2025 IRP Energy and Demand Forecast

2025 IRP Advisory Council

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Agenda

01 **Background**

02 **Forecast Results**

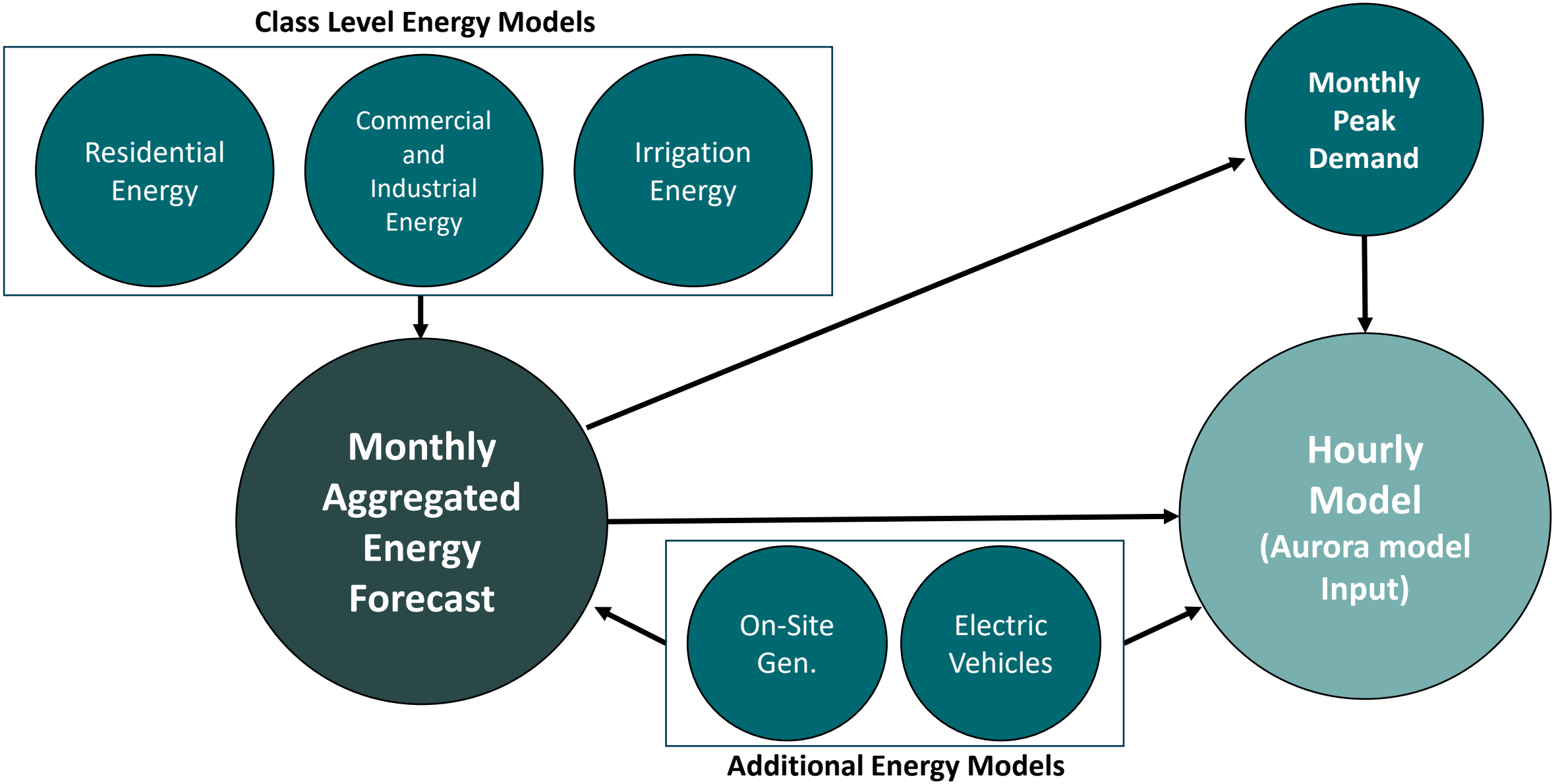
- ✓ System Sales/Peak/Customer
- ✓ Class Level Sales
  - ✓ Residential
  - ✓ Commercial, Industrial, Large Load
  - ✓ Irrigation
- ✓ Additional Forecasts
  - ✓ On-Site Generation, Electric Vehicles, Heat pumps

03 **Summary**

Background

- Presented is the 20-year (2026-2045) preferred forecast of Idaho Power's system load
  - The load forecast is a building block of the IRP
- The purpose of this presentation is to display forecast results, show what's in the forecast, and compare to the 2023 IRP forecast
- Forecast methodology is similar to 2023 IRP

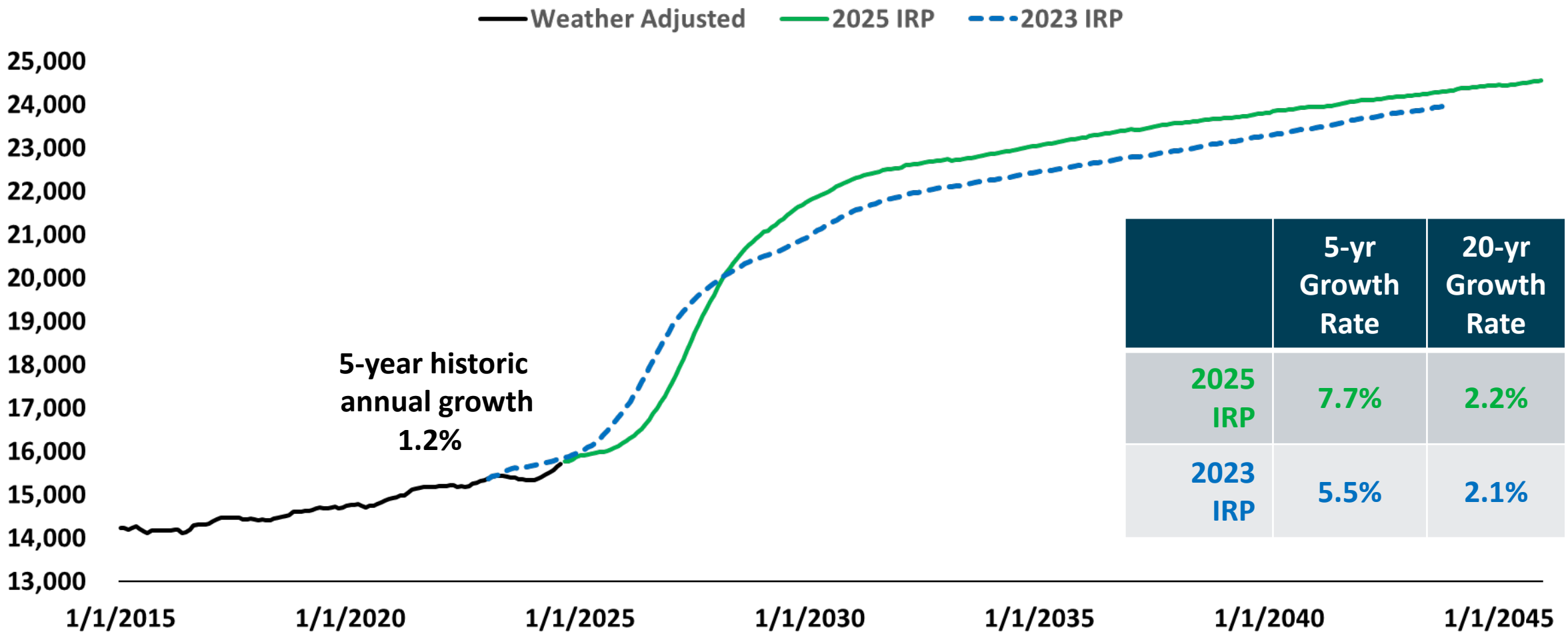
Load Forecast Modeling Process



System Results

System Sales Forecast Results

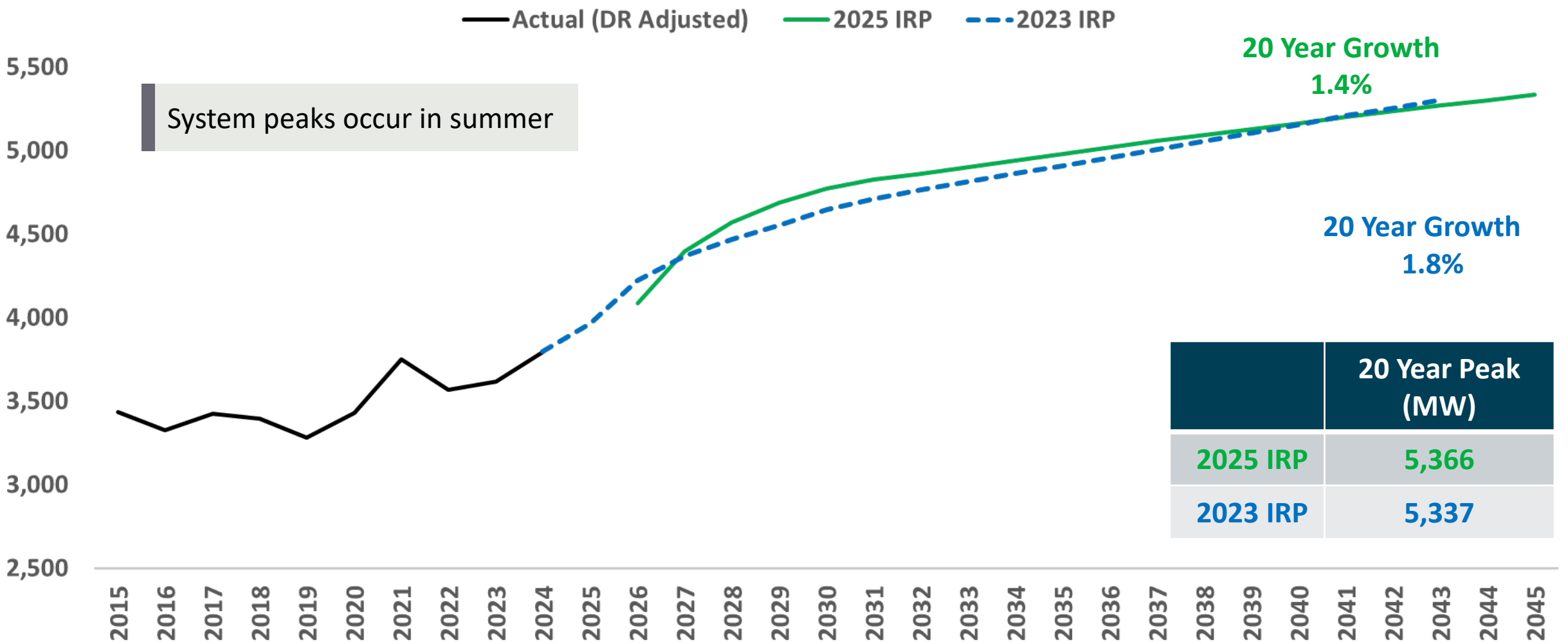
System Sales (GWh)



	5-yr Growth Rate	20-yr Growth Rate
2025 IRP	7.7%	2.2%
2023 IRP	5.5%	2.1%

Annual System Peak Forecast Results

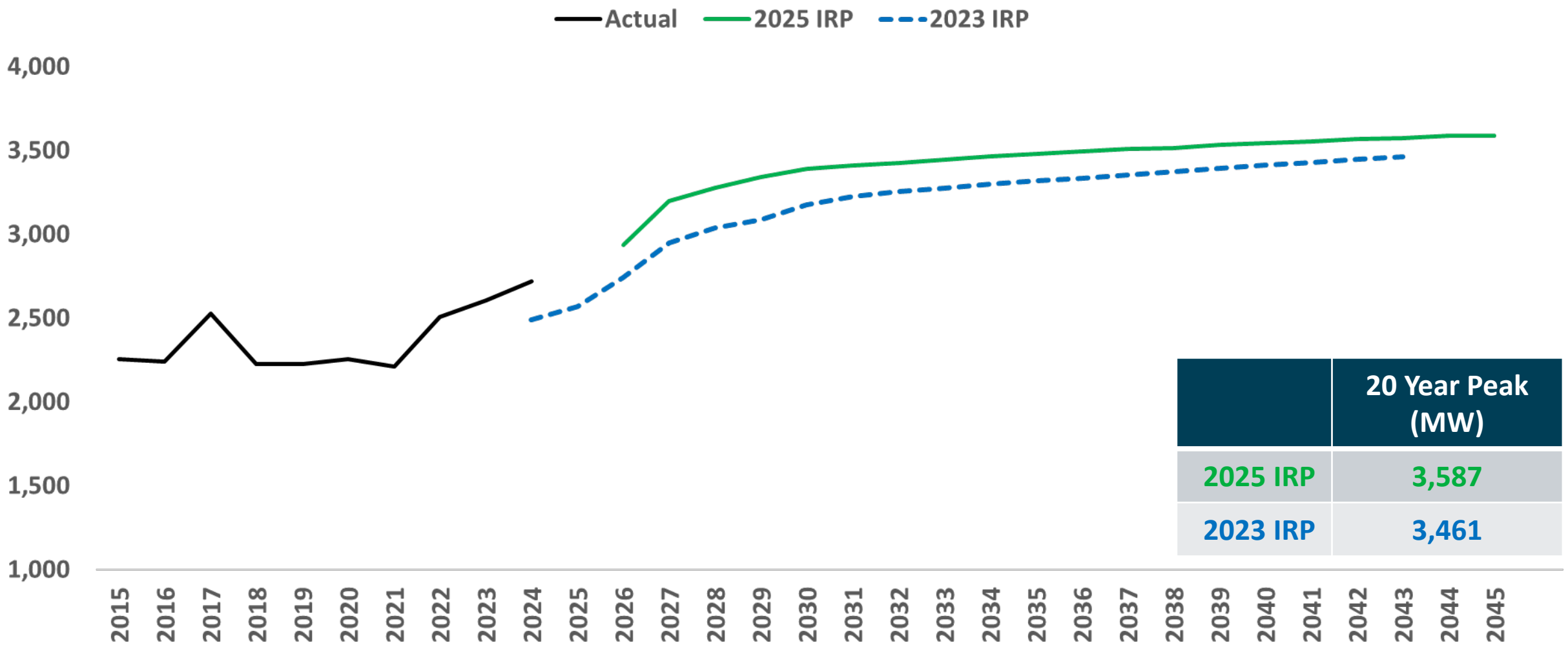
Annual System Peak (70th Peak Weather Percentile, MW)



	20 Year Peak (MW)
2025 IRP	5,366
2023 IRP	5,337

Annual Winter Peak Forecast Results

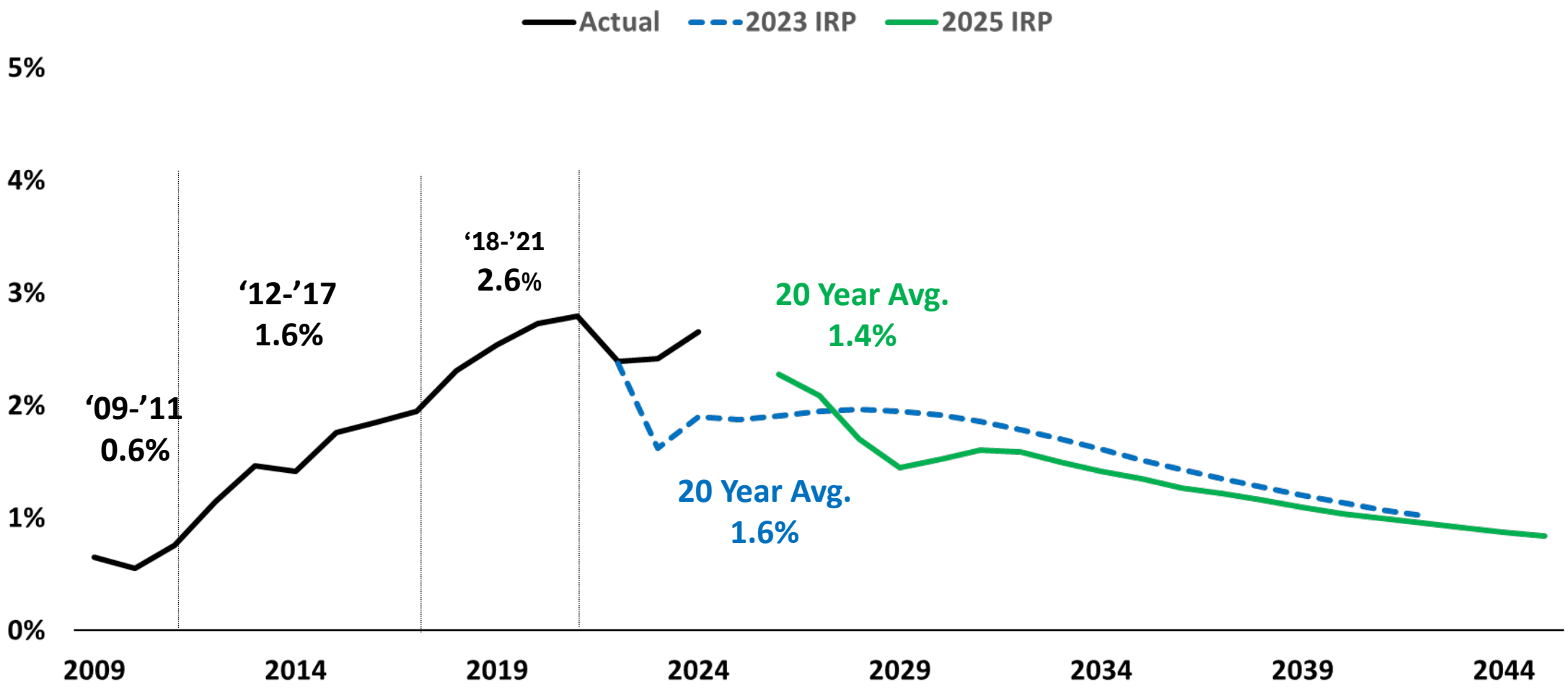
Winter System Peak (70th Peak Weather Percentile, MW)



	20 Year Peak (MW)
2025 IRP	3,587
2023 IRP	3,461

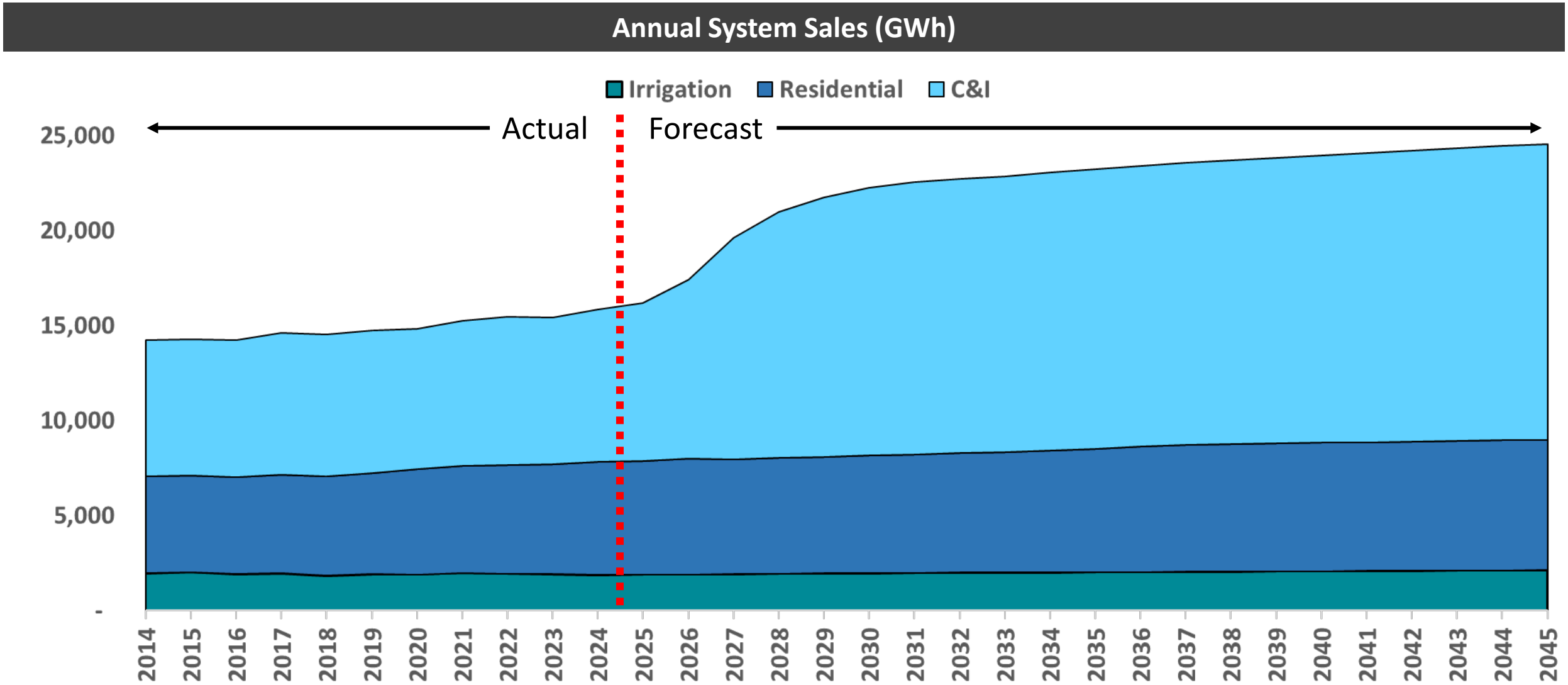
System Customer Growth Forecast

System Customer Growth (12 month % change)



Class Level Results

System Sales Forecast By Class



Residential Usage Drivers: End-Use

Residential Use Per Customer Regression Inputs

Example:
Sources of Increases

- Larger Home Size
- AC Saturation
- Plug-ins
- Electrification

Example:
Sources of Decreases

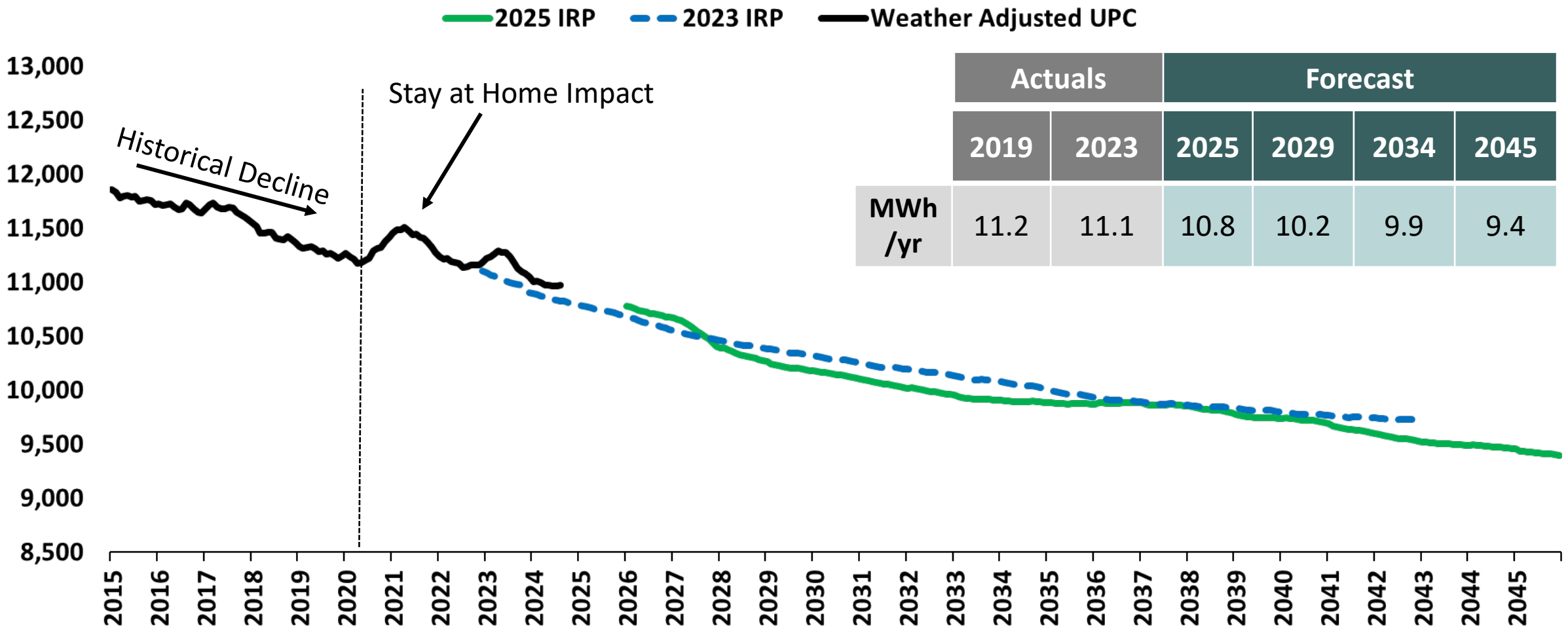
- Building practices
- Energy Efficiency
- Single/Multi-family Shares
- Rooftop Solar
- Gas/Electric Share

Elasticity: How much bend or snap the plank has depends on Income, electricity and gas prices

Forecast Composition

Residential Use Per Customer

Use Per Customer Forecast (annual weather adjusted kWh/Cust)

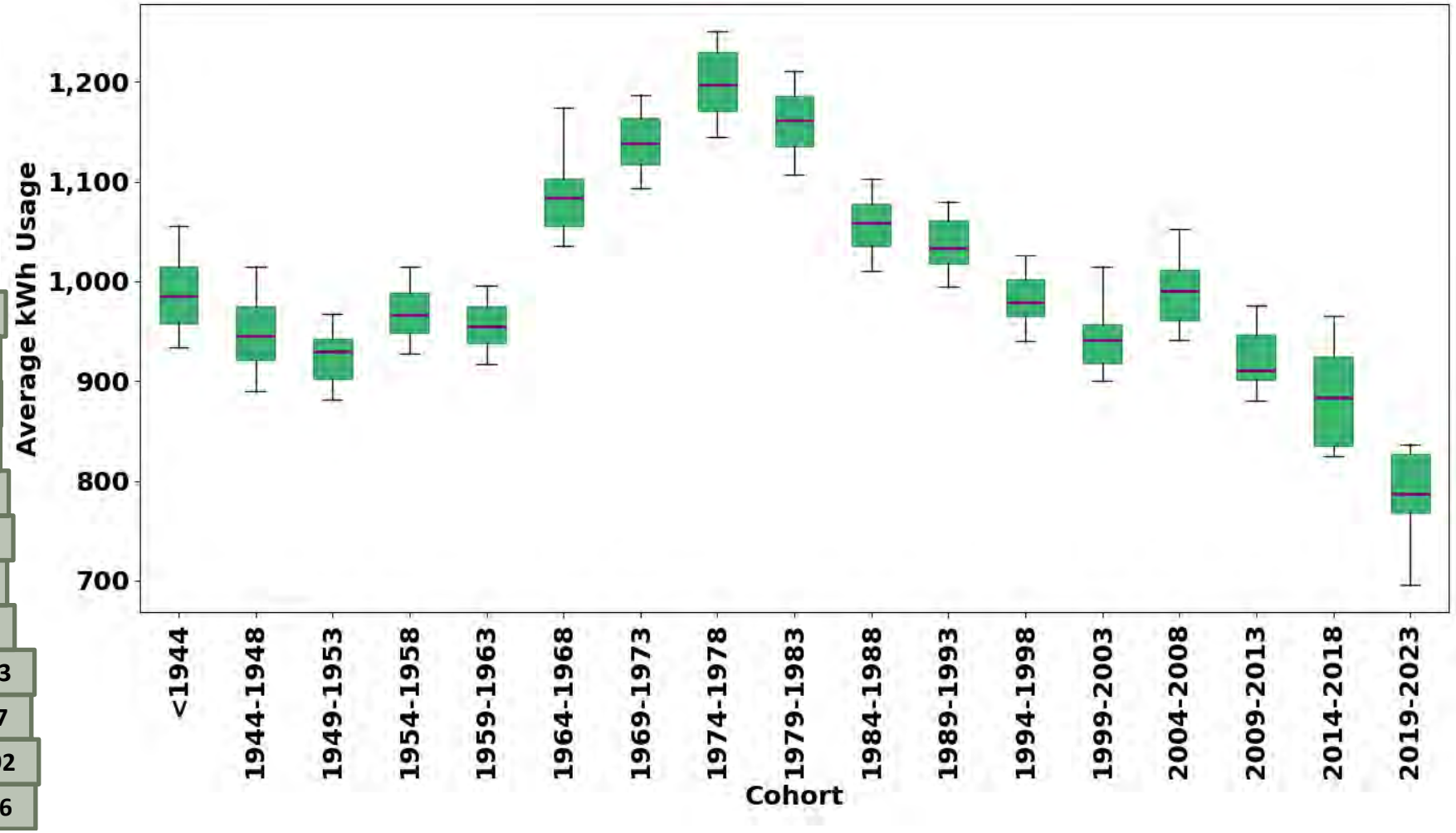


	Actuals		Forecast			
	2019	2023	2025	2029	2034	2045
MWh /yr	11.2	11.1	10.8	10.2	9.9	9.4

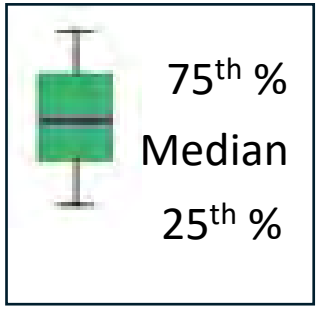
Residential Use Per Customer - Cohort

Cohort Analysis (annual kWh/Cust)

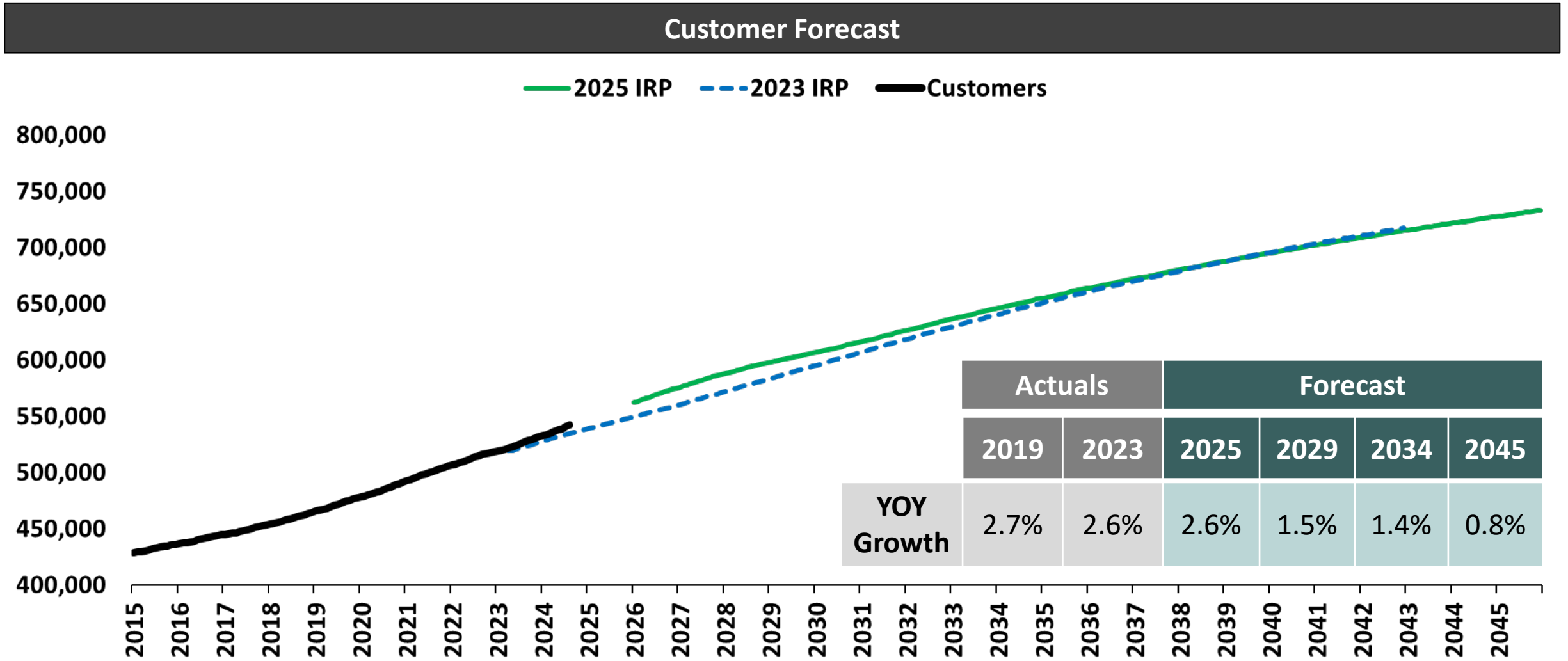
Home Sqft	
<1944	1,467
1944-1948	1,390
1949-1953	1,456
1954-1958	1,625
1959-1963	1,636
1964-1968	1,831
1969-1973	1,753
1974-1978	1,766
1979-1983	1,756
1984-1988	1,874
1989-1993	1,936
1994-1998	1,851
1999-2003	1,953
2004-2008	2,233
2009-2013	2,187
2014-2018	2,292
2019-2023	2,246



- ENERGY STAR founded 1991
- U.S. EIA: LED light usage in households rose from 4% in 2015 to 47% in 2020.

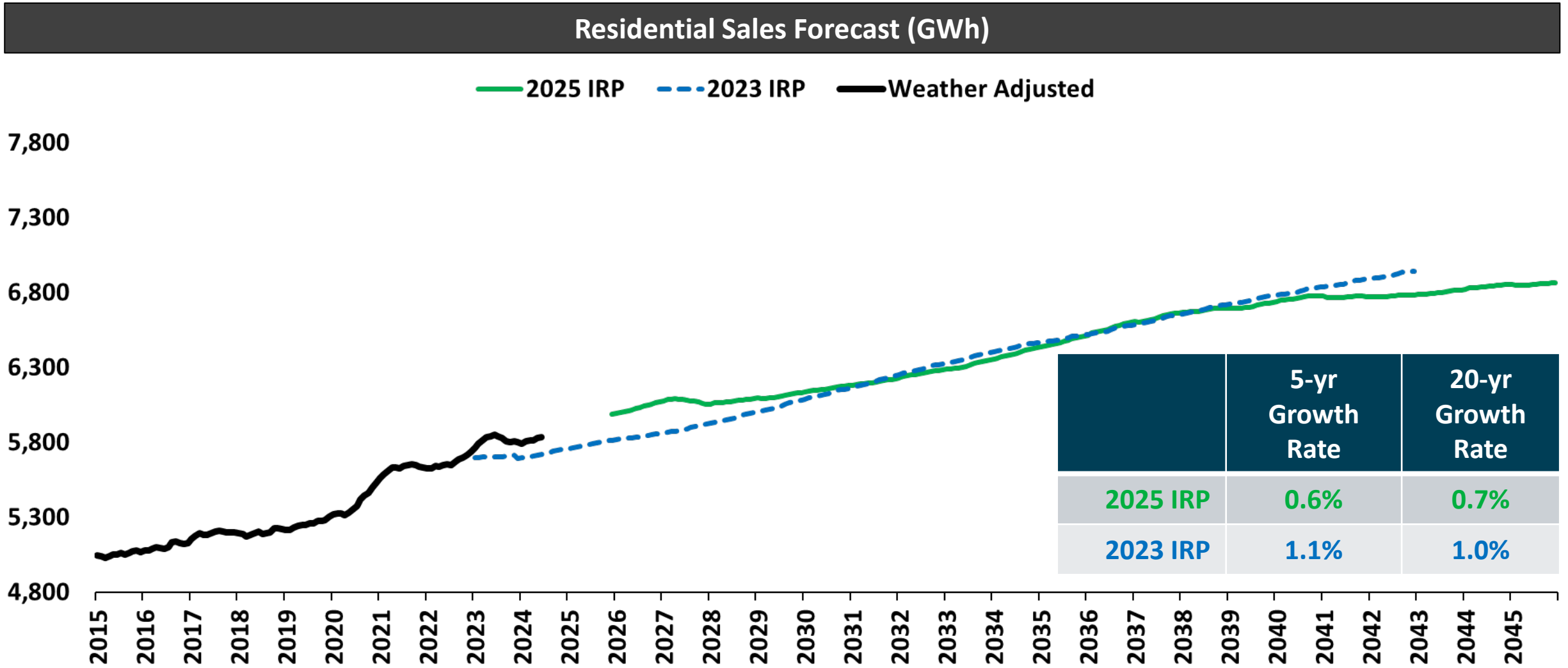


Residential Customer Forecast



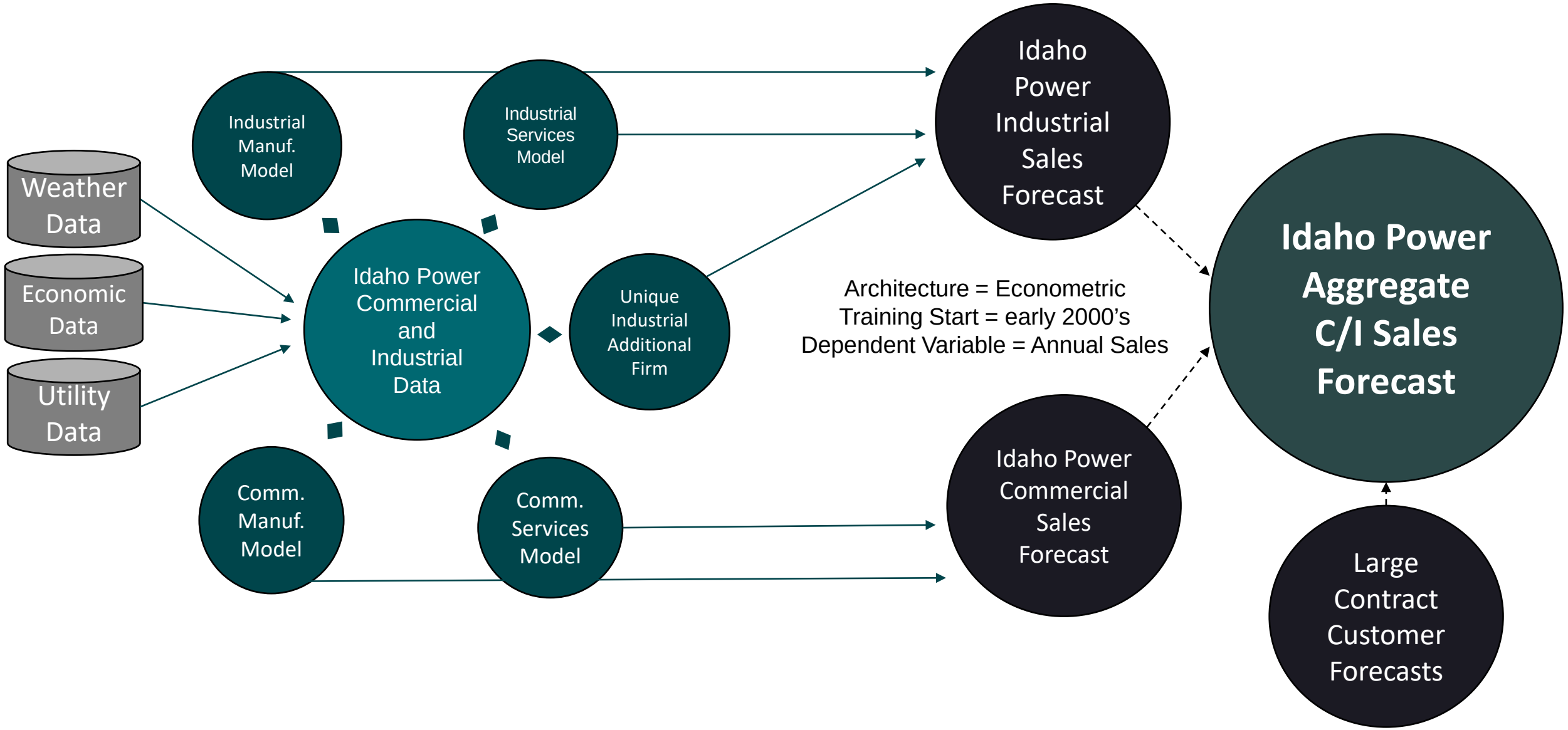
	Actuals		Forecast			
	2019	2023	2025	2029	2034	2045
YOY Growth	2.7%	2.6%	2.6%	1.5%	1.4%	0.8%

Residential Forecast



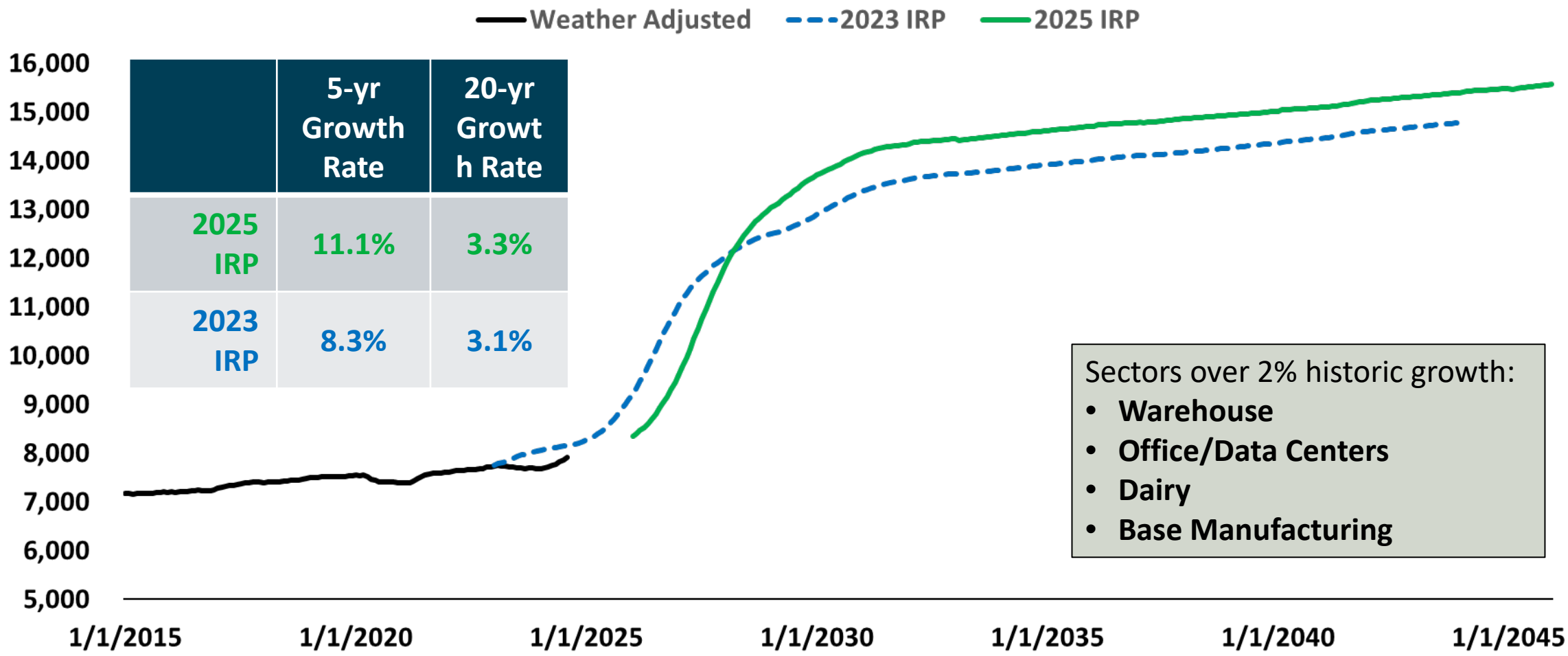
	5-yr Growth Rate	20-yr Growth Rate
2025 IRP	0.6%	0.7%
2023 IRP	1.1%	1.0%

C/I Econometric Modeling



Commercial and Industrial Sales Forecast

Commercial and Industrial Sales (GWh)



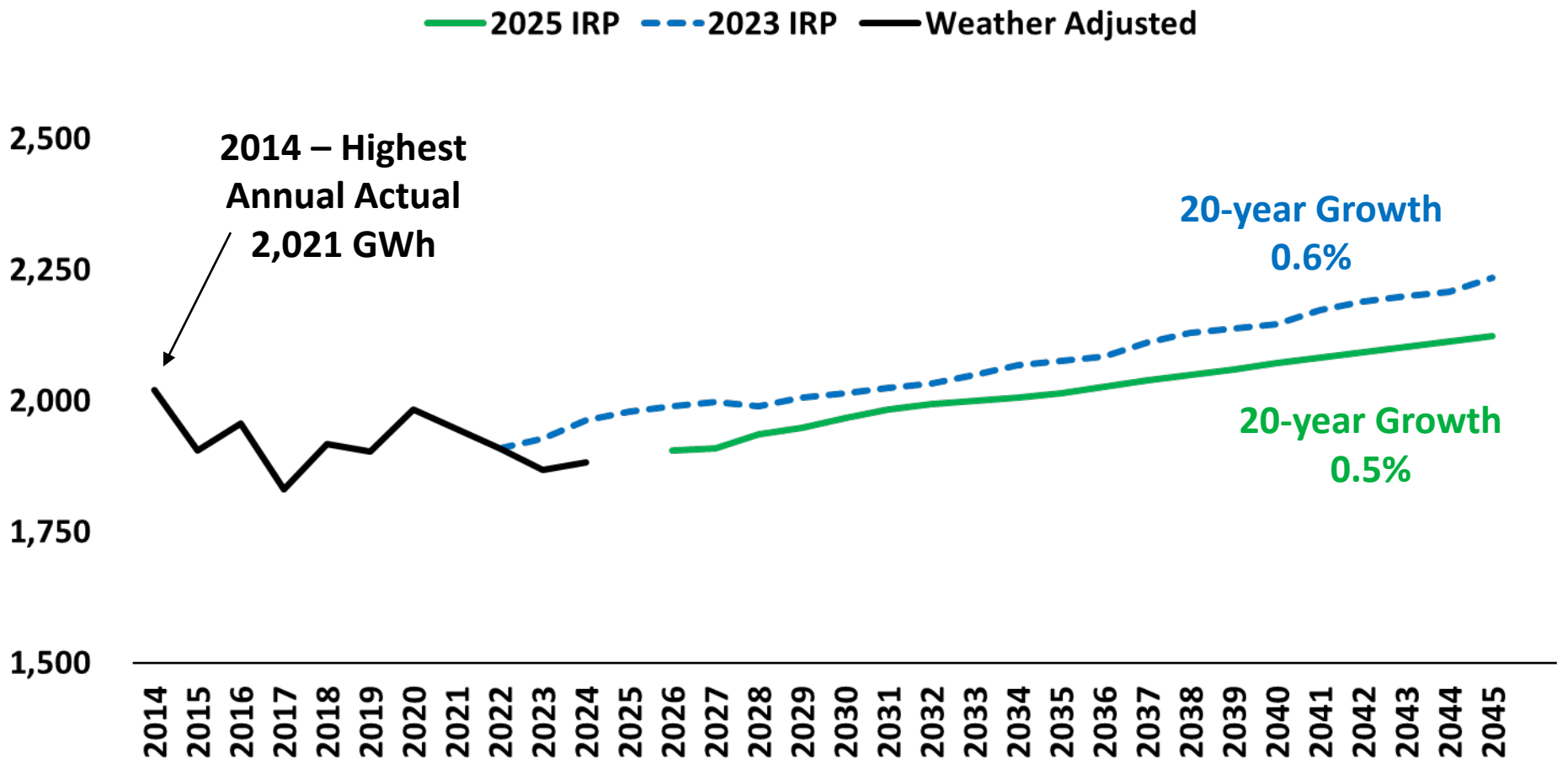
	5-yr Growth Rate	20-yr Growth Rate
2025 IRP	11.1%	3.3%
2023 IRP	8.3%	3.1%

Sectors over 2% historic growth:

- **Warehouse**
- **Office/Data Centers**
- **Dairy**
- **Base Manufacturing**

Irrigation Sales Forecast

Irrigation Sales Forecast (annual GWh)



Forecast Notes

- **Weather sensitive:** Sales can be higher or lower by 225 GWh primarily due to weather.
- Main drivers include temperatures and **precipitation**, **crop prices**, agricultural **output**, and **crop cycle water intensity** (alfalfa and corn).
- **Below 20-year trend:** As forecast places more weight on near-term results and impact from on-site generation

Customer Generation and Electrification

Onsite Generation Forecast

Onsite Generation				
Onsite Generation Forecast	**2026**	**2029**	**2034**	**2045**
Customer Count at Year End (cumulative)				
Residential	20,845	23,214	28,916	43,758
Small Commercial	447	623	985	2,085
Irrigation	344	492	809	1,821
Energy Reduction – in GWh (base 2024)				
Residential	(29)	(48)	(104)	(231)
Small Commercial	(2)	(5)	(12)	(32)
Irrigation	(11)	(31)	(42)	(60)
Total	**(42)**	**(84)**	**(158)**	**(323)**

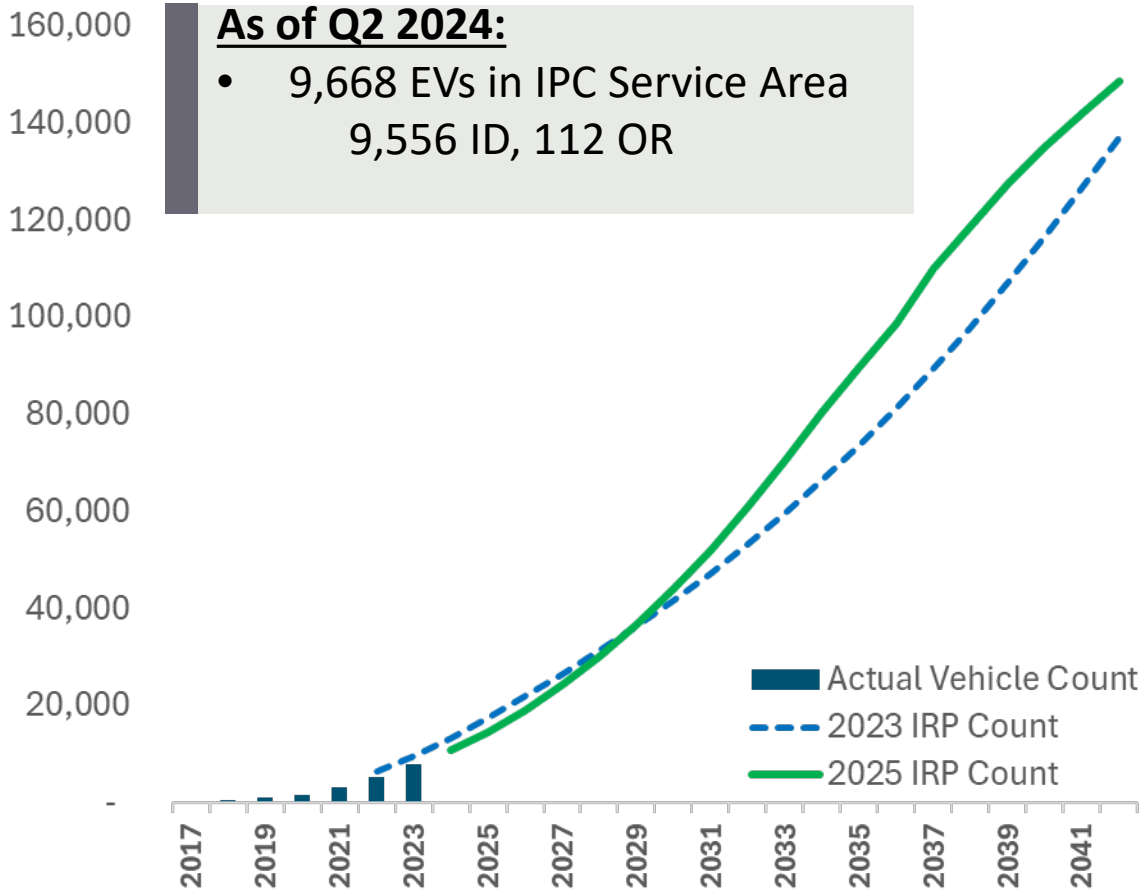
Notes:
(1) Customer count as of July 2024 for residential: 17,924
(2) Modeled the impact of onsite generation rooftop solar into the sales forecast

Vehicle Electrification in Forecast

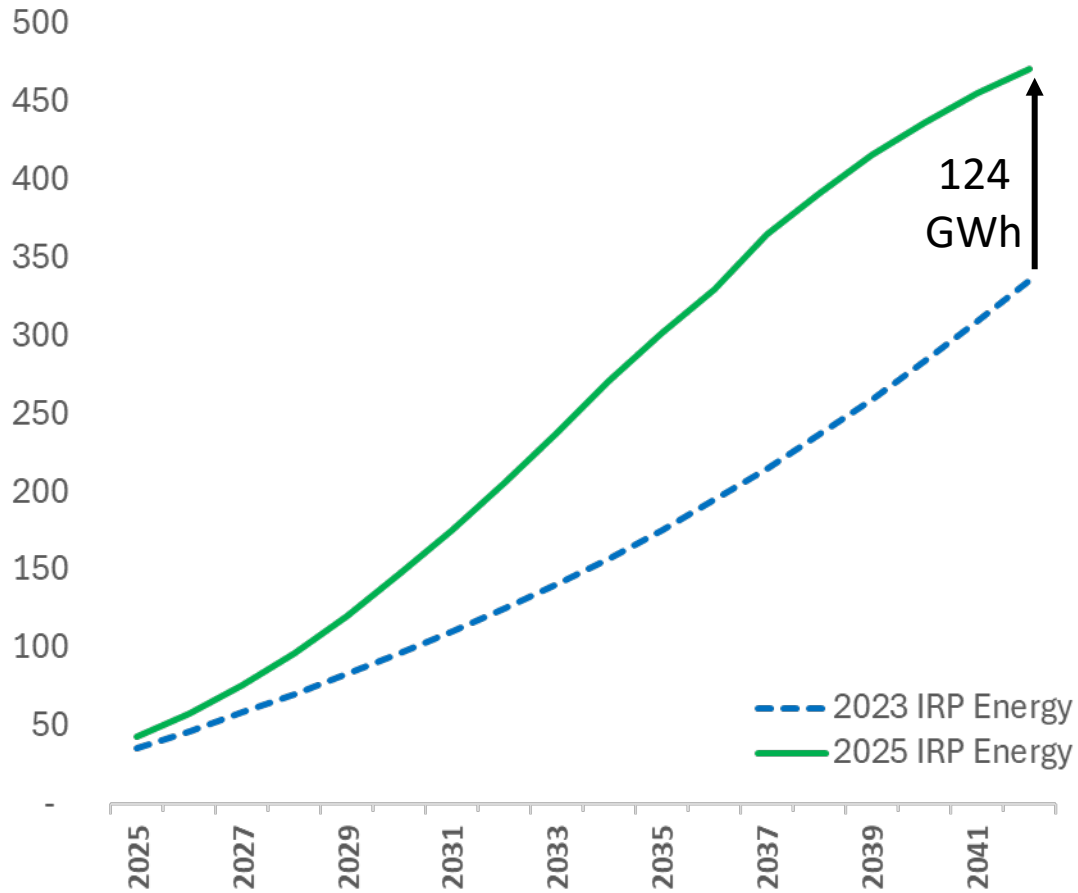
Electric Vehicle Count

As of Q2 2024:

- 9,668 EVs in IPC Service Area
  9,556 ID, 112 OR

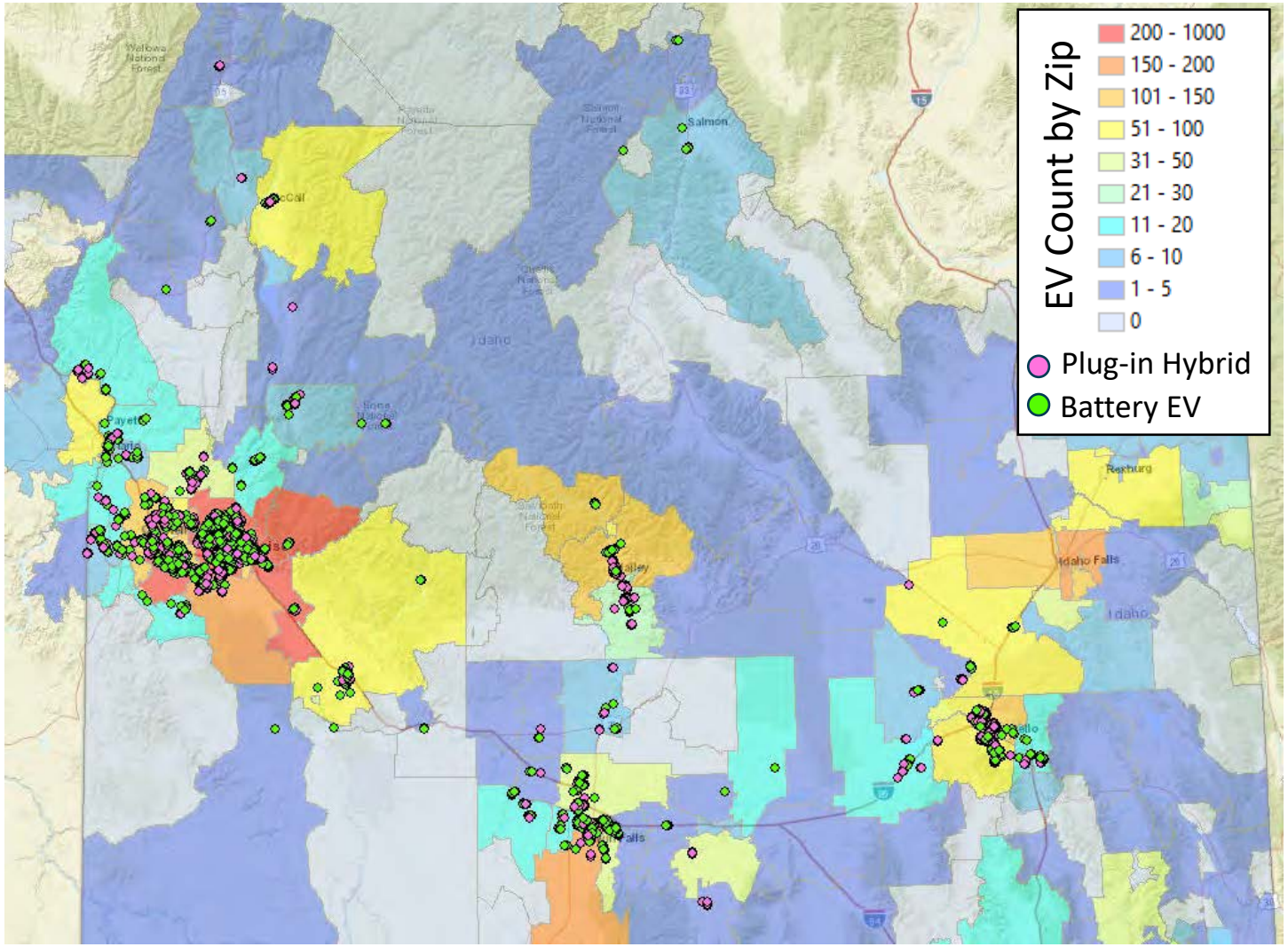


Electric Vehicle Energy (GWh)

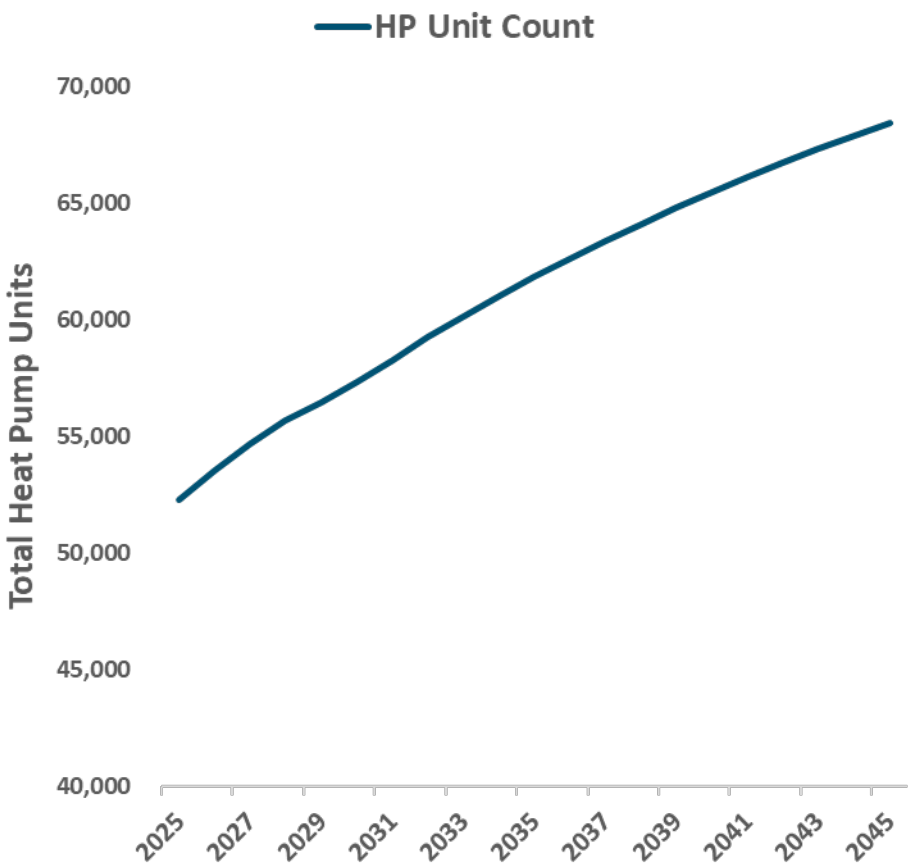


Overall Electrification Impacts

Electric Vehicle Locations



Base Residential Heat Pumps



Summary

- Idaho Power is anticipating large load growth in the near future.
  - Driven by large contract customers

- Changes from 2023 IRP results
  - Total sales forecast has increased, but ramp shifted out
  - Residential is similar, but slightly increased
    - High customer growth and ‘work from home’ has continued
  - C&I has increased largely due to changes in upcoming large contract customers.
    - More may be added as talks and studies progress
  - Irrigation slightly down

- Idaho Power continues to monitor and calculate electrification and customer generation trends and impacts.