RSAC Meeting 6

Draft Plan Document Overview

6 February 2024

SSG

Agenda

Welcome - Arielle + Erica, SSG

Agenda Review - Erica

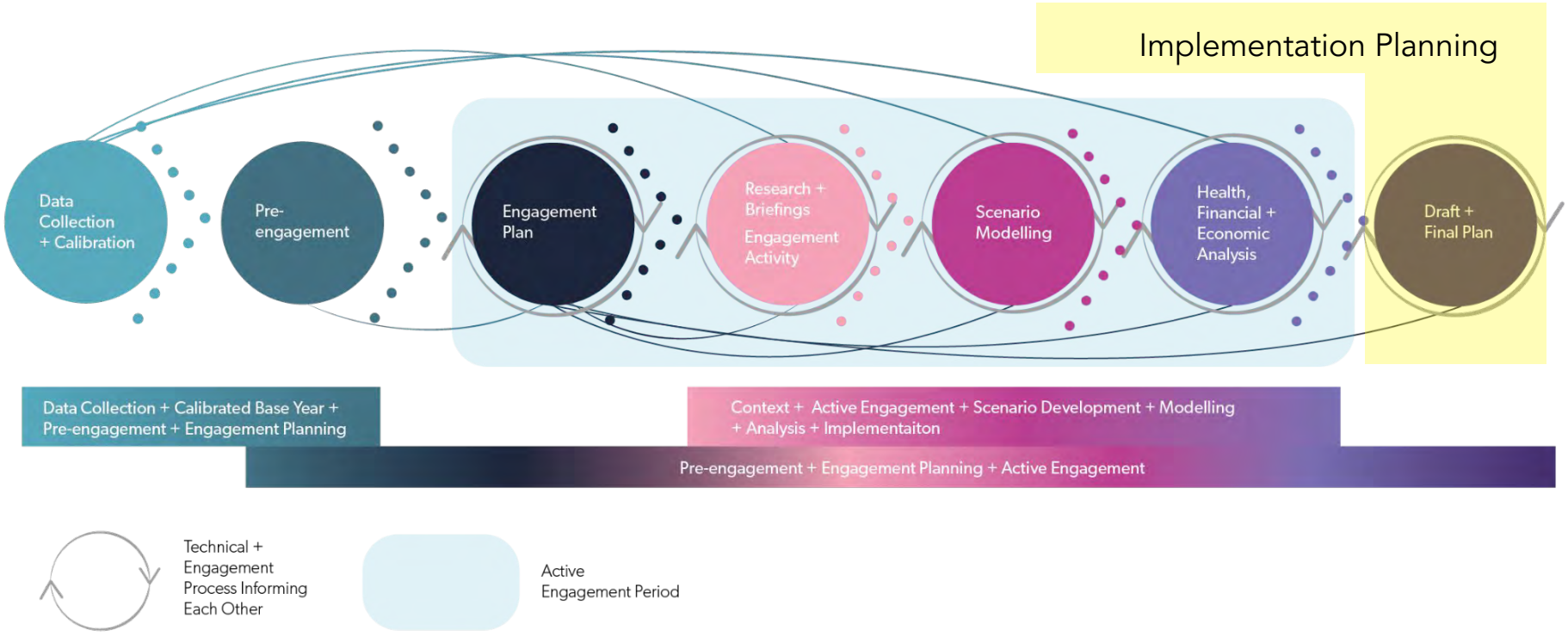
Low Carbon Pathway Financial Analysis - Yuill

Plan Overview - Yuill

- Key Contents
- Questions to Consider
- Report Details

Roundtable Discussion - RSAC

Closing + Next Steps - Arielle + Yuill


Implementation Planning
Data Collection + Calibration
Pre-engagement
Engagement Plan
Research + Briefings
Engagement Activity
Scenario Modelling
Health, Financial + Economic Analysis
Draft + Final Plan
Data Collection + Calibrated Base Year + Pre-engagement + Engagement Planning
Context + Active Engagement + Scenario Development + Modelling + Analysis + Implementaiton
Pre-engagement + Engagement Planning + Active Engagement
Technical + Engagement Process Informing Each Other
Active Engagement Period

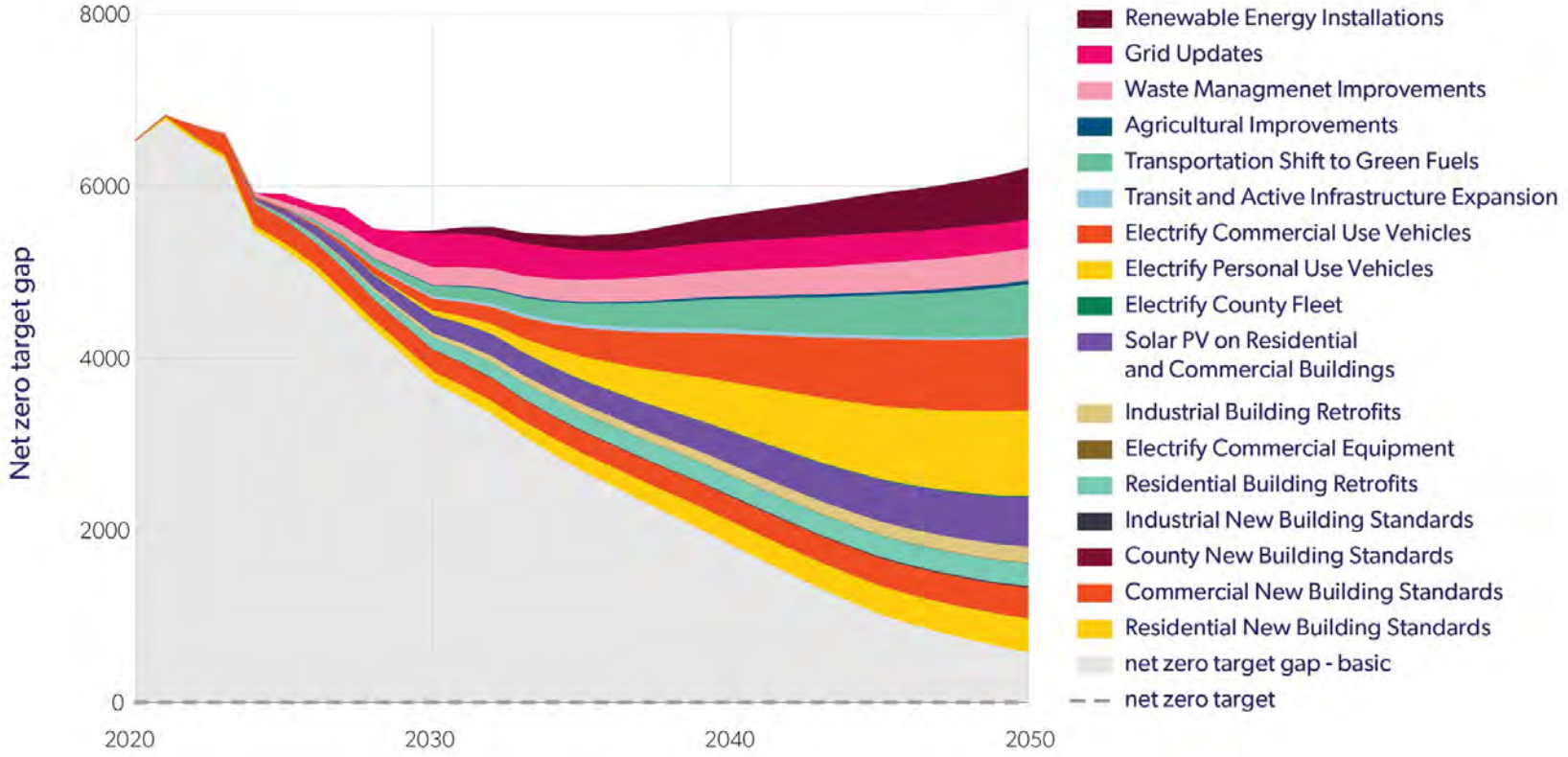
Remaining Timeline for Plan

- RSAC and SECAT Comments on Draft Plan - February 16
- Revisions to Draft Plan - February 17-21
- Final Plan - February 22
- RSAC and SECAT Feedback Meetings - February 27 and 28
- Council briefing - March 7

Low Carbon Pathway

Community Emissions by Sector 2020

Low-carbon (Modeled) Scenario for Charleston County



How do we do it?

E.g. Electrification of Personal Use Vehicles

What Do We Include?

Capital Investments → Community based, result in jobs, create new economic development activities

+

Operating Expenses → Decrease up to 50% due to increased efficiency across all sectors

+

Revenue → Renewable energy, transit fees, etc

Return on Investment

An Example- EVs

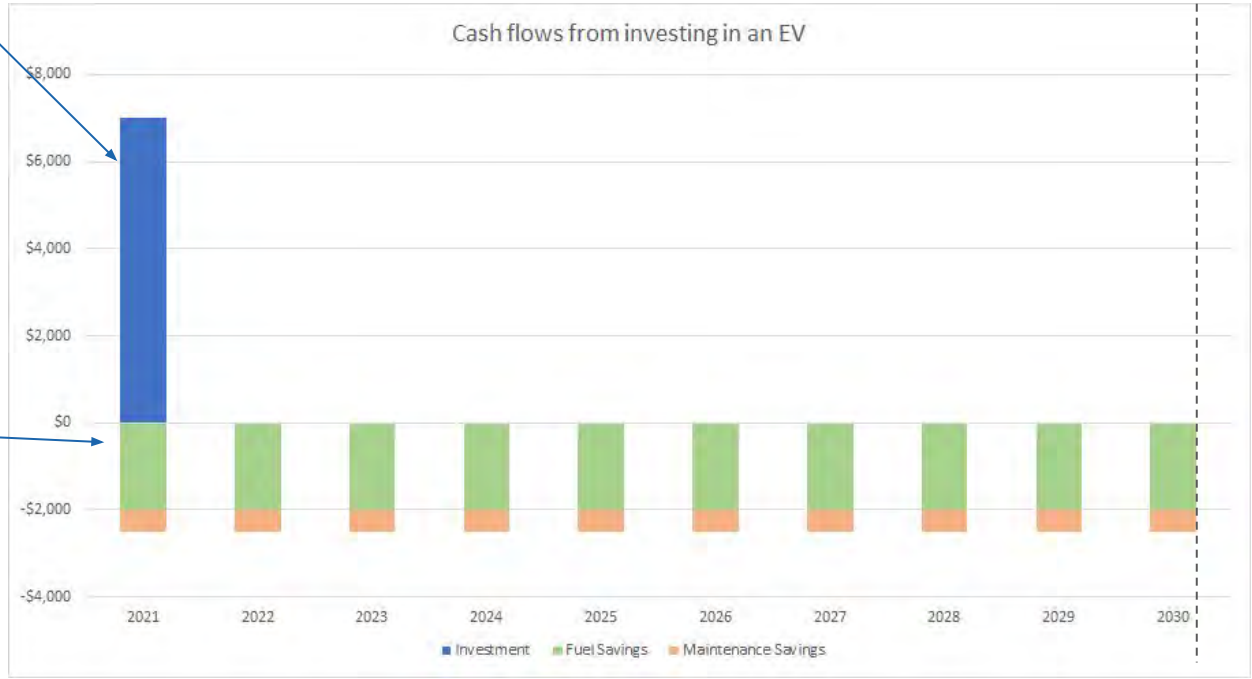
- Assumptions:
  - Purchasing 1 EV vehicle costs $**7,000 more** than an Internal Combustion Engine equivalent vehicle in 2021
  - **Fuel savings** from switching from gasoline to electricity are $**2,000 per year**
  - **Maintenance cost savings** for switching to an EV are $**500 a year**
  - **Useful life** for an EV is **10 years**

Undiscounted Cash Flow

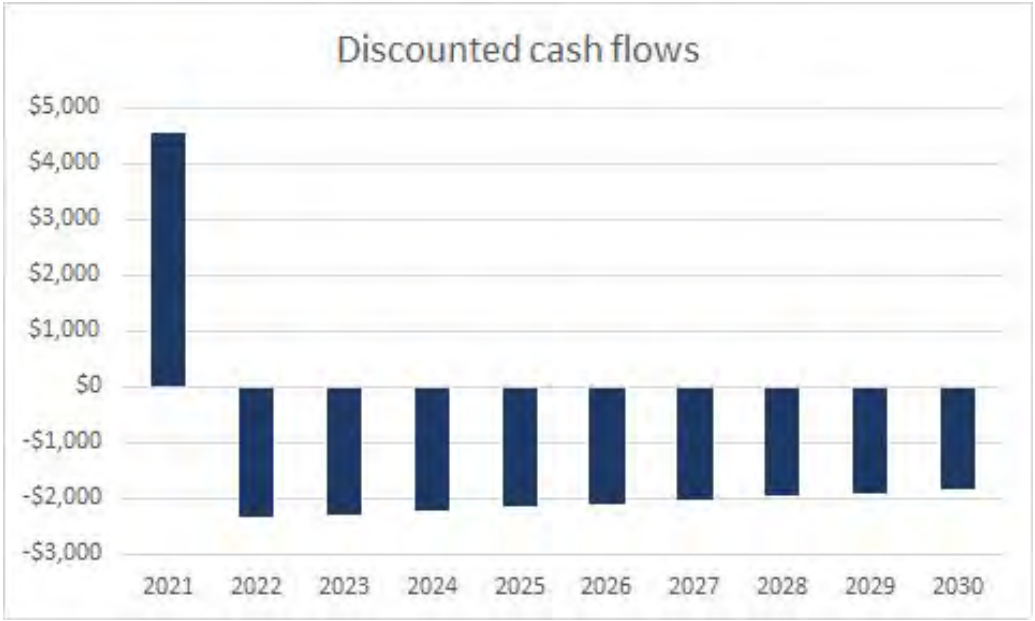
Investment premium of buying EV versus ICE equivalent

Operating and maintenance savings

t = 10 years



Discounted Cash Flow



3% discount rate

When you add up all the years of discounted cash flows you get:

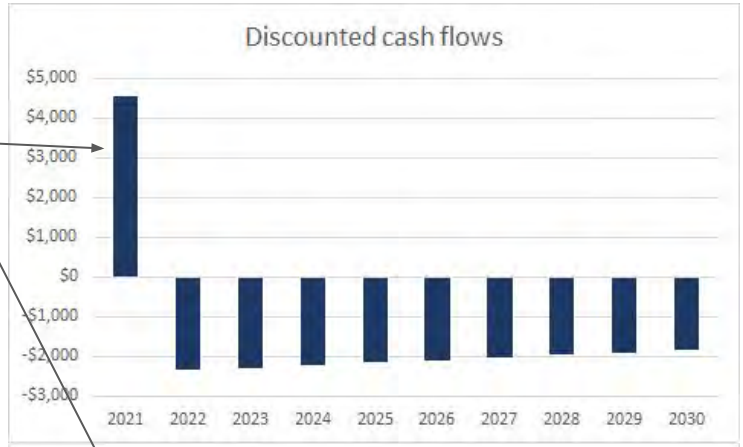
Net Present Value (NPV) = $14,326

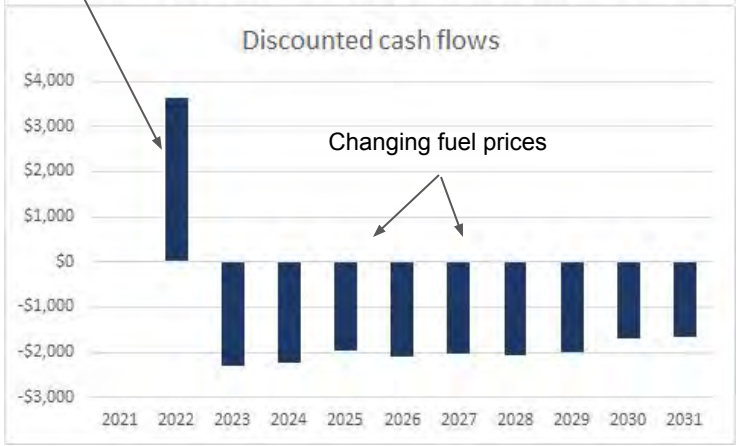
(If we would use a 5 year useful life instead of 10 we would have an NPV of $4,449)

Two EVs

Investment costs vary by year

+



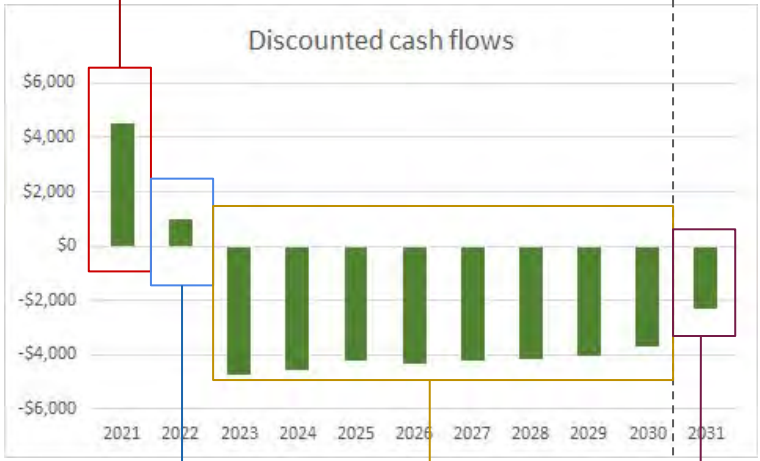


Changing fuel prices

=

2021 investment in EV1 - savings for EV1

End of analysis year = 2030



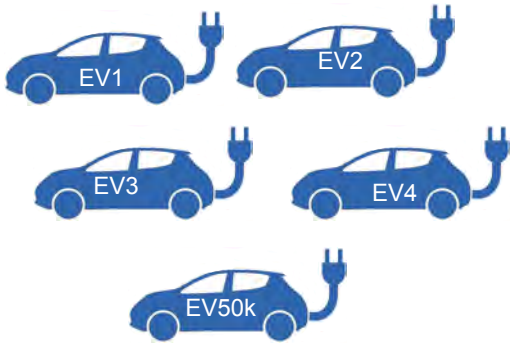
Investment for EV2 - savings from EV1

Fuel and maintenance savings for both EVs

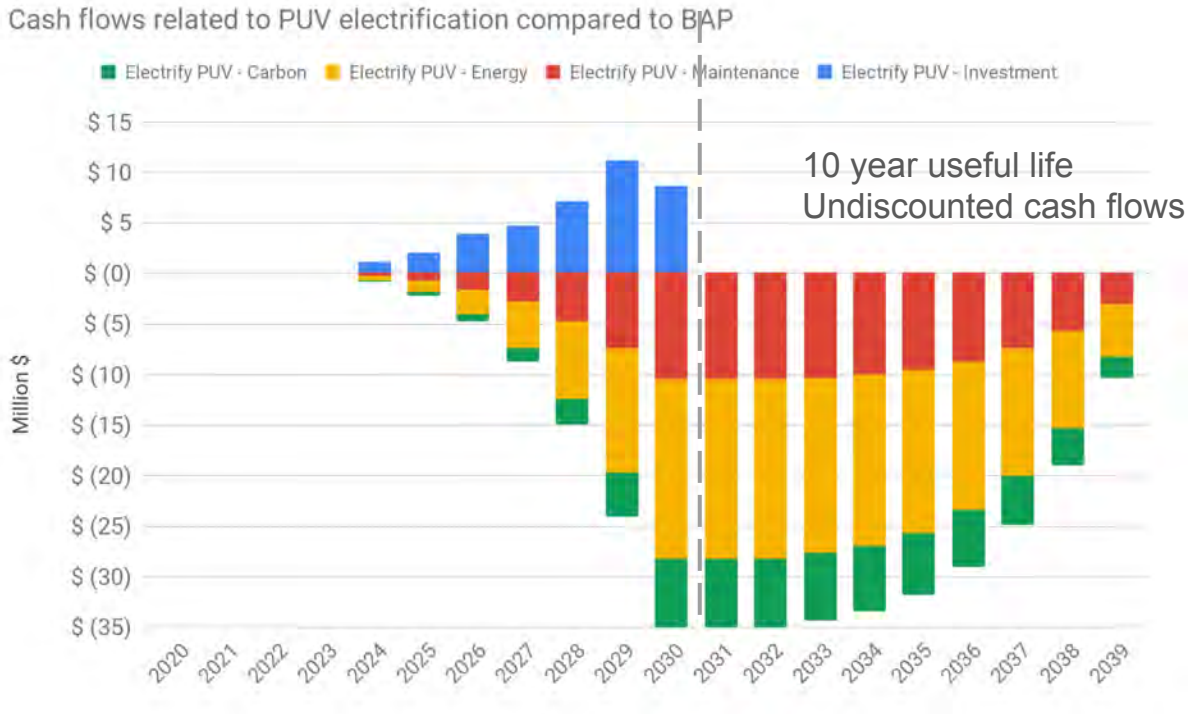
Fuel and maintenance savings for EV2 only

CityInSight Financial Output

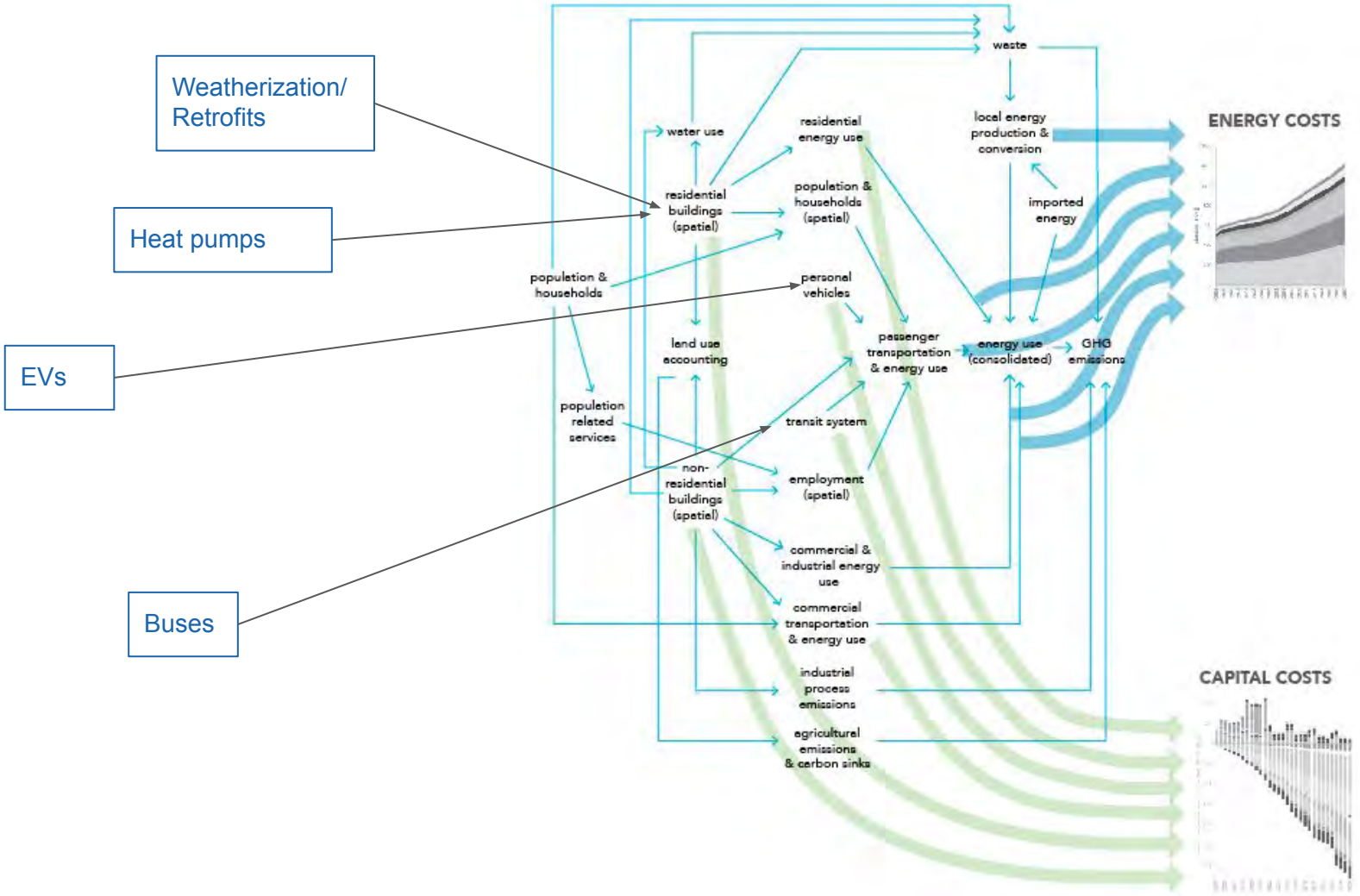
What happens when a town of 50 000 people all buy EVs?



End of analysis year = 2030



Discounting these cash flows at 3% results in a 200M $ NPV


Weatherization/ Retrofits
Heat pumps
EVs
Buses
waste
water use
residential energy use
local energy production & conversion
ENERGY COSTS
residential buildings (spatial)
population & households (spatial)
imported energy
population & households
personal vehicles
land use accounting
passenger transportation & energy use
energy use (consolidated)
GHG emissions
population related services
transit system
non-residential buildings (spatial)
employment (spatial)
commercial & industrial energy use
commercial transportation & energy use
industrial process emissions
agricultural emissions & carbon sinks
CAPITAL COSTS

Results

What is the economic impact of decarbonising Charleston County?

Charleston County's GDP

$34.5 billion, 2021

Source: Charleston County Economic Development. Retrieved from: https://www.charlestoncountydevelopment.org/data-center/economic-data/

Avg. Annual **Community** Capital Investments, Low Carbon Scenario

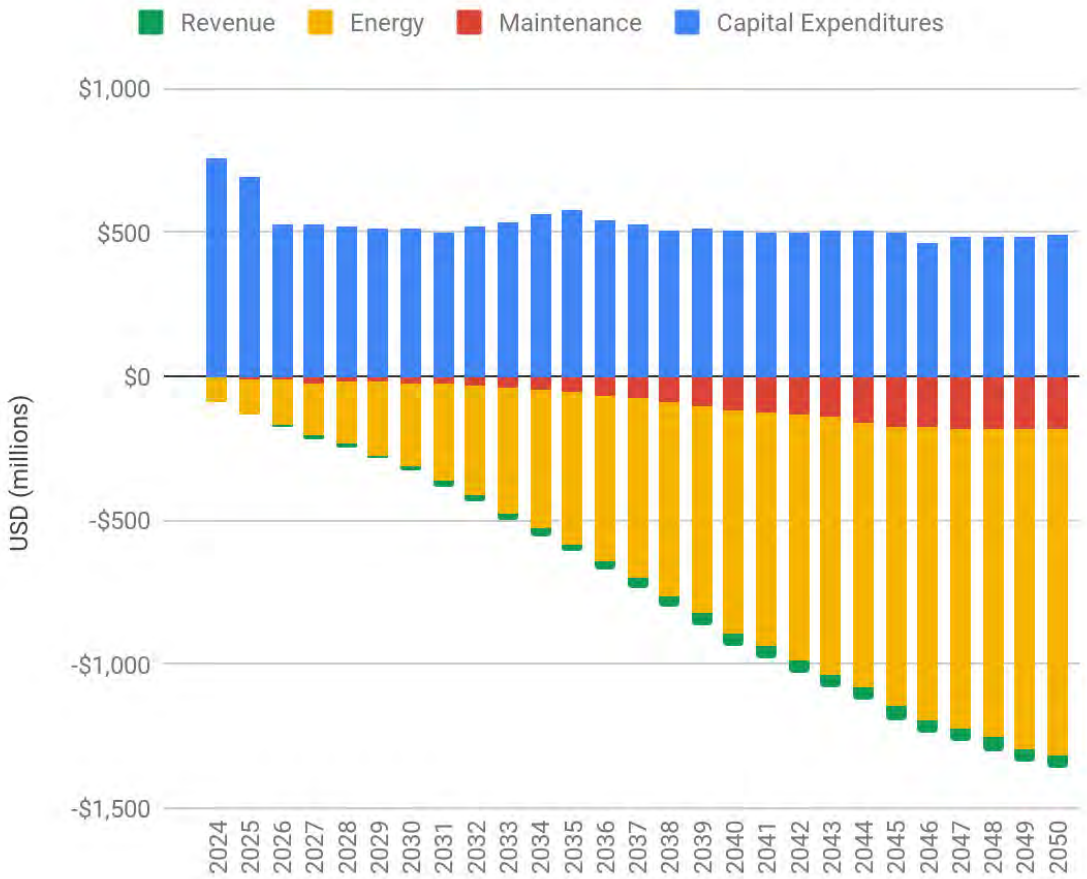
$550 million

1.5% of GDP

Avg. Annual Energy Savings, Low Carbon Scenario

-$640 million

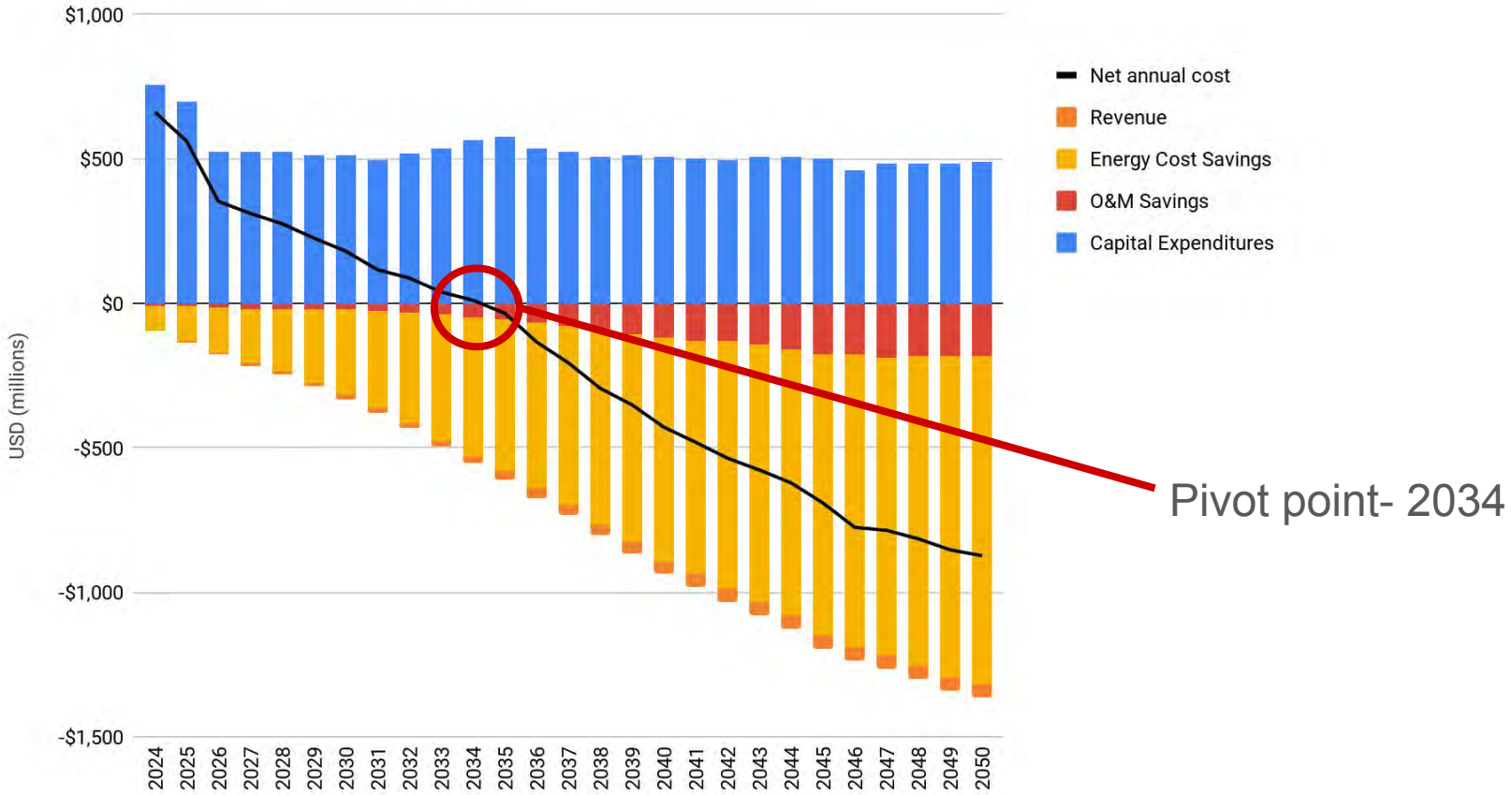
Year over Year Investments and Returns



Capital

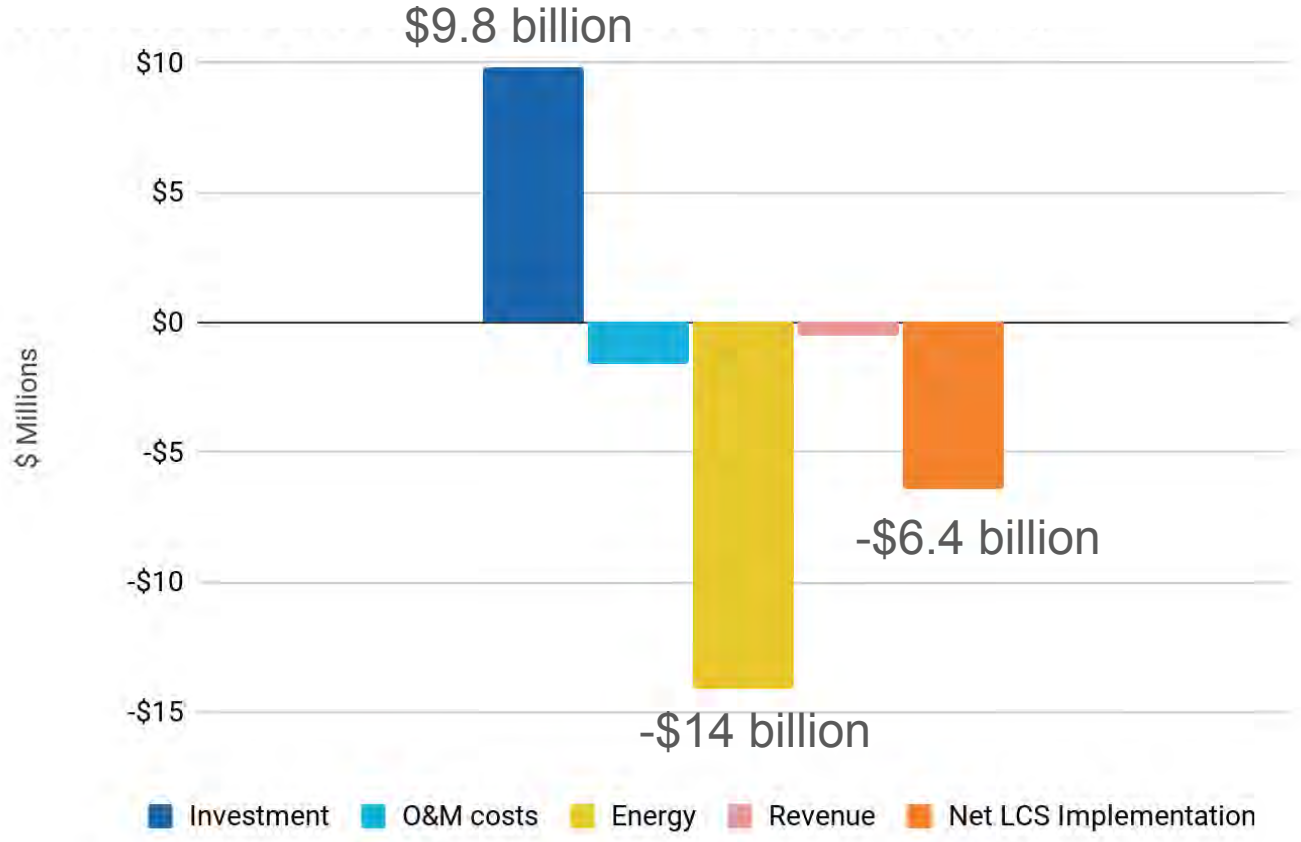
Energy cost savings

Year over Year Investments and Returns

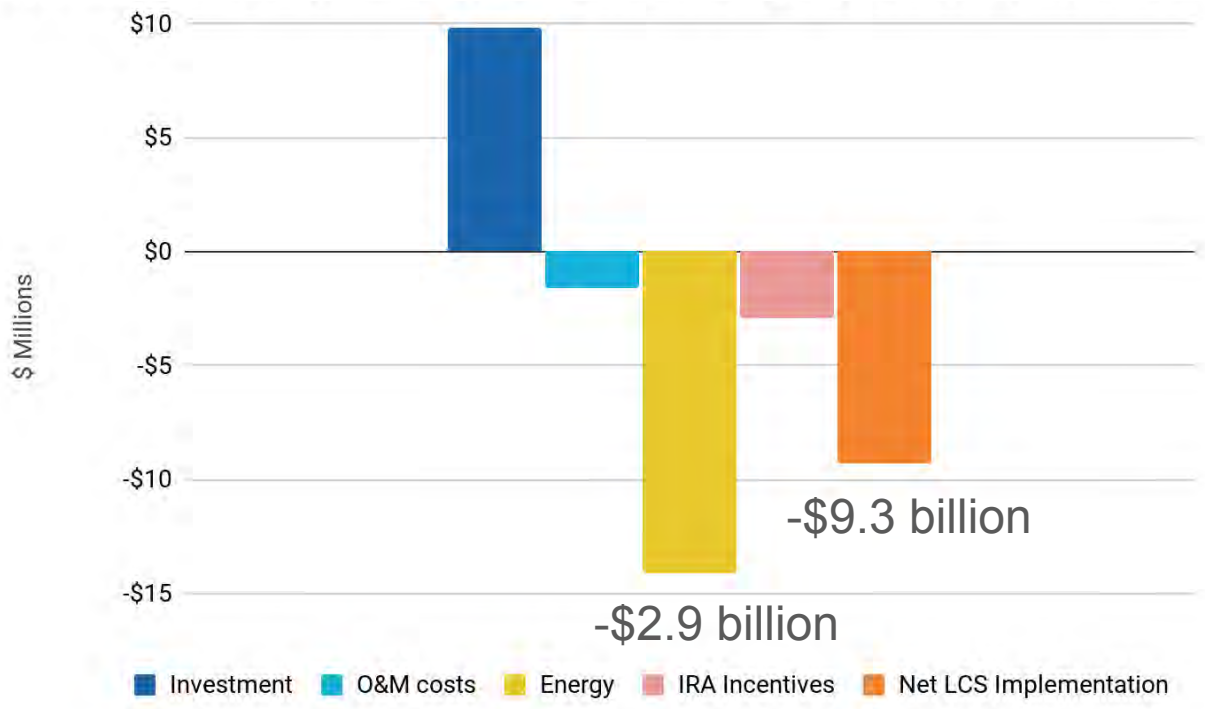


Net Investments and Returns

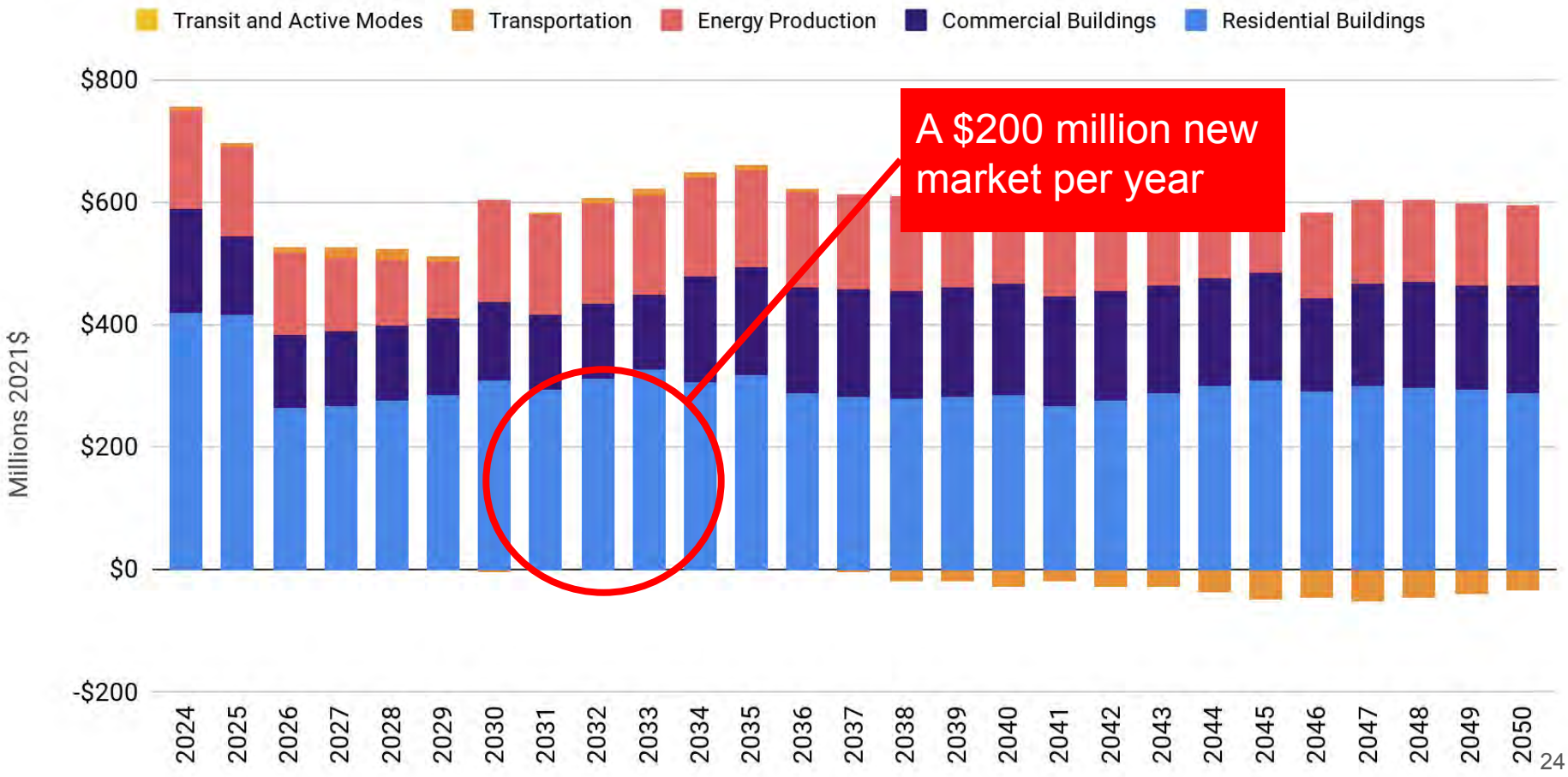
(3% discount rate)



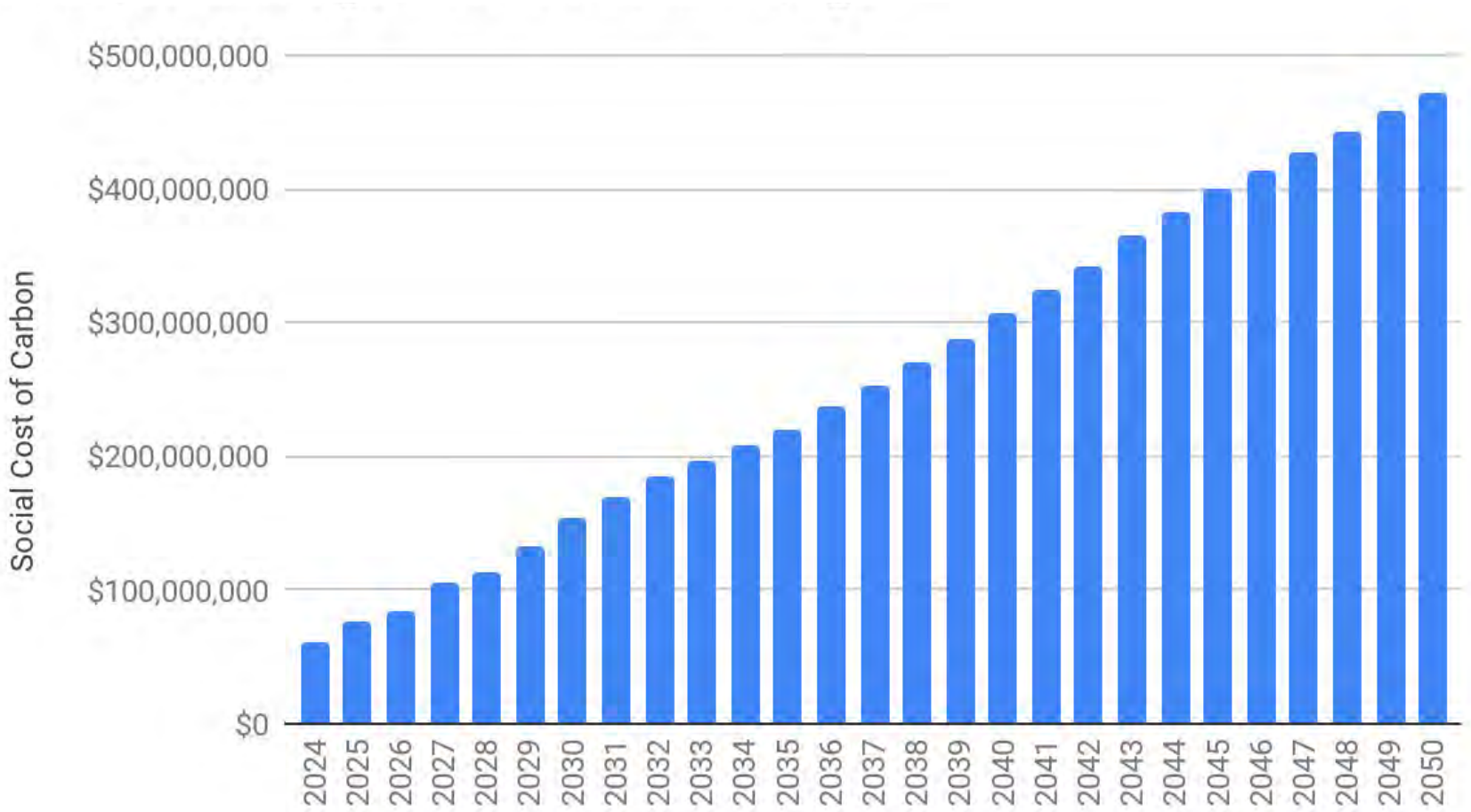
Net Investments and Returns
(including IRA, 3% discount rate)



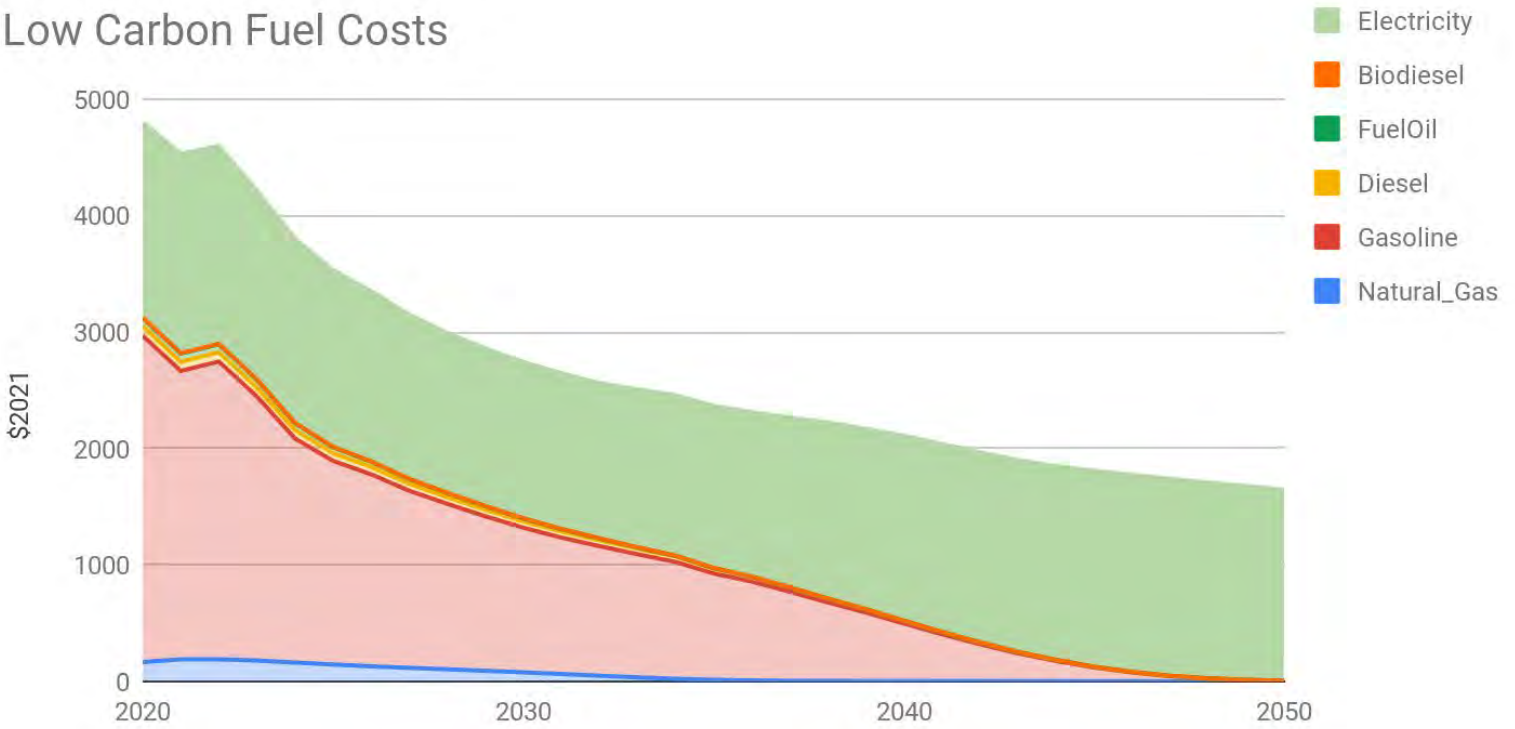
Capital expenditures by sector



Avoided Damage from Climate Change



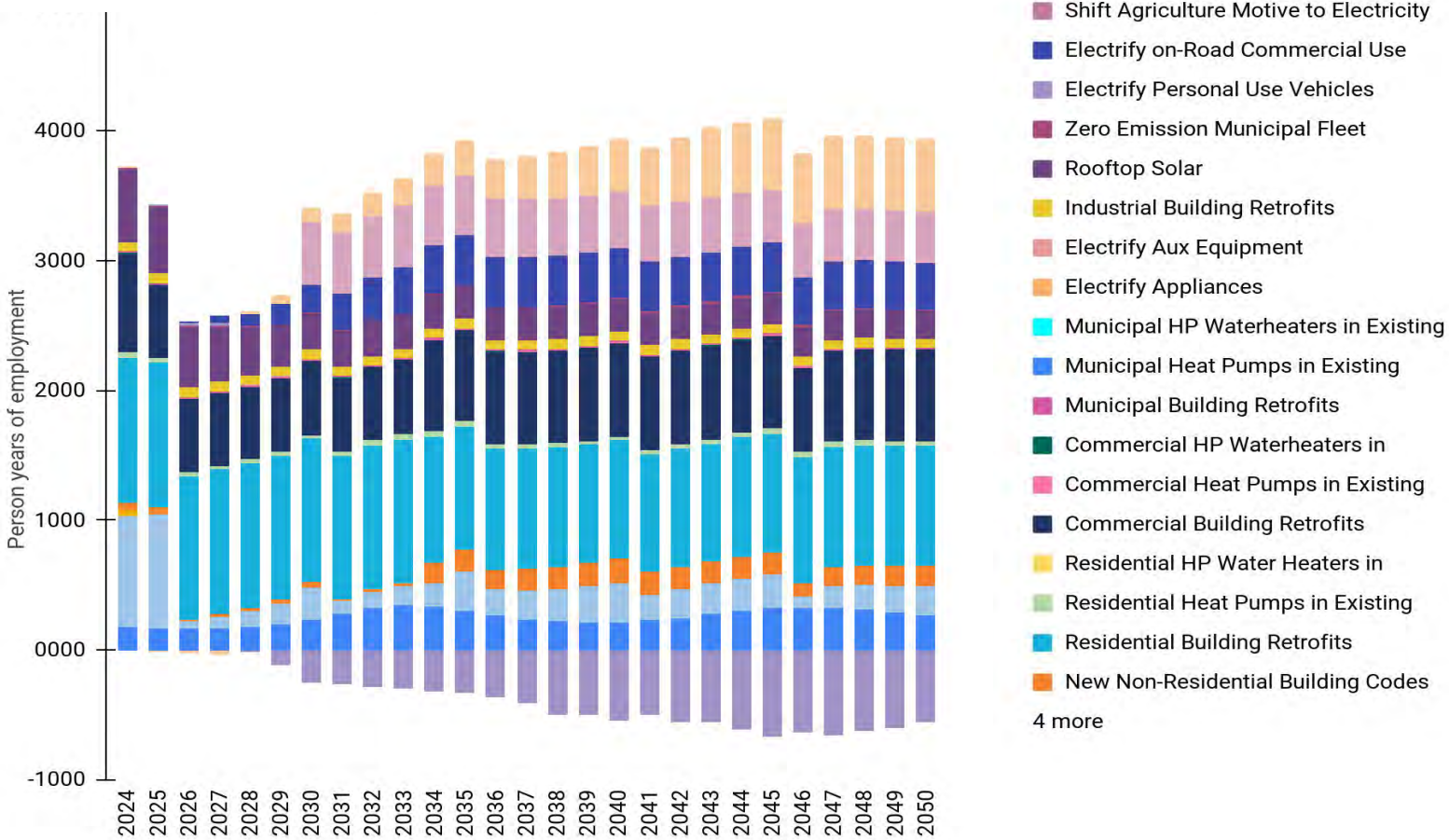
Household Energy Costs



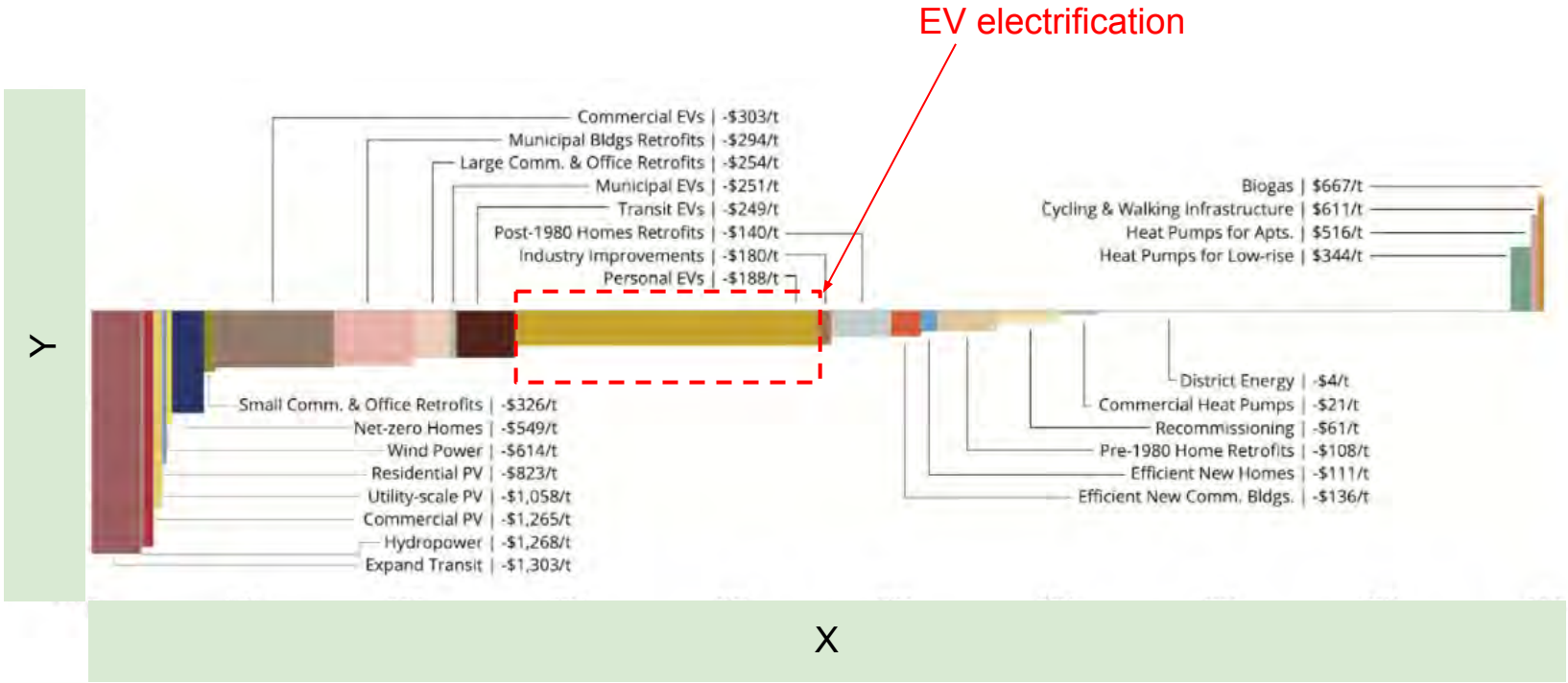
Average New Person Years of Employment

3,340

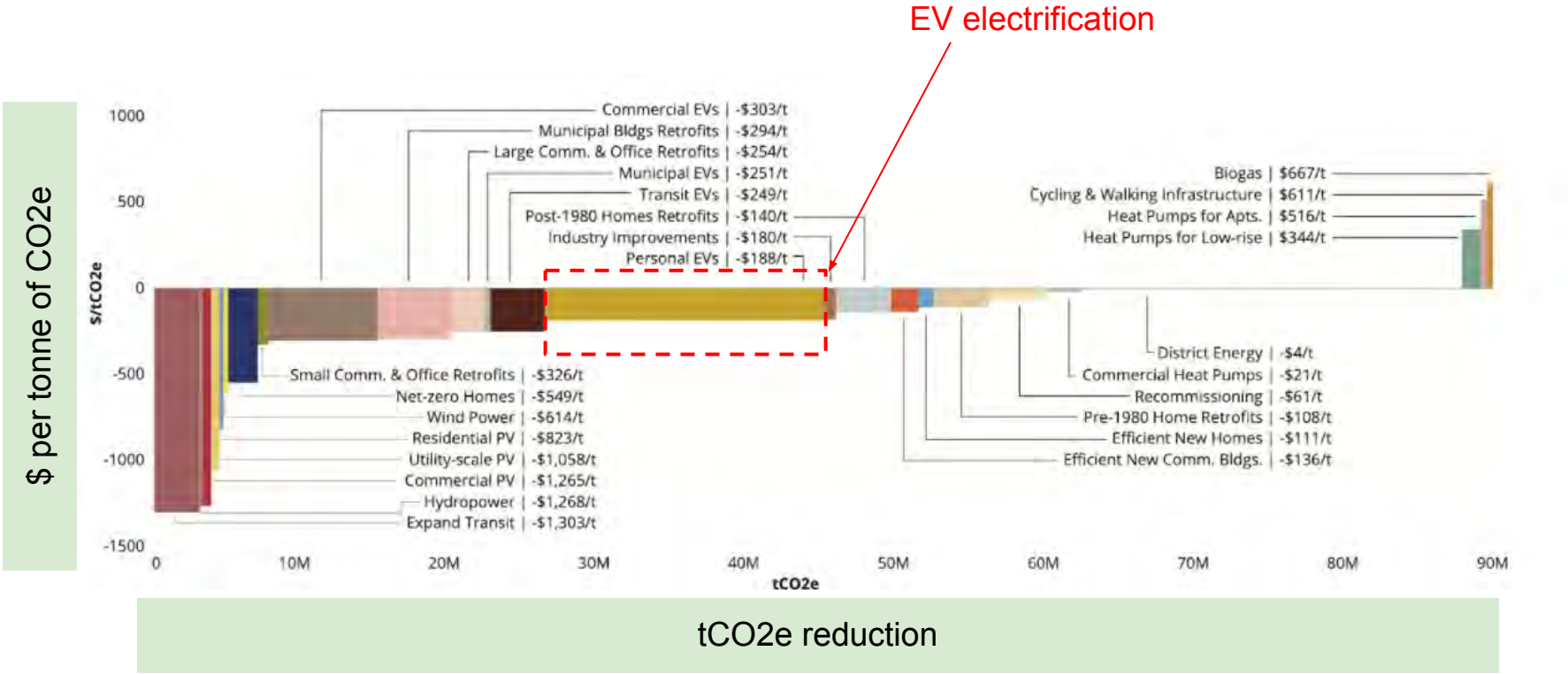
Job Creation



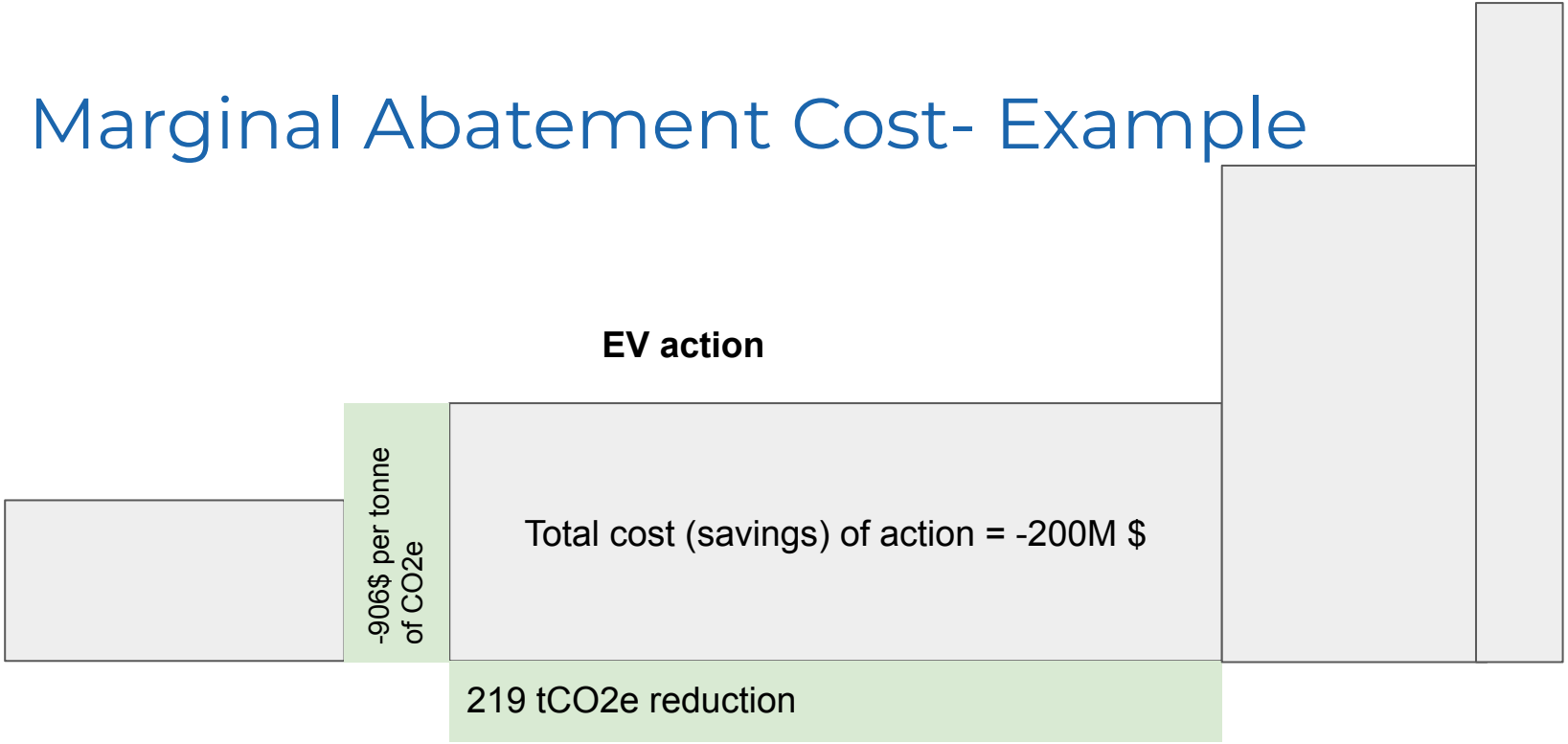
Marginal Abatement Cost- Example



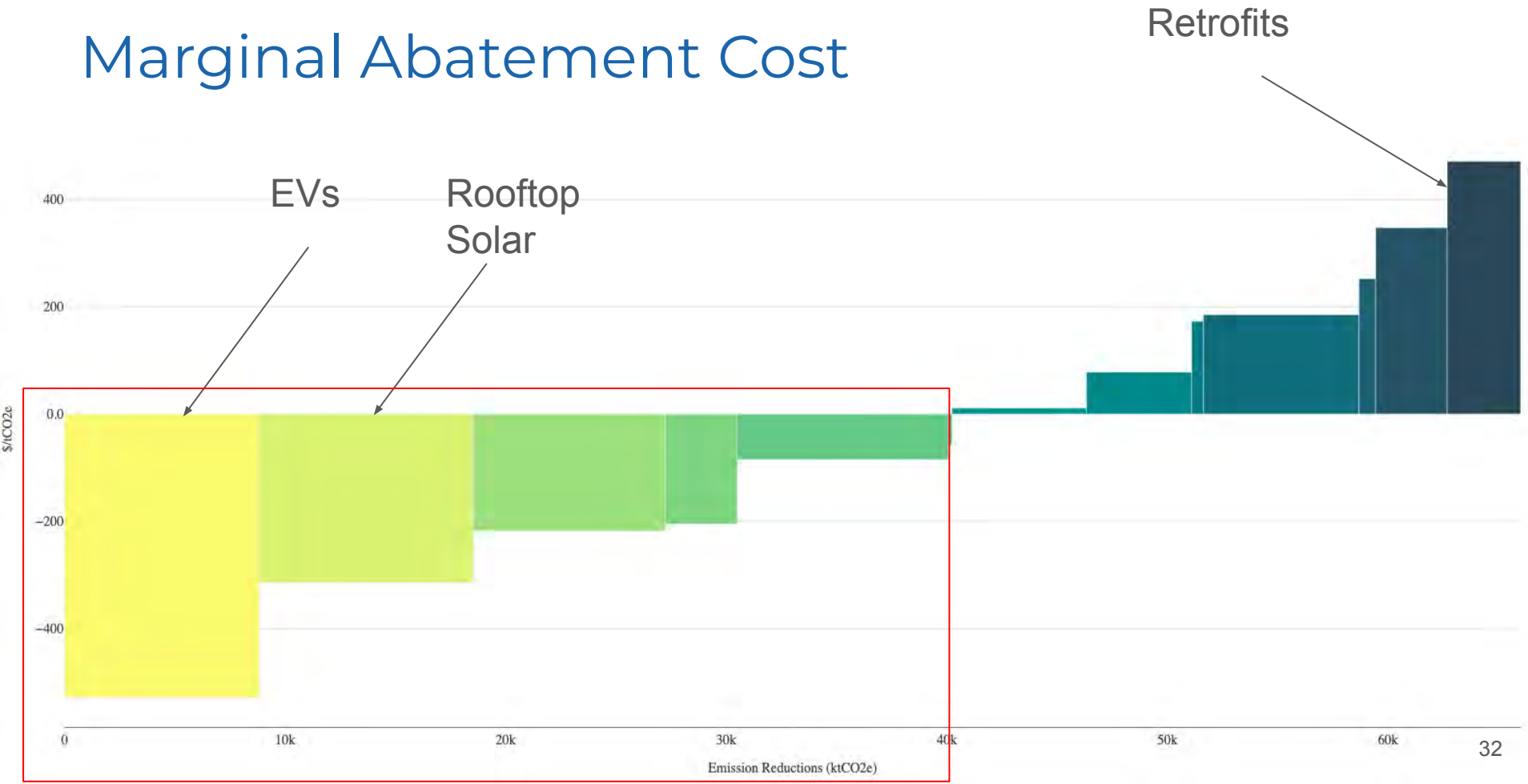
Marginal Abatement Cost- Example



Marginal Abatement Cost- Example



Marginal Abatement Cost



Plan Overview

Executive Summary

1 Executive Summary
- 1.1 The Process
- 1.2 The Pathway
- 1.3 Targets
- 1.4 Findings
- 1.5 Implementation
- 1.6 Conclusion

Full Table of Contents

1 - Executive Summary
2 - Setting the Scene
3 - Creating a Plan
4 - The Starting Point
5 - Low-Carbon Pathway
6 - The Big Moves
7 - Co-Benefits
8 - Equity
9 - The Economic Opportunity
10 - Monitoring and Evaluation
11 - Role of Different Actors
12 - The Time to Act is Now

Questions and Considerations for Review

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

THANK YOU

yuill@ssg.coop

agerstein@charlestoncounty.org

SSG