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December 8, 2022

Mr. Andrew S. Johnston
Executive Secretary
Public Service Commission of Maryland
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, MD 21202-6808

Re: Case No. 9648

Dear Mr. Johnston:

Pepco Holdings, LLC ("PHI") was informed by Applied Energy Group ("AEG") that certain corrections to the November 11, 2022, Greenhouse Gas Abatement Potential Study filing were needed. AEG recognized that administrative costs were understated in their models, affecting the cost-effectiveness screening which impacted both the slides and the workbook. In the slides, only graphs are impacted with no changes needed to the wording. Graphs have been updated on the following slides: 21, 26, 28-37, and 43-48. The graphs reflect small decreases in economic and achievable potential associated with the update to administrative costs and these changes will be mostly imperceptible.

At the Future Programming Work Group meeting on December 1, 2022, AEG discussed these changes with the attendees to that meeting and noted that PHI would be filing a forthcoming errata. AEG also noted a separate correction, which affected the natural gas technical potential that required AEG to provide an updated version of the reporting workbook to the Future Programming Work Group but did not affect the November 11th filing with the Commission. Accordingly, PHI will provide the updated workbook to the parties to EmPOWER to accompany this errata.

PHI requests that the attached revised slides, with the changes noted above, replace the previously filed slides, which were filed on November 1 . In addition, PHI has included the originally filed slides for reference.

Please contact me if you have any further questions.

Sincerely,

/s/ *Taylor W. Beckham*

Taylor W. Beckham

Enclosure

cc: All Parties of Record

AEG
APPLIED ENERGY GROUP

Maryland GHG Abatement Study – Final Results

Prepared for: EmPOWER MARYLAND

In Partnership with: VERDANT, Brattle, cadeo

Date: December 2, 2022

Table of Contents

Introduction

Reporting Format

- Consistent with the Maryland Public Service Commission's modification to Order No. 90261, this presentation summarizes assumptions, methods, inputs and results of the EmPOWER Maryland GHG Abatement Study.
  - A workbook is provided along with this presentation, including detailed study inputs and results.
  - Drafts of this slide deck and the accompanying workbook were shared with utilities and stakeholders on October 27, 2022.
- The final GHG Abatement Study report will be filed by January 6, 2023.
- In general, consistent with the consensus of the Future Programming Work Group, potential results are presented in terms of annual lifecycle emissions reductions, reflecting the emissions reductions over the life of installed equipment in each year; lifecycle impacts incorporate assumed changes in electric emission rates over the measure's life.

Use of Study Results

- This study was designed to identify the level of available greenhouse gas (GHG) abatement potential from an identified set of behind-the-meter resources within the EmPOWER Maryland utilities' service areas under specific sets of assumptions.
- While the levels of GHG abatement potential identified in this study will be a key element in setting future EmPOWER Maryland goals, the potential estimates are not intended to represent or recommend specific goals for individual utilities or for EmPOWER Maryland as a whole.
- In completing this study, including in-depth workshops with utilities and stakeholders, AEG identified key topics that should be considered when translating potential study results into specific EmPOWER utility goals. These key considerations are described in slides 17 through 24.

Project Team Overview

Applied Energy Group

Prime Contractor, Energy Efficiency and Building Electrification Potential Lead

Founded in 1982 | Joined Ameresco 2011

AEG provides expertise, products and insights to utilities and other agencies to solve current and future business and sustainability needs.

115 Dedicated professionals

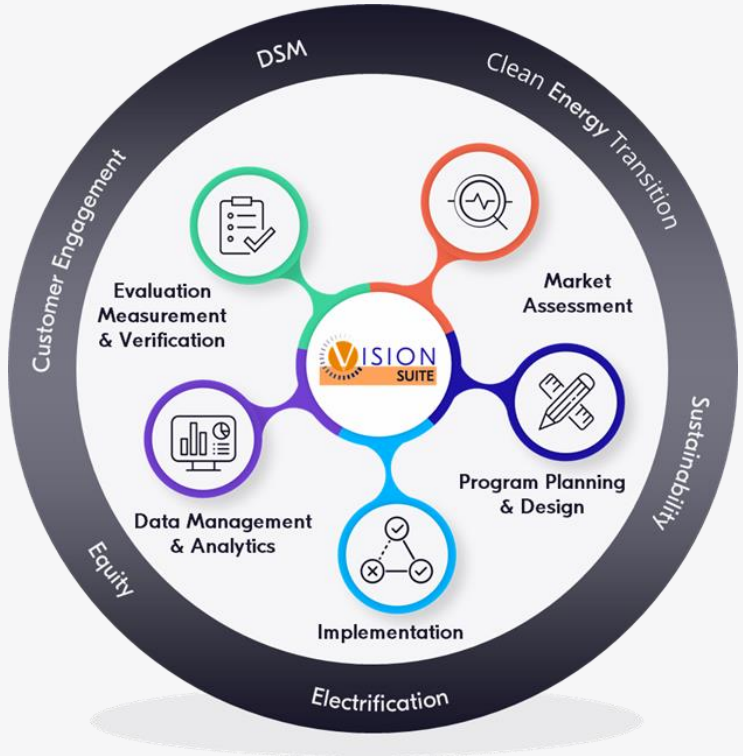
100 potential studies in the past 10 years.

49 States and provinces in which we've worked

20 years of Software as a Service (SaaS) offerings

200+ Utility and government clients served

2,000+ EE programs managed in VisionDSM



Verdant Associates

Market Baseline Study Lead

- **Founded in 2020 by four senior members of Itron's Strategic Analytics group**
  - Verdant's staff have provided best-in-class energy consulting for over 20 years
  - A woman owned and operated small business
- **Designed and/or managed some of the industry's largest and most innovative evaluation, planning, and research efforts**
  - ComEd Baseline Study, California Commercial Market Share Tracking and Saturation Survey, Self-Generation Incentive Program Market Assessments, Massachusetts C&I On-Site Assessment and Market Share Study
  - Long history of potential assessments and how baseline data are incorporated into these studies
  - Unparalleled experience with distributed generation evaluation and research efforts including calculating GHG impacts
  - Expertise in the development of sample designs and surveys for baseline data collection
- **Extensive experience in federation of data sources from multiple sources (utilities' customer information, billing and tracking data) and developing routines and frameworks to efficiently process and store large quantities of data**

VERDANT

The Brattle Group

Demand Response Potential Lead

- **Extensive experience working with Maryland investor-owned utilities on demand-side issues**
  - PC44 TOU pilot support, Maryland AMI cost-recovery filings, smart grid pilot design
  - Extensive ongoing support to Exelon utilities on a variety of strategy and planning matters
- **Internationally recognized demand response thought leadership**
  - Study on national potential for load flexibility cited by Forbes, Utility Dive, Vox
  - Recently led development of U.S. DOE's A National Roadmap for Grid-Interactive Efficient Buildings
  - Led development of FERC's A National Assessment of Demand Response Potential
- **Broad jurisdictional experience and stakeholder credibility**
  - DR clients include utilities, state/federal regulators, aggregators, ISOs, tech companies, policymakers, research organizations
- **Sophisticated demand response modeling platform**
  - Brattle's LoadFlex model has been used to support utility IRPs (electric & gas), business strategy, policy development

Brattle

Cadeo Group

Market Actor Survey Lead, Electrification Analysis Support

Founded in 2014 to provide strategic market intelligence to utilities, nonprofits, and the Department of Energy

- Staff of 40 consultants provide a range of market research, evaluation, engineering, and decarbonization planning to clients throughout the U.S.
- Cadeo staff bring dozens of years of experience to their roles

Regularly engaged in complex data collection activities

- Expertise in the hardest-to-reach populations: tradespeople, commercial building managers, and multifamily building contacts
- Recent studies include surveys of plumbers, HVAC distributors and installers, window distributors and installers, and multifamily building owners for clients in the Pacific Northwest and New England

Extensive experience in potential and planning studies

- Team has led or supported over a dozen energy-efficiency and distributed energy resource studies in the Pacific Northwest and throughout North America, most recently completing a DER and Flexible Load Potential Study for Portland General Electric

Acknowledgements

The AEG Team thanks members of the following organizations for their valuable contributions to this project:

Utilities

- Baltimore Gas and Electric (BGE)
- Delmarva Power (DPL)
- Pepco (PEP)
- Potomac Edison (PE)
- Southern Maryland Electric Cooperative (SMECO)
- Washington Gas Light (WGL)

Government Agencies

- Maryland Department of the Environment (MDE)
- Maryland Department of Housing and Community Development (DHCD)
- Maryland Energy Administration (MEA)
- Maryland Office of People's Council (OPC)
- Maryland Public Service Commission (Commission) Staff

Other Organizations

- ACEEE
- Loper Energy (on behalf of the Commission)
- Maryland Energy Efficiency Advocates (MEEA)
- Vermont Energy Investment Corporation (on behalf of OPC)
- Energy Futures Group (on behalf of MEEA)

Study Background and Objectives

Study Background

- Under the directive of the Maryland Public Service Commission, the Future Programming Work Group (FPWG) considered proposals on a new, broader goal structure that included energy reduction, greenhouse gas reduction, electrification, and distributed energy resources (DERs), among other topics.
- To inform these future goals, the FPWG developed and issued a Request for Proposals (RFP) to select a consultant to perform a GHG Abatement Potential Study for select behind-the-meter resources:
  - The RFP was approved by the Commission on October 20, 2021, and the RFP was issued by Pepco Holdings, Inc. (PHI) on behalf of the Joint Utilities on November 2, 2021.
  - In early 2022, The AEG Team (Applied Energy Group, Verdant Associates, The Brattle Group, and the Cadeo Group) was selected to perform the study. The AEG Team worked with Pepco Holdings, Inc. (PHI) staff to develop a final study work plan.
  - On February 18, 2022, AEG led an initial project kickoff meeting with the Joint Utilities, Commission Staff, and interested stakeholders. Project work materially began in March 2022.
- On July 18, 2022, the Commission approved a modification to Order No. 90261, establishing the reporting schedule for this project. This presentation and accompanying workbook constitute the first deliverable to be filed, with the final report to be filed in January 2023.

Study Objectives

Based on the RFP and discussions with utilities and stakeholders, the AEG Team identified the following primary objectives for this study.

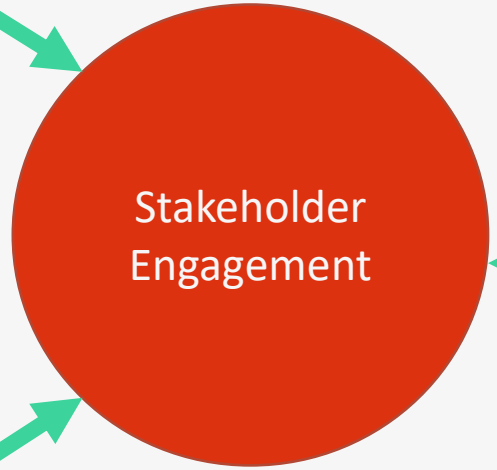
- Assess opportunities for behind-the-meter GHG abatement that support EmPOWER Maryland objectives and align EmPOWER Maryland programs with the state's GHG emission goals.
- Enable a GHG abatement goal structure that emphasizes behind-the-meter measures and programs, considers the inclusion of front-of-meter measures, and is specific to each utility's service territory.
- Gather up-to-date baseline information for residential and non-residential sectors reflecting characteristics of each utility's customers, including information specific to low-income customers.
- Perform a robust market potential study that considers the customer base that each utility serves and the programs and measures most appropriate to those customers.
- Provide insight into the differences in residential baseline characteristics and GHG abatement opportunities by income level.
- Lead a robust stakeholder engagement process to ensure the study is reflective of the potentially diverse viewpoints of different interested parties.
- Deliver detailed and transparent results that can be easily reviewed and understood by utilities and stakeholders.

Overview of Stakeholder Engagement

To ensure that the results of this study were as meaningful as possible to all parties, AEG performed extensive stakeholder engagement throughout the project:

Bi-weekly calls with stakeholders to review project status and to get input on key study topics

Providing interim deliverables for stakeholder review and comment



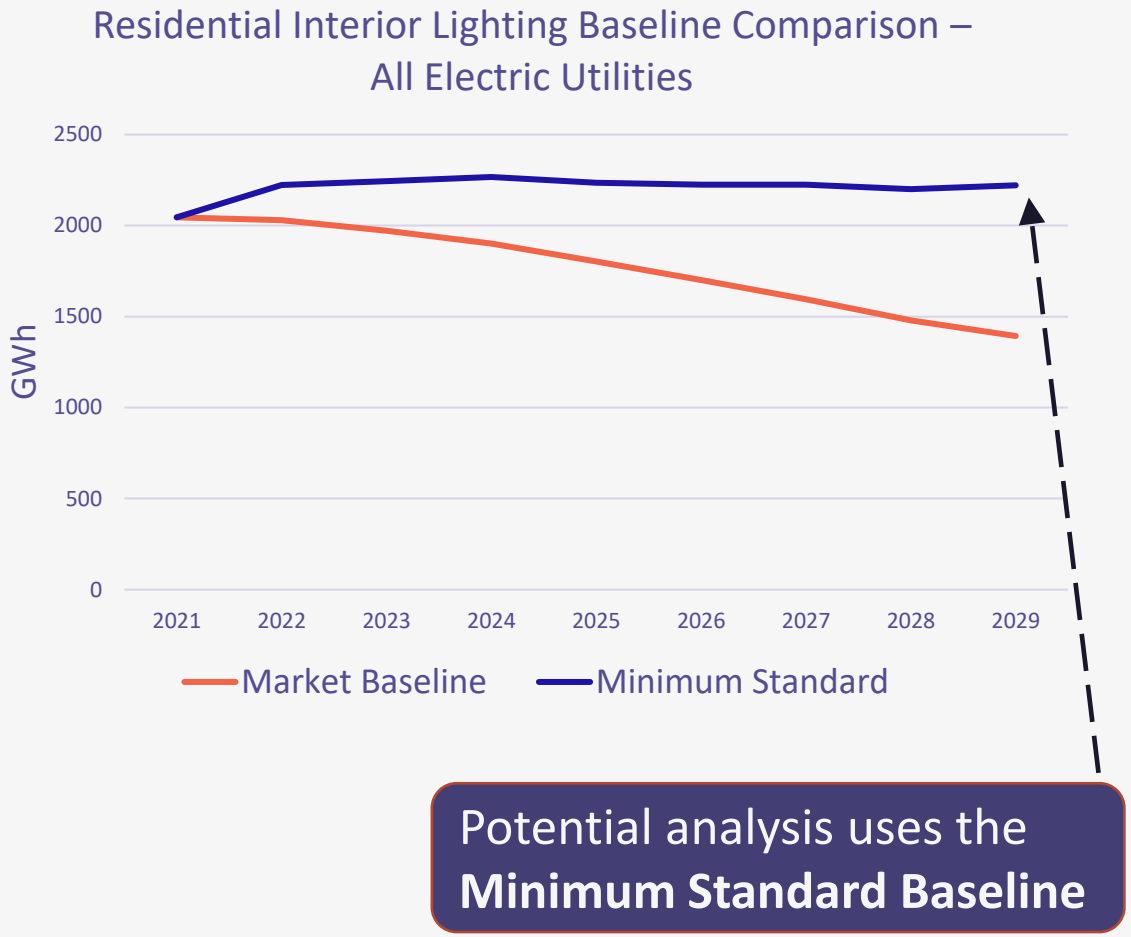
In-depth stakeholder workshops:

- Workshop #1: April 27, 2022
  - Maryland Policy Update and Impacts to EmPOWER Goal Structure
  - GHG Conversion Factors
  - Scenario Planning – Defining cost-effectiveness and Achievable Potential Scenarios
- Workshop #2: June 9, 2022
  - Project Timeline Update
  - GHG Goal Framework & Scenarios
  - Demand Response Considerations
  - Measure List Update
- Workshop #3: October 27, 2022
  - Draft Potential Review
  - Draft Filing Review

Key Study Considerations

Key Study Considerations – Baseline Projections

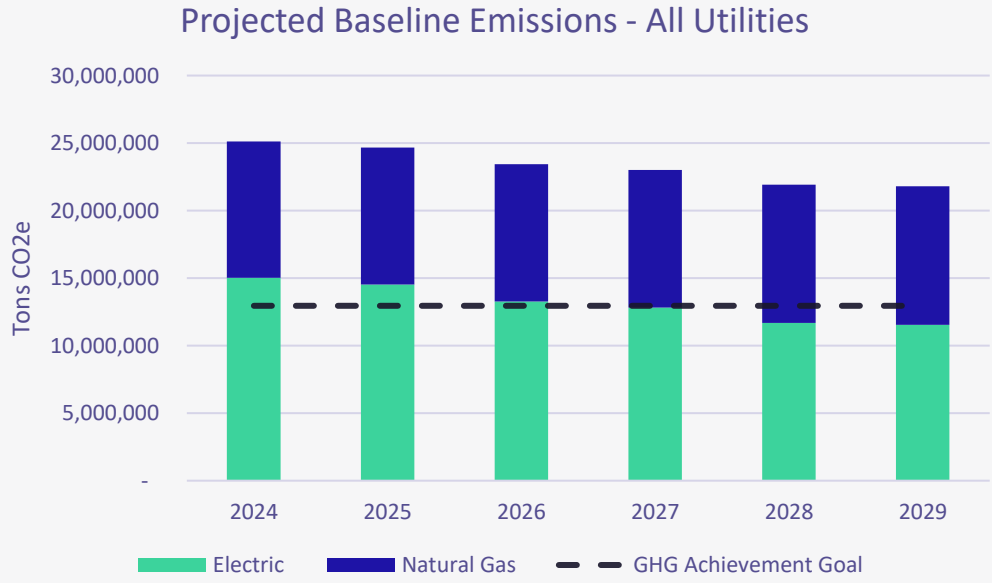
- As a starting point for the analysis, AEG projected baseline consumption for each utility, fuel, and sector in the absence of future EmPOWER programs. This baseline projection is compared to official utility sales forecasts for reasonableness.
- Because EmPOWER utility goals are set on a gross basis, AEG was instructed to assume all future equipment would be installed at the minimum allowable efficiency level, without consideration of market trends or naturally occurring conservation. This assumption has the largest impact for lighting, where it is assumed that customers will install minimum standard lamps, although LEDs currently have a large market share.
  - In setting future EmPOWER goals, the potential associated with lighting and other technologies with high market share (e.g., ENERGY STAR® electronics) should be carefully considered to avoid misalignment of goals and program offerings.



Potential analysis uses the **Minimum Standard Baseline**

Key Study Considerations — Policy and Emissions

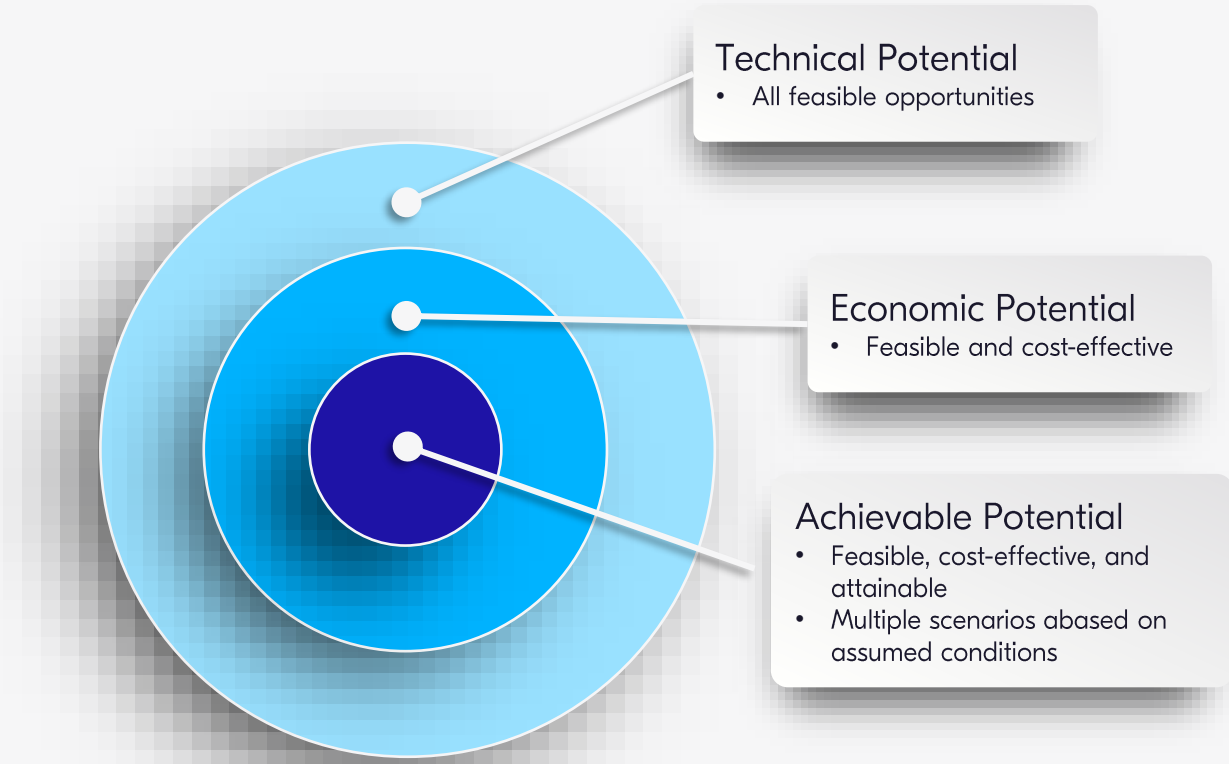
- After this project kicked off, the Maryland legislature passed the Climate Solutions Now Act of 2022
  - The Act increased the state's GHG reduction target to 60% of 2006 emissions by 2031
  - MDE's Greenhouse Gas Emissions Reduction Act (GGRA) Plan was based on the previous targets and updated analysis aligning with the new goal was not available to inform this study
- Electric GHG emission factors used to estimate baseline emissions and GHG abatement potential are based on MDE's GGRA Policy Case and assume decarbonization of future electricity supply. As such, GHG emissions per delivered MWh are assumed to decline over the study period, whereas emission factors for other fuels are held constant.
- Per MDE's recommendation, the analysis assesses the EmPOWER utilities' ability to support Climate Solutions Now Act goals by reducing 2021 emissions from buildings by 45% by 2029 through energy efficiency, building electrification, and demand response programs.



Although energy sales are projected to increase, GHG emissions are projected to decline by 9% in the baseline due to assumed declines in the annual electric emission rate.

Key Study Considerations — Scenario Design

- **Technical Potential** considers all feasible potential, regardless of cost or potential customer uptake.
- **Economic Potential** includes all cost-effective opportunities without adjusting for expected customer uptake.
- **Achievable Potential — Business-As-Usual (BAU)** is a subset of economic potential assuming continuation of current EmPOWER programs at similar spending levels.
- **Achievable Potential — Maximum** is a subset of economic potential that attempts to identify maximum savings if programs are unconstrained by current scope or spending levels.
- **Achievable Potential — GHG Goal Achievement** assesses the EmPOWER utilities' ability to reduce building emissions from 2021 levels by 45% through energy efficiency, demand response, and building electrification if cost-effectiveness restrictions are loosened. As agreed to with utilities and stakeholders, the GHG Goal Achievement scenario would only be assessed if a) the Maximum Achievable Potential did not reach the goal, and b) there was sufficient technical potential to indicate the goal could be achieved under alternate cost-effectiveness assumptions. See Slide 21 for findings relative to this scenario.



Key Study Considerations — Scenario Design

- AEG worked extensively to understand parties' positions and to build consensus around scenario design. Where consensus wasn't possible, AEG made the final determination of scenario design.
- There was disagreement among parties about the design of certain scenarios analyzed. In particular, the utilities favored a Business-As-Usual (BAU) scenario aligning with current EmPOWER spending and scope, whereas some other parties advocated for a BAU scenario based on electric savings goals from the Climate Solutions Now Act and including electrification programs. In this instance, AEG adopted the definition of this scenario from the RFP based on how EmPOWER programs are currently operating.
- Demand Response is excluded from Technical and Economic Potential; these are not meaningful constructs for demand response because, unlike energy efficiency, the resource does not exist in the absence of utility programs.

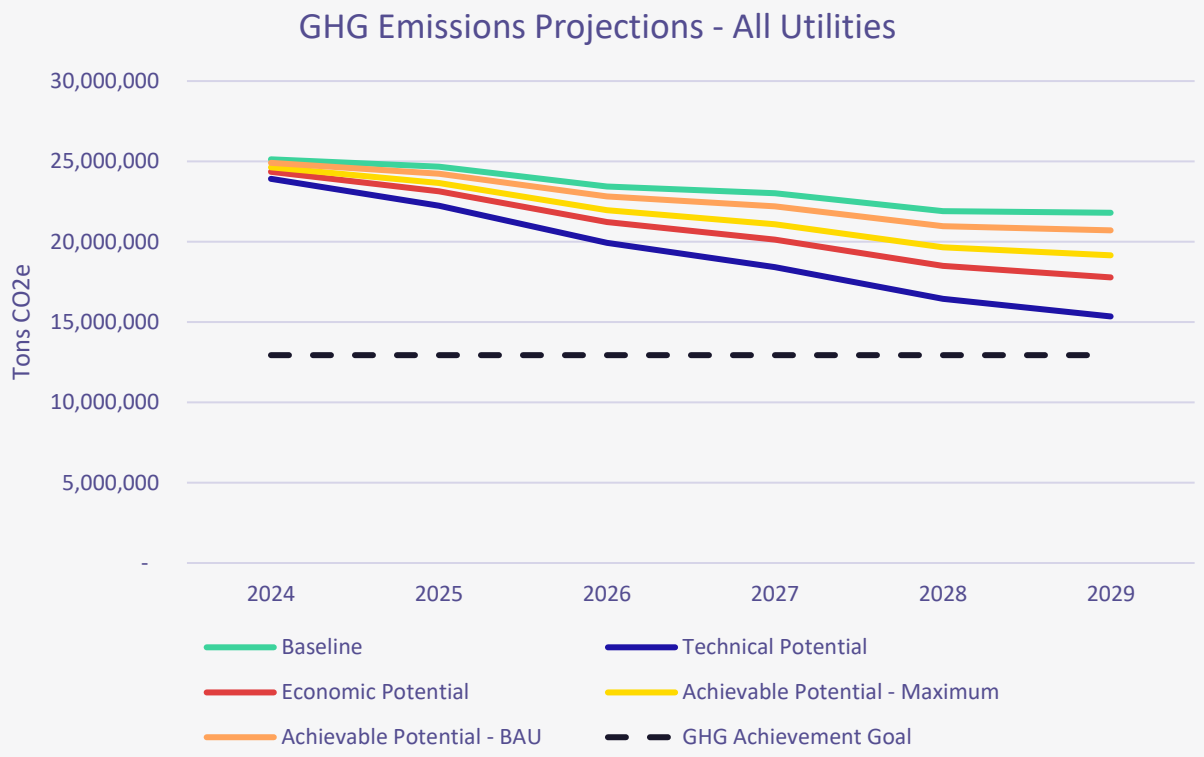
Resources Considered by Potential Scenario

Scenario	Energy Efficiency	Building Electrification	Demand Response
Technical Potential	✓	✓	
Economic Potential	✓	✓	
Achievable Potential - BAU	✓		✓*
Achievable Potential - Maximum	✓	✓	✓
Achievable Potential - GHG Goal Achievement	✓	✓	✓

* Because the EmPOWER utilities do not currently run the type of daily load shifting programs considered in this study, no potential for demand response program expansion was included in the study.

Key Study Considerations – GHG Goal Achievement Scenario

- AEG's analysis found that even the technical potential would not be sufficient to reach the identified GHG Achievement Goal, and thus, AEG did not develop a separate GHG Goal Achievement scenario.
- This finding is based on specific scope limitations and study assumptions and may not reflect the full capability of behind-the-meter (BTM) resources to contribute to GHG reductions in buildings. In particular, the analysis:
  - Does not include GHG abatement potential from industrial electrification or BTM generation or energy storage
  - Only considers equipment upgrades and electrification at the time of natural replacement
  - Assumes that retrofit opportunities would be acquired over a 20-year period
  - Does not make assumptions about potential new policies (e.g., an all-electric building code) that could affect future building GHG emissions



Key Study Considerations — Building Electrification

The study assessed the GHG abatement potential from the electrification of space and water heating systems in residential and commercial buildings within the EmPOWER utilities' service areas.

- Industrial and transportation electrification were outside the scope of this study.
- Electrification potential was assessed only at the time of normal equipment replacement, not as an early replacement option. Considering electrification outside the normal replacement cycle would change the timing and cost-effectiveness of these opportunities.
- The analysis considered the conversion of natural gas, propane, and fuel oil systems to efficient electric (i.e., high efficiency heat pump) technologies. Electrification of natural gas systems served by non-EmPOWER utilities (e.g., Columbia Gas) was not included in the potential analysis.
- The GHG potential presented in these results is the net savings between the new and original energy sources. That is, GHG savings equals the original fuel emissions less the new electric emissions.
- Based on feedback from utilities and stakeholders, for reporting purposes, all building electrification potential is attributed to the electric utilities, however, the study reflects that the assumed electrification of natural gas equipment reduces natural gas utilities' energy efficiency potential.
- Cost-effectiveness was assessed using the same avoided costs and emission costs/benefits used for energy efficiency.

Key Study Considerations – Demand Response

- Due to the study's focus on GHG abatement, the AEG Team modeled programs that provide frequent load shifting capabilities
- Event-limited demand response programs (including natural gas demand response programs) do not meaningfully impact GHG emissions and therefore are not modeled due to the scope of this study, despite their ability to provide other important system benefits
- All identified potential is new; there are no existing frequent load shifting programs at scale in Maryland
- Eligibility for electric vehicle (EV) programs assume achievement of Maryland's state policy goals (300k EVs by 2025)
- Modeled hourly demand response program dispatch to maximize economic value, with hourly emissions and carbon price factored into dispatch decisions
- Indirect GHG benefits of demand response were not quantified (see additional discussion of indirect benefits on Slide 39)

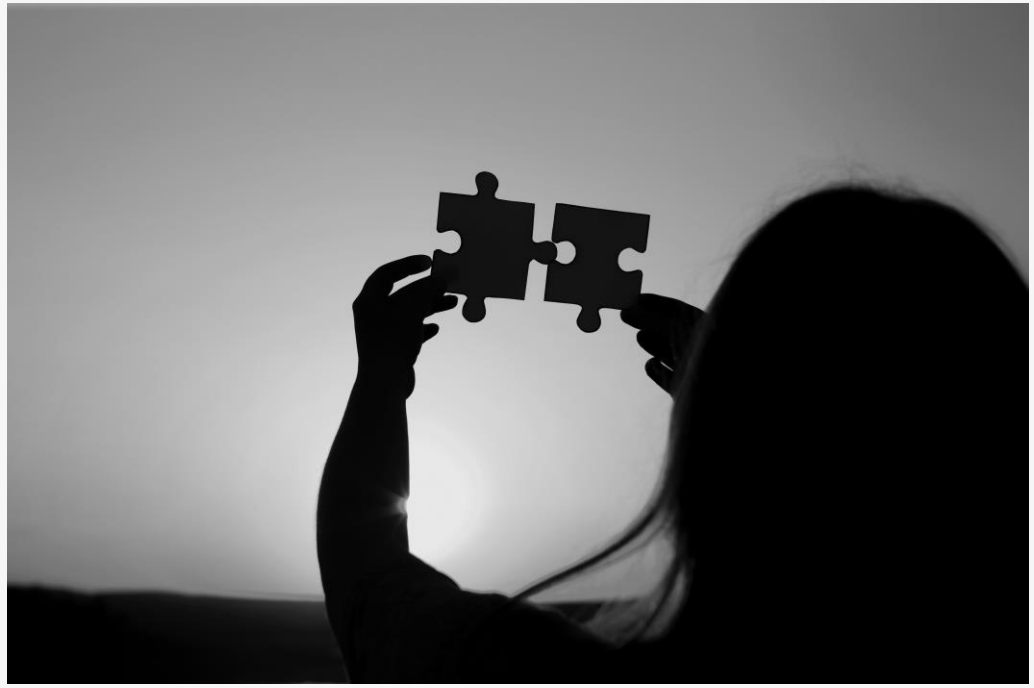
Modeled Load Shifting Programs

	Customer segment		
	Res	Small C&I	Large C&I
Water heating DLC	X		
TOU rate	X	X	X
Home EV TOU	X		
Workplace EV managed charging		X	X
Auto-DR (lighting, HVAC)		X	X
Behind-the-meter battery DR	X		

Key Study Considerations — Baseline Study

The RFP included a Baseline Study, originally designed to inform the assessment of GHG abatement potential. However, due to delays in project kickoff and data collection, the two studies were conducted independently.

- In the absence of a new Baseline Study, the AEG Team relied on the best available information to inform the potential study, including data provided by utilities, primary data collection from the 2016 EmPOWER Maryland Baseline and Potential Study, and other applicable data sources.
- The 2022 Baseline Study residential surveys were in the field September through October 2022, and results are currently being processed.
- The AEG Team plans to interview various market actors to provide additional information on market trends and high-impact commercial measures.
- Draft Baseline Study results are expected to be provided to EmPOWER utilities and stakeholders by December 16, 2022.
- The AEG Team is currently working with stakeholders to determine how the 2022 Baseline Study can be used to validate the results of the GHG Abatement Study, or potentially to inform updates to results to reflect new information.

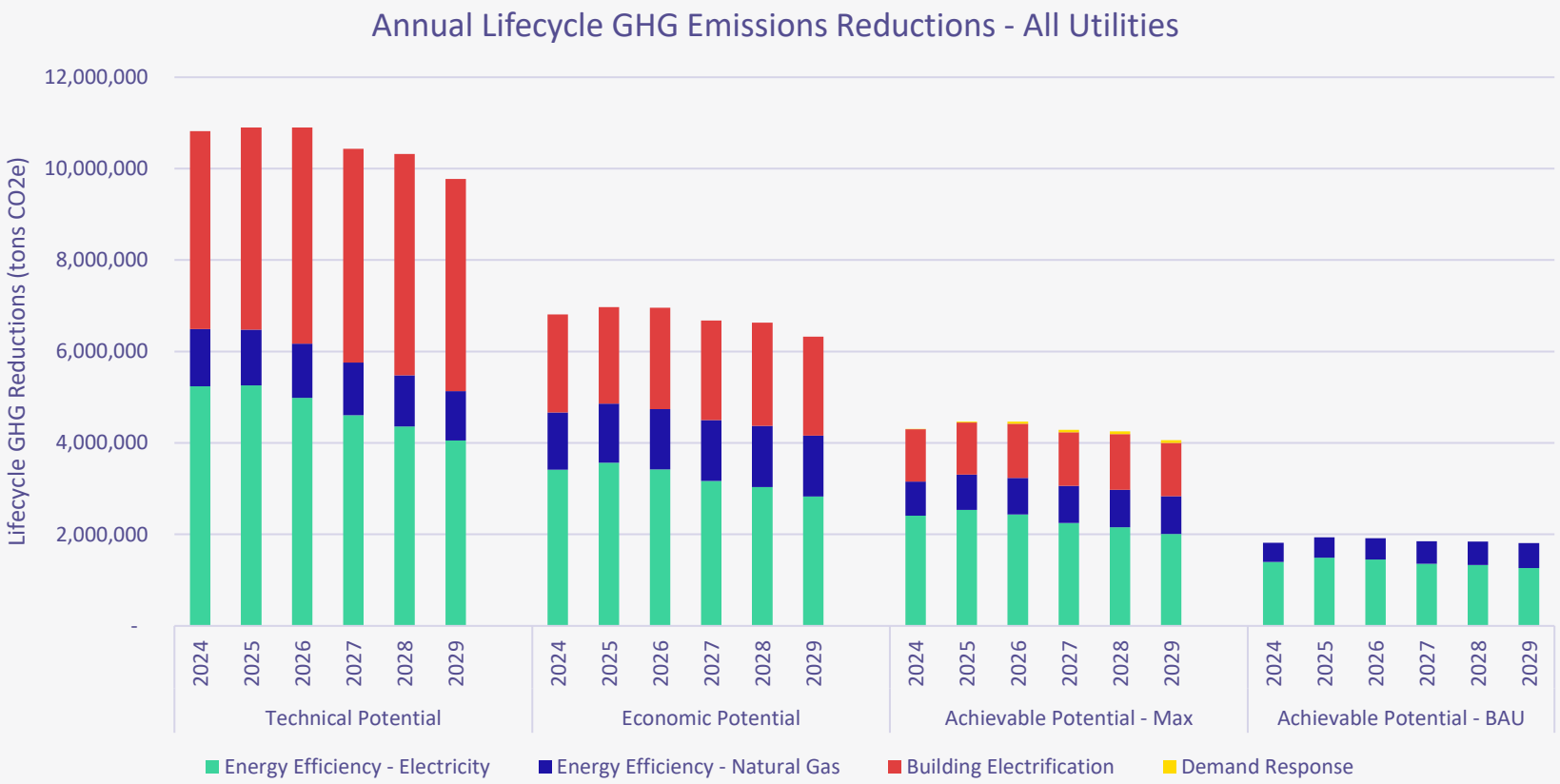


Potential Results Summary

Statewide Results by Resource and Potential Scenario

AEG identified significant remaining opportunities to further reduce Maryland's GHG emissions through behind-the-meter (BTM) initiatives.

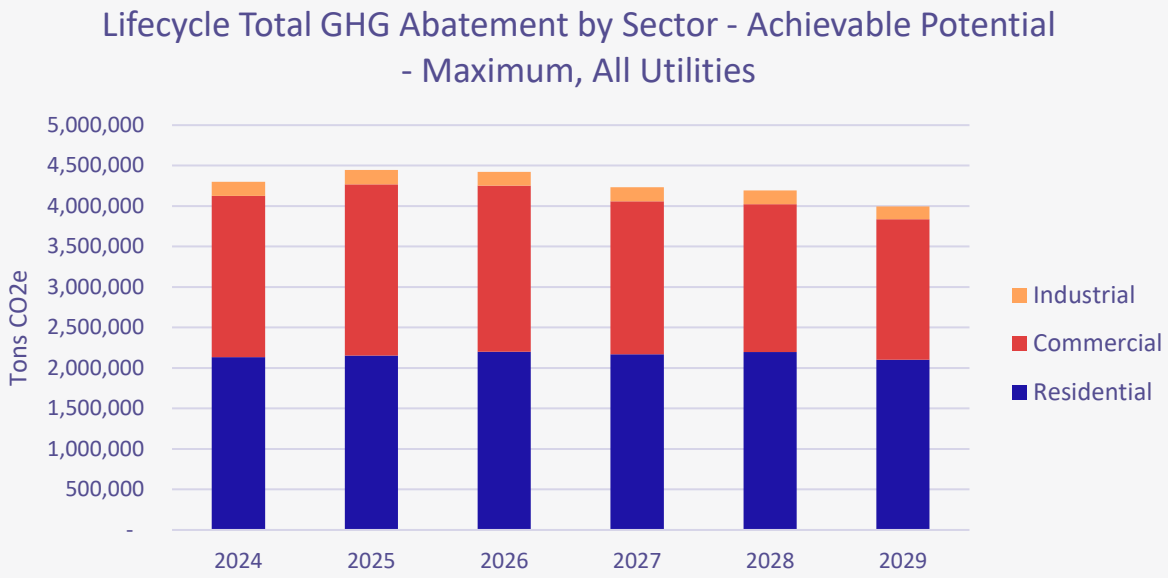
- Electric energy efficiency was found to have the largest lifecycle GHG abatement over the study period potential in all scenarios.
- Both electric and natural gas energy efficiency potential are affected by assumed electrification of end-use equipment, except in the Achievable BAU scenario.
- Because demand response resources need to be paid for every year, their lifecycle impacts are small when compared to longer-lived energy efficiency and electrification measures.

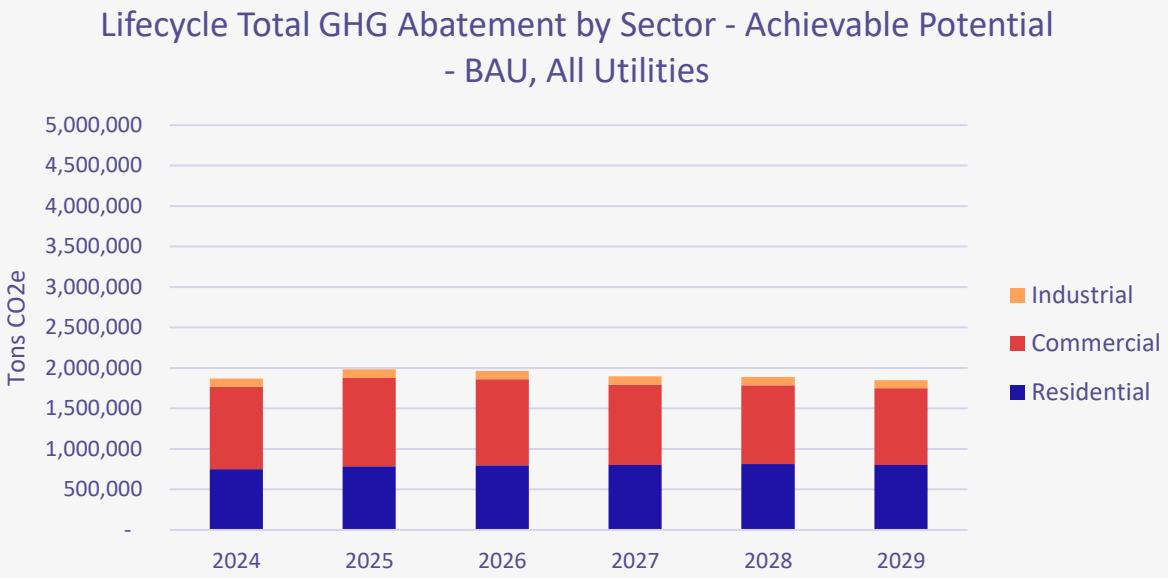


Energy Efficiency and Building Electrification — Statewide Results

Energy Efficiency and Building Electrification Results

Achievable Potential by Sector

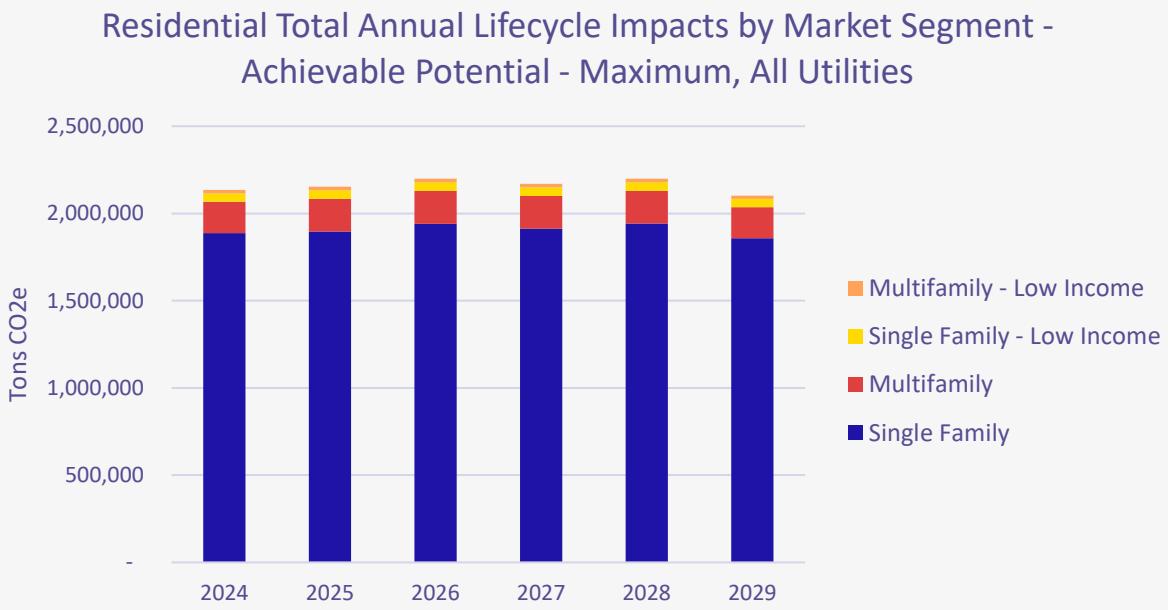


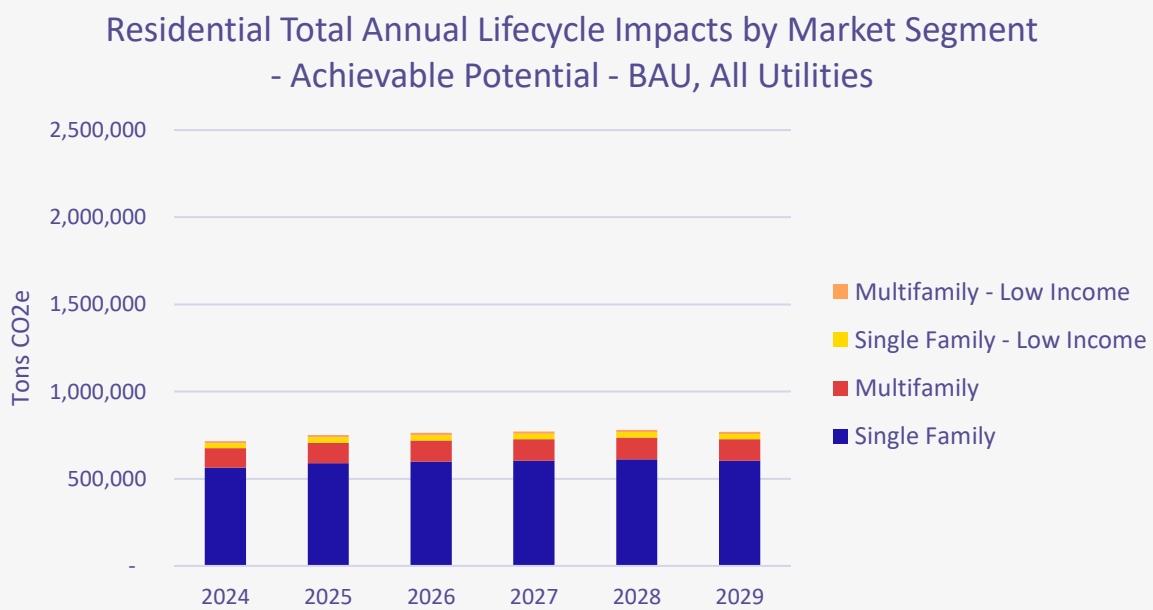


- The Maximum Achievable Potential is split fairly evenly between the residential and commercial sectors, with the industrial sector accounting for less than 5% of the total potential.
- The commercial sector accounts for the majority of BAU Achievable Potential. The primary difference in the sector split between the two sectors is that residential electrification was found to be more cost-effective than commercial electrification, and thus comprises a larger share of the Maximum Achievable Potential.

Residential Results - Energy Efficiency and Building Electrification

Achievable Potential by Building Type and Income

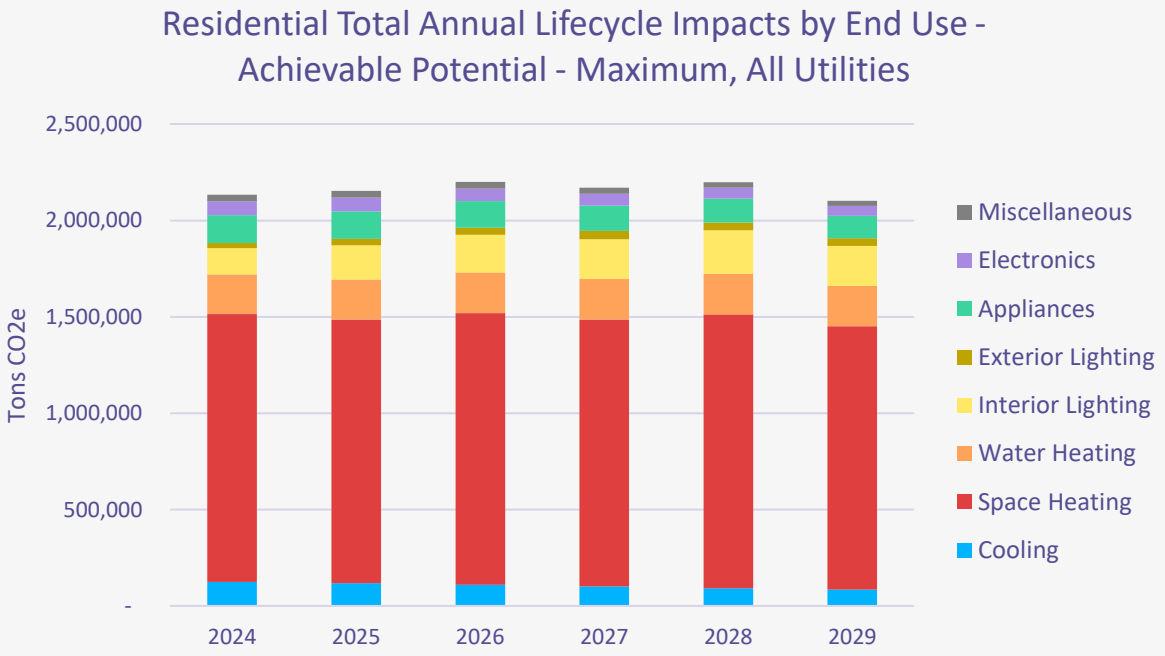


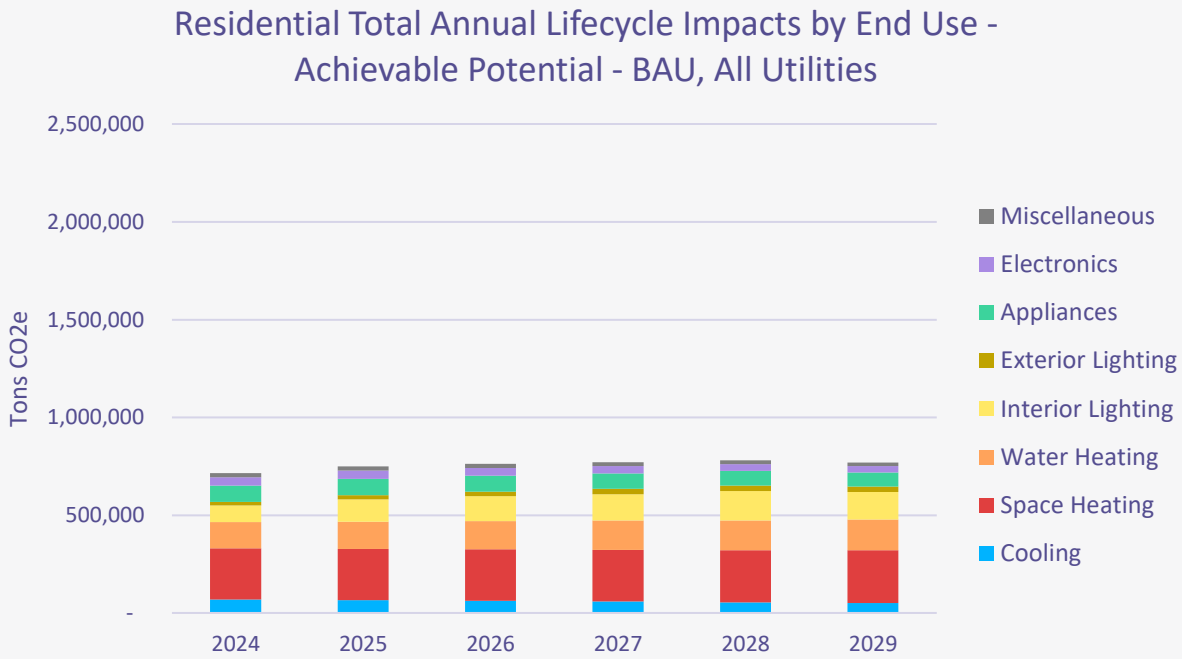


- A majority of the identified achievable potential is in single family homes, largely driven by the share of baseline consumption in this market segment.
- The low-income market segments account for approximately 4% of the Maximum Achievable Potential and 6% of the BAU Achievable Potential

Residential Results - Energy Efficiency and Building Electrification

Achievable Potential by End Use

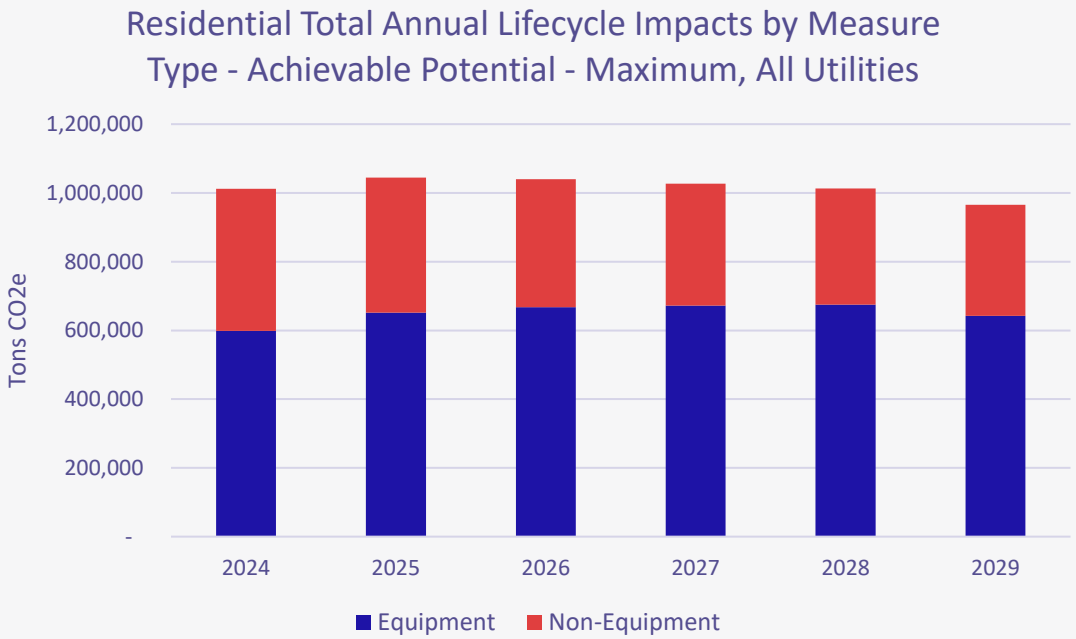


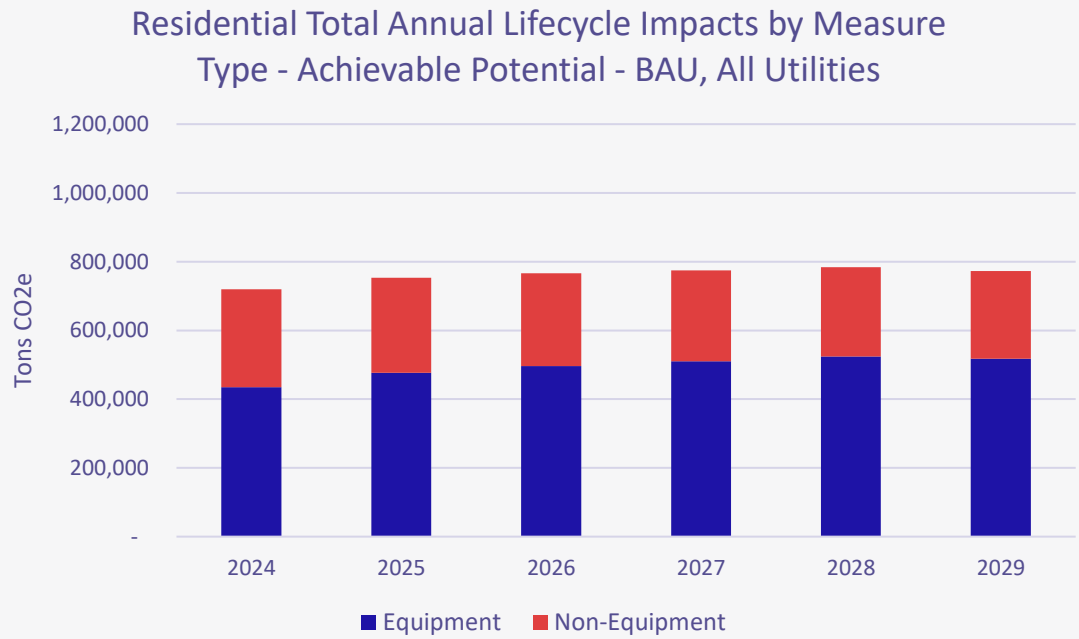


- Space heating accounts for a majority of the residential Maximum Achievable Potential, including cost-effective electrification. Space heating is also the end use with the largest BAU Achievable Potential, but represents a smaller share of the total potential due to the exclusion of building electrification from this scenario.
- As discussed on previous slides, lighting potential is a function of the chosen (minimum standard) baseline, and should be carefully considered when developing future EmPOWER goals.

Residential Results - Energy Efficiency Only

Achievable Potential by Measure Type

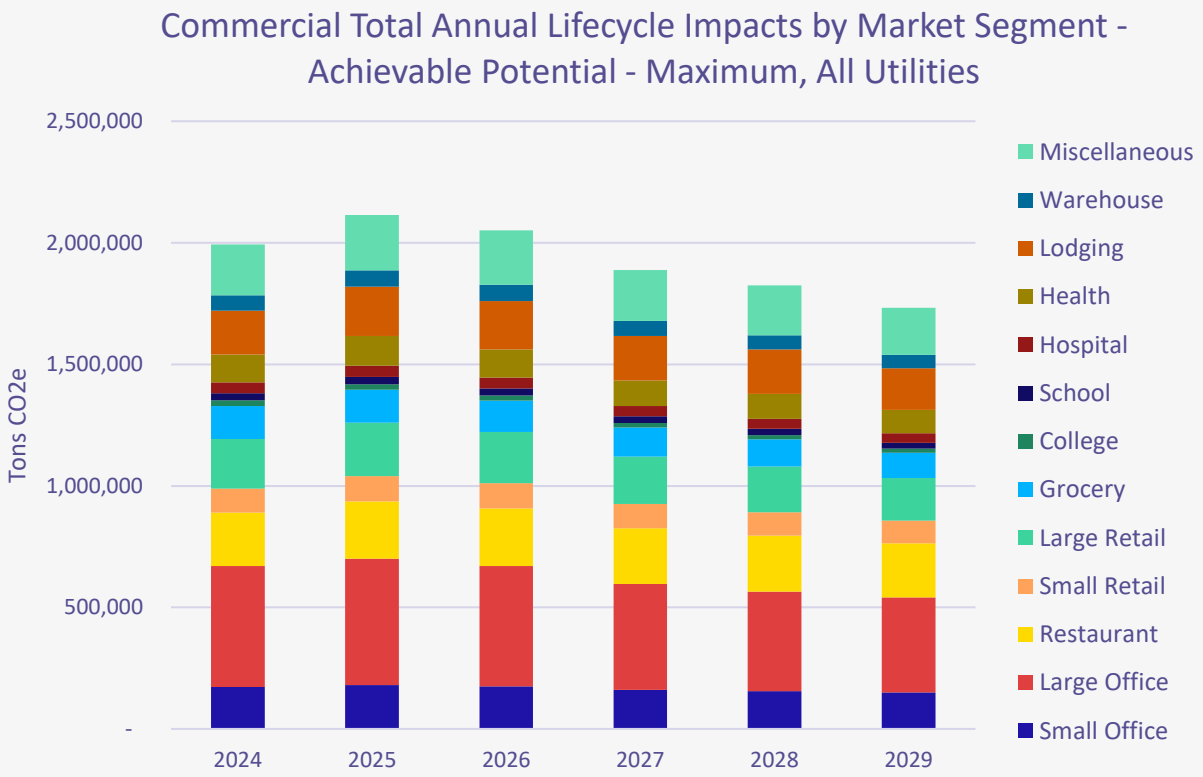


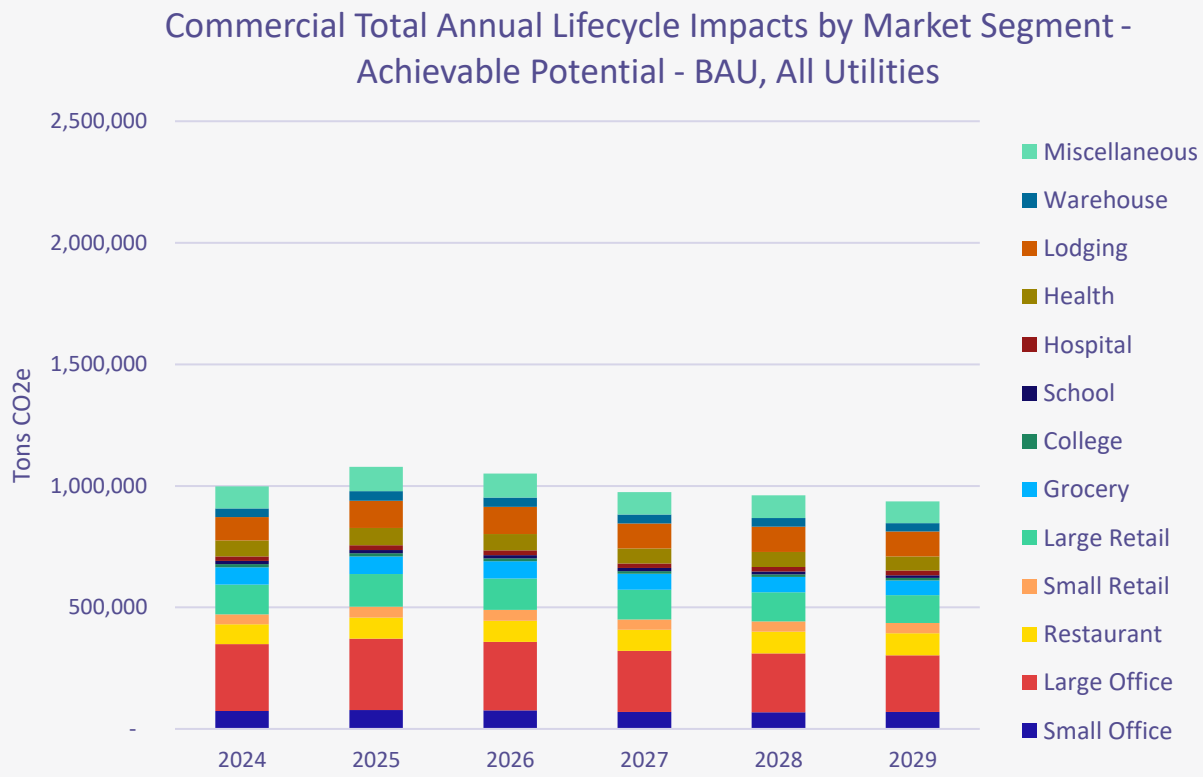


- This slide excludes building electrification to show the distribution of energy efficiency potential by measure type:
  - Equipment measures are technologies that improve the efficiency of end-use equipment (e.g., high-efficiency air conditioners)
  - Non-equipment measures are technologies that reduce end-use consumption, but do not change the efficiency of the end-use equipment (e.g., insulation)
- In the residential sector, the majority of achievable energy efficiency potential is attributable to equipment measures

Commercial Results — Energy Efficiency and Building Electrification

Achievable Potential by Business Type

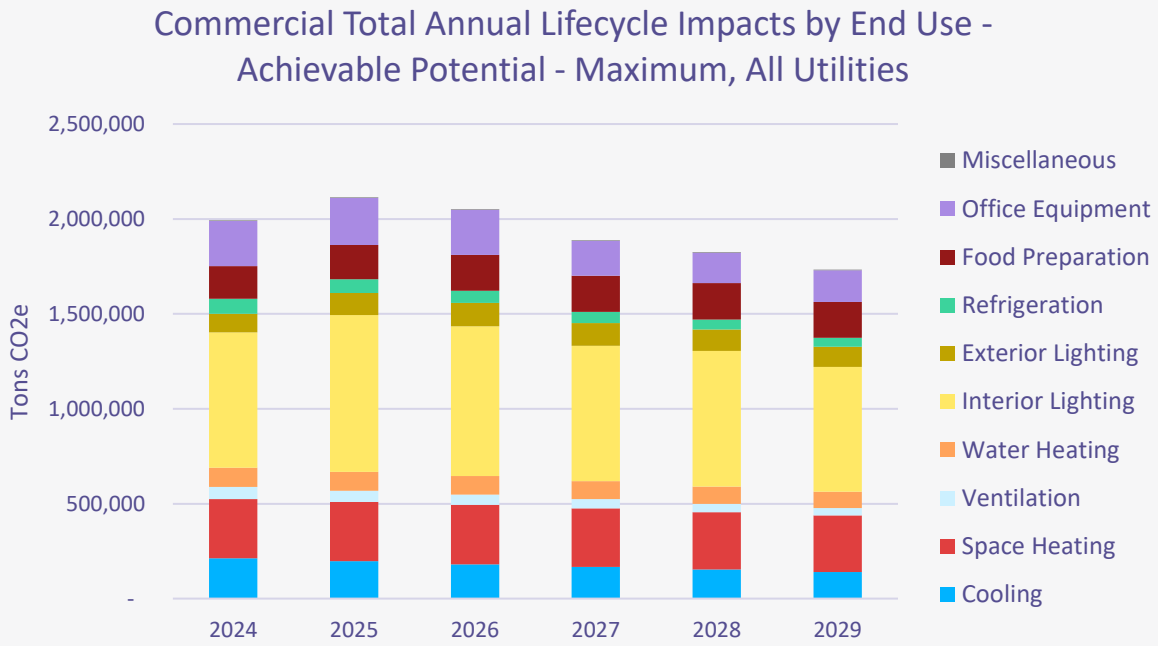


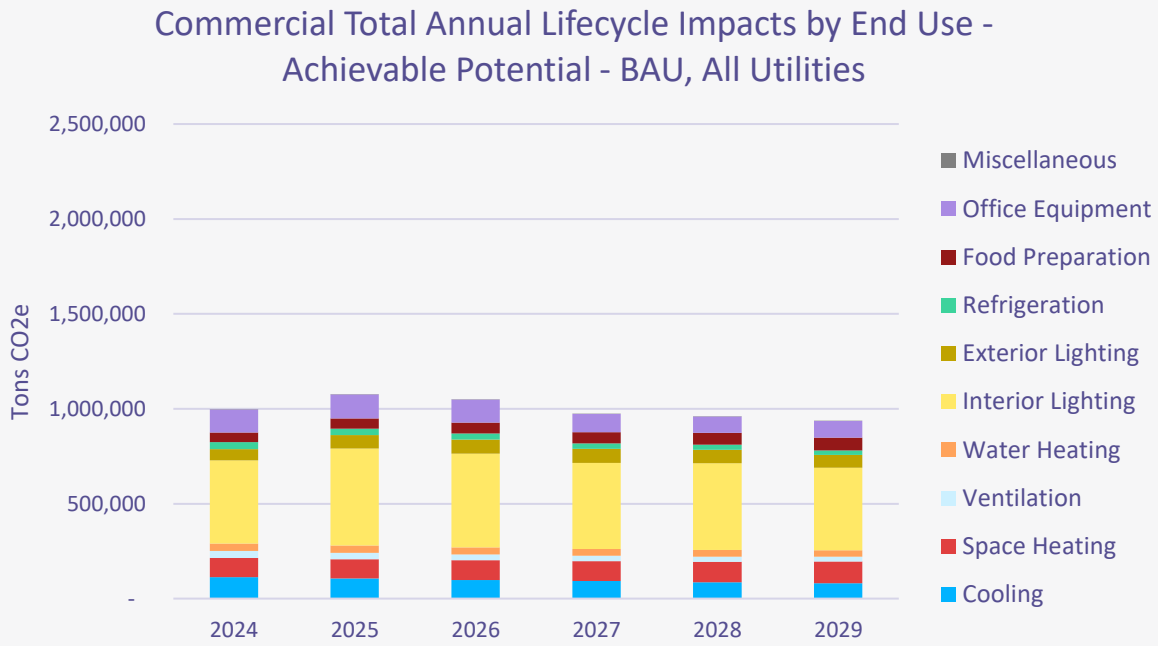


- Achievable commercial potential is fairly well distributed across business types, with offices comprising the largest share. This is largely driven by the consumption by market segment in the baseline projection.

Commercial Results — Energy Efficiency and Building Electrification

Achievable Potential by End Use

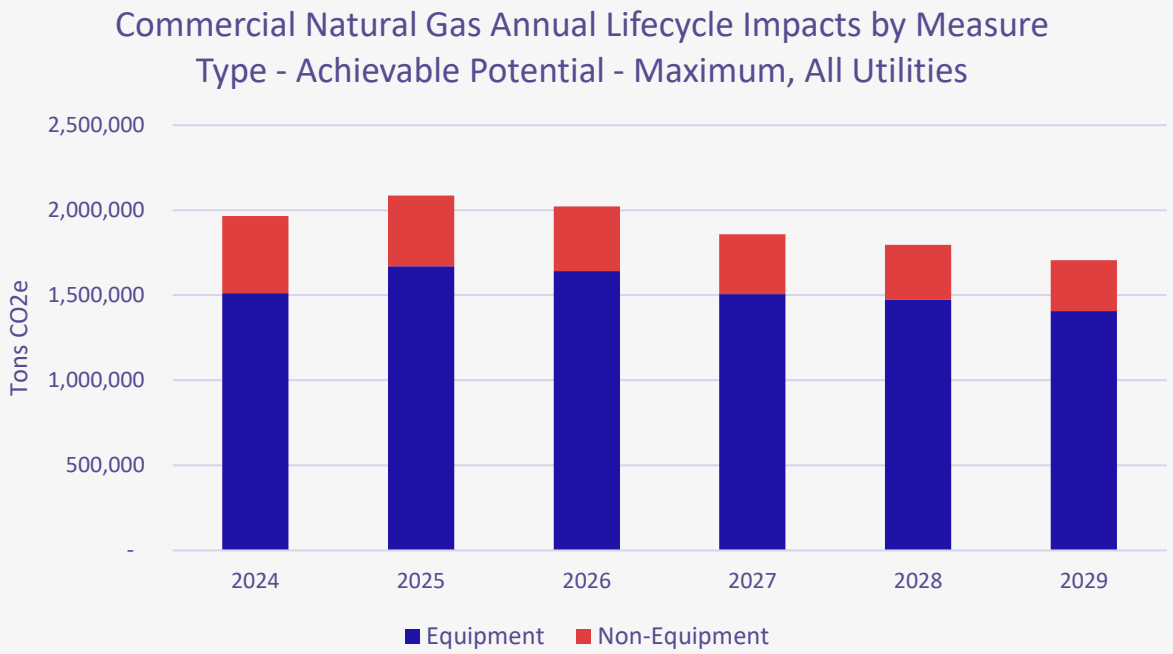


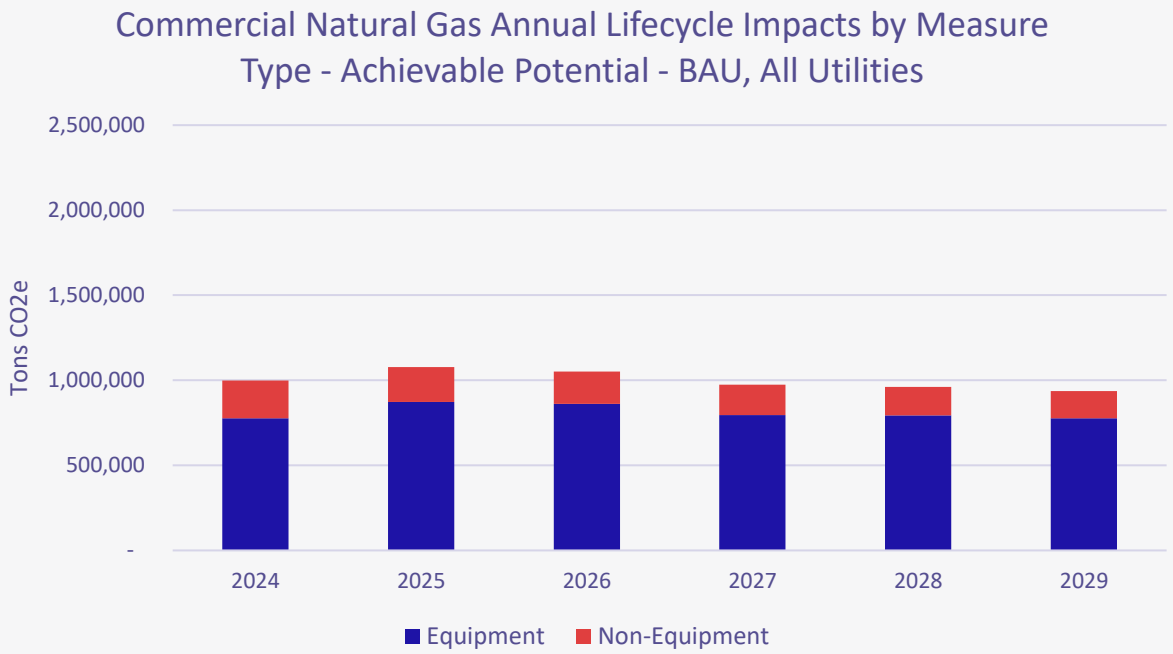


- Lighting represents the largest portion of the identified achievable commercial potential. As in the residential sector, this potential is heavily influenced by the minimum standard baseline. The relatively large share of potential for office equipment is also a function of the assumed baseline. As discussed on previous slides, potential for measures with efficient market baselines should be carefully considered when developing future EmPOWER goals.

Commercial Results - Energy Efficiency Only

Achievable Potential by Measure Type

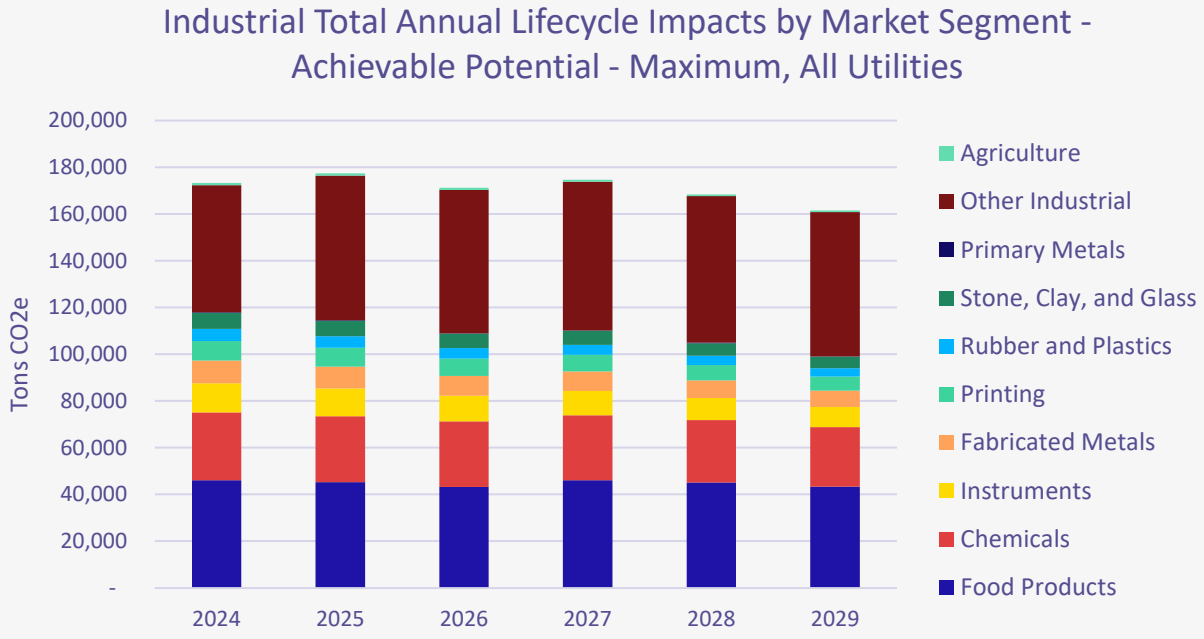


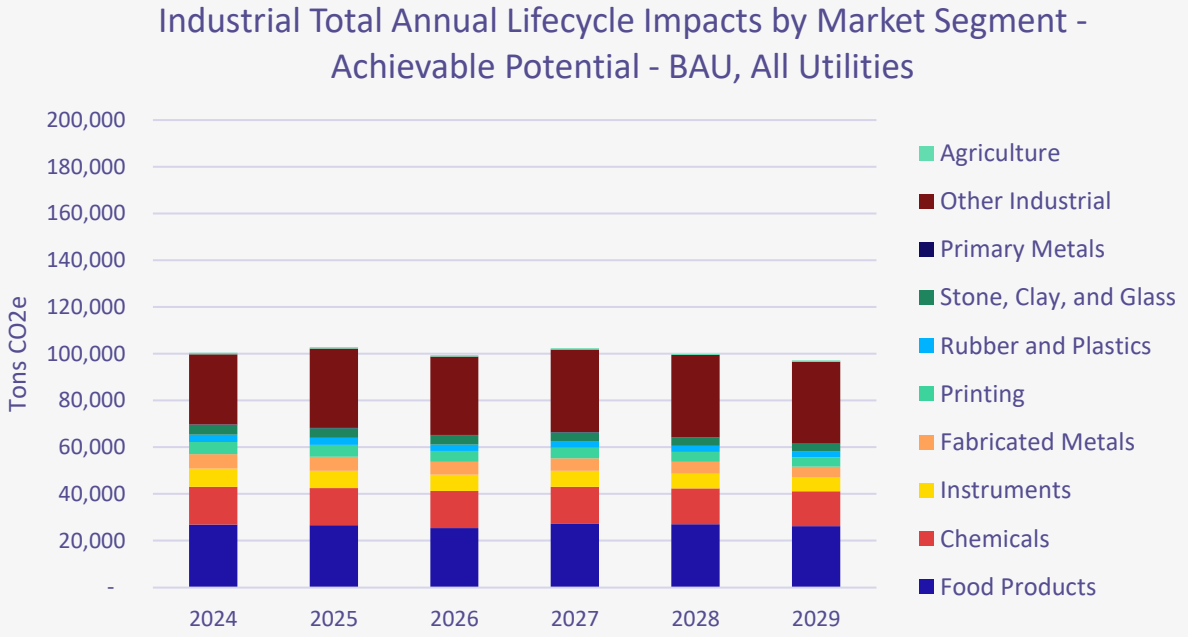


- This slide excludes building electrification to show the distribution of energy efficiency potential by measure type:
  - Equipment measures are technologies that improve the efficiency of end-use equipment (e.g., high-efficiency air conditioners)
  - Non-equipment measures are technologies that reduce end-use consumption, but do not change the efficiency of the end-use equipment (e.g., insulation)
- In the commercial sector, the majority of achievable energy efficiency potential is attributable to equipment measures.

Industrial Results — Energy Efficiency Only

Achievable Potential by Industry Type

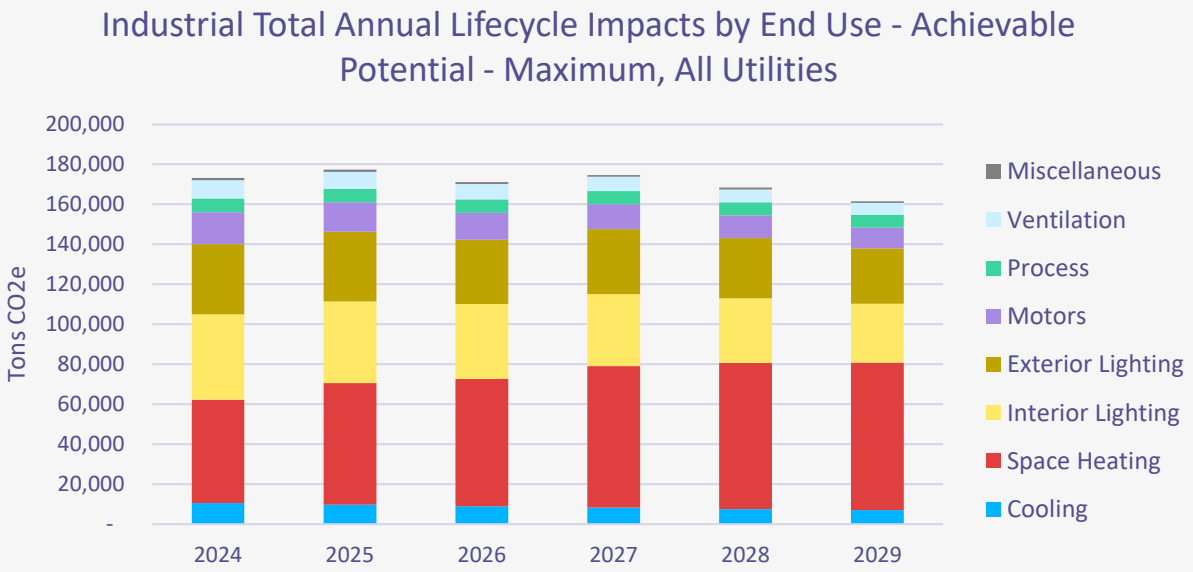


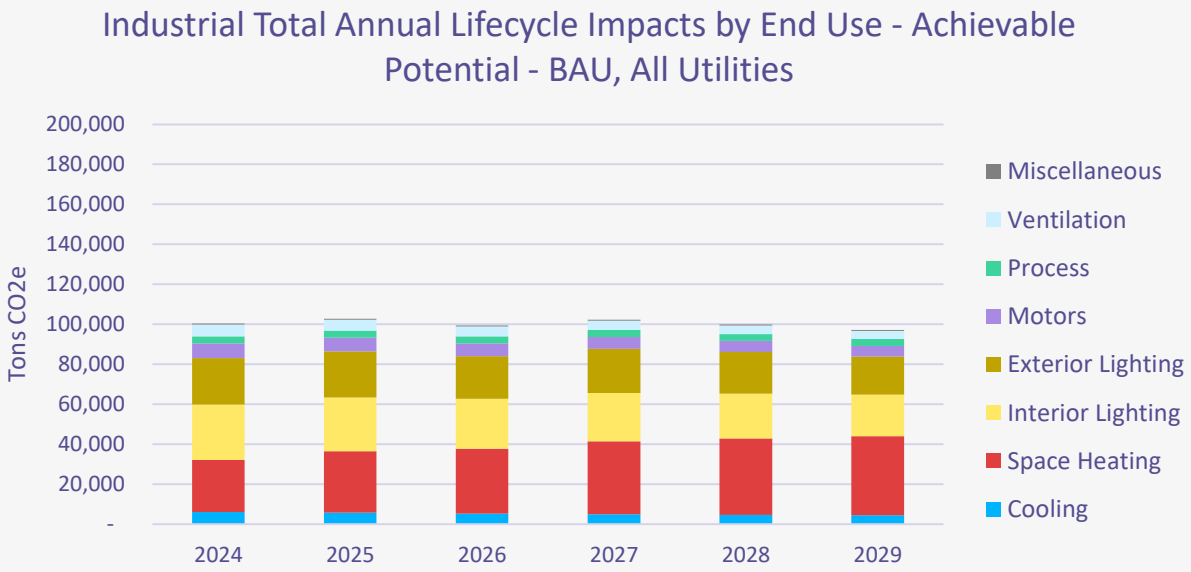


- The "Other Industrial" category represents the largest share of potential, followed by Food Products and Chemicals. "Other Industrial" is a roll-up of industries that are too small to characterize individually for each fuel. For the electric analysis, AEG modeled all industries shown above, whereas for natural gas only Food Products and Chemicals were large enough to split out as separate segments. Fuel-specific results by modeled industrial segment are provided in the accompanying results workbook.

Industrial Results — Energy Efficiency Only

Achievable Potential by End Use

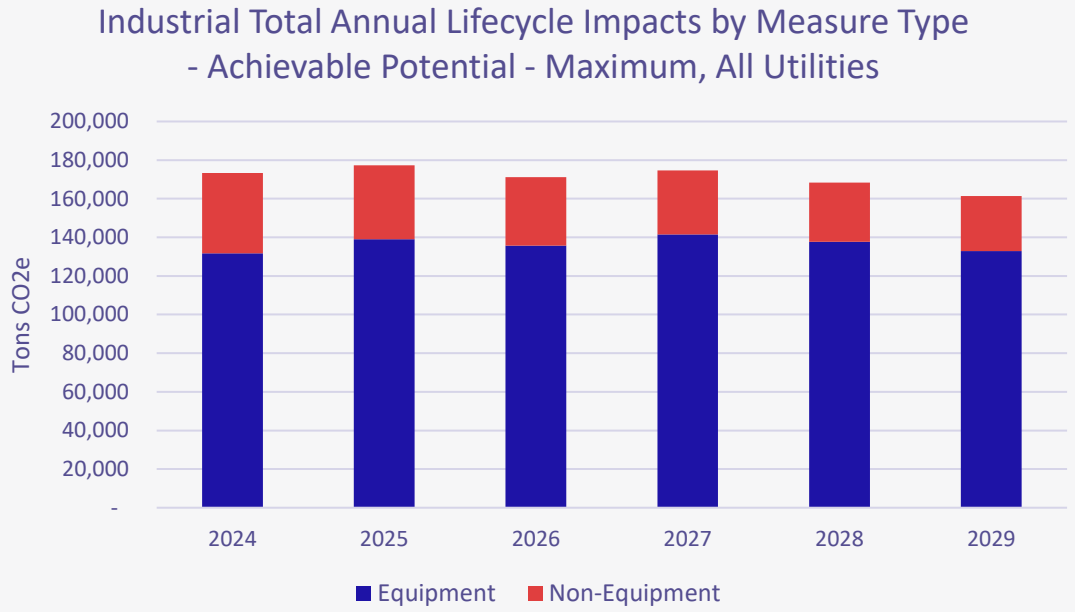


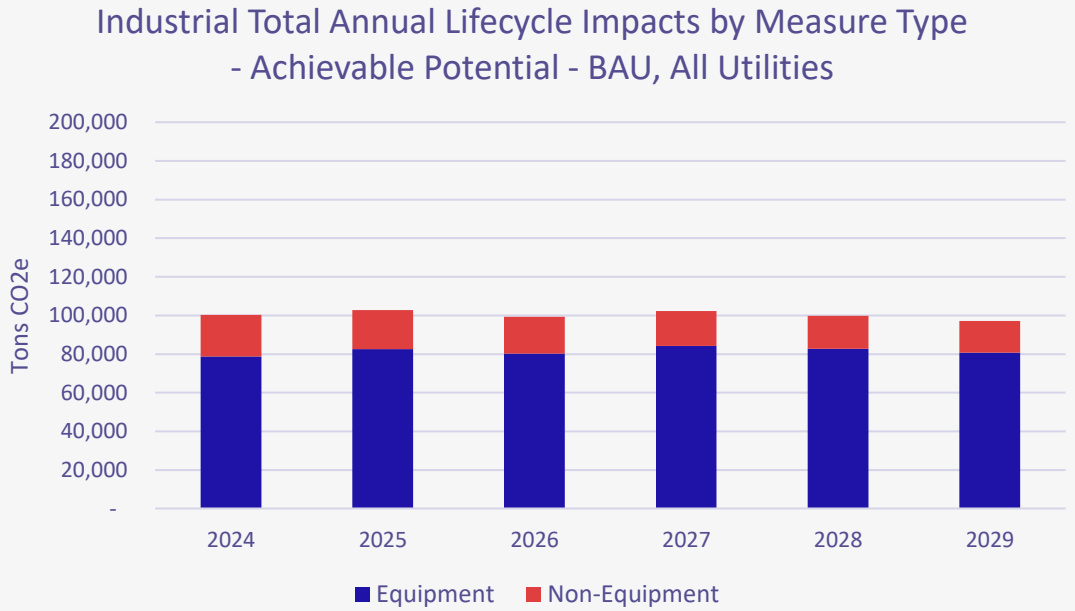


- As in the other sectors, lighting represents a large portion of the identified achievable industrial potential, driven by the minimum standard baseline.
- Space heating also comprises a large share of potential. This is a function of these loads being primarily fueled by natural gas, with assumed constant emissions over the study period, compared to electric loads with declining emissions rates, decreasing their lifecycle potential.

Industrial Results — Energy Efficiency Only

Achievable Potential by Measure Type





- This slide excludes building electrification to show the distribution of energy efficiency potential by measure type:
  - Equipment measures are technologies that improve the efficiency of end-use equipment (e.g., high-efficiency air conditioners)
  - Non-equipment measures are technologies that reduce end-use consumption, but do not change the efficiency of the end-use equipment (e.g., insulation)
- In the residential sector, the majority of achievable energy efficiency potential is attributable to equipment measures.

Demand Response — Statewide Results

Interpreting Demand Response Findings

- While the direct GHG abatement benefits estimated in this study are material, the unquantified indirect GHG benefits are likely much greater.
- Additionally, demand response is a highly cost-effective resource and can play a critical role in making the energy transition affordable.
- Therefore, future resource investment decisions should account for the benefits of demand response broadly rather than focusing only on its direct GHG impacts.

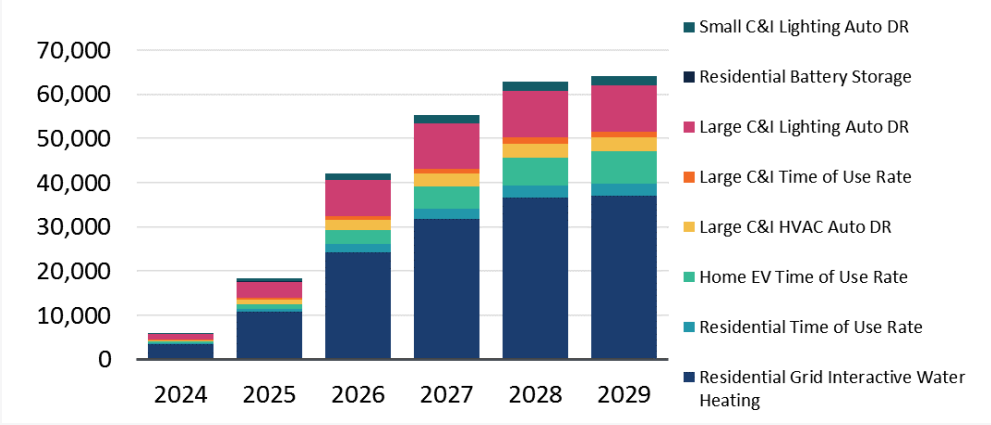
The Indirect GHG Benefits of Demand Response

- Improve economic attractiveness of wind and solar investment by reducing curtailments, improving load factors, and mitigating evening ramps
- Facilitate cost-effective adoption of electrification measures by mitigating load impacts and associated infrastructure investment needs
- Accelerate deployment of distributed generation and electrification technologies by relieving interconnection constraints

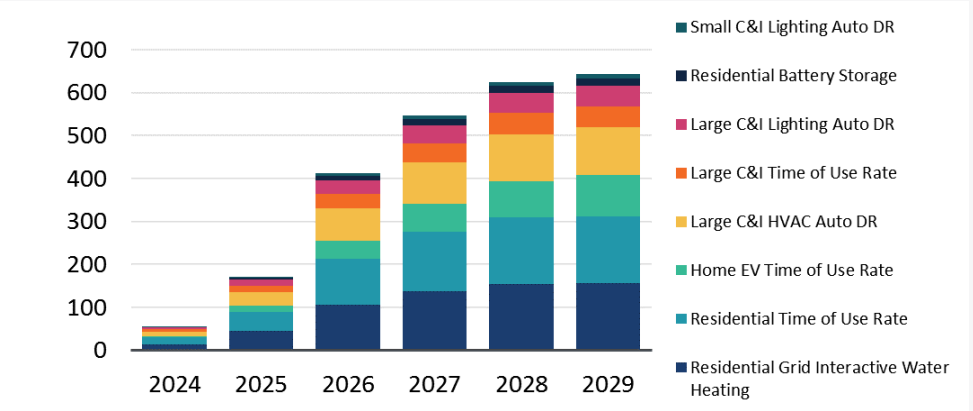
Summary Maximum Achievable Potential

- All demand response programs were found to be cost-effective other than workplace managed charging and Small C&I Time-of-Use
- Total cost-effective load shifting capability represents 1% to 5% of system peak demand, depending on utility
- Total GHG reduction potential is 67,000 tons per year by 2029, representing 0.6% of total annual electric sector emissions and 2.7% of our study's total maximum achievable GHG abatement potential
- Residential grid interactive water heating and Large C&I Lighting Auto DR programs provide majority of GHG abatement due to flexible load shifting capability

GHG Abatement Potential (Tons)



Peak Reduction Potential (MW)



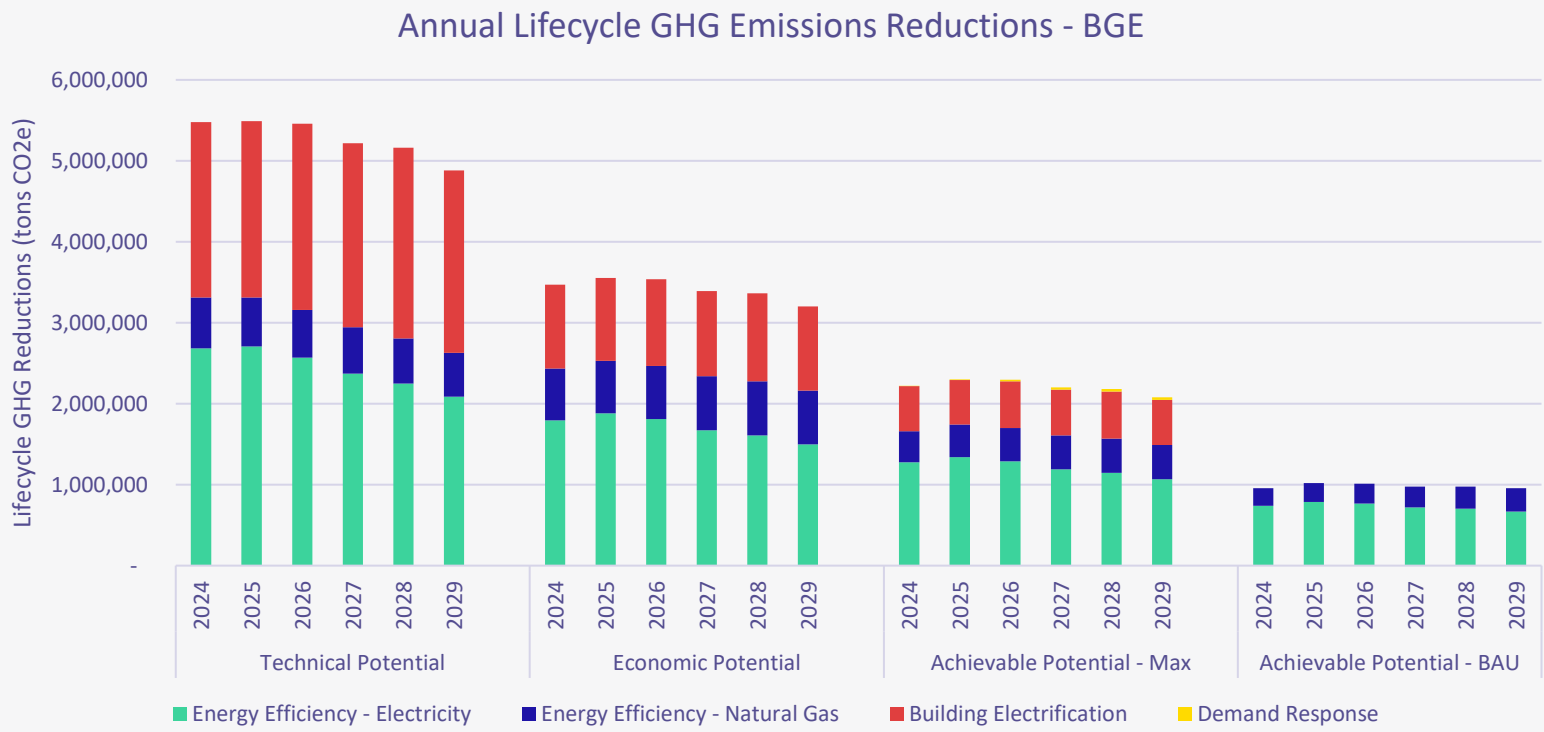
Utility-Specific Results

Utility-Specific Potential

- The following slides present annual lifecycle GHG impacts for each utility and fuel served, by resource type, potential scenario, and year.
- Detailed results by utility and fuel are available in the supporting workbook; see "Instructions" sheet for a description of how to view utility-specific results at additional granularity.

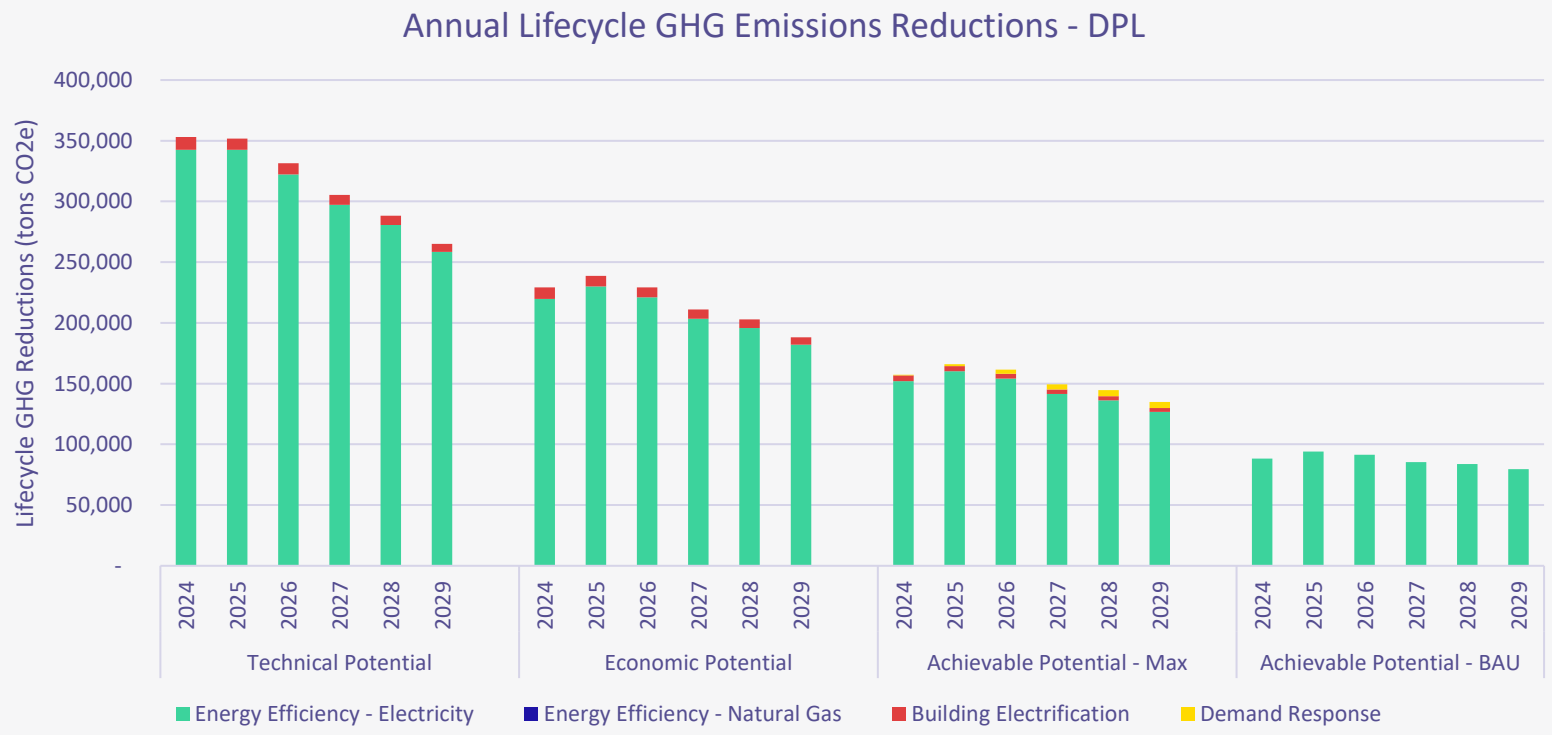
Baltimore Gas and Electric Co. (BGE)

- BGE is the only EmPOWER utility that provides both electricity and natural gas to customers in Maryland.
- Due to a significant overlap between BGE's electric and natural gas service territories, as the potential for building electrification increases, GHG emissions reductions associated with natural gas energy efficiency decrease.



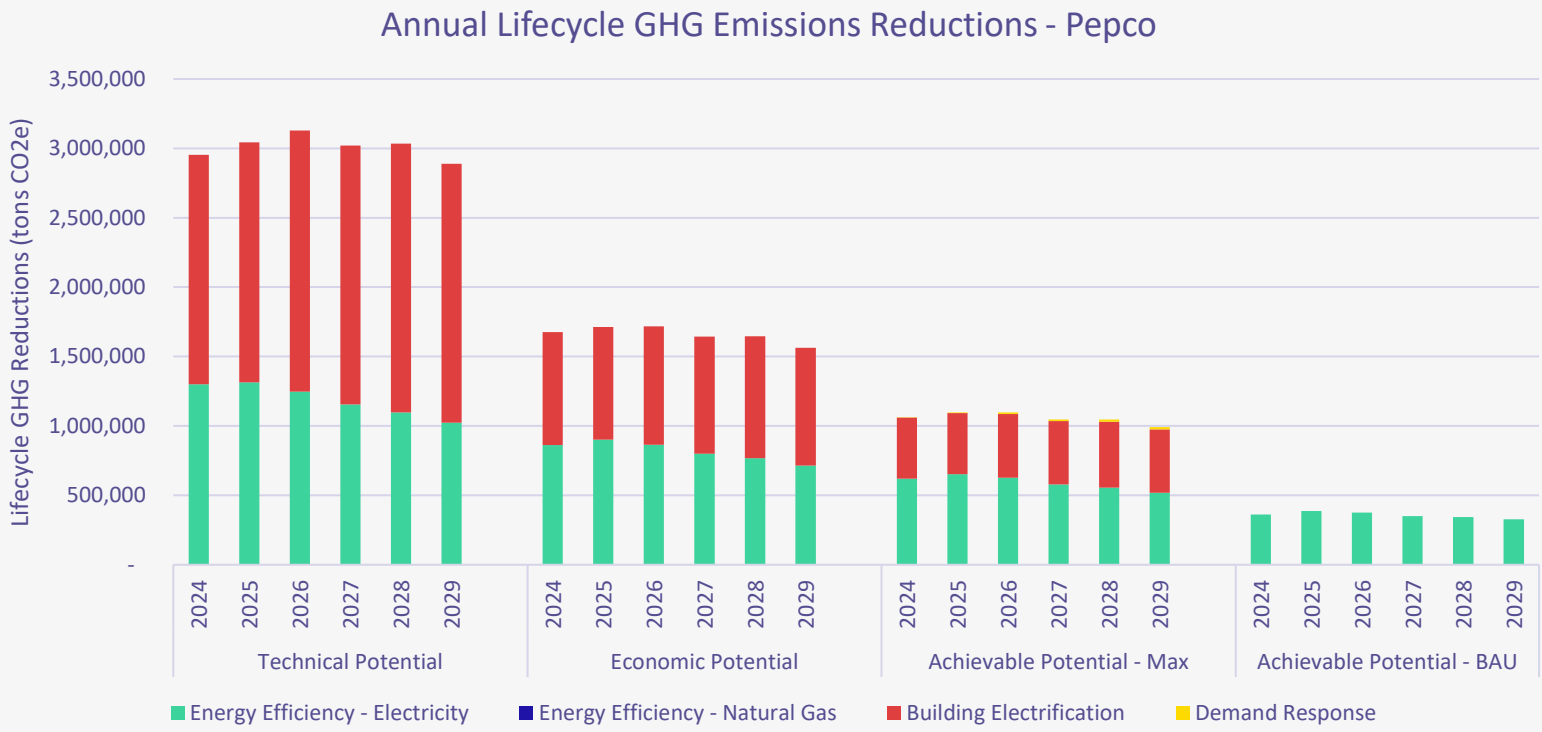
Delmarva Power and Light Co. (DPL)

- Because EmPOWER utilities only provide natural gas in a portion of DPL's service area, the potential associated with building electrification is relatively small compared to other electric utilities.
- However, because electrification of propane and fuel oil systems was found to be largely cost-effective, the technical and economic potential for electrification in DPL's service area were found to be similar.



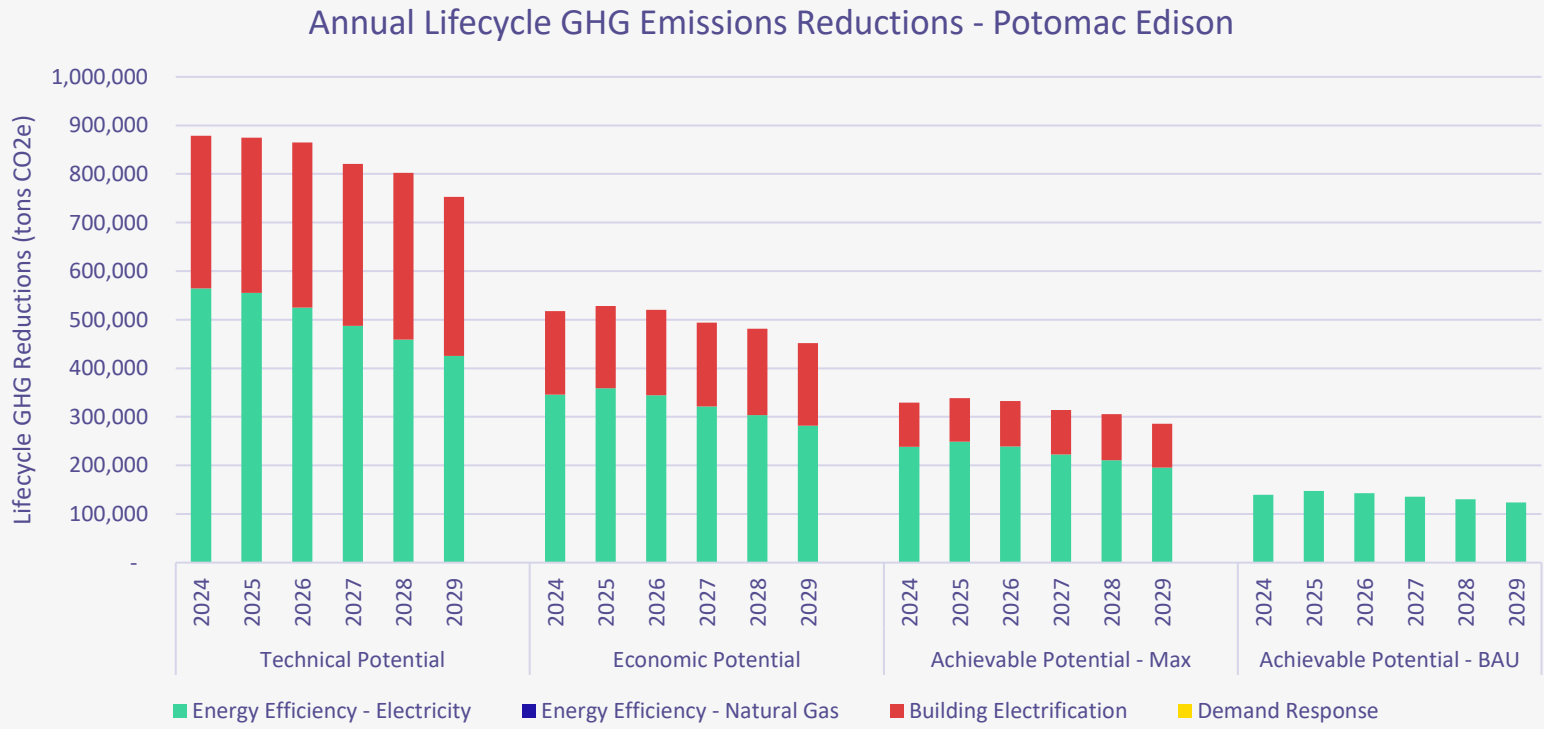
Pepco

- Given significant overlap with WGL's service area, the technical potential for electrification among Pepco's service area was found to be larger than for energy efficiency.
- However, much of this electrification was found not to be cost-effective, leading economic potential for electrification and energy efficiency to be similar.



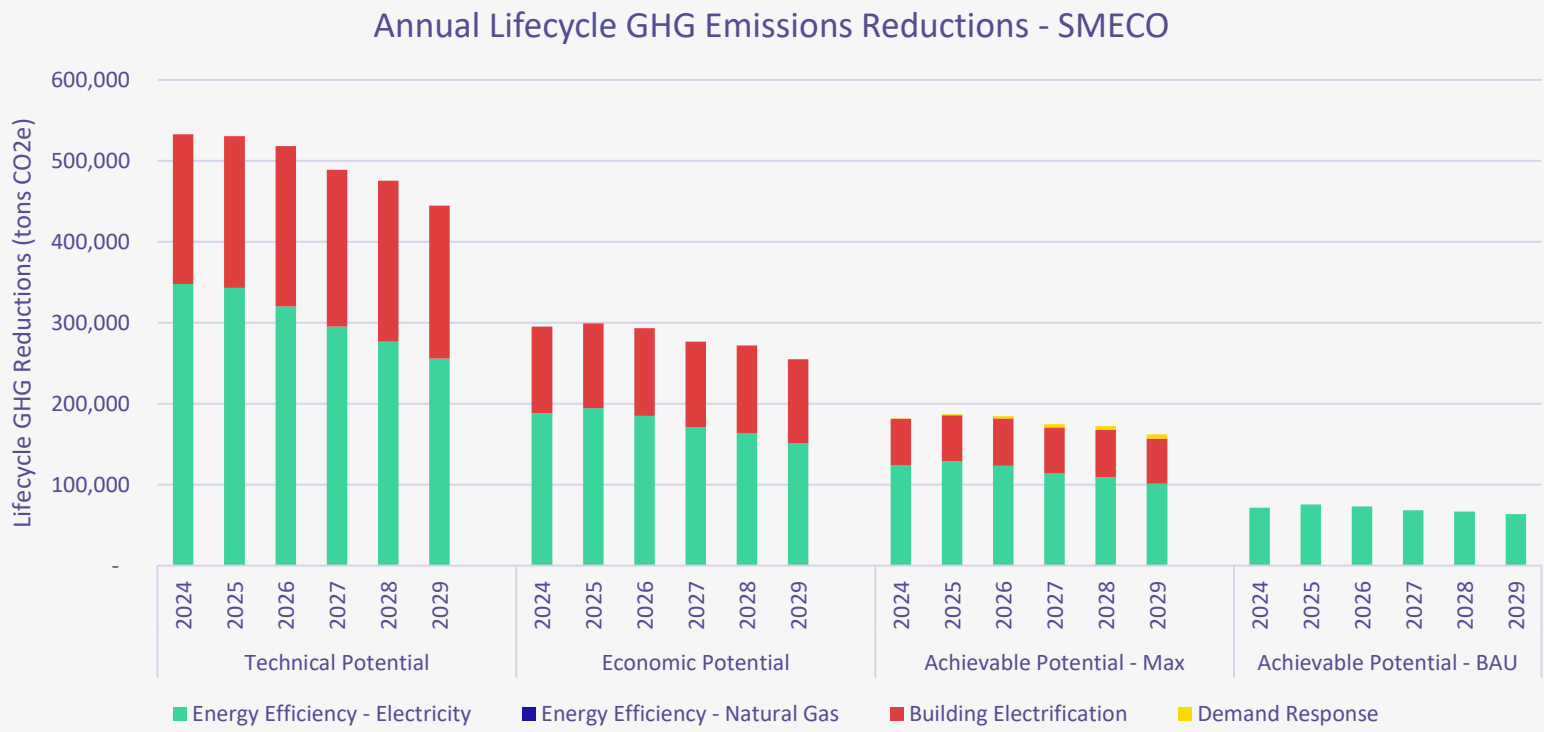
Potomac Edison

- WGL and Columbia Gas both provide natural gas within Potomac Edison's service area. Because Columbia Gas was not part of the EmPOWER GHG Abatement Study, electrification of natural gas systems for customers served by Columbia Gas is not included in the reported potential.



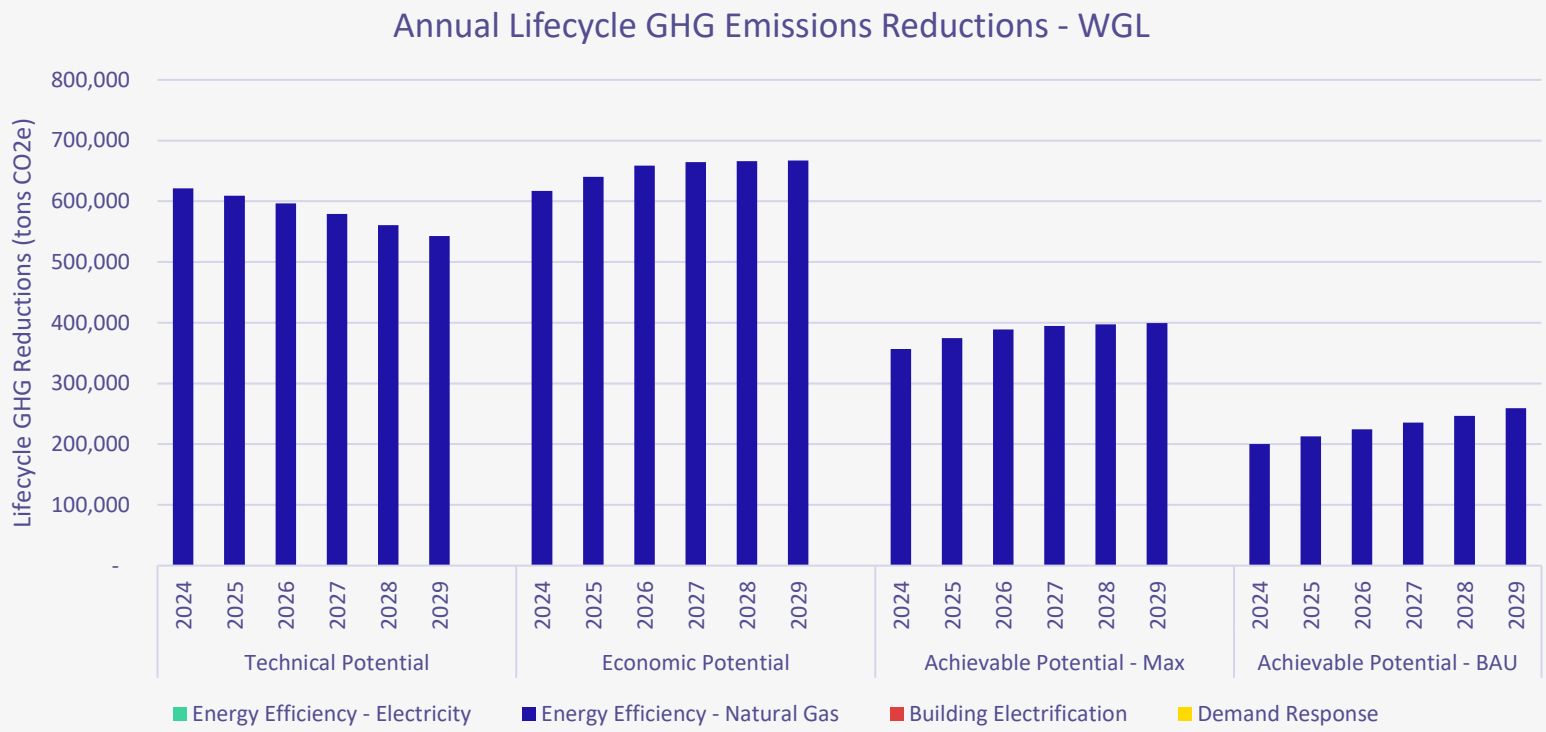
Southern Maryland Electric Cooperative Inc. (SMECO)

- Potential associated with building electrification reflects relatively high shares of electric space heating and water heating in SMECO's service area.



Washington Gas Light (WGL)

- In a pure energy efficiency potential study, we would expect economic potential to always be less than or equal to technical potential.
- However, when considering the impacts of electrification of natural gas equipment, economic potential was found to be higher than technical potential when examining natural gas energy efficiency potential in isolation. Though counter-intuitive, this result was not unexpected given the design and focus of this study.



Thank You.

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