

Appendix 1

THE PLANNING ENVIRONMENT

City Light's resource decisions are made within a policy context that includes state and federal laws, internal policies established by the mayor, city council and the utility, and the policies and guidelines of regional power planning agencies and organizations. Over the years, the utility industry has become increasingly regulated.

In 2006, climate change concerns and an interest in developing a new green energy industry took center stage in Washington state with the passage of Initiative 937 (I-937). The initiative requires electric utilities to have 15 percent of their energy provided by new, renewable resources by 2020. About ninety percent of City Light resources come from existing hydropower, which does not count toward I-937's renewable resource requirements. This meant City Light had to acquire renewable resources or renewable energy credits (RECs) for regulatory compliance.

Since I-937 requirements are largely independent of how much energy a utility actually needs, the regulatory requirement can drive resource acquisitions that would not otherwise be made.

The requirements and timing of targets set by I-937 put many utilities into the renewable energy resource market at the same time, driving demand for renewable resources in Washington and the Pacific Northwest. Similarly, renewable portfolio standards in other states (Oregon, California) have impacted the prices for renewable energy credits and renewable resources in markets in which City Light participates.

With many organizations' laws and policies affecting the planning environment, there is ongoing uncertainty about the rules and environment in which City Light plans to meet the electricity demand of its customers. Those that have the most impact on resource planning are described in this appendix.

The most recent federal legislation, the Energy Policy Act of 2005, includes a range of provisions pertaining to energy efficiency, generating resources and fuel supply, energy research and development, transmission, and climate change.

The Western Governors Association is working to encourage development of renewable resources and new electric transmission lines.

The Pacific Northwest region is reviewing resource and transmission adequacy and engaging the Bonneville Power Administration (BPA) in a dialogue about managing wind integration during periods of over-generation.

State legislation includes I-937, described above. A 2006 Washington state law requires large utilities to perform integrated resource plans (IRPs). Another state law

designates the Washington State Energy Facility Site Evaluation Council as the state authority behind siting transmission facilities under federal energy legislation. SB 6001 (RCW 80.80) establishes a greenhouse gas performance standard of 1,100 pounds per megawatt-hour for all new, long-term baseload power generation. The State Department of Commerce is required to review the standard every five years and is currently in that process. The assumption is the performance standard will be modified to a lower standard.

Long-standing policies of the City of Seattle and City Light encourage energy conservation, the use of renewable resources, prudent financial policies, and the utility's basic mission of providing reliable service. The City of Seattle launched Climate Action Now, an initiative to reduce greenhouse gas emissions. This initiative and City Light's greenhouse gas neutrality goal form a key element in meeting Seattle's community reduction goal. Figure 1 summarizes the types of resource planning issues that various policies impact.

Figure 1: Policies Affecting Resource Planning

Policy/Issue	Energy Efficiency	Renewable Resources	Planning Methods	Transmission	Resource Adequacy	Power Supplies	Tax Credits	CO ₂ Offsets	Climate Change
Resolution 31352	♦								
Resolution 30144	♦	♦						♦	♦
Resolution 30359								♦	♦
Resolution 30976									♦
Ordinance 122610									♦
RCW 19.285	♦	♦	♦						
RCW 19.280			♦						
RCE 80.50				♦					
RCW 80.60		♦							
RCW 82.16		♦					♦		
BPA Regional Dialogue						♦			
NPCC Policies	♦		♦		♦				
WGA Resolution 06-10	♦	♦		♦			♦		
EPACT 2005	♦	♦	♦	♦			♦		♦
RCW 80.80						♦			♦

THE CITY OF SEATTLE

City of Seattle and City Light's policies guide the utility's planning and operations as they relate to the environment and to greenhouse gas emissions. City Light has also developed policies to manage the risks of being short or long on resources and strategies to deal with energy surpluses and deficits.

Environmental Policy

City of Seattle and City Light's environmental policies help guide the resource planning and acquisition process in order to protect natural resources and to minimize environmental impacts while serving Seattle's electricity needs. City Light's Environmental Policy Statement calls for City Light to avoid, minimize or mitigate impacts to the ecosystems that it engages with and to consider environmental costs, risks, and impacts when making decisions.

City Light's vision, mission, and values statement reaffirms that minimizing environmental impacts and enhancing, protecting and preserving the environment are key parts of the utility's goals. Minimizing environmental impacts is one of the four criteria used to evaluate the Integrated Resource Plan (IRP) candidate portfolios.

Conservation and Renewable Resources

In 2000, the Seattle City Council passed Resolution 30144, stating that City Light should "use cost-effective energy efficiency and renewable resources to meet as much load growth as possible," as part of a goal to meet Seattle's electrical power needs with net zero greenhouse gas emissions.

City Light has continued its long-term practice of acquiring conservation through its programs at an annual rate of approximately 10-14 aMW, and it has contracted for the purchase of approximately 45 aMW of wind power (175 MW of capacity) from the Stateline Wind project. The Seattle City Council monitors utility compliance with Resolution 30144 as part of the annual reporting of council metrics.

City Light's conservation plans are consistent with the City of Seattle's 2006 Climate Action Plan, the Northwest Power and Conservation Council's Fifth Power Plan (2005) and Sixth Power Plan (2010), and the Kyoto Protocols. Following through with these plans City Light exceeded I-937 conservation requirements.

Greenhouse Gases and Climate Change

Resolution 30144 also directs City Light to mitigate greenhouse gas emissions from any fossil fuel use and to set a long-term goal of net zero annual greenhouse gas emissions. City Light achieved net zero in 2005 and has continued each year since. The Greenhouse Gas Mitigation

Strategy Resolution 30359 was passed in 2001. It sets standards for calculating greenhouse gas emissions and mitigation projects. Climate change policy does not prevent City Light from acquiring electricity from resources that produce greenhouse gases, but it does require that the utility fully offset those emissions.

In February 2005, the mayor proposed that the city achieve reductions in greenhouse gas emissions based on the Kyoto Protocol goal for the United States – a seven percent reduction in greenhouse gas emissions compared to 1990 levels – to be achieved by the year 2012. More recently, Resolution 30976 and Ordinance 122610 updated Seattle's Comprehensive Plan to accelerate the reduction of greenhouse gas emissions in Seattle by 30 percent from year 1990 levels by 2024 and by 80 percent from 1990 levels by 2050.

In 2007, the Mayor's Climate Action Now was launched to promote reduction in greenhouse gas emissions on a community-wide basis. The program requires City Light to meet load growth with conservation and renewables and to offset greenhouse gas emissions.

In the IRP analysis, the amount of greenhouse gas emissions of various resources and alternative portfolios has been calculated. The cost of offsetting those emissions is calculated based on estimated carbon dioxide allowance prices.

STATE OF WASHINGTON

Washington's Energy Independence Act (I-937)

The Energy Independence Act (RCW 19.285) requires utilities in Washington with more than 25,000 customers to acquire all cost-effective conservation at a prescribed pace and to acquire "qualifying" renewable resources at a rate of:

- a. 3 percent of retail load by 2012;
- b. 9 percent of retail load by 2016; and
- c. 15 percent of retail load by 2020.

Qualifying renewable energy must either be sourced from within the Pacific Northwest, or be purchased outside the Pacific Northwest but delivered into Washington on a firm transmission path, real-time, without integration services.

Hydroelectric power is not qualifying renewable energy, unless it is the direct result of qualifying hydro-efficiency improvements made after March 31, 1999. The requirement for qualifying renewables can be met with renewable energy credits (RECs), which represent the environmental attributes of qualifying renewable resources at the rate of one REC per megawatt-hour.

Four City Light resources are eligible for meeting the target:

1. The Stateline Wind project at approximately 3 percent of current load;
2. The Burlington Biomass facility;
3. The Columbia Ridge Landfill Gas facility; and
4. Efficiency upgrades completed after March 31, 1999 (such as Gorge Tunnel 2) that result in additional power output at City Light hydropower plants.

In meeting the conservation-related intent of I-937, the 2010-2011 target of 19.68 aMW was established and surpassed by 55 percent. Resolution 31352 was passed on January 30, 2012, establishing the 2012-2013 energy conservation target of 24.01 aMW and a ten-year potential of 120.02 aMW. This target and potential were established using the utility analysis methodology or a conservation potential assessment based on the Northwest Power and Conservation Council's sixth power plan

Integrated Resource Planning

RCW 19.280, HB 1010 (Chapter 195, Laws of 2006) passed by the Washington legislature in 2006, requires certain Washington utilities, including City Light, to regularly prepare IRPs. Under statute, IRPs must describe the mix of energy supply resources and conservation needed to meet current and future needs at the lowest reasonable cost to the utility

and its ratepayers, using available technologies. Utilities must also consider and include in their planning cost-effective conservation and a wide range of commercially-available generation technologies, including renewable technologies.

Facilities Siting

RCW 80.50 HB 1020 (Chapter 196, Laws of 2006) designates the Energy Facility Site Evaluation Council (EFSEC) as the State's authority for siting transmission facilities under the federal Energy Policy Act of 2005. The law extends EFSEC jurisdiction to electrical transmission facilities that operate in excess of 115 kilovolts within national interest transmission corridors and also to electrical transmission lines in excess of 115 kilovolts that connect a power plant to the grid.

Net Metering

Net metering measures the difference between the electricity supplied by a utility and electricity generated by a customer. If the customer generates more than needed, the excess power is sold to the utility's system and credited to the customer. Under RCW 80.60, Washington state requires utilities to provide net metering service to encourage development of renewable and distributed resources. The maximum allowable generating capacity for net metering systems is 100 kilowatts. The list of qualified generating sources for net metering includes solar, wind, water, fuel cells, and biogas from animal waste. In 2014 the cap on the total amount of net metering generation allowed in a utility's system will grow to 0.5 percent of its peak demand in 1996. City Light's 1996 peak load was 1950 MW, so it will be allowed 9750 kilowatts of net metered load on its system in 2014.

Incentives for Renewables

Certain provisions of RCW 82.16 create an investment cost recovery incentive to support certain renewable energy projects. Customers who generate electricity from a renewable energy system may seek annual incentive payment from their participating electric utility up to \$5,000 annually. Utility participation is voluntary. Participating utilities, such as City Light, are allowed a credit against their public utility tax equal to the incentives paid to customers.

Governor's Executive Order on Climate Change

In February 2007, Governor Christine Gregoire issued Executive Order 07-02, the Washington Climate Change Challenge. The greenhouse gas reduction goals in order include:

- By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;
- By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels; and
- By 2050, the state will reduce overall emissions to fifty percent below 1990 levels.

Power Plant Greenhouse Gas Performance Standard

In 2007, the Washington state legislature passed ESSB 6001 (RCW 80.80). This bill entered the Governor's Executive Order 07-02 into law. It also established a greenhouse gas emissions limit, called the performance standard, for new power plants. The limit is 1,100 pounds of CO per MWh of power, roughly equivalent to an existing natural gas plant emission rate. However, the State Department of Commerce as required is currently in a rule making process to determine if the limit of CO should be amended. Greenhouse gases that are captured and sequestered are not counted toward the emissions limit. The technologies for achieving capture and sequestration, however, are in early development stages. The law also prohibits electric utilities in Washington state from renewing or entering into new contracts longer than five years for power plants that emit above the limit, unless they contract with a provider of "coal transition power." This law has already impacted new power plant development in Washington state. Two proposals for new power plants were withdrawn over questions about their ability to meet the new requirement.

REGIONAL

Regional policies and guidelines relevant to utility resource planning are summarized below, including those of the Bonneville Power Administration, Northwest Power and Conservation Council, and the Western Governors' Association.

Bonneville Power Administration

The Bonneville Power Administration (BPA) is the power-marketing agency for electricity generated from projects owned and operated by the Army Corps of Engineers and the Bureau of Reclamation. City Light purchases approximately 40 percent of its power supply from BPA, and decisions affecting the marketing of this power at the federal level can significantly impact City Light's resource portfolio cost, risk, and reliability. City Light also relies heavily on purchases of significant amounts of transmission from BPA to transfer power from City Light's remote generating resources to its service area.

BPA customers, including City Light, have joined to promote long-term, cost-based contracts to restore and protect low-cost regional power in the face of periodic attempts to divert the benefits of BPA from the Pacific Northwest.

In December 2008, City Light signed a contract with BPA to continue City Light's access to the power resources the BPA markets through September 2028. BPA is involved in structuring contracts that will fairly apportion its least expensive base system generation among its customers. All other BPA power will be available as variously designed products. Investor owned utilities should get a financial settlement of their residential exchange rights. BPA proposes that contracts be signed for service that begins in October 2011 and terminates in September 2028.

Northwest Power and Conservation Council

The Northwest Power and Conservation Council (NPCC) is a public agency created by the Pacific Northwest Electric Power Planning and Conservation Act of 1980. The agency's three major functions are to:

- Develop 20-year electric power planning for the Northwest that guarantees adequate and reliable energy at the lowest economic and environmental cost;
- Develop programming to protect and rebuild fish and wildlife populations affected by hydropower development in the Columbia River Basin; and
- Educate and involve the public in the Council's decision-making processes.

Power Planning

The NPCC's sixth power plan (February 2010) was developed over the last few years with the Pacific Northwest power system facing significant uncertainties about the direction and form of climate change policy, future fuel prices, salmon recovery actions, economic growth, and integration of rapidly growing amounts of variable wind generation. However, in the short term the NPCC's plan is clear in laying out direction for meeting the region's load growth over the next 20 years. NPCC's action plan calls for cost-effective conservation to meet 85 percent of load growth. Energy conservation offers the region a resource that has the least cost, the least risk, and the least environmental impact. The council's plan for meeting loads also relies on renewable resources, some natural gas generation, and an eventual solution to the issue of wind integration. The NPCC is currently in the process of their mid-term assessment, which will likely influence the seventh power plan.

Regional Resource Adequacy Standard

In 2008, the NPCC adopted a new regional standard intended to ensure an adequate supply of electricity for the Pacific Northwest. The regional standard is also expected to be included for the Northwest region within the broader west-wide efforts on resource adequacy by the Western Electricity Coordinating Council (WECC).

The NPCC's regional adequacy standard is intended to address the unique characteristics of the Pacific Northwest, including the region's winter-peaking loads (compared to summer-peaking loads across most of the west) and its heavy dependence on hydroelectric generation.

The Pacific Northwest energy aim is to have resources equal the expected annual load. The capacity aim is to have a planning reserve margin that provides a 5 percent loss of load probability (LOLP).

Western Governors Association

In June 2004, the Western Governors adopted a resolution to:

1. Examine the feasibility of developing 30,000 MW of clean and diverse energy by 2015,
2. Increase energy efficiency to 20 percent by 2020, and
3. Provide adequate transmission to meet the region's needs through 2030.

In 2005, they created the Clean and Diversified Energy Advisory Committee (CDEAC) to oversee the work of seven task forces that examined the feasibility of reaching those goals. The task forces prepared reports with recommendations in the following areas: energy efficiency,

advanced coal, geothermal, wind, biomass, solar, and transmission.

In 2006, the Western Governors adopted Resolution 06-10, agreeing to:

1. Provide production tax credits for all renewable energy technologies and energy efficiency investments;
2. Raise the cap on the residential investment tax credit to \$10,000 for renewable energy or distributed generation systems; and
3. Support improvements in national appliance efficiency standards.

In June 2007, the Western Governors adopted Resolution 07-17, making recommendations for renewable portfolio standards that were largely satisfied in Washington state by I-937.

Resolution 07-17 supports:

- Hydropower research and emerging hydrokinetic/ocean technologies;
- Long-term reauthorization of renewable production tax credits, which may soon expire;
- Achieving energy efficiency savings from new and existing residential and commercial/public buildings;
- Transmission to accommodate the integration of large amounts of renewable generation in the Western power system; and
- Effective utilization of existing hydropower facilities and more effectively using small hydro potential.

In 2008, the Western Governors launched the Western Renewable Energy Zone (WREZ) initiative, which provided tools, information and analysis to encourage utilities to work cooperatively to develop renewable generation in the west.

In 2009, the Regional Transmission Expansion Project was begun. Funded by a grant from the U.S. Department of Energy, the project will analyze transmission requirements under a variety of possible futures and develop long-term, interconnection-wide transmission expansion plans.

The Climate Registry

Building on the work done by the California Climate Action Registry, a multi-state greenhouse gas emissions registry called The Climate Registry (TCR) was formed in 2007. Its development has moved quickly, and as of fall 2010, membership includes 428 corporate, non-profit, and government entities. The Registry has been discussed as the platform for federal legislation for reporting and reducing greenhouse gas emissions. The City of Seattle is a founding member of TCR.

FEDERAL

The primary federal statutes relevant to energy resource planning are the Clean Air Act, Clean Water Act, and Energy Policy Act of 2005.

Environmental Regulations

At the federal level, recent EPA regulations (the Clean Air Interstate Rule and the Clean Air Mercury Rule) have set tighter limits for emissions of common air pollutants from power plants: oxides of sulfur and nitrogen, and mercury. Other regulations will further limit emissions of particulate matter. These regulations may become more restrictive during the planning period of the IRP, and states may set their own more restrictive standards. Meeting these limits can be a significant technical challenge, as well as a significant additional cost, for power plants that burn fossil fuel.

Federal Clean Water Act regulations have also become more stringent. Power plants that use water for cooling could be affected by these changing regulations, as restrictions increase on removing water from, and discharging cooling water into, surface and groundwater sources. These restrictions are often related to protecting habitat for fish and wildlife, as well as protection of human health.

The Endangered Species Act (ESA) can affect the potential to site new power plants and transmission facilities. Currently, hydropower operations are significantly regulated because of their potential impacts on ESA-listed fish species. As new species are listed, and as new information about the effects of hydropower operation on those species becomes available, the operational rules may change. Consequently, this could possibly change both the amount and the timing of hydropower output. This issue is extremely important to City Light, given its reliance on both its own hydropower facilities and on the Bonneville Power Administration's supply.

Energy Policy Act of 2005

In 2005, the first federal energy legislation in 13 years addressed a wide range of issues including energy efficiency, generating resources and fuel supply, transmission, and climate change.

Energy Efficiency

Several provisions related to energy efficiency may influence the acquisition of conservation resources within City Light's service area.

The Energy Policy Act of 2005 authorized \$50 million in funding annually between 2006 and 2010 for state-administered energy efficient rebate programs for residential Energy Star products. These include appliances, heating and cooling systems, home electronics, lighting, and windows,

doors and skylights. The legislation establishes financial grants for state-run programs to achieve at least 30 percent efficiency improvements in new and renovated public buildings. The formula used in the Energy Policy Act of 2005 was again used in the American Recovery and Reinvestment Act of 2009. Another \$300 million was funded by the US Department of Energy for consumer purchases of new Energy Star qualified home appliances.

Generation Resources and Fuel Supply

Hydroelectricity

The 2005 Act authorized \$100 million for hydroelectric efficiency improvements at existing dams and modernized the hydropower laws to allow increased production. It created a 10-year tax credit that applied to "qualified hydropower production" placed in service prior to January 1, 2008. Relicensing provisions were amended to allow applicants or other parties to propose alternatives to conditions set by the agencies.

Natural Gas

The 2005 Act confirmed that the Federal Energy Regulatory Commission (FERC) has exclusive authority over siting, construction, expansion and operation of liquefied natural gas (LNG) import terminals located onshore or in state waters. In addition, it confirms FERC's role as the lead agency for National Environmental Policy Act compliance and for purposes of coordinating all applicable federal authorizations. The Act also confirms existing rights of states to review LNG terminals under the Coastal Zone Management Act, Clean Water Act and Clean Air Act.

Coal

The Act authorized \$200 million per year from 2006 to 2014 for a federal government cost-share program to conduct demonstrations of commercial-scale advanced clean coal technologies. It also authorized \$3 billion in the form of loans, cost-sharing, or cooperative agreements to encourage new sources of advanced coal-based power generation and to upgrade existing sources of coal-based generation to improve air quality to meet current and future obligations of coal-fired generation units regulated under the Clean Air Act.

The Act authorized a total of \$1.095 billion over three years in funding for the Department of Energy (DOE) clean coal research and development program, and \$75 million over three years for a DOE program to develop carbon capture technologies that can be applied to the existing fleet of coal units.

Innovative Technologies

The Act established a loan guarantee program to provide incentives for “innovative energy technologies” that avoid, reduce, or sequester air pollutants or greenhouse gases and use technologies improved in comparison to those in commercial use. Eligible projects include renewable systems, advanced fossil energy technologies (including coal gasification), hydrogen fuel cell technology, advanced nuclear energy facilities and others. There is no cap on the amount of funds used for this program.

Nuclear Energy

The Price-Anderson Act was re-authorized for commercial nuclear power plants and DOE contractors for 20 years; it increased the indemnification for DOE contractors to \$500 million. In addition, it authorized construction of a nuclear reactor at the DOE Idaho National Laboratory that will generate both electricity and hydrogen, and it created a federal loan guarantee program to encourage the design and deployment of innovative technologies including advanced nuclear power plants.

Transmission

To promote investment in electric transmission infrastructure, FERC was directed to undertake an incentive rate rulemaking and to provide for participant funding. In addition, it provided for expedited siting processes on both federal and private lands and for the use of advanced transmission technologies.

The Act established an Electric Reliability Organization to develop and enforce reliability standards for the bulk transmission system. The Act also requires FERC to identify the steps needed to make available real-time information on the functional status of all transmission lines within each of the transmission interconnections and to implement such a transmission information system.

The DOE was directed to study electric transmission congestion and possible designation of “national interest electric transmission corridors.” The designation of such corridors would have a significant impact on the development of new electric transmission facilities. Congress gave FERC backstop authority to grant permits for the construction or modification of electric transmission facilities within these corridors in certain situations, including the withholding of approval by a state siting authority. (In Washington state, HB 1020 designates the State EFSEC to prevent a FERC backstop.)

Climate Change

Climate change actions directed by the 2005 Act included forming a Climate Change Technology Advisory Committee charged with integrating existing federal climate change reports and activities. The Committee is to submit a national

strategy to promote the deployment and commercialization of greenhouse gas intensity reductions and to identify barriers to these technologies and ways to remove those barriers. Best management practices are also to be developed for calculating, monitoring, and analyzing greenhouse gas intensity.

Amendments to the Public Utility Regulatory Policy Act (PURPA)

The Act amended PURPA to repeal the requirement for mandatory purchase from qualifying facilities by electric utilities if a competitive market exists, and established new criteria for qualifying cogeneration facilities.

The Act amended PURPA to require state regulators and certain non-regulated electric utilities to consider five new standards based on the purposes of PURPA:

1. net metering,
2. fuel sources,
3. fossil fuel generation efficiency,
4. smart metering, and
5. interconnection.

Washington state’s IRP law and City Light’s IRP process meet the consideration and determination requirements required under PURPA. City Light does not anticipate the need for substantial discussion on the fuel sources and fossil fuel generation efficiency standards, since they are covered by existing state law.

American Recovery and Reinvestment Act of 2009

A number of provisions embedded in the American Recovery and Reinvestment Act of 2009 (ARRA), or the stimulus, added funding opportunities for energy efficiency, smart grid, and renewable development.

By formula, the City of Seattle secured \$6.1 million in Energy Efficiency and Conservation Block Grant (EECBG) dollars that were spread across ten efforts that are intended to reduce energy (electricity, natural gas, and diesel) consumption within the city.

An additional \$20 million was secured through a competitive process for the Weatherize Every Building project. This effort is being operated and managed by the City’s Office of Sustainability. To the extent that electric energy savings are identified, City Light will be involved to provide appropriate incentives and to claim the energy savings towards its I-937 targets.