



Building Decarbonization
Coalition Presents:
*Long-Term Gas Planning Proceeding
Webinar Series*

OUR MEMBERS



Figure 1: Decarbonization Targets Within the Building Sector		
	R	Commercial
New Buildings	2020 Building	Zero Emissions Building Code
Retrofits		Levels from the overall C: from building sector from building sector from building sector
<ul style="list-style-type: none"> • Increase the from 5% of sa • Increase the from 1% of sa 		<ul style="list-style-type: none"> mps for space heatin 100 % in 2030. mps for water heating 100 % in 2030.

Roadmap Goals

Goal 1: Build customer, builder, contractor and policy-maker awareness and interest in decarbonization.

Goal 2: Ensure that customers receive a good value from adopting building decarbonization measures.

Goal 3: Ensure that building decarbonization provides a better value to builders and contractors than fossil-fuel heating.

Goal 4: Prepare supply-chains and ensure delivery agents are ready to meet rising demand for carbon-free building technologies with a quality product.

Goal 5: Align Policy to meet other goals.

About this webinar series

This BDC Webinar Series will introduce participants to the main issues addressed in the California Public Utilities Commission's long-time gas system planning proceeding (R.20-01-007), and teach best practices in participating in proceeding discussions.

This proceeding is designed help California plan its gas infrastructure needs as it meets its carbon emissions reductions goals.

- *Seven webinars scheduled from 11 am-12 pm on Wednesdays from October 14 to December 16, 2020*

Coming gas proceeding webinars

- **What California Can Learn From Other States About Long-Term Gas Planning**
 - Nov. 18 – [Register](#)
 - Speakers: Mark Kresowik, Eastern Region Deputy Director at the Sierra Club; Alice Napoleon, Electric System Policy Analyst at Synapse Energy Economics; and Edward Yim, Energy Policy Advisor at Washington, DC Department of Energy and Environment
- **How to Achieve an Equitable Gas Transition**
 - Dec. 2 – [Register](#)
 - Speakers: Mad Stano, Greenlining Institute
- **Managing Ratepayers Impacts from Stranded Costs and Other Electrification Effects**
 - Dec. 2 – [Register](#)
 - Speakers: Marcel Hawiger, The Utility Reform Network

Details of other webinars in this series are at <https://bit.ly/BDCGasWebinars> (case sensitive)

Webinar Logistics

- Everyone is muted.
- Please ask your questions via chat and we will ask speakers to answer at the end of remarks.
- This webinar is being recorded.
- Members of the Coalition can access the recording, slide deck, and other resources on the Members-Only website.
 - To learn more about membership and how to access this recording and other decarb benefits, visit www.buildingdecarb.org or reach out to Ashleigh at Ashleigh@buildingdecarb.org

Today's speakers

- Hannah Kaye, Policy Product Manager at PG&E
- Erica Bowman, Director of Resource & Environmental Planning and Strategy at Southern California Edison



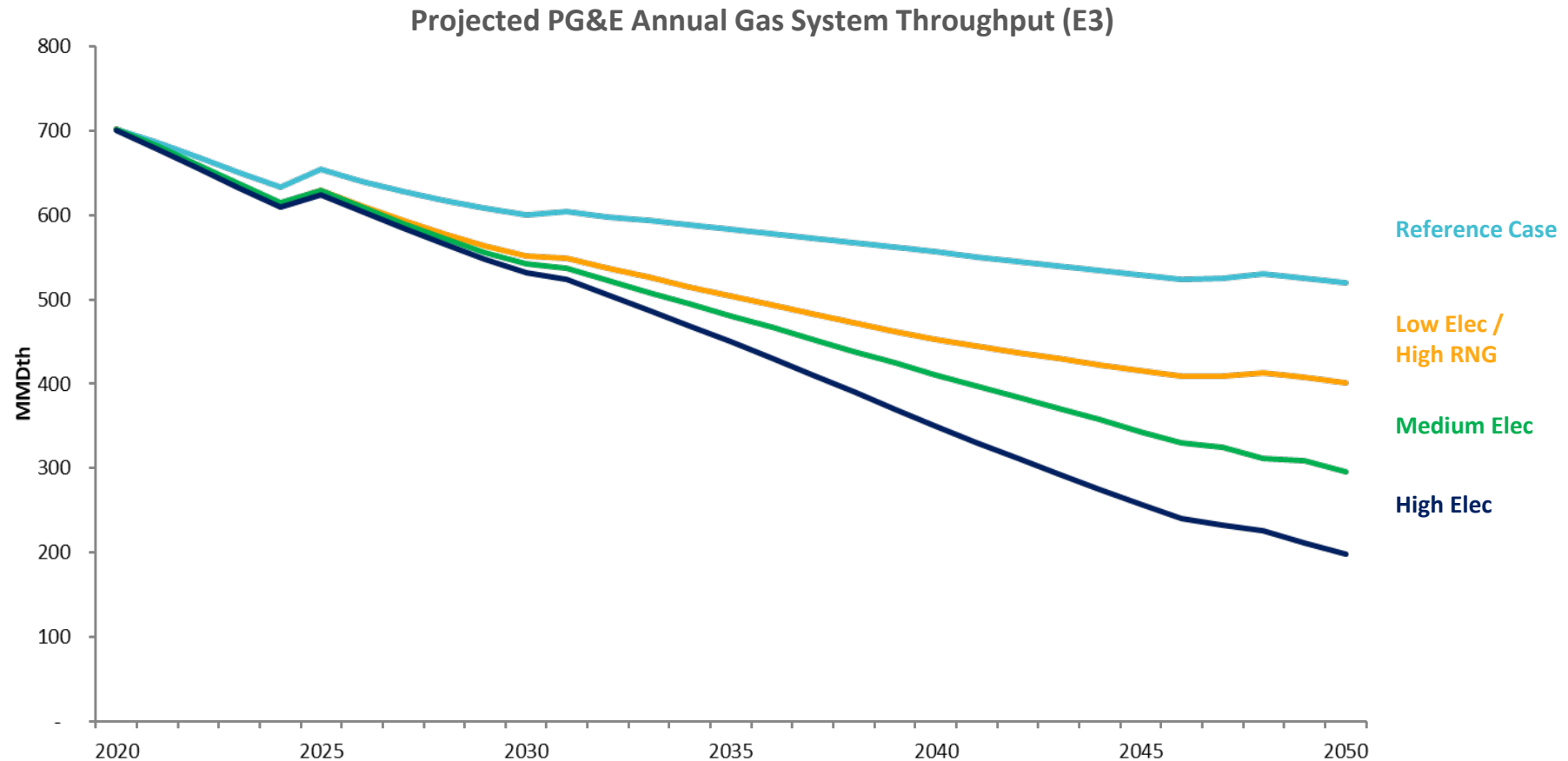
Electrification transition considerations

- *The Utility Perspective on California's Gas and Electrification Evolution*
- November 11, 2020



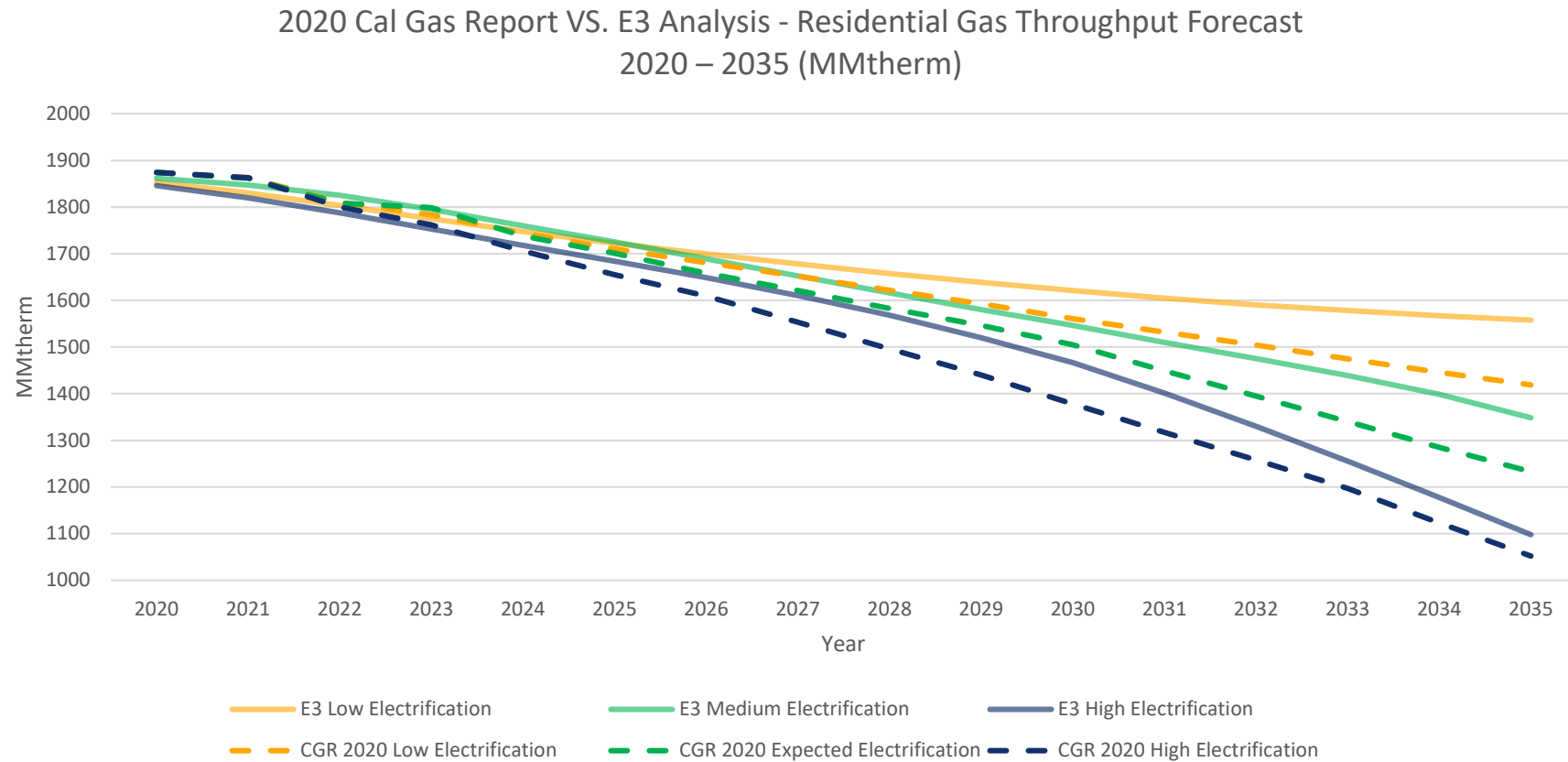
Potential Impact of California's GHG Policies

External analytics suggest that PG&E gas throughput will decline between 2020 and 2050 in response to California's GHG policies



Potential Impact of California's GHG Policies

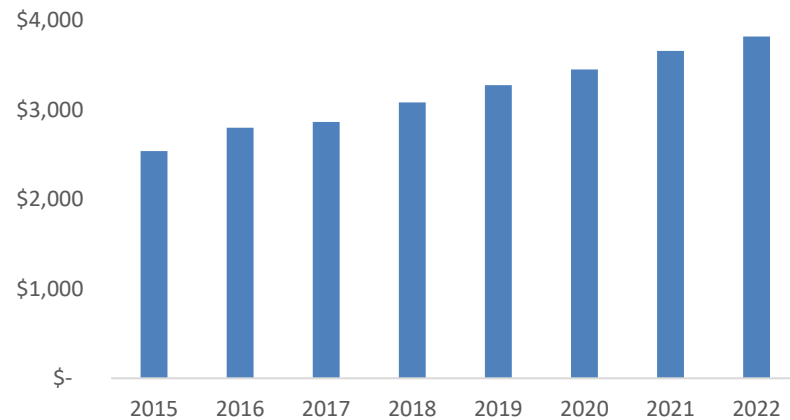
External analytics also suggest that residential throughput will lead the decline



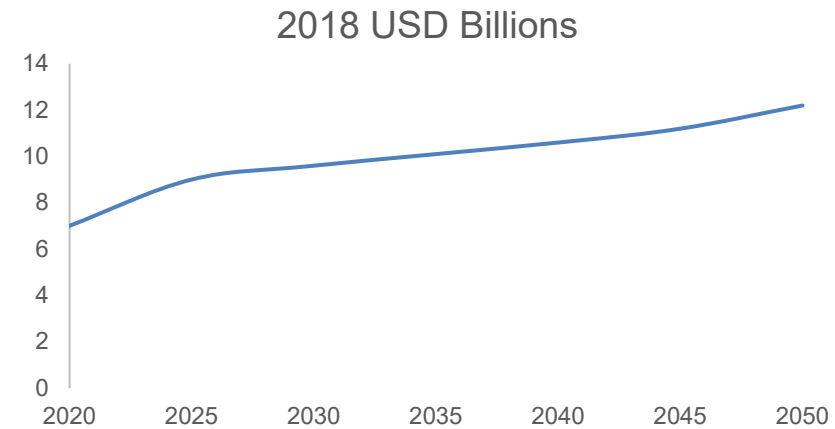
Rising Costs to Serve Gas Customers

Costs to operate the gas system have increased in recent years and are expected to grow through 2050

PG&E Gas Revenue Requirement (GRC + GT&S)



**California Gas Utilities
Forecasted Gas Revenue Requirement (E3)**



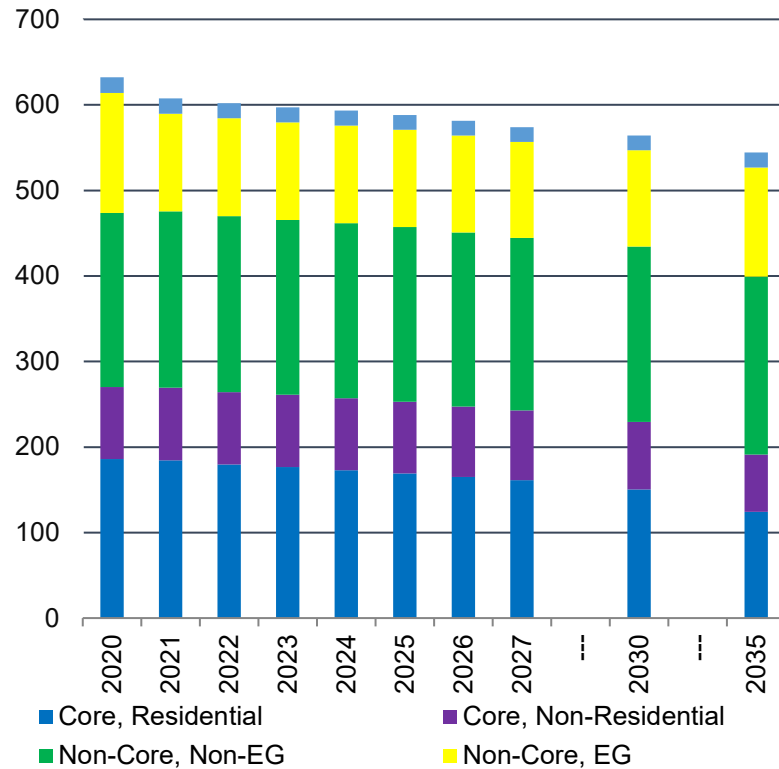
Sources: Graph 1(left) – GRC: Adopted 2014-2019; Pending 2020-2022 (Data from Dec 2019) GT&S: Adopted 2014-2022 (Data from Sep 2019)
Graph 2 (right) – Adopted from CEC's ["The Challenge of Retail Gas in California's Low Carbon Future"](#) April 2020 report- (Page 45), based on analysis provided by E3

Impact of Shifting Residential Usage

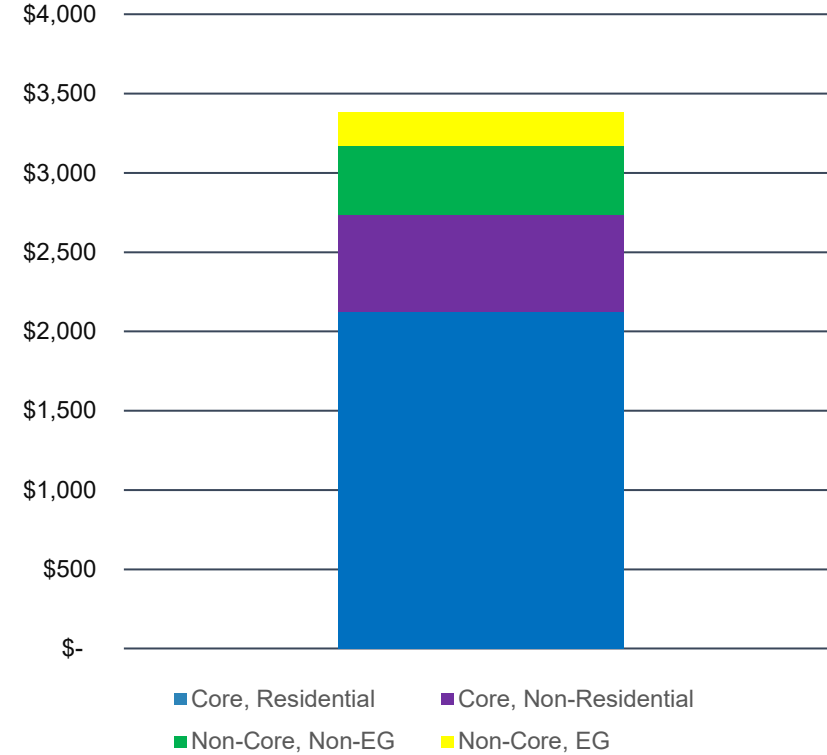
Residential gas throughput is projected to drop 33% between 2020 and 2035

Residential throughput accounts for a substantial portion of PG&E's gas revenue

PG&E's Average Gas Demand Forecast
2020 -2035 (Bcf/Year)

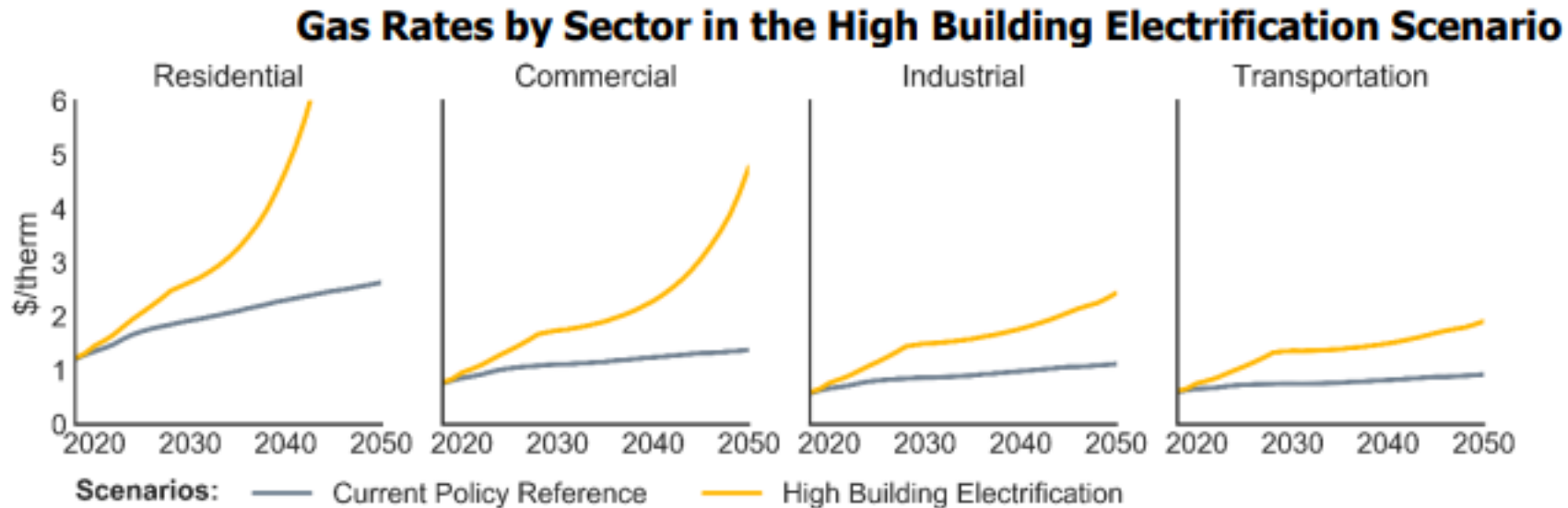


PG&E's Currently Adopted 2020 Base Gas
Revenue by Segment (\$MM)



Gas Rate Impacts of High Electrification

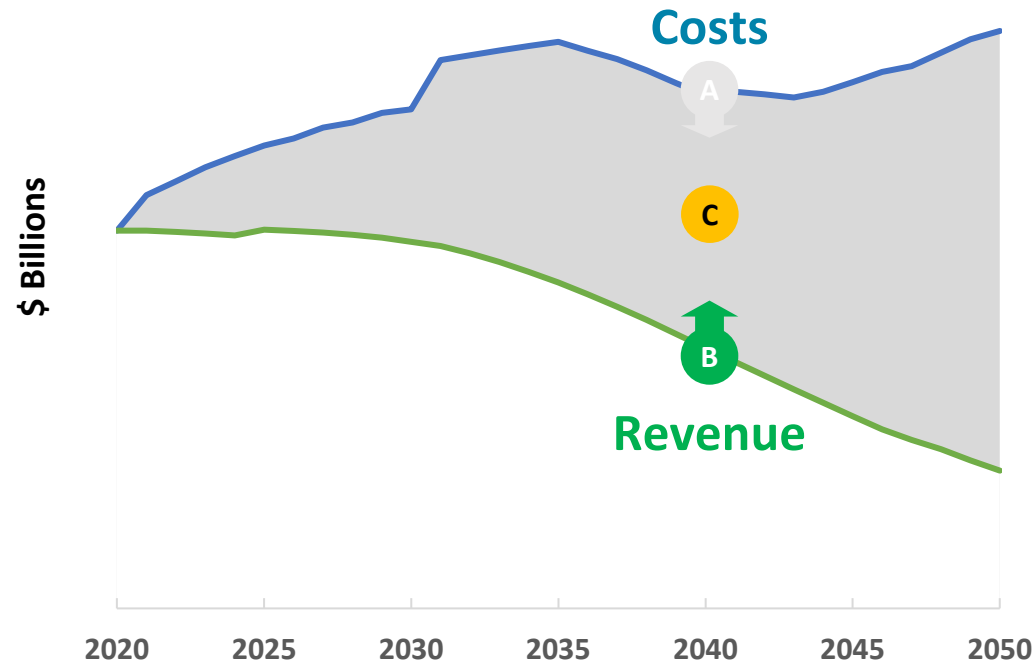
Rising cost and dwindling throughput will lead to increasing gas rates



How Can PG&E Address the Changing Landscape?

Potential levers that can help close the approaching gap

Illustrative depiction of long-term impacts of throughput decline and growing costs



A

Reduce Costs

1. Limit expansion of gas delivery system
2. Zonal electrification
3. Other strategic reductions in CapEx / OpEx

B

Increase Revenue

4. Increase throughput of RNG and Hydrogen
5. Supply new end-uses (e.g., marine)

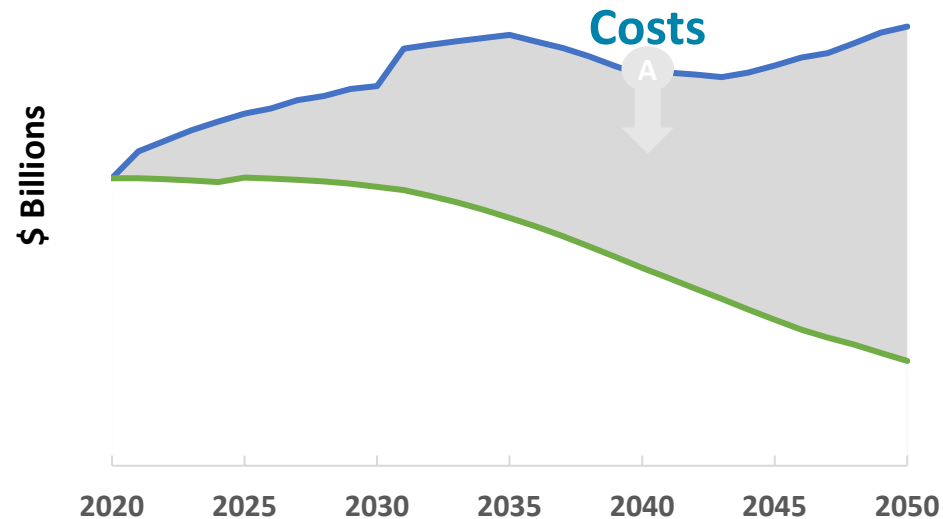
C

Allocate Remaining "Gap"

6. Changes to cost allocation and rate design
7. Accelerated depreciation
8. External funding

Spotlight on Reduce Costs: Targeted Electrification

Gas system costs can be reduced by avoiding spend that would otherwise take place.



Targeted electrification has the potential to enable some avoided spend.
Electrification does not always avoid future spend.

Introduction to Gas System Planning & Spend

- 1** PG&E's gas system planning is driven by safety, risk reduction, and compliance.
- 2** Rate cases approve work plans, targets, and associated cost recovery for 3-4 year spans; PG&E success measured by achieving rate case objectives.
- 3** PG&E operational planning must assume existing customers will continue to require service unless/until certain of upcoming changes.
- 4** PG&E does not currently have regulatory authorization to conduct alternatives to work specified in rate cases (e.g. electrification to avoid a replacement). When doing this work, spend does not produce a return and is at risk for non-recovery.
- 5** Existing gas system spend varies in predictability and scale. Frequency and scope of distribution asset work varies. Transmission work occurs on a scheduled cadence.

PG&E Gas Operations is Pursuing Electrification Alternatives

PG&E has successfully avoided gas projects by deploying electrification. Opportunities to pursue alternatives are limited, however, largely by three barriers.

100% of impacted customers must agree to terminate gas service.

Consensus



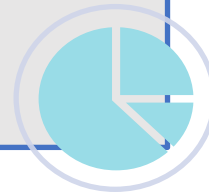
Cost of electrification (including pipeline decommissioning) must be equal to or lower than the cost of the gas project.

Cost



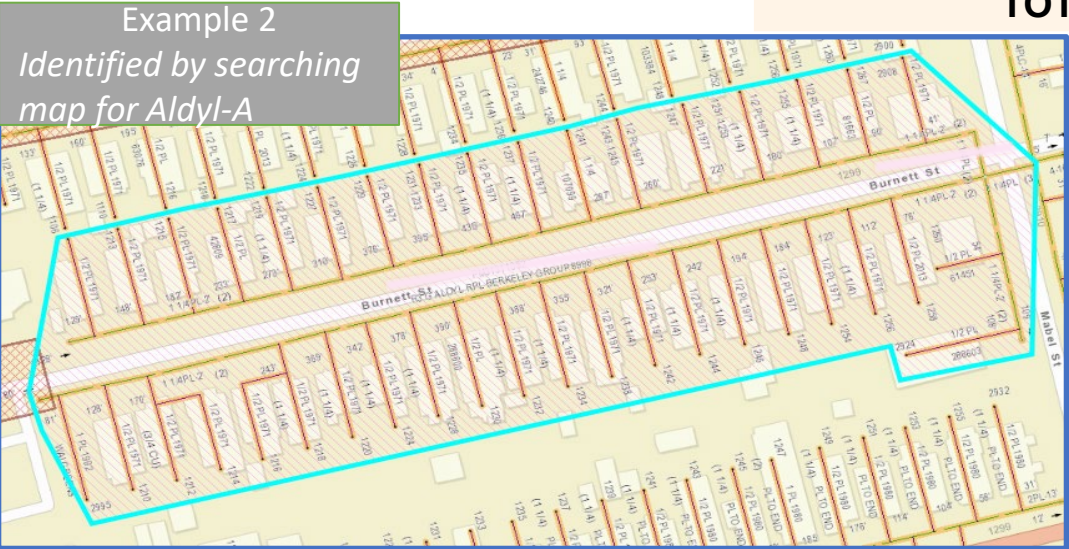
Most rate case funding is not flexible; electrification must be covered by available expense dollars.

Funding

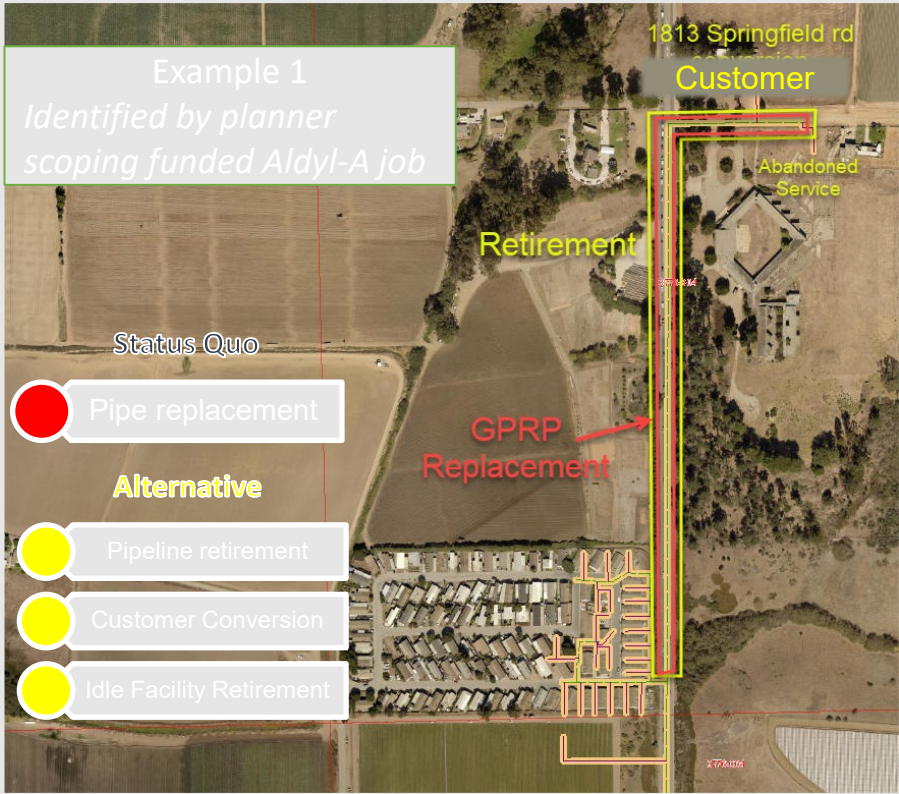


Example: Electrification to avoid pipeline replacement

Electrification conversion costs are driven by customer density and pipeline retirement costs, which are dependent on unique geographic considerations and require a fair amount of engineering design to assess.



Example 1	
Status Quo	Costs
Pipeline Replacement	\$1.2M
TOTAL	\$1.2M
Alternative	Costs
Pipeline Retirement	\$20K
Customer Conversion	\$130K
(2) Idle Service Retirement	\$6K
TOTAL	\$156K



Example 2

Status Quo (North Side)	Costs
Replacement	\$412K
TOTAL	\$412k

Electrification (North Side)	Costs
Service Deactivation (17)	\$46k
Customer Conversion (17)	\$595k
Retirement	\$7K
TOTAL	\$648K

Considering the Role for Electrification in Future Gas System Planning

PG&E looks forward to working with stakeholders to develop a transition path.



Reducing gas system spend is important for affordability and equity.



Cost, funding, and customer acceptance challenges limit viability and scalability of electrification alternatives.



Incorporating electrification into gas system plans requires certainty.



External resources will be needed to support gas system evolution.

PG&E Gas Operations is Pursuing Electrification Alternatives

When can PG&E Gas Operations fund electrification alternatives to gas work?

There is a funded gas project to avoid

- Scoping is sufficient to know facilities involved, customers impacted, estimated cost
- Project included in current rate case; funds not available for non-rate case projects

An alternative is hydraulically feasible

- An alternative to the gas project will support system integrity
- Risk reduction is the same or greater than if status quo gas work is performed

Electrification costs less than the gas project

- Electrification must be funded with expense dollars; not directly comparable to capital
- Decommissioning costs may need to be added to budget for electrification alternative

Funds are available that can be used for electrification

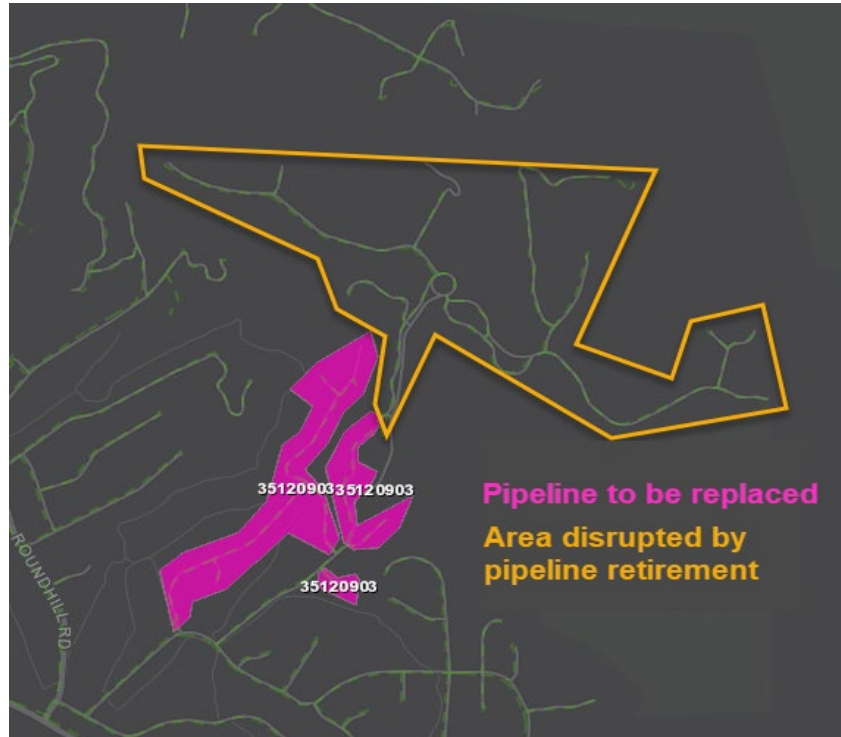
- Electrification must be funded with expense dollars not otherwise allocated
- Nearly all GRC funding is allocated to specific gas projects and can't be repurposed

All impacted customers agree to terminate service

- Each customer involved (property owner/ occupant) must voluntarily sign a contract affirming their choice to forego gas service

Assessing electrification potential

Future Aldyl-A replacement identified.



Some data layers suggest future gas spend, for example:

- Aldyl-A pipeline
- High Pressure Regulators
- Rate case commitment programs
- Integrity-driven work

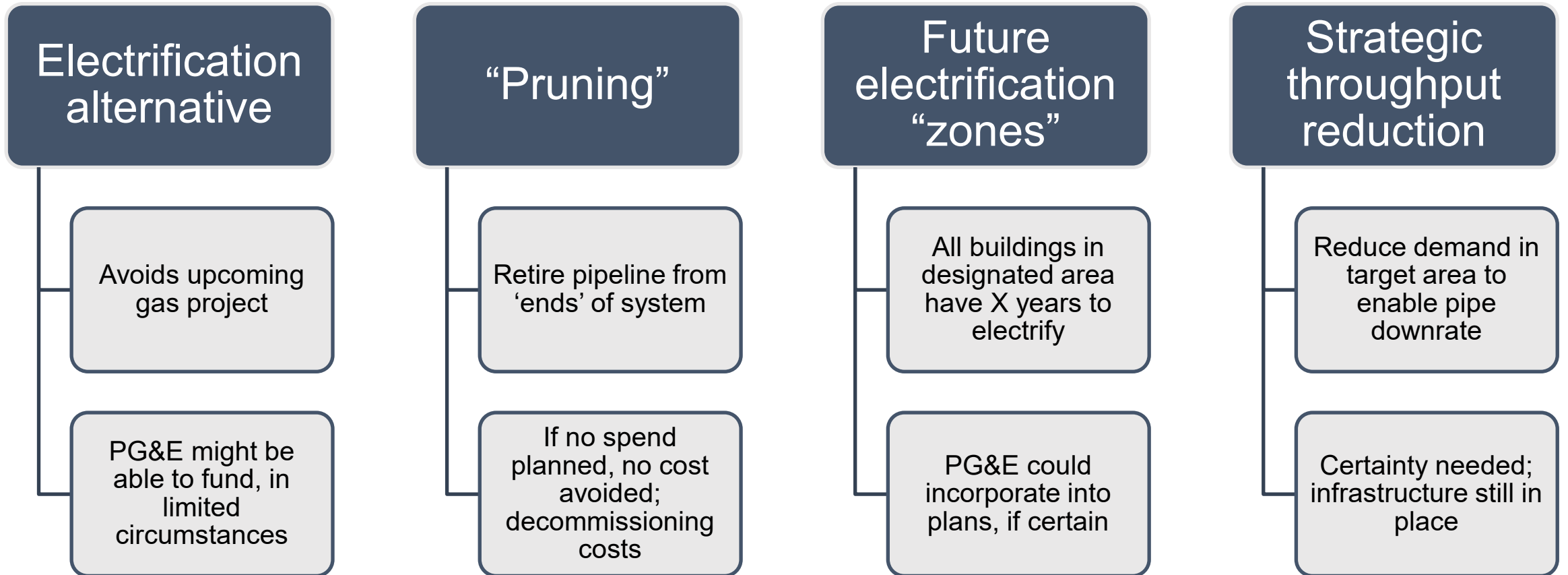
Engineering review reveals broader impact to customers.

On their own, data layers provide an incomplete picture of electrification opportunity.

Detailed engineering review is required to determine, for example:

- Which facilities (and buildings) involved in mitigating identified risk
- Hydraulic feasibility of electrification alternative
- Cost of available options
- Changes to site conditions of non-utility assets
- Potential to alter configuration to reduce number of customers impacted by retirement

What could targeted electrification entail?

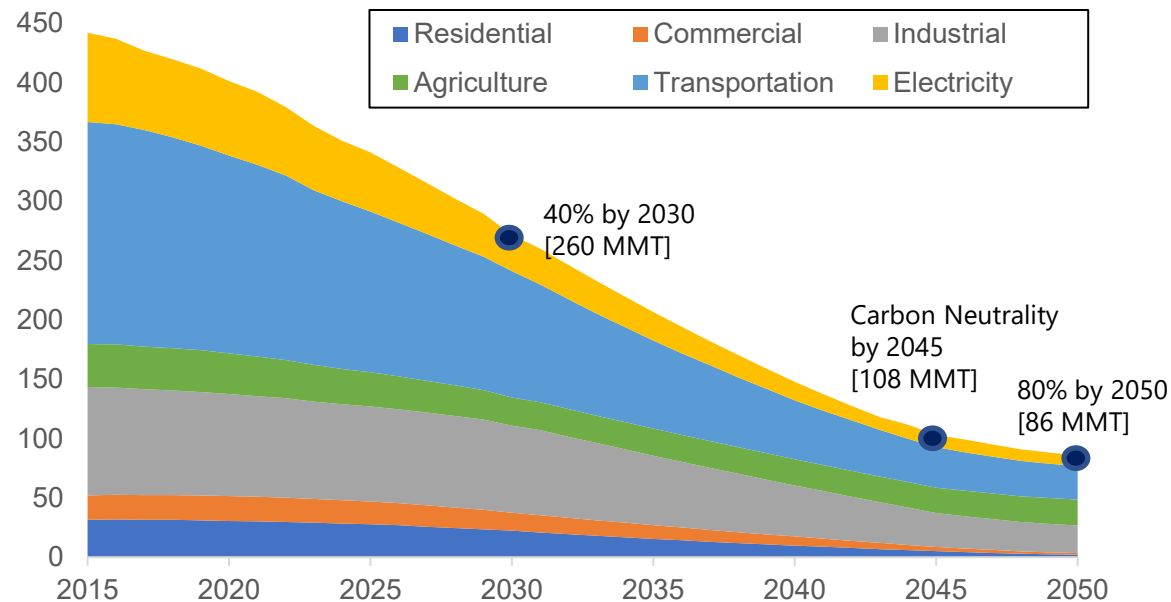


Pathway 2045: Decarbonizing California through Clean Power and Electrification

Electric sector decarbonization and electrification of customer end uses support achievement of carbon neutrality in 2045

State Carbon Emissions Reduction Pathway

Annual million metric tons (MMT)

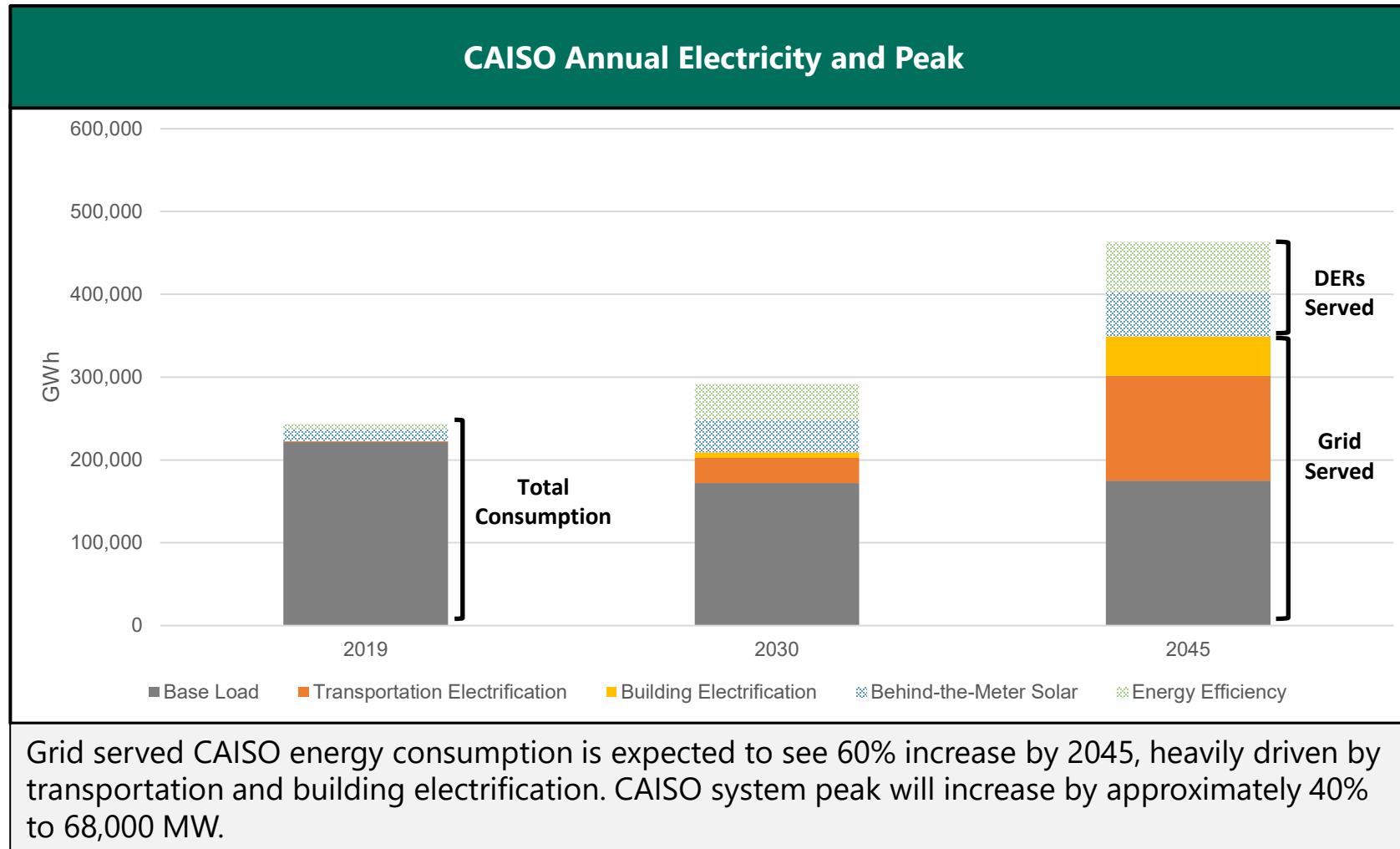


- Nearly carbon-free electricity supporting wide-scale electrification will enable the majority of necessary reductions, but will require significant investments over the next 25 years
- Carbon neutrality is enabled by requiring about 108 million metric tons of offsets through natural working lands and means of carbon sequestration
- Pipeline gas usage will decline by 50% but is an important piece of the overall solution if biomethane can fulfill 40% of the need

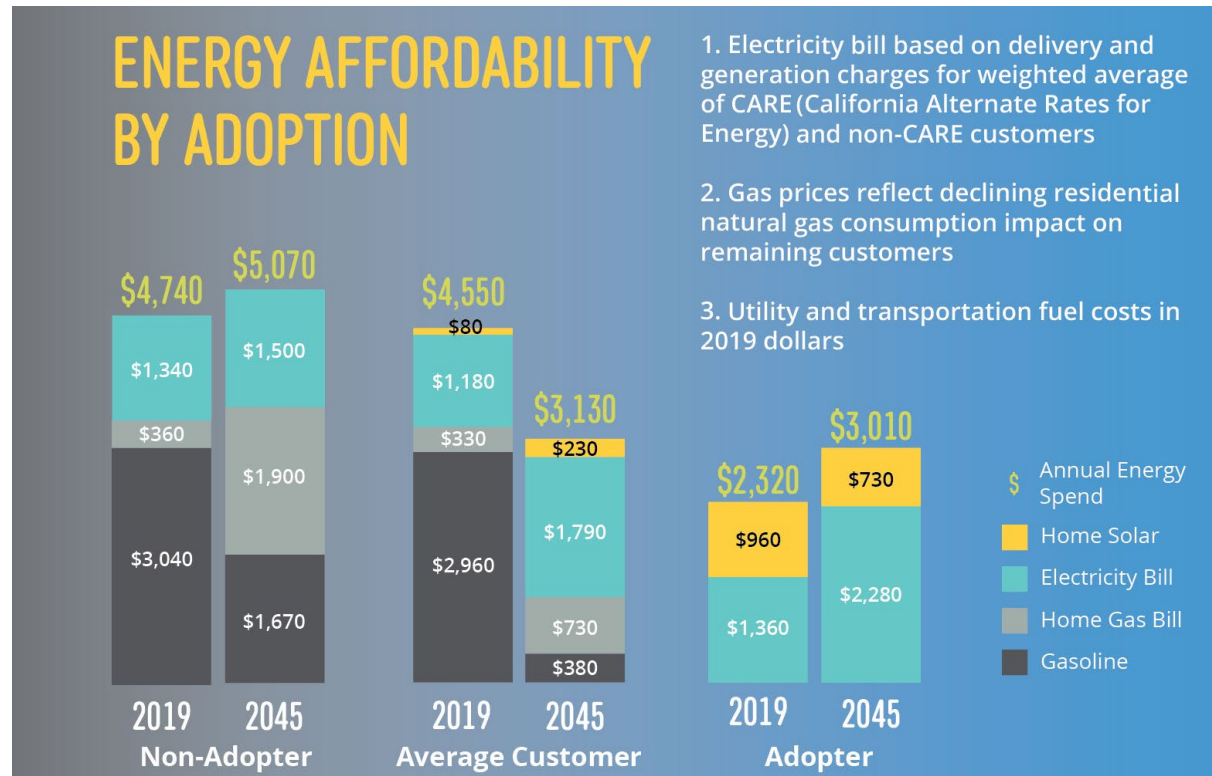
¹ Includes fossil natural gas, biomethane and hydrogen

² BCF: billion cubic feet

Decarbonization through electrification significantly increases annual electricity demand and peak load to serve by 2045



Customer affordability is key to decarbonizing California



- Customer adoption of electrification supports economy-wide energy efficiency due to the efficiency advantage of electric motors
- If Pathway 2045 is implemented cost-effectively, customer total energy costs maintain median income affordability
- Today, and in 2045, customers who adopt home solar, electric vehicles, and electric space and water heating appliances save significantly on energy costs over non-adopters

Thank you!

Contact

Our Speakers today:

Panama Bartholomy, Building Decarbonization Coalition at panama@buildingdecarb.org

Hannah Kaye, PG&E at hannah.kaye@pge.com

Erica Bowman, SCE at erica.s.bowman@sce.com

Learn more about the series and BDC's advocacy action plan for the Gas Proceeding

Michelle Vigen Ralston, Common Spark Consulting at michelle@common-spark.com

Learn about membership with the BDC

Ashleigh Spurgeon, Building Decarbonization Coalition at ashleigh@buildingdecarb.org



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