ELECTRIC INTEGRATED RESOURCE PLAN
2005

APPENDICES
VOLUME 1
AUGUST 31, 2005

Technical Advisory Committee Meeting Agendas

Appendix A

Avista Utilities
Technical Advisory Committee/External Energy Efficiency Board Meeting
October 23, 2003

Thursday, October 23

Integrated Resource Plan and DSM **10:00 AM – 2:00 PM**

1. DSM in the 2003 IRP
   - Errata filed in July
   - Assumptions
   - Results

2. Integration methodologies
   - Avoided cost price signal
   - Full integration into AURORA model
   - Approach used in 2003 IRP (Errata)

3. Integration specifics (2003 IRP as example)
   - Cost attributes
   - Supply curves
   - “Resource” bundles
   - Load research
   - Other resources
     - Distribution efficiencies (e.g., CVR)
     - Peak shaving efficiencies (e.g., voluntary curtailment, TOU)

4. Issues to consider
   - Quality of inputs
   - Usefulness of outputs
     - Is AURORA smarter than Jon?
     - Examples

5. Next steps

Lunch provided **12 Noon**

Avista Utilities 2005 Integrated Resource Plan
Technical Advisory Committee Meeting No. 2
August 4, 2004

• Introductions	9:30a	Kalich
• Overview of Planning Process and Review of IRP Schedule	9:40a	Young
• TAC Participant Brainstorm on IRP Topics	10:00a	Folsom
• Review of October 2003 DSM Meeting	11:00a	Powell
• Lunch Speaker & Lunch	12:00p	Anderson
• Load Forecast	1:00p	Barcus
• Future Resource Requirements (L&R)	3:00p	Fletcher
• Adjourn	3:30p	

Avista Utilities 2005 Integrated Resource Plan

Technical Advisory Committee Meeting No. 3 Agenda

January 25, 2005

	Topic	Time	Staff
1.	Introductions	10:00	Barcus
2.	Review of 2nd TAC Meeting	10:15	Kalich
3.	Overview of Natural Gas Forecast	11:00	Gall
4.	Capacity Planning Overview	11:30	Kalich
5.	Lunch Speaker (and lunch)	12:00	Folsom
6.	Capacity Planning Overview, Cont.	12:45	Kalich
7.	Load Forecast Update	1:15	Barcus
8.	Loads and Resources Update	1:45	Lyons
9.	Imputed Debt	2:15	Thoren
10.	Overview of Feb. 17 TAC Meeting	2:45	Kalich
11.	Adjourn	3:00	

Avista Utilities 2005 Integrated Resource Plan

Technical Advisory Committee Meeting No. 4 Agenda

4th Floor Technology Room—Avista Headquarters, Spokane

February 17, 2005

	Topic	Time	Staff
1.	Introductions	10:00	Kalich
2.	Review of 3rd TAC Meeting	10:15	Kalich
3.	IRP Modeling Overview	10:30	Gall
4.	Modeling Futures and Scenarios	11:00	Kalich
5.	More on Modeling Assumptions	11:45	Gall
6.	Lunch and $AURORA_{XMP}$ Demo	12:15	Gall
7.	Modeling Emissions in IRP	1:15	Lyons
8.	Supply-Side Resource Alternatives	2:45	Gall/Lyons
9.	Selection of Future TAC Dates	3:30	Kalich
10.	Adjourn	4:00	

Avista Utilities 2005 Integrated Resource Plan

Technical Advisory Committee Meeting No. 5 Agenda

4th Floor Technology Room—Avista Headquarters, Spokane

March 23, 2005

	Topic	Time	Staff
1.	Introductions	10:00	Barcus
2.	Review of 4th TAC Meeting	10:15	Lyons
3.	DSM Integration Into IRP	10:30	Powell
4.	Stochastic (Risk) Modeling Part 1	11:30	Kalich
5.	Lunch and Transmission Planning Discussion	12:00	Cloward
6.	Stochastic (Risk) Modeling Part 2	1:00	Kalich
7.	Preliminary Capacity Expansion Results	1:30	Gall
8.	Update on Scenarios & Futures	2:15	Lyons
9.	2005 Draft IRP Outline	2:45	Lyons
10.	Adjourn	3:00	

Avista Utilities 2005 Integrated Resource Plan
Technical Advisory Committee Meeting No. 6 Agenda
May 18, 2005

	Topic	Time	Staff
1.	Introductions	10:00	Barcus
2.	Review of 5th TAC Meeting	10:15	Lyons
3.	Natural Gas Price Forecast Update	10:30	Gall
4.	Base Case Results	10:45	Gall
5.	LP Module/Selection Criteria	11:45	Kalich
6.	Lunch	12:30	
7.	Transmission Planning	1:00	Waples
8.	Scenario Results	2:00	Lyons
9.	Avoided Costs	2:45	Kalich
10.	Action Item for 2005 IRP	3:15	Kalich
11.	Housekeeping Items	3:45	Lyons
12.	Adjourn	4:00	

Avista Utilities 2005 Integrated Resource Plan

Technical Advisory Committee Meeting No. 7 Agenda

June 23, 2005

	Topic	Time	Staff
1.	Introductions	10:00	Barcus
2.	Review of 6th TAC Meeting	10:15	Lyons
3.	Hydro Upgrades	10:30	Kalich
4.	Emissions	11:00	Lyons
5.	Lunch	12:00	
6.	DSM	1:00	Powell
7.	Preferred Resource Strategy	3:00	Kalich
8.	Adjourn	4:00	

Technical Advisory Committee Members

Appendix B

2005 IRP TAC Member List

Name	Organization	Phone Number	E-Mail	TAC1	TAC2	TAC3	TAC4	TAC5	TAC6	TAC7
Aliza Seelig	Puget Sound Energy	425.462.3122	aliza.seelig@pse.com		X					
Andy Ford	WSU		FordA@mail.wsu.edu			X		X	X	
Bruce Folsom	Avista Utilities	509.495.8706	bruce.folsom@avistacorp.com	X	X	X			X	
Charlie Grist	NPCC	503.222.5161	cgrist@nwcouncil.ort							X
Chris Bevil	Puget Sound Energy	425.456.2757	chris.bevil@pse.com		X					
Chris Turner	PacifiCorp	503.813.6114	chris.turner2@pacificorp.com		X					
Clint Kalich	Avista Utilities	509.495.4532	clint.kalich@avistacorp.com		X	X	X	X	X	X
Danielle Dixon	NW Energy Coalition	206.621.0094	danielle@nwenergy.org		X					
Dave Van Hersett	NW Energy Services	509.838.9190	davev@nwenergy.com	X	X	X			X	X
Diane Thoren	Avista Utilities	509.495.4331				X				
Doug Loreen	Puget Sound Energy	425.454.2988	doug.loreen@pse.com							
Doug Young	Avista Utilities			X	X					
Hank McIntosh	WUTC	360.664.1309	hmcintos@wutc.wa.gov		X	X	X	X	X	X
Harry McLean	City of Spokane	509.625.7804	hmclean@spokanecity.org							X
Heidi Heath	Avista Utilities	509.495.4129	heidi.heath@avistacorp.com							X
Howard Ray	Potlatch	208.799.1030	Howard.Ray@potlatchcorp.com			X		X	X	
James Gall	Avista Utilities	509.495.2189	james.gall@avistacorp.com			X	X	X	X	X
Jamie Stark	Idaho Power	208.388.5648		X						
Jason Fletcher	Avista Utilities			X	X					
Joe Brabeck	Avista Utilities	509.495.4108	joe.brabeck@avistacorp.com					X	X	
Joelle Steward	WUTC	360.664.1308	jsteward@wutc.wa.gov	X		X				X
John Lyons	Avista Utilities	509.495.8515	john.lyons@avistacorp.com			X	X	X	X	X
John Seymour	FPL Energy	561.691.7138	john_seymour@fpl.com			X				
Jon Powell	Avista Utilities	509.495.4047	jon.powell@avistacorp.com	X	X			X		X
Ken Canon	ICNU	503.239.9169	kcanon@icnu.org	X						
Leonard Coldiron	Potlatch	208.799.7483	Leonard.coldiron@potlatchcorp.com			X				
Liz Klumpp	WCTED	360.956.2071	ElizabethK@ep.cted.wa.gov	X	X		X	X		X
Lynn Anderson	IPUC	208.334.0350	landers@puc.state.id.us	X						
Mallur Nandagopal	City of Spokane	509.625.7811	MNandagopal@SpokaneCity.org	X						
Patrick Saad	Dana-Saad Co.	509.924.6711	patsaad@qwest.net				X	X		
Randy Barcus	Avista Utilities	509.495.4160	randy.barcus@avistacorp.com		X	X	X	X	X	X
Renee Coelho	Avista Utilities	509.495.8607	renee.coelho@avistacorp.com	X	X					
Richard Nagy	Univ. of Idaho	208.885.7350	richardn@uidaho.edu		X				X	
Rick Sterling	IPUC	208.334.0351	rsterli@puc.state.id.us		X	X	X	X	X	X
Steve Silkworth	Avista Utilities	509.495.8093	steve.silkworth@avistacorp.com		X					
Terry Morlan	NPCC	503.222.5161	tmorlan@nwcouncil.org		X					
Tom Dempsey	Avista Utilities	509.495.4960	tom.dempsey@avistacorp.com			X		X		
Tom Eckman	NPCC	503.222.5161	teckman@nwcouncil.org	X				X		
Tom McLaughlin	Potlatch	208.799.1935	Tom.McLaughlin@potlatchcorp.com			X				X
Yohannes Mariam	WUTC	360.664.1316	ymariam@wutc.wa.gov			X	X			X

Technical Advisory Committee Meeting Presentation Slides

Appendix C

TAC Presentation Table of Contents

TAC 1
October 23, 2003

- Integration of DSM into the IRP

TAC 2
August 4, 2004

- Overview of Planning Process
- TAC Brainstorming Review Summary
- Avista Electric Demand Side Management- Update and Proposed Integration
- Clark Fork River Projects Update
- Spokane River Relicensing Update
- 2005 Load Forecast
- Future Resource Requirements

TAC 3
January 25, 2005

- Overview of Natural Gas Forecast
- Sustained Capacity and Planning Margin Concepts
- 2005 Load Forecast Update and Scenarios
- Future Resource Requirement Update
- Imputed Debt Discussion

TAC 4
February 17, 2005

- Modeling Overview and Process
- Modeling Futures and Scenarios
- Modeling Assumptions
- Treatment of Emissions
- Supply Side Options

TAC 5
March 23, 2005

- DSM Integration Brief
- Stochastic Modeling
- Avista's 230kV Upgrade Projects
- Preliminary Long-term Electric Forecast and Capacity Expansion Results
- Modeling Futures and Scenarios
- 2005 Draft IRP Outline

TAC 6
May 18, 2005

- Gas & Inflation Forecast Update
- Base Case Results- Electric Price Forecast
- LP Module, The Selection Criteria & Efficient Frontier
- Estimated Resource Integration Costs for the 2005 IRP
- Scenario Results
- Avoided Costs

TAC 7
June 23, 2005

- Hydro Upgrades
- Emissions
- Demand Side Management
- Preferred Resource Strategy

Integration of DSM into the IRP

Technical Advisory Committee
Triple-E Board Meeting

October 23, 2003
Jack Stewart Training Center

DSM in the 2003 IRP

- Errata filed in July
  - New DSM run – third time's a charm!
- Assumptions
- Results

AVISTA Utilities

2003 IRP Assumptions

- DSM bundles
  - Based on actual conservation activities
  - Six components account for vast majority of historic energy savings:
    - Commercial DHW, HVAC, and lighting
    - Residential DHW, HVAC, and lighting

DSM in the IRP > 2003 IRP

AVISTA Utilities

2003 IRP Assumptions

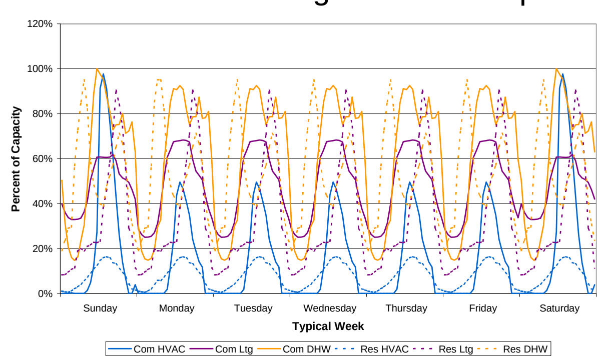
- DSM supply curves
  - For each component, curves were based on actual and three incremental points
  - Incremental points – 25% increase in funding results in 10% increase in savings

2003 IRP Assumptions

- DSM load shapes
  - Hourly shapes estimated for typical week for each of twelve months
  - Based on internal M&E and BPA End Use Load and Consumer Assessment Program (ELCAP)
  - Modified to include engineering estimates of new technologies

2003 IRP Assumptions

Illustration – August Load Shapes



AVISTA Utilities

2003 IRP Results

Measure	NPV	Status
Com DHW 1	64.0	pass
Com DHW 2	5.5	pass
Com DHW 3	0.4	pass
Com DHW 4	0.0	pass
255 MWh passed		
Res DHW 1	3.3	pass
Res DHW 2	-0.3	fail
Res DHW 3	-0.1	fail
Res DHW 4	-0.0	fail
69 MWh passed		

Measure	NPV	Status
Com HVAC 1	861.8	pass
Com HVAC 2	1.2	pass
Com HVAC 3	-10.5	fail
Com HVAC 4	-2.4	fail
8,480 MWh passed		
Res HVAC 1	238.2	pass
Res HVAC 2	16.5	pass
Res HVAC 3	0.7	pass
Res HVAC 4	0.0	fail
1,563 MWh passed		

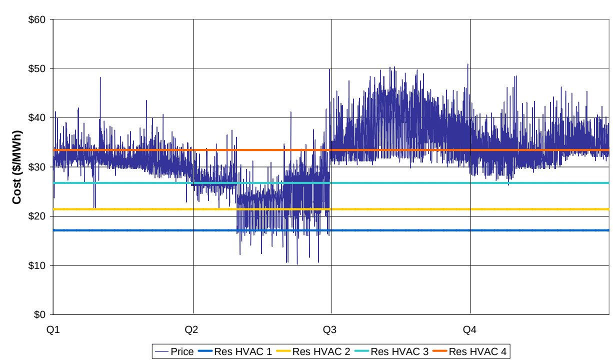
Measure	NPV	Status
Com Light 1	3,159.3	pass
Com Light 2	268.8	pass
Com Light 3	21.0	pass
Com Light 4	1.4	pass
12,931 MWh passed		
Res Light 1	2,664.5	pass
Res Light 2	218.4	pass
Res Light 3	15.8	pass
Res Light 4	0.8	pass
9,007 MWh passed		

32,302 selected by AURORA
3,142 “odd-ball”
2,365 limited income
37,810 total MWh (or 4.32 aMW)

AVISTA Utilities

2003 IRP Results

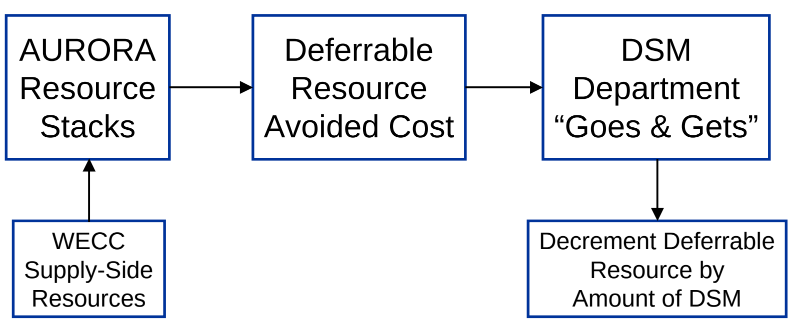
Illustration – Residential HVAC vs. 2004 Prices



Integration Methodologies

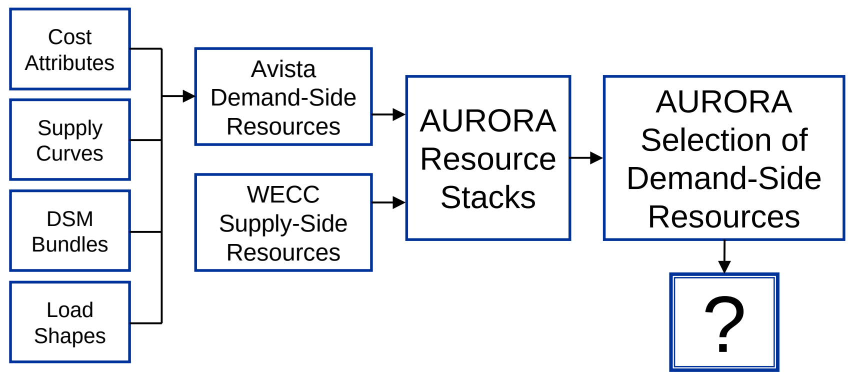
- Avoided cost price signal
- Full integration into AURORA model
- Approach used in 2003 IRP

Avoided Cost Price Signal



AVISTA Utilities

Full Integration Into AURORA



DSM in the IRP > Integration Methods

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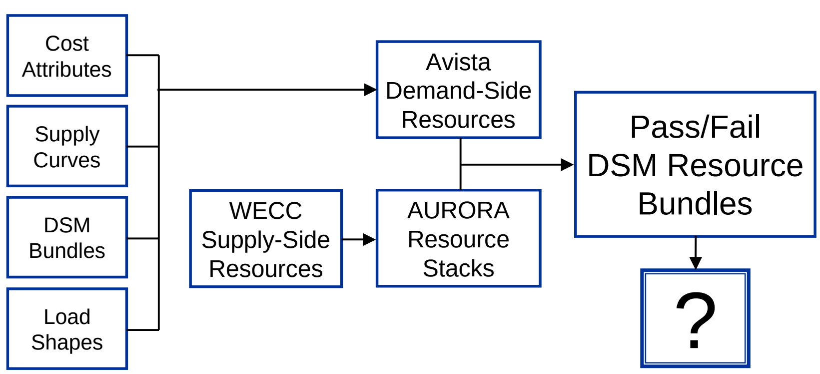
Approach Used In 2003 IRP



Avista Utilities

Integration Specifics

- Cost attributes
- Supply curves
- DSM bundles
- Load shapes
- Other resources
  - Distribution efficiencies (CVR)
  - Peak shaving (voluntary curtailment)
  - Load shifting (TOU)

DSM in the IRP

Avista Utilities

Issues to Consider

- Quality of inputs
  - Supply curves, bundles, and load shapes
- Usefulness of outputs
  - Is AURORA smarter than Jon?
  - Examples

AVISTA Utilities

Next Steps?

ENERGY AT WORK

Overview of Planning Process

2005 Integrated Resource Plan
Second Technical Advisory Committee Meeting
August 4, 2004

Doug Young

ENERGY AT WORK

Overview of Planning Process

- Avista is continuously evaluating the balance between requirements and resources.
- Avista does an update each year when the new load forecast is completed.
- Avista strives to reach balanced business decisions.

ENERGY AT WORK

Overview of Planning Process

- The Company expects public participation will continue to play an important role in resource planning.
- This is the eighth IRP that will be submitted since 1989.
- The plan's goal is to describe the mix of generating resources and improvements in efficiency that is expected to meet future needs at the lowest cost to the Company and its customers.
- The 2003 IRP focused on developing a set of tools and methods within which potential resource decisions could be evaluated.

ENERGY AT WORK

Overview of Planning Process

- The Company's near-term action plan outlined activities that supported the Preferred Resource Strategy (PRS) and improved the planning process. During the first ten years the PRS includes:
  - 149 aMW of CCCT
  - 25 aMW of wind
  - 197 aMW of coal
  - 40 aMW of SCCT

ENERGY AT WORK

AVISTA Utilities

Overview of Planning Process

- Work is proceeding on some of the action items, such as:
  - Spokane River relicensing effort,
  - Integrating wind generation into Avista's system,
  - Adding coal facilities to the resource mix,
  - Determining the optimum reserve margin, and
  - Assessing the cost-effectiveness of new resource additions

ENERGY AT WORK

AVISTA Utilities

Review of 2005 IRP Schedule

- Avista had four TAC meetings during the last IRP planning cycle.

- In October 2003 Avista held its first TAC meeting for the 2005 IRP planning cycle to discuss the various alternatives for integrating DSM into the IRP process.

- The Company will hold TAC meetings in October and December of this year. Another TAC meeting will be held in February 2005, and the draft IRP will be released in March. A final TAC meeting to review the draft report will be held the first of April. The final IRP report will be released at the end of April.

ENERGY AT WORK

AVISTA Utilities

Review of 2005 IRP Schedule

- This will be Doug's last IRP. Doug is retiring at the end of 2004!

August 4, 2004 IRP TAC Brainstorming Summary

Issue	Area	Index	Details of Issue	Utility Response
1	Risk	Analysis	consider fuel supply and price risk, as well as value of resource diversity	will be evaluated
2	DSM	Buybacks	Council is focusing on buy-backs and would like utility to consider it in 2005 IRP	will include in plan
3	L&R	Capacity	discuss what planning capacity is (single- versus multi-hour peak)	include in plan
4	L&R	Capacity	discuss if adjusting hydro maintenance/upgrades would eliminate need for additional peaking plants	include in plan
5	L&R	Capacity	Look to hydro for new capacity	include in plan
6	DSM	Codes	Model future code revisions and quantify their impact on load forecast	The econometric forecast methodology captures improved energy codes. Improvements over and above the code are quantified within the DSM resource acquisition.
7	Resources	Cogen	Keep Cogen discussion in '05 IRP	will include in IRP
8	Resources	Cogen	Include discussion on what makes a good cogen project (maybe to appendix?)	look to power council, AVA research
9	Resources	Cogen	emphasize importance of flexibility, dispatchability, as historical projects haven't been perfect fits	include in discussion above
10	Resources	Cogen	Do we have estimate of cogen potential? Consider strength of cogen facility (i.e., how long will it be around) in matrix	include discussion of potential
11	Resources	Cogen	Rate structure makes cogen hard. Consider demand charges with ratchets, seasonal rates, TOU, etc.	include in discussion, recognizing this as rate issue
12	Resources	Cogen	Cogen makes more sense in a transmission constrained region than any other form of generation because it will occur at a load center and it provides twice the usage of some portion of the natural gas	include in discussion
13	Risk	Contingency Planning	Develop plan for the shelf to use in event of 00-01 happening again (ST solution for ST problems)	Evaluate the development of DSM-funded contingency plans to include customer buyback and various emergency DSM options
14	Credit	Credit	Discuss pros and cons of PPA versus ownership of resources	include in discussion
15	Resources	DG	discuss DG and its impact on transmission/distribution systems	include in discusion
16	DSM	DSM	Be aggressive on DSM, AVA should consider higher incentives	literature search & consider controlled experiment on higher incentives

August 4, 2004 IRP TAC Brainstorming Summary

Issue	Area	Index	Details of Issue	Utility Response
17	DSM	DSM	Evaluate accelerating the DSM acquisition schedule	We will review the assumptions and methodology behind the slight front-loading of the draft 20-year regional supply curve. Avista is currently engaging in a significant expansion of DSM resource acquisition.
18	Resources	Emissions	consider risk of future emission (CO2 and Mercury)	will be evaluated as scenarios, consider including in stochastic runs
19	Risk	Emissions	look at a couple levels of mitigation costs when evaluating impact on resource decisions	will evaluate as scenarios
20	Risk	Gas	consider buying gas model or a consultant forecast	Company purchases Global Insights forecast
21	Resources	IPP	Consider IPP plants in plan	include in plan
22	L&R	L&R	include monthly L&R tables in IRP	will include in tech. Appendix
23	L&R	L&R	Include 24-hour seasonal load shapes for utility, by customer class where available	will include system hourly loads by season, as class-level data is not available
24	L&R	L&R	Evaluate forecasts besides base case, what happens if Fairchild Airforce Base closes, expands	will include hi/lo forecasts & scenarios, including discussion of FAB changes
25	L&R	L&R	look at plans to address supply/demand shocks (FAB closure, Noxon failure, etc.)	include in plan
26	DSM	Load Control	If IRP finds it a good idea, recognize need to go in for rate schedule changes to address cost shifts	include in discussion
27	Risk	Loads	Plan of how utility will address changing conditions (e.g., new load or load loss). How would a LT commitment to a coal plant be addressed if after the decision load fell	include in IRP discussion/scenarios
28	Resources	Nuclear	Consider this resource to address emissions and availability of fossil fuels	add as resource alternative to IRP
29	Risk	Risk	Address how long-term risk planning transitions to short-term risk management procedures	include in discussion
30	Risk	Risk	Evaluate the hedge value of efficiency and renewables	will be included in analysis/discussion
31	DSM	Supply Curves	develop supply curves for IRP, possibly starting with NPCC curves	Review regional DSM supply curves to determine if they can be extrapolated to Avista's DSM portfolio
32	Trans.	Trans.	Discuss transmission in plan	include in plan
33	Resources	Wind	Look at studies out there on wind integration to see what the latest information is	will include extensive eval. of wind in IRP

Avista Electric Demand-Side Management

Operational Update and
Proposed IRP Integration

August 4, 2004

Avista Electric DSM

- Operational update
  - Where we are
- Proposed methodology for assessing Avista DSM potential in the IRP
  - Where we're going

DSM Funding

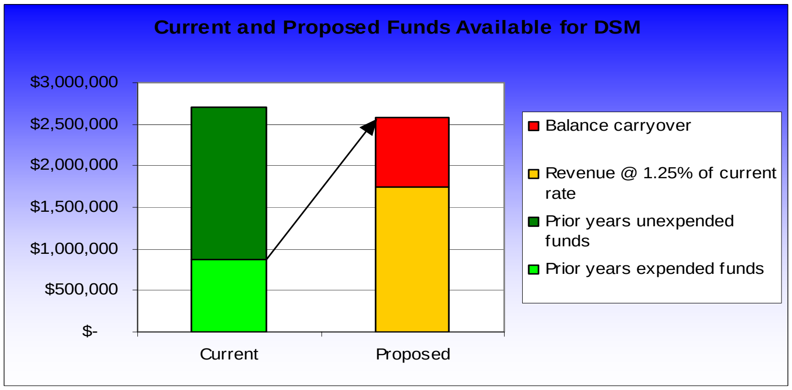
- Washington
  - $/kWh tariff rider
  - An amount equal to 1.48% of retail rates
- Idaho
  - Tariff rider established at 1.95% of retail rates
- These amounts do not include non-efficiency funding received through the same tariff rider

Proposed Revisions to the Idaho Tariff Rider Mechanism

- Revise tariff rider mechanism to break the % tie to retail rates
- Institute a "PGA-style" procedure that annually establishes a tariff rider level based upon
  - Estimated budget necessary to <u>acquire all cost-effective kWhs</u>
  - Carryover balance (positive or negative)

Proposed Revisions to the Idaho Electric Tariff Rider Level

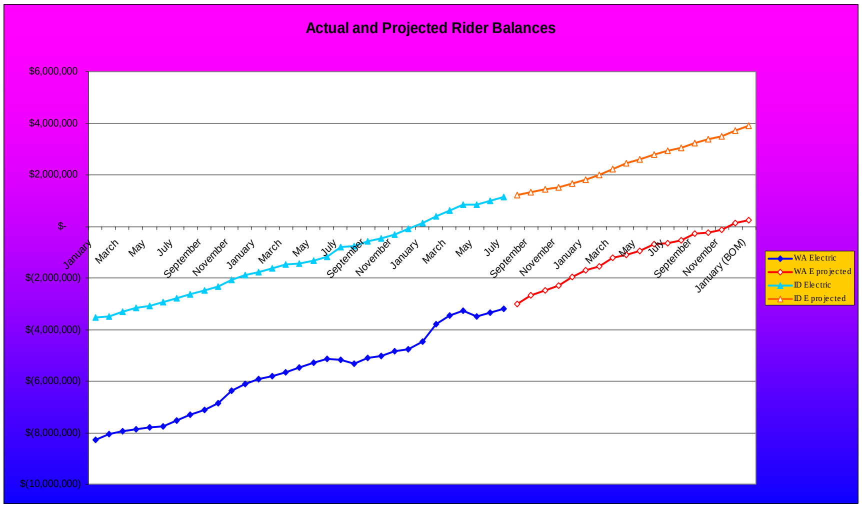
- Reduce tariff rider to an amount equal to 1.25% of current retail rates
- Funding sufficient to support a three-fold increase in expenditures



Effect of these Revisions

- Increased responsiveness
  - Financial resources will be available when needed to acquire additional DSM resources
    - Avista will fund cost-effective kWh acquisition at the expense of establishing a negative intra-year tariff rider balance
  - There will be a timely reduction in the tariff rider when necessary to eliminate positive balances

Tariff Rider Balance Projections (in the absence of ramp-up programs)



DSM Target Markets and Focus

- Washington Electric
  - Lost opportunities
    - Leave no lost opportunity behind
  - Low-Cost / No-Cost measures
    - Target measures that have the maximum immediate benefit to the customer
  - Preparing for early 2005 ramp-up
- Idaho Electric
  - Any kWh that can be cost-effectively acquired through utility programs

Ramp-up Programs and Targets

- Idaho
  - Any cost-effective kWh
    - Without regard to system coincidence
  - Implementing a series of "ramp-up" programs
    - 65 concepts developed
    - 25 concepts short-listed
    - 8 programs fielded
    - 9 programs nearing implementation
    - Generating concepts for next wave of programs

Launched & Developing Ramp-up programs

New Programs and Efforts

- Educational PSA's
- Indirect Evaporative Cooling
- Participate in regional leveraging opportunities
  - E.g. "Double Your Saving"

Programs in Development

- Residential Controls Program
- Residential Lighting Program
  - Torchieres
  - New generation CFL's
  - Hardwired exterior Energy Star Lights
- Energy Star Home Products
- Next Generation Outdoor Lighting Control Products

Launched Enhancements to Current Portfolio

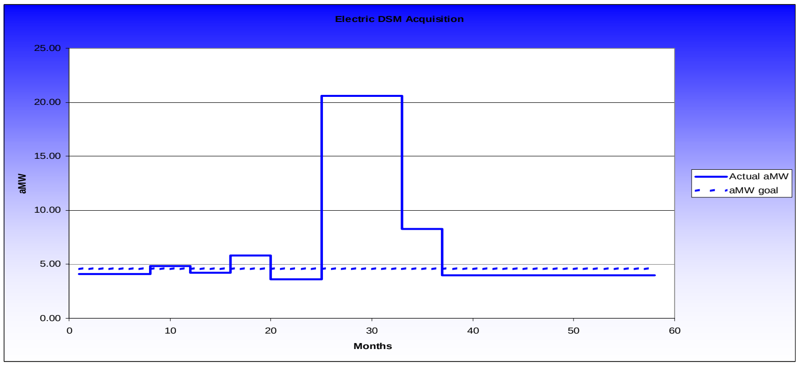
- Prescriptive Motor program
- Enhanced marketing of Prescriptive Lighting program
- Intensified follow-up on previously identified opportunities
- Rooftop HVAC Maintenance program
- Prescriptive High Bay Lighting program

Enhancement Programs in Development

- Idaho residential program bill stuffers
- Prescriptive Compressed Air Program
- Efficiency "kit" for specified building types
- Industry Resource Management Support Group

Electric Savings Commitments

- Committed to delivering energy savings that were at least proportionate to expenditures
  - Analysis of Business Plan activity 1-1-02 to 10-31-03
    - Expended $6.8 million of $14.3 million tariff rider revenues (48%)
    - Achieved 87% of tariffed energy savings goal
    - Proportionality 181%



Avista's Current Electric DSM Programs

- Commercial/Industrial qualifying measures
  - Any electric efficiency measure
  - Any electric to natural gas conversion measure exceeding the electric efficiency of deferrable natural gas-powered electrical generation
- Limited Income qualifying measures
  - Any electric efficiency measure
  - Any electric to natural gas conversion measure exceeding the electric efficiency of deferrable natural gas-powered electrical generation
- Residential qualifying measures
  - Heat pumps
  - High-Efficiency Water Heaters
  - Weatherization
  - Electric to Natural Gas Conversion
- Solar, wind or geothermal distributed generation
  - Customer owned, under 25 kW and not exceeding 50% of total customer load

Implementation

- Based upon a tiered incentive structure
  - "Standard" electric efficiency
    - 18 to 48 month customer simple payback → 4 cents per 1st year kWh
    - 48 to 72 month customer simple payback → 6 cents per 1st year kWh
    - Over 72 month customer simple payback → 8 cents per 1st year kWh
    - Subject to 50% of incremental measure cost ceiling
  - "New Technology" electric efficiency
    - Under 48 month customer simple payback → 10 cents per 1st year kWh
    - 48 to 72 month customer simple payback → 12 cents per 1st year kWh
    - Over 72 month customer simple payback → 14 cents per 1st year kWh
    - Subject to 75% of incremental measure cost ceiling
  - Fuel-Conversion
    - 24 to 48 month customer simple payback → 1 cent per 1st year kWh
    - 48 to 72 month customer simple payback → 2 cents per 1st year kWh
    - Over 72 month customer simple payback → 3 cents per 1st year kWh
    - Subject to 50% of incremental measure cost ceiling
- Incentives for prescriptive programs and all residential programs are defined based upon typical installations
- Tiered incentive structure does not apply to limited income programs

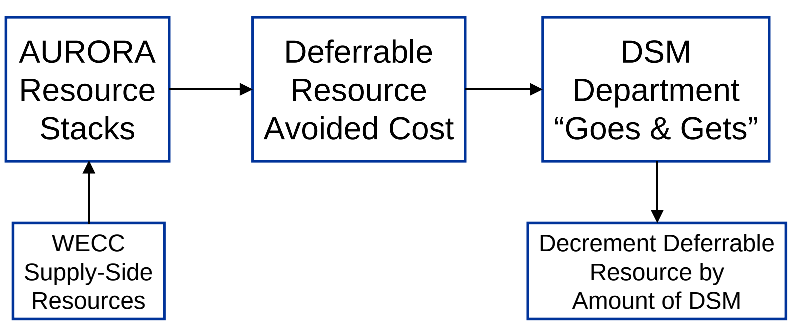
Planning for the Future

- Use the IRP planning process as a meaningful exercise
  - Seeking actionable management actions
    - Target market focus
    - Long-range infrastructure planning
    - Revisions in valuation of DSM
    - Review of incentive levels
  - Unnecessary to incorporate into IRP
    - Budgeting
    - Tariff rider requirements forecasting
- Long-range objective …
  - Any kWh that can be cost-effectively acquired through utility programs

Past Integrations of DSM into the IRP

- Integration by price signal
  - DSM acquires all achievable kWh's at or below the IRP-calculated avoided cost
    - Results in appropriate acquisition level as long as DSM is sufficiently small to be a price taker
    - Leads DSM to target the appropriate resources

Avoided Cost Price Signal

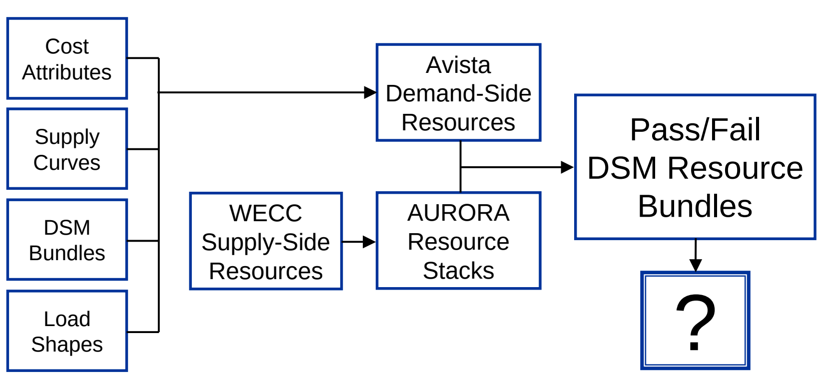


Explicitly Model DSM as a Resource

- Define DSM "bundles" that can be characterized within Aurora
  - Modeling issues
    - Defining DSM bundles to mimic supply-side resources
  - Sensitive to load research quality and applicability
  - Difficulty in establishing incremental / decremental resources available
    - Estimates must be specific to Avista service territory
    - Estimates are specific to an assumed time horizon
    - Distinctions between movements in a supply curve vs. movements along a supply curve

DSM in the IRP > Integration Methods

Approach Used In 2003 IRP



Proposed Methodology Attributes

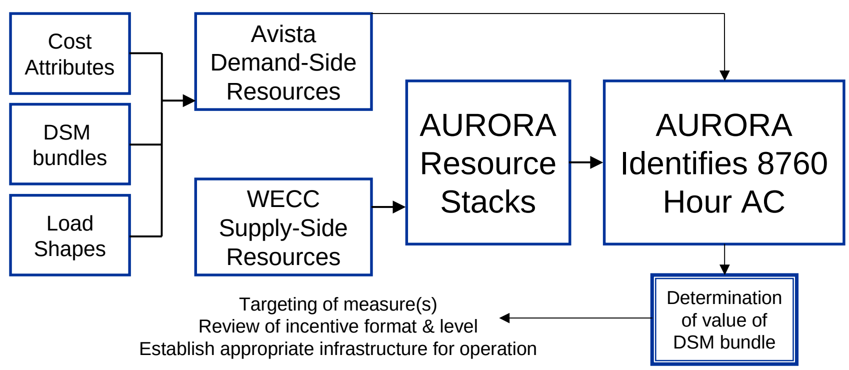
- Adaptation of both the price signal and full integration approach
- Specific to the mid- and long-term management decisions regarding DSM operations and infrastructure development.
  - Should we target system-coincident and/or disproportionately on-peak end-uses?
  - Is our current incentive structure in need of revision?
    - Increase or decrease incentive levels?
    - Incorporate a preference for measures based upon load shape?

Methodology

- Disaggregate promising DSM measures into meaningful bundles
  - Including measures not currently significantly represented in our portfolio
- Estimate load shapes specific to that bundle and the most likely efficiency measures
- Apply measure / bundle specific load shapes against an 8760-hour avoided cost matrix to determine measure viability
- Actionable items
  - Target appropriate measures
  - Determine the value of targeting system coincident or on-peak measures
  - Evaluate revisions in tiered incentive structure based upon the differential per kWh value of energy savings of various measures / bundles / load shapes

DSM in the IRP > Integration Methods

Proposed Methodology Flow



Other Related Issues

- Conservation Voltage Regulation (2003 IRP action item)
  - Unlikely to have sufficient results from Avista's pilot to support testing in this IRP
  - Will not have sufficient data for testing all alternative CVR technologies and their application to Avista's distribution system

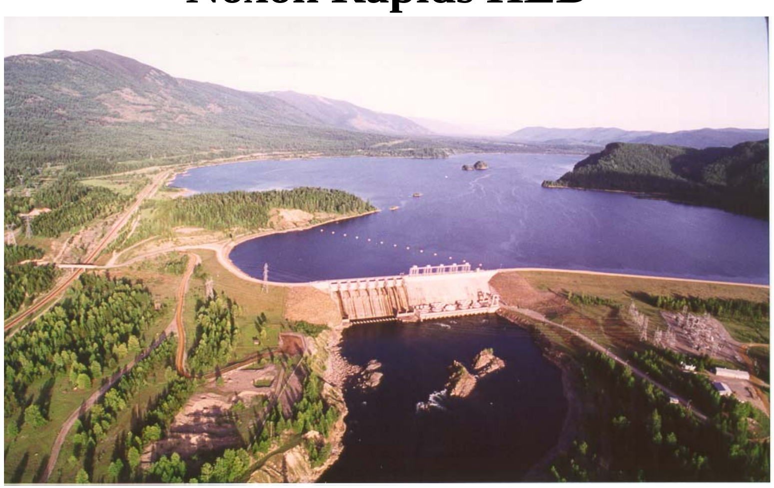
Total Dissolved Gas (TDG) Supersaturation

<u>Clark Fork Project:</u>

Cabinet Gorge and Noxon Rapids

Hydroelectric Developments

Noxon Rapids HED



Cabinet Gorge HED

Issue Identification

- State and Federal standards limit TDG levels to 110%
- TDG issue was identified during relicensing
- TDG issues at Noxon Rapids were easily resolved
- Resolution process at Cabinet Gorge incorporated into Clark Fork Settlement Agreement

FERC License Requirements

- Monitor TDG levels in the Clark Fork-Lake Pend Oreille system
- Develop interim TDG abatement alternatives
- Conduct biological studies
- Conduct “engineering study” to determine “default strategy”
- Develop Gas Supersaturation Control Program (GSCP) in 2002

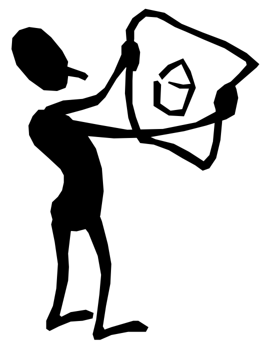
Avista’s Strategy

1. Propose mitigation in lieu of structural modification
2. Propose single or phased bypass tunnels with mitigation
3. Propose concurrent construction of two bypass tunnels (estimated cost=$55 million, including AFUDC)

**Neither default strategy or alternatives meet state/federal standards*

Plan

- Engineering/Geotech (2004-07)
- Construct 1st Tunnel (2008-09)
- Evaluate (0-10 years)
- Decision on 2nd Tunnel



Financial

- One Tunnel ($ 38 Million)
- Annual Mitigation ($ 0.5 Million)

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Spokane River Relicensing

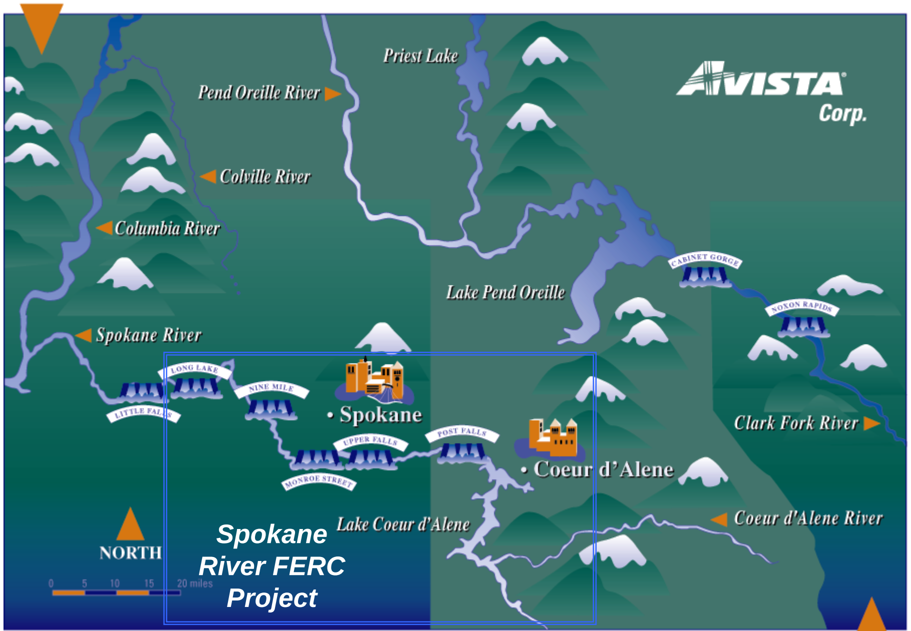
TECHNICAL ADVISORY COMMITTEE MEETING

AUGUST 4, 2004

Long Lake Powerhouse - 1999

SPOKANE RIVER

Avista Corp.'s Hydroelectric Projects



Post Falls Facility

One of five in FERC License 2545

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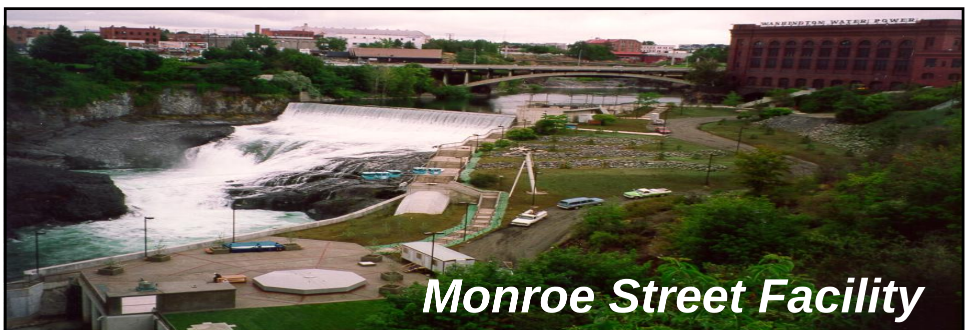
Post Falls Facility Data

- Located about 9 miles downstream from Coeur d’Alene Lake
- Initial operation in 1907
- Generation - 9.5 average megawatts, 5400 cfs flow
- Powerhouse Capacity - 15 MW
- Powerhouse Capacity - 5400 cubic feet per second (cfs)
- Project Capacity - 42,000 cfs
- Minimum flow - 300 cfs

- Construction completed and first operation 1922
- “Run of river” facility with no operating storage
- Generating Capacity - 10 MW
- Average annual flow - 6,570 cfs
- Powerhouse capacity - 2,500 cfs

August 4, 2004 5



- Construction completed and first operation in 1890
- “Run of river” facility with no operating storage
- Minimum flow over dam - 200 cfs during viewing hours
- Generating Capacity - 15 MW
- Average annual flow - 6,570 cfs
- Powerhouse capacity - 2,850 cfs

August 4, 2004 6

Nine Mile Facility

- Construction completed and first operation in 1908
- Total usable storage - 3,130 acre feet
- Average annual inflow - 7,100 cfs
- Full pool forebay elevation - 1606.6 with 10’ flashboards
- Powerhouse turbine capacity (4 units) - 6,400 cfs
- Generating Capacity - 26 MW
- Limited Storage Capacity Facility

August 4, 2004 7

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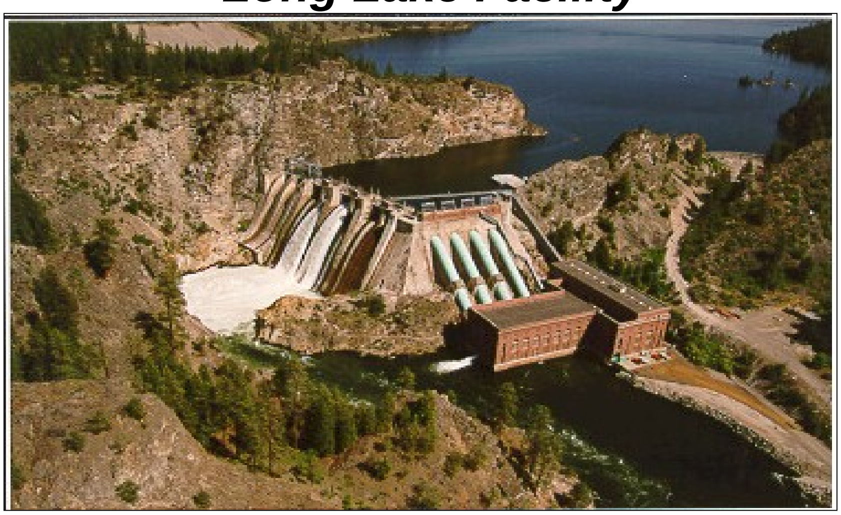
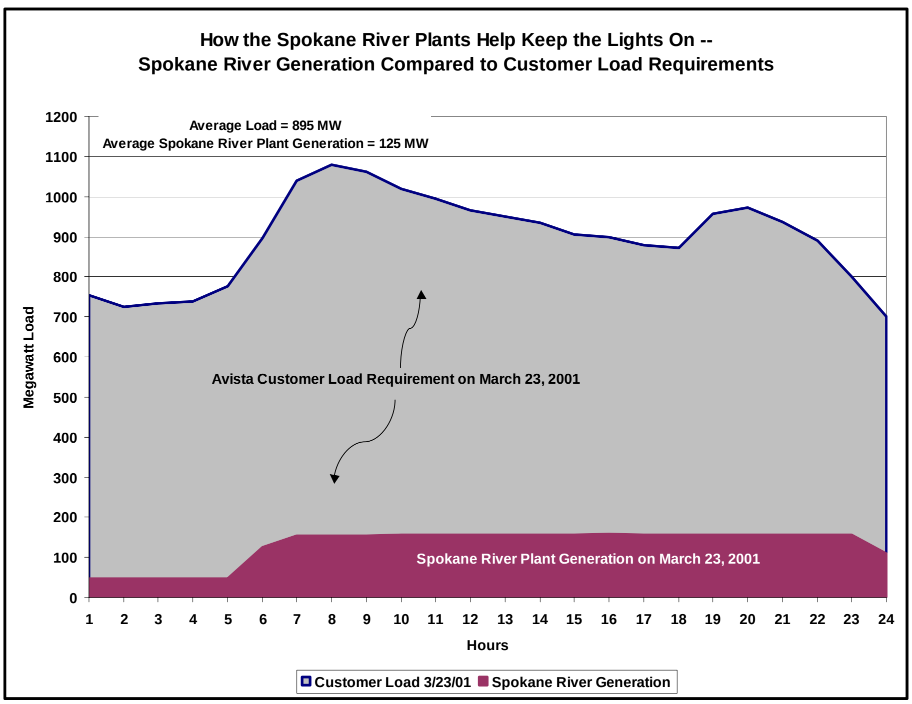
Long Lake Facility



August 4, 2004 8

Long Lake Facility Data

- Construction completed and first operation in 1915
- Full pool surface elevation - 1,536 ft
- Reservoir storage in top 14' - 65,270 acre feet
- Generating Capacity - 72 MW
- Spillway capacity - 115,000 cfs at 1535 ft
- Average annual inflow - 7,650 cfs
- Powerhouse turbine capacity (four units) - 7,000 cfs



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Operational Flexibility

Spokane River

- Turbines sized at about average river flow or less
- 100 MW Energy -- 138 MW Capacity
- Only Long Lake has peaking capability

Clark Fork River

- Turbines sized at about twice the average river flow
- 328 MW Energy -- 780 MW Capacity
- 40 - 780 MW Peaking/Load following capability
- Daily to weekly storage

August 4, 2004 11

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FERC Licenses

- Describe the facilities and operations
- Contain protection, mitigation and enhancement measures (PM&E) for project associated resources

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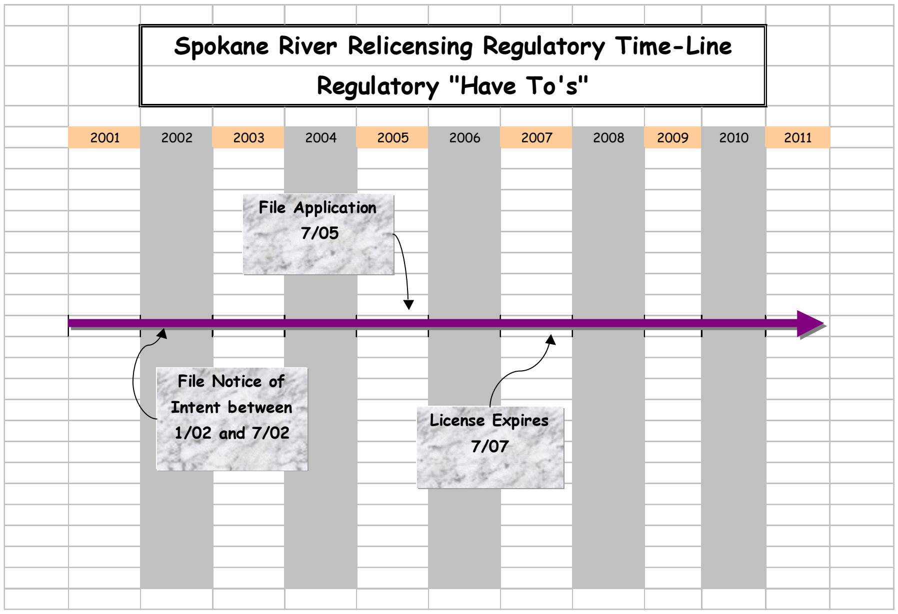

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Alternative Licensing Process Features

- Collaborative Group designs the pre-application process - communications protocol, scoping, studies & study reports, procedures & deadlines
- Applicant files a preliminary draft NEPA document with application

August 4, 2004

14

Summary

- 96 stakeholder groups involved in 5 work groups and several sub groups and the plenary
- 137 meetings held since May 2002
- Interests identified, studies underway/completed and 17 PM&Es in draft
- Challenges include diversity of interests, number of participants, information needs, limited financial resources, and number of mandatory conditioning authorities

2005 Load Forecast

Presented by
Randy Barcus, Avista Corp. Chief Economist
August 4, 2004

1

Forecast Discussion Points

- Economic Forecast
  - Employment
  - Population
  - Scenario Options
- Degree Days
  - Heating
  - Cooling
- Prices
  - Electric--Retail
  - Natural Gas—Retail and Wholesale
- Electric Base Case Results

2

ENERGY AT WORK

AVISTA Utilities

Economic Forecast

- Global Insight, Inc. Contract
  - National Outlook
  - Spokane County, Washington
  - Kootenai County, Idaho
- Adjustments
  - Fairchild Air Force Base Assessment
  - Economic Development Initiatives
- Allocation Scenario

3

ENERGY AT WORK

AVISTA Utilities

National Outlook

The Consumer Markets Environment

(Percent change)

	2002	2003	2004	2005	2006
Real Consumption	3.4	3.1	3.8	3.1	3.5
Real Disposable Income	3.8	2.5	3.5	3.0	3.8
Payroll Employment	-1.1	-0.3	1.1	2.3	1.6
Unemployment Rate, %	5.8	6.0	5.6	5.3	5.3
Real Household Net Worth	-3.0	2.0	8.2	3.1	2.7
Consumer Price Index	1.6	2.3	1.4	1.3	1.5
Light Vehicle Sales, millions	16.8	16.6	17.2	17.3	17.5
Home Sales, millions	6.6	7.2	7.2	6.6	6.5
Existing Home Prices	8.9	7.3	5.4	2.3	3.1
30-Year Mortgage Rate, %	6.5	5.8	6.2	6.7	6.8

GLOBAL INSIGHT

2/17/2004 19

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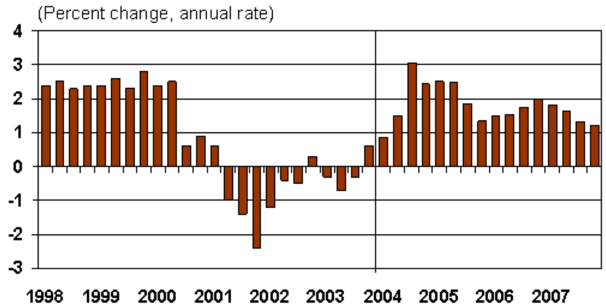
ENERGY AT WORK

National Outlook

Employment Finally Begins to Recover

January employment was 2.35 million below its March 2001 peak.



GLOBAL INSIGHT 2/17/2004 20

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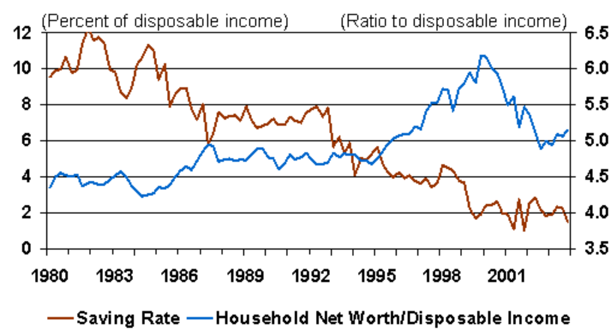
ENERGY AT WORK

National Outlook

The Saving Rate Remains Low, Limiting the Recovery in Household Net Worth



GLOBAL INSIGHT 2/17/2004 23

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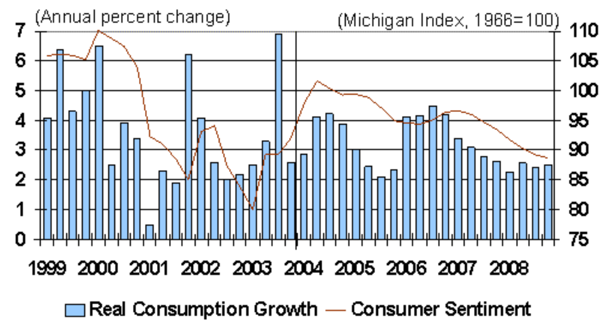
ENERGY AT WORK

National Outlook

Real Consumer Spending and Confidence



GLOBAL INSIGHT 2/17/2004 27

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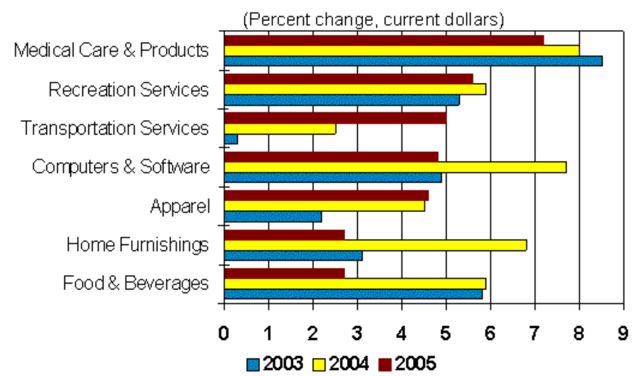
ENERGY AT WORK

National Outlook

U.S. Consumer Spending Will Shift to Services



GLOBAL INSIGHT 2/17/2004 29

8

Regional Economy

- Service Area Population 900,000
- Principal Counties—Growth Proxy
  - Spokane, Washington 440,000
  - Kootenai, Idaho 125,000
- Largest Employers
  - Fairchild Air Force Base
  - School Districts
  - Hospitals

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ENERGY AT WORK
AVISTA Utilities

Regional Economy

- Risks to Growth
  - Military Base Realignment and Closure Process during 2005
  - Continued Meltdown in Manufacturing
- Opportunities for Growth
  - Base expands with new missions
  - University District, Airport Freight Hub, Technology Parks
  - Convention Center Construction Underway

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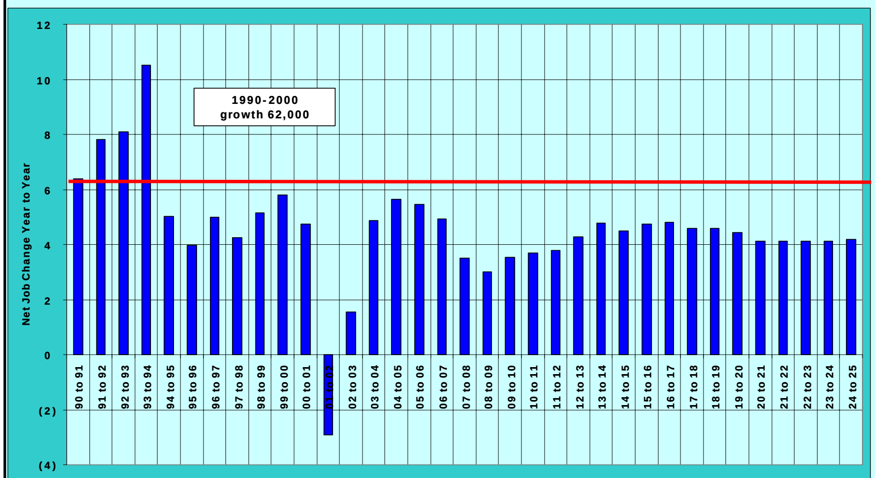
AVISTA Utilities

Regional Outlook--Jobs



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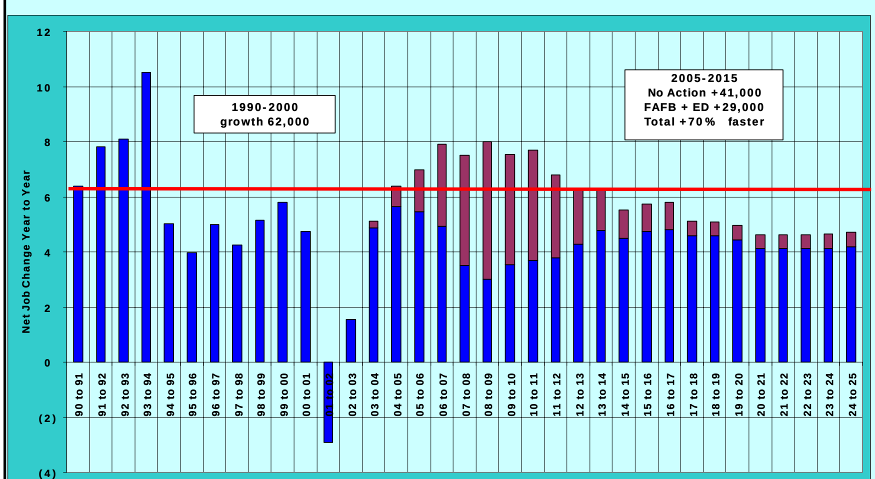
AVISTA Utilities

Regional Outlook--Jobs



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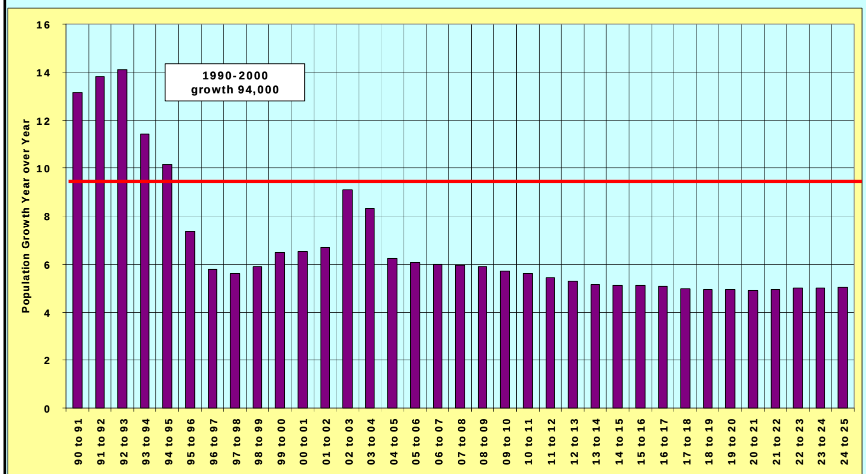
Regional Outlook--Persons



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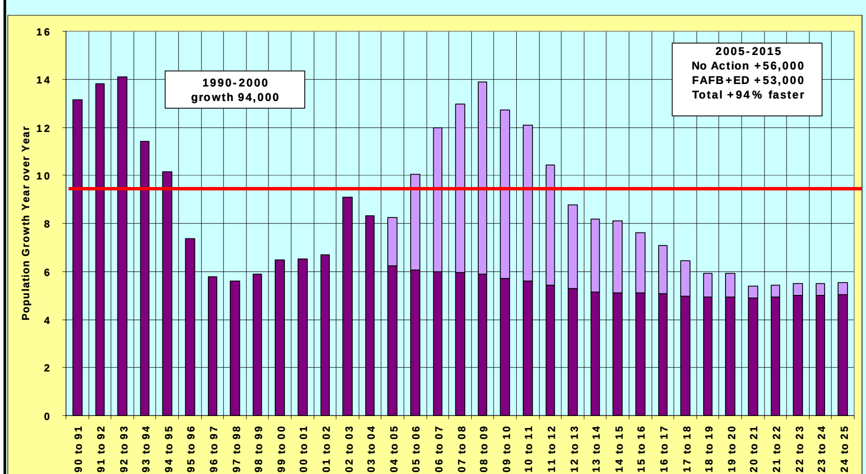
ENERGY AT WORK

Regional Outlook--Persons



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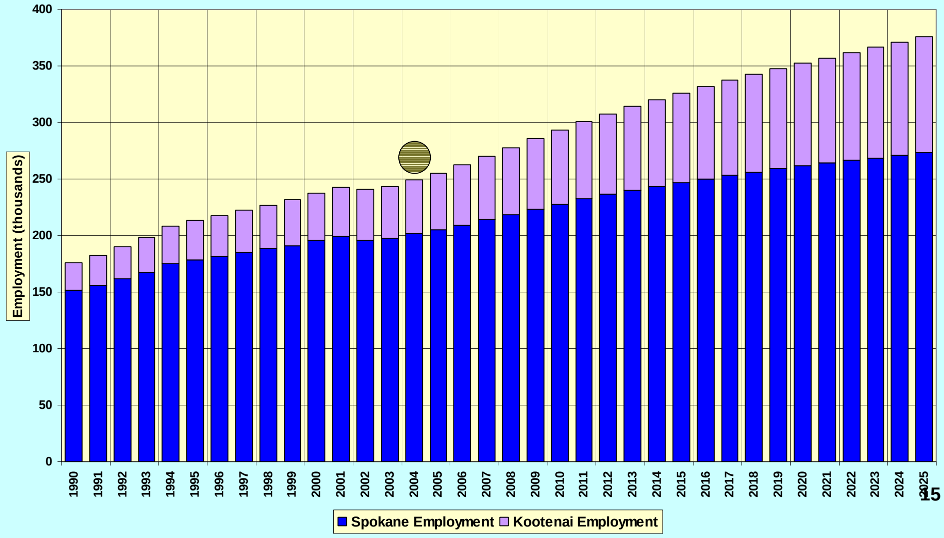
ENERGY AT WORK

AVISTA Utilities

Kootenai & Spokane Employment



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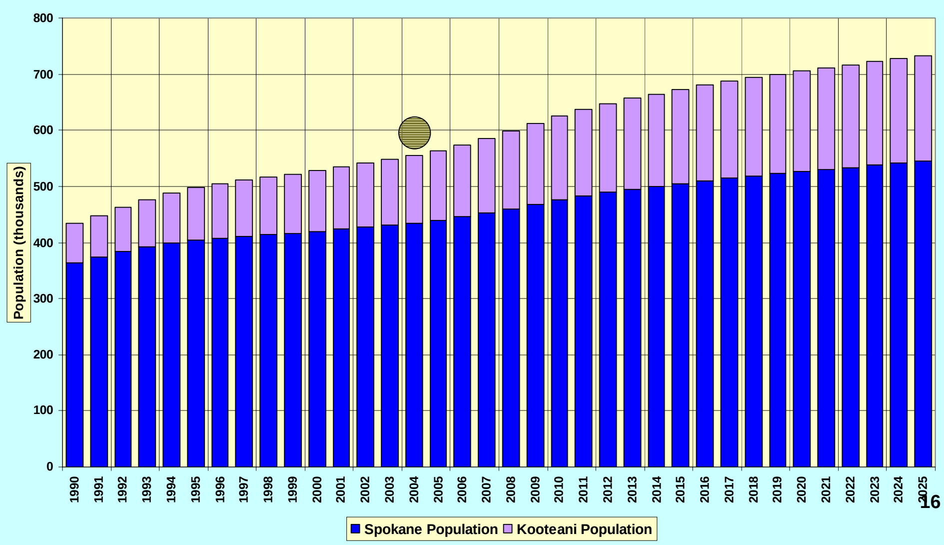
Kootenai & Spokane Population



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ENERGY AT WORK

Degree Day Forecasts

- Usage normalization
  - Heating Degree Days
  - Cooling Degree Days
- Base Case Forecast at 96% of Normal

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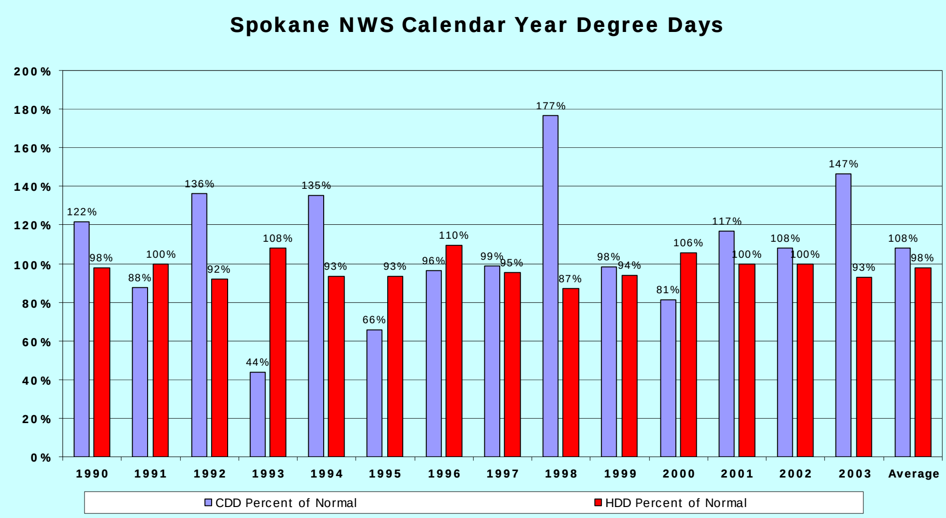
ENERGY AT WORK



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ENERGY AT WORK

Utilities

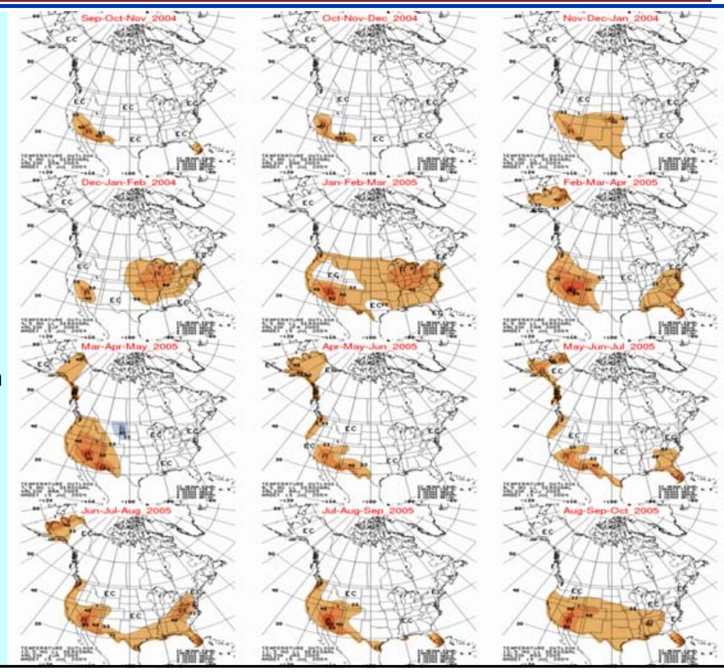
July 2004

NOAA

Climate

Prediction

Center



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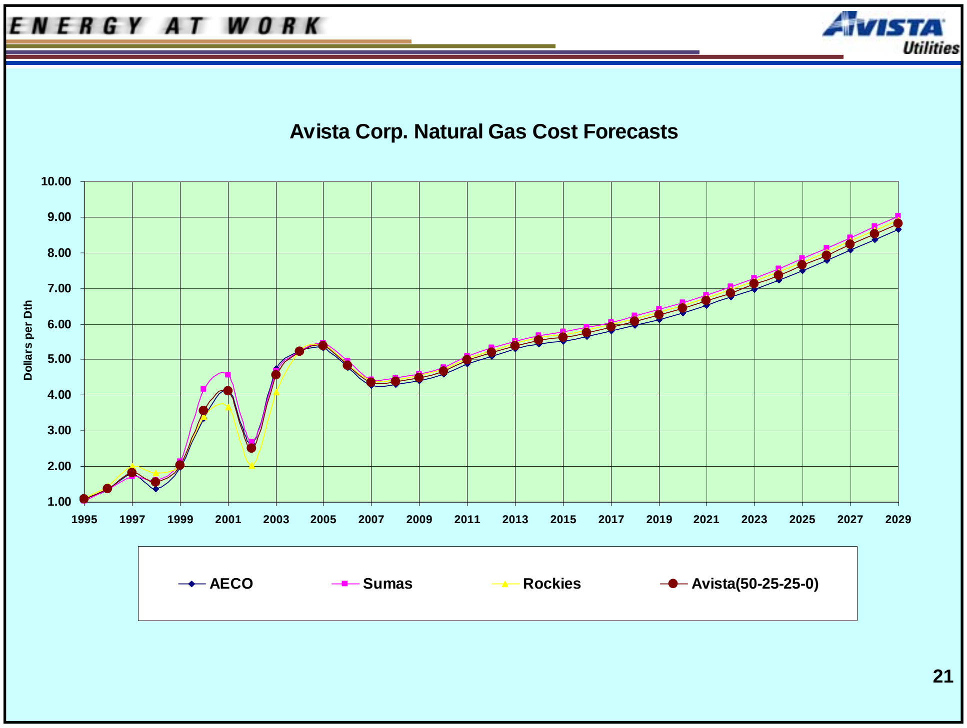
ENERGY AT WORK

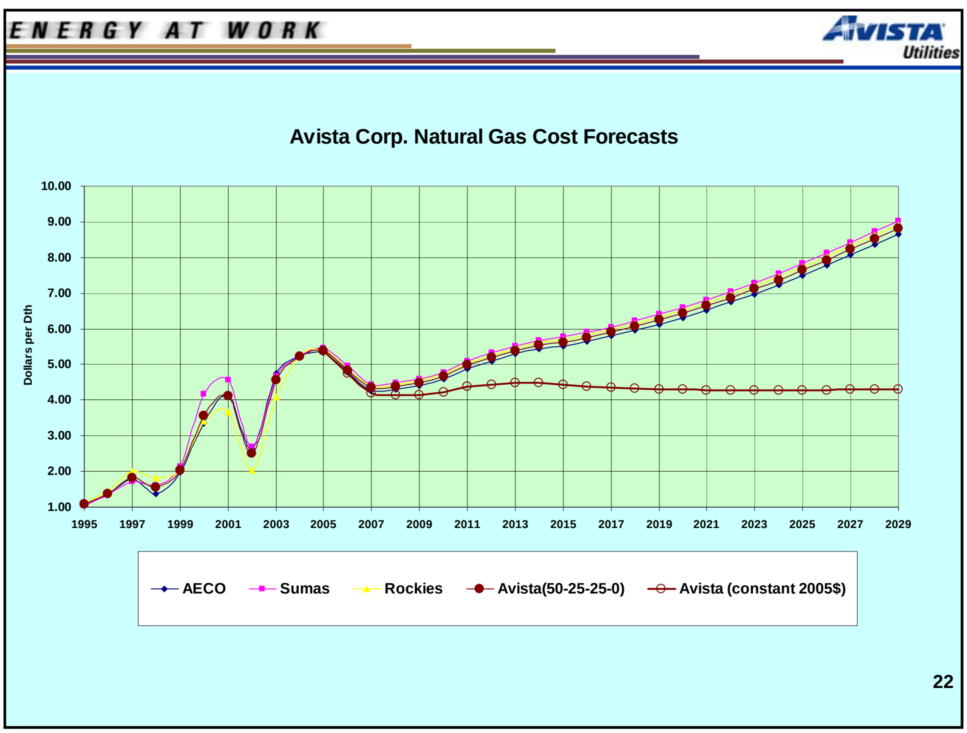
Utilities

Price Forecasts

- **Electric Price Forecasts**
  - In 2005 – assumed 14% Idaho, 5% Washington
  - Out years – assumed 8% at 4 year intervals
- **Natural Gas Price Forecasts**
  - Retail – assumed 16% Idaho, 14% Washington
  - Cost of Gas – used Nymex index 7/1/04 through 2006, projected at Global Insight escalation afterward
- **Underlying Inflation**
  - GDP Deflator from Global Insight Forecast
  - 20 year average is 2.9%

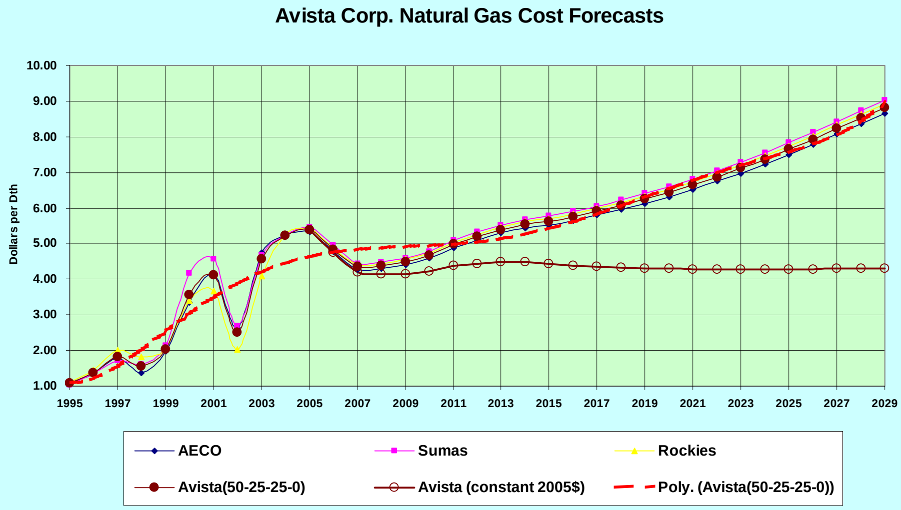
20


ENERGY AT WORK
AVISTA Utilities
Avista Corp. Natural Gas Cost Forecasts
Dollars per Dth
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029
AECO
Sumas
Rockies
Avista(50-25-25-0)
21


ENERGY AT WORK
AVISTA Utilities
Avista Corp. Natural Gas Cost Forecasts
Dollars per Dth
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029
AECO
Sumas
Rockies
Avista(50-25-25-0)
Avista (constant 2005$)
22

ENERGY AT WORK

Avista Utilities



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ENERGY AT WORK

Avista Utilities

Results
Base Case
2005 Forecast

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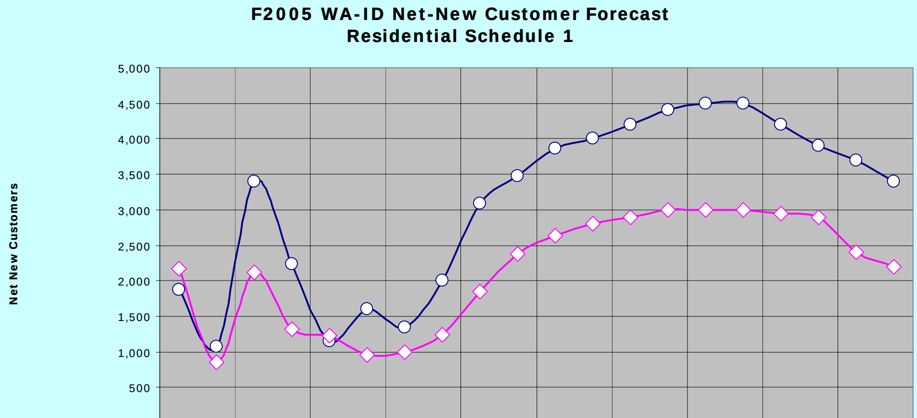
ENERGY AT WORK

Avista Utilities

Avista Customer Forecasts



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Washington-Electric	1,879	1,066	3,397	2,240	1,146	1,599	1,350	2,007	3,092	3,475	3,858	4,000	4,200	4,400	4,500	4,500	4,200	3,900	3,700	3,400
Idaho-Electric	2,172	849	2,116	1,320	1,234	956	994	1,240	1,851	2,375	2,642	2,800	2,900	3,000	3,000	3,000	2,950	2,900	2,400	2,200

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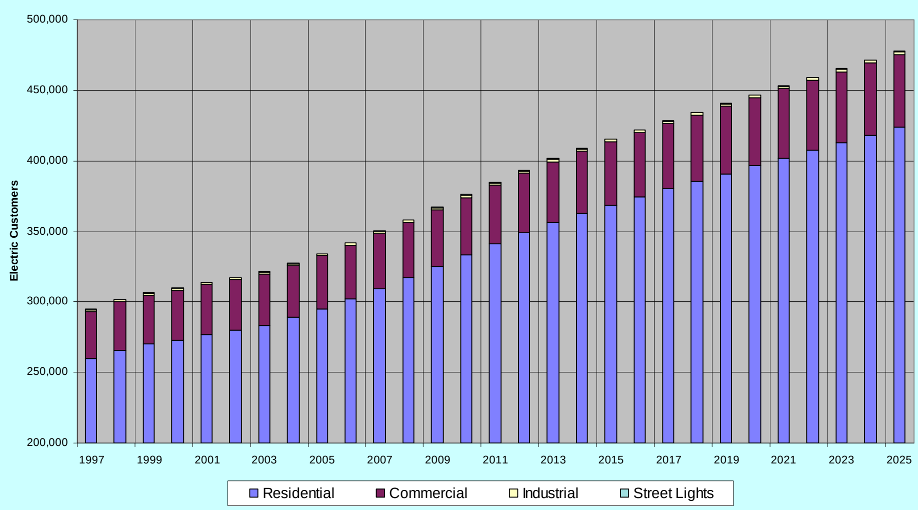
ENERGY AT WORK

Avista Utilities

Avista Customer Forecasts

2005-2015 2.2%, 2005-2025 1.8%



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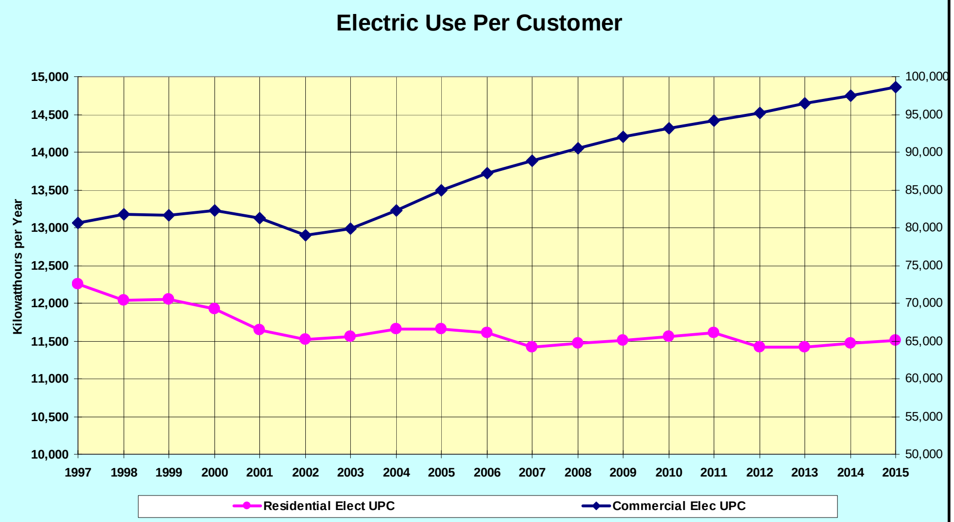
ENERGY AT WORK



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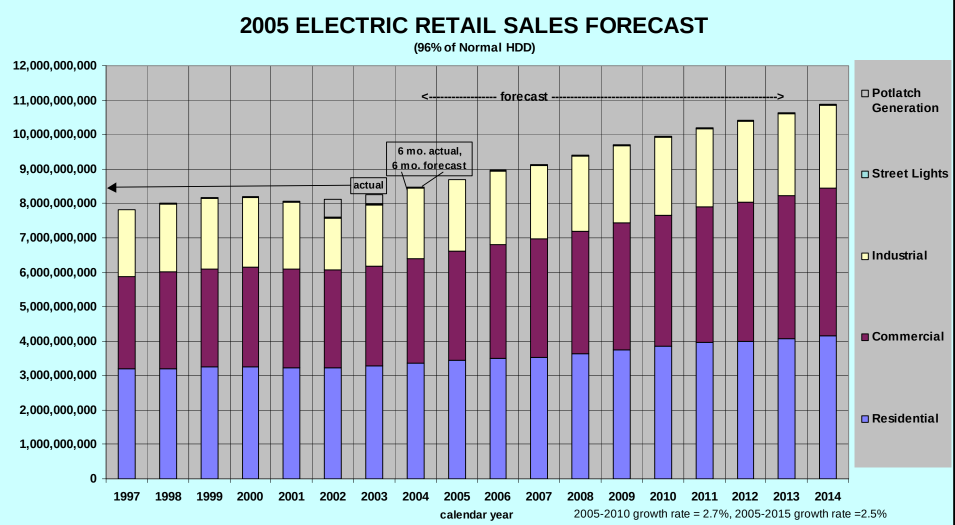
ENERGY AT WORK



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ENERGY AT WORK

AVISTA Utilities

Detailed Forecast Example

		Customer Bills	kWh
	2004	Residential	Residential
	JAN	186,129	274,940,054
	FEB	186,120	228,408,122
	MAR	186,014	205,886,320
	APR	185,918	169,031,735
	MAY	185,446	148,732,691
	JUN	185,440	140,271,521
	JUL	186,103	144,032,921
	AUG	186,465	171,729,824
	SEP	186,883	164,226,084
	OCT	188,057	157,548,927
	NOV	188,920	169,365,396
	DEC	189,559	249,456,620
	ANNUAL	186,755	2,223,630,215
Schedule 1		Customer Bills	kWh
WASHINGTON	2005	Residential	Residential
	JAN	189,629	276,109,356
	FEB	189,620	229,009,393
	MAR	189,614	216,747,162
	APR	189,418	178,171,171
	MAY	188,046	153,164,092
	JUN	188,340	143,102,482
	JUL	189,403	148,052,799
	AUG	190,165	176,888,810
	SEP	190,483	169,063,531
	OCT	191,757	162,255,171
	NOV	192,720	174,499,789
	DEC	193,359	257,001,933
	ANNUAL	190,213	2,284,065,688
		Customer Bills	kWh
	2006	Residential	Residential
	JAN	193,229	282,757,893
	FEB	193,320	234,645,377
	MAR	193,414	222,196,384
	APR	193,318	182,748,804
	MAY	191,346	156,631,213
	JUN	192,140	146,719,706
	JUL	193,403	151,935,422
	AUG	194,265	181,606,085
	SEP	194,483	173,476,807
	OCT	195,857	166,553,008
	NOV	196,720	179,012,228
	DEC	197,359	263,630,101
	ANNUAL	194,071	2,341,913,026
Schedule 1	**1997**	171,925	2,130,312,545
WASHINGTON	**1998**	175,322	2,138,822,255
	1999	177,562	2,168,321,535
	2000	178,708	2,160,945,957
	2001	180,306	2,159,678,050
	2002	181,656	2,136,771,135
	2003	183,663	2,179,428,895
	2004	186,755	2,223,630,215
	2005	190,213	2,284,065,688
	2006	194,071	2,341,913,026
	2007	198,071	2,342,378,542
	2008	202,271	2,404,007,745
	2009	206,671	2,468,583,580
	2010	211,171	2,534,945,495
	2011	215,671	2,601,909,315
	2012	219,871	2,599,527,552
	2013	223,771	2,658,865,274
	2014	227,471	2,716,343,087
	2015	230,871	2,770,728,851

		Customer Bills	kWh
	2004	Residential	Residential
	JAN	89,987	129,609,729
	FEB	90,069	109,259,642
	MAR	90,099	95,008,145
	APR	90,089	80,901,886
	MAY	89,908	70,626,910
	JUN	89,667	66,183,041
	JUL	90,876	74,141,475
	AUG	90,686	77,017,657
	SEP	90,942	75,189,889
	OCT	91,217	71,877,797
	NOV	91,429	78,466,745
	DEC	92,055	116,915,596
	ANNUAL	90,585	1,045,198,512
Schedule 1		Customer Bills	kWh
IDAHO	2005	Residential	Residential
	JAN	92,087	126,422,976
	FEB	92,069	99,419,306
	MAR	92,299	97,442,150
	APR	92,189	83,876,301
	MAY	91,808	71,758,976
	JUN	91,567	76,517,893
	JUL	93,676	74,897,347
	AUG	93,386	77,724,494
	SEP	93,442	75,711,726
	OCT	93,917	72,525,254
	NOV	94,229	79,252,382
	DEC	94,855	118,062,335
	ANNUAL	92,960	1,053,611,140
		Customer Bills	kWh
	2006	Residential	Residential
	JAN	94,687	127,392,576
	FEB	94,569	100,076,515
	MAR	94,799	98,079,827
	APR	94,589	84,338,695
	MAY	94,008	72,008,969
	JUN	93,767	76,789,195
	JUL	96,476	75,593,327
	AUG	96,186	78,453,816
	SEP	96,242	76,420,827
	OCT	96,817	73,269,419
	NOV	97,229	80,140,055
	DEC	97,855	119,360,392
	ANNUAL	95,602	1,061,923,613
Schedule 1	**1997**	72,120	874,810,875
IDAHO	**1998**	73,910	880,832,795
	1999	83,856	1,000,889,508
	2000	85,544	1,013,145,552
	2001	86,500	982,180,253
	2002	87,494	994,626,457
	2003	88,734	1,004,247,603
	2004	90,585	1,045,198,512
	2005	92,960	1,053,611,140
	2006	95,602	1,061,923,613
	2007	98,402	1,082,095,075
	2008	101,302	1,119,555,367
	2009	104,302	1,158,473,902
	2010	107,302	1,197,753,633
	2011	110,302	1,237,397,200
	2012	113,252	1,257,786,175
	2013	116,152	1,277,093,879
	2014	118,552	1,309,999,343
	2015	120,752	1,340,980,885

		Customer Bills		kWh	
	2004	Commercial	Industrial	Commercial	Industrial
	JAN	379	229	1,245,004	1,553,351
	FEB	382	232	1,285,056	1,552,317
	MAR	380	229	1,426,908	1,508,680
	APR	381	228	1,328,123	1,687,681
	MAY	379	228	1,618,864	2,036,718
	JUN	379	226	1,588,999	2,063,535
	JUL	381	232	2,510,707	3,096,872
	AUG	386	232	2,998,039	3,935,146
	SEP	383	232	2,671,042	3,274,743
	OCT	385	232	1,778,556	2,482,806
	NOV	385	233	902,047	1,697,417
	DEC	384	233	993,073	1,517,858
	ANNUAL	382	231	20,346,419	26,407,123
Schedule 31		Customer Bills		kWh	
IDAHO	2005	Commercial	Industrial	Commercial	Industrial
	JAN	389	231	1,305,951	1,859,042
	FEB	392	234	1,184,250	1,524,305
	MAR	390	231	1,119,732	1,533,620
	APR	391	230	1,359,875	1,357,121
	MAY	389	230	1,569,395	1,545,340
	JUN	389	228	1,721,676	2,295,826
	JUL	391	234	2,576,605	3,123,569
	AUG	396	234	3,075,709	3,969,069
	SEP	393	234	2,740,782	3,302,973
	OCT	395	234	1,824,752	2,504,210
	NOV	395	235	925,477	1,711,987
	DEC	394	235	1,018,934	1,530,887
	ANNUAL	392	233	20,423,139	26,257,949
		Customer Bills		kWh	
	2006	Commercial	Industrial	Commercial	Industrial
	JAN	399	234	1,339,523	1,883,186
	FEB	402	237	1,214,461	1,543,848
	MAR	400	234	1,148,443	1,553,537
	APR	401	233	1,394,655	1,374,823
	MAY	399	233	1,609,740	1,565,496
	JUN	399	231	1,765,935	2,326,034
	JUL	401	237	2,642,503	3,163,614
	AUG	406	237	3,153,378	4,019,955
	SEP	403	237	2,810,522	3,345,319
	OCT	405	237	1,870,949	2,536,315
	NOV	405	238	948,907	1,733,842
	DEC	404	238	1,044,795	1,550,430
	ANNUAL	402	236	20,943,810	26,596,399
Schedule 31	**1997**	169	188	9,568,640	25,726,978
IDAHO	**1998**	189	192	12,955,525	27,186,518
	1999	240	216	15,123,762	27,611,743
	2000	297	245	14,593,633	28,079,935
	2001	318	239	15,707,157	26,644,719
	2002	333	229	17,357,731	25,955,353
	2003	359	230	19,538,696	28,741,733
	2004	382	231	20,346,419	26,407,123
	2005	392	233	20,423,139	26,257,949
	2006	402	236	20,943,810	26,596,399
	2007	412	239	21,464,800	26,935,206
	2008	422	242	21,985,790	27,274,014
	2009	432	245	22,506,780	27,612,821
	2010	442	248	23,027,771	27,951,629
	2011	452	251	23,548,761	28,290,437
	2012	462	254	24,069,751	28,629,244
	2013	472	257	24,590,742	28,968,052
	2014	482	260	25,111,732	29,306,860
	2015	492	263	25,632,722	29,645,667

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ENERGY AT WORK

AVISTA Utilities

Avista Utilities Native Load

Load (MW)	**F2005**	744	672	744	720	744	720	744	740	720	744	720	744
	Annual Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	929	1,098	1,035	952	878	832	786	845	918	815	854	1,071	1,071
1998	954	1,065	994	943	902	941	845	966	936	866	886	960	1,140
1999	988	1,076	1,075	1,020	950	917	933	971	991	904	933	982	1,117
2000	1,012	1,153	1,114	1,034	921	889	924	961	985	889	950	1,163	1,173
2001	964	1,147	1,110	975	905	862	868	911	956	864	911	957	1,114
2002	994	1,095	1,072	1,040	929	898	950	1,018	953	891	968	1,034	1,090
2003	1,013	1,087	1,076	991	926	900	968	1,056	997	934	957	1,111	1,161
2004	1,029	1,194	1,108	987	925	900	963	1,020	1,057	956	1,016	1,044	1,184
2005	1,067	1,226	1,180	1,107	985	928	927	1,048	1,087	984	1,045	1,073	1,219
2006	1,099	1,262	1,211	1,139	1,014	955	955	1,081	1,121	1,018	1,079	1,106	1,258
2007	1,122	1,289	1,235	1,162	1,035	975	975	1,102	1,144	1,041	1,101	1,127	1,284
2008	1,152	1,325	1,267	1,193	1,064	1,001	1,002	1,129	1,174	1,070	1,129	1,156	1,319
2009	1,185	1,365	1,302	1,227	1,095	1,030	1,031	1,160	1,208	1,103	1,161	1,187	1,358
2010	1,215	1,401	1,334	1,257	1,123	1,055	1,057	1,188	1,238	1,133	1,189	1,216	1,393
2011	1,246	1,439	1,367	1,289	1,153	1,083	1,085	1,217	1,270	1,164	1,219	1,246	1,429
2012	1,270	1,469	1,393	1,314	1,175	1,104	1,106	1,239	1,294	1,188	1,242	1,269	1,458
2013	1,296	1,500	1,421	1,340	1,200	1,126	1,129	1,263	1,320	1,214	1,267	1,293	1,488
2014	1,323	1,533	1,450	1,368	1,225	1,150	1,153	1,289	1,348	1,241	1,293	1,319	1,520
2015	1,354	1,570	1,482	1,400	1,254	1,177	1,180	1,317	1,379	1,272	1,322	1,349	1,555
2016	1,379	1,600	1,509	1,425	1,278	1,198	1,202	1,340	1,404	1,297	1,346	1,372	1,585
2017	1,395	1,619	1,526	1,441	1,293	1,212	1,216	1,355	1,420	1,312	1,361	1,387	1,603
2018	1,417	1,646	1,550	1,464	1,314	1,231	1,235	1,376	1,443	1,335	1,382	1,409	1,629
2019	1,447	1,682	1,581	1,495	1,342	1,257	1,262	1,403	1,473	1,364	1,410	1,437	1,664
2020	1,472	1,713	1,608	1,521	1,366	1,279	1,284	1,427	1,499	1,389	1,434	1,461	1,694
2021	1,499	1,745	1,636	1,548	1,391	1,302	1,307	1,452	1,526	1,416	1,460	1,486	1,725
2022	1,517	1,767	1,656	1,567	1,408	1,318	1,323	1,469	1,544	1,434	1,477	1,504	1,746
2023	1,549	1,805	1,689	1,599	1,438	1,346	1,351	1,498	1,576	1,465	1,507	1,534	1,783
2024	1,577	1,839	1,719	1,628	1,464	1,370	1,376	1,524	1,604	1,493	1,534	1,561	1,816
2025	1,605	1,873	1,750	1,657	1,491	1,395	1,401	1,551	1,633	1,522	1,561	1,588	1,849

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ENERGY AT WORK

AVISTA Utilities

Avista Utilities Native Peak Demand

	Calendar	Operating Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	1,512		1,508	1,391	1,286	1,228	1,115	1,019	1,202	1,289	1,122	1,146	1,403	1,373
1998	1,665	1,578	1,575	1,255	1,195	1,251	1,249	1,164	1,521	1,422	1,317	1,246	1,296	1,663
1999	1,436	1,666	1,357	1,379	1,300	1,209	1,213	1,338	1,405	1,402	1,175	1,232	1,308	1,434
2000	1,570	1,475	1,458	1,474	1,301	1,262	1,147	1,308	1,454	1,396	1,183	1,254	1,492	1,561
2001	1,519	1,566	1,474	1,490	1,329	1,209	1,243	1,228	1,382	1,370	1,169	1,175	1,380	1,429
2002	1,457	1,452	1,388	1,362	1,398	1,180	1,149	1,376	1,457	1,335	1,197	1,360	1,337	1,412
2003	1,510	1,458	1,393	1,408	1,258	1,221	1,179	1,321	1,487	1,400	1,332	1,323	1,432	1,509
2004	1,779	1,779	1,766	1,434	1,366	1,177	1,121	1,391	1,514	1,501	1,275	1,352	1,389	1,566
2005	1,622	1,622	1,619	1,562	1,477	1,315	1,243	1,308	1,549	1,538	1,311	1,389	1,425	1,611
2006	1,669	1,669	1,666	1,602	1,518	1,353	1,278	1,344	1,590	1,582	1,354	1,432	1,467	1,660
2007	1,702	1,702	1,699	1,632	1,546	1,379	1,302	1,369	1,616	1,610	1,381	1,459	1,494	1,692
2008	1,748	1,748	1,745	1,672	1,585	1,415	1,335	1,402	1,651	1,649	1,419	1,495	1,530	1,736
2009	1,799	1,799	1,796	1,717	1,628	1,454	1,371	1,439	1,690	1,691	1,461	1,535	1,570	1,785
2010	1,844	1,844	1,841	1,757	1,666	1,490	1,404	1,472	1,725	1,729	1,498	1,571	1,606	1,829
2011	1,891	1,891	1,889	1,798	1,707	1,527	1,438	1,507	1,762	1,769	1,537	1,608	1,643	1,875
2012	1,928	1,928	1,926	1,831	1,738	1,556	1,464	1,533	1,790	1,800	1,568	1,637	1,672	1,911
2013	1,968	1,968	1,965	1,866	1,771	1,587	1,493	1,562	1,820	1,833	1,600	1,668	1,703	1,949
2014	2,010	2,010	2,007	1,903	1,807	1,619	1,523	1,593	1,852	1,868	1,635	1,701	1,736	1,990
2015	2,056	2,056	2,053	1,943	1,846	1,655	1,556	1,626	1,888	1,906	1,673	1,738	1,773	2,034
2016	2,094	2,094	2,091	1,977	1,878	1,685	1,583	1,654	1,917	1,938	1,704	1,768	1,803	2,071
2017	2,118	2,118	2,115	1,998	1,898	1,704	1,601	1,672	1,936	1,958	1,724	1,787	1,822	2,094
2018	2,153	2,153	2,150	2,028	1,928	1,730	1,625	1,697	1,962	1,987	1,752	1,814	1,849	2,128
2019	2,197	2,197	2,194	2,067	1,965	1,765	1,657	1,729	1,996	2,024	1,789	1,849	1,884	2,170
2020	2,236	2,236	2,233	2,102	1,998	1,796	1,685	1,757	2,026	2,057	1,821	1,880	1,915	2,208
2021	2,277	2,277	2,274	2,137	2,033	1,827	1,715	1,787	2,057	2,091	1,854	1,912	1,947	2,248
2022	2,305	2,305	2,302	2,162	2,056	1,849	1,735	1,807	2,079	2,115	1,877	1,934	1,969	2,275
2023	2,352	2,352	2,349	2,204	2,097	1,886	1,769	1,842	2,116	2,154	1,916	1,971	2,006	2,321
2024	2,395	2,395	2,392	2,242	2,133	1,920	1,800	1,873	2,148	2,190	1,952	2,005	2,040	2,362
2025	2,439	2,439	2,436	2,280	2,170	1,954	1,831	1,905	2,182	2,227	1,988	2,039	2,074	2,405

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ENERGY AT WORK

AVISTA Utilities

Future Resource Requirements

2005 Integrated Resource Plan
Second Technical Advisory Committee Meeting
August 4, 2004

Jason Fletcher

ENERGY AT WORK

AVISTA Utilities

Update on Coyote Springs 2

- The Confidentiality Agreement and Non-Binding Letter of Intent have been signed by both parties.
- The Asset Purchase and Sale Agreement is currently being negotiated. It is expected to be completed by the end of 2004.
- 100% of Coyote Springs 2 will been included in the 2005 Integrated Resource Plan.

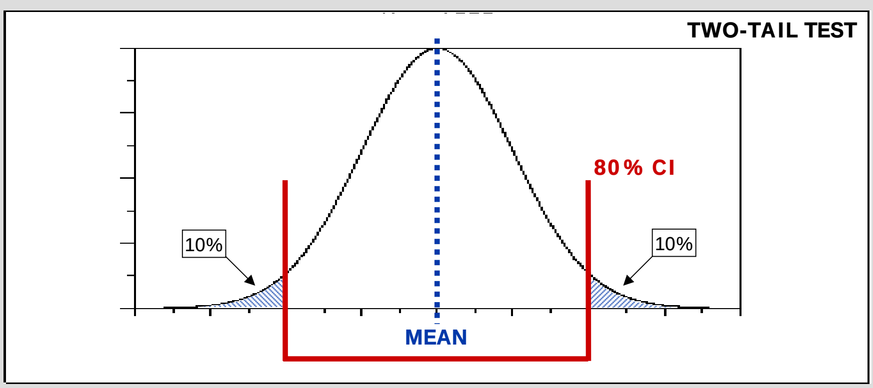
ENERGY AT WORK

Future Resource Requirements

- The need for new resources is determined by the balance (imbalance) of expected loads and resources.
- Energy and capacity values for expected loads and resources are tabulated for twenty years and included in Planning L&R's.
- Expected deficit years are as follows…
  - Energy – 2010
  - Capacity – 2009 (?)

ENERGY AT WORK

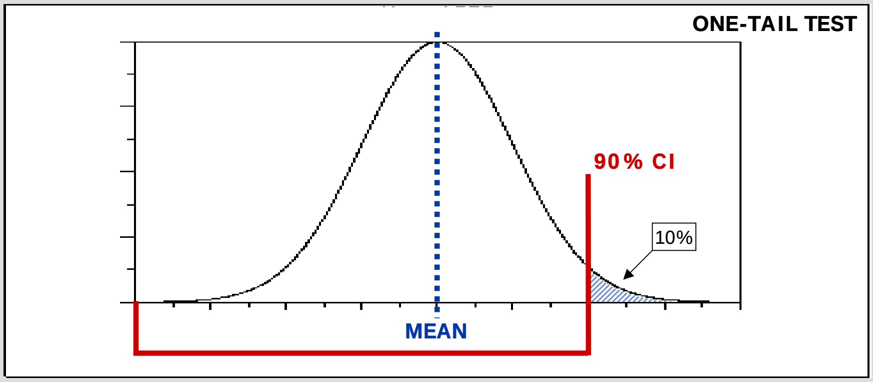
Confidence Interval Planning



ENERGY AT WORK

AVISTA Utilities

Confidence Interval Planning



ENERGY AT WORK

AVISTA Utilities

Energy Loads & Resources (aMW)

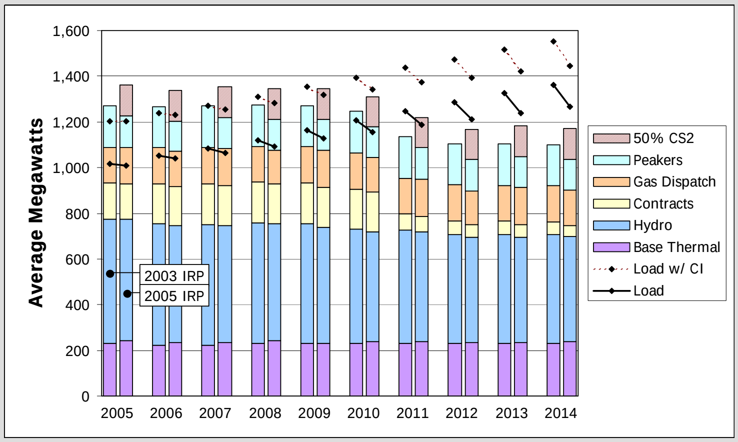
Long-Term Energy Load and Resource Tabulation (aMW)
CONFIDENTIAL

Last Updated July 30, 2004	Notes	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
REQUIREMENTS											
System Load	1	(1,008)	(1,041)	(1,063)	(1,093)	(1,126)	(1,156)	(1,187)	(1,212)	(1,237)	(1,265)
Contracts Out	2	(13)	(11)	(11)	(11)	(11)	(9)	(9)	(8)	(8)	(8)
WNP-3 Obligation	3	(31)	(31)	(31)	(31)	(31)	(31)	(31)	(31)	(31)	(31)
Confidence Interval	4	(163)	(160)	(160)	(160)	(159)	(155)	(155)	(151)	(151)	(151)
Total Requirements		**(1,215)**	**(1,243)**	**(1,265)**	**(1,296)**	**(1,327)**	**(1,351)**	**(1,382)**	**(1,402)**	**(1,428)**	**(1,455)**
RESOURCES											
Hydro	5	532	511	511	511	505	481	477	461	460	459
Contracts In	6	167	184	186	186	186	185	79	64	64	58
Base Load Thermals	7	241	234	234	242	232	236	240	235	234	238
Gas Dispatch Units	8	295	284	294	279	294	284	294	279	294	284
Peaking Units	9	139	135	138	138	137	134	138	138	137	138
Total Resources		**1,374**	**1,349**	**1,364**	**1,356**	**1,355**	**[illegible]**	**1,229**	**1,177**	**1,189**	**1,178**
Surplus (Deficit)		**159**	**106**	**99**	**61**	**28**	**(31)**	**(153)**	**(225)**	**(238)**	**(276)**
ABSENT MIRANT SHARE OF CS2											
Generation Reduction	10	(133)	[illegible]	(133)	(125)	(133)	(128)	(133)	(125)	(133)	(128)
Net Position		**27**	**(22)**	**(34)**	**(64)**	**(105)**	**(159)**	**(285)**	**(350)**	**(371)**	**(404)**

ENERGY AT WORK

AVISTA Utilities

Energy L&R – 2003 vs. 2005 IRP



ENERGY AT WORK

AVISTA Utilities

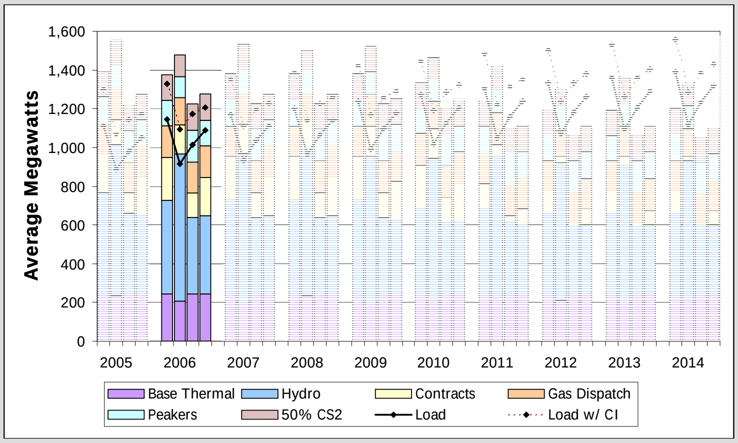
Energy L&R – What's Changed?

- Load Forecast ← 99 aMW in 2014
- Contracts
  - 4 aMW → - Haleywest
  - 6 aMW → - Potlatch
  - - Nichol's Pumping ← -6 aMW
  - - Upriver ← -2 aMW
- 60-Year Hydro Calculation ← -12 aMW
- Grant Contract Estimates ← -16 aMW in 2014
- Northeast Emissions Limit ← -43 aMW
- Mirant Share of Coyote Springs 2 ← 133 aMW

ENERGY AT WORK

AVISTA Utilities

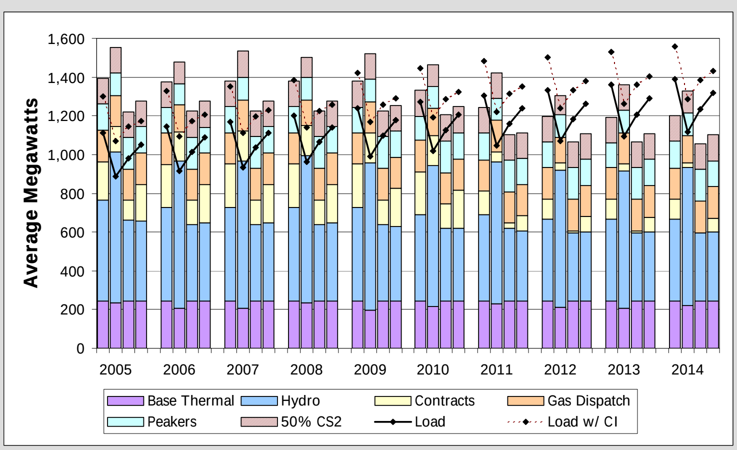
Energy L&R – Annual to Quarterly



ENERGY AT WORK

AVISTA Utilities

Energy L&R – Annual to Quarterly



ENERGY AT WORK

AVISTA Utilities

Capacity Loads & Resources (MW)

Long-Term Peak Load and Resource Tabulation (MW)
CONFIDENTIAL

Last Updated July 30, 2004	Notes	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
REQUIREMENTS											
System Load	1	(1,500)	(1,598)	(1,637)	(1,674)	(1,734)	(1,779)	(1,813)	(1,849)	(1,903)	(1,945)
Contracts Out	2	(170)	(166)	(166)	(166)	(166)	(161)	(159)	(159)	(159)	(159)
Hydro Reserves (5%)	3	(61)	(59)	(58)	(59)	(58)	(55)	(53)	(53)	(53)	(53)
Thermal Reserves (7%)	4	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)
Total Requirements		**(1,779)**	**(1,871)**	**(1,910)**	**(1,947)**	**(2,007)**	**(2,044)**	**(2,074)**	**(2,110)**	**(2,164)**	**(2,205)**
RESOURCES											
Hydro	5	975	991	930	1,003	935	925	993	893	884	883
Contracts In	6	199	217	220	219	220	218	97	97	98	98
Base Load Thermals	7	275	275	275	275	275	275	275	275	275	275
Gas Dispatch Units	8	308	310	305	310	309	305	310	310	305	309
Peaking Units	9	243	243	243	243	243	243	243	243	243	243
Total Resources		**2,000**	**2,035**	**1,973**	**2,049**	**1,9[illegible]**	**1,967**	**1,917**	**1,817**	**1,805**	**1,808**
Surplus (Deficit)		**220**	**165**	**63**	**102**	**(25)**	**(77)**	**(157)**	**(293)**	**(359)**	**(398)**
ABSENT MIRANT SHARE OF CS2											
Generation Reduction	10	(138)	(139)	[illegible]	(139)	(139)	(139)	(139)	(139)	(139)	(139)
Net Surplus (Deficit)		**82**	**26**	**(76)**	**(37)**	**(164)**	**(216)**	**(296)**	**(432)**	**(498)**	**(536)**

ENERGY AT WORK

AVISTA Utilities

Capacity Loads & Resources (MW)

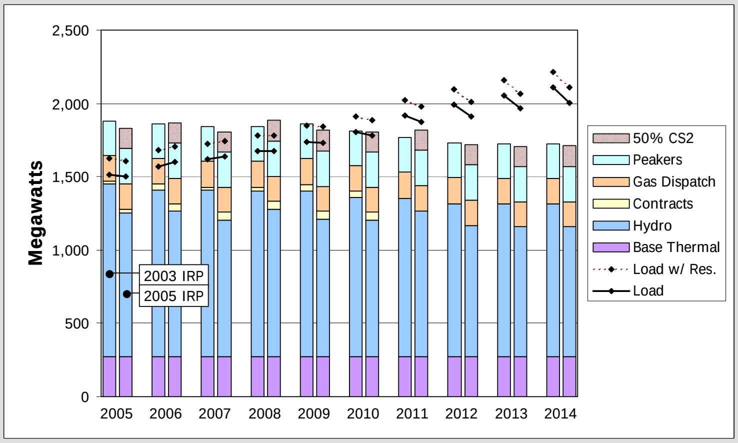
Long-Term Peak Load and Resource Tabulation (MW)
CONFIDENTIAL

Last Updated July 30, 2004	Notes	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
REQUIREMENTS											
System Load	1	(1,500)	(1,598)	(1,637)	(1,674)	(1,734)	(1,779)	(1,813)	(1,849)	(1,903)	(1,945)
Contracts Out	2	(170)	(166)	(166)	(166)	(166)	(161)	(159)	(159)	(159)	(159)
Hydro Reserves (5%)	3	(61)	(59)	(58)	(59)	(58)	(55)	(53)	(53)	(53)	(53)
Thermal Reserves (7%)	4	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)
Total Requirements		**(1,779)**	**(1,871)**	**(1,910)**	**(1,947)**	**(2,007)**	**(2,044)**	**(2,074)**	**(2,110)**	**(2,164)**	**(2,205)**
RESOURCES											
Hydro	5	975	991	930	1,003	935	925	993	893	884	883
Contracts In	6	199	217	220	219	220	218	97	97	98	98
Base Load Thermals	7	275	275	275	275	275	275	275	275	275	275
Gas Dispatch Units	8	308	310	305	310	309	305	310	310	305	309
Peaking Units	9	243	243	243	243	243	243	243	243	243	243
Total Resources		**2,000**	**2,035**	**1,973**	**2,049**	**1,982**	**1,967**	**1,917**	**1,817**	**1,805**	**1,808**
Surplus (Deficit)		**220**	**165**	**63**	**102**	**(25)**	**(77)**	**(157)**	**(293)**	**(359)**	**(398)**
ABSENT MIRANT SHARE OF CS2											
Generation Reduction	10	(138)	(139)	(139)	(139)	(139)	(139)	(139)	(139)	(139)	(139)
Net Surplus (Deficit)		**82**	**26**	**(76)**	**(37)**	**(164)**	**(216)**	**(296)**	**(432)**	**(498)**	**(536)**
Planning Reserve Margin		**20%**	**15%**	**9%**	**11%**	**4%**	**-2%**	**-3%**	**-10%**	**-12%**	**-14%**

ENERGY AT WORK

AVISTA Utilities

Capacity L&R – 2003 vs. 2005 IRP

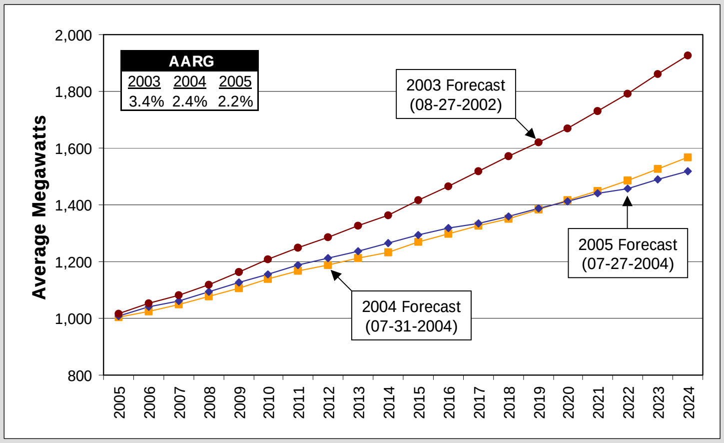


ENERGY AT WORK

AVISTA Utilities

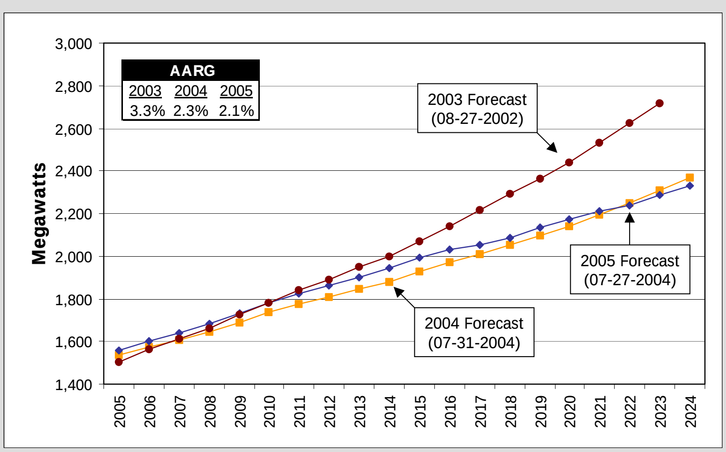
ENERGY AT WORK

Average Load Forecast Comparison



ENERGY AT WORK

Peak Load Forecast Comparison



Overview of Natural Gas Forecast

2005 Integrated Resource Plan
Third Technical Advisory Committee Meeting
January 25, 2005

James Gall

1

Introduction

- Historical gas prices
- Proposed gas forecast
- Review of peer forecasts
- Why are gas prices are important?
- Historical electric prices
- Regression analysis for electric and gas prices
- How gas prices affect prices/costs in Aurora

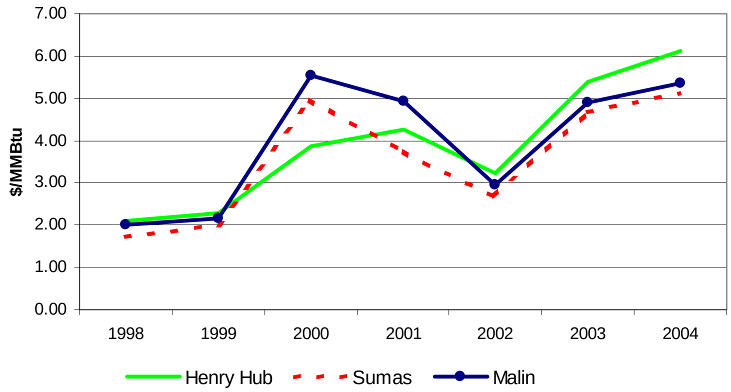
2

ENERGY AT WORK

AVISTA Utilities

Recent Natural Gas Prices

Annual Average Prices (Nominal Dollars)



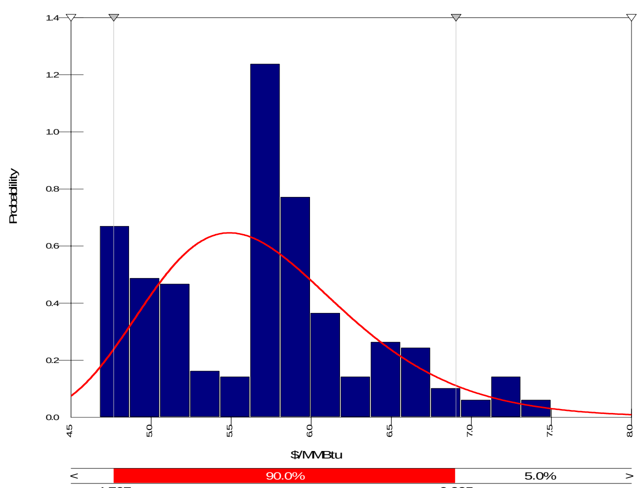
3

ENERGY AT WORK

AVISTA Utilities

Recent Volatility of the Forward Market

2005 Annual Average Prices Traded at Malin in 2004



Statistics:
- -Mean: $5.71
- -Median: $5.75
- -Mode: $4.90
- -Min: $4.68
- -Max $7.50
- -Standard Deviation: $0.65
- -Variance: 0.42
- -Skewness: 0.43
- -Kurtosis: 3.94

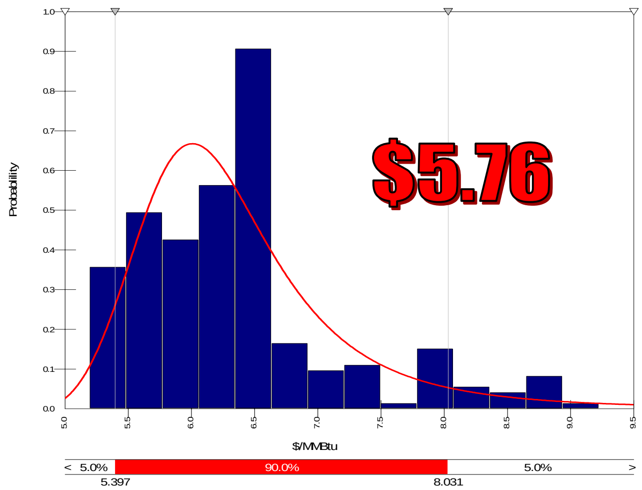
4

ENERGY AT WORK

AVISTA Utilities

Recent Volatility of the Forward Market

January 2005 Average Prices Traded at Malin in 2004



Statistics:
-Mean: $6.38
-Median: $6.32
-Mode: $5.76
-Min: $5.20
-Max $9.23
-Standard Deviation: $0.81
-Variance: 0.65
-Skewness: 1.22
-Kurtosis: 4.48

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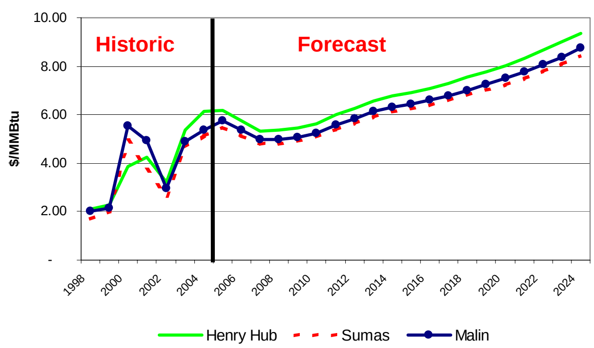
ENERGY AT WORK

AVISTA Utilities

Forecasted Natural Gas Prices

Annual Average Prices (Nominal Dollars)



Key Assumptions
- July 2004 Forward Price Curves for 2005 through 2007
    - 2005- 07: -7.1%
- Avg. Growth Rates – Based on July Global Insights forecast
    - 2007- 09: 1.9%
    - 2010- 20: 3.2%
    - 2020- 30: 3.8%

New Escalation Rates Available in April

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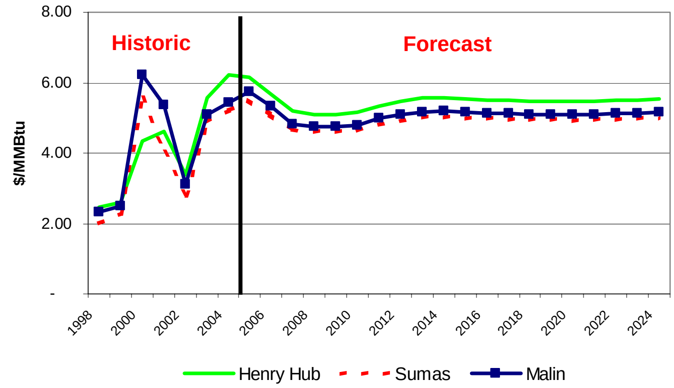
ENERGY AT WORK

Forecasted Natural Gas Prices

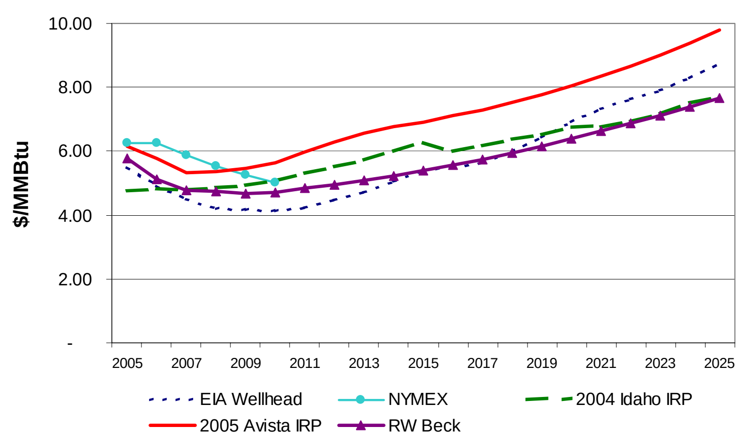
Annual Average Prices (2005 Dollars)



7

ENERGY AT WORK

How Does Our Forecast Compare with Others at Henry Hub?



EIA Wellhead- Annual Energy Outlook 2005 Early Release (Avg. price for lower 48 states)
NYMEX- www.NYMEX.com on 12/30/2004

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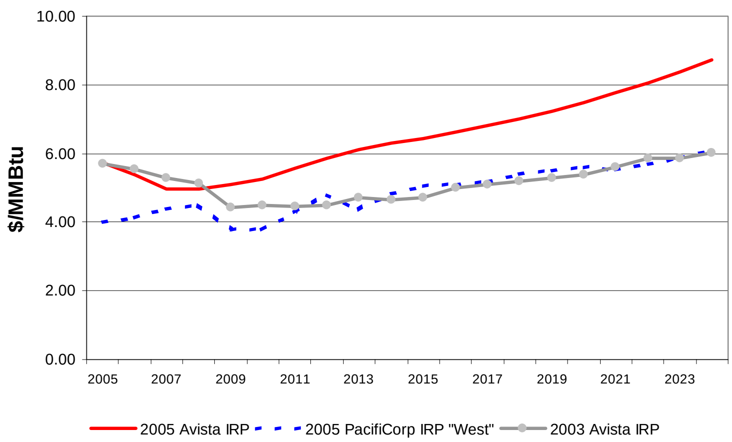
ENERGY AT WORK

AVISTA Utilities

How Does Our Forecast Compare with Others at Malin?



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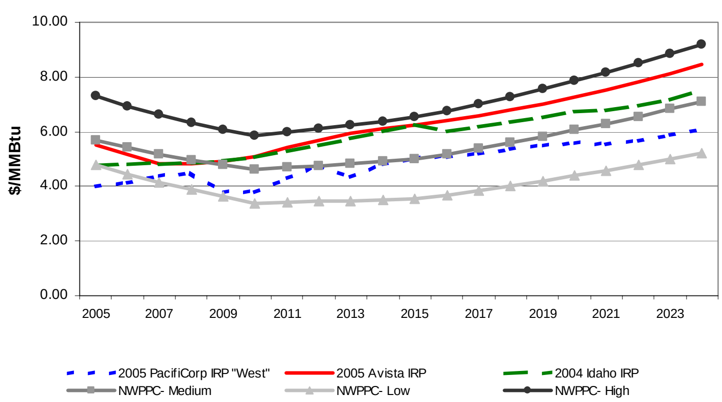
ENERGY AT WORK

AVISTA Utilities

How Does Our Forecast Compare with Others at Sumas?



NWPPC- "Draft" of 5th Power Plan

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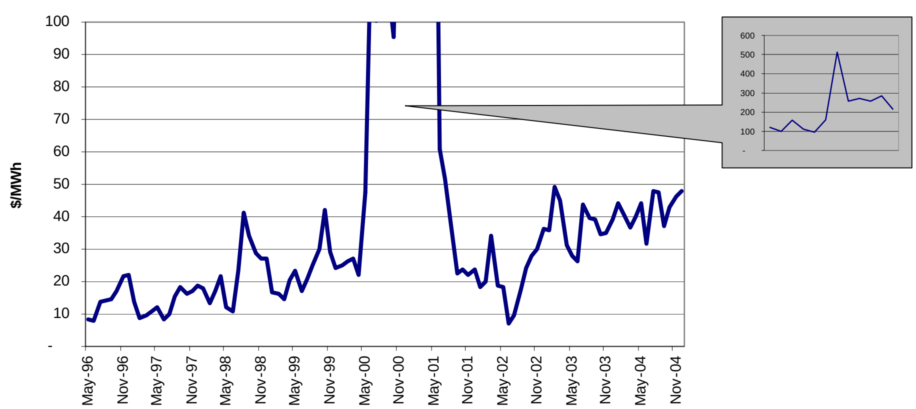
Why are Gas Prices Important?

- Electric Market prices
- Power costs
- Build/buy decisions
- Type of resource

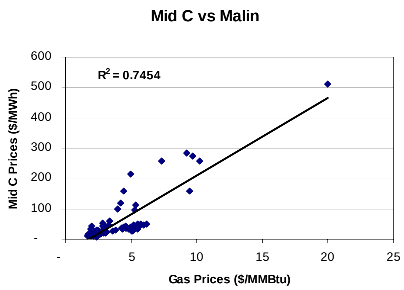
Historical Mid-C Prices

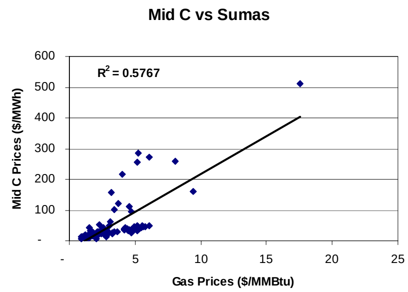


ENERGY AT WORK

Regression Analysis

Mid C Prices and Northwest Gas Markets (1996- 2004)





- 86% correlation between Malin Gas Prices and Mid C Electric Prices
- 74% of the time a change to Malin Prices will have an effect on the Mid C Market

- 76% correlation between Sumas Gas Prices and Mid C Electric Prices
- 58% of the time a change to Sumas Prices will have an effect on the Mid C Market

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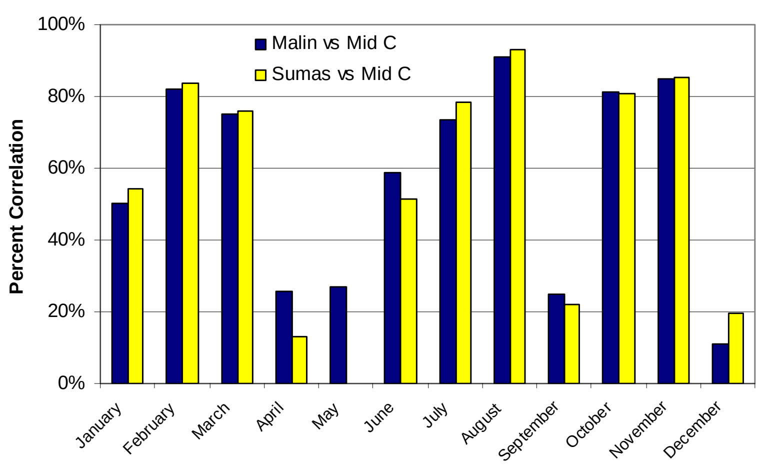
ENERGY AT WORK

2004 Daily NW Gas vs NW Electric Correlation by Month



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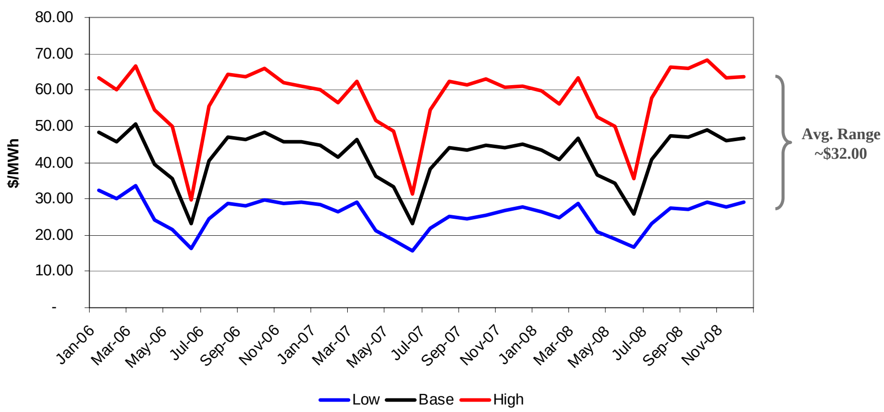
ENERGY AT WORK

AVISTA Utilities

Change to Mid C Electric Market with + / - $2 Gas Price Variations- *Example Only*



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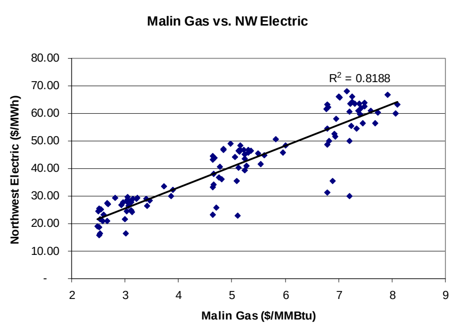
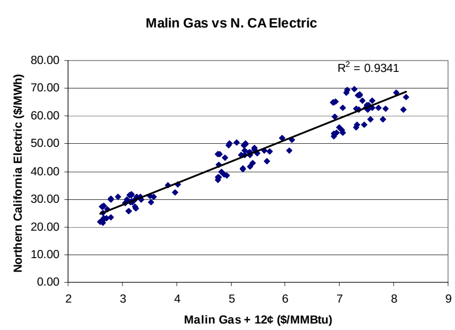
ENERGY AT WORK

AVISTA Utilities

Regression Analysis

Aurora Fuel Price Sensitivity Results (2006-2008)





- 90% correlation between Malin Gas Prices and Northwest Electric Prices
- 81% of the time a change to Malin Prices will have an effect on the Northwest Area Market

- 97% correlation between Malin Gas Prices and Northern California Electric Prices
- 93% of the time a change to Malin Prices will have an effect on the Northern California Area Market

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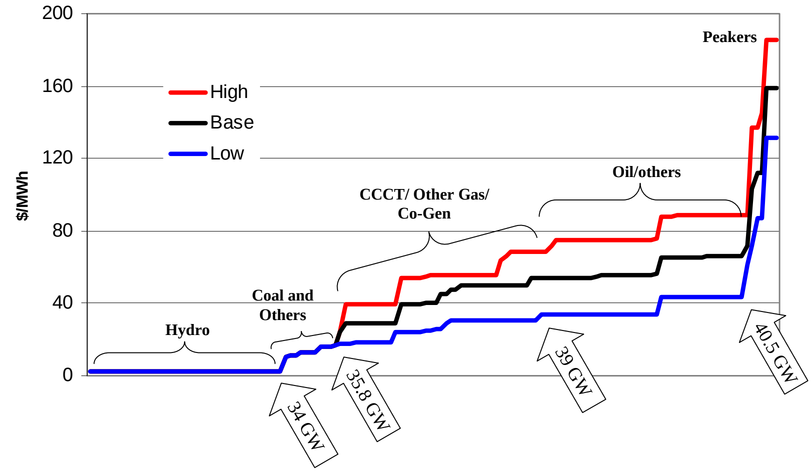
ENERGY AT WORK

AVISTA Utilities

Change to 2006 Northwest Resource Stack with Gas Price Variations- *Example Only*



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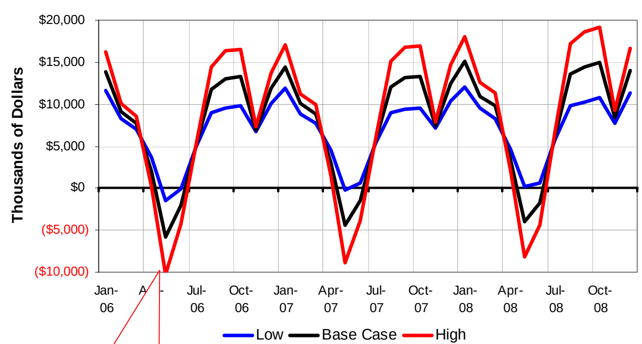
ENERGY AT WORK

AVISTA Utilities

Change to Avista's Power Costs with Gas Price Variations- *Example Only*



Impact:
$2.00 (~35%) increase/decrease in gas prices changes Avista's annual power supply costs by ~11%.

Spring months favor high prices because of increased market sales

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ENERGY AT WORK

AVISTA Utilities

Coal and Other Fuels

- These forecasts will be presented at the next TAC meeting

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ENERGY AT WORK

AVISTA Utilities

Gas Price Sensitivities- What Types Should We Do?

Gas price variations will be tested during stochastic studies

- Should we study gas variations deterministically
  - Percentage increase/decrease?
  - Value increase/decrease?
  - Scenario based?
  - Others?

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Conclusions

- After 2009, inflation drives natural gas prices from today's forward prices
- The proposed gas forecast tends to be higher than some peer forecasts, and lower than others
- Historical gas prices are correlated with the Northwest electric market when hydro/coal are not on the margin
- Aurora results indicate a higher correlation between gas and electric prices for the future
- A change in gas prices can have a large effect on the electric price and Avista's power costs

ENERGY AT WORK

AVISTA Utilities

Sustained Capacity and Planning Margin Concepts

2005 Integrated Resource Plan
Third Technical Advisory Committee Meeting
January 25, 2005

Clint Kalich

ENERGY AT WORK

AVISTA Utilities

Presentation Overview

2

What Is Sustained Capacity

- A Tabulation of Loads and Resources Over a Period(s) Exceeding the Traditional 1-Hour Definition of Peak
- A Measure of Reliability
- An Essential Concept of Utility Planning
- A Recognition that Peak Loads Do Not Stress the System For Just One Hour
  - Especially important in energy-limited NW hydro system
- The “Grey Area” Between Energy and Capacity Planning
- An Event Which Occurs Infrequently
- A Concept Parallel to “Planning Margins”

Why Capacity Methods Matter

- Planning Method Defines Level of Capacity Required to Meet Load
- Larger Capacity Margins Cost Customers More
  - Capital and fixed costs are built into rates
    - 100 MW ~ $35-50MM, or ~$5-$8MM per year
  - Offsetting operating revenues are limited
    - capacity resources generally are inefficient relative to energy resources and therefore operate for very few hours

ENERGY AT WORK

AVISTA Utilities

Comparison to Peak Forecasting

Item	Capacity L&R	Sustained Capacity
Period	One Hour	One Hour to Three Days, or More
Peak Load	Average Coldest Day Temp	Lowest Load on Record ~ 120-160 MW in 2005
Thermals	Average Temps	Lowest Temps & Colstrip Reduced for Freeze (~ 30 MW)
Hydro	Maximum Capability	Maximum Capability Reduced for Freeze (~ 60 MW)
Contracts	Actual Forecast	Actual Forecast

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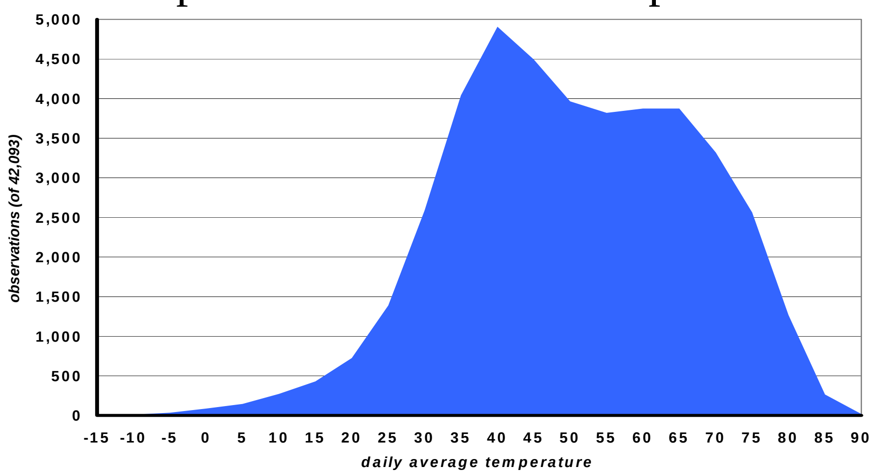
ENERGY AT WORK

AVISTA Utilities

Temp. Distribution (1889-2004)

Spokane International Airport



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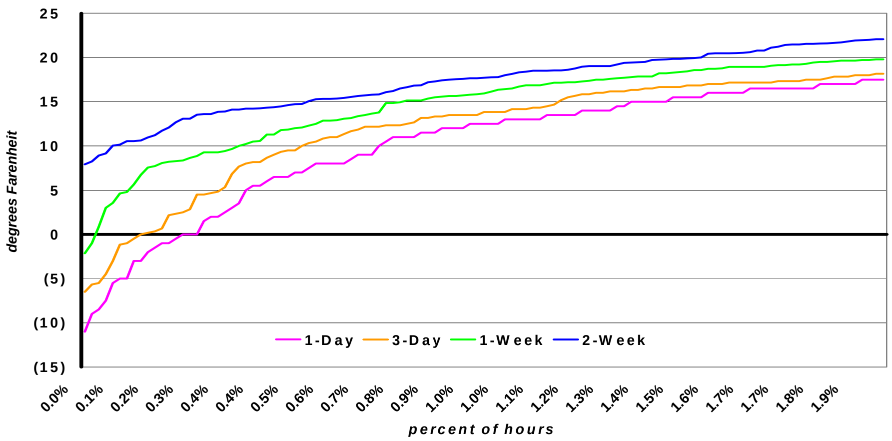
ENERGY AT WORK

AVISTA Utilities

Temperature History (1989-04)

Spokane International Airport



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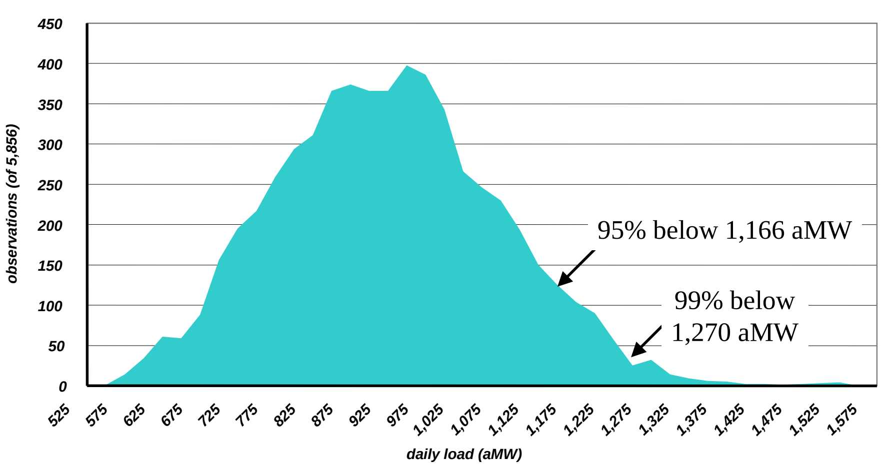
ENERGY AT WORK

AVISTA Utilities

Peak Load History (1989-04)

Avista Total



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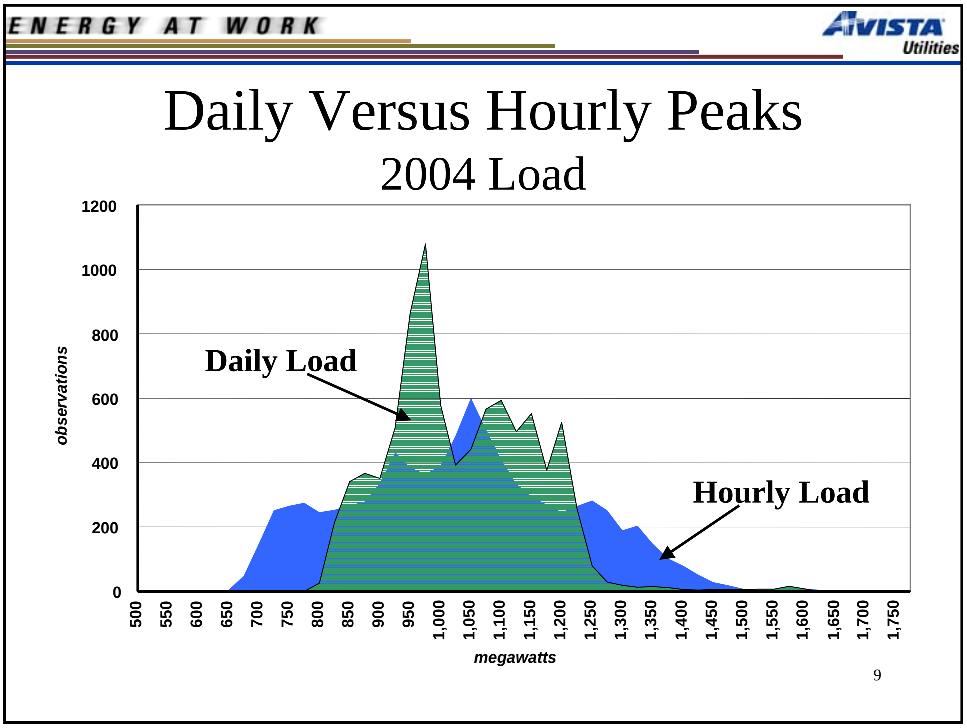
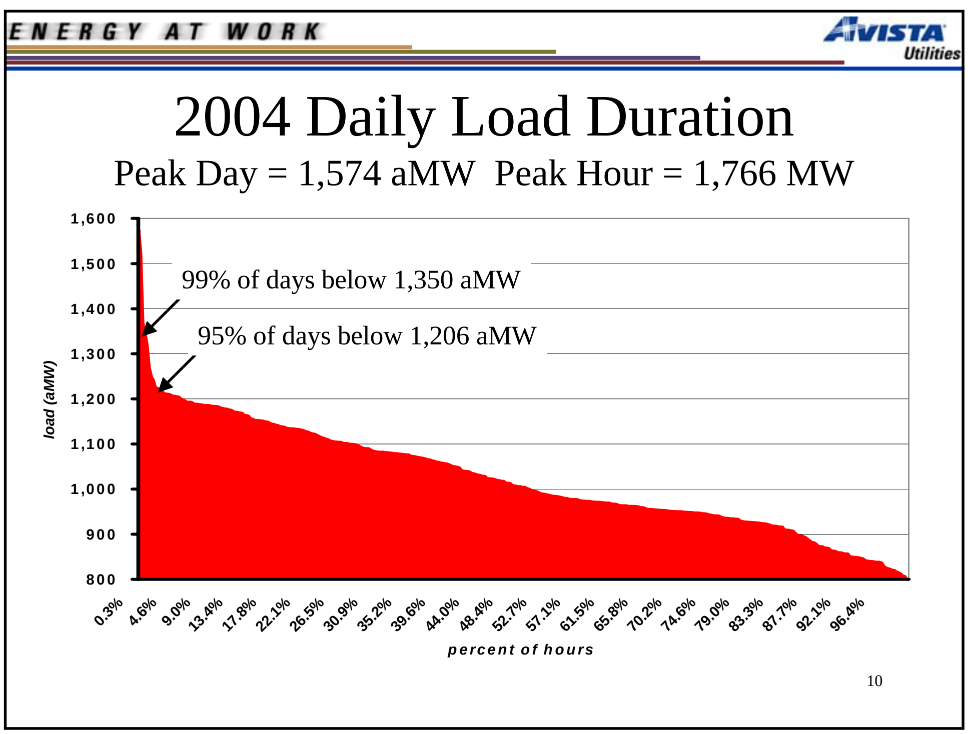

ENERGY AT WORK
AVISTA Utilities
Daily Versus Hourly Peaks
2004 Load
observations
1200
1000
800
600
400
200
0
Daily Load
Hourly Load
500
550
600
650
700
750
800
850
900
950
1,000
1,050
1,100
1,150
1,200
1,250
1,300
1,350
1,400
1,450
1,500
1,550
1,600
1,650
1,700
1,750
megawatts
9

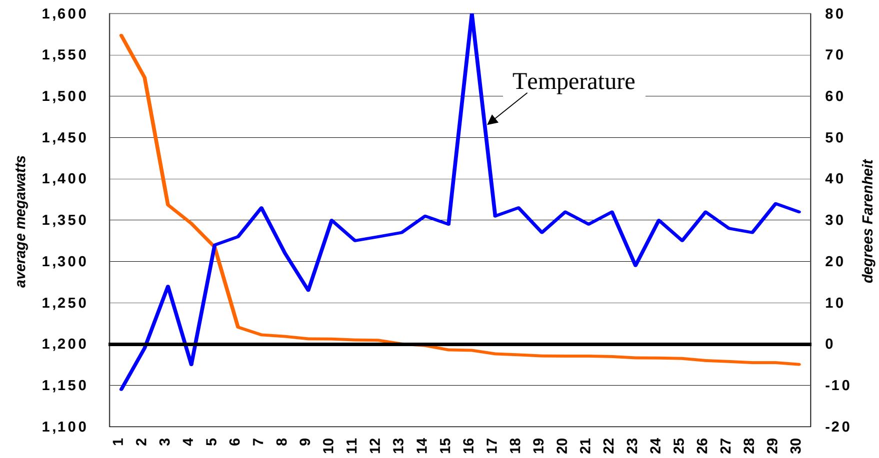

ENERGY AT WORK
AVISTA Utilities
2004 Daily Load Duration
Peak Day = 1,574 aMW Peak Hour = 1,766 MW
load (aMW)
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
99% of days below 1,350 aMW
95% of days below 1,206 aMW
0.3%
4.6%
9.0%
13.4%
17.8%
22.1%
26.5%
30.9%
35.2%
39.6%
44.0%
48.4%
52.7%
57.1%
61.5%
65.8%
70.2%
74.6%
79.0%
83.3%
87.7%
92.1%
96.4%
percent of hours
10

ENERGY AT WORK

AVISTA Utilities

2004 Peak Load and Temps

30 Highest Load Days



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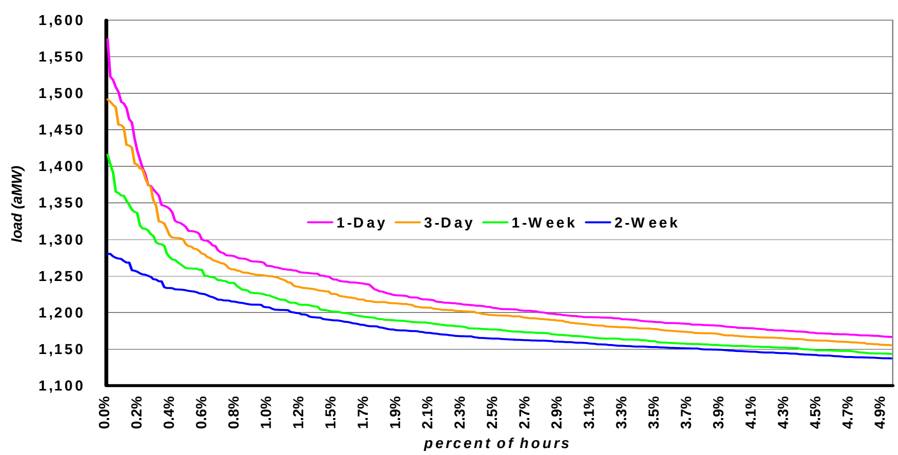
ENERGY AT WORK

AVISTA Utilities

Peak Load History (1989-04)

Avista Total



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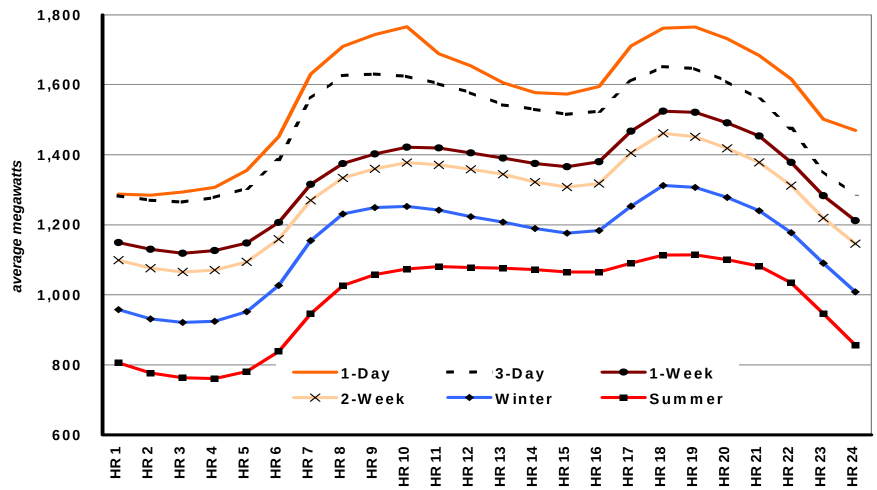
ENERGY AT WORK

AVISTA Utilities

Peak Load Shape Comparison



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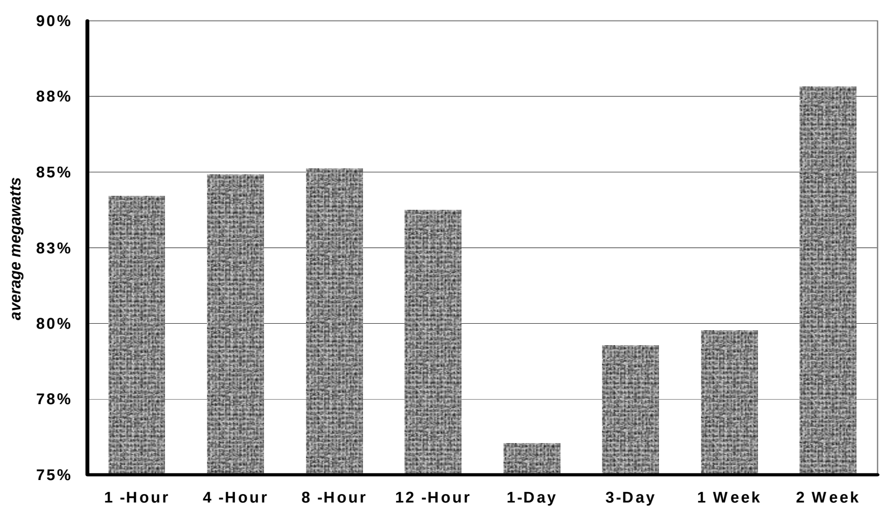
ENERGY AT WORK

AVISTA Utilities

Summer Vs. Winter Peaks



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ENERGY AT WORK

AVISTA Utilities

Sustained Peak Estimate—2005

Sustained Peak Period L&R Calculation Comparison
2005

Peak Period Considered	1 -Hour	4 -Hour	8 -Hour	12 -Hour	24 -Hour	72 -Hour	168 -Hour	336 -Hour
Load								
Peak Load	(1,619)	(1,598)	(1,579)	(1,542)	(1,450)	(1,377)	(1,369)	(1,175)
10% Contingency	(162)	(160)	(158)	(154)	(145)	(138)	(137)	(117)
Load Subtotal	(1,781)	(1,758)	(1,736)	(1,696)	(1,595)	(1,515)	(1,506)	(1,292)
Hydro Capability								
Hydro @ 90% CI	208	208	208	326	326	326	326	326
Hydro Storage	959	871	825	550	275	211	154	77
River Freeze Up	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)
Hydro Subtotal	*1,107*	*1,019*	*973*	*816*	*541*	*477*	*419*	*342*
Thermal Capability								
Coyote Springs II	308	308	308	308	308	308	308	308
Colstrip	222	222	222	222	222	222	222	222
Rathdrum	184	184	184	184	184	184	184	184
Northeast	69	69	69	69	69	69	69	69
Kettle Falls	62	62	62	62	62	62	62	62
Boulder Park	25	25	25	25	25	25	25	25
Fuel Delivery System Freeze Up	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)
Thermal Subtotal	*839*	*839*	*839*	*839*	*839*	*839*	*839*	*839*
Contracts								
Net Contracts	*139*	*139*	*139*	*139*	*139*	*139*	*139*	*139*
PGE Adjustment	0	0	0	25	38	46	105	105
PPM Wind @ 25% of Capacity	0	0	0	0	0	0	0	0
000 MW Spot Purchases	0	0	0	0	0	0	0	0
Contracts Subtotal	*139*	*139*	*139*	*164*	*177*	*185*	*245*	*245*
Net Position	304	240	215	123	(38)	(14)	(3)	134

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ENERGY AT WORK

AVISTA Utilities

Sustained Peak Estimate—2007

Sustained Peak Period L&R Calculation Comparison
2007

Peak Period Considered	1 -Hour	4 -Hour	8 -Hour	12 -Hour	24 -Hour	72 -Hour	168 -Hour	336 -Hour
Load								
Peak Load	(1,699)	(1,677)	(1,656)	(1,618)	(1,521)	(1,445)	(1,436)	(1,233)
10% Contingency	(170)	(168)	(166)	(162)	(152)	(145)	(144)	(123)
Load Subtotal	(1,869)	(1,844)	(1,822)	(1,780)	(1,673)	(1,590)	(1,580)	(1,356)
Hydro Capability								
Hydro @ 90% CI	195	195	195	274	274	274	274	274
Hydro Storage	929	929	757	505	252	204	150	75
River Freeze Up	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)
Hydro Subtotal	*1,064*	*1,064*	*892*	*718*	*466*	*417*	*364*	*289*
Thermal Capability								
Coyote Springs II	308	308	308	308	308	308	308	308
Colstrip	222	222	222	222	222	222	222	222
Rathdrum	184	184	184	184	184	184	184	184
Northeast	69	69	69	69	69	69	69	69
Kettle Falls	62	62	62	62	62	62	62	62
Boulder Park	25	25	25	25	25	25	25	25
Fuel Delivery System Freeze Up	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)
Thermal Subtotal	*839*	*839*	*839*	*839*	*839*	*839*	*839*	*839*
Contracts								
Net Contracts	*160*	*160*	*160*	*160*	*160*	*160*	*160*	*160*
PGE Adjustment	0	0	0	25	38	46	105	105
PPM Wind @ 25% of Capacity	0	0	0	0	0	0	0	0
000 MW Spot Purchases	0	0	0	0	0	0	0	0
Contracts Subtotal	*160*	*160*	*160*	*185*	*198*	*206*	*266*	*266*
Net Position	195	220	70	(37)	(170)	(127)	(111)	38

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ENERGY AT WORK — AVISTA Utilities

Sustained Peak Estimate—2010

Sustained Peak Period L&R Calculation Comparison
2010

Peak Period Considered	1 -Hour	4 -Hour	8 -Hour	12 -Hour	24 -Hour	72 -Hour	168 -Hour	336 -Hour
Load								
Peak Load	(1,841)	(1,817)	(1,795)	(1,753)	(1,648)	(1,566)	(1,556)	(1,336)
10% Contingency	(184)	(182)	(179)	(175)	(165)	(157)	(156)	(134)
Load Subtotal	(2,026)	(1,999)	(1,974)	(1,928)	(1,813)	(1,723)	(1,712)	(1,469)
Hydro Capability								
Hydro @ 90% CI	131	131	131	184	184	184	184	184
Hydro Storage	948	948	685	456	228	196	147	73
River Freeze Up	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)
Hydro Subtotal	*1,019*	*1,019*	*756*	*580*	*352*	*319*	*270*	*197*
Thermal Capability								
Coyote Springs II	308	308	308	308	308	308	308	308
Colstrip	222	222	222	222	222	222	222	222
Rathdrum	184	184	184	184	184	184	184	184
Northeast	69	69	69	69	69	69	69	69
Kettle Falls	62	62	62	62	62	62	62	62
Boulder Park	25	25	25	25	25	25	25	25
Fuel Delivery System Freeze Up	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)
Thermal Subtotal	*839*	*839*	*839*	*839*	*839*	*839*	*839*	*839*
Contracts								
Net Contracts	*165*	*165*	*165*	*165*	*165*	*165*	*165*	*165*
PGE Adjustment	0	0	0	25	38	46	105	105
PPM Wind @ 25% of Capacity	0	0	0	0	0	0	0	0
000 MW Spot Purchases	0	0	0	0	0	0	0	0
Contracts Subtotal	*165*	*165*	*165*	*190*	*203*	*211*	*271*	*271*
Net Position	(2)	25	(214)	(319)	(419)	(353)	(332)	(162)

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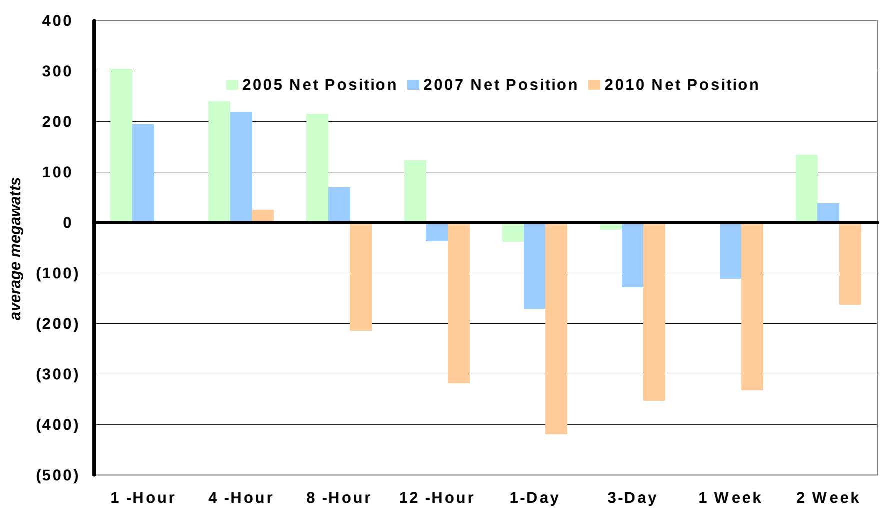
ENERGY AT WORK — AVISTA Utilities

Avista Net Positions



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ENERGY AT WORK

AVISTA Utilities

Avista vs. FERC SMD

	1 -Hour	4 -Hour	8 -Hour	12 -Hour	24 -Hour	72 -Hour	168 -Hour	336 -Hour
2005								
Avista Criteria	345	281	256	129	(32)	(9)	3	138
SMD - 12%	538	448	433	275	115	113	165	385
SMD - 15%	490	401	385	229	72	72	124	350
SMD - 18%	442	353	338	183	28	31	83	315
2007								
Avista Criteria	212	237	87	(19)	(153)	(110)	(94)	55
SMD - 12%	417	416	275	142	11	29	85	319
SMD - 15%	366	366	225	93	(35)	(15)	42	282
SMD - 18%	315	315	175	45	(81)	(58)	(1)	245
2010								
Avista Criteria	16	43	(197)	(301)	(402)	(336)	(314)	(145)
SMD - 12%	138	170	(88)	(192)	(307)	(215)	(142)	416
SMD - 15%	82	116	(142)	(245)	(357)	(262)	(189)	376
SMD - 18%	27	61	(196)	(297)	(406)	(309)	(235)	335

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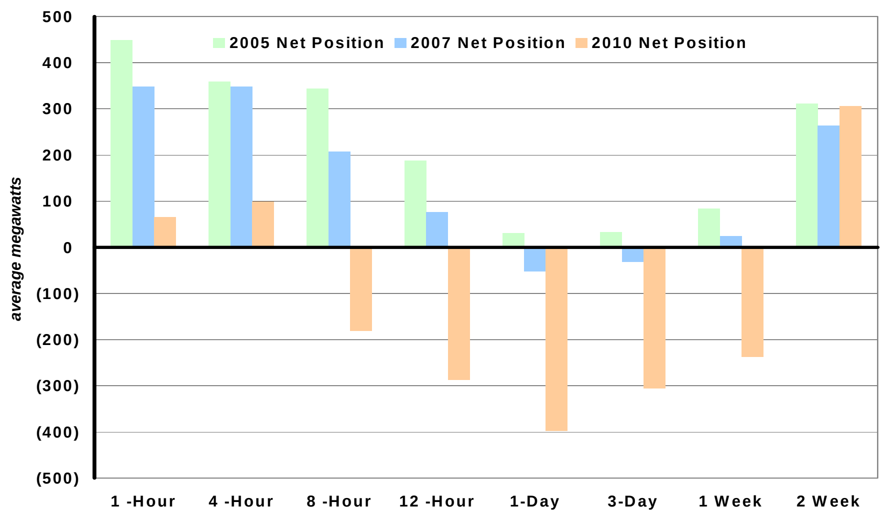
ENERGY AT WORK

AVISTA Utilities

SMD Net Positions – 15%



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Key Capacity Planning Questions

- Which Sustained Period is Adequate
- How Much Can/Should Avista Rely On The Market During Extreme Load Conditions
- What Capacity Should Be Given to Wind
- With Move To Gas-Fired Turbines, Will Gas Be Available To Meet Coincident Demands
- How Will Federal Projects Act During a Cold Snap
- What is the Significance of Transmission
- Is LOLP a Better Method & How Would We Do LOLP

Planning Margin Methods Summary

- FERC Standard Market Design
  - Carry between 12% & 18% of average peak day load
  - California has moved toward 15%
- Loss of Load Probability
- Sustained Capacity Evaluations
- Avista Method For Calculating Planning Margin
  - 110% of Peak demand forecast
  - ~ 30 MW for Colstrip fuel handling
  - ~ 60 MW for river freeze-ups

Capacity Plan for the 2005 IRP

- Rely On Historical Method Adopted in 1980s
  - ~ 250 MW over forecasted peak demand
  - Modestly better protection than FERC SMD
- Build Resources To Meet Energy **AND** Capacity Needs—Consider Purchases if Appropriate
- Encourage and Assist Regional Entities With Regional Capacity Planning Effort
  - e.g., NPCC, NWPP, BPA

2005 Load Forecast
Scenarios

Presented by
Randy Barcus, Avista Corp. Chief Economist
January 25, 2005

Forecast Discussion Points

- Economic Forecast
  - Employment
  - Population
  - Scenario Options
- Degree Days
  - Heating
  - Cooling
- Prices
  - Electric--Retail
  - Natural Gas—Retail and Wholesale
- Electric Base Case Results

ENERGY AT WORK

AVISTA Utilities

Economic Forecast

- Global Insight, Inc. Contract
  - National Outlook
  - Spokane County, Washington
  - Kootenai County, Idaho
- Adjustments
  - Fairchild Air Force Base Assessment
  - Economic Development Initiatives
- Allocation Scenario

3

ENERGY AT WORK

AVISTA Utilities

Regional Economy

- Risk to Growth (Low Scenario)
  - Military Base Realignment and Closure Process during 2005 indicates closure
  - Continued Meltdown in Manufacturing
- Opportunity for Growth (High Scenario)
  - Base expands with new missions
  - University District, Airport Freight Hub, Technology Parks
  - Convention Center Tourism Expansion

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ENERGY AT WORK

AVISTA Utilities

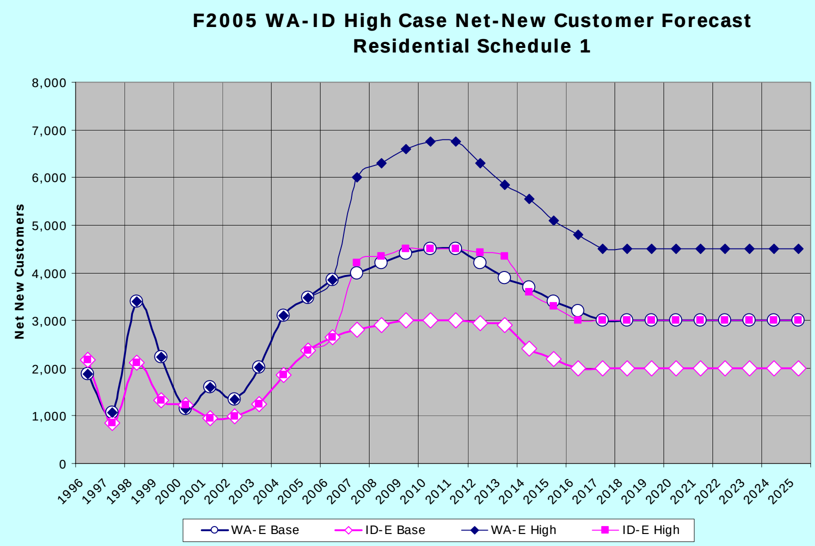
Results
High & Low Case
2005 Forecast

5

ENERGY AT WORK

AVISTA Utilities

Avista High Customer Forecasts



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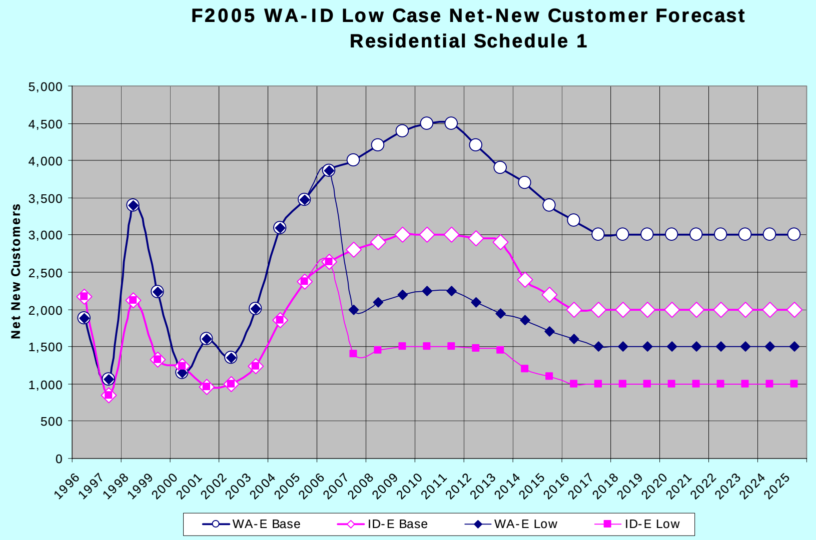
ENERGY AT WORK

AVISTA Utilities

Avista Low Customer Forecasts



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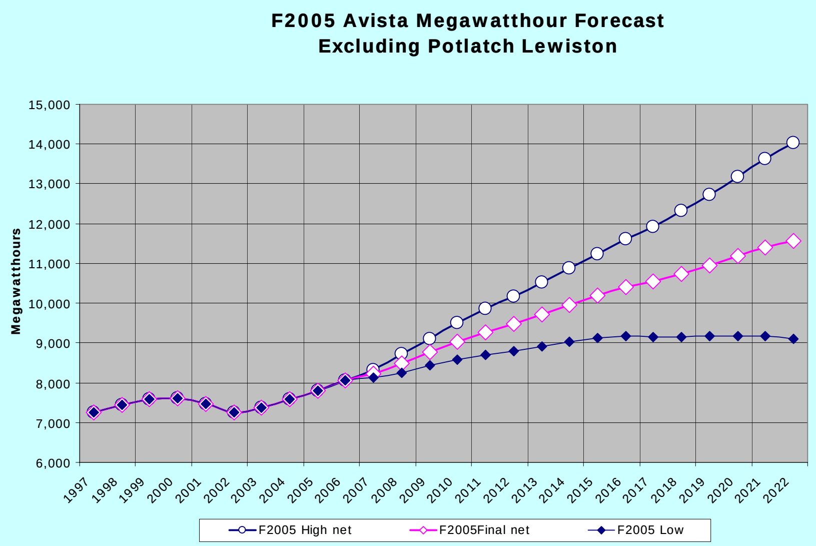
ENERGY AT WORK

AVISTA Utilities



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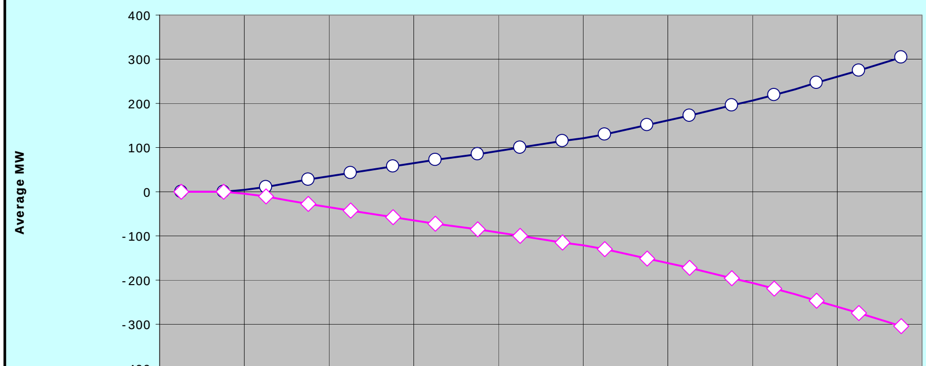
ENERGY AT WORK

AVISTA Utilities

F2005 High-Low MW Variation Forecast
Excluding Potlatch Lewiston



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
High MW Variation	-	-	11	29	42	57	71	85	100	115	129	150	172	195	220	246	275	303
Low MW Variation	-	-	(11)	(29)	(42)	(57)	(71)	(85)	(100)	(115)	(129)	(150)	(172)	(195)	(220)	(246)	(275)	(303)

High MW Variation   Low MW Variation

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ENERGY AT WORK

AVISTA Utilities

Future Resource Requirements Update

2005 Integrated Resource Plan
Third Technical Advisory Committee Meeting
January 25, 2005

John Lyons

ENERGY AT WORK

AVISTA Utilities

Future Resource Requirements

- New resource requirements are determined by the net balance of expected loads and resources.

- Energy and capacity values for expected loads and resources are calculated twenty years into the future and are included in Planning L&R's.

- Expected deficit years are as follows:
  - Energy – 2010
  - Capacity – 2009

ENERGY AT WORK

AVISTA Utilities

Energy Loads & Resources (aMW)

LONG-TERM LOAD AND RESOURCES TABULATION—ENERGY (aMW)
CONFIDENTIAL

Last Updated January 13, 2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
REQUIREMENTS												
System Load	(1,065)	(1,098)	(1,120)	(1,151)	(1,183)	(1,213)	(1,245)	(1,269)	(1,295)	(1,322)	(1,353)	(1,378)
Contract Obligations	(62)	(60)	(60)	(60)	(60)	(59)	(58)	(57)	(57)	(57)	(57)	(57)
Total Requirements	(1,127)	(1,158)	(1,181)	(1,211)	(1,244)	(1,272)	(1,303)	(1,327)	(1,352)	(1,379)	(1,410)	(1,435)
RESOURCES												
Contract Rights	283	292	295	294	295	294	189	171	172	164	162	162
Hydro	539	517	517	517	512	494	490	473	472	472	471	471
Base Load Thermals	236	224	224	237	221	226	235	225	224	237	225	224
Gas Dispatch Units	262	272	282	268	282	272	282	268	282	273	282	268
Total Resources	1,320	1,306	1,318	1,316	1,310	1,286	1,196	1,137	1,150	1,145	1,140	1,124
POSITION	**193**	**147**	**137**	**105**	**67**	**14**	**(107)**	**(190)**	**(202)**	**(234)**	**(270)**	**(311)**
CONTINGENCY PLANNING												
Confidence Interval	(163)	(160)	(160)	(160)	(159)	(155)	(155)	(151)	(151)	(151)	(151)	(151)
WNP-3 Obligation	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)
Peaking Resources	146	142	145	145	145	141	145	145	144	146	146	142
CONTINGENCY NET POSITION	**143**	**96**	**89**	**57**	**19**	**(33)**	**(150)**	**(229)**	**(243)**	**(273)**	**(308)**	**(353)**

ENERGY AT WORK

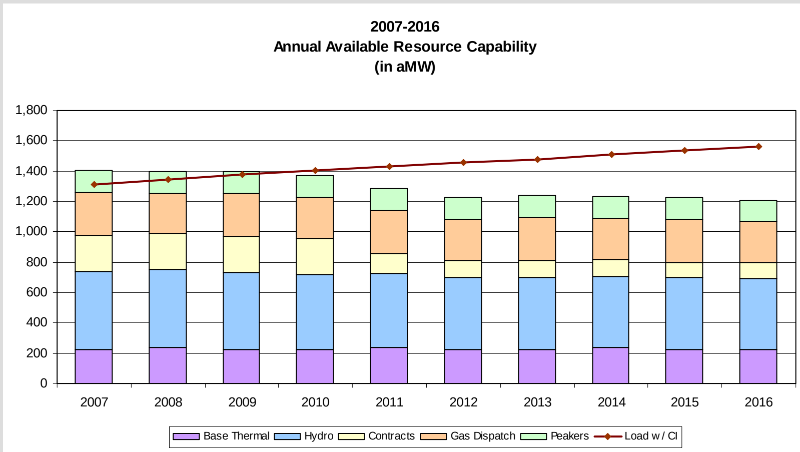
AVISTA Utilities

Energy L&R – Changes Since August

- Contracts ~ 3 aMW Increase
- Hydro ~ 7 aMW Increase
- Peaking Units ~ 7 aMW Increase
- Base Thermal ~ 5 aMW Decrease
- Gas Dispatch ~ 12 aMW Decrease

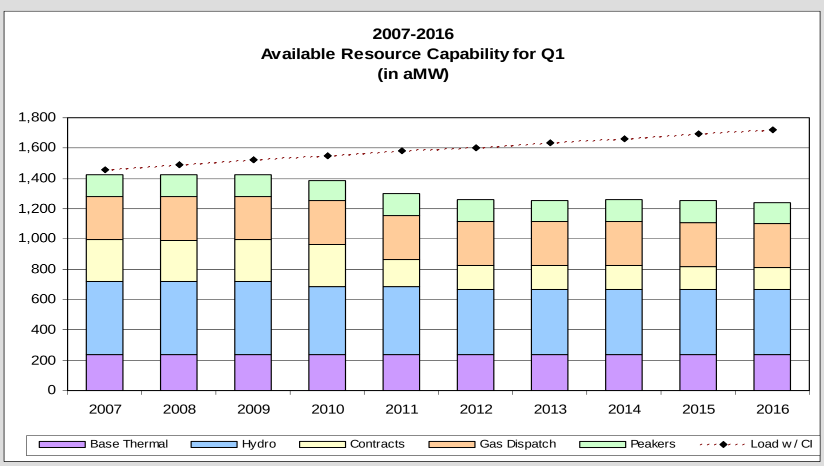
ENERGY AT WORK

Energy L&R – Annual Resource Capability



ENERGY AT WORK

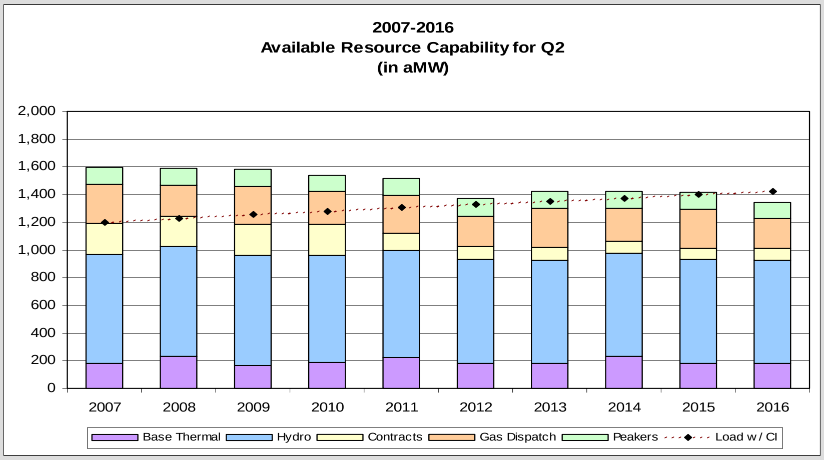
Energy L&R – First Quarter Resource Capability



ENERGY AT WORK

AVISTA Utilities

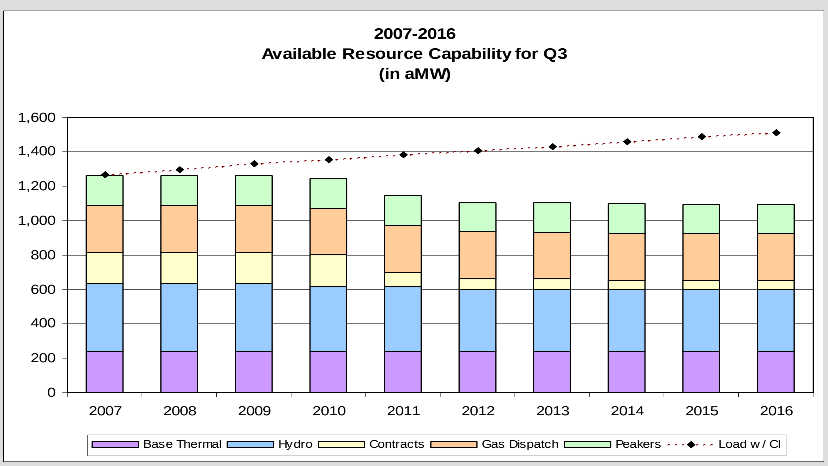
Energy L&R – Second Quarter Resource Capability



ENERGY AT WORK

AVISTA Utilities

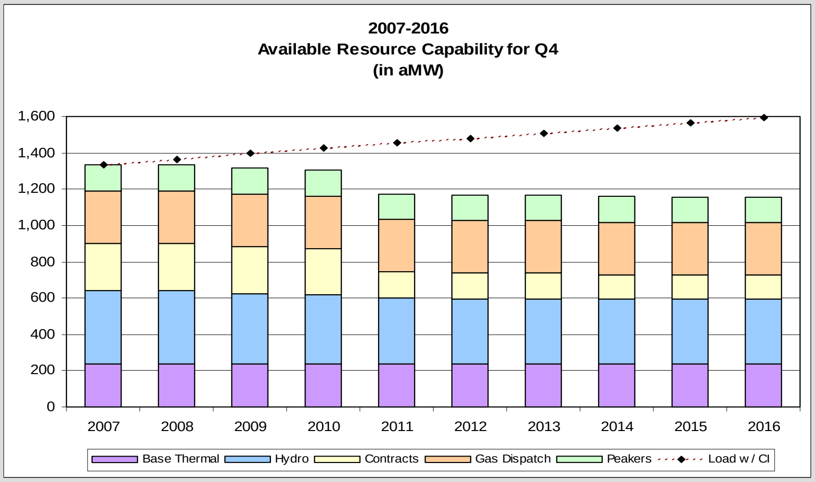
Energy L&R – Third Quarter Resource Capability



ENERGY AT WORK

AVISTA Utilities

Energy L&R – Fourth Quarter Resource Capability



ENERGY AT WORK

AVISTA Utilities

Capacity Loads & Resources (MW)

LONG-TERM L&R TABULATION—CAPACITY (MW)

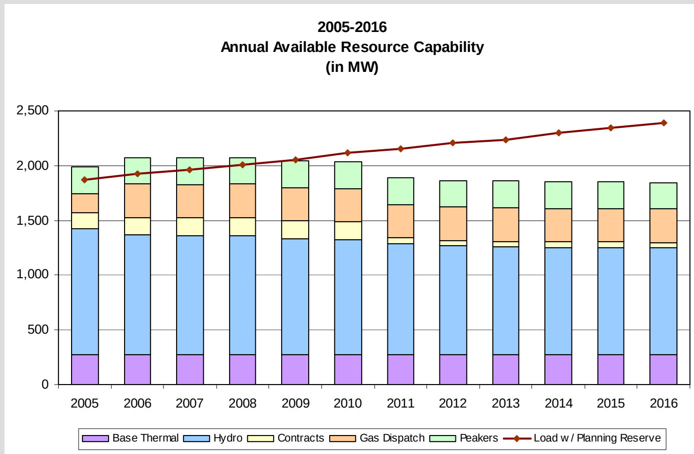
CONFIDENTIAL

Last Updated January 13, 2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
REQUIREMENTS												
Native Load	(1,619)	(1,666)	(1,699)	(1,745)	(1,785)	(1,841)	(1,875)	(1,926)	(1,949)	(2,007)	(2,053)	(2,091)
Contracts Obligations	(173)	(169)	(169)	(169)	(164)	(164)	(162)	(162)	(162)	(162)	(162)	(162)
Total Requirements	(1,792)	(1,835)	(1,868)	(1,914)	(1,949)	(2,005)	(2,037)	(2,087)	(2,111)	(2,169)	(2,215)	(2,253)
RESOURCES												
Contracts Rights	312	326	329	329	330	329	211	212	211	212	212	212
Hydro Resources	1,156	1,098	1,090	1,090	1,056	1,049	1,018	996	988	980	979	978
Base Load Thermals	272	272	272	272	272	272	272	272	272	272	272	272
Gas Dispatch Units	179	303	303	308	303	303	307	303	307	308	308	303
Peaking Units	243	243	243	243	243	243	243	243	243	243	243	243
Total Resources	2,161	2,243	2,238	2,242	2,204	2,196	2,051	2,026	2,021	2,014	2,013	2,008
PEAK POSITION	**369**	**408**	**370**	**328**	**255**	**191**	**14**	**(61)**	**(90)**	**(155)**	**(202)**	**(245)**
RESERVE PLANNING												
Planning Reserve Margin	(252)	(257)	(260)	(265)	(269)	(274)	(278)	(283)	(285)	(291)	(295)	(299)
RESERVE PEAK POSITION	**118**	**152**	**110**	**63**	**(13)**	**(83)**	**(263)**	**(344)**	**(375)**	**(445)**	**(497)**	**(544)**

ENERGY AT WORK

AVISTA Utilities

Capacity L&R – Annual Resource Capability



ENERGY AT WORK

AVISTA Utilities

IRP Requirements

Energy:

33 aMW in 2010

308 aMW in 2015

590 aMW in 2025

Capacity:

83 MW in 2010

497 MW in 2015

860 MW in 2025

Imputed Debt Discussion

TAC Meeting

January 25, 2005

Costs of Financing for Acquiring New Resources

- Buy versus build
  - Incremental cost of capital
  - Margin call costs
  - L/C costs
- Credit ratings impact
  - Balance sheet – capital structure
  - Interest coverages
  - Debt ratio

S&P Financial Ratio Benchmarks

INTEREST COVERAGE BUSINESS PROFILE	A		BBB		BB	
1	2.5	1.5	1.5	1.0		
2	3.0	2.0	2.0	1.0		
3	3.5	2.5	2.5	1.5	1.5	1.0
4	4.2	3.5	3.5	2.5	2.5	1.5
5	4.5	3.8	3.8	2.8	2.8	1.8
6	5.2	4.2	4.2	3.0	3.0	2.0
7	6.5	4.5	4.5	3.2	3.2	2.2
8	7.5	5.5	5.5	3.5	3.5	2.5
9	10.0	7.0	7.0	4.0	4.0	2.8
10	11.0	8.0	8.0	5.0	5.0	3.0
TOTAL DEBT/TOTAL CAPITAL BUSINESS PROFILE	**A**		**BBB**		**BB**	
1	55	60	60	70		
2	52	58	58	68		
3	50	55	55	65	65	70
4	45	52	52	62	62	68
5	42	50	50	60	60	65
6	40	48	48	58	58	62
7	38	45	45	55	55	60
8	35	42	42	52	52	58
9	32	40	40	50	50	55
10	25	35	35	48	48	52

□ Avista today □ Avista's goal

Financing Costs of Purchased Power Contracts

- S&P methodology (see attached articles)
  - Input portion of contracts as debt in our capital structure
    - Increases debt leverage
    - Increases interest expense and lowers coverage ratios
    - Assigns risk factor to each contract

Current Situation

- Avista
  - Limited to date due to minimal level of contracts
  - Current contracts at very low costs
  - Future contracts may have bigger impact
- Other Northwest utilities
  - Depends on level of PPA's they have currently
  - Each company is different

Modeling Overview and Process

2005 Integrated Resource Plan
Technical Advisory Committee Meeting
February 17, 2005

James Gall

Topics of Discussion

- $\text{Aurora}_{\text{XMP}}$ Overview
- IRP Timeline
- IRP Modeling Process

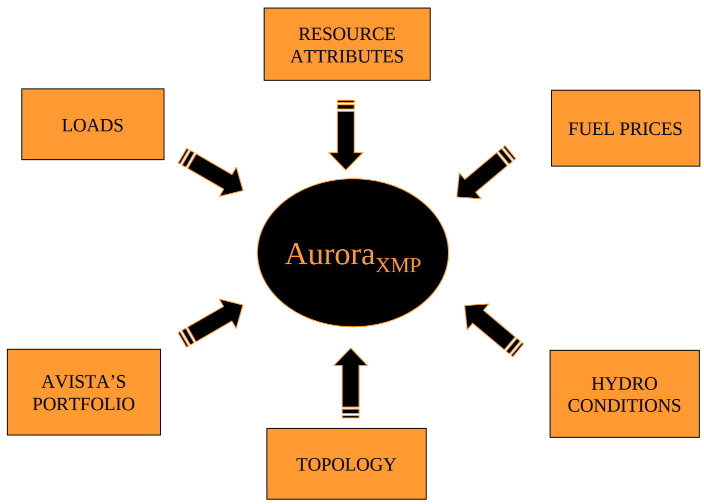
Aurora Overview

What is Aurora$_{XMP}$?

- Electric production cost model
- Avista's use is to model the Western Interconnect, but could model any system
- Models operations on an hourly basis for up to 50 years
- Forecasts electric prices
- Determines when and what type of new resources to build
- Determines the value of a utilities portfolio of resources and contractual rights

ENERGY AT WORK

What are Aurora Inputs



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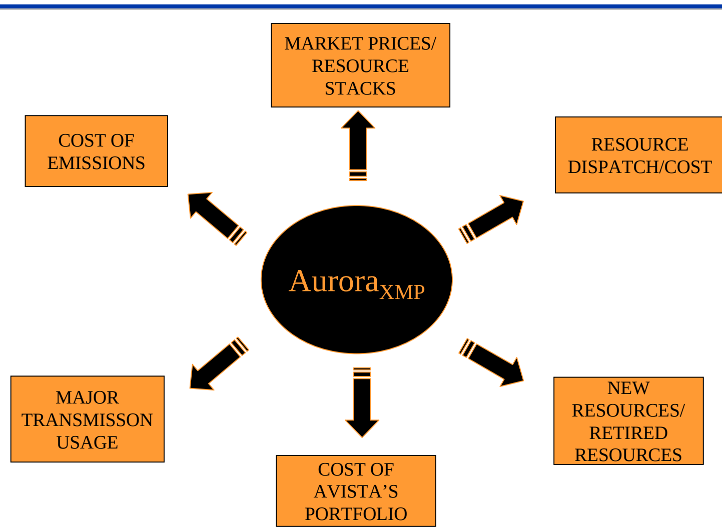
ENERGY AT WORK

What are Aurora Outputs



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IRP Timeline

Timeline

February

- Gather Assumptions
- Set up Aurora database
- Build Stochastic Models

March-April

- Complete Base Case
- Complete Long- Term Studies
- Complete Stochastic Analysis
- Outline of Report Released

May
- Complete Scenarios/Futures
- Evaluate Potential Avista Resources

June
- Draft document

July- August

- Draft of Report Released
- Feedback
- Final Draft Released

IRP Modeling Process
"Base Case Example"

Base Case Process

Aurora LT Studies

- Uses Aurora XMP
- Market price forecast 2007-2026
- Identifies resources expansions given its cost assumptions

Stochastic Model

- Excel model that produces Monte Carlo data sets for Aurora
- Used for hydro, natural gas prices, loads, and wind
- Distributions will be discussed at the March TAC meeting

Aurora Stochastic Runs

- Uses Aurora LT resource build and Monte Carlo data sets derived from the stochastic model
- Aurora runs each a Monte Carlo simulation hourly for 20 years with different hydro, NG, load and wind data points entered each iteration
- Results in a distribution of market prices for each area and the cost to serve Avista's load
- For example the base case will take 33-41 days on one processor, on eight processors this should take 4-7 days to process for 200 iterations

Base Case Process (cont.)

Aurora Stochastic Runs

- Uses Aurora LT resource build and Monte Carlo data sets derived from the stochastic model
- Aurora runs each a Monte Carlo simulation hourly for 20 years with different hydro, NG, load and wind data points entered each iteration
- **Results in a distribution of market prices for each area and the cost to serve Avista's load**
- For example the base case will take 33-41 days on one processor, on eight processors this should take 4-7 days to process for 200 iterations

Prices & Costs

Resource Optimization

- Excel linear program
- Optimizes Avista's resource selection taking into account resource need
- Takes into account capital requirements and timing of resource deficits
- Evaluates costs on a NPV and risk basis
- Evaluates scenarios

Modeling Futures and Scenarios

2005 Integrated Resource Plan
Fourth Technical Advisory Committee Meeting
February 17th 2005

Clint Kalich

Presentation Overview

ENERGY AT WORK

Definition Of A Future

A **FUTURE** is modeled stochastically. In other words, Avista will model its options over 20 years with up to 200 Monte Carlo draws of varying hydro, load, gas, and wind conditions.

Advantages: ability to quantitatively assess risk in addition to the expected base value

Disadvantage: long solution times (i.e., 8 CPUs for up to a week), and results of a specific change can be more difficult to comprehend

3

ENERGY AT WORK

Definition Of A Scenario

A **SCENARIO** is not modeled stochastically. Instead we will use average forecasts of hydro, load, gas, and wind generation to simulate the impact of one assumption change.

Advantages: quick solution time (i.e., 1 CPU for 4 hours), simpler to understand impact(s) of assumption change

Disadvantage: unable to quantitatively assess risk of market volatility

4

Uses For Futures/Scenarios

- Understand Potential Future Impacts And Their Magnitudes On:
  - Wholesale marketplace
  - Different resource options
  - Avista's existing portfolio of load and resources
  - The Preferred Resource Strategy

Some Basic Modeling Questions For Futures And Scenarios

- Will Future/Scenario Be Significantly Different Enough From Base Case To Warrant The Work?
  - We have to manage our time to meet Sept. 1 filing date
- Will New Long-Term Runs Be Required?
  - Adds an extra day or more to work load
- Is The Scenario AVA-Centric Or Must We Model Entire Northwest And/Or WECC?
- Is Market Volatility Critical To What We Want To Measure (i.e., Do We Need Stochastic Output)?
- Is Future/Scenario Reasonably Likely To Occur?
- Can Future/Scenario Be Combined With Another?

ENERGY AT WORK

AVISTA Utilities

Proposed List of Scenarios

- High Gas *
  - Increase prices 50% to ~$9/dth
- Low Gas *
  - Decrease prices 50% to approximately $3/dth
- Emissions 2 *
  - $25/ton CO_2
- Low Transmission *
  - Reduce NPCC estimate by approx. 2/3 to $500/kW
- High Wind Penetration
  - 5,000 MW NW wind replaces other new resources
- Boom/Bust
  - Change timing of new resources to "starve" and then "gorge" the marketplace
- Loss of Large AVA Plant
  - Noxon "lost" for 5 years
- High AVA Load
  - Double load growth to ~4%
- Low AVA Load
  - No load growth
- WECC-Wide Renewable Portfolio Standard
  - 25% renewables by end of study, replacing other new resources

* Indicates new capacity expansion run will be required

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ENERGY AT WORK

AVISTA Utilities

Proposed List of Futures

- Base Case
  - All Base Case assumptions included
- Volatile Gas Prices
  - Double base case volatility (sigma) from 50% of mean to 100% of mean
  - Remaining Base Case assumptions unchanged
- Emissions Case 1
  - See Lyons presentation
  - Remaining Base Case assumptions unchanged

8

Additional Scenarios and Futures

- TAC Recommendations/Changes to Proposed Scenarios/Futures

Modeling Assumptions

2005 Integrated Resource Plan
Technical Advisory Committee Meeting
February 17, 2005

James Gall

Discussion Items

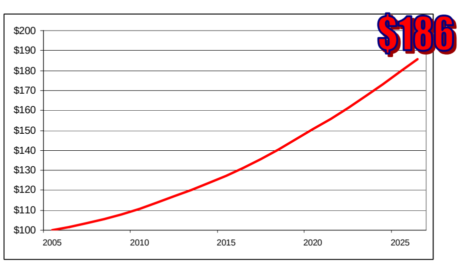
- Time frame
- Inflation
- What we are modeling
- Fuel forecasts
  - Gas revisited
  - Coal
  - Other
- New Resources
  - Resources under construction
  - Renewable Resources Portfolio (RPS)
- Hydro
- Wind
- Thermal resource commitment logic & variable O&M
- Thermal forced outage and maintenance
- Loads

Time Frame

- Hourly 20 year study
- Study time frame is between 2007- 2026
- Why begin in 2007?
  - Report will not be completed until end of 2005
  - 2006 is within short-term planning cycle
  - Avista does not have a resource need until 2009/10

Inflation

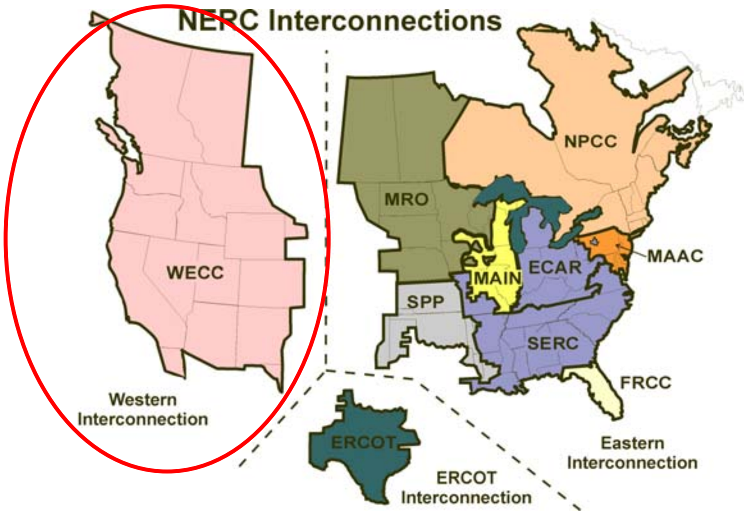
- Inflation is used on Aurora's cost inputs
- Based on Global Insights July 2004 Forecast
- Growth Rates:
  - 2005- 2009: 1.6%
  - 2010- 2014: 2.2%
  - 2015- 2019: 2.7%
  - 2020- 2027: 3.1%
- What is the value of $100 invested today if you earned the assumed inflation each year for the life of this study



ENERGY AT WORK

AVISTA Utilities

North American Electric Grid



Picture Courtesy of NERC

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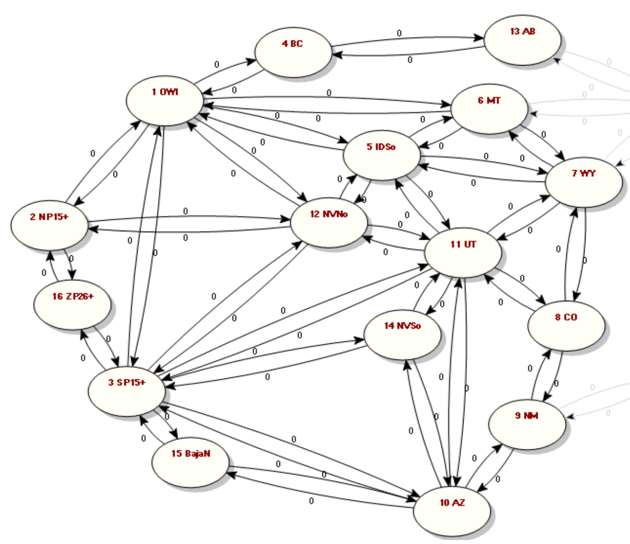
ENERGY AT WORK

AVISTA Utilities

Aurora Topology



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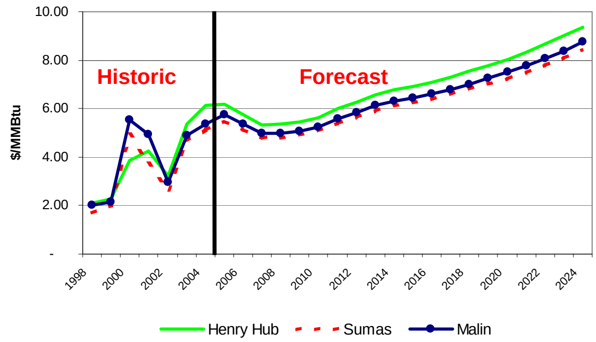
ENERGY AT WORK

AVISTA Utilities

Forecasted Natural Gas Prices

Annual Average Prices (Nominal Dollars)



Key Assumptions

- July 2004 Forward Price Curves for 2005 through 2007
  - 2005- 07: -7.1%
- Avg. Growth Rates – Based on July Global Insights forecast
  - 2007- 09: 1.9%
  - 2010- 20: 3.2%
  - 2020- 30: 3.8%

- Malin, Sumas, Rockies, AECO prices are directly input into Aurora
- Topock & Opal use EPIS basin differentials versus Henry Hub
- Local transportation charges are applied to the basis to reach each area in Aurora ~11 to 32 cents

New Escalation Rates Available in April

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Coal Forecast

Western Interconnect coal prices are based on Aurora database prices which are derived from FERC Form 423 and Electric Power Monthly

$2005 per MMBtu

- Arizona: $1.32
- Canada: $1.22
- California: $2.02
- Colorado: $1.01
- Montana: $0.65
- Nevada: $1.41
- New Mexico: $1.62
- Utah: $1.08
- Washington/Oregon: $1.22
- Wyoming: $0.88

Colstrip prices are mine mouth estimates and are lower then the estimate for Montana

EIA's Annual Energy Outlook 2005 was used to as growth rates for all coal prices *(real escalation)*

Year	Escalation
2005	0.50%
2006	0.20%
2007	-0.90%
2008	-0.20%
2009	-0.80%
2010	-1.20%
2011	-0.60%
2012	-0.40%
2013	-0.30%
2014	0.00%
2015	0.00%
2016	-0.20%
2017	0.20%
2018	0.30%
2019	0.30%
2020	0.30%
2021	0.70%
2022	0.70%
2023	2.40%
2024	0.70%
2025	0.20%
2025+	0.10%

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New Resources Under Construction Today

- Resources added to the Aurora database
- New resources is based on the California Energy Commission list as of Dec 2004
- We included plants that are either under construction or likely to be build
- 12,150 MW of capacity
  - ✓ 10,000 MW of gas
  - ✓ 1,300 MW are renewable
  - ✓ 850 MW of coal

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ENERGY AT WORK

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Renewable Portfolio Standards (RPS)

- Currently RPS is law in 5 Western States
  1. Arizona- by 2007 1.1% of energy is from renewables, 50% of which is solar
  2. California- by 2017, 20% of energy is from renewables
  3. Colorado- by 2015, 10% of energy is from renewables of which 4% is from solar
  4. Nevada- by 2013, 15% of energy is from renewables, .75% from Solar
  5. New Mexico- by 2011, 10% of energy is from renewables
- Northwest Conservation Council assumptions used for resource types and construction dates and amended for change in study period

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RPS Resources Added per Year

Area	Wind	Geothermal	Biofuels	Solar
California-North	Pre 2010: 53.25 MW Post 2010: 59.25 MW	Pre 2010: 2.25 MW Post 2010: 9 MW	Pre 2010: 11.25 MW Post 2010: 27 MW	
California-South	Pre 2010: 90.75 MW Post 2010: 101.25 MW	Pre 2010: 18.75 MW Post 2010: 69 MW	Pre 2010: 12.75 MW Post 2010: 28.5 MW	
Arizona	Pre 2012: 20.4 MW Post 2012: 3 MW			Pre 2012: 38.7 MW Post 2012: 5.25 MW
New Mexico	Pre 2012: 87 MW Post 2012: 115MW			
Nevada-South	Avg 14.3 MW	Avg 4.6 MW		Avg 2.2 MW
Nevada-North	Avg 44 MW	Avg 13.6 MW		Avg 6.7 MW
Colorado	Pre 2014: 25 MW + 200 MW 2011 + 250 MW 2014 Post 2015: 50 MW			Avg 2.2 MW

* Total equals approximately 10.4 GW of Capacity by 2007

Hydro

- 60 year average hydro conditions based a recent head water study used for Aurora expansion studies
- For stochastic studies 1 of the 60 years will be used for each of the Monte Carlo iteration
- Energy is shaped to load using the Aurora hydro shaping logic
- All Pacific Northwest hydro operations are modeled as a single plant with a 44% capacity factor for the average water year
- Avista resources are modeled separately to track portfolio costs and use these average water year capacity factors
    - Clark Fork: 39.3%
    - Mid Columbia: 52.5%
    - Spokane River: 69.3%

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Wind

- Concerns with previous studies that model wind
  - Wind is constant for each month, no hourly variation
  - Overstates the operational and financial value of these project
- Our plan to model wind
  - Each area modeled has an hourly wind shape using a Monte Carlo distribution
  - Wind shapes for the Northwest use historical wind speeds to develop mean capacity factors
  - Wind shapes for outside the Northwest use mean capacity factors developed by SSG-WI *(Seems Steering Group-Western Interconnect)*
  - We plan to model a high wind penetration scenario to determine impact on wholesale market place in the Northwest

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Thermal Resource Commitment Logic and VOM

- Startup Fuel Amounts and Costs
  - ***CCCT:*** *$25/MW per start & 3.6/mmBTU per MW*
  - ***SCCT Aero:*** *$75/MW per start & 0/mmBTU per MW*
  - ***SCCT Frame:*** *$25/MW per start 3.45/mmBTU per MW*
  - ***Steam:*** *TBD*
  - ***Coal:*** *Not Modeled*
- Min/Up times
  - ***CCCT:*** *16 hours up & 8 hours down*
  - ***SCCT Aero:*** *13 hours up & 6 hours down*
  - ***SCCT Frame:*** *16 hours up & 8 hours down*
  - ***Steam:*** *19 hours up & 10 hours down*
  - ***Coal:*** *96 hours up & 24 hours down*
- Variable O&M
  - Based on Aurora database except for Avista's generators

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Thermal Resource Forced Outages and Maintenance
- Modeled as derates

Plant Type	Forced Outage Rate	Maintenance Rate
CCCT	5%	5%
SCCT- Aero	7.5%	7.5%
SCCT- Frame	10%	10%
Gas- Steam	10%	10%
Coal	10%	17.6% in shoulder months
Nuclear	10%	10-12% in shoulder months & 0-5% in others
Solar	Assumed in hourly distribution	10%
Geothermal	5%	5%
Wind	Assumed in hourly distribution	Assumed in hourly distribution
Other	5%	5%

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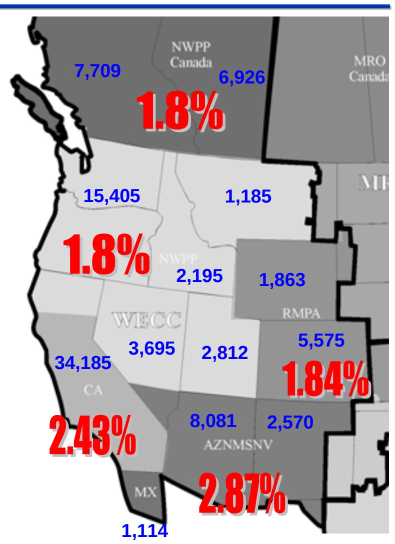
Regional Load and Growth

- Area loads are based on the Aurora database *(2003 levels displayed in blue)*
- Annual load growth is based on WECC sub area forecasts between 2003 to 2013 *(aMW displayed in red)*
    - Load growth estimates are applied to all years
    - Total Western Interconnect loads grow at 2.25% each year
- Annual and monthly load shapes are consistent with the latest Aurora database



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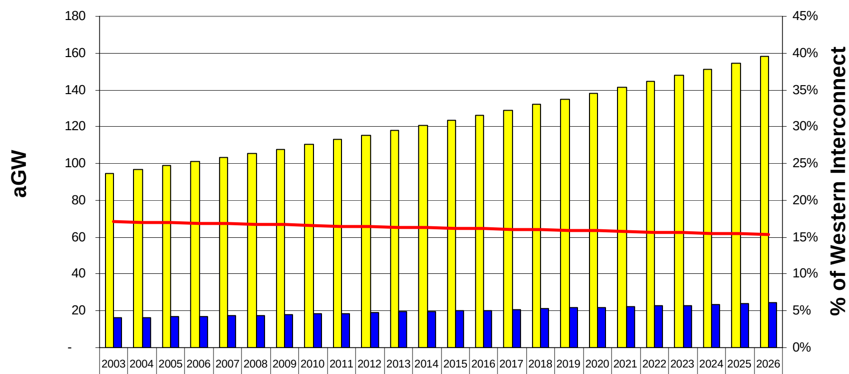
Western Interconnect and NW Loads by Year



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
WI	94	97	99	101	103	106	108	110	113	115	118	121
NW	16	16	17	17	17	18	18	18	19	19	19	20
NW as a % of WI	17%	17%	17%	17%	17%	17%	17%	17%	17%	16%	16%	16%

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
WI	123	126	129	132	135	138	141	144	148	151	154	158
NW	20	20	21	21	21	22	22	23	23	23	24	24
NW as a % of WI	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	15%	15%

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ENERGY AT WORK

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Treatment of Emissions

2005 Integrated Resource Plan
Fourth Technical Advisory Committee Meeting
February 17, 2005

John Lyons

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Presentation Overview

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Issues in the Treatment of Emissions

There are four main issues to consider in resource planning concerning the treatment of emissions:

1. Environmental
2. Policy
3. Engineering
4. Economic

Environmental Issues

• Environmental issues in regards to emissions are a result of greenhouse gases or carcinogenic substances as a result of the burning of fossil fuels.

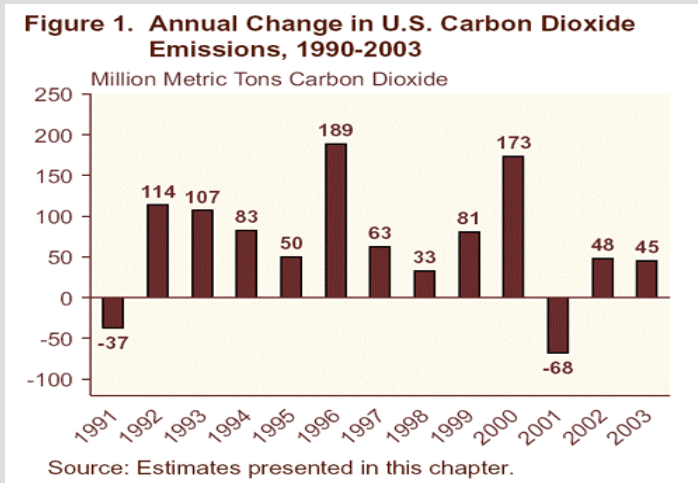
• Greenhouse gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

• Greenhouse gases are often measured in global warming potentials (GWP) or converted into CO2 equivalents (CO2e)

• Greenhouse gases are not currently being regulated on a federal level for utilities, but there have and are several attempts to do so

• The US, EU, Canada, Russia, Japan, China and India collectively account for 75% of greenhouse gas emissions (Associated Press, 2005)

Magnitude of Environmental Issues



Source: EIA

Policy Issues

Emissions can best be described as an externality, so there is an inherent benefit for producers to allow emissions because markets will not take societal costs into account.

There are three approaches to regulating an externality:

1. Direct command-and-control regulation: nearly impossible to get right.
2. Quantitative limits: give each entity a quantity and allow them to trade, which develops a market.
3. Price or tax mechanisms: set prices, fees or taxes.

(Nordhause, 2001)

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Western State Laws Concerning Emissions

California

• 2002 vehicle CO_2 emissions bill effective 1/1/06.

•Noxious oxide emissions limits on power plants to 5 parts per million Jan. 1, down from 8 ppm

• Governor is expected to propose new restrictions for sulfur oxide, noxious oxide and mercury emissions this year.

•CPUC is currently considering if utilities and energy generators can "add the cost of meeting any new state and/or federal CO_2 emission regulations to existing contracts." (Hamm, 2005)

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ENERGY AT WORK

Western State Laws Concerning Emissions

Idaho

• No active legislation regarding greenhouse gases

Nevada

• No active legislation regarding greenhouse gases

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Western State Laws Concerning Emissions

Oregon

- 1997 – first state level CO_2 standards in the nation
- Requires utilities offset CO_2 emissions exceeding 83% of state-of-the-art gas CCCT by paying into the Climate Trust of Oregon
- Compliance with the CO_2 standard through 4 methods

1. Efficiency improvements
2. Cogeneration
3. Offset projects – tree planting
4. Pay fee to offset project fund

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Western State Laws Concerning Emissions

Washington

- 2004 – New fossil-fueled thermal electric generating facilities of greater than 25 MW will have a CO_2 mitigation plan including one or more of the following:

  (a) Pay a third party to provide mitigation

  (b) Purchase carbon credits

  (c) Cogeneration

Federal Emissions Regulations

The Clean Air Act of 1990

- Capped sulfur dioxide emissions at 8.9 million tons per year starting in 2008
- Capped nitrogen oxide emissions at 2 million tons per year starting in 2008.
- This will result in about 85% reduction in current allowances.

(Silverstein, 2005)

Federal Emissions Regulations

McCain – Lieberman (Climate Stewardship Act) S. 139

- Originally submitted in January 2003 and resubmitted in March 2004
- Goal - reduce heat trapping gas emissions in two phases through “a market-based system of tradable allowances”
- Utility would posses a permit for each ton of heat-trapping gases emitted
- Covers four groups who emit over 10,000 metric tons annually
- Essentially covers 90% of all CO2 emissions in 2 phases

    Phase 1 2010 – 2015: reduce to 2000 levels

    Phase 2 2016 – 2020: reduce to 1990 levels

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Federal Emissions Regulations

Possible Effects of McCain – Lieberman

•MIT study concluded that the bill would impact consumers $20 per year

• Charles River Associates (CRA) study found a cost of $350 per year to 2010 and increasing to $530 per household by 2020. Also found that costs could be as high as $1,300 per year given different assumptions

• CRA estimates increased price of electricity to be 7 – 9%, and the cost of coal to increase 51 – 140% (Glassman, 2003)

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Federal Emissions Regulations

Clear Skies Act of 2005

• Currently being debated as an amendment to the Clean Air Act of 1990

• Ignores carbon and sets limits on sulfur dioxide, nitrogenoxides and mercury

• Reduce the 3 pollutants by 70% by 2018

• Companies operating below their cap can sell credits

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International Emissions Regulations

Kyoto Protocol - 1997

• Goal is to reduce CO_2 emissions by 20% below 1990 levels internationally

• Accepted by 141 countries but restrictions only affect 35 industrial nations

• Became effective on February 16, 2005 when Russia ratified it in November

• Rejected by the US because of cost and lack of inclusion of emerging industrial economies like China and India

• Covers six different greenhouse gases, mainly CO_2

• The EU started an emissions trading system within the last few months to trade credits from the quotas assigned to 12,000 industrial facilities

Engineering Issues

- The current state of emissions control technology is going to be in direct correlation with current and expected emissions regulations.
- Coal fired facilities have the greatest cost risk for emissions because of the high carbon content
- Higher initial costs but greater coal burning efficiencies
- Movement from sub-critical to supercritical units in steam-electric pulverized coal within 20 years
- Coal gasification – full commercialization as soon as 2011
- Coal gasification with sequestration – in development
- Can significantly reduce the other 3 regulated pollutants (SO_x, NO_x, and HG) – i.e. new technologies promise 95% mercury capture

Economic Issues - Treatment of Emissions

The planning issue of emissions regulation consists of three key ideas:

1. What is or will be regulated?
   - CO_2 or CO_2e?
   - Tighter Hg, SOx, and NOx standards?
2. When will it be regulated?
   - 2010 and 2016 for McCain-Lieberman?
3. What type of regulation will be enacted?
   - State, federal or combination?

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Economic Issues - Other Utilities

PacifiCorp

•2004 IRP base case was developed using the McCain-Lieberman legislation proposal as a basis.

•Used an inflation adjusted amount of $8/ton of CO_2 in 2008 dollars.

PGE

•2002 IRP - no CO_2 tax in the base case and a $40 per ton CO_2 tax scenario

Idaho Power

• 2004 IRP has a base case of $12.80/ton of CO_2 by 2008.

Avista

• 2003 IRP - Modeled a scenario with then-current NPCC assumption—prices rising to $11/ton in 2023

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Economic Issues - Recommendations

The National Commission on Energy Policy – December 2004

- 2010 - Implement a mandatory tradable permit system with an initial cost of $7 per metric ton of CO_2 equivalent
- 2015 - Link to efforts by other developing and developed countries to reduce greenhouse gases

Planning Recommendations – Scenarios

•Base Case recognizes that there might be future regulation that will have an economic impact, but a cost is not being assigned at this time because of the uncertainty regarding the level and timing of the regulations. There presently is no law or regulation that requires CO_2 mitigation.

• Scenario 1: assume that a mandatory market-based tradable credit system for greenhouse gases with initial costs set at $7 per metric ton of CO_2e and prices escalated into the future. (National Commission on Energy Policy, 2004)

• Scenario 2: assume that a mandatory market-based tradable credit system for greenhouse gases with initial costs set at $40 per metric ton of CO_2e and prices escalated into the future.

Planning Recommendations from TAC

Do you believe that the range of prices assumed in the 3 cases adequately reflects potential CO2 obligations?

- Base case with no assumed CO2e costs
- Scenario 1 with $7 per metric ton costs
- Scenario 2 with $40 per metric ton costs

Other recommendations?

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Supply Side Options

2005 Integrated Resource Plan
Technical Advisory Committee Meeting
February 17, 2005

James Gall & John Lyons

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Modeled Supply Side Options

- NG Combined Cycle *(CCCT)*
- NG Single Cycle *(SCCT)*
- Wind Turbine
- Coal *(Pulverized, IGCC, IGCC with seq.)*
- Solar
- Geothermal
- Biomass
- Alberta's Tar Sands
- Nuclear
- Co-Gen
- DSM – Will be covered in *March*

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NG Combined Cycle (CCCT) 2005 dollars

- Type: Natural gas-fired combined cycle F class gas turbine
- Size (MW): 540 baseload and 610 peak
- Heat Rate (Btu/kWh): 7,030
- Fuel source: Natural Gas
- First Available On-Line Date: 2007
- Capital Cost $/KW: $632
- Variable O&M: $3.02
- Fixed O&M kW/Year: $9.00
- Emissions (T/GWh): SO_2 = .002 NO_X = .039 CO_2 = 411- 429
- Location options: Any location
- Interconnection Costs: $16.80 kW/ year

3

NG Single Cycle (SCCT) 2005 dollars

- Type: Aero, such as the General Electric LM6000
- Size (MW): 47
- Heat Rate (Btu/kWh): 9,900
- Fuel source: Pipeline natural gas
- First Available On-Line Date: 2007
- Capital Cost $/KW: $672
- Variable O&M: $8.96/MWh
- Fixed O&M kW/Year: $9.00
- Emissions (T/GWh): SO_2 = 0.09 NO_X = 0.009-0.01 CO_2 = 582
- Location options: Any location
- Interconnection Costs: $0 kW/Year

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NG Single Cycle (SCCT) 2005 dollars

- Type: Generic NWCC Industrial Machine
- Size (MW): 47
- Heat Rate (Btu/kWh): 10,500
- Fuel source: Pipeline natural gas
- First Available On-Line Date: 2007
- Capital Cost $/KW: $420
- Variable O&M: $4.48/MWh
- Fixed O&M kW/Year: $6.72
- Emissions (T/GWh): SO_2 = 0.09 NO_X = 0.009-0.01 CO_2 = 582
- Location options: Any location
- Interconnection Costs: $0 kW/Year

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Wind Turbine 2005 dollars

- Type: Central station wind power project
- Size (MW): 100
- Heat Rate (Btu/kWh): N/A
- Fuel source: Wind
- First Available On-Line Date: 2008
- Capital Cost ($/KW): $1,131
- Variable O&M ($/MWh): $1.12 (no PTC) + $4 shaping for first 1000 MW and $8 for remaining wind
- Fixed O&M kW/Year: $19.60
- Emissions: N/A
- How many per study: 1,000 MW without new transmission
- Location options for NW Delivery: East of Cascades or Eastern Montana
- Interconnection Costs : $16.80 kW/Year
- Transmission cost from E. Montana to C. Washington: $1,781 kW (NPCC) $530/kW RMATS/Northwestern

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Coal - Pulverized 2005 dollars

- Type: Pulverized coal-fired sub-critical steam-electric plant
- Size (MW): 400
- Heat Rate (Btu/kWh): 9,550
- Fuel source: Western low-sulfur subbituminous coal
- First Available On-Line Date: 2011
- Capital Cost ($/KW): $1,392
- Variable O&M ($/MWh): $1. 96
- Fixed O&M kW/Year: $44.80
- Emissions (T/GWh): SO_2 = 0.575 NO_X = 0.336 CO_2 = 1012
- Location options for NW delivery: Montana
- Interconnection Costs: Included in Capital Cost
- Transmission cost from E. Montana to C. Washington: $1,781 kW (NPCC) $530/kW RMATS/Northwestern

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Coal - IGCC 2005 dollars

- Type: Coal-fired integrated gasification combined-cycle with H-Class Turbine
- Size (MW): 474 gross and 425 net
- Heat Rate (Btu/kWh): 7,915
- Fuel source: Western low-sulfur sub-bituminous coal
- First Available On-Line Date: 2011
- Capital Cost ($/KW): $1,568 (Range is 1,456 – 1,792)
- Variable O&M ($/MWh): $1.68
- Fixed O&M kW/Year: $50.51
- Emissions (T/GWh): SO_2 = Neg. NO_X = < 0.11 CO_2 = 791
- Location options for NW delivery: Montana or Eastern Wash/Ore
- Interconnection Costs: Included in Capital Cost
- Transmission cost from E. Montana to C. Washington: $1,781 kW (NPCC) $530/kW RMATS/Northwestern
- Transmission cost 200 miles of 500kV: $352 kW

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Coal – IGCC with Sequestration 2005 dollars

- Type: Coal-fired integrated gasification combined-cycle with 90% CO2 capture (Conceptual H-Class GT)
- Size (MW): 490 gross and 401 net
- Heat Rate (Btu/kWh): 9,290
- Fuel source: Western low-sulfur sub-bituminous coal
- First Available On-Line Date: 2013
- Capital Cost $/KW: $2,022 (Range $1,848 – $2,185)
- Variable O&M: $1.79
- Fixed O&M kW/Year: $59.36
- Emissions (T/GWh): SO_2 = Neg. NO_X = < 0.11 CO_2 = 81
- Location options for NW delivery : E. Montana
- Interconnection Costs: Included in Capital Cost
- Transmission cost from E. Montana to C. Washington: $1,781 kW (NPCC) $530/kW RMATS/Northwestern

Solar 2005 dollars

- Type: Generic NPCC Unit
- Size (MW): 2
- Heat Rate (Btu/kWh): 0
- Fuel source: Sun
- First Available On-Line Date: 2007
- Capital Cost ($/KW): $7,804
- Variable O&M ($/MWh): N/A
- Fixed O&M kW/Year: $36.00
- Emissions (T/GWh): N/A
- Location options for NW delivery : Desert Southwest (not viable for NW at this time)
- Interconnection Costs: $16.80 kW per year

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Geothermal 2005 dollars

- Type: Generic NWCC Unit
- Size (MW): 50
- Heat Rate (Btu/kWh): 9,300
- Fuel source: Geological Steam
- When available: 2007
- Capital Cost ($/KW): $2,050
- Variable O&M ($/MWh): Included in fixed O&M
- Fixed O&M kW/Year: $108
- Emissions (T/GWh): N/A
- Location options for NW delivery : California, Nevada, Idaho
- Interconnection Costs: $16.80/ kW per year

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Biomass 2005 dollars

- Type: Wood Residue, Landfill, Manure
- Size (MW): .5 - 25
- Heat Rate (Btu/kWh): 11,100 – 14,500
- Fuel source: Wood, Refuse, Manure
- When available: 2007
- Capital Cost ($/KW): $1,523 – $3,472
- Variable O&M ($/MWh): $0 – $10.38
- Fixed O&M kW/Year: $75 - $140
- Emissions (T/GWh): SO_2 = N/A NO_X = N/A CO_2 = 720 – 1,116
- Location options for NW delivery : Any Location
- Interconnection Costs: $16.80 kW per year

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Co-Gen 2005 dollars

- Type: Generic Unit
- Size (MW): 25
- Heat Rate (Btu/kWh): 5,500
- Fuel source: TBD
- First Available On-Line Date: 2007
- Capital Cost ($/KW): $1,120
- Variable O&M ($/MWh): $2.24
- Fixed O&M kW/Year: $29
- Emissions (T/GWh): TBD
- Location options for NW delivery : Any Location
- Interconnection Costs: $16.80 kW per year

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Alberta's Tar Sands 2005 dollars

- Type: Natural gas-fired 7F-class simple-cycle gas turbine plant with heat recovery steam generator
- Size (MW): 180 per unit
- Heat Rate (Btu/kWh): 5,800 (fuel charged to power)
- Fuel source: Pipeline natural gas
- First Available On-Line Date : 2011
- Capital Cost $/KW: $566
- Variable O&M ($/MWh): $3.11
- Fixed O&M kW/Year: Included in Variable Costs
- Emissions (T/GWh): SO_2 = Not Avail NO_x = Not Avail CO_2 = 365
- How many per study: (3,000 MW total NW)
- Location options for NW delivery : Alberta
- Interconnection Costs: $10.43 kW per year
- Transmission cost from Fort McMurray to Celilio: $1,166/ kW (1,089 miles of DC at $2 million per mile and $1.32 billion for inverter stations)

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Nuclear 2005 dollars

- Type: Advanced Nuclear Power Plant
- Size (MW): 1,100
- Heat Rate (Btu/kWh): 9,600
- Fuel source: Natural Uranium
- First Available On-Line Date: 2020
- Capital Cost ($/KW): $1,624
- Variable O&M ($/MWh): $1.12
- Fixed O&M kW/Year: $44.80
- Emissions (T/GWh): N/A
- Location options for NW delivery : Anywhere
- Interconnection Costs: $16.80 kW per year

Regional Coal Resource Options

- New Coal units are assumed to be an option for all areas in the Western Interconnect, although the costs to build new transmission is part of the capital requirement to build a new coal plant.
- Cost to build transmission is based on the Rocky Mountain Area Transmission Study (RMATS)
  - S. California from Utah: $130/kW (500 MW max)
  - S. California from Wyoming: $2,510/kW
  - N. California from Wyoming: $2,675/kW
  - Utah from Wyoming: $265/kW
  - S. Nevada from Wyoming: $1,635/kW
  - S. Idaho from Jim Bridger, Wyoming: $412/kW
- Transmission cost to serve local loads in states has a cost of $.5-$1.8 million per mile depending on voltage and location

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Regional Tar Sands Transmission Options

- Based on BPA and PG&E Estimates provided at recent NTAC meeting
- The study included 3,000 MW of capacity from Northern Alberta on one 500kV DC line, and does not include any AC support
- Study assumed $2,000,000 per mile to build transmission and requires 4 inverter stations at $440 million each and $30 million of communication equipment
- Inverter stations locations are:
  - Fort McMurray (NE Alberta)
  - Bell (Spokane area)
  - Celilo (East of The Dalles, OR)
  - Tesla (SE of San Francisco)
- 1,729 miles
- $5.248 billion to build ($1,749 /kW)

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ENERGY AT WORK

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New Resource Summary

Resource Type	Fuel Source	Size (MW)	Heat Rate	Year Available	Capital Cost $/kW	Variable O&M $/MWh	Fixed O&M $/kW	Location	Transmission Costs	SO_2 Tons/GWh	NO_X Tons/GWh	CO_2 Tons/GWh
CCCT	Gas	610	7,030	2007	632	3.02	9.00	OR/WA	$16.80 kW/year	.002	.039	411- 429
SCCT- Aero	Gas	47	9,900	2007	672	8.96	9.00	OR/WA	$16.80 kW/year	.09	.009- .01	582
SCCT- Industrial	Gas	47	10,500	2007	420	4.48	6.72	OR/WA	$0/kW/year	.09	.009-.01	582
Coal- Pulverized	Coal	400	9,550	2011	1,392	1.96	44.80	MT	$530 - $1,781/kW Capital	.575	.336	1,012
Coal- IGCC- Montana	Coal	474	7,915	2011	1,568	1.68	50.51	MT	$530 - $1,781/kW Capital	Neg.	<.11	791
Coal- IGCC- Eastern WA/OR	Coal	474	7,915	2011	1,568	1.68	50.51	OR/WA	$352/kW Capital	Neg.	<.11	791
Coal- IGCC w/ Seq.	Coal	401	9,290	2013	2,022	1.79	59.36	MT	$530 - $1,781/kW Capital	Neg.	<.11	81
Wind	Wind	100	N/A	2008	1,131	6.12 - 9.12	19.60	OR/WA	$16.80 kW/year	N/A	N/A	N/A
Wind	Wind	100	N/A	2011	1,131	6.12 - 9.12	19.60	MT	$530 - $1,781/kW Capital	N/A	N/A	N/A
Geo-thermal- not NW	Geological Steam	50	9,300	2007	2,050	Included in FC	108.00	CA/NV	$16.80 kW/year	N/A	N/A	N/A
Solar-not NW	Sun	2	N/A	2007	7,804	0	36.00	DSW	$16.80 kW/year	N/A	N/A	N/A
Biomass	Refuse/Other	.5 – 25	11,000-14,500	2007	1,523 – 3,472	0 – 10.38	75 – 140	OR/WA	$16.80 kW/year	N/A	N/A	720 – 1,116
Nuclear	Uranium	1,100	9,600	2020	1,624	1.12	44.80	OR/WA	$16.80 kW/year	N/A	N/A	N/A
Tar Sands	Oil Sands/ Co-Gen	180	5,800	2011	566	3.11	Included in VC	AB	1,166/ kW Capital	N/A	N/A	365
Co-Gen	TBA	25	5,500	2007	1,120	2.24	29.00	OR/WA	$16.80 kW/year	TBD	TBD	TBD

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ENERGY AT WORK

Avista Utilities

DSM Integration Brief

2005 Integrated Resource Plan
Fifth Technical Advisory Committee Meeting
March 23, 2005

Jon Powell

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ENERGY AT WORK

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The "Evolution" of DSM Integration into the Avista IRP

- General Avista DSM environment
- Three general period
  - Up to 2000
  - The 2003 IRP
  - The 2005 IRP

2

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Overall Objective

- Achieve a maximum level of cost-effective DSM acquisition
- Equitably treat DSM in the development of that least-cost portfolio
- Provide feedback for DSM operations regarding target markets, technologies etc

3

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Unique DSM Characteristics

- Annual resource acquisition is small relative to overall system or major supply-side acquisitions
- Cumulative effect is much more significant
  - Avista acquisition 1978 to 2004 approximately 111 aMw (without degradation)
- Historically Avista DSM has been a non-dispatchable resource
- Until 2003 Avista DSM was tested against a single annual avoided cost
  - Negating any consideration of TOU targeting, load-shifting etc.

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Significant Issues in Integrating DSM into the IRP

- Avista desires to have obtain information useful to DSM operations from the IRP process
  - Actionable results
  - Meaningful insights
  - Relevant analytical feedback

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ENERGY AT WORK

Significant Issues in Integrating DSM into the IRP

- Quality load research relevant to our service territory and customer base is difficult to obtain
  - Historically the NW has not had the need for the same quality of LR as California and similar areas
  - ELCAP, NPCC and our own M&E were hybridized to create usable load research for 2003 and 2005
  - Improving the quality of our load research is costly

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Significant Issues in Integrating DSM into the IRP

- Avista DSM is generally an "all-comers" DSM tariff (per Schedule 90 and 190)
  - **<u>All</u>** non-residential energy-efficiency measures qualify for our programs
  - Residential programs are prescriptive only
- An IRP that accepts or rejects specific non-residential measures is unrealistic from a regulatory obligation and operational standpoint
- The results of the IRP does provide us with feedback that is valuable in targeting measures and long-term planning of DSM strategy

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Our 2000 (and prior) Integration Methodology

- Integration by price signal
  - Supply-side resource options are stacked / demand forecasts are calculated → an annual avoided cost
  - DSM options were evaluated and cost-effective resources were acquired
    - Cost-effective relative to the avoided cost price signal

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Results

- Analytical results were easily incorporated into DSM operations and provided for a consistent metric for operational decisions
- No interaction between demand-side and supply-side resource options
  - DSM resources were small annual acquisitions
  - DSM was non-dispatchable
- The annual avoided cost precluded targeting of on-peak loads, load-shifting options etc.
  - Relatively little TOU differential during this time period

Changing Resource Environment

- Increasing complexity of market prices
  - Resulting in an increased need for a “richer” avoided cost price signal to meaningfully integrate DSM into the resource plan
- Potential for increasing cost-effectiveness of dispatchable DSM options
- Potential for improved economics of demand-response measures
- Controlled Voltage Regulation (CVR)

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2003 DSM Integration Methodology

- Define meaningful "bundles" of DSM
  - Residential / non-residential
  - Lighting, HVAC etc
  - "dogs and cats" category of undifferentiated measures
  - Indexed to historical acquisition levels
  - Estimates of alternative acquisition at two incremental / two decremental incentive levels
- Develop 8760 hour x 20 year load profile
- Explicitly incorporate into AURORA as a resource
- "Stack" results to develop a DSM supply curve

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What we learned from the 2003 IRP

- Two major issues
  - DSM supply curve was UCT based
    - Premised on differential incentive levels
    - Consistent with the utility cost nature of the IRP
    - A different perspective than "acquire all TRC cost-effective resource" approach
      - Operationally TRC cost-effective DSM resources were targeted and acquired
  - Supply curve was steep
    - Two potential causes
      - Time horizon of our estimates of market reaction to incremental / decremental incentives
      - Impact of regulatory restrictions on discriminatory pricing upon the supply curve
- Explicitly integrating DSM into AURORA isn't easy

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Our 2005 Methodology

- Utilizes price signal integration for energy DSM programs
  - Any future demand-response options would most likely be explicitly integrated into AURORA
- Applies a “richer” 8760 hour x 20 year avoided cost price signal
  - Improved ability to distinguish and appropriately value different load shapes
  - Ability to determine value of load shifting strategies
  - Enhanced information for targeting of DSM operations
  - Is demanding of our load-research capabilities

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Our 2005 Methodology

- Utilizes a TRC pricing methodology
- Subdivides DSM into more coherent and actionable components
- Incorporates indexing to a realistic baseline to ensure realistic results
- Is consistent with the NPCC DSM supply curve work

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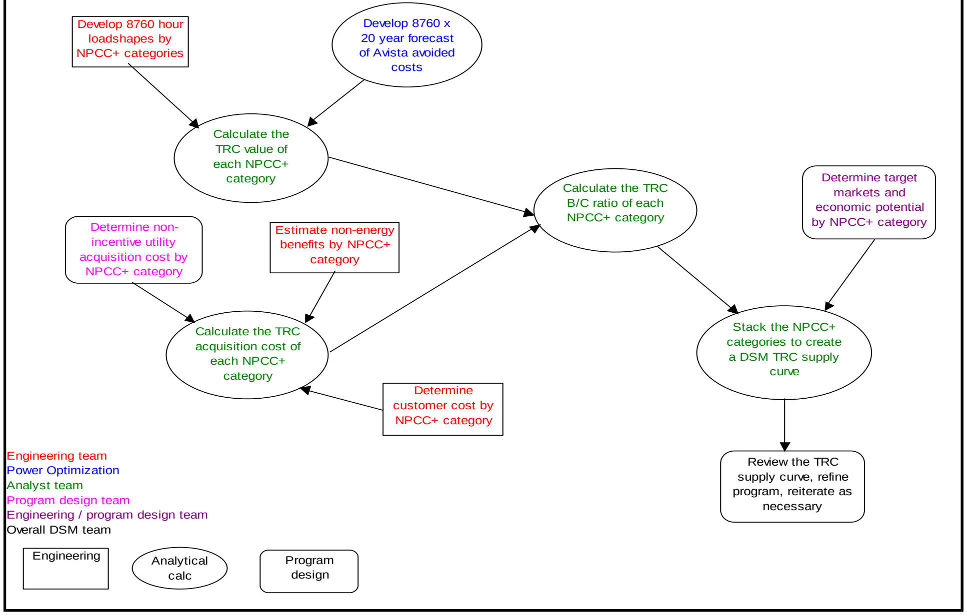
ENERGY AT WORK

Integration of DSM into the 2005 Electric IRP



ENERGY AT WORK

Anticipated Results

- Need to be caution in translating IRP results (or extrapolations from NPCC Power Plan) into DSM operations
  - Actual results of field operations are a superior indication of program viability
- Reasonable likelihood that IRP will result in a 10% to 25% increase in DSM goal
  - Up from 4.6 aMW (40 million annual kWh's)

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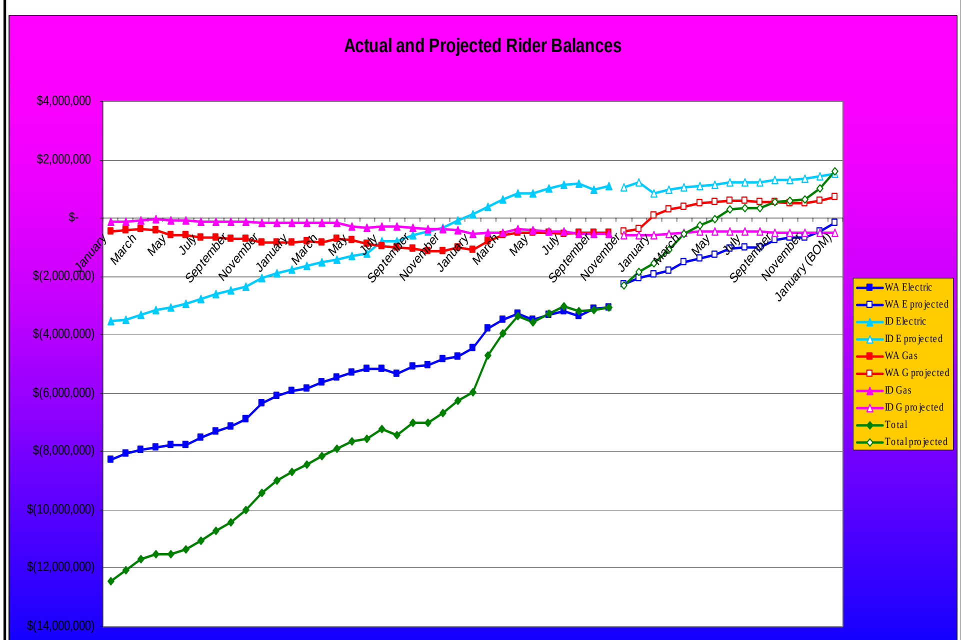
DSM Business Plan Status

- In a transition from a 2002-2005 DSM business plan based upon
  - Targeting no-cost / low-cost and lost opportunity measures
  - Tight cost controls
  - Pursuing ordered priorities of
    - Meet all regulatory and legal obligations
    - Field a cost-effective DSM portfolio
    - Return the tariff rider balance to zero in a timely manner



2006 DSM Business Plan

- Be good stewards of ratepayer DSM funds
  - Pursue all available TRC cost-effective DSM resources
    - Maximize that cost-effectiveness by maintaining appropriate cost-control practices
  - Establish and maintain a regulatory mechanism that provides an adequate level of funding in the long-term
  - Nurture utility and non-utility infrastructure sufficient to acquire cost-effective DSM resources in the long-term

Recent Actions

- Initiated a ramp-up of Idaho electric DSM in late 2002
  - As the balance of that tariff rider approached zero
  - Several pilot programs in field or under consideration
    - Prescriptive rooftop HVAC program
    - Small commercial lighting marketing
    - Prescriptive Industrial compressed air
    - Prescriptive refrigeration
    - Grocery store re-commissioning
    - Residential CFL's
- Recent approval of an increase in Idaho electric incentives (effective March 15th)

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In-Progress

- Evaluating the timing of revisions to our Washington DSM tariff
  - To mirror our revisions in Idaho tariff
  - Expand successful pilot programs to Washington
  - Continue to evaluate additional pilot programs

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DSM Actions Beyond the IRP

- Development of a demand-side drought contingency plan
  - Development of programs to mitigate the adverse impact to our ratepayers
- Approach
  - Develop appropriate programs
    - Rapid launch
    - Rapid impact
  - Perform necessary degree of program planning to prepare for rapid launch
  - Identify trigger conditions for launch and withdrawal of programs
  - Continual evaluation of conditions through the summer
- Realistically … relatively little mitigation opportunity

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Questions

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Stochastic Modeling

2005 Integrated Resource Plan
Fifth Technical Advisory Committee Meeting
March 23rd 2005

Clint Kalich

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Presentation Overview

Why Model Risk?

- Learn Of Potential Variation Associated With Each Future
- Measure Value Of Resources With Greater Degrees Of Optionality
- Quantify Relationship Between Least Cost And Least Risk
- Ensures Best Computer Hardware!!!

Risk Modeled In AURORA

- Modeling of Hydro, Fuel Prices, Forced Outage and Load
- Values Can Vary By Load Area
- Modeled Annually, Monthly, Daily and Hourly
- Correlations Between Variables Allowed
  - XMP allows for negative correlations
- Monte Carlo Iterations, & Latin Hypercube

Limits of AURORA Risk Module

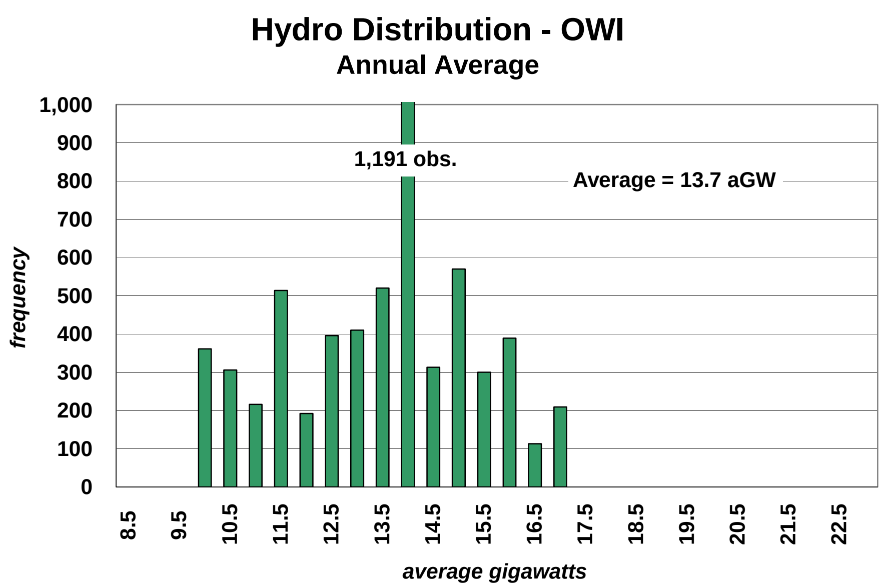
- **Cannot Model Custom Timeframes**
  - e.g., weekly hydro with daily load
- **Solution: Develop Risk Modules (i.e., Big Spreadsheets) Outside of AURORA**
  - 300 Iterations were developed
  - Upload iterations into AURORA database
  - Run each iteration through AURORA

Risk Modeling for 2005 IRP

- Key Variables Considered
  - Load, hydro, natural gas prices, wind
- Entirely Outside Aurora
  - Through separate database tables linked into program
- IRP runs will use between 200-300 iterations
  - Output stored in SQL or Oracle database

Hydro Variability

- Hydro Data
  - Streamflows Are Normally Distributed
  - Generation Is Not Normally Distributed
  - NWPP 60-yr study encompasses ~75% of WECC hydro
    - OR, WA, Idaho, BC, MT
    - OWI (OR, WA, No. Id.) ~50% of WECC hydro
- Random Draws Of Historical Years From Study
  - i.e., where calendar year 1965 is randomly drawn, hydro conditions from 1965 are used for all NW projects
- Other WECC Hydro Constant @ EPIS Values



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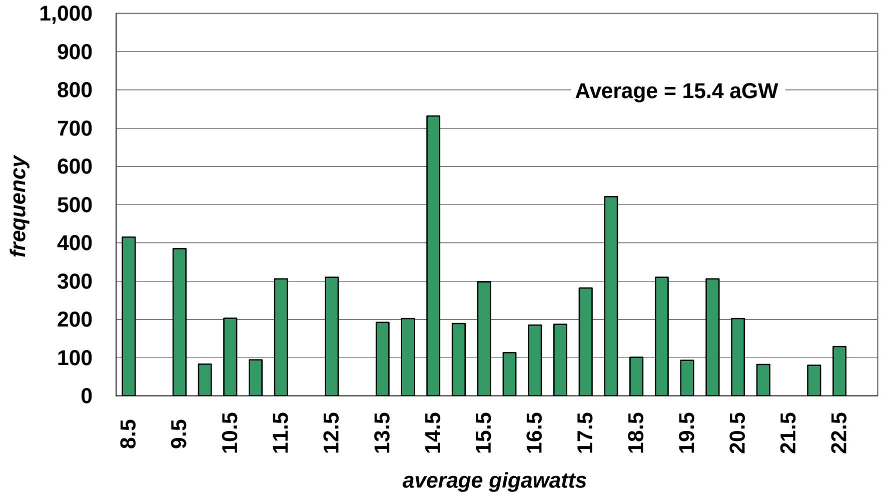
Hydro Distribution - OWI
First Quarter



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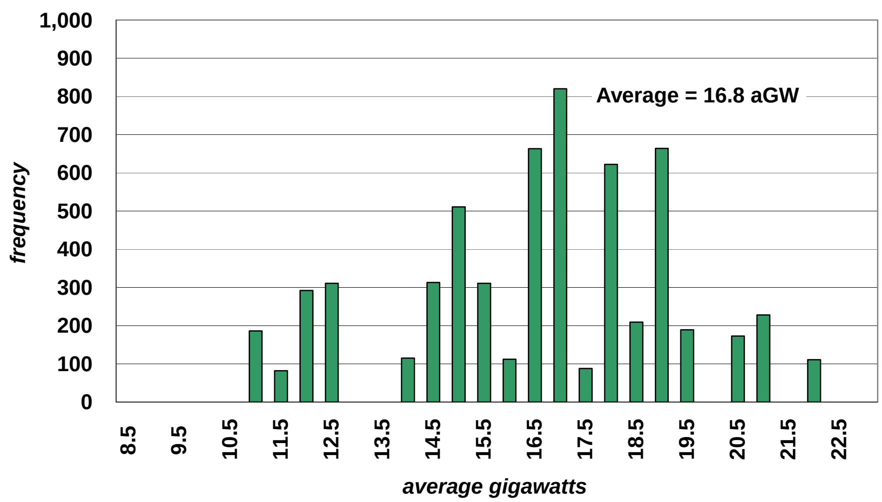
Hydro Distribution - OWI
Second Quarter



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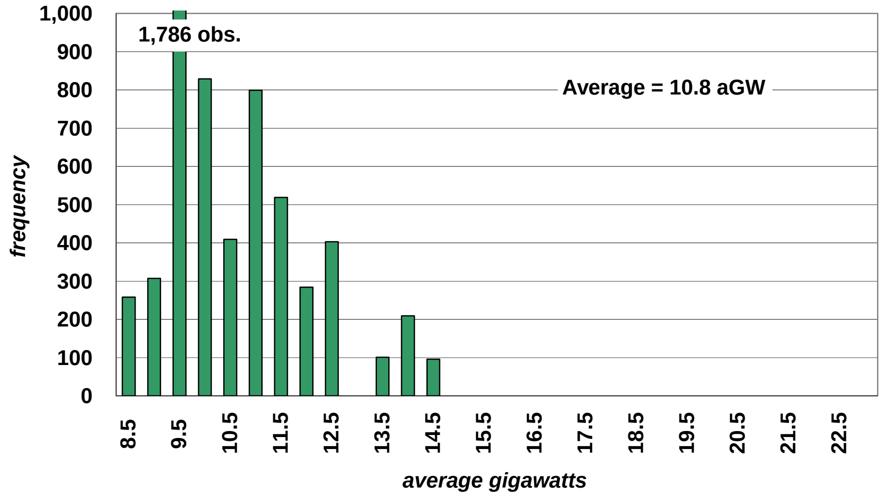
Hydro Distribution - OWI
Third Quarter



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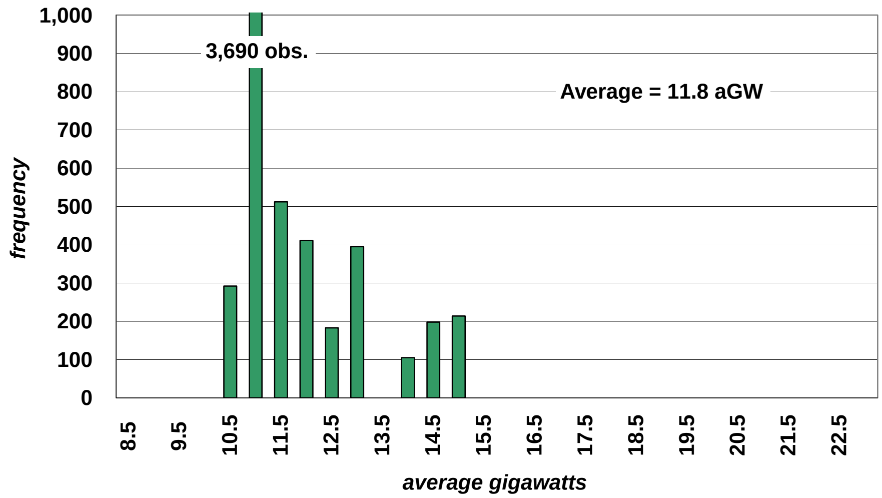
Hydro Distribution - OWI
Fourth Quarter



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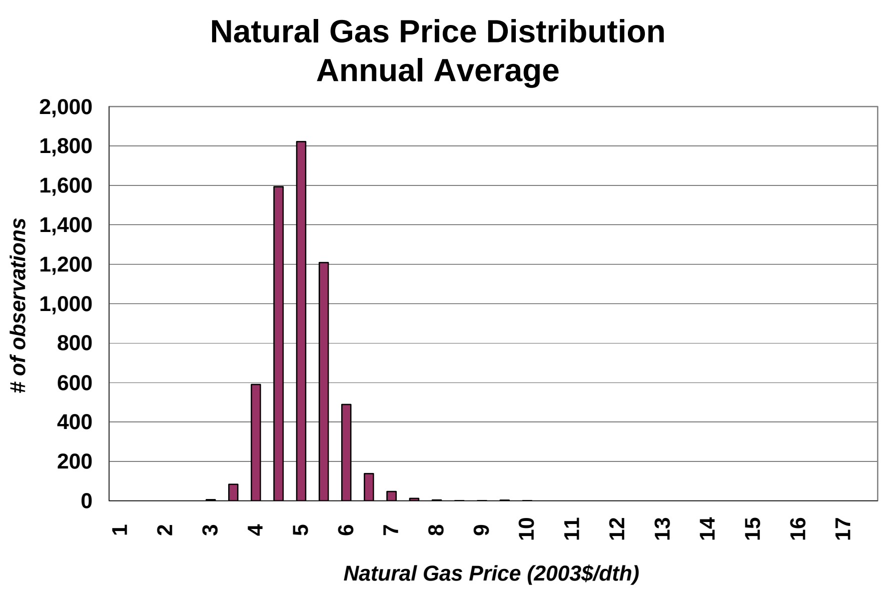
Natural Gas Variability

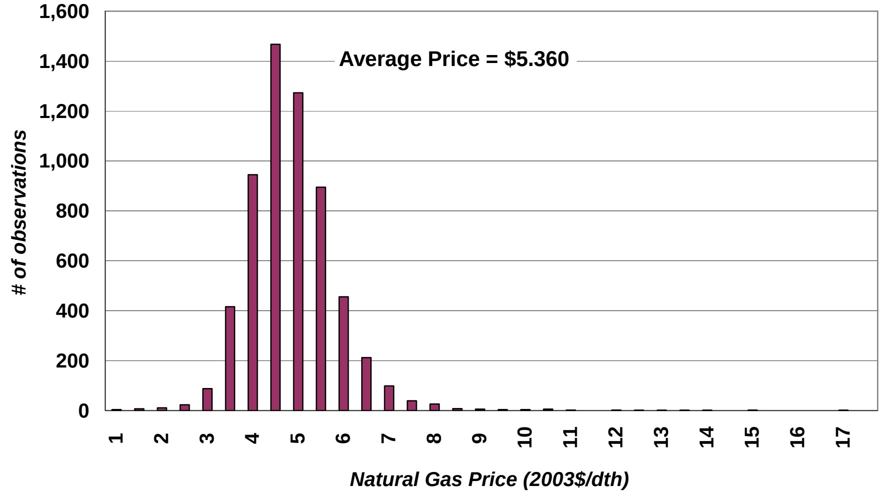
- St. Dev. Of Prices Set At 50% Of Mean
  - Approximately $2.50/dth on $5.00/dth gas (2007$)
  - 81.4% serial correlation month to month
    - Based on 1995-2004 average @ Malin
- Assumed Lognormal Price Distribution
  - Historical data does not appear lognormal
  - Standard industry assumption is lognormal



ENERGY AT WORK

AVISTA Utilities

Natural Gas Price Distribution
January



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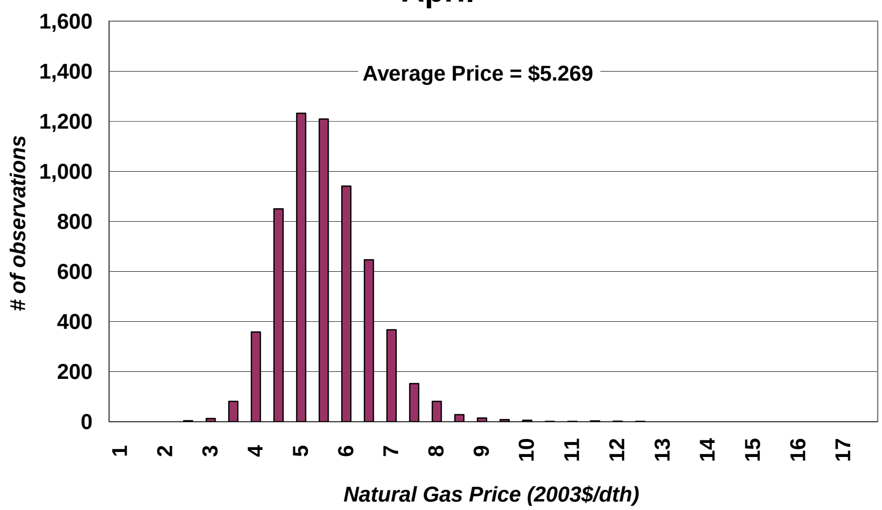
Natural Gas Price Distribution
April



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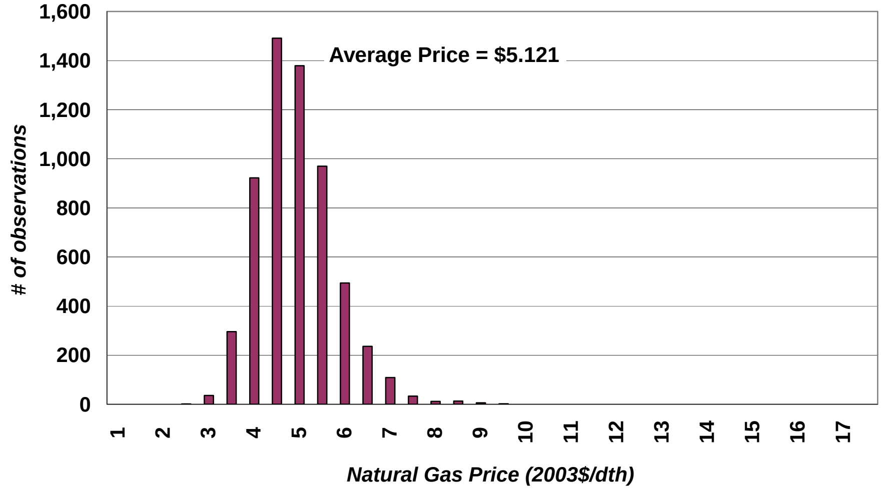
Natural Gas Price Distribution
July



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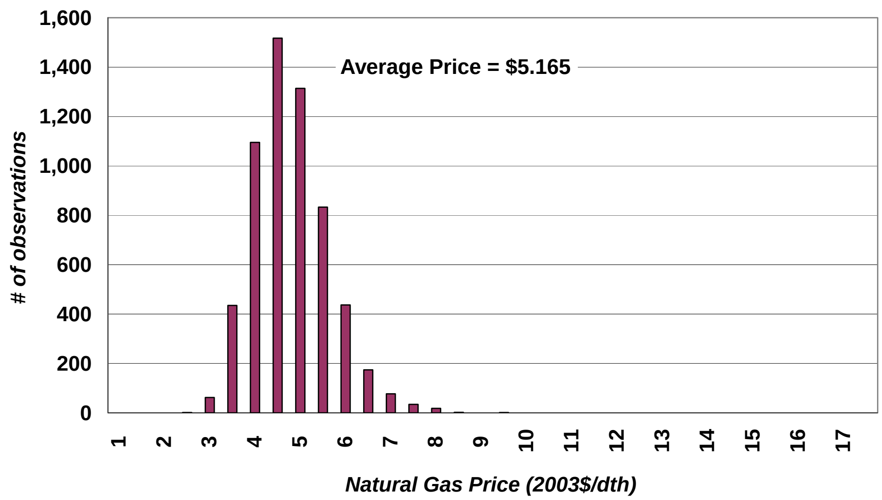
Natural Gas Price Distribution
October



Load Variability

- Avista Wants to Accurately Model WECC
- Analyzed 1998-1999 Hourly Loads from EIA to Generate Statistics (3 million data points!)
  - Same as 2003 IRP
  - ignored volatile 2000-01 period
- Modeled Variation Both Weekly and Daily
  - Avista is assumed presently to have OWI statistics

Load Variability, Continued

- Each WECC Area Analyzed Separately
  - 14 Areas, plus Avista
  - Calculated means and standard deviations
    - monthly variation in OWI varies between 2.2% and & 4.0%
  - Correlated each area to OWI
    - Ensured relationships were statistically significant
    - looked at each weekday separately to eliminate weekly trends
    - averaged weekday results to obtain final values

Load Variability, Continued

Load Correlation Values to OWI (Average of Weekdays)	January	February	March	April	May	June	July	August	September	October	November	December
Alberta	0.659	Not Sig	0.481	Not Sig	Mix	0.635	0.668	Mix	Mix	0.479	Not Sig	Not Sig
Arizona	0.440	0.664	Not Sig	Mix	(0.289)	0.666	Not Sig	Not Sig	Not Sig	Not Sig	Mix	Not Sig
British Col	0.918	0.838	0.825	0.733	0.617	Not Sig	0.560	Not Sig	0.638	0.809	0.525	0.890
CA North	Not Sig	0.734	Not Sig	Not Sig	Not Sig	0.771	Mix	0.757	0.789	Not Sig	Mix	Not Sig
CA South	Not Sig	Mix	Not Sig	Not Sig	Mix	0.680	Mix	0.500	0.778	Not Sig	Not Sig	Not Sig
Colorado	0.623	Not Sig	0.567	Mix	Mix	Not Sig	Not Sig	Not Sig	Not Sig	0.655	0.629	0.571
ID South	0.673	0.747	0.882	Not Sig	Not Sig	0.758	Mix	0.789	0.733	0.561	0.587	0.813
Montana	0.894	0.773	0.755	0.651	0.405	0.599	0.786	0.648	0.752	Not Sig	0.856	0.898
NV North	Mix	Not Sig	Not Sig	Not Sig	Not Sig	Not Sig	Not Sig	Not Sig	Not Sig	Mix	0.476	Not Sig
NV South	Not Sig	0.641	0.513	Mix	Not Sig	0.729	Mix	Not Sig	Mix	Not Sig	0.461	Mix
New Mexico	0.384	Mix	Mix	Not Sig	Not Sig	Mix	Not Sig	Mix	Not Sig	Not Sig	Mix	Mix
Utah	0.816	Not Sig	0.669	0.697	0.610	0.698	0.703	0.604	0.611	Not Sig	0.561	0.837
Wyoming	0.765	Mix	0.641	Not Sig	Mix	Mix	Not Sig	Not Sig	0.483	Not Sig	0.522	0.633

* "Not Sig" implies that relationship was not statistically significant, "Mix" explains that the relationship was not a consistent across time

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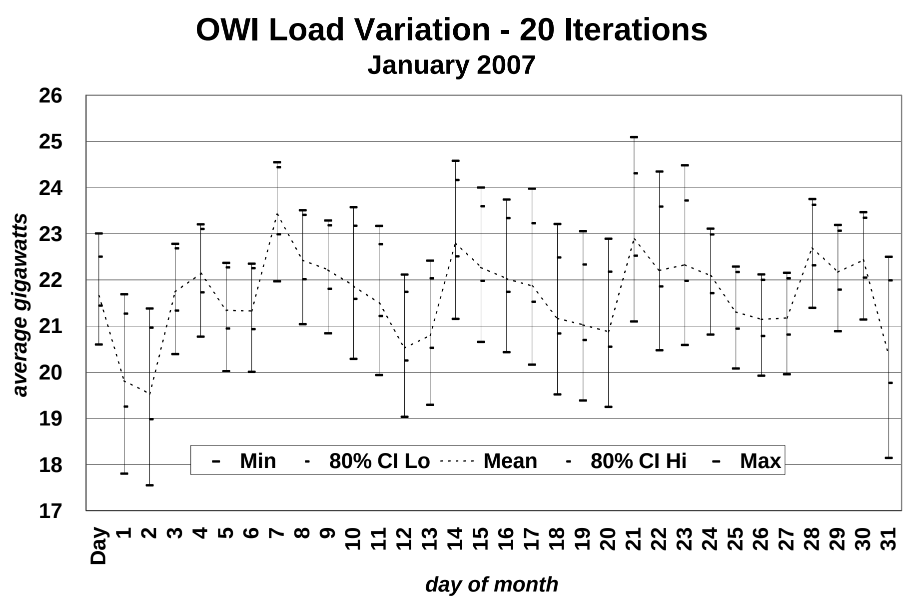

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Wind Variability

- Previous Attempts At Modeling Wind Have Simplified Wind Problem
  - Assume monthly average generation is constant every hour
  - Simple mean & standard deviatation without correlation
- Obtaining Good Wind Data is Difficult
- Avista Is Using OSU/BPA Database Of Hourly Wind Data As Source For 2005 IRP

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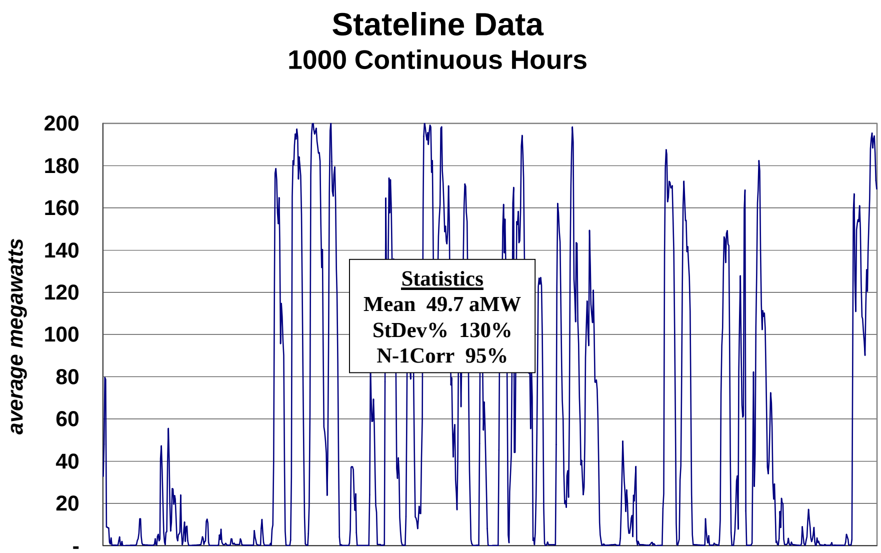

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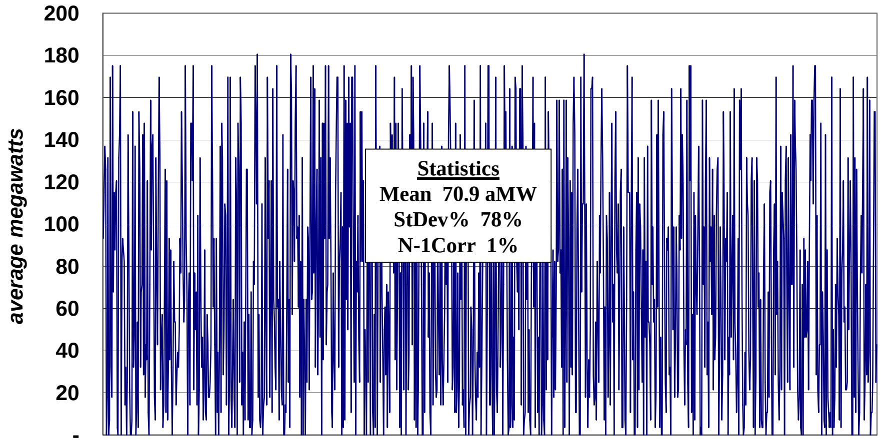
Simple Mean/StDev
1000 Continuous Hours



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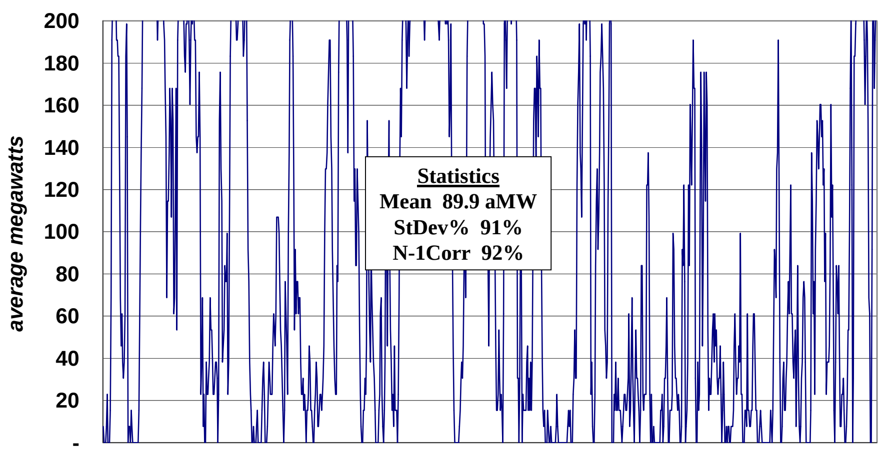
OSU Kennewick, WA
1000 Continuous Hours



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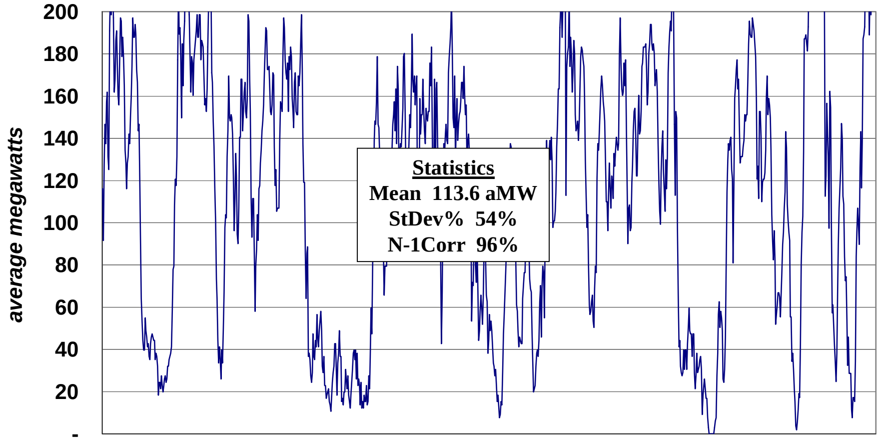
5-Site NW Average (OSU Database)

1000 Continuous Hours



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ENERGY AT WORK

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Avista's 230 kV Upgrade Project March 23, 2005

Technical Advisory Committee

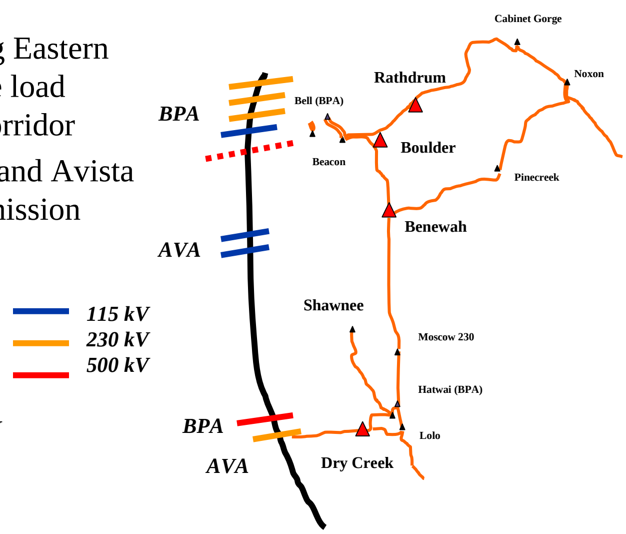
by Randy Cloward

ENERGY AT WORK

AVISTA Corp

The West of Hatwai Transmission Path

- Flowgate separating Eastern Washington and the load centers of the I-5 corridor
- Consisting of BPA and Avista 115-500 kV Transmission Lines
- 2002 Rating
  - 2800 MW
- 2002 Peak Demand
  - 3500-4000 MW



2001 - West of Hatwai Emerges as a Transmission Constraint

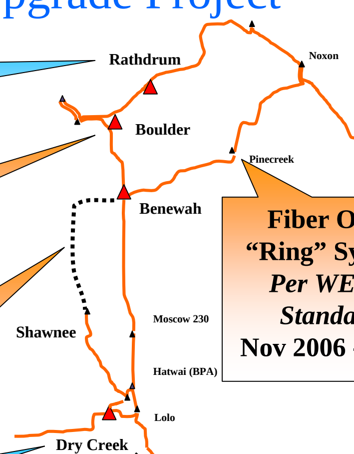
- **During the Energy Crisis of 2001, Aluminum smelter loads are shutdown in Spokane and Western Montana**
- **The combined load loss and new generation adds nearly 1000 MW of flow on the West of Hatwai Transfer path**
- **Avista and BPA collaborate on a regional solution.**
- **BPA announces plans to construct a 500 kV transmission line between Bell (Spokane) and Grand Coulee**
- **Avista announces plans to reinforce its 230 kV delivery system before the end of 2006**

Avista 230 kV Upgrade Project

2000 MVA Beacon-Rathdrum Line
Energized April 2004 - $19M

500 MVA Boulder Substation and Transmission Lines
June-December 2005 - $16M

1000 MVA Benewah-Shawnee Line
Phase 1 (south) Nov 2006 - $29M
Phase 2 (north) Nov 2007 - $15M



Fiber Optic "Ring" System
Per WECC Standard
Nov 2006 - $7M

250 MVA Dry Creek Sub
Energized December 2004 - $12M

Total Investment 2003-2006
$106M

ENERGY AT WORK

ENERGY AT WORK

Beacon-Rathdrum Facts

Rathdrum 230 kV Substation Reconstruction ($3M)

Becomes Avista's 1st Fully Redundant Substation

Capacity Increase from 300 to 2000 MVA ($16M)

Avista's highest capacity transmission facility

"Mechanically" strongest transmission line ever constructed by Avista Utilities

25.2 miles, 188 towers, 714 tons of conductor

2600 tons of steel, 12 months to construct

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Boulder Facts

Boulder 500 MVA Substation - New Construction ($8M)

- *1st Energization June 2005. December Completion*
- *Three 230 kV and Six 115 kV Transmission Lines*
- *500 yards of concrete, 10,000 control wire connections*
- *Additional transformation to the Spokane Valley*
- *Liberty Lake – 2nd fastest growing city in the State of Washington*

230 and 115 kV Transmission Integration ($8M)

- *135 steel towers, 285,000 feet of conductor, 8 months of contract labor construction*

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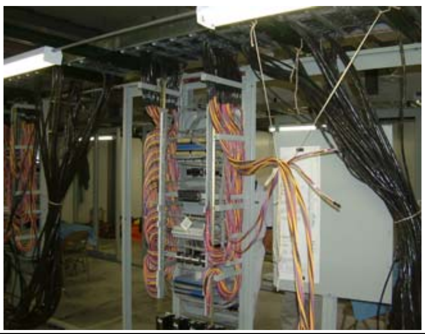

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Dry Creek Facts

Dry Creek 250 MVA Substation - New Construction ($8M)

- *Capacitor Bank installation – 200 MVAR*
- *Forms 35-mile "ring" of 230 kV lines around the Lewiston-Clarkston Valley*
- *135 Avista employees, 100 tons of steel, 1000 cubic yards of concrete, 10,000 control wire connections*

230 kV Line Capacities Increase from 400 to 800 MVA ($2M)

Conversion of Lolo to Fully Redundant Substation ($2M)

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Benewah-Shawnee Facts

Benewah 250 MVA Substation - Reconstruction ($8M)

Add 200 MVAR Capacitor Bank

1000 MVA Benewah-Shawnee Transmission Line ($36M)

60-Miles, 360 steel towers, 4000 tons of steel,
75% Reconstruction, 25% New Construction

Significant Challenges

Steel Escalation June 03 ($300/ton) – April 04 ($600/ton)
Chinese increase consumption from 100 to 300 M tons

Avista Response to Steel Escalation

Value Engineering Reduces Estimated Cost by $4M
Alliance Agreement with Steel Pole Supplier enables
dollar cost averaging of steel over project life (2005-07)

ENERGY AT WORK

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Communication Plan

Avista Constructing Two Fiber Optic Loops

L/C Valley, 35 Miles ($1M)

North of Benewah, 100 Miles of Fiber plus Microwave ($4M)

Benewah-Shawnee Fiber and Substation Comm. ($2M)

"Redundant communication pathways required for the operation of stability limited 230 kV transmission lines" (WECC)

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Summary

Reinforcement from Spokane, WA to Coeur d' Alene, ID
- *Beacon-Rathdrum (increase east-west capacity)*
- *Boulder Substation (load demand in Spokane Valley)*

Reinforcement in Lewiston-Clarkston Valley
- *Dry Creek Substation ("ring" of 230 kV lines)*
- *Hatwai transmission lines (increase capacity)*

230 kV Connection through the Palouse
- *Benewah-Shawnee (backup supply to Shawnee Substation – mitigates overloads on parallel path lines)*

Fiber Optic Communication (automatic control of 230 kV lines and Clark Fork hydro generation)

Preliminary Long-term Electric Forecast & Capacity Expansion Results

2005 Integrated Resource Plan
Technical Advisory Committee Meeting
March 23, 2005

James Gall

ENERGY AT WORK
AVISTA Utilities

Discussion Items

1) Resource Assumptions
   A. Generation Assumptions
   B. Discount Rates
   C. Transmission Assumptions
   D. Resource Restrictions

2) Electric Market Forecasts
   A. Mid Columbia Prices
   B. Marginal Heat Rate for the Northwest
   C. Hourly Price Curve
   D. Other Hub's Electric Price Forecasts

3) Capacity Expansion Results
   A. What is a Capacity Expansion
   B. Northwest L&R
   C. Northwest New Resources
   D. Western Interconnect New Resources

Resource Assumptions

New Resource Summary

Yellow Indicates Change From Last TAC Meeting

Resource Type	Fuel Source	Size (MW)	Heat Rate	Year Available	Capital Cost $/kW	Variable O&M $/MWh	Fixed O&M $/kW
CCCT	Gas	610	7,030	2007	588	3.02	19.00
SCCT- Aero	Gas	47	9,900	2007	672	8.96	15.00
SCCT- Industrial	Gas	47	10,500	2007	420	4.48	11.25
Coal- Pulverized	Coal	400	9,550	2010	1,392	1.96	62.00
Coal- IGCC	Coal	425	7,915	2011	1,568	1.68	67.00
Coal- IGCC w/ Seq.	Coal	401	9,290	2013	2,022	1.79	76.00
Wind	Wind	100	N/A	2011	1,131	6.12 - 9.12	38.00
Geothermal	Geological Steam	50	9,300	2007	2,050	Inc. in FC	178.00
Solar	Sun	2	N/A	2007	7,804	0	36.00
Biomass	Refuse/Other	1 – 25	11,000-14,500	2007	1,523 – 3,472	0 – 10.38	125 – 250
Nuclear	Uranium	1,100	9,600	2020	1,624	1.12	75.00
Tar Sands	Oil Sands/ Co-Gen	180	5,800	2011	566	3.11	Inc. in VC
Co-Gen	TBA	25	5,500	2007	1,120	2.24	29.00

Discount Rates Used for Capacity Expansion

- Discount rates are required to calculate the fixed costs associated with each new resource (Model requires $/MW/Week for each resource) and to calculate the present value of each resource)
- Discount Rates are based on NPCC 5th Power Plan

	PUD	IOU	IPP	Weighted Discount Rates
Discount Rate	4.9%	9.15%	10.68%	9.2%
Percent Ownership				
Coal/Tar Sands	25%	25%	50%	8.9%
CCCT	20%	20%	60%	9.2%
SCCT	40%	40%	20%	7.8%
Renewables	15%	15%	70%	9.6%

Transmission Costs

- AURORA^{XMP} does not have transmission expansion logic, nor does it account for transmission within a region
- To overcome simplistic topology within the model, transmission cost adders are included for resources that normally require new transmission to be built (Modeled in Capacity Expansion studies)
- If the model selects a plant outside its region, it is moved to that area for hourly price forecast studies

Resource Type	To	From	Line Size (KV)	Capacity (MW)	Miles	Cost per Mile ($Mil)	Substation Costs ($Mil)	Total Capital Cost ($Mil)	Dollars per KW	Fixed O&M $/KW/YR	$/MWh @ 100% CF
Wind	Inter-regional		230	500	100	0.90	35	125	250	8.90	$4
Wind	OWI	MT	500	1,500	900	2.00	40	1,840	1,227	8.90	$13
Coal	Inter-regional		500	1,500	250	2.00	40	540	360	8.90	$5
Coal	OWI	MT	500	1,500	900	2.00	40	1,840	1,227	8.90	$13
Coal	IDSo	WY	500	1,500	500	2.00	40	1,040	693	8.90	$8
Coal	UT	WY	500	1,500	425	2.00	40	890	593	8.90	$7
Coal	S Cal	WY	500	1,500	1,500	2.30	100	3,550	2,367	8.90	$25
Coal	N Cal	WY	500	1,500	1,600	2.30	100	3,780	2,520	8.90	$27
Coal	NVSo	WY	500	1,500	1,100	2.10	100	2,410	1,607	8.90	$17
Tar Sands	OWI	AB	500 DC	1,500	1,200	1.80	285	2,445	1,630	8.90	$18
Tar Sands	S Cal	AB	500 DC	2,000	1,730	1.70	380	3,321	1,661	8.90	$18
Tar Sands	AB	AB	500 DC	500	475	2.00	95	1,045	2,090	8.90	$22
Gas/Other	Inter-regional		N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.80	$2

ENERGY AT WORK

AVISTA Utilities

Northwest Resource Options/Limitations

- Gas:
  - **CCCT:** No Limitations
  - **SCCT:** No Limitations
- Coal:
  - **Local Pulverized:** No more than 2 plants after 2010
  - **Imported Montana Pulverized:** No Limitations
  - **Local IGCC:** No more than 5 plants after 2011 (2 max per year)
  - **Imported Montana IGCC:** No Limitations
  - **Imported Montana IGCC w/ Seq**: Limit 2 plants
- Wind:
  - **Local:** No more than 1,000MW of capacity without building new transmission
  - **Imported:** No limitations
- Other:
  - **Geothermal:** Limit 100 MW (2 plants)
  - **Solar:** Not available
  - **Nuclear:** Not available
  - **Co-Gen:** Limit 50 MW (2 plants)
  - **Manure:** Limit 2 MW (2 plants)
  - **Landfill Gas:** Limit 2 MW (2 plants)
  - **Wood:** Limit 50 MW (2 plants)
  - **Tar Sands:** Limit of 1,500MW after 2011

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ENERGY AT WORK

AVISTA Utilities

Western Interconnect Options/Limitations

- Gas:
  - **CCCT:** No Limitations
  - **SCCT:** No Limitations
- Coal:
  - **Local Pulverized:** No Limitations (Not allowed in California)
  - **Imported Wyoming Pulverized:** No Limitations with new transmission build (S. Cal allowed to build 1 plant in Utah by upgrading the IPP DC Interconnect)
  - **Local IGCC:** No Limitations (Not allowed in California)
  - **Imported Wyoming IGCC:** No Limitations with new transmission build
  - **Local IGCC w/ Seq:** No Limitations (Not allowed in California)
  - **Imported Wyoming IGCC w/ Seq:** No Limitations with new transmission build
- Wind:
  - **Local:** Requires transmission to be built
- Other:
  - **Geothermal:** 100 MW per area (2 plants)
  - **Solar:** 10 MW per area (5 plants)
  - **Nuclear:** 1,100 MW in Arizona
  - **Co-Gen:** Not available
  - **Manure:** Not available
  - **Landfill Gas:** Not available
  - **Wood:** Not available
  - **Tar Sands:** California & S. Nevada with a limit of 2,500 MW after 2011

Not available for modeling simplicity and speed

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ENERGY AT WORK

AVISTA Utilities

"PRELIMINARY"

Electric Market Forecasts

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ENERGY AT WORK

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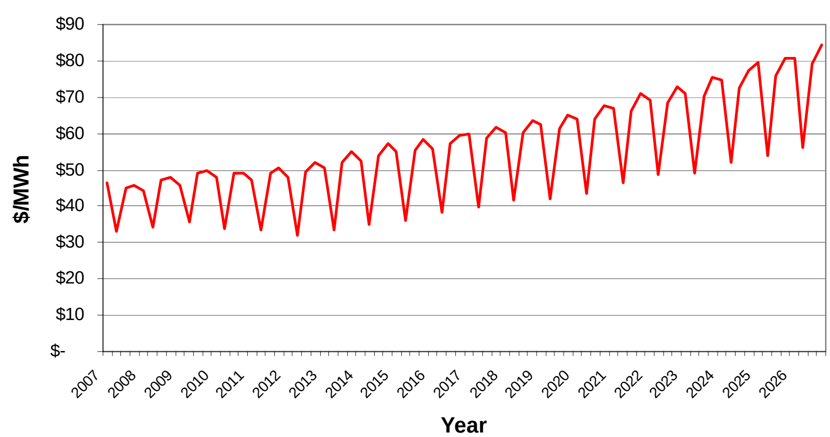
Mid Columbia Electric Prices (Qr. Avg.)



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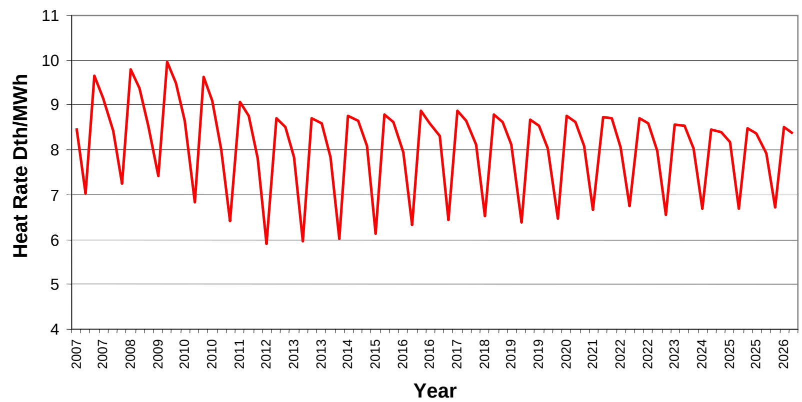
ENERGY AT WORK

Marginal Heat Rate



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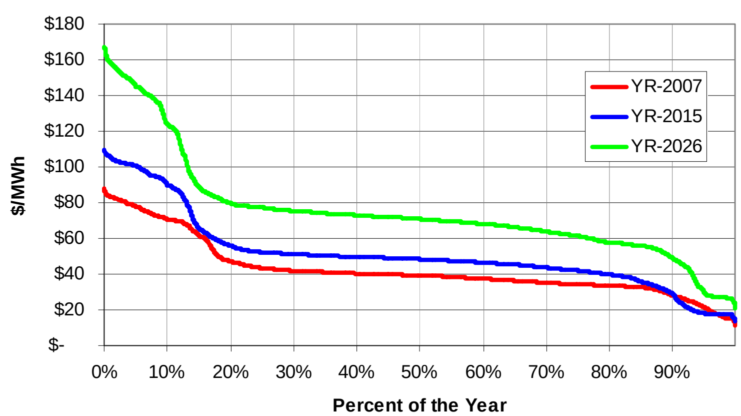
ENERGY AT WORK

Hourly Price Curves



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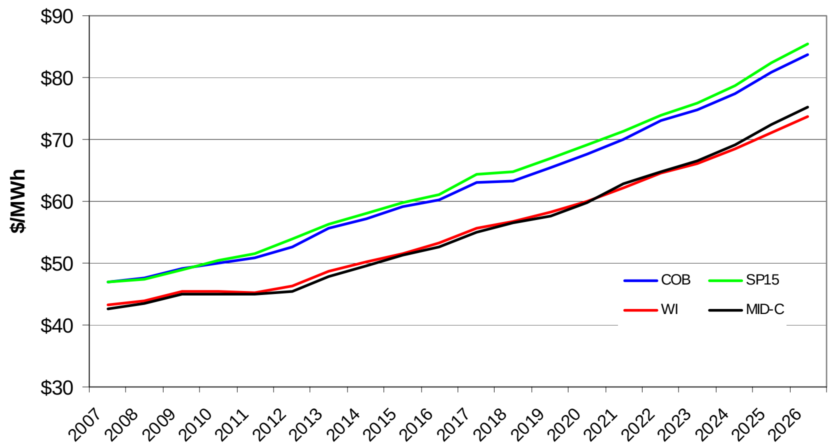
Annual Electric Forecasts



"PRELIMINARY"

Capacity Expansion Results

ENERGY AT WORK

AVISTA Utilities

What is Capacity Expansion?

Definition:

- Simulates the addition of new resources based on a set of resource attributes, capital and variable costs
- Seeks to find the least cost set of resources

What does the AURORA^{XMP} Expansion Logic Do?

- Creates a matrix of new resources and calculates its value compared to the market (~17,000 resources for studies shown today) on a present value basis
- Iterates until the optimal mix of generation is found (including resource type, timing, and location)
- Retires plants if plants that are no longer economic (retirement was not an option for the studies shown today)

Renewable Portfolio Standards (RPS):

- AURORA^{XMP} does not currently add resources to meet RPS requirements, for this IRP, RPS requirements were manually added based on the NPCC 5th Power Plan

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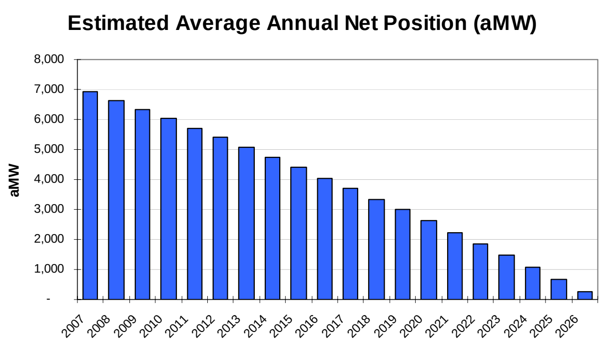
ENERGY AT WORK

AVISTA Utilities

Northwest Loads & Resources

- Annual Resource Availability for the Northwest
- Does not include Imports/Exports

Year	Load	Resources	Balance
2007	16,544	23,478	6,934
2008	16,842	23,478	6,636
2009	17,145	23,478	6,333
2010	17,454	23,478	6,024
2011	17,768	23,478	5,710
2012	18,088	23,478	5,390
2013	18,414	23,478	5,064
2014	18,745	23,478	4,733
2015	19,082	23,478	4,396
2016	19,425	23,478	4,053
2017	19,775	23,478	3,703
2018	20,131	23,478	3,347
2019	20,493	23,478	2,985
2020	20,862	23,478	2,616
2021	21,238	23,478	2,240
2022	21,620	23,478	1,858
2023	22,009	23,478	1,469
2024	22,405	23,478	1,073
2025	22,808	23,478	670
2026	23,219	23,478	259



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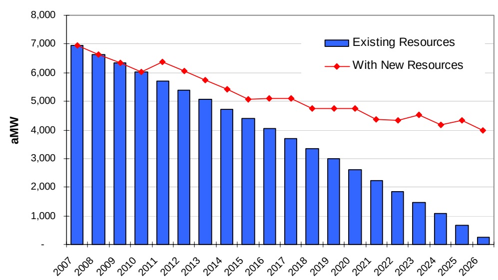
Northwest New Resources Selection

Annual Resource Selection (MW Capacity)

Year	CCCT	SCCT	Pul. Coal	IGCC Coal	Wind	Total
2007						0
2008						0
2009						0
2010						0
2011			800			800
2012						0
2013						0
2014						0
2015						0
2016				425		425
2017				425		425
2018						0
2019				425		425
2020				425		425
2021						0
2022				425		425
2023	610				100	710
2024					100	100
2025	610					610
2026					200	200
Total	1,220	0	800	2,125	400	4,545

Estimated Average Annual Northwest Position



Western Interconnect Resource Selection

Resource Begin Year	CCCT- Gas	SCCT- Gas	IGCC- Coal	Pulverized- Coal	Wind	Nuclear	Total
2007	3,660	1,692	0	0	0	0	5,352
2008	2,440	2,350	0	0	0	0	4,790
2009	1,830	376	0	0	0	0	2,206
2010	610	0	0	4,800	0	0	5,410
2011	3,660	376	0	3,600	0	0	7,636
2012	1,830	188	0	3,200	0	0	5,218
2013	1,830	0	425	1,600	0	0	3,855
2014	3,050	0	0	1,200	0	0	4,250
2015	1,220	0	0	800	0	0	2,020
2016	3,050	0	425	0	0	0	3,475
2017	3,050	0	850	0	100	0	4,000
2018	4,270	0	850	0	0	0	5,120
2019	3,050	0	2,125	0	0	0	5,175
2020	1,830	94	1,700	0	0	1,100	4,724
2021	5,490	0	1,275	0	0	0	6,765
2022	3,050	94	1,275	0	0	0	4,419
2023	6,100	564	850	0	200	0	7,714
2024	6,100	282	850	0	200	0	7,432
2025	3,050	0	1,275	0	0	0	4,325
2026	4,270	0	1,275	0	200	0	5,745
Total Capacity	63,440	6,016	13,175	15,200	700	1,100	99,631
% of Energy	69%	1%	13%	15%	0%	1%	100%

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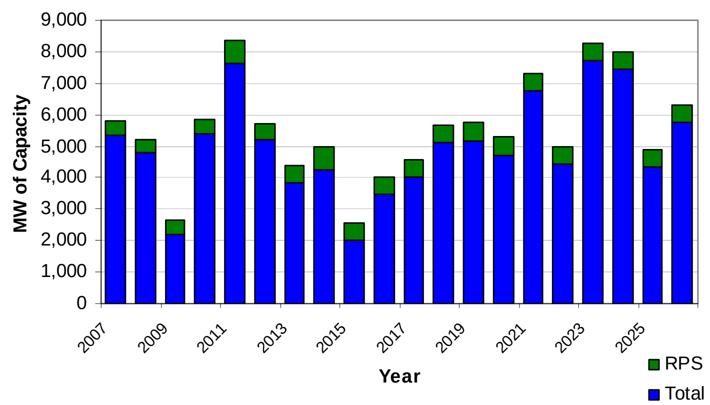
New Resources for the Western Interconnect

Includes RPS



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ENERGY AT WORK

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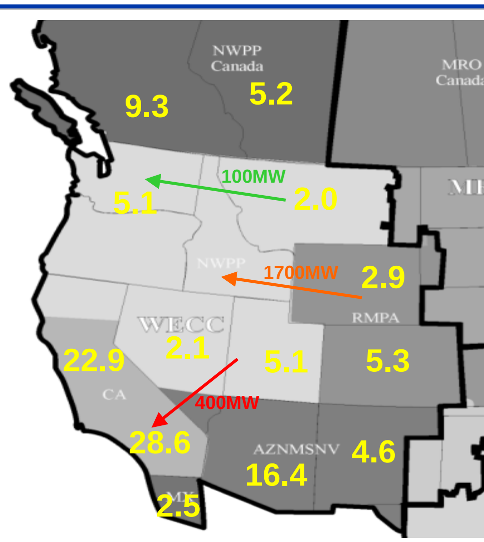
Total New Resource Capacity (2007-2026)

(Shown in Gigawatts)



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ENERGY AT WORK

AVISTA Utilities

Modeling
Futures and Scenarios

2005 Integrated Resource Plan
Fifth Technical Advisory Committee Meeting
March 23, 2005

John Lyons

ENERGY AT WORK

AVISTA Utilities

Presentation Overview

Definition Of A Future

A **FUTURE** is modeled stochastically. Avista will model its options over 20 years with up to 300 Monte Carlo draws of varying hydro, load, gas, and wind conditions.

Advantages: ability to quantitatively assess risk in addition to the expected base value

Disadvantage: long solution times (8 CPUs for up to a week), and results of a specific change can be more difficult to comprehend

Definition Of A Scenario

A **SCENARIO** is not modeled stochastically. Instead we will use average forecasts of hydro, load, gas, and wind generation to simulate the impact of a major change in a single assumption.

Advantages: faster solution time (1 CPU for 5 hours), easier to understand impacts of the change

Disadvantage: unable to quantitatively assess risk of market volatility

Uses For Futures/Scenarios

- Understand Potential Future Impacts And Their Magnitudes On:
  - Wholesale marketplace
  - Different resource options
  - Avista's existing portfolio of loads & resources
  - The Preferred Resource Strategy

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ENERGY AT WORK

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Revised List of Scenarios

- High Gas *
  - Increase prices 50% to ~$9/dth
- Low Gas *
  - Decrease prices 50% to ~ $3/dth
- Emissions 2 *
  - $25/ton CO_2
- Low Transmission *
  - Reduce transmission capital costs by 33%
- High Wind Penetration
  - 5,000 MW NW wind replaces other new resources
- Energy Market Bubbles
  - Electricity market mimics real estate building cycles
- Loss of Large AVA Plant
  - Noxon "lost" for 5 years
- High AVA Load
  - Double load growth to ~4%
- Low AVA Load
  - No load growth
- WECC-Wide Renewable Portfolio Standard
  - 25% renewables by end of study, replacing other new resources

* Indicates new capacity expansion run will be required

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Revised List of Scenarios

- Long Haul Coal
  - Site a new coal plant within our service territory and rail in coal
- Fundamental Hydro Shift *
  - Recent drought becomes new average (90% of mean value)
- Green Growth Initiative
  - All new Avista resources are renewable
- Double Avista DSM
  - Double the amount of DSM acquisition
- Loss of Spokane River Projects
  - Current negotiations for relicensing fail and all projects on Spokane River are lost

* Indicates new capacity expansion run will be required

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ENERGY AT WORK

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List of Futures

- **Base Case**
  - All Base Case assumptions included
- **Volatile Gas Prices**
  - Double base case volatility (sigma) from 50% of mean to 100% of mean
  - Remaining Base Case assumptions unchanged
- **Emissions Case**
  - Based on the McCain Lieberman Bill
  - Remaining Base Case assumptions unchanged

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2005 Draft IRP Outline

2005 Integrated Resource Plan
Fifth Technical Advisory Committee Meeting
March 23, 2005

John Lyons

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2005 Draft IRP Outline

- The format of the 2003 IRP will be used as a template for the final draft of the 2005 IRP
- Will be published in two parts: main report & technical appendix
- Please let us know if there were any portions of the 2003 IRP that you want to see again, do not want to see again, or thought should have been included in the 2003 IRP.

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ENERGY AT WORK

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2005 Draft IRP Outline

Section 1: Introduction & Summary

- Outline of the IRP process

Section 2: Loads & Resources

- Generating assets and long term contracts
- Load forecasts, energy & capacity positions
- Planning reserves and sustained capacity
- Wind capacity and forecasting

Section 3: Demand-Side Management

- Past and future activities
- DSM in AURORA

3

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2005 Draft IRP Outline

Section 4: New Resource Alternatives

- Approach, resources considered and resources not evaluated

Section 5: Modeling

- Modeling process
- Assumptions and Inputs
- Analysis of futures and scenarios

Section 6: Risk Analysis

- Stochastic risk analysis
- Risk and benefit analysis of resource options

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2005 Draft IRP Outline

Section 7: Results

- Market prices and volatility for the Western Interconnect
- Preferred resource strategy
- Comparisons of strategies and scenarios
- Efficient frontiers

Section 8: Action Plans & Avoided Costs

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2005 Draft IRP Outline

- Questions?
- Any sections that you would like to see included or excluded from the IRP?

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Gas & Inflation Forecast Update

2005 Integrated Resource Plan
Sixth Technical Advisory Committee Meeting
May 18, 2005

James Gall

Natural Gas Price & Inflation Assumptions and Caveats

- Global Insight, Inc. Winter 2005 Long Term Forecast Contract with Avista Corp.
  - March 2005 30-year forecast was received on April 4, 2005
  - Avista Corp. subscription with Global Insight parameters for usage of Global Insight's data
    - Avista may use Global Insight information with attribution, and other parties may cite Avista information with attribution to Global Insight, although other parties may not privately use Avista or Global Insight information
    - Avista has permission to use Global Insight's information to develop Avista-specific projections for Company use
  - Avista uses Global Insight inflation forecasts directly
    - Avista is responsible for interpreting how Avista perceives Global Insight's inflation forecasts have changed between 2004 and 2005
    - The 2005 inflation forecast compared with the 2004 inflation forecast is slightly higher in the near term, and substantially lower in the long term (see slide), averaging 2.3% compared to the previous 3.0%
  - Avista uses Global Insight natural gas producer price index forecast escalation to create Avista's own forecast of natural gas prices

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Natural Gas Price & Inflation Assumptions and Caveats (Cont.)

- Avista's 2005 long term natural gas price forecast has been updated in April 2005
  - Avista has used NYMEX forward prices from April 6, 2005 to prepare natural gas prices for 2005 through 2010, inclusive.
  - After 2010, Avista has applied natural gas price escalation rates to the 2010 forward price to obtain forecasts for natural gas prices for the period 2011 through 2035, inclusive
  - This estimate replaces a forecast prepared in July 2004, which used July 1, 2004 forward prices for 2004 through 2007, and applied Global Insight's March 2005 natural gas price escalation forecast
  - The NYMEX forward prices for April 6, 2005 are considerably higher than the July 1, 2004 forwards
  - Global Insight's forecast for natural gas price escalation is higher in the near term, and lower in the long term, but after adjusting for inflation, there is little change after 2010 in real prices

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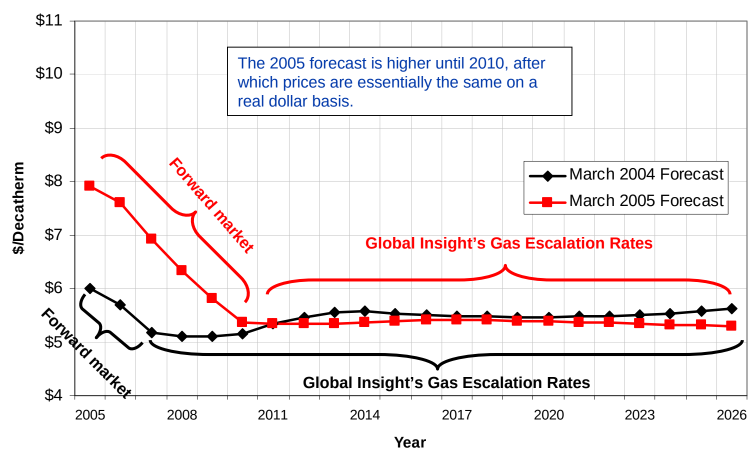
Henry Hub Gas Forecasts

Real Dollars



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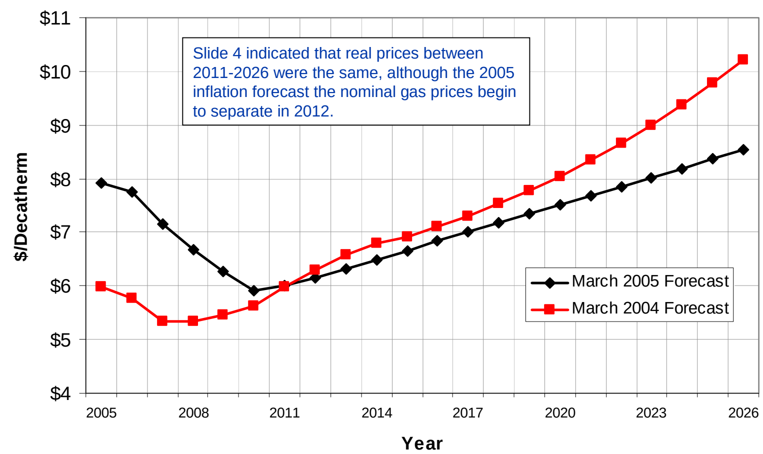
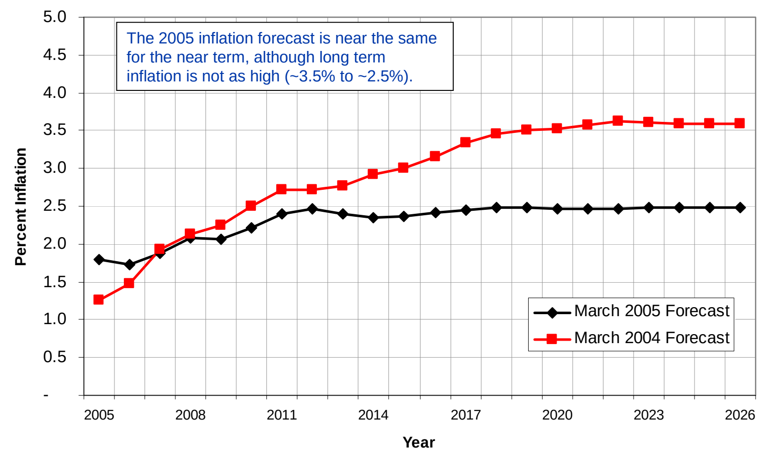
Henry Hub Gas Forecasts

Nominal Dollars



Basin differentials remain the same as presented at the February 2005 TAC Meeting

Annual Inflation Rates



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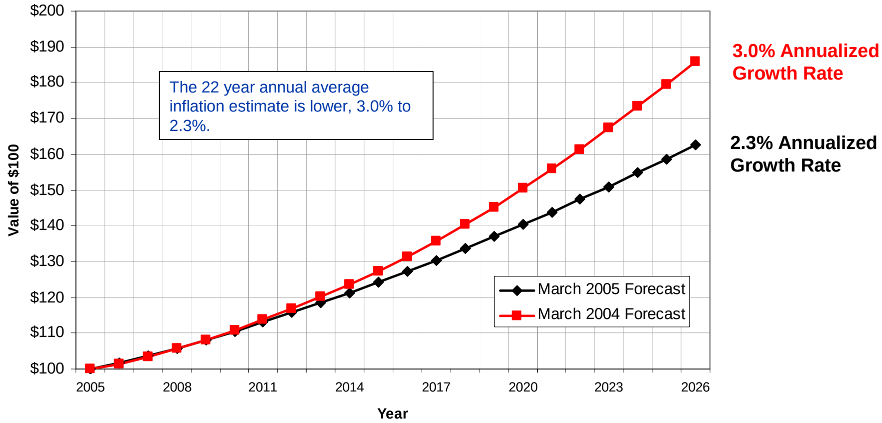
Value of $100 as it Grows with Inflation

Nominal Dollars



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Take-Aways

- April 2005 forecast is more in-line with current forward gas markets
- Medium-term gas prices are higher then previous forecast
- Long-term gas prices are lower nominally, but the same in real dollars
- Long-term inflation is lower

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ENERGY AT WORK

Base Case Results- Electric Price Forecast

2005 Integrated Resource Plan
Sixth Technical Advisory Committee Meeting
May 18, 2005

James Gall

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ENERGY AT WORK

Topics of Interest

Deterministic Modeling

- Western Interconnect Capacity Expansion Results
- Electric Market Prices

Stochastic Modeling

- Sample Size
- Base Case Results
- Volatile Gas Results
- Net Power Costs
- Resource Values

2

Capacity Expansion Results

What is Capacity Expansion?

Definition:

- Simulates the addition of new resources based on a set of resource attributes, capital and variable costs
- Seeks to find the least cost set of resources

What does the AURORA^{XMP} Expansion Logic Do?

- Creates a matrix of new resources and calculates its value compared to the market (~17,000 resources for studies shown today) on a present value basis
- Iterates until the optimal mix of generation is found (including resource type, timing, and location)
- Retires plants if they are no longer economic (retirement was not an option for the studies shown today)

Renewable Portfolio Standards (RPS):

- AURORA^{XMP} does not currently add resources to meet RPS requirements, for this IRP, RPS requirements were manually added based on NPCC 5th Power Plan approach

Why is this all necessary?

- Without a forecasted set of new resource the market price forecast will be useless!

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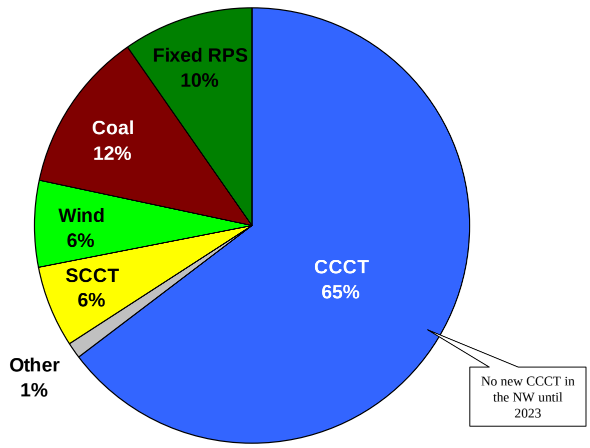
Western Interconnect New Resource Mix



114 GW of Installed Capacity

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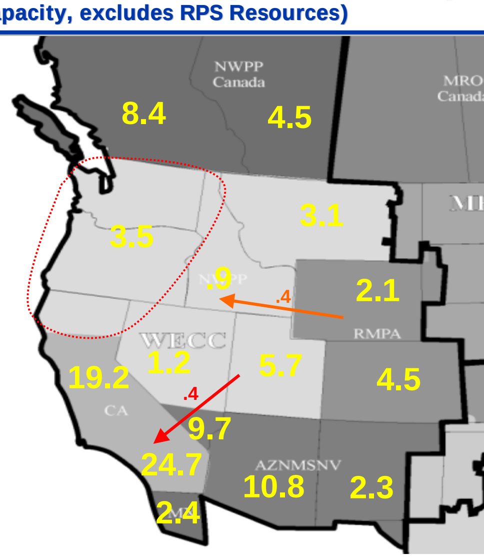
Total New Resources (2007-2026)

(Shown in GW Capacity, excludes RPS Resources)



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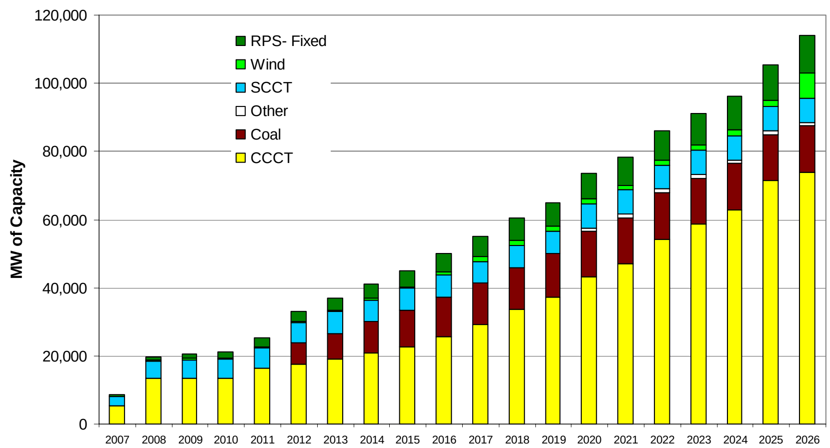
Cumulative New Resources for the Western Interconnect



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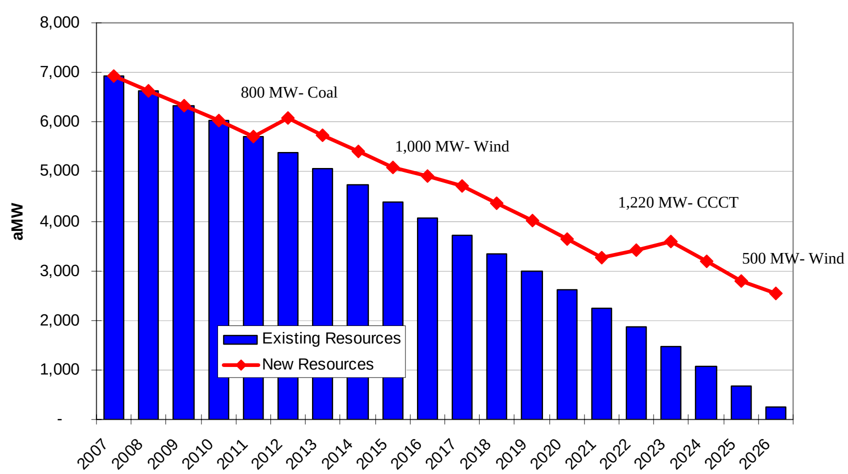
NW Surplus Energy & New Resource Selection



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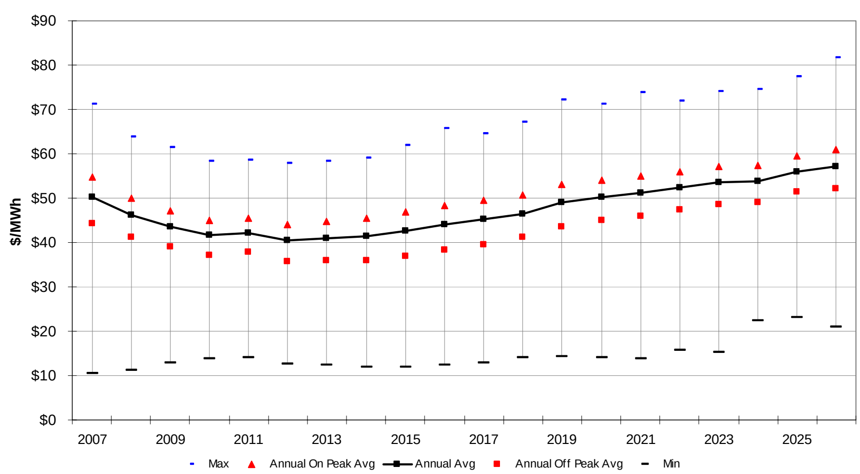
Electric Price Forecasts

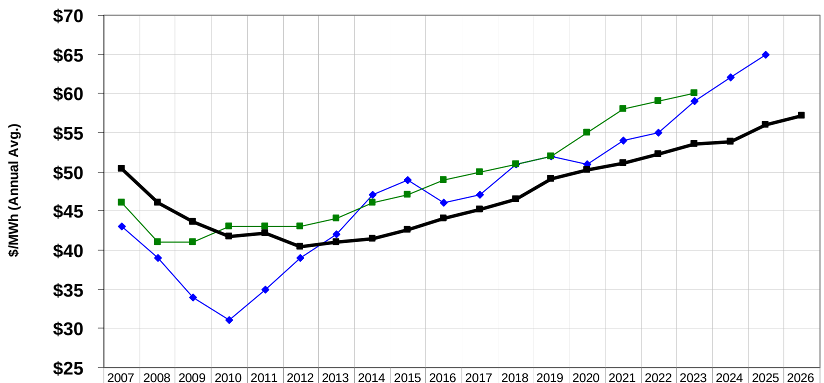
Mid Columbia Electric Prices

Shown in Nominal Dollars per MWh



How Do We Compare to Our Peers at Mid C?

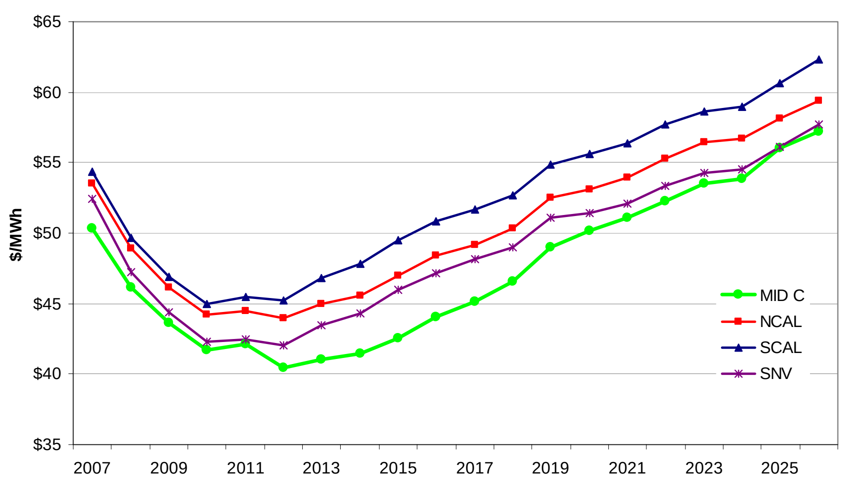
Shown in Nominal Dollars per MWh



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PSE 2005	$43	$39	$34	$31	$35	$39	$42	$47	$49	$46	$47	$51	$52	$51	$54	$55	$59	$62	$65	
PAC 2004	$46	$41	$41	$43	$43	$43	$44	$46	$47	$49	$50	$51	$52	$55	$58	$59	$60			
AVA 2005	$50	$46	$44	$42	$42	$40	$41	$41	$43	$44	$45	$47	$49	$50	$51	$52	$54	$54	$56	$57

Regional Electric Market Prices

Shown in Nominal Annual Average Dollars per MWh



Stochastic Results

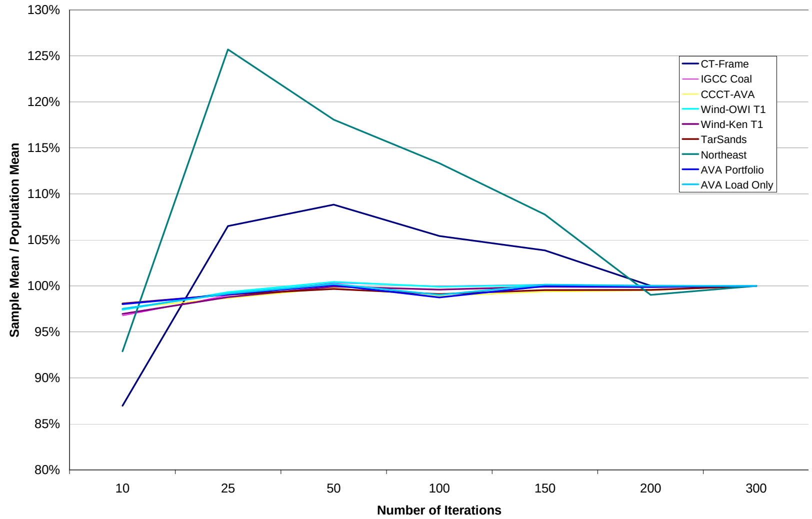
Choosing a Sample Size

- What is the right sample size to use?
  - 50, 100, 200, or 300
- At the March TAC meeting we indicated that a sample size of 300 was our target
- Analysis:
  - 300 draws of Gas Prices, Hydro Conditions, Wind Shapes, and Load Forecasts were simulated in AURORA to create 300 market price forecasts
  - The mean & standard deviations of certain resource values were compared to each other using a random draw of 10, 25, 50, 100, 150, 200, and 300 iterations
  - The results of 200 & 300 iterations were nearly identical

ENERGY AT WORK

AVISTA Utilities

Comparison of Resource Values



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ENERGY AT WORK

AVISTA Utilities

Monthly Price Differences

Market Price Sample Size Analysis

Monthly Market Price Standard Devation Absolute Difference from 300 Iterations

Iterations	OWI	SP15	AZ	UT
50	8.2%	8.9%	8.8%	8.3%
75	6.6%	6.9%	6.8%	6.6%
100	5.6%	5.7%	5.7%	5.7%
150	4.0%	4.0%	3.9%	4.1%
175	3.1%	3.0%	3.0%	3.1%
200	2.7%	2.7%	2.7%	2.7%

Monthly Market Price Mean Absolute Difference from 300 Iterations

Iterations	OWI	SP15	AZ	UT
50	2.0%	1.7%	2.0%	2.0%
75	1.6%	1.3%	1.5%	1.5%
100	1.2%	1.0%	1.2%	1.2%
150	0.9%	0.8%	0.9%	0.9%
175	0.7%	0.6%	0.7%	0.7%
200	0.6%	0.5%	0.6%	0.6%

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Base Case Results

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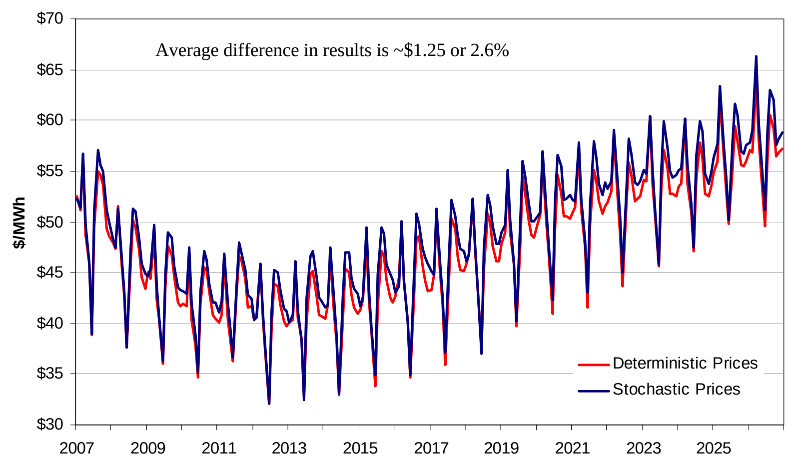
Deterministic vs. Stochastic Mid C Prices

Shown in Nominal Dollars per MWh



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ENERGY AT WORK

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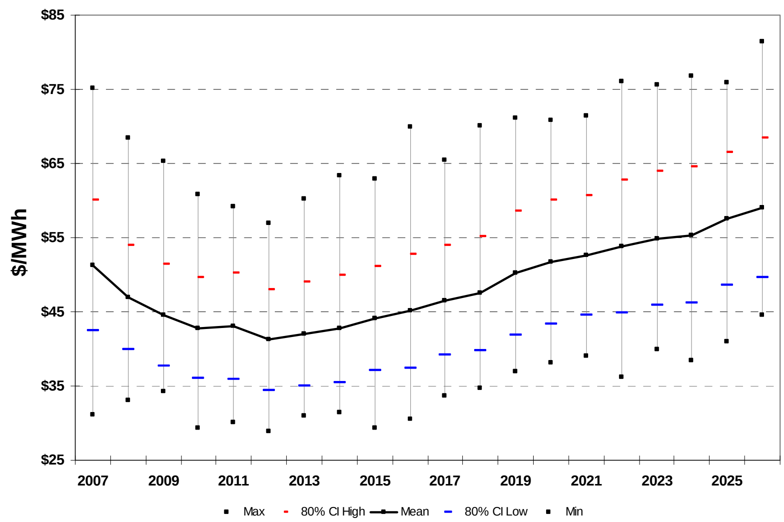
Mid Columbia Annual Average Prices

Shown in Nominal Dollars per MWh



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Volatile Gas Results

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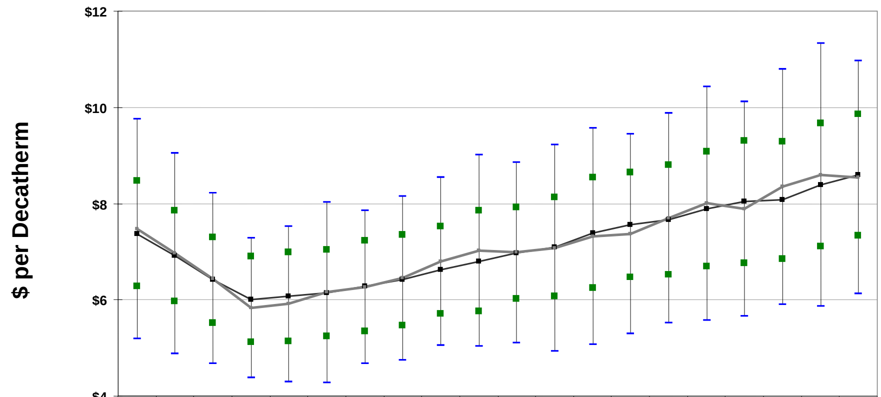
Henry Hub Natural Gas Price Comparison

Base Case vs. Volatile Gas Case (Shown in Nominal Dollars per Decatherm)



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Base- Mean	7.37	6.92	6.41	6.01	6.07	6.15	6.29	6.42	6.62	6.81	6.97	7.10	7.39	7.57	7.66	7.89	8.04	8.07	8.39	8.60
Volatile- Mean	7.47	6.97	6.44	5.83	5.91	6.16	6.27	6.45	6.80	7.02	6.98	7.08	7.31	7.37	7.69	8.00	7.89	8.35	8.60	8.54
Base- 80% CI High	8.47	7.86	7.31	6.90	6.99	7.04	7.23	7.36	7.53	7.85	7.93	8.13	8.54	8.65	8.80	9.09	9.31	9.29	9.67	9.86
Volatile- 80% CI High	9.76	9.05	8.21	7.28	7.52	8.03	7.86	8.15	8.54	9.01	8.86	9.21	9.56	9.45	9.87	10.43	10.13	10.79	11.33	10.96
Base- 80% CI Low	6.28	5.98	5.52	5.12	5.15	5.25	5.34	5.47	5.71	5.76	6.01	6.07	6.25	6.48	6.52	6.70	6.77	6.86	7.10	7.33
Volatile- 80% CI Low	5.19	4.88	4.67	4.39	4.30	4.28	4.68	4.75	5.06	5.04	5.11	4.94	5.07	5.30	5.51	5.57	5.65	5.91	5.87	6.12

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ENERGY AT WORK

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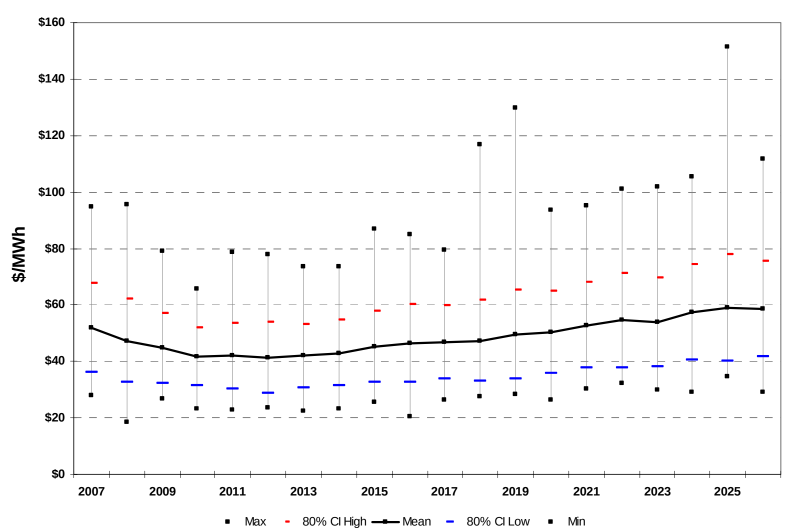
Mid Columbia Annual Average Prices- Volatile Gas

Shown in Nominal Dollars per MWh



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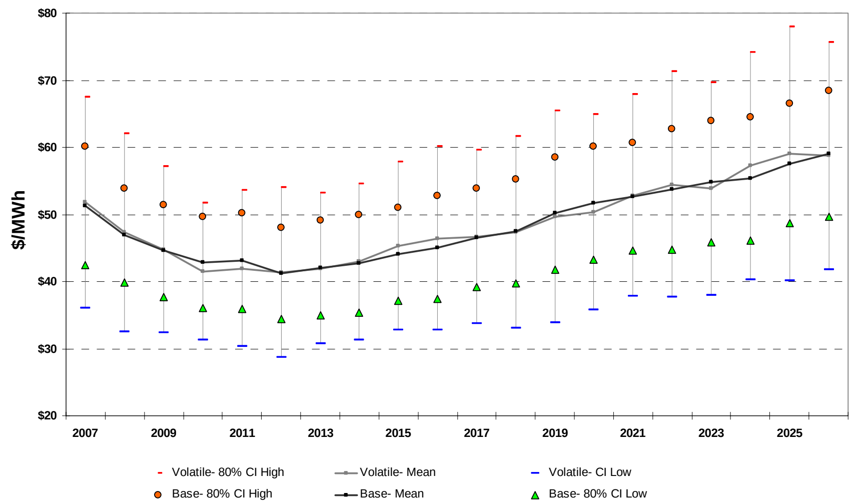
ENERGY AT WORK

Mid Columbia Annual Average Price Comparison

Base Case vs. Volatile Gas Case (Shown in Nominal Dollars per MWh)



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Distribution of Net Power Costs

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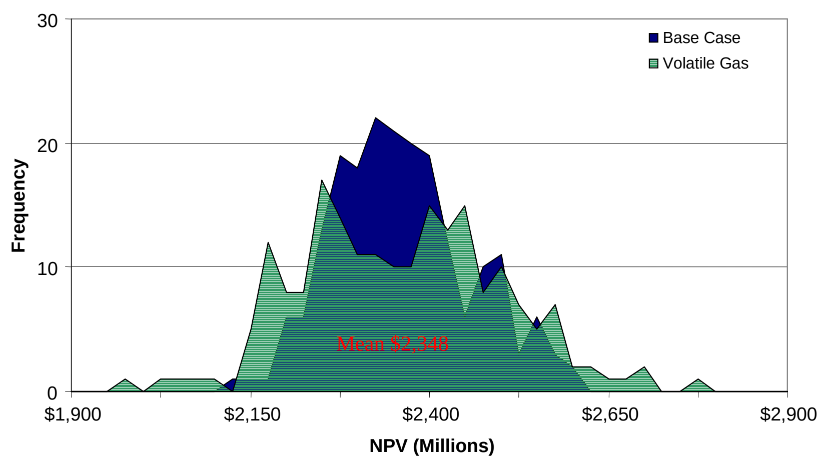
ENERGY AT WORK

Net Power Costs- No Change to Resources

200 Iterations



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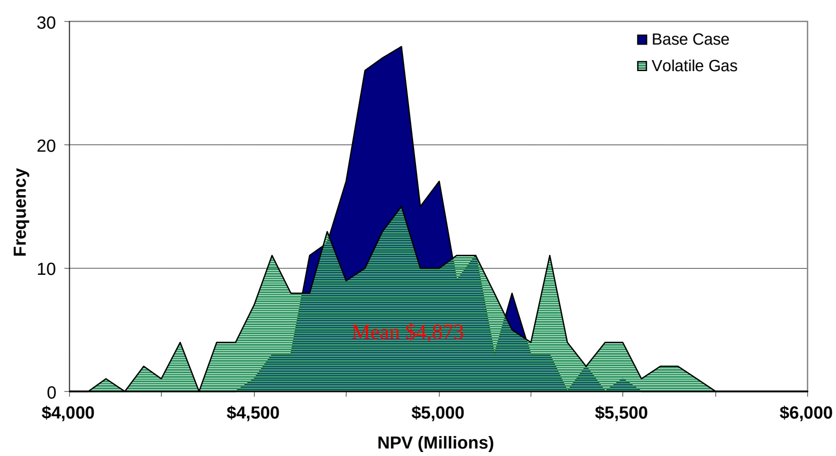
ENERGY AT WORK

NPC- If All AVA Load Was Served by Market

200 Iterations



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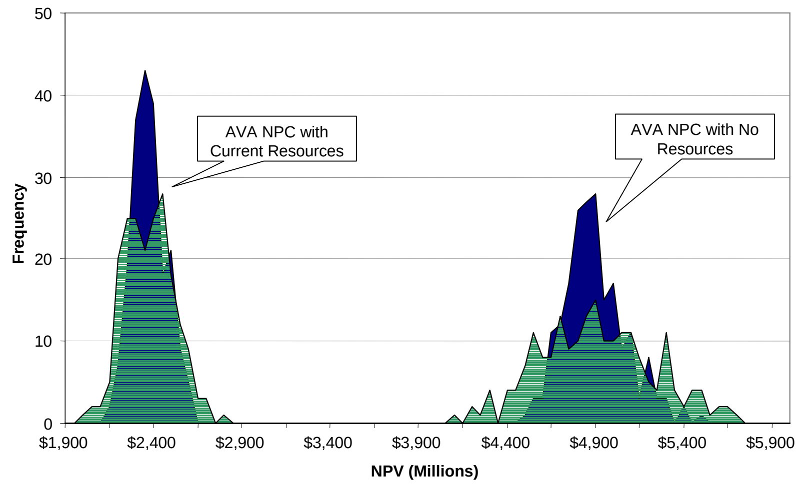
ENERGY AT WORK

AVISTA Utilities

Side by Side

200 Iterations



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ENERGY AT WORK

AVISTA Utilities

Resource Value Comparison

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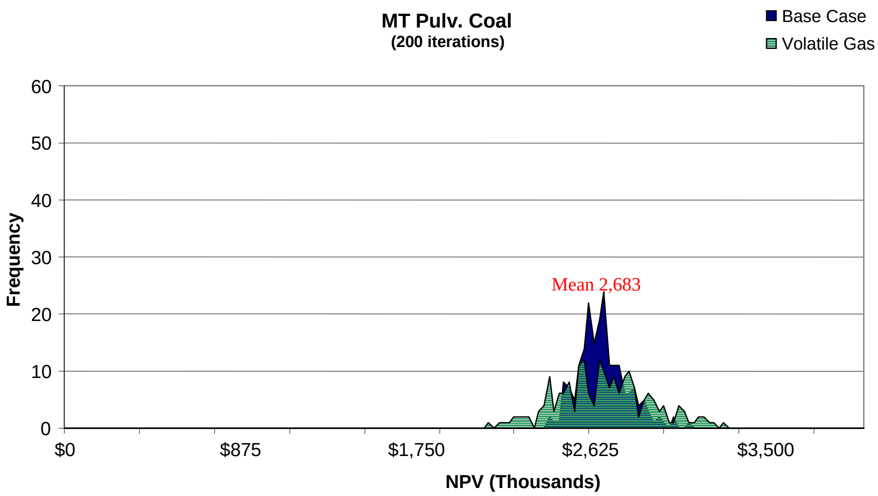
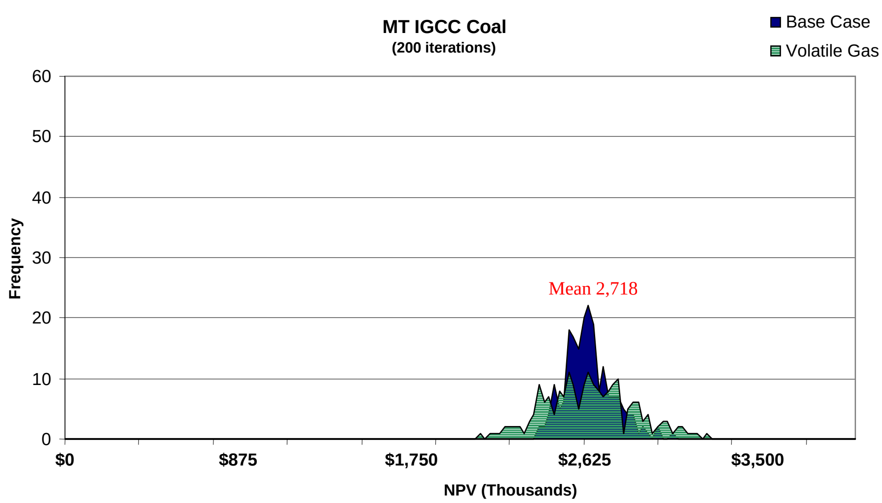
1 MW Resource Value (excludes Capital Costs)



1 MW Resource Value (excludes Capital Costs)



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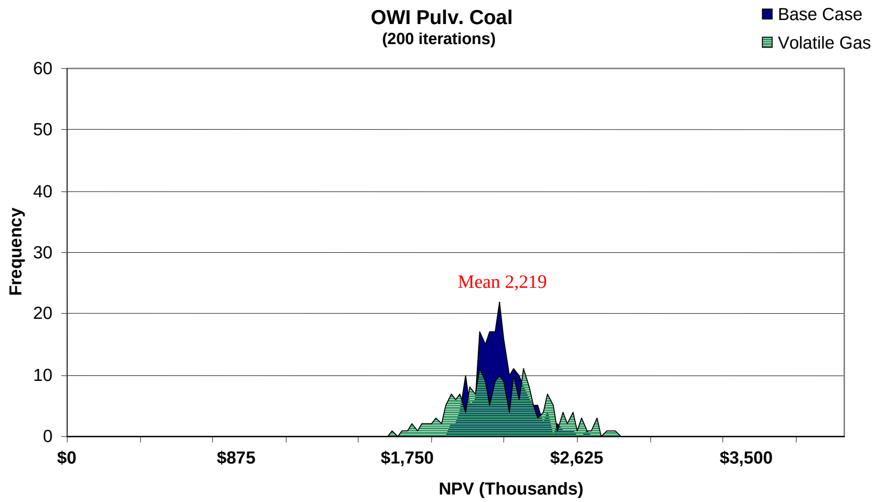
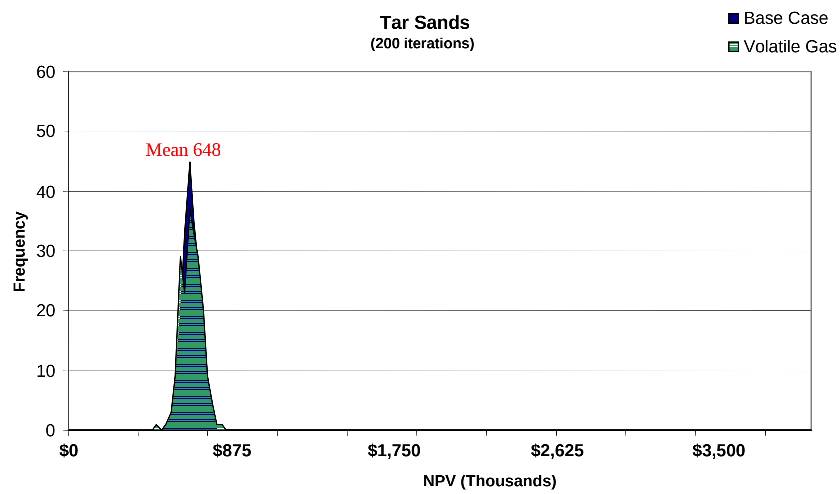
1 MW Resource Value (excludes Capital Costs)

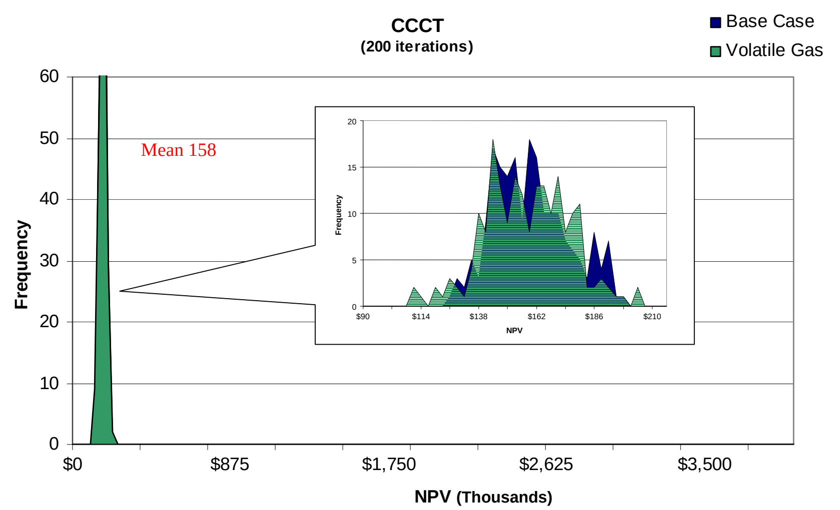


ENERGY AT WORK

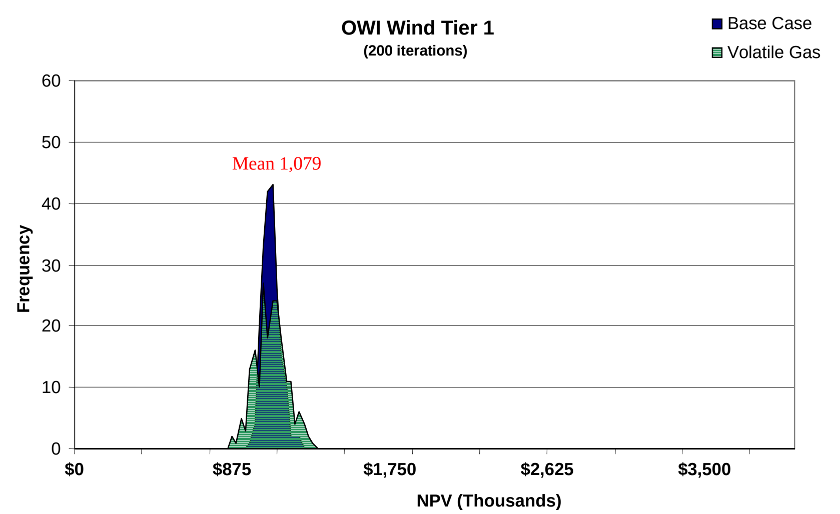
1 MW Resource Value (excludes Capital Costs)



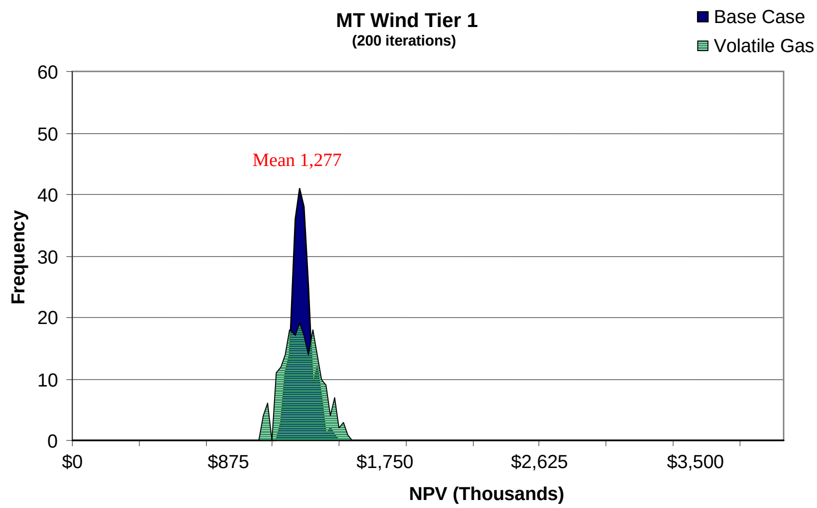
1 MW Resource Value (excludes Capital Costs)



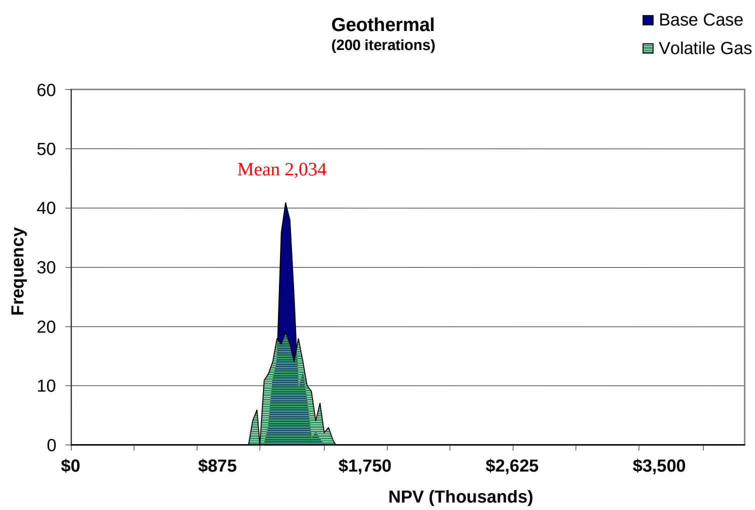
1 MW Resource Value (excludes Capital Costs)



1 MW Resource Value (excludes Capital Costs)



1 MW Resource Value (excludes Capital Costs)



Take-Aways

- New Generation over the next 20+ years is forecasted to be primarily Gas, Coal and Wind for the Western Interconnect, unless there is a shift in technology
- The Northwest is best suited for new coal and wind generation over the next 10-15 years
- The Mid Columbia electric market is expected to be correlated to natural gas prices, with the exception of Q2
- The current Avista generation fleet nearly cuts in half the cost of generation supply, compared to an Avista Gen-Co. The preferred resource strategy will continue to lower these costs and reduce risk
- New gas plants do not hold much value (ignoring capital requirements), but the value is less volatile (market price is not much different the generation cost)

LP Module, the Selection Criteria & Efficient Frontier

2005 Integrated Resource Plan
Fifth Technical Advisory Committee Meeting
May 18, 2005

Clint Kalich

LP Module Data Sources

- Portfolio Output from AURORA Runs
  - Margin generated in each studied year
  - 20 year x 200 matrix of value
    - Avista's current portfolio
    - each new resource option
- Load Requirements
  - Both capacity and energy by year
    - Reduced by DSM and hydro upgrades
- Resource Capital Costs from NPCC
  - Transmission costs added where required

ENERGY AT WORK

AVISTA Utilities

LP Module Optimization Routine

- Match Load Growth With Best Resources
- Weight First 10 Years of Study Heaviest
- Optimization For Mix of Low Cost and Low Risk
- Generate "Efficient Frontier"
  - Visual Basic code automates its creation
  - Illustrates trade-offs graphically
    - Cost, risk, capital requirements
  - Helps Avista determine an optimal mix

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ENERGY AT WORK

AVISTA Utilities

Limits Imposed on LP Routine

- 650 MW of Wind Over 20 Years
  - AVA share of NW wind estimate (250 MW)
  - Assume similar amount from E. Montana
  - Another 150 MW in Avista service territory
- Market Available for Short-Term Balancing
- Meet Both Energy and Capacity Needs
  - Cannot plan for more than capacity needs

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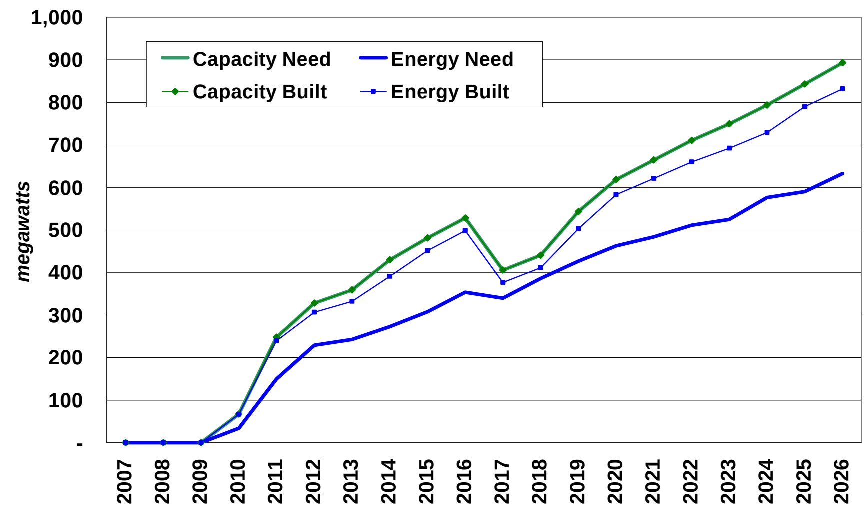
ENERGY AT WORK

Build Example–Capacity & Energy



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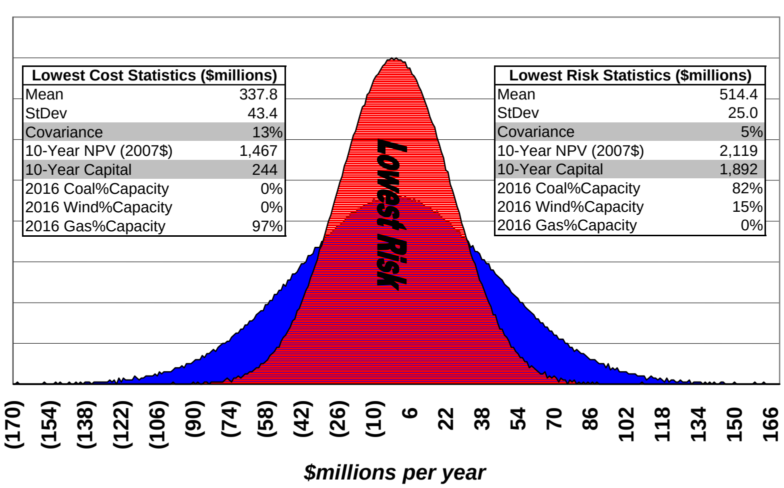
ENERGY AT WORK

Power Supply Cost Illustration—2016



Lowest Cost Statistics ($millions)	
Mean	337.8
StDev	43.4
Covariance	13%
10-Year NPV (2007$)	1,467
10-Year Capital	244
2016 Coal%Capacity	0%
2016 Wind%Capacity	0%
2016 Gas%Capacity	97%

Lowest Risk Statistics ($millions)	
Mean	514.4
StDev	25.0
Covariance	5%
10-Year NPV (2007$)	2,119
10-Year Capital	1,892
2016 Coal%Capacity	82%
2016 Wind%Capacity	15%
2016 Gas%Capacity	0%

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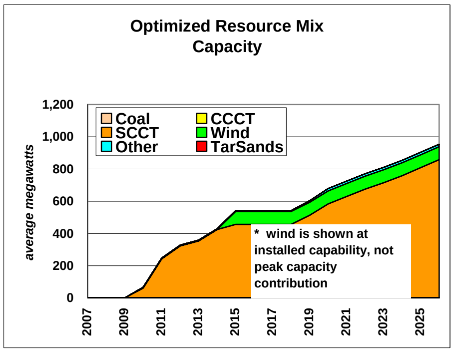
AVISTA Utilities

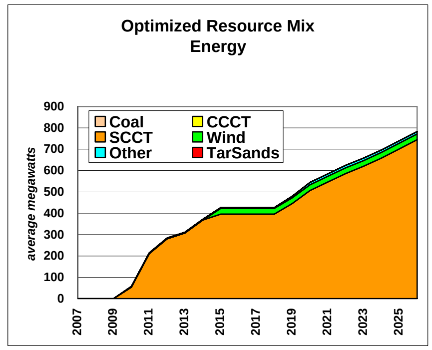
LP Module—Illustration 1 Lowest Cost

Resource Selection Optimizer

100.0 COST

0.0 RISK





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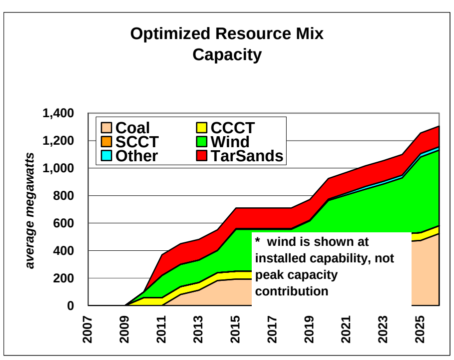
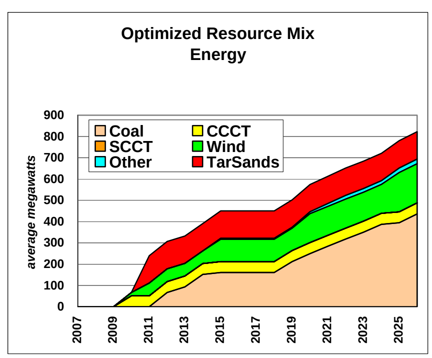
LP Module—Illustration 2 Lowest Risk

Resource Selection Optimizer

0.0 COST

100.0 RISK





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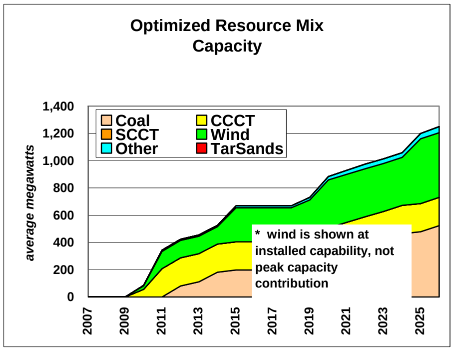
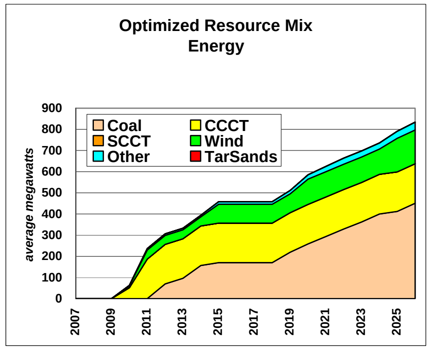
LP Module—Illustration 3 50/50 Mix

Resource Selection Optimizer

50.0 COST

50.0 RISK



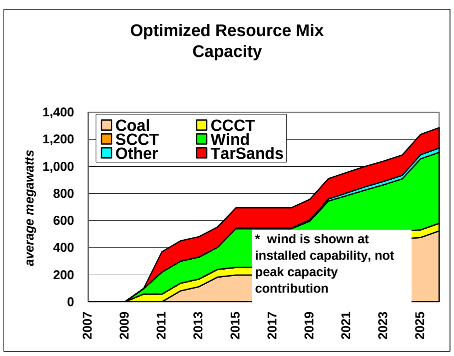


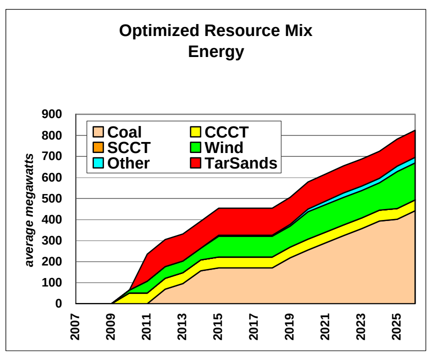
LP Module—Illustration 4 25/75 Mix

Resource Selection Optimizer

25.0 COST

75.0 RISK





ENERGY AT WORK

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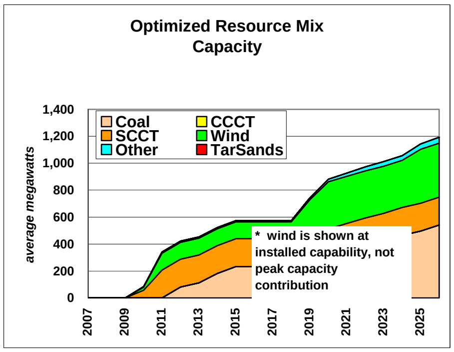
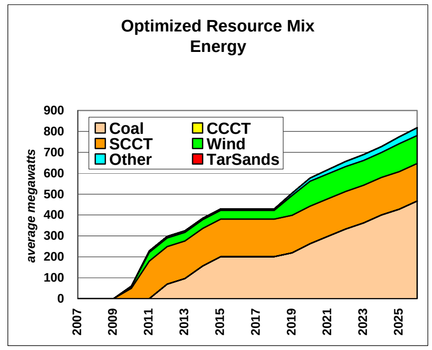
LP Module—Illustration 5 75/25 Mix

Resource Selection Optimizer

75.0 COST

25.0 RISK





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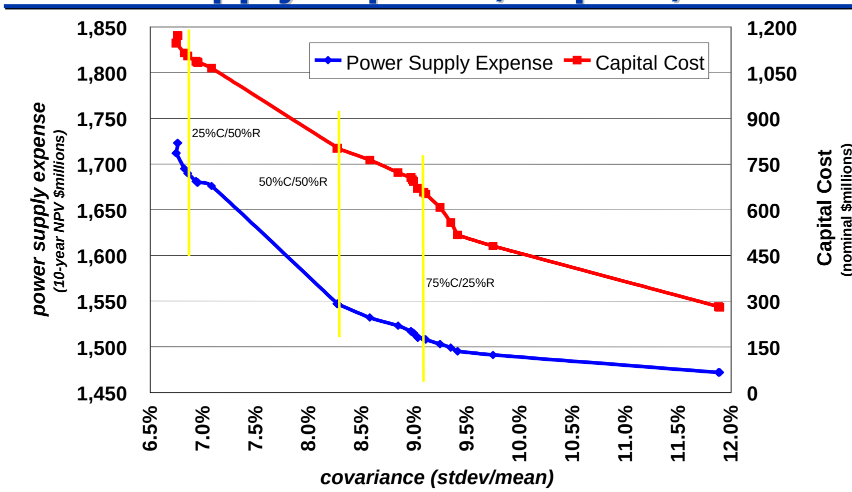
ENERGY AT WORK

AVISTA Utilities

Efficient Frontier–Trade-Offs Between Power Supply Expense, Capital, Risk



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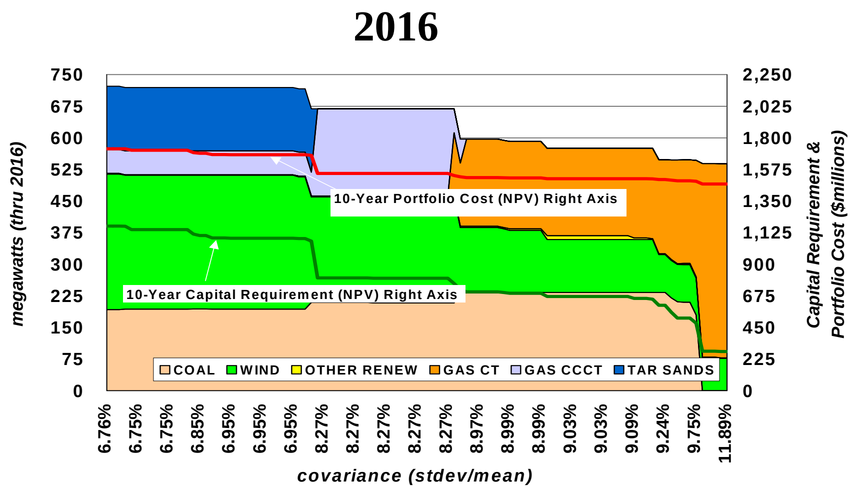
ENERGY AT WORK

AVISTA Utilities

Resource Builds of Efficient Frontier



ENERGY AT WORK

AVISTA Utilities

Preliminary Observations

- Lowest Cost Heavily Dependent on Peaking Gas Turbines
  - Implies heavy reliance on spot market
- Lowest Risk Includes More Wind and Coal
  - Capital costs likely are significant
  - $1.2B over 7 years
- Preferred Resource Strategy (PRS) will likely consist of balanced mix of coal, gas and wind
  - Biomass (animal waste) has potential, too

Next Steps

- Refine PRS With Complete Datasets
- Compare Alternative Builds to Efficient Frontier
- Select Point on Efficient Frontier
  - Considering capital cost power supply expense & risk factors
  - Account for “lumpiness” of resource additions

ENERGY AT WORK
AVISTA Utilities

Comments/Suggestions

Avista Corporation

Estimated Resource Integration Costs for the 2005 IRP

April 29, 2005

Scott A. Waples

Introduction:

The Avista Merchant has requested integration costs for various resources that they might acquire in the future. Points of integration are critical for this discussion; however although these resources vary in fuel type, the type of generation is not material for much of this discussion and will be considered only when necessary (when, as in some wind or biomass development, 1000 MW in one facility is not likely).

Various integration points for new generation will be discussed below. It should be noted that rigorous study has not been completed for any of these alternatives (engineering judgment only), thus the costs provided are not of a "construction estimate" quality. Also note that as the size of the resource to be integrated increases, the certainty of the estimates becomes more suspect. A 50 MW resource can be integrated in many places on our (or other) systems. 350 MW can be integrated in specific areas, 750 MW in fewer; and at the high end- 1000 MW of new resource- a generic integration cost of $1.5 billion has been assigned due to the uncertainty of impacts to the Avista system (and/or its neighboring systems). Should it become clear that Avista requires that size of resource, a detailed regional process would be undertaken to determine the exact impacts and integration costs.

Colstrip:

The present transmission system to the west of (and serving) the Colstrip generating complex is a double circuit 500 kV line. A regional study under the auspices of the Northwest Power Pool (NWPP) NTAC committee is presently underway to determine rough integration costs for such a project. Those studies are not yet complete, so the following estimates are subject to revision in the near future.

- 350 MW: It is expected that to integrate 350 MW at Colstrip, a 500 kV series capacitors and other reinforcements would be required. Cost: Approximately $100M.
- 750 MW: It is expected that to integrate 750 MW at Colstrip, 500 kV series capacitors and other reinforcements (including 230 kV reinforcements in Eastern Washington) would be required. Cost: Approximately $400M.
- 1000 MW: It is expected that major new 500 kV facilities would be required to integrate this capacity at Colstrip. Cost: Approximately $1.5B.

Alberta Oil Sands, Mid Columbia Purchase, Nuclear Purchase, Kennewick Wind:

Presently there is no suitable method of integrating energy from the Alberta oil sands into the Avista system. Because of the distances involved, integration into the United States power grid at capacity levels less than 3000 MW is unlikely. Because of the capacity required for the economics of the project to "pencil", it is anticipated that transmission from the oil sands would be a Direct Current 500 kV line. We assume that one of the DC terminals would be at the Mid Columbia. Avista could then purchase portions of this energy to be delivered to its system from that market hub. It should be noted that a regional scoping effort is presently being undertaken to more closely estimate costs for this project, and thus these estimates should change in the near future.
The Mid Columbia Purchase option should be no different than the Oil Sands integration. Similarly, it is expected that power from a new nuclear plant would be delivered at the Mid Columbia for delivery into the Avista system.

- 350 MW: Estimated Cost: $100M.
- 750 MW: Estimated Cost: $150M.
- 1000 MW: Cost: Approximately $600-800M.

Rosalia:

The present transmission system serving the Rosalia, Washington, area is a low capacity 115 kV line. It might be suitable for integration of 40-50 MW in its present configuration, however by the end of 2007, this line will be reconstructed to a high capacity 230 kV line.

- 350 MW: It is expected that to integrate 350 MW at Rosalia, very little new transmission would be required. Cost: Approximately $10M.
- 750 MW: It is expected that to integrate 350 MW at Sprague, additional 230 kV reinforcement would be required in the Avista system. Cost: Approximately $80M.
- 1000 MW: It is expected that major new 500 kV facilities would be required to integrate this capacity at Sprague. Cost: Approximately $1.5B.

Rathdrum:

The present transmission system serving the Rathdrum, Idaho, area is a high capacity double circuit 230 kV line.

- 350 MW: It is expected that to integrate 350 MW at Rathdrum, very little new transmission would be required. Cost: Approximately $20M.
- 750 MW: It is expected that to integrate 350 MW at Rathdrum, additional 230 kV reinforcement would be required in the Avista system. Cost: Approximately $70M.
- 1000 MW: It is expected that major new 500 kV facilities would be required to integrate this capacity at Rathdrum. Cost: Approximately $1.5B.

Sprague:

The present transmission system serving the Sprague, Washington, area is a low capacity 115 kV line. This line might be suitable for integration of 40-50 MW in its present configuration, however new 230 kV construction would be required for any larger amount of generation.

- 350 MW: It is expected that to integrate 350 MW at Sprague, a double circuit 230 kV line would be constructed between the plant and the Spokane area. Cost: Approximately $50M.
- 750 MW: It is expected that to integrate 350 MW at Sprague, a high capacity double circuit 230 kV line would be constructed between the plant and the Spokane area. Additional transmission would be required between the site and the Mid Columbia. Cost: Approximately $100M.
- 1000 MW: It is expected that major new 500 kV facilities would be required to integrate this capacity at Sprague. Cost: Approximately $1.5B.

Eastern Montana Wind:

The present transmission system to the west of (and serving) the present generation in Montana is a double circuit 500 kV line. A regional study under the auspices of the Northwest Power Pool (NWPP) NTAC committee is presently underway to determine rough integration costs for wind integration from eastern Montana. Those studies are not yet complete, so the following estimates are subject to revision in the near future.

- 350 MW: It is expected that to integrate 350 MW at Sprague, a double circuit 230 kV line would be constructed between the plant and the Spokane area. Cost: Approximately $150M.
- 750 MW: It is expected that to integrate 350 MW at Sprague, a high capacity double circuit 230 kV line would be constructed between the plant and the Spokane area. Additional transmission would be required between the site and the Mid Columbia. Cost: Approximately $450M.
- 1000 MW: It is expected that major new 500 kV facilities would be required to integrate this capacity at Sprague. Cost: Approximately $1.5B.

Othello Area Wind

Project sizes of between 80-150 MW have been proposed for the Othello area. Depending upon the final project size, location, and timing, integration costs could vary from $10M to $70M. Detailed studies would need to be completed to optimize the transmission in this area if this wind development were to occur.

Nevada Geothermal:

Generation from Nevada would have to be wheeled over other systems. Costs for this alternative is not known.

Landfill Biomass, Manure Biomass

Biomass generation is expected to be small. Integration costs are not known.

Scenario Results

2005 Integrated Resource Plan
Sixth Technical Advisory Committee Meeting
May 18, 2005

John Lyons

Scenario Definition

A scenario is not modeled stochastically. Scenarios use average forecasts for hydro, load, gas, and wind generation to simulate the impact of a major change in a single assumption. The change has to be plausible and significant enough to potentially alter resource decisions.

Advantages: faster solution time than stochastic modeling and easier to understand the impacts of a significant change in assumptions.

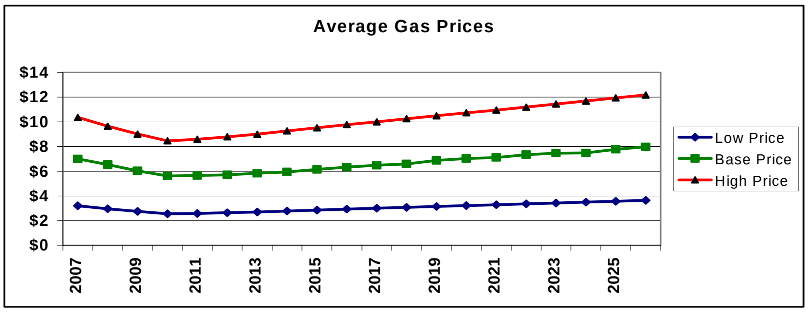
Disadvantages: unable to quantitatively assess risk of market volatility.

Scenario Process

- Each of the scenarios were developed to help us understand the impact of a significant change in our assumptions about the future.
- The values of different resources will fluctuate under different scenarios. The different resource values will be included in the final IRP.
- A wind plant will be worth more than a coal plant in a high carbon tax environment.
- An overall increase in the gas market will change marginal resources.
- These examples show our understanding of the general direction of resource changes under different scenarios, but we still need to calculate the scenarios to understand the magnitude of the changes.
- Some scenarios are calculated using Aurora because the entire WECC marketplace will be affected, while others are more easily solved outside of Aurora because they only affect Avista.

Gas Sensitivity Scenarios

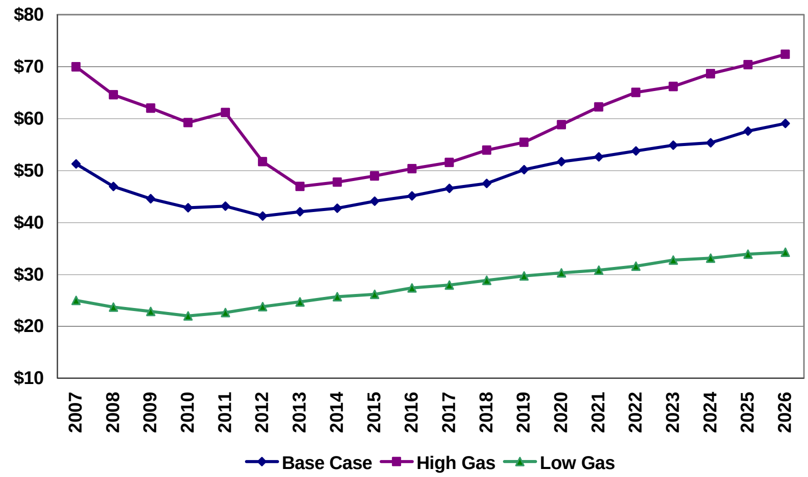
- The high gas scenario increases average gas prices by 50%
- The low gas scenario decreases average gas prices by 50%
- These scenarios are designed to show to fundamental increases or decreases in the natural gas markets



ENERGY AT WORK

AVISTA Utilities

Gas Sensitivity Scenario Results



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ENERGY AT WORK

AVISTA Utilities

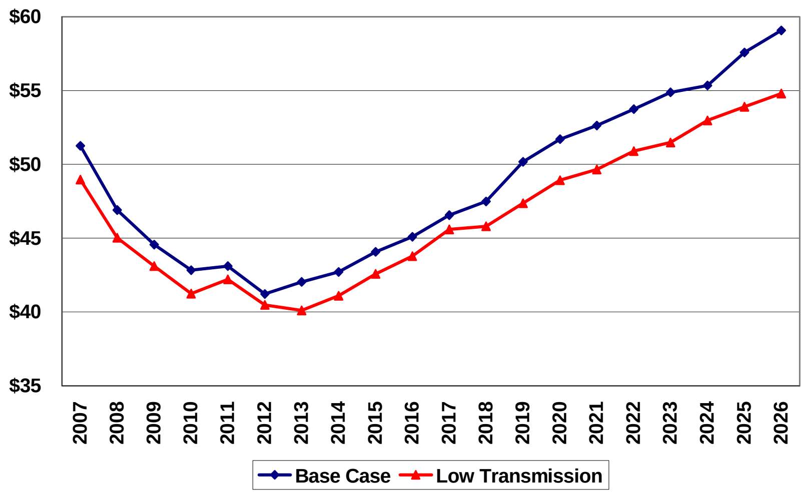
Low Transmission Scenario

• The low transmission scenario reduces transmission capital costs by one third for every new resource type.

• Accurate transmission costs are a big unknown since there has not been significant large transmission projects completed recently. This scenario gives us another view on transmission to help with our preferred strategy.

6

Low Transmission Scenario Results



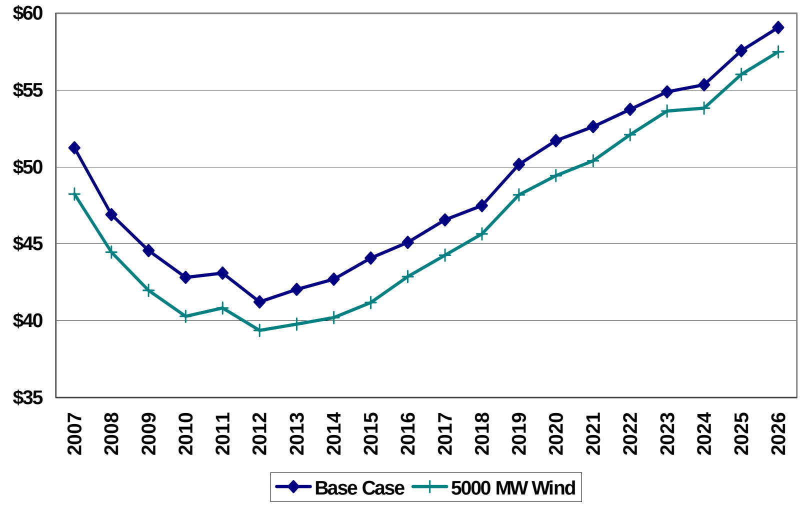
High Wind Penetration Scenario

•The High Wind Penetration scenario assumes that 5,000 MW of wind power in the northwest is used to replace other generating resources.

•This scenario is designed to find out the overall resource impact of integrating a large amount of wind into the system.

ENERGY AT WORK

High Wind Penetration Scenario Results



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ENERGY AT WORK

Boom Bust Scenario

• The Boom Bust scenario makes the assumption that a boom period of generating asset construction drives down market prices which results in a lack of new assets being developed for a period of time until markets are so tight that another building spree occurs.

• This scenario was analyzed by starting with the base case and only allowing new plants to be built every five years starting in 2010.

• This scenario shows the boom and bust building cycles that have been seen in recent years. Is this magnitude large enough?

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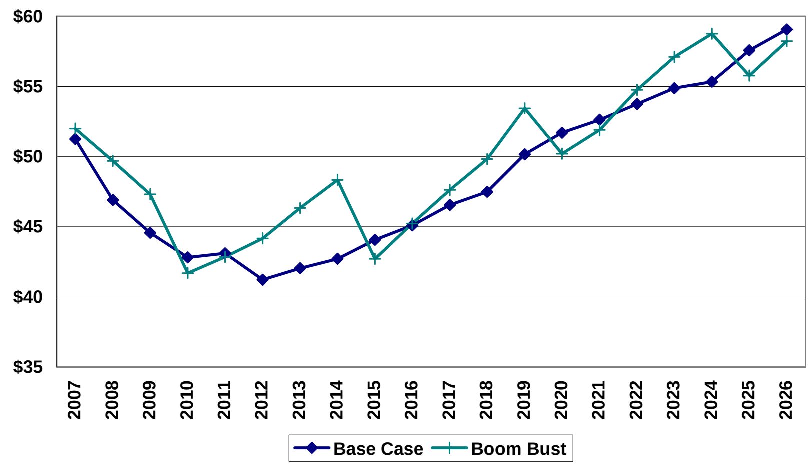
Boom Bust Scenario Results



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ENERGY AT WORK

Emissions Scenario

- The two emissions scenarios assume that a federally mandated cap and trade program is initiated to curb greenhouse gases (GHG).

- The NCEP scenario uses the analysis of the National Commission on Energy Policy. This scenario starts at $7 per metric ton of CO2 equivalent in 2010 and increases to $15 per metric ton in 2026 Gas prices do not increase under this scenario.

- The EIA scenario is based upon the EIA analysis of the McCain-Lieberman Climate Stewardship Act. The act starts in 2010 with a initial price of $22 per metric ton of CO2 equivalent and increases to $60 per ton by 2026. Gas prices increase by 30% under this scenario.

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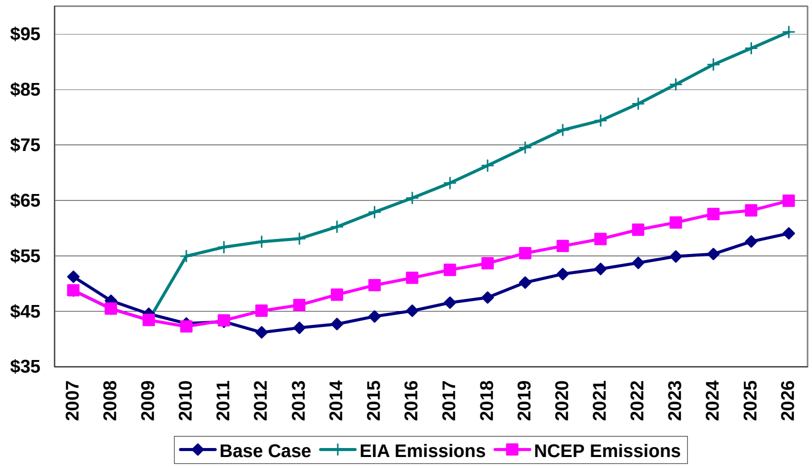
Emissions Scenario Results



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ENERGY AT WORK

AVISTA Utilities

Fundamental Hydro Shift Scenario

- The Fundamental Hydro Shift scenario assumes that the recent low water conditions are actually a permanent shift instead of temporary drought.
- Average streamflow conditions are reduced by 10% in this scenario.
- This scenario was developed to help us understand our resource decisions under a permanent water change.
- The analysis shows that there is no significant impact on the market because gas is still on the margin.

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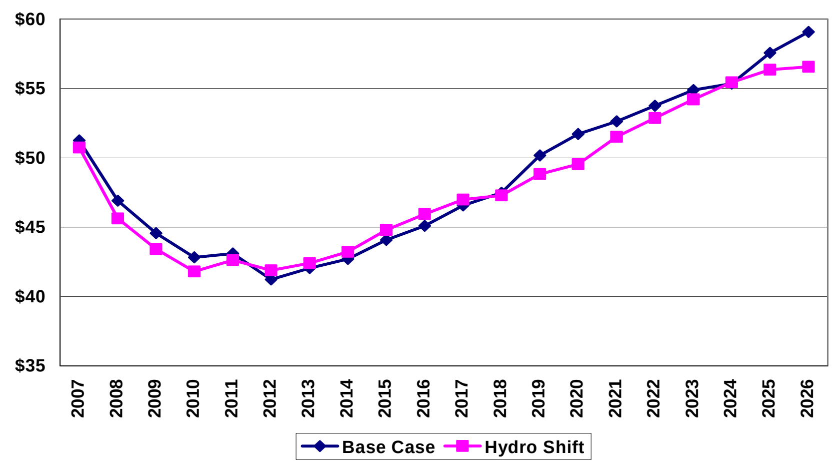
ENERGY AT WORK

Fundamental Hydro Shift Scenario Results



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ENERGY AT WORK

Avista Only Scenarios

The following scenarios do not require new capacity expansion runs and have not been completed yet:

• Loss of Large Avista Plant – simulates loss of Noxon for 5 years

• High Avista Load – doubles the projected load growth to 4%

• Low Avista Load – zero projected load growth

• Loss of Spokane River Projects – All Avista projects on the Spokane River are lost

• Long Haul Coal – new coal plant is sited within Avista service territory and coal is railed to the plant

• Green Growth Initiative – all new Avista resources are renewable

• Double Avista DSM – DSM acquisitions are doubled

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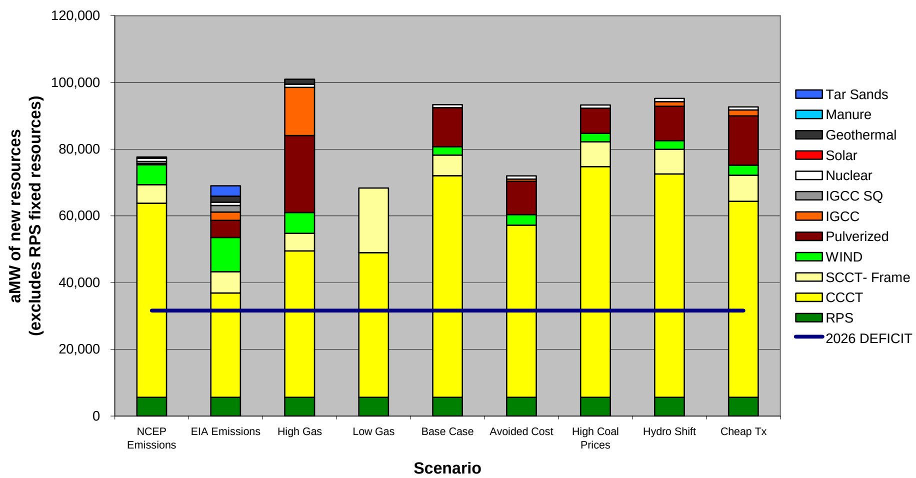
Summary of Scenario Results



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Avoided Costs

2005 Integrated Resource Plan
Sixth Technical Advisory Committee Meeting
May 18, 2005

Clint Kalich

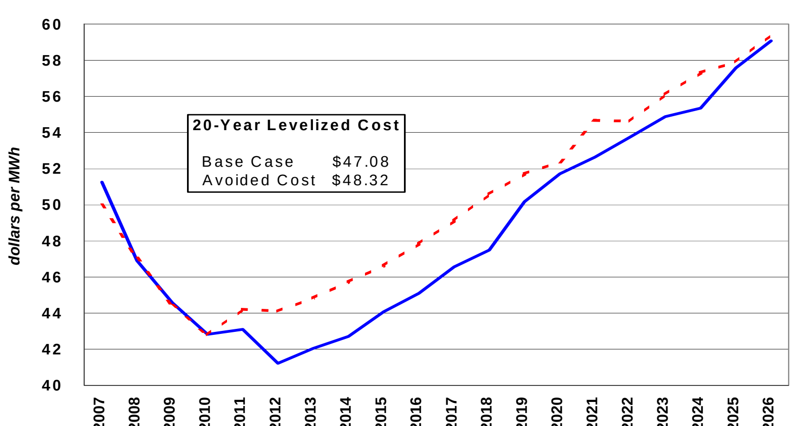
What Is An Avoided Cost?

- Theoretical Price Company Would Pay For A New Resource
- Based On Least-Cost Resource
- Includes Both Capital and Operating Expenses of the Resource

Avoided Cost In 2005 IRP

- AURORA Model Run Sets Avoided Cost
- Capacity Credits Assumed For Base Case Are Eliminated for AC Run
  - Capacity credits are used to help AURORA better emulate the regulated power supply market (i.e., over-build)
  - Market price with capacity credits necessarily understates cost of power since capacity credits are "theoretical" and cannot be avoided

Comparison of Avoided Costs and Wholesale Market Prices



Conclusions

- Wholesale Marketplace Likely Understates Avoided Cost
- Caused By Societal Desire To Build More Resources Than Price Alone Would Support
  - Reduces market volatility
- 2005 IRP Shows Cost Of Extra Resources is Modest (~ $1.50/MWh, or 3%)
- IRP Schedule Will Be Used In WA For PURPA <1 MW

ENERGY AT WORK

AVISTA Utilities

Hydro Upgrades

2005 Integrated Resource Plan
Seventh Technical Advisory Committee Meeting
June 23, 2005

Clint Kalich

1

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Hydro Upgrades

Noxon Rapids Development

Cabinet Gorge Development

- Upgrades to Clark Fork River Project
  - ✓ Cabinet 4
  - ✓ Noxon 1 - 4
- Hydro upgrades will begin September 2006 and last through March 2011
  - ✓ Each upgrade will be a 6-month project
- Upgrades will avoid future maintenance costs and outages and have favorable Net Present Values

2

ENERGY AT WORK

AVISTA Utilities

Cabinet Gorge #4 Upgrade

- 6 month project beginning September 2006
- Increase Energy Production by 0.1 aMW and Capacity by 6 MW
- Expected Capital Cost of $4.7 Million
- Avoided Major Maintenance: N/A
- 20 year NPV: $4.3 Million
- 35 year NPV: $5.1 Million

3

ENERGY AT WORK

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Noxon Rapids #4 Upgrade

- 6 month project beginning September 2007
- Increase Energy Production by 1.2 aMW and Capacity by 7 MW
- Expected Capital Cost of $3.8 Million
- Avoided Major Maintenance: $3.6 Million
- 20 year NPV: $2.5 Million
- 35 year NPV: $3.6 Million

4

ENERGY AT WORK

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Noxon Rapids #1 Upgrade

- 6 month project beginning September 2008
- Increase Energy Production by 2.3 aMW and Capacity by 10 MW
- Expected Capital Cost of $4.1 Million
- Avoided Major Maintenance: $3.6 Million
- 20 year NPV: $8.3 Million
- 35 year NPV: $10.6 Million

5

ENERGY AT WORK

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Noxon Rapids #2 Upgrade

- 6 month project beginning September 2009
- Increase Energy Production by 1.1 aMW and Capacity by 11 MW
- Expected Capital Cost of $3.8 Million
- Avoided Major Maintenance: $3.6 Million
- 20 year NPV: $2.5 Million
- 35 year NPV: $3.3 Million

6

Noxon Rapids #3 Upgrade

- 6 month project beginning September 2010
- Increase Energy Production by 1.3 aMW and Capacity by 10 MW
- Expected Capital Cost of $3.9 Million
- Avoided Major Maintenance: $3.6 Million
- 20 year NPV: $5.3 Million
- 35 year NPV: $6.8 Million

Summary

Year	Cab 4	Nox 1	Nox 3	Nox 4	Nox 2	Total
Capacity (MW)	7.0	10.0	10.0	7.0	11.0	45.0
Generation (GWh)	0.6	20.4	11.8	10.2	8.8	51.8
Generation (aMW)	0.1	2.3	1.3	1.2	1.0	5.9
Capital Cost ($millions)	4.7	4.1	3.9	3.8	3.8	20.3
Avoided Major Maint. ($millions)	0.0	3.6	3.6	3.6	3.6	14.4
35-Year NPV ($millions)	5.1	10.6	6.8	3.6	3.3	29.4
20-Year NPV ($millions)	4.3	8.3	5.3	2.5	2.5	22.9

ENERGY AT WORK

AVISTA Utilities

Emissions

2005 Integrated Resource Plan
Seventh Technical Advisory Committee Meeting
June 23, 2005

John Lyons

1

ENERGY AT WORK

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Current Emissions News

- Senator Jeff Bingaman (D-NM) recently considered legislation similar to the National Commission on Energy Policy recommendations
- The Amended McCain-Lieberman bill was defeated on June 22nd in favor of the voluntary reductions by Senator Chuck Hegel (R-Neb.)
- Another attempt to reduce greenhouse gas emissions is to require a 10% renewable portfolio standard (net of hydro) by 2020

2

ENERGY AT WORK

Avista Studies

- The Company studied and modeled the National Commission on Energy Policy and the McCain-Lieberman bill (S. 342)
- The company modeled these scenarios using the AURORA^{XMP} model by adding a “tax” to CO_2 production
- The S. 342 CO_2 tax estimate was provided from the Analysis of S. 139, the Climate Stewardship Act of 2003, published in 2003 by the EIA

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ENERGY AT WORK

Avista Studies (cont.)

- CO_2 taxes were applied to all plants expected to produce taxable emissions
- Each plant has an opportunity cost of producing power or selling emission credits
- The studies did not include a production tax credit for renewable resources such as wind
- S. 342 scenario includes a small demand response reduction in load based on the study done by the EIA.
- The model was tasked with optimizing cost and emissions based on the estimated cap and trade costs of the two scenarios

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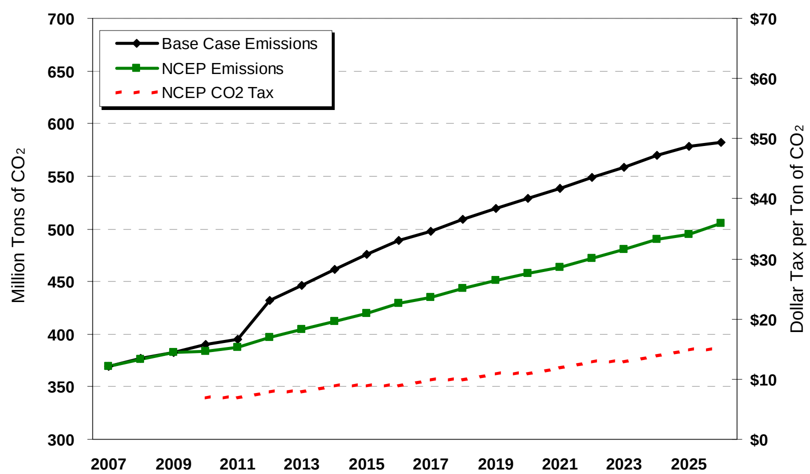
ENERGY AT WORK

AVISTA Utilities

NCEP Study Results - Emission Levels

Entire Western Interconnect



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ENERGY AT WORK

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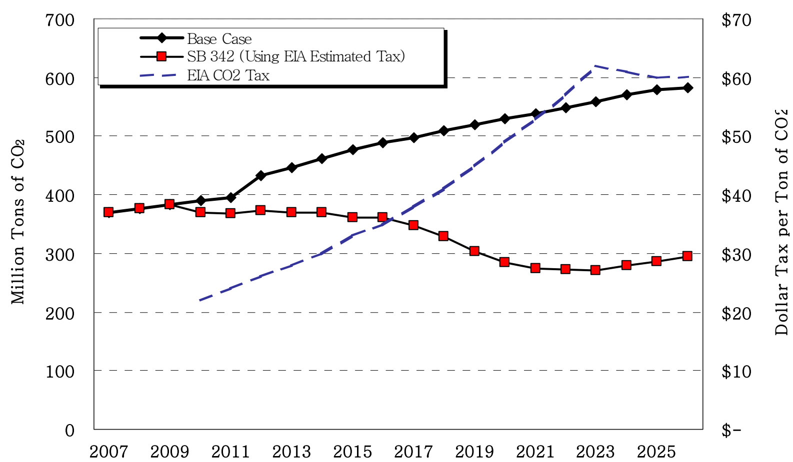
S. 342 Study Results - Emission Levels

Entire Western Interconnect



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ENERGY AT WORK

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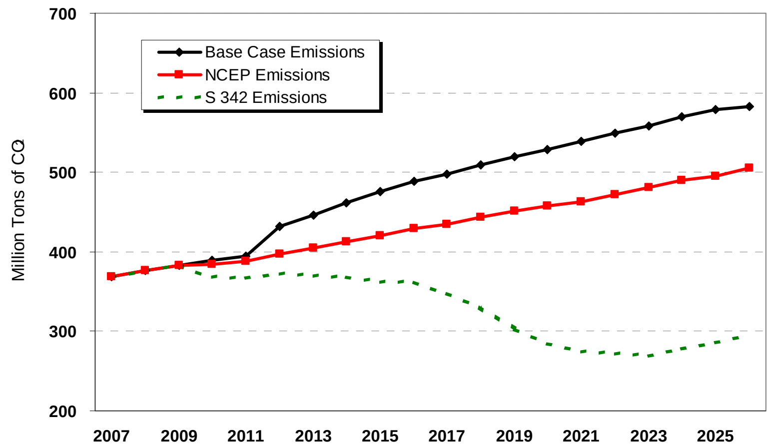
Western Interconnect Emission Levels



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ENERGY AT WORK

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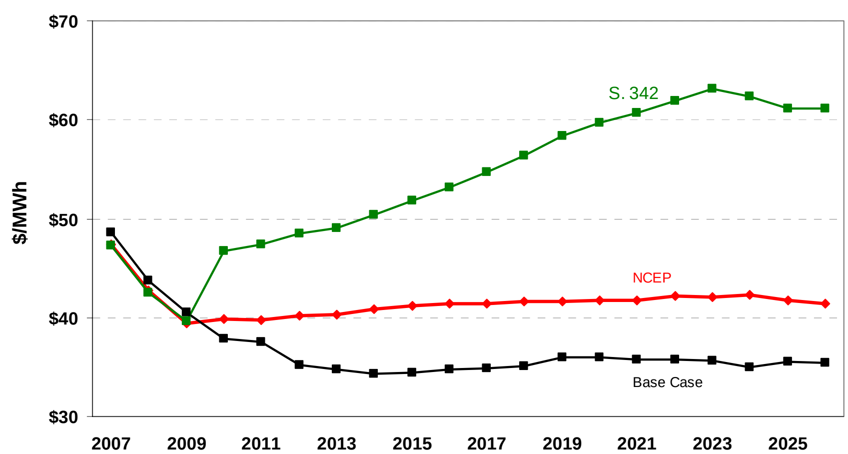
Comparison of Mid Columbia Prices

2005 Dollars



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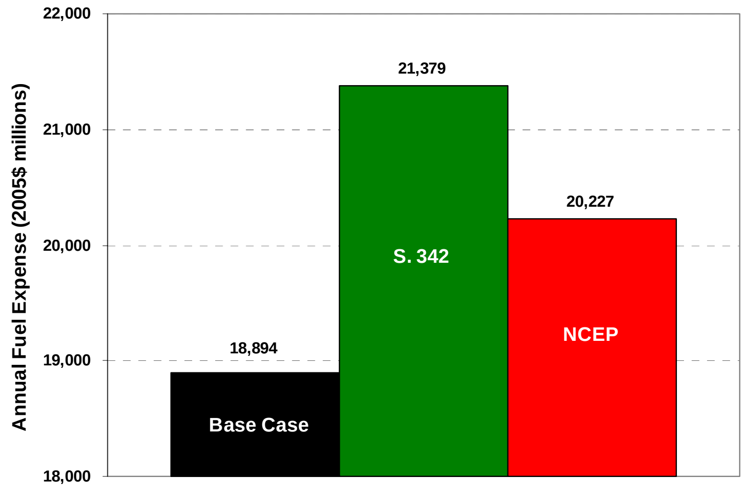
Comparison of Average Annual Fuel Expense

2005 Dollars



S. 342 is a 13% increase over the Base Case

NCEP is a 7% increase over the Base Case

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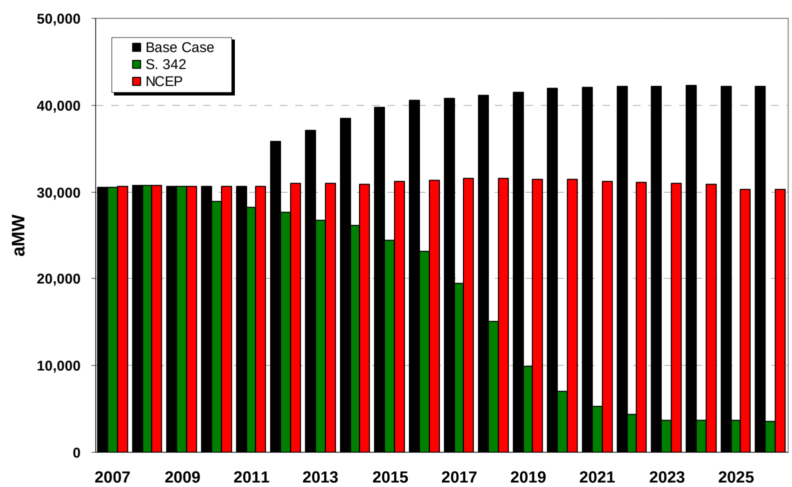
Comparison- Coal Generation

aMW



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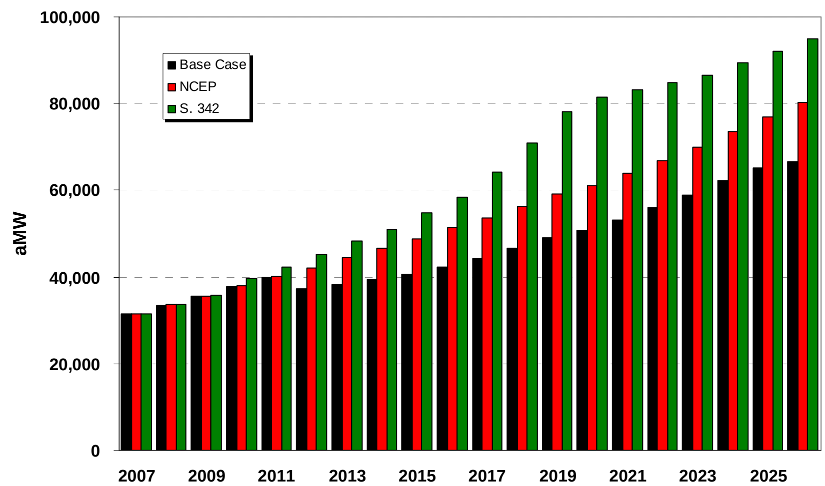
Comparison- Gas Generation

aMW



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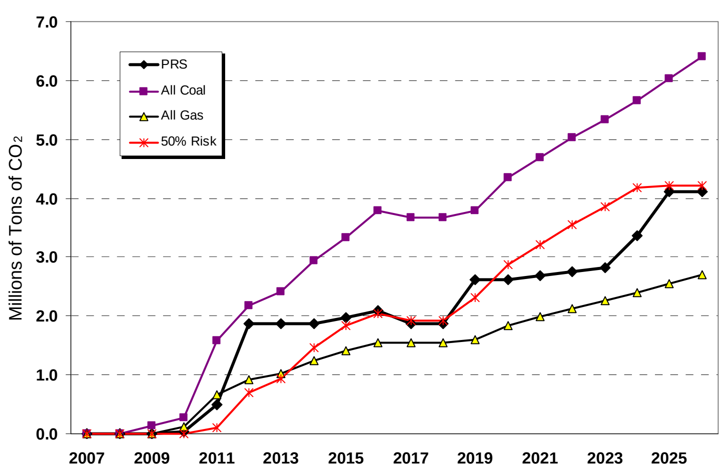
Avista Portfolios- Millions of Tons of CO_2



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ENERGY AT WORK

AVISTA Utilities

Demand-Side Management

2005 Integrated Resource Plan
Seventh Technical Advisory Committee Meeting
June 23, 2005

Jon Powell

1

ENERGY AT WORK

AVISTA Utilities

Overview

- Defined 49 DSM measures
  - Combined two measures into one
  - Insufficient data to evaluate two measures
- Tested against a 8760-hour avoided cost +10%
- 36 measures passed the TRC test
- 5.4 amW (47.5 million kWhs) pass TRC test
  - Local acquisition component only
    - Excludes 1.0 to 1.4 amW share of regional acquisition
  - Local acquisition 19% over current goal
  - Local +regional acquisition 41% to 49% over current
  - Overall acquisition goal exceeds share of NPCC goal
- Applying IRP results in completing the tactical stage of Avista's 2006 DSM business plan

2

ENERGY AT WORK

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DSM Operational Issues

- Our “All Comers” tariff
- Diversity of projects within an IRP category
- Customer service issues
- Trade Allies, Vendors, Retailers
- Regional Market Transformation
- Measure / Program packages

3

ENERGY AT WORK

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Integration Methodology

- Integration by price
  - DSM is
    - A small acquisition <u>on an annual basis</u>
    - Currently non-dispatchable
  - Consequently DSM
    - → will not change the dispatch or Avista or regional resources
    - → will not influence avoided cost (not interactive with price)
    - → can be modeled as a “price taker”
  - An avoided cost “price signal” is sent to DSM
  - DSM acquires all TRC cost-effective measures relative to that avoided cost
  - Allows for addition and refinement of testing of DSM measures over time against the 2005 IRP avoided cost

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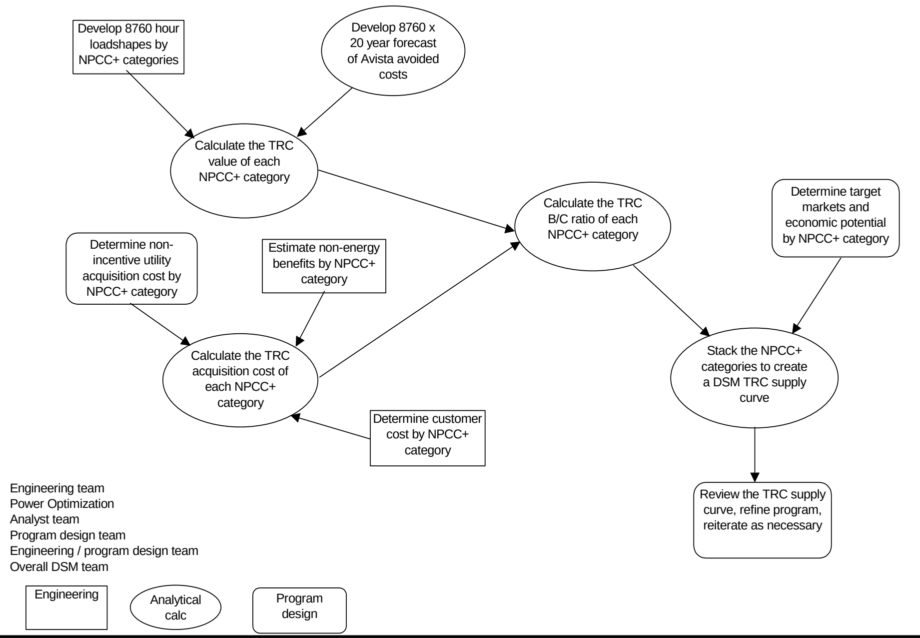
ENERGY AT WORK — AVISTA Utilities

Integration of DSM into the 2005 Electric IRP



ENERGY AT WORK — AVISTA Utilities

Assumptions

- Global assumptions
  - Discount rate / inflation consistent with IRP forecast
- TRC calculations
  - Two alternate approaches
    - TRC with NEB’s and natural gas as benefits
      - The traditional approach used by Avista for past reporting
      - Results in a more meaningful B/C ratio
    - TRC with NEB’s and natural gas AC as negative costs
      - Results in a more meaningful TRC levelized cost

6

Definition of the Measures

- 49 measures defined
  - 8 industrial, 21 commercial, 19 residential, 1 utility distribution
  - Two PC control measures combined
  - CVR, rooftop HVAC measures placed on hold
- Measure distinctions primarily based upon
  - 8760-hour load shape
  - Customer cost per 1st year kWh
  - Other characteristics (NEB, non-incentive utility cost, natural gas impact)

Measures tested

Commercial CFL
School CFL
Residential CFL
Industrial refrigeration
Industrial hydraulics
Industrial pumps
Industrial fans blowers
HE A/C, internal load bldg
Avista network computer
Exit signs
Industrial compressed air
T12-T8 convenience retail
Residential duct insulation
Residential roof insulation
Liquid VFDs
MH to PS, commercial
MH to T5, commercial
Res water heating blanket
Commercial HE heat pumps
T12-T8 industrial
Vapor VFDs
Residential wall insulation
MH to T5, manufacturing

T12-T8 commercial
HE A/C, skin load buildings
MH to PS, manufacturing
Residential W/H E to G conversion
Residential prog TS, el resistance
Res HE AC
Res SH FS (ducted)
MH to PS, parking lots
Residential prog TS, heat pump
MH to T5, gyms
Res heat pump
Non residential appliances
Residential floor insulation
Res SH FS (unducted)
MH to PS, gyms
T12-T8 schools
Residential water heating efficiency
Residential prog TS, AC only
Residential E facing windows
Residential W facing windows
Residential S facing windows
Non residential shell
Residential N facing windows

Measures eliminated

Individual PC network controls

Measures not tested

Controlled voltage reduction
Rooftop HVAC

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Characterization of the Measures

- 8760-hour load shape
- Measure costs & benefits
  - Avoided electric cost
  - Non-energy benefits
  - Natural gas impact
  - Customer cost
  - Non-incentive utility cost
- Calculations
  - TRC B/C ratio → NEBs and gas AC are benefits
  - TRC levelized cost → NEBs and gas AC are costs

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ENERGY AT WORK

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The Analysis

- Began with complete indexing to historical acquisition
- Iterative improvement process
  - Fine-tuned to maximize net TRC benefits
- Aggregate resource acquisition tested ranged from 4.1 amW to 7.0 amW
- Final test portfolio consisted of 5.8 amW
  - 5.4 amW of this passing the TRC test
  - 36 of 46 measures tested passed
- All evaluated measures stacked by TRC B/C
  - Creating a downward sloping supply curve
- Methodology allows for post-IRP refinement to be integrated into DSM operations

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ENERGY AT WORK

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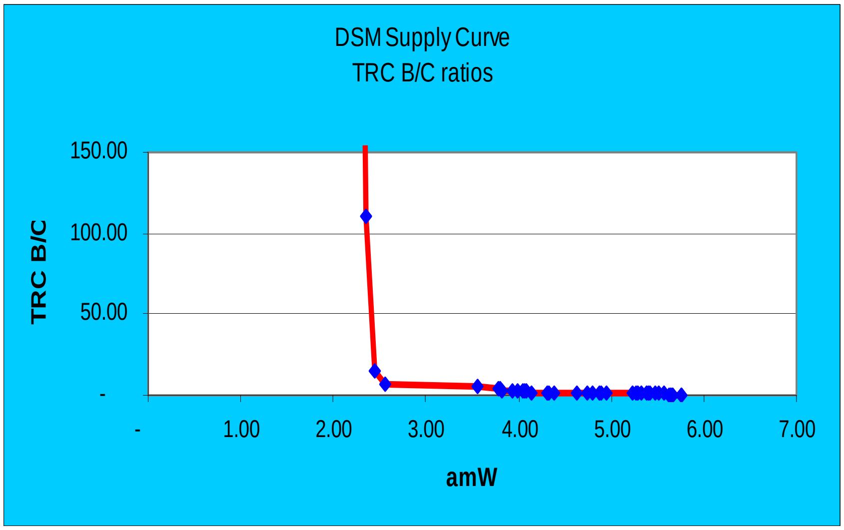

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ENERGY AT WORK

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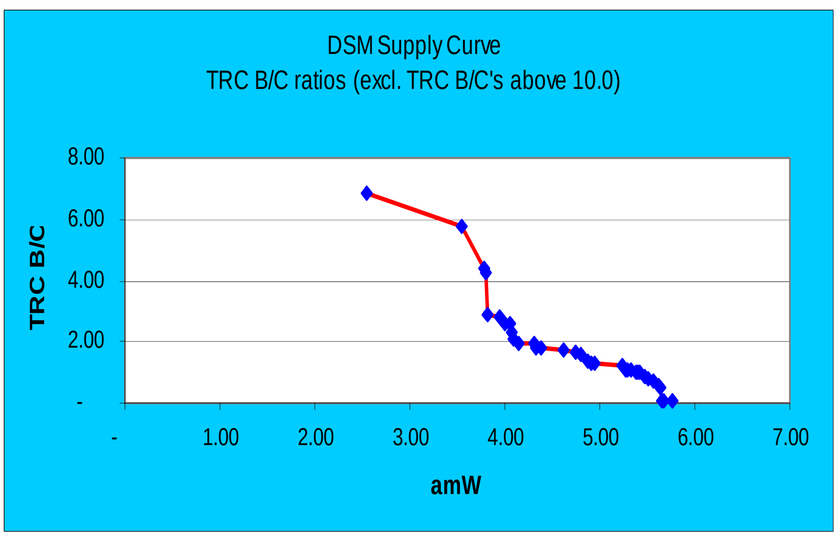

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ENERGY AT WORK

Traditional (upward sloping) supply curve

- Graphically represent TRC levelized cost for TRC B/C ranked measures
- Results in a "notched" upward sloping supply curve
  - Attributable to recognition of load shape in B/C ratio (not recognized in TRC levelized cost)

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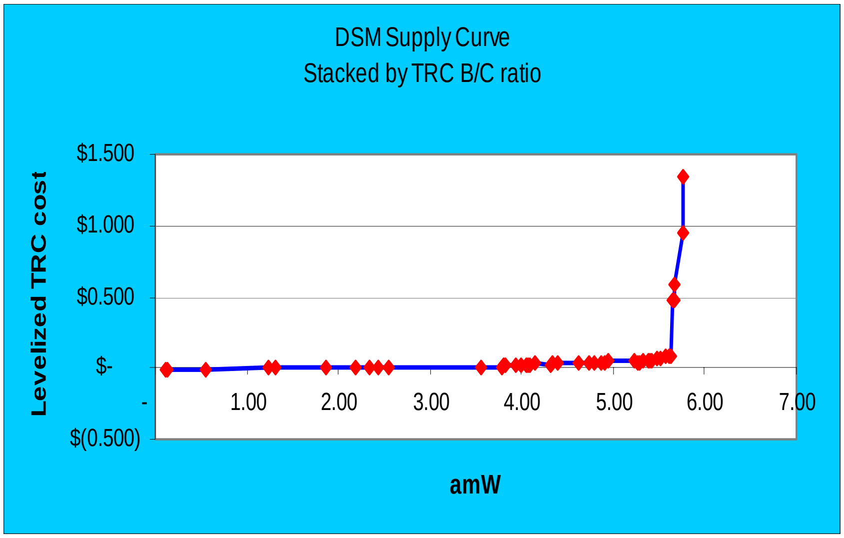
ENERGY AT WORK



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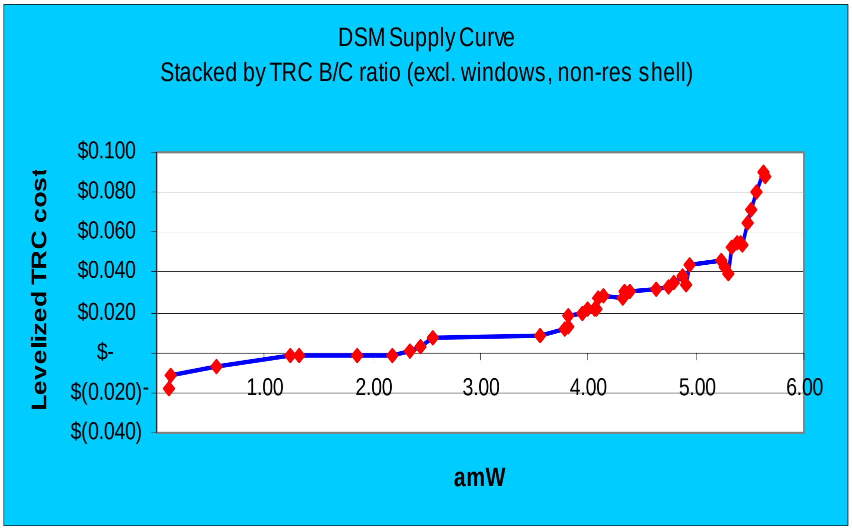

Regional Program Interaction

- Previous measures are local utility acquired resources
  - Any kWh “touched” by local utility is a local kWh
  - Local kWh’s are excluded from regional tally
  - → Avoids double-counting of resource
    - (Local acquisition overestimate / regional underestimate of attribution)
- → Generally local utility can layer share of regional acquisition on local acquisition
  - 2004 Avista “share” 1.4 amW
- 2005 special note
  - Acceptance of res CFL program results in an overlap

ENERGY AT WORK

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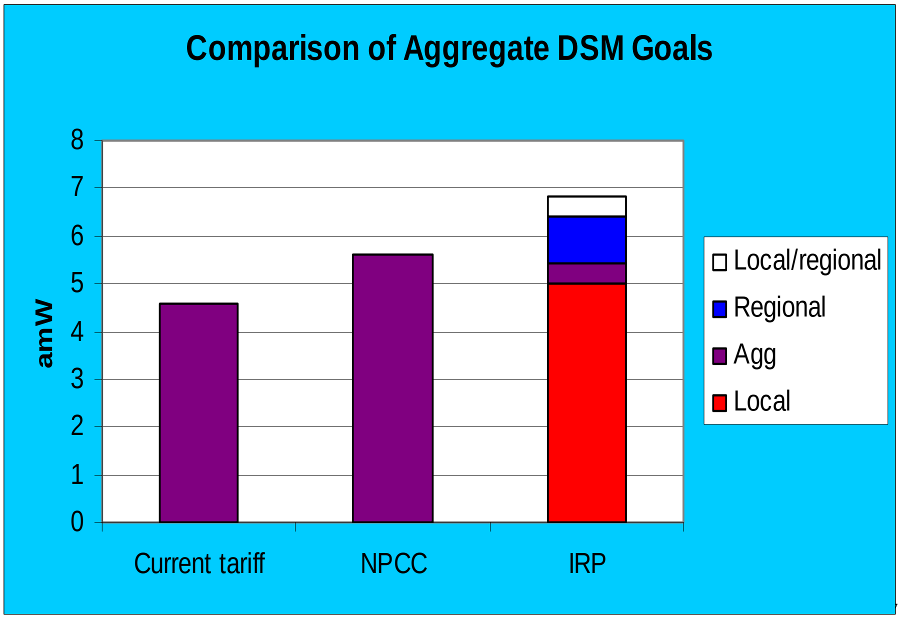

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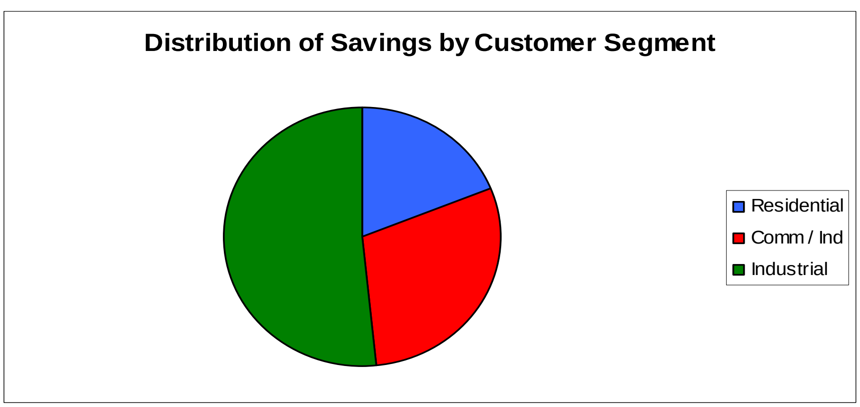

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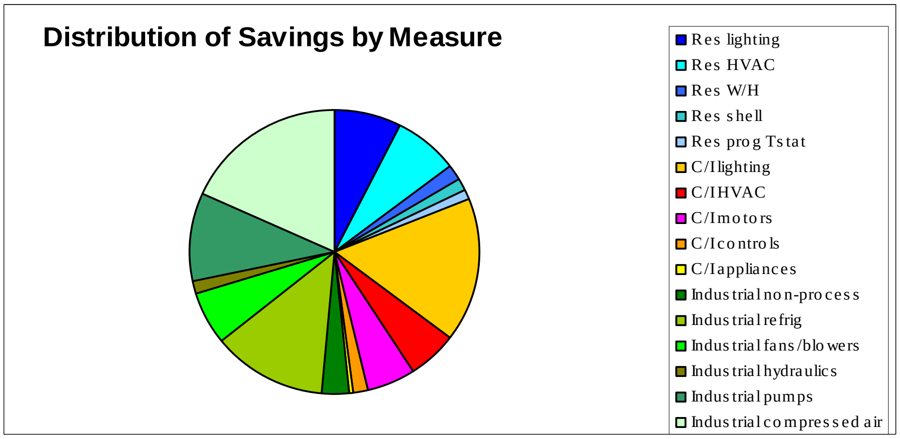

Segment distribution of acquisition

- <u>Lots</u> of industrial
  - Primarily compressed air, refrig, pumps
  - Attributable to participant economics in new retail rate environment
  - Local acquisition most effective approach
  - Some of the most cost-effective measures
- Residential
  - Primarily CFL’s, HE A/C, space heat fuel-efficiency
  - Relatively marginal TRC B/C’s
  - Large share of residential acquisition achieved via regional programs
- Commercial
  - An expected level of total acquisition
  - Primarily lighting (as expected)

ENERGY AT WORK

What will it cost ?

- Targeted goals are achievable within a reasonable range of current DSM funding
  - 52% of 2002-2004 electric DSM revenues were expended
    - Resulting in the recovery of $10.7 million of the $11.8 million in negative electric DSM balance
    - Current (May ’05) combined WA / ID electric DSM balance = $0.2 million
- Future DSM funding strategy
  - Annual revisions to DSM tariff rider sufficient to
    - Eliminate any positive or negative DSM forward balance
    - Fund all TRC cost-effective DSM acquisition in the following year

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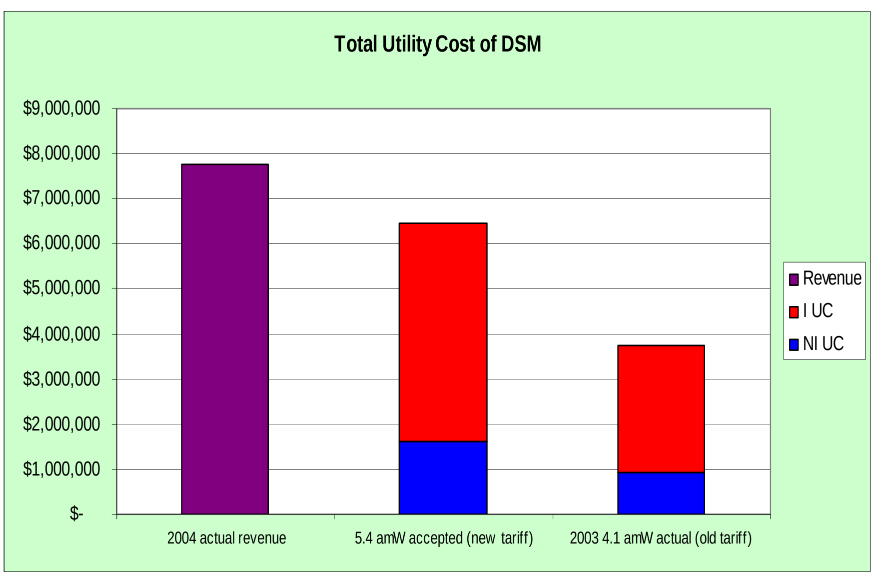
ENERGY AT WORK



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ENERGY AT WORK

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Application of these Results

- Initiation of our 2006 business planning process
  - Centered around appropriate stewardship of customer tariff rider funds
    - Target all TRC cost-effective resources appropriate for local acquisition
- Currently in a transitional period
  - Idaho electric transition to "all CE" initiated in late 2003
  - Washington gas transition initiated in early 2005
  - Washington electric transition initiating in mid-2005
  - Idaho gas transition will occur in late 2005
    - Pending discussion with the IPUC staff and the Triple-E board

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ENERGY AT WORK

AVISTA Utilities

Progress to date

- Late 2003 ramp-up of Idaho electric projects demonstrated utility incentive constraint
  - Effective March 2005 Idaho electric incentives were approximately doubled
  - Same revisions are currently in-process in Washington
- Infrastructure
  - 2.5 FTE added via re-organization in early '05
  - 1.0 FTE of incremental field technical resources in process

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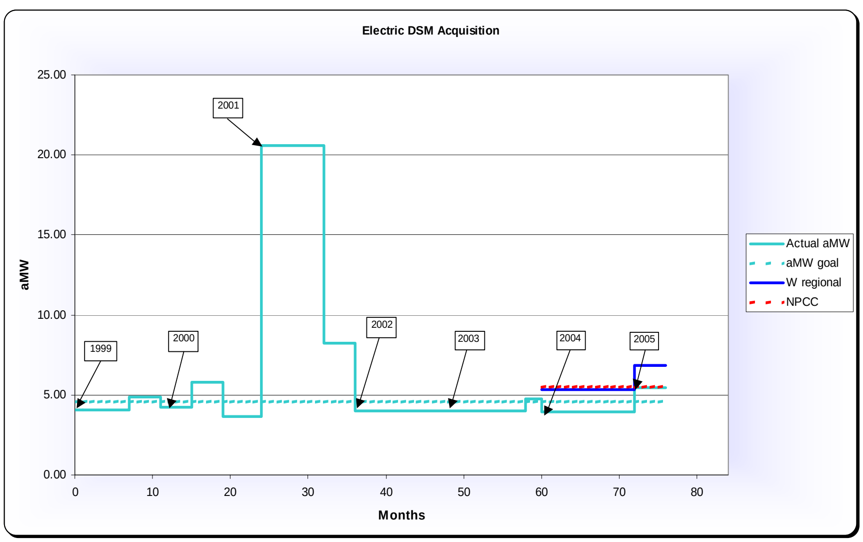
Progress to date

- Funding
  - Recovered $11.9 million of the $12.4 million negative balance left after 2001 emergency program portfolio
    - $11.7 million of the $11.9 million electric balance recovered
  - Future plan is to annually revise tariff riders to recover
    - forward balance
    - Fund acquisition efforts for subsequent year
- YTD May 2005 acquisition
  - 5.44 amW local acquisition
  - Caution: extrapolating five months of data …
  - Not driven by Idaho incentive revisions
  - Retail rate response (efficiency as a substitute for energy)

DSM Acquisition History



ENERGY AT WORK

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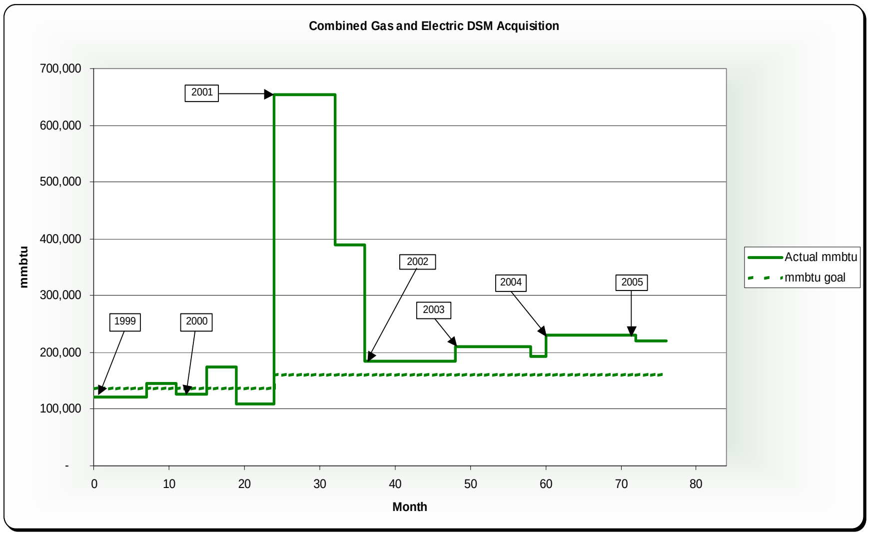
Mmbtu acquisition



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ENERGY AT WORK

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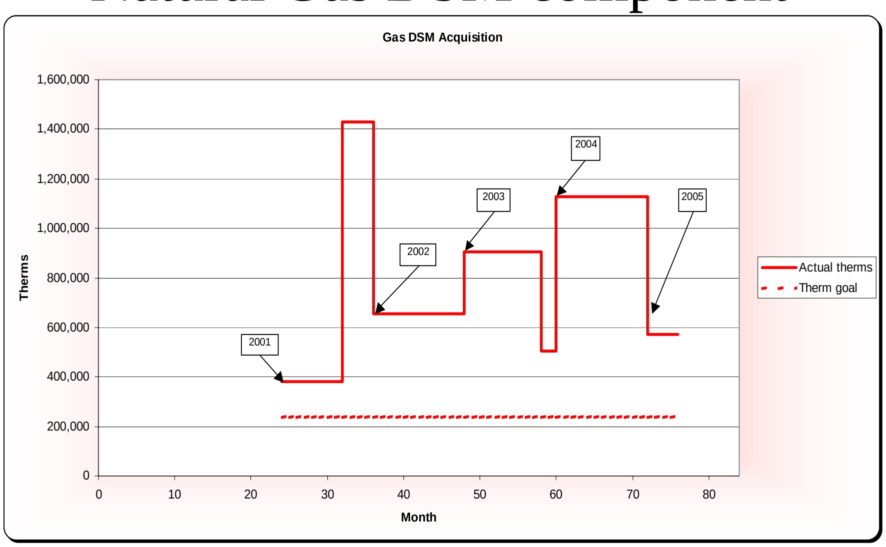
Natural Gas DSM component



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Next Steps

- Complete revisions in Washington electric incentives
- Complete pilot projects for
  - Small commercial rooftop HVAC
  - Conservation Voltage Control
- Review the role of non-utility infrastructure in the utility acquisition of DSM
- Complete program design for new prescriptive residential programs identified in IRP
- Review commercial / industrial DSM efforts in light of IRP results
  - Particular attention to industrial segment
- Maintain / augment infrastructure as necessary

Realistic Considerations

- Diversity of projects within measure category
  - Our "all comers" tariff issue
- Alternative feedback via project-specific calculation of sub-TRC
  - Refine target markets
  - Individual assessment of efficiency opportunities
- Continual re-assessment of evaluated measures
- Addition of new measures as necessary

ENERGY AT WORK

Issues for the Future

- Complete rooftop HVAC pilot program and evaluation
- “DSM in mass” through distribution efficiencies
  - Controlled Voltage Regulation
- Demand-response
  - Capable of testing options against a “richer” 8760-hour load profile
- Continued refinement of our ability to rapidly respond to changing market conditions
  - 2001 western energy crisis response
  - 2005 drought contingency plan response

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ENERGY AT WORK

Questions ?

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Preferred Resource Strategy

2005 Integrated Resource Plan
Seventh Technical Advisory Committee Meeting
June 23, 2005

Clint Kalich

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Goals of PRS

- Meet Future Capacity & Energy Requirements
- Keep Rates Low
- Stable Rates
- Good Performance Across Scenarios

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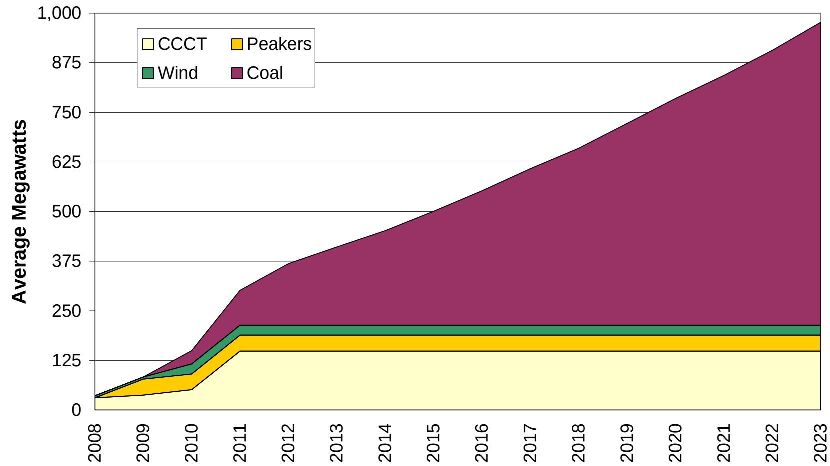
ENERGY AT WORK

AVISTA Utilities

Preferred Resource Strategy—2003 IRP



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ENERGY AT WORK

AVISTA Utilities

Alternative Portfolio Strategies

- No Additions
- All Coal
- All Gas
- 50%/50% Coal/Gas
- All Renewables
- Wind/Gas
- No CO2 Emissions
- Efficient Frontier Strategies
  - 0% Risk
  - 25% Risk
  - 50% Risk
  - 75% Risk
  - 100% Risk

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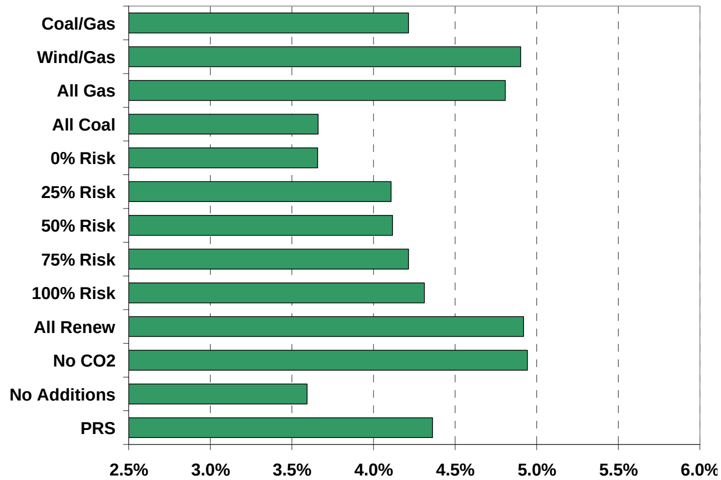
Performance Comparison—Rate Impacts 2007-16



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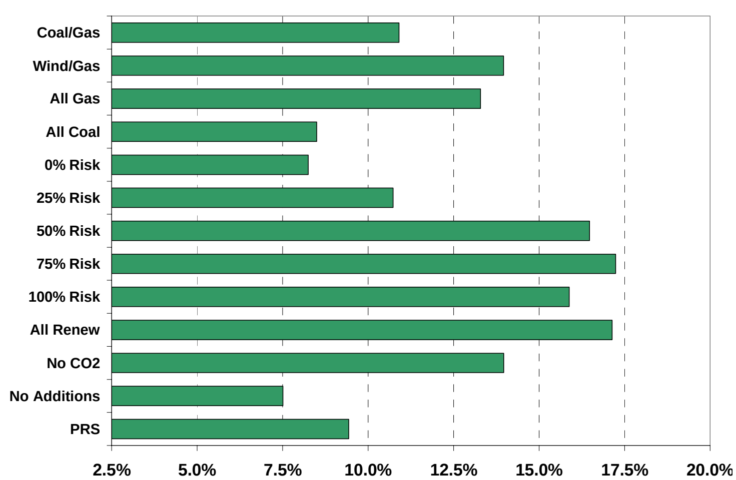
Performance Comparison—Max Rate Increase



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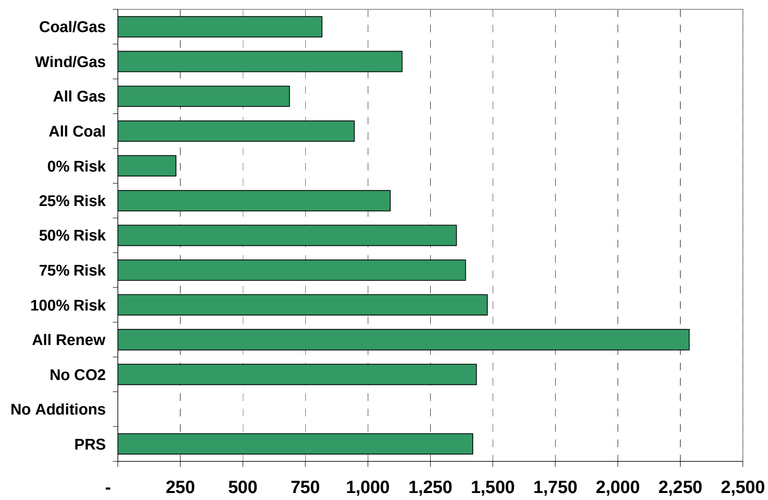
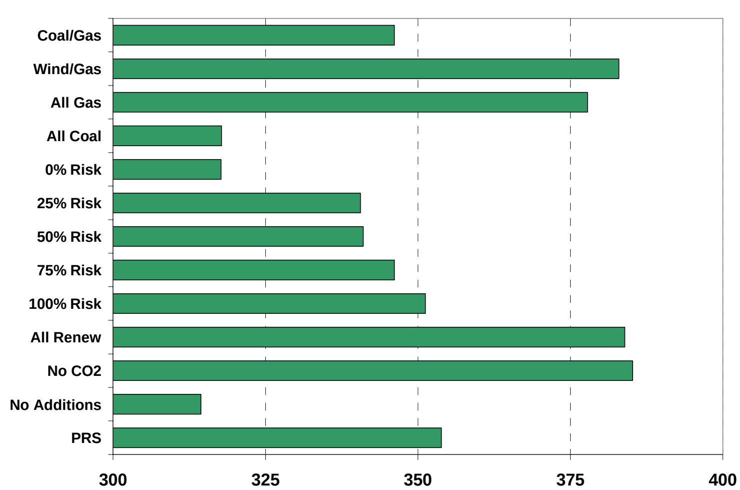
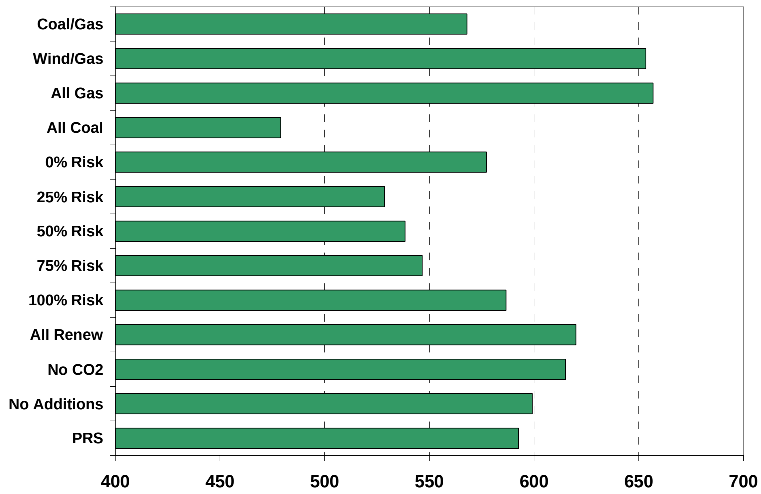
Performance Comparison—Capital Cost 2007-26 (NPV $millions)



Performance Comparison—2016 Incremental Power Supply Expense ($millions)



Performance Comparison—2026 Incremental Power Supply Expense ($millions)



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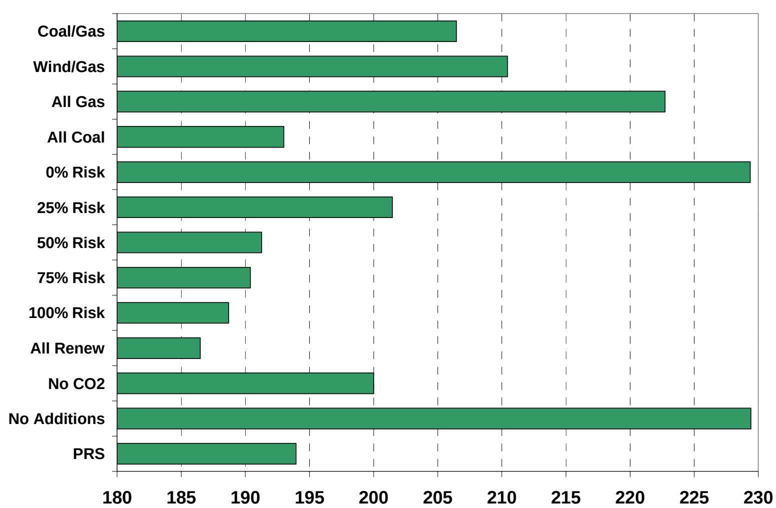
ENERGY AT WORK
AVISTA Utilities

Performance Comparison—Risk (2007-16 NPV of StDev $millions)



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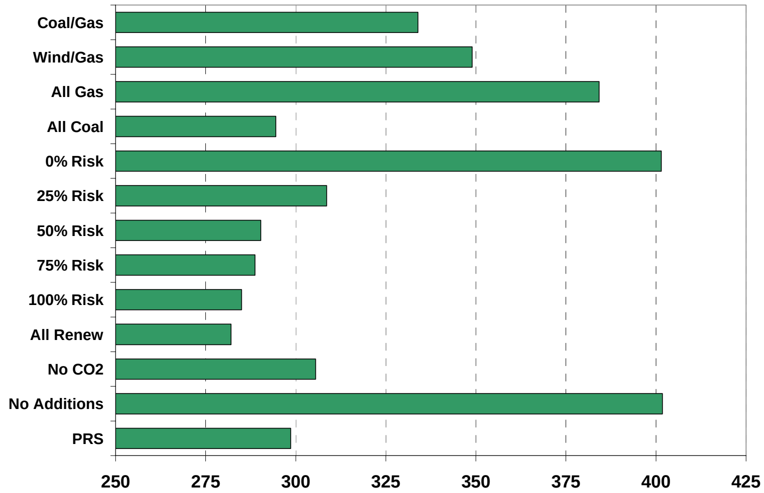
ENERGY AT WORK

AVISTA Utilities

Performance Comparison—Risk (2007-26 NPV of StDev $millions)



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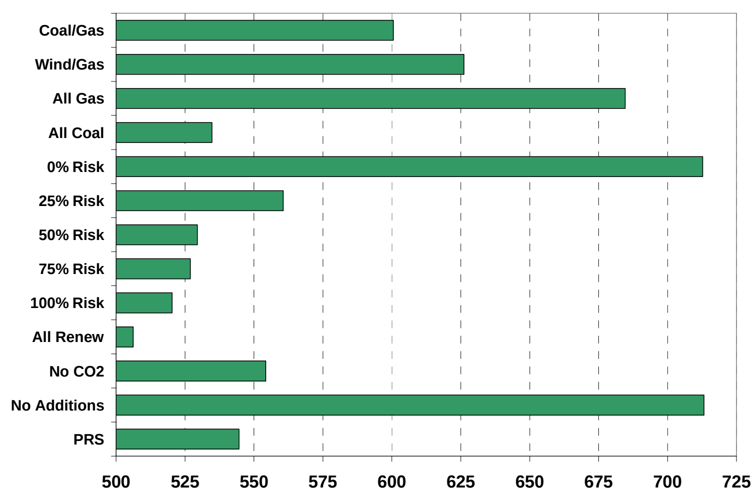
Performance Comparison—Tail Risk (2007-26 NPV of 95th % Vs. StDev $millions)



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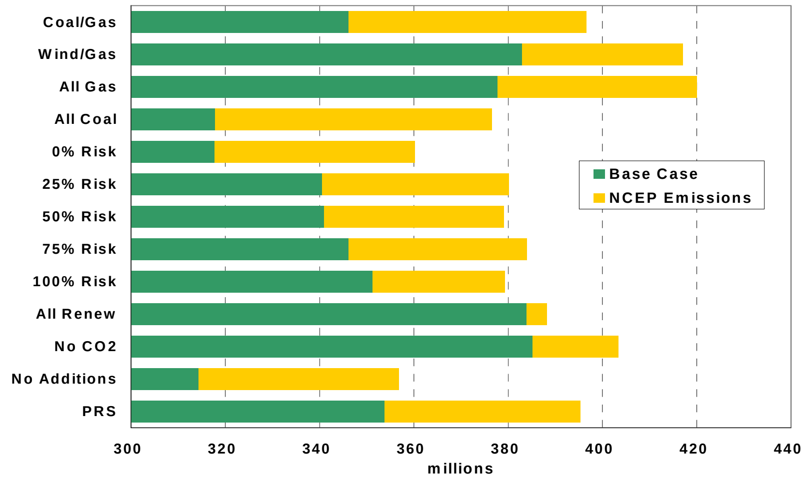
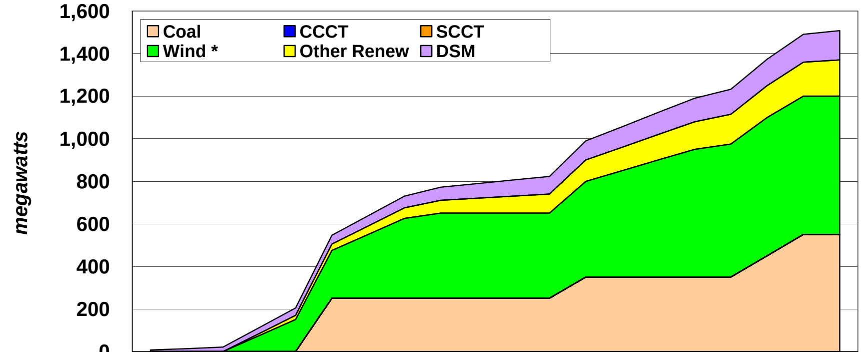
Performance Comparison—NCEP Carbon Market Scenario 2016 Incremental PSE



Highlights of Preferred Resource Strategy

- Large Contribution from Renewable Resources
- 50% Higher Level of DSM
- Significant Reduction in Year-On-Year Rate Volatility
- Strong Performance Across Scenarios
- Reasonable Rate Impacts When Compared to Alternatives

DRAFT Preferred Resource Strategy



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
DSM	7	14	21	28	35	41	48	55	62	69	76	83	90	97	104	110	117	124	131	138
Other Renew	0	0	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Wind *	0	0	0	75	150	225	300	375	400	400	400	400	450	500	550	600	625	650	650	650
SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coal	0	0	0	0	0	250	250	250	250	250	250	250	350	350	350	350	350	450	550	550

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