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# Proposed Electric Utility 2010 Resource Plan

City of Port Angeles

City Council Meeting

August 17, 2010



Philip D. Lusk  
Power Resources Manager

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# Agenda

- Background
  - Current Loads and Resources
  - Future Loads and Resources Forecast
  - Future Considerations
  - What is Next?
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# Agenda

- Background
  - Recap
  - Recommendations
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# Background

- State law requires development of a “Resource Plan”
  - Larger utilities are required to prepare an “Integrated Resource Plan”
- City completed first Resource Plan in 2008



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# Resource Plan Components

- The Plan must:
    1. Describe current power loads and resources
    2. Estimate power loads and resources for 2015 and 2020
      - Consider conservation and renewable energy
    3. Be approved by the City after public notice and hearing
    4. Be submitted to Washington Department of Commerce by September 1, 2010
    5. Be updated every two years
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# Desired Outcome

- Assure that future resources are adequate to meet projected loads
  - Especially critical as the Bonneville Power Administration (BPA) moves to its “Tiered Rate” structure



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# Current Loads and Resources

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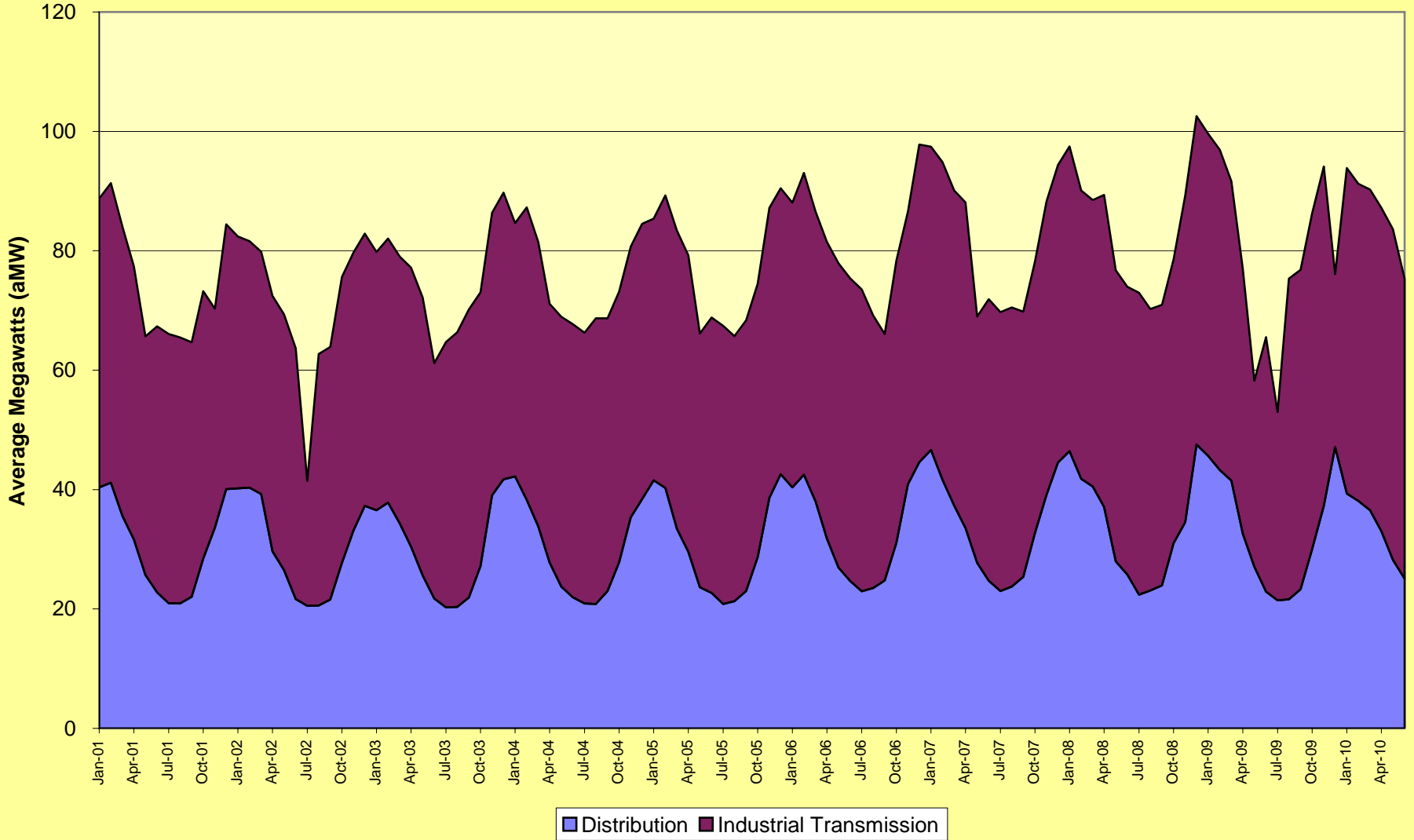
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# Port Angeles Electric Utility Background

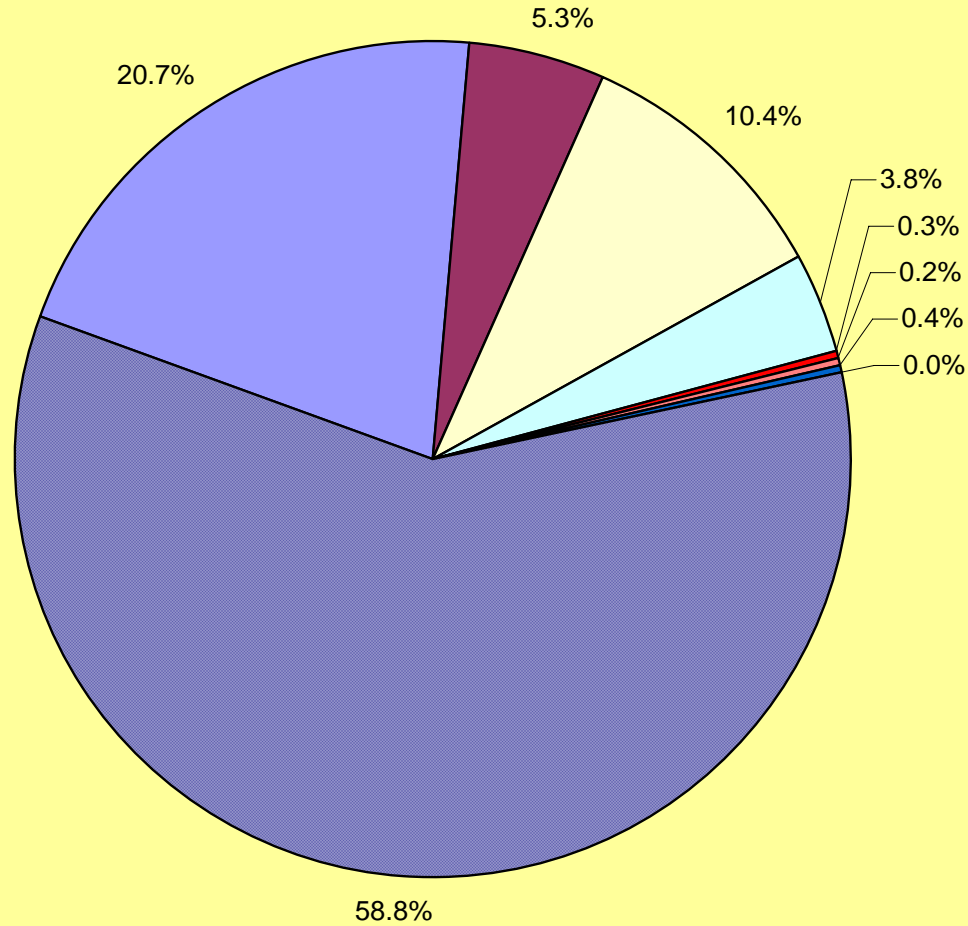
- Principal load centers
  - Nippon Paper Industries (NPI)
    - “Industrial Transmission”
  - Distribution system
    - Everyone else



# City of Port Angeles Monthly Power Loads January 2001 - June 2010

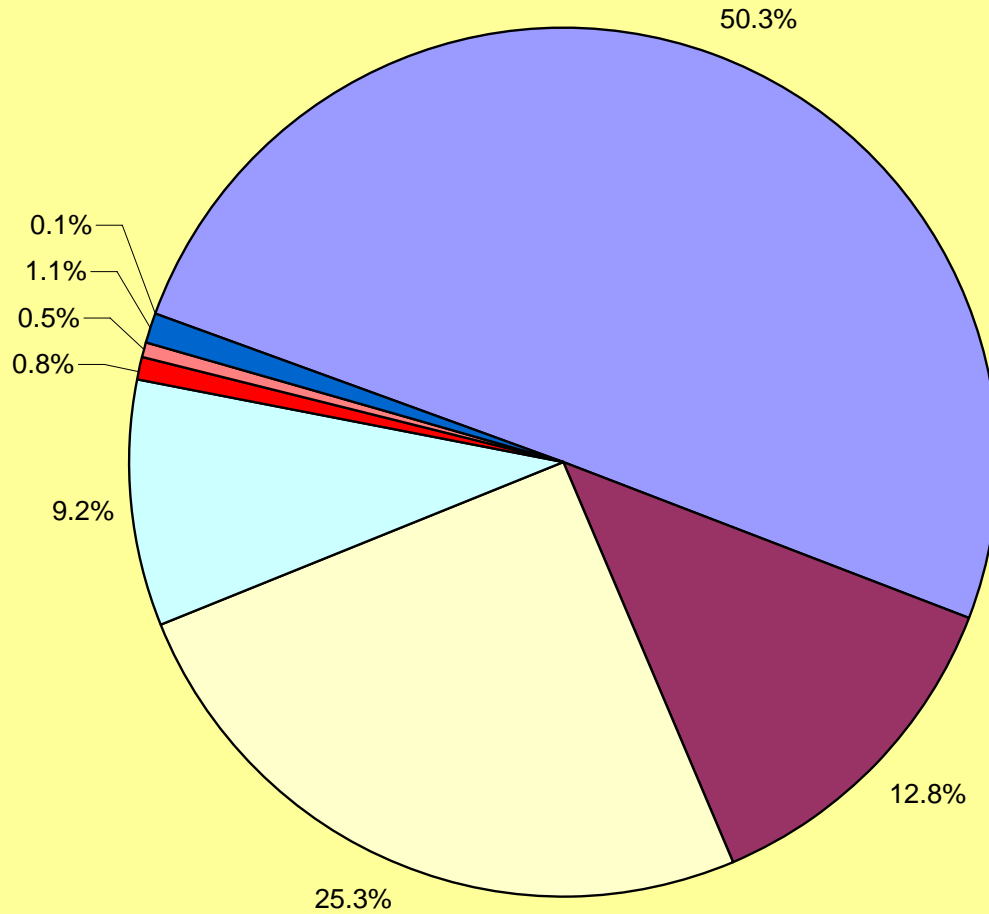


# City of Port Angeles 2009 Electricity Consumption by Rate Class



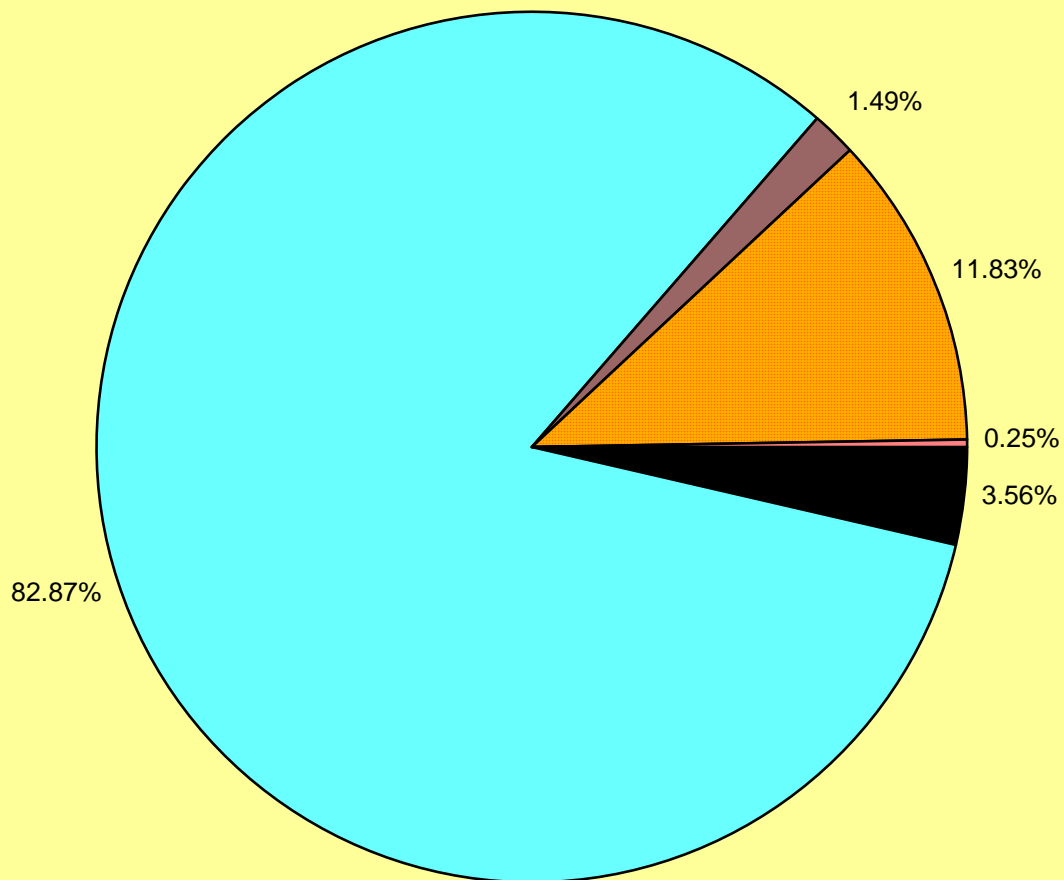
<span style="color: blue;">■</span> Residential	<span style="color: maroon;">■</span> General Service	<span style="color: yellow;">■</span> GS Demand	<span style="color: cyan;">■</span> Primary	<span style="color: red;">■</span> Municipal Water Pumping
<span style="color: red;">■</span> Street Lights	<span style="color: blue;">■</span> Non-Profit	<span style="color: lightblue;">■</span> Yard Lights	<span style="color: grey;">■</span> Industrial Transmission	

# City of Port Angeles 2009 Electricity Consumption by Distribution Customer Rate Class



Residential General Service GS Demand Primary Municipal Water Pumping Street Lights Non-Profit Yard Lights

# City of Port Angeles 2009 Resource Mix



■ Coal ■ Hydro ■ Natural Gas ■ Nuclear ■ Other

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# Future Loads and Resources

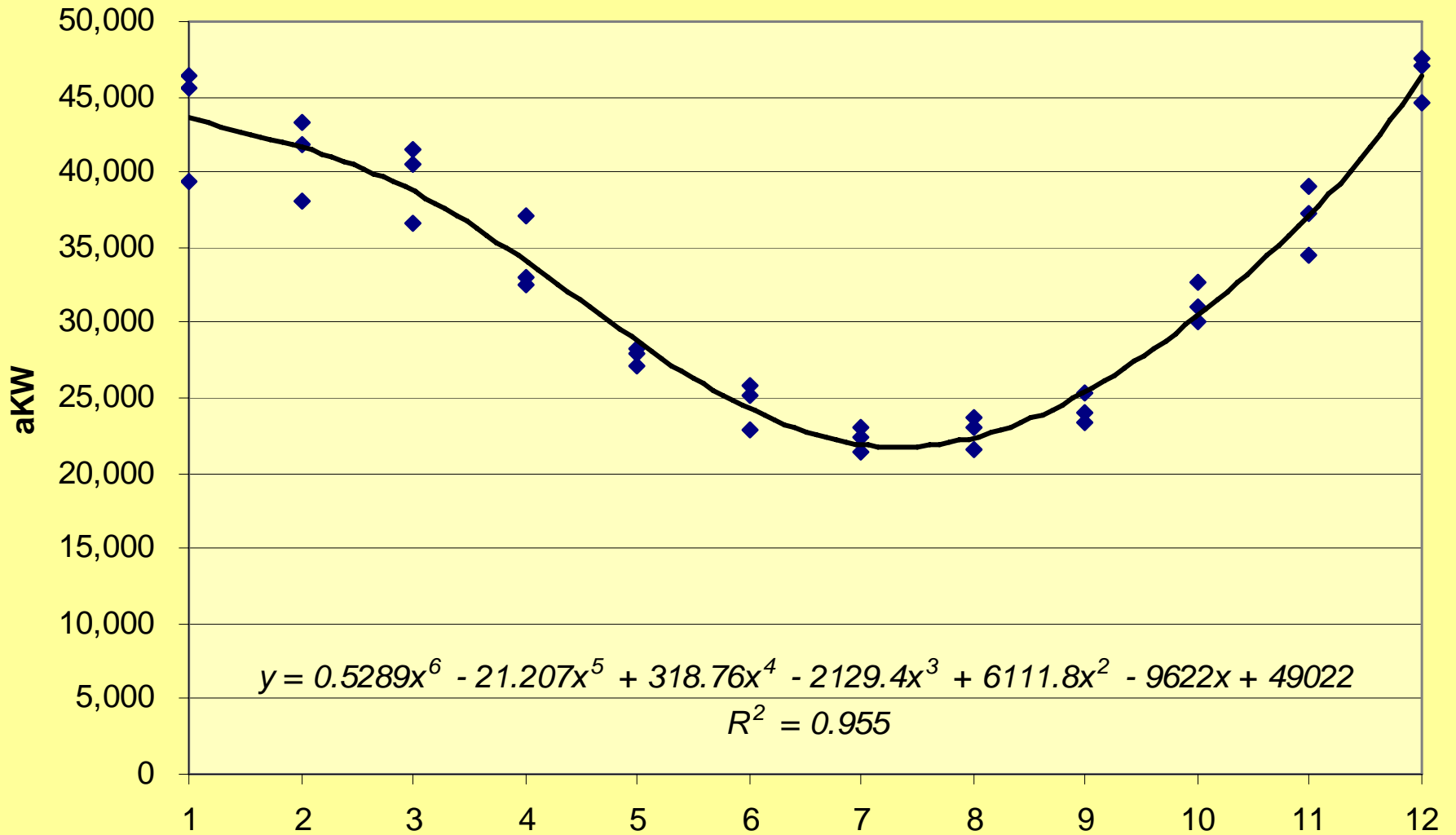
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# Port Angeles Electric Utility Forecast

- Six-factor polynomial regression equation
    - Past 36 month wholesale power purchases used
    - As an accuracy check, forecast was backcast against the past 36 month historic loads
      - Overall aMW forecast error was 0.77%
      - Overall kWh forecast error was 0.77%
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# City of Port Angeles Distribution Utility aMW



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# Port Angeles Electric Utility Forecast

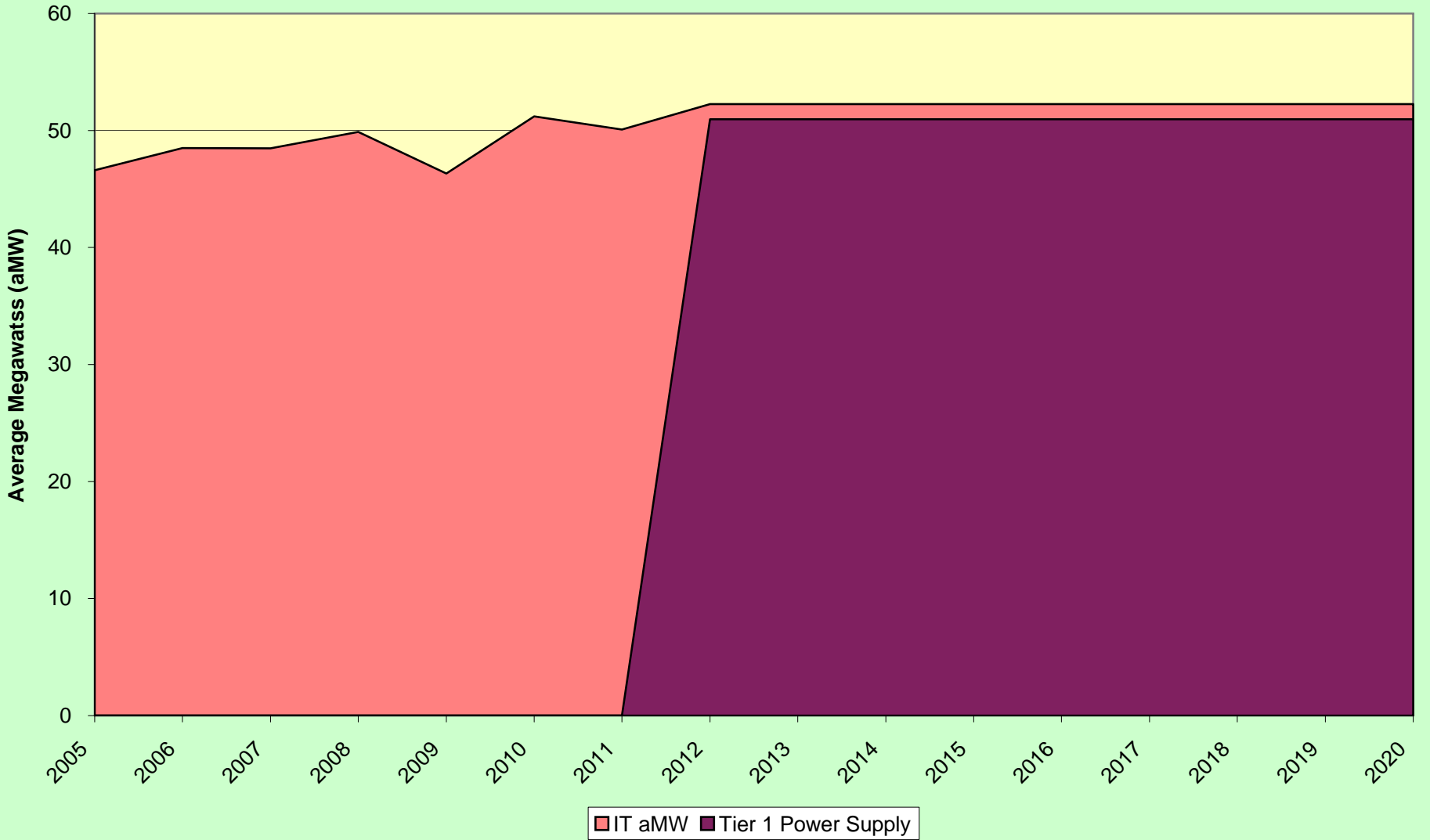
- NPI forecast partly based on customer-provided data
    - NPI responsible for own Tier 2 power purchases
  - Distribution system forecast used two load growth rate scenarios
    - Baseline (Status Quo)
      - Assumed historic 1.15% Compound Annual Growth Rate
      - Tier 2 power purchases projected to start in 2016
    - Enhanced Conservation Alternate
      - Assumed 0.77% Compound Annual Growth Rate
        - Roughly equals the goals of the Northwest Power and Conservation Council's Sixth Northwest Conservation and Electric Power Plan
      - Tier 2 power purchases projected to start in 2020
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# City of Port Angeles

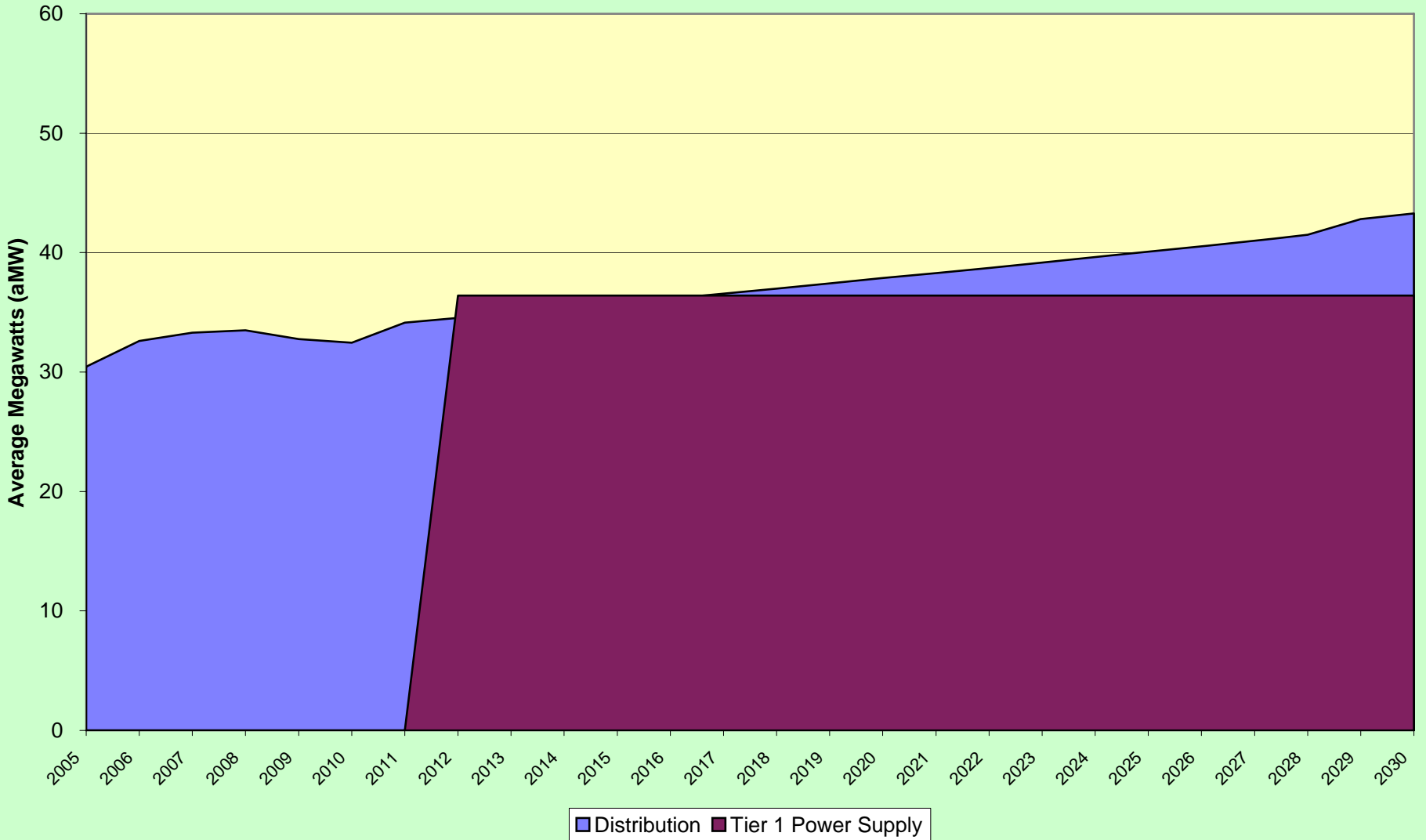
## Washington State Utility Resource Plan

<i>Report Years</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>
<i>Period</i>	<i>Annual</i>	<i>Annual</i>	<i>Annual</i>
<i>Units</i>	<i>(MWa)</i>	<i>(MWa)</i>	<i>(MWa)</i>
<b>Loads</b>	81.19	91.16	94.03
<b>Resources</b>			
Conservation/Efficiency	2.10	3.17	3.90
Demand Response			
Co-generation			
Hydro (critical water)	0.15	0.23	0.23
Wind			
Other Renewables			
BPA Tier 1 Load Following	78.94	87.37	87.37
BPA Tier 2 Short-Term Rate		0.39	2.53
Non BPA Load Following			
Non BPA: Market Purchase			
Other			
<b>Total Resources</b>	81.19	91.16	94.03
<b>Load Resource Balance</b>	0.00	0.00	0.00

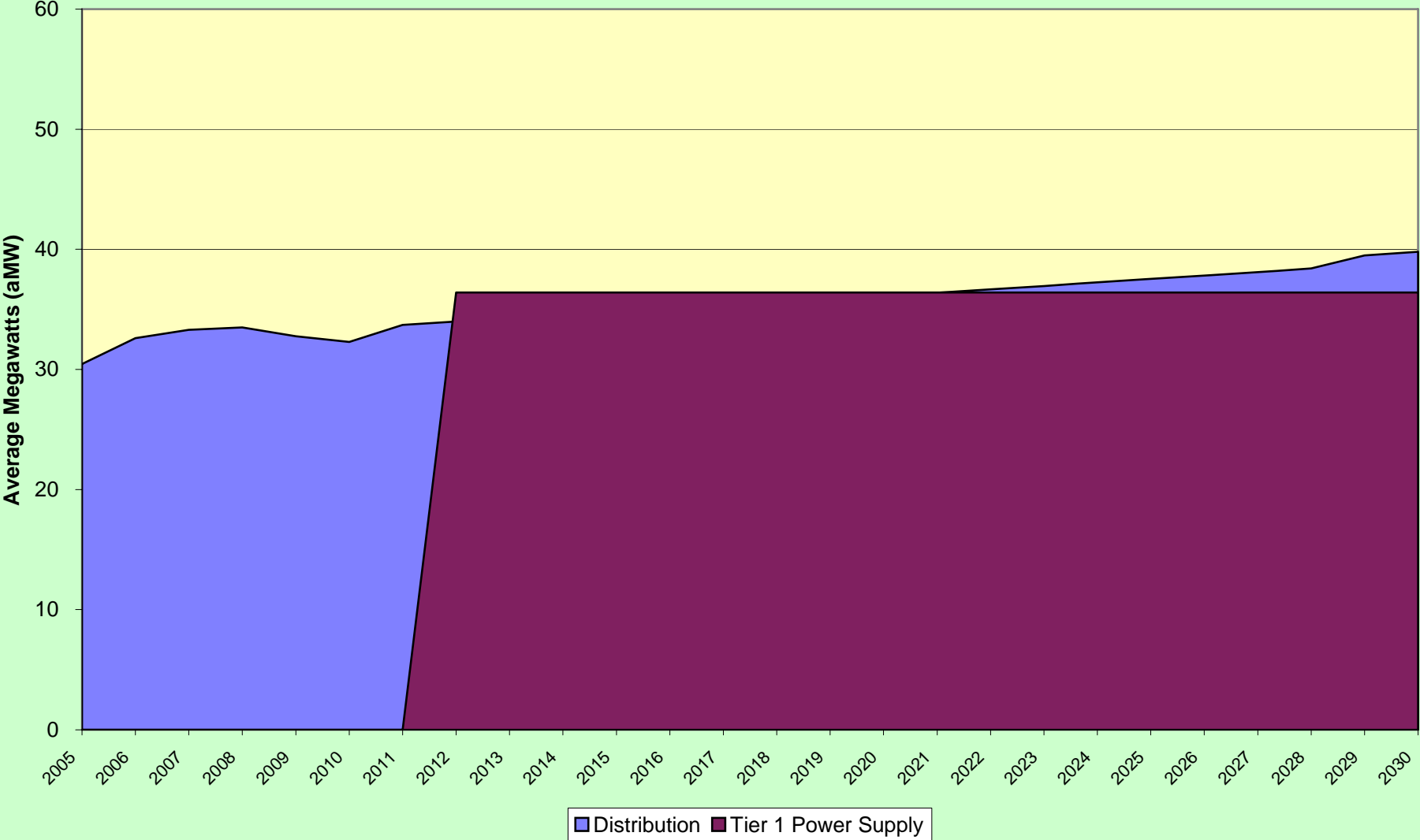
# City of Port Angeles Industrial Transmission Baseline Annual Power Requirement Forecast



# City of Port Angeles Distribution Utility Baseline Annual Power Requirement Forecast



# City of Port Angeles Distribution Utility Enhanced Conservation Annual Power Requirement Forecast



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# Future Considerations

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# Reduce “Gap” with Two Priorities?

- Seek all cost-effective conservation as the favored resource for meeting future loads
    - Least risk and most cost-effective
      - Continue City support
      - Seek BPA funding to accelerate the energy savings
      - Enhanced conservation scenario could reduce future wholesale energy costs by as much as \$30 million by 2030
  - Pursue renewable energy & cogeneration
    - Preference for resources located within City limits
  - Priorities to be confirmed in next BPA Tier 2 Commitment in September 2011
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# Strengths, Weaknesses, Opportunities, Threats

## ■ Strengths

- Conservation reduced City's 2009 power purchases by 2.1%, directly saved customers \$869,000 and created a net economic benefit of more than \$2 million

## ■ Weaknesses

- Limited current generation resources on the Peninsula

## ■ Opportunities

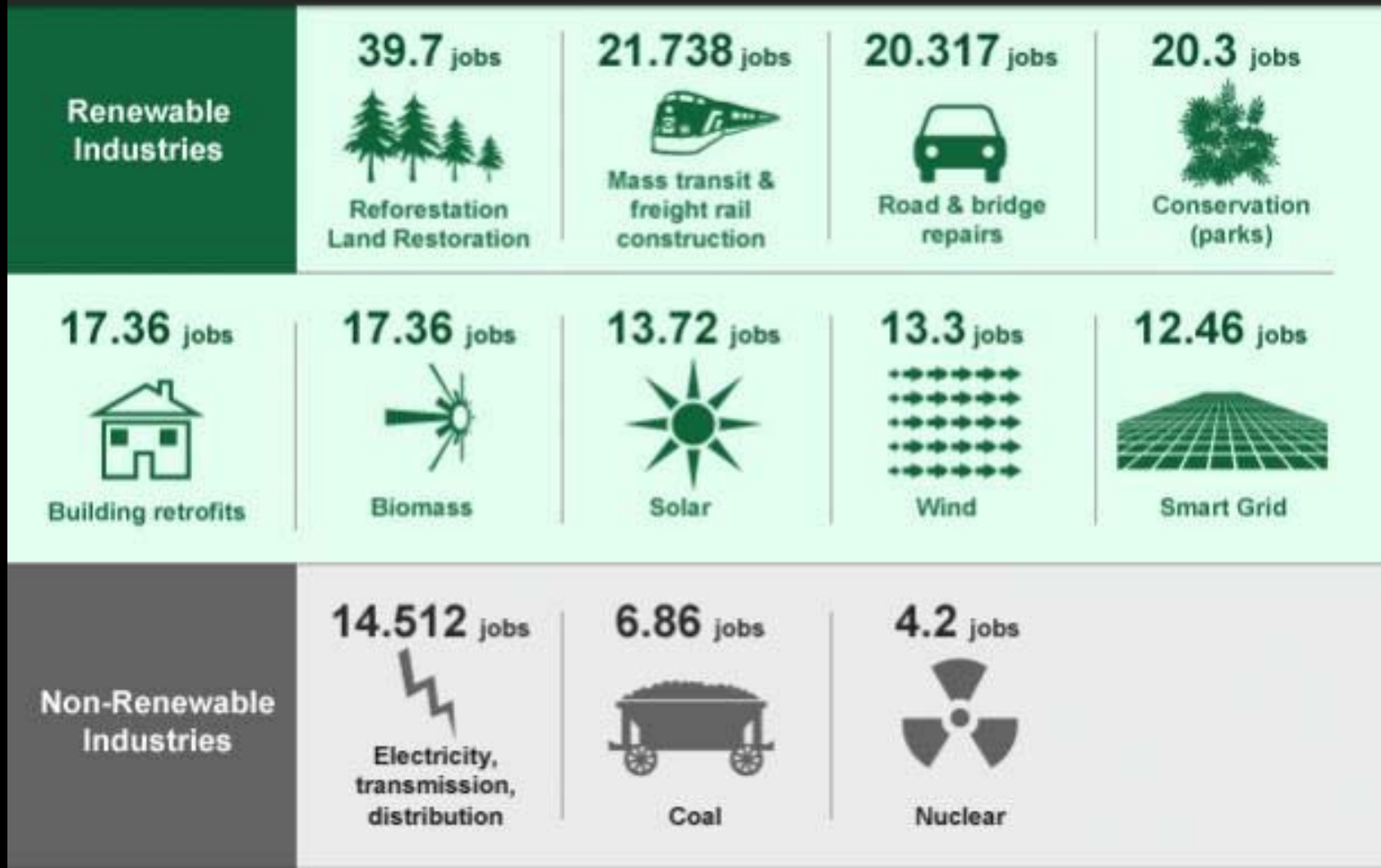
- Automated infrastructure, enhanced conservation and new renewable choices within City's service territory

## ■ Threats

- Strong potential for significant increases in wholesale power costs and decreases in the BPA "Tier 1" power system
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# \$1 Million = More jobs for green industries

(Employment per \$1 million spending in various industries – full-time equivalent jobs)



Source: Heidi Garrett-Peltier, Political Economy Research Institute, University of Massachusetts at Amherst.



PACIFIC OCEAN

WASHINGTON

COLUMBIA RIVER

Bonneville Dam

The Dalles Dam

John Day Dam

Ice Harbor Dam

McNary Dam

Lower Monumental Dam

Little Goose Dam

Lower Granite Dam

Hells Canyon

Oxbow Brownlee

IDAHO

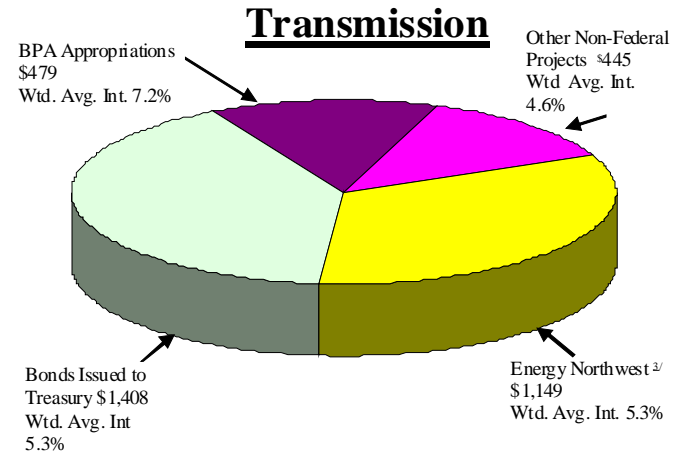
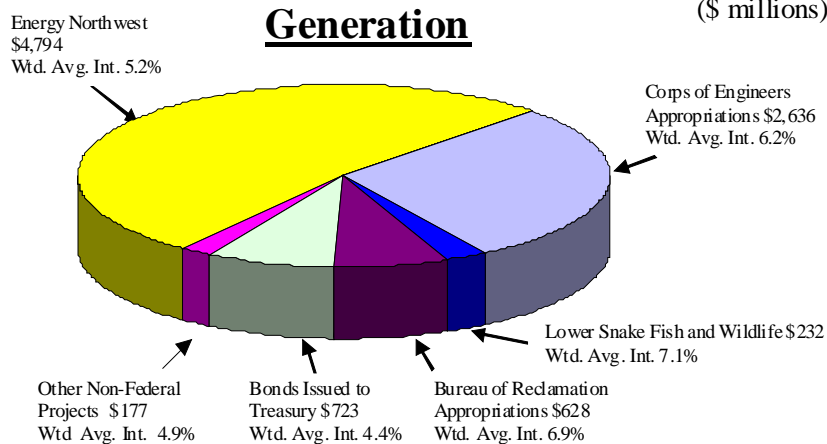
Swan Falls

OREGON

SNAKE RIVER

# BPA's Outstanding Liabilities

## Federal Columbia River Power System (FCRPS) Total Liabilities to Federal and Non Federal Parties as of 9/30/2009 <sup>1/</sup>



	Power Marketing Liabilities		Transmission Liabilities		Total Liabilities	
	Outstanding (\$millions)	WAI Rate	Outstanding (\$millions)	WAI Rate	Outstanding (\$millions)	WAI Rate
<b>Total Appropriations <sup>2/</sup></b>	\$3,496	6.4	\$479	7.2	\$3,975	6.5
<b>Total Bonds Issued to Treasury</b>	723	4.4	1,408	5.3	2,131	5.0
<b>Total Federal Liabilities</b>	4,219	6.1	1,887	5.8	6,106	6.0
<b>BPA Liabilities to Non Federal Parties</b>	4,971	5.2	1,594	5.1	6,565	5.2
<b>Total FCRPS Liabilities</b>	\$9,190	5.6	\$3,481	5.5	\$12,671	5.6

1/ Does not include irrigation assistance liability of \$706 million at zero percent interest (\$40million of this amount is for Lower Teton, for which the Administrator has no obligation to recover costs). "Liabilities" on this page do not directly relate to "liabilities" as reflected in the Combined Statements of Capitalization and Long-Term Liabilities.

2/ Appropriation amounts exclude appropriations for construction work still in progress (CWIP). 2009 CWIP for appropriations was \$258.6 million.

3/ Transmission Services (TS) principal is different from the Federal repayment obligation due to: 1) premium bonds issued, 2) timing differences, and 3) transactions costs. TS is assigned the repayment obligation for these items, which equals the additional Federal prepayment made on TS' behalf.

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# Notice and Public Hearing

- Public Hearing notice published by City Clerk on July 27<sup>th</sup> via City website and on July 30<sup>th</sup> via newspaper
  - Proposed Plan presented at August 3<sup>rd</sup> Council meeting and published on City website
  - Public Hearings on August 3<sup>rd</sup> and August 17<sup>th</sup>
    - Five comments received
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# Public Hearing Comments

- What is the size of the proposed NPI biomass cogeneration system compared to the Elwha dams?
  - What is the status of the Juan de Fuca cable project?
  - Does the City have a financial interest in the Juan de Fuca cable project?
  - Does the City purchase renewable energy from unsustainable Canadian resources?
  - Why does more conservation only seem to cause electric rates to increase?
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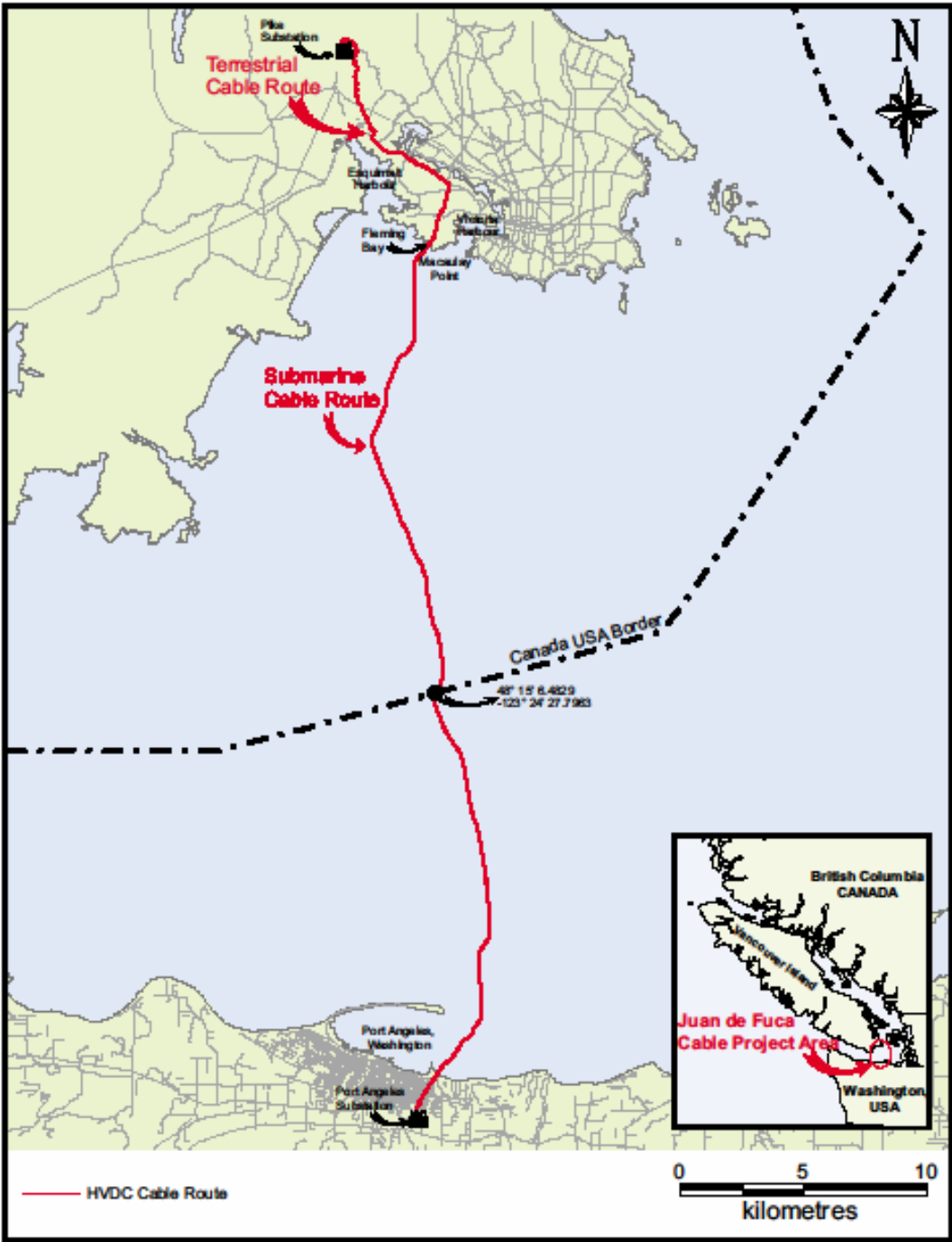
# Public Hearing Comments

- What is the size of the proposed NPI biomass cogeneration system compared to the Elwha dams?
    - The biomass cogeneration system is sized with a peak capacity of almost 20-megawatts (MW)
      - Will operate with a capacity factor of 94%-96%
    - The two dams generate over 28-MW at peak
      - Operate with average capacity factors of 40%-50%
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# Public Hearing Comments

- What is the status of the Juan de Fuca cable project?
    - Project granted all major permits necessary to proceed to construction
    - Construction of the Juan de Fuca Cable is estimated at 26 months, with a target for commencement of operations in 2012
    - In December 2009, submitted application to the US Department of Energy for a loan guarantee of up to \$480 million
    - Proposed cable path appears to be within the proximity of a promising advanced waterpower location
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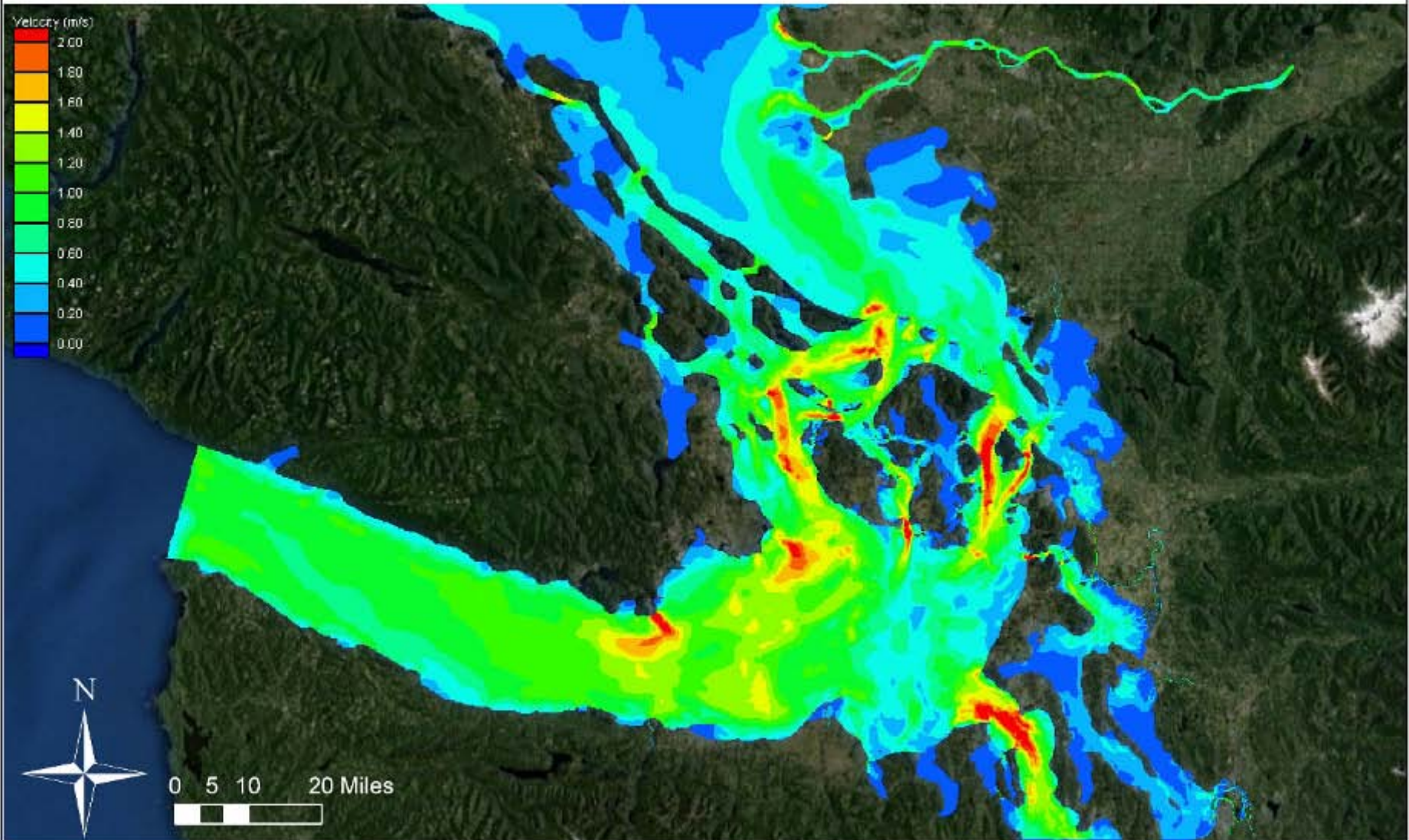


Source: Sea Street 2006

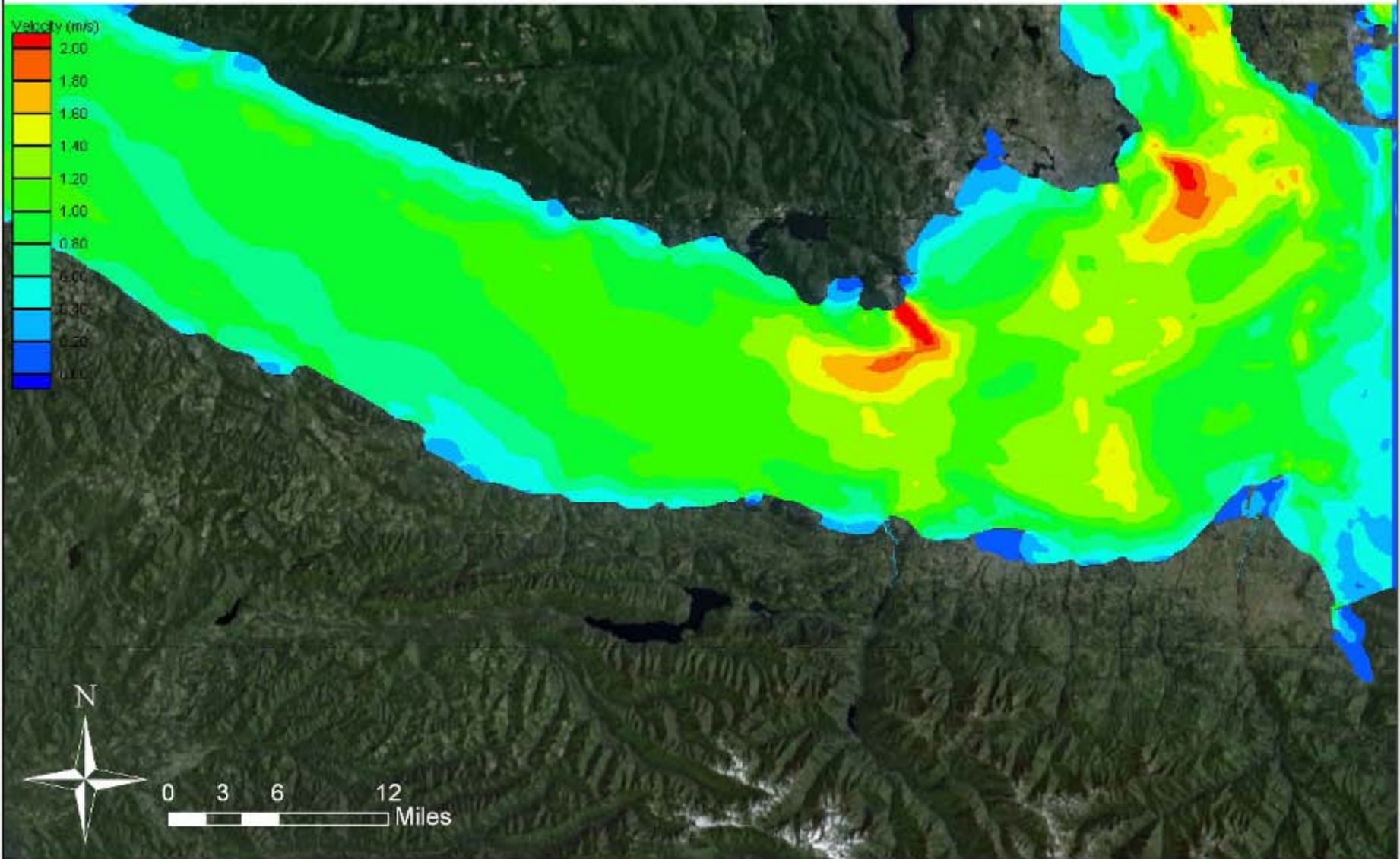
Port Angeles - Juan de Fuca Transmission Project

Figure 3-7  
Aerial Photo of Project Vicinity

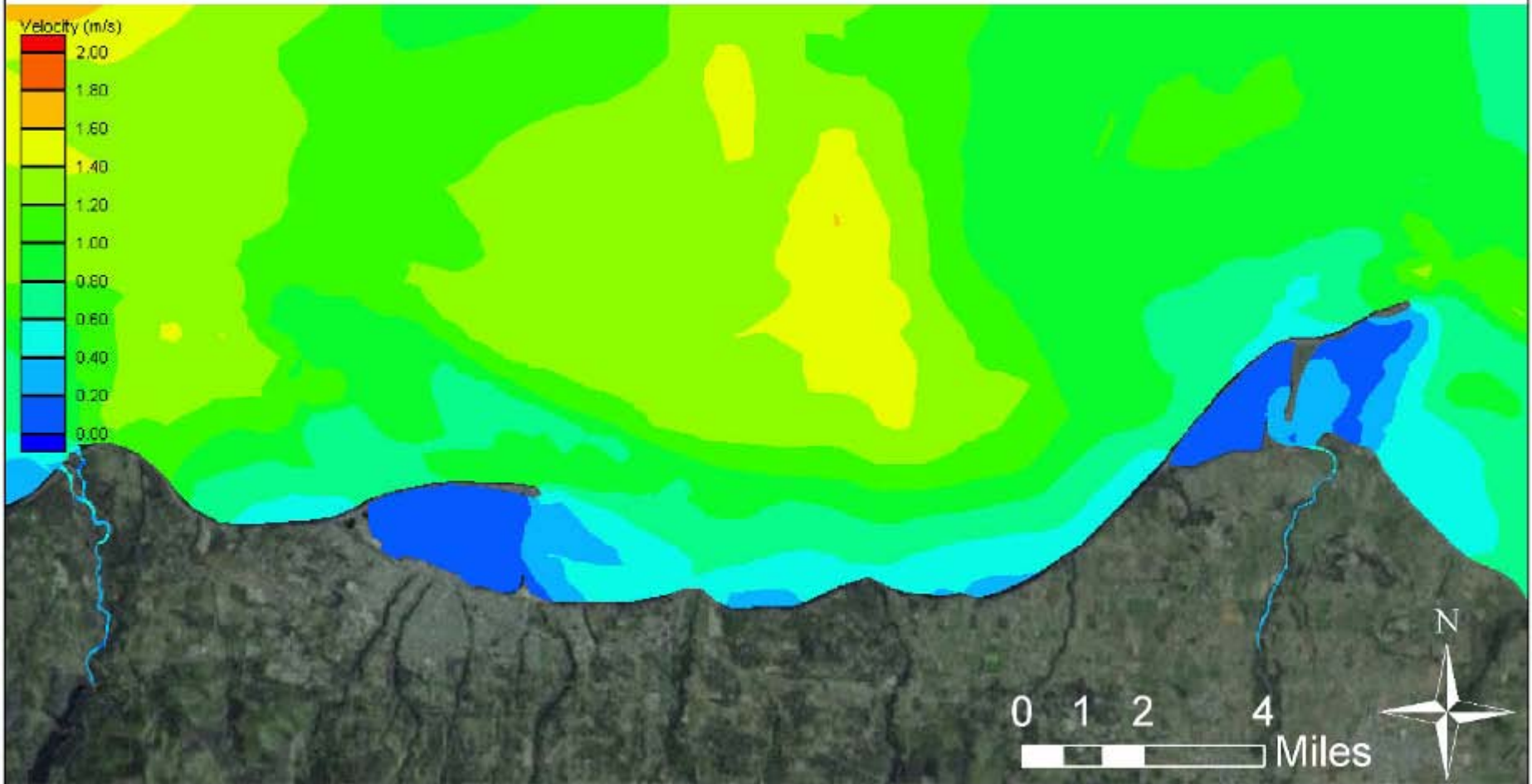
# Marine Hydropower Potential in the Salish Sea



# Marine Hydropower Potential in the Salish Sea



# Marine Hydropower Potential in the Salish Sea



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# Marine Hydropower Potential in the Salish Sea

- This “sweet spot” off the coast of Port Angeles could potentially support 50MW - 200MW of installed generation
  - Proportional to Scottish efforts to deploy marine hydro, developing this “sweet spot” could create 200 - 800 jobs and the investment could be between \$375 million and \$1.5 billion
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# Public Hearing Comments

- Does the City have a financial interest in the Juan de Fuca cable project?
  - The City of Port Angeles has no financial interest in this project



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# Public Hearing Comments

- Does the City purchase renewable energy from unsustainable Canadian resources?
    - Since 99.7% of the City of Port Angeles' power supply is provided by the BPA, it does not currently purchase, nor does it expect to purchase in the future, any renewable energy from Canada
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# Public Hearing Comments

- Why does more conservation only seem to cause electric rates to increase?
    - Prices reveal value and are an important tool in guiding customer decisions
    - Conservation is the least-cost resource, and as any resources are acquired, investments increase
    - Conservation-oriented rates are intended to reduce energy use and encourage users to choose more efficient ways to meet their needs
    - Rates may rise, but with engaged users, utility bills could remain about the same
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# Utility Advisory Committee

- UAC unanimously endorsed proposed Plan at their August 12<sup>th</sup> meeting



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# Recommendation

- Continue and close public hearing
  - Approve the Plan by endorsing resolution
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# Questions?

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<http://www.cityofpa.us>

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