Resource Accreditation Reform

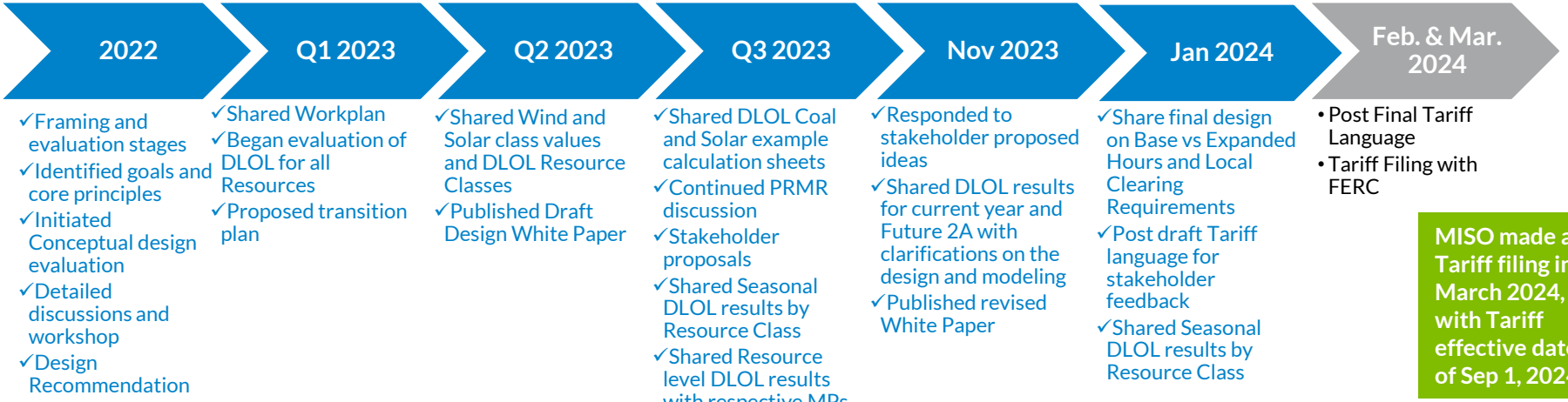
IRP Contemporary Issues Technical Conference

June 6, 2024

Executive Summary

- The changing resource fleet presents a paradigm shift *from* predictable peak risk periods with high resource availability *to* dynamic times of risk with corresponding low resource availability
- While accreditation enhancements approved in 2022 are helpful, further coordinated redesign of accreditation methodology is necessary
- Accreditation reforms under development advance a more wholistic solution for both thermal and non-thermal resources
- MISO made a Tariff filing for accreditation reforms in March 2024 (FERC Docket #: ER24-1638-000) with implementation in Planning Year 2028-2029

MISO's accreditation reform proposal has been developed based on robust stakeholder discussions over the last two years



Resource Accreditation White Paper

MISO's proposed accreditation method is the next step in the evolution of the Resource Availability and Need (RAN) initiative to advance the needs identified in MISO's Reliability Imperative

Reliability Imperative Living Report

MISO has done extensive outreach to educate stakeholders on its proposed accreditation reforms

17 MISO Stakeholder meetings (including 4 workshops)

15+ meetings with Market Participants

10+ meetings with OMS and State commission staff

10+ meetings with IMM

Proposed Accreditation Method

MISO's proposed methodology for accrediting all resources (except Load Modifying Resources) measures a resource's availability when reliability risk is the greatest

Class-Level (Prospective/Probabilistic)

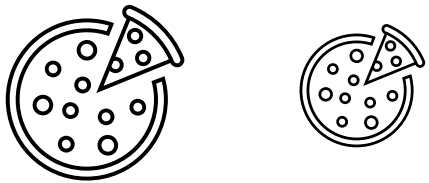
Direct-LOL Method

Availability within LOLE model during Critical Hours

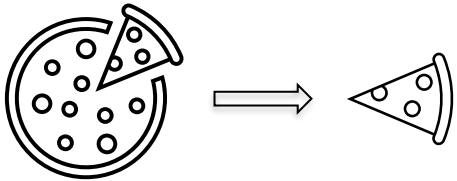
Resource-Level (Retrospective/Deterministic)

Schedule 53A Method

Based on actual performance with historical high-risk hours weighted more heavily



Step 1: Determining Class-level accreditation

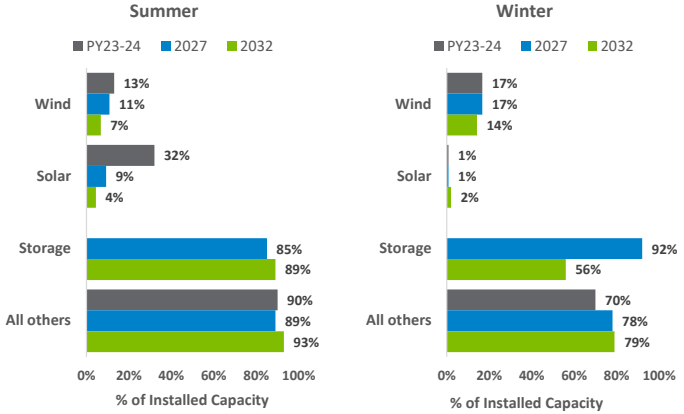


Step 2: Allocating Class-level accreditation to each Resource in the Resource Class

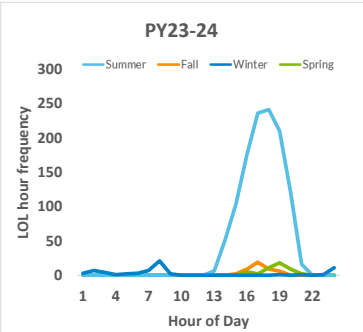
As the portfolio transitions, loss of load risks shifts, requiring resource accreditation to evolve based on reliability contribution

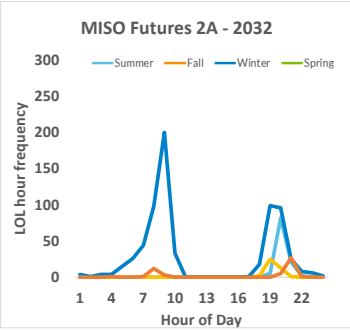
Risk hours are shifting from summer peak to winter.

Accreditation based on reliability contributions is the right direction.



All others: Includes thermal, pumped storage, hydro, and others



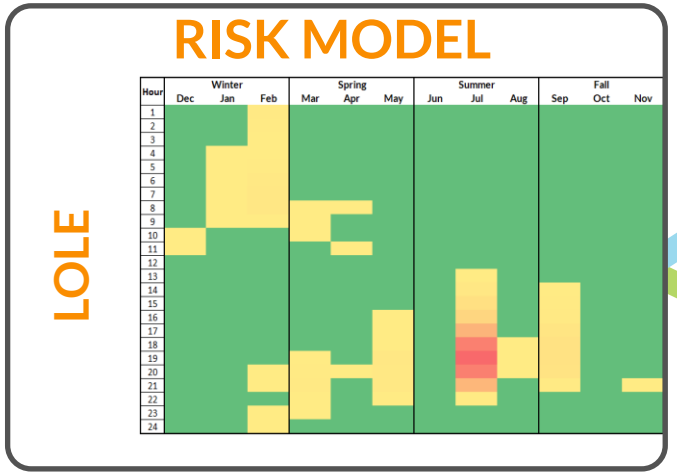


Solar accreditation falls off with higher levels of penetration because of risk hours being shifted to later in the evening.

Requires close coordination with Members & State Regulators as they plan for their evolving fleets.

The planned reforms better leverage the risk model and aligns resource accreditation calculations with requirements calculations. Future modeling improvements will naturally drive more efficiency in the outcomes

Inputs



Future Enhancements

- Planned Outage modeling
- Correlated outages
- Storage modeling
- Fuel Limitations
- Extreme weather

Accreditation

Current

- Thermal units - UCAP and performance during risky hours in last 3 years
- Wind – Average ELCC
- Solar –seasonal hourly values
- Storage – seasonal hourly values

Future

- Class level – Availability during highest risk hours in the probabilistic models
- Resource level – Past performance during risky hours in last 3 years

Planning Reserve Margin Requirement & Local Reliability Requirement

Current

- Requirements based on resource capacity calculated using UCAP and Average ELCC

Future

- Requirements based on resource class performance during risky hours

KEY: *ELCC = Effective Load Carrying Capability*
LOLE = Loss of Load Expectation

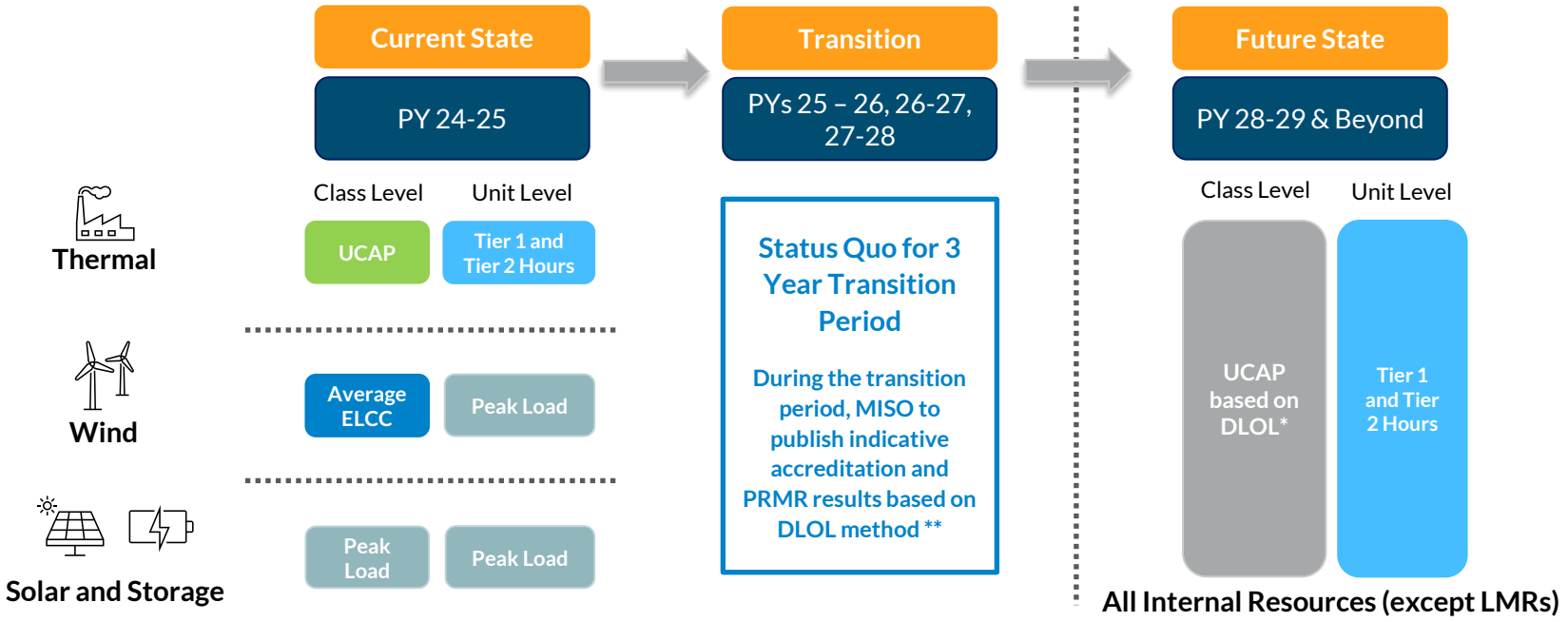
The proposed DLOL approach accurately accounts for reliability contributions of all resource classes in the probabilistic models. Accreditation & requirements change similarly under the DLOL paradigm

PY23-24	Summer		Fall		Winter		Spring	
Resource Class	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
Gas	90%	88%	84%	88%	79%	66%	84%	69%
Combined Cycle	91%	90%	94%	89%	90%	74%	92%	75%
Coal	92%	91%	91%	88%	90%	73%	89%	74%
Hydro	96%	96%	94%	96%	93%	92%	97%	88%
Nuclear	95%	90%	96%	85%	95%	86%	92%	80%
Pumped Storage	99%	98%	91%	98%	94%	50%	89%	67%
Storage	95%	94%	95%	93%	95%	91%	95%	95%
Solar	45%	36%	25%	31%	6%	2%	15%	18%
Wind	18%	11%	23%	15%	40%	16%	23%	16%
Run-of-River	100%	100%	100%	100%	100%	100%	100%	100%

PY 23/24 - PRMR	Summer		Fall		Winter		Spring		Formula Key
Resource Class	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	
Gas	30,251	29,541	28,595	29,745	28,582	23,605	28,962	23,657	[A]
Combined Cycle	27,558	27,326	28,635	27,015	28,552	23,650	27,929	22,997	[B]
Coal	40,545	39,955	39,888	38,812	39,914	32,539	39,280	32,641	[C]
Hydro (includes diversity contracts)	2,120	2,122	2,104	2,118	926	916	1,350	1,287	[D]
Nuclear	11,410	10,850	11,522	10,304	11,627	10,493	11,063	9,640	[E]
Pumped Storage	2,530	2,523	2,345	2,504	2,299	1,216	2,359	1,763	[F]
Storage	28	28	28	28	54	52	55	55	[G]
Solar	2,151	1,700	1,603	1,937	698	188	1,824	2,221	[H]
Wind	4,639	2,731	5,993	3,859	11,389	4,477	6,500	4,601	[I]
Run-of-River	966	966	966	966	966	966	966	966	[J]
BTMG	4,196	4,196	4,218	4,218	4,163	4,163	4,240	4,240	[K]
Demand Response	7,397	7,397	7,041	7,041	5,388	5,388	6,280	6,280	[L]
Firm External Support	1,707	1,707	1,714	1,714	1,857	1,857	1,778	1,778	[M]
Adj. {1d in 10yr}	(4,000)	(4,000)	(10,000)	(10,000)	(6,200)	(6,200)	(12,750)	(12,750)	[N]
PRMR	**131,498**	**127,042**	**124,652**	**120,261**	**130,215**	**103,310**	**119,836**	**99,376**	[O]= sum of [A] through [N]

Note: Current numbers represent UCAP for thermal resource class and average ELCC for Wind & Solar resource classes.

A three-year transition allows time for stakeholders to better understand and plan for the accreditation and reserve margin calculations based on DLOL approach



*Definition of Unforced Capacity (UCAP) is changing with the Accreditation Filing and will account for resource's availability in the LOLE analysis that will be computed based on DLOL method.
**MISO also plans to use the Regional Resource Assessment (RRA) to publish forward looking accreditation and planning reserve margin requirement estimates starting with the 2024 RRA

Contact Info

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