#### These 4 specific dams are key to producing clean power for the Pacific Northwest – they produce enough energy to power Seattle.

Bonneville Power Administration and Department of Energy ’09 [BPA, “Power benefi ts of the lower Snake River dams”, Bonneville Power Administration, January 2009, <http://www.clearwaterpower.com/content/WYSIWYG/Power%20Benefits%20of%20the%20Lower%20Snake%20River%20Dams.pdf> AD]

In the 1960s and early 1970s, the federal government built four large dams on the Snake River. This is the last set of major dams to have been built in the Federal Columbia River Power System. The FCRPS is the largest source of electricity in the Pacific Northwest and the largest source of renewable electricity in the nation. The U.S. Army Corps of Engineers owns and operates the lower Snake River dams. All four of these dams are multiple-use facilities that provide navigation, hydropower, recreation, and fi sh and wildlife conservation benefi ts. These dams were not built to control fl oods. An important part of the Northwest’s power supply The useful output of a power station is measured in two ways – capacity and energy. The four lower Snake River dams are major power plants by either measure. Capacity to meet peak loads Peak capacity typically refers to a power plant’s value in meeting peak power loads. It is the largest amount of power a plant can generate operating at full capacity. Each of the four lower Snake River dams provides signifi cantly more power capacity than a typical coal plant. The nameplate capacity of the four lower Snake River dams is as follows: Ice Harbor Dam 603 MW Lower Monumental Dam 810 MW Little Goose Dam 810 MW Lower Granite Dam 810 MW Total 3,033 MW In comparison: Boardman coal plant 530 MW 1 For another reference point, the combined capacity of Pacifi corp’s seven dams on the Klamath River is 183 MW. (Source: Pacifi corp relicensing application to Federal Energy Regulatory Commission.). Power benefi ts of the lower Snake River dams January 2009 The four lower Snake River dams can operate above their rated capacity to produce up to 3,483 MW for several hours. In an extended cold-snap or other power emergency, such as another power plant shutting down unexpectedly, these four dams can produce in excess of 2,650 MW over a sustained period of 10 hours per day for fi ve consecutive days. According to the Northwest Power and Conservation Council, capacity is becoming increasingly important to the Pacifi c Northwest to meet peak loads in the summer as well as the winter. Much of the year, BPA relies on the four lower Snake River dams specifi cally to help meet peak loads. This ability to produce power when the system needs it most is crucial to maintaining a reliable power supply. Energy comparable to 27 years of conservation Average energy is the annual output of a power plant divided by the 8,760 hours of the year. The four lower Snake River dams produce almost as much annual average megawatts as BPA’s conservation programs have achieved in 27 years – at an investment of more than $2.3 billion: Four lower Snake River dams: . . . . . . . 1,022 aMW BPA conservation programs (1982-2008) . . 1,190 aMW Lower Granite Dam — capacity 810 MW, energized 1975 2 Together, the four Snake River dams supply 12 percent of the average energy production of the entire FCRPS and 5 percent of the Pacifi c Northwest. This is enough energy to serve a city about the size of Seattle. Emission-free renewable energy Hydropower is a renewable resource and produces virtually no greenhouse gas emissions. Power production from the lower Snake River dams saves 4.4 million metric tons of CO2 from reaching the atmosphere each year, according to a 2007 Council study on the Northwest’s carbon footprint. The Council concluded that: “Removal of the lower Snake River dams will not make additional CO2-free energy resources available to meet future load growth or retire any existing coal plants. More than 1,000 MW of emission-free generation eventually will have to be replaced unless the supplies of renewables and conservation are considered unlimited. Given the diffi culty of reducing CO2 emissions, discarding existing CO2-free power sources has to be considered counterproductive.” These dams keep the system in balance Because of their location, size and ability to help meet peak power loads, the lower Snake River dams signifi cantly support grid stability and the system’s ability to meet multiple system uses. While BPA markets power from 31 federal dams, only the 10 largest dams keep the federal power system operating reliably through Automatic Generation Control. Four of these 10 dams are lower Snake River projects. Under AGC, when total generation in the power system differs from total load being consumed, automatic signals go to these few dams to increase or decrease generation. This maintains the constant balance of generation and loads necessary for power system reliability. Of the other dams on AGC, Grand Coulee Dam and Chief Joseph Dam are on the Columbia River above its confl uence with the Snake River. The other four are on the lower river, below the Snake River confl uence. “Given the diffi culty of reducing CO2 emissions, discarding existing CO2-free power sources has to be considered counterproductive.” – Northwest Power and Conservation Council Streamfl ows in the Snake and upper Columbia River often differ. When one river’s use is particularly constrained, the other may be used more to help meet the total fi sh, power, fl ood control and other needs. (During spring and summer, the AGC capability of the lower Snake River dams is limited by the requirements of fi sh operations at these dams.)

#### Replacing the dams requires over 400 million dollars a year and would force the region to create dirty power plants.

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Under the Council’s Fifth Power Plan, the region already plans to achieve all cost-effective conservation (estimated at 2,500 aMW), plus 5,100 MW of new wind power. (The Council plans to issue its Sixth Power Plan in 2009.) In addition to conservation and renewables, the Council estimates the region could need additional coal, coal gasifi cation and natural gas resources to meet expected load growth. Therefore, replacing the power from the four lower Snake River dams likely would increase the amount of thermal resources in the region’s power mix. Because these dams are primarily used to meet peak power loads, it would be necessary to replace not only the energy, but the peak capacity (3,100 MW) power they now provide. Natural gas-fi red combustion turbines likely would be the most cost-effective resource to replace energy from the lower Snake River dams. They would likely be required in all alternatives to replace the 3,100 MW capacity value of the dams. Based on Council-updated wholesale power price forecasts from March 2008, replacing power from the four lower Snake River dams would cost the Northwest: $444 million to $501 million a year if the dams were replaced with natural gas-fi red generation. $759 million to $837 million a year if the dams were replaced with a combination of wind, natural gas and energy effi ciency.\\

#### **No fish impact – over 90% survive**

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Under the FCRPS Biological Opinion, the Snake River dams must meet standards of 96 percent survival for juvenile fi sh that migrate through the dams in the spring and 93 percent survival for summer migrants.