



# Wind Integration Impacts

## A System LP Model Approach

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# The Concept

- Actual Integration
- System Complexity
- Forecast Error Impact



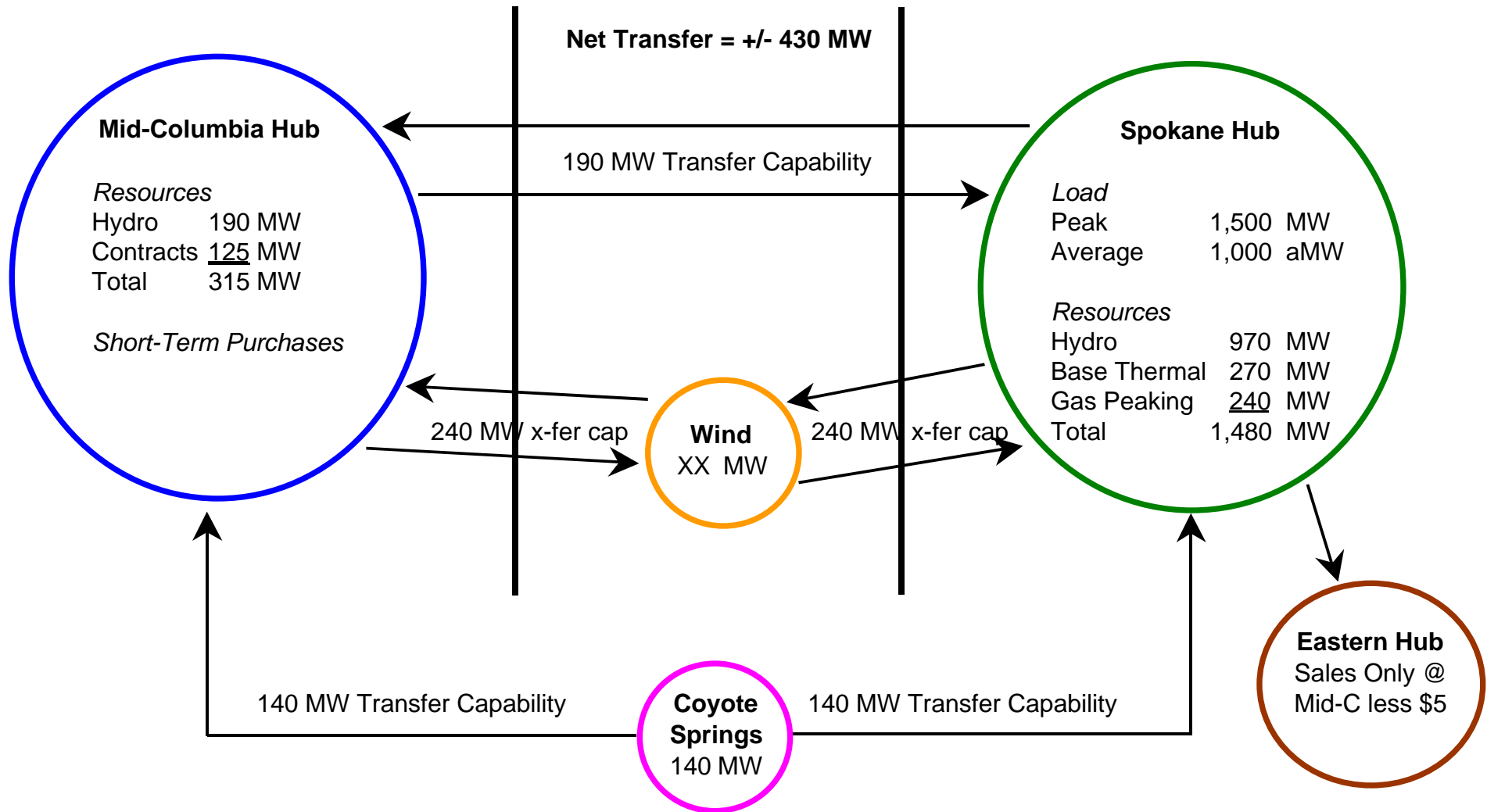
# The Method

- Avista System LP Model
  - Intra-hour data
  - Plant characteristics & constraints
  - Hydro generation
  - Transmission paths
  - *Wholesale marketplace*
- Optimize With and Without Wind



# System Model Diagram

Total Resources Owned or Under Contract = 1,935 MW



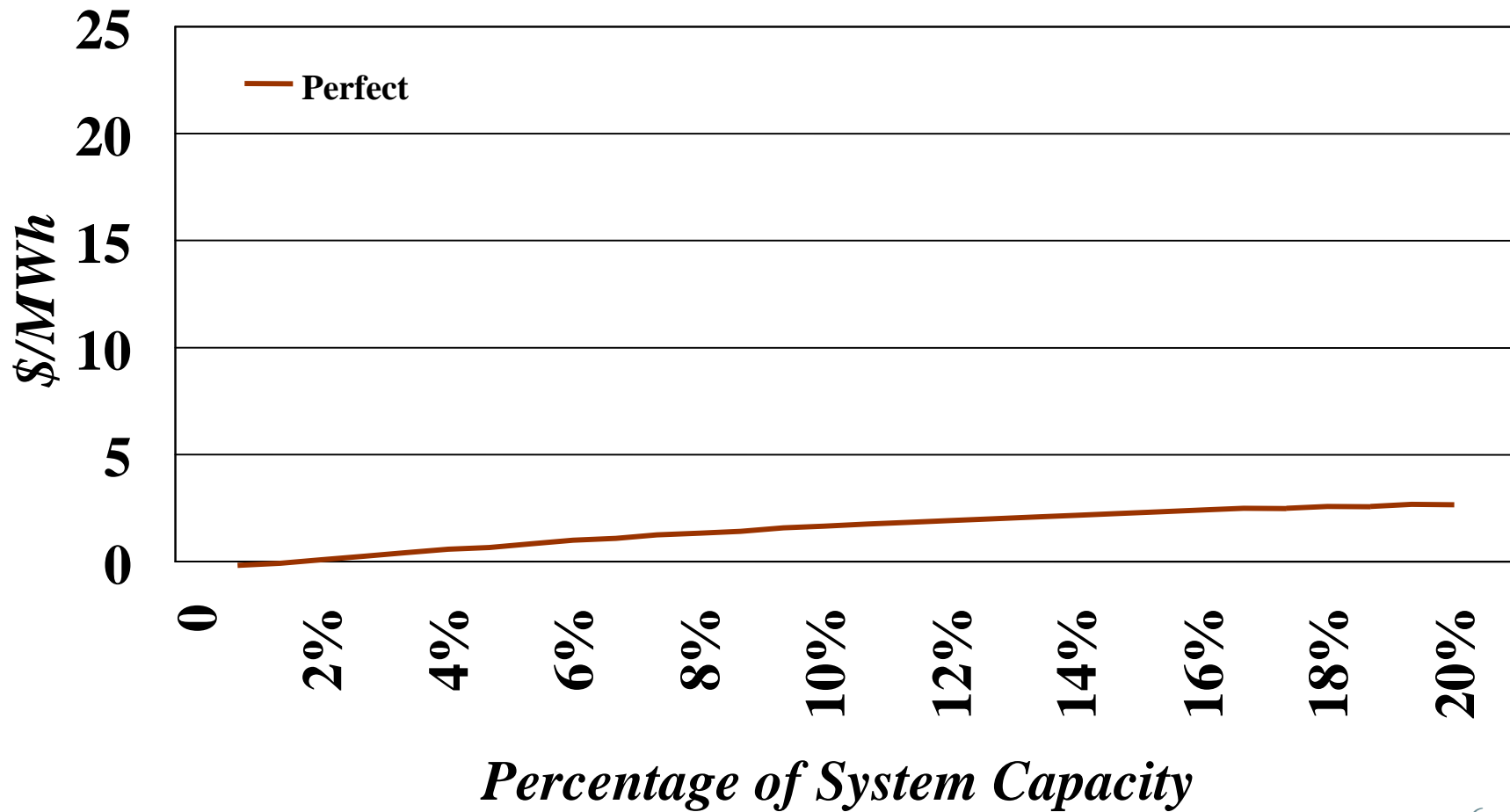


# Scenarios Analyzed

- Integration Levels
- Forecast Errors
- Hydroelectric Conditions

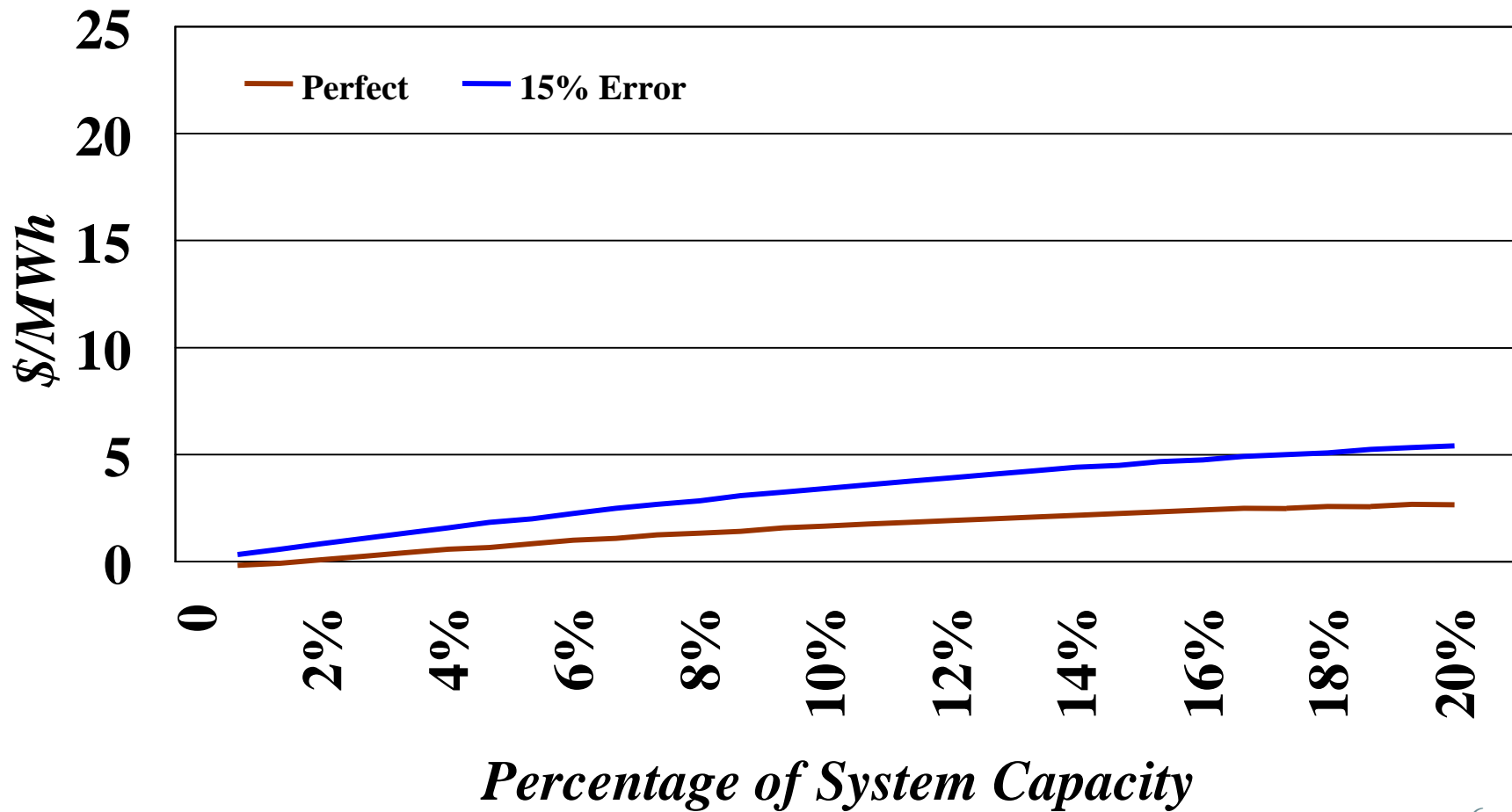


# Integration Costs (2-hr forecast error)



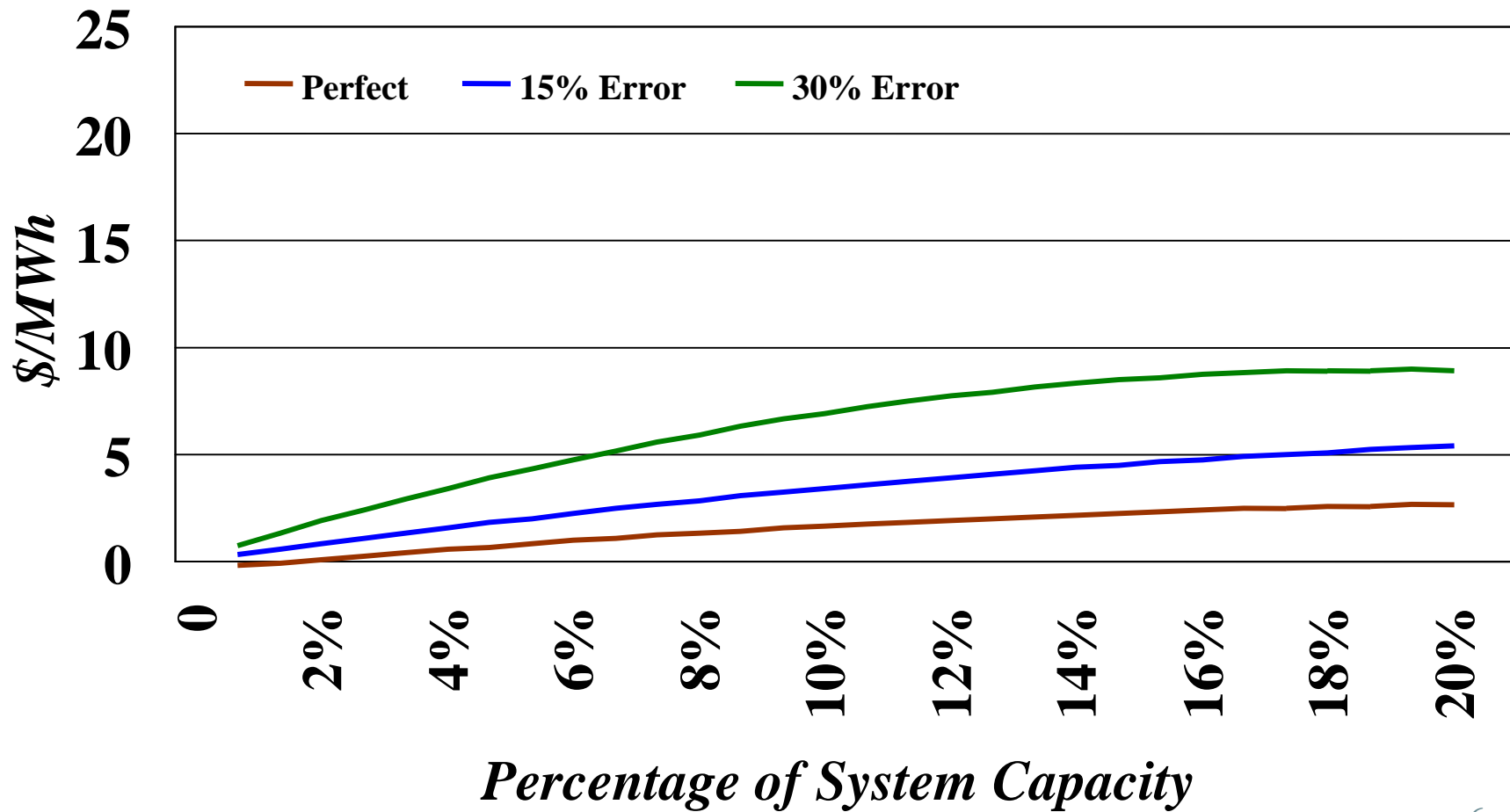


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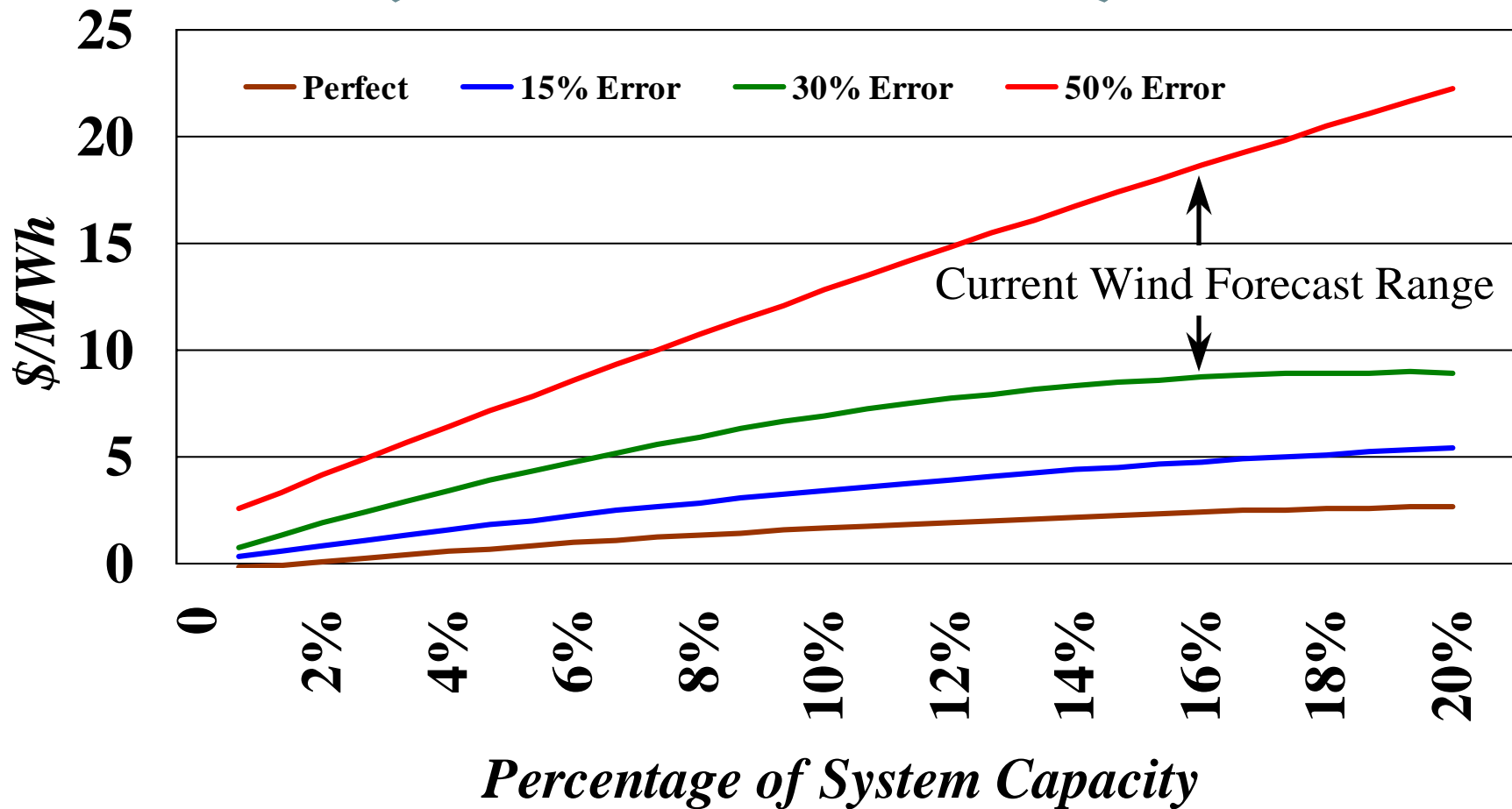


# Integration Costs (2-hr forecast error)





# Integration Costs (2-hr forecast error)





# Next Steps

- Load Forecast Error Impact
- More/Less Hydro Storage
- Gas Turbine Load Following