everyone who has already provided helpful comments!

UPDATE: A second public review period will be held in early 2021.

Contact

Please [click here](#) if you would like to address a question about the study to the Charleston Peninsula Study Project Manager.

Interactive Study Overview



The Charleston Peninsula Study



An in-depth overview of the Charleston Peninsula Study.

To move to another section scroll down in this window or navigate using the buttons at the far left.

Frequently Asked Questions

[Collapse All](#) [Expand All](#)

[What is the Charleston Peninsula Study?](#)

The Charleston Peninsula Coastal Flood Risk Management study investigates solutions to address coastal storm risk to people, property and infrastructure on the peninsula.

[Why is this study important for the Charleston Peninsula?](#)

[What does the study tentatively recommend for coastal flood risk reduction on the peninsula?](#)

[Where can I find the draft report?](#)

[How can the public provide feedback?](#)

[How has the study been funded?](#)

[How are the City of Charleston and other stakeholders involved?](#)

[How does the plan protect areas outside of the proposed storm surge wall?](#)

[Will there be adverse impacts to communities surrounding](#)

Educational Webinars Next Week

Last Call on TSP!

Many webinars have happened over the last few weeks, but two more opportunities exist next week for anyone interested in more information before submitting comments.

Webinar links are posted on the Sustainable Charleston Facebook page:

<https://www.facebook.com/SustainableCharleston/>



- Jun 11** **Resiliency & Sustainability Advisory Committee**
Feb 13 - Nov 12
Michael is interested
- Jun 15** **USACE Peninsula Flood Risk Mgmt Study- E...**
Mon 5 PM · Online Event
You like Sustainable Charleston
- Jun 16** **USACE Peninsula Flood Risk Mgmt Study- E...**
Tue 1 PM · Online Event
You like Sustainable Charleston

See All

“Action Today for Tomorrow”

By: Danny Kassis,
VP Customer Relations & Renewables, Dominion Energy SC

Action Today for Tomorrow



Important Note to Investors

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Supply

Net Zero Pledge
Diverse Generation Mix
Technology
Integration

Energy Delivery

Reliability:
Inspections
Hardening
Safe Guarding
Public Interest
Asset Diversity
Response

Customer Load

Energy Efficiency
LED Lighting
AMI Smart Metering
Electric Vehicles
Customer Sited
Generation



Our Net Zero Pledge

Over the last 10-15 years we reduced Carbon emissions by more than 50% and methane emissions by 25%, but that's just the start.

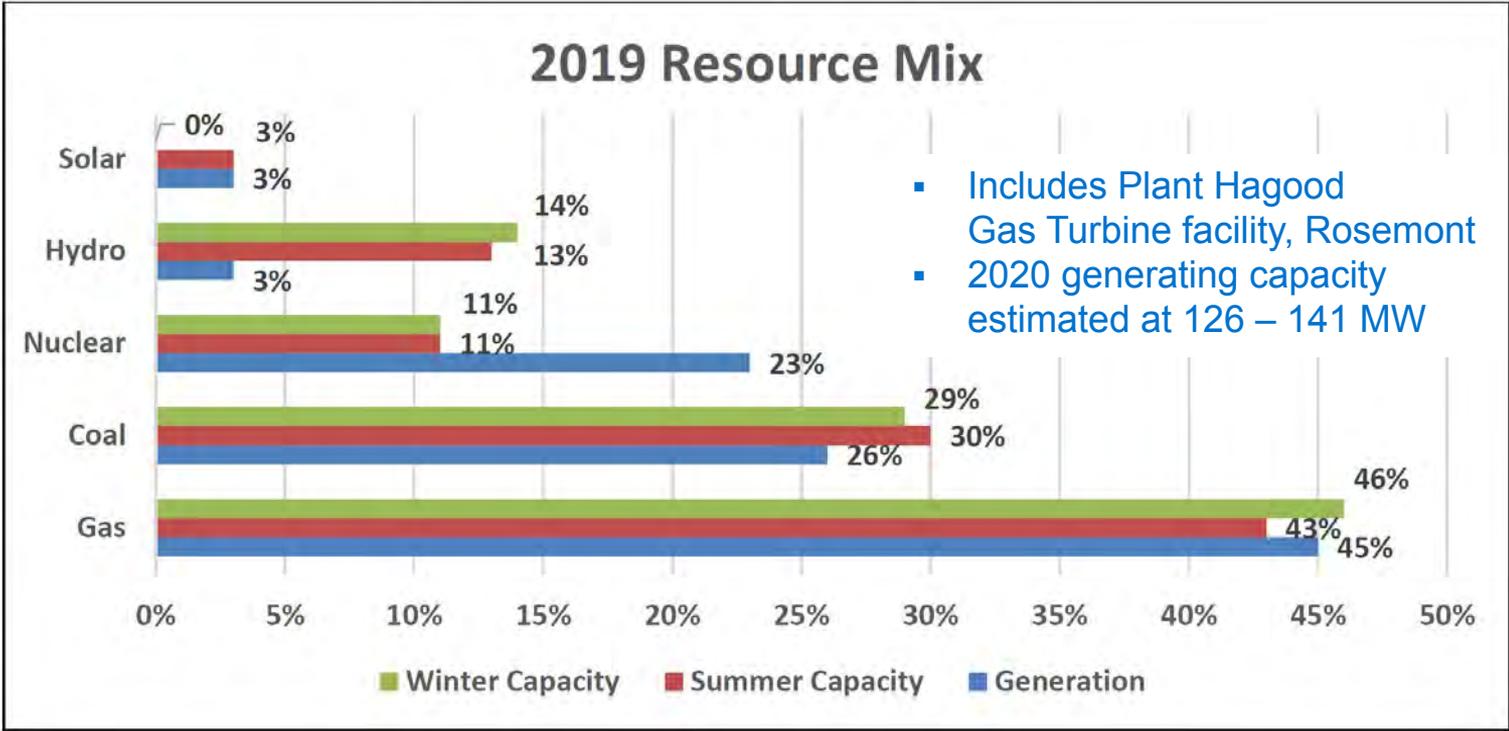
By 2050, we will achieve net zero greenhouse gas emissions across all of our electric and natural gas operations in all the states where we do business.

We are taking immediate action now to reduce emissions as fast as possible,

while also exploring new technologies to accelerate future progress.



Generation Mix (DESC)





Renewable Energy (SC) through 5/31/2020

Solar Photovoltaic – 898.5 MW (10,886 Systems)

- Residential 76.0 MW
- Commercial/Industrial 29.5 MW
- Utility Scale 777.0 MW
- Community Solar 16.0 MW

Hydro Plants – 794 MW

Saluda, Neal Shoals, Parr, Stevens Creek & Fairfield Pumped Storage

Wind Turbine Drivetrain Research

Dominion Energy Innovation Center at Clemson University Research Institute





Solar in South Carolina

Enabling Legislation

Distributed Energy Resources Act 236

- Set forth state goals for promoting the establishment of renewables by 2020
- Met the 1% Customer-Scale Goal (42MW) in June of 2017
- Sold out nation's largest utility-led Community Solar at 16MW
- Met the 1% Utility-Scale Goal December 2017

Act 62, SC House Bill 3659 – 2019

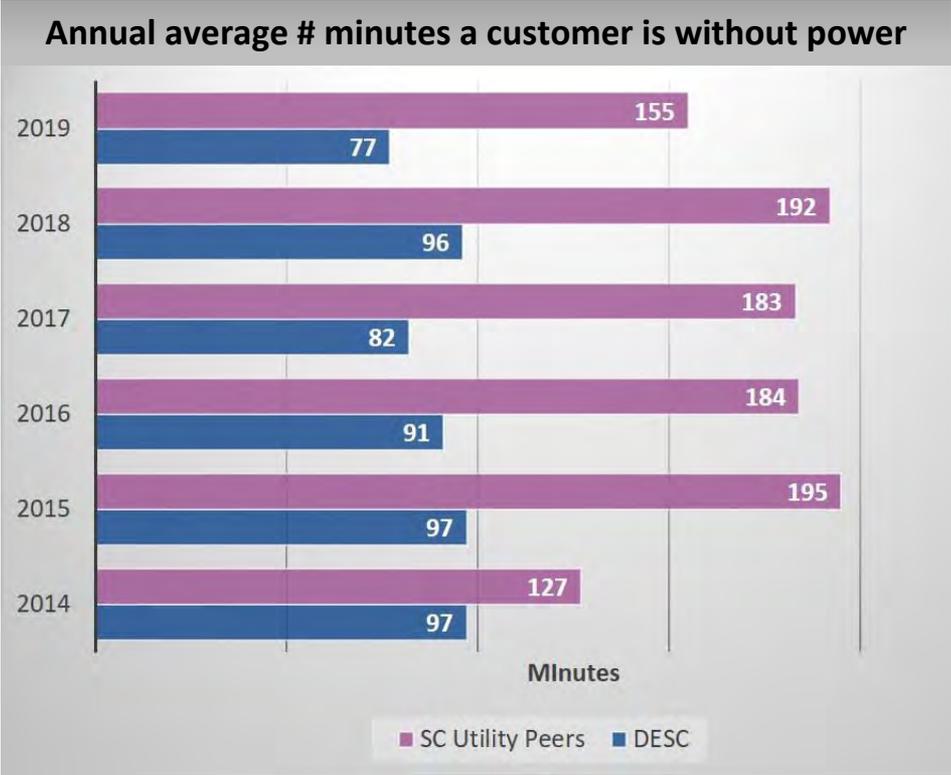
- Net Metering Cap lifted until 2021/Solar Choice Tariff
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- Utility Integrated Resource Plan (IRP)
- Community Solar/Voluntary Renewable Energy Program
- Independent Integration Study
- Interconnection Standard Reform



Self-Generation & Community Solar City of Charleston

	Rooftop Solar	Community Solar (Zip: 401, 403, 405, 407, 412, 414,455)
Residential	7,181 kW (1,076 systems)	798 kW (146 subscriptions)
Commercial	720 kW (18 systems)	152 kW (2 subscriptions)
Industrial	-0-	-0-
Total	7,901 kW (1,094 systems)	950 kW (148 subscriptions)
<i>Note: Of the 146 Community Solar subscriptions, 38 are Low-Income (176 kW)</i>		

System Reliability



DESC

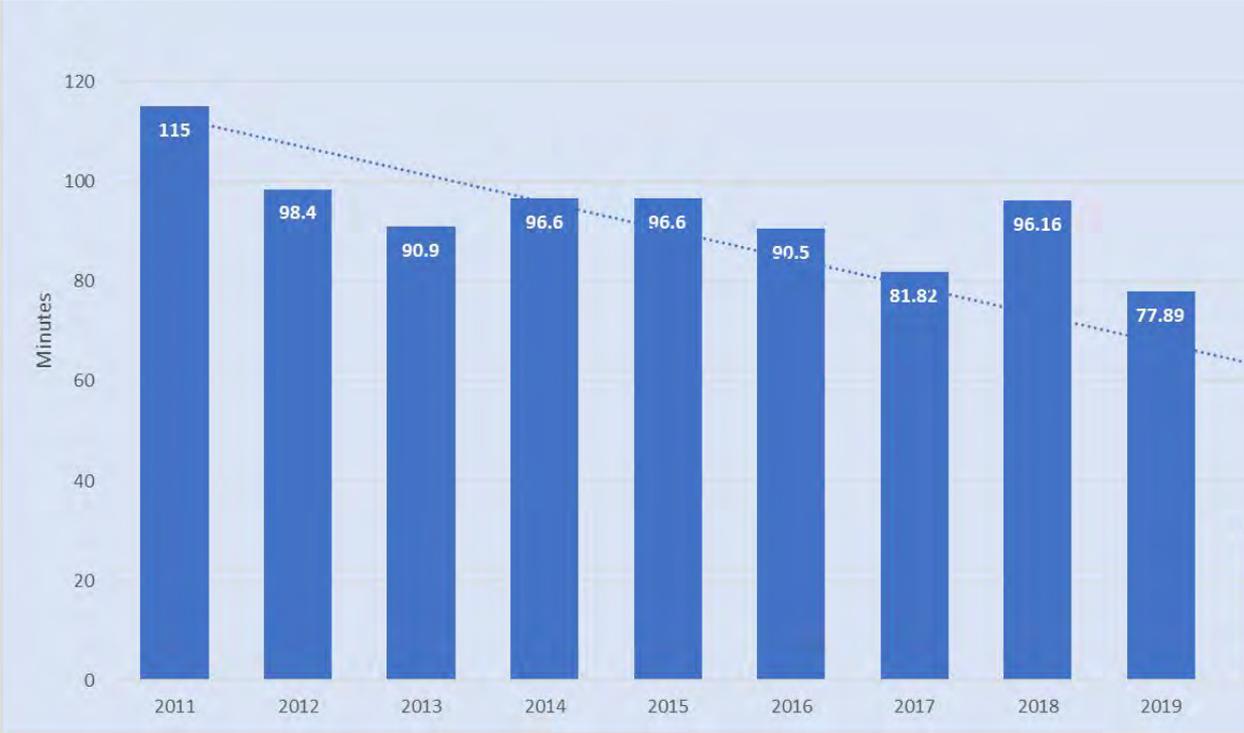
Electric Transmission in SC

3,583 Overhead miles
 + 20 Underground miles
 3,603 miles

Electric Distribution in SC

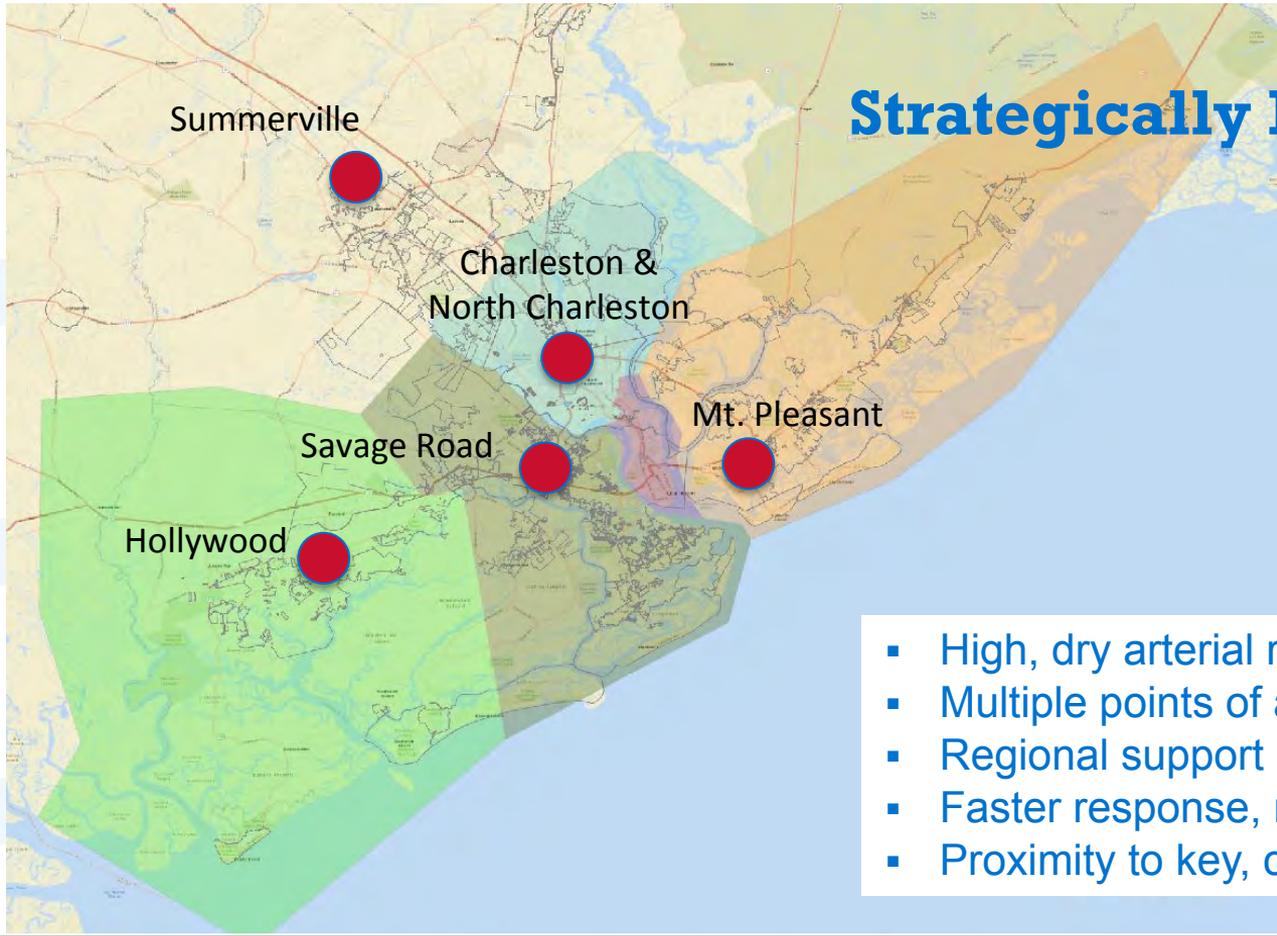
12,883 Overhead miles
 + 5,472 Underground miles
 18,355 miles

System Reliability



High Voltage & Distribution Projects (City of Charleston)	
Hagood - Bee	Medical District Upgrade
Thomas Island – Jack Primus	New Substation, Lines
Church Creek – Faber Place	Re-build river crossing
Church Creek – St. Andrews	Re-build Greenway structures
Queensboro – Fort Johnson	Upgrade to 140 mph design
Charlotte Street, Faber Place, Fort Johnson, Grove Street, Hagood Avenue, Savage Road	Modernization project - replacing circuit breakers





- High, dry arterial roads
- Multiple points of access
- Regional support & staging
- Faster response, restoration
- Proximity to key, critical loads

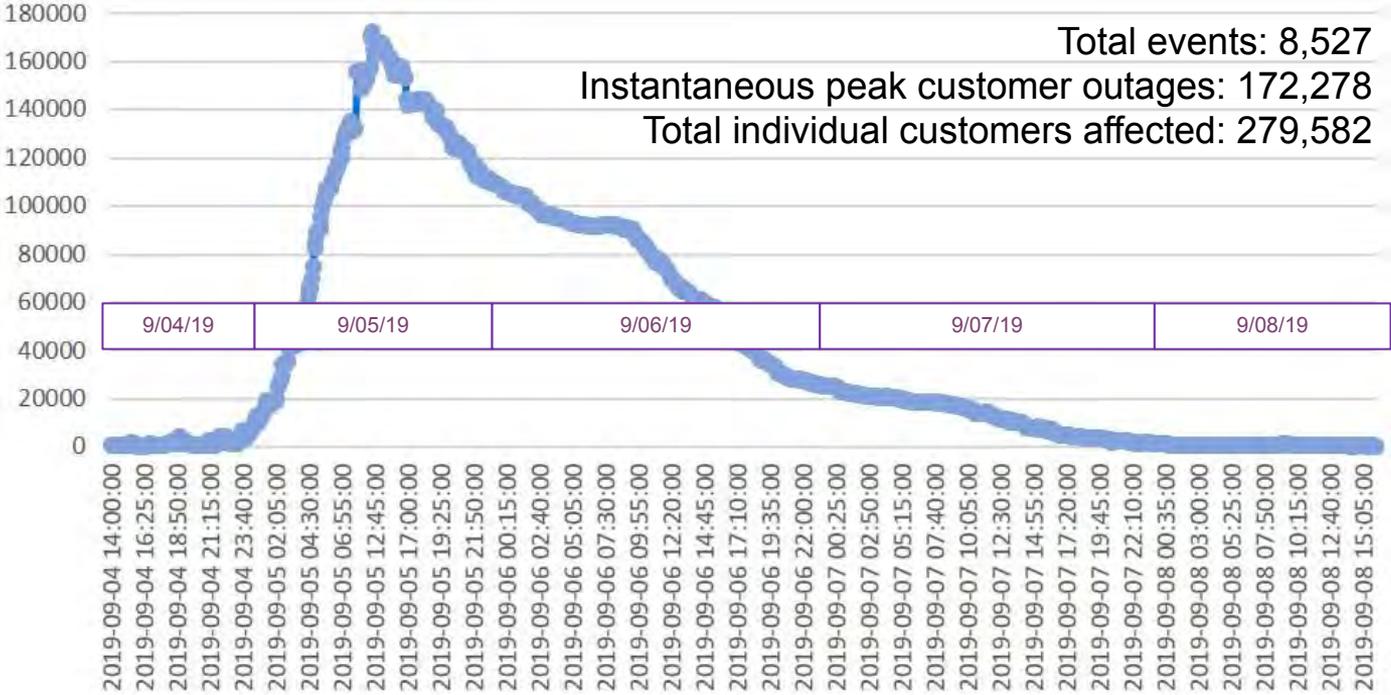


Preparation = Restoration

	Customers out (approximate)	Restoration
Dorian ('19)	279,580	80% in 24 hours
Michael ('18)	72,000	99% < 24 hours
Irma ('17)	154,000	93% in 48 hours
Matthew ('16)	290,000	90% in 72 hours



Hurricane Dorian, September 2019



Embracing Innovation & Technology

Energy Efficiency

LED Lighting

AMI Smart Metering

Electric Vehicles

Customer Sited Generation





Energy Efficiency

EnergyWise programs for your home & business

**Lowered usage >797,000 MWH past 8 years
= Power for 67,463 homes x 1 year**

Includes:

Incentives for Lighting, HVAC, Food Service Equipment upgrades

Lighting Solutions (LED)

Demand Side Management

Energy Audit & Analyze My Energy Use



Energy Efficiency efforts within the City

City of Charleston Zip Codes

*exact City numbers would take additional analytics

40,000,000 kWh annual energy savings

6000 kW – peak demand savings

Over \$5,000,000 in Dominion incentives towards the work



Energy Efficiency efforts by the City

Projects of note:

Joseph P. Riley, Jr. Park

Dock Street Theater

Charleston Fire Department

Charleston Police Department

Multiple parking garages &
Aquatic facilities

1,806,267 kWh annual
energy savings

493 kW – peak demand
savings

Over \$300,000 Dominion
incentives towards the work

Project Spotlight: Joe P. Riley, Jr. Park



174 Metal Halide fixtures (1500W)

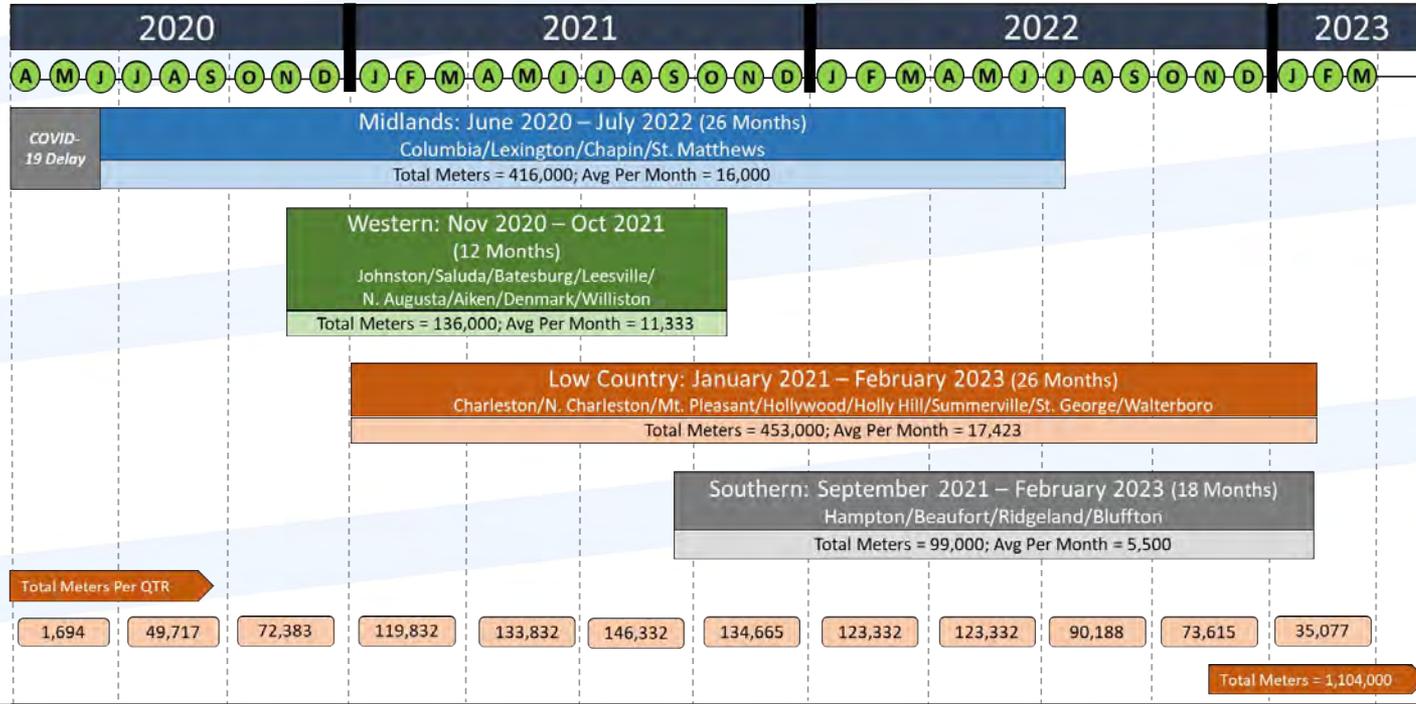
Replaced with 160 LED fixtures (775W)

Annual savings 69,869 kWh

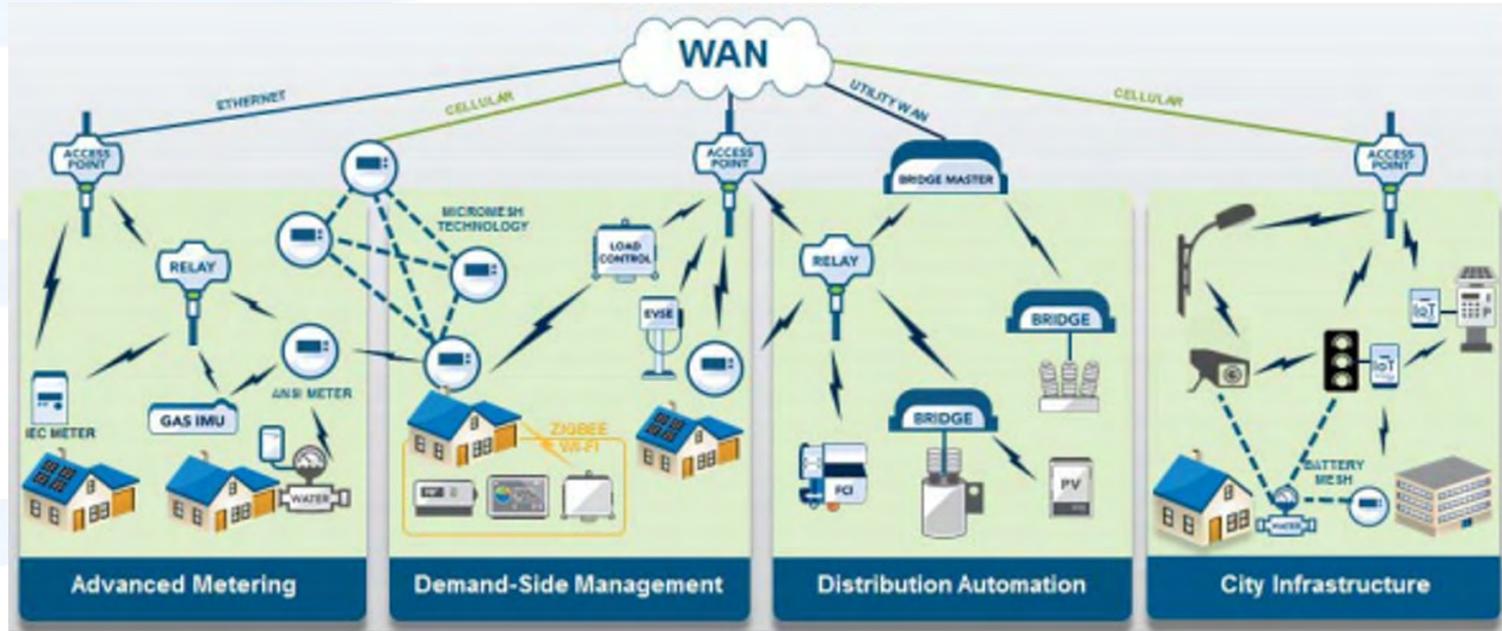
60% less wattage

Rebate \$54,953.50

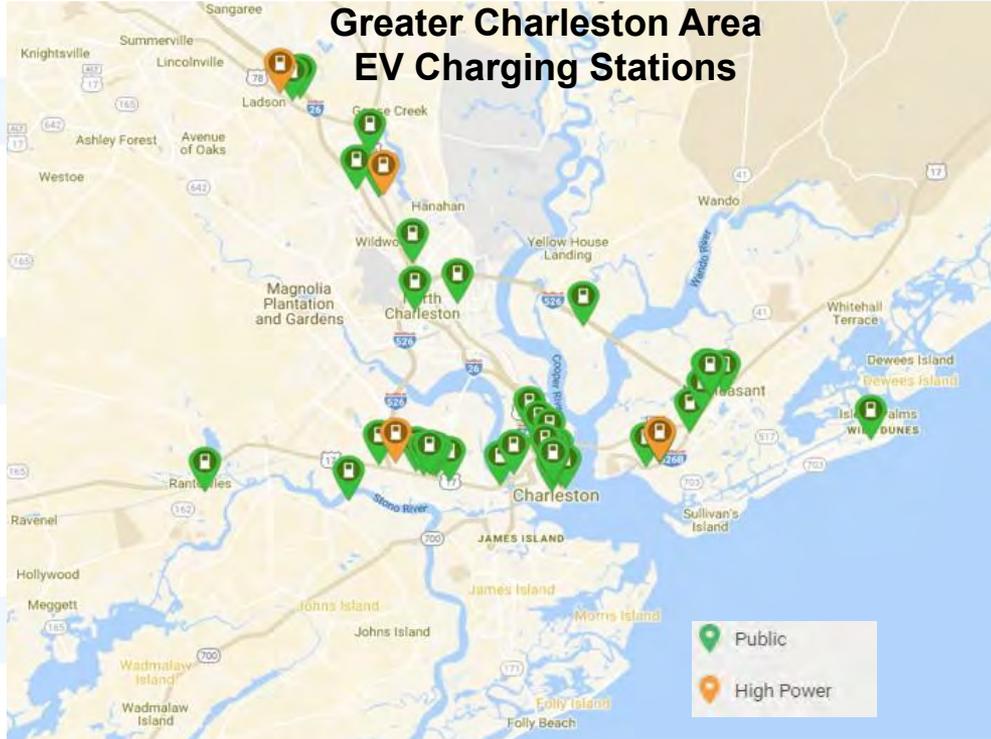
DESC Meter Deployment Roadmap 2020-2023



Itron GenX Network



Electric Vehicles



Supply

Net Zero Pledge
Diverse Generation Mix
Technology
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Reliability:
Inspections
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The City of Charleston
has made significant strides in the
last ten years on a number of
clean energy initiatives.

***What are the next steps for
Charleston on its path to a
sustainable and resilient***

future?

Public Comment Period

Action Today for Tomorrow



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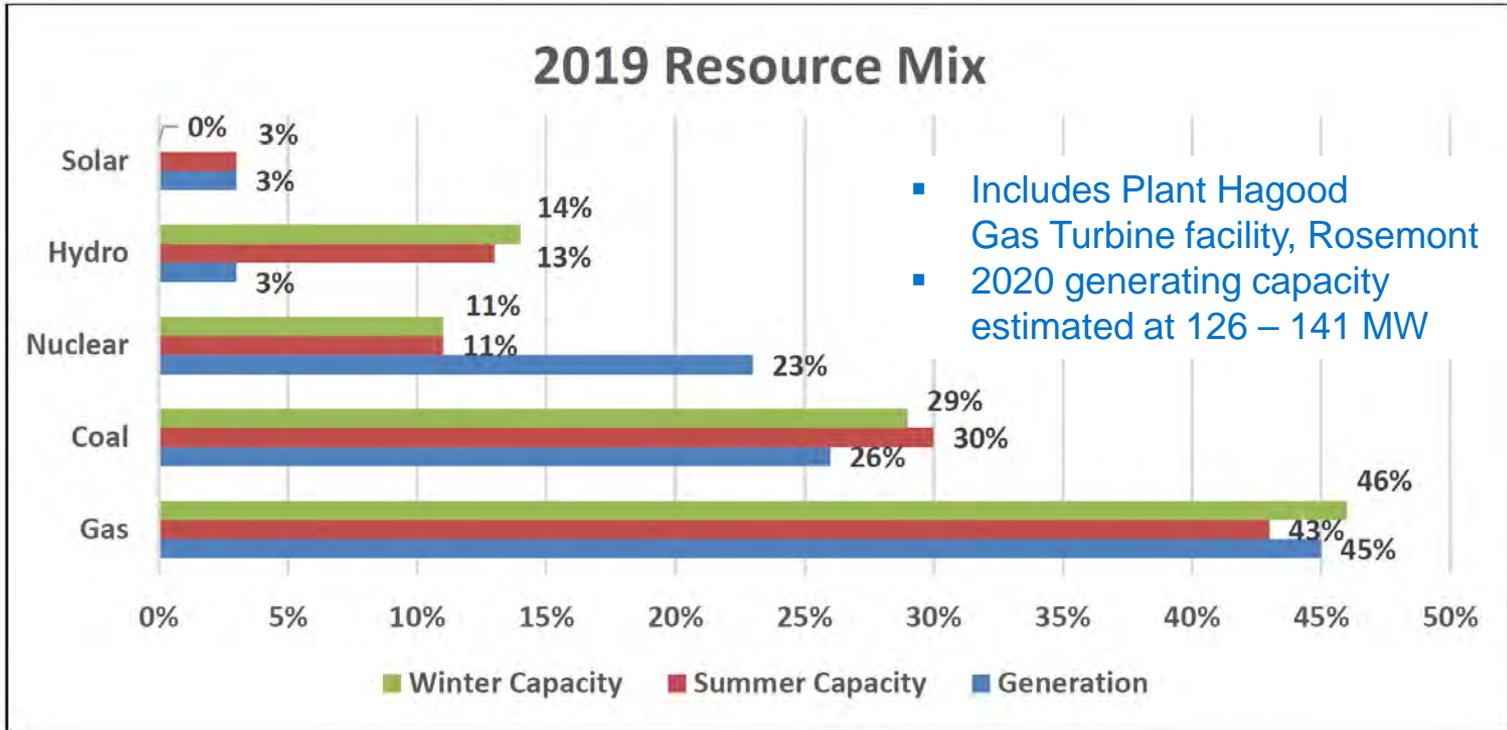
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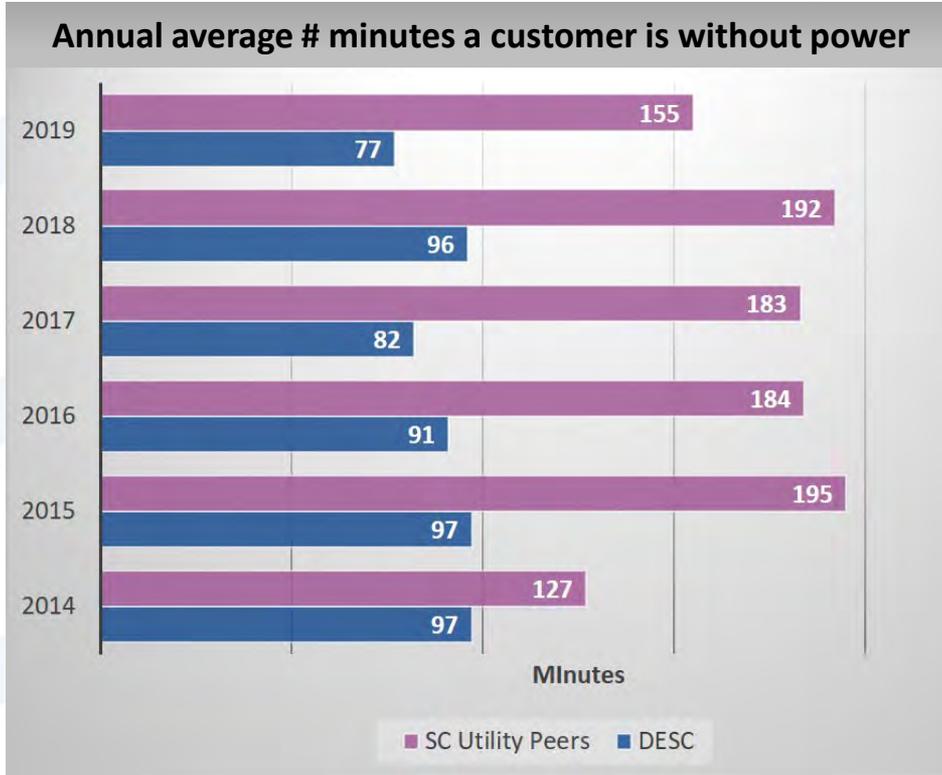


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System Reliability



DESC

Electric Transmission in SC

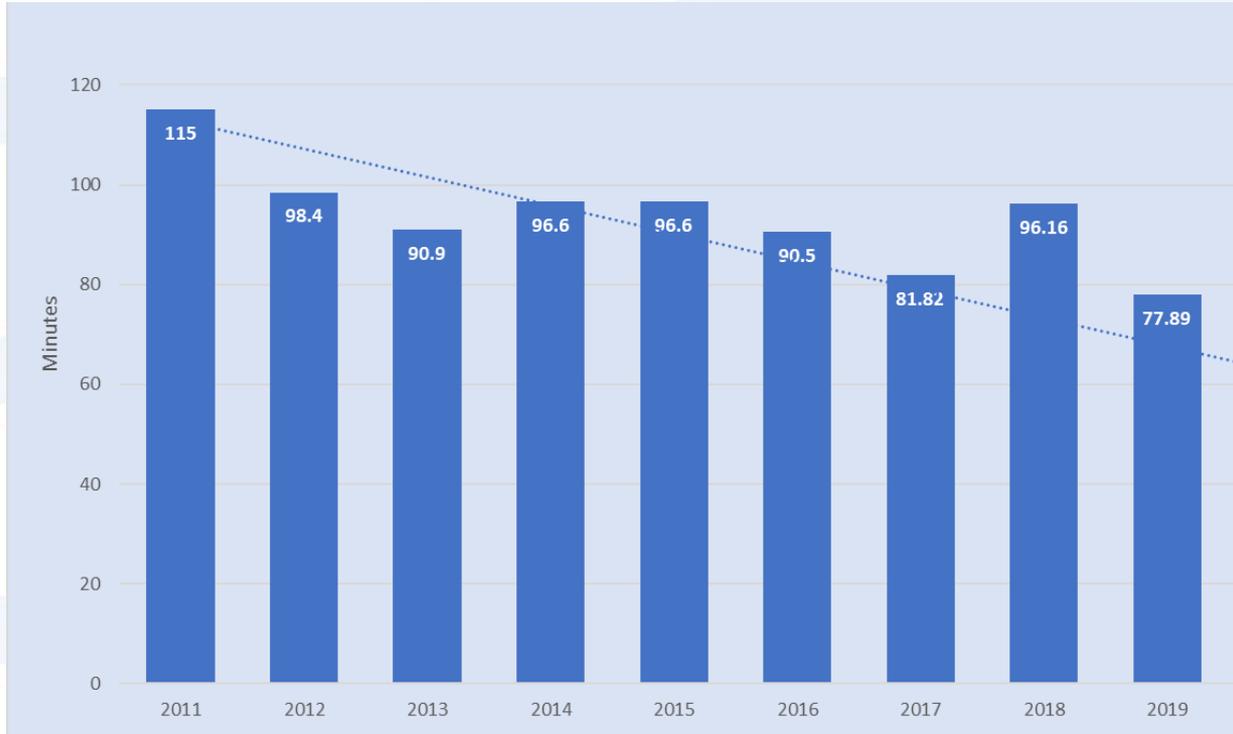
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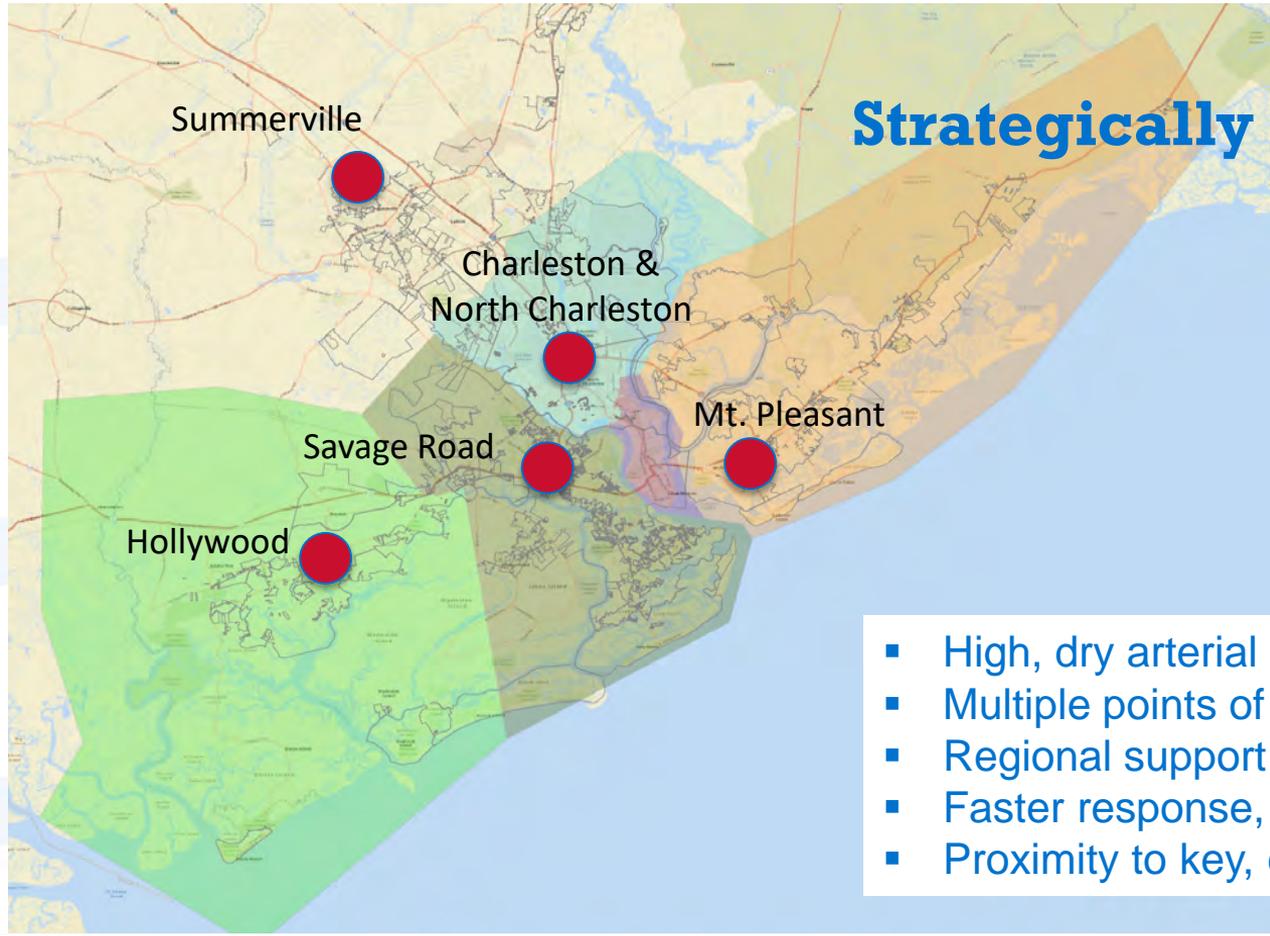


System Reliability



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- High, dry arterial roads
- Multiple points of access
- Regional support & staging
- Faster response, restoration
- Proximity to key, critical loads

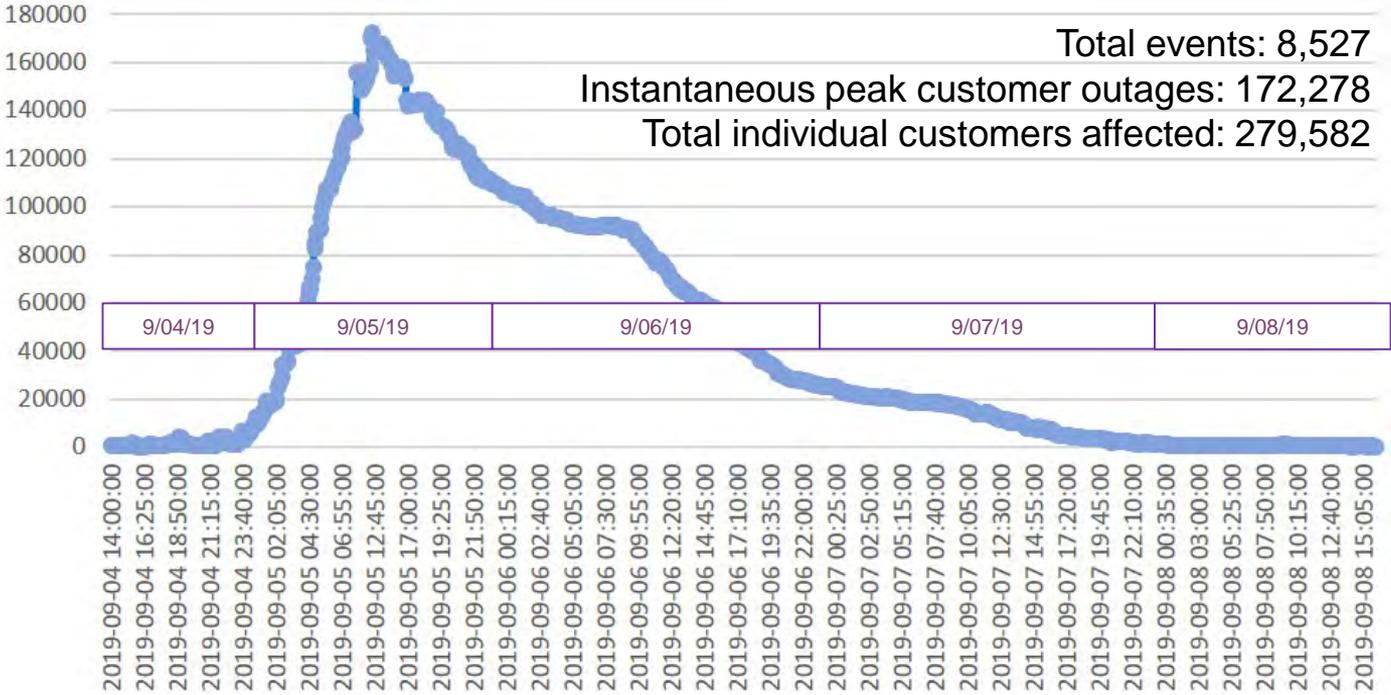


Preparation = Restoration

	Customers out (approximate)	Restoration
Dorian ('19)	279,580	80% in 24 hours
Michael ('18)	72,000	99% < 24 hours
Irma ('17)	154,000	93% in 48 hours
Matthew ('16)	290,000	90% in 72 hours



Hurricane Dorian, September 2019



Embracing Innovation & Technology

Energy Efficiency

LED Lighting

AMI Smart Metering

Electric Vehicles

Customer Sited Generation





Energy Efficiency

EnergyWise programs for your home & business

**Lowered usage >797,000 MWH past 8 years
= Power for 67,463 homes x 1 year**

Includes:

Incentives for Lighting, HVAC, Food Service Equipment upgrades

Lighting Solutions (LED)

Demand Side Management

Energy Audit & Analyze My Energy Use



Energy Efficiency efforts within the City

City of Charleston Zip Codes

*exact City numbers would take additional analytics

40,000,000 kWh annual energy savings

6000 kW – peak demand savings

Over \$5,000,000 in Dominion incentives towards the work



Energy Efficiency efforts by the City

Projects of note:

Joseph P. Riley, Jr. Park

Dock Street Theater

Charleston Fire Department

Charleston Police Department

Multiple parking garages & Aquatic facilities

1,806,267 kWh annual energy savings

493 kW – peak demand savings

Over \$300,000 Dominion incentives towards the work

Project Spotlight: Joe P. Riley, Jr. Park



174 Metal Halide fixtures (1500W)

Replaced with 160 LED fixtures (775W)

Annual savings 69,869 kWh

60% less wattage

Rebate \$54,953.50

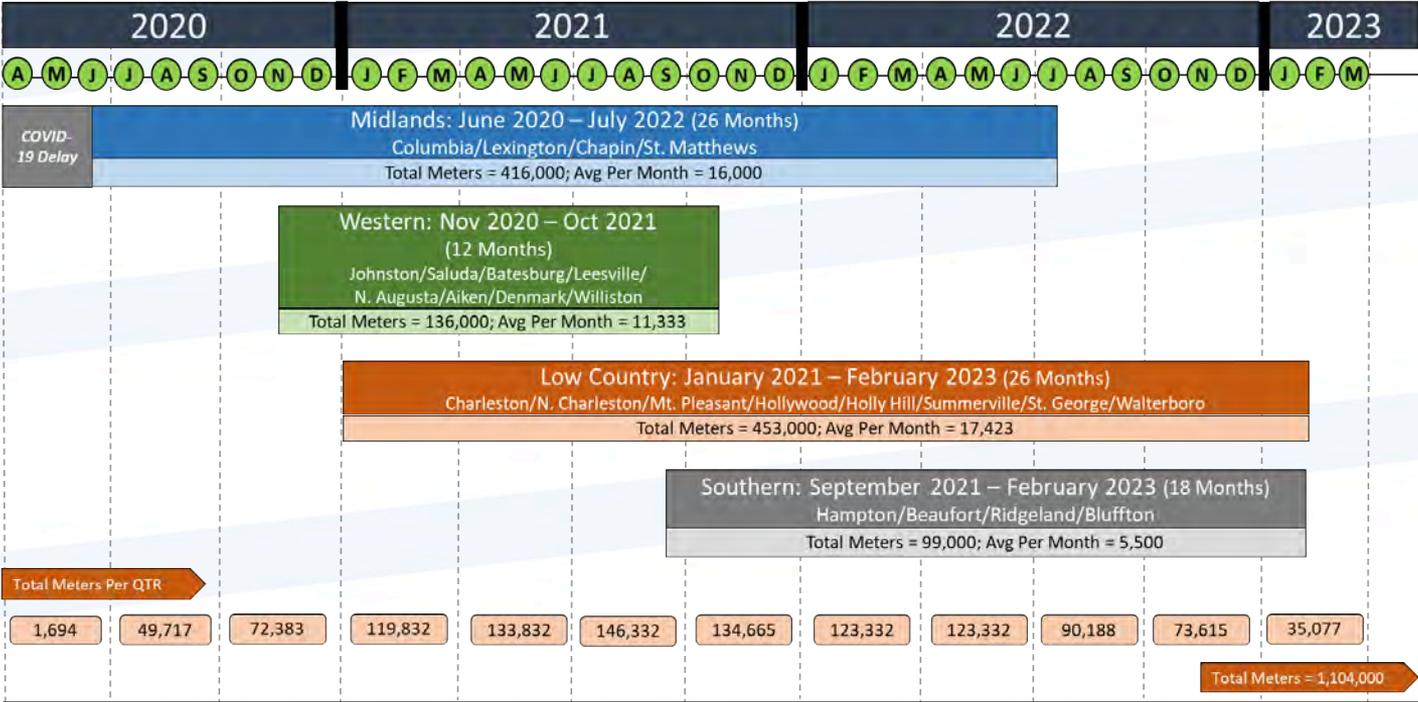
LED Lighting

**Study for City of Charleston:
Approximately 6,000 potential locations for streetlight replacement with LED**



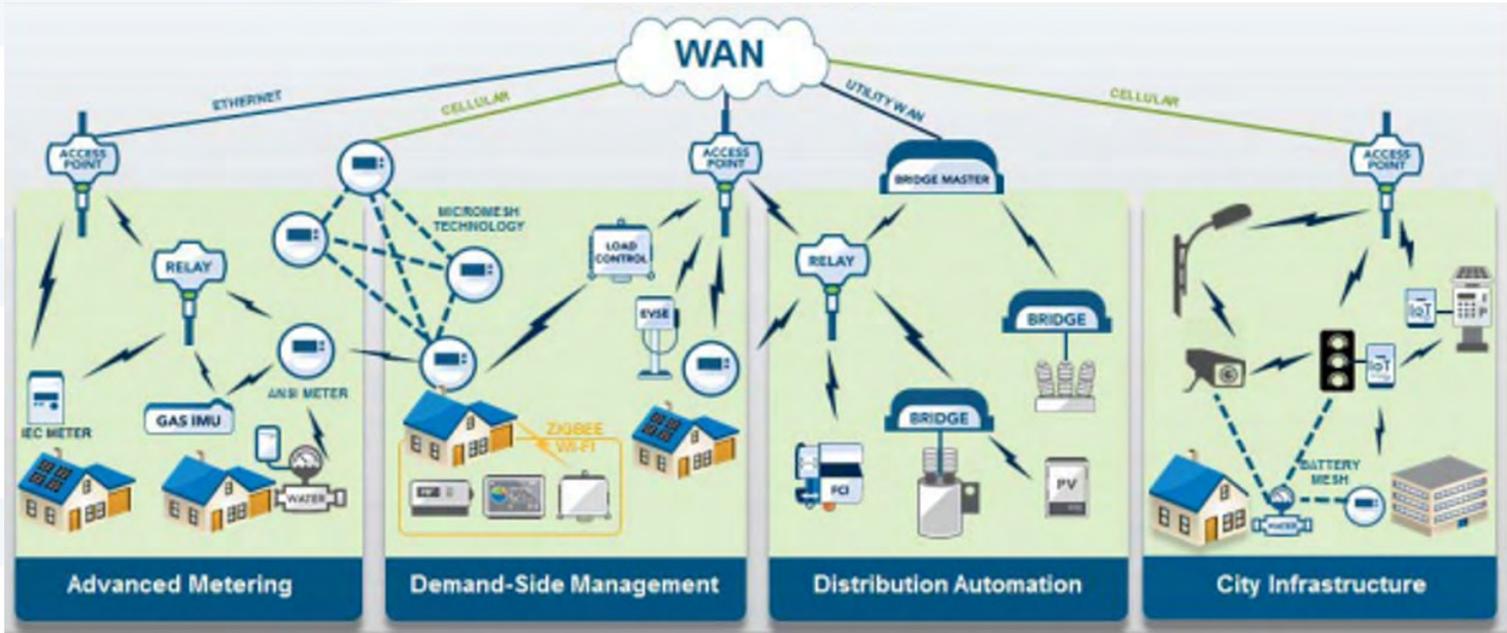
AMI Smart Metering

DESC Meter Deployment Roadmap 2020-2023



AMI Smart Metering

Itron GenX Network



Supply

Net Zero Pledge
Diverse Generation Mix
Technology
Integration

Energy Delivery

Reliability:
Inspections
Hardening
Safe Guarding
Public Interest
Asset Diversity
Response

Customer Load

Energy Efficiency
LED Lighting
AMI Smart Metering
Electric Vehicles
Customer Sited
Generation



The City of Charleston
has made significant strides in the
last ten years on a number of
clean energy initiatives.

***What are the next steps for
Charleston on its path to a
sustainable and resilient future?***