



**DRAFT 2008 Integrated Resource Plan
Results To-Date**

*Public Meeting
July 15, 2008*

 **Seattle City Light**



Agenda

- Introduction 7:00 PM – 7:15 PM
- Future Business Environment 7:15 PM – 7:30 PM
- Round 2 Results 7:30 PM – 7:45 PM
- Wrap-up and Adjourn 7:45 PM – 8:00 PM



Agenda

- What is an IRP?
 - How does it affect Seattle?
- Round 2 Results
 - Which portfolios of resources performed best?
- Seeking Your Input...
 - Preferred resources and resource portfolios?
 - Should some measures be valued more than others?
 - Cost?, risk?, environmental performance?



What is an Integrated Resource Plan (IRP)?

How Can it Affect Customers?



Not Distribution Reliability...





Not Transmission Reliability...





Power Supply Reliability!





Integrated Resource Planning

- The Integrated Resource Plan:
 - Identifies how much, when, and what kind of energy resources are needed in the next 20 years
 - Treats conservation as equal to power generating resources
 - Includes public involvement
 - Sets a flexible strategy for conservation and resource acquisition
 - Is updated regularly (every 2 years)
 - Is required by Washington State Law



2006 IRP Lowest CO₂ of 15 Western IRPs Lawrence Berkeley Laboratories Study

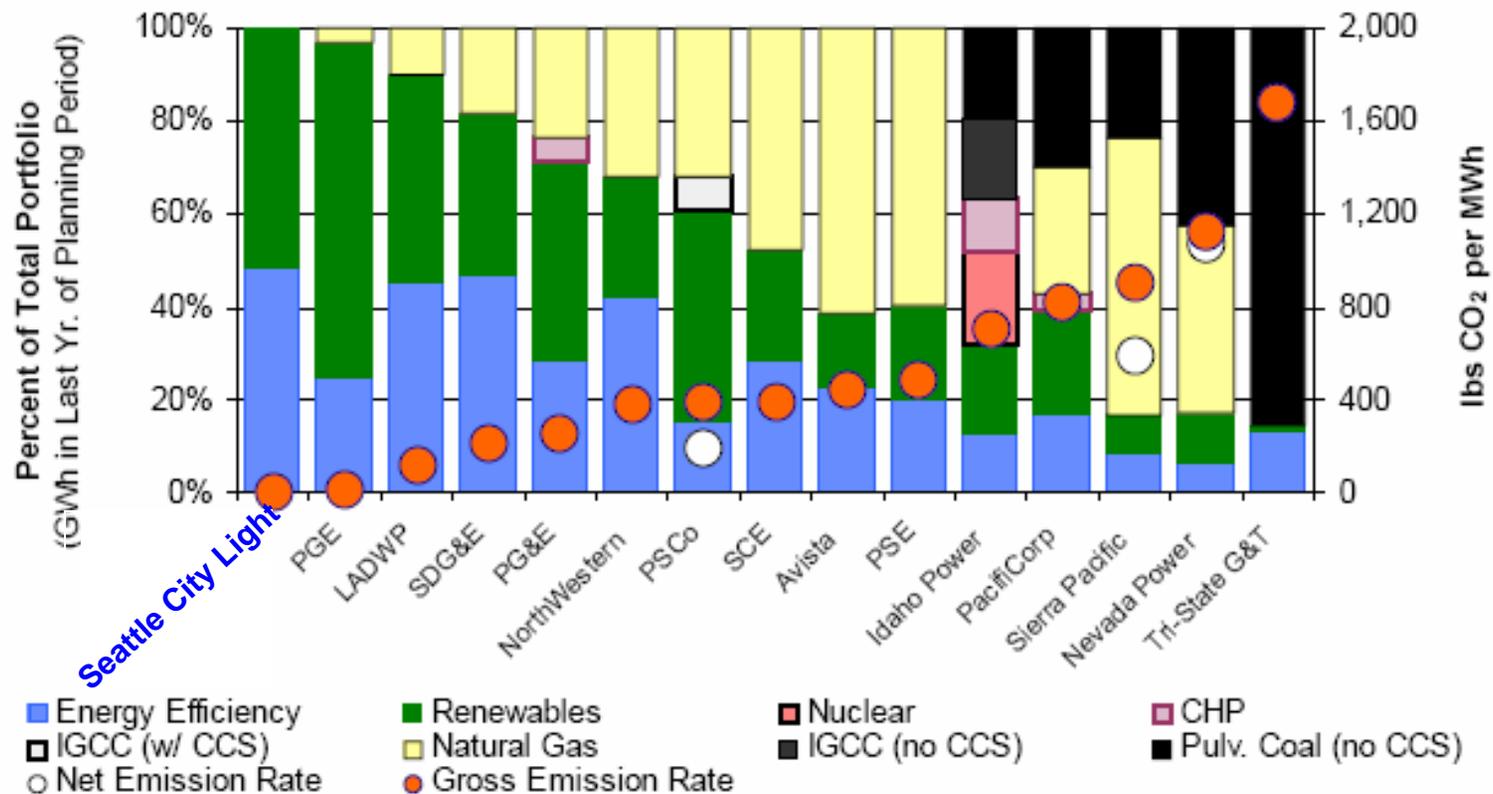


Figure ES - 3. New Resources in Utilities' Preferred Portfolios



How Can the IRP Affect Customers?



Reliability



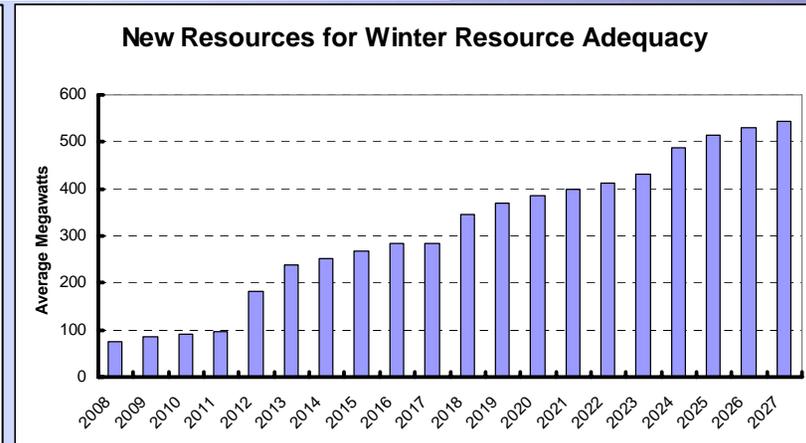
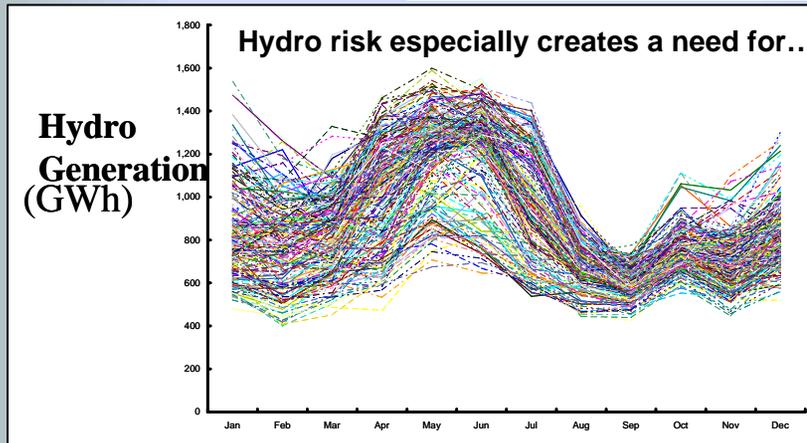
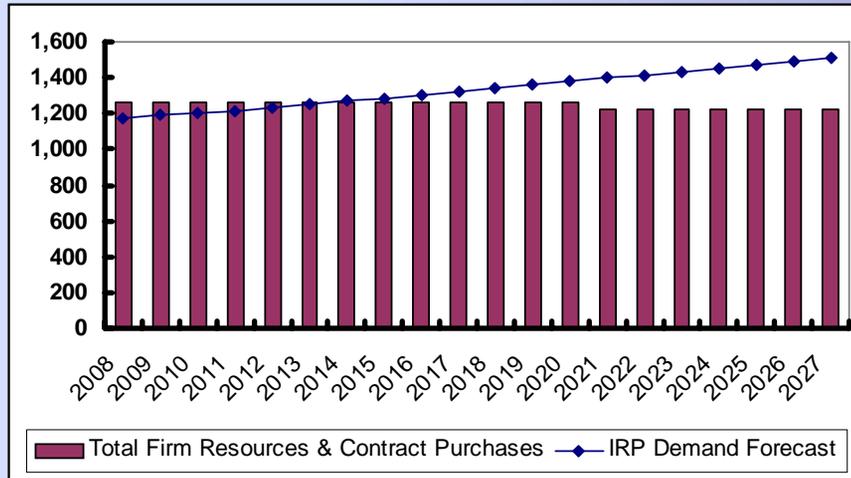
**Electricity
Bills**



**Environmental
“Footprint”**

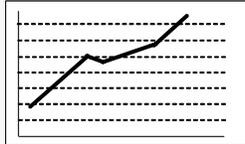


Enough Until 2014 on an Annual Basis But Hydro and Temperature Create Risks





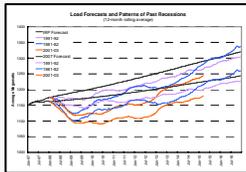
Studies and Scenarios for the 2008 IRP



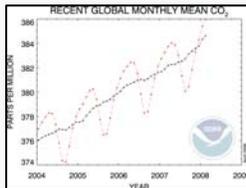
Rising Power Prices; and
Rising Renewables Prices



Potential Impacts of Plug-in Hybrid
Electric Vehicles to Electric Demand



Recession; and High Growth
Impacts for Seattle



Partial Analysis of Climate
Change



Combined Heat & Power; Demand
Response; and Ocean Energy



Round 2

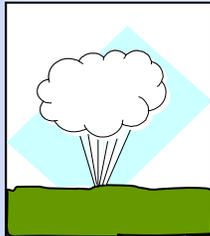
Draft 2008 Integrated Resource Plan (IRP)



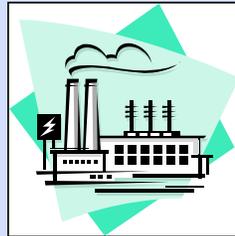
Resources in the 2008 IRP



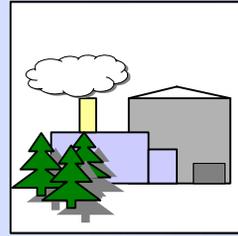
Conservation



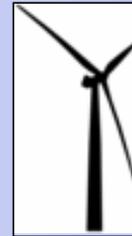
Geothermal (Binary)



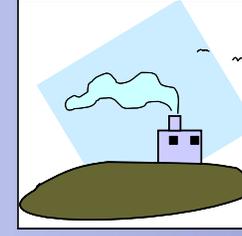
Natural Gas Turbines



Large Biomass (Wood)



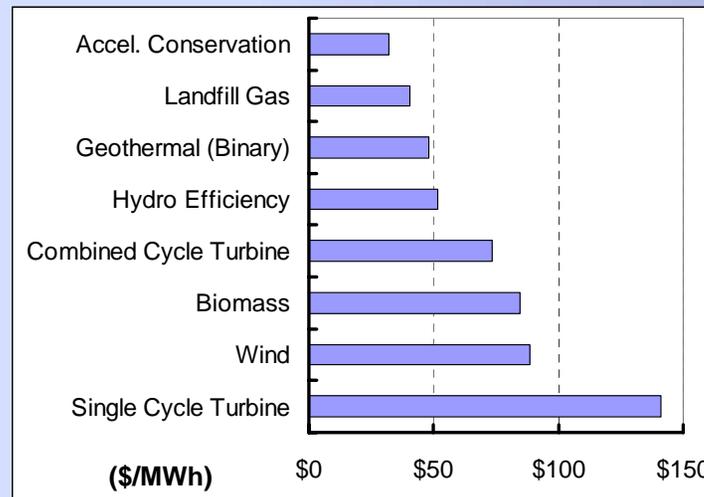
Wind



Landfill Gas

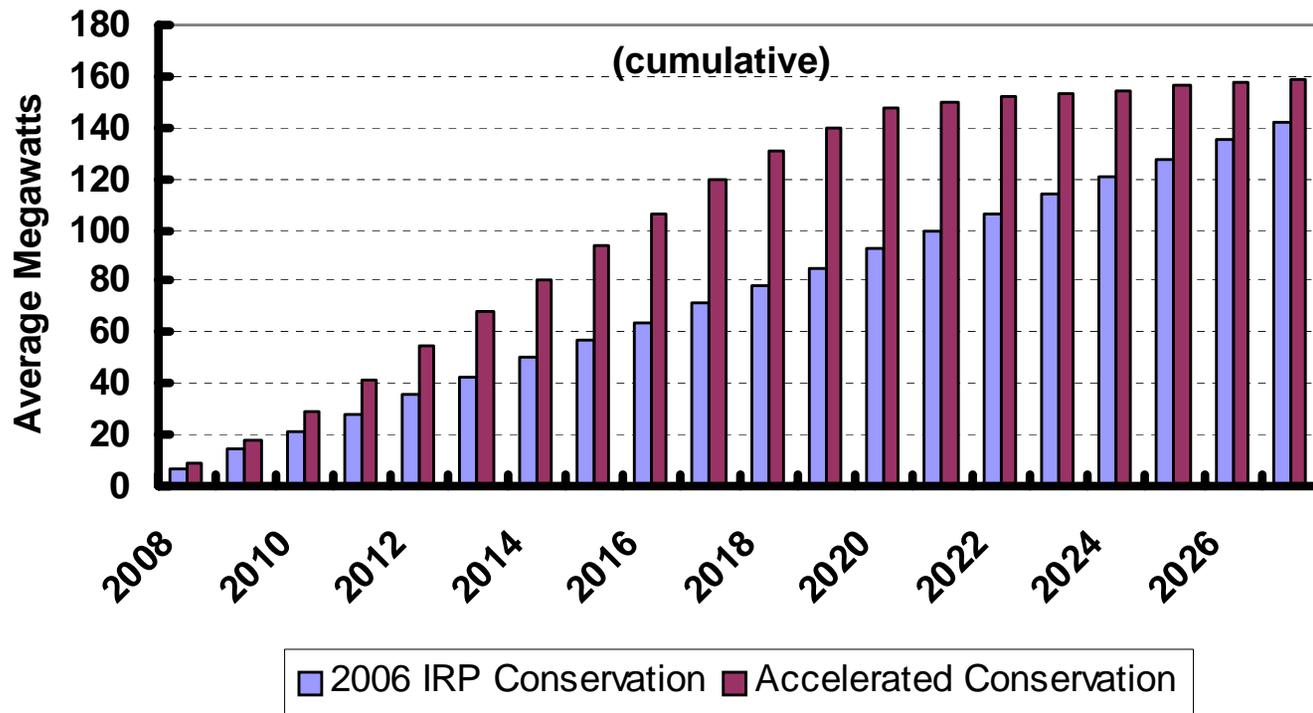


Efficiencies at Hydro Plants





Testing Accelerated Conservation in Round 1 Portfolios



Round 1 conservation would provide 36% of new resources by 2020



Round 1 Portfolios: Carbon Tax Assumption Eliminates Natural Gas

Year 2027 in Average Megawatts

Portfolios Resources	Hi-LFG/ Biomass	Hi-Geo	Hi-Wind /SCCT	Hi-CCT	Hi-Exch.
<i>Accel. Conservation*</i>	159	159	159	159	159
<i>Exchanges*</i>	100	100	100	100	145
<i>Capacity Contracts*</i>	20	5	10	5	20
Gorge Tunnel	13	13	13	13	13
Landfill Gas	32	22	22	22	22
Geothermal	100	125	0	45	125
Biomass	125	125	0	60	25
Wind	0	0	140	40	40
Comb. Cycle Turbine	0	0	0	100	0
Simple Cycle Turbine	0	0	100	0	0
Total aMW	549	549	544	544	549

**These resources do not add new generation capacity*



Round 2 Portfolios in 2027

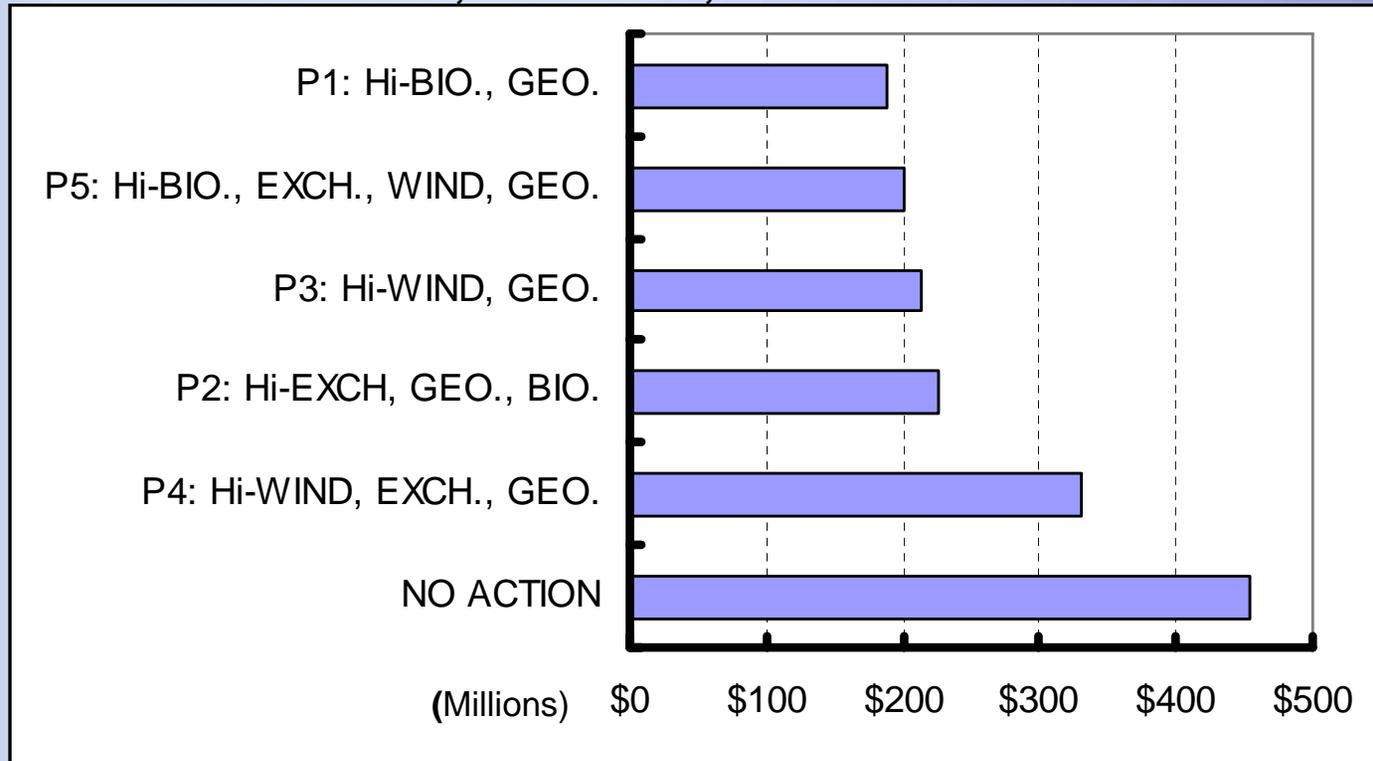
Total Average Megawatts in Winter

Resources \ Portfolios	P1: Hi-Bio., Geo.	P2: Hi-Exch., Geo., Bio.	P3: Hi-Wind, Geo.	P4: Hi-Exch., Wind, Geo.	P5: Hi-Bio, Geo., Wind
<i>Accel. Conservation*</i>	159	159	159	159	159
<i>Exchanges*</i>	105	135	105	135	105
<i>Capacity Contracts*</i>	5	15	5	0	5
Gorge Tunnel	5	5	5	5	5
Landfill Gas	21	21	21	21	21
Geothermal	125	125	125	125	125
Biomass	125	85	0	0	40
Wind	0	0	125	100	85
Total aMW	545	545	545	545	545



Round 2 Net Power Costs

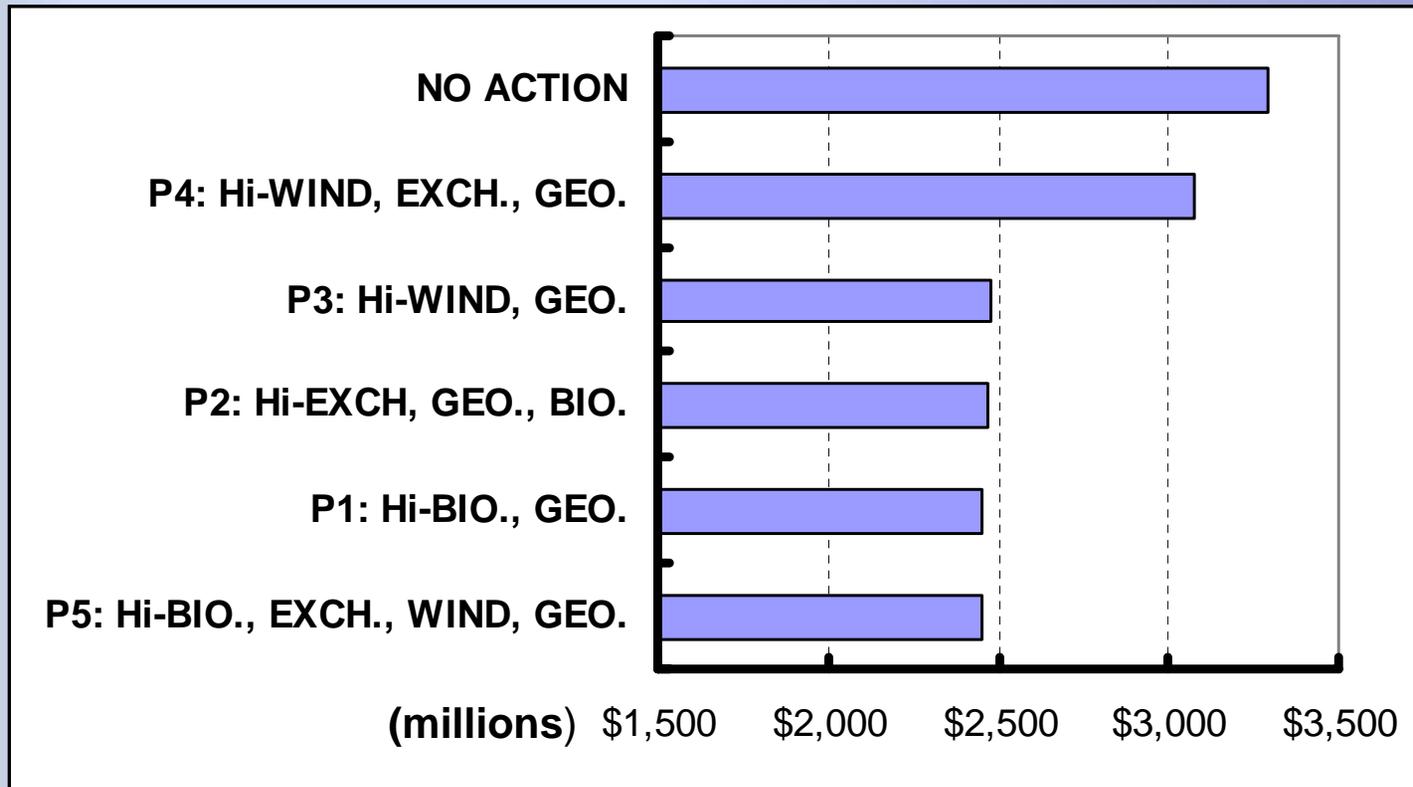
All-in Production Costs, Net of Sales, Before Incentives and Tax Credits



*Net Power Cost = All-in production costs + market purchases – market sales + contract purchases – contract sales (does not include emissions costs from purchases and sales)



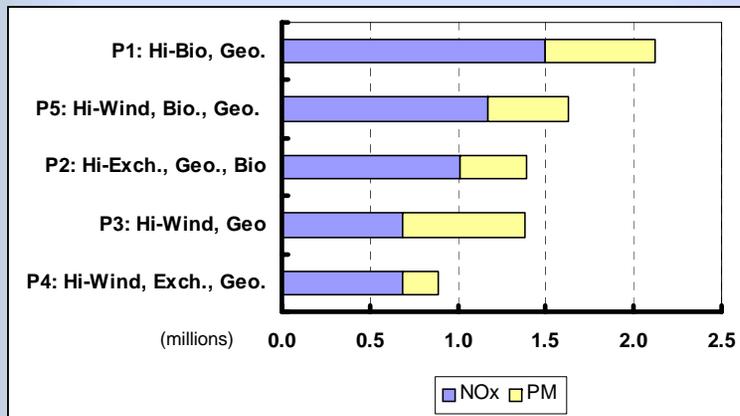
Risk in Round 2 Portfolios: 5% Chance of Greater Costs



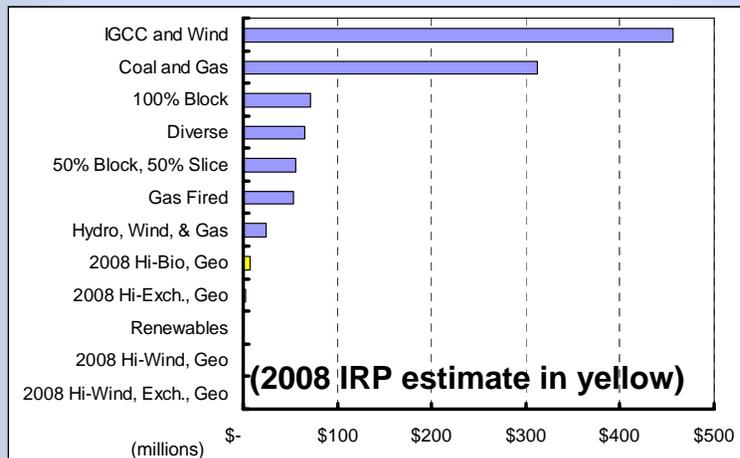


Round 2 Portfolios

Emissions Mitigation Cost Estimates



Round 2 Emissions Mitigation Cost Estimates (NPV)



Above Emissions Mitigation Cost Estimates for Round 2 Portfolios Compared With 2006 IRP Portfolios



Results for Round 2 Summary

— (NPV in Millions) —

		5% Risk of Greater Cost		Expected Net Power Cost*		Direct Emissions**	Overall Ranking
Hi-Biomass, Geothermal	\$2,460	2	\$188	1	\$2.1	5	2
Hi-Biomass, Wind, Geothermal	\$2,450	1	\$201	2	\$1.6	4	1
Hi-Exchange, Geothermal, Bio.	\$2,470	3	\$226	3	\$1.4	3	3
Hi-Wind, Geothermal	\$2,480	4	\$214	4	\$1.4	2	4
HI-Wind, Exch., Geothermal	\$3,079	5	\$331	5	\$0.9	1	5

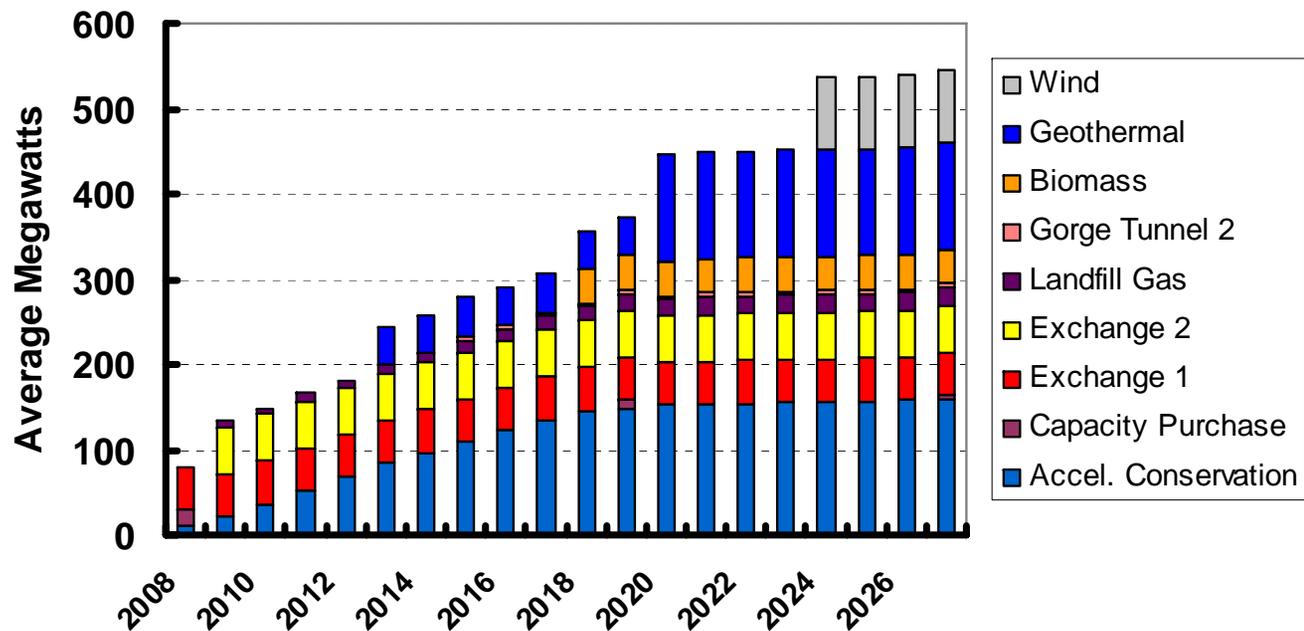
* Net Power Cost = Generation Costs + Market and Contract Purchases – Market Sales

** Emissions costs are not actually incurred by City Light, but are estimates of the cost of mitigation of all emissions associated with a resource portfolio using control technologies. Does not include market purchases and sales.



Best Overall Performing Portfolio

Recommended Portfolio to Meet Winter Resource Needs and Initiative 937





Draft 2008 IRP 2-Year Action Plan

- Pursue accelerated conservation aggressively
- Pursue full 2011 BPA contract rights
- Pursue summer for winter exchanges
- Contract for landfill gas resource by Mid-2009
- Evaluate results of distributed generation study and pursue cost-effective opportunities with customers
- Continue to investigate geothermal resources, solar, demand response, and new renewable technologies
- Investigate future capacity versus energy needs as the region grows shorter on capacity
- Participate in climate change research to allow more complete analysis of long-term impacts
- Work to ensure reliable transmission capacity



Next Steps

- Hold Public Meetings July 10 and July 15
- Brief the Mayor on the Proposed Strategy and Seek Approval
- Brief the City Council Energy and Technology Committee on August 6
- Await the Council's Decision
- Prepare Final IRP documents
- File with CTED by September 1



Questions?

IRP Website Address:

<http://www.seattle.gov/light/news/issues/irp/>

E-Mail: SCL.IRP@Seattle.gov

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