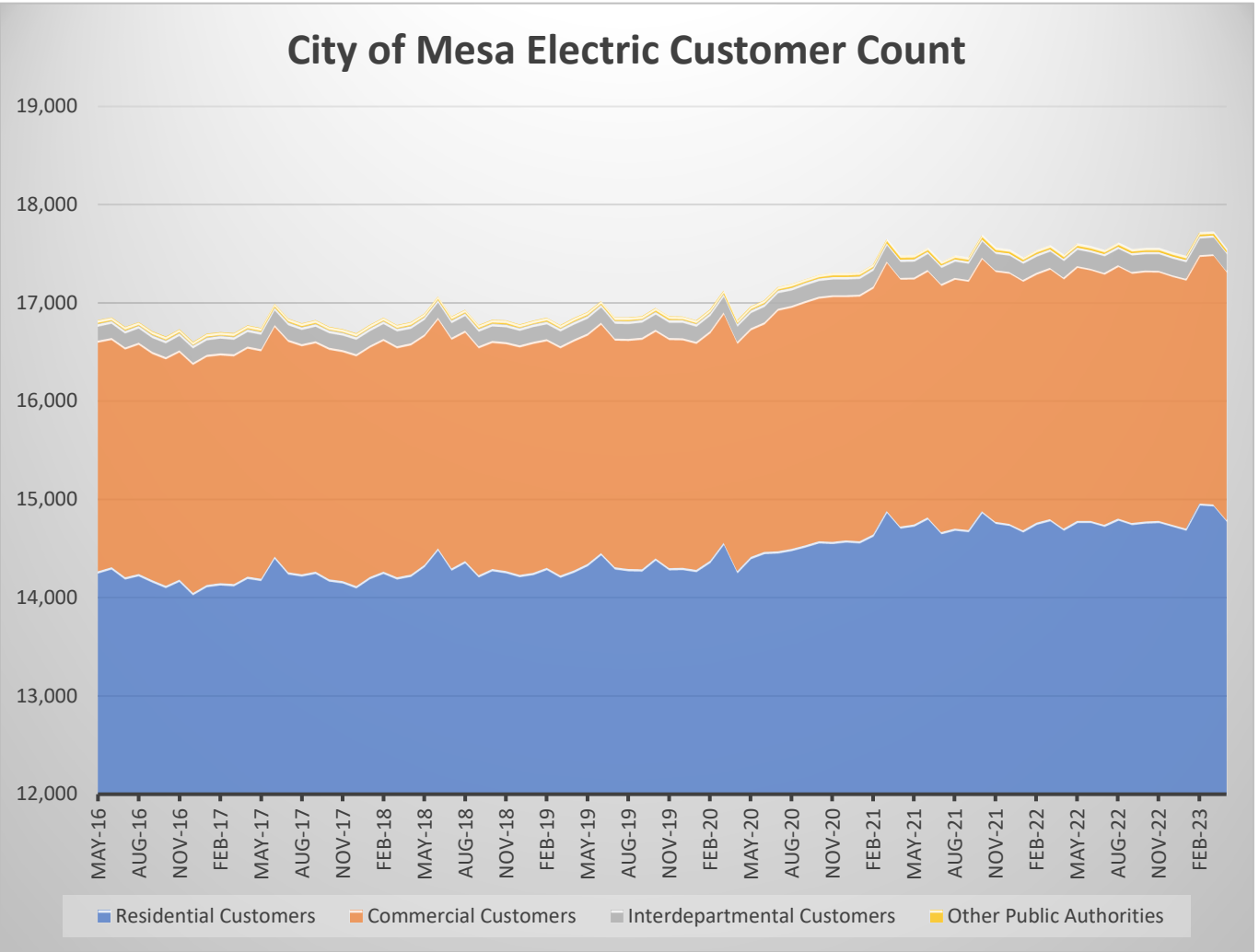
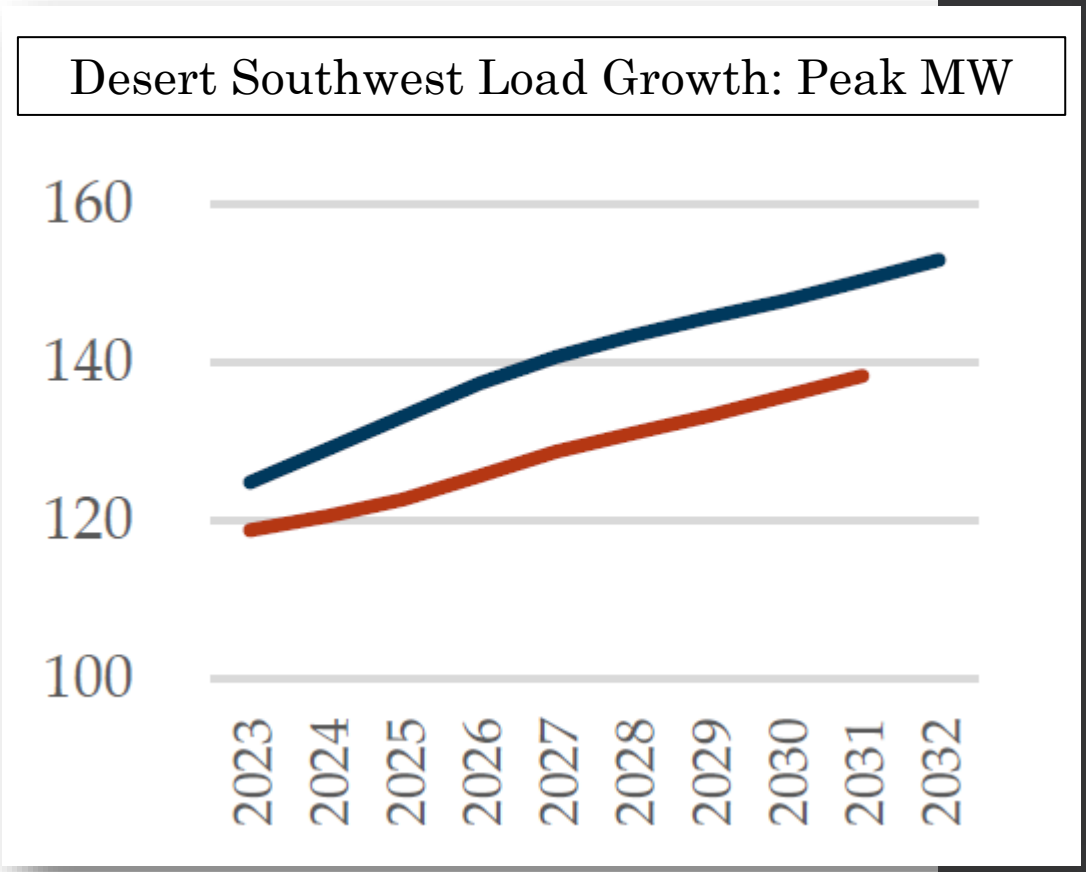
Power Portfolio Update

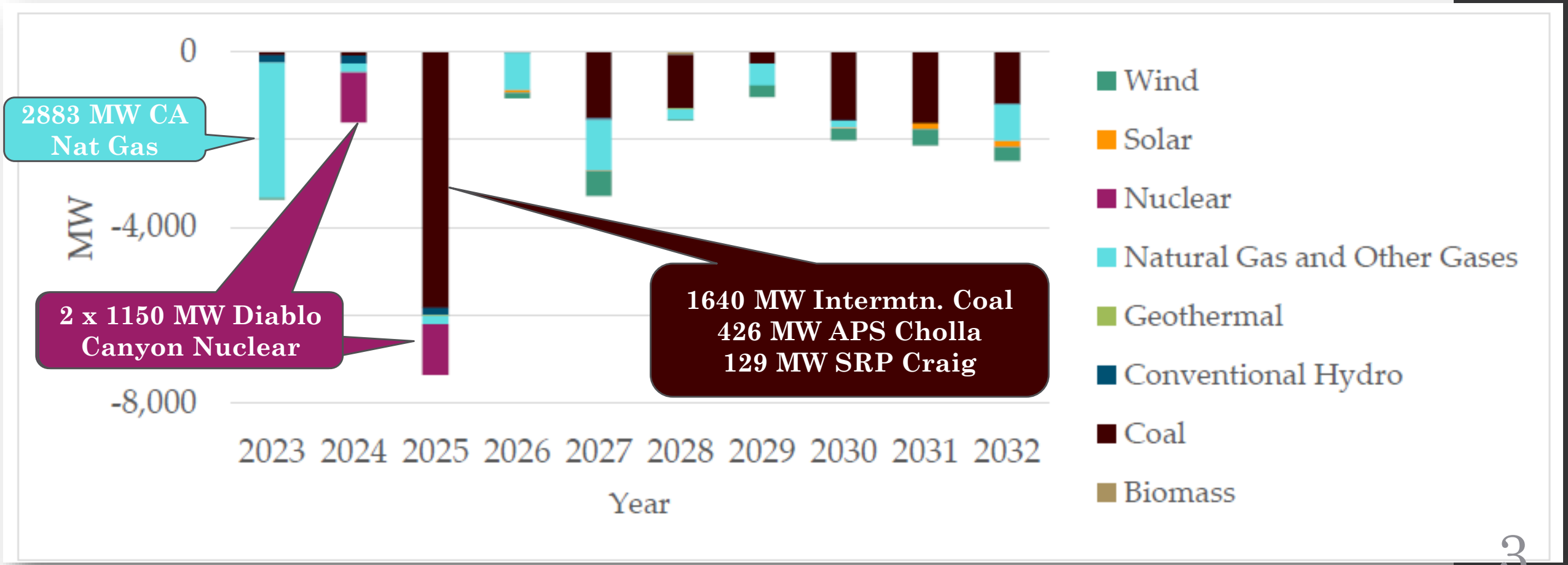
Energy Resources Department, 6/8/2023

System and Regional Growth

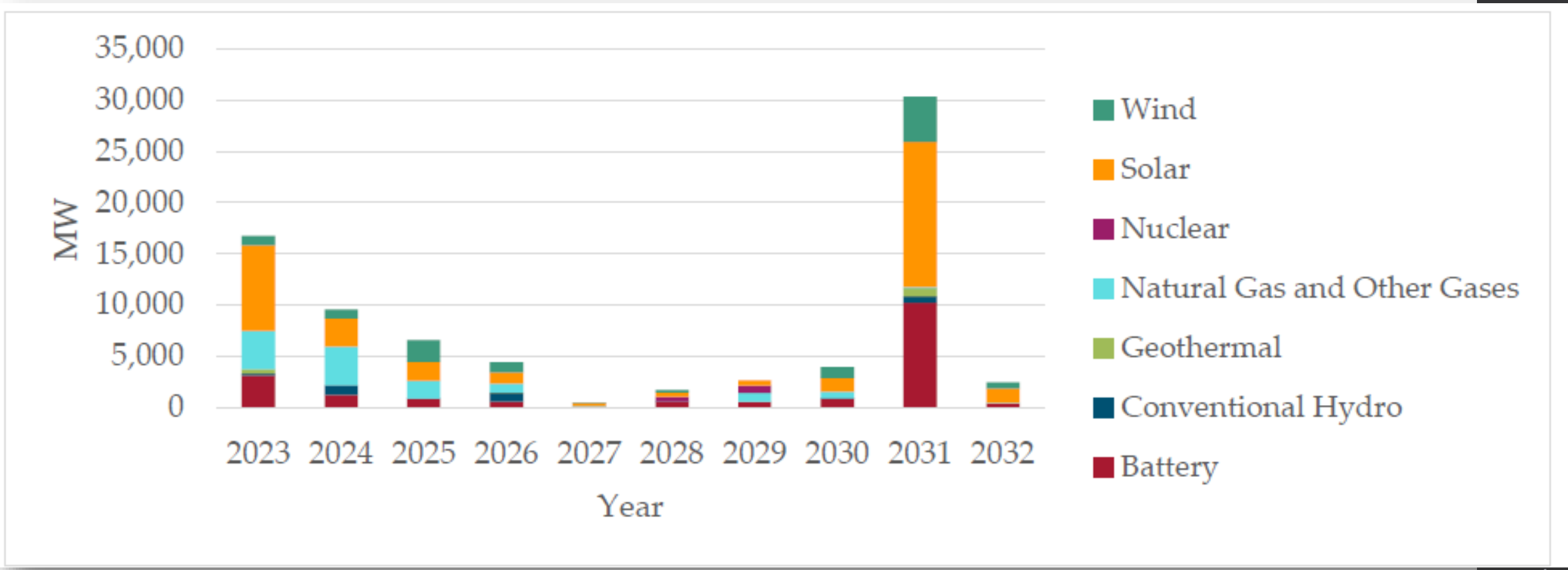




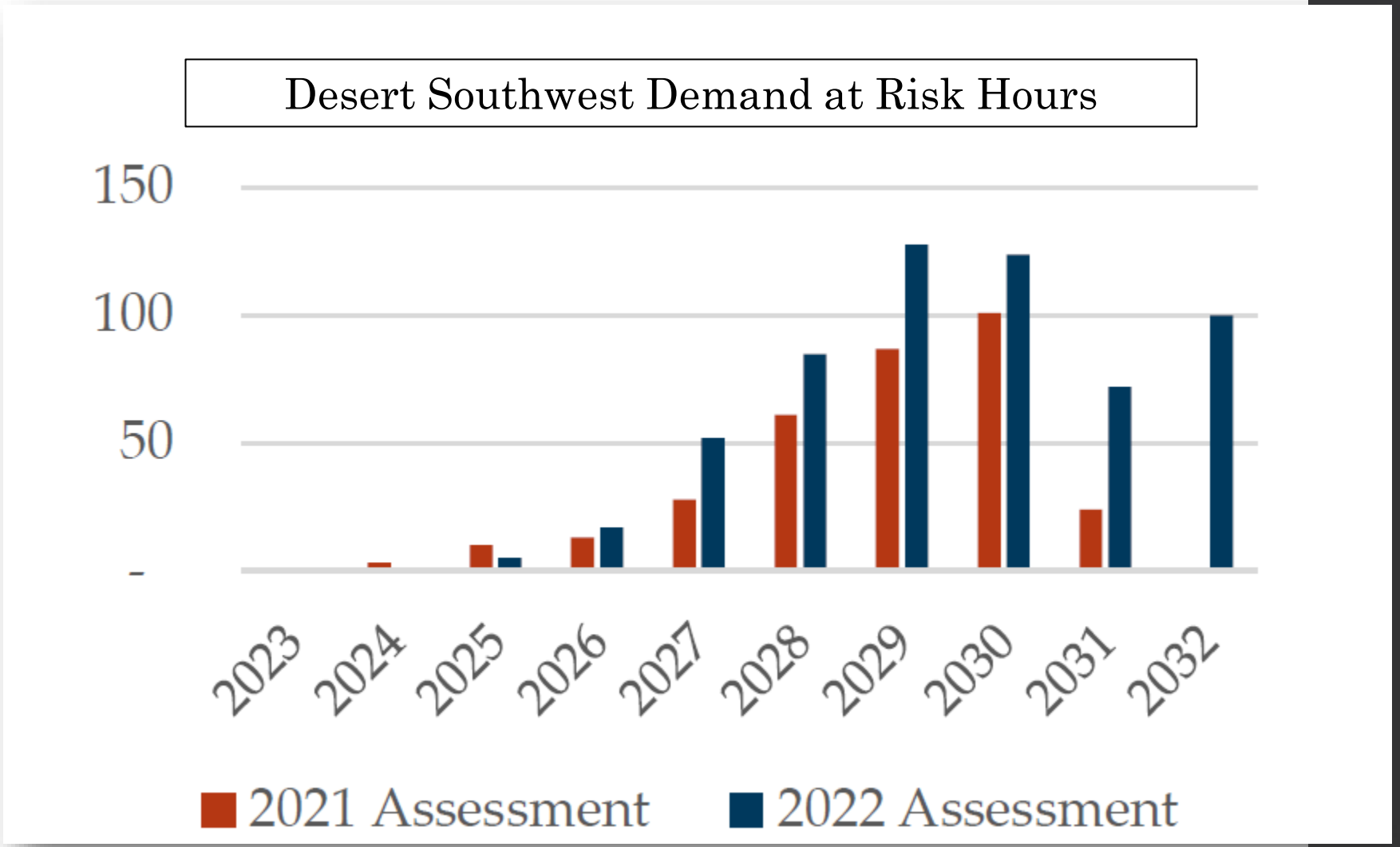
Resource Retirements



Resource Additions



Demand at Risk Indicator (DRI):
Number of hours when grid stability is at risk out of 8,760 total hours per year



SRP and APS 2018-23

- SRP Reduced:
  - Purchased power: 1,399 MW to 0 MW
  - Wholesale sales: 1,151 MW to 88 MW
- SRP Increased:
  - Renewable generation: 591 MW to 1,228 MW
  - Peak load forecast: 7,227 MW to 7,747 MW
- APS Increased:
  - Renewable generation: 512 MW to 669 MW
  - Peak load forecast: 7,165 MW to 8,184 MW

What does this mean for Mesa?

- The power “market” remains challenging to rely on
- Utilize our strengths
  - Great at contracting for power through competitive RFP
  - Own a natural gas distribution system
- Continue progression towards:
  - Inexpensive renewable resources
  - Flexible, reliable generation resources to supplement renewables

Power Supply **Portfolio**

1. Utility Scale Renewable Resources

SRP – Mesa Renew. Energy Project (16%)

Additional Utility Solar via RFP

2. Local Renewable Resources

Downtown Solar 1: 804 kW (0.4%)

Downtown Solar 2: ~2,500 kW (0.9%)

Customer Solar: ~1,700 kW (0.9-1.7%)

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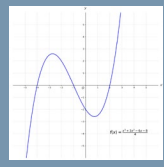
3. Local Dynamic Resources

PD Microgrid (4-6%)

Rogers Generation Project



Additional Resources/ Microgrids

4. Supporting Programs

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5. Market & Hydro Resources

Colorado River Storage Project (5%)

Parker-Davis Project (15%)

Wholesale Market

PD Microgrid

Normal Operation
~ 3 MW Natural Gas Generation
2,000 – 6,000 Hours/year
4-6% of Annual Energy Requirements

Large Power Outage:
"Backup" Entire PD Campus

Rogers Generation Project

Esporta Fitness

Battery Energy Storage System (BESS)?

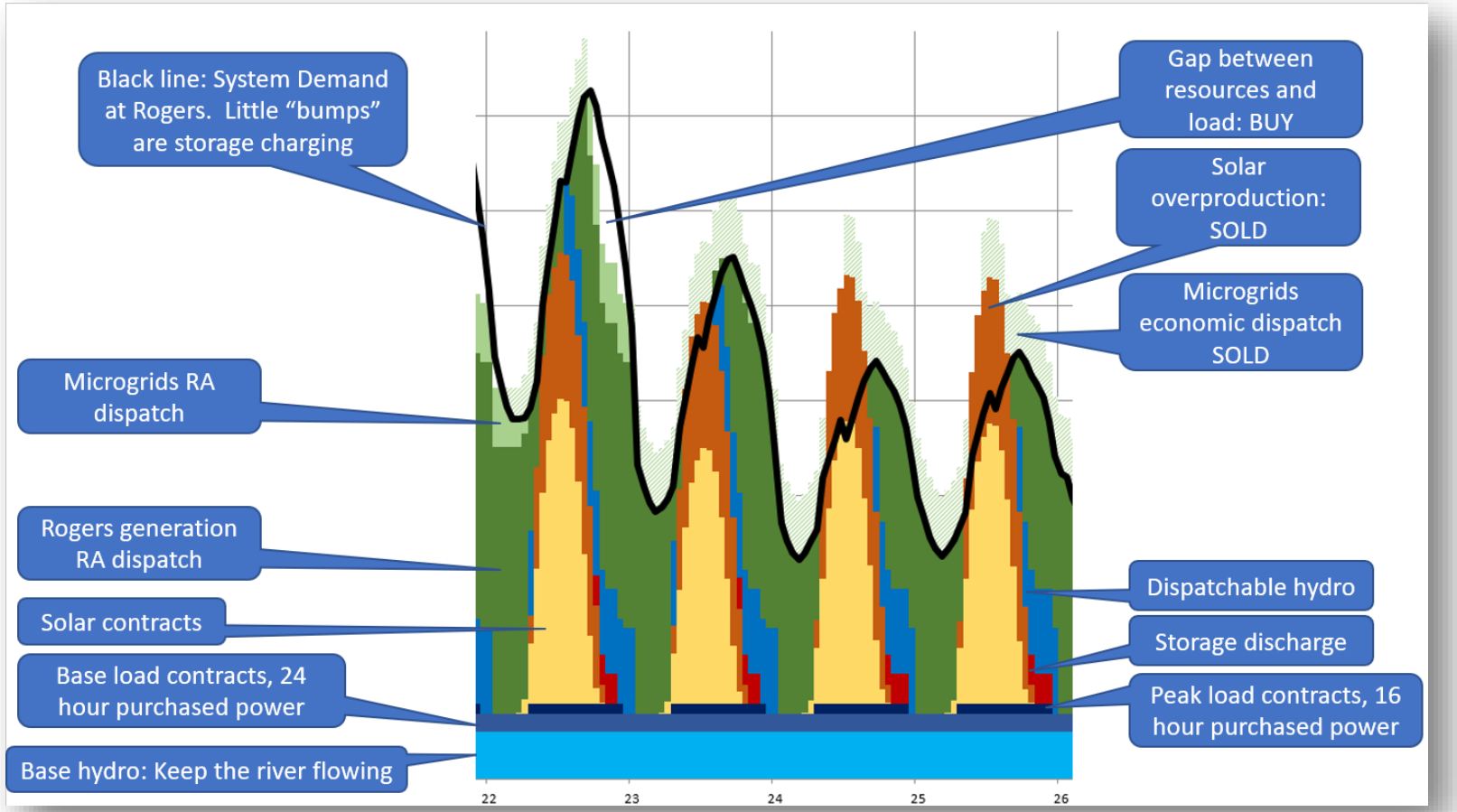
Electric Substation?

Natural Gas Generation?

FOR DISCUSSION PURPOSES ONLY

Local Dynamic Resources

- Modeling is very complex, but we're seeking to optimize the portfolio



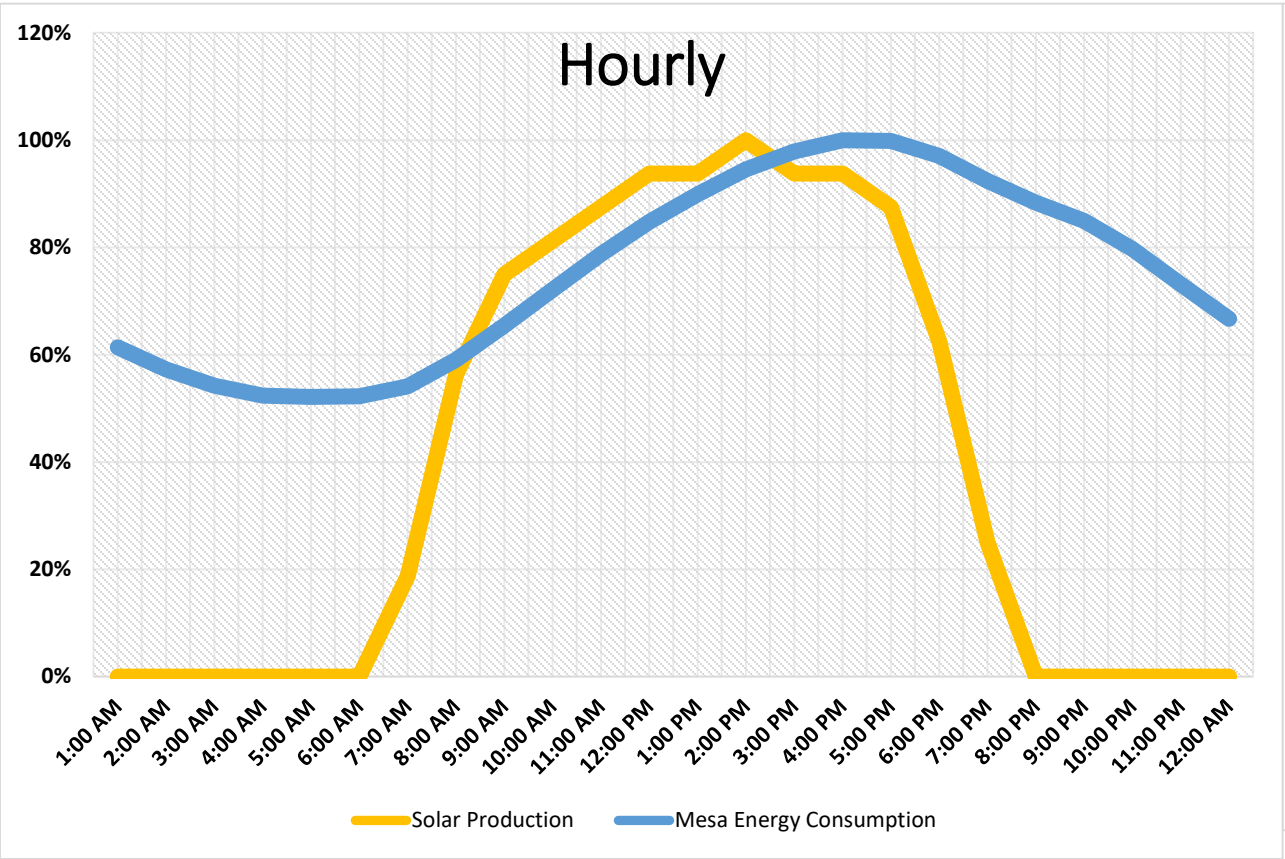
Local Dynamic Resources

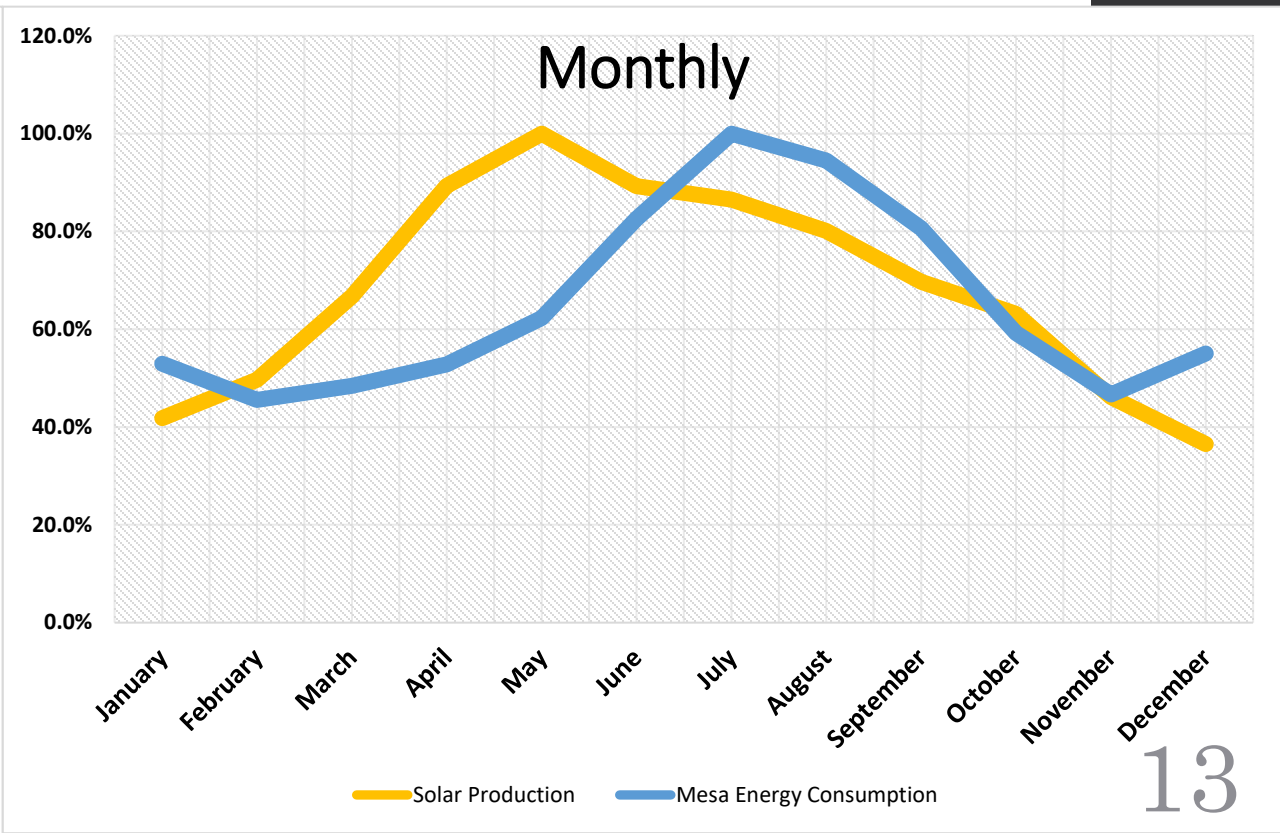
- Modeling results to date:

	No Generation Added	With 30 MW of Generation Added
Amount of Additional Solar to Add to Portfolio	4-7 MW	42 – 46 MW
Amount of Additional Storage Added	12 – 17 MW	4 – 6 MW
Average Total Portfolio Cost	$75 - $80/MWh	$57 – $62/MWh
% Renewable	~40%	~63%

More Natural Gas Generation?

- Why?
  - Mismatch of solar





More Natural Gas Generation?

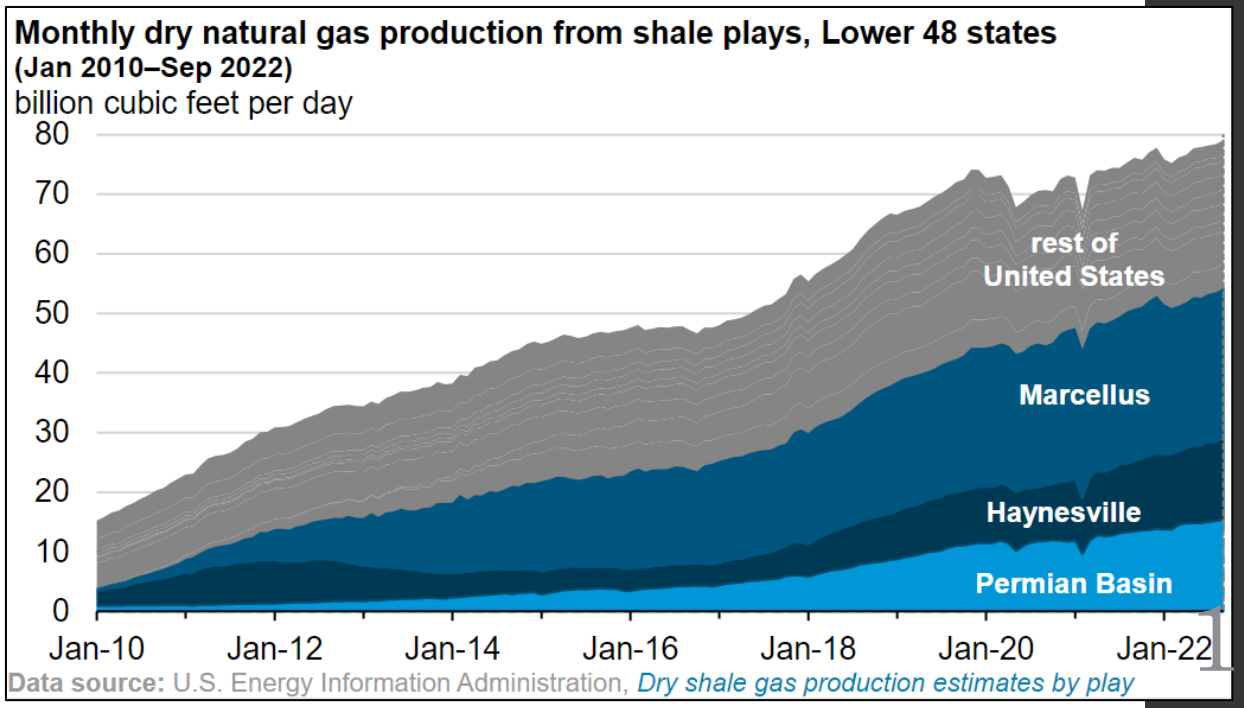
- Why?
  - Mismatch of solar
  - Storage is (still) very expensive to build

APS Surprise Battery Storage 2020: 9 Fire Personnel Injured

SRP AES Chandler Battery Storage: 2+ Week Fire

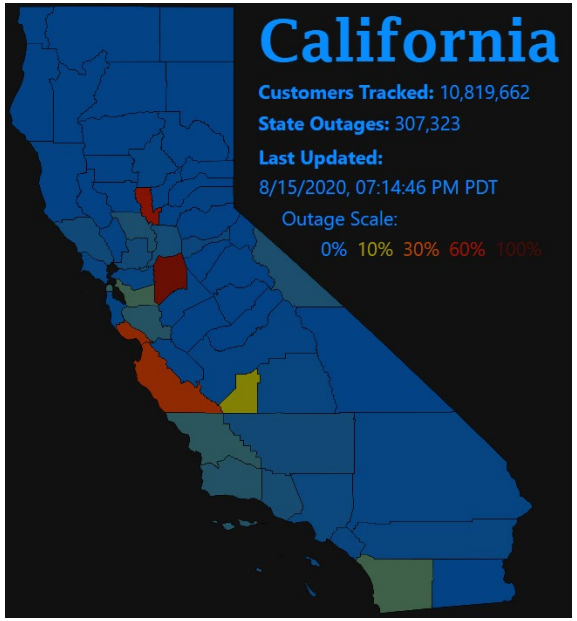
More Natural Gas Generation?

- Why?
  - Mismatch of solar
  - Storage is (still) very expensive to build
  - Mesa has advantageous access to natural gas
    - Transmission is a challenge
    - Supply is inexpensive and plentiful
      - Permian Basin is second largest gas producer in the country



More Natural Gas Generation?

- Why?
  - Mismatch of solar
  - Storage is (still) very expensive to build
  - Mesa has advantageous access to natural gas
  - Natural gas provides stability against renewables' variability



Moving Forward

- PD Microgrid In Progress
  - ~3 MW of natural gas generation
  - 4-6% of annual energy supplies
- Rogers Generation Site Under Study
- Additional Microgrid(s) Under Study

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