Resource Planning Advisory Group Meeting

2027 Integrated System Plan

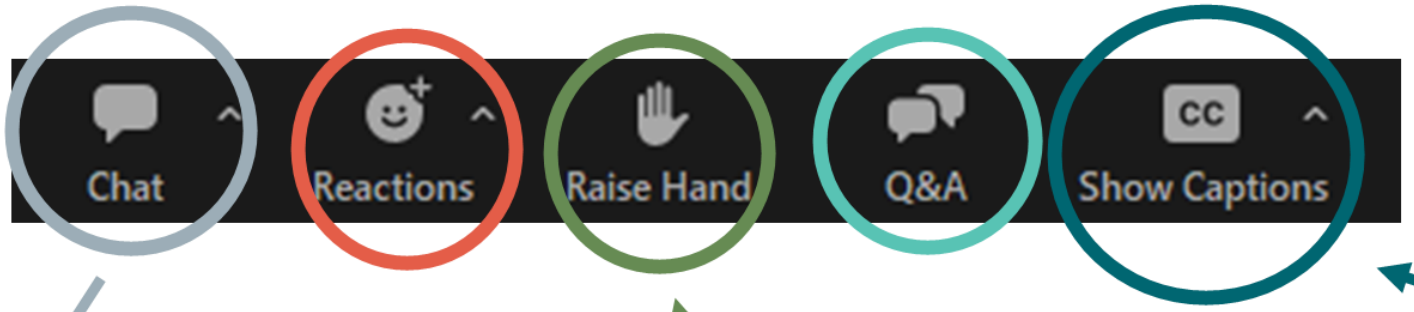
July 29, 2025

PUGET SOUND ENERGY

Welcome to the meeting!

Use the **Reactions** feature to respond to content with emojis

The **Q&A** tool will be turned off during the meeting



RPAG members and PSE staff are welcome to use the **Chat** feature

Use **Raise Hand** feature if you'd like to provide a comment or ask a question

Click **Show Captions** to see real-time closed captioning

Facilitator requests

- Engage constructively and courteously towards all participants
- Respect the role of the facilitator to guide the group process
- Avoid use of acronyms and explain technical questions
- Use the feedback form or email isp@pse.com for additional input to PSE
- Aim to focus on the webinar topic
- Public comments will occur after PSE's presentations

Safety moment

- Prepare for peak wildfire season!
  - Create a household emergency plan and build an emergency kit
  - Make sure your PSE account contact information is up to date
  - If you use a medical device in your home that relies on electricity, apply for Life Support status on your account
  - Get your free Wildfire Ready Plan from the WA Department of Natural Resources

Today's speakers

- Annie Kilburg Smith, Facilitator, Triangle Associates
- Jennifer Coulson, Manager, Operations and Gas Analysis, PSE
- Ray Outlaw, Manager, Clean Energy Communications, PSE
- Malcolm McCulloch, Manager, New Products and Services, PSE
- Kasey Curtis, Senior Market Analyst, Customer Energy Management, PSE
- Tom Smith, Demand Response Supervisor, Customer Energy Management, PSE
- Lorin Molander, Manager, Load Forecasting & Analysis, PSE
- Stephanie Price, Lead - Electric, Load Forecasting & Analysis, PSE
- Chhandita Das, Lead - Gas, Load Forecasting & Analysis, PSE

Agenda

Time	Agenda Item	Presenter / Facilitator
10:00 a.m. – 10:05 a.m.	Welcome and introductions	Annie Kilburg Smith, Triangle Associates
10:05 a.m. – 10:15 a.m.	Introduction and updates	Jennifer Coulson, PSE Ray Outlaw, PSE
10:15 a.m. – 10:45 a.m.	V2X program update and ISP integration	Malcolm McCulloch, PSE
10:45 a.m. – 11:15 a.m.	Energy efficiency and demand response	Kasey Curtis, PSE Tom Smith, PSE
11:15 a.m. – 11:25 a.m.	Break	
11:25 a.m. – 12:50 p.m.	Demand forecast (gas/electric)	Lorin Molander, PSE Stephanie Price, PSE Chhandita Das, PSE
12:50 p.m. – 1:00 p.m.	Next steps and public comment opportunity	Annie Kilburg Smith, Triangle Associates
1:00 p.m.	Adjourn	All

Meeting purpose

- Provide a recap of July public webinars
- Provide an update of PSE's Vehicle-to-Everything (V2X) program
- Discuss energy efficiency and demand response inputs for the 2027 ISP
- Discuss the demand forecast for the 2027 ISP

What we need from you

- Share your questions, reflections, and advice on today's topics
- Let us know if anything is missing or unclear
- Flag areas where deeper discussion is needed
- Help us identify risks, tensions, or points of misalignment early

Introduction and updates

Jennifer Coulson
Manager, Operations and Gas Analysis, PSE

Ray Outlaw
Manager, Clean Energy Communications, PSE

July 29, 2025

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July public webinar recap

What resources could power our clean energy future?

- July 17, 5:30 p.m. and July 22, 12:00 p.m.
- 75 attendees, 48 YouTube views, 272 RSVPs
- Discussion topics:
  - Schedule and progress
  - Current generation sources
  - Future energy needs
  - Developing the first ISP to address needs

Feedback questions:

- What matters most to you about clean energy planning?
- What tradeoffs do you think we need to consider when deciding which large-scale energy resources to use?
- What would help your community feel supported or included if a large energy project (like wind, solar, or storage) were proposed nearby?

Survey question: What factors are most important to you (rank)?

- Maintaining highly reliable energy
- Ensuring customer safety
- Keeping costs low
- Developing new clean energy resources
- Reducing greenhouse gas emissions
- Electrifying gas uses like heating and cooking
- Expanding customer programs

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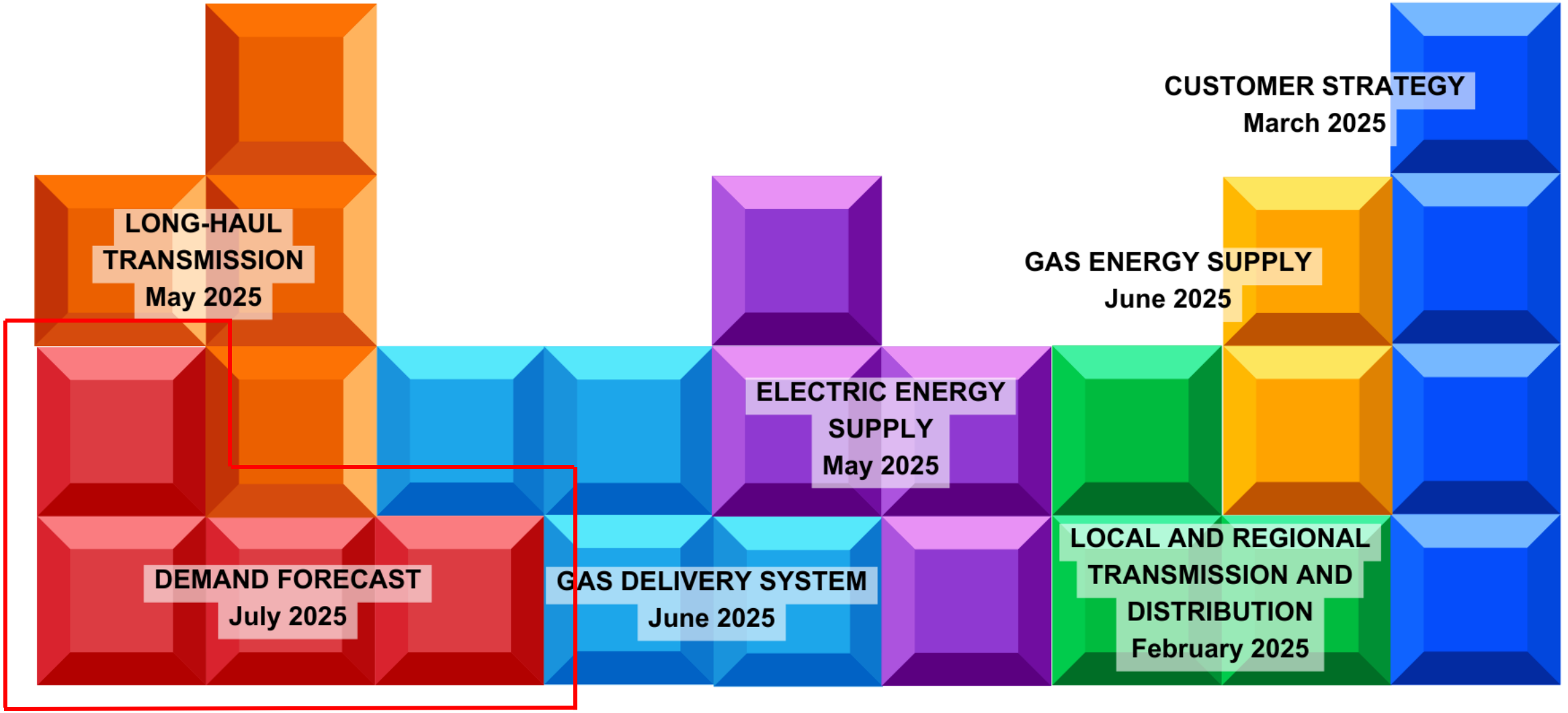
Today's discussion



Upcoming engagement topics

February 27, 2025

Electric system planning modeling and assumptions

March 25, 2025

Customer Strategy inputs and assumptions

May 15, 2025

Resource adequacy methodology and electric utility modeling, inputs, and assumptions

June 18, 2025

Electric vehicle forecast

June 24, 2025

Gas utility modeling, inputs, and assumptions, non-pipe alternatives, gas delivery system

July 29, 2025

Demand forecast after conservation

September

Resource adequacy results and electric resource needs

October 2025

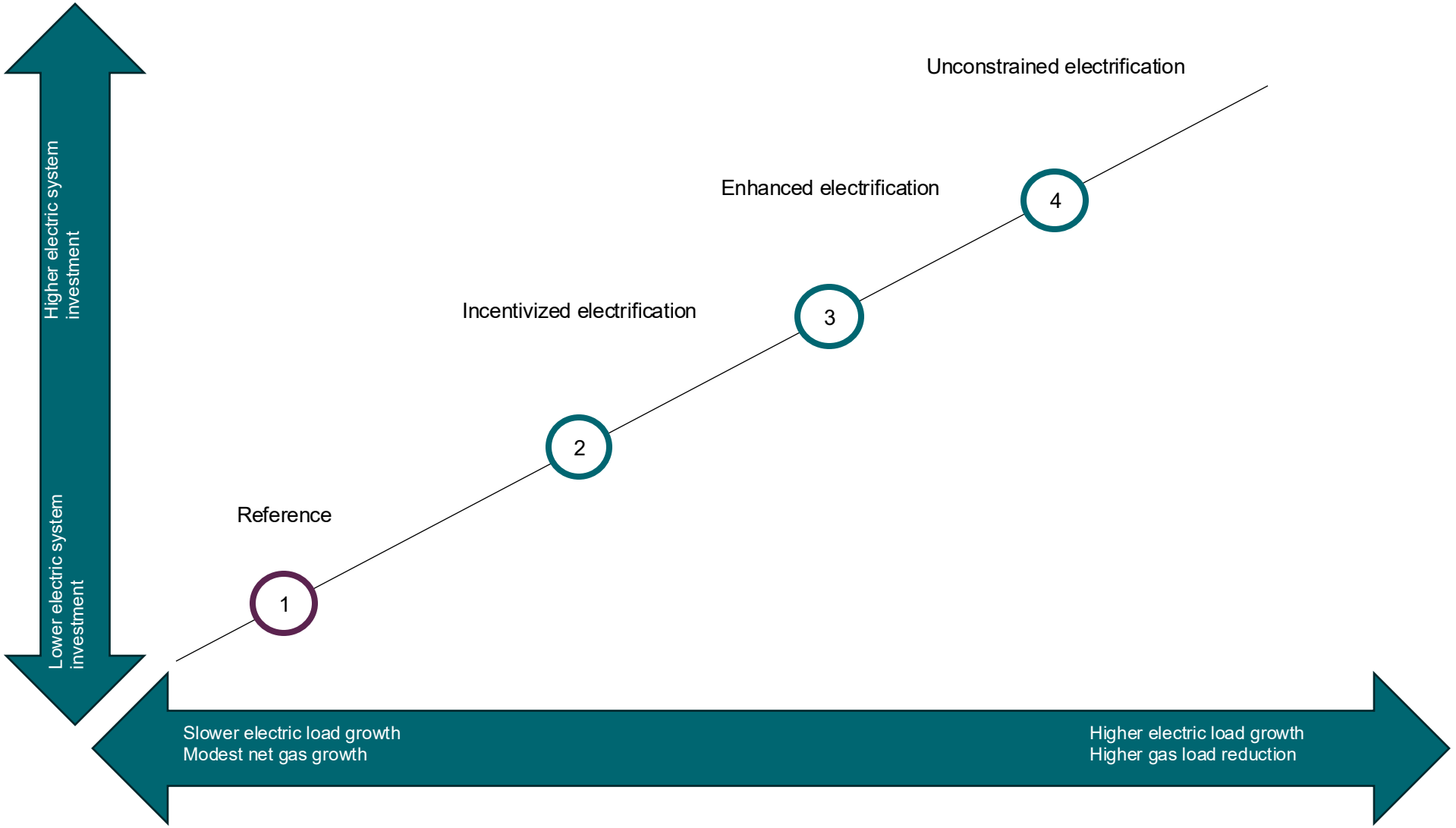
Equity considerations in ISP planning

November

Iterative gas and electric analysis overview

No meetings planned for April, August, or December

27 ISP scenarios



Vehicle-to-everything (V2X) update

Malcolm McCulloch
Manager New Products & Services

July 29, 2025

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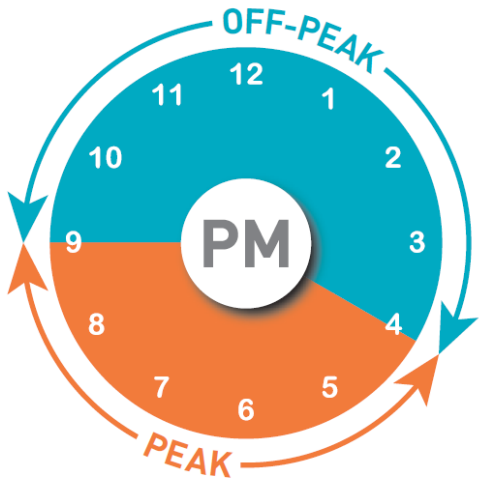
Objectives

- Provide a Vehicle-to-Everything (V2X) overview
- Review of PSE V2X demonstrations
- Discuss V2X benefit potential

Electric vehicles loads require a comprehensive suite of innovative solutions

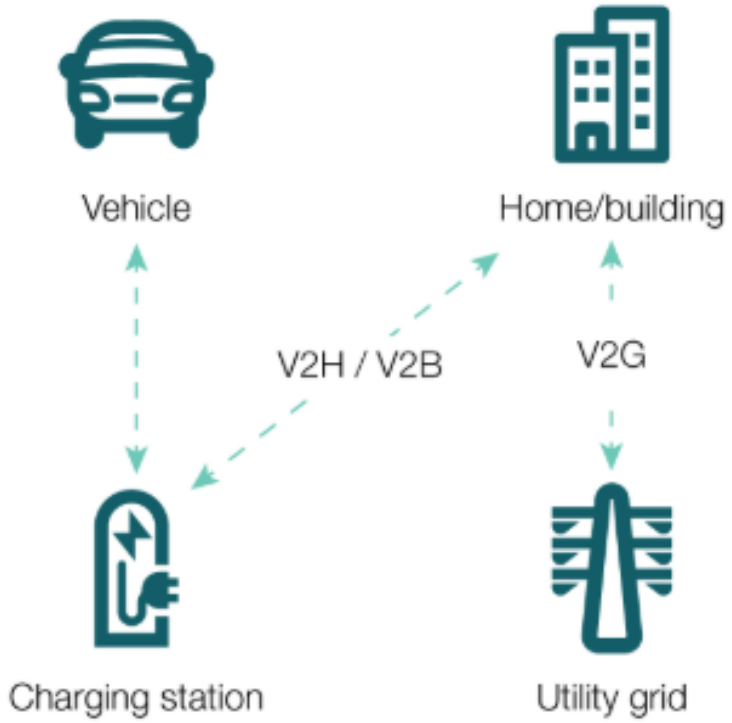
Time-of-Use rates, EV demand response, fleet depot rates, and **vehicle-to-home/building and vehicle-to-grid** options are necessary to encourage **customers to reduce, shift and share energy capacity**.



Vehicle-to-Everything (V2X) overview

Vehicle-to-Everything (V2X) refers transferring of electricity stored in the batteries of EVs to the electric grid, buildings, homes, external loads or other vehicles.

- **Vehicle-to-Load (V2L)** – An EV is used to power small external loads such as laptops or phones
- **Vehicle-to-Vehicle (V2V)** – An EV is used to provide power to another EV
- **Vehicle-to-Home (V2H)** – Energy from an EV provides supplemental power to a home
- **Vehicle-to-Building (V2B)** – Energy from an EV provides supplemental power to a building
- **Vehicle-to-Grid (V2G)** – Energy from an EV is sent directly back to the electrical grid

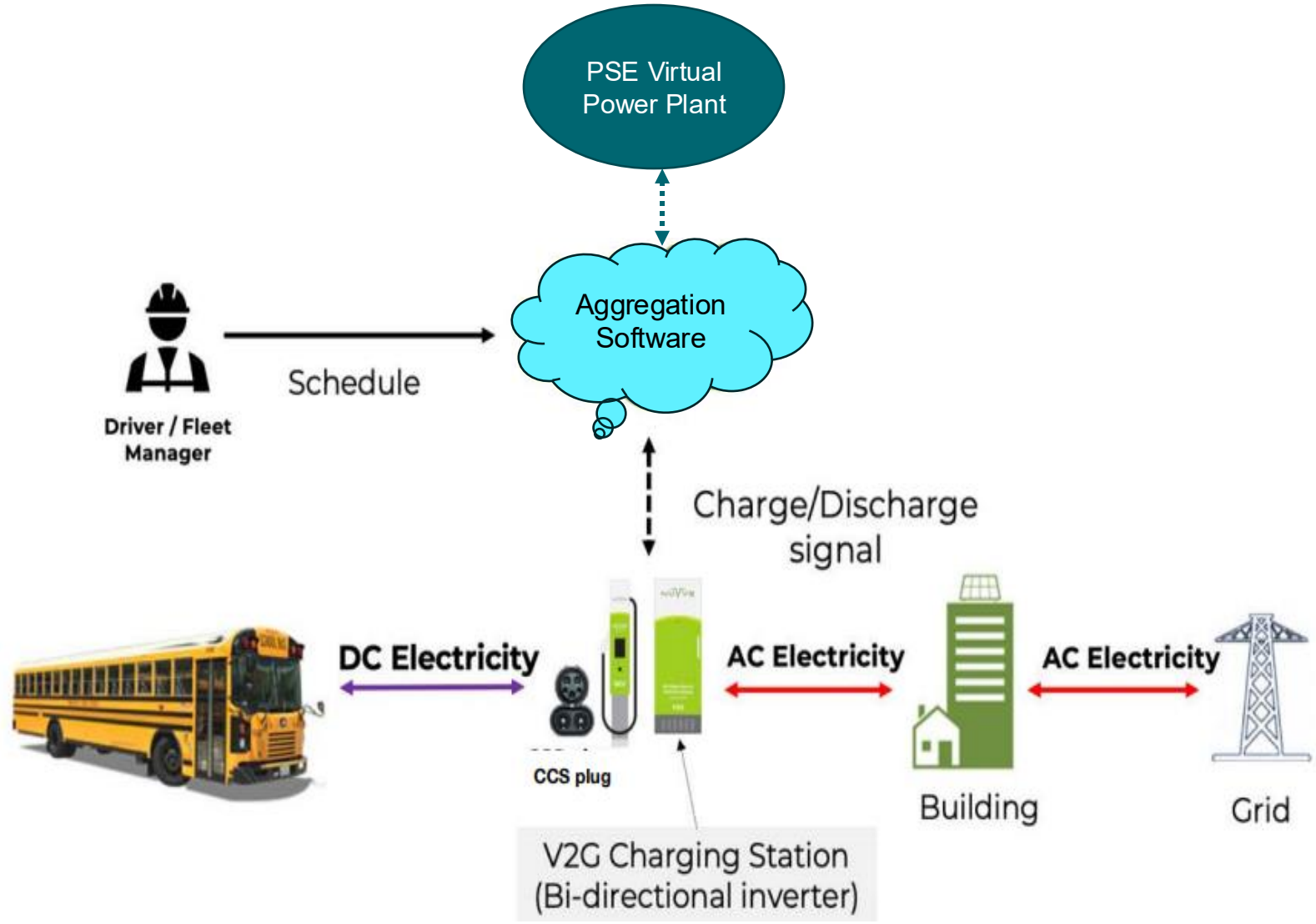


V2X demonstration use cases

PSE is exploring new and innovative technologies and evaluating targeted, limited-scale demonstration projects to utilize V2X to increase resiliency and grid stability.

	Vehicle-to-building	Vehicle-to-grid	Vehicle-to-home
Scope	Demonstrate bidirectional charging capabilities with compatible fleet vehicles stationed at commercial buildings	Demonstrate bidirectional charging capabilities with compatible electric school buses stationed at depots	Demonstrate bidirectional charging capabilities with compatible passenger vehicles at residential homes
Size	2 sites	6 V2G chargers installed at 2 School Districts	6 V2H chargers
Status	Anticipated to start in 2026	Construction underway with Q3 2025 completion target	Sites identified & vendor procurement initiated
Outcomes	• Establish technical requirements and communication protocols • Identify qualified interoperable equipment/vehicle lists compatible with PSE's Virtual Power Plant • Standardize and streamline V2X interconnection processes • Assess peak demand reduction and dispatchable capacity potential • Evaluate customer preferences, future compensation mechanisms, and value stacking opportunities		

Typical V2X configuration



V2X benefits

	System	Customer
Benefits	• A more resilient and robust energy grid • Peak capacity resources • Load balancing & grid stability • Distribution system upgrade deferral	• Lower energy costs through demand charge mitigation and time-of-use rate arbitrage • Backup power for customers via V2B and V2H • Potential compensation for grid services

Questions?

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Energy efficiency and demand response

Impacts: Demand forecast inputs

Kasey Curtis
Senior Market Analyst

Tom Smith
Supervisor Customer Energy Management

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Objectives

- Review how PSE developed the amount demand-side resources used as an input in the demand forecast
- Update on analysis of achieving goals of 2% energy efficiency and 10% demand response

The ISP customer strategy

Distributed Energy Resources

Energy Efficiency

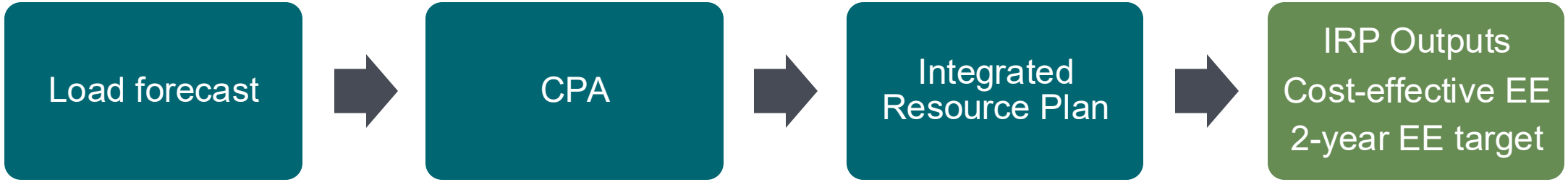
PSE's Customer Plan will include ISP forecasts for PSE's customer-facing programs, acknowledging the fact that customers will be a critical component of the energy future.

Demand Response

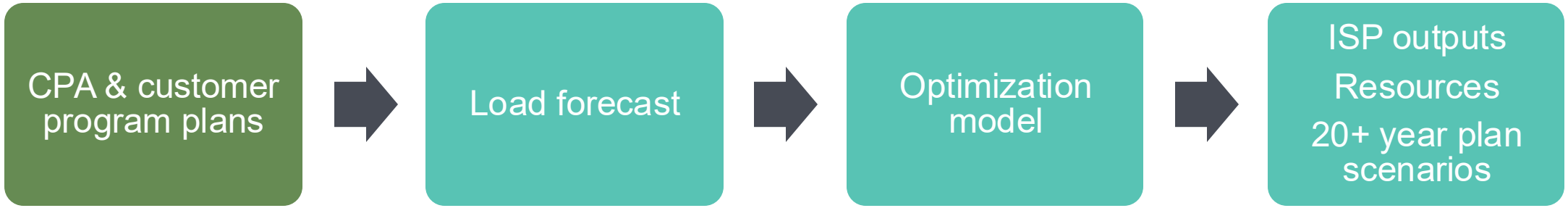
Transportation Electrification

How the Integrated System Plan differs from the Integrated Resource Plan

Conservation as a resource; traditional process



Conservation as a resource; ISP process



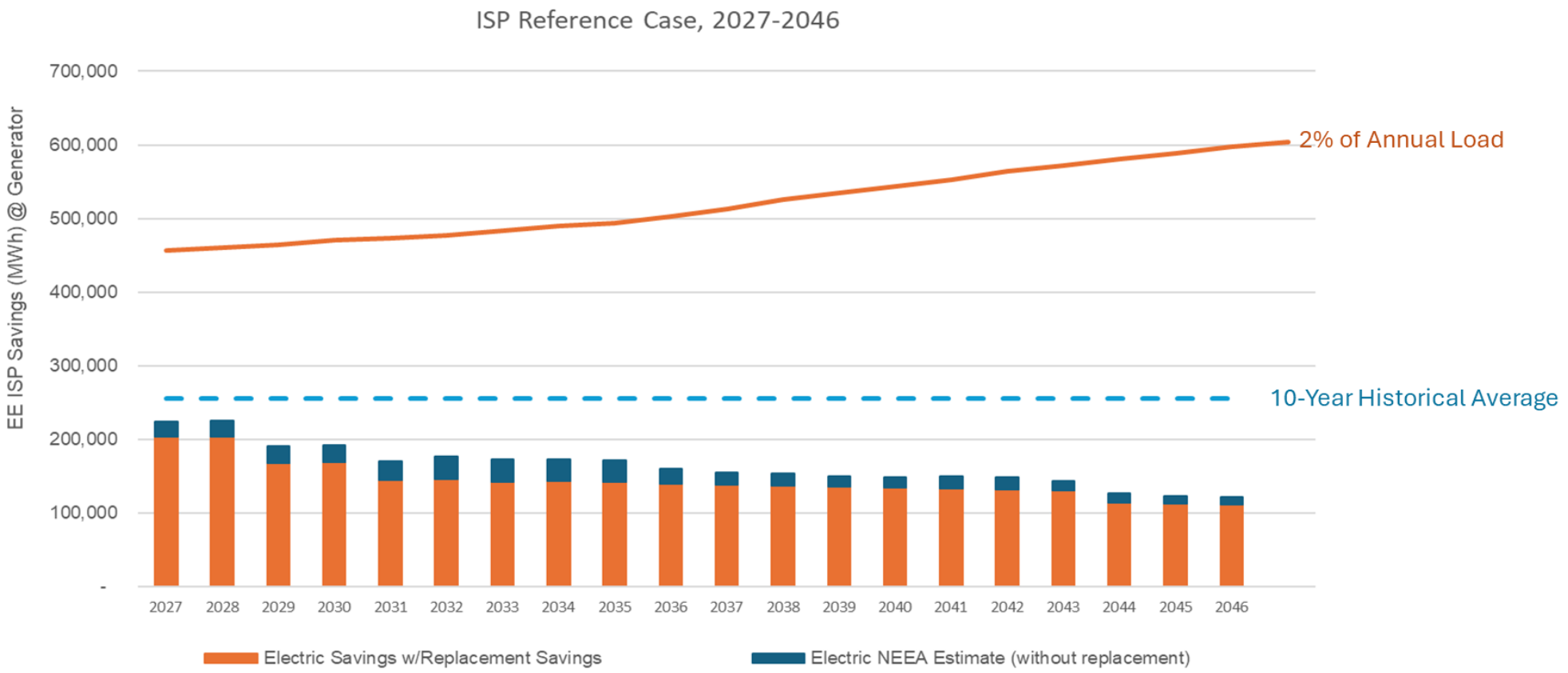
How the CPA was used to determine load impacts of demand-side resources

- **Mapped measure category** names to the Conservation Potential Assessment (CPA) and program data

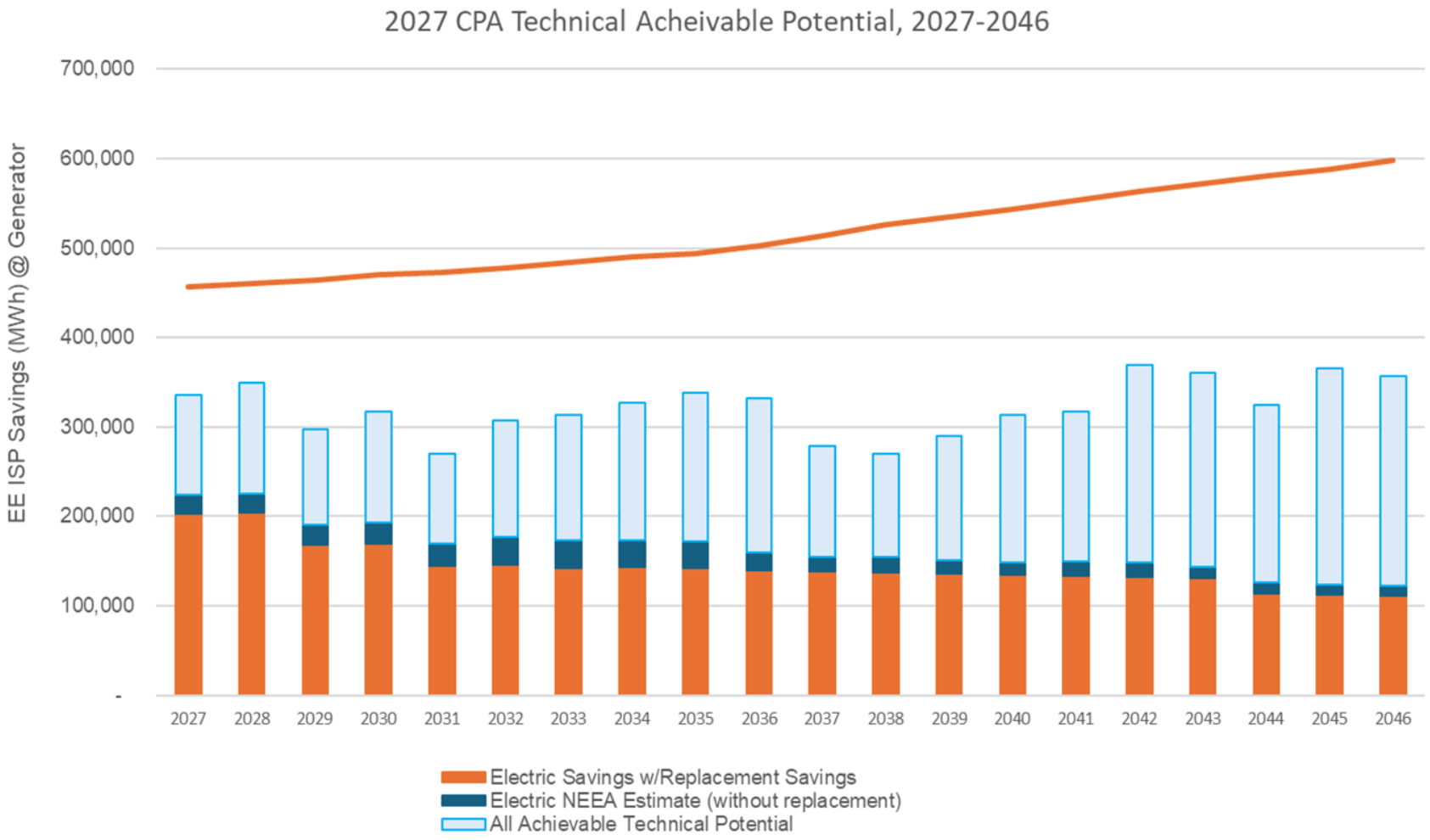
- **Used program data to produce trends past 2030**

- **Developed cumulative energy and peak impacts to be used as an input to the ISP demand forecast**

Electric conservation program growth BAU



Electric conservation achievable technical potential



2% of Annual Load

Electric and natural gas measure potential

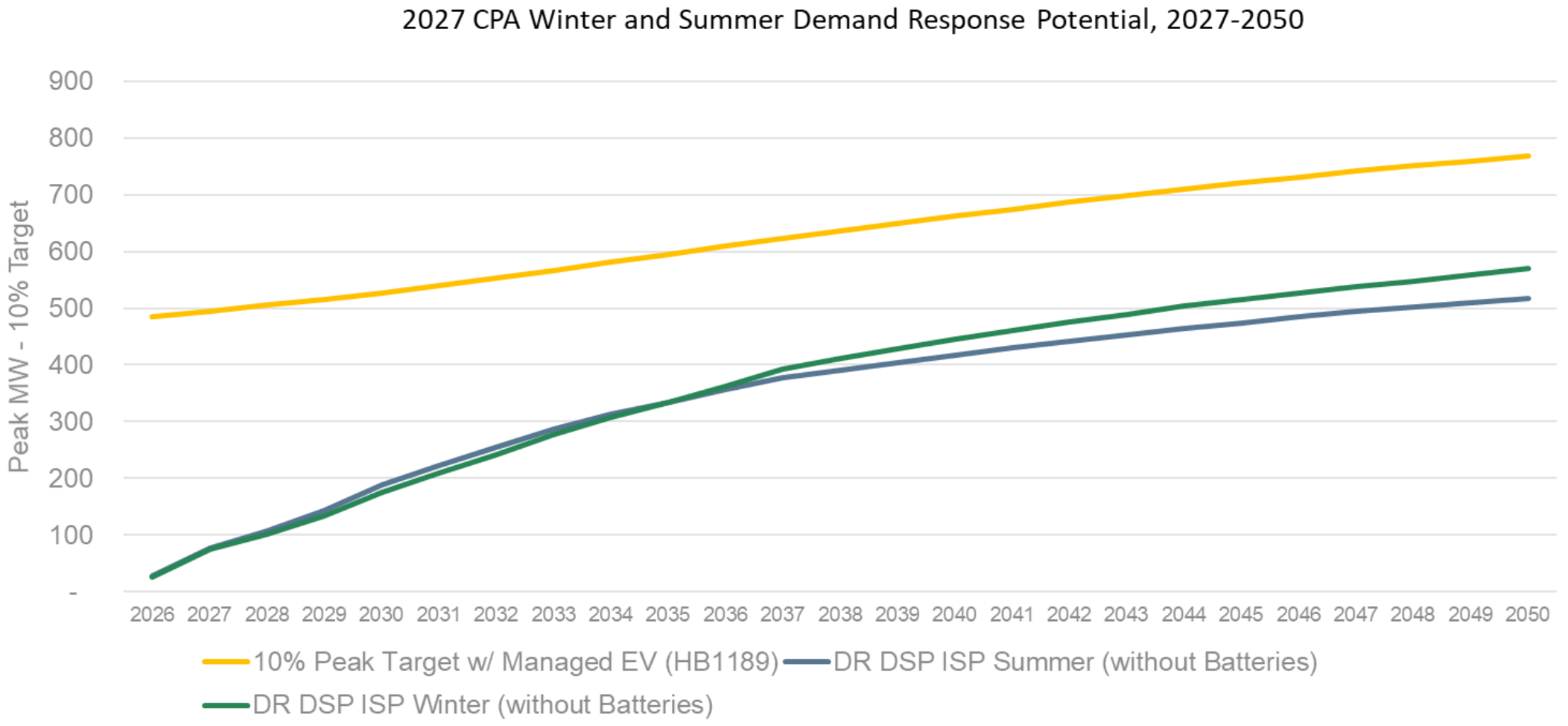
Electric

Measure Name	20-Year Potential	Growth Rate
Home Energy Reports Electric Single Family	716,254	Low
Energy Management	439,595	No Growth
Energy Management2	213,180	No Growth
Cold Climate Ductless Heat Pump Heat Room Electric	210,593	Medium
ENERGY STAR Servers	197,521	Low
Heat Pump Dryer	151,530	High
Set Top Box - ENERGY STAR	140,591	Medium
Direct Digital Control System-Installation	124,975	Low
PowerStrips	123,002	Low
Commercial EM-Large Off-Retro	106,553	No Growth
Window Film	97,882	Medium
Heat Pump Water Heater - Tier 4 - No Resistance, Split Syst	91,166	Negative
Refrigerator - ENERGY STAR 2022 Most Efficient	90,781	Medium
SBDI: LED Exit Sign	84,087	No Growth
Central Air Conditioner - Enhanced	79,232	Medium
Cold Climate Ducted Heat Pump	77,961	Medium
Power Strip - Advanced - Load Sensing - Tier 1 - Res	74,766	Low
Home Energy Reports Electric Multifamily	70,893	Low
Zonal to Ductless Heat Pump	67,995	Low
Heat Pump Water Heater - Tier 3	64,321	Negative

Natural Gas

Measure Name	20-Year Potential	Growth Rate
Direct Digital Control System-Installation	21,334,963	Medium
Home Energy Reports Gas Single Family	18,929,627	No Growth
Re-Commissioning	14,811,830	Medium
Commercial EM-University-Retro	10,738,256	No Growth
Commercial EM-Large Off-Retro	10,427,954	No Growth
Thermostat - Smart - GH - Res	9,671,091	High
Commercial EM-Hospital-Retro	7,340,659	No Growth
Boiler Controls - Reset Temperature Control	5,348,689	Medium
Retrocommissioning	5,021,360	Medium
Windows - Add a Low-e Storm Window to an existing Doubl	4,722,524	Negative
Tune-up - Furnace (Gas)	4,713,948	High
Waste Heat From Hot Flue Gases To Preheat	3,712,364	Negative
SFWX: Insulation - Wall - R0 to R13 - NG	3,653,963	Negative
Boiler - Pipe Insulation - Above Code	3,257,344	Low
SGS_Med Office_Gas Reheat_HZ1CZ1	3,240,388	Negative
Sealing - Air - Attic - GH - SF or DX	3,230,633	Negative
Heat Recovery And Waste Heat For Process	3,222,599	Negative
SFWX: Sealing - Duct - NG	3,160,401	High
LIW: Sealing - Duct - SF - TG	3,041,626	High
Process Improvements To Reduce Energy Requirements	2,975,483	Negative

Demand response potential



Electric demand response programs

Demand Flexibility Programs	Modeled 20-Year Demand Flexibility Potential (MW)	
	Winter	Summer
Residential Storage Grid-Enabled (Cellular CTA-2045 Adapter) Water Heater (Flex Water Heaters)	3	3
Residential Storage Grid-Connected (Wi-Fi) Water Heater (Flex Water Heaters)	4	4
Residential Heat Pump Grid-Enabled (Cellular CTA-2045 Adapter) Water Heater (Flex Water Heaters)	31	15
Residential Heat Pump Grid-Connected (Wi-Fi) Water Heater (Flex Water Heaters)	44	22
Total Water Heat	**82**	**45**
Residential Event-Based EV DR (Flex Smart)	82	59
Residential Managed EV Charging (Managed TOU for EVs)	130	102
Commercial Managed EV Charging (Managed TOU for EVs)	31	20
Commercial Event-Based EV DR	11	6
Total Electric Vehicle	**254**	**188**
Residential BYOT (Flex Smart)	24	75
Small Commercial BYOT (Flex Smart)	3	3
Commercial Curtailment (Flex Business Demand Response - Peak and Emergency Programs - Sch. 25 and higher)	20	22
Industrial Curtailment (Flex Business Demand Response - Peak and Emergency Programs - Sch. 25 and higher)	4	4
Commercial Critical Peak Pricing	11	12
Industrial Critical Peak Pricing	1	2
Residential Time of Use (TOU)	64	64
Commercial Time of Use (TOU)	6	8
Residential Opt-Out Incentived Behavioral (Flex Rewards)	24	21
Small Non-Residential Incentivized Behavioral (Opt-In Flex Rewards for Sch. 24)	12	13
Total Non-Water Heat, Non-EV Programs	**254**	**188**
Total Demand Response Potential	**505**	**458**

10% of Projected Annual Load, 2044 (MW)	
Winter	Summer
615	560

Break

July 29, 2025

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Demand forecast

Lorin Molander
Manager, Load Forecasting & Analysis

Chhandita Das
Lead – Gas, Load Forecasting & Analysis

Stephanie Price
Lead – Electric, Load Forecasting & Analysis

July 29, 2025

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Outline

- Objectives
- Overview and key assumptions
- Electric results
- Natural gas results
- Next steps: ISP scenarios
- Questions

Objectives

- Review demand forecast key assumptions and present results
- Solicit feedback on assumptions

Overview

- The 2027 Integrated System Plan (ISP) demand forecast is:
  - Long-term (2026-2050) forecasts of:
    - Customer growth
    - Load
    - Peak

- The forecasts presented today:
  - Include impacts of demand-side resources
  - Are for PSE's entire service area
  - Represent the base/reference case (ISP scenarios are still under development)
  - Are compared to the 2023 Electric Progress Report (EPR) and 2023 Gas Utility Integrated Resource Plan (IRP) demand forecasts

Key assumptions

Building electrification

- Base/Reference Case reflects impacts of policies consistent with HB1589
- Impacts of currently planned PSE programs funded by Climate Commitment Act (CCA) revenue and PSE's decarbonization pilot programs
- Impacts of customers electrifying without any incentives are included (i.e., "natural rate of electrification")

Customer growth

- Growth in the near-term is expected due to housing permit forecasts
- Gas customer growth expected as observed in recent trends and feedback from builder community

Transportation electrification

- State transportation targets are assumed to be met for the light duty vehicles, but not for medium/heavy duty
- Federal policy reversal/sentiment tempers electric vehicle adoption outlook

Demand-Side resources (DSR)

- Recently developed as part of 2027 Integrated System Planning (ISP) analytics

Climate change

- Normal temperatures that warm over time are assumed

Large load additions ("block loads")

- Select large loads with high/certain probability of interconnection are included

Electric results

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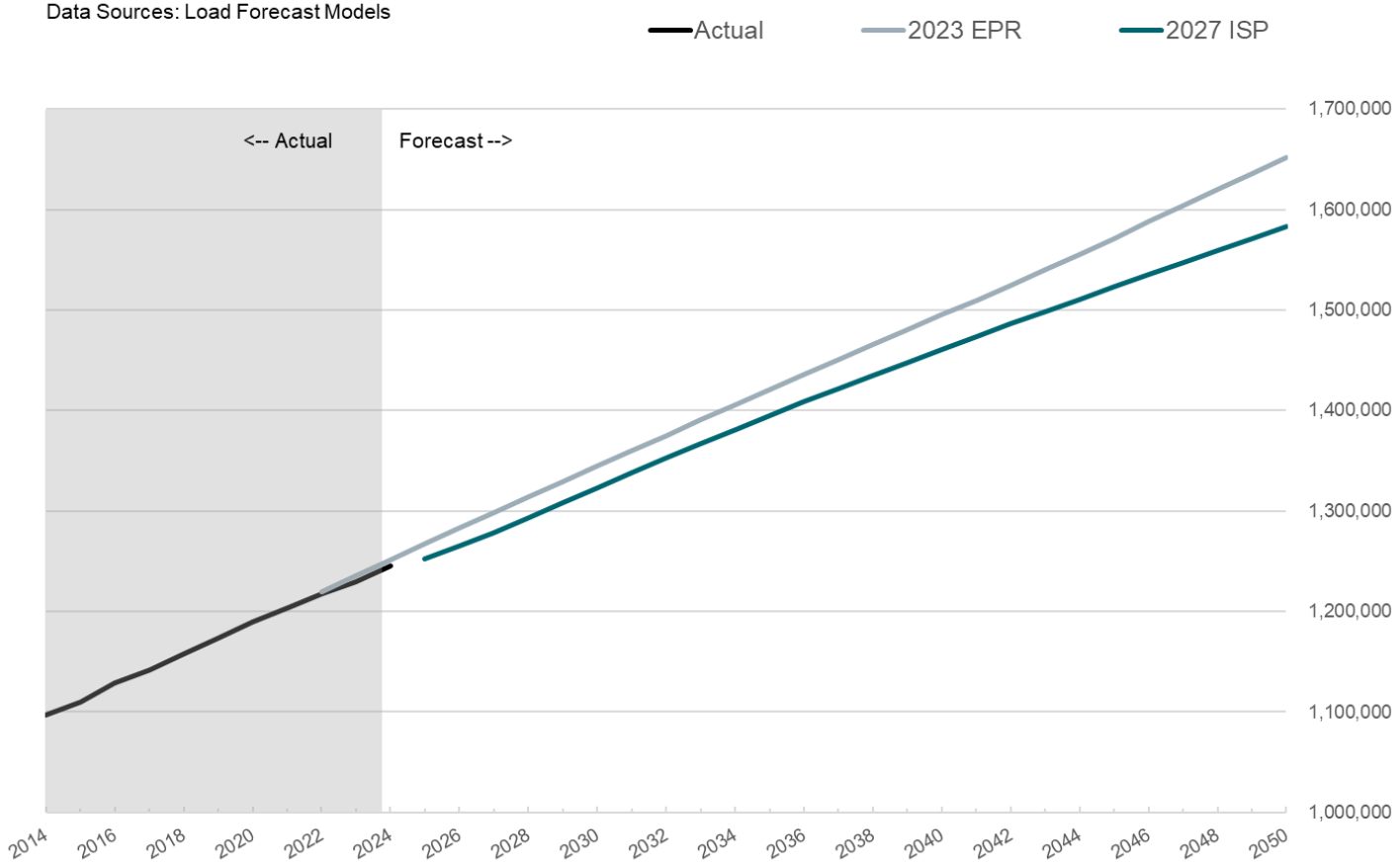
Electric customer growth forecast

Electric - System: Total Number of Customers

Units: Number of Customers
Data Sources: Load Forecast Models



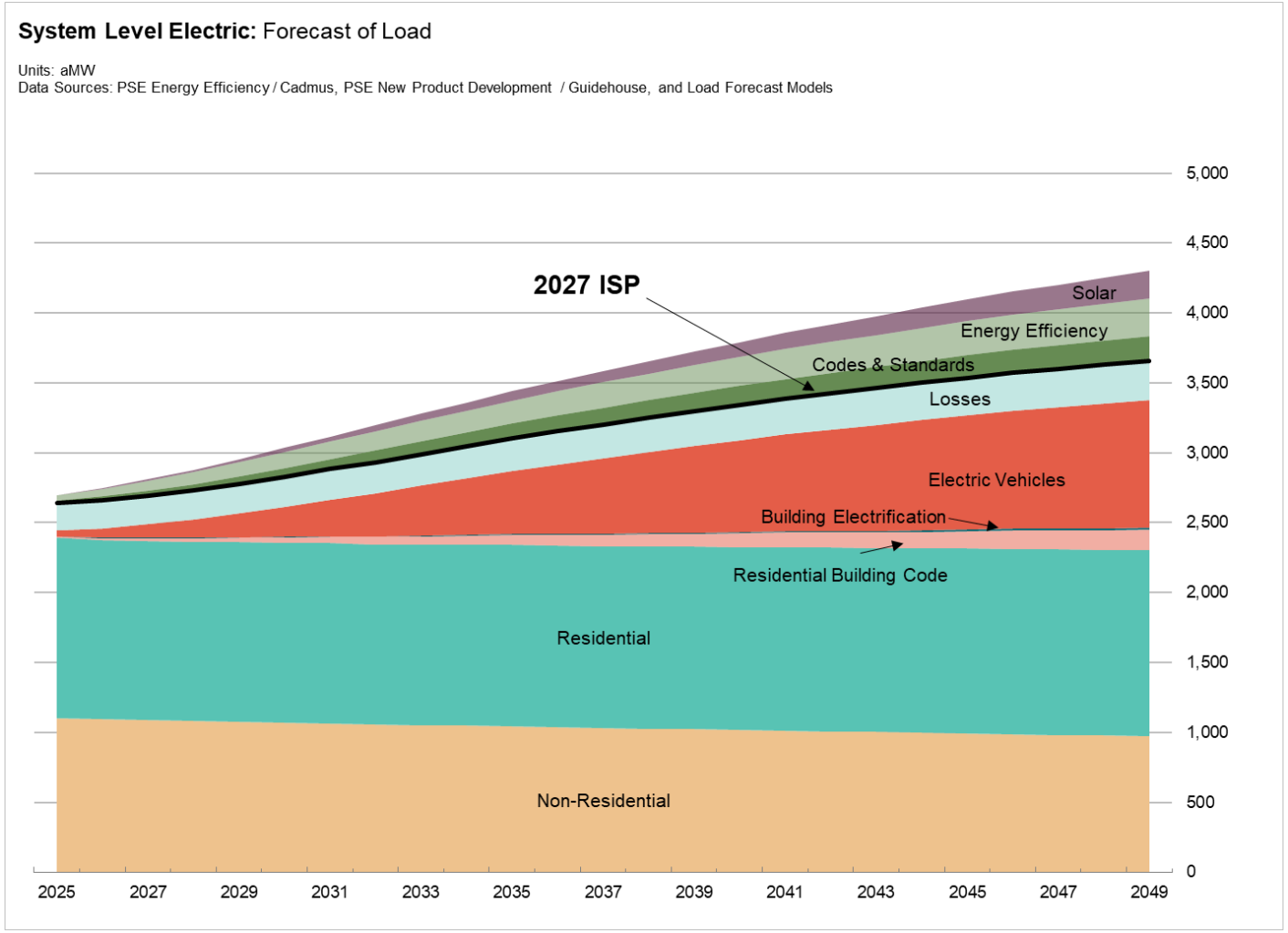
Updates:

- Recent growth trends
- Economic and demographic drivers

Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
2023 EPR	1.2%	1.2%	1.1%
2027 ISP	1.1%	1.1%	1.0%

% of Total System Customer Count			
	2026	**2030**	**2045**
Residential	88%	88%	88%
Non-residential	12%	12%	12%
TOTAL SYSTEM	**100%**	**100%**	**100%**

Electric system load forecast composition

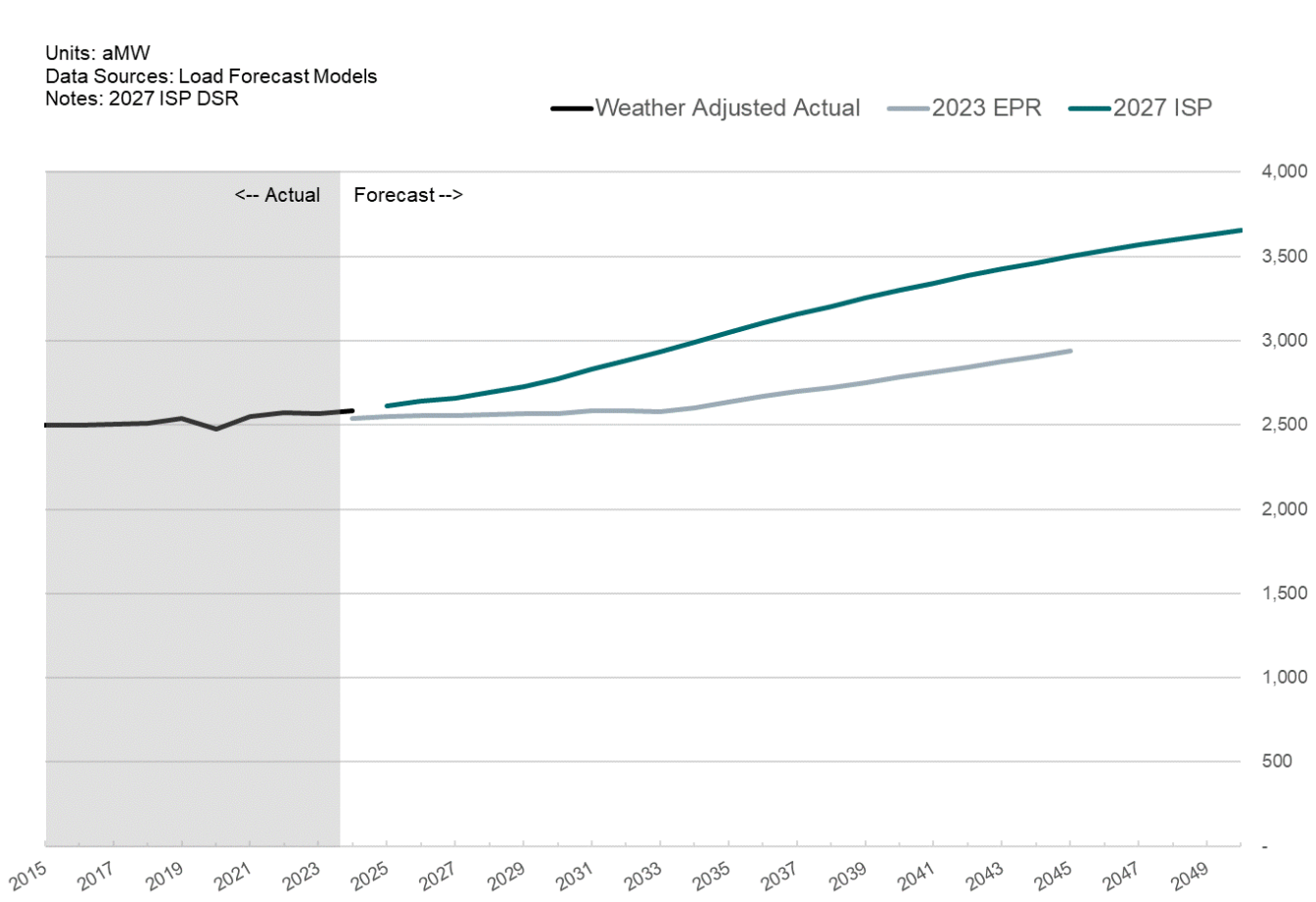


Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
Residential	0.4%	0.5%	0.6%
Non-Residential	-0.6%	-0.6%	-0.5%
EV charging	72%	45%	26%
TOTAL SYSTEM	**1.2%**	**1.5%**	**1.5%**

% of Total System Load					
	2026	**2030**	**2035**	**2040**	**2045**
Residential	49%	46%	42%	40%	38%
Non-Residential	42%	39%	34%	31%	28%
Building Electrification*	0%	1%	2%	3%	4%
EV Charging	2%	6%	13%	19%	23%
Losses	7.58%	7.58%	7.58%	7.58%	7.58%
TOTAL SYSTEM	**100%**	**100%**	**100%**	**100%**	**100%**

*Note: Building electrification in this table includes impacts from building codes, PSE electrification programs, and the natural rate of heating electrification.

Electric system load forecast vs. 2023 EPR



Decreases forecast:

- Long term customer growth

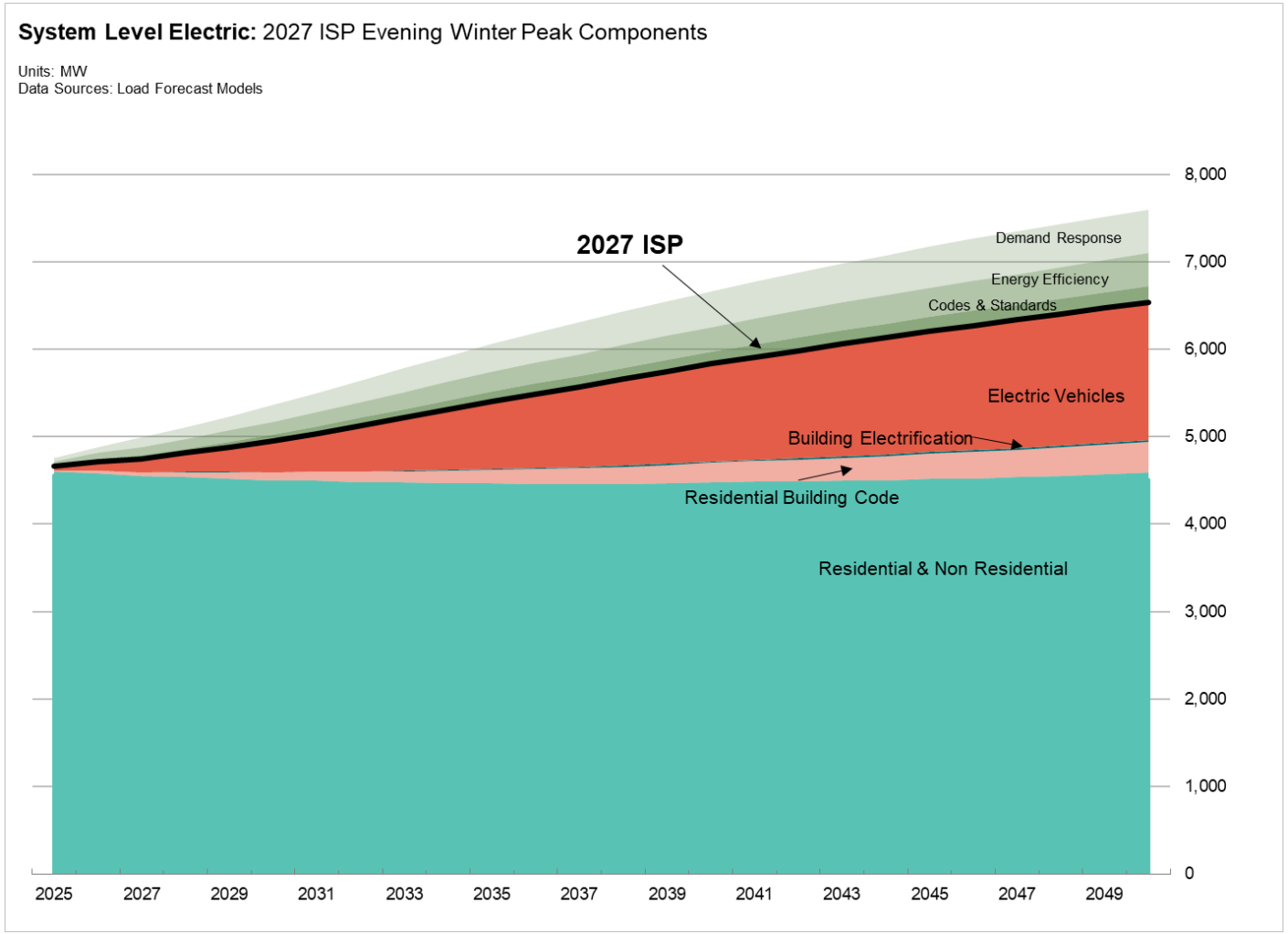
Increases forecast:

- Electric vehicles
- Updated savings from demand-side resources (DSR: Codes, Energy Efficiency and Solar)
- Updated use per customer

Average Annual Rate of Growth (AARG)			
	5-year	10-year	20-year
2023 EPR	0.2%	0.3%	0.7%
2027 ISP	1.2%	1.5%	1.5%

aMW	2026	2030	2035	2040	2045
2023 EPR	2,558	2,570	2,636	2,783	2,940
2027 ISP	2,642	2,775	3,047	3,298	3,499
Difference (%)	**3%**	**8%**	**16%**	**19%**	**19%**

Electric system winter peak forecast composition

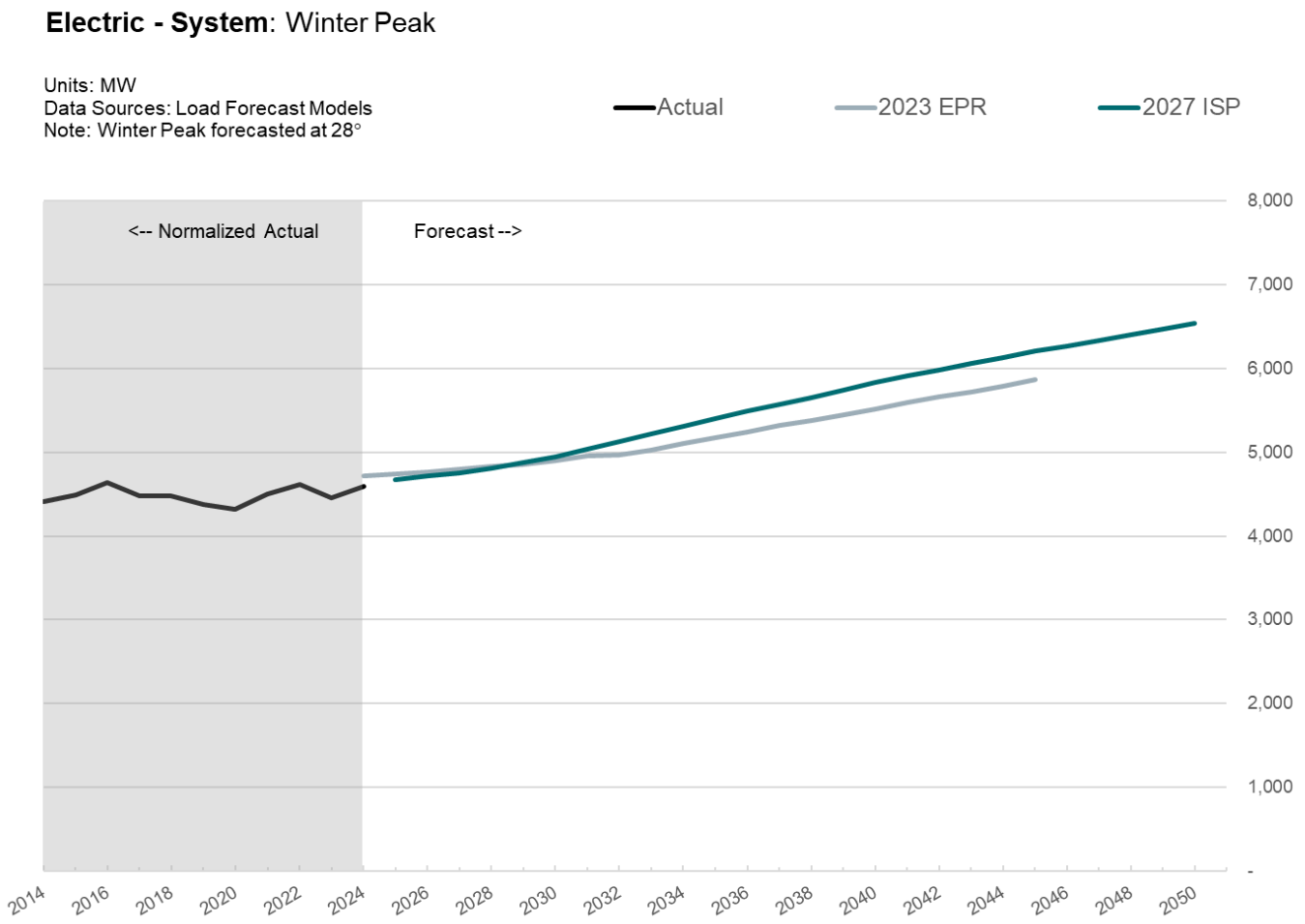


Average Annual Rate of Growth (AARG)			
	5-year	10-year	20-year
Residential & Non-Residential	-0.6%	-0.4%	0.1%
Building Electrification*	48%	31%	18%
EV charging	46%	31%	19%
TOTAL SYSTEM	**1.2%**	**1.5%**	**1.4%**

% of Total System Winter Peak			
	2026	2030	2045
Residential & Non-Residential	97%	91%	73%
Building Electrification*	1%	2%	5%
EV charging	2%	7%	22%
TOTAL SYSTEM	**100%**	**100%**	**100%**

*Note: Building electrification in the tables includes impacts from building codes, PSE electrification programs, and the natural rate of heating electrification.

Electric system winter peak vs. 2023 EPR



Decreases forecast:

- Lower new customer growth

Increases forecast:

- Recent peak events
- Higher EV peak
- Less energy efficiency and codes/ standards savings

Average Annual Rate of Growth (AARG)			
	5-year	10-year	20-year
2023 EPR	0.7%	0.9%	1.1%
2027 ISP	1.2%	1.5%	1.4%

MW	2026	2030	2035	2040	2045
2023 EPR	4,765	4,905	5,175	5,517	5,867
2027 ISP	4,716	4,946	5,401	5,831	6,206
Difference (%)	**-1.0%**	**0.8%**	**4.4%**	**5.7%**	**5.8%**

Natural gas results

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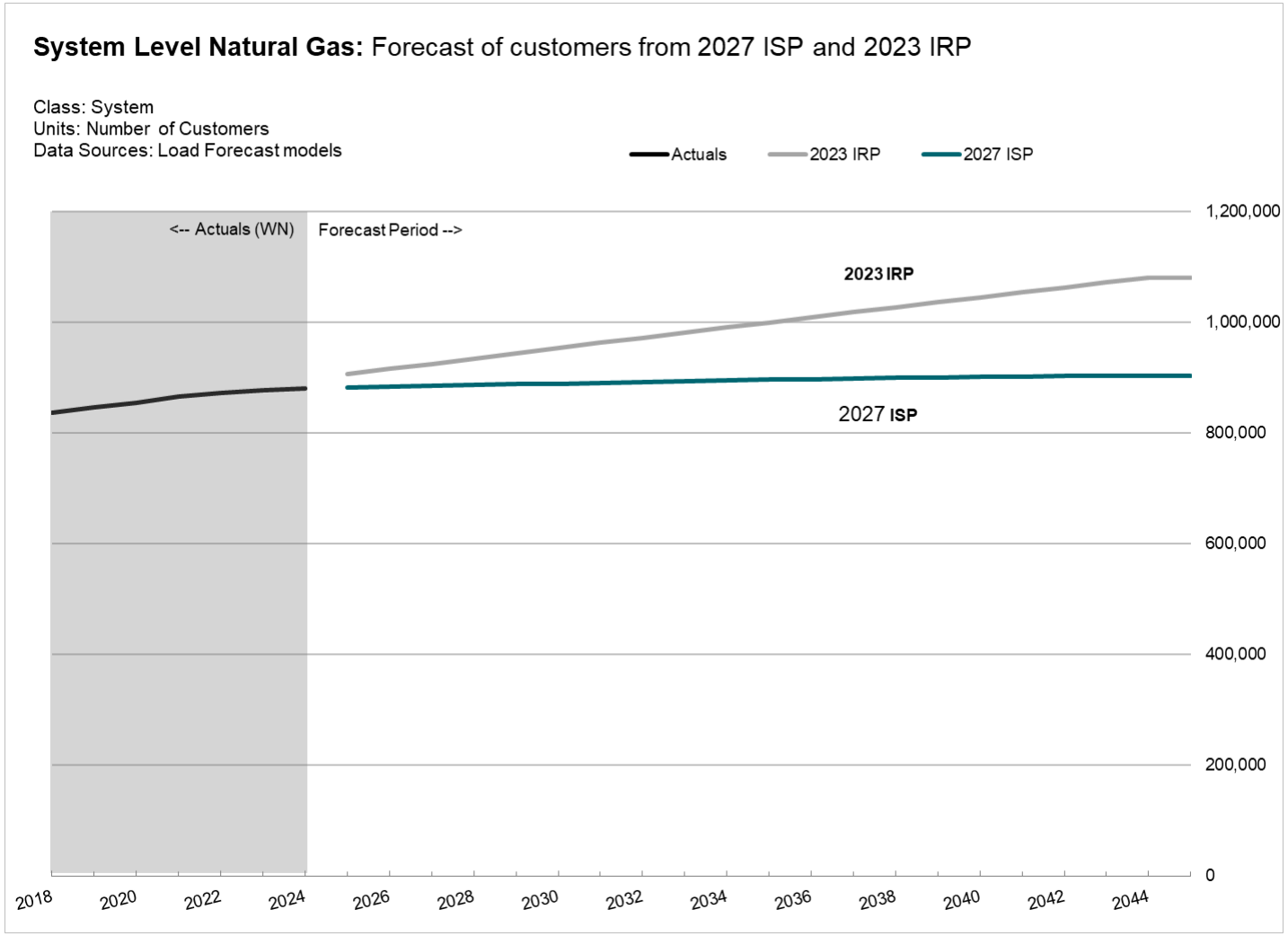
Natural gas policy assumptions

	Policy	Description
1	WA State Building Code	Essentially eliminates gas space heating in new construction (not a ban); consistent with HB1589
2	Seattle Building Emissions Performance Standards (SBEPS)	Drives large commercial and multi-family buildings in Seattle to be gas-free by 2045/2050
3	PSE Line Extension	PSE margin allowance phased out starting in 2022, completely phased out by 2025
4	PSE decarbonization programs (current)	1. PSE CCA-funded programs 2. Targeted electrification pilots
5	Gas Conversions to Electric w/o Incentive	Customers converting completely away from natural gas “on their own” (i.e., not part of a program and without incentive)

Natural gas customer growth forecast

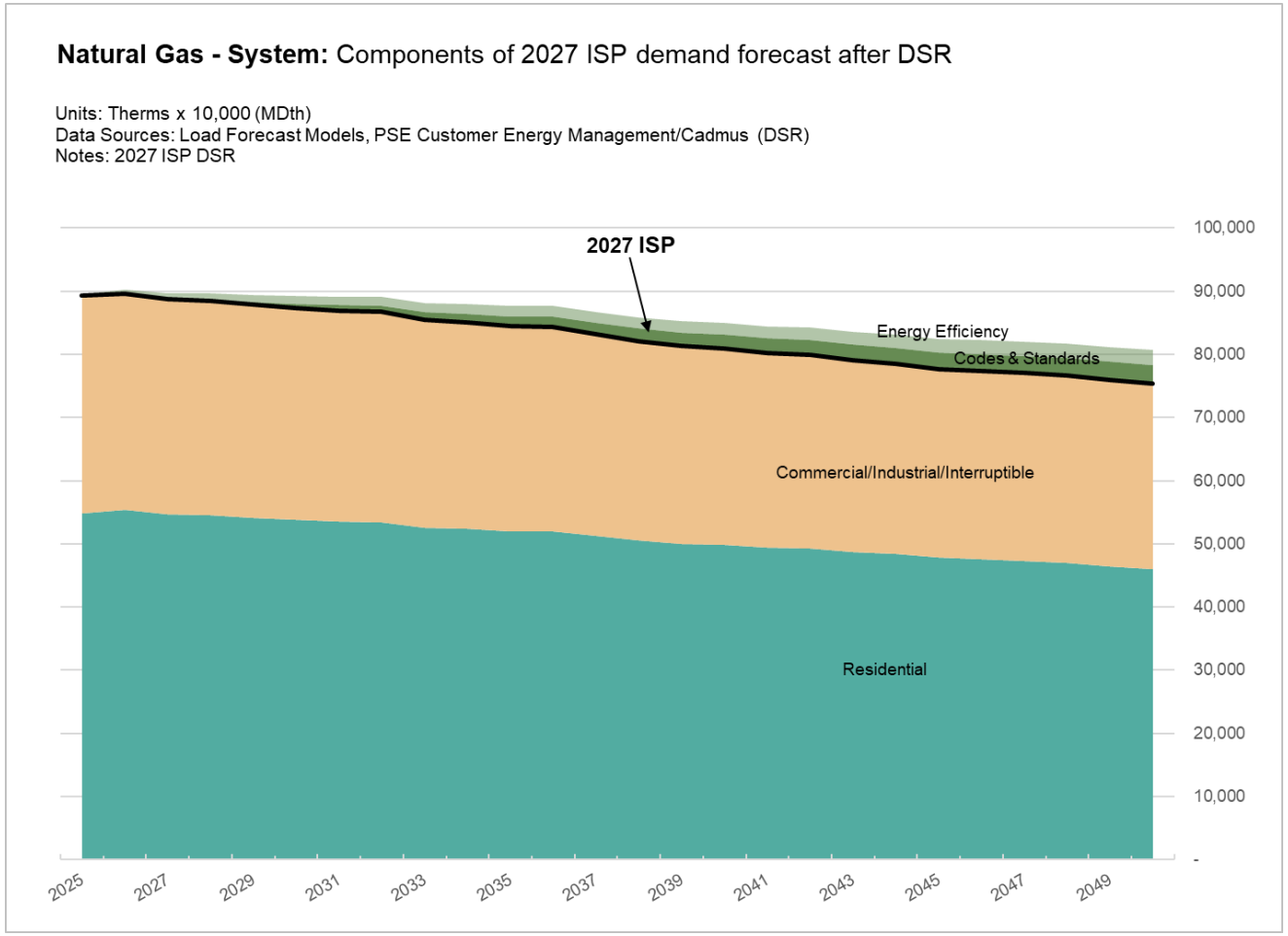


- Customer growth consistent with recent trend
- Influenced by economic outlook and policy environments

Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
2023 IRP	1.0%	1.0%	0.9%
2027 ISP	0.2%	0.2%	0.1%

% of Total System Customer Count			
	2026	**2030**	**2045**
Residential	93%	93%	93%
Comm./Indus./Interr.	7%	7%	7%
TOTAL SYSTEM	**100%**	**100%**	**100%**

Natural gas energy forecast composition



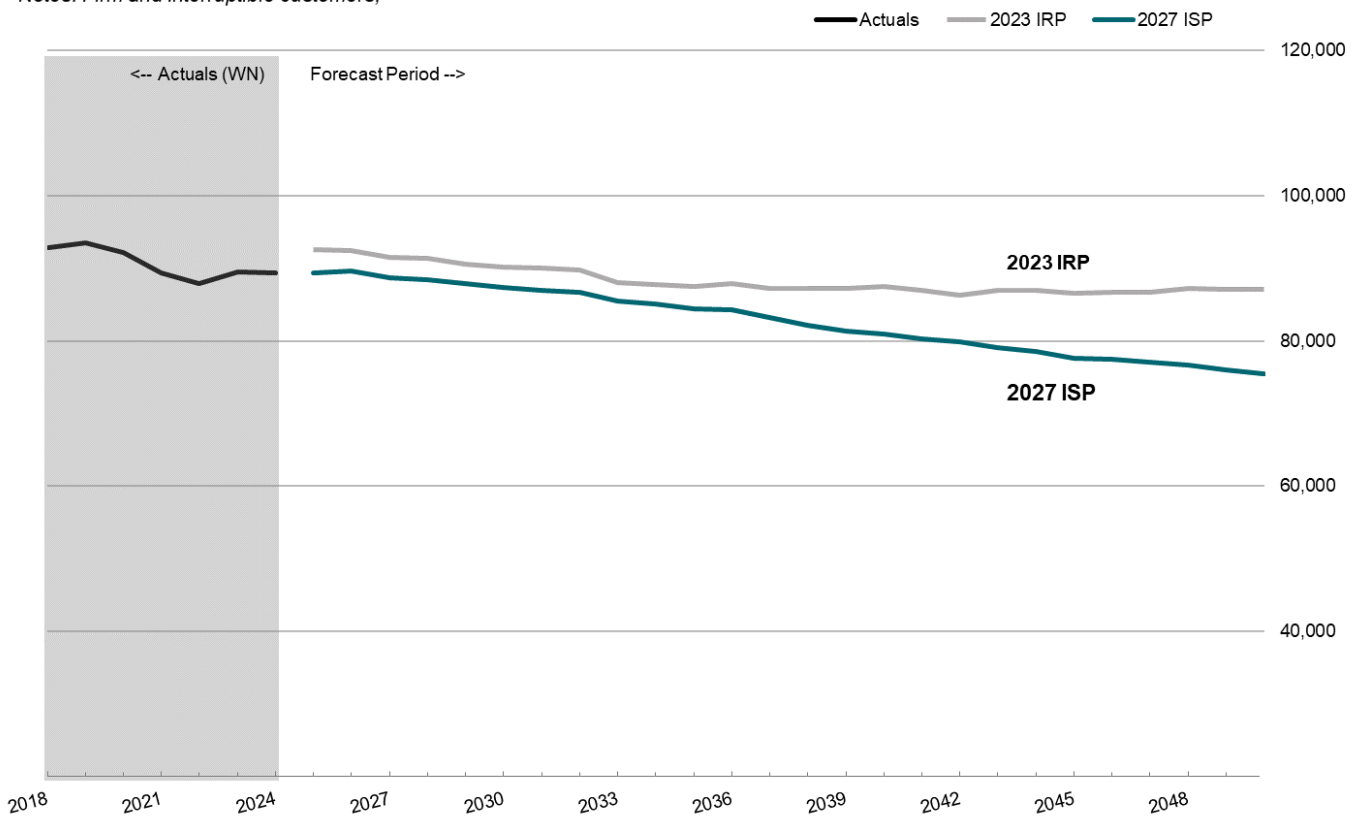
Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
Residential	-0.4%	-0.5%	-0.7%
Comm./Indus./Interr.	-0.5%	-0.6%	-0.7%
TOTAL	**-0.4%**	**-0.6%**	**-0.7%**

% of Total System Load					
	2026	**2030**	**2035**	**2040**	**2045**
Residential	60%	59%	58%	58%	57%
Comm./Indus./Interr.	37%	37%	36%	36%	36%
DSR: EE and C&S	1%	2%	4%	5%	6%
Losses	1.73%	1.73%	1.73%	1.73%	1.73%
TOTAL SYSTEM	**100%**	**100%**	**100%**	**100%**	**100%**

Natural gas energy forecast vs. 2023 IRP

System Level Natural Gas: Forecast of demand from 2027 ISP after DSR and from 2023 IRP after DSR

Units: Therms x10,000 (MDth)
Data Sources: Load Forecast Models, PSE Customer Energy Management/Cadmus (DSR)
Notes: Firm and Interruptible customers;



Decreases forecast:
- Low to negative customer growth
- Large customers leaving the system
- DSR

Increases forecast:
- Large load
- Climate change normal

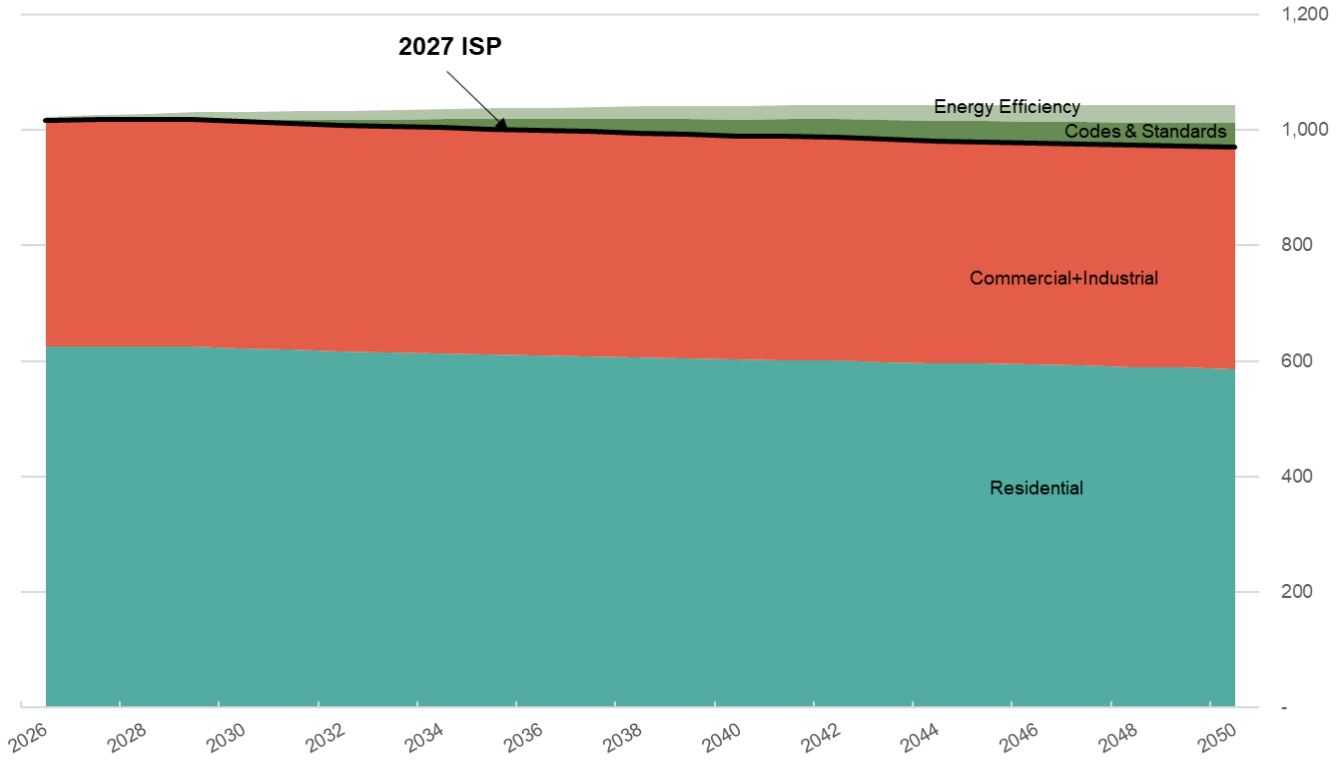
Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
2023 IRP	-0.5%	-0.6%	-0.3%
2027 ISP	-0.4%	-0.6%	-0.7%

MDth	**2026**	**2030**	**2035**	**2040**	**2045**
2023 IRP	92,379	90,148	87,510	86,553	87,144
2027 ISP	89,652	87,388	80,949	77,661	75,434
Difference (%)	**-3%**	**-3%**	**-7%**	**-10%**	**-13%**

Natural gas peak forecast composition

Natural Gas - System: Components of the peak from 2027 ISP after DSR

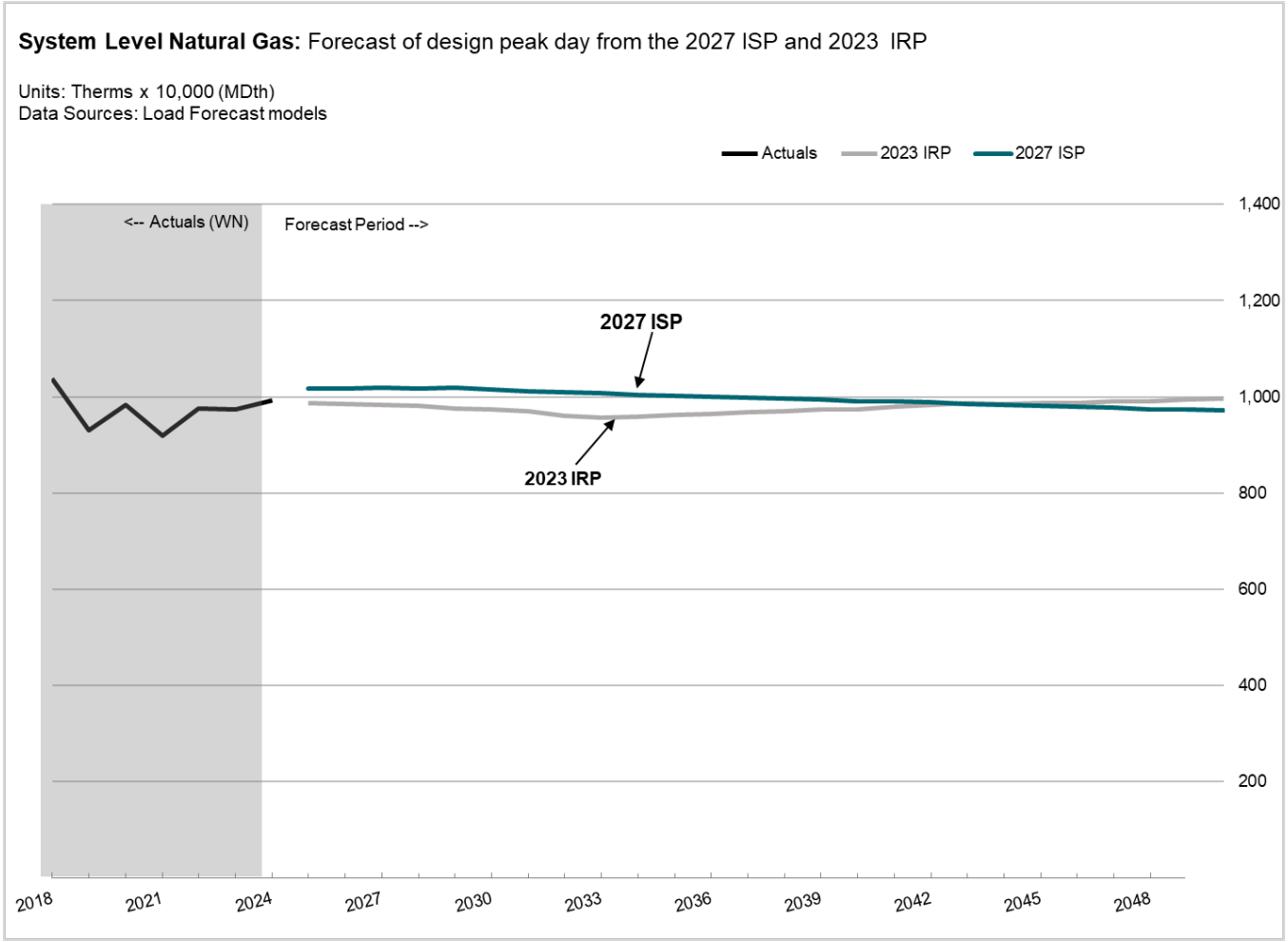
Units: Therms x 10,000 (MDth)
Data Sources: Load Forecast Models
Notes: Peak Forecast does not include Interruptible or Transport Customers,
Peaks forecasted at 13°F



Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
Residential	-0.1%	-0.2%	-0.2%
Commercial & Industrial	0.1%	0.0%	-0.1%
TOTAL	**0.0%**	**-0.2%**	**-0.2%**

% of Total Firm System Peak			
	2026	**2030**	**2045**
Residential	61%	60%	59%
Commercial & Industrial	38%	38%	38%
DSR: EE and C&S	0%	1%	3%
TOTAL	**100%**	**100%**	**100%**

Natural gas peak forecast vs. 2023 IRP



Decreases forecast:

- Steady decline in new customers

Increases forecast:

- Large loads

Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
2023 IRP	-0.3%	-0.3%	0.0%
2027 ISP	0.0%	-0.2%	-0.2%

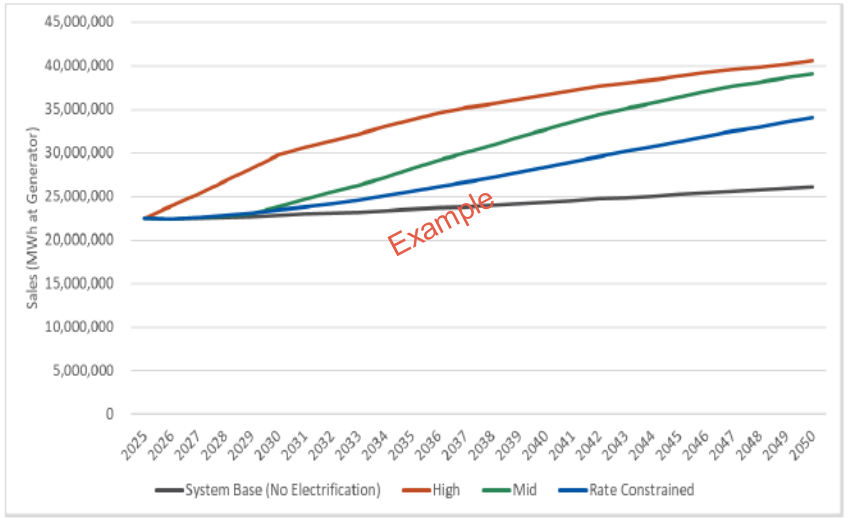
MDth	2026	2030	2035	2040	2045
2023 IRP	985	974	974	987	997
2027 ISP	1,018	1,015	990	980	970
Difference (%)	**3.4%**	**4.2%**	**1.6%**	**-0.7%**	**-2.7%**

Next steps

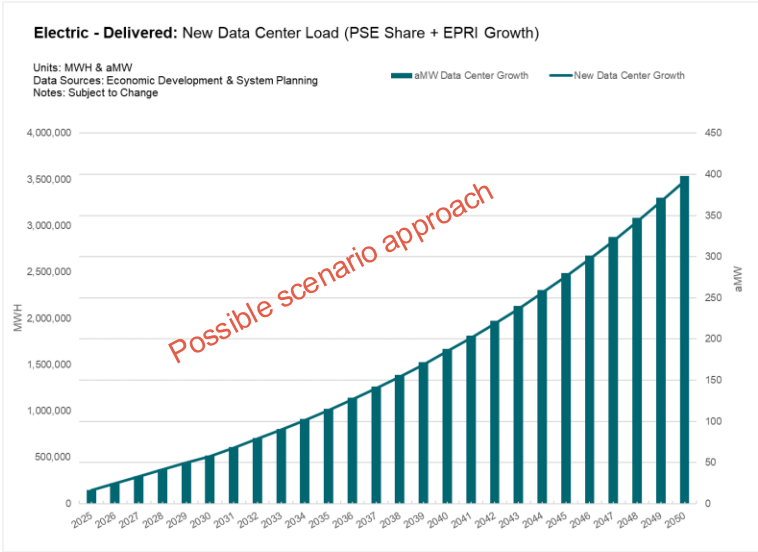
July 29, 2025

ISP scenarios are currently under development

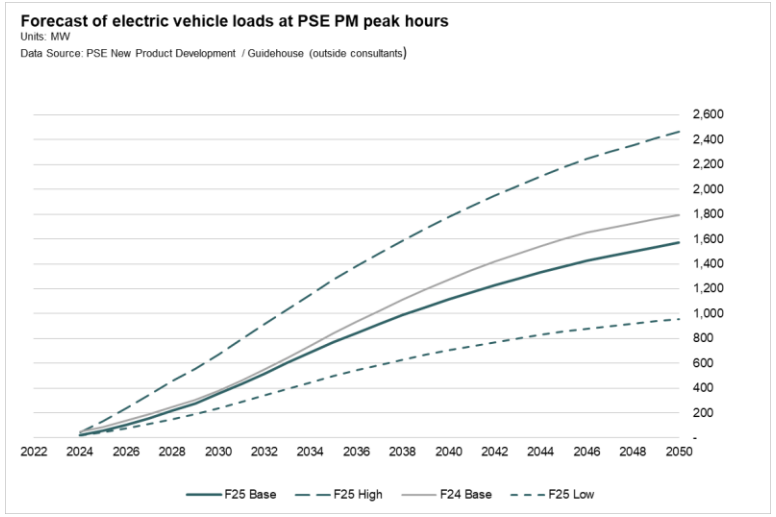
Building Electrification



Large Loads



Electric Vehicles



Questions?

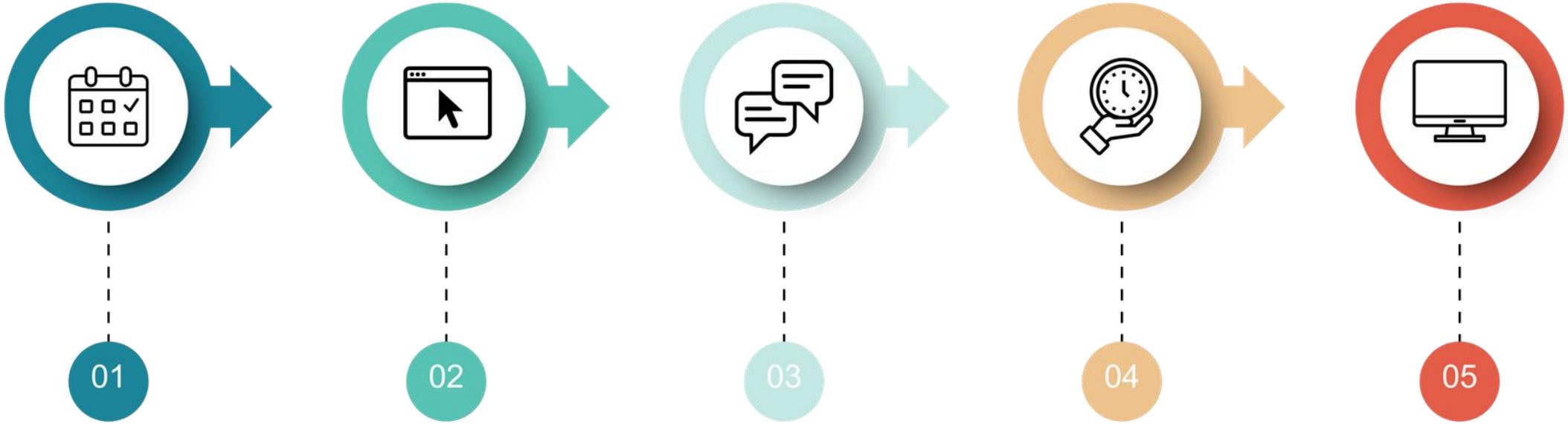
PUGET SOUND ENERGY

Next steps

July 29, 2025

PSE PUGET SOUND ENERGY

Feedback process



One week prior to meeting

The feedback window for the upcoming meeting opens.

3-5 business days prior to meeting

PSE posts the meeting agenda and slide deck on the Clean Energy website.

Day of meeting

PSE engages RPAG for feedback and facilitates a public comment opportunity.

One week post meeting

Feedback window for the latest RPAG meeting closes. Feedback received outside this window will go into the subsequent feedback report.

Four weeks post meeting

PSE posts the meeting summary and feedback report from the latest RPAG meeting on the Clean Energy website.

Upcoming activities

Date	Activity
August 5, 2025	Feedback form for this meeting closes
August 2025	No RPAG or public webinars planned

Contact us

- Via email at isp@pse.com
- Via feedback form at: https://www.cleanenergyplan.pse.com/contact
- Leave us a voicemail at 425-818-2051
- Subscribe to our email list
- Visit our website: cleanenergyplan.pse.com

Public comment opportunity

July 29, 2025

PUGET SOUND ENERGY

How to participate in public comment opportunity

- Please use the “raise hand” feature if you would like to provide comment
- Each speaker will have up to 3 minutes to give comments
- Comments should relate to today’s meeting topics
- Please keep remarks respectful – no personal attacks
- Comments and questions will be included in the feedback report with PSE’s response
- You are welcome and encouraged to send written feedback and questions to isp@pse.com

Thank you for joining us!

July 29, 2025

PUGET SOUND ENERGY

Appendix

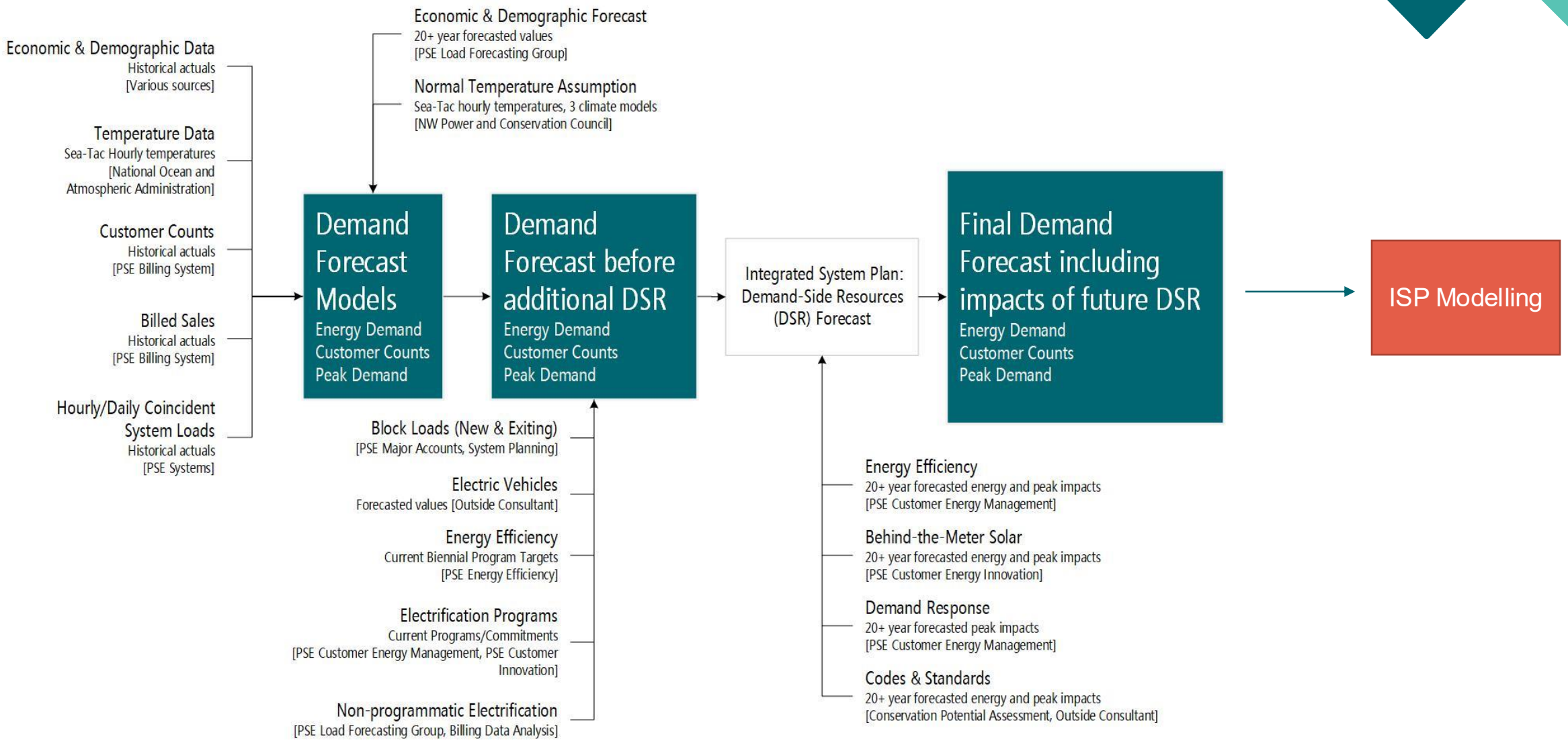
PUGET SOUND ENERGY

Definitions and acronyms

Acronym	Meaning
CCA	Climate Commitment Act
CETA	Clean Energy Transformation Act
CEIP	Clean Energy Implementation Plan
CETA	Clean Energy Transformation Act
CPA	Conservation potential assessment
DER	Distributed energy resources
DR	Demand response
DSR	Demand-side resource
EE	Energy efficiency
EV	Electric vehicle
GWh	Gigawatt hour

Acronym	Meaning
IRP	Integrated Resource Plan
ISP	Integrated System Plan
MW	Megawatt
RPAG	PSE's Resource Planning Advisory Group
TOU	Time-of-use
V2B	Vehicle-to-building
V2G	Vehicle-to-grid
V2H	Vehicle-to-home
V2L	Vehicle-to-load
V2X	Vehicle-to-everything

Demand forecast methodology

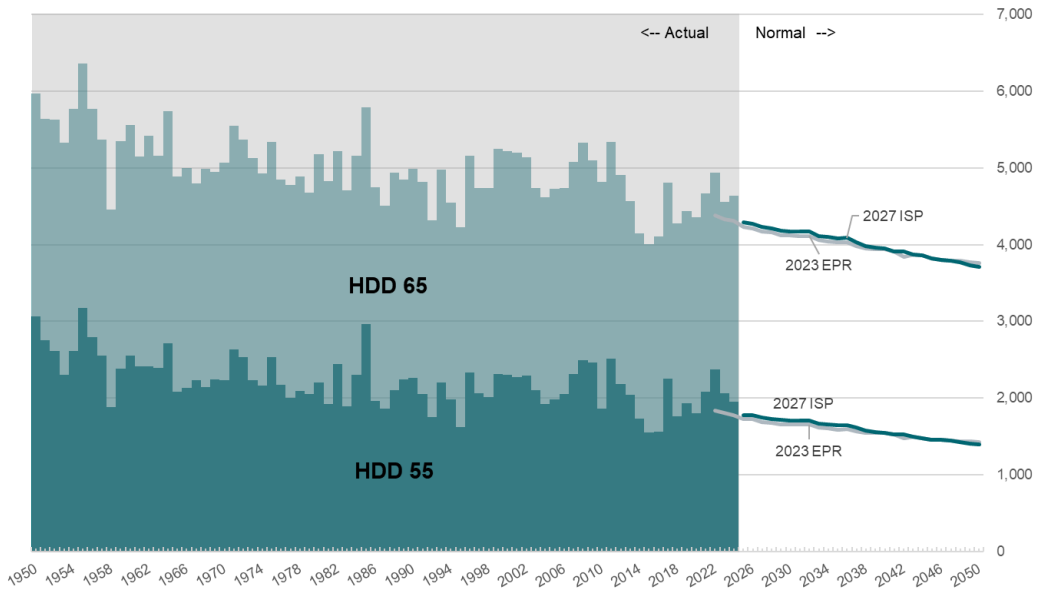


Temperature

- 2027 ISP degree day and peak temperature assumptions consistent with 2023 EPR methodology

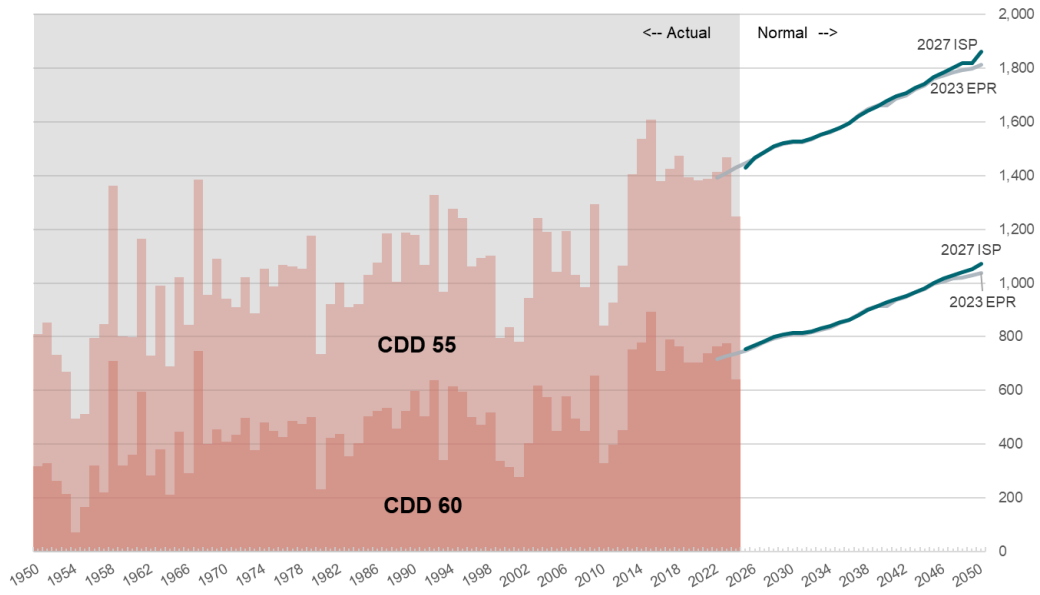
System - Degree Days: Heating

Units: Degree Days
Data Sources: NOAA KSEA Observations, NWPCC 8th Plan Climate Data

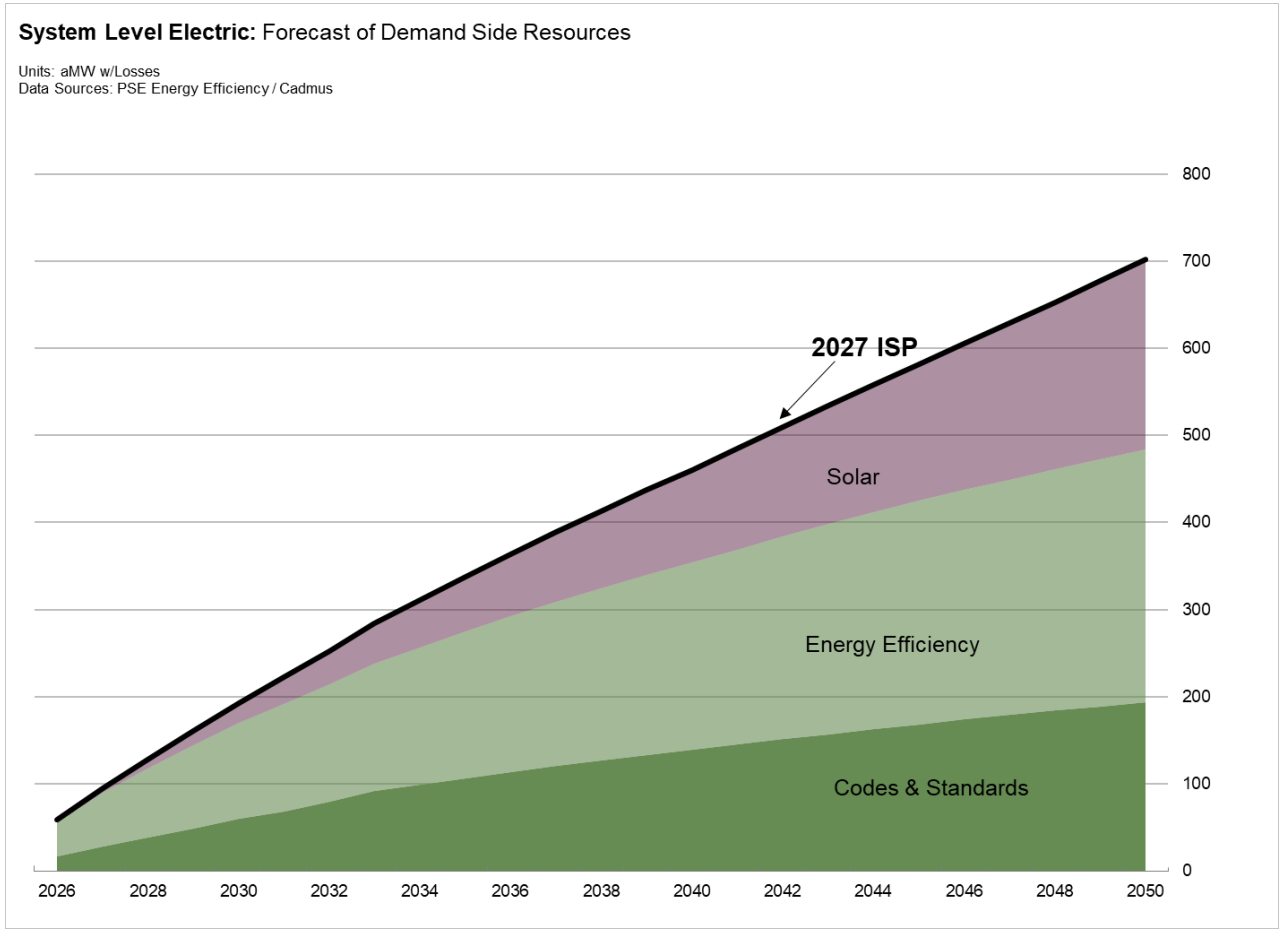


System - Degree Days: Cooling

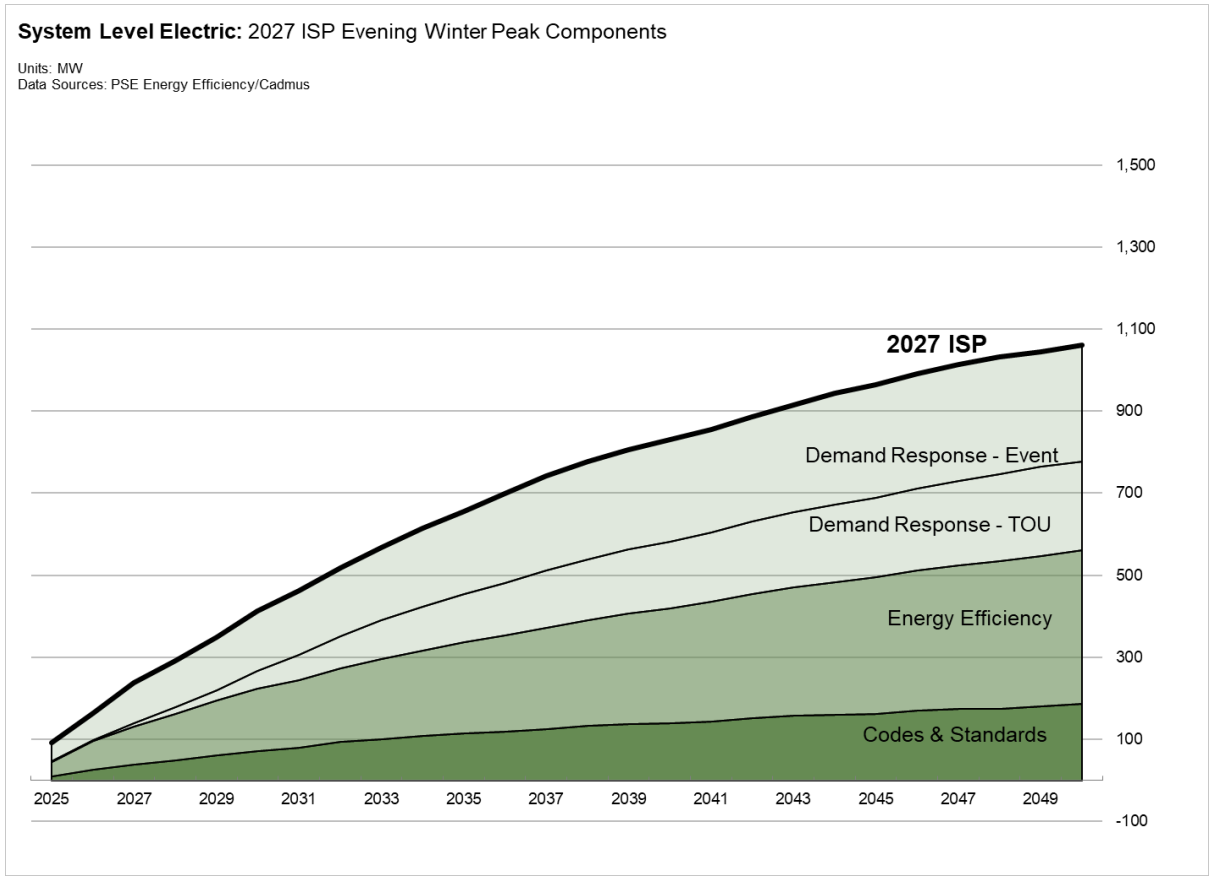
Units: Degree Days
Data Sources: NOAA KSEA Observations, NWPCC 8th Plan Climate Data

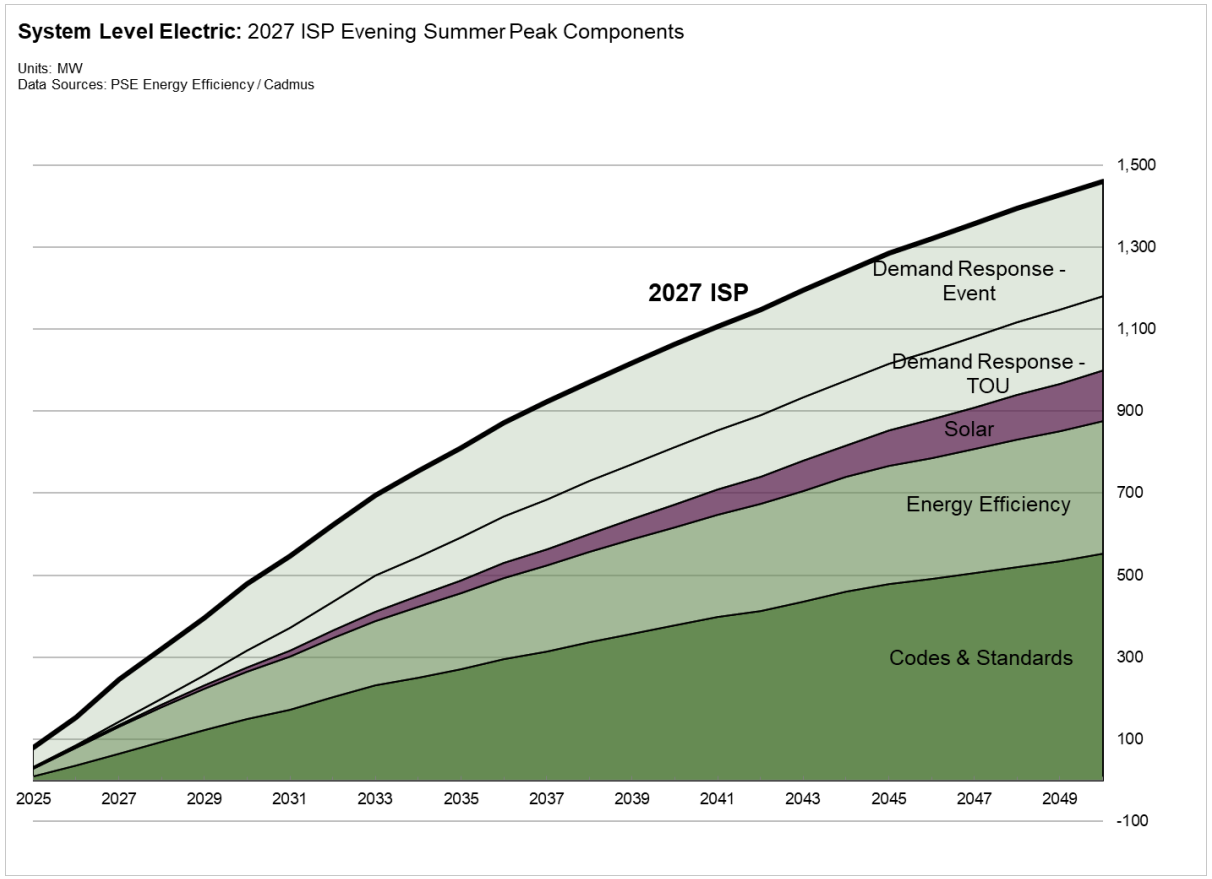


Demand side resources – electric demand



Demand side resources – electric peak

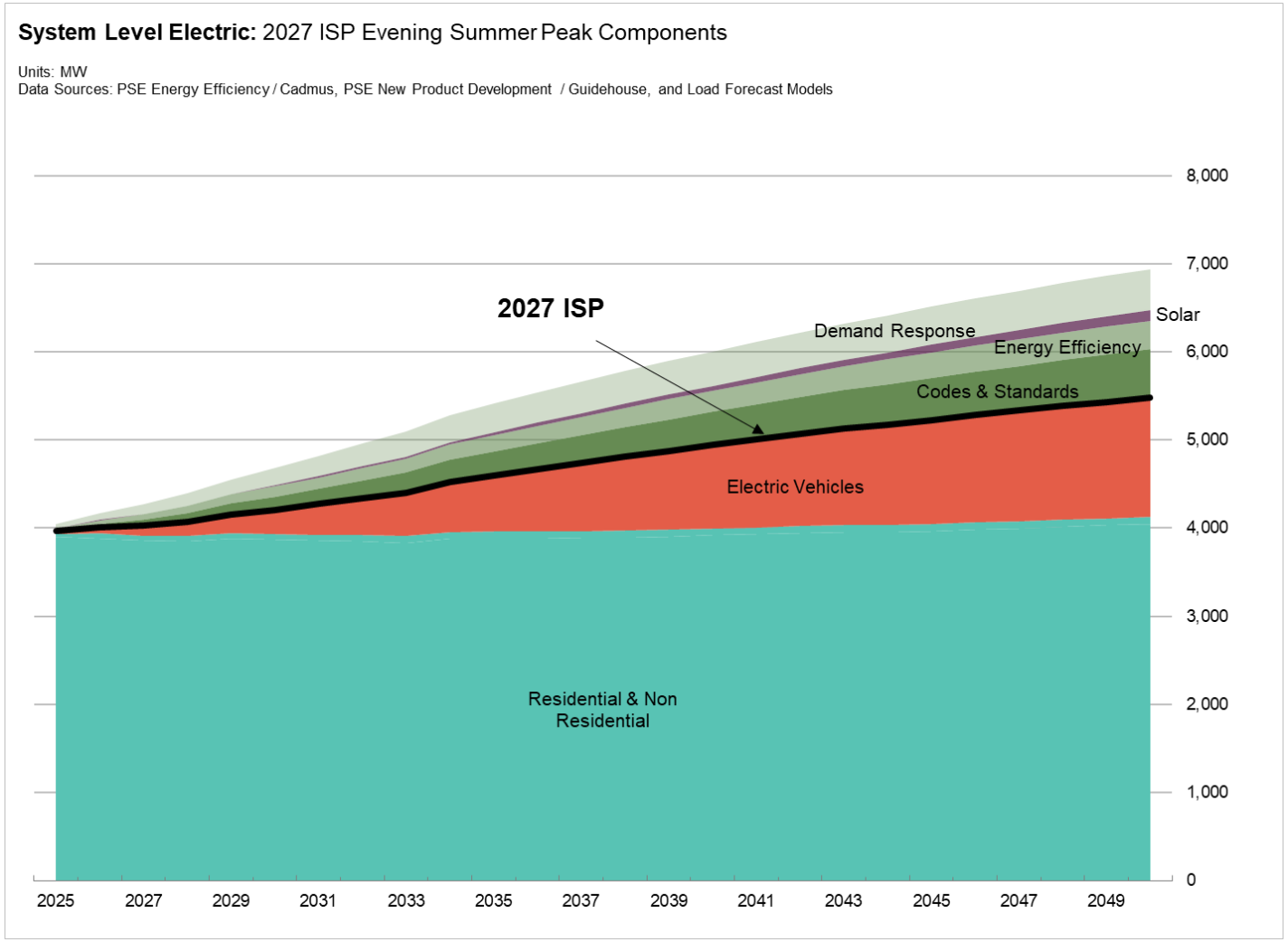




Electric vehicles

- Please refer to the June 18, 2025 RPAG info session materials
- RPAG info session | June 18, 2025

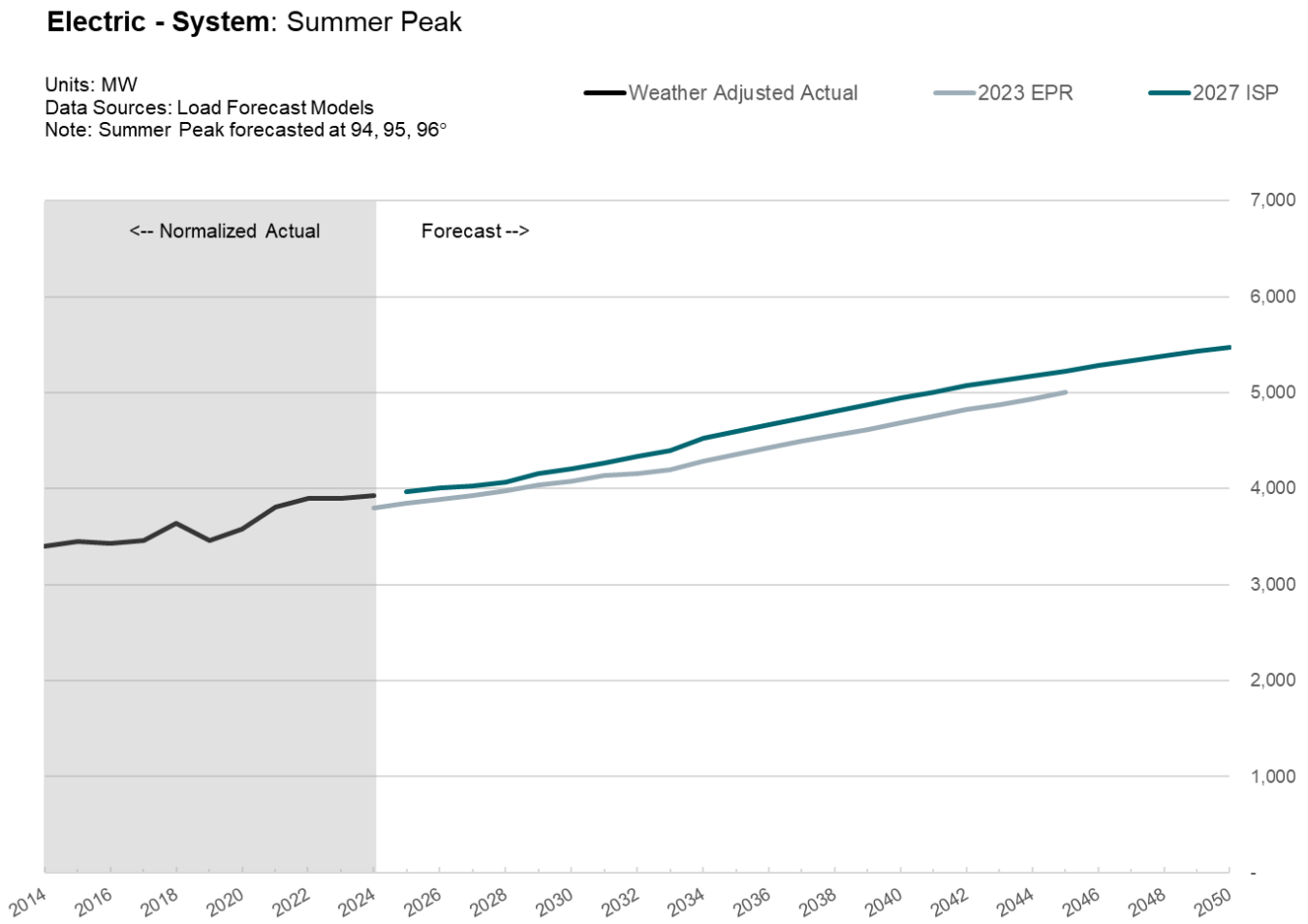
Electric system summer peak



Average Annual Rate of Growth (AARG)			
	5-year	10-year	20-year
Res & Non-res	0.0%	0.1%	0.1%
EV charging	59%	39%	22%
TOTAL SYSTEM	**1.2%**	**1.5%**	**1.4%**

% of Total System Summer Peak					
	2026	2030	2035	2040	2045
Res & Non-res	98%	93%	86%	81%	77%
EV charging	2%	7%	14%	19%	23%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Electric system summer peak



Decreases forecast:

- Lower new customer growth

Increases forecast:

- Recent peak events
- Electric Vehicles

Average Annual Rate of Growth (AARG)			
	5-year	**10-year**	**20-year**
2023 EPR	1.2%	1.3%	1.3%
2027 ISP	1.2%	1.5%	1.4%

aMW	2026	2030	2035	2040	2045
2023 EPR	3,851	4,083	4,361	4,690	5,003
2027 ISP	3,965	4,209	4,600	4,941	5,228
Difference (%)	**3.0%**	**3.1%**	**5.5%**	**5.4%**	**4.5%**