

Charleston County Staff + Expert Climate Action Team

Members Workbook



Charleston County Climate Action Plan

SECAT Members Workbook



Members Workbook

Contents

[Charleston County Climate Action Plan](#)

[SECAT Members Workbook](#)

[Contents](#)

[About this Workbook](#)

[Context + Background](#)

[SECAT Membership](#)

[First SECAT Meeting Presentation](#)

[Second SECAT Meeting – Aug 9, 2023](#)

[Second SECAT Meeting Part 2: Low Carbon Assumptions](#)

[Third SECAT Meeting: Beginning of Implementation Planning and Draft Low-carbon Scenario Review](#)

[Draft Low-carbon Scenario as of 25 October 2023.](#)

[\(Another one will be made after this – we are receiving more transportation data that just became available.\)](#)

[What does this scenario mean?](#)

[Example: Residential Building Retrofit Actions](#)

[How does this action happen? And when?](#)

[Questions about the draft low-carbon scenario from SECAT members:](#)

[Additional Meetings TBD](#)

[SECAT CAP Project Recommendations](#)

[Targets and Low-carbon Assumptions Recommendations](#)

[Project Background](#)

[About the Charleston County Climate Action Plan Process](#)

[Technical Modeling Process](#)

[Engagement](#)

[Charleston County Climate Action Plan Decision Statement](#)

[Key Project Outputs](#)

[Project Deliverables + Givens](#)

[Project Glossary](#)

[Project Active Public](#)

[Engagement](#)

[Climate Action Planning 101 Webinar](#)

[Public Workshop on Social Equity and Climate Action Implementation](#)

[Workshop Results](#)

[Public Workshop on Community Mapping for Resilience](#)



Members Workbook

[Workshop Results](#)

[Community Town Hall on Modeling Results, Actions, and Implementation](#)

[Town Hall Results](#)

[Technical Engagement](#)

[SECAT Meetings](#)

[2020 Draft Base Year Projection](#)

[Model Calibration](#)

[**Data, Methods, and Assumptions \(DMA\) Manual**](#)

[2020 Draft Base Year](#)

[BAU + BAP Model Projection](#)

[LCS Projection](#)

[Implementation Framework](#)



Members Workbook

About this Workbook

Dear Staff + Expert Climate Action Team Members,

We're thrilled to welcome you to the Charleston County Climate Action Planning process. This project represents our collective commitment to future generations, and the vital work required to safeguard our natural resources, protect our communities, and ensure economic sustainability in the face of climate change.

Purpose of This Workbook

The purpose of this workbook is twofold: to keep you informed about the developments at every stage of the Climate Action Plan, and to actively seek and incorporate your valuable feedback.

In the coming months, this workbook will serve as a bridge connecting our project team with you, the SECAT members. It will provide updates on our progress, insights into our strategies, and summaries of the data we gather. However, it is also a two-way street, a platform for you to voice your questions, concerns, and recommendations. Your insights are vital to shaping a plan that is truly tailored to the needs and resources of Charleston County.

Continued Updates and Feedback Solicitation

This workbook is not a static document, but a living, evolving tool. As we progress through each stage of the Climate Action Plan, the workbook will be continuously updated with the latest information, key findings, and specific requests for your invaluable feedback. Often, these requests will take the form of short, succinct surveys designed to gather your insights on various aspects of the plan. Charleston County Sustainability Manager, Arielle Gerstein, will keep you informed of these updates and feedback opportunities via timely emails.

Localizing the Plan

Localizing the climate action plan is a top priority for us. The challenges we face from climate change in Charleston County may not be the same as those in other regions. Sea-level rise, more intense hurricanes, flooding, and hotter summers require specific, localized solutions.

By creating a plan based on local realities, we can design policies and strategies that are more effective, more efficient, and more equitable. But, to achieve this, we need your expertise, your

Charleston County Staff + Expert Climate Action Team



Members Workbook

understanding of our community, and your commitment to making Charleston County a leader in resilience and sustainability.

We hope you'll use this workbook as a tool, a reference, and a guide in this journey we're embarking on together. We're excited about the opportunities that lie ahead and the difference we can make as a team.

Best wishes,

The SSG and Charleston County CAP Project Team



Members Workbook

Context + Background

The SECAT's purpose is to support the development of the Climate Action Plan. The Team will make recommendations to the Project Team (SSG + Charleston County) about technical elements and action items related to the Climate Action Plan.

SECAT Membership

- Katie McKain - City of Charleston
- Christine Von Kolnitz - MUSC
- Kristin Miguez - BCDCOG
- Belvin Olasov - Charleston Climate Coalition
- Flannery Wood - Town of James Island
- Cris Taylor - Charleston County Fleet
- Sally Brooks - Charleston County Planning
- Kip Watson - Charleston County Economic Development
- Michael Kennedy/Glenn Hill - Charleston County Facilities
- Melissa Gilroy - Charleston County Finance
- Shannon Whitehead – Town of Mt. Pleasant
- Adam MacConnell – City of North Charleston
- Rowan Emerson - Charleston Climate Coalition

First SECAT Meeting Presentation

Link to [SSG's first presentation to the SECAT](#). **(Image is a link)**



Second SECAT Meeting – Aug 9, 2023

Link to [SSG's first presentation to the SECAT](#). (Image is a link)



Background reading

- [Charleston County Target Options Paper \(linked\)](#)

Members Workbook

- [Draft Low-carbon Assumptions Spreadsheet \(linked\)](#)
 - It should open to the “Scenario Assumptions” tab
 - The “LC Assumption” column, column I is what you want to have a look at.

Meeting Agenda

- https://docs.google.com/document/d/1ODs7FwkfO_eGBZw4iSNdTLO40c-NC8SvzAQmAtNrVNU/edit?usp=sharing
- Meeting feedback form: <https://form.typeform.com/to/goisVzdX>

Questions in advance of the meeting

- Please ask any questions here, if you have them!
- Will the solar array at the pulp and paper mill be shut off when they close? It would be good to plan for that to move somewhere within the County if they plan to move it.
- Should the County concern itself with this sort of thing?

Second SECAT Meeting Part 2: Low Carbon Assumptions

Link to [SSG's first presentation to the SECAT](#). (Image is a link)



Modeling Assumptions

Slides 17-32 summarize the current draft Low Carbon Scenario modeled assumptions. Our target is net-zero emissions by 2050, so we need to change the assumptions to induce a faster



Members Workbook

and deeper reduction of GHG emissions.

The assumptions are grouped by sector. If you have questions about any of these assumptions, or require further clarification please contact Arielle, or reach out to Camilla (camilla@ssg.coop) or Amber (amber@ssg.coop) directly.

Request for Feedback

Over the next week, please review the Low Carbon Scenario assumptions, as well as the data sources. We would like to confirm that the sources of data are appropriate for the current year and BAP scenarios, and identify any additional information that may be missing.

We also welcome all comments and suggestions on how to change the assumptions to help us meet the target. Please remember that these are only the assumptions in the model (the “what” and the “when”), and we will discuss implementation strategies (the “who” and the “how”) as the project progresses.

Third SECAT Meeting: Beginning of Implementation Planning and Draft Low-carbon Scenario Review

[Presentation link](#)

[Meeting feedback form](#)

[Community Questionnaire](#): please take and share! Open until Dec 15, 2023

Feedback request to SECAT members:

- Please let SSG know of any questions you have regarding the draft low-carbon scenario, in this workbook (below) or through Arielle.

Questions for SECAT re: Charleston County Programs/Policies

- Please list any major initiatives, programs, or goals you have underway or planned for the short-to-medium term that might intersect the major emissions areas: transportation, buildings, energy, and land use. (We'll see if there are ways to leverage them for more resources or to integrate direct climate actions.)
- What climate actions have been considered/undertaken at the County that might indicate existing expertise or capacity in a certain sector?
- Does the County have existing partnerships with non-profits, community orgs, or private sector that can be leveraged during the implementation of climate actions?



Members Workbook

- Which funding sources is the County currently using?
- Has the County considered or begun pursuing any IRA or BIL-funded initiatives?
- Which sustainability and resilience action areas are the Mayor and current City Council most interested in? (Transportation, Energy Efficient Buildings, Complete Communities, Renewable Energy, etc.)
- Is there staff capacity or interest for large, catalytic grant opportunities under the IRA? For example, a Safe Streets for All Multimodal program?
- What is the County's involvement with the regional workforce training programs? Especially with concerns to renewable energy or other green industries?
- Is there currently a bicycle and pedestrian plan or initiative? Or any related plans or initiatives for the County?
- How has the EV charging station pilot program been working? Any metrics of use, costs and revenues, success that we can use?
- Are staff members currently on any regional or state working groups that relate to resilience and sustainability?
- There are a few County property taxes and incentives - 5-year Property Tax Abatement, Fee-in-lieu of Property Taxes, and Multi-County Perks. Is there any interest in adding a green energy or sustainability component to those incentives?
- What housing programs does the County currently run? Any weatherization or utilities programs?
- What past community engagement efforts in the County have considered resilience and sustainability?

Questions for SECAT Members re: specific County Programs + Initiatives

- **Kristin Miguez, BCDCOG**
 - What is the status of BCDCOG's TOD Plan?
<https://lowcountryrapidtransit.com/transit-oriented-development/>
- **Cris Taylor, Charleston County Fleet**
 - What is the County's current vehicle procurement process?
 - What is the lifecycle of the current fleet?
 - To what extent has the County considered upgrading its fleet to electric or zero emission vehicles?



Members Workbook

*Note: Cris shared that the issue with fleet electrification was not funding or political will, but that the supply of electric trucks/vehicles made it impossible to procure

- **Sally Brooks, Charleston County Planning**

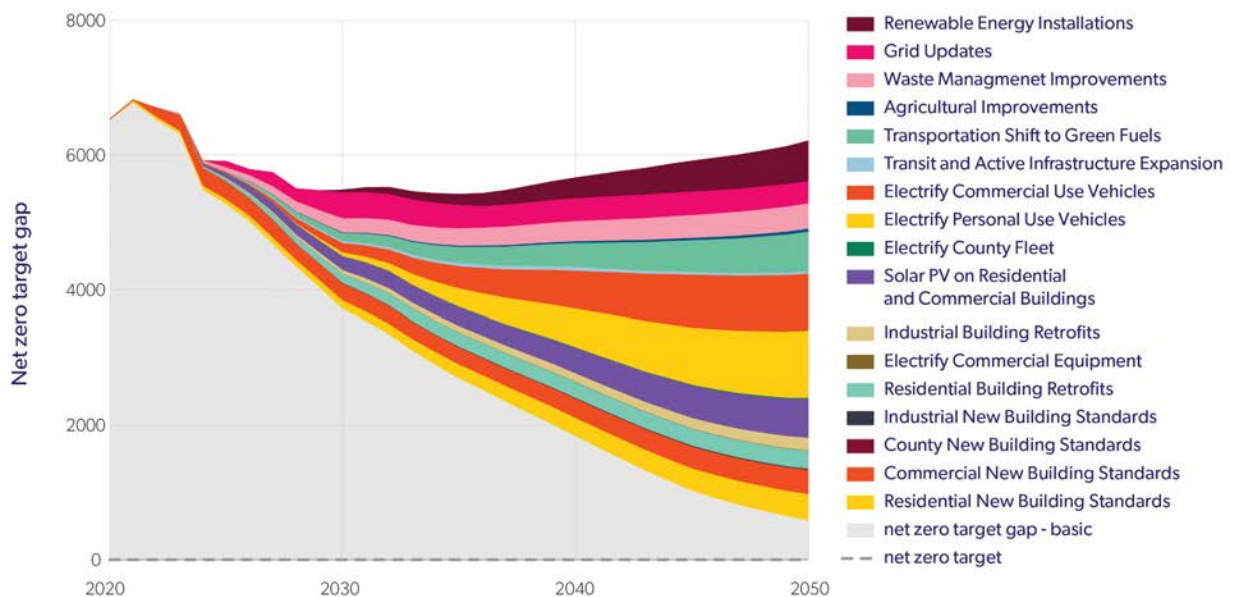
- What land use or zoning measures have the County considered or implemented to reduce GHG emissions?
- Does the County have authority or capacity to require or incentivize solar farm development? Rooftop solar on commercial or mixed-use developments?

- **Michael Kennedy/Glenn Hill, Charleston County Facilities**

- To what extent has the County considered energy efficient building retrofits for county buildings?
- What is the feasibility of making energy efficient retrofits in government buildings (e.g., upgrading HVAC, conducting energy audits, installing LED lighting, solar panels, low-flow fixtures)?

Draft Low-carbon Scenario as of 25 October 2023.

(Another one will be made after this – we are receiving more transportation data that just became available.)





Members Workbook

What does this scenario mean?

- Provides a blueprint for implementation planning by showing how much and how quickly emissions need to be reduced in each of the sectors.
- Actions must all be implemented in order to reach the low-carbon (climate pollution reduction) targets.
- Shows the relative impact of each of the actions.
- Highlights the importance of low-emissions electricity in meeting our climate goals.
- Target used to create this scenario for 2035: science-based, with 2020 as a base year.

Example: Residential Building Retrofit Actions

- Switches from fossil fuels to electricity.
- Improves insulation and building envelope.
- Reduces total energy demand.
- Reduces costs to heat/cool houses.
- More efficient houses hold temperature longer in power outages.
- Deep emissions reductions require low-emissions electricity source, including solar panels, and other renewable energy options.
- Including battery storage or other energy storage can increase ability to withstand power outages.

How does this action happen? And when?

- Implementation planning helps answer that part of the equation by factoring in: funding opportunities, feasibility, county capacity, and community priorities.

Questions about the draft low-carbon scenario from SECAT members:

- **Please ask your questions here.**
- **Can we see the data and assumptions being used in the model?**
 - **Yes. The assumptions used for this round were presented in the previous meeting, and the latest are found here. All data and assumptions used in each phase of modeling will be shared in a Data, Methods, and Assumptions Manual (DMA) when the modeling is complete. Until it is complete, we share the assumptions in “real time” with you, as the assumptions get modified through the acquisition of new data and feedback from the engagement process. In addition, a table of the final modeled assumptions will be included in the final Climate Action Plan report.**

Members Workbook

- For the current set of assumptions that were used in the Oct 25th, 2023 draft LC modeling see [here](#)

Fourth SECAT Meeting

[Presentation link](#)

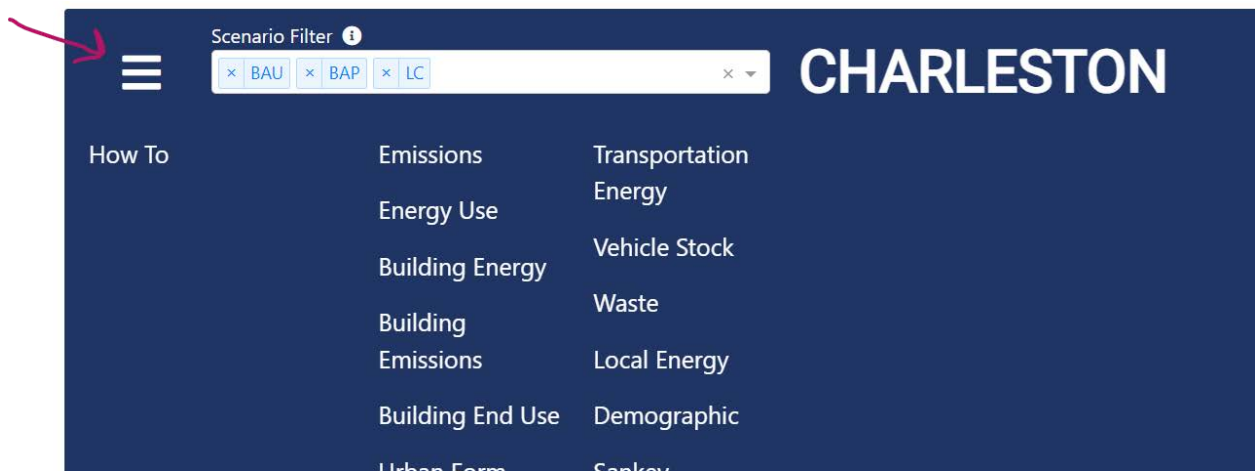
[Link to Dashboard](#), NOTE: the dashboard is not yet ready to be shared publicly as the project is still on-going. This is for members of SECAT.

A few quick helpful hints for navigating the dashboard.

- You can add and remove scenarios using the Scenario Filter



- You can look at various details via the hamburger menu on the left hand side of the website



- You can download the detailed data via the link on the right hand side of the website that says "Download Data"





Members Workbook

[Financial Assumptions](#): This is a copy of the financial data that was used to shape our financial analysis

Feedback request to SECAT members:

- Please let SSG or Arielle know of any questions you have regarding the financial presentation and implementation planning, in this workbook (below) or through Arielle.

Questions for SECAT

- Add any questions about the financial analysis or implementation planning you have for SSG, CIVIX or Arielle here.

SECAT Meeting 5 - Presentation

Requests for the SECAT:

[Review the Draft Document Here](#) by February 16.

Consider the following:

- Is there anything missing?
- Is there any incorrect information?
- Has equity been given the appropriate considerations?
- What is most exciting?
- What is most concerning?

SECAT CAP Project Recommendations

[To be completed as recommendations are arrived at.]

Targets and Low-carbon Assumptions Recommendations

- Science based or federal target.
 - Science based was chosen.



Members Workbook

Project Background

About the Charleston County Climate Action Plan Process

Charleston County is developing a Climate Action Plan (CAP) that is equity-centered, community-based, integrated, and capable of achieving deep emissions reductions goals. The CAP will review previous efforts, identify targets, describe the need for and benefit from the CAP using best practices for goal setting and forecasting emissions. The CAP will also assess the risks that the County will face from the impact of climate and non-climate stressors.

Charleston County' CAP will be developed through two main and interrelated work streams: technical modeling, analytics, and engagement.

Technical Modeling Process

The technical analytics team will undertake modeling and data analysis to support the creation of the CAP. First, they will build upon the current community greenhouse gas (GHG) inventory, to measure and report on Charleston County's current greenhouse gas emissions. Then, the team will use our modeling technology to project a "business-as-usual" (BAU) scenario extending to 2050. This scenario will be a projection of energy use and greenhouse gas emissions in Charleston County should the community continue with its current trends, plans, policies, and practices, and assumes no additional policy or climate action intervention.

Based on the gap between BAU and the target identified, the team will develop a **low-carbon scenario to analyze what measures need to be taken for Charleston County to achieve its climate goals**. Examples of measures include residential energy efficiency retrofits, the electrification of transportation, changes in land-use, district energy systems, community energy generation opportunities, and approaches to development in new growth areas, among other opportunities.

Engagement

The engagement team will focus on engaging interested and affected parties, including the public to ensure the CAP is rooted in the realities of and opportunities in Charleston County, and to help build public support for the plan. The engagement plan details who will be engaged and how, as well as how to foster ongoing engagement, support, and participation in the implementation of actions to reduce emissions. The engagement plan will incorporate a



Members Workbook

mix of engagement techniques depending on the needs of the affected parties. Insights from the engagement process will shape the aspects of the technical analysis that form the basis of the CAP.

Charleston County Climate Action Plan Decision Statement

By Spring/Summer 2024, the County Council for Charleston County will approve the County's climate action plan, outlining a pathway to a low-carbon target by 2050, with an interim target for 2035, while reflecting the knowledge, input, and perspectives of the community.

Key Project Outputs

- **Social Equity:** The CAP will assess impacts on different communities and groups in Charleston County, and how Plan implementation will address social equity considerations.
- **Benefits Framing:** The CAP will evaluate the benefits of climate action and focus on how the plan's elements will improve community well-being.
- **Implementation Evaluation:** The CAP will assess the costs and benefits of action, and the costs of inaction compared with climate action.
- **Partnerships:** The CAP will incorporate a strategy for engaging partners in designing and implementing actions, and mechanisms to report on and enhance those partnerships for community benefit.
- **Performance progress:** The plan will establish a system to track progress over time, including GHG emissions, benchmarks, alignment with overall scope, and strategy performance metrics. The system will be capable of being used for annual updates as well as incremental tracking over the course of the year.

Project Deliverables + Givens

- Project end date: April 2024
- BAU + BAP
- Low Carbon Scenario (LCS) and Action Strategies
- Interim low-carbon target for 2035 and 2050
- RSAC Collaboration
- Staff Expert Climate Advisory Team (SECAT) Collaboration
- General Public Collaboration (Workshops and Town Hall)
- CAP and Implementation Plan



Members Workbook

Project Glossary

BAU: business-as-usual modeling projection, showing projected greenhouse gas emissions for Charleston County from 2020 (base year) to 2050, if nothing new happens with respect to reducing emissions.

BAP: business-as-planned modeling projection, showing projected greenhouse gas emissions for Charleston County from 2020 (base year) to 2050, including current policies that impact greenhouse gas emissions reductions, but not a low-carbon policy intervention.

CAP: Climate Action Plan.

LCS: low-carbon scenario; modeling of low-carbon actions needed, in total, to reduce Charleston County's scope 1 and scope 2 emissions to the intended low-carbon target.

RSAC: resilience and sustainability advisory committee.

SECAT: staff expert climate action team.

SSG: Sustainability Solutions Group (project consultants).

Members Workbook

Project Active Public Engagement

Climate Action Planning 101 Webinar

A “Climate Action Planning 101” webinar was held on Jun 22, 2023 , with approximately 30 people attending. The Robert Lunz Group of the Sierra Club partnered with the County to host the online event.

- The webinar recording can be found [here](#).
- Survey [evaluation results are here](#).

Acting on Climate Together: Impacts of Extreme Weather Events in Charleston County

This public webinar was held on October 10, 2023 on Zoom webinar platform.

- The webinar recording can be found [here](#).
- Presentation slides are [here](#).
- Results from Mentimeter activities are [here](#).

Acting on Climate Together: Solutions for Charleston County

This webinar was held on January 18, 2024 on Zoom webinar platform.

- The webinar recording can be found [here](#)
- Presentation slides are [here](#).
- Results from Mentimeter activities are [here](#)

Members Workbook

Technical Engagement

SECAT Meetings

The first meeting of the SECAT will take place **Jul 10, 2023** and will review the project process and the initial BAU + BAP projections. These will be shared in this workbook for SECAT review as well.

2020 Draft Base Year Projection

As we embark on this journey to create a comprehensive Climate Action Plan, establishing a solid baseline is crucial. Therefore, we have designated 2020 as our base year for emissions projections. This means all our greenhouse gas emissions data, strategies, and goals moving forward will be compared and evaluated against the data gathered in this year. By using 2020 as a benchmark, we can accurately track our progress, identify areas for improvement, and ensure that our climate action strategies are effectively reducing emissions in Charleston County.

Model Calibration

Our model is essentially a simplified representation of a system, used to predict or understand future behavior or phenomena. We integrate fuels, sectors and land-use to enable a bottom-up accounting for energy supply and demand. For any given year, the model traces the flows and energy transformations from sources through energy currencies (eg: electricity and gasoline) to end-uses (e.g., space heating and personal vehicle use) to energy costs and GHG emissions.

Model Calibration is a critical step in the process. Local data for the baseline year is used to ensure the model's accuracy for the Charleston county context. This involves verifying the model structure logic so that differences between observed (real-world measurements) and predicted (model-derived) values are minimized.

The aim is to refine the model so that it can accurately reproduce the behavior of the system under study and can therefore be trusted to make reliable predictions about future emissions under different scenarios.

Members Workbook

In the context of climate change and emissions modeling, calibration might involve adjusting assumptions related to the energy use intensity per square foot of specific building archetypes to meet the known electricity use in the county for the base year.

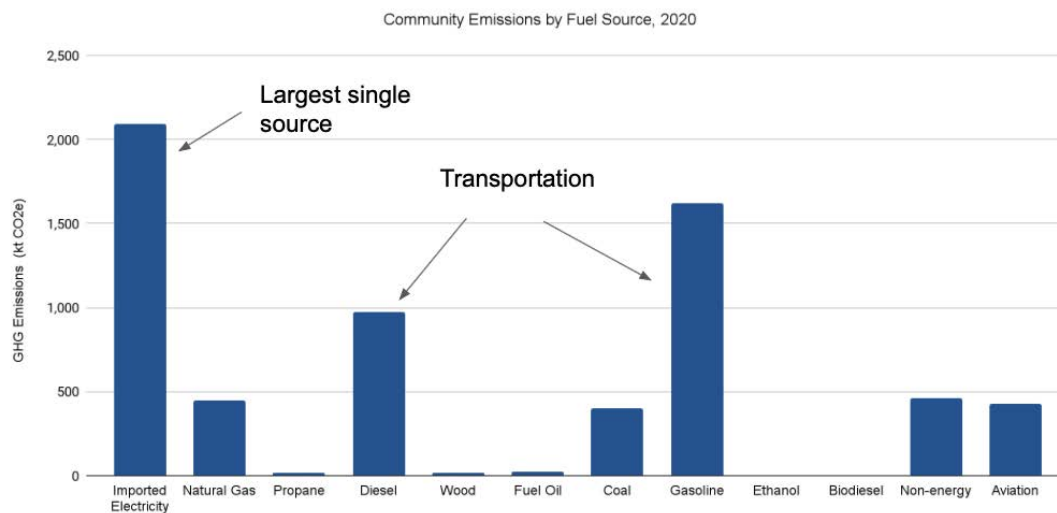
Once a model has been properly calibrated, it becomes a powerful tool for understanding how different actions or policy interventions might impact future emissions, allowing decision-makers to choose the most effective strategies for achieving their climate action goals.

Data, Methods, and Assumptions (DMA) Manual

- Link for the DMA with the data sources and assumptions used in the modeling process, when ready.

2020 Draft Base Year

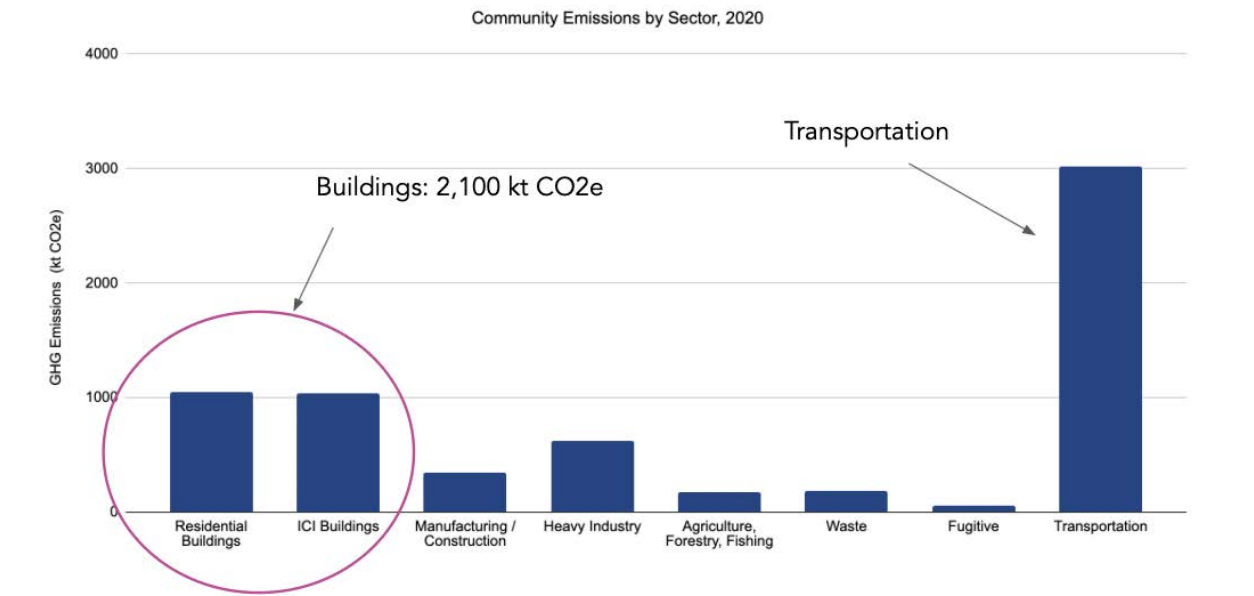
DRAFT Baseline for Charleston County



The above graph illustrates the County's emissions by fuel source and shows that emissions from imported electricity, used primarily for space conditioning, is the largest source of emissions. Fuel use from various transportation activities are also having a large impact.



DRAFT Baseline for Charleston County



Breaking down emission sources by sector illustrates what activities are impacting the emission landscape. In Charleston, transportation activities have the greatest impact on emissions. Buildings also represent a large portion of the emissions generated. Understanding the most significant sources of emissions by both fuel source and sector in Charleston will help decision makers create impactful reduction strategies.

BAU + BAP Model Projection

Presented in SECAT meeting 1 on Jul 11, 2023 .

LCS Projection

Scheduled for Fall 2023. Feedback request coming in Summer 2023.

Implementation Framework

Work to be completed with Civix. Expect to see updates in the Fall of 2023 and at future SECAT meetings.