2021 SPS New Mexico Integrated Resource Plan: 3rd Public Advisory Meeting

January 12, 2021

Topics For Discussion

- Introduction to the New Mexico Integrated Resource Plan

- New Mexico Energy Efficiency and Load Management Programs

- Sales and Load Forecasting

- Questions and Discussion

- Future Meeting Topics

- Next IRP Public Meeting

Introduction To The New Mexico Integrated Resource Plan

- Scope – Effective April 16, 2007, the NM IRP applies to all electric utilities subject to the NM Public Regulatory Commission's jurisdiction over integrated resource planning

- Objective – The purpose of the IRP is to set forth the Commission's requirements for the preparation, filing, review and acceptance of integrated resource plans by public utilities supplying electric service in New Mexico in order to identify the most cost-effective portfolio of resources to supply the energy needs of customers.

- Task – Public utilities supplying electric service to customers shall file an IRP, along with an action plan, with the commission every 3 years

Introduction To The NM IRP Continued…

- Contents of the IRP

  1) Description of existing electric supply-side and demand-side resources

  2) Current load forecast as described in this rule

  3) Load and resources table

  4) Identification of resource options

  5) Description of the resource and fuel diversity

  6) Identification of critical facilities susceptible to supply-source or other failures

  7) Determination of the most cost-effective resource portfolio and alternative portfolios

  8) Description of public advisory process

  9) Action plan, and

  10) Other information that the utility finds may aid the commission in reviewing the utility's planning processes

- A copy of the current IRP rule can be found at the following link:

  http://164.64.110.239/nmac/parts/title17/17.007.0003.htm

SPS NM ENERGY EFFICIENCY AND LOAD MANAGEMENT PROGRAMS

Jeremy Lovelady | Senior Regulatory Analyst

January 12, 2021

OVERVIEW

- Efficient Use of Energy Act (EUEA) Updates

- Recent EE/LM Plan Filing & Outcome

- 2020-2022 Approved Program Forecasts

- Upcoming Plan Filings

EFFICIENT USE OF ENERGY ACT (EUEA) HISTORY

- 2013 Legislation - SPS is required to achieve savings of no less than 8% of 2005 total retail kWh to New Mexico customers in 2020 as a result of energy efficiency and load management programs implemented starting in 2007

  - SPS met the requirement following the 2018 savings evaluation (8.06%)

  - SPS also met the requirement following the 2019 savings evaluation (8.54%)

- 2019 Legislation - SPS is required to achieve savings of no less than 5% of 2020 total retail kWh sales to New Mexico customer classes that have the opportunity to participate in calendar year 2025 as a result of energy efficiency and load management programs implemented in years 2021 through 2025

RECENT EE/LM PLAN FILINGS

- NMPRC Rule Change in 2017

  – Required Utilities to file Triennial Plan Filings- Staggered

- SPS filed May 15, 2019

  – Covered Plan Years 2020-2022

  – Removal of LM offerings

  – Saver's Switch, Thermostats, ICO

  – Addition of Heat Pump Water Heaters

  – Settlement- Final Order on Feb 19, 2020

  – Small program changes

  – Additional Market Research funding for Potential Study

2020 APPROVED PROGRAM FORECAST

2020	Electric Budget	Net Customer kW	Net Customer kWh
Residential Segment			
Energy Feedback	$143,485	866	4,720,924
Heat Pump Water Heaters	$44,500	25	185,716
Home Energy Services: Residential and Low Income	$2,193,861	904	8,963,155
Home Lighting & Recycling	$1,199,817	973	5,642,488
Residential Cooling	$43,040	39	125,177
School Education Kits	$145,417	10	376,378
Smart Thermostats	$142,500	0	825,149
Residential Segment Total	**$3,912,620**	**2,785**	**20,853,234**
Business Segment			
Business Comprehensive	$4,798,684	2,263	15,985,365
Business Segment Total	**$4,798,684**	**2,263**	**15,985,365**
Planning and Research Segment			
Consumer Education	$200,000	0	0
Market Research	$110,000	0	0
Measurement & Verification	$15,000	0	0
Planning & Administration	$285,000	0	0
Product Development	$190,000	0	0
Planning & Research Segment Total	**$800,000**	**0**	**0**
PORTFOLIO TOTAL	**$9,511,304**	**4,985**	**36,885,682**

2021 APPROVED PROGRAM FORECAST

2021 Modified by Settlement	Electric Budget	Net Customer kW	Net Customer kWh
Residential Segment			
Energy Feedback	$143,485	778	4,291,520
Heat Pump Water Heaters	$78,500	45	337,666
Home Energy Services: Residential and Low Income	$2,213,861	904	8,963,155
Home Lighting & Recycling	$1,169,217	951	5,514,523
Residential Cooling	$43,040	39	125,177
School Education Kits	$145,917	10	376,378
Smart Thermostats	$122,500	0	698,746
Residential Segment Total	**$3,916,520**	**2,733**	**20,320,915**
Business Segment			
Business Comprehensive	$5,682,482	2,764	19,763,161
Business Segment Total	**$5,682,482**	**2,764**	**19,763,161**
Planning and Research Segment			
Consumer Education	$200,000	0	0
Market Research	$360,000	0	0
Measurement & Verification	$15,000	0	0
Planning & Administration	$290,000	0	0
Product Development	$190,000	0	0
Planning & Research Segment Total	**$1,055,000**	**0**	**0**
PORTFOLIO TOTAL	**$10,654,002**	**5,425**	**40,134,737**

2022 APPROVED PROGRAM FORECAST

2022 Modified by Settlement	Electric Budget	Net Customer kW	Net Customer kWh
Residential Segment			
Energy Feedback	$144,485	708	3,947,163
Heat Pump Water Heaters	$68,500	57	422,082
Home Energy Services: Residential and Low Income	$2,163,861	904	8,963,155
Home Lighting & Recycling	$1,158,151	914	5,300,679
Residential Cooling	$68,540	39	125,177
School Education Kits	$166,417	10	376,378
Smart Thermostats	$82,500	0	742,417
Residential Segment Total	**$3,852,454**	**2,637**	**19,890,259**
Business Segment			
Business Comprehensive	$5,741,548	2,797	20,111,128
Business Segment Total	**$5,741,548**	**2,797**	**20,111,128**
Planning and Research Segment			
Consumer Education	$200,000	0	0
Market Research	$360,000	0	0
Measurement & Verification	$15,000	0	0
Planning & Administration	$295,000	0	0
Product Development	$190,000	0	0
Planning & Research Segment Total	**$1,060,000**	**0**	**0**
PORTFOLIO TOTAL	**$10,654,002**	**5,363**	**40,052,074**

UPCOMING PLAN FILINGS

- ## 2021 Limited Filing

  - Filing of SPS's proposed EUEA goal – based on 2020 Sales

  - Present Potential Study

  - Update PY 2022 program offerings and goals

- ## SPS 2022 Triennial Plan Filing

  - Covering PY 2023-2025

  - Program updates/inclusions based on Potential Study recommendations.

CONTACT INFORMATION

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Southwestern Public Service Company Sales and Load Forecasting

New Mexico Resource Plan Public Advisory Meeting

January 12, 2021

Agenda

- Energy and peak demand forecasting process
- Forecast assumptions
- Energy and peak demand forecast results

FORECASTING PROCESS

- Develop 30-year forecasts of monthly customers, sales, and peak demand.

  - Regression analysis, trend analysis, input from Account Management, contract terms, and load factor analysis.

  - Includes adjustments for demand-side management, electric vehicles, individual large customer information.

- Retail sales are forecast by major class and by state.

- Retail peak demand is forecast at the aggregated company level.

- Wholesale sales and peak demand are forecast by individual customer.

REGRESSION ANALYSIS

A statistical process for estimating the relationship between monthly sales (or customers or demand) and explanatory variables such as economics, weather, customers, and price of electricity. The regression analysis result is an equation that weights the explanatory variables.

- For example: Residential Sales = (C_1 x Personal Income per Household) +   (C_2 x heating weather) + (C_3 x cooling weather)

Once a statistical relationship is established from historical data, the relationship is applied to the forecast of the explanatory variables to derive a forecast.

Strengths: industry standard, robust, test results, defines relationships, adaptable/flexible.

Weaknesses: historical relationships can change, limited by available data, extremes can create challenges.

Assumptions

Economic and Demographic Assumptions

Economic and demographic data obtained from IHS Markit (both historical and forecast) for U.S., state and counties. County level data is aggregated to service territory.

Economic and demographic variables used in modeling include service area employment, households, personal income, population, and Gross County Product; U.S. Gross Domestic Product, and oil and gas extraction and drilling index.

Current economic outlook shows significant COVID-19 impacts in 2020 with impacts moderating through 2024/2025.

Texas and New Mexico Service Area Gross County Product Growth

Service Area Gross County Product
Annual % Change
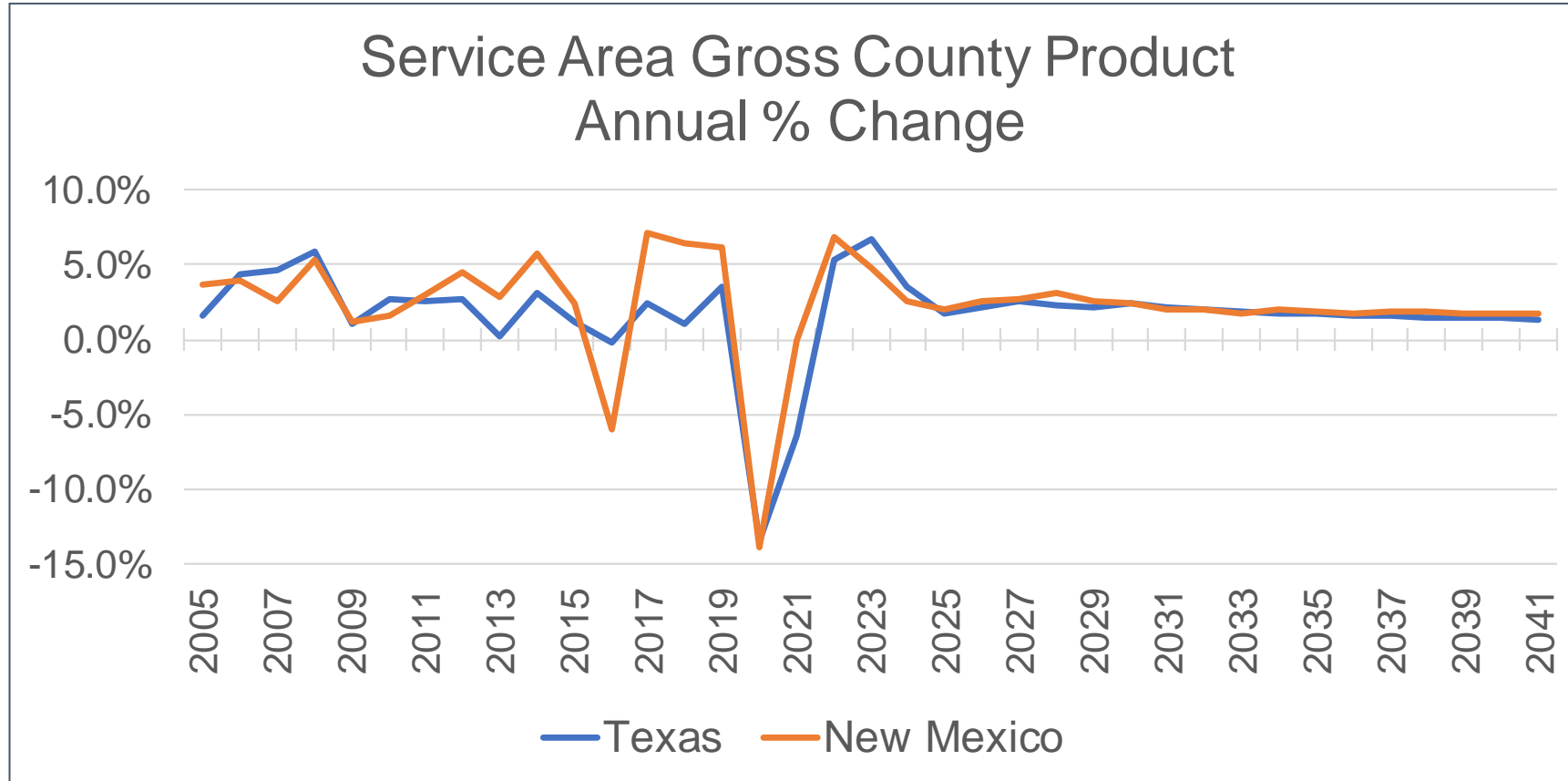
Texas — New Mexico

Service Area Gross County Product is expected to return to pre-pandemic levels by late 2023 (NM) and in 2025 (TX).

Source: IHS Markit

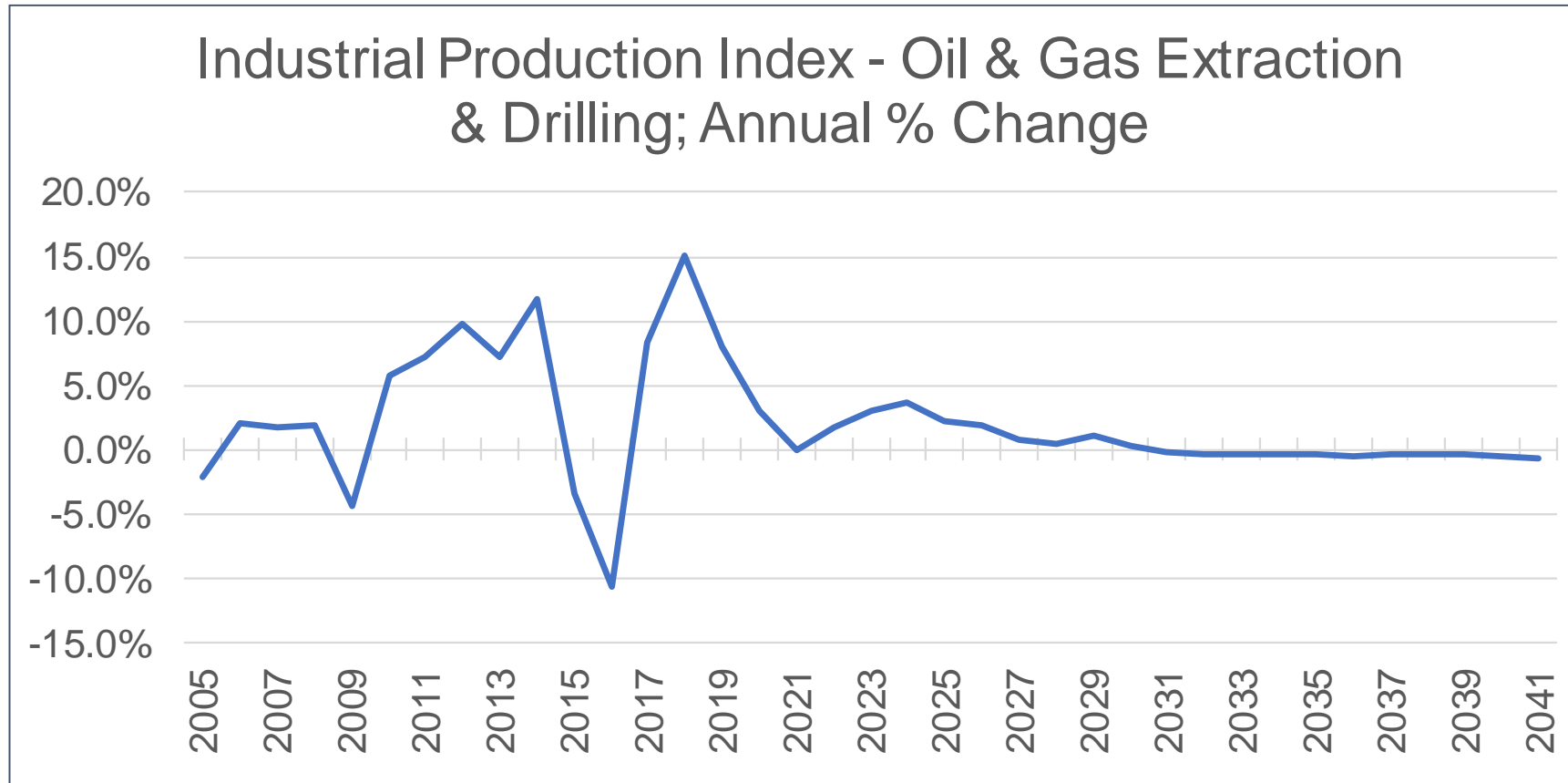20

Texas and New Mexico Job Growth

Service Area Employment
Annual % Change
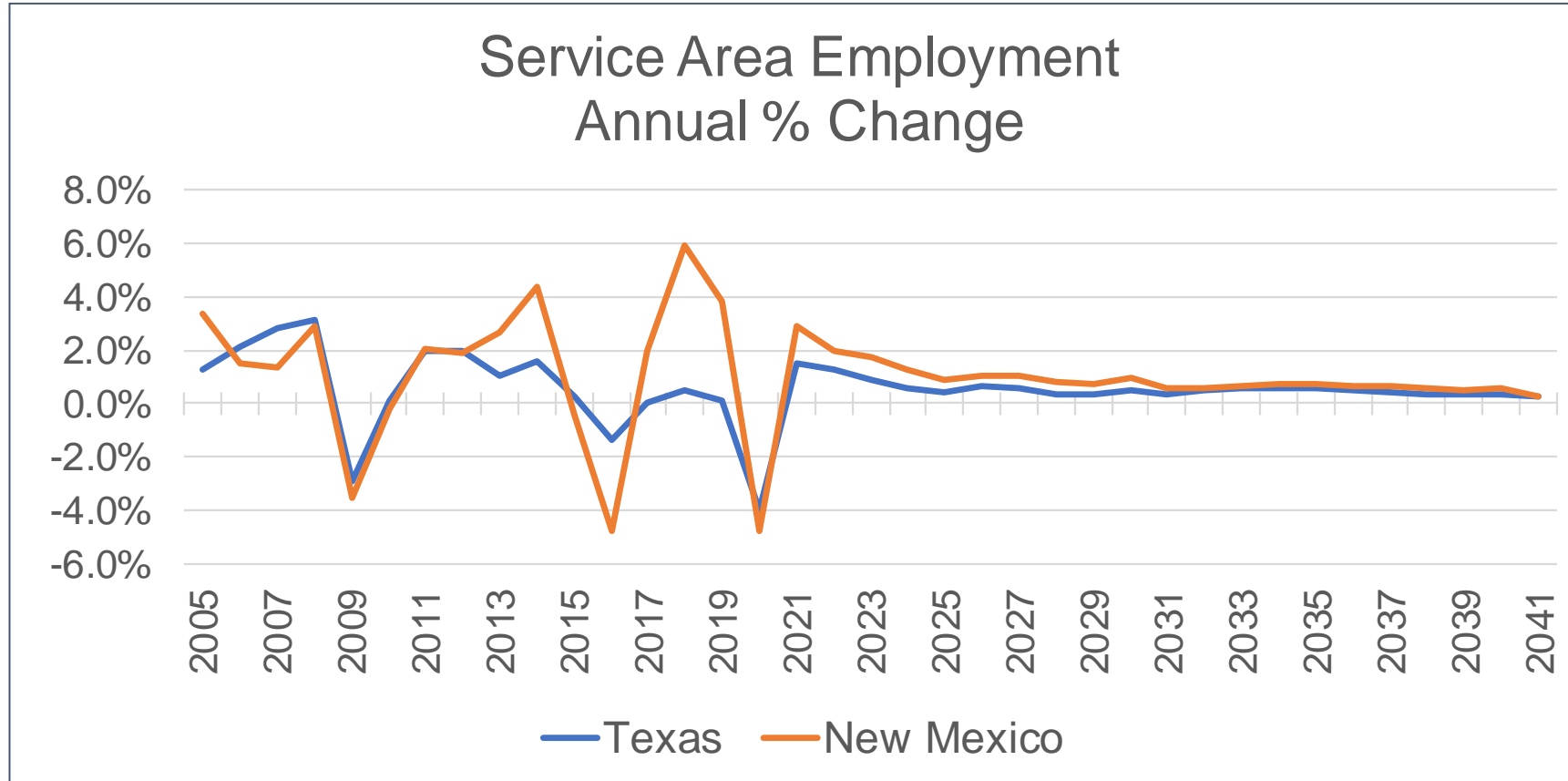
Service Area Employment is expected to return to pre-pandemic levels by mid-2022.

Source: IHS Markit

Oil and Gas Extraction and Drilling

Industrial Production Index - Oil & Gas Extraction & Drilling; Annual % Change

Source: IHS Markit

Oil & Gas extraction and drilling continues, but at a slower rate of growth than seen historically.

Weather Assumptions

Weather data is collected from NOAA for Amarillo, Lubbock, and Roswell.

Forecast assumes normal weather defined as 30-year rolling average.

- Includes temperature, Heating Degree Days (HDD), Cooling Degree Days (CDD), and precipitation.

- Historical sales and peak demand are weather normalized for variance analysis.

Electric Vehicle Forecast Process

- Adoption scenarios through 2035 developed using several different modeling techniques (Bass Diffusion and Econometric models).

  - Models based on annual data through 2019.

  - COVID and Recession reduces the new EV sales as well as the average miles driven.

- Forecast includes light, medium and heavy-duty vehicles.

- Peak demand impact is based on hourly charging curve.

  - Charging profile switches from Unmanaged to Managed in 2022.

Electric Vehicle Sales and Loads

	Cumulative # of EV Sales				Consumption (MWh)					Peak Demand	
	LDV	MDV	HDV	Total	LDV	MDV	HDV	Total	% of Retail Sales	MW	% of Retail Peak
2019	525	0	1	526	1,897	0	65	1,963	0.0%	0	0.0%
2020	650	0	2	652	2,287	1	268	2,556	0.0%	0	0.0%
2021	887	0	5	892	3,206	2	642	3,851	0.0%	0	0.0%
2022	1,463	0	9	1,472	4,905	7	1,224	6,136	0.0%	1	0.0%
2023	2,960	18	22	3,000	9,236	309	2,665	12,210	0.1%	1	0.0%
2024	4,603	62	47	4,712	15,797	1,298	5,816	22,911	0.1%	3	0.1%
2025	6,239	137	88	6,463	22,649	3,182	11,229	37,059	0.2%	4	0.1%
2026	8,402	247	156	8,804	30,586	6,118	20,228	56,932	0.2%	6	0.2%
2027	11,360	396	257	12,013	41,288	10,233	34,135	85,657	0.4%	9	0.2%
2028	15,642	568	393	16,603	56,417	15,317	53,525	125,259	0.5%	13	0.3%
2029	21,739	763	551	23,053	78,103	21,149	77,164	176,416	0.7%	18	0.4%
2030	30,244	1,001	746	31,991	108,615	28,062	105,092	241,768	1.0%	25	0.6%
2031	41,656	1,266	966	43,889	150,234	35,900	136,707	322,841	1.3%	34	0.8%
2032	56,894	1,559	1,215	59,668	205,919	44,541	171,354	421,813	1.7%	46	1.1%
2033	77,031	1,879	1,492	80,403	279,836	53,982	208,830	542,648	2.2%	61	1.5%
2034	101,887	2,228	1,799	105,915	373,852	64,237	249,084	687,173	2.7%	79	1.9%
2035	128,099	2,606	2,133	132,838	480,561	75,328	292,442	848,330	3.3%	100	2.4%

DEMAND-SIDE MANAGEMENT

Sales and peak demand forecasts are adjusted to account for expected incremental DSM savings.

- Incremental DSM is projected DSM savings less the amount of historical DSM savings embedded in sales and peak demand.

DSM savings are based on approved DSM filings.

Residential programs: residential lighting (LEDs), weatherization, school kits, and smart thermostats.

C&I programs: motor replacement, custom projects, business lighting, and cooling.

SPS New O&G Load

- SPS Key Account Managers provide potential new load that has been identified through conversations with the customer.

  - No new O&G load in TX.

- Total potential new load adjusted for actual achievement and timing risks.

- Only highly probable loads are included (>=80% probability)

  - Probability of achieving highly probable loads declines over time.

- Assumed to be online the quarter after service is requested.

- Ramps up to full requested capacity over 3 quarters.

- Load factor applied to derive energy impacts.

Forecast Results

SPS Forecast Key Take-Aways

- Near-term Residential use per customer is higher than recent past and Small C/I use per customer is lower.
  - Both Residential and Small C/I use per customer begin to return to long-term trends after 2020 but take several years to return to prior levels.
  - Assume losses in Small C/I sector due to business closures in "experience economy" sectors (Arts and Entertainment, Restaurants and Bars, Retail).
- Large C/I gradually recovers.
  - Slowdown in Oil and Gas extraction/drilling in 2020.
  - Additional negative impacts in 2020 and into 2021 for other mining/manufacturing customers.
- Continued declines in Wholesale as contracts ramp down/expire.

CUSTOMER FORECAST

SPS Total Retail Customers

2020 Customer Counts:
Residential - 313,000
Total C&I – 78,000
Other – 6,300
Total SPS – 397,000

Residential ■ Comm & Ind ■ Other
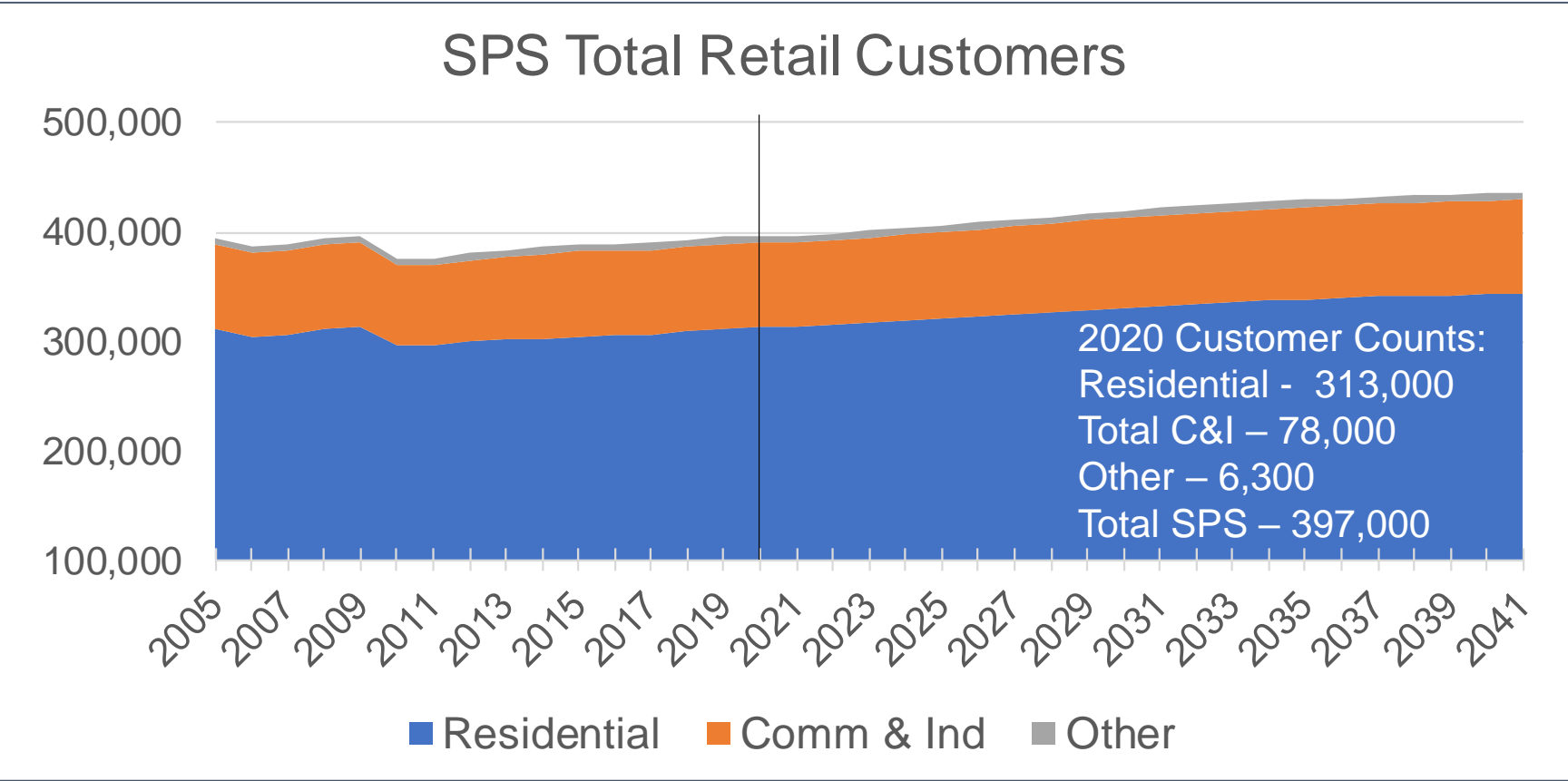
Retail Avg. Annual % Ch.:   2011-2020 = 0.6%   2021–2041 = 0.4%

SALES FORECAST

SPS Total Sales (GWh)

Legend: Residential, Comm & Ind, Other, Wholesale
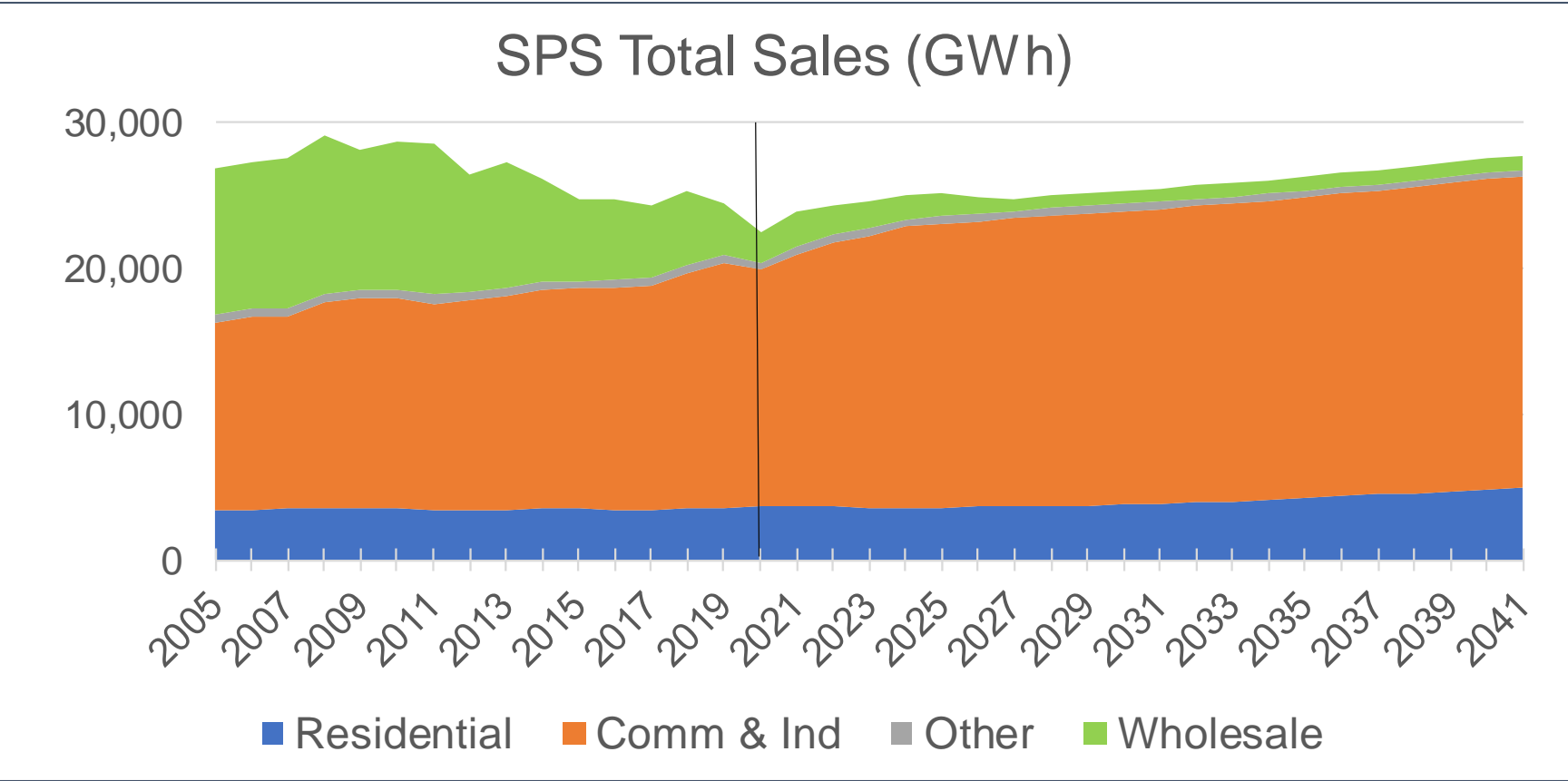
Retail Avg. Annual % Ch.:   2011-2020 = 1.0%   2021–2041 = 1.3%

SPS Total Avg. Annual % Ch.: 2011-2020 = -2.4%   2021-2041 = 1.0%

SALES FORECAST COMPARISONS

SPS Retail Sales (GWh)

PEAK DEMAND FORECAST

SPS Total Peak Demand (MW)

Legend: ■ Retail ■ Full Req Wholesale ■ Part Req Wholesale
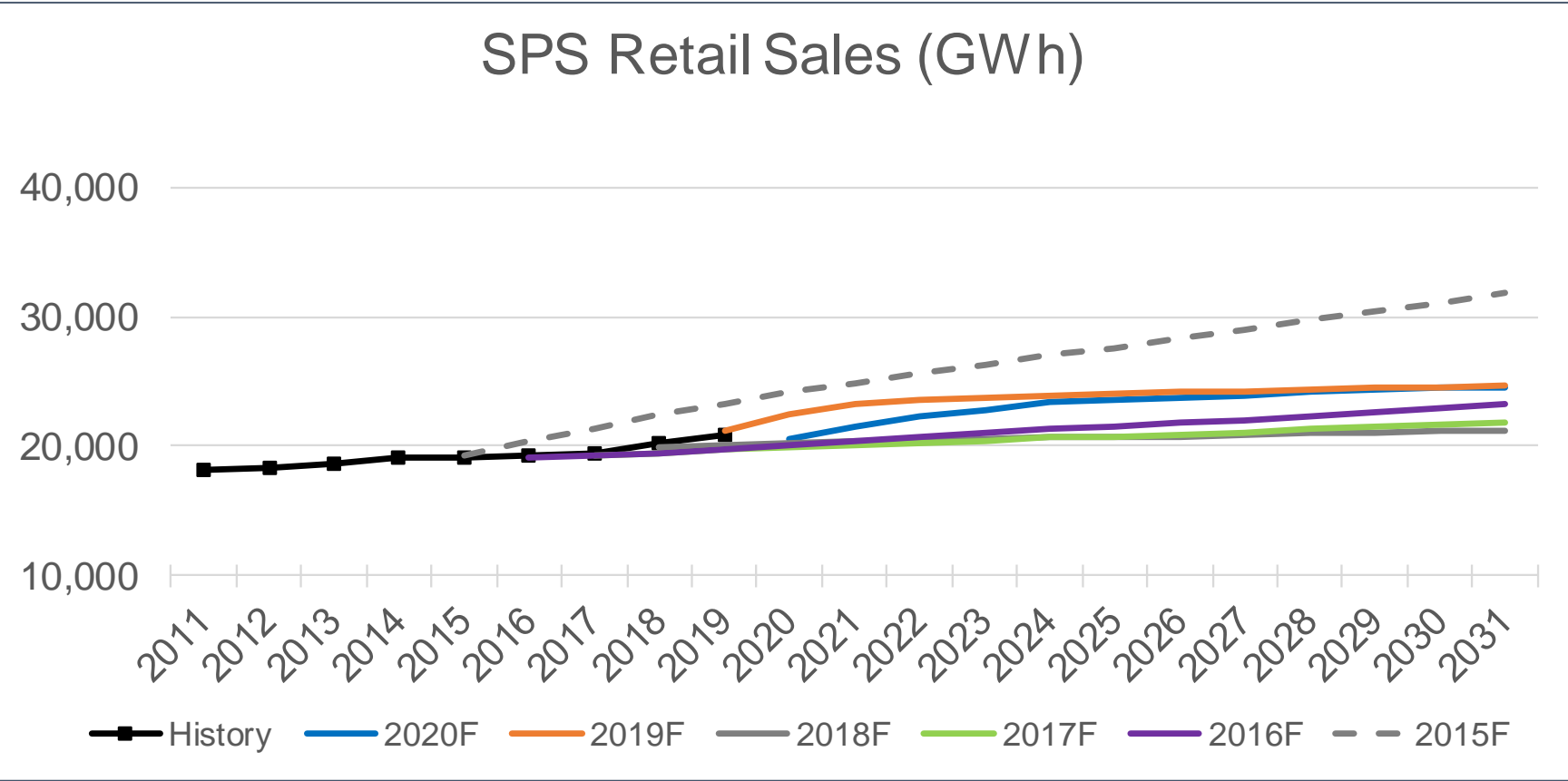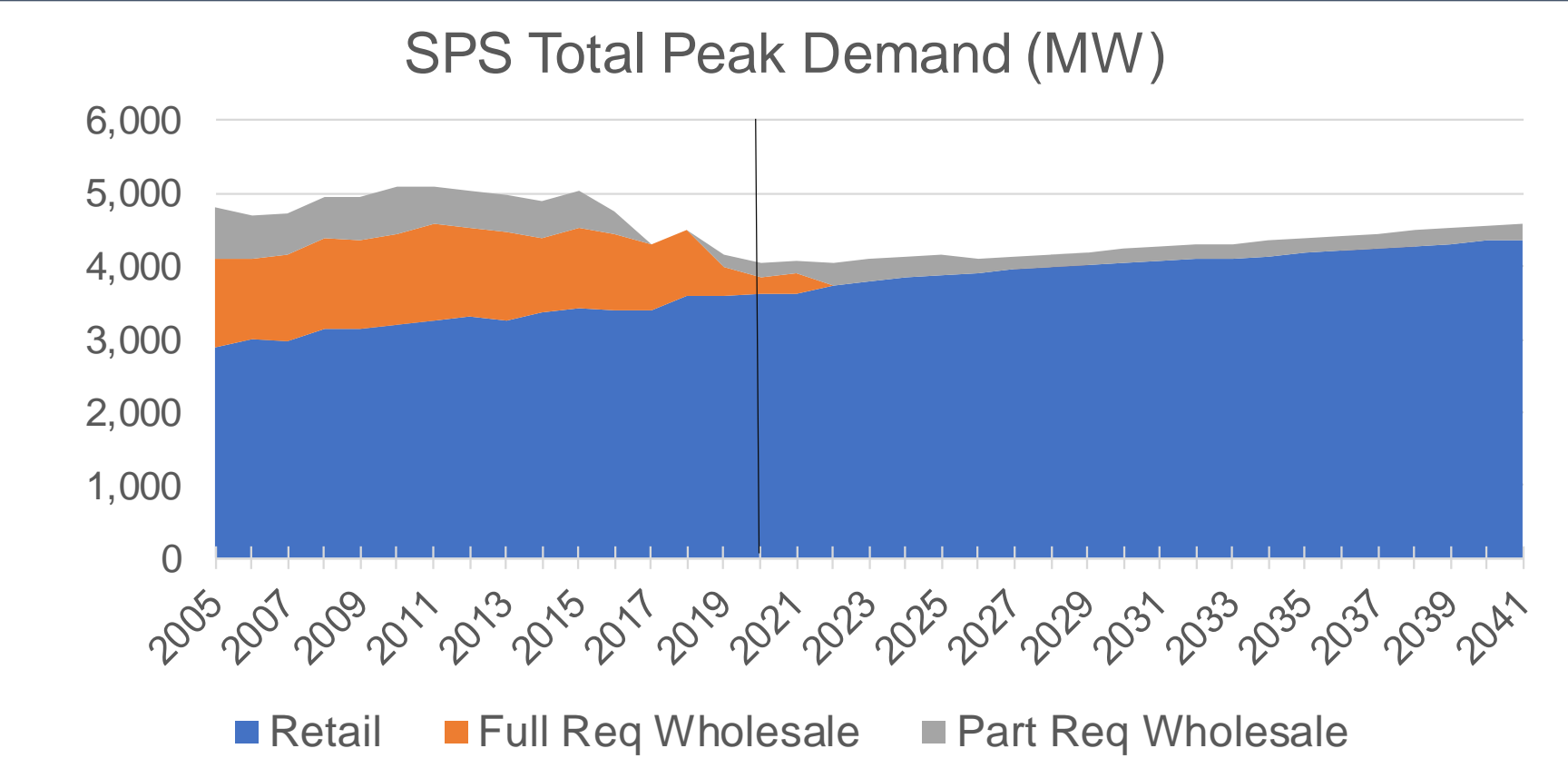
Retail Avg. Annual % Ch.:   2011-2020 = 1.2%   2021–2041 = 0.9%

SPS Total Avg. Annual % Ch.: 2011-2020 = -2.3%   2021-2041 = 0.6%

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Forecast Scenarios

Probability distributions are developed by conducting Monte Carlo simulations on the main drivers of energy and peak demand forecasts (e.g., weather and economics) .

Low-growth scenario is equivalent to the 15th percentile probability distribution.

High-growth scenario is equivalent to the 85th percentile probability distribution.
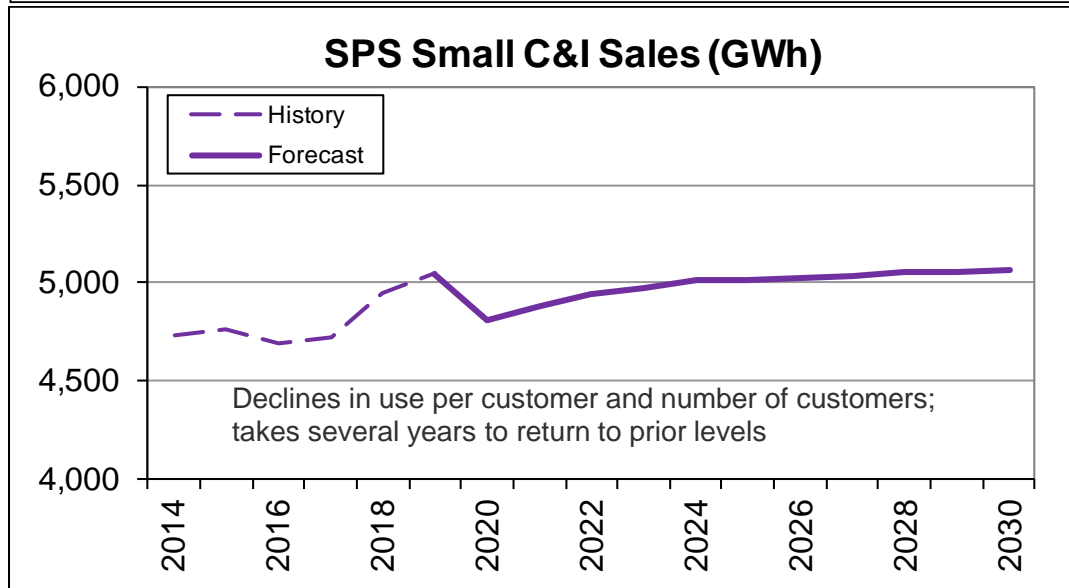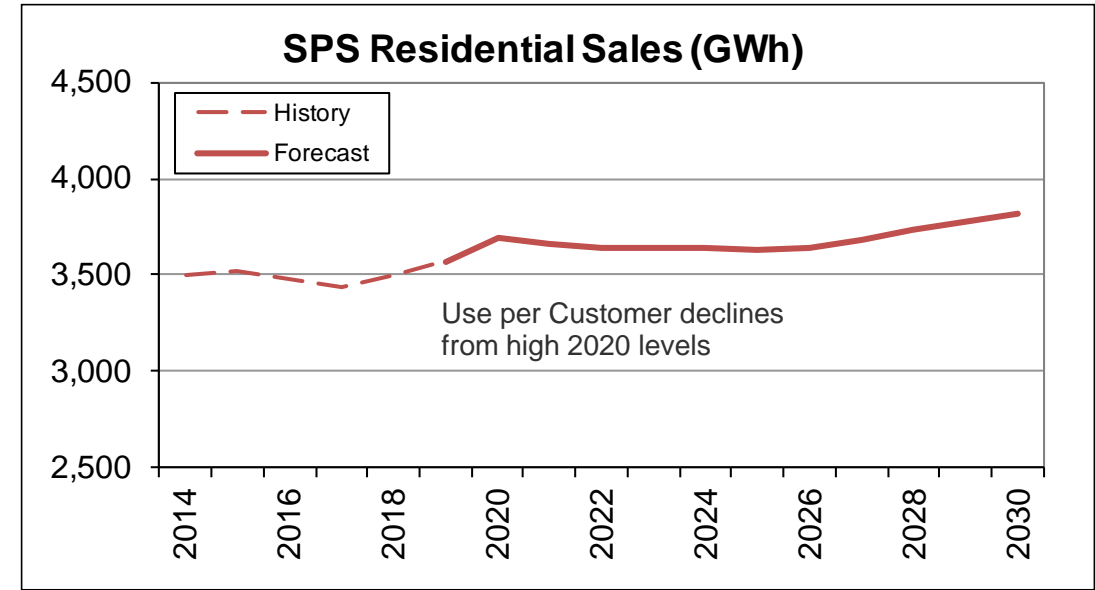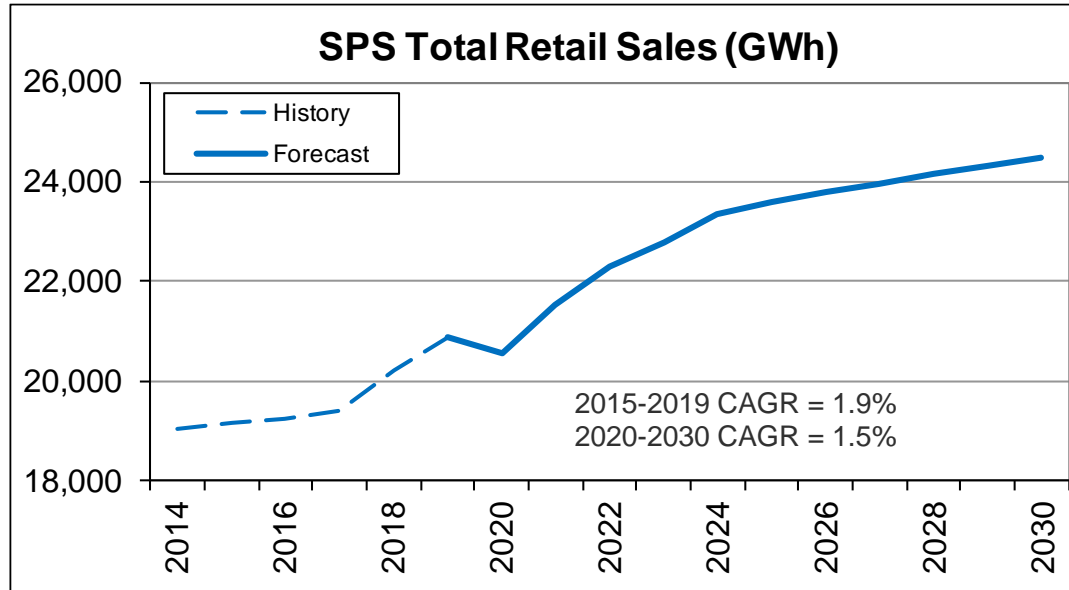
FORECAST SCENARIOS

SPS Total Energy (GWh)

SPS Total Peak Demand (MW)
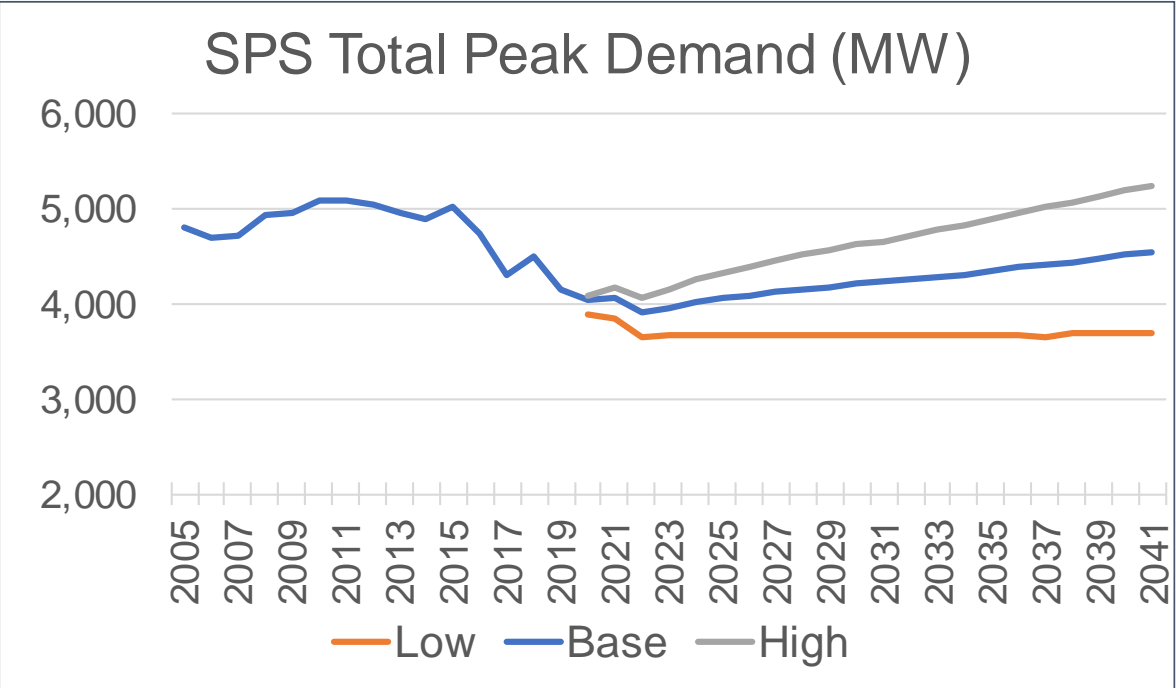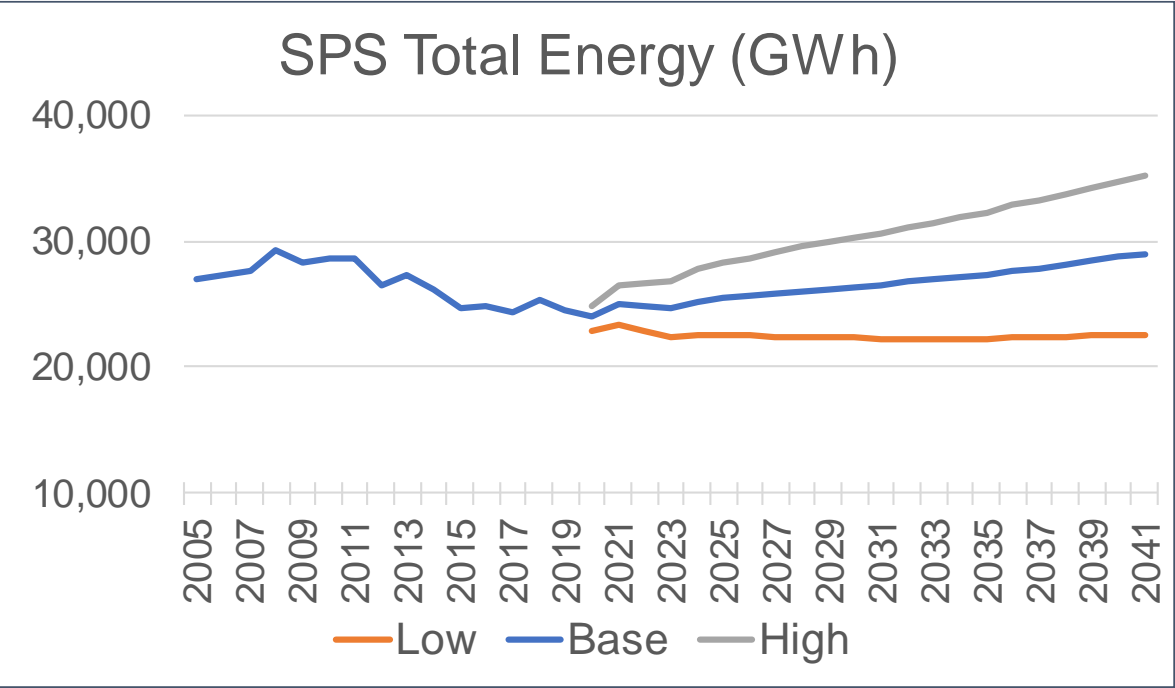
Appendix

SPS Retail Sales

SPS Total Retail Sales (GWh)

- History
- Forecast

2015-2019 CAGR = 1.9%
2020-2030 CAGR = 1.5%

SPS Residential Sales (GWh)

- History
- Forecast

Use per Customer declines
from high 2020 levels

SPS Small C&I Sales (GWh)

- History
- Forecast

Declines in use per customer and number of customers;
takes several years to return to prior levels

SPS Large C&I Sales (GWh)

- History
- Forecast

Significant slowdown in mid-2020,
with some recovery in 2021

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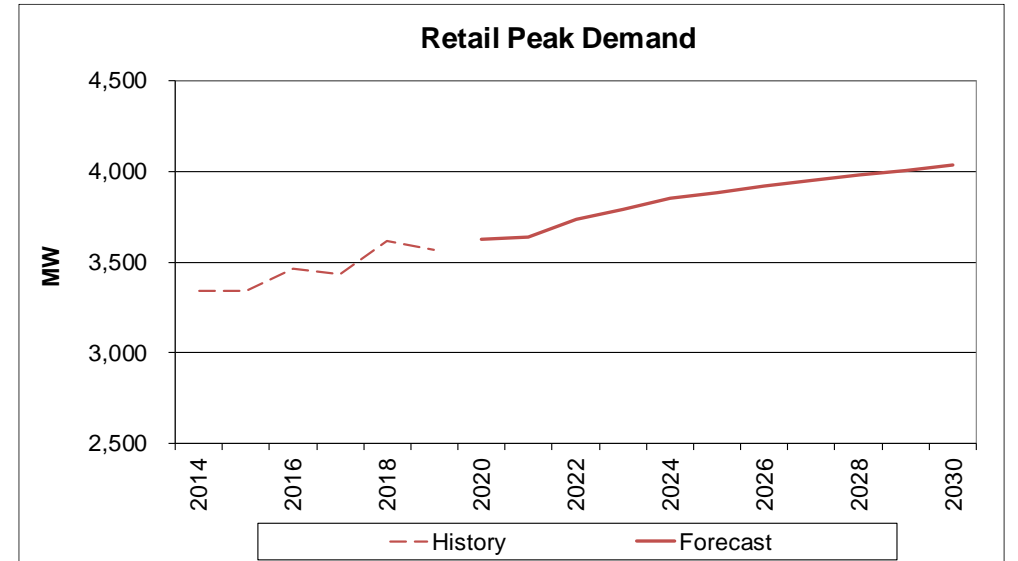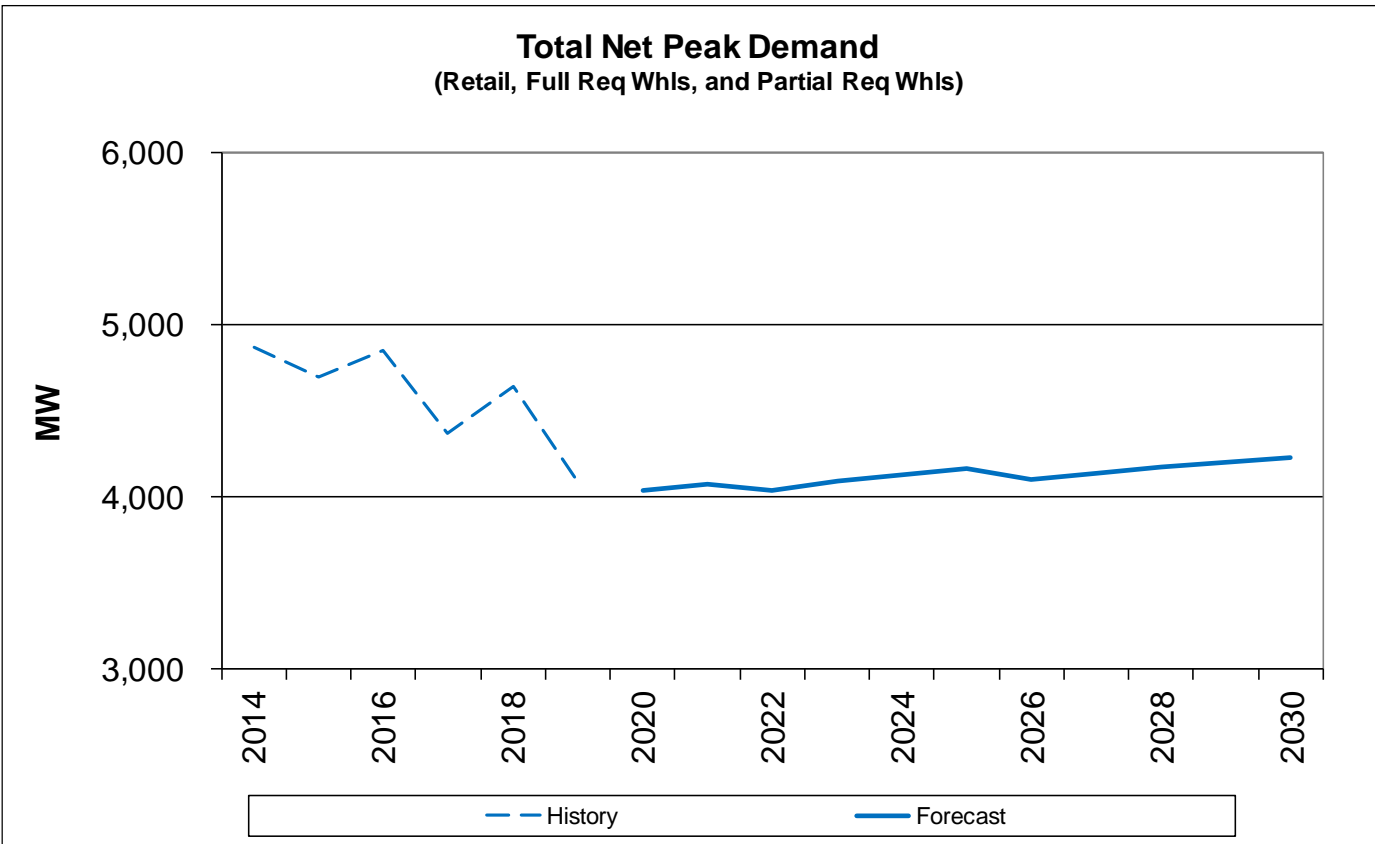
SPS System Peak Demand

QUESTIONS & DISCUSSION

TOPICS FOR FUTURE MEETINGS

- Gas & Power Markets

- Coal Supply

- Energy Storage

NM IRP DETAILS

- Web Page -

    https://www.xcelenergy.com/company/rates_and_regulations/resource_plans/2022_new_mexico_integrated_resource_plan

    * Note: For the Service Area, click on New Mexico. At the bottom of the page click on the Public Advisory Meeting tab, then click on the date for the first public meeting

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SPS New Mexico 4ᵗʰ IRP Public Meeting

Date: March 23, 2021

Time: 10:00 AM – 12:00 PM Mountain Time

Location: Zoom Meeting