Evaluating First Round Resource Plans

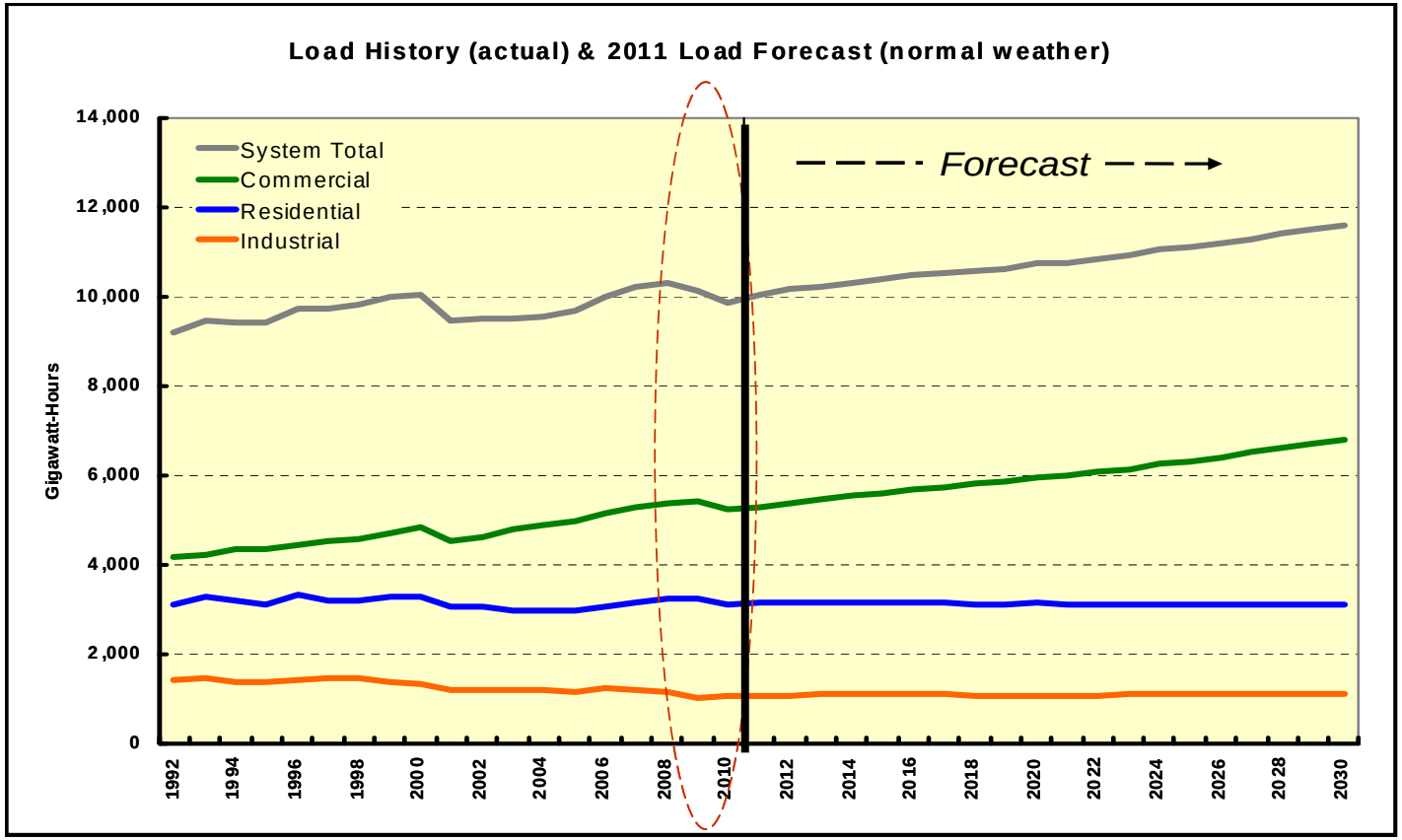
2012 IRP Stakeholders

February 2, 2012

Agenda

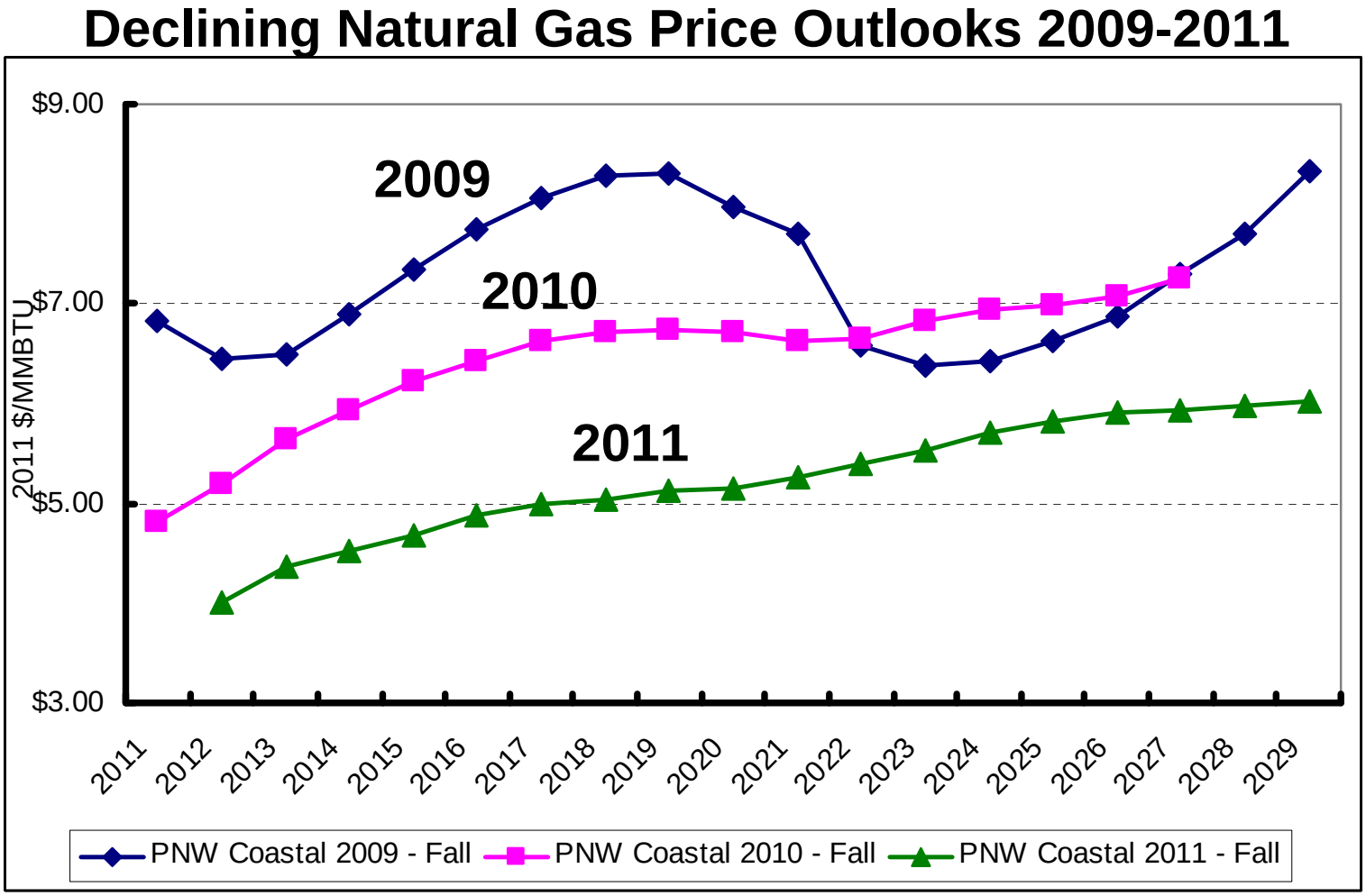
- Four Key Trends
- Future Resource Needs
- Eight Draft Resource Plans
- Initial Results

The Recession Takes a Toll on Seattle Electricity Demand



Delays Future Resource Needs About 2-3 Years

Growing Shale Gas Supplies Shake-Up Gas and Power Industries



Source: Ventyx

Regulation of CO_2 Emissions Put on "Back Burner" in 2011

Bipartisan Bill Introduced in House to Block EPA Carbon Regulations

Hart, Kathleen. *SNL Energy Finance Daily*. (March 4, 2011).
"...economic threat posed by the EPA's climate change agenda."
"The EPA needs to be reined in."
"...strong bipartisan support" (Note: This bill did not pass)

- Updated E3 Outlook Delays CO_2 Emissions Costs Until 2018 and Cuts the Cost per Ton

California Ruling Increases PNW Renewable Energy Credits (RECs)

Calif. PUC Approves Use of TRECs for Renewables Compliance After Months of Debate

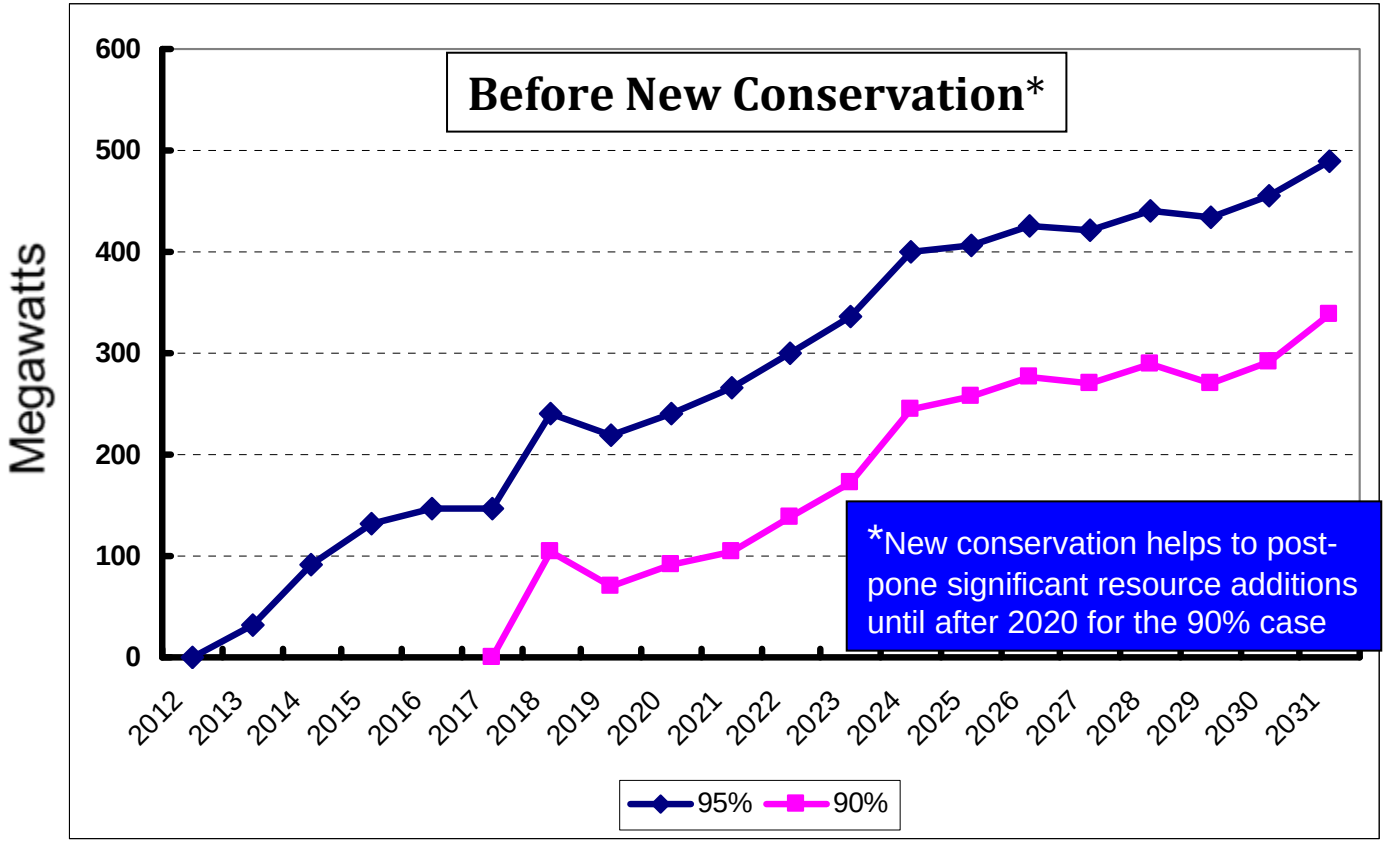
Stanfiel, Jeff., SNL Energy Power Daily (Jan. 18, 2011).
"...allowing the use of tradable renewable energy credits"
"…**can meet no more than 25% of their annual requirement…**"
(emphasis added)

- Cap on sales to California increases Northwest REC supplies and creates more competitively-priced REC market
  - Our long-term REC price outlook is cut by 40%

Impacts of Key Trends in the IRP

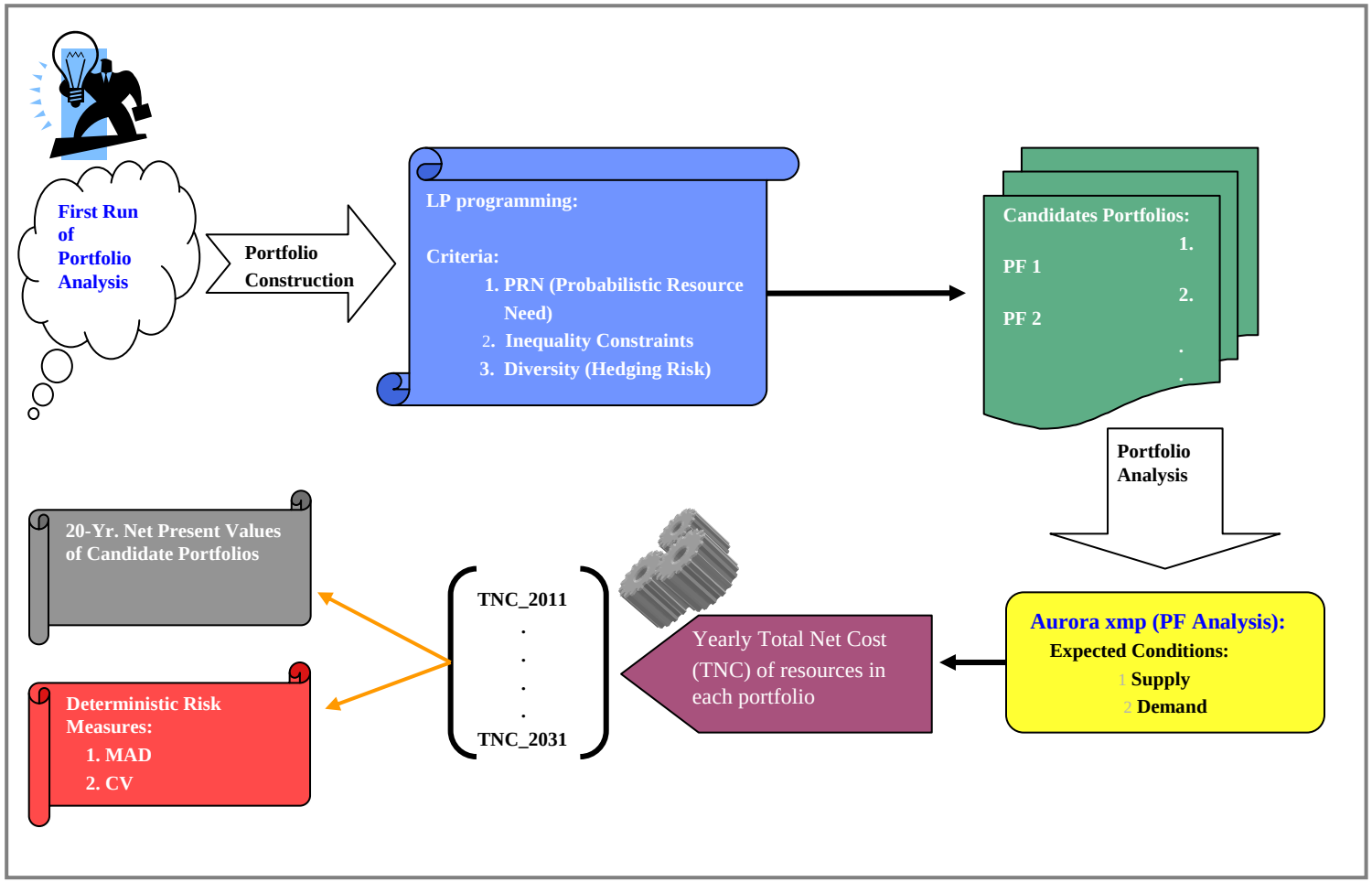
- Slow Economic Recovery and Slow Demand Growth
  - Delays new resource needs
- Lower N. Gas and Wholesale Power Market Prices
  - Surplus renewable energy sold for larger loss in wholesale power market
- Delayed and Lower CO2 Costs
  - Delayed and lower CO2 costs make natural gas generation more cost competitive with renewables
- Lower Cost Renewable Energy Credits (RECs)
  - Lower cost for RECs widens cost difference between renewables and natural gas generation (or market purchases) for I-937 compliance

Winter Season One-Hour Resources to Reach 95% and 90% Confidence Levels



Notes: After assumed availability of 300 MW of hydro flexibility, seasonal reshaping, and short-term market purchases. Includes planned outages for turbine rebuilds and other scheduled maintenance.

Procedures for First Round Analysis of Draft Plans (Portfolios)



Total New Resources (aMW)

1. Renewables: Base Conservation

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	55								
2020	125	8							
2025	194	8	5	40	100				
2031	237	8	5	40	125	20	20		

2. Renewables: Slower Conservation

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	48								
2020	105	8							
2025	163	8	5	40	125	5			
2031	206	8	5	40	125	20	50		

3. Renewables: High Conservation

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	61								
2020	141								
2025	199	8	5	40	95				
2031	237	8	5	40	125	20	20		

4. Wind & Gas

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	55								
2020	125								
2025	194				70				90
2031	237				125				93

Total New Resources (aMW)
(Continued)

5. Mixed Resources

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	55								
2020	125	8	5						
2025	194	8	5	20	35	10	25	50	25
2031	237	8	5	20	35	20	50	80	50

6. Renewables: No Wood Waste Biomass

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	55								
2020	125								
2025	194	8	5		125	20	25		
2031	237	8	5		125	20	50	10	

7. Natural Gas*

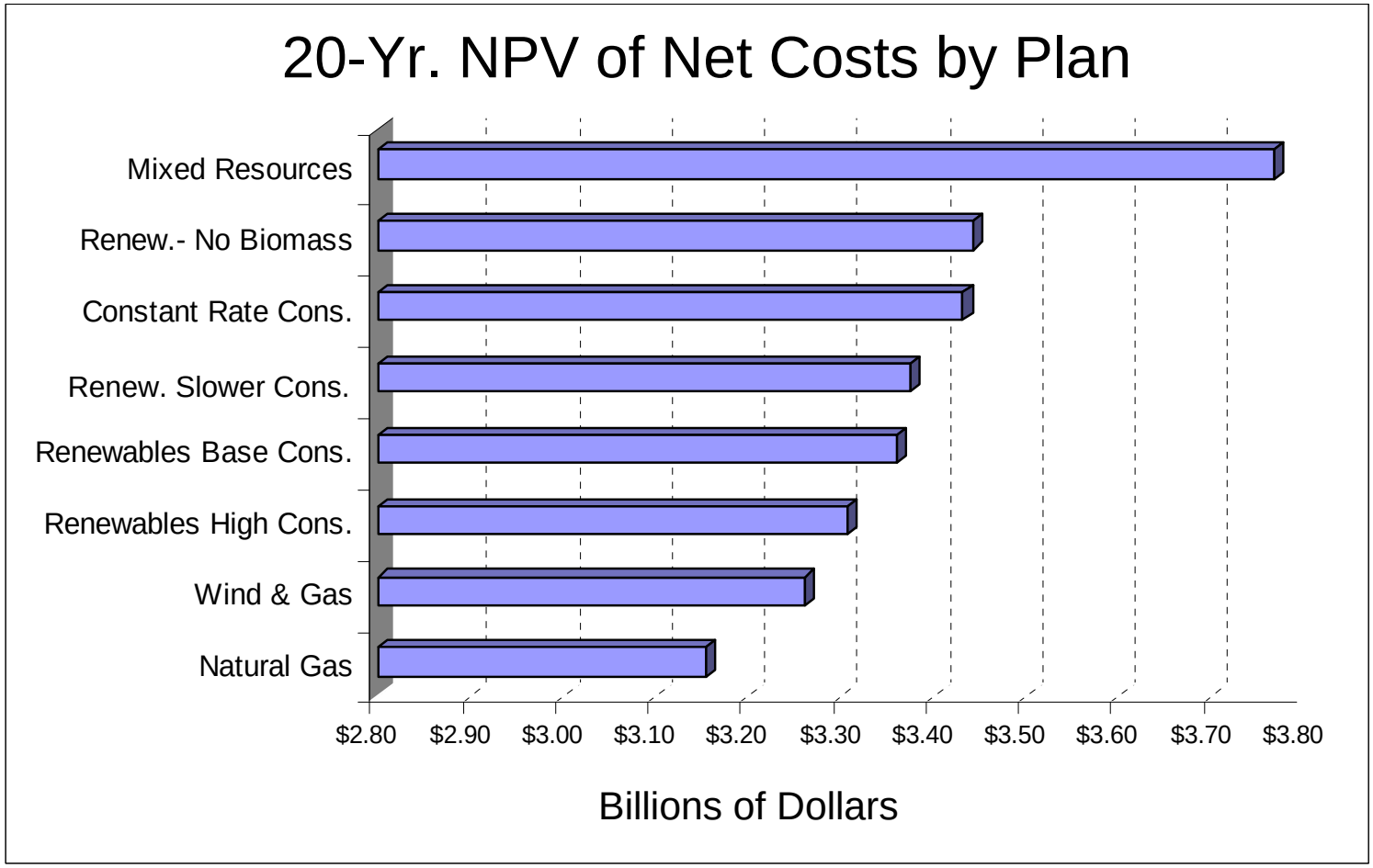
	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	55								
2020	125								
2025	194								155
2031	237								220

*In compliance with HB1010. Needs 15-34 aMW of annual REC purchases 2021-2031

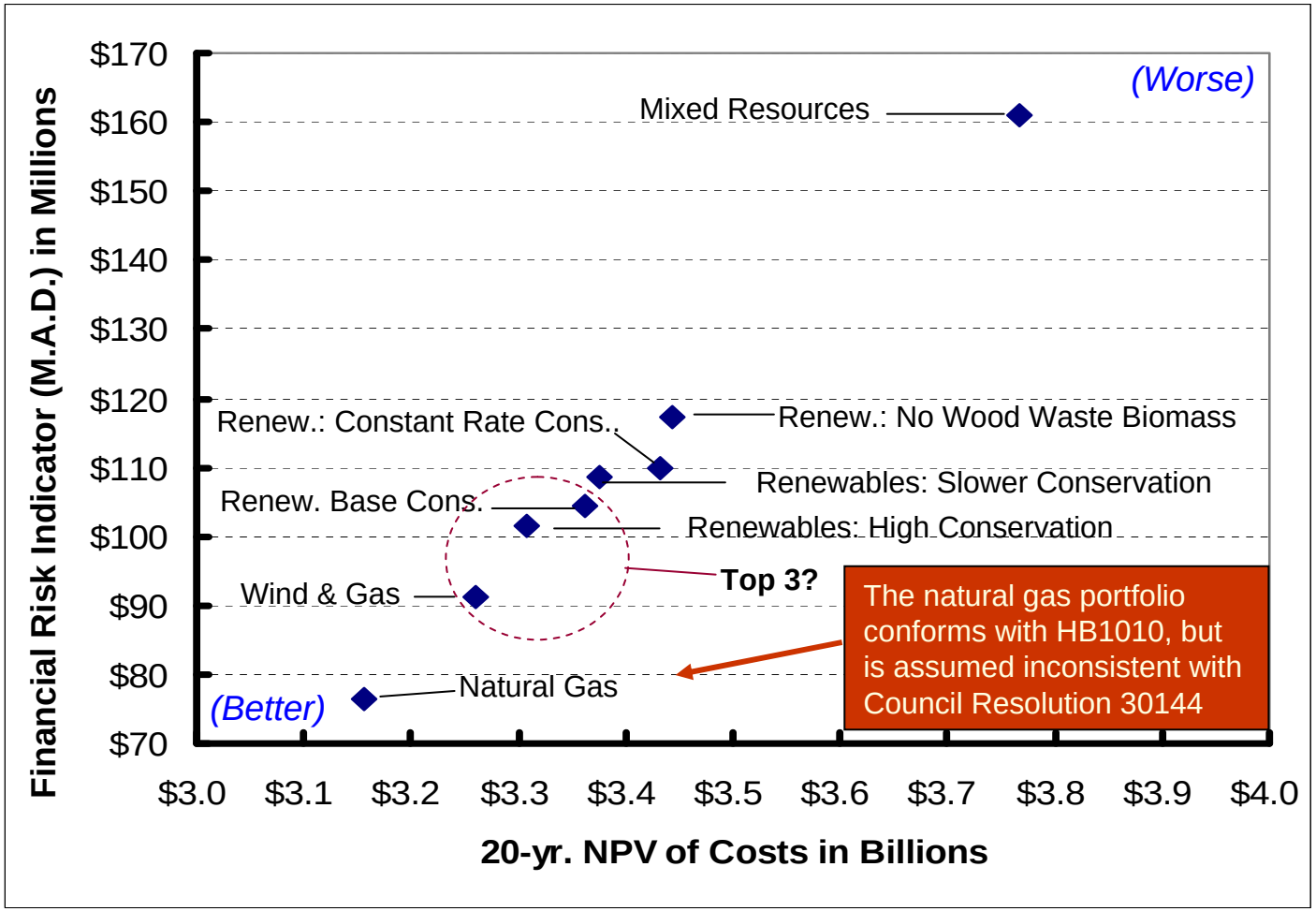
8. Constant Rate Conservation

	Conservation	Landfill Gas	Hydro Efficien.	WW Biomass	Wind	Geothermal	Photovoltaic	Solar Thermal	C.C. Turbine
2015	50								
2020	108	8							
2025	167	8	5	40	120	5			
2031	237	8	5	40	125	20	20		

Cost by Draft Resource Plan



Combined View of Cost and a Financial Risk Indicator



Note: A more robust measure of risk and scenarios will be completed for the top 3 portfolios

Seattle City Council Resolution 30144

- A RESOLUTION proclaiming the City of Seattle's actions supporting and honoring Earth Day 2000
  - Section 2
    - 1. Establishing a long-range goal of meeting the electric energy needs of Seattle with no net greenhouse gas emissions. City Light's power resource portfolio is composed primarily of resources that produce little or no greenhouse gas emissions. Immediately, City Light will meet growing demand with no net increase in greenhouse gas emissions by:
      - a) Using cost-effective energy efficiency and renewable resources to meet as much load growth as possible
      - b) Mitigating or offsetting greenhouse gas emissions associated with any fossil fuels used to meet load growth

Note: Other City policies also support the use of conservation and renewables over nonrenewable energy

Decisions

- Recommendation for Top 3 Portfolios
- Example Scenarios to Test the Top 3 Resource Plans
  - Electricity Demand
  - Natural Gas Prices
  - CO_2 Emissions
  - ?

Next Steps

- Test methods for accounting for GHG emissions from wood waste biomass
- Brief City Council Energy & Environment Committee on performance of 8 plans
- Risk analysis and scenarios for top 3 plans
- Public Meeting on draft plans
- IRP Stakeholder Meeting No. 4
- City Council Energy & Environment Committee to discuss performance of the top 3 plans and designate a “preferred plan”

Questions or Comments?

IRP Website Address:
http://www.seattle.gov/light/news/issues/irp/
E-Mail: SCL.IRP@Seattle.gov

David Clement
(206) 684-3564, Dave.Clement@Seattle.gov