



INTERMOUNTAIN[®]

GAS COMPANY

A Subsidiary of MDU Resources Group, Inc.

INTEGRATED RESOURCE PLAN

MAY 2, 2023

INTERMOUNTAIN GAS RESOURCE ADVISORY COMMITTEE (IGRAC)

WELCOME

- Introductions

- Name

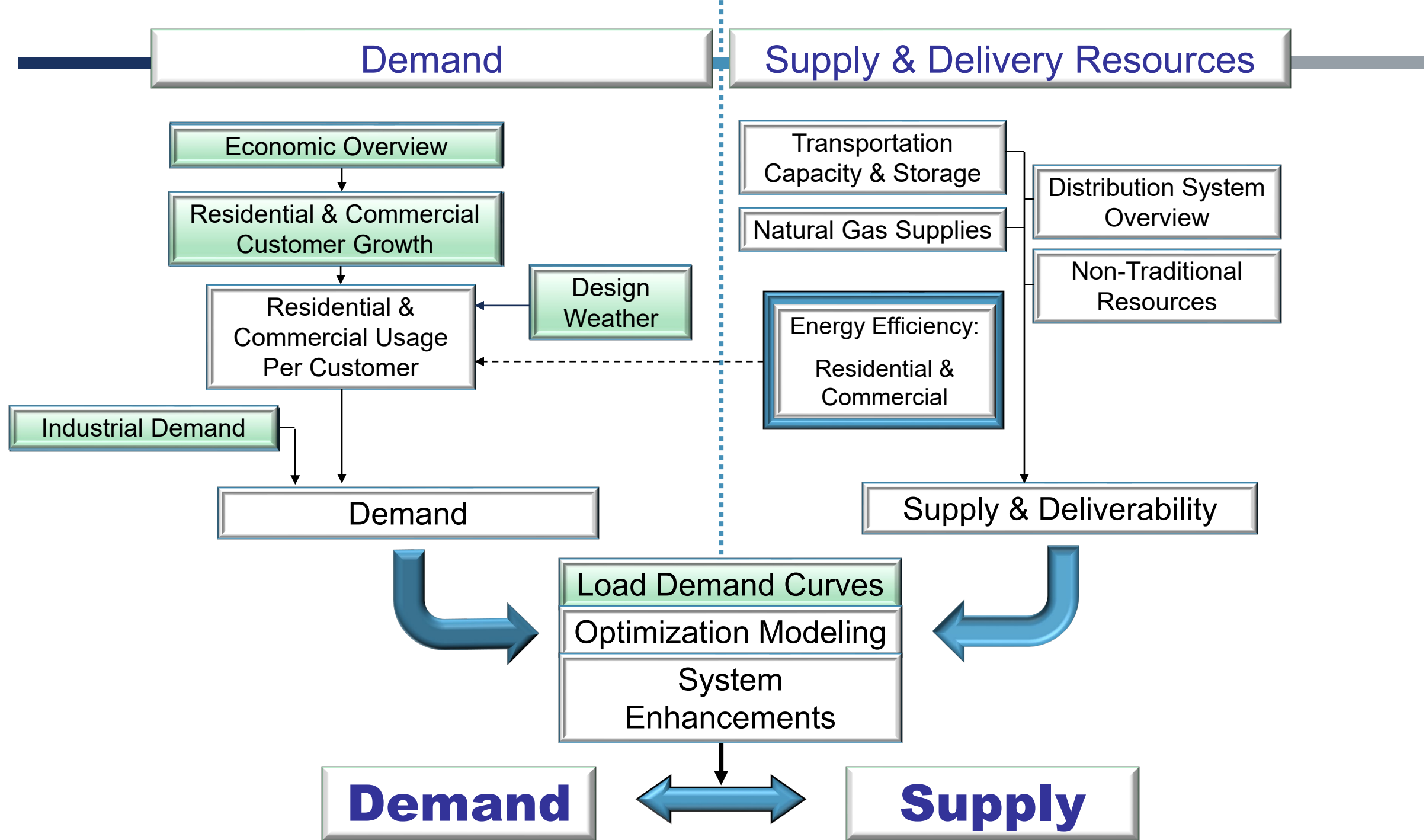
- Organization you are representing

BENEFITS OF AN IRP

- Blueprint to meet the Company's firm customer demands over a five-year forecast period based on various assumptions
- Provides frequent updates to the projected growth on the Company's system
- Considers all available resources to meet the needs of the Company's customers on a consistent and comparable basis
- Solicits input from Stakeholders during the modeling process
- Helps to ensure Intermountain Gas Company will continue to provide reliable energy service while minimizing costs

INTERMOUNTAIN GAS COMPANY

- **Integrated Resource Plan Process**



AGENDA



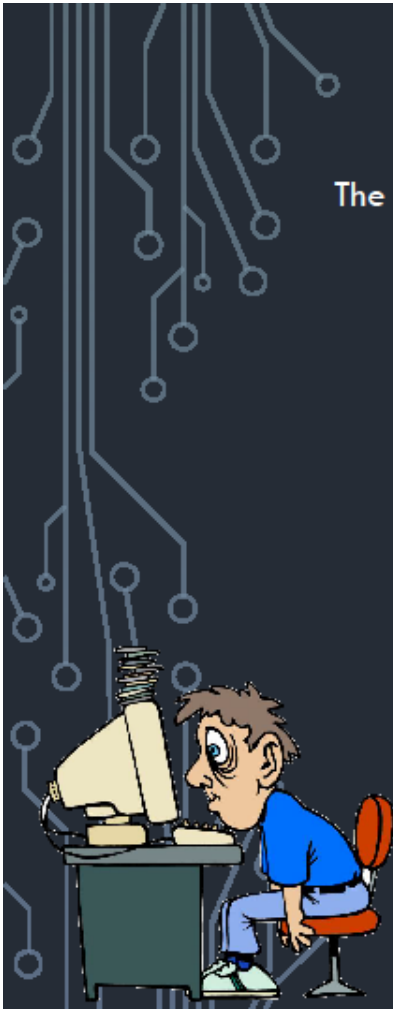
- **Welcome & Introductions** – *Brian Robertson*
- **Safety Moment & Feedback Process** – *Brian Robertson*
- **IRP Recommendations** – *Brian Robertson*
- **System Overview** – *Brian Robertson*
- **Economic Forecast**– *Brian Robertson*
- **Residential & Commercial Customer Growth** – *Brian Robertson*
- **Design Heating Degree Days** – *Min Park*
- **Industrial Customer Forecasts** – *Nicole Gyllenskog & Dave Swenson*
- **Load Demand Curves** – *Brian Robertson*
- **Questions/Discussion**

SAFETY MOMENT

Preventing Eyestrain

The National Safety Council provided several tips to take to avoid strained and tired eyes.

- Keep your screen at arm's length.
- Don't forget to blink.
- Take a break every 20 minutes by looking away at something at least 20-feet away for at least 20 seconds.
- Be mindful of lighting and glare.
- Make sure your screen isn't too bright.
- Adjust computer monitor properly.
- Increase your computer's type size.



<https://www.nsc.org/Portals/0/Documents/Membership%20Site%20Document%20Library/2018-Materials/Digital%20Signage/prevent-eyestrain.pdf?ver=2019-06-17-171635-500>

<https://www.nsc.org/LinkClick.aspx?fileticket=FYTZXV6bfDF%3d&portalid=0>

FEEDBACK SUBMISSIONS



- IRP.Comments@intgas.com
- Please provide comments and feedback within 10 days
- Intermountain IRP Webpage: <https://www.intgas.com/rates-services/rates-tariffs/integrated-resource-plan/>

2021 IRP ACKNOWLEDGEMENT AND IRP RECOMMENDATIONS

- Final Order No. 35438 – Commission Acknowledged Intermountain’s 2021 IRP Filing
- Commission Recommendations for Intermountain’s IRP Process:
 - Staff recommends that the Company quantify the effects of new building codes and the Company's energy efficiency programs and incorporate estimates into its per customer usage models.
 - Staff recommends that the Company provide Staff capacity and cost information as enhancement projects are completed and brought online.
 - Staff recommends the Company vet future CPA results for accuracy to ensure the savings estimates and assumptions are reasonable and achievable.
 - Staff appreciates the Company incorporating model validation into this IRP and encourages the Company to continue to enhance this validation process as more AMI data becomes available.
 - Staff believes the Company can continue to enhance public participation by continuing to increase members of the IGRAC, providing materials to members prior to meetings, and making IRP information available on its website.



SYSTEM OVERVIEW

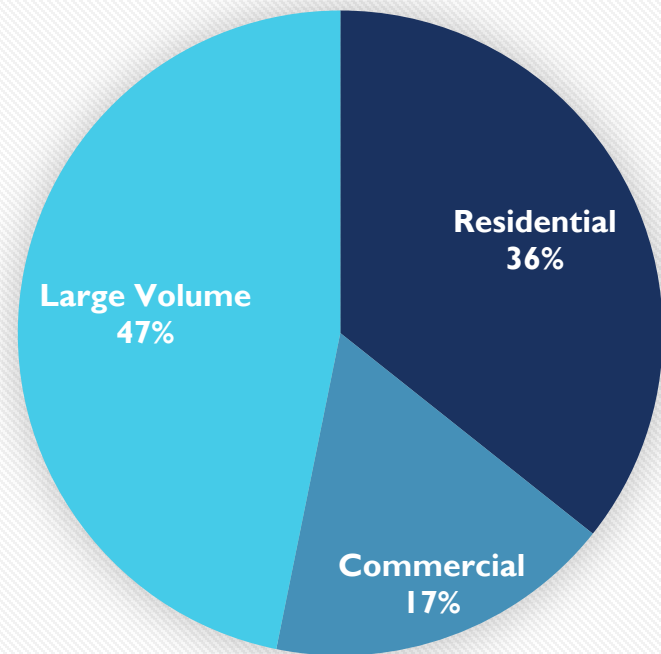
BRIAN ROBERTSON
SUPERVISOR, RESOURCE PLANNING



INTERMOUNTAIN GAS COMPANY

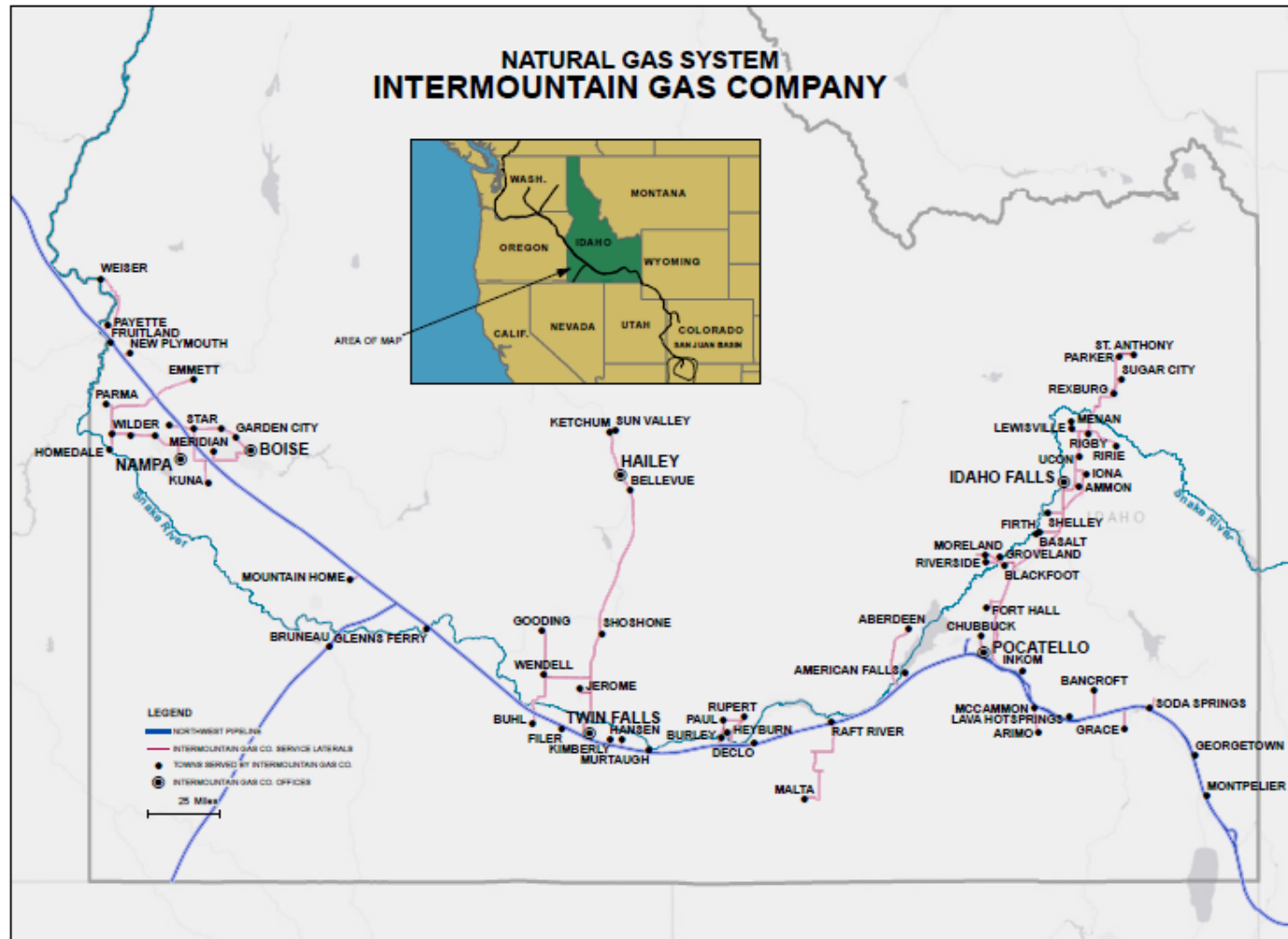
- Intermountain Gas Company is a natural gas local distribution company, founded in 1950 and served its first customer in 1956
- Provides service to 76 communities across southern Idaho
- 402,300+ customers

THROUGHPUT BY CUSTOMER CLASS



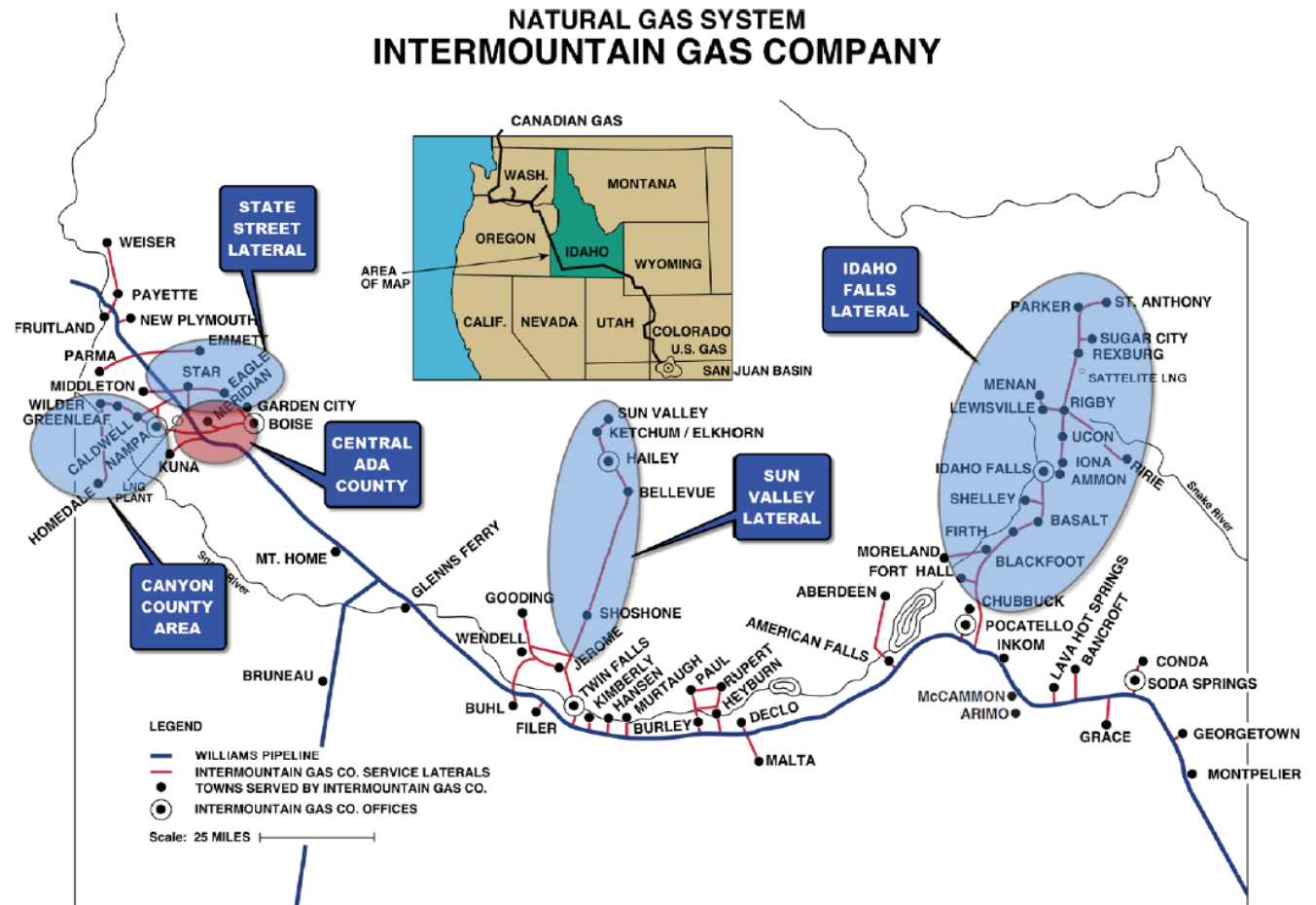
■ Residential ■ Commercial ■ Large Volume

INTERMOUNTAIN GAS COMPANY DISTRIBUTION SYSTEM

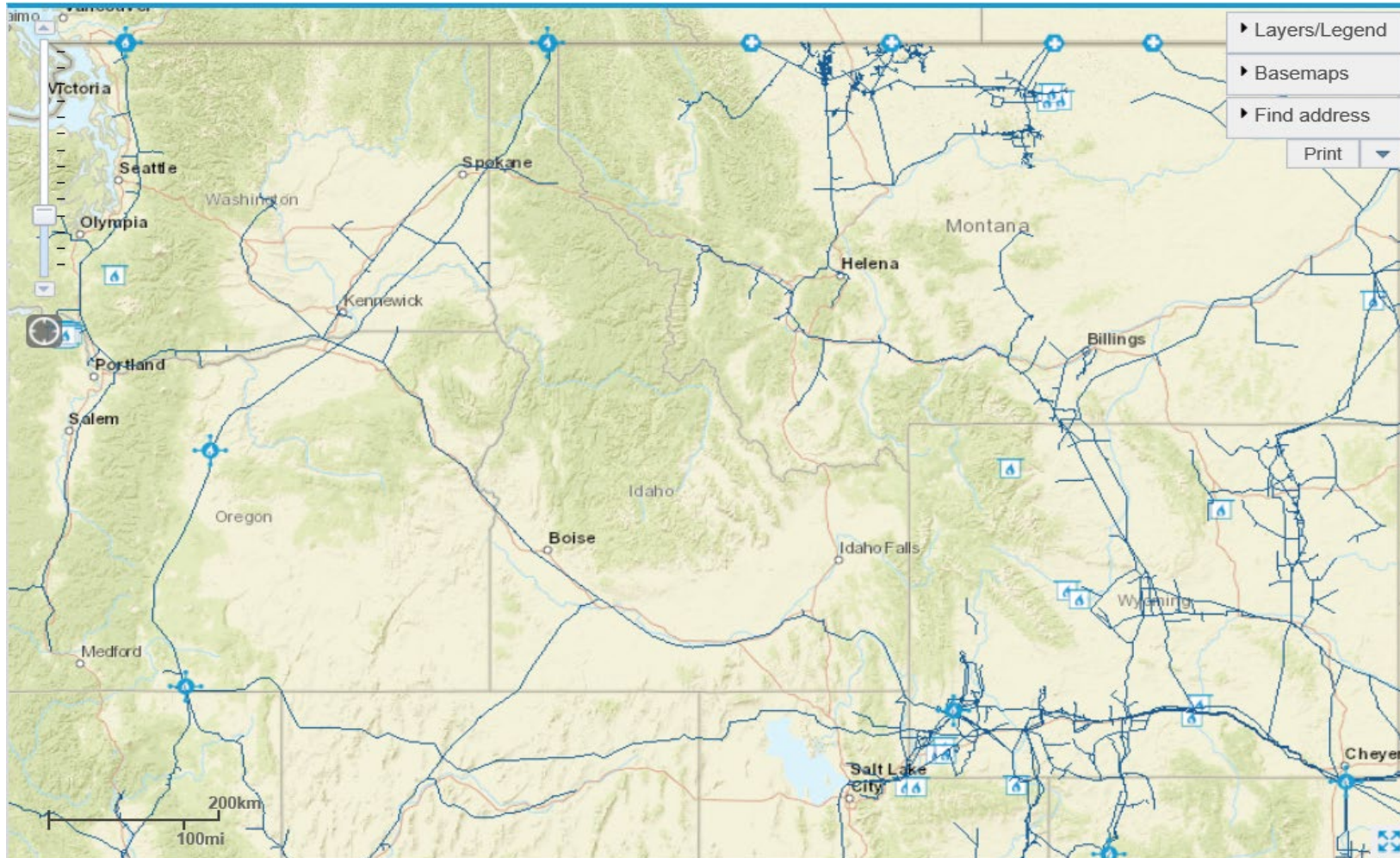


AREAS OF INTEREST (AOI)

- Distribution System Segments:
 - Canyon County
 - Central Ada County Lateral
 - North of State Street Lateral
 - Sun Valley Lateral
 - Idaho Falls Lateral
 - All Other Customers



REGIONAL PIPELINES



ECONOMIC FORECAST

BRIAN ROBERTSON

WOODS & POOLE ECONOMICS, INC. Regional Projections

The methods used by Woods & Poole to generate the county projections proceed in four stages.

- First, forecasts to 2050 of total United States personal income, earnings by industry, employment by industry, population, inflation, and other variables are made.
- Second, the country is divided into 179 Economic Areas (EAs) as defined by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). The EAs are aggregates of contiguous counties that attempt to measure cohesive economic regions in the United States.
- The third stage is to project population by age, sex, and race for each EA on the basis of projected net migration rates. For stages two and three, the U.S. projection is the control total for the EA projections.
- The fourth stage replicates stages two and three except that it is performed at the county level, using the EAs as the control total for the county projections.

Idaho Economic Forecast

for the State of Idaho and the Counties in Idaho

Future household growth, which is the key driver for future residential customer growth is modeled as a function of total population (less those individuals in group quarters), and general economic conditions in the state.

In brief: good or improving economic conditions will speed up the rate of household growth, however worsening or declining economic conditions will slow the rate of household formation and, in turn, slow the rate of household growth.

Idaho Economic Forecast

The Great Recession of 2008 brought about a significant decline in Idaho's nonagricultural employment. From year-end 2007 through 2010 Idaho nonagricultural employment decreased by 7.9%, a loss of 51,500 jobs. The effects of 2008 – 2010 recession were relatively long lasting. Total nonagricultural employment in the state attained an annual average of 654,700 in 2007. It took 7 years, until the year 2014, for nonagricultural employment in the state reach prerecession levels.

Since 2014 Idaho's economy has regained its economic footing. Total nonagricultural employment in the state surged upward gaining nearly 105,000 jobs in five years – an annual average pace of 3.0% per year. During those five years Idaho was consistently ranked among the 5 fastest growing states in the nation.

Idaho Economic Forecast

The COVID-19 Pandemic & Idaho's Economic & Population Growth:

In 2020 the COVID-19 pandemic brought Idaho's economic growth to a halt. From February 2020 to April 2020 nonagricultural in Idaho declined by 9.8% - a decrease of 74,300 jobs in a period of two months. This was a much sharper and steeper economic decline than that experienced in the 2008 Great Recession.

Initial expectations were that an economic recovery could be a long and tedious process. However, the latest economic statistics seem to indicate that that may not be the case in Idaho. The growth in Idaho's population was a driving force in Idaho's economic growth prior to the pandemic and continues today. Population growth in the state has brought new jobs to the state and spurred on construction and trade employment in the state.

Idaho Economic Forecast

The COVID-19 Pandemic & Idaho's Economic & Population Growth:

Some statistics:

While Idaho's non-ag employment declined by nearly 74,000 in two months, construction employment in the state continued to grow – up 5.2% (about 1,800 jobs) at year-end 2020 when compared to year-earlier levels. Non-ag employment has since rebounded to expected levels beginning mid-2021.

Total population in Idaho has increased at a robust pace since 2010. Through 2019 the US Census Bureau estimates that Idaho's population increased by 219,500 (14.0% - a annual average increase of 2.0% per year over the 2010 to 2019 period). These increases are overwhelmingly due to a robust in-migration to Idaho. A 2.0% annual average rate of population growth, minus a natural population growth rate of 0.42% per year, leaves an annual average population increase of 1.58% per year (about 28,000 persons per year) due to in-migration.

Idaho Economics Winter 2020 Economic Forecast

The COVID-19 Pandemic & Idaho's Economic & Population Growth:

The COVID – 19 pandemic has not yet slowed Idaho's population growth. Per the US Census Bureau, Idaho was ranked as the fastest growing state in the nation during 2020. This has only continued into 2021 and 2022, as Idaho's population grew 2.98% and 1.82%, respectively. Idaho was the fastest growing state in 2020 and 2021, and the second fastest growing state in 2022.

What is origin of Idaho's population in-migration? Statistics indicate that California is the major source of Idaho's current population growth. The pandemic has accelerated that pace of out-migration. The latest US Census Bureau estimates California's 2022 population decreased nearly 114,000 last year. Over the last 2 years the Census Bureau has estimated that approximately 236,000 persons per year have left California.

And Then There is Idaho's Population Growth

The Base Case Economic Forecast assumes a normal amount of economic fluctuation and normal business cycles it is the “best estimate” of future economic activity in the State and its forty four counties.

The High Growth Scenario assumes a more rapidly growing economy -- similar to the growth that Idaho experienced in the 1990s.

The Low Growth Scenario assumes a period of slower economic growth for the State of Idaho with fewer employment opportunities in the future. In turn, slower economic growth will slow the rate of population growth in the state by decreasing population in-migration (or causing a population out-migration) and slowing the rate of future household growth in the state.

The Economic Forecast

In the 2023 - 2030 Forecast Period Idaho's Economy will experience:

An annual average increase in Nonagricultural employment of 2.5% per year, adding nearly 709,500 jobs to the State's payrolls.

Population growth averaging 1.13% per year over the 2023 - 2030 forecast period with, by the year 2030, the State's population nearing 2,020,700. Ada and Canyon counties are projected to attain a total population of 844,000 in the year 2030.

The Economic Forecast

Nonagricultural employment in Idaho is expected to increase by nearly 120,000 over the 2023 to 2030 forecast period. But some industries will fare better than others:

Agriculture is projected to remain steady with only gaining a modest 600 additional statewide jobs by 2030.

Similarly, the Mining industry is expected to gain only an 300 jobs statewide by the year 2030.

Manufacturing employment in Idaho is predicted to increase at an annual average rate of 0.53% per year over the 2023 - 2030 period for an absolute gain of nearly 3,000 jobs from the 2022 employment levels.

The Economic Forecast

The Transportation, Wholesale and Retail Trade, and the Utilities industries are expected to post annual average employment gains of 0.94% per year over the 2023 to 2030 period producing an absolute gain of close to 12,700 new jobs in the State.

Employment in the Finance, Insurance, and Real Estate Industries is expected to increase by 19,000 over the 2023 - 2030 period -- an annual average increase of 2.3% per year.

The Economic Forecast

The Service Industries in Idaho are expected to be the fastest growing in terms of employment growth over the 2023 to 2030 period –

Employment in the Professional and Technical Services category is forecasted to increase by 10,600 over the 2023 - 2030 period -- an annual average increase of 1.9% per year.

Education and Health Services employment in the State is forecasted to increase by 31,360 over the 2023 - 2030 period -- an annual average increase of 2.8% per year.

The Economic Forecast

Idaho employment in the Leisure and Hospitality Industries is forecasted to increase by nearly 16,700 over the 2023 - 2030 period -- an annual average increase of 2.0% per year. Lastly, employment in the category of Other Services is projected to increase by 6,200 over the 2023 - 2030 period -- an annual average increase of 1.5% per year.

In total, Idaho Service Industry Employment is projected to increase by 22,900 over the 2023 to 2030 period – 60.6% of the overall increase in Non-Ag employment in the State over the forecast period.

Government employment is predicted to increase at an annual average rate of 0.8% per year over the 2023 - 2030 period with a net gain of nearly 7,000 jobs statewide.

The Economic Forecast

QUESTIONS ?

A close-up, high-angle shot of a watch face. The watch has a dark, possibly black or dark grey, dial with silver-toned hands and hour markers. The watch case is visible at the top and right edges, appearing to be made of a polished metal. The background is dark and out of focus. At the top of the image, there are three horizontal bars of varying lengths and shades of blue. A dark blue rectangular box with a thin white border is positioned at the bottom left, containing the text "10 MINUTE BREAK" in white, uppercase, sans-serif font.

10 MINUTE BREAK



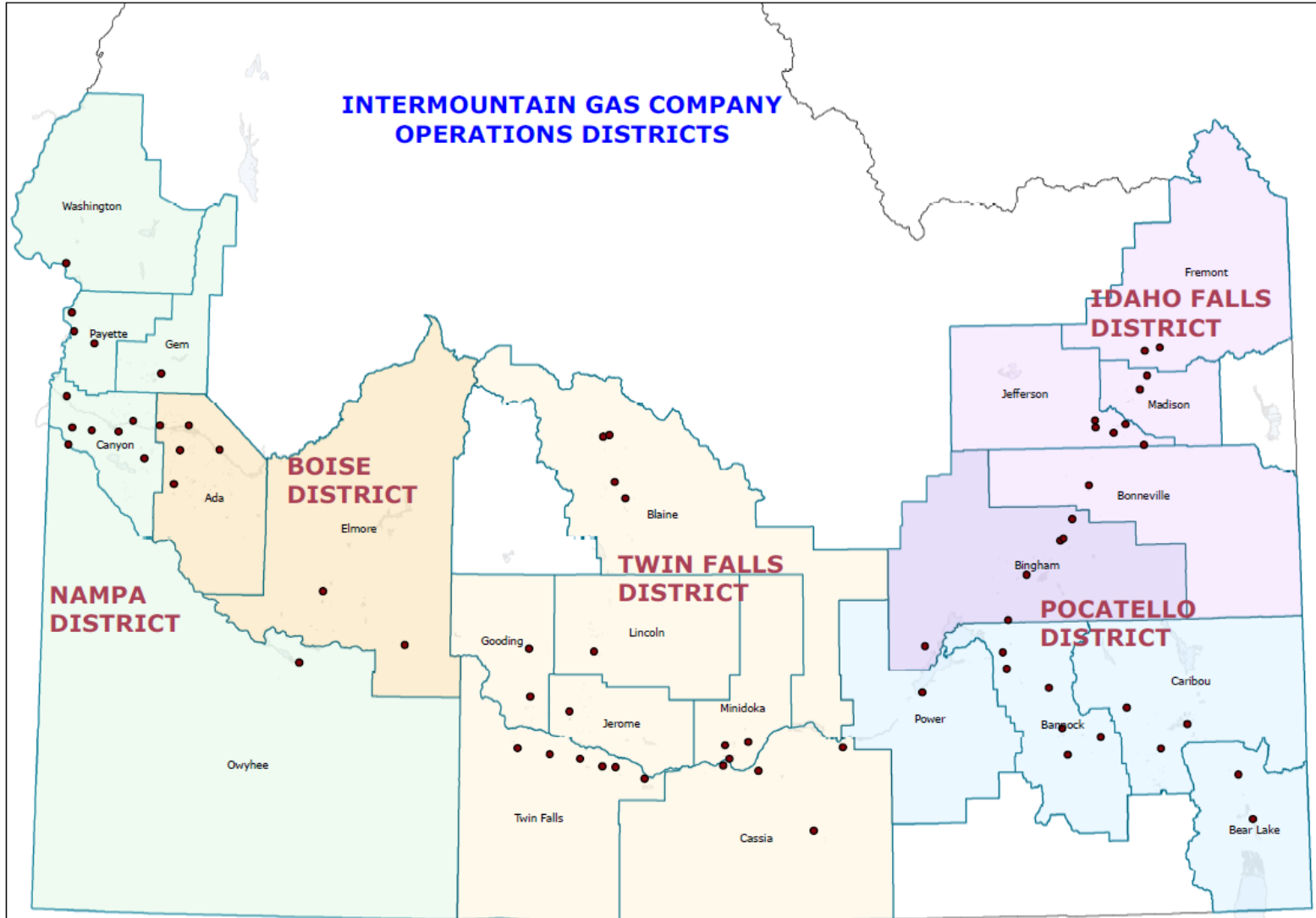
RESIDENTIAL & COMMERCIAL CUSTOMER GROWTH

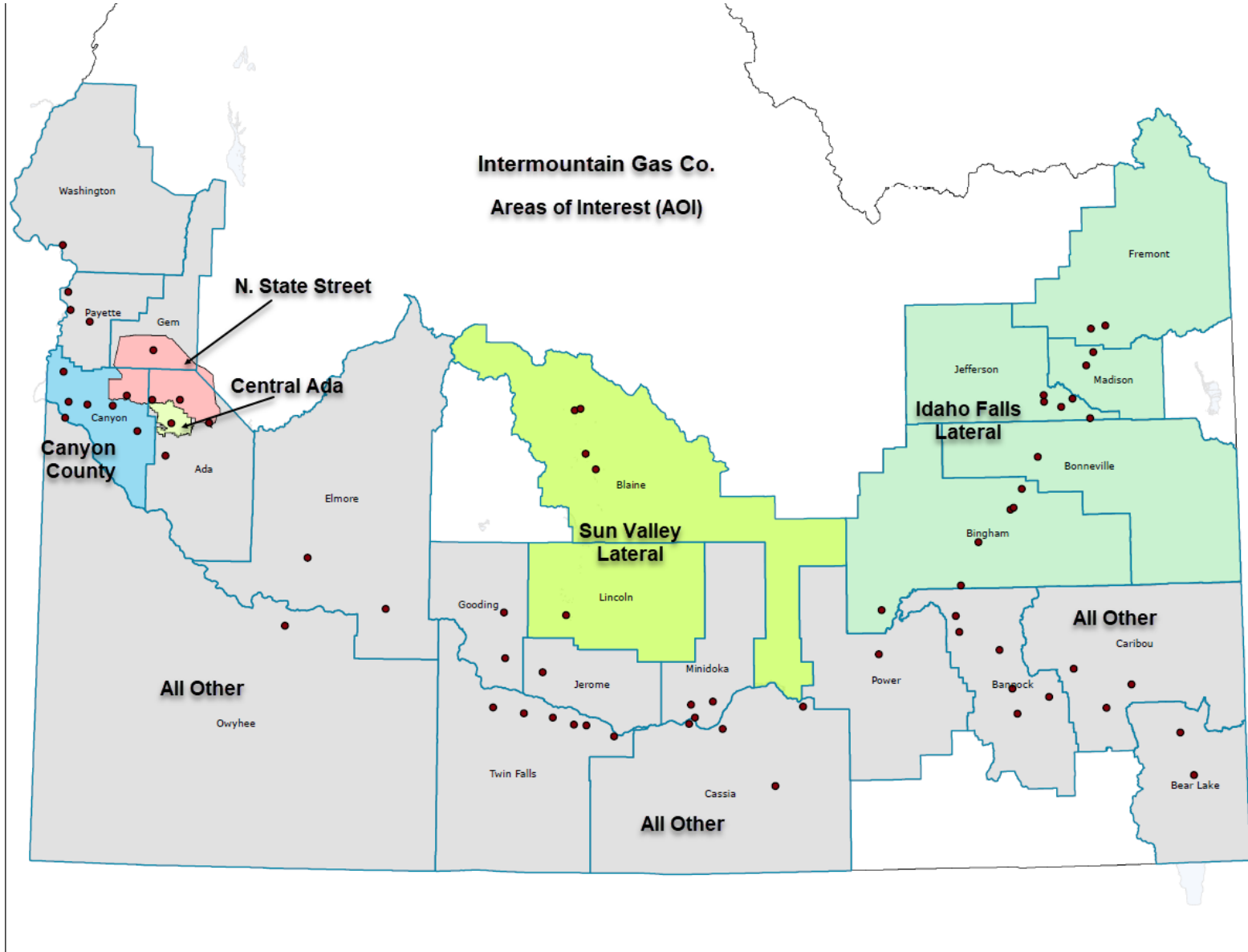
BRIAN ROBERTSON

SUPERVISOR, RESOURCE PLANNING



**INTERMOUNTAIN GAS COMPANY
OPERATIONS DISTRICTS**





**AOI
GROWTH
RATE**

FORECAST INPUTS

Year	County	Population	Employment
2023	ADA	511.806	375.903
2023	BANNOCK	89.713	50.571
2023	BEAR LAKE	6.093	3.545
2023	BINGHAM	47.651	23.78
2023	BLAINE	23.738	22.917

← Woods and Poole Data

Historic Actual Customer Counts →

Residential	2015	2015	2015	2015	2015	2016	2016
	8	9	10	11	12	1	2
Ada	135420	135729	136271	136864	137502	137814	138092
Bannock	20637	20660	20767	20911	21057	21112	21148
Bear Lake	1157	1160	1159	1165	1170	1171	1170
Bingham	7160	7169	7206	7251	7330	7349	7364
Blaine	9783	9793	9805	9851	9876	9885	9898

FORECASTING COMPONENTS

- Economic Forecast – State of Idaho

- $C^{CG,Class} = \alpha_0 + \alpha_1 Pop^{CG} + \alpha_2 Emp^{CG} + Fourier(k) + ARIMA \in (p,d,q)$

- Model Notes:

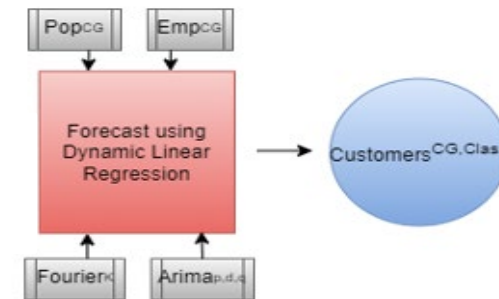
- C = Customers; CG = County; Class = Residential, Commercial, Industrial, or Interruptible; ARIMA $\in (p,d,q)$ = Indicates that the model has p autoregressive terms, d difference terms, and q moving average terms; Pop = Population; Emp = Employment; Fourier(k) = Captures seasonality of k number of seasons.

- Start with Linear Model

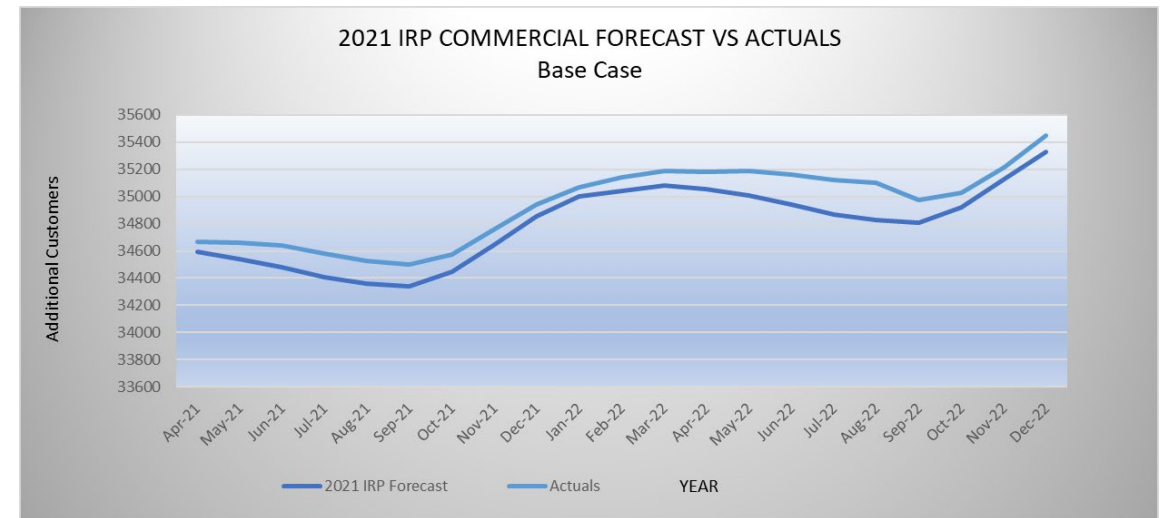
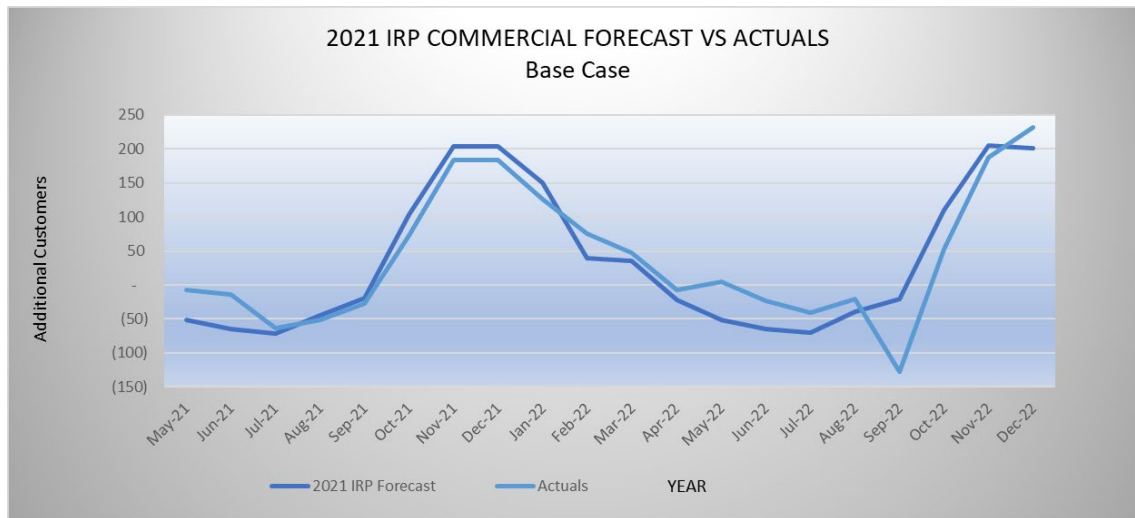
- Some are Naïve models

- Tests for any collinearity

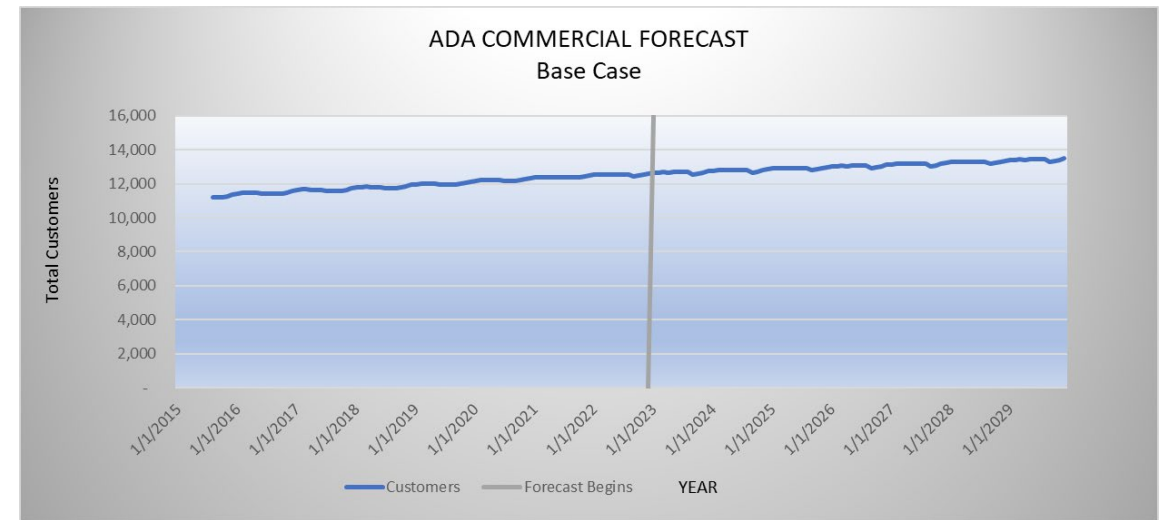
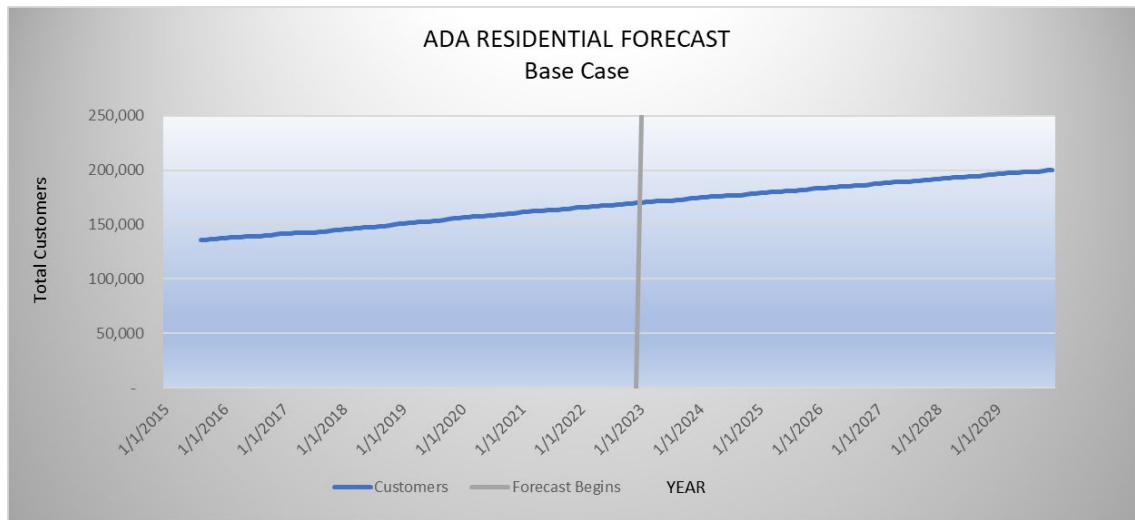
- ‘Boots-on-the-Ground’ Observations/Feedback



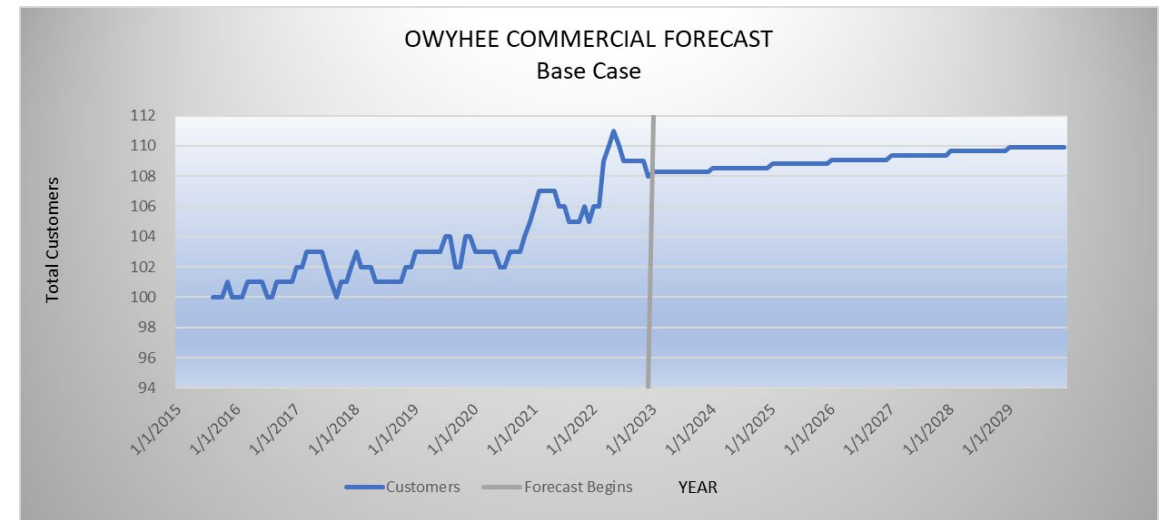
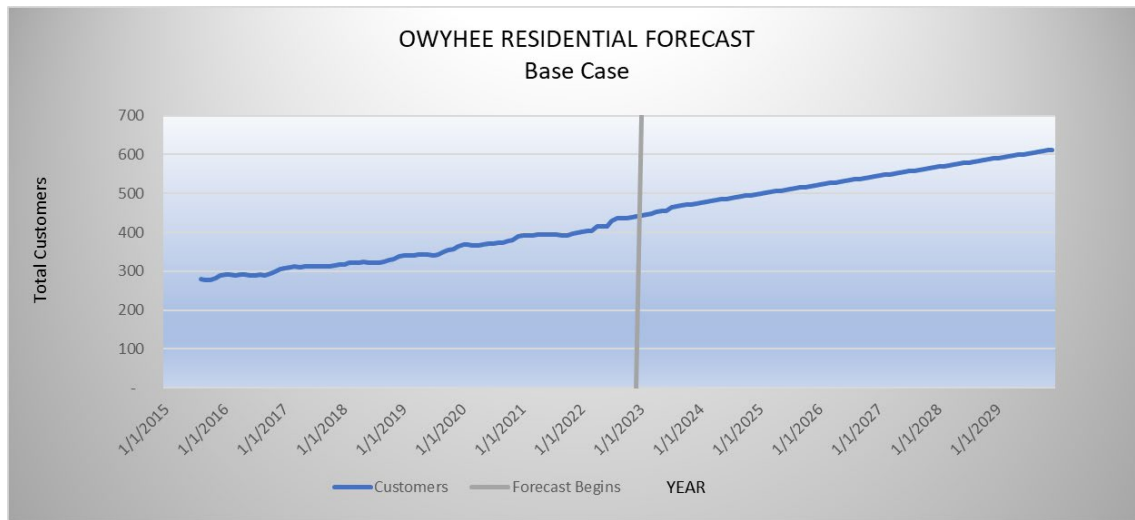
2021 IRP COMMERCIAL FORECAST VS ACTUALS



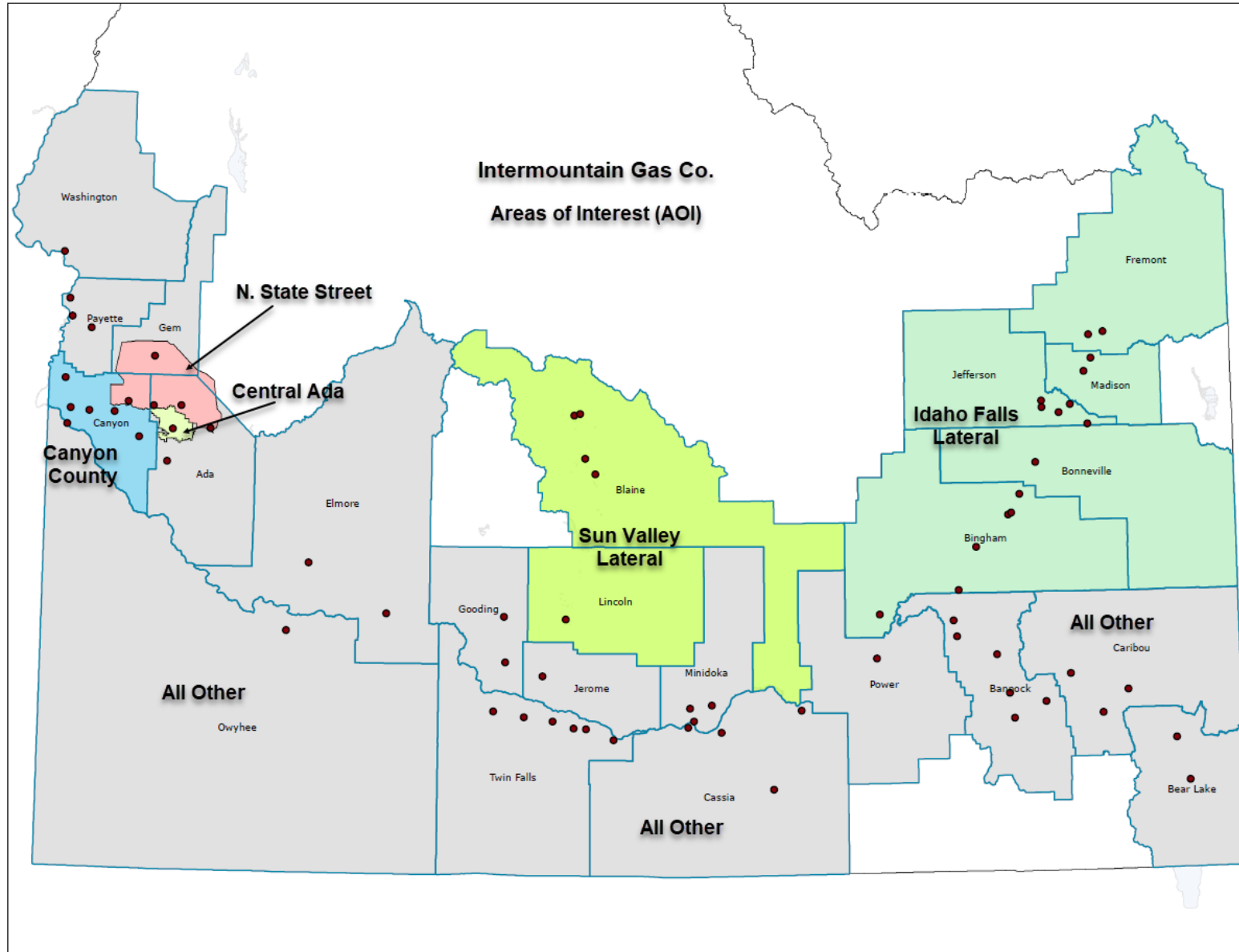
ADA COUNTY CUSTOMER FORECAST



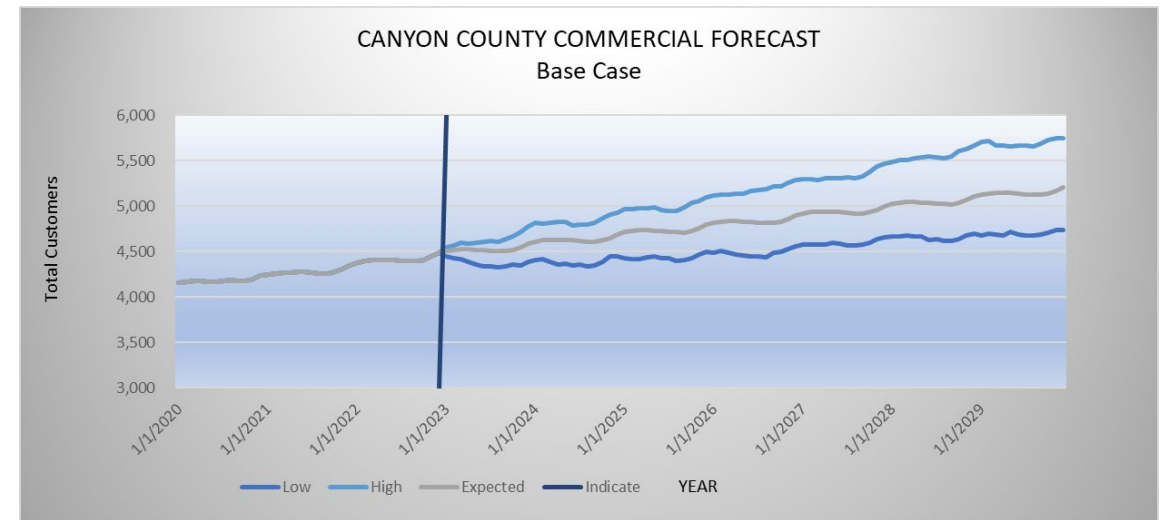
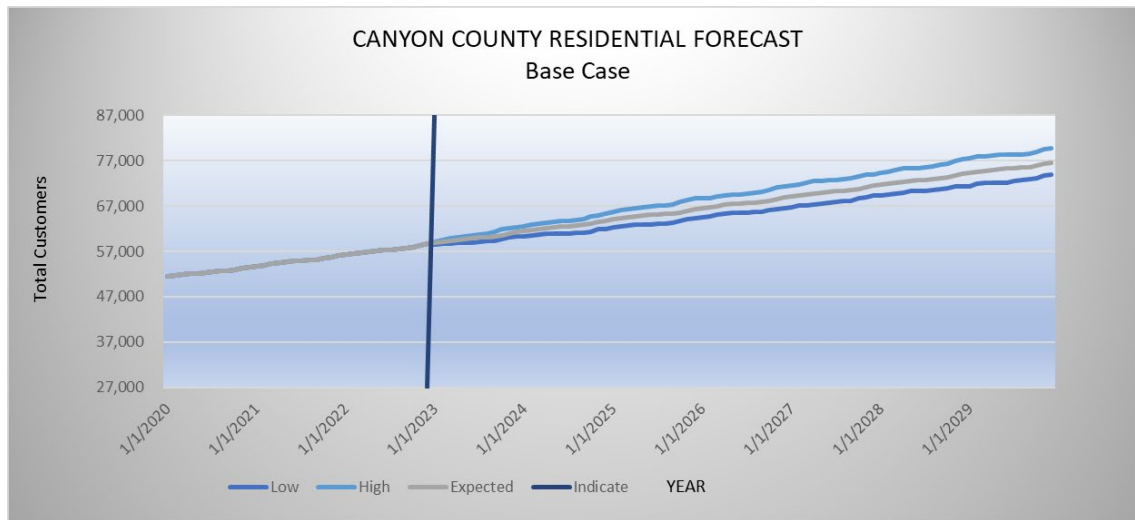
OWYHEE COUNTY CUSTOMER FORECAST



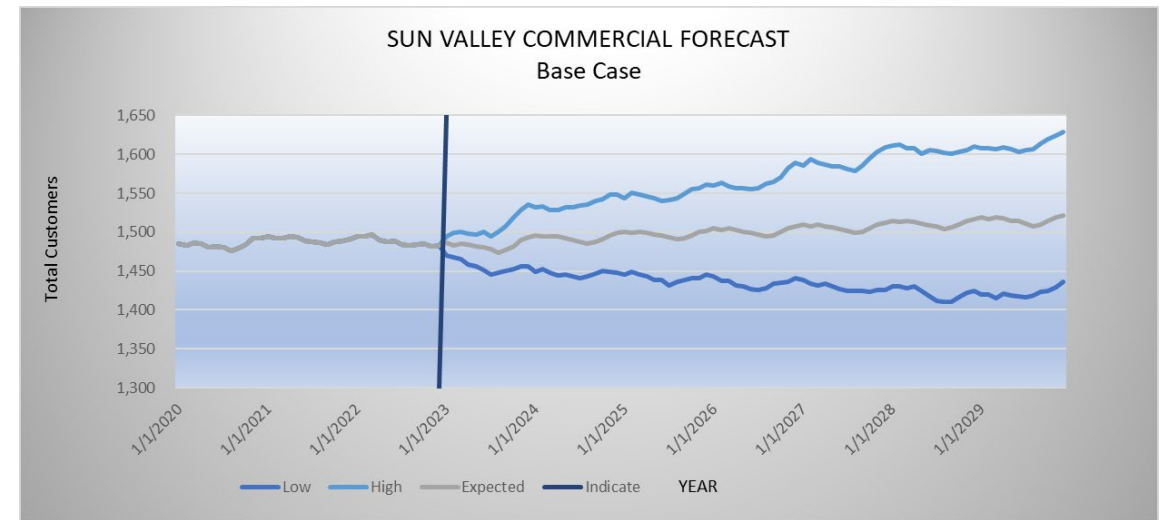
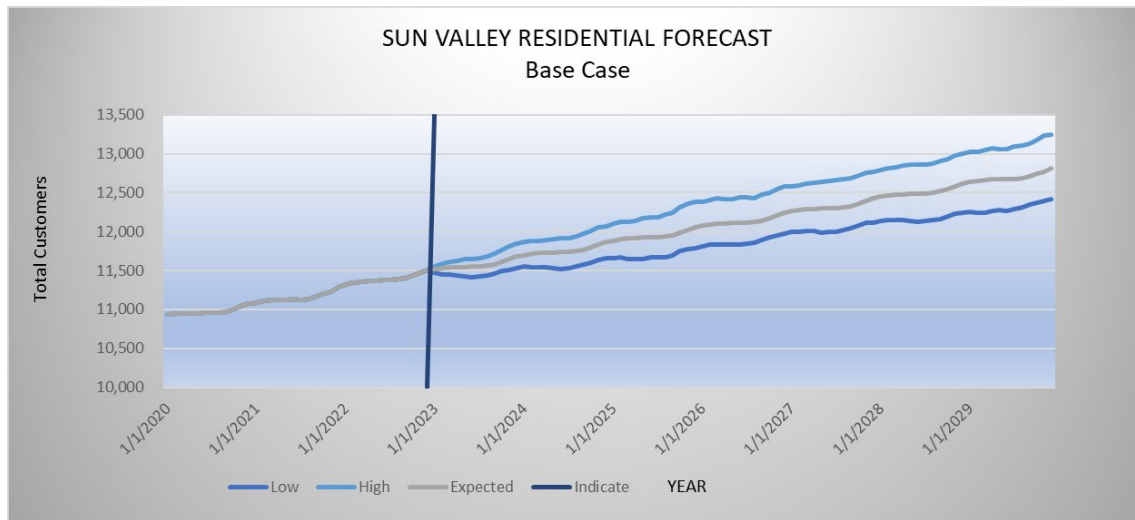
FORECASTING GROWTH-AREAS OF INTEREST (AOI)



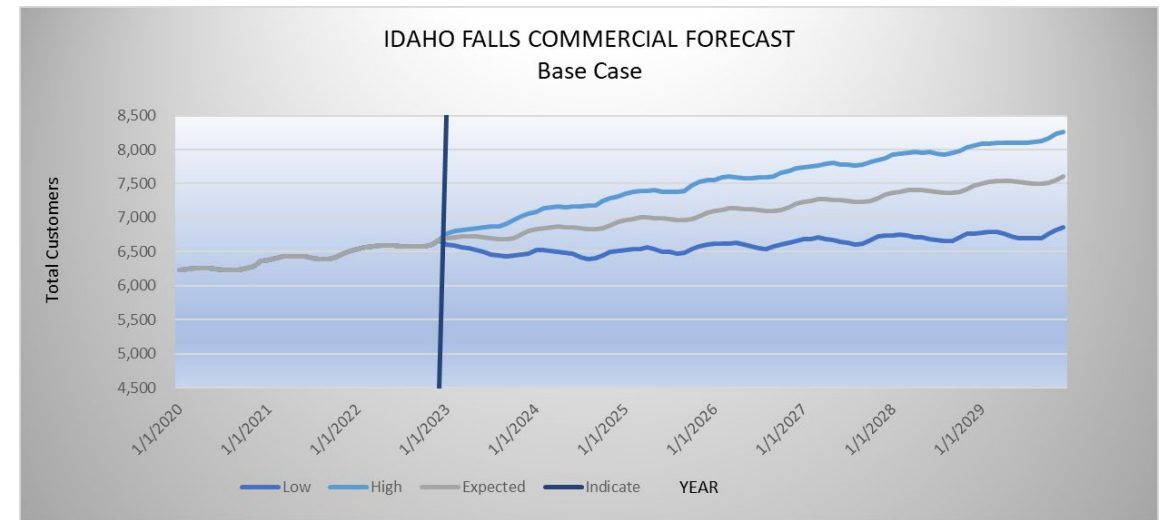
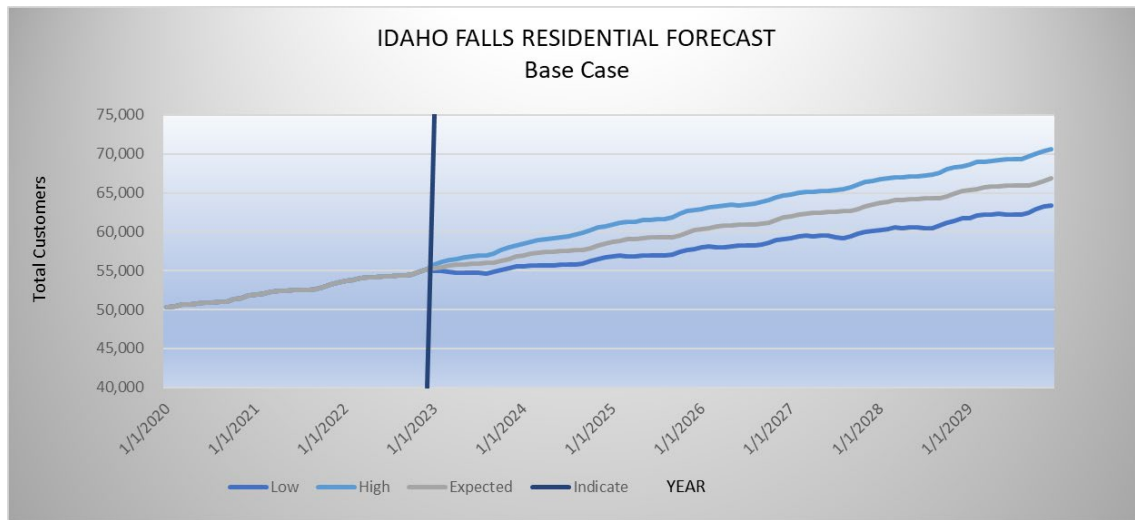
CANYON COUNTY CUSTOMER FORECAST



SUN VALLEY CUSTOMER FORECAST



IDAHO FALLS CUSTOMER FORECAST

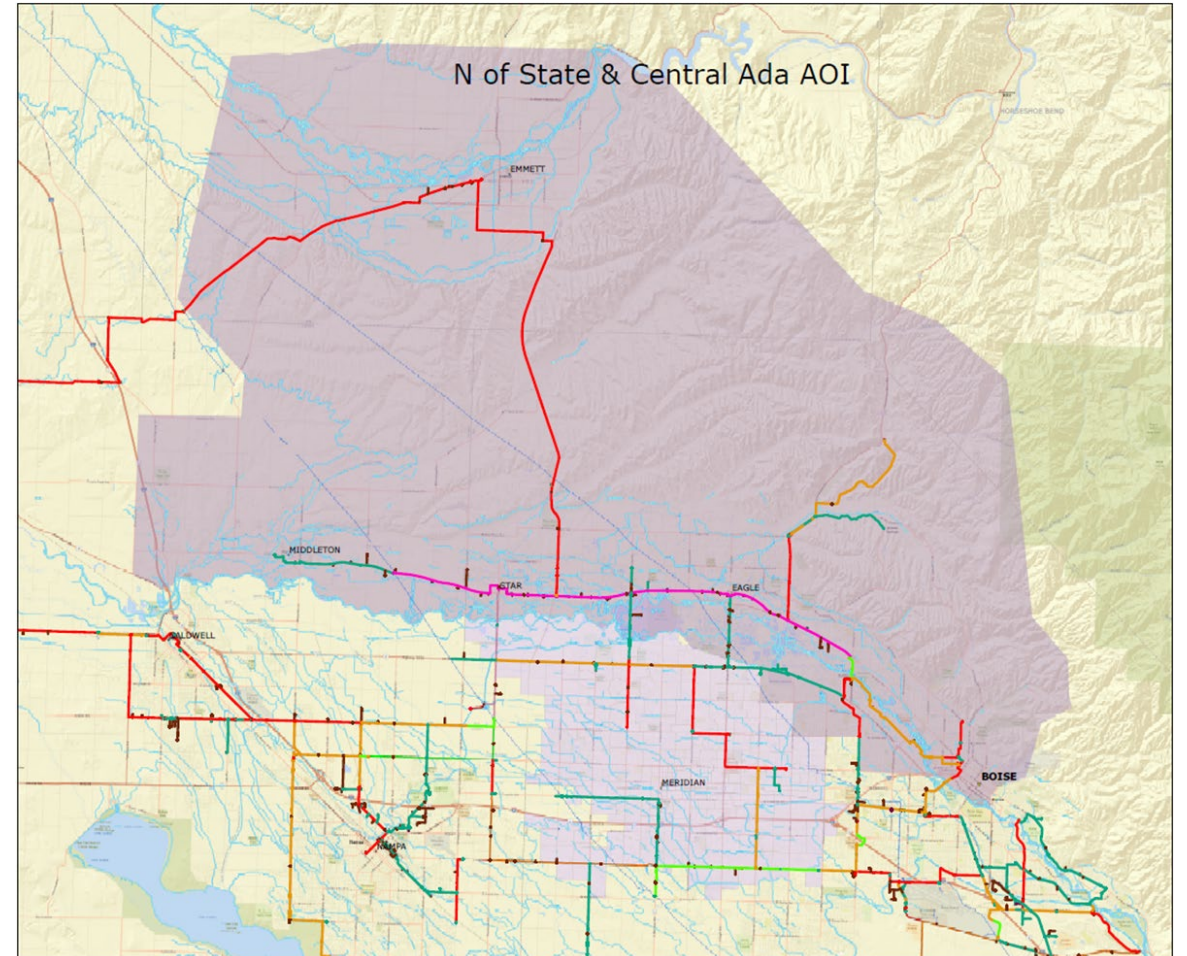


N. OF STATE & CENTRAL ADA

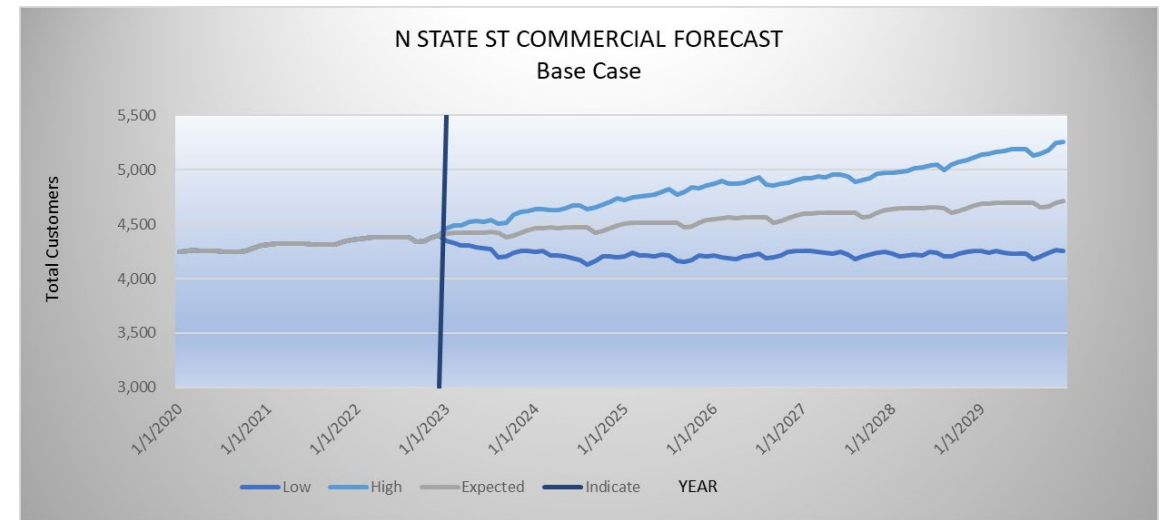
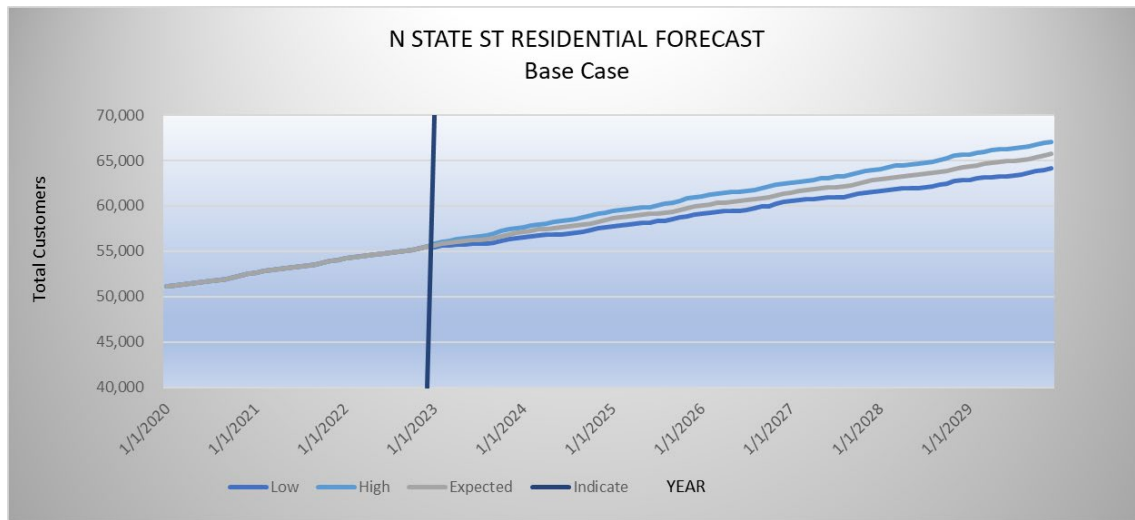
AREAS OF INTEREST

GIS Shape File of AOI's

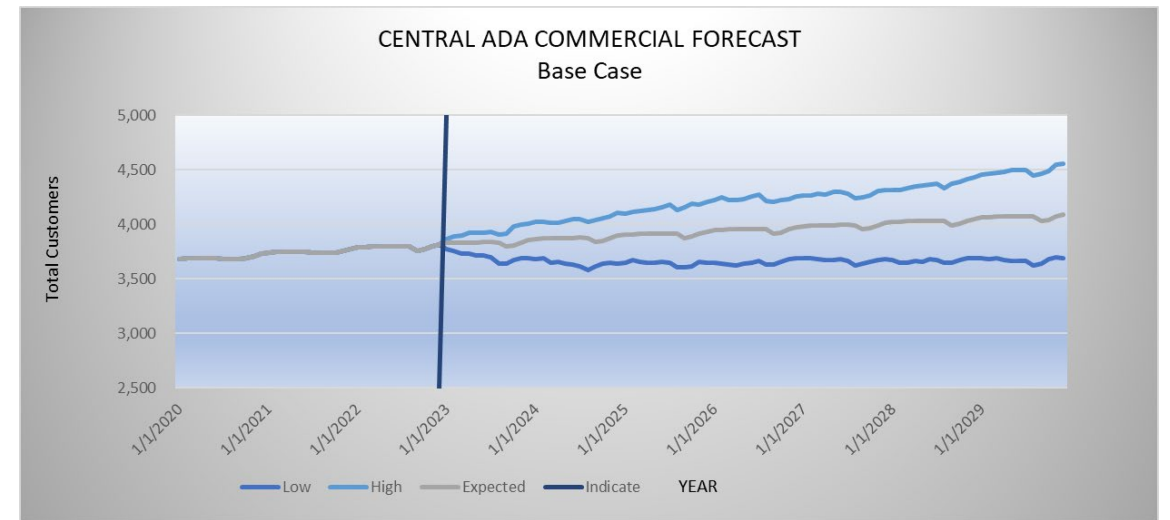
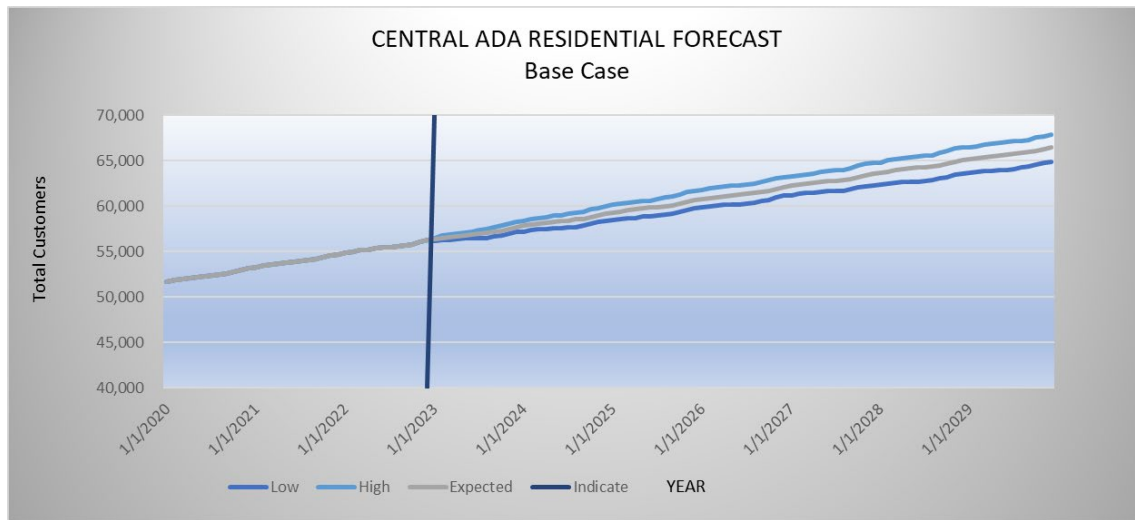
N of State Street & Central Ada



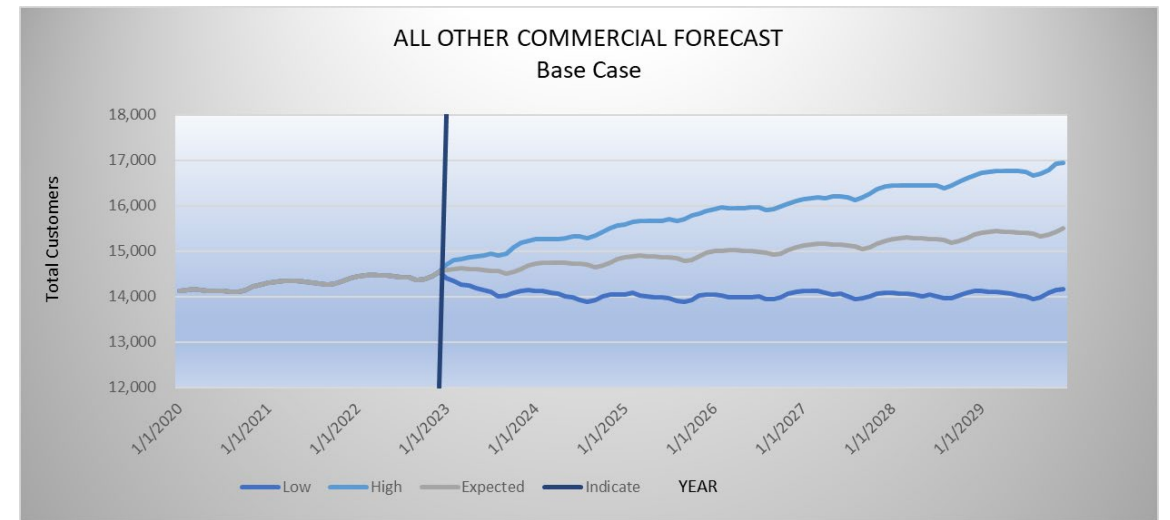
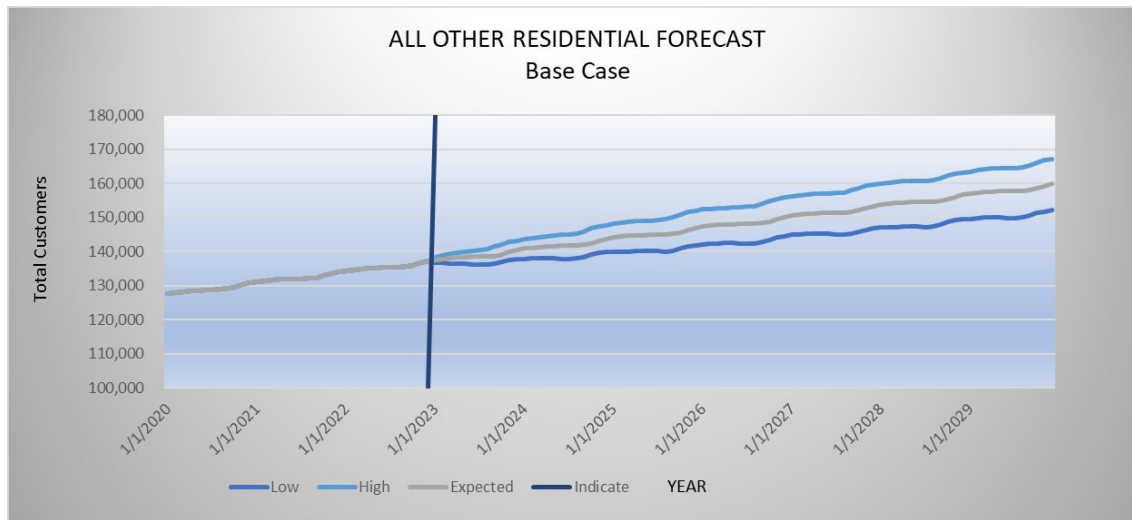
N STATE ST CUSTOMER FORECAST



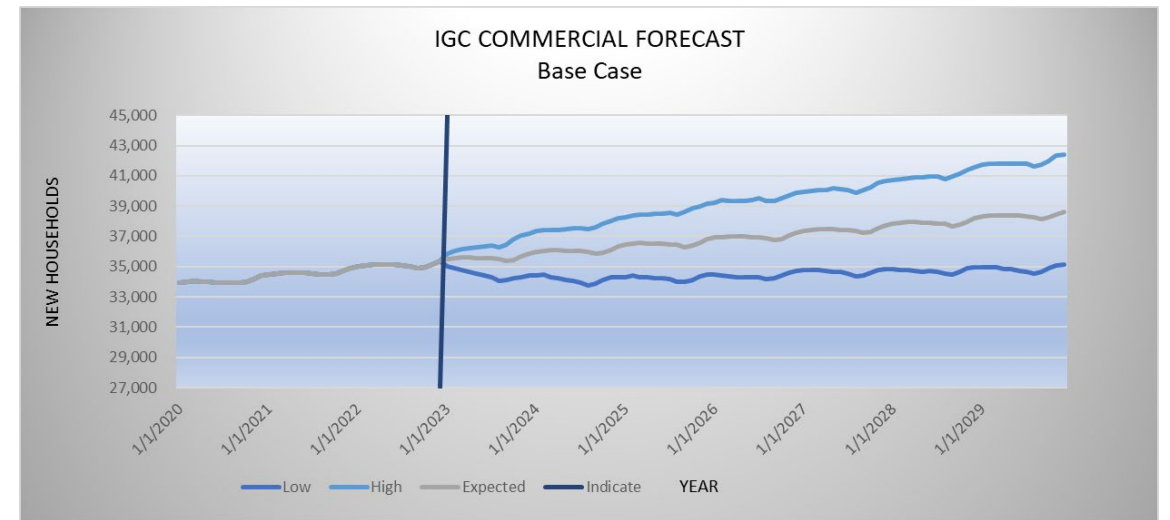
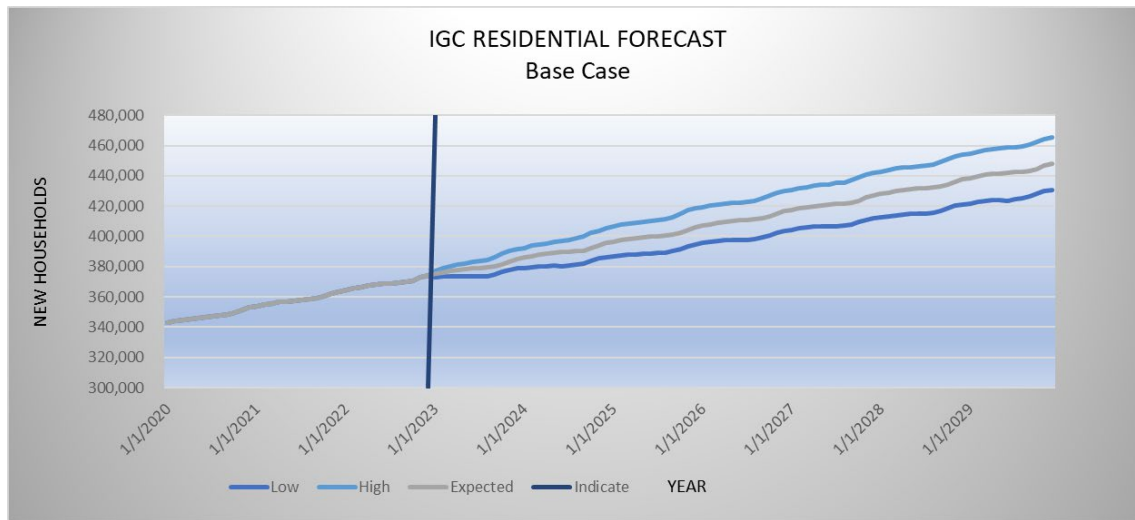
CENTRAL ADA CUSTOMER FORECAST



ALL OTHER CUSTOMER FORECAST



TOTAL SYSTEM CUSTOMER FORECAST





QUESTIONS?



HEATING DEGREE DAYS & DESIGN WEATHER

MIN PARK

REGULATORY ANALYST



WEATHER

- Weather is a Key Residential & Commercial Demand Driver
- Heating Degree Days are Used to Capture Weather Effects
- Two Primary Weather Scenarios are Used in the IRP:
 - Normal HDD
 - Design HDD

HEATING DEGREE DAY (HDD)

- What is a Heating Degree Day?
- Industry-Wide Standard Measuring Degrees Below a Set Base Temperature
- Base of 65 Degrees is Most Common

March 2nd, 2023 - Boise Example:

Daily High: 39 Degrees °F

Daily Low: 23 Degrees °F

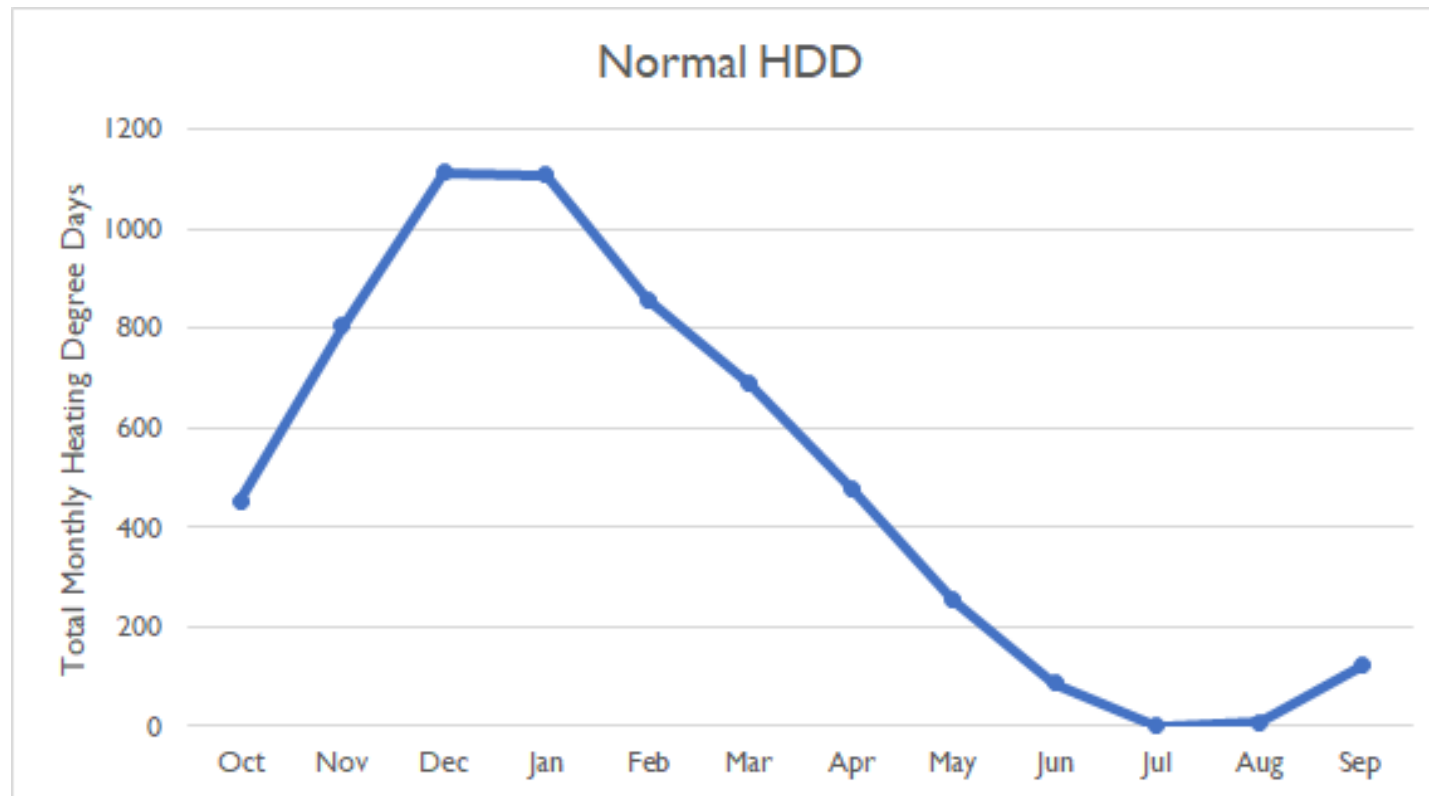
Mean: 31 Degrees °F

65 Degrees – 31 Degrees = 34 HDD

NORMAL HEATING DEGREE DAYS

- Benchmark for the IRP
- Used for Routine Planning and Represent the Typical or “Normal” Weather Expected on a Given Day
- 30-Year Rolling Average of Daily Mean Temperatures
- Normal for the IRP is the 30-Years Ended December 2022

NORMAL HEATING DEGREE DAYS



DESIGN DEGREE DAYS

- Design Degree Days Model the Coldest Temperatures that Could Feasibly Occur on Intermountain's System
- Created by Modeling Design Peak Day, then Modeling the Surrounding Week, Month, and Year






DESIGN PEAK DAY

- Design Peak Day is the Absolute Coldest Day Planned for in the Design Year
- Engaged Idaho State Climatologist, Dr. Russell Qualls, to Conduct a Peak Day Study
- Study Produced a Range of Peak Days for Various Probability Assumptions
- 50-Year Peak-Day Event was Selected (78 HDD)
- Peak Day is Modeled to Occur on Jan 15th of the Design Year

PEAK 5-DAY DESIGN

- The Days Surrounding the Peak Day are Modeled After the Coldest Recorded Consecutive 5-Days in a 50 Year Period.
- Peak Day is Assumed to be the Second Day in the 5-Day Period.

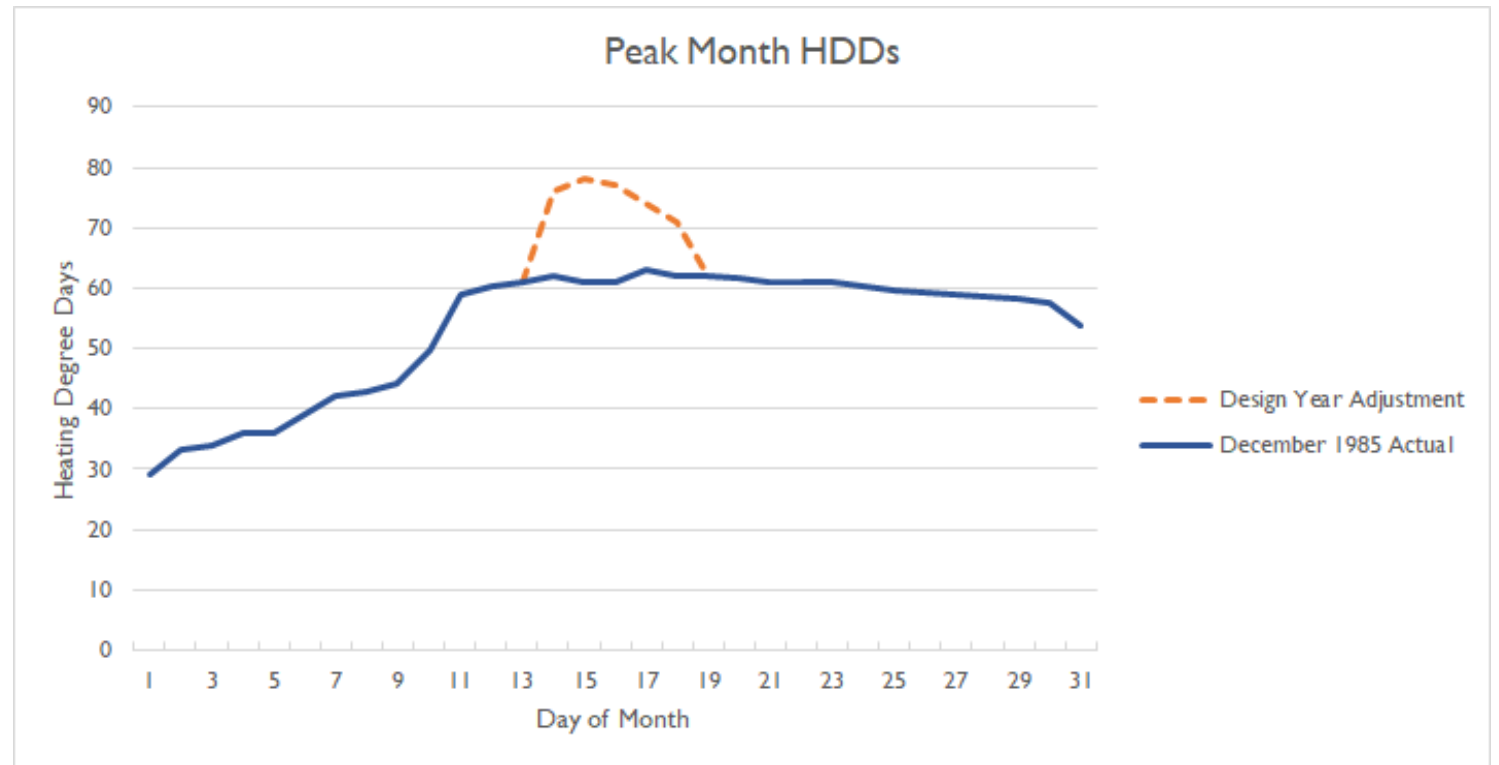
Five Day Weather Forecast

Day 1	Peak Day	Day 3	Day 4	Day 5
 Snow	 Snow	 Snow	 Snow	 Sunny
-11° F	-13° F	-12° F	-9° F	-6° F
December 21st, 1990 Actual	50-Year Peak Day Event	December 23rd, 1990 Actual	December 24th, 1990 Actual	December 25th, 1990 Actual

PEAK 5-DAY
DESIGN

PEAK MONTH DESIGN

- The Days Surrounding the Peak 5-Day Period are Modeled After the Coldest Calendar Month in the last 50 Years
- The Current Peak Month is December 1985
- This Month Forms the Basis for January Design Weather



DESIGNING THE REST OF THE YEAR

- The Rest of the Year is Modeled After the Coldest Heating Year in a 50 Year Record
- Oct 1984 – Sep 1985 Continues to be the Coldest
- This Period Also Included the Coldest Critical Three Month Heating Period (Dec-Feb)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
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DEGREE DAY GRAPH



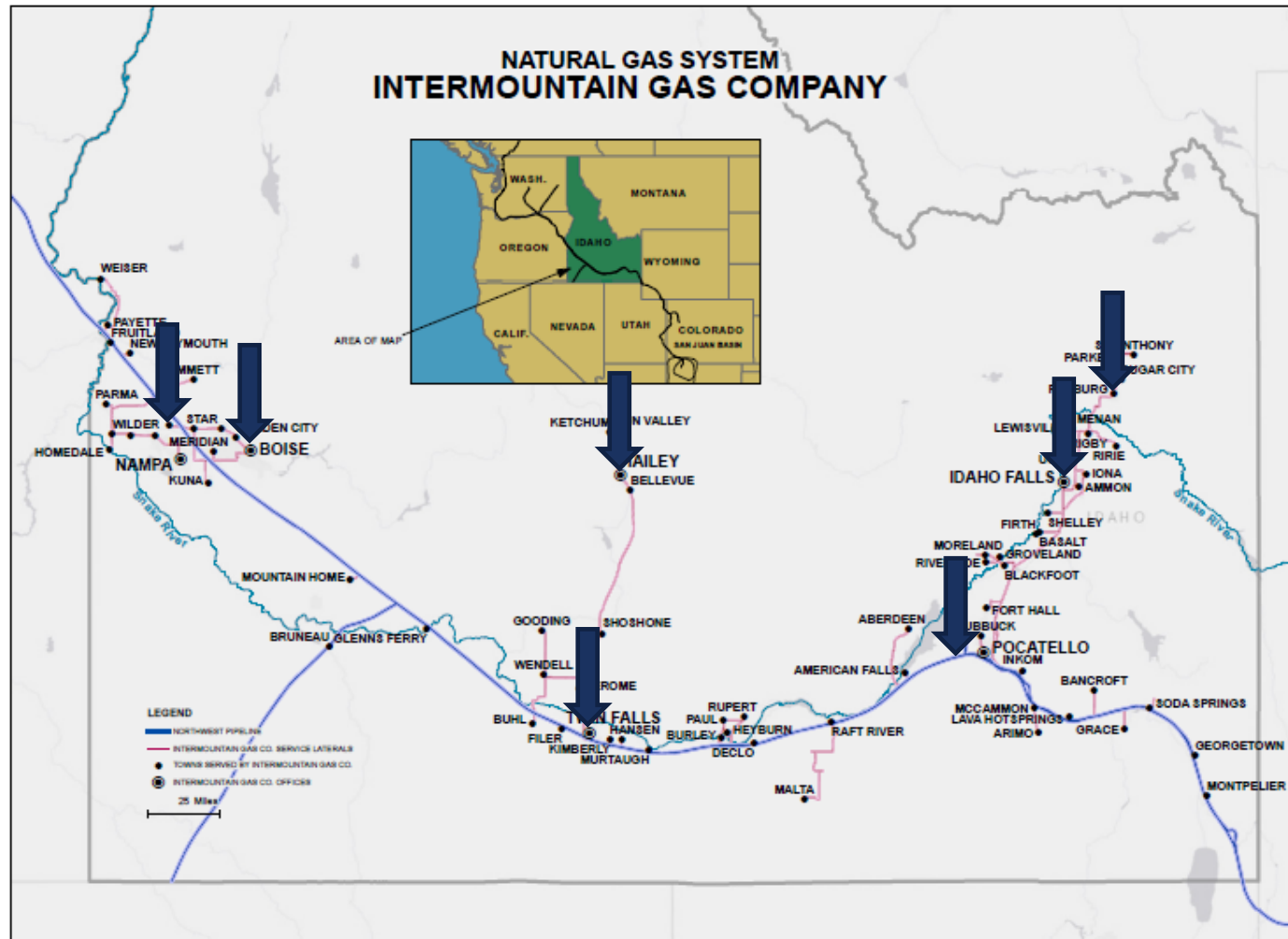
AOI DEGREE DAYS

- Intermountain's service area is climatologically diverse
- Idaho Falls or Sun Valley vs. Boise
- Intermountain has developed unique Degree Days for each AOI
- Methods used to calculate AOI Degree Days mirror the Total Company approach

AOI DEGREE DAYS

Weather Stations West to East:

- KBOI
- KEUL
- KTWF
- KSUN
- KPIH
- KIDA
- KRXE





QUESTIONS?



2023 IRP LARGE VOLUME CUSTOMER FORECAST

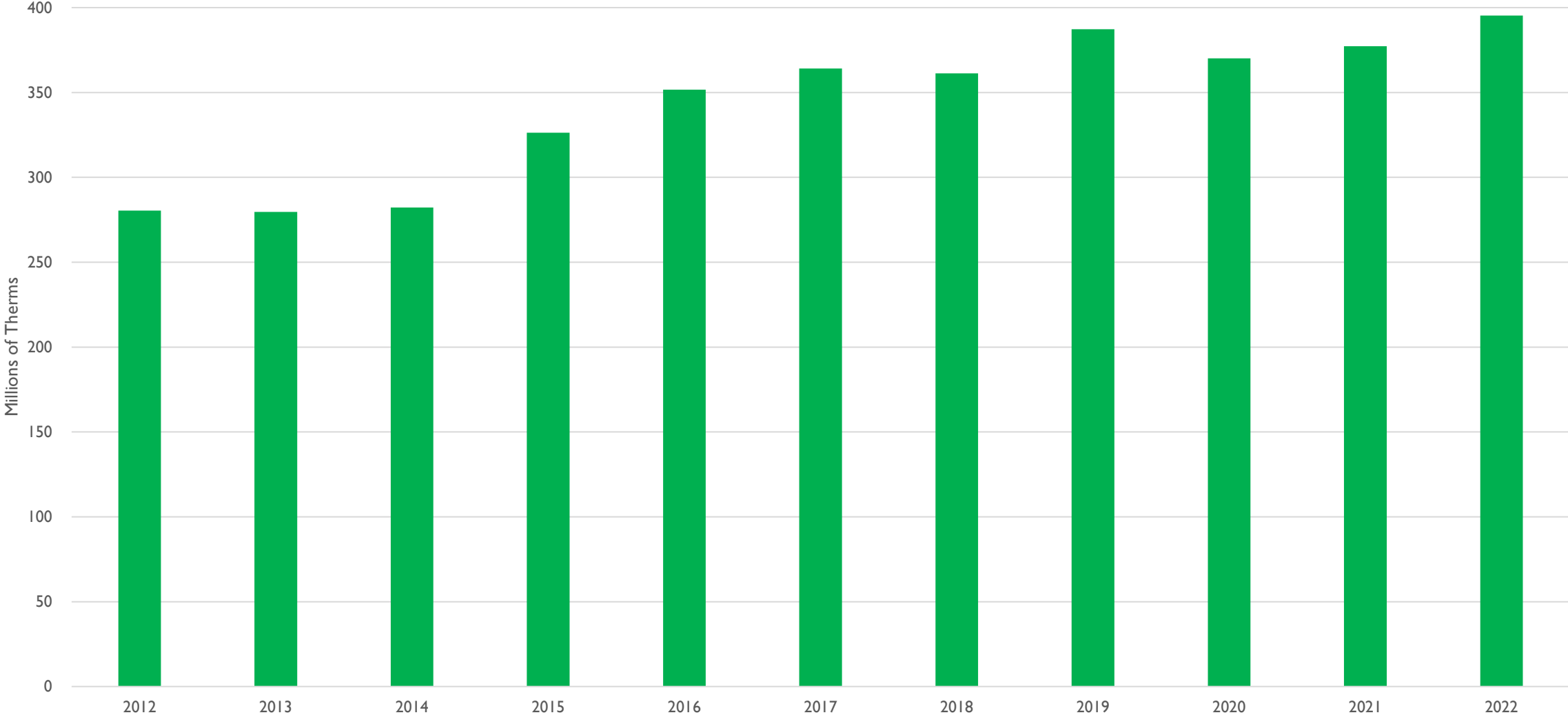
NICOLE GYLLENSKOG & DAVE SWENSON
MANAGERS, INDUSTRIAL SERVICES



WHAT IS A LARGE VOLUME CUSTOMER?

- 149 largest customers; approximately 47% of 2022 sales
- Mix of “Industrial” and “Commercial” types
- As a group exhibit fairly high load factor
- Provide thousands of Idaho jobs; huge impact on economy

Annualized Large Volume Therm Sales



Intermountain Gas Company - Annual Therm Sales



REQUIREMENTS OF A LARGE VOLUME CUSTOMER

- Minimum 200,000 Therms per contract-year requirement
- Must elect 1 of 3 tariffs:
 - LV-1 bundled sales
 - T-3 interruptible transportation or T-4 firm transportation
- Minimum one-year contract; the contract sets the term and Maximum Daily Firm Quantity (MDFQ) for firm peak day use
- Contracts are site specific; can combine meters on contiguous property

CLASSIFICATION OF CURRENT 149 LV CUSTOMERS

		<u>Percent of Total</u>	
■ By Rate Class:	<u># of</u>	<u># of</u>	<u>Therms</u>
❖ LV-1 Sales –	36	24%	4%
❖ T-3 Interruptible Transport –	9	6%	11%
❖ T-4 Firm Transport –	<u>104</u>	<u>70%</u>	<u>85%</u>
❖ Total –	149	100%	100%

SEGMENTATION OF 149 LARGE VOLUME CUSTOMERS

■ By Market “Segment”	<u>#</u>	<u>%</u>	<u>Therms%</u>
❖ Potato Processors –	18	12%	27%
❖ Other Food Processors –	18	12%	32%
❖ Meat & Dairy –	23	15%	13%
❖ Ag & Feed –	8	5%	1%
❖ Chemical/Fertilizer –	3	3%	9%
❖ Manufacturing –	33	22%	7%
❖ Institutional –	33	22%	6%
❖ Other –	<u>13</u>	<u>9%</u>	<u>5%</u>
❖ Total –	149	100%	100%

LOCATION OF 149 LARGE VOLUME CUSTOMERS (BC)

■ By AOI:	<u>#</u>	<u>%</u>	<u>Therms%</u>
❖ IFL –	28	19%	18%
❖ SVL –	4	3%	1%
❖ Central Ada –	2	1%	1%
❖ State Street –	3	2%	1%
❖ Canyon County –	21	14%	14%
❖ All Other –	<u>91</u>	<u>61%</u>	<u>65%</u>
❖ Total –	149	100%	100%

OVERVIEW OF FORECAST TECHNIQUE

- Most not as weather sensitive as the Core Market
- Small population (not as many customers)
- Not as homogenous as Core (size, weather sensitivity)
- Don't use statistics/regression techniques
- Use an “adjusted” historical usage approach
- Forecast both Therm use and CD (MDFQ/MDQ)

APPLICATION OF FORECAST TECHNIQUE

- Adjusted historical data with customer information and other data (e.g. EDO's) to develop three forecasts
 - Base Case
 - High Growth
 - Low Growth
- Assumed growth by specific customers
- Used recent trends to validate results

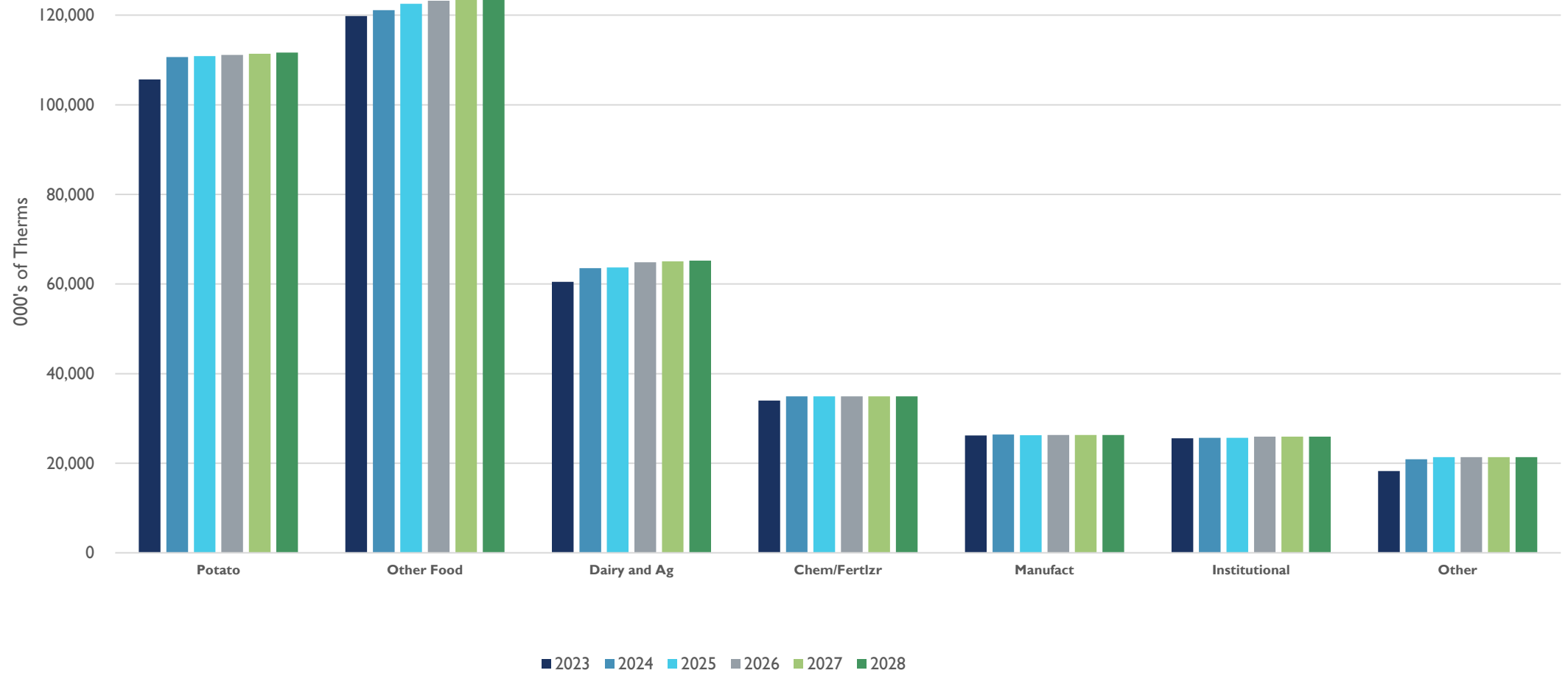
SENDOUT STATISTICS

Core				Non Core			
Month to Date Plan	▼	6,997,507		Month to Date Plan	▼	3,948,149	
Month to Date Actual	▼	7,794,090		Month to Date Actual	▼	4,099,699	
MTD Over(Under) Plan	▼	796,583		MTD Over(Under) Plan	▼	151,550	
MTD Over(Under) Plan %	▼	11.38%		MTD Over(Under) Plan %	▼	3.84%	
Quarter to Date Plan	▼	15,444,317		Quarter to Date Plan	▼	11,111,058	
Quarter to Date Actual	▼	16,427,254		Quarter to Date Actual	▼	11,758,323	
QTD Over(Under) Plan	▼	982,937		QTD Over(Under) Plan	▼	647,265	
QTD Over(Under) Plan %	▼	6.36%		QTD Over(Under) Plan %	▼	5.83%	
Year to Date Plan	▼	41,829,020		Year to Date Plan	▼	38,494,499	
Year to Date Actual	▼	44,881,626		Year to Date Actual	▼	39,518,831	
YTD Over(Under) Plan	▼	3,052,606		YTD Over(Under) Plan	▼	1,024,332	
YTD Over(Under) Plan %	▼	7.30%		YTD Over(Under) Plan %	▼	2.66%	

BASE CASE SCENARIO ASSUMPTIONS

- Starts with historical actuals
- Adjust for customer information and trends
- Natural gas prices competitive with other energy sources
- Economy dealing with inflation and supply chain issues
- Includes 5 new customers
- Mix of segments; 4 T-4 and 1 LV-1; 3 are "All Other" in Magic Valley and 2 are in Canyon.
- Compounded annual growth rate of 1.01%

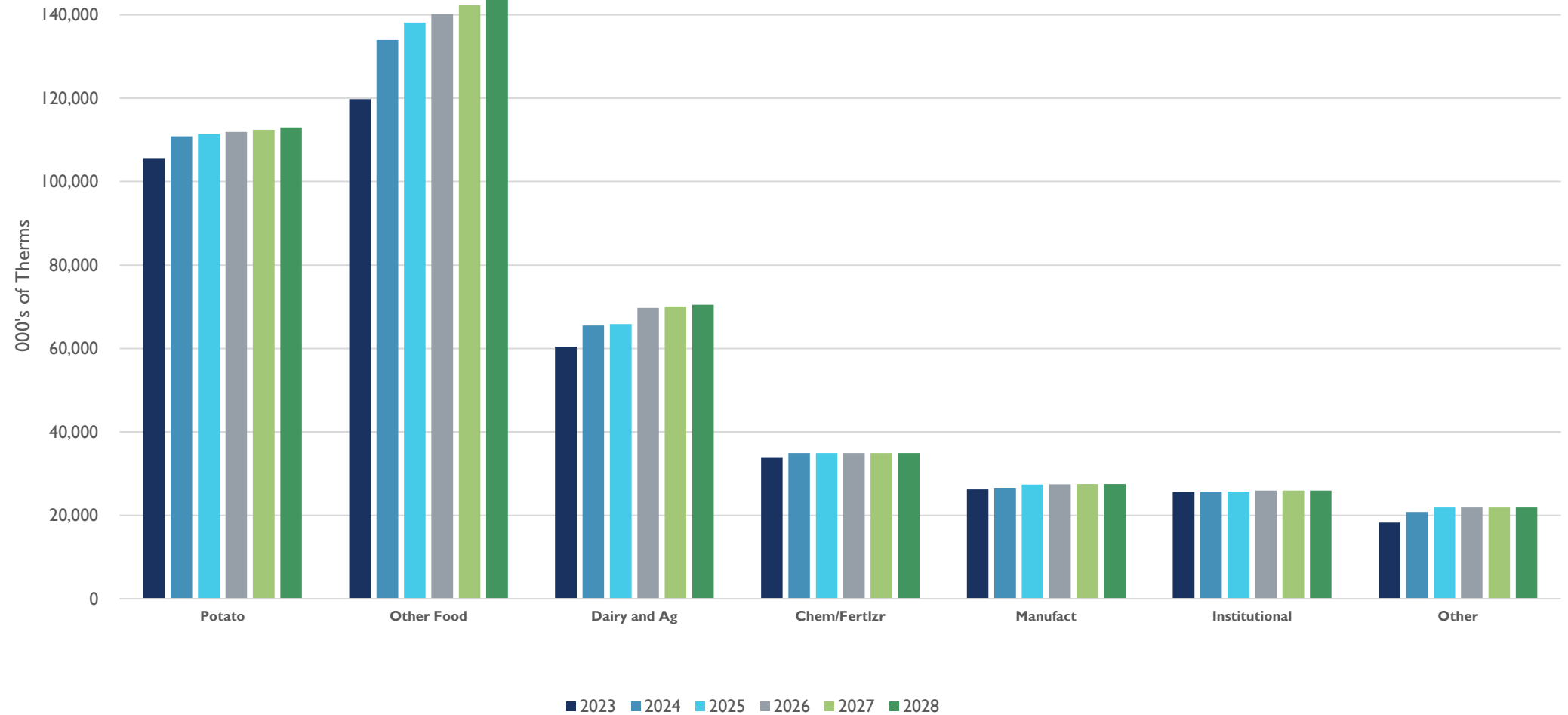
IRP Large Volume **Base Case** Forecast by Segment (Therms)



HIGH GROWTH SCENARIO ASSUMPTIONS

- Starts with Base Case Forecast
- Natural gas prices remain comparatively low
- Economy comes out of the inflation with continued growth
- Assumes 10 new customers totaling 5.5 million Therms by 2028
- Additions mostly T-4 (9); 4 Meat & Dairy and 5 various segments; most growth in All Other
- Compounded annual growth rate of 2.37%

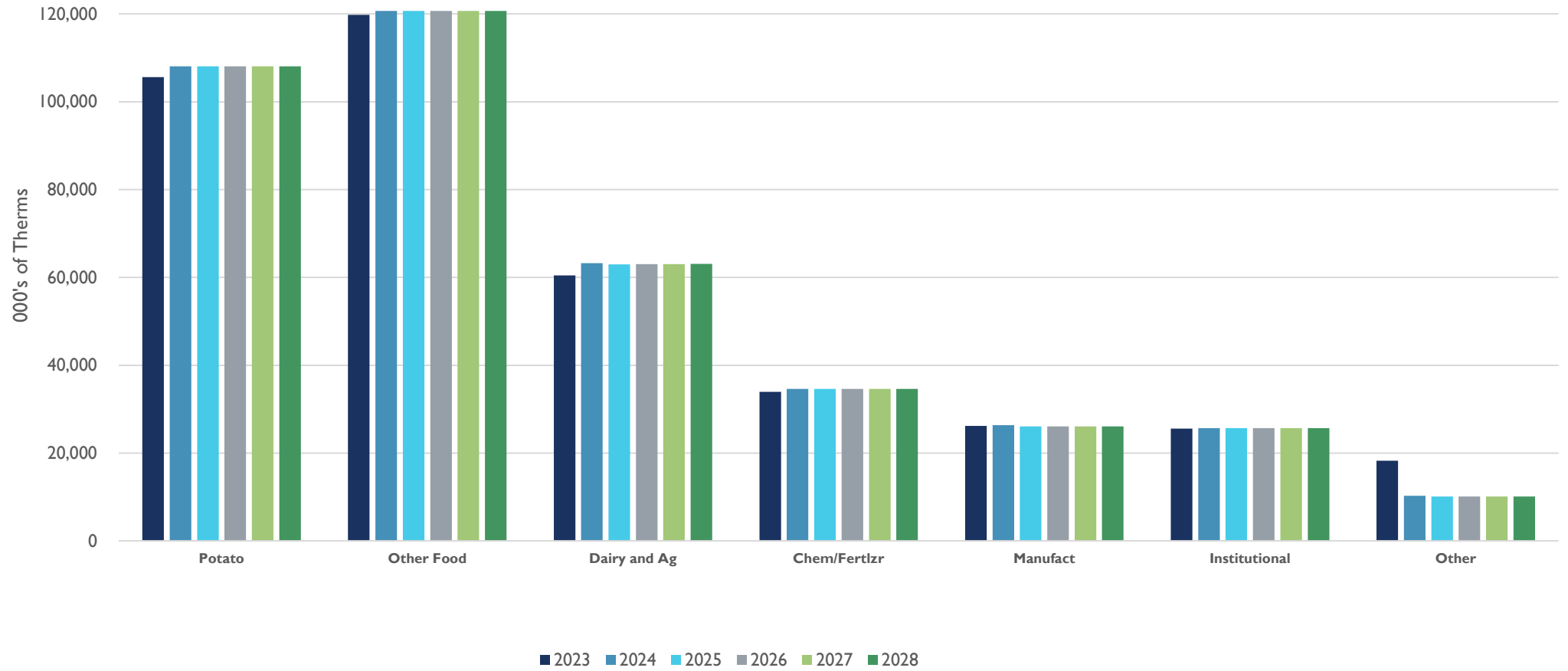
IRP Large Volume **High Growth** Forecast by Segment (Therms)



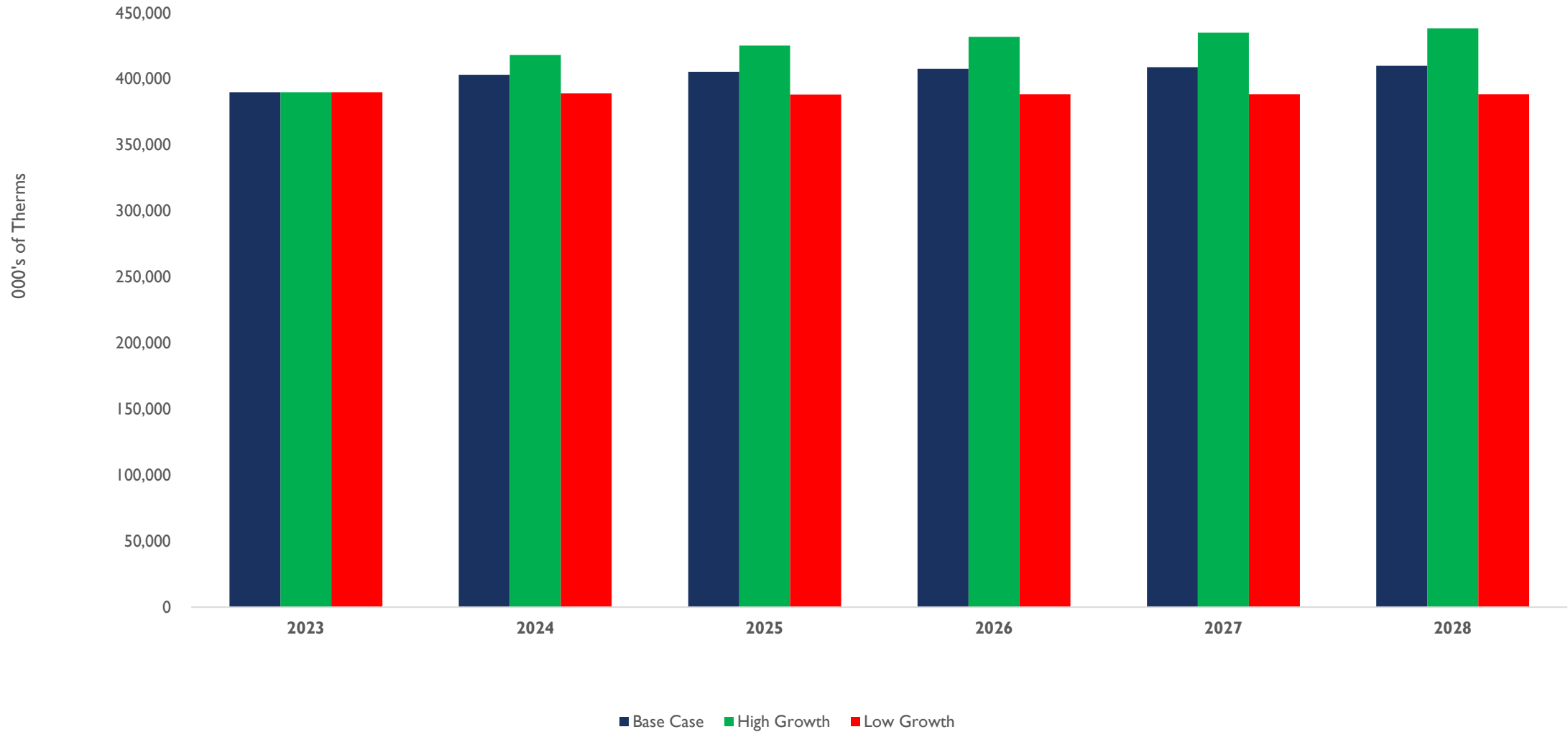
LOW GROWTH SCENARIO ASSUMPTIONS

- Starts with Base Case Forecast
- Assume gas prices are less competitive
- Economy slows; recession or inflation causes slowing in growth
- Removed any customer having difficulty staying above the 200,000 Therm annual minimum
- Two new T-4 customers; 2 in the “Other,” segment
- Compounded annual growth rate of $-.07\%$

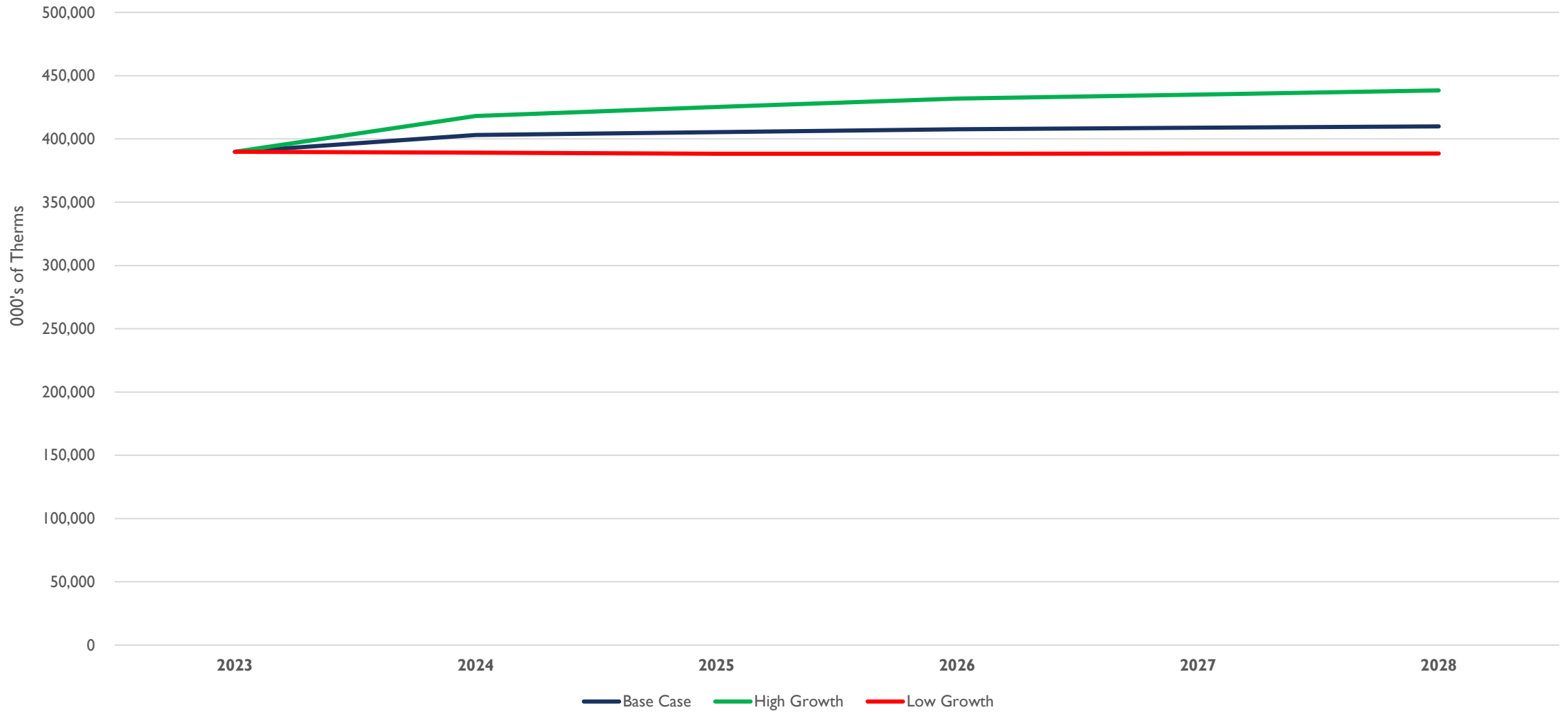
IRP Large Volume **Low Growth** Forecast by Segment (Therms)



IRP Large Volume Annual Therms



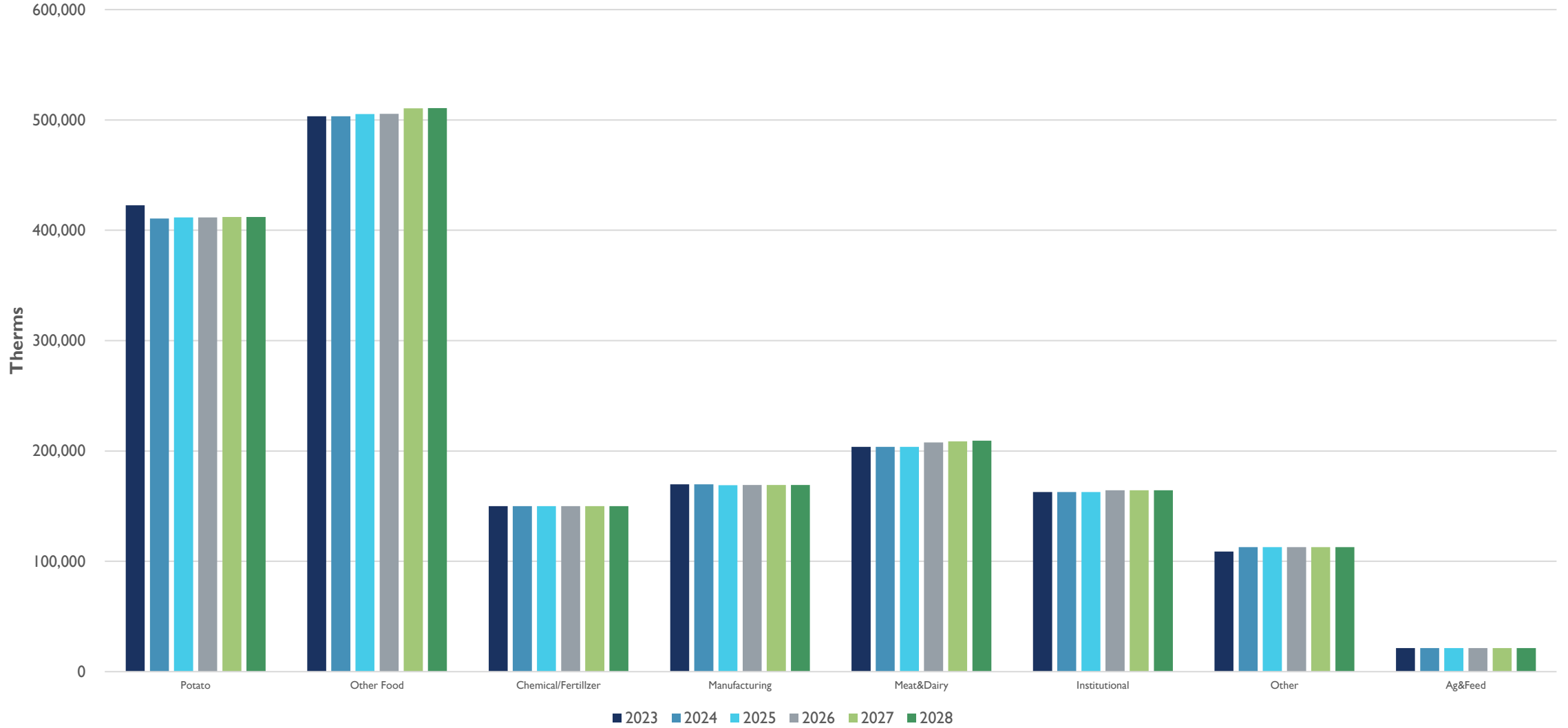
IRP Total Large Volume Annual Therms



OPTIMIZATION MODELING - MDFQ VS THERM FORECAST

- Use MDFQ not therm forecast in optimization model
- Contract includes Maximum Daily Firm Quantity (MDFQ)
- Intermountain provides MDFQ 365 day/year; gas supply
- MDFQ trends therm projections
- Only firm customers in design peak; no interruptible
- Includes new customer additions
- Compounded annual growth rate of .08%

Base Case MDFQ by Segment

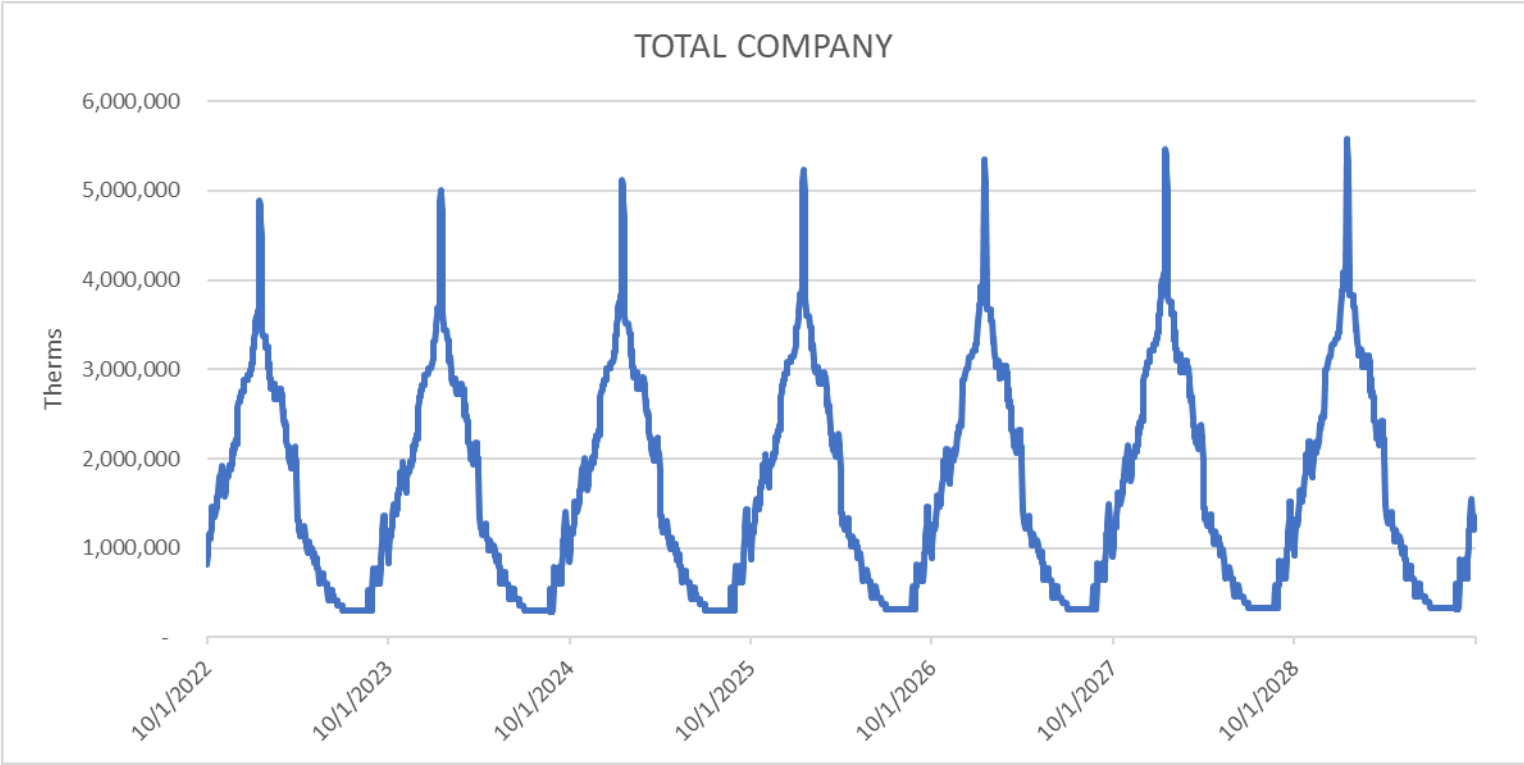




QUESTIONS?

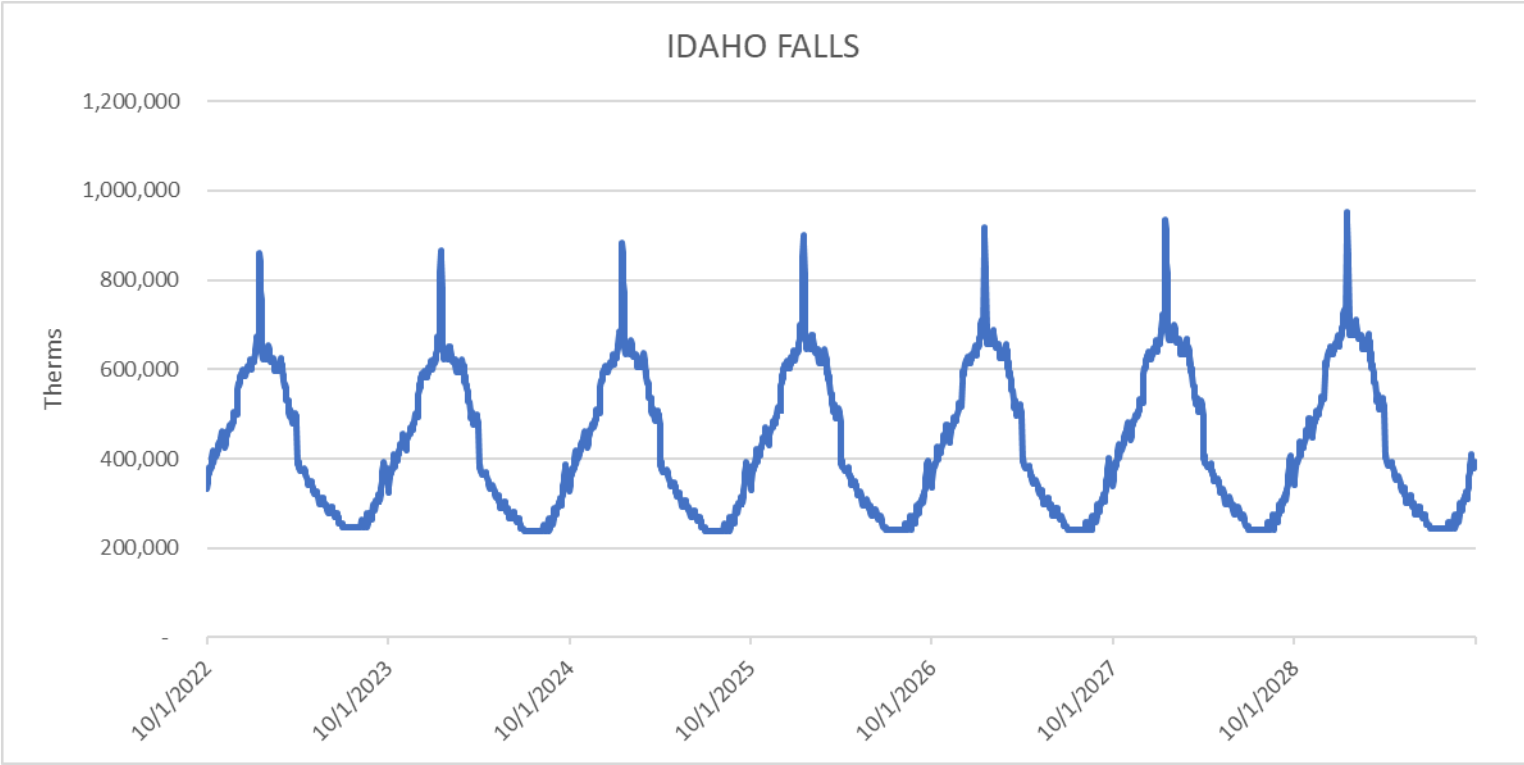
LOAD DEMAND CURVES

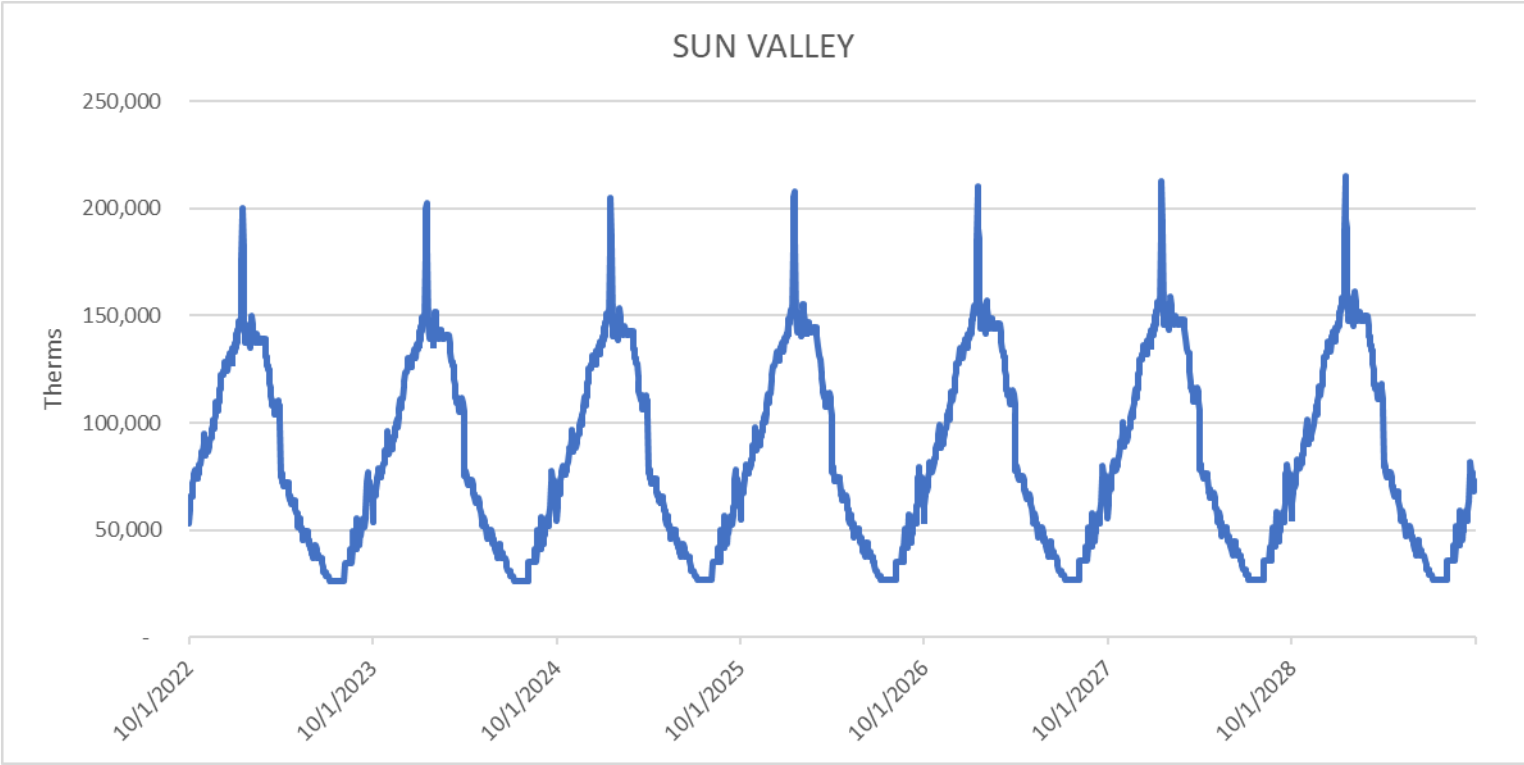
- Incorporates several inputs
 - Res & Com Customer Forecast, Normal and Design Weather, Use Per Customer, Demand Side Management, and Large Volume Forecast.
 - $LDC = (\text{Customer Forecast} * HDD * \text{User Per Customer}) - DSM + LV \text{ Forecast}$
- Load Demand Curve Utilization
 - Identifies potential upstream pipeline and distribution system constraints
 - Resource Optimization
 - Storage Management
- Remedies for Any Constraints Will be Identified Later
- Note: Load Demand Curves for upstream pipeline modeling will differ from distribution system modeling

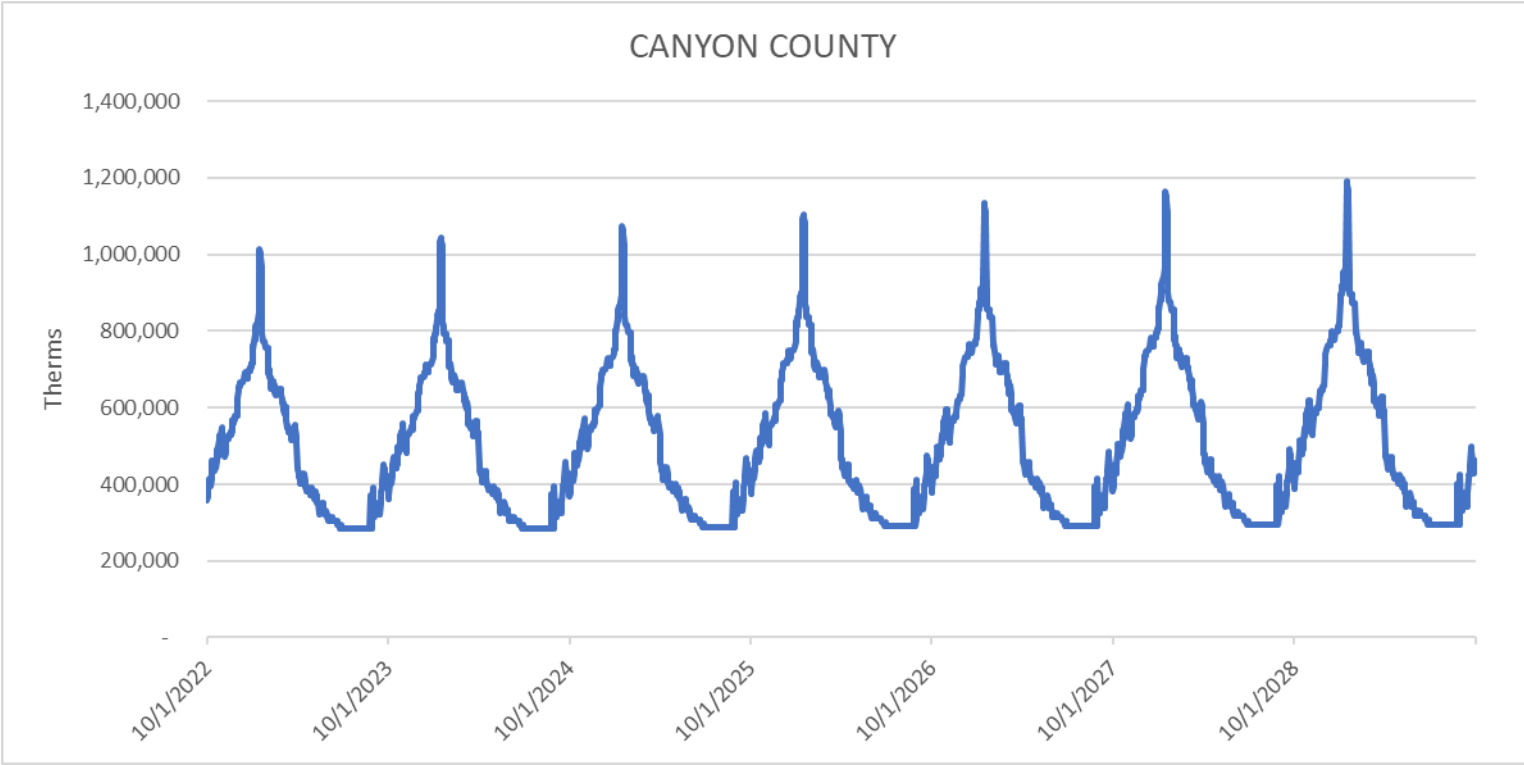


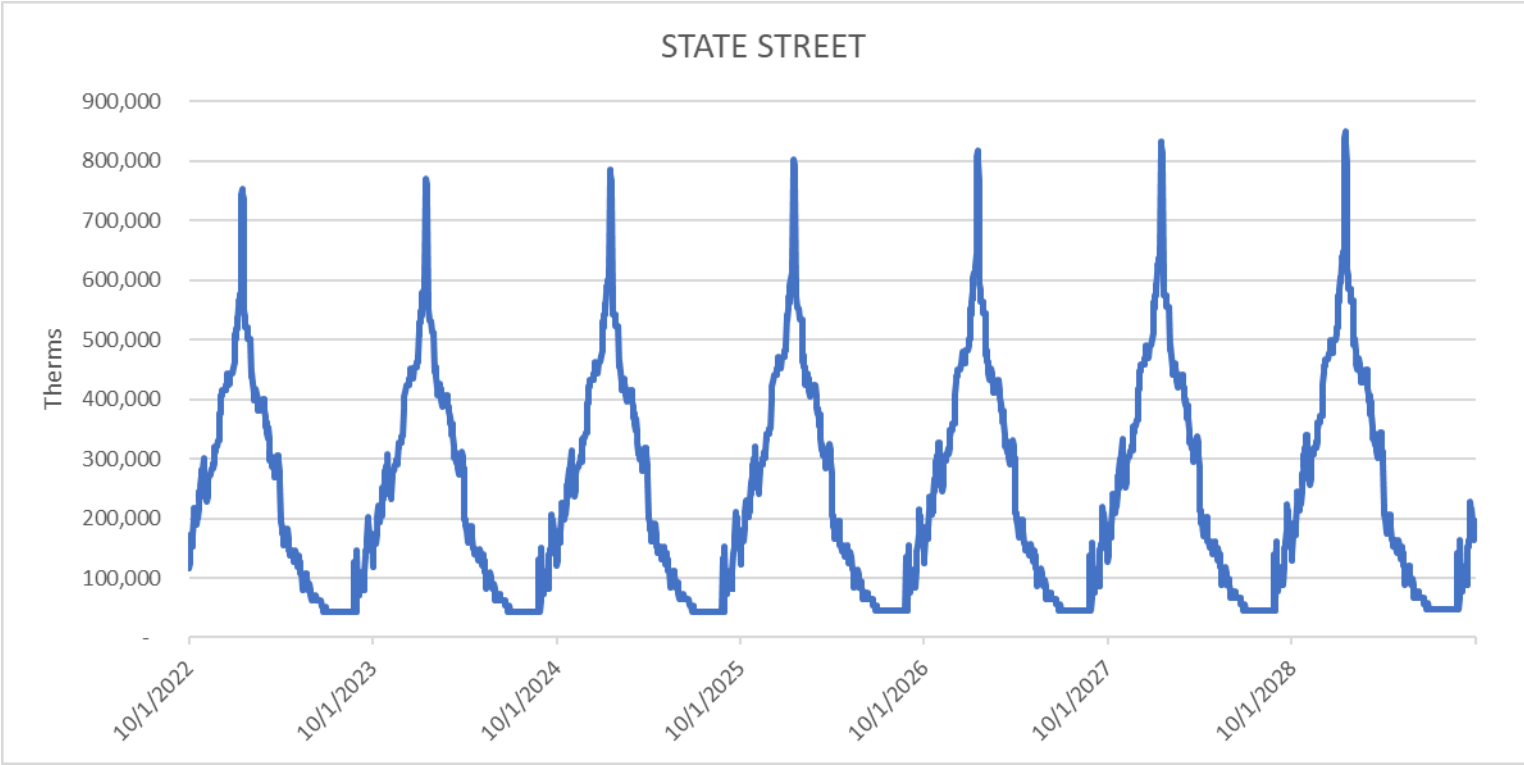
AREAS OF INTEREST

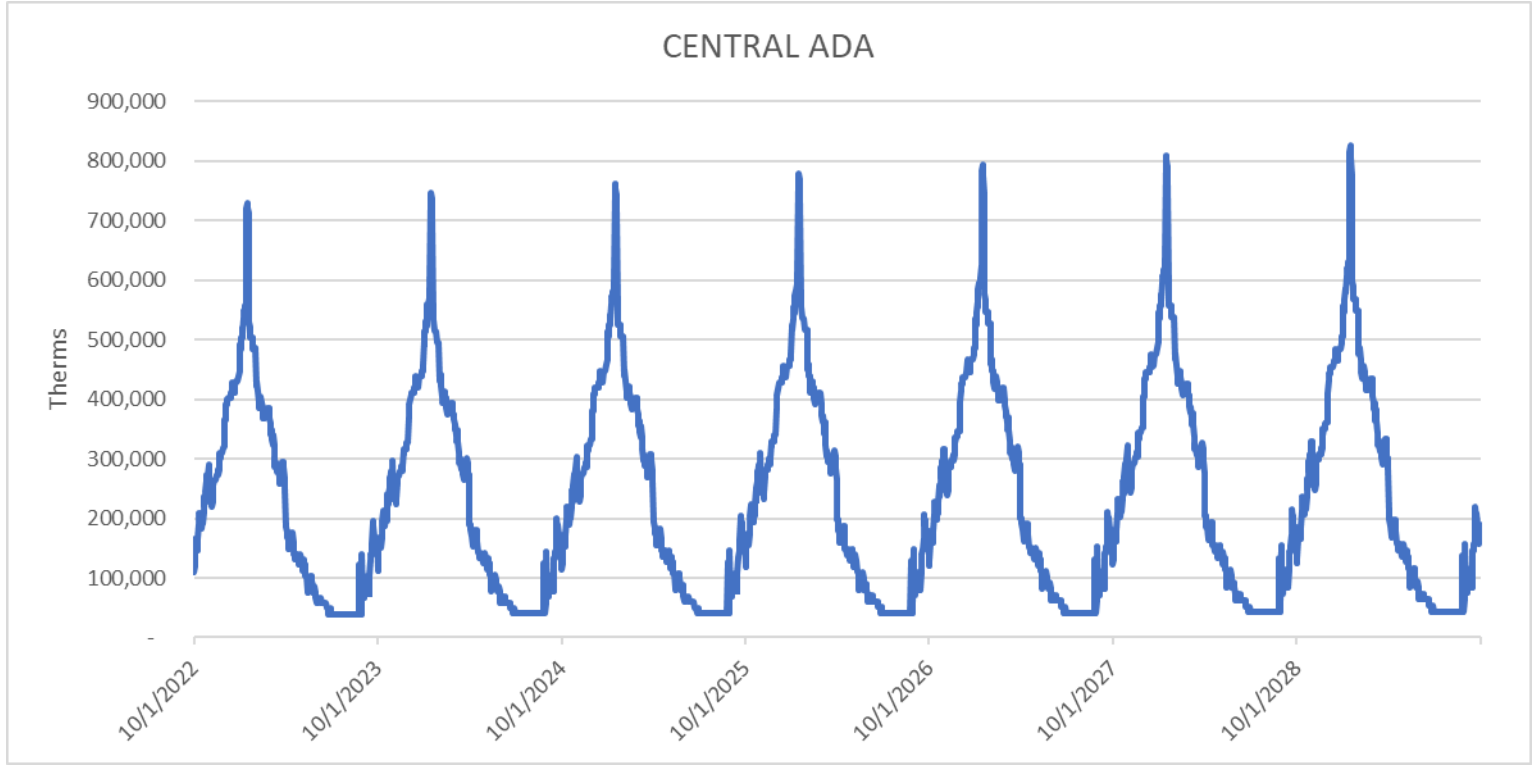
- Idaho Falls Lateral
- Sun Valley Lateral
- Canyon County Lateral
- North of State Street Lateral
- Central Ada County













QUESTIONS?

ADDITIONAL MEETINGS

- **Thursday, June 8, 2023 via Microsoft Teams**

- Usage Per Customer
- Energy Efficiency
- Supply Side Resources
- Distribution System Modeling

- **Wednesday, August 2, 2023 via Microsoft Teams**

- Potential Capacity Enhancements
- Resource Optimization
- Planning Results

FEEDBACK SUBMISSIONS



- IRP.Comments@intgas.com
- Please provide comments and feedback within 10 days