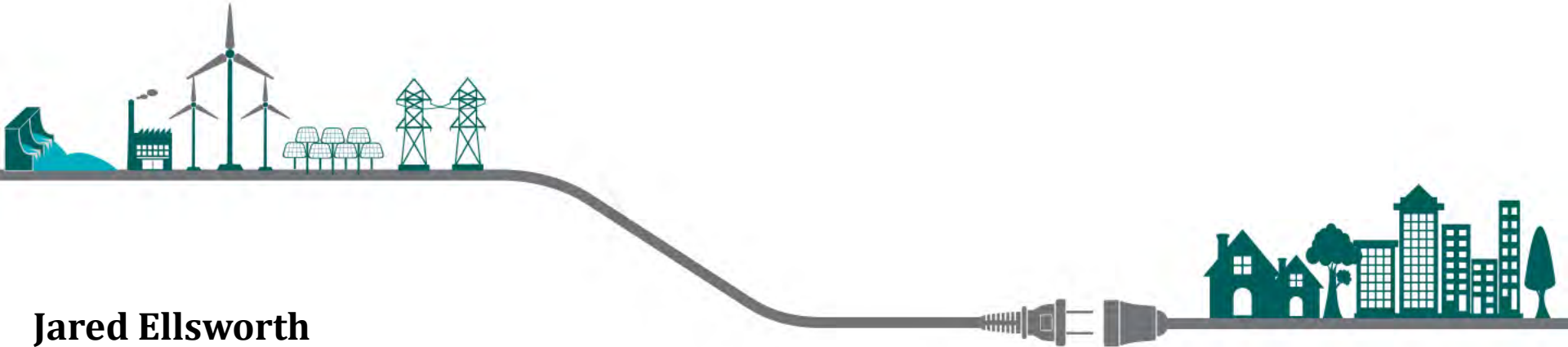


# Valmy Unit 2 Study Update



**Jared Ellsworth**

Transmission, Distribution & Resource Planning Director

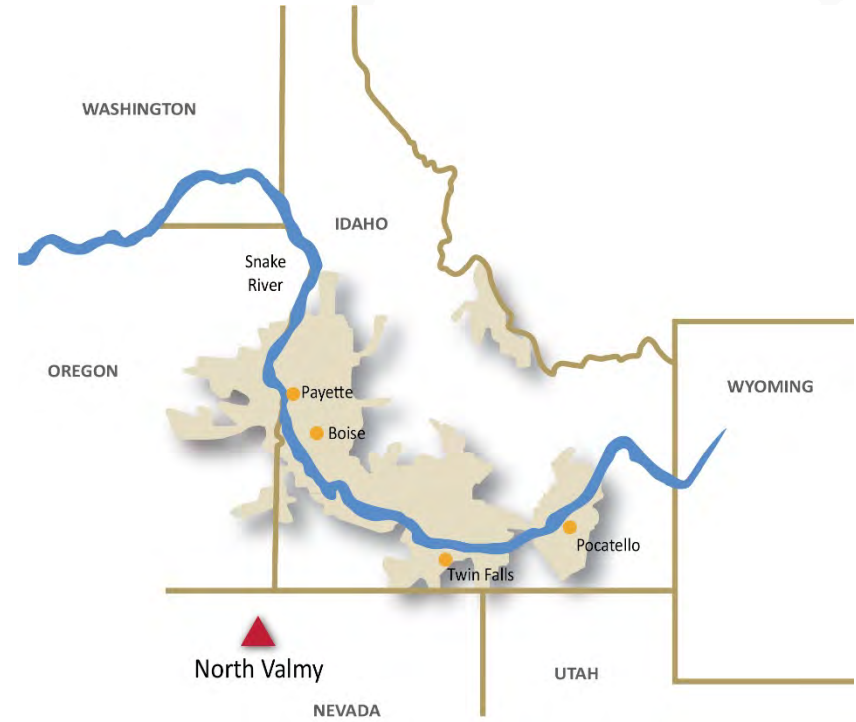
**Curtis Westhoff**

System Consulting Engineer

April 8, 2021

# North Valmy Generating Station

- Location: Battle Mountain, Nevada
- Owners: Idaho Power & NV Energy  
50% co-owners
- Idaho Power exited Unit 1 in 2019
- Typical Summer-only operation



# Valmy Unit 2 Exit Date

## 2019 Second Amended IRP Review

...Exiting Valmy Unit 2 in 2022, rather than 2025, would provide approximately \$3 million in net present value savings due to avoided capital investment and net O&M reductions.

...However, potential savings based on a long-term analysis should not be the sole consideration. Rather, near-term economic and reliability impacts of an earlier exit must also be evaluated using data points such as forward market hub price forecasts, planned unit outages, Idaho Power's customer risk management processes, and recent market conditions, among other items.

# Valmy Unit 2 Exit Date

## 2019 Second Amended IRP Review

For these reasons, in the months ahead, Idaho Power will conduct further analysis of Valmy Unit 2 exit timing. In particular, the company will assess the feasibility of a 2022 exit, which would require 15 months of advance notice to the plant operator (i.e., a decision prior to Sept. 30, 2021).

The analysis will consider customer reliability, more current operating budgets, and economics to inform a decision that will minimize costs for customers while ensuring Idaho Power can maintain system reliability.



# Valmy Unit 2 Exit Date

## 2019 Second Amended IRP Review

As noted in the 2017 IRP, Idaho Power will also need to explore whether a long-term firm purchase of transmission and energy in the South can adequately replace any deficit caused by an earlier Valmy Unit 2 closure. Idaho Power may need to ensure availability by issuing a request for proposal for a long-term purchase.

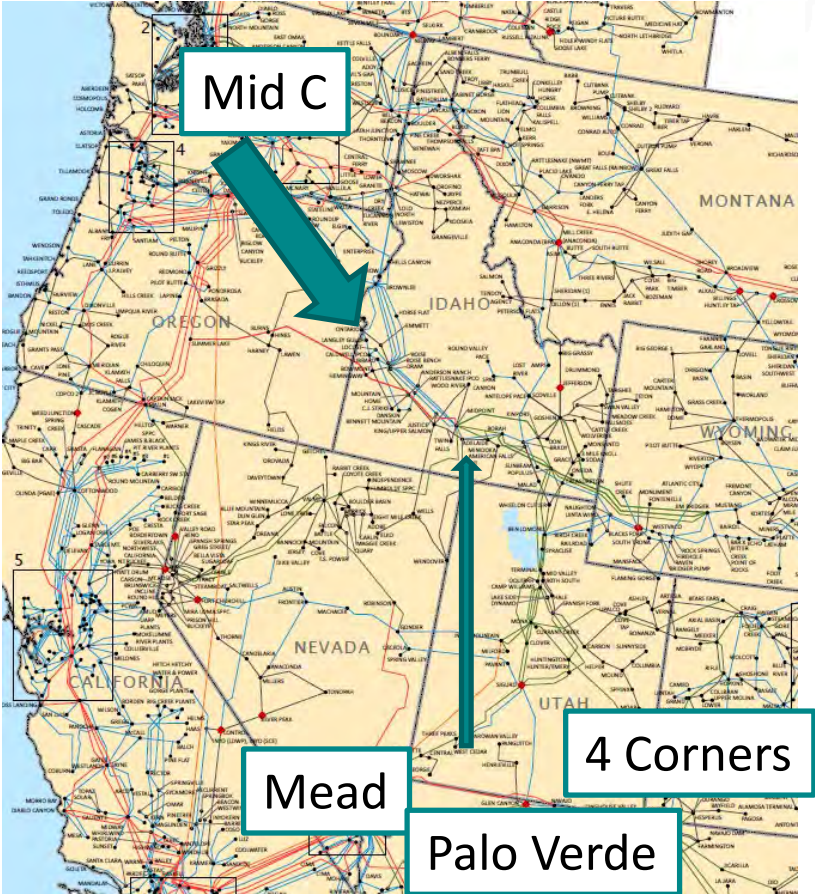
Absent such long-term purchase, it may not be feasible to exit the unit prior to the completion of Boardman to Hemingway (B2H).

# Valmy Special Study

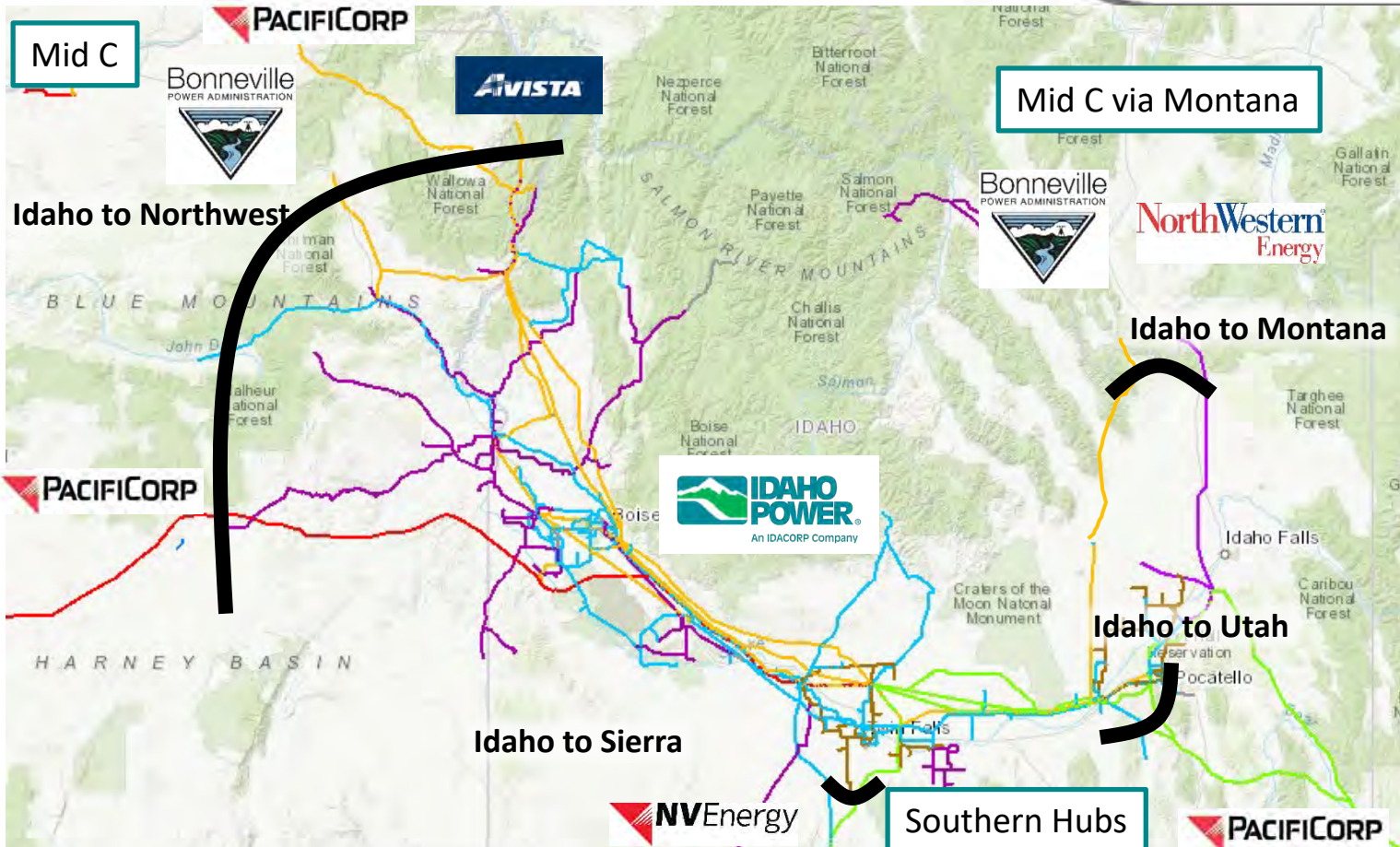


- Study Purpose – Conduct focused, near-term system reliability, and economic analysis on the timing of an exit from Valmy Unit 2.
  - Review near-term assumptions and changes since 2019 IRP
  - 15-month advance notice required to plant operator for an early exit

# Market Imports – Hub Locations



# Paths and Interconnections



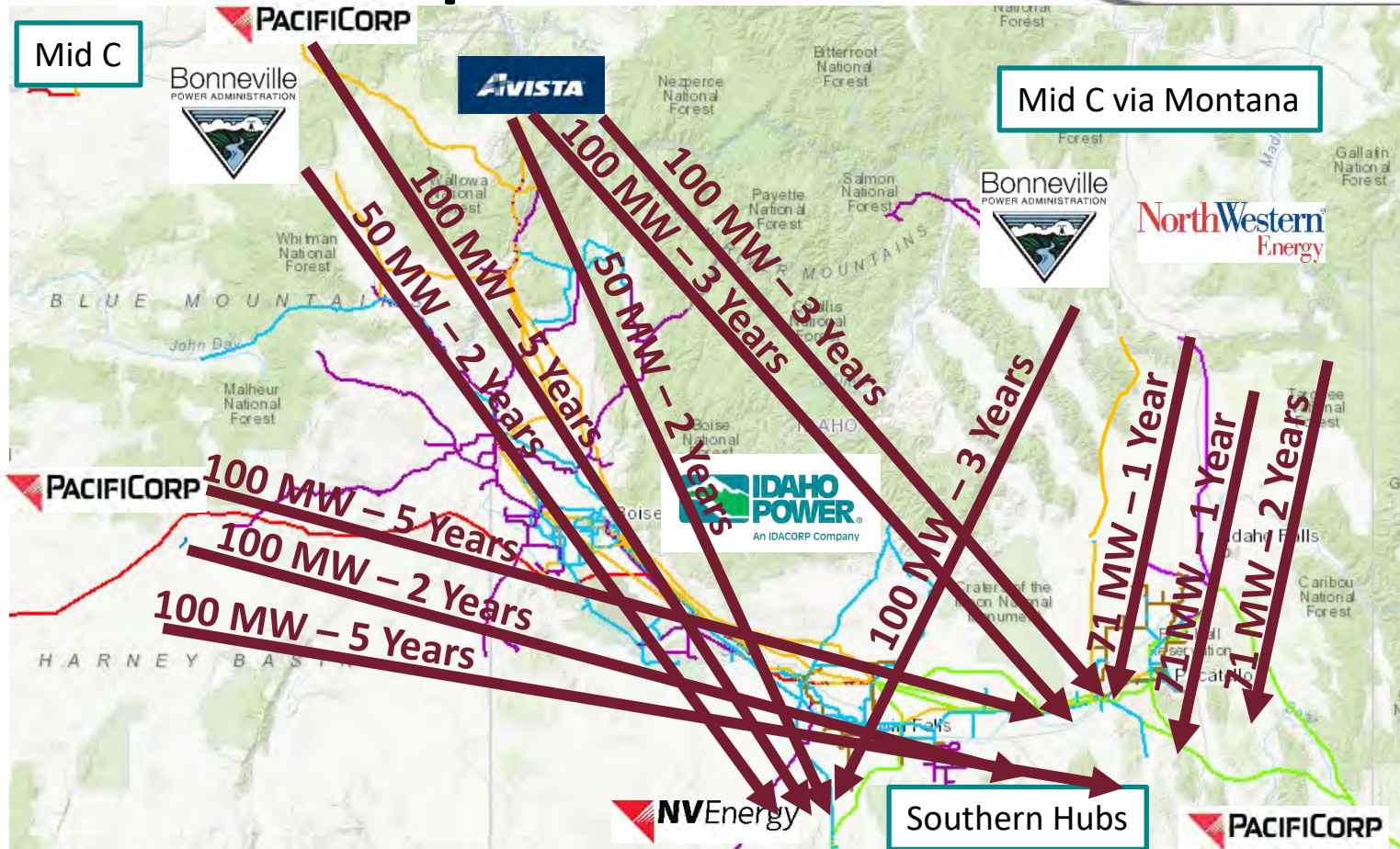


# Transmission Import Assumptions



- August 2020 California energy emergency event has impacted regional transmission availability.
  - We reserve Idaho Power owned transmission interconnections.
  - Transmission on neighboring systems beyond our border has recently been reserved by third party marketing firms potentially limiting our access to market hubs.

# Transmission Requests

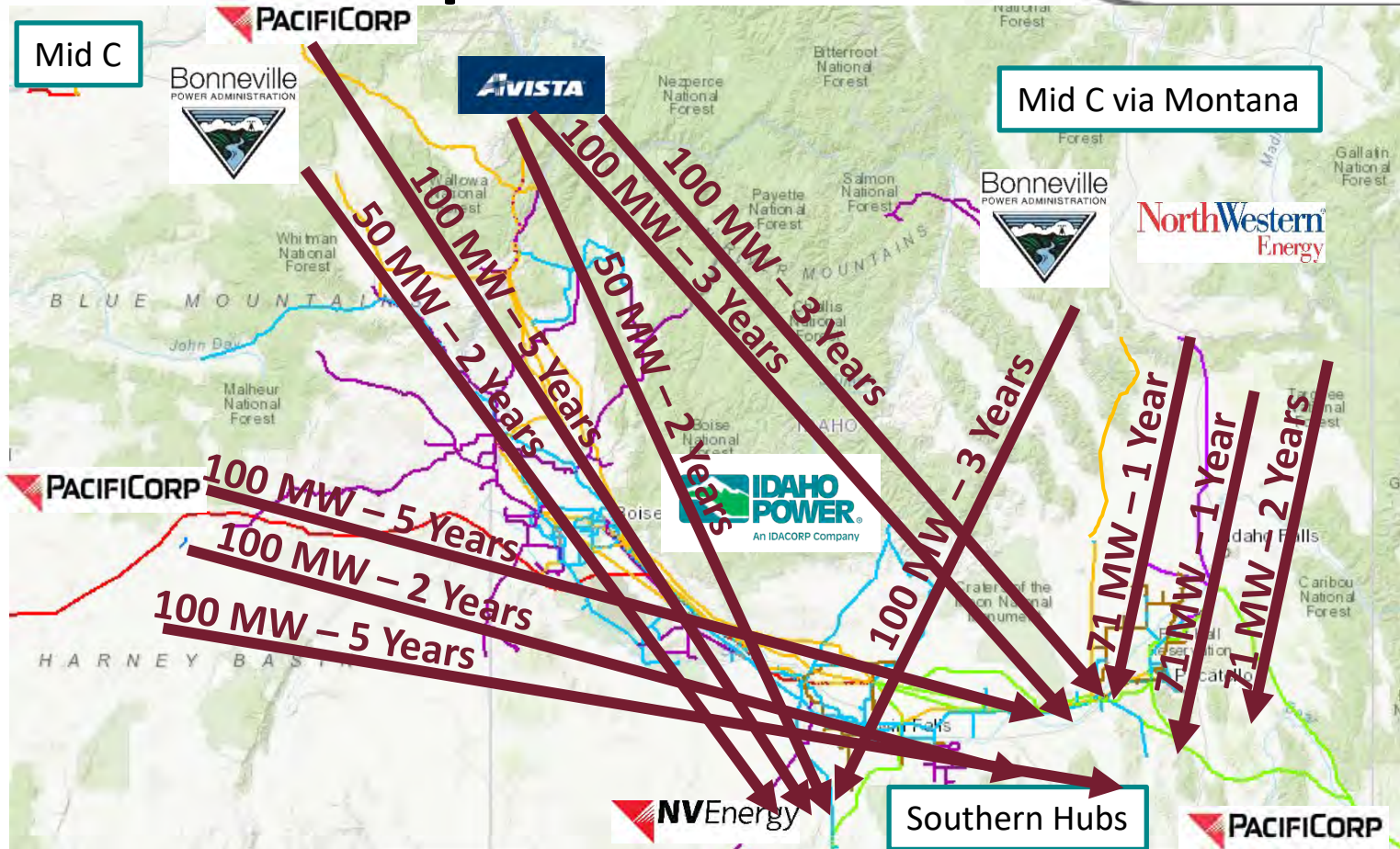


# Summer Market Forward Prices

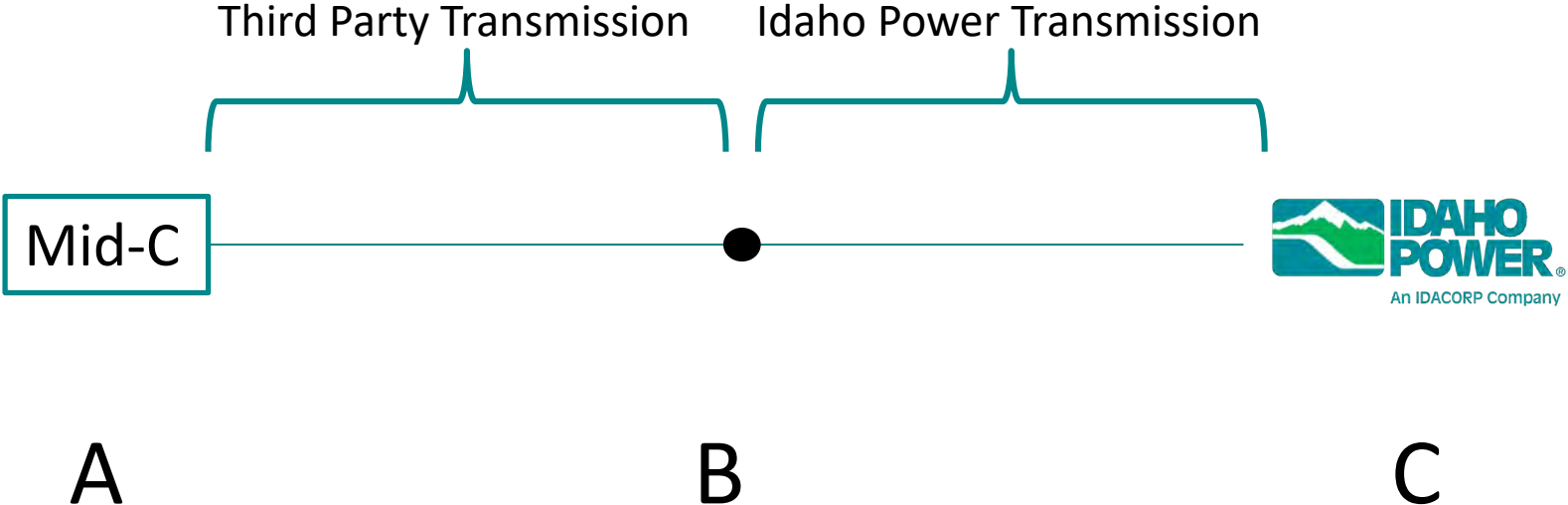
Forward Prices for Jun - Sept as of 3/17/2021

		MidC				Palo Verde						
		Curve	Flow Date	HL	LL	Curve	Flow Date	HL	LL			
2021	MidC	6/1/2021	\$	24.00	\$	11.00	PV	6/1/2021	\$	77.00	\$	41.00
	MidC	7/1/2021	\$	57.60	\$	26.00	PV	7/1/2021	\$	215.25	\$	54.80
	MidC	8/1/2021	\$	82.25	\$	37.30	PV	8/1/2021	\$	198.90	\$	59.10
	MidC	9/1/2021	\$	63.00	\$	35.00	PV	9/1/2021	\$	125.45	\$	53.00
2022	MidC	6/1/2022	\$	22.30	\$	13.65	PV	6/1/2022	\$	55.55	\$	39.00
	MidC	7/1/2022	\$	48.15	\$	24.65	PV	7/1/2022	\$	134.20	\$	52.65
	MidC	8/1/2022	\$	62.70	\$	37.00	PV	8/1/2022	\$	134.05	\$	53.45
	MidC	9/1/2022	\$	52.75	\$	31.45	PV	9/1/2022	\$	101.85	\$	44.55
2023	MidC	6/1/2023	\$	18.85	\$	8.00	PV	6/1/2023	\$	48.60	\$	29.70
	MidC	7/1/2023	\$	53.10	\$	29.85	PV	7/1/2023	\$	108.80	\$	52.80
	MidC	8/1/2023	\$	62.30	\$	37.55	PV	8/1/2023	\$	108.60	\$	54.20
	MidC	9/1/2023	\$	50.60	\$	30.50	PV	9/1/2023	\$	86.85	\$	50.40
2024	MidC	6/1/2024	\$	21.75	\$	11.25	PV	6/1/2024	\$	39.50	\$	27.45
	MidC	7/1/2024	\$	50.15	\$	28.50	PV	7/1/2024	\$	94.95	\$	50.95
	MidC	8/1/2024	\$	57.20	\$	34.85	PV	8/1/2024	\$	93.45	\$	52.70
	MidC	9/1/2024	\$	47.35	\$	29.60	PV	9/1/2024	\$	71.75	\$	48.15
2025	MidC	6/1/2025	\$	24.65	\$	13.75	PV	6/1/2025	\$	40.30	\$	26.80
	MidC	7/1/2025	\$	45.80	\$	25.15	PV	7/1/2025	\$	97.95	\$	57.55
	MidC	8/1/2025	\$	50.85	\$	29.90	PV	8/1/2025	\$	96.40	\$	59.70
	MidC	9/1/2025	\$	45.80	\$	29.60	PV	9/1/2025	\$	73.65	\$	54.65

# Transmission Requests

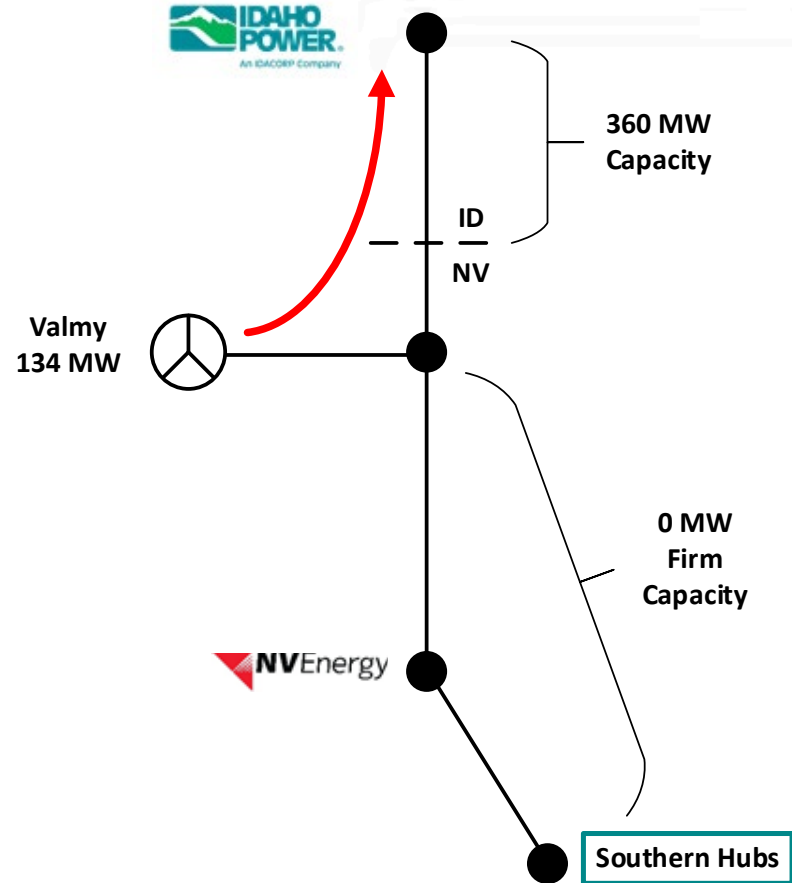


# Mid-C Market Connection



# Southern Market Transmission

- No firm transmission is available across NV Energy's system.
- Existing 50 MW reservation across PacifiCorp East system can be used to access southern hubs.



# Study Requirements

- Clear the Reliability Hurdle
- Most Economic Plan

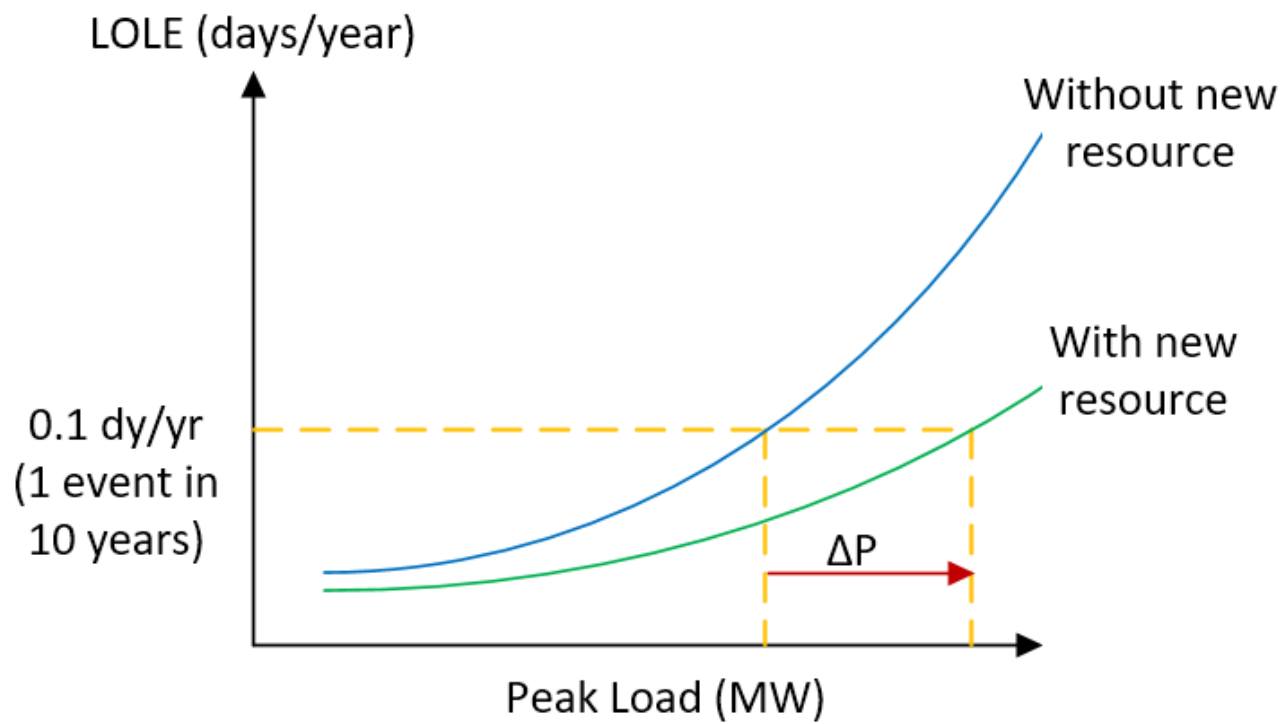


# Planning Margin - Illustrative

	2023 Peak Day	2023 Peak Day at 9:00 p.m.	2023 Peak Day at 10:00 p.m.	2023 Peak Day at 11:00p.m.
Demand + 15% Margin	(4,223)	(3,881)	(3,712)	(3,383)
Resources (w/o Solar & Wind)	2,838	2,838	2,838	2,838
Demand Response	380	0	0	0
Solar	420	0	0	0
Wind	35	100	100	100
<b>Market Need</b>	<b>(550)</b>	<b>(943)</b>	<b>(774)</b>	<b>(445)</b>



# Reliability Hurdle



# Reliability Hurdle - LOLE Results

	With Current DR Program
2023 Reliability Need (Imports + New Resources + New DR) (LOLE = 0.1 days / year)	787 MW
2025 Reliability Need (Imports + New Resources + New DR) (LOLE = 0.1 days / year)	862 MW

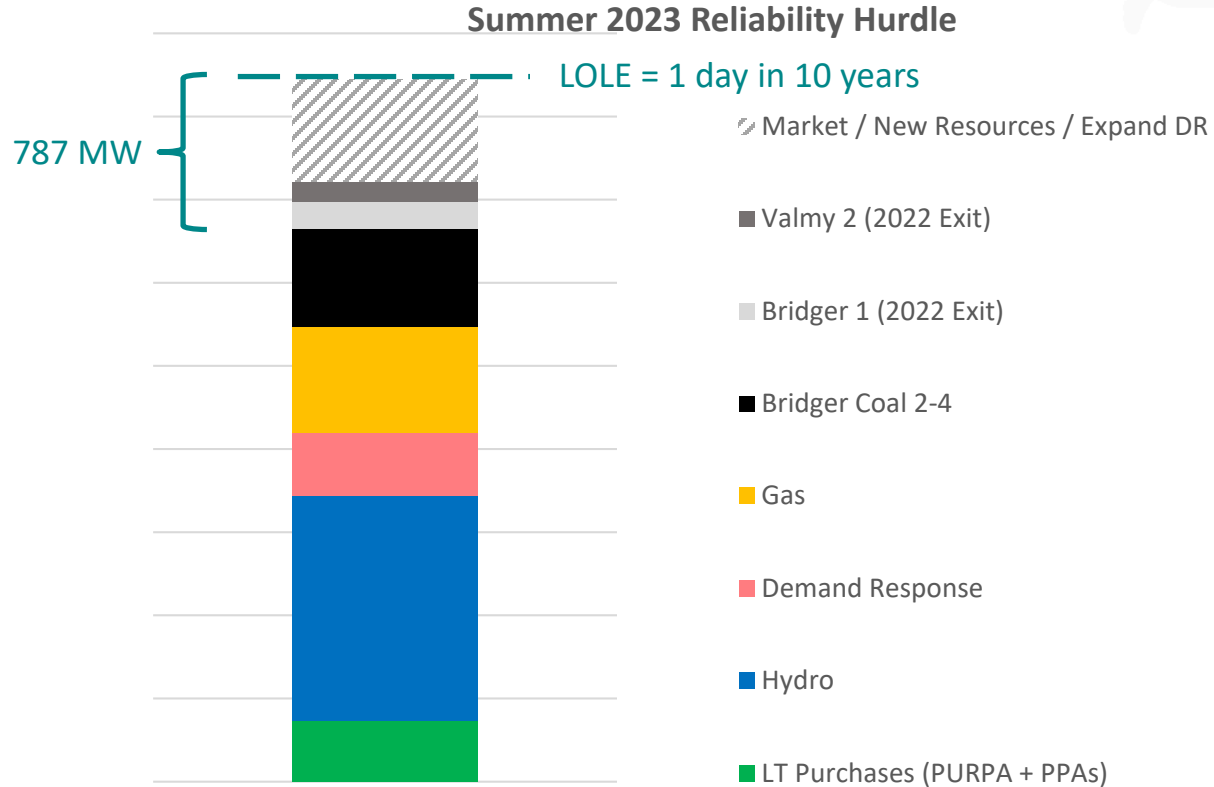
- Assumptions
  - 2022 year-end Valmy 2 exit
  - 2022 year-end Bridger unit exit
  - Addition of Jackpot Solar

# Reliability Hurdle

- 2019 IRP: 15% planning margin
  - Capacity required to serve 50<sup>th</sup> percentile peak hour load + 15% peak load
- 2021 IRP: Shifting to probabilistic approach
  - Loss of Load Expectation (LOLE)
  - 1 loss of load event in 10 years (1 day/10 years)



# Clearing the Reliability Hurdle



# Options to Meet the Reliability Need



- Market imports via transmission interconnections
  - Key assumption that needs to be tested.
- New internal resources
- Expanded demand response program
- Delayed unit exits

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- Market imports via transmission interconnections
  - Key assumption that needs to be tested.
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# Testing Market Assumptions

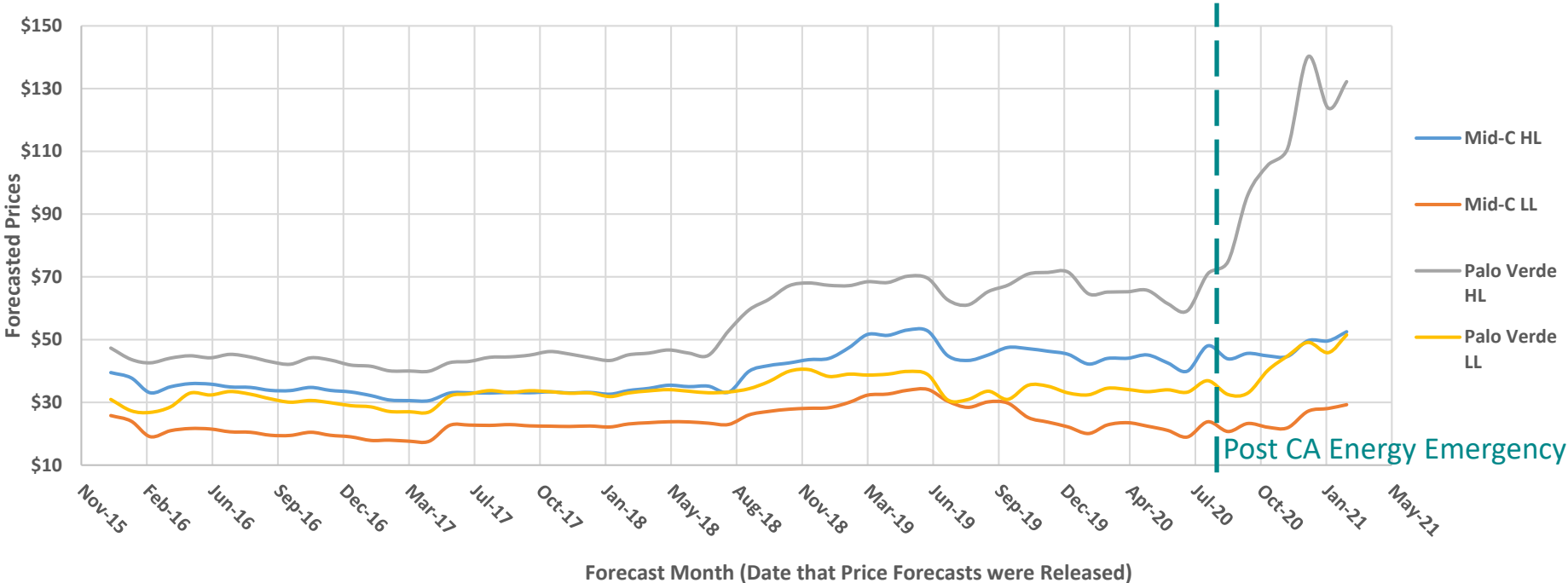
- Import assumptions will be tested by issuing Request for Proposal (RFP) for energy to be delivered to Idaho Power.

Forward Prices for Jun - Sept as of 3/17/2021

MidC					Palo Verde				
	Curve	Flow Date	HL	LL		Curve	Flow Date	HL	LL
2021	MidC	6/1/2021	\$ 24.00	\$ 11.00	2021	PV	6/1/2021	\$ 77.00	\$ 41.00
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	MidC	8/1/2025	\$ 50.85	\$ 29.90		PV	8/1/2025	\$ 96.40	\$ 59.70
	MidC	9/1/2025	\$ 45.80	\$ 29.60		PV	9/1/2025	\$ 73.65	\$ 54.65

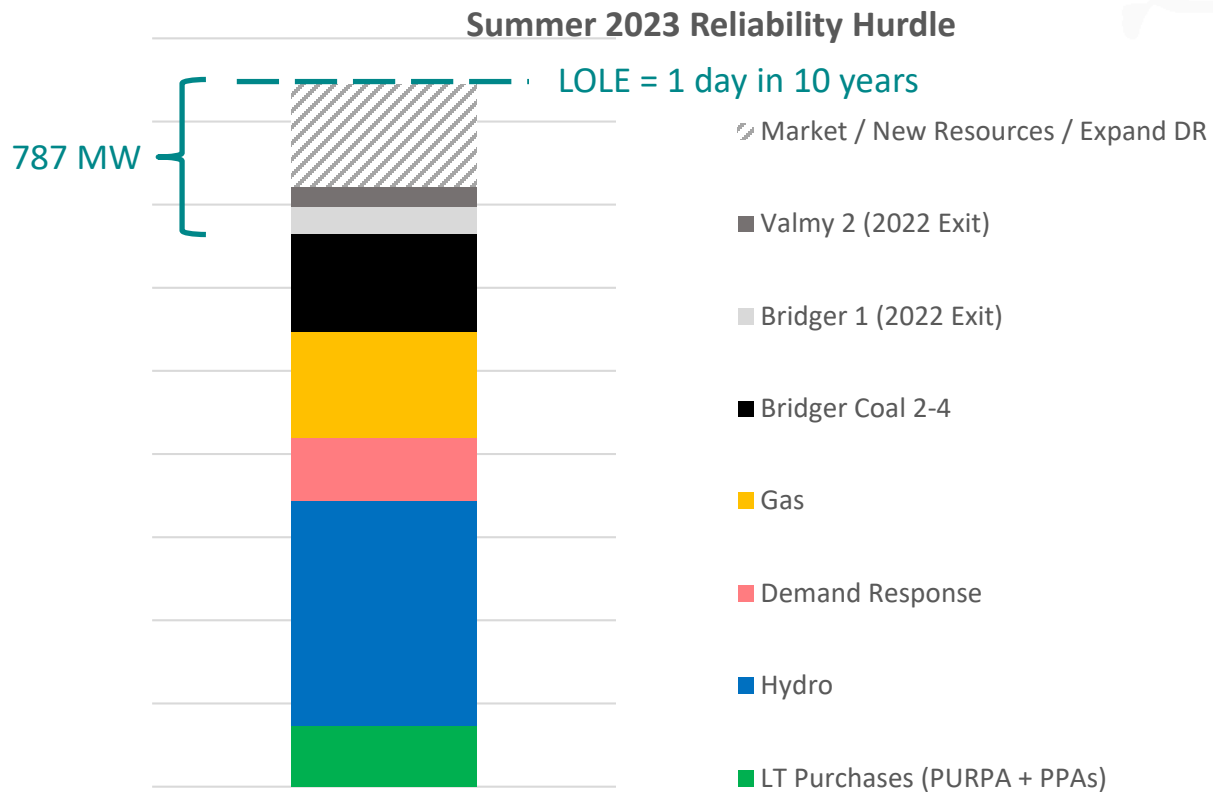
# Forward Price Forecast Trend

Mid-C & Palo Verde Price Forecasts for July 2023 from 2016-Present Historical Data





# Clearing the Reliability Hurdle



# Economic Analysis



# Options to Meet the Reliability Need

- Market imports via transmission interconnections
  - Key assumption that needs to be tested.
- New internal resources
- Expanded demand response program
- Delayed unit exits

# Economic Analysis in Aurora



- Starting with 2019 IRP Aurora dataset, we updated:
  - Coal variable costs
  - Natural gas forecast
  - Load forecast
  - Valmy fixed costs
- Modeled scenarios with 2022 Valmy Unit 2 Exit and replaced with new resource, demand response, or delayed Bridger exit.

# Economic Analysis Scenarios

Scenarios – Adjustments from 2019 IRP Preferred Portfolio	Preliminary Results Compared to 2025 Valmy Unit 2 Exit
2025 Valmy 2 Exit	-
2022 Valmy 2 Exit – Capacity Replaced with Solar + Battery (2023)	Not Economic
2022 Valmy 2 Exit – Capacity Replaced with Battery (2023)	Not Economic
2022 Valmy 2 Exit – Capacity Replaced with Expanded Demand Response (2023)	Not Economic
2022 Valmy 2 Exit – Capacity Replaced with Delayed Bridger Exit (2022 → 2025)	Not Economic

# Study Results Summary



- Valmy #2 likely needs to be retained beyond 2022.
  - Decision is subject to the results of a forthcoming energy market Request for Proposal (RFP) in Q2.
- 2021 IRP will also evaluate 2023 or 2024 early exits.
  - We will further evaluate capacity assumptions for transmission imports, demand response, and resource costs.
  - Notification timing requirements for 2023 or 2024 early exits can be met by 2021 IRP study.

# Next Steps



- Finalize economic analysis
- Valmy special study filing
- Issue RFP for market energy in Q2
  - Analyze received bids in economic models
  - Determine if 2022 Valmy Unit 2 early exit is feasible and economic
- Exploring Bridger exit options with our partner
- Resource RFI

# Questions or Comments?

