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The Northwest Power and Conservation Council's 5th Power Plan – Overview and Status

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What's the plan supposed to do?

- What the Northwest Power Act says...a REGIONAL conservation and electric power plan
  - Priority to **cost-effective** 1) conservation 2) renewables 3) high efficiency 4) all other
  - General scheme for implementing conservation and developing resources to meet administrator's load, giving due consideration for:
    - Environmental Quality
    - Compatibility with existing power system
    - Protection, mitigation, enhancement of F&W including sufficient flows

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Requirements

- Conservation program & model standards
- R&D recommendations
- Quantifiable environmental costs and benefits
- 20 year demand forecast
- Forecast of power resources and types needed
- Reserve and reliability requirements and cost-effective means of providing

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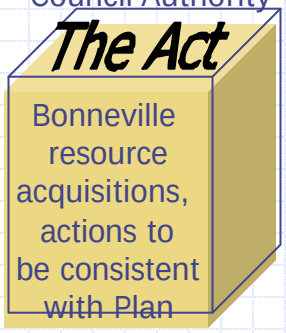
How the plan has effect

Council Influence

Council Authority



- Federal agencies/rulemaking
- State legislatures
- State Regulators
- Local utilities and utility commissions
- Local governments
- ….

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The basis for influence

- Status of the Council
- Advocating policies that will help ensure an adequate, efficient, economic and reliable power system that are:
  - Based on good data and analysis
  - Consistent with the changing nature of the power system
  - Reflect the disaggregated nature of decision-making
  - Reflect insights on the important issues affecting the power system

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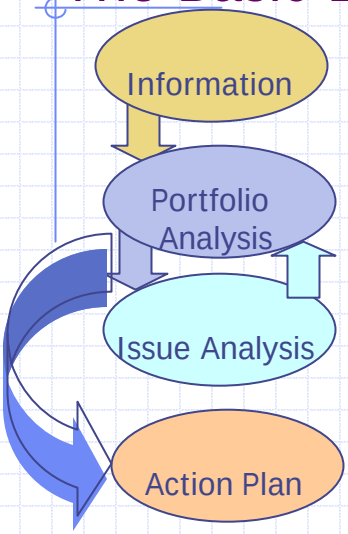
The Basic Elements of a Plan



Loads, resource availability, resource characteristics, fuel prices….

What's the mix of resources over planning horizon that yield lowest cost, acceptable risk, other objectives

How are key issues best addressed

Who needs to do what, when to make it all happen

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What's driving our thinking?

- The experience of leading up to and during 2000-2001 and the aftermath
  - An extended period of extreme high power prices that did significant damage to the regional economy

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Why

- Failed market CA market design and market manipulation, yes
- But also –
  - Under-investment in new resources/over-reliance on spot market
  - Onset of poor hydro conditions
  - Slow response of demand to wholesale prices
  - Vulnerability to correlated markets – gas and electricity
- Failure to plan adequately for the inherent risk in the system

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Directions for the 5th power plan

- Address some of the key policy issues from the 2000-2001 experience
- Provide insights in how to better manage risk through resource choices

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Key Issues

- Adequacy of financial/regulatory incentives for resource development
- Improving the response of retail demand to wholesale prices
- Strategies for investment in energy efficiency
- The value of diversity in the resource portfolio

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Key Issues (cont.)

- Transmission requirements for a well-functioning power system
- Fish and Power
  - Improving cost-effectiveness
  - Assuring equitable treatment
- Global Climate change
  - Potential impact on power supply
  - Risks associated with control measures
- Information for assessing resource adequacy and market performance

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Key Issues (cont.)

- The future role of the Bonneville Power Administration in Power Supply

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Risk....

- The expectation of loss. It is a function of the probability and the consequences of harm.
- We accept risk in our everyday lives and we routinely pay something to mitigate that risk,e.g. insurance
- Plan must assess risk and costs of mitigating

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Council pioneered treatment of risk

- Early plans focused on:
  - The financial risk associated with capital intensive, long lead time resources arising from uncertainty regarding future demand
  - Financial risk associated with uncertain future fuel prices

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Now: Uncertainty AND Volatility

- Uncertainty --
  - About future load trends, fuel price trends, market price trends
  - About policy and regulation, e.g., CO2 regulation
  - Technology
- Variability/volatility – on top of overall trend
  - Hydro, Fuel prices, Market prices, Loads
- Correlations among the them

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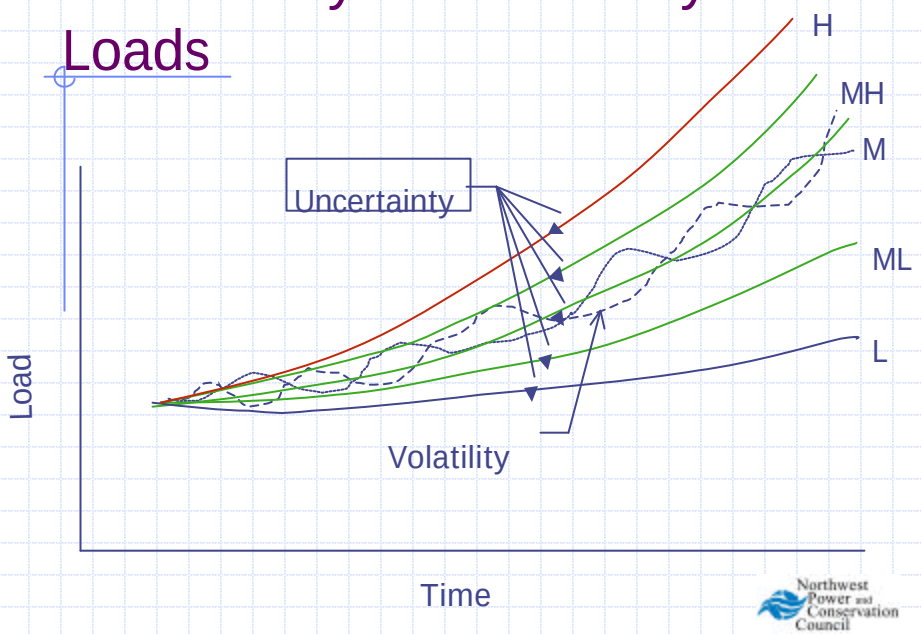
Uncertainty and Volatility -- Loads



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Resource Characteristics and Risk

	Application	Ave Cost re Mkt	Investment Risk	Fuel Risk	CO2 Risk
Conservation	Non-dsptch Load-flwng	Low-Mod	Mod-Hi	Low	Low
NGCC	Dsptch Baseload	Mod	Mod	Mod-Hi	Mod
Wind	Non-dsptch Intermittent	Mod-Hi	Mod-Hi	Low	Low
Spot Market	Dsptch	=	Low	Mod-Hi	Mod
Coal	Dsptch Baseload	Mod-High	Mod-Hi	Low-Mod	High
Demand Response	Peak shave or Long-term	Low-Mod	Low-Mod	Low	Low

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How do we evaluate a resource portfolio?

- By testing it against hundreds of possible futures
  - Loads
  - Hydro conditions
  - Fuel Prices
  - Market prices
  - Policy options, e.g. carbon tax

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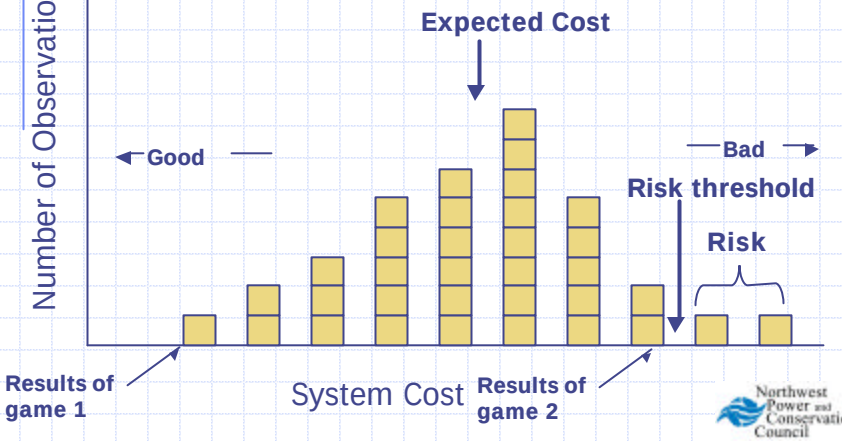
Evaluating the Portfolio

Testing the portfolio over hundreds of possible futures for the key variables



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Performance Metrics

- Expected Cost
- Risk
- Emissions, e.g. carbon
- Reliability
- Cost Volatility

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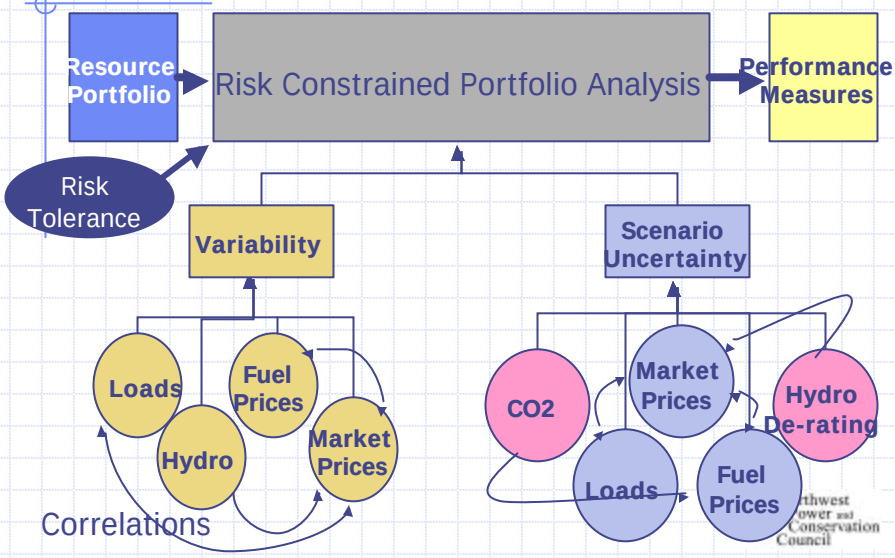
The Approach



Objectives

- Identify lowest cost/acceptable risk resource portfolios
  - Regional perspective
  - Sensitivity to base resource profile, risk tolerance
- Identify barriers and means of overcoming
- Address other key issues, e.g., incentives for resource development

Who are we talking to?

- Natural Gas (Fuels) Advisory Committee
- Demand Forecasting Advisory Committee
- Generating Resources Advisory Committee
- System Analysis Advisory Committee

And anybody else who will talk with us

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Where are we in the process?

- Basic data
  - Draft Fuel Price Forecast ✓
  - Draft Demand forecast ✓
  - Issue Paper on DSI Loads ✓
  - Conservation supply curve
    - Residential and Ag ✓
    - Commercial – by Sept
    - Industrial – End of Sept
  - Generating resources
    - Data complete but not documented

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Where in the process? (2)

- Portfolio model (Olivia)
  - Structure ✓
  - Underlying data correlations ✓
  - Beginning calibrations ✓
  - Testing portfolios – Sept - Oct

Issue Analysis

- Incentives for resource adequacy & Information requirements for resource adequacy – partial
- Demand Response
  - Issue paper ✓
  - Initial estimates of value ✓
  - Analysis in Portfolio model

Issue Analysis (2)

- Strategies for investment in efficiency
  - Portfolio analysis Sept-Oct
- Value of diversity
  - Portfolio analysis Sept-Oct
- Transmission
  - Draft issue paper discussed by P4
  - Decision - Oct

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Issue Analysis (3)

- Fish and Power
  - Initial assessment of power impacts of spill combined with survival analysis
  - Method to demonstrate "equitable treatment" developed and being tested
- Climate change
  - Initial estimate of impact on hydro power done; analysis of full range of water years yet to do
  - Risks associated with carbon control measures – portfolio analysis

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Issue Analysis (4)

- Future role of Bonneville
  - Reinitiating regional dialog
  - Council recommendations to be incorporated in Plan

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Action plan

- Will come out of the Portfolio and Issue Analysis in Nov-Dec

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What you should expect

- Fairly intensive engagement with plan issues and analysis in the Oct – Dec period
- Draft plan to you in Jan
- Public review late winter/early spring
- Final Spring '04

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