

LOLE Portfolio Analysis

Nov. 18, 2021

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2021 IRP Relevance



Reliability Hurdle
(LOLE)

Presentation Outline

- Introduction
- Portfolio LOLE
- LOLE Results



LOLE Tool vs AURORA



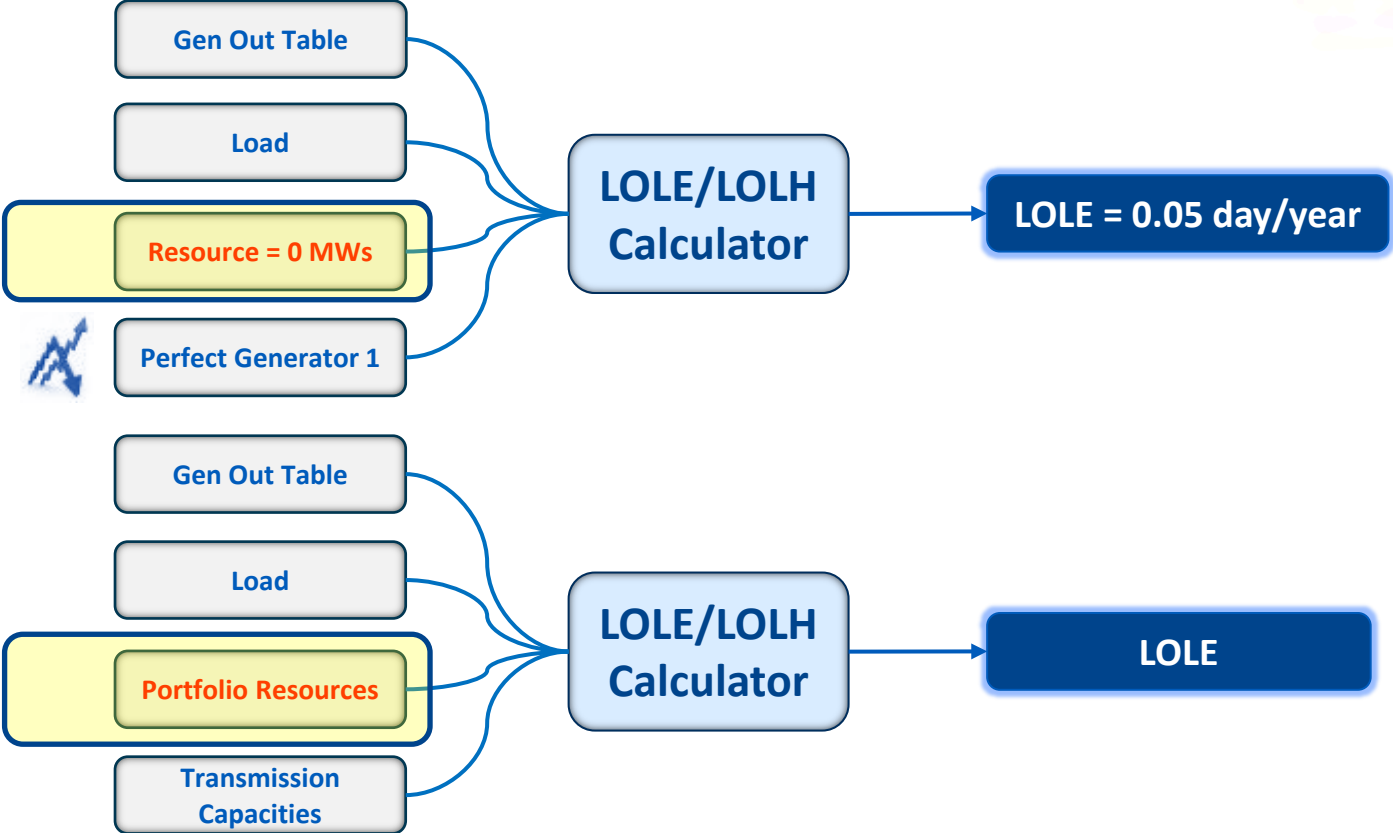
- AURORA

- Optimizes least-cost portfolio while meeting the planning margin requirement specified for each year
- ELCC of VER are an input to the model

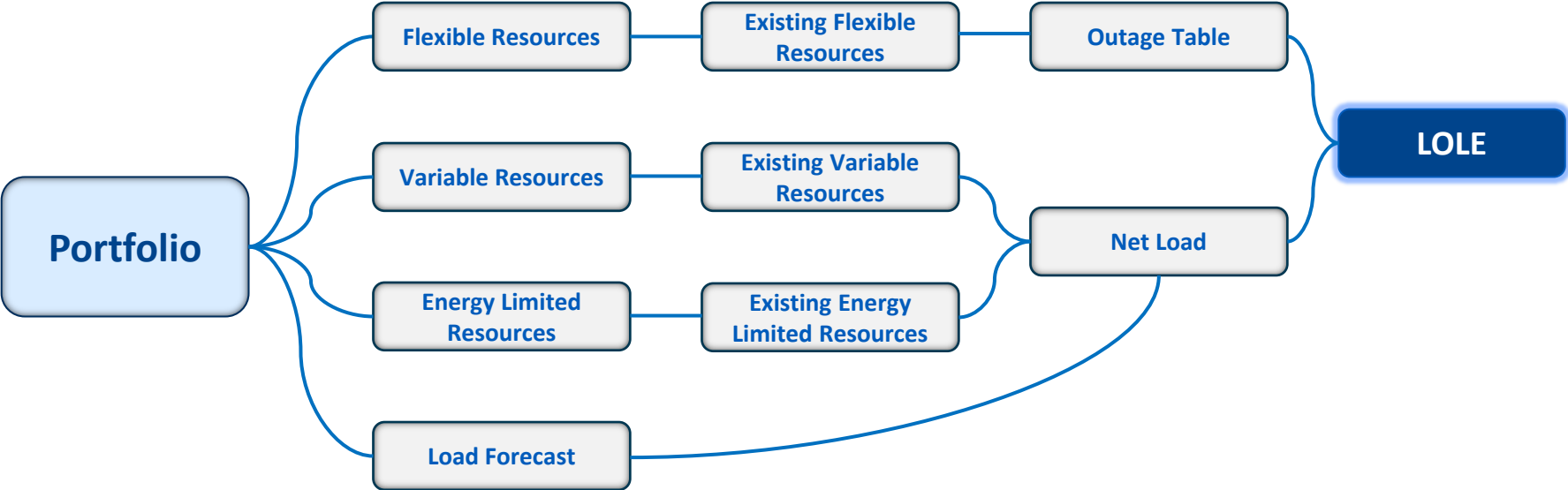
- LOLE Tool

- Calculates LOLP for each hour of the planning horizon
- LOLPs are calculated based on hourly output, no VER ELCCs are required

LOLE Methodology Recap



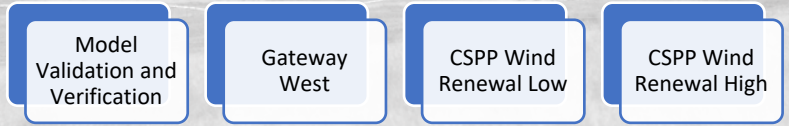
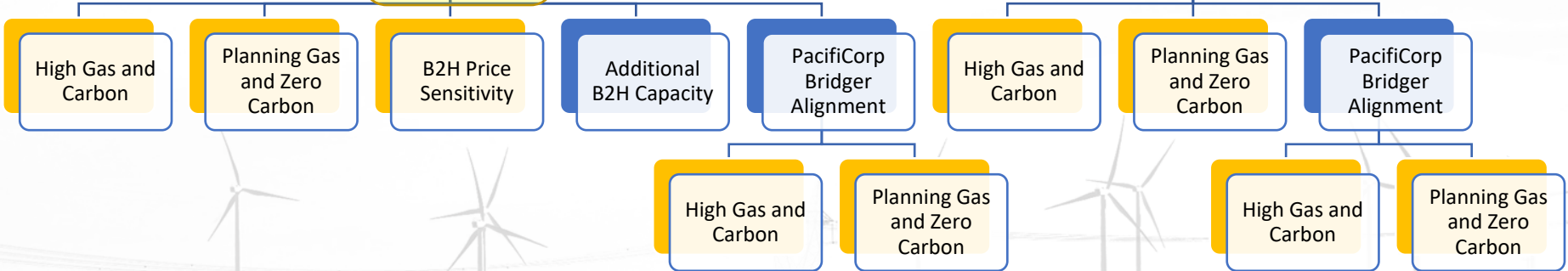
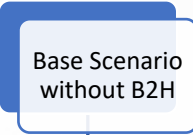
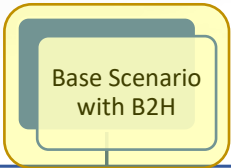
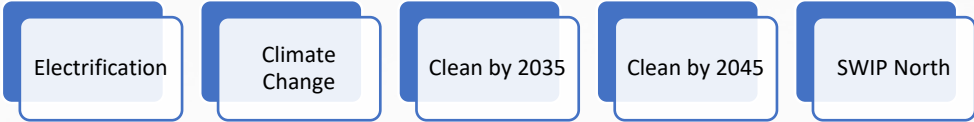
Loss of Load Analysis



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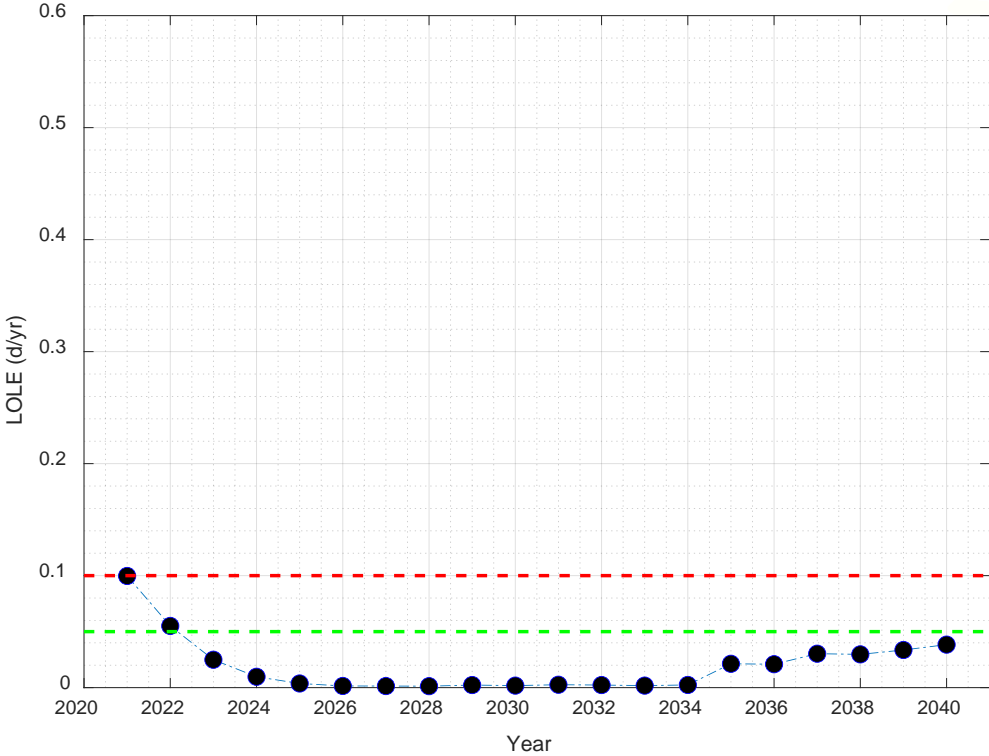


Color Key

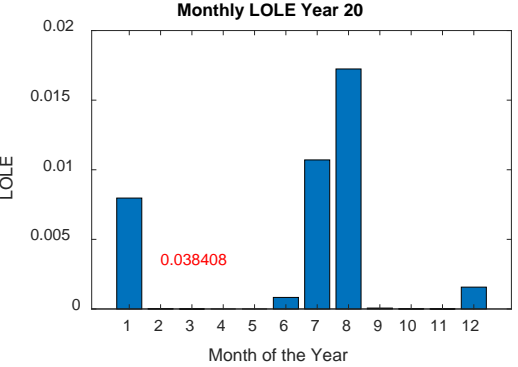
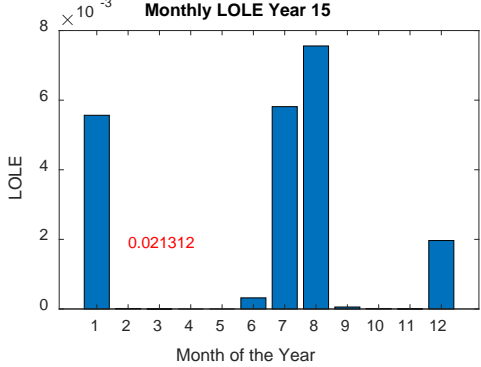
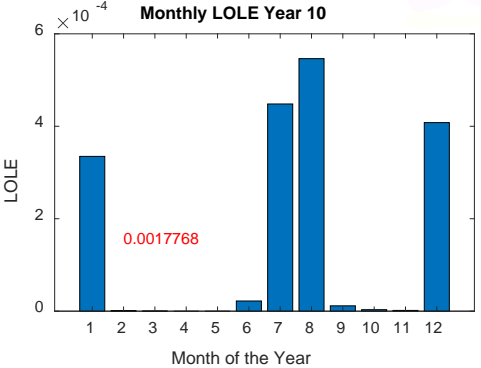
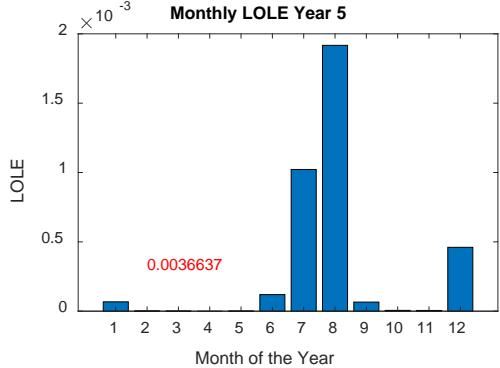
■ Long-Term Capacity Expansion (LTCE) Run

■ Production run sensitivity

Base B2H Portfolio

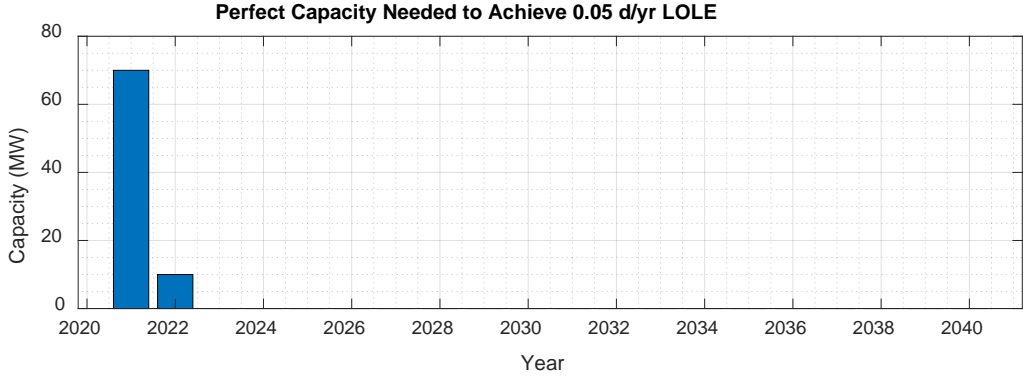
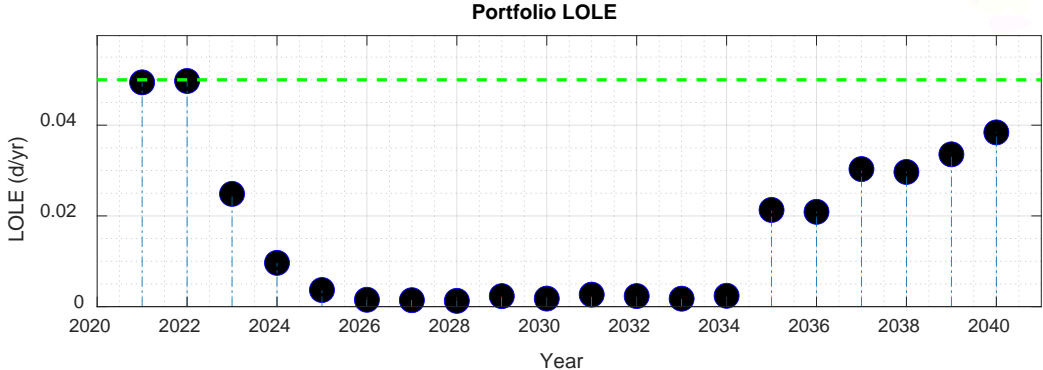


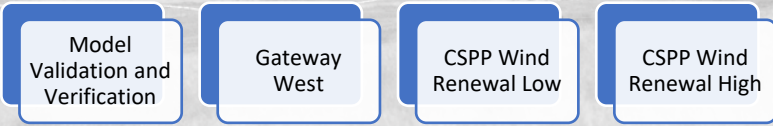
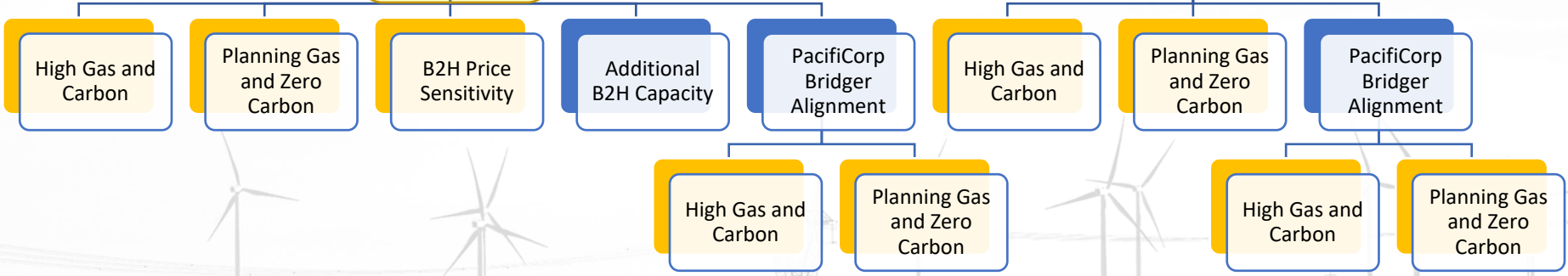
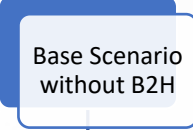
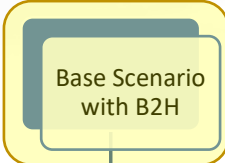
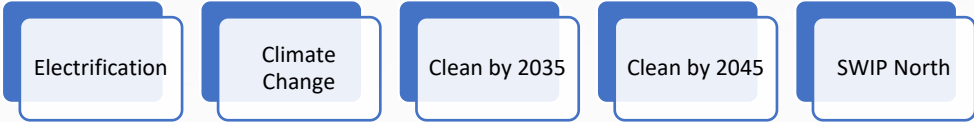
Base B2H Portfolio



Note differences in scales

Base B2H Portfolio

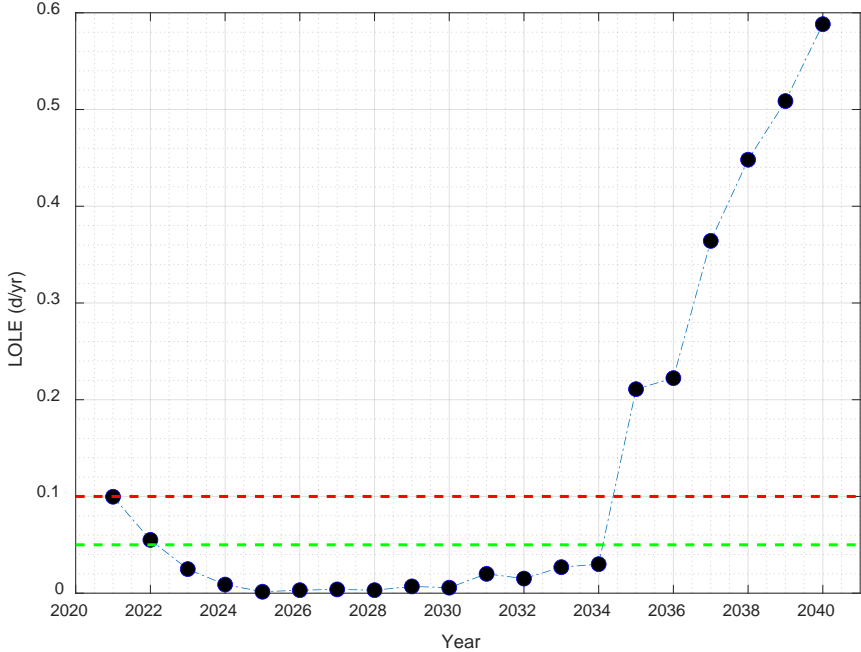




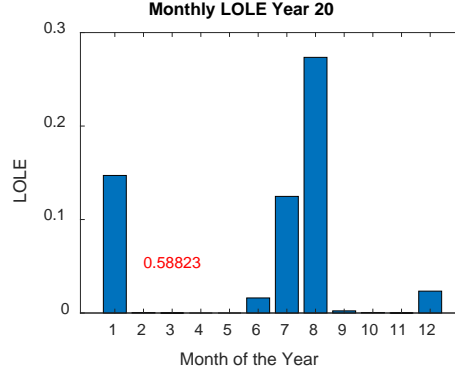
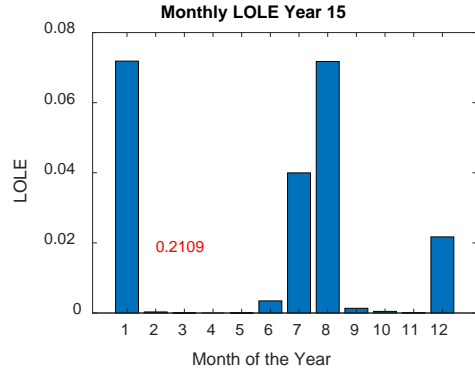
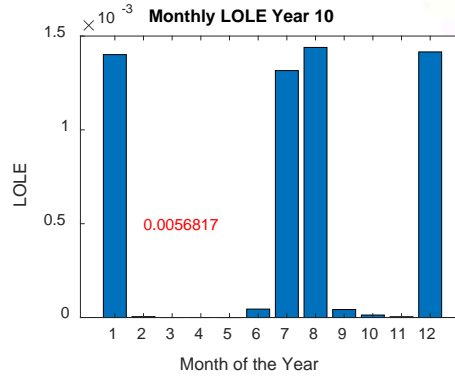
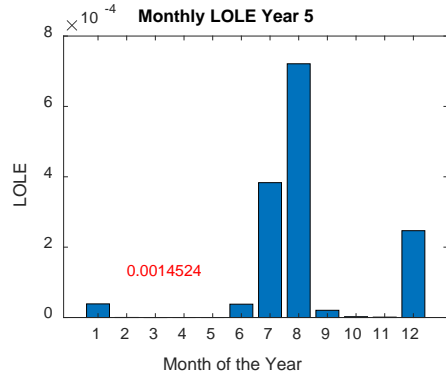
Color Key

- Long-Term Capacity Expansion (LTCE) Run
- Production run sensitivity

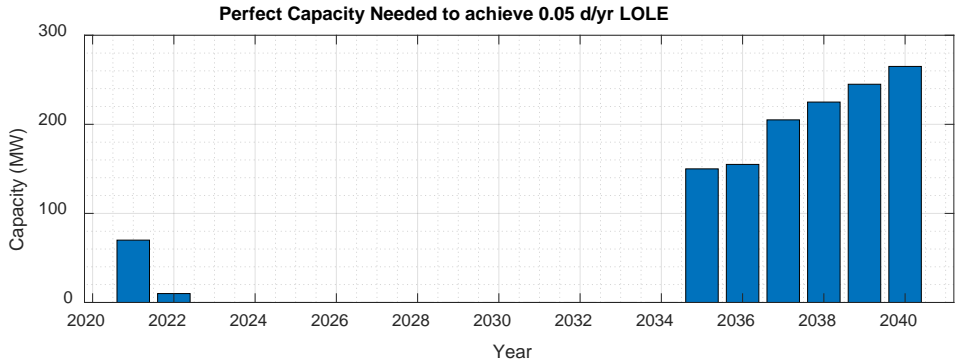
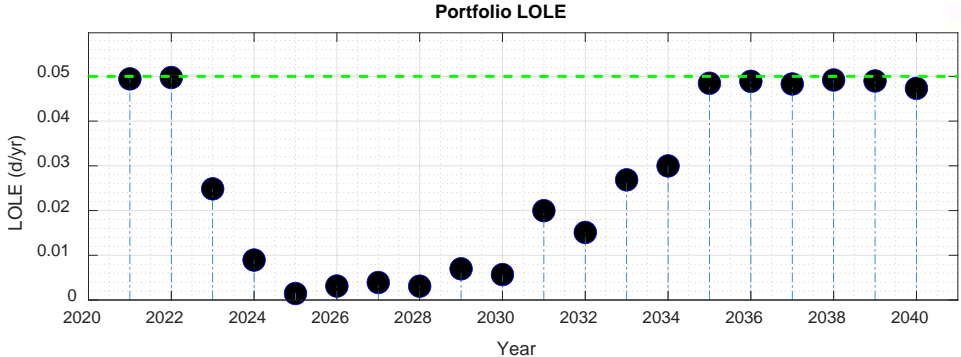
Base Non-B2H Portfolio

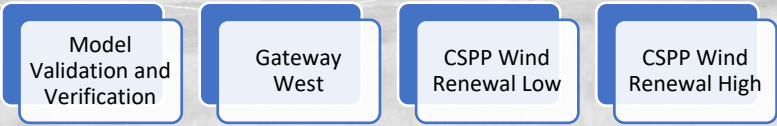
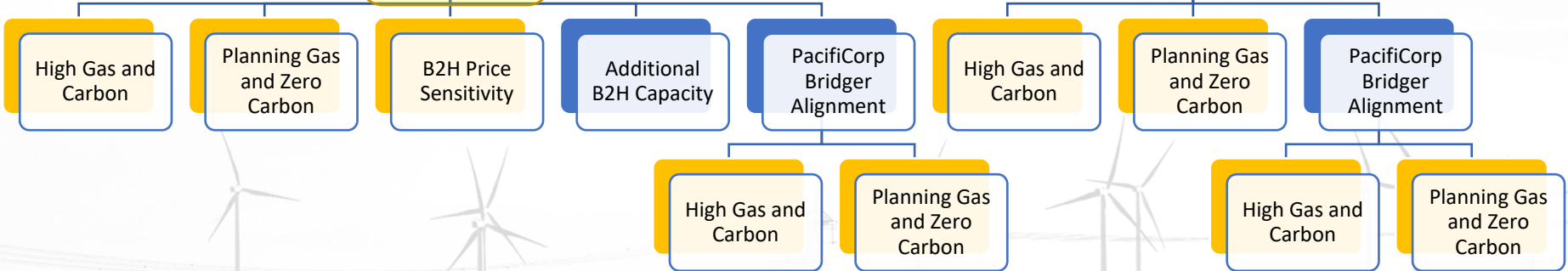
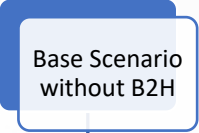
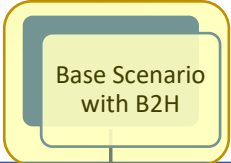
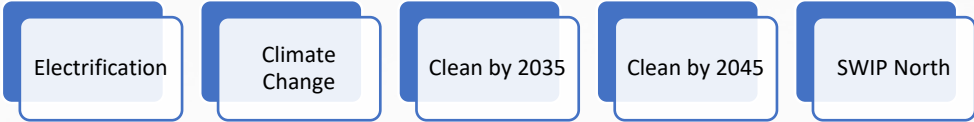


Base Non-B2H Portfolio



Base Non-B2H Portfolio

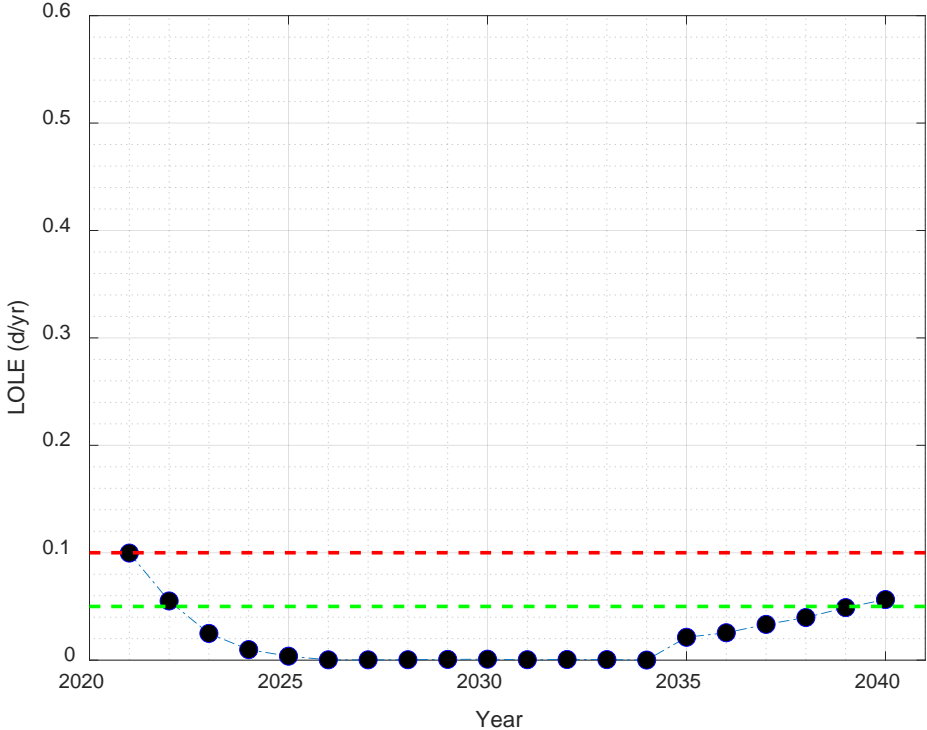




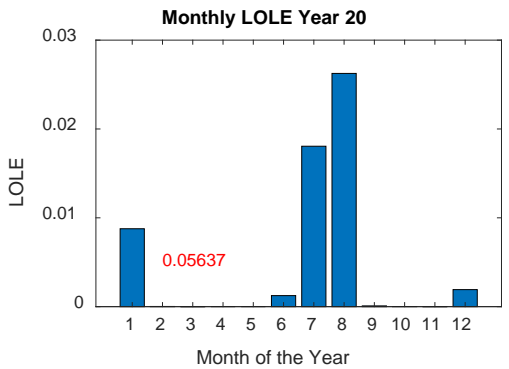
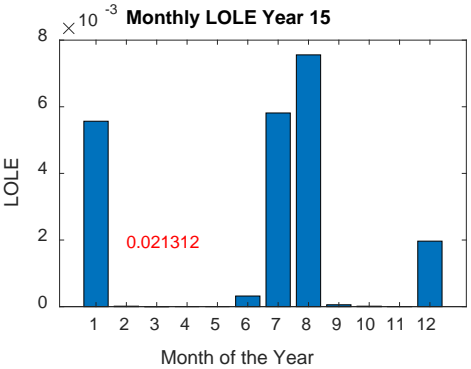
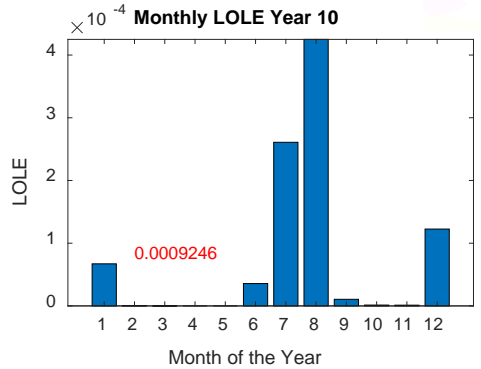
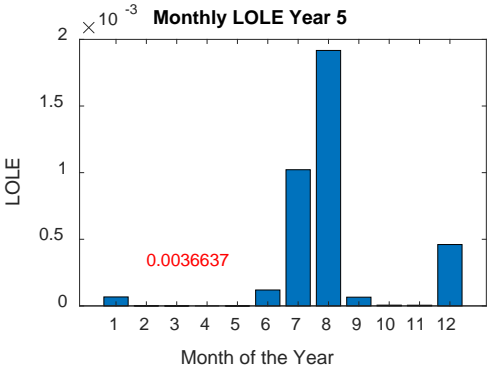
Color Key

- Long-Term Capacity Expansion (LTCE) Run
- Production run sensitivity

B2H PAC Alignment



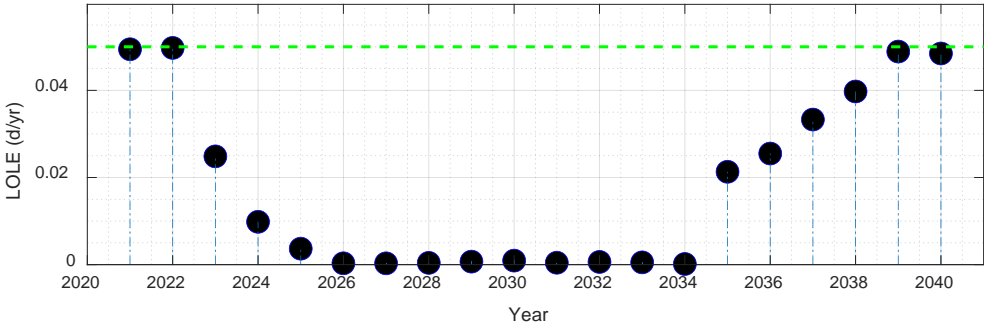
B2H PAC Alignment



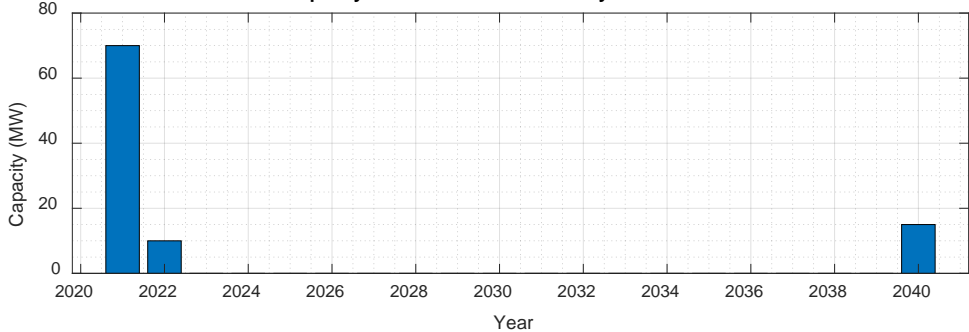
B2H PAC Alignment

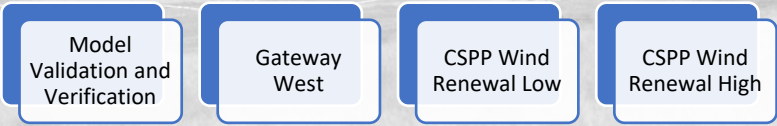
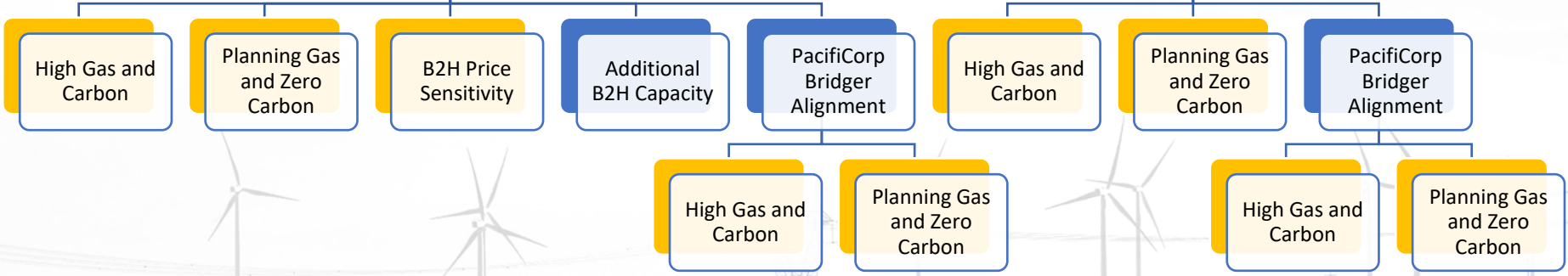
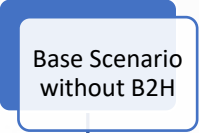
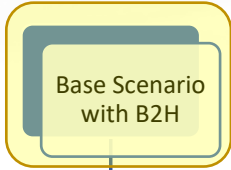
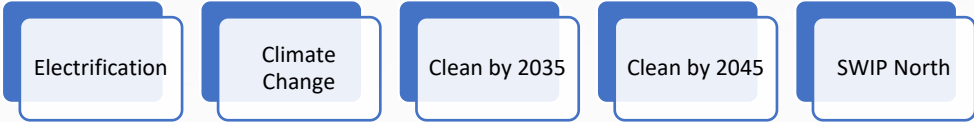


Portfolio LOLE



Perfect Capacity Needed to achieve 0.05 d/yr LOLE

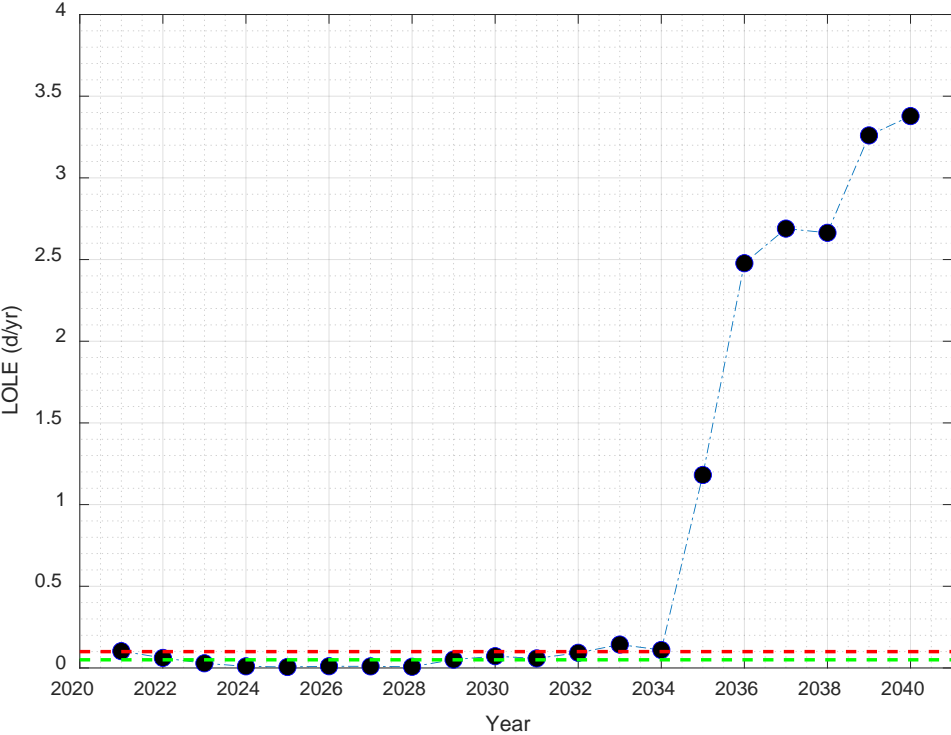




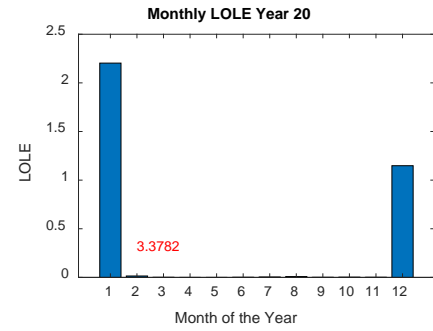
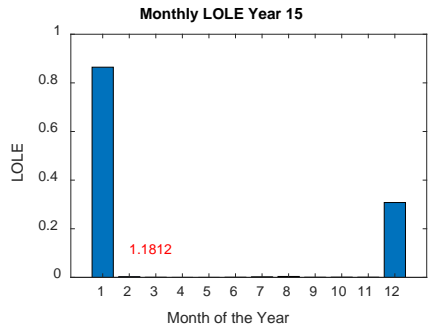
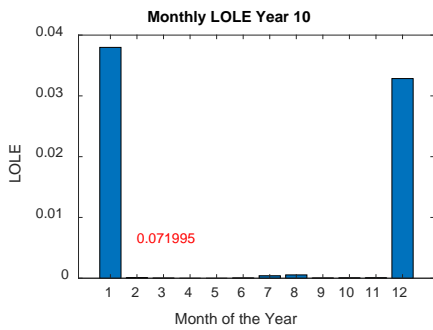
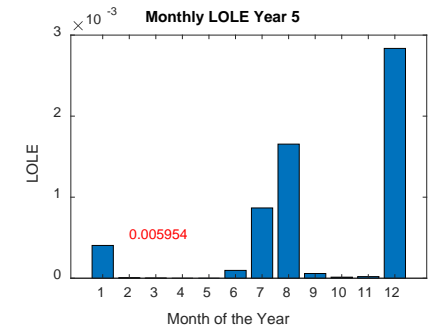
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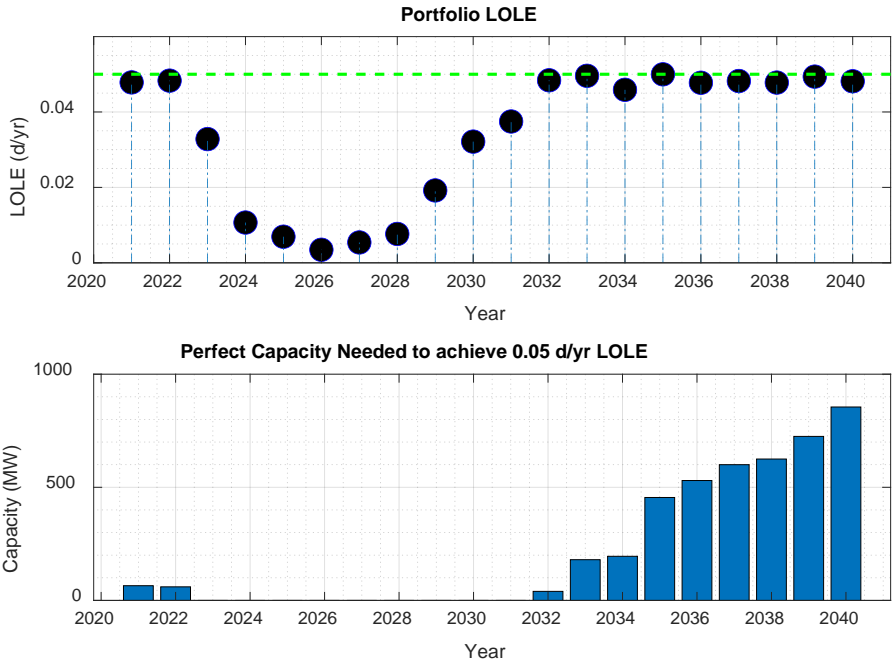
Rapid Electrification



Rapid Electrification



Rapid Electrification



Conclusion



- The reliability of different portfolios was calculated.
- The Base B2H portfolio performed the best.
- Winter is beginning to become an issue for portfolios with significant penetrations of VERs.