



# Principal Uncertainties

## Their Representation in the Regional Portfolio Model

Michael Schilmoeller  
Northwest Power and Conservation Council  
for the  
Load Forecasting Advisory Committee  
Friday June 27, 2008

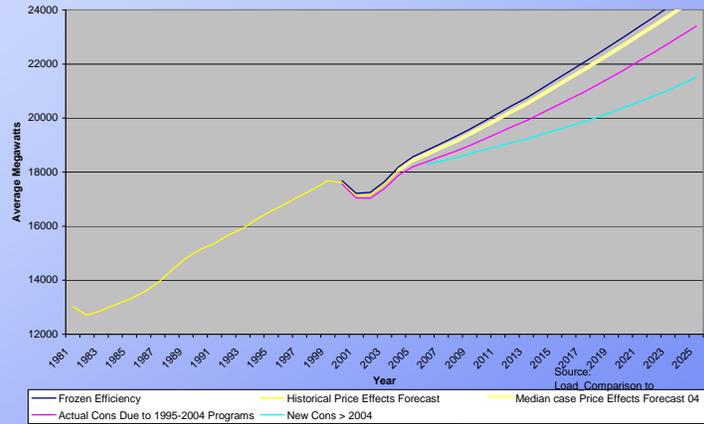
## Overview

- Electricity requirements
- Natural gas prices
- Wholesale electricity prices
- Regional Portfolio Model



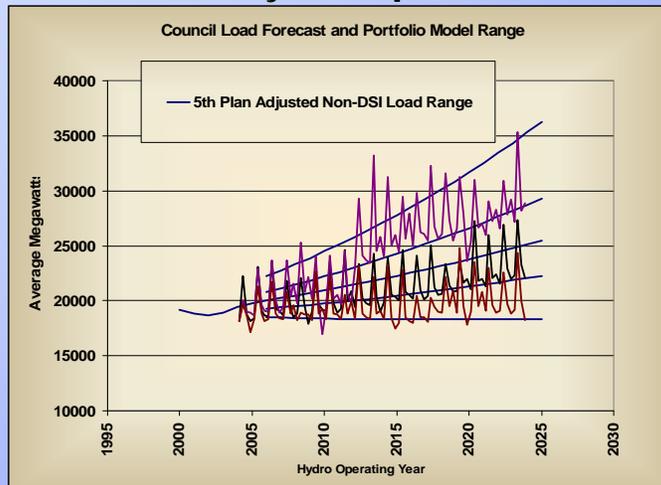
# Electricity Requirements

5th Plan Non-DSI Price Effects Sales Forecasts

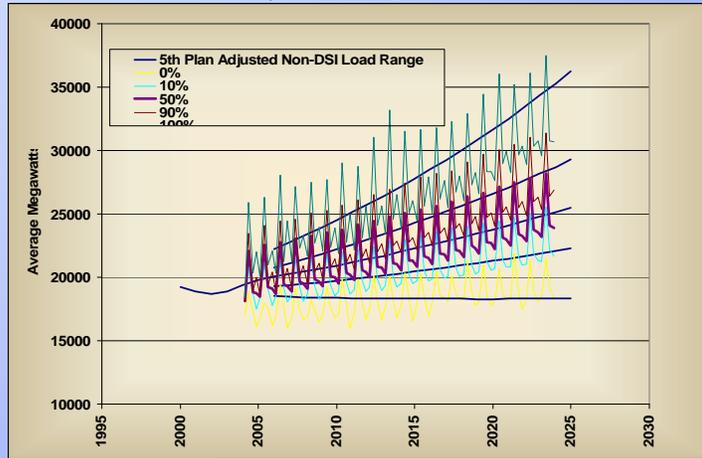


# Electricity Requirements

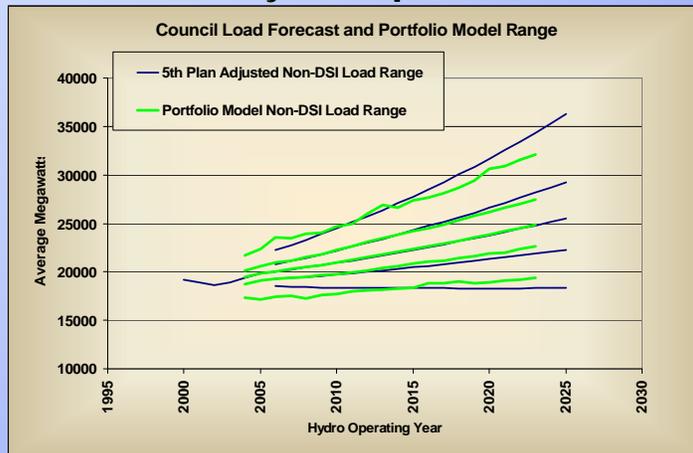
Council Load Forecast and Portfolio Model Range



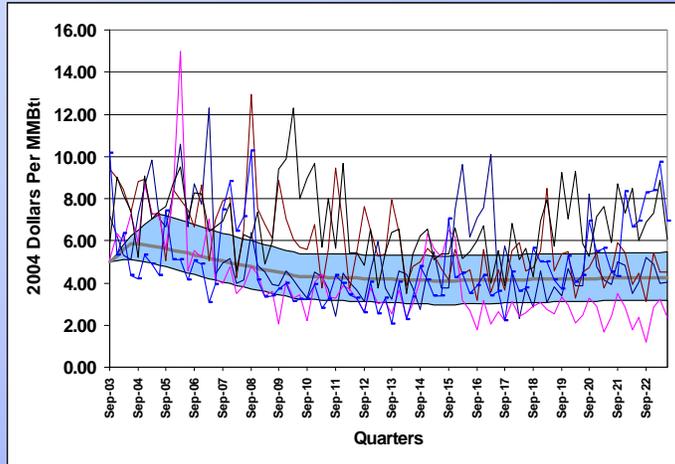
# Electricity Requirements



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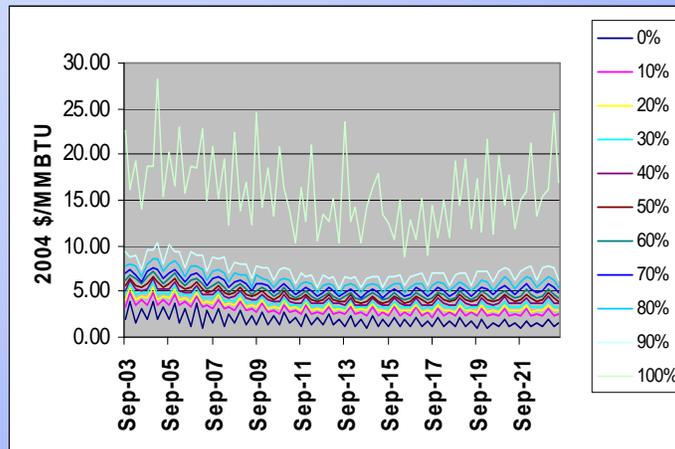
# Natural Gas Prices



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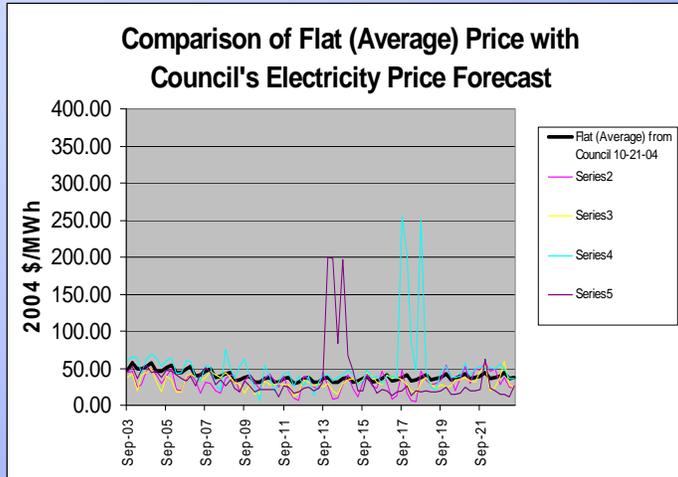
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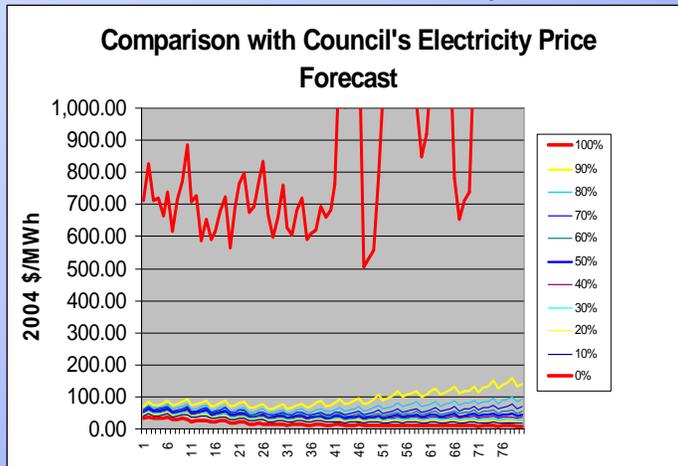
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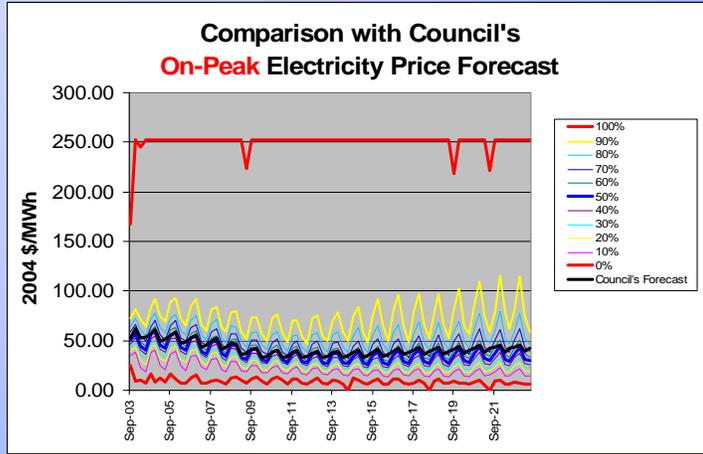
# Wholesale Electricity Prices



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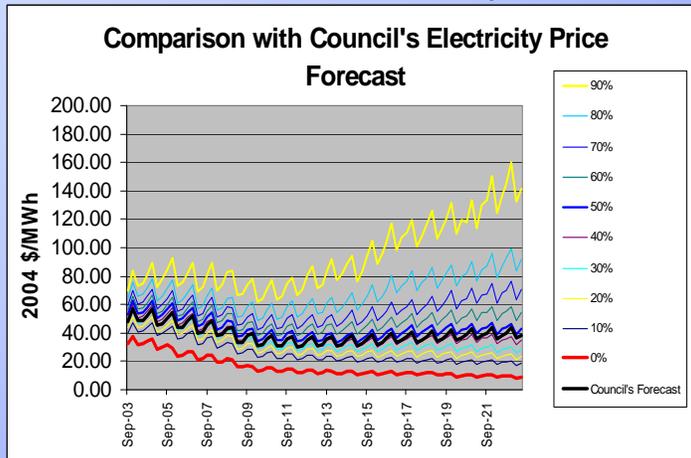
# Wholesale Electricity Prices



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## Different Kind of Risk Modeling

- Imperfect foresight and use of decision criteria for capacity additions
- Adaptive plans that respond to futures
  - Primarily options to construction power plants or to take other action
  - May include policies for particular resources
- “Scenario analysis on steroids”
  - 750 futures, strategic uncertainty
  - Frequency that corresponds to likelihood

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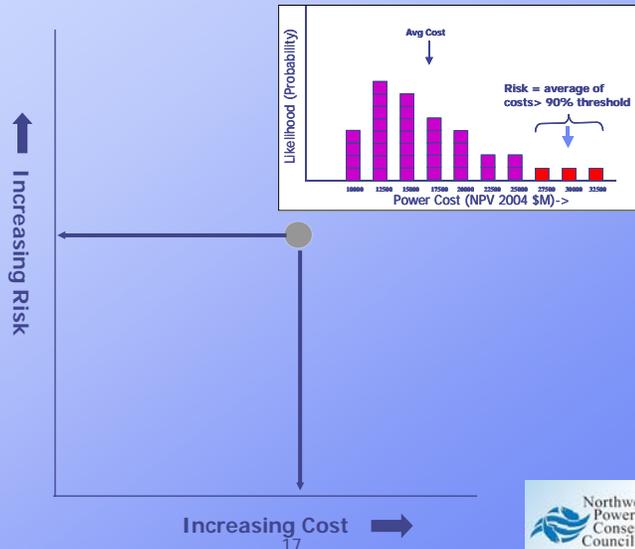
## Sources of Uncertainty

- *Load requirements*
- *Gas price*
- *Hydrogeneration*
- *Electricity price*
- *Forced outage rates*
- *Aluminum price*
- *CO2 tax*
- *Production tax credits*
- *Green tag value (Renewable Energy Credit)*

## Spinner Graphs

- A given plan, across all futures
- Illustrates “scenario analysis on steroids”
- Link to [Excel Spinner Graph Model](#)

# Feasibility Space

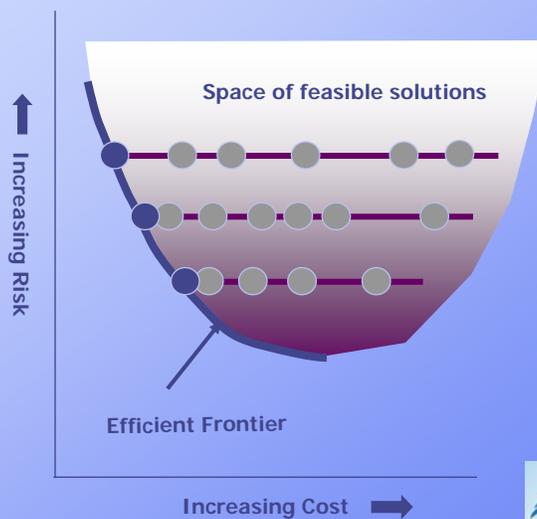


Selection of Resource Plans

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# Feasibility Space



Selection of Resource Plans

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