



**2006 Integrated Resource Plan:
Round 2 Draft Results**

*IRP Stakeholders
November 2, 2006*



Agenda

- EIS Update
- IRP Overview
- Draft Round 2 Results
- Summary and Discussion



IRP Environmental Impact Statement

- Determination of Significance Issued:
 - October 19, 2005
- Public Scoping Meeting:
 - November 14, 2005
- Close of Scoping Comment Period:
 - November 22, 2005
- Draft Environmental Impact Statement Published:
 - September 18, 2006
- DEIS Public Hearing:
 - October 10, 2006
- Close of DEIS Comment Period:
 - October 18, 2006



DEIS Comments

- Economic impacts of renewable/fossil resources:
 - wind/renewables may create more jobs than shown
- Assumptions in IRP input data:
 - Why are market transactions assumed to be only existing resources?
 - Global futures:
 - Why so little renewable energy?
 - Update wind assumptions
 - Why assume 100aMW of market energy available
 - Natural gas price is too low



DEIS Comments

- Request for Clarification on IRP results:
 - Cost ranking of portfolios, energy content of portfolios
- Request for Discussion of Climate Change Evaluation in IRP
- Include (increase) Resources Considered:
 - Time of day pricing, co-generation, geothermal, conservation



Final EIS

- **Contents:**
 - Update of model process and assumptions
 - Description of refined portfolios and recommendations (impacts fall within range considered in DEIS)
 - Description of environmental impacts, mitigation, unavoidable adverse impacts
 - Public comments on DEIS and City Light responses



EIS Next Steps

- Draft of the Final EIS will go to the Mayor with the draft IRP report
- Final EIS will be published at least 7 days before Council is asked to take action on the IRP recommendations
- Appeal period: 15 days after FEIS is published



IRP Overview



IRP Process

- **Complete**

- Planning and engaging in a public involvement process
- Recruiting staff from within and from outside the Utility
- Licensing and installing a sophisticated power planning model
- Calibrating the model for City Light hydro operations and contracts
- Assessing conservation resource potential for Seattle
- Forecasting demand for electricity through 2026
- Conducting a probabilistic resource adequacy analysis
- Developing alternative resource portfolios
- Evaluating portfolios on cost, risk, reliability, and environmental impacts
- Assessing portfolios on four different scenarios of future
- Preparing a draft environmental impact statement
- Preparing a second round of draft resource portfolios



IRP Process

- **To Do**

- Continue to gather public input on second round portfolios
- Complete evaluation of second round portfolios
- Complete scenario analysis of second round portfolios
- Complete EIS for second round portfolios
- Prepare Draft IRP report
- Review of Draft IRP report
- Briefings for Mayor and City Council
- Incorporate Mayor and Council Comments into the IRP



Strengths of 2006 IRP

- **Public Involvement Process**
 - Feedback shaped both assumptions and methodology
 - Public involvement has been supportive overall
- **Flexible**
 - Maximizes value of existing resources first
 - Short-term action plan comes at a low cost
 - Exchanges and call options in early years
- **Expense**
 - No new generation investments until landfill gas in 2010
 - 30 MW call option in 2009
 - The 2008 IRP will re-evaluate conservation and generation



Public Comment

- Issues Raised About the IRP to-Date
 - The IRP does not include:
 - Distributed generation
 - Solar energy
 - Time-of-use pricing
 - Sufficient assessment of cogeneration
 - Projecting technological improvements lowering costs for renewables
 - Sufficient assessment of climate change impacts
 - Calculation of both ownership and purchased power contracts costs for the same resource
 - The Round 1 IRP analysis of resource portfolios included:
 - Coal-fired generation



Public Comment

- Public Comments Incorporated in the IRP Included:
 - Assessing non-energy benefits of conservation
 - Assuming an extension of the production tax credit for renewables
 - Assessing cogeneration in portfolios
 - Assessing call options in portfolios
 - Assuming a 32% capacity factor for new wind plants
 - Not weighting evaluation criteria in rankings of portfolios
 - Analyzing portfolio costs as purchased power agreements
 - Assessing more geothermal in portfolios
 - Performing scenario analysis of carbon emissions impacts on portfolios



Round 2 Portfolios Draft Results

With and Without Initiative 937



Round 2 Portfolios

Resource Additions By Year

P1 = Do nothing

	P2	P3	P4	P5	P6	P7	P8
Cons.	Accel.	Accel	7 aMW	7 aMW	Accel	7 aMW	7 aMW
2007	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW
2008	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW	Exch. 50 aMW
2009	C. Opt. 30 aMW	C. Opt. 30 aMW	C. Opt. 30 aMW	C. Opt. 30 aMW	C. Opt. 30 aMW	C. Opt. 30 aMW	C. Opt. 30 aMW
2010	C. Opt 10 aMW LFG 10 aMW	C. Opt 10 aMW LFG 10 aMW	LFG 25 aMW	LFG 25 aMW	LFG 25 aMW	LFG 25 aMW	LFG 25 aMW
2012	Hydro 23 aMW	Hydro 23 aMW	Hydro 23 aMW	Hydro 23 aMW		Hydro 23 aMW	Hydro 23 aMW
2013	C. Opt. 5 aMW	C. Opt. 5 aMW	C. Opt. 5 aMW	C. Opt. 5 aMW	C. Opt. 10 aMW	C. Opt. 5 aMW	C. Opt. 5 aMW
2014							
2015	LFG 15 aMW	LFG 15 aMW	Geo 25 aMW	Geo 25 aMW	C. Opt 15 aMW	Geo 30 aMW	Geo 30 aMW
2016	Geo 50 MW	Geo 50 MW			Geo 50 aMW	Bio 15 aMW	Bio 15 aMW
2019			SCCT 50 aMW	C. Opt 10 aMW Geo 25 aMW		Wind 55 aMW	Geo 20 aMW
2020	Exch -50 aMW Bio 15 aMW Wind 55 aMW	Exch -50 aMW Geo 50 aMW Wind 25 aMW		C. Opt 5 aMW	Geo 70 aMW	Geo 20 aMW	Wind 55 aMW
2021			Geo 25 aMW	Exch 45 aMW			
2022	Geo 50 aMW	Geo 25 aMW Wind 25 aMW	Exch 40 aMW	Geo 25 aMW Wind 20 aMW	Wind 50 aMW	Wind 50 aMW	Geo 50 aMW
2026	C. Opt 45 aMW	C. Opt 40 aMW	C. Opt 20 aMW	C. Opt 20 aMW	C. Opt 15 aMW		

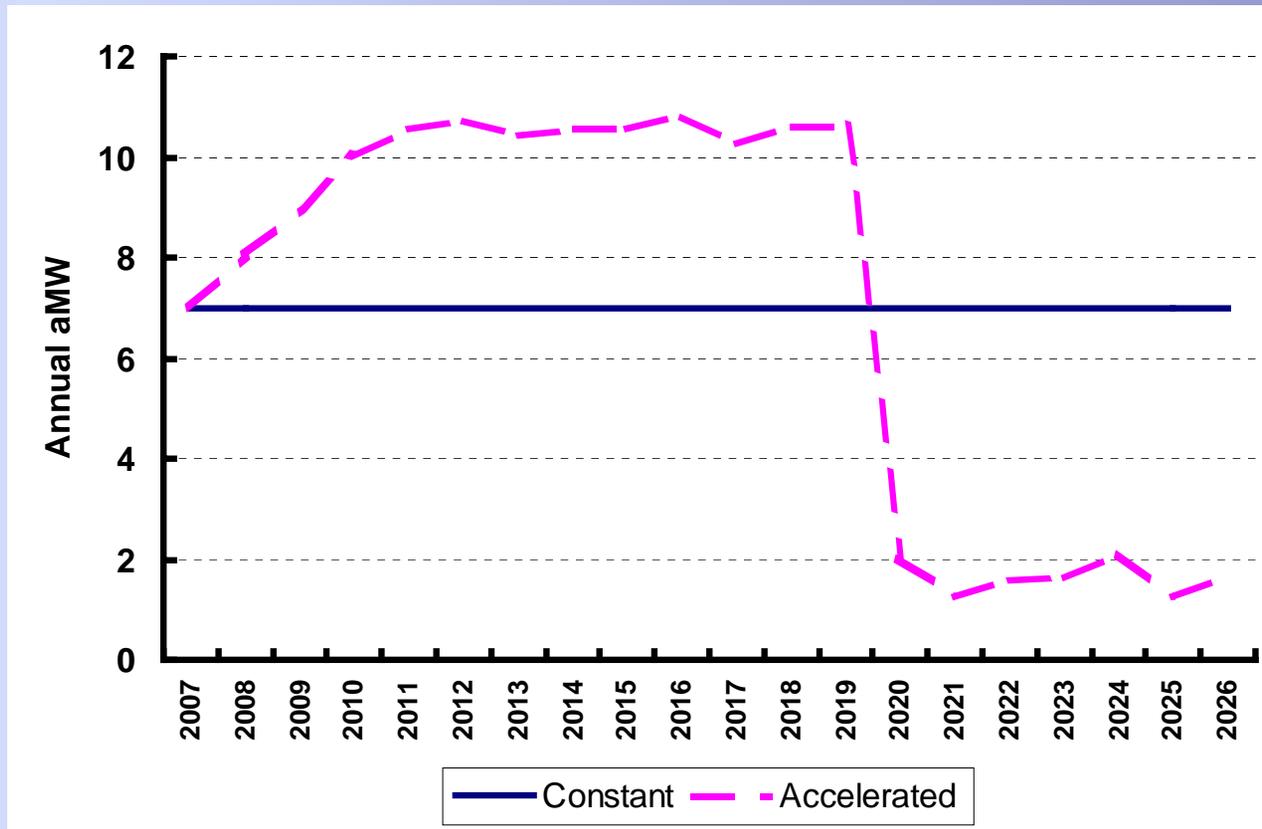


Key Uncertainties in the IRP

- Portfolios With and Without Initiative 937
 - Conservation and renewable energy requirements for I-937
- Assumes No Change
 - Outcome of BPA Regional Dialogue
 - Future tier 1 resource allocation for SCL
 - Boundary Relicensing
 - Operational requirements



Portfolios Modeled for Two Approaches to Conservation



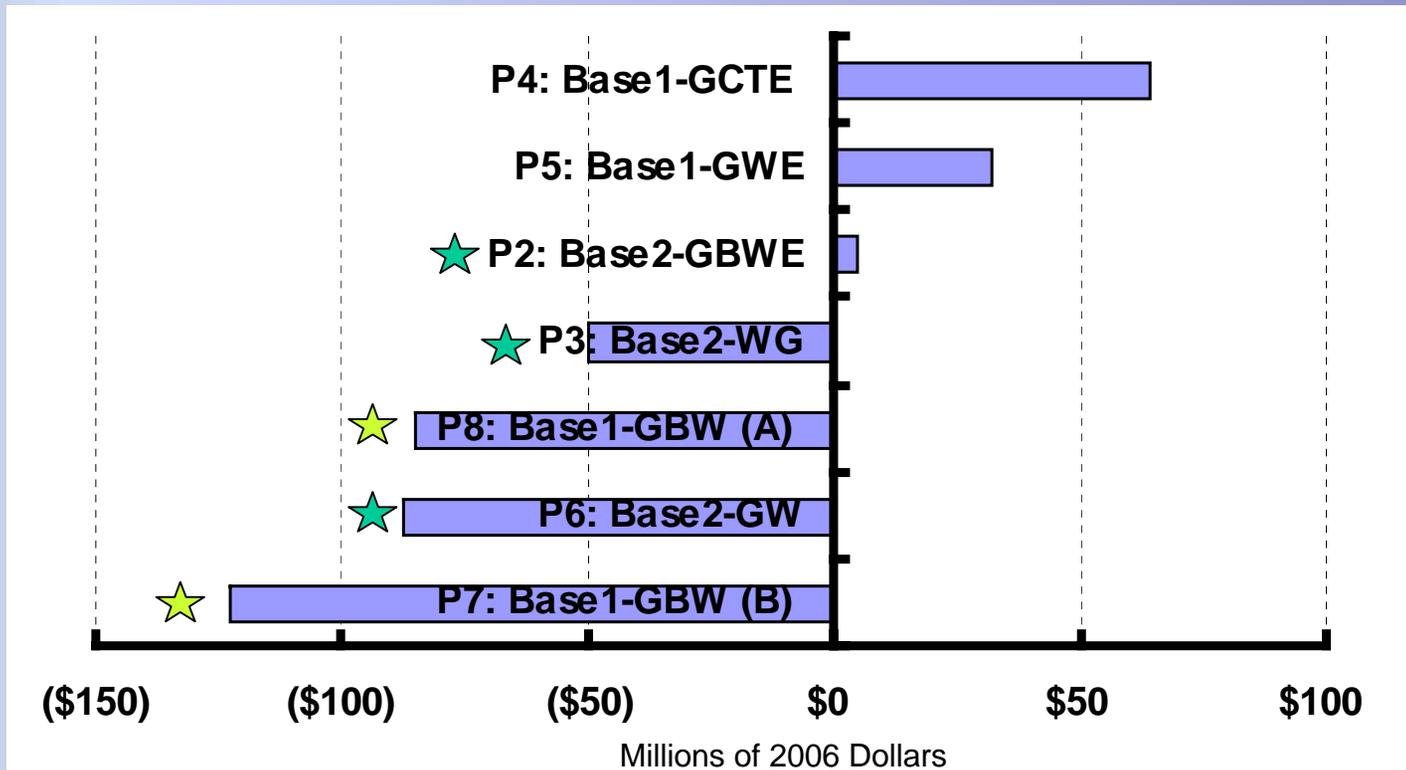


Conservation

- Modeled Conservation Rates are “Bookends”
 - Accelerated conservation was modeled using same per unit cost assumptions as constant conservation
 - Draft modeling sensitivities do not consider implementation issues
 - Conservation costs for accelerated cases
 - » Higher incentive payments
 - » Limited supplies of contractors and staff
 - » Little discretionary conservation acquisition in the future
 - Factoring in implementation issues will be important
 - The model can only provide insight about direction, absent consideration of implementation issues
 - Recommend further study in 2007



Net Operating Cash Flow (20-Year Net Present Value)

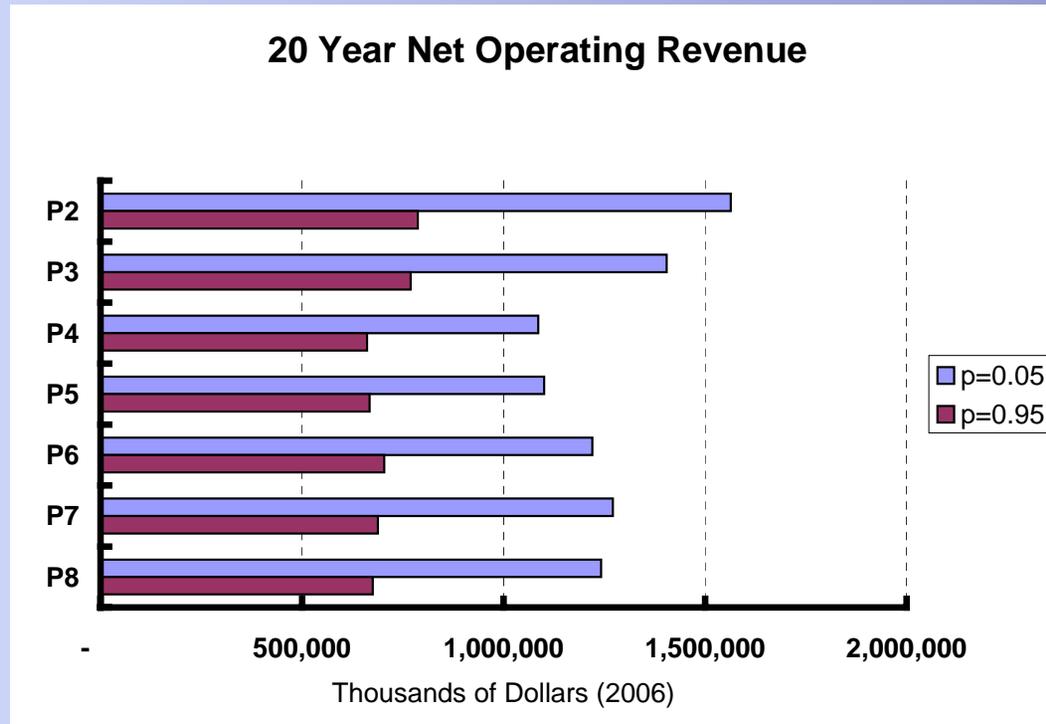
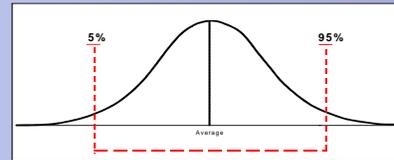


- ★ Accelerated conservation, I-937 compliant
- ★ Stable conservation (7aMW), I-937 compliant



Risk

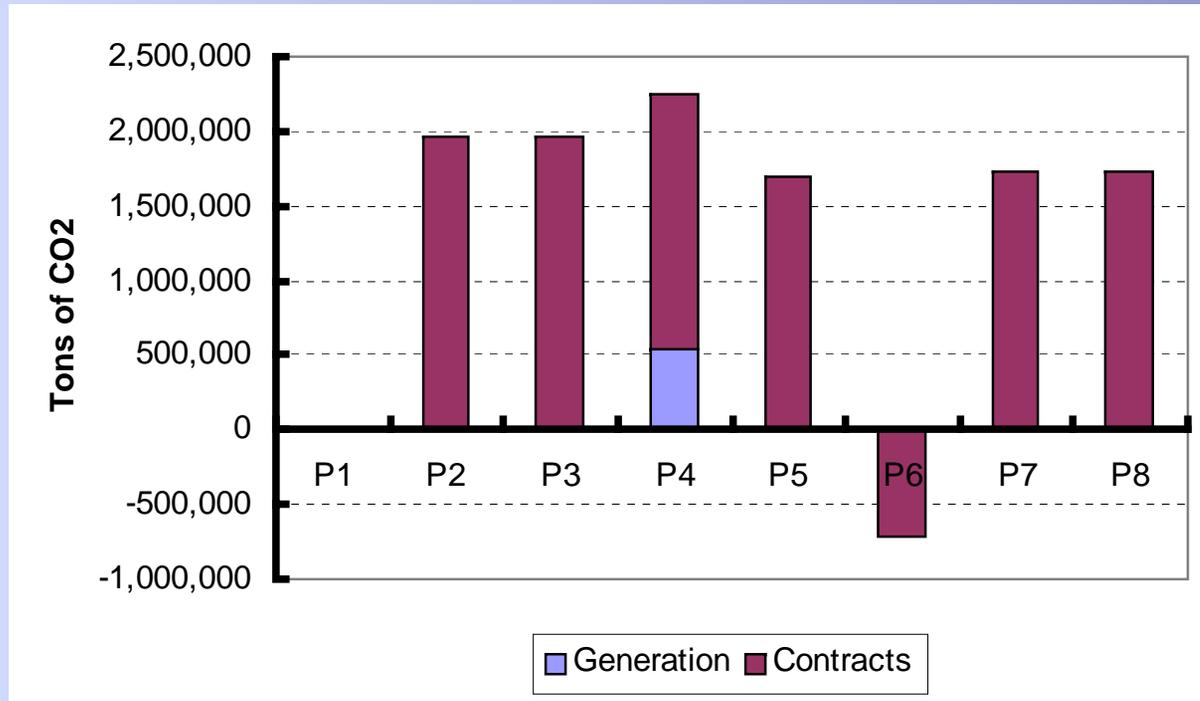
Net Operating Revenue





Environment

20-Year Total CO2 Emissions





What Have We Learned So Far in Round 2?

- The Portfolios With the Least New Resources Performed Among the Best
- Accelerating Conservation Should be Evaluated Further, Especially Under I-937
- The Portfolios With Additional Hydro Had Higher Values
- A Simple Cycle Combustion Turbine Could Lower Costs Given Seattle's Seasonal Supply Risk



Summary and Discussion



Integrated Resource Planning

- SCL's Integrated Resource Planning is an Ongoing Process, not an Event
 - Defines a strategy
 - Establishes an action plan



Summary

- No Large Decisions Expected Within 2-3 Years
 - Resources will again be assessed during the 2008 IRP
 - Resource adequacy target can be met with exchanges and other seasonal contracts until 2010
- Continuing a 28-Year Commitment to Pursue Cost-Effective Conservation
- Near-Term Focus is on Getting More From the Resources We Have (Before Adding New Ones)
 - Improve seasonal balance of existing portfolio
- Investigating New Resources
 - Prompt investigation of low cost, “lost opportunity” resources
 - Investigate other potential resources, especially geothermal



Example 2-Year Action Plan

- Work to expand PNW transmission capacity, allowing more exchanges and access to renewables
- Gain City Council approval for physical call options
- Pursue summer for winter exchanges for 2007 and 2008 as needed
- Continue to evaluate pace of conservation
- Pursue landfill gas opportunities
- Investigate geothermal resources, distributed generation and tidal power
- Investigate opportunities for a 50 MW hydro contract
- Participate in wind study groups
- Study cost-effectiveness of hydro efficiency projects



Schedule

- November 2: IRP Stakeholder Meeting
- November 9: Begin to Prepare Final EIS on 3 Portfolios
- November 14: IRP Public Meeting (City Hall)
- November 28: Briefing the Mayor on Analysis and Choices
- December 13: Briefing the Energy & Technology Committee on Analysis and Choices



Questions?

IRP Website Address:

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

E-Mail: SCL.IRP@Seattle.gov

David Clement, Integrated Resource Planning Director,
(206) 684-3564, Dave.Clement@Seattle.gov

