NW Natural
2025 Integrated Resource Plan
LC-86

Oregon Public Utility Commission Public Meeting Presentation
September 2, 2025

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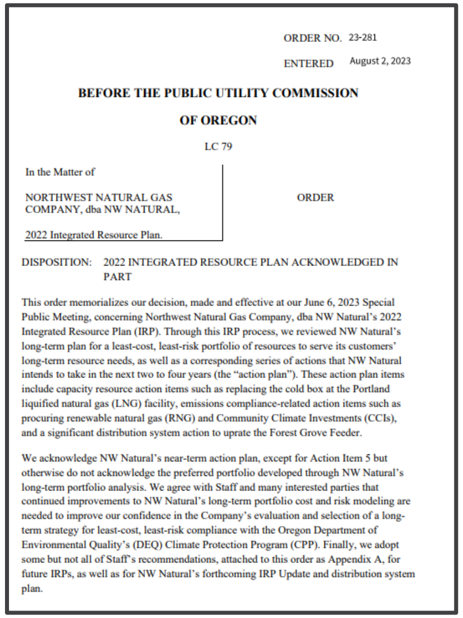
Agenda

1. Improvements
2. Results
3. Action Plan
4. Questions

Improvements in NW Natural's 2025 IRP

Key themes from OPUC LC79 Order No. 23-281

- **Electrification as a Compliance Resource:** The order recognized “that we need to gather more information before arriving at a comprehensive view of how gas IRPs should model electrification as a resource choice.”
- **RNG & CCI Resource Strategy:** The Commission “expect[s] the Company to pursue RNG and CCIs in the most economical way possible to minimize compliance costs and risks.”
- **Third Party Alternative Fuels Study:** “…using information from a neutral third party can be important to build stakeholder confidence in nascent markets,” such as decarbonized fuels.
- **Non-Pipeline Alternatives:** Cost effective viable non-pipeline alternatives should be pursued in lieu of distribution system infrastructure and thus, distribution system planning should look at least 5 years ahead.
- **Modeling Clarity:** More clarity about what is included in the Preferred Portfolio and how it was derived.



ORDER NO. 23-281

ENTERED August 2, 2023

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

LC 79

In the Matter of

NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL,

2022 Integrated Resource Plan.

ORDER

DISPOSITION: 2022 INTEGRATED RESOURCE PLAN ACKNOWLEDGED IN PART

This order memorializes our decision, made and effective at our June 6, 2023 Special Public Meeting, concerning Northwest Natural Gas Company, dba NW Natural’s 2022 Integrated Resource Plan (IRP). Through this IRP process, we reviewed NW Natural’s long-term plan for a least-cost, least-risk portfolio of resources to serve its customers’ long-term resource needs, as well as a corresponding series of actions that NW Natural intends to take in the next two to four years (the “action plan”). These action plan items include capacity resource action items such as replacing the cold box at the Portland liquified natural gas (LNG) facility, emissions compliance-related action items such as procuring renewable natural gas (RNG) and Community Climate Investments (CCIs), and a significant distribution system action to uprate the Forest Grove Feeder.

We acknowledge NW Natural’s near-term action plan, except for Action Item 5 but otherwise do not acknowledge the preferred portfolio developed through NW Natural’s long-term portfolio analysis. We agree with Staff and many interested parties that continued improvements to NW Natural’s long-term portfolio cost and risk modeling are needed to improve our confidence in the Company’s evaluation and selection of a long-term strategy for least-cost, least-risk compliance with the Oregon Department of Environmental Quality’s (DEQ) Climate Protection Program (CPP). Finally, we adopt some but not all of Staff’s recommendations, attached to this order as Appendix A, for future IRPs, as well as for NW Natural’s forthcoming IRP Update and distribution system plan.

Electrification as a Compliance Resource

- **Critical question:** The costs and risks of shifting energy services to a single system need to be understood in order to consider electrification as a compliance resource.
- **Third Party Study (ICF):** NW Natural commissioned ICF to examine the cost impacts of electrifying space-heat in Pacific Northwest to meet CPP and HB 2021 goals.
- **Aligning with ODOE's Energy Strategy Assumptions for heat pumps:** NW Natural contracted with an outside consultant to look at the all-in-costs for electrification under two primary scenarios:
  - All-electric scenario (heat pump replaces furnace)
  - Hybrid heating scenario (heat pump combined with furnace)
- **Advisory Group Formed:** NW Natural sought out other regional energy and electric system experts to serve as an advisory board for the ICF study, reviewing assumption ranges and source data inputs for reasonableness and relevancy of supply-side resources (i.e., generation, transmission, and distribution), and in particular take reliability risk into consideration.

Alternative Fuels in 2025 IRP

RNG Analysis

- Prioritized purchase of lower cost compliance resources such as Community Climate Investments (CCIs)
- Used risk mitigation framework
- Limited the amount of Renewable Natural Gas (RNG) purchased under the SB 98 to the 5% cost cap in the near-term in the preferred portfolio

Alternative Fuel Evaluations

- Number of alternative fuels evaluated increased from 4 to 22; added evaluation of two Carbon Capture Utilization and Storage (CCUS) resources
- Contracted with outside consultant to perform Alternative Fuels Study
- Performed a literature review on RNG as recommended by Staff

Non-Pipeline Alternatives (NPAs)

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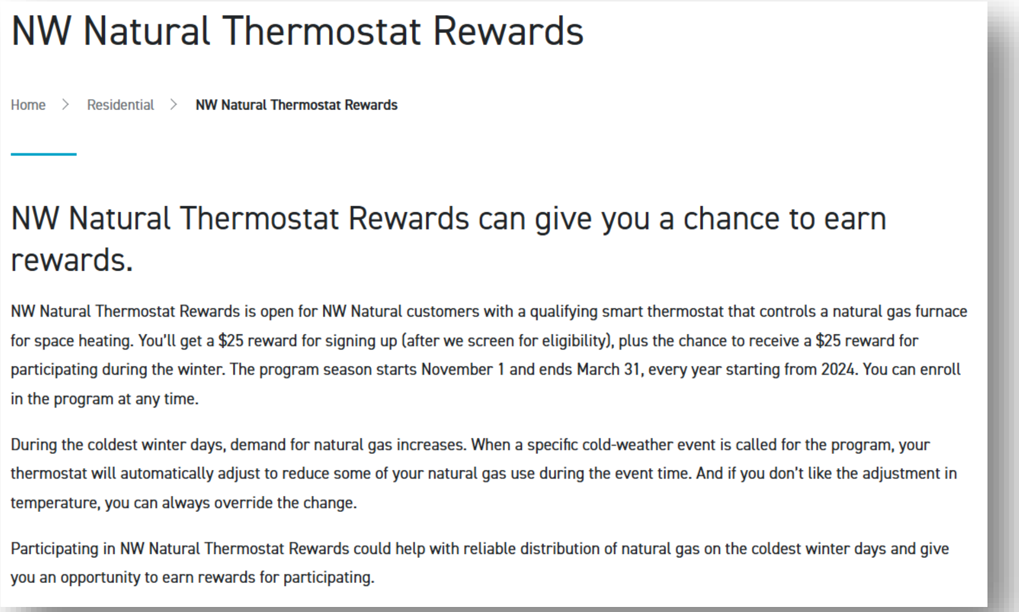
- **New modeling allows for longer planning horizon:** Developed Forward-Looking Distribution System Plan to identify areas of potential need at least ten years in the future.
- **Three proposed NPAs in IRP:** For three areas identified, non-pipeline alternatives were evaluated. Action plan includes Geographic Demand Side Management (GeoDSM) programs for these areas to delay or potentially avoid infrastructure projects.
- **Demand Response:** In late 2024, the Company began its Thermostat Rewards program, the first stand-alone natural gas LDC demand response program in the Northwest. This system-wide program supports Geographically Targeted Demand Response (GeoDR) programs.



NW Natural Thermostat Rewards

Home > Residential > NW Natural Thermostat Rewards

NW Natural Thermostat Rewards can give you a chance to earn rewards.

NW Natural Thermostat Rewards is open for NW Natural customers with a qualifying smart thermostat that controls a natural gas furnace for space heating. You'll get a $25 reward for signing up (after we screen for eligibility), plus the chance to receive a $25 reward for participating during the winter. The program season starts November 1 and ends March 31, every year starting from 2024. You can enroll in the program at any time.

During the coldest winter days, demand for natural gas increases. When a specific cold-weather event is called for the program, your thermostat will automatically adjust to reduce some of your natural gas use during the event time. And if you don't like the adjustment in temperature, you can always override the change.

Participating in NW Natural Thermostat Rewards could help with reliable distribution of natural gas on the coldest winter days and give you an opportunity to earn rewards for participating.

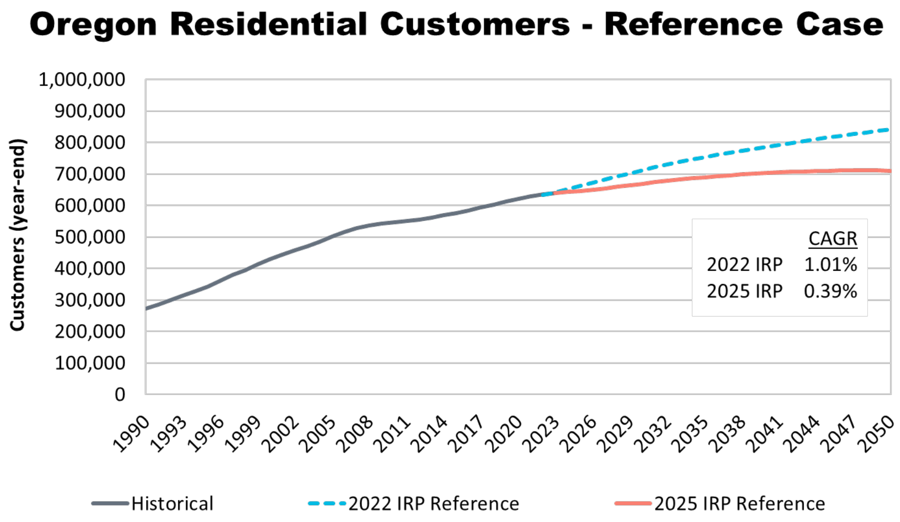
Additional Improvements

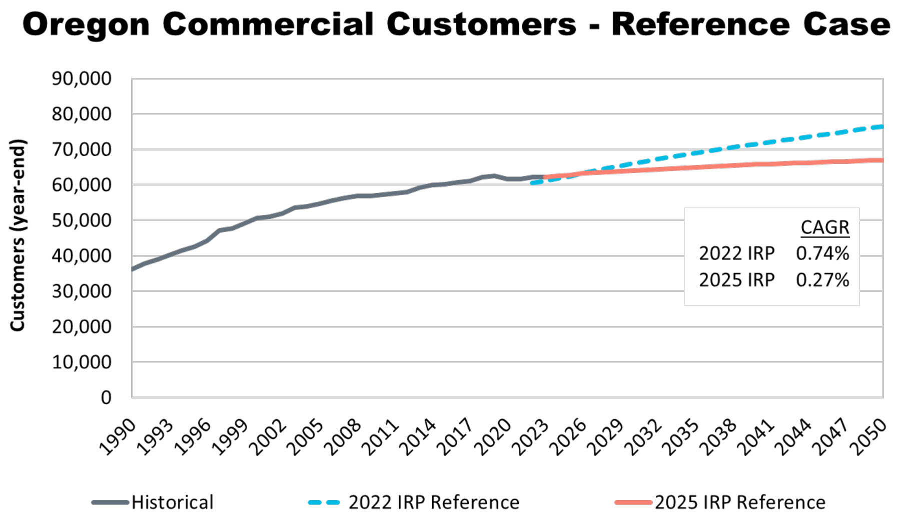
- **Public Engagement Enhancements**
  - Focused on strengthening Procedural Equity (accessibility of the process)
    - Updated IRP webpage
    - Winter Preparedness & Energy Resource Fair and Tabling at Community Event
    - Partner workshops and ongoing discussions with Community & Equity Advisory Group
  - Dedicated Equity Considerations Chapter

- **Proactively Incorporating IRP Modernization (UM 2348/AR 669) Updates**
  - Long-Term Resource Strategy
  - 5-year Near-Term Action Plan
  - Recap of formal comments received and company response
  - Recap of action plan status
  - Recap of recommendations

Results

Slower Customer Growth Projected



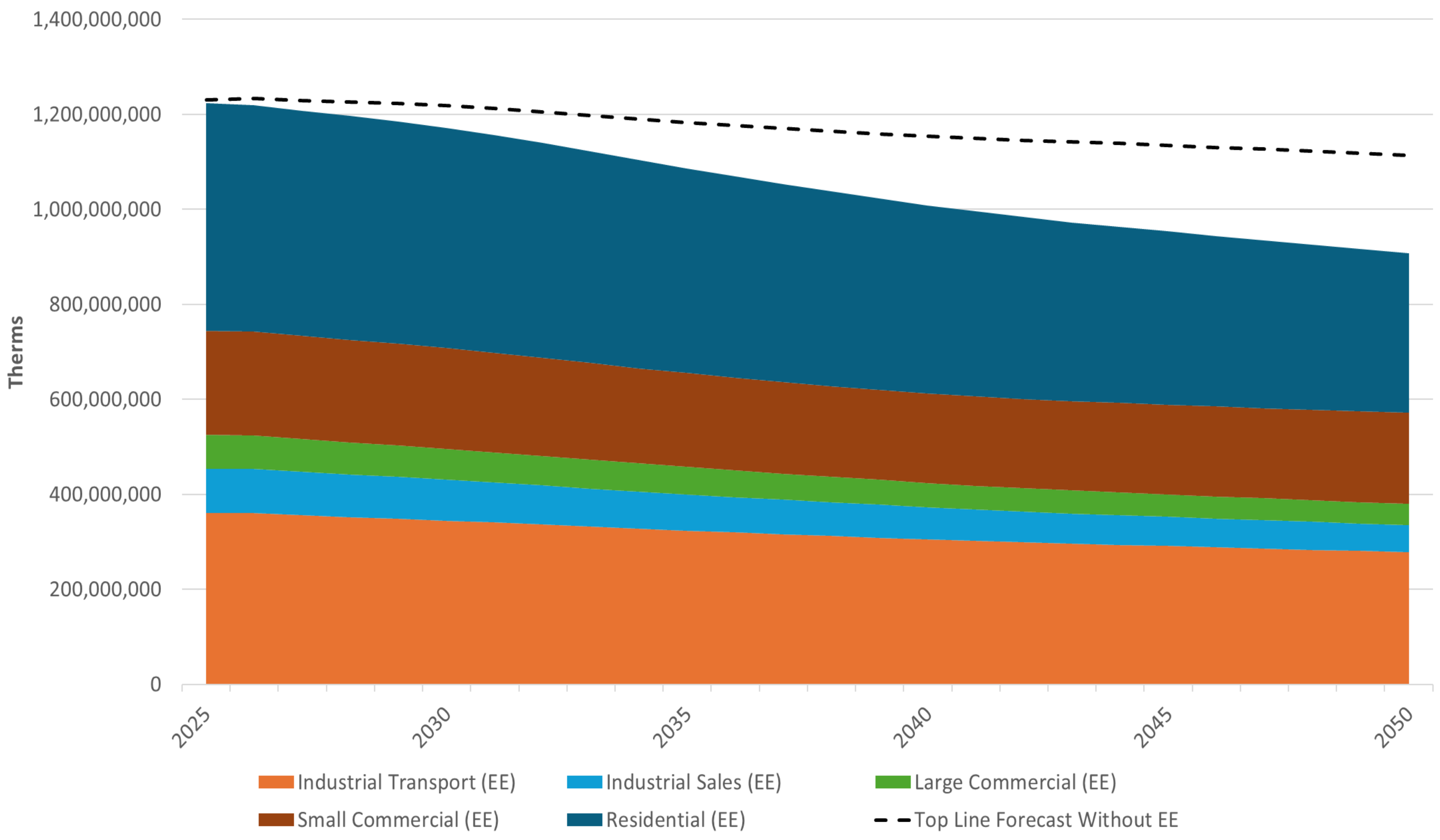


- **Residential Growth:** Oregon residential customer growth rate 0.39% over planning horizon, down from 1.01% in 2022 IRP (reference case).

- **Commercial Growth:** Oregon commercial customer growth rate 0.27% over planning horizon, down from 0.74% in 2022 IRP (reference case).

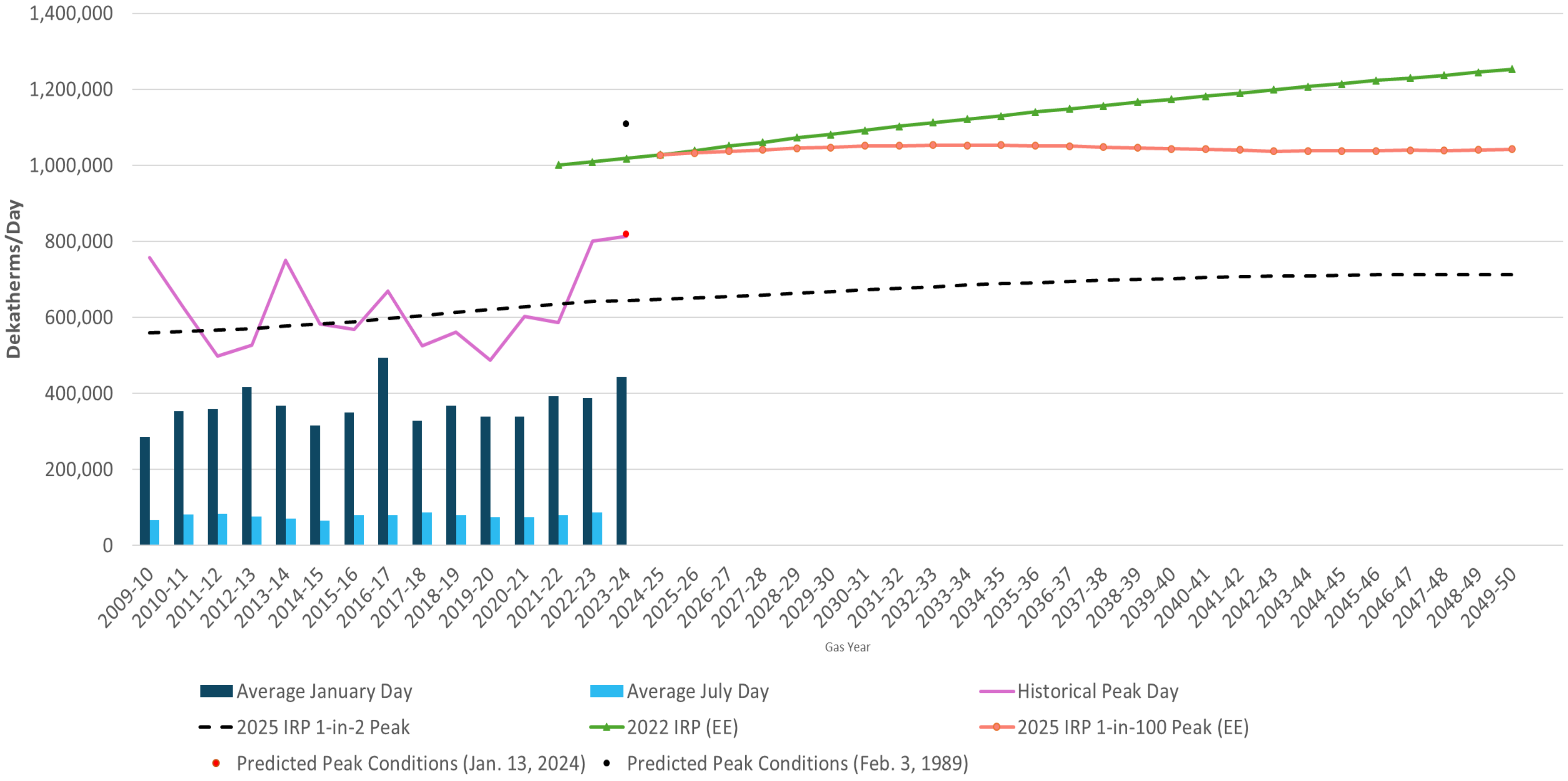
- **Drivers of change:** include weaker macroeconomic conditions over the past three years in areas such as Oregon housing starts and Oregon population growth, with lower forecasted growth over the planning horizon.

Annual System Load



- Overall, load is forecasted to decline through the planning horizon
  - Energy efficiency gains
  - Declining trend in Heating Degree Days
  - Changes to the building stock (e.g., increasing share of more efficient new construction homes)
- Without EE, top line load is forecasted to *decline* an average of 0.40% YoY
- With EE, forecasted top line load is forecasted to *decline* an average of 1.19% YoY

Peak Load - Annual



- In the near-term, the 2025 IRP design peak day planning standard is indistinguishable from the 2022 IRP planning standard
- Further out in time they start to diverge
  - Downward revisions in customer count forecast
  - Beginning in 2035, the design day peak is forecasted to decline at a rate of 0.07% annually through the planning horizon

2025 IRP Resource Stack

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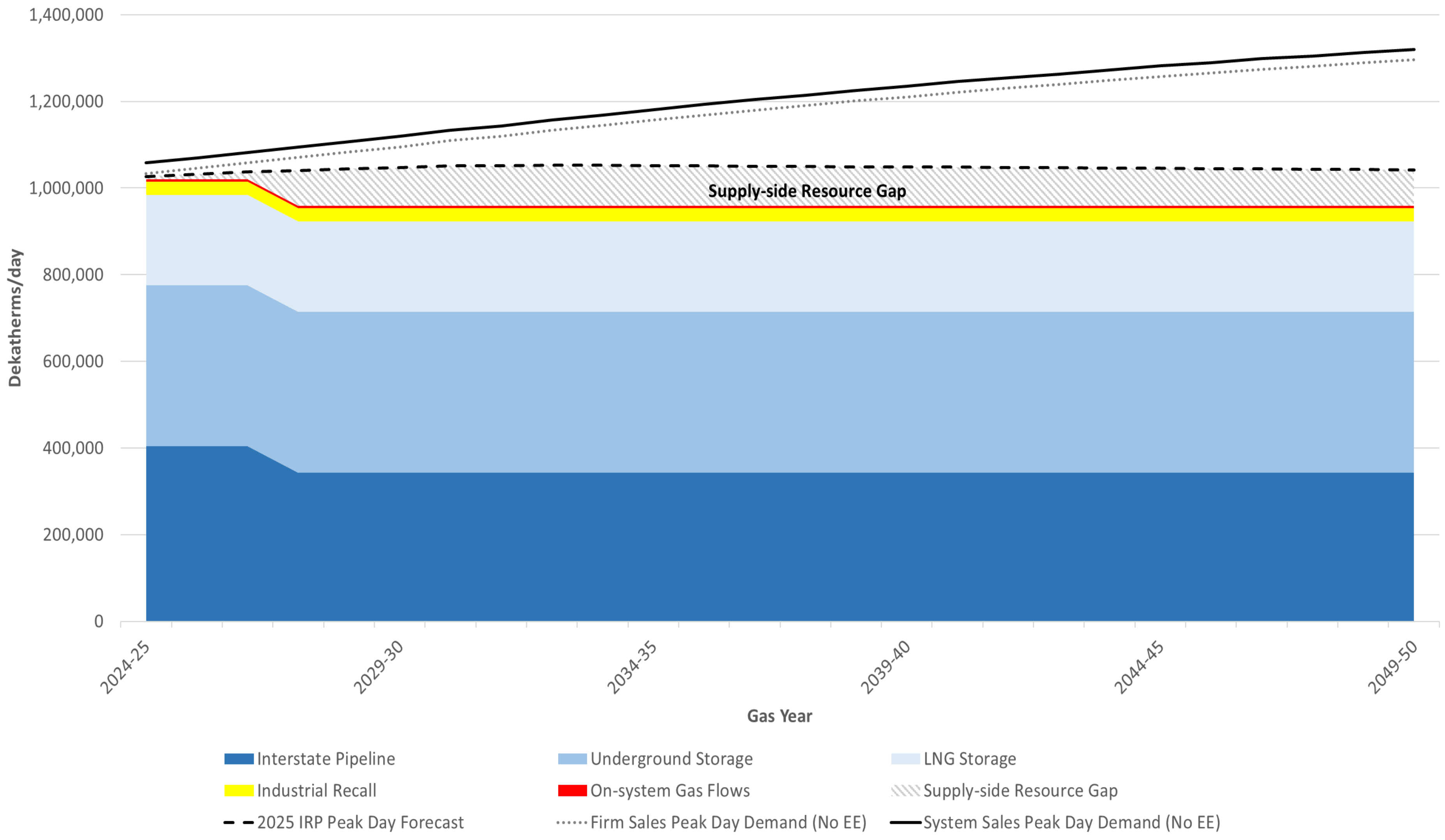
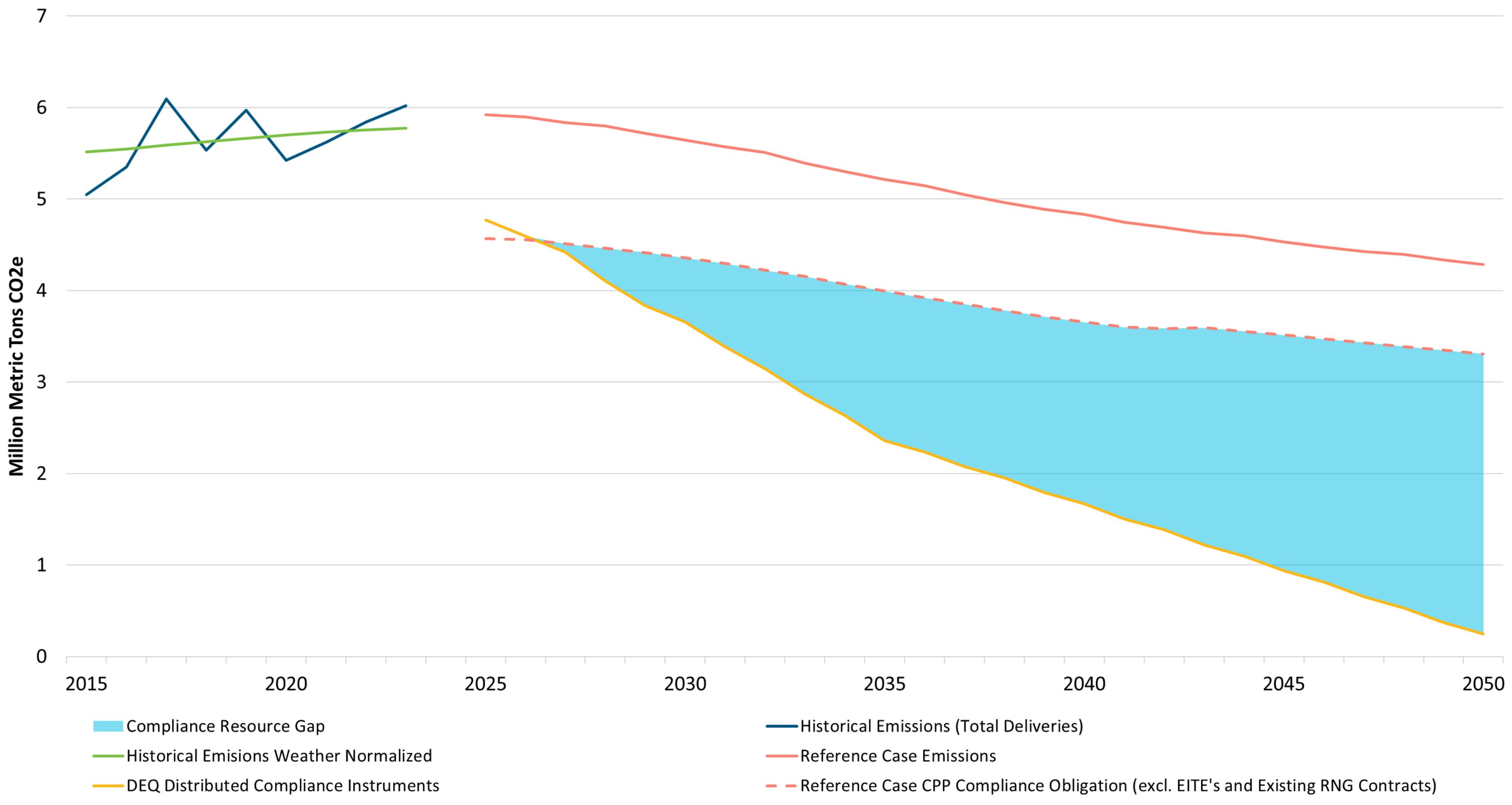


- The drop in 2027-28 is the forecasted reduction of segmented capacity due to Woodfibre LNG in Canada coming online in 2027
- Mist Recall is the least cost resource to meet capacity requirements and is sufficient over the planning horizon

Emissions Forecast



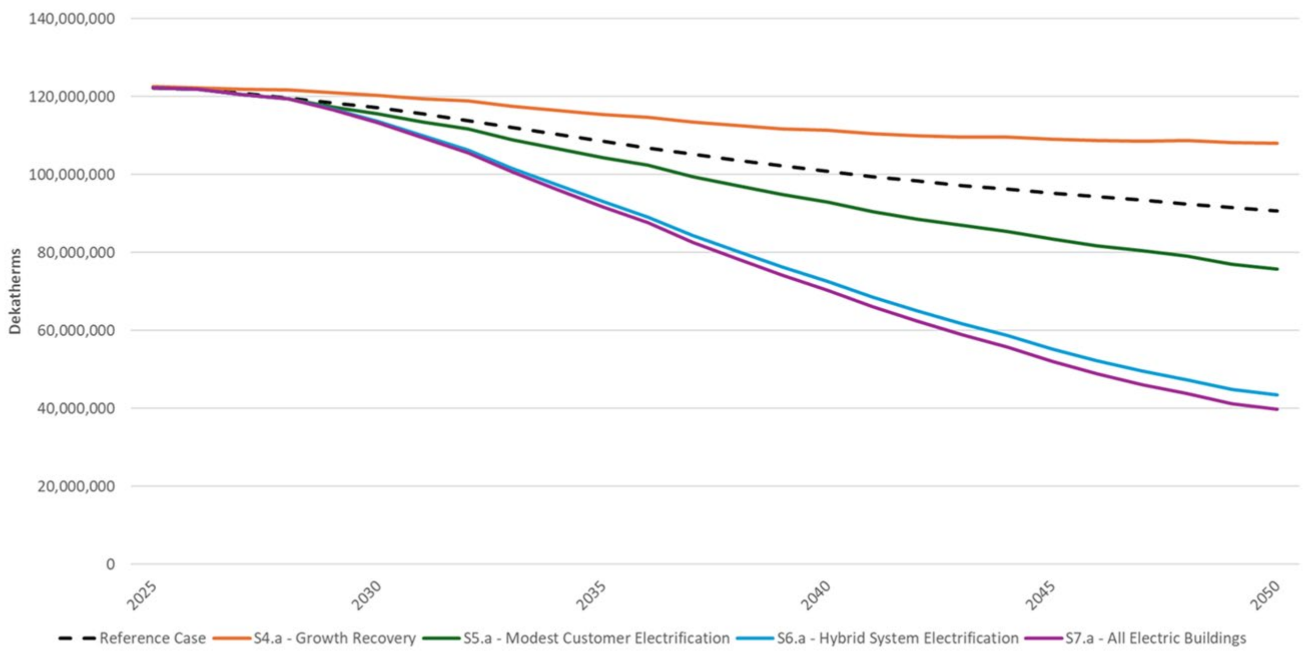
- Difference between the solid red line and the dotted red line are the emissions from Emission Intensive Trade Exposed (EITE) customers and existing RNG contracts
- The blue area is the reference case Climate Protection Program (CPP) compliance resource gap that will be met with a mix of compliance resources

Portfolio Results

Scenarios

Primary Scenarios			
Policy Variations	S1	CPP/CCA Compliance	Reference Case Demand
	S2	SB 98 Targets	Reference Case Demand
	S3	No GHG Compliance Policies	Reference Case Demand
Demand Variations	PRS	Preferred Resource Strategy	Reference Case Demand
	S4	Growth Recovery	Growth Recovery
	S5	Modest Customer Electrification	Modest Customer Electrification
	S6	Hybrid System Electrification	Hybrid System Electrification
	S7	All-Electric Buildings	All-Electric Buildings

Figure 9.14: Demand Variation Scenarios - Annual Demand



PRS Description and Assumptions

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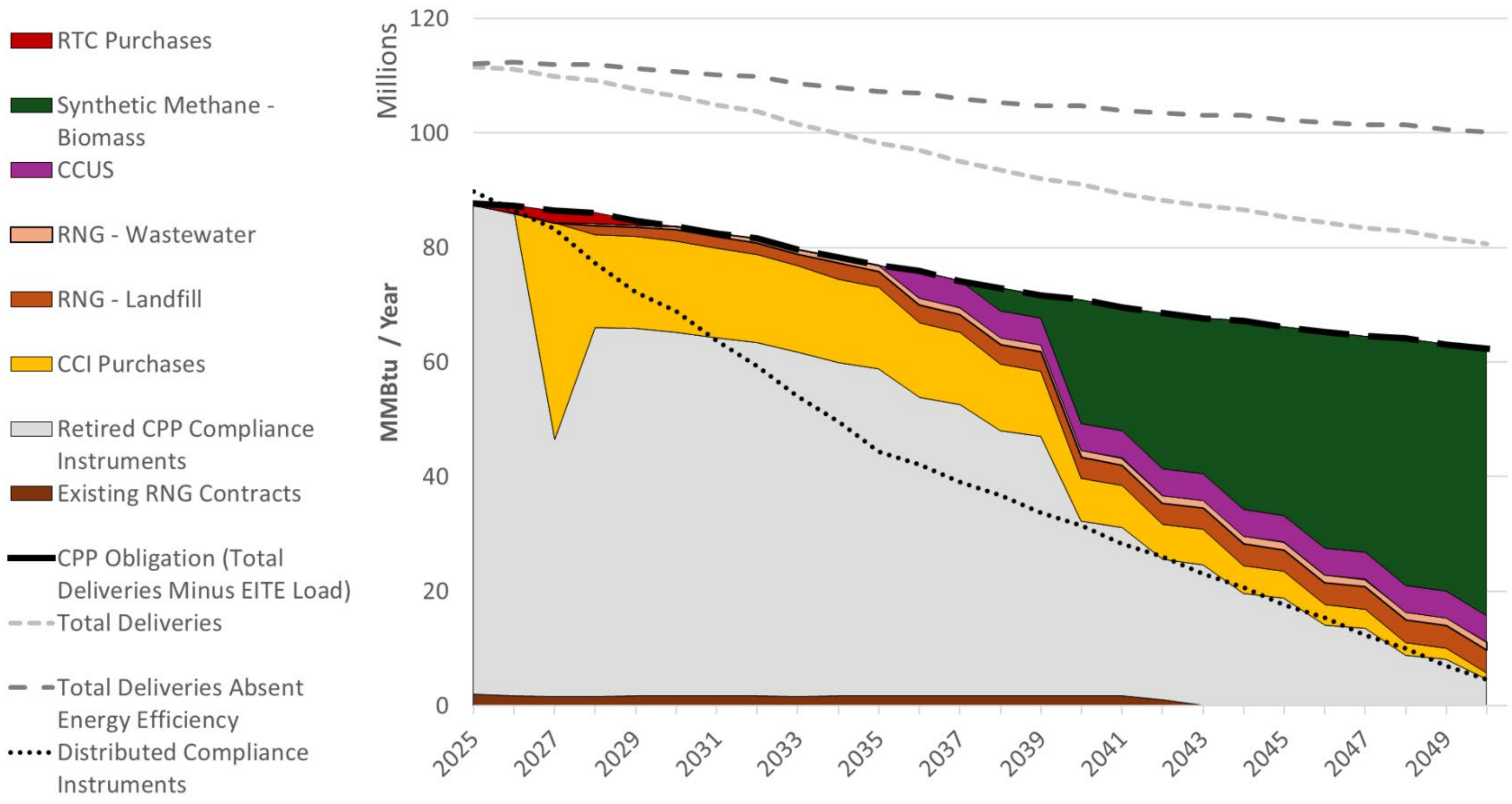
- Results from scenario and sensitivity analysis, stakeholder feedback, and subject matter expertise informed the development of the PRS
    - CCIs are available starting in late 2026 (though CCIs are not selected until 2027)
    - Compliance with CPP with limited amounts of RNG up to SB 98 cost cap (until model selects RNG in 2027)
    - Low-cost landfill RNG is not available
    - No CCUS from EITE customers
    - Development projects for RNG will not be available until 2028 and RTCs are available in the near-term
    - Development projects for hydrogen, synthetic methane, and CCUS are not available until 2035
- 300 stochastic simulations were conducted that varied weather, gas prices and alternative fuel prices and availability

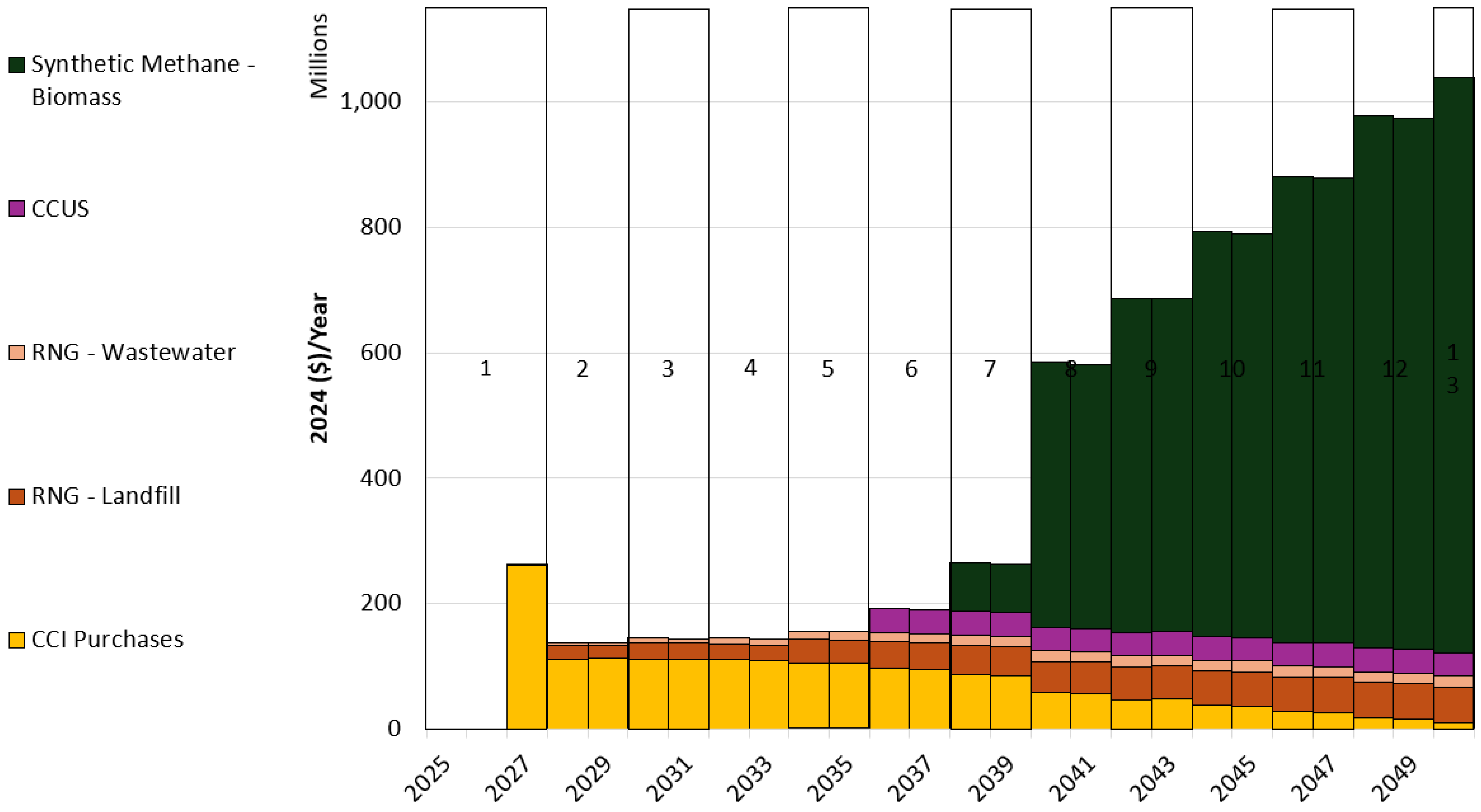
Preferred Portfolio Results – Resource Selection

Figure 9.12: PRS.a – Annual Oregon Compliance Resource Selection



Preferred Portfolio Results – Resource Costs

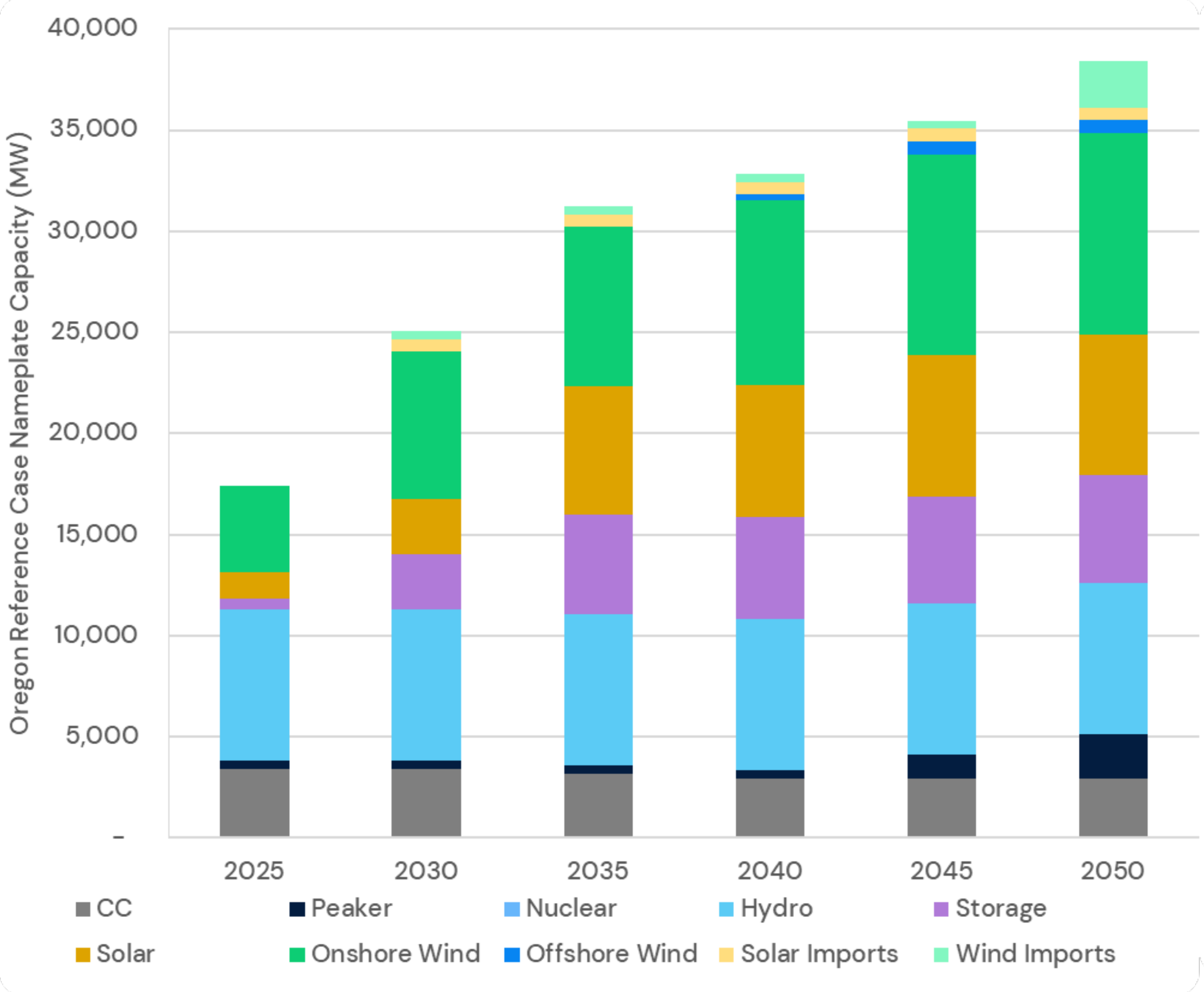
Figure H-16: PRS.a Compliance Costs



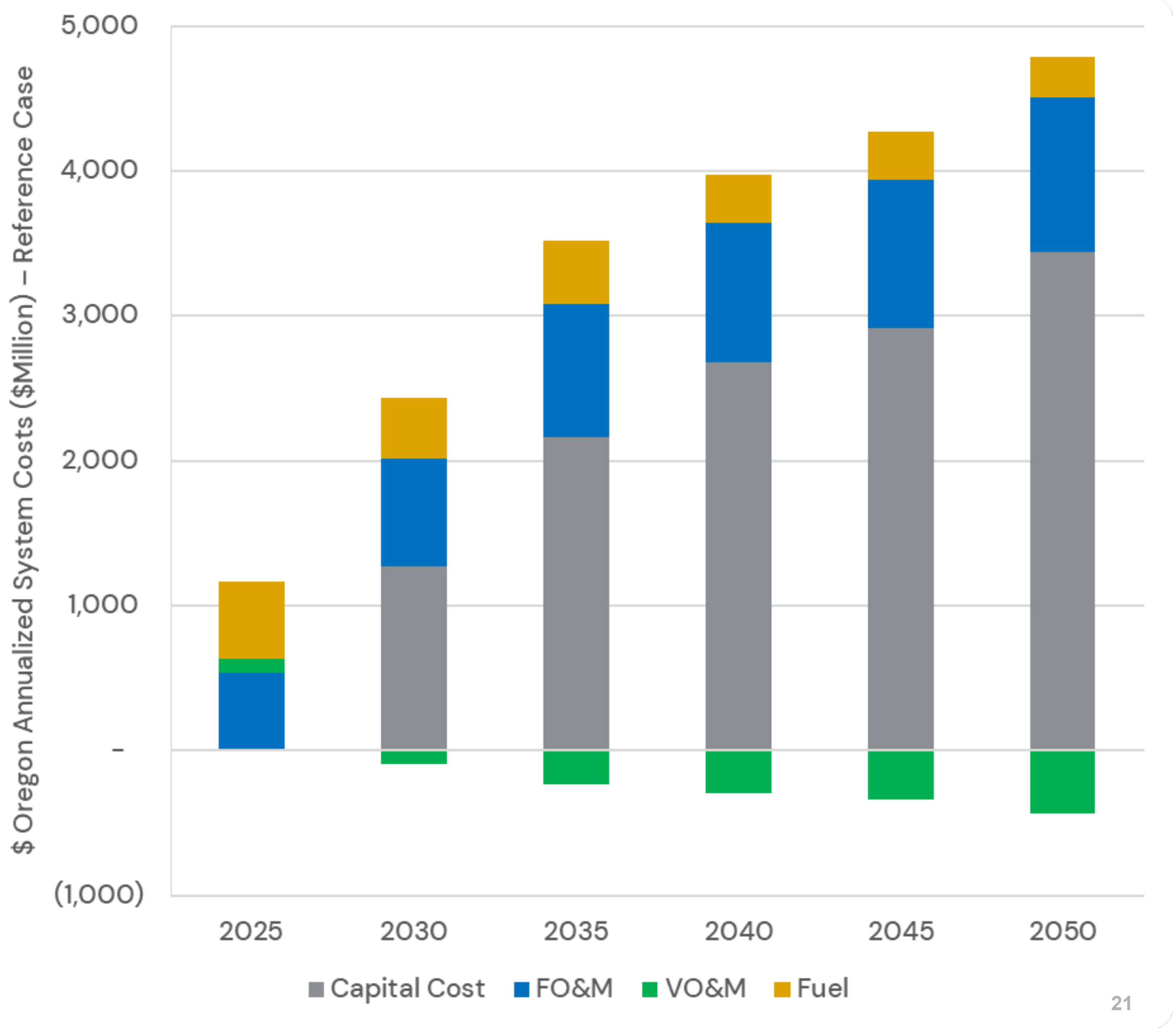
Electrification Study Results

Reference Case Power Sector Growth without Building Electrification

Reference Case Nameplate Capacity

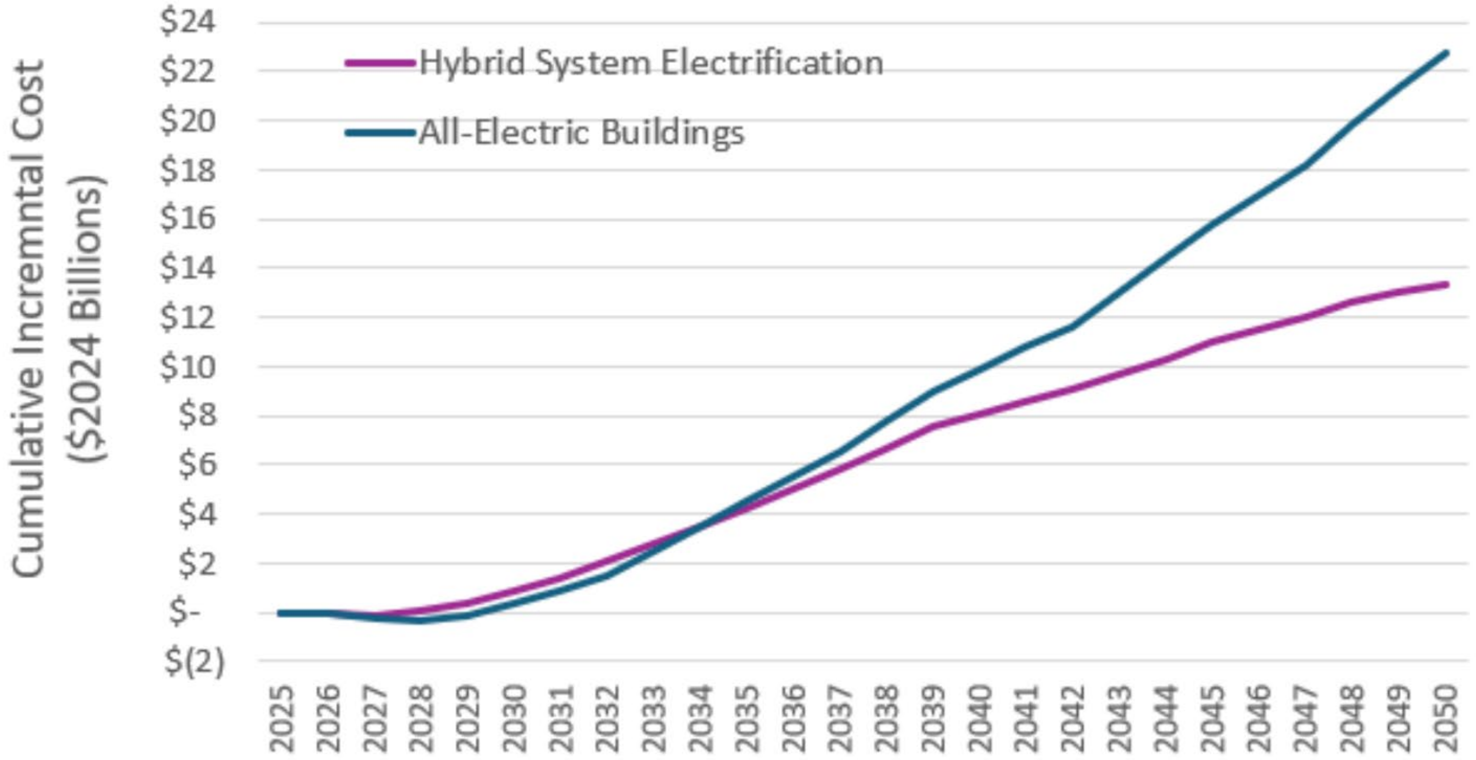


Reference Case Costs



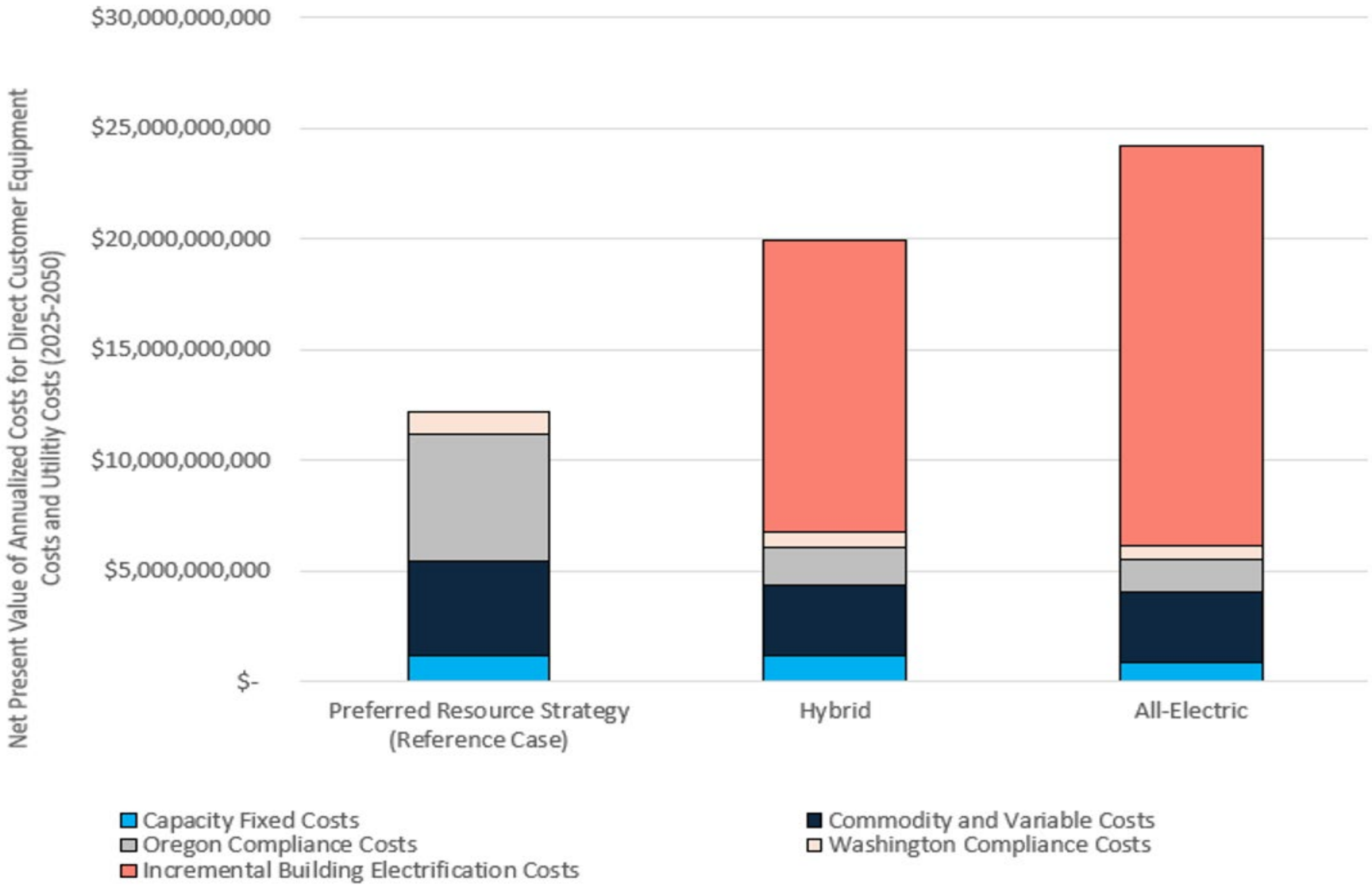
Hybrid Electrification and All Electric Incremental Costs

Figure 11.1: Cumulative Total System Net Incremental Costs for NW Natural Oregon & Washington Customers Relative to Reference Case



Net Present Value of Annualized Costs

Figure 1.17: Net Present Value of Annualized Costs for Direct Customer Equipment Costs and Utility Costs by Scenario



Results: Study finds that the Hybrid Heating scenario is the lower cost solution for Oregonians than All Electric scenario to meet winter peak in the region.

Least cost option: NW Natural's reference case (CCIs/renewables/energy efficiency/exogenous electrification) is the least cost pathway compared to both electrification scenarios (All-electric and Hybrid).

Advisory Group (AG) of Electric Industry Experts*

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Comments and Concerns

- Electric utilities already face serious challenges even without electrification
- Supply side assumptions were and still are too favorable
- Transmission assumptions are too favorable
- Major risks of going to single energy source (electrification)
- Major concerns about reliability/public safety and cost/affordability

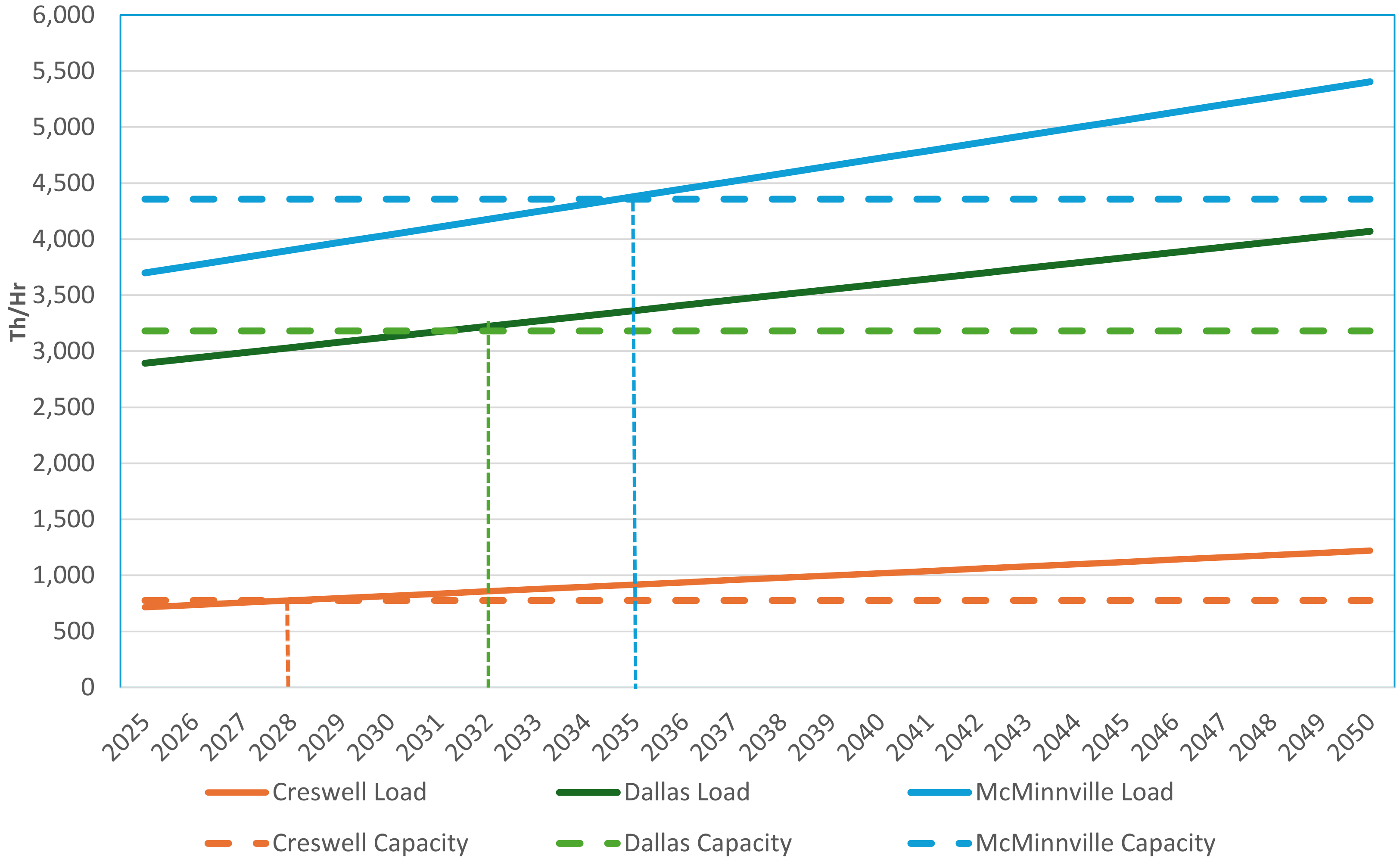
Recommendations

- Sensitivity analysis with less favorable assumptions closer to current reality
- More careful analysis of reliability and cost impacts on customers
- More analysis and better understanding of the implications of a "single fuel" energy system
- Joint system planning (gas and electric)

**The AG included Steve Wright (former BPA Administrator), Debra Smith (former CEO of Seattle City Light), Lee Beyer (former OPUC Chair/State Senator), and Stefan Bird (former CEO of Pacific Power).*

Distribution System Planning Results

Distribution System Planning



- Three areas identified
  - Creswell
  - Dallas
  - McMinnville
- Will use cost effective NPA/GeoDSM to help delay or defer need for infrastructure resources

Action Plan

Long Term Resource Strategy

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- **Energy Efficiency**: Leverage cost-effective energy efficiency to reduce peak, energy, and compliance resource requirements.
- **Demand Response and Resource Utilization**: Expand and explore cost-effective demand response programs to meet peak demand. Rely on Mist Recall as the incremental capacity resource, while evaluating other potential opportunities to meet peak day system requirements.
- **Emissions Planning and Compliance**: Continue to use IRP modeling to evaluate compliance resources to meet emissions obligations and voluntary RNG goals.
- **Hybrid Heating Systems**: Develop programs exploring hybrid heating systems to reduce natural gas emissions while maintaining reliability and affordability.
- **Joint System Planning**: Support gas and electric joint system planning to achieve decarbonization goals affordably and reliably.
- **Energy Burden Assessment**: Perform regular assessments to inform programs aimed at reducing energy burden for low-income customers.

Long-Term Themes:

Focus on least-cost, least-risk strategy that allows for optionality and flexibility in the future

Begin exploring future resources now

Continue to focus on reliability and evolve joint system planning

Continue to focus on affordability and equitable outcomes

Near-Term Action Plan

- **Capacity Resources**: Energy efficiency, demand response and Mist Recall.
- **Oregon Compliance Resources:** Energy efficiency, CCI purchases, RNG to meet goal of five percent of sales volumes, acquire RNG from a local on-system water resource recovery facility.
- **Enabling Pilots and Studies:** Commercial gas-fired heat pump, CCUS pilot, Hybrid-HVAC pilot, CCUS geological screening study, synthetic methane from biomass study.
- **Distribution System Planning:** Pursing non-pipeline alternatives in all three areas identified in the forward-looking plan (Creswell, Dallas, and McMinnville) to delay or avoid pipeline reinforcement investments.
- **Equity:** Increase community awareness in energy planning and utility programs by working with community partners.

Forward Looking Statement

This presentation contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by words such as "anticipates," "assumes," “continues,” “could,” "intends," "plans," "seeks," "believes," "estimates," "expects," "will" and similar references to future periods. See "Risk Factors” in our most recent Annual Report on Form 10-K and our subsequent quarterly reports for examples of forward-looking statements and for important factors that could cause actual results to differ materially from those in the forward-looking statements, including legal, regulatory and legislative risks, financial, macroeconomic and geopolitical risks, and business, environmental and technology risks.

You are cautioned against relying on any forward-looking statements. Any forward-looking statement speaks only as of the date on which such statement is made, and we undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law. New factors emerge from time to time and it is not possible to predict all such factors, nor can we assess the impact of each such factor or the extent to which any factor, or combination of factors, may cause results to differ materially from those contained in any forward-looking statements.

Questions