



PUBLIC MEETING

Utah Committee of Consumer Services

September 22, 2015



Welcome & Business



Case Updates



Case Updates

- Thayn Hydro (Schedule 37 QF): Briefing regarding potential LEO (Legally Enforceable Obligation)
- Rocky Mountain Power transfer of assets to Navajo Tribal Utility Authority: settlement in principle
- Carbon Emery: Both Company and URTA filed request for reconsideration.
- MSP: Testimony being filed, hearing later this month
- Rocky Mountain Power EBA: True-up filing March 15, includes costs from Deer Creek Mine Closure



Case Updates: Ongoing Work

- Merger between Dominion and Questar
 - Initial technical conference held and discovery underway
 - Expert under contract
- PacifiCorp evaluation of joining an expanded California Independent System Operator (topic on today's agenda)
- Preparation for upcoming General Rate Cases:
 - Meetings with utilities and other stakeholders.
 - As we gather information on likely major issues in the cases, we are evaluating our internal team as well as experts under contract.
 - In the process of issuing and evaluating RFPs for necessary additional experts
 - Questar will file July 1st
 - Rocky Mountain Power is likely to file later this year



PacifiCorp Evaluation of Joining an Expanded Regional ISO



Background

- On April 13, 2015, the California Independent System Operator (CAISO) and PacifiCorp signed a memorandum of understanding (MOU) to explore the feasibility, costs and benefits of PacifiCorp joining the CAISO as a Participating Transmission Owner.
- This new effort to explore the creation of a regional ISO was preceded by the implementation of an Energy Imbalance Market (EIM) between CAISO and PacifiCorp.
- After the April 2015 MOU was signed, the next step taken in the regional ISO process was the completion of a benefits study in October 2015.
- The benefits study, performed by consulting group Energy and Environmental Economics (E3), showed 20-year present value cost savings for PacifiCorp of up to \$2.3 billion and for CAISO of up to \$6.8 billion.
- To date, no studies have evaluated the costs of joining an ISO.



Functions of the California ISO

- The ISO manages the flow of electricity across the high-voltage, long distance power lines that make up 80 percent of California's and a small part of Nevada's power grid.
 - The ISO grants equal access to 26,000 circuit miles of power lines and reduces barriers to diverse resources competing to bring power to customers.
 - Every five minutes the ISO forecasts electrical demand, accounts for operating reserves and dispatches the lowest cost power plant unit to meet demand while ensuring enough transmission capacity is available to deliver the power.
- ISO Market Offers:
 - A full network model that analyzes generation and transmission schedules submitted a day in advance to better manage or avoid real-time bottlenecks.
 - An integrated forward market that provides a one-stop shop for trading and analyzing the electricity bids, transmission capacity and reserves needed to keep the grid in balance.
 - Locational marginal pricing that creates a highly transparent system that prices electricity based on the cost of generating and delivering it.
- The ISO conducts an annual transmission planning process that uses engineering analysis to identify any grid expansions necessary to maintain reliability, lower costs or meet future infrastructure needs based on public policies.



Potential Benefits of Joining an ISO

- An expansion of the regional market offers potential benefits including:
 - More efficient day-ahead unit commitment and dispatch of resources, beyond what can be achieved through the Energy Imbalance Market (EIM), resulting in reduced costs for customers across the footprint;
 - Reduced reserve requirements, both for peak demand and operating requirements, due to the regional diversity of loads across a broader footprint;
 - Smoother integration of increasing renewable resources due to a more diverse supply, both technologically and geographically, and the potential to reduce otherwise expected curtailments of renewable generation; and
 - More efficient and cost-effective transmission system planning across a broader geographic footprint.



Concerns Regarding Joining an ISO

- Costs
 - No studies have examined NET benefits, only potential benefits on a gross basis
 - Some cost categories could completely wipe out all projected, theoretical benefits
 - Some cost categories have not yet been evaluated (e.g. Grid Management Charge, impact of bonus ROE for future transmission, congestion costs)
- Transfer of Control
 - Joining an ISO would shift control regarding planning, determination of need, and allocation of costs associated with new transmission resources
 - A large portion of the costs associated with PacifiCorp's rates would be determined outside of state regulatory processes requiring different expertise, additional travel, and diluted input.
 - A yet unknown portion of PacifiCorp's rates would be ultimately decided by federal regulators rather than state regulators implementing state policy.
- Timeline for Analysis
 - Aggressive timeline has made participation and analysis difficult
 - California has a tight timeline tied to political calendars
 - PacifiCorp has been further driving the aggressive timeline.



Ongoing Analysis and Stakeholder Processes

- Formal CAISO Stakeholder Processes
 - TAC (Transmission Access Charge)
 - Revised, zonal method of calculation has been proposed
 - Additional rounds of straw proposals and comments are scheduled
 - Key question includes the definition of “existing” transmission projects for cost allocation
 - RA (Resource Adequacy)
 - Initial proposals released & additional rounds of straw proposals and comments are scheduled
 - Key question includes the reserve requirement and interaction of state and CAISO requirements.
- California SB 350 Mandated Studies
 - California legislation mandates certain specific studies to evaluate whether an expanded ISO is in the public interest for California
 - Studies are underway, but delayed from initial timeline
- Governance Discussions
 - Political discussions underway among the states
 - Uneven distribution of information and input
 - California wants to bring a proposal to its legislature this session (before the end of August)



Additional Necessary Analysis

- Robust and comprehensive benefit AND cost analysis
 - Difficult to participate in stakeholder processes examining proposed changes outside the context of a fulsome analysis. Inadequate information to know how to advocate in these processes.
 - Stakeholders outside of California are at a disadvantage compared to PacifiCorp (who likely has a desired outcome it is working toward) and California stakeholders (who have a better understanding of existing policies and practices)
- Grid Management Charge
 - CAISO administrative charge is not insignificant
 - May need to be disaggregated – not clear if the charge covers more services than PacifiCorp would want to obtain
- Transmission Planning
 - More information on impacts to planning is necessary.
- Impact on PacifiCorp's Ability and Costs to Serve Load
 - PacifiCorp has discussed certain technical details that aren't clear under CAISO rules. These details should be disclosed and discussed.
 - LMP prices – how will the congestion be measured, how are congestion rights distributed, how will congestion costs impact energy prices to serve native load
 - Implication for multi-state system and allocation of costs is unknown.
- Changes to CAISO structure (i.e. committees, sector definition, voting parameters)



Office Approach to Analysis

- Monitor all CAISO Stakeholder Processes
 - Participate and submit comments (often high level concepts) as able
- Participate in other discussions/
 - Monthly PacifiCorp hosted stakeholder calls to brief on recent activities
 - Periodic calls with other consumer advocate offices in the West
 - Ad hoc, as well as more formal discussions among Utah agencies and broader Utah parties
- Issue RFP for additional analytical expertise
 - Currently evaluating RFP responses
 - RFP clearly defined a Phase 1 for project – assistance in reviewing and commenting on the straw proposals released in the formal CAISO stakeholder processes
 - RFP required adequate expertise for potential future phases of the project (e.g. modeling capabilities to review LMP/congestion analyses, ability to participate as an expert witness in potential future FERC and/or state regulatory proceedings)



General Rate Case Primer



Closed Session (if necessary)



Other Business



Adjourn



IRP slides from September



Comments filed by OCS

- Concern about level of Class 2 DSM (energy efficiency)
 - Utah accounts for 60% of DSM resources, but only 43% of system
 - Lack of detail by sector and end us of how this will be achieved
 - Recommend that the Company provide updates and more information on these issues
- Reliance on FOT
 - Power supply assessments indicate adequate reserves currently available
 - Recommend the Company monitor the market and provide annual updates
- Energy gateway Transmission Projects
 - 1300 miles of Gateway West and Gateway South
 - Recommend that in future IRPs the Company update the justification for these projects
- Capacity from QF Facilities
 - Over 1000 MW of wind and solar QFs are planned to be online in Utah by the end of 2016
 - These resources are acquired outside of the system wide planning process



Many Organizations Filed Comments

- Office of Consumer Services
- Division of Public Utilities
- Utah Association of Energy Users
- Utah Clean Energy and SWEEP
- Utah Physicians for a Healthy Environment
- Sierra Club, et. al. – HEAL Utah, Western Clean Energy Campaign, Powder River Basin Resource Council, Idaho Conservation League
- League of Women Voters
- Interwest Energy Alliance
- Matt Pacinza (HEAL Utah, et. al.)



Related Initiatives

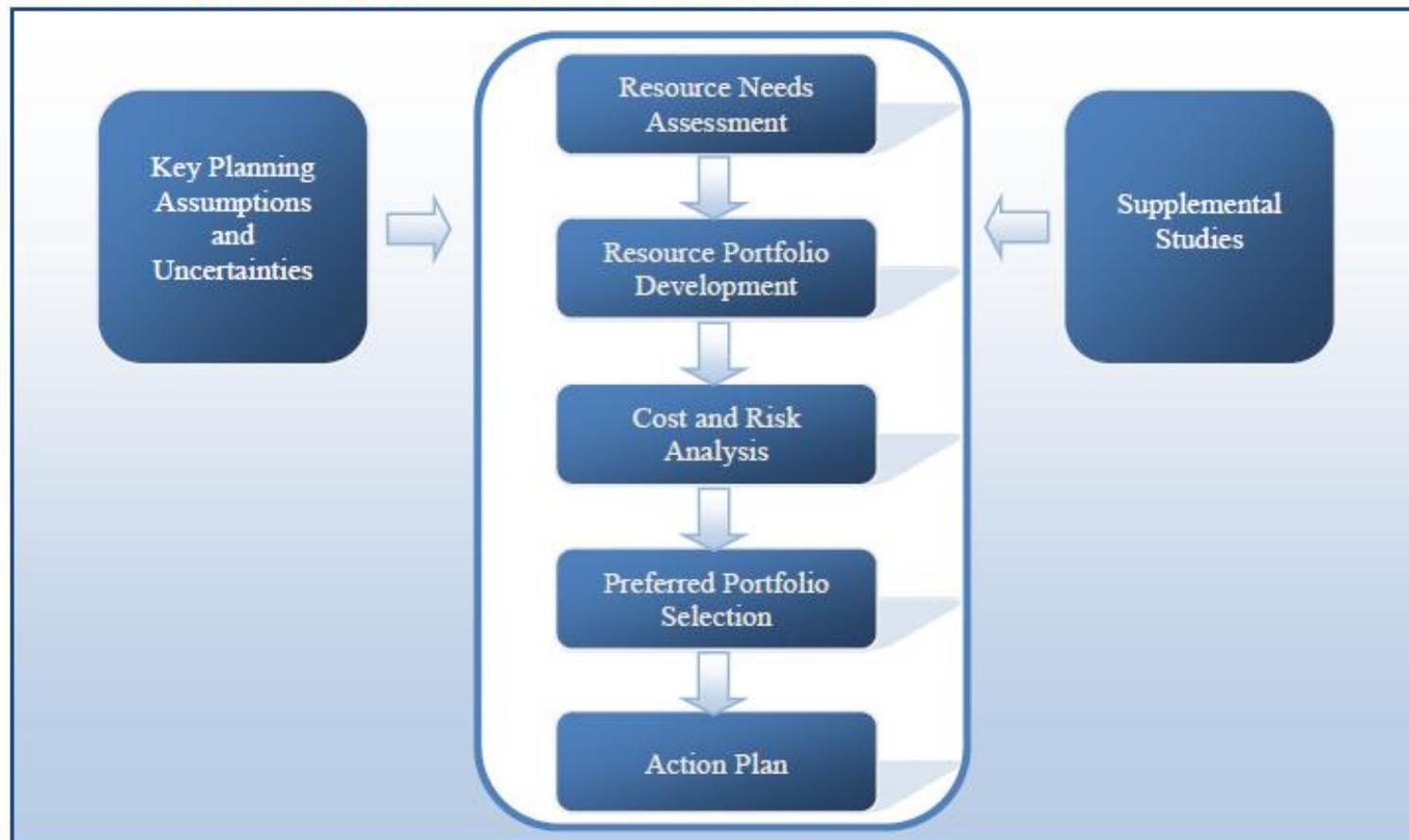
- Sierra Club
 - “PacifiCorp’s 20-Year-Plan of Coal Dependence is Risky Business!”
 - Two different form letters submitted by hundreds of customers
- Heal Utah
 - “Brown Sky, The Truth About How Rocky Mountain Power Obstructs Renewable Energy”
 - Received little media attention
- Both initiatives provide a mix of factual and misleading information



IRP slides from April

Overview of Planning Process

Figure 1.1 – Key Elements of PacifiCorp’s IRP Process





Preferred Portfolio

Table 1.1 – 2015 IRP Preferred Portfolio Summary (MW)

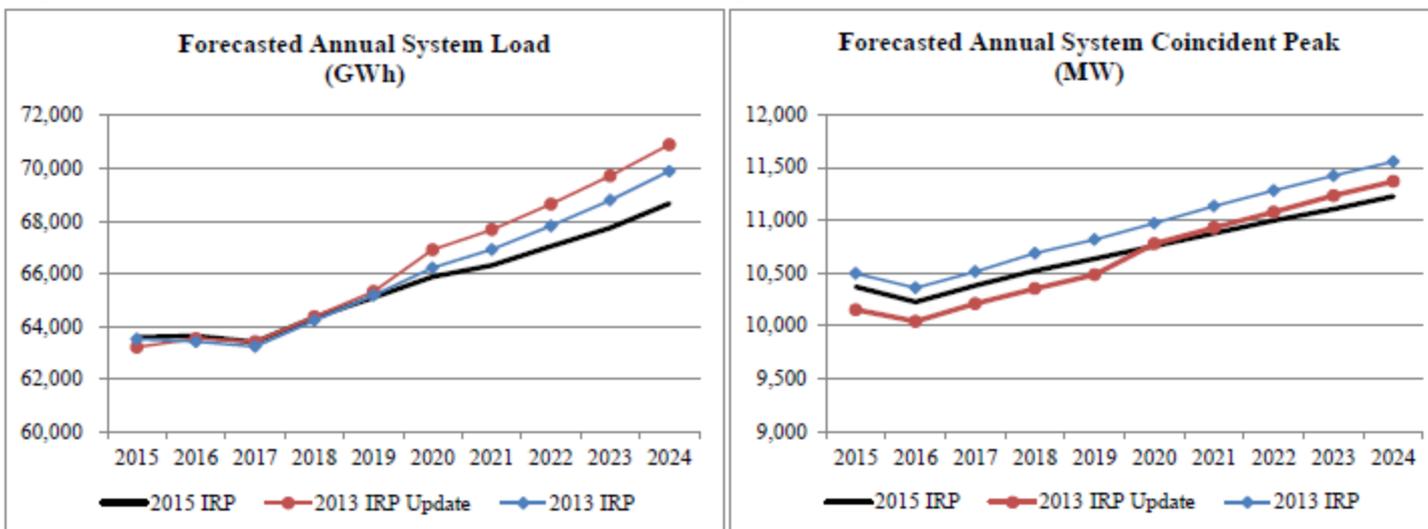
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
New Resources																					
FOTs	727	937	904	870	935	979	769	791	761	754	771	792	835	1,304	1,167	1,253	1,247	1,411	1,360	1,087	n/a
DSM - Energy Efficiency	133	139	146	146	153	135	137	144	146	149	123	126	130	132	128	125	122	122	122	120	2,678
DSM - Load Control	0	0	0	0	0	0	0	5	11	0	0	11	0	0	11	0	0	0	5	0	42
Natural Gas Combined Cycle	0	0	0	0	0	0	0	0	0	0	0	0	0	423	0	1,159	0	0	635	635	2,852
OR Solar Capacity Standard	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Existing Unit Changes																					
Reduction in Owned Coal/Gas	(222)	0	0	(280)	0	0	0	0	0	0	(387)	0	0	(762)	0	(807)	(77)	0	(627)	0	(3,162)
Gas Conversion	0	0	0	337	0	0	0	0	0	0	387	0	0	0	0	(337)	0	0	0	0	387
Total Net Change in Resources	638	1,084	1,050	1,073	1,088	1,113	906	941	917	903	893	928	965	1,097	1,305	1,393	1,292	1,533	1,496	1,841	

- Resource needs can be met with DSM and low-cost short term firm market purchases (called front office transactions or FOTs on the chart)
- The next thermal resource is planned to be added in 2028, one year later than in previous plans
- By 2034 assumes that 1800 MW of existing coal generation will either be retired or converted to natural gas



Load Forecast Changes

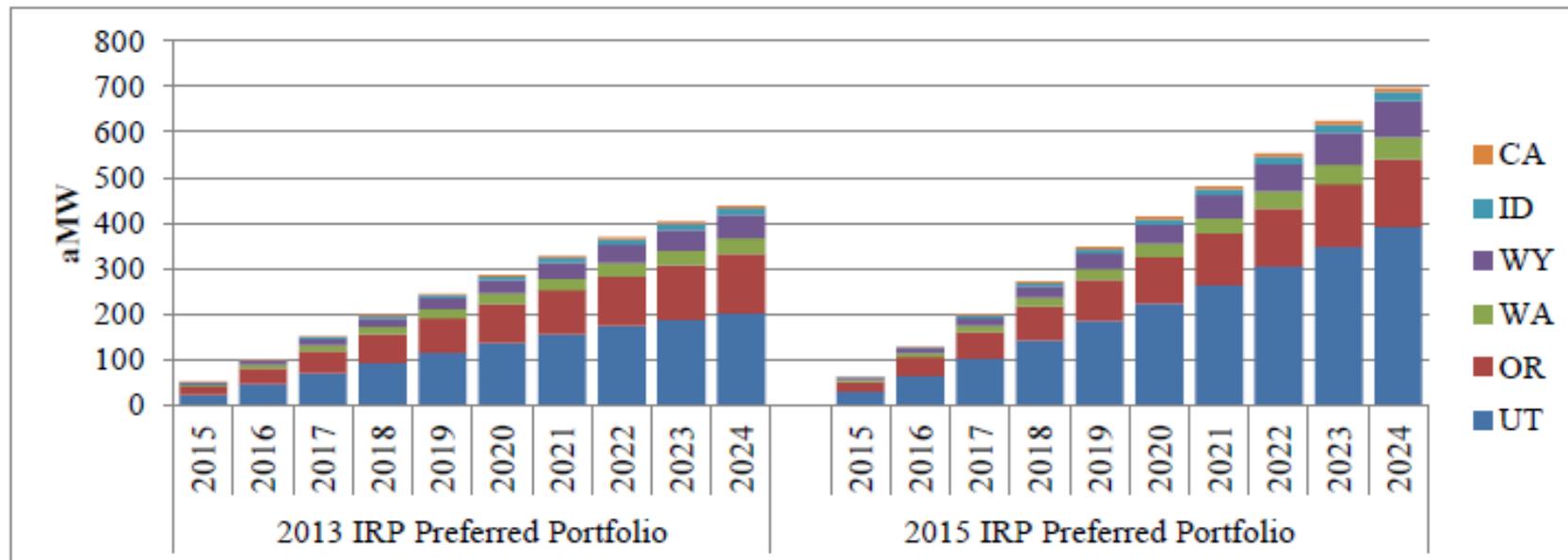
Figure 1.2 – Load Forecast Comparison among Recent IRPs





Energy Efficiency Changes

Figure 1.3 – Comparison of Total Energy Efficiency Savings between the 2015 IRP Preferred Portfolio and the 2013 IRP Preferred Portfolio





Action Plan

- Renewable Resource Actions
 - The Company will pursue unbundled REC RFPs to meet its state RPS compliance requirements
 - On a quarterly basis through 2016, issue reverse RFPs to sell vintage RECs not required to meet state RPS requirements
 - Conclude negotiations with shortlisted bids for qualifying solar to satisfy obligation under Oregon's 2020 solar capacity standard
- Front Office Transactions
 - Acquire economic short-term firm market purchases for on-peak summer deliveries from 2015 through 2017 consistent with Risk Management Policy and Front Office Procedures and Practices.
- Demand Side Management Actions
 - Pursue a west-side irrigation load control pilot beginning 2016 to test the feasibility of program design.
 - Acquire cost effective Class 2 DSM (energy efficiency) resources targeting annual system energy and capacity selections from the preferred portfolio.



Action Plan

- Coal Resource Actions
 - Naughton Unit 3: Issue an RFP to procure gas transportation and EPC contract for the natural gas conversion in the first quarter of 2016. (May include updated economic analysis of natural gas conversion)
 - Dave Johnston Unit 3: Requirement for SCR or shut-down by 2027 is under appeal. If upheld, will shut down by 2027. If modified, will evaluate alternative compliance strategies.
 - Wyodak: Continue to pursue appeal of SCR requirement. If upheld, evaluate alternative compliance strategies.
 - Cholla Unit 4: Continue permitting efforts in support of an alternative regional haze compliance that avoids SCR with a commitment to cease operating the unit as coal fueled by the end of April 2025.
- Transmission Transactions
 - Continue permitting for the Energy Gateway transmission plan



Process

- Schedule will be set for comments and reply comments
- Commission will acknowledge or not acknowledge the plan
- Typically, no hearing is held



IRP slides



Purpose of the IRP

- To select the optimal set of resources which will assure an adequate and reliable supply of electricity while balancing:
 - Cost
 - Risk
 - Public Policy Goals
- To provide long range resource planning to meet forecasted load – 20-year planning horizon



Utah Public Service Commission Guidelines

1. The Company will submit its IRP biennially for review and acknowledgment by the Commission.
2. The IRP will be developed using a public process and the Company will accommodate input from interested parties and facilitate information exchange.
3. The IRP will include:
 - a. A range of estimates or forecasts of load growth
 - b. An evaluation of all resources on a consistent and comparable basis
 - c. An analysis of competitive bidding for all types of resource acquisitions
 - d. A 20-year planning horizon
 - e. An action plan to implement the IRP consistent with the business plan
 - f. Different acquisition paths for different economic futures
 - g. Evaluation of cost from the perspective of different ratepayers and social concerns



Commission Guidelines - Continued

3. The IRP will include (cont.):
 - h. An evaluation of risks whether the ratepayer or the stockholder bears the risk
 - i. Allow flexibility so that the Company can take advantage of opportunities
 - j. An analysis of tradeoffs
 - k. A range for external costs
 - l. A description of how rate design is consistent with IRP planning goals
4. The public and all interested parties will have the opportunity to submit formal comments to the Commission
5. The IRP will be used in rate cases to evaluate utility performance related to resource acquisition.
6. Acknowledgement of the IRP will not guarantee favorable rate treatment of resource acquisitions.



Forecast of Resource Needs

Key Assumptions:

- Forecasted loads
- Existing resource levels
- Reserve Requirements



New Resource Modeling Step 1 – Inputs & Assumptions

- Key Inputs – Resource cost estimates, asset lives, fuel cost inflation, asset lives, transmission topology, etc.
- Key Assumption Alternatives – Scenario/Case Development
 1. Compliance with proposed EPA 111(d) rule and CO2 costs
 2. Natural gas costs
 3. Wholesale electricity prices and availability of FOTs
 3. Load growth
 4. Renewable energy tax credits and integration costs
 5. Renewable Portfolio Standards
 6. Demand Side Management (DSM)
 7. Distributed Generation
 8. Coal plant regional haze compliance, coal plant retirements
 9. Energy Gateway transmission buildout



New Resource Modeling Step 2 – Capacity Expansion Model

- System Optimizer Model (PacifiCorp's CEM)
- Develop multiple cases using different combinations of assumptions
 - Core Cases - produces different portfolios to meet future needs
 - Sensitivity Cases – tests the impact of specific planning assumptions on resource selection, cost and risk
- System Optimizer solves for the least cost mix of resources for each case based on PVRR – Present Value of Revenue Requirement



New Resource Modeling Step 3 – Risk Analysis

- Planning and Risk Model (PaR) – Monte Carlo Simulation
- Risk Analysis – Testing the ability of a portfolio to respond to random and sometimes major changes in the following variables:
 - (1) Loads
 - (2) Natural gas prices
 - (3) Wholesale electricity prices
 - (4) Hydro energy availability
- This analysis screens the top-performing portfolios based on the combination of average risk and upper-tail risk*
 - Best performing core portfolios are selected for further screening.

*Upper-tail risk reflects potential outcomes that have a low probability of occurring but are very expensive if they do materialize.



Selection of Preferred Portfolio

The preferred portfolio was selected using the following criteria:

1. Risk-adjusted Mean PVRR
2. Customer rate impact
3. CO2 emissions
4. Energy Not Served
5. Fuel source diversity
6. Using RECs for Oregon RPS compliance



Office IRP Review

The Office thoroughly reviews the Company's IRP filings focusing on the following types of issues:

- Compliance with Commission Guidelines and past Commission IRP Orders
- Reasonableness of methods, inputs, assumptions and ultimately the preferred portfolio of resources selected by the Company
- Evaluation of selected issues by experts retained by the Office
- Re-visit issues that have been problems in past IRP filings (i.e. reliance on market power, appropriate planning reserve margins, treatment of renewable resources)

