Draft 2007 Idaho Energy Plan

January 19, 2007

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Prepared by the Idaho Legislative Council Interim Committee on Energy, Environment and Technology

with the assistance of

Energy and Environmental Economics, Inc.
353 Sacramento Street, Suite 1700
San Francisco, California 94111

Submittal Letter

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Executive Summary and List of Recommendations

During the 2006 session, the Idaho Legislature passed House Concurrent Resolution No. 62, directing the Legislative Council Interim Committee on Energy, Environment and Technology ("Committee") to "develop an integrated state energy plan that provides for the state's power generation needs and protects the health and safety of the citizens of Idaho, and to report back to the Governor and the Legislature on its findings and recommendations." In response to this directive, the Committee reviewed the performance of all of Idaho's energy systems and finds that, on the whole, they have performed very well. Idaho's citizens and businesses have reaped tremendous benefits from electricity and natural gas prices that remain some of the lowest in the in the country. The Committee does not recommend major changes to the structure of Idaho's energy industry, and it reaffirms in this Energy Plan many of the initiatives already being undertaken by the Idaho Public Utilities Commission and Idaho utilities.

However, Idaho's resource base of low-cost coal plants and large hydroelectric dams may now become a source of risk for Idaho's energy future. Idaho's reliance on coal-fired power leaves the state vulnerable to the economic effects of federal regulation of carbon dioxide and mercury emissions. In addition, much of the hydroelectric capacity that serves Idaho customers is now or will soon be undergoing federal relicensing, a process that can result in substantial cost increases. Development of new energy resources is becoming increasingly costly and challenging, and Idaho's energy demand growth will inevitably result in upward pressure on energy rates. Finally, the Committee recognizes that Idaho relies on imported fossil fuels for approximately 80 percent of its energy needs. This exposes consumers to geopolitical events such as instability in the Middle East that drive up the price of crude oil. It also means that most of the $3 billion dollars that Idahoans spend each year on energy are sent outside the state, providing little secondary economic benefit.

To address these concerns and to achieve the Committee's energy policy objectives of ensuring a reliable, low-cost energy supply, protecting the environment, and promoting economic growth, this Energy Plan recommends increasing investments in energy conservation and in-state renewable resources. Conservation lowers the energy bills of Idaho households and businesses and reduces the flow of dollars outside the state. Conservation and renewables diversify the state's resource base, reducing its dependence on imported fossil fuels and providing insurance against increasing fuel prices. Conservation and in-state renewables also contribute to Idaho's economic development by creating local jobs and tax revenues, frequently in rural areas that are most in need of new economic activity. At the same time, the Committee recognizes that energy suppliers must continue to have access to conventional energy resources to keep Idaho's energy costs as low as possible. This Energy Plan offers a number of recommendations aimed at increasing investment in conservation and in-state renewable resources, while retaining the benefits of low-cost and reliable energy Idahoans have come to rely upon.

Energy Plan Objectives

1. **Ensure a secure, reliable and stable energy system for the citizens and businesses of Idaho**
2. **Maintain Idaho's low-cost energy supply and ensure access to affordable energy for all Idahoans**
3. **Protect Idaho's public health, safety and natural environment and conserve Idaho's natural resources**
4. **Promote sustainable economic growth, job creation and rural economic development**
5. **Provide the means for Idaho's energy policy to adapt to changing circumstances**

Energy Plan Policies and Actions

ELECTRICITY

Policies

RESOURCE DIVERSITY

1. Idaho utilities should acquire reliable, diverse, cost-effective and environmentally sound resource portfolios sufficient to meet their customers' long-term electricity needs.
2. Idaho utilities should have access to a broad variety of resource options consistent with Idaho's policy objectives, including both renewable and conventional resources.
3. Idaho electric utilities should conduct Integrated Resource Plans that assess the relevant attributes of a diverse set of supply-side and demand-side resource options and provide an opportunity for public input into utility resource decisions.

RESOURCE PRIORITY

4. In order to protect and enhance Idaho's quality of life, it is incumbent on all citizens to use Idaho's precious natural resources, including energy, in a wise and responsible manner.
5. When acquiring resources, Idaho and Idaho utilities should give priority to: (1) Conservation, energy efficiency and demand response; and (2) Renewable resources; recognizing that these alone may not fulfill Idaho's growing energy requirements.
6. The Idaho PUC and Idaho's municipal and cooperative utilities should ensure that their policies provide ratepayer and shareholder incentives that are consistent with this priority order.
7. It is Idaho policy to encourage the development of customer-owned and community-owned renewable energy and combined heat and power facilities.

ELECTRICITY TRANSMISSION

8. Idaho utilities should have the ability and the appropriate incentives to construct transmission facilities that are needed to provide reliable, low-cost energy service to their customers, access to regional markets, and access to a diverse set of resources.

9. The Idaho PUC, Idaho's investor-owned utilities and the Bonneville Power Administration should work together to ensure that Idaho's Consumer-Owned Utilities have access to reliable transmission service for cost-effectively integrating new resources.

ENVIRONMENT

10. Idaho and Idaho utilities should encourage technologies that minimize emissions of harmful pollutants and consumptive use of water.

11. Idaho and Idaho utilities should prepare for the possibility of federal regulation of greenhouse gas emissions.

Actions

CONSERVATION AND ENERGY EFFICIENCY

E-1. All Idaho utilities should fully incorporate cost-effective conservation, energy efficiency and demand response as the priority resources in their Integrated Resource Planning.

E-2. The Idaho PUC should establish annual targets for conservation achievement based on estimates of cost-effective conservation in the service territories of Idaho's investor-owned utilities.

E-3. The Idaho PUC should establish and periodically update an avoided-cost benchmark for each utility to be used in evaluating the cost-effectiveness of conservation and renewable resource investments and in calculating payments to Qualifying Facilities under the Public Utility Regulatory Policy Act (PURPA).

E-4. The Idaho PUC should establish appropriate shareholder incentives for investor-owned utilities that achieve the conservation targets established by the PUC. Shareholder incentives may include, but are not limited to:

i. Recovery of revenues lost due to reduced sales resulting from conservation investments;

ii. Capitalization of conservation expenditures;

iii. A share of the net societal benefits attributable to the utility's energy efficiency programs;

iv. An increase in the utility's return on equity for each year in which savings targets are met; or

v. "Decoupling" of utility revenues from sales.

E-5. The Idaho PUC should support market transformation programs that provide cost-effective energy savings to Idaho citizens.

E-6. The Idaho PUC and Idaho utilities should consider adopting rate designs that encourage more efficient use of energy.

E-7. Idaho's municipal and cooperative utilities should annually report to the Energy Division their estimates of cost-effective conservation in their service territories, their plans for acquiring this resource, their conservation and energy efficiency expenditures, and their estimated savings in electrical energy (MWh) and peak capacity (kW) during the lifetime of the measures implemented.

E-8. Idaho should offer an income tax incentive for investments in energy efficient technologies by Idaho businesses and households.

E-9. Idaho should offer a sales and use tax exemption on the purchase of energy efficient technologies.

E-10. Idaho should adopt international building codes on a three-year cycle as a minimum for building energy efficiency standards and should provide technical and financial assistance to local jurisdictions for implementation and enforcement.

E-11. State Government will:

i. Demonstrate leadership by promoting energy efficiency, energy efficient products, use of renewable energy and fostering emerging technologies by increasing energy efficiency in all facets of State government;

ii. Ensure that public facility procurement rules provide appropriate incentives to allow full implementation of cost-effective energy efficiency and small-scale generation at public facilities;

iii. Collaborate with utilities, regulators, legislators and other impacted stakeholders to advance energy efficiency in all sectors of Idaho's economy;

iv. Work to identify and address all barriers and disincentives to increased acquisition of energy conservation and efficiency; and

v. Educate government agencies, the private sector and the public about the benefits and means to implement energy efficiency.

RENEWABLE GENERATION RESOURCES

E-12. Idaho should offer an income tax incentive for investment in customer-owned renewable generation and combined heat and power facilities by Idaho businesses and households.

E-13. Idaho should provide a credit backstop to enable the Idaho Energy Resources Authority to provide low-cost financing for customer-owned renewable generation and combined heat and power facilities.

E-14. Idaho utilities should offer voluntary "green pricing" programs that allow customers to support environmentally preferred and renewable energy resources.

E-15. The Idaho PUC should establish appropriate shareholder incentives for investments in Idaho renewable resources by investor-owned utilities. Shareholder incentives may include, but are not limited to:

i. Increased return on investments in renewable resources located in Idaho;

ii. A share of the net societal benefits attributable to a renewable energy purchase.

E-16. The Idaho PUC should administer its responsibilities under the Public Utility Regulatory Policy Act in a way that encourages the development of customer-owned renewable generation and combined heat and power facilities.

E-17. The Idaho PUC should establish uniform policies for interconnection and net metering that promote investment in customer-owned renewable energy facilities.

Idaho's municipal and cooperative utilities should work together to develop a uniform policy for municipal utilities and rural electric cooperatives.

E-18. Idaho utilities shall report annually to their retail customers their sources of electricity (their "fuel mix").

CONVENTIONAL GENERATION RESOURCES

E-19. The Idaho PUC and the Departments of Water Resources and Environmental Quality should investigate and report on the status of "clean coal" technologies and barriers that prevent Idaho utilities from investing in environmentally-preferred uses of coal.

E-20. Idaho and Idaho utilities should work with the Idaho National Laboratory to investigate the feasibility of bringing a "next-generation" nuclear facility to Idaho.

E-21. Idaho should encourage the use of "dry cooling" or "gray water" cooling for new thermal facilities.

TRANSMISSION

E-22. Idaho should participate in regional efforts aimed at increasing the capability of the western transmission grid and bringing to Idaho the benefits of cost-effective remote resources.

E-23. Idaho should provide a credit backstop to enhance the Idaho Energy Resources Authority's ability to provide low-cost financing for transmission projects that benefit Idaho citizens.

E-24. Idaho should support efforts to amend the Internal Revenue Code to provide additional ability for municipal and cooperative utilities to use tax-exempt financing to construct needed transmission facilities.

NATURAL GAS

Policies

12. It is Idaho policy to employ the highest and best use of natural gas and ensure that Idaho consumers have access to an abundant and reliable supply from diverse and varied resources.

13. It is Idaho policy to support responsible exploration and production of natural gas supplies and the expansion of the transmission, storage and distribution infrastructure.

Actions

NG-1. The Idaho PUC should ensure that its line extension policies, electric and natural gas tariffs, and other policies encourage the direct use of natural gas in applications for which natural gas is the most efficient energy source.

NG-2. Idaho should provide incentives for investments in non-traditional natural gas supply resources, including landfill methane, anaerobic digesters, and biomass methane.

NG-3. Idaho should support the siting of liquefied natural gas terminals and other infrastructure in the United States to provide delivery capability to Idaho.

PETROLEUM AND TRANSPORTATION FUELS

Policies

14. It is Idaho policy to promote the production and use of cost-effective and environmentally-sound alternative fuels.

15. It is Idaho policy to promote conservation and efficiency as a means of reducing the burden of transportation fuel expenditures on Idaho households and businesses, improving the reliability and cost of Idaho's transportation fuel supply, and reducing transportation-related emissions.

16. It is Idaho policy to support responsible exploration and production of petroleum supplies and the expansion of transmission, storage and distribution infrastructure benefiting Idaho.

Actions

ALTERNATIVE FUELS

T-1. Idaho should ensure that its state vehicle procurement rules promote purchases of high-efficiency, flex-fuel, natural gas and alternative-fuel vehicles where cost-effective.

T-2. Idaho should provide incentives for the purchase of efficient, flex-fuel and alternative fuel vehicles.

T-3. Idaho should provide incentives for investments in retail and wholesale alternative fuel supply infrastructure.

T-4. Idaho should establish an incentive for the production of ethanol and biodiesel that reflects the cost of alternative fuel production relative to the price of gasoline and diesel fuel.

T-5. Idaho should promote research and development and business-university partnerships to speed the commercialization of alternative fuel technologies, with particular emphasis on cellulosic ethanol.

T-6. Idaho should prohibit "exclusivity" requirements in future contracts between fuel suppliers and retail service stations that prevent the stations from offering alternative fuels.

TRANSPORTATION FUEL CONSERVATION

T-7. Idaho should work with other states to promote an increase in Federal CAFE standards.

T-8. Idaho should permit local authorization of transit option taxes to support the use and expansion of public transportation.

T-9. Idaho should provide incentives for the installation and operation of equipment that reduces truck and tour bus idling.

T-10. Idaho should encourage regional land use planning and policies that minimize vehicle miles traveled.

ENERGY FACILITY SITING

Policies

17. Idaho state agencies should play a role in providing technical information to support local energy facility siting decisions.

Actions

S-1. The Idaho PUC should be vested with the authority to site transmission facilities within areas that have been designated by the U.S. Department of Energy as National Interest Transmission Corridors.

S-2. For electric generating facilities 50 MW or larger, an "Energy Facility Site Advisory Team" shall be established consisting of members appointed by the Departments of Environmental Quality, Water Resources, Commerce, Health and Welfare, Fish and Game, and Agriculture to provide technical information as requested by the local jurisdiction.

S-3. When permitting large electric generating facilities, local jurisdictions should be required to make a reasonable effort to hear testimony about the impact of the facilities from citizens and businesses in neighboring jurisdictions.

IMPLEMENTATION

Policies

18. Idaho should raise the profile of energy within state government and provide additional resources to oversee and promote implementation of the recommendations of this Energy Plan.

Actions

I-1. The Department of Water Resources should become the Department of Water and Energy Resources (IDWER), and Idaho should establish a statutory framework that prescribes the duties of the Energy Division within the IDWER.

I-2. The Energy Division should engage in public outreach and education and work with Idaho energy stakeholders to promote a reliable, diverse, cost-effective and environmentally-sound energy system for the benefit of Idaho citizens and businesses.

I-3. The Energy Division and PUC should report to the Legislature every two years on the progress of Idaho state agencies, energy providers and energy consumers in implementing the recommendations in this Energy Plan.

I-4. The Interim Committee recommends that the Legislature revisit this Energy Plan and develop new recommendations on a five-year cycle.

1. Introduction and Context

1.1. PREAMBLE

During the 2006 session, the Idaho Legislature passed House Concurrent Resolution No. 62, directing the Legislative Council Interim Committee on Energy, Environment and Technology ("Committee") to "develop an integrated state energy plan that provides for the state's power generation needs and protects the health and safety of the citizens of Idaho, and to report back to the Governor and the Legislature on its findings and recommendations." The Committee was further directed to "involve representatives of local government, business, agriculture and industry, the environmental community, the health care community and state agencies." The Committee submits this 2007 Idaho Energy Plan in fulfillment of these directives.

The Committee reviewed the performance of all of Idaho's energy systems and finds that, on the whole, they have performed very well. Idaho's citizens and businesses have reaped tremendous benefits from electricity and natural gas prices that remain some of the lowest in the in the country. The Committee does not recommend major changes to the structure of Idaho's energy industry, and it reaffirms in this Energy Plan many of the initiatives already being undertaken by the Idaho Public Utilities Commission ("PUC") and Idaho utilities.

However, while Idahoans have benefited from a resource base of low-cost coal plants and large hydroelectric dams, these resources may now become a source of risk for Idaho's energy future. Idaho's reliance on coal-fired power leaves the state vulnerable to the economic effects of federal regulation of carbon dioxide and mercury emissions. In addition, much of the hydroelectric capacity that serves Idaho customers is now or will soon be undergoing federal relicensing, a process that can result in substantial cost increases due to more extensive fish and wildlife mitigation measures.

Furthermore, the development of new energy resources is becoming increasingly costly and challenging, and Idaho's energy demand growth will inevitably result in upward pressure on energy rates. The Committee also recognizes that Idaho's status as a major energy importer means that the state derives little economic benefit from the $3 billion dollars that Idahoans spend each year on energy, as most is sent outside the state rather than re-circulating to create jobs in Idaho. Idaho's reliance on imported fossil fuels also exposes consumers to geopolitical events such as instability in the Middle East that drive up the price of crude oil.

To address these concerns and to achieve the Committee's energy policy objectives, this Energy Plan recommends increasing investments in energy conservation and in-state renewable resources. Conservation and in-state renewables offer a number of important benefits. Conservation lowers the energy bills of Idaho households and businesses and reduces the flow of dollars outside the state. Conservation and renewables diversify the state's resource base, reducing its dependence on imported fossil fuels and providing insurance against increasing fuel prices. Conservation and in-state renewables also contribute to Idaho's economic development by creating local jobs and tax revenues, frequently in rural parts of the state that are most in need of new economic activity. This Energy Plan offers a number of recommendations aimed at increasing the deployment of conservation and in-state renewable resources, while retaining the benefits of low-cost and reliable energy that Idahoans have come to depend upon.

Table 1.1. Facts about Energy in Idaho

$3 billion	Approximate amount Idaho citizens and businesses spent on energy in 2003
$3,000	Approximate amount each Idaho household spent on energy (including gasoline) in 2003
8%	Share of median household income spent on energy in 2003
2nd lowest	Idaho's rank among the fifty states for average electricity prices in 2005
6th lowest	Idaho's rank among the fifty states for residential natural gas prices in 2005
12th highest	Idaho's rank among the fifty states for average gasoline prices in 2005
0	Total amount of coal, oil and natural gas produced in Idaho in 2005
81%	Share of Idaho's 2003 energy supply that was imported from out of state
45%	Share of Idaho's 2005 electricity supply that was imported from out of state
48%	Share of Idaho's 2005 electricity supply that came from hydroelectricity
42%	Share of Idaho's 2005 electricity supply that came from coal-fired power plants
1%	Share of Idaho's 2005 electricity supply that came from non-hydro renewable energy sources
8%	Share of Idaho's 2015 electricity supply that is expected to come from non-hydro renewable energy sources, based on current Idaho utility resource plans
6%	Share of Idaho's 2004 electricity demand that was saved due to historical investments in energy conservation
11%	Average share of 2004 electricity demand that was saved due to historical investments in energy conservation for ten large Pacific Northwest utilities (see Figure 2.12)

This Energy Plan presents a broad set of consensus recommendations, encompassing nearly every aspect of the Idaho energy industry. The recommendations range from general to very specific, reflecting the fact that state authority is both limited and uneven. In some areas, particularly with respect to investor-owned electric utilities, the state's regulatory oversight affords a substantial degree of latitude to establish policy that will affect major decisions. As a result, the Committee's recommendations are very specific in this area and speak to both increasing the supply of electricity available to Idaho utilities and reducing the demand for electricity by Idaho consumers. In other areas, particularly with respect to petroleum, the state has limited ability to affect supply conditions, and the Committee's recommendations are limited to reducing demand and promoting alternatives to petroleum-based fuels. In all cases, the recommendations of this Energy Plan are forward-looking, and are not meant to assign credit or blame for past performance. Rather, they represent the Committee's best effort to outline concrete steps that will achieve the objectives that it set out at the beginning of its investigation.

The Committee intends this 2007 Idaho Energy Plan to serve as a guide for all Idaho citizens and businesses in their decisions about energy production, delivery and consumption. The Committee recognizes that true success in achieving the energy policy objectives set out in this Energy Plan will occur only when all Idaho citizens and businesses take some initiative toward wise energy use on their own, rather than waiting for incentives or mandates from state government.

1.2. POLICY CONTEXT FOR 2007 IDAHO ENERGY PLAN

Idaho's last energy plan was developed in 1982 by the Idaho Energy Policy Resource Board, a body created by Governor John Evans to define the state's role in energy planning and policy.

The 1982 Idaho State Energy Plan presented information about energy resources in Idaho and made recommendations in the areas of Electricity, Nonrenewable Resources, Renewable Resources, Conservation, and Local Government.[1]

The legislation directing the development of this 2007 Idaho Energy Plan arose during a legislative session in which energy issues played a prominent role. The principal event that occasioned the renewed attention to energy issues was the controversial proposal by Sempra Generation to construct and operate a 600 MW coal-fired power plant in Jerome County. The plant was first proposed in 2005, but vocal opposition to the plant among some Magic Valley residents led to the passage of House Bill 689, which imposed a two-year moratorium on the permitting and licensing for construction of certain coal-fired power plants. The legislative intent from this bill refers to the need for "an integrated energy plan for the state of Idaho that provides for the state's power generation needs and protects the health and safety of the citizens of Idaho." The legislation was signed by Governor Kempthorne on April 7, 2006. In addition to the moratorium, the 2006 Legislature also considered, but did not pass, bills to establish a state-level energy facility siting authority (SB 1292) and to create a renewable fuels standard to promote the development of ethanol fuels (SB 1267).

While the proposed coal plant provided the spark for the development of this Energy Plan, the Legislature's instructions to the Committee are general, and the Committee did not restrict itself to considering issues related to coal-fired power plants in Idaho. Instead, the Committee took the opportunity to gather information about all of Idaho's energy systems, including electricity, natural gas, transportation fuels, and energy facility siting, and to evaluate the extent to which any new state action would advance Idaho's interests.

1.3. PROCESS USED BY THE COMMITTEE TO DEVELOP THE 2007 IDAHO ENERGY PLAN

The Committee conducted a thorough public process in developing the recommendations of this Energy Plan. The full Committee held eleven days of public meetings between March and November 2006 and heard testimony from utilities and other energy companies, ratepayers and members of the public, environmental organizations, experts from Idaho state agencies and the Northwest Power and Conservation Council, and the Committee's consultant. In addition, the Committee established four subcommittees to develop initial recommendations in each of four topic areas. The subcommittees were composed of six legislative members and six or seven members selected from the general public. Combined, the four subcommittees held seven public meetings. The four subcommittees were: 1) Generation Involving Renewables and Conventional Energy Sources, 2) Conservation and Demand-Side Management, 3) Siting Generation and Transmission, and 4) Transportation Fuels, Natural Gas Used for Heating and Distribution and Liquefied Natural Gas.

The Committee and the subcommittees operated to the extent possible on a consensus basis. The goal of the Interim Committee co-Chairs was to develop a consensus set of recommendations that the Committee could forward to the Legislature, the Executive Branch, and various stakeholders. Developing a consensus plan among sixteen Committee members representing different parts of the state, different political affiliations and different philosophies was a challenging endeavor

[1]The 1982 Idaho State Energy Plan is available at: http://www.idwr.idaho.gov/energy/idenergyplan.pdf

that required a great deal of effort and compromise. The Committee did not achieve its goal of reaching consensus in every area, and as a result, minority opinions advocating additional action in the areas of energy facility siting and low-income affordability are reported in Appendix A. Nonetheless, each of the five Objectives, eighteen Policies and forty-four Actions in this Energy Plan is a consensus recommendation of the Committee.

1.4. ENERGY PLAN FINDINGS

The findings of the Committee are organized into three categories: Objectives, Policies and Actions. The Energy Plan *Objectives* provide high-level guidance by outlining broad goals that the Committee wishes to achieve for Idaho. *Policies* establish the direction that Idaho should pursue in specific topic areas in order to achieve the Objectives, and *Actions* are specific items aimed at specific actors that advance the Policies. The Policies and Actions are described below, and a complete list of Committee recommendations is provided in Chapter 4.

1.4.1. Energy Plan Objectives

The Committee established the Objectives for the Energy Plan at the outset of its investigation. The Committee's Objectives for this Energy Plan are to:

1. Ensure a secure, reliable and stable energy system for the citizens and businesses of Idaho;
2. Maintain Idaho's low-cost energy supply and ensure access to affordable energy for all Idahoans;
3. Protect Idaho's public health, safety and natural environment and conserve Idaho's natural resources;
4. Promote sustainable economic growth, job creation and rural economic development; and
5. Provide the means for Idaho's energy policy to adapt to changing circumstances.

1.4.2. Recommended Policies and Actions

ELECTRICITY

Idaho citizens and businesses have benefited from a stable, reliable and low-cost electricity supply, and this Energy Plan does not recommend major changes to the structure of Idaho's electricity industry. At the same time, the Committee recognizes that investments in new generating resources are becoming increasingly challenging due to higher fuel costs and increasing environmental concerns, and that Idaho's current dependence on coal resources for nearly half of its electricity supply leaves the state vulnerable to likely carbon regulation. In addition, the Committee wishes to limit the flow of dollars out of the state by using less electricity and developing in-state resources, most of which are renewable in nature. Thus, a major focus of this Energy Plan is increasing investments in energy conservation and in-state renewable energy resources in order to reduce Idaho's dependence on imported coal power.

To that end, this Energy Plan recommends a variety of tax incentives, regulatory actions, and utility programs. Tax incentives include both an income tax incentive and a sales and use tax exemption for households and businesses that invest in renewable energy and energy-efficient

technologies. In addition, the Energy Plan recommends that state government play an active role in facilitating the acquisition of energy conservation resources, both in state-owned facilities and in the public at large through education and outreach programs. The Energy Plan envisions a number of new activities for the Idaho PUC such as establishing annual targets for acquisition of cost-effective energy conservation by investor-owned utilities and providing appropriate rewards to utility shareholders for meeting those targets. It also recommends that the utilities and PUC promote the development of customer-owned renewable generation and combined heat and power ("CHP") facilities through shareholder incentives, voluntary "green pricing" programs, and regulatory policies such as interconnection and net metering for distributed renewable generation systems. The Committee notes that the PUC and Idaho's utilities have already begun to increase their efforts to acquire energy conservation and renewable energy resources, and encourages them to take additional steps in this direction.

While the Energy Plan's principal focus is on boosting the acquisition of in-state energy conservation and renewable energy resources, the Committee recognizes that conventional resources such as coal and natural gas will continue to be needed to provide low-cost energy service to Idahoans, and recommends that Idaho utilities continue to have access to a broad variety of resource options. This Energy Plan emphasizes resource diversity as a means of minimizing the risks associated with reliance on a particular resource type. For this reason, it endorses Integrated Resource Planning as a useful vehicle for evaluating diverse portfolios of resource options and providing for public involvement in utility resource decisions.

NATURAL GAS

Idaho is favorably located between two major natural gas supply basins and has historically benefited from natural gas prices that are well below the national average. However, all of Idaho's natural gas supplies are imported from out of state, meaning that Idaho derives little economic benefit from the dollars that are spent on natural gas. Moreover, growing demand in the Northwest and new pipeline capacity between the Rocky Mountains and lucrative markets in the Northeast are likely to erode Idaho's locational price advantage over the next several years. This Energy Plan recommends that Idaho support responsible exploration and production of natural gas and expansion of the natural gas infrastructure that serves Idaho customers. It also recommends that Idaho reduce or defer the demand for imported natural gas by promoting investments in natural gas conservation as well as alternative sources of gas such as landfill methane and anaerobic digesters. Finally, the Energy Plan recommends that Idaho employ the highest and best use of natural gas and promote the direct use of natural gas for space and water heating, where natural gas is the most efficient energy source.

TRANSPORTATION FUELS

Petroleum fuels, the vast majority of which are used for transportation, constitute 45 percent of Idaho's end-use energy consumption. Like natural gas, 100 percent of Idaho's petroleum fuels come from out of state. Unlike natural gas and electricity, however, Idaho enjoys no price advantage relative to other states; Idaho's average gasoline prices ranked 12th highest among U.S. states in 2005. Moreover, Idaho has very little leverage over either the oil companies that supply Idaho's transportation fuel needs or the automakers that make the products responsible for the majority of petroleum consumption. As a result, the recommendations of this Energy Plan focus on reducing demand for imported oil by encouraging the purchase of high-efficiency and alternative-fuel vehicles and encouraging the development of alternative-fuel infrastructure. In addition, the Energy Plan recognizes the economic development benefits of domestic production

of biofuels (e.g., ethanol and biodiesel) and recommends incentives for developing domestic supplies.

ENERGY FACILITY SITING

The Committee evaluated the possibility of establishing a state-level energy facility siting body, but a majority of Committee members favor retaining energy facility siting decisions at the local level. The Committee notes that Sempra's decision to suspend development activities on its Jerome County project and Idaho's decision to opt out of EPA's mercury cap-and-trade program make it unlikely that a new, coal-fired power plant will be proposed for Idaho in the foreseeable future. The Committee believes that a state-level energy facility siting body is unnecessary at this time.

At the same time, local officials may benefit from the technical expertise and information of state agencies when considering proposals to site large energy facilities in their communities. This Energy Plan therefore recommends that state resources be made available in the form of an Energy Facility Site Advisory Team, composed of key employees from a number of state agencies, to provide information and advice at the request of local officials. The state role would be advisory only; final decision-making authority should continue to rest with local jurisdictions.

IMPLEMENTATION

Energy is a critically important industry. Reliable, affordable energy supplies are not only critical to the functioning of a modern economy, but are necessary to protect the public health and safety. The extraction, production and distribution of energy require energy facilities with a large "footprint". In short, the nature of the energy industry necessitates a strong degree of public oversight, and state regulation of electric and natural gas utilities places the state in a very active role. Thus, the Committee believes that it is crucial for state policy-makers to maintain consistent oversight of the energy industry and to stay educated about the latest technological and institutional developments.

To that end, the Committee recommends a number of steps to raise the profile of energy issues within state government and to promote and oversee implementation of the recommendations of this Energy Plan. These include formalizing and expanding the role of the Energy Division of the Department of Water Resources, providing additional resources to enable the Energy Division to perform state energy policy functions, and renaming the department to the Department of Water and Energy Resources. One of the Energy Division's most important new responsibilities would be to track the state's progress in implementing the recommendations of this Energy Plan and report to the Legislature every two years.

The Committee also finds that it is important that the recommendations in this Energy Plan be subject to an organized review on a regular, scheduled basis to ensure that they continue to reflect the best interests of Idaho citizens and businesses. While the Committee cannot bind future Legislatures to a schedule for Energy Plan updates, the Committee recommends that the plan be revisited and new recommendations developed on a five-year schedule.

1.4.3. Timeline for implementing the Energy Plan recommendations

The recommendations of this Energy Plan include a variety of proposals aimed at a number of different parties in Idaho's energy industry. The Committee's recommended timeline for implementation of these proposals varies depending on the parties connected to the

recommendations. The Committee expects that some elements of the Energy Plan will be implemented with legislative action during the 2007 Legislative Session. Actions involving the PUC and Idaho utilities can begin now, but may take somewhat longer to fully implement as new rules work their way through the PUC regulatory process and utilities update their IRPs and energy conservation programs. Recommendations aimed at Idaho consumers may take the longest to implement, as consumers are generally slow to change their behavior and efforts to transform markets for energy-consuming technologies can take many years. The Energy Division's biennial reports should inform Legislature about the progress that stakeholders are making in implementing the recommendations of this Energy Plan.

2. Idaho's Current Energy Picture

2.1. OVERVIEW

Idaho has historically benefited from a reliable energy supply and from electricity and natural gas prices that are among the lowest in the country, despite the fact that Idaho has no domestic petroleum, natural gas or coal resources. These low electricity and natural gas rates have provided Idaho with an economic advantage in attracting and retaining industry and allowing Idaho households to spend less of their incomes on energy. However, Idaho's economy is more energy-intensive than most other states, and the expansive western landscapes require Idahoans to drive more miles and burn more gasoline than residents of most other states. This is compounded by the fact that Idaho's gasoline and diesel prices are somewhat higher than the national average. Moreover, Idaho's relatively low household incomes mean that energy is a larger relative burden for Idaho households than in many other states.

While Idaho's existing electricity rates are very low, new electric generating resources are much costlier than the existing resources that serve Idaho customers. Idaho's large hydroelectric resources are fully developed, and the cost of building and operating new coal- and natural gas fired power plants has risen substantially in recent years. Natural gas prices have been rising because U.S. production has not kept pace with demand, requiring the development of costlier resources such as Arctic gas or liquefied natural gas imports. Geopolitical events such as the current instability in the Middle East and rising petroleum demands by developing countries are causing high and volatile global crude oil prices – and as a result, high fuel prices in Idaho. Going forward, Idaho will likely see escalating prices for its energy supplies.

Idaho's lack of domestic energy resources means that Idaho relies on imports for over 80 percent of its energy needs, including all of its natural gas and petroleum supplies and more than half of its electricity. The in-state resources that are available to Idaho utilities are largely renewable resources such as geothermal, wind, hydro, and biomass. Increased deployment of energy conservation and renewable energy will help grow the state's economy by reducing the flow of dollars outside the state and creating local jobs and tax revenues.

2.2. IDAHO UTILITIES AND ENERGY SYSTEMS

2.2.1. Electricity

Idaho is served by three investor-owned electric utilities ("IOUs"), eleven municipal utilities, and seventeen rural electric cooperatives. The three IOUs serve 88 percent of the state's load. The remainder is served by municipals and cooperative utilities. Figure 2.1 shows the service territories of the IOUs, and Figure 2.2 shows the service territories of Idaho's municipal and cooperative utilities.

AVISTA UTILITIES

Avista is an investor-owned electric and natural gas utility serving over 300,000 electric and natural gas customers in Oregon, Washington and Idaho, including 113,000 electric customers in North Idaho. Avista has a portfolio of hydroelectric resources in western Montana, eastern Washington, and North Idaho; ownership shares of Montana coal plants; and natural gas-fired

capacity in Idaho, Oregon, and Washington.[2] Avista was founded in 1889 and operated as Washington Water Power until 1999. Avista Utilities, encompassing the company's regulated electricity and natural gas businesses, now operates as a regulated subsidiary of Avista Corp.

IDAHO POWER COMPANY

Founded in 1916, the Idaho Power Company serves 439,000 customers in southern Idaho and 18,000 customers in eastern Oregon. Idaho Power relies on hydroelectric resources in Idaho, including the 1,167 MW Hells Canyon Complex, as well as baseload coal facilities located in Wyoming, Oregon and Nevada. Idaho Power was reorganized into a holding company structure in 1998, and Idaho Power currently operates as a regulated subsidiary of IDACORP.

PACIFICORP, DBA ROCKY MOUNTAIN POWER

PacifiCorp serves retail customers in six western states: Washington, Oregon, Idaho, Wyoming, Utah and California. PacifiCorp serves 63,702 customers in Southern Idaho, accounting for approximately four percent of PacifiCorp's total customer base. PacifiCorp was founded in 1910 as Pacific Power & Light, and changed its name to PacifiCorp in 1984. PacifiCorp began operating in Idaho in 1989 through its merger with the Utah Power & Light Company, which began serving customers in Idaho in 1912.[3] PacifiCorp was purchased by Mid-American Corporation in 2006, and subsequently changed the name of its eastside subsidiary to Rocky Mountain Power. PacifiCorp relies principally on coal-fired power plants in Wyoming and Utah to serve its eastern service territories.

MUNICIPALS AND COOPERATIVES

Idaho's municipal and cooperative utilities serve 12 percent of Idaho's load. The municipal and cooperative utilities are relatively small in size, ranging from 43 customers and 566 MWh of annual sales (City of Minidoka) to 24,277 customers and 651,095 MWh of annual sales (City of Idaho Falls). Most municipal and cooperative utilities are "requirements" customers of the Bonneville Power Administration ("BPA"), meaning that BPA provides most or all of the energy needed to serve the utilities' loads.

BONNEVILLE POWER ADMINISTRATION

BPA is a federal power marketing agency in the United States Department of Energy. BPA markets the power from 31 federal dams on the Columbia River and its tributaries, as well as additional power from non-federal dams and from the 1,200 MW Columbia Generating Station nuclear power plant in Richland, Washington.[4] These resources are referred to collectively as the Federal Columbia River Power System ("FCRPS"). BPA provides power from the FCRPS at cost-based rates to meet the net power needs of public agency utilities in its service territory, which includes all of Washington, Oregon and Idaho and portions of Montana, Wyoming, Utah and Nevada. BPA also provides benefits to residential and small farm customers of investor-owned utilities within its service territories, and provides energy service to a handful of industrial customers known as "Direct Service Industries".

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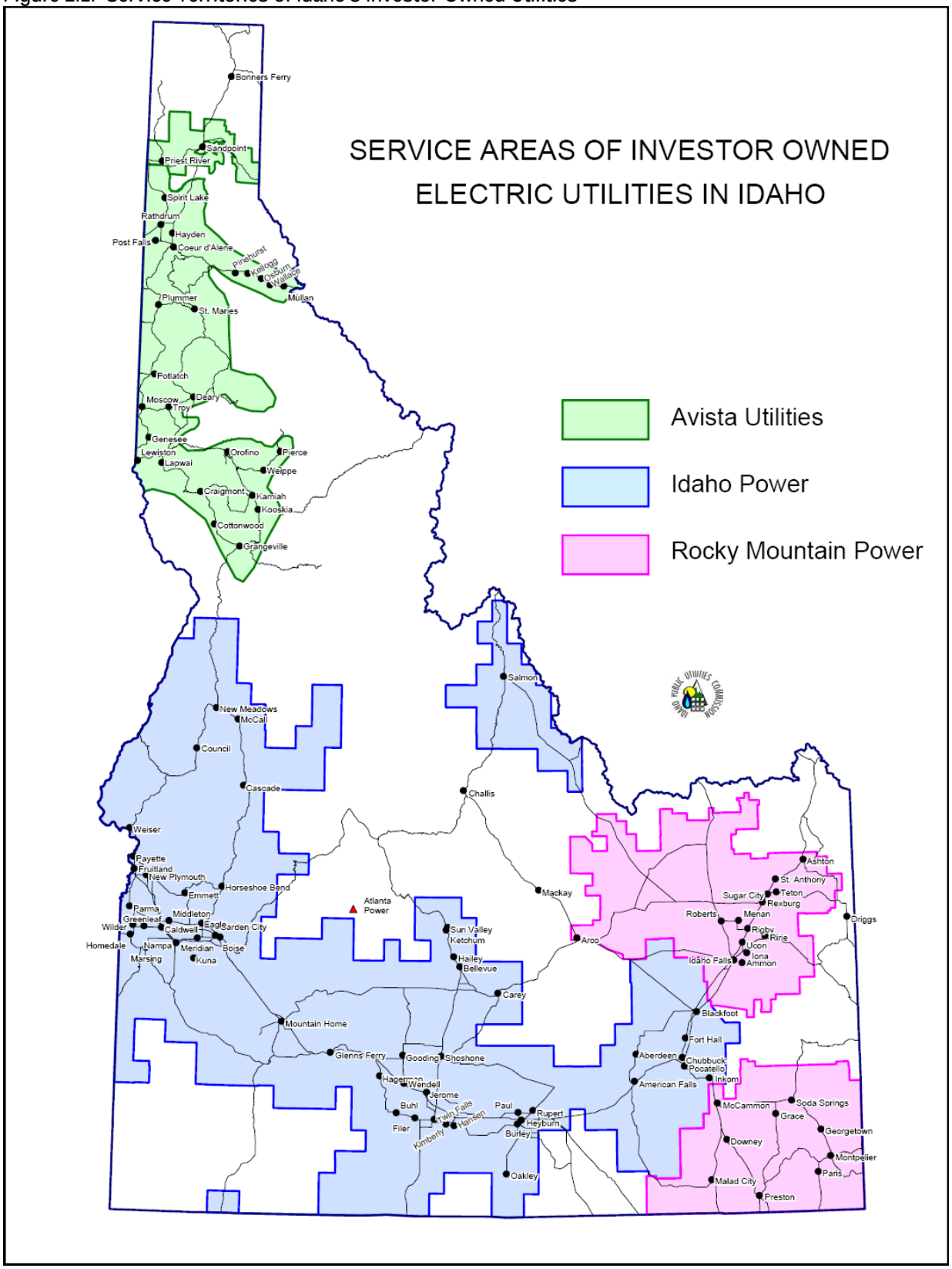
[2] Avista 2005 IRP.

[3] http://www.utahpower.net/Article/Article66493.html, http://www.answers.com/topic/pacificorp

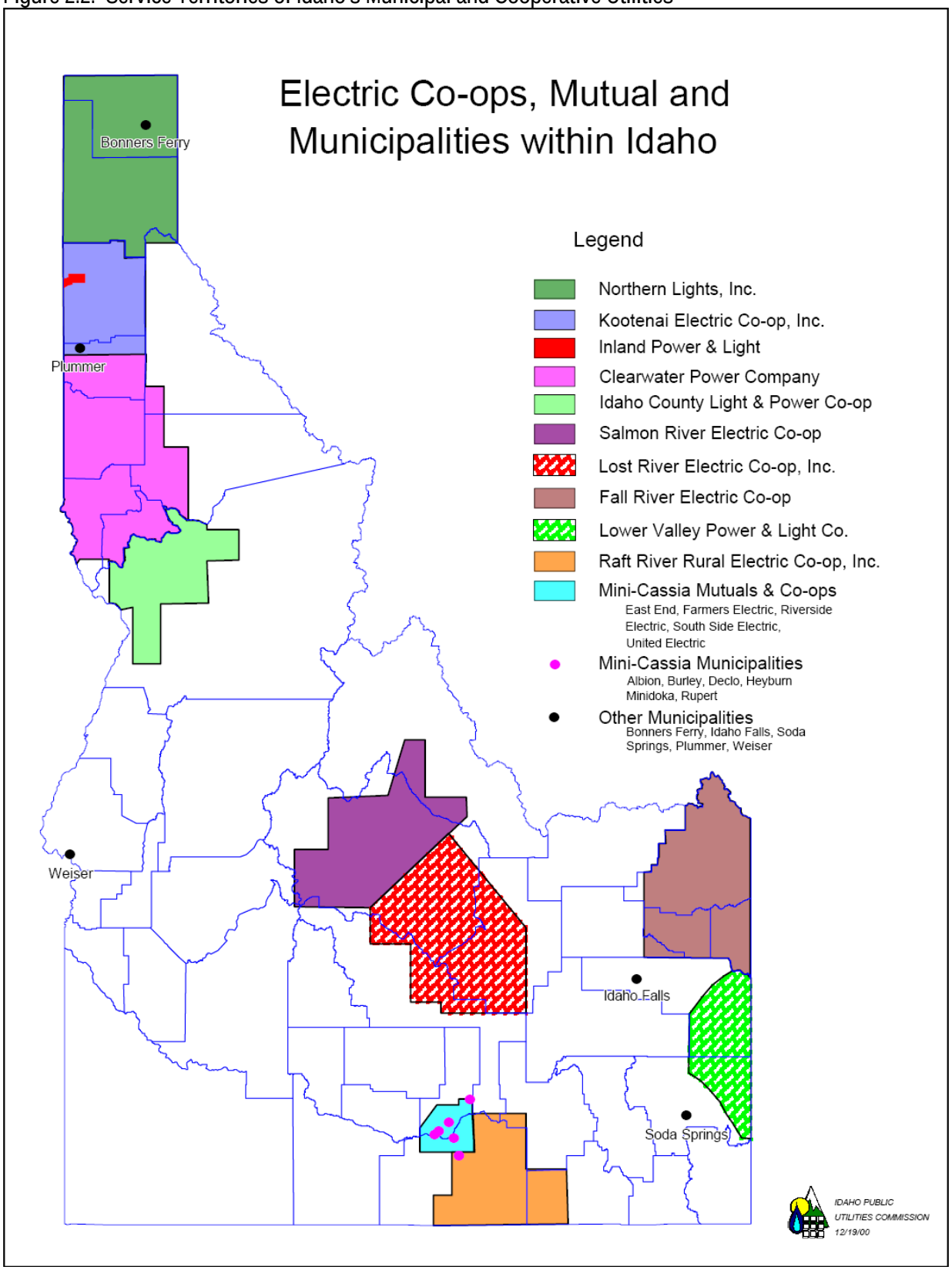
[4] http://www.bpa.gov/corporate/About_BPA/

Figure 2.1. Service Territories of Idaho's Investor-Owned Utilities



Source: Idaho Public Utilities Commission

Figure 2.2. Service Territories of Idaho's Municipal and Cooperative Utilities



Source: Idaho Public Utilities Commission

Idaho utilities are interconnected with each other and with utilities in neighboring states in a single power grid known as the Western Interconnection. The Western Interconnection spans thirteen western states as well as the Canadian provinces of British Columbia and Alberta and the Mexican state of Baja California Norte. In a normal year, Idaho imports approximately 45 percent its electricity from neighboring states.

2.2.2. Natural Gas

Idaho is favorably located between two large natural gas supply basins: the Western Canadian Sedimentary Basin ("WCSB") in Alberta and British Columbia, and the Rocky Mountain basins, encompassing portions of Colorado, Montana, Wyoming and Utah. Over the near term, the production capacity of these two basins is expected to provide adequate supply to meet demand in Idaho and the Pacific Northwest. Over the longer term, however, increasing demand and expanded transportation capacity to more lucrative eastern markets are expected to tighten the supply-demand balance for the region.

Natural gas is transported from these supply basins to Idaho by two interstate pipelines. The Williams Company's Northwest Pipeline transports supplies from both the WCSB and the Rocky Mountain region to Idaho, while TransCanada's Gas Transmission Northwest ("GTN") pipeline delivers gas from the WCSB south to the Northwest and California (see Figure 2.3). The Northwest Pipeline is a bi-directional pipeline, with gas flowing into the pipeline from both ends in British Columbia and the Rockies, and flowing out of the pipeline at various points in between. Idaho therefore receives a mix of Canadian and Rockies gas from the Northwest Pipeline, with the actual composition varying depending on relative pricing in the two supply basins.

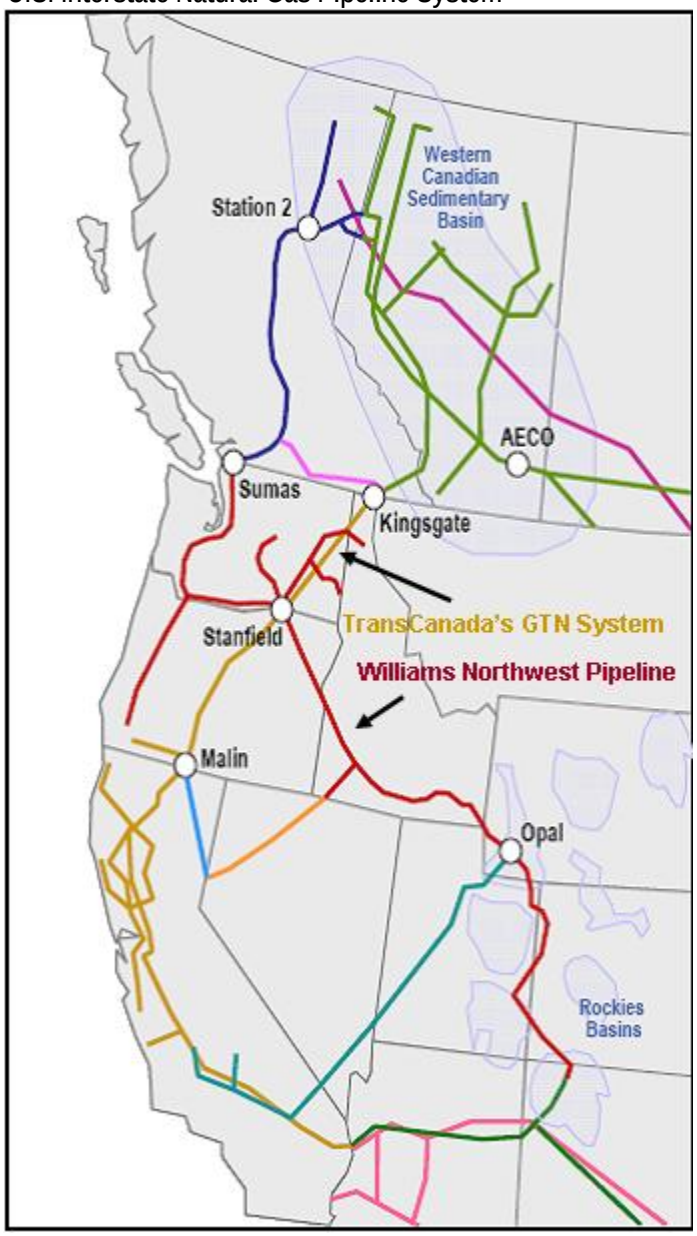
Historically, natural gas prices in Idaho have been lower than those in most of the U.S. due to limited transportation capacity that prevents gas from the WCSB and Rocky Mountain regions from being diverted to major markets in the eastern U.S. Recently, however, transportation capacity additions allowed gas once captive to the Northwest to flow to higher price markets in California and the Midwest. This has reduced Idaho's locational price advantage and subjected Idaho customers to similar gas price increases and volatility as are felt in the rest of North America. This trend is expected to continue, with three major eastbound pipeline expansions currently in development. These pipeline expansions, coupled with increasing demand in the Northwest and across North America, are expected to erode the price advantage Idaho has historically enjoyed.

Two investor-owned utilities provide the majority of natural gas service in Idaho:

AVISTA UTILITIES

Avista provides natural gas service to 68,000 customers in North Idaho. Industrial customers, including "transportation" customers who purchase their gas supplies from third parties, account for about 46 percent of the natural gas sales on Avista's system. Residential customers account for 34 percent and commercial customers 20 percent. Avista can access both Canadian and Rocky Mountain supplies via firm transportation capacity it holds on the Northwest and GTN pipelines. In addition, Avista hold rights to the Jackson Prairie and Plymouth storage facilities in Washington. Avista projects natural gas demand in its service territory to grow from around 70 thousand decatherms per day (MDth/d) in 2006 to just over 80 MDth/d in 2010, an annual growth rate of 3.5 percent.

Figure 2.3. Western U.S. Interstate Natural Gas Pipeline System



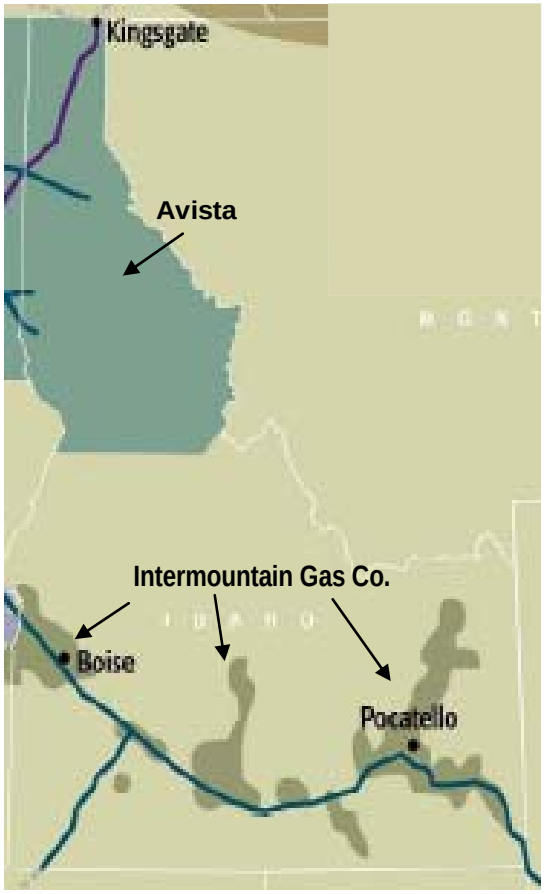
Source: Northwest Gas Association

INTERMOUNTAIN GAS COMPANY (IGC)

IGC is a privately-owned natural gas utility serving 275,000 customers in Southern Idaho. Industrial and transportation customers, including potato processors, chemical and fertilizer manufacturers and electronics companies, make up 44 percent of sales on IGC's system. The residential and commercial sectors comprise 37 and 19 percent, respectively. In addition to owning firm capacity on interstate pipelines, IGC owns and operates the Nampa liquefied natural gas storage facility and also owns storage rights at the Jackson Prairie and Plymouth facilities. IGC projects that peak demand on it system will grow from 416 MDth/d in 2007 to 494 MDth/d in 2011, an annual growth rate of 4.3 percent. The residential and commercial sectors are expected to grow at 5.7 percent per year, while the industrial sector is expected to grow at 1.6 percent per year.

In addition, to these two utilities, Questar Gas provides natural gas service to approximately 1,750 customers in Franklin County in southeastern Idaho. Idaho has elected to allow the Utah Public Service Commission to regulate Questar's activities in its small Idaho service area. Figure 2.4 shows the major natural gas infrastructure in Idaho.

Figure 2.4. Idaho Natural Gas Service Territories



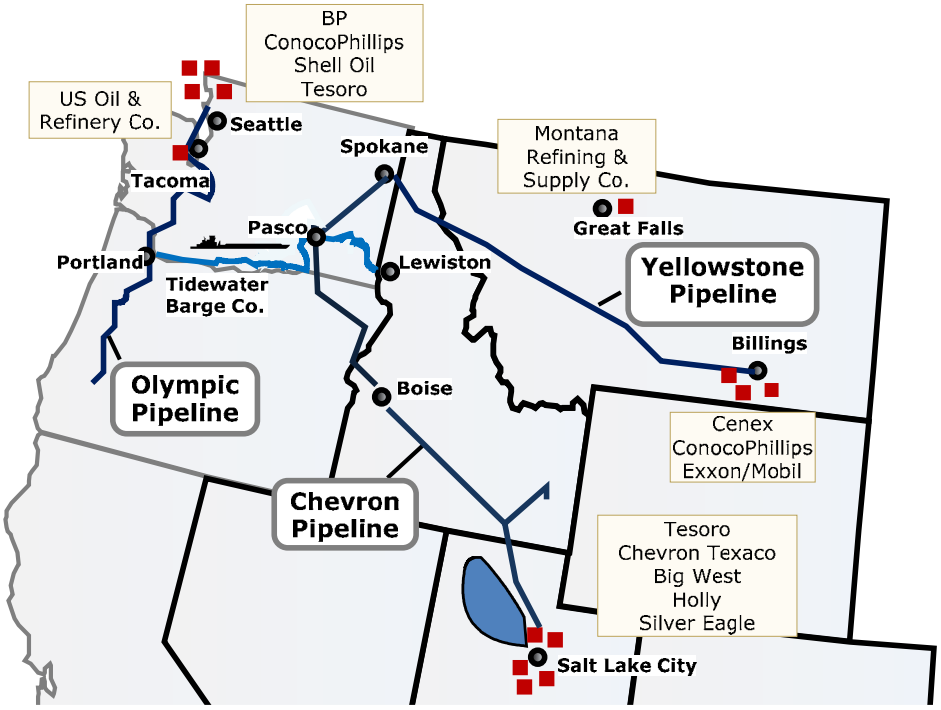
Source: Northwest Gas Association

2.2.3. Petroleum and transportation fuels

Idaho's small fuel market, lack of refineries and limited pipeline infrastructure contribute to the state's higher average gasoline prices compared to neighboring states. Most of Idaho's gasoline and diesel supplies – about 70 percent – enter Idaho via the Chevron Salt Lake Products Pipeline System from five refineries in the Salt Lake City area. The Chevron pipeline connects Salt Lake City with Pocatello, Burley and Boise before continuing on to Pasco, Washington. A single pipeline then continues from Pasco to Spokane, Washington, delivering fuel to North Idaho. Additional supplies originate at three refineries in the Billings, Montana area and are transported to Spokane via the Yellowstone Pipeline. A small portion of Idaho's supply originates at refineries in Northwestern Washington. This fuel is transported to Portland via the Olympic Pipeline, where it is loaded onto barges and transported up the Columbia River-Snake River System to Lewiston.

Once the fuel reaches storage facilities in and near Idaho, it is transported to bulk storage terminals or "racks". Fuel may be delivered from the rack to individual retail stations in one of three ways: a station may be supplied directly by the wholesaler (e.g., Chevron), supplied by an independent distributor or "jobber", or self-supplied. Retail stations may be owned by the refiner, leased by the refiner under a franchise agreement, or independently owned. Independently-owned stations in turn either market "branded" fuel associated with a specific refiner under a contractual arrangement, or sell unbranded fuel.

Figure 2.5. Transportation Fuel Pipelines and Refineries Serving Idaho



2.3. IDAHO RESOURCES

Idaho has no commercial coal, oil or natural gas resources, but does have a variety of renewable resources available for potential development, especially for expansion of wind and small hydro power. The information presented below relies heavily on material developed by the Idaho National Laboratories,[5] and the Energy Division of the Idaho Department of Water Resources.[6]

2.3.1. Fossil fuels

Idaho has no in-state production of coal, natural gas, or petroleum. All of Idaho's natural gas supplies are imported into the state from supply in the Western Canadian Sedimentary Basin and the U.S. Rocky Mountains. Idaho also has no oil refineries, so all of Idaho's gasoline, diesel and other petroleum needs are served with imported refined products, mostly via pipeline from

[5] Idaho National Laboratory (INL), *Idaho's Energy Options*, March 2006, INL/EXT-06-01391, available at http://www.legislature.idaho.gov/sessioninfo/2006/Interim/idahoenergyoptions.pdf.

[6] http://www.idwr.idaho.gov/energy/Renewables/default.htm

refineries in Salt Lake City and Billings, Montana. Idaho utilities do own coal-fired power plants that supply 42 percent of Idaho's electricity; however, all of these plants are located in neighboring states. As a result, approximately 80 percent of Idaho's total end-use energy is derived from imported fossil fuels.

Fossil fuels have historically been the least-costly and most-reliable source of energy. The shift away from fuels such as wood and whale oil to coal, petroleum and natural gas helped to power the Industrial Revolution and was a major factor contributing to economic growth throughout the 20th Century. Now, however, Idaho's reliance on imported fossil fuels places the state's economy at risk from fuel price volatility. Political instability in the Middle East and other areas of the world is now directly felt in the pocketbooks of Idaho consumers through high and volatile oil prices, and rising demand from rapidly-developing economies such as China are placing increasing pressure on world crude oil supplies at a time when petroleum production in the United States continues to decline.

Coal is found in abundance in the United States and is widely used for electric power generation. Efforts are also underway to develop economic methods of converting coal into liquid fuels such as gasoline or diesel fuel. However, the increasing attention being paid to the possibility of global climate change has led to mounting calls for federal regulation of carbon dioxide and other greenhouse gas emissions. This would substantially increase the cost of utilizing coal by requiring the capture and sequestration of carbon dioxide emissions. Coal gasification – the chemical conversion of coal into hydrogen or methane gas – is a promising technology that would facilitate carbon dioxide sequestration while simultaneously reducing emissions of other criteria pollutants relative to conventional coal steam facilities. However, the technology has not yet been proven economic for use among North American electric utilities, and there is considerable uncertainty about the ultimate cost of power plants relying on coal gasification.

2.3.2. Hydroelectricity

Idaho has 136 existing hydro plants with combined capacity of approximately 2,500 MW. The largest hydroelectric projects are the 400 MW Dworshak dam operated by the U.S. Army Corps of Engineers and the 1,167 MW Hells Canyon Complex owned by Idaho Power. Idaho dams produce approximately 1,300 aMW of electricity in an average year, nearly 50 percent of Idaho's 2005 electricity consumption. While Idaho's most promising hydroelectric sites have already been developed, INL estimates that there are 2,100 aMW of potentially developable new hydroelectric resources at 6,700 sites around the state.

Hydroelectric energy is renewable and emits no pollutants or greenhouse gases. However, the energy that is available in a given year can vary widely due to variations in rainfall and mountain snowpack. Moreover, the energy output profile is highly seasonal, peaking during the spring runoff and declining in the late summer and fall. New hydro resources without significant reservoir storage would compound the seasonality of the Northwest's existing hydro resource base, reducing their attractiveness relative to other resources.

2.3.3. Wind

Wind energy is a maturing technology that is now responsible for nearly one percent of U.S. electric generation. Over 12,000 MW of wind energy capacity are expected to be in operation at

the end of 2006,[7] with another 3,000 MW expected to be completed in 2007. Wind energy produces no emissions of criteria pollutants or carbon dioxide, and it reduces the need to burn fossil fuels. However, wind is an intermittent resource, producing energy only when the wind is blowing. This means that other resources must be kept available to fill in when the wind dies down. It also means that wind generators cannot be counted on to produce at their nameplate capacity during times of high energy demand.

Recent wind mapping studies estimate that Idaho has approximately 18,000 MW of wind generation potential, the 13th largest potential in the U.S. The most readily available wind resources in Idaho are located in the Snake River Plain and the surrounding hills and ridges, and the eastern end of the Plain in particular has seen high interest for wind development.[8] At the beginning of 2006, 75 MW of wind power capacity were operational in Idaho and nearly 1,900 MW of wind generation were in development. Of this, 190 MW were expected to be completed by the end of 2006, and an additional 200 to 300 MW by the end of 2007.

2.3.4. Geothermal

Geothermal energy is derived from the earth's heat. Geothermal energy is typically harvested by drilling wells that bring hot water to the surface. The heat is extracted and used to generate power or for space conditioning, and the water is re-injected. While geothermal energy is renewable and emits no carbon dioxide, geothermal power plants can emit sulfur dioxide and are sometimes located in or near areas considered culturally or environmentally sensitive.

Idaho has a large geothermal resource in springs and wells, though only a limited number of sites in the state have temperatures high enough for electricity production using current technologies. A 13 MW project at Raft River, which is currently nearing completion, will be the only active geothermal electric generation plant in the state. The developers have recently committed to a second 13 MW phase, and have projected total resources of up to 90 MW at the site.

A January 2006 report on geothermal potential in western states[9] listed six potential sites in Idaho with 860 MW of total generation capacity. Potential technology improvements could open the possibility of electricity production at lower temperature geothermal areas in the state. Lower-temperature geothermal resources are also used in many parts of Idaho for various end uses such as space heating, aquaculture, greenhouses, and recreation. These applications are already substantial (one example is the Capital Mall Geothermal Heating System) and have potential for further expansion.

2.3.5. Biomass/Biofuels

Idaho has a number of potential biomass and biofuels opportunities. Idaho's largest existing use of biomass energy is in the industrial sector, where wood fuels constitute approximately 14 percent of energy consumption. Wood burning accounts for two percent of energy used in Idaho households. Those proportions have been declining during the past decade.

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[7] American Wind Energy Association (AWEA), Wind Energy Outlook 2006, http://www.awea.org/pubs/documents/Outlook_2006.pdf, AWEA press release 8/14/2006: "U.S. Wind Energy Installations Reach New Milestone."

[8] Existing and proposed projects in Idaho are listed at: http://www.awea.org/projects/idaho.html

[9] Western Governors' Association, Clean and Diversified Energy Initiative, *Geothermal Task Force Report*, January 2006.

Opportunities exist to use biomass for synthetic gas production and to produce motor fuels such as ethanol and biodiesel. Idaho had ethanol production capacity of one million gallons in 2003, and a 2002 report estimated that 25 percent of the state's production of wheat, barley, and corn could be refined for a potential 98 millions gallons of ethanol per year.[10] If technology improvements enable the economic production of ethanol from cellulosic feedstocks, crop residues from Idaho's current production of wheat, barley and oats could potentially be used to produce up to an additional 207 million gallons of ethanol annually. Wood waste from Idaho's forest products sector is another potential source of feedstock for cellulosic ethanol production.

2.3.6. Nuclear

Nuclear power fell out of favor in the U.S. during the 1980s due to excessive costs and concerns about safety in the wake of the core meltdown accidents at Three Mile Island and Chernobyl. However, there has been increased interest in nuclear power during this decade due to its potential to provide large quantities of power with no direct carbon emissions. The federal Energy Policy Act of 2005 provided funds for the INL to conduct research and development activities on a possible "next generation" nuclear power plant in Idaho. Idaho Power included a 250 MW share of a hypothetical plant in the "preferred portfolio" of its 2006 Integrated Resource Plan. Idaho has no in-state uranium resources and currently has no in-state nuclear plants.

2.3.7. Solar

Much of Idaho has a large number of sunny days, allowing many opportunities for solar power applications. While the high current price of photovoltaic (PV) solar systems would make wide-scale use of solar power for electricity generation prohibitive, solar energy is currently used in the state for specific applications, such as water pumping, thermal heating, and electricity production in remote locations that would be difficult to serve with energy from the electricity grid.

2.3.8. Conservation, energy efficiency, and demand response

Conservation, energy efficiency, and demand response are not natural resources in the same sense as fossil fuels or hydroelectric power, but they do constitute another economically attractive resource that electric and natural gas utilities can call upon to meet their customers' energy needs. "Conservation" refers to consumers acting to reduce their use of energy-consuming appliances. An example would be a consumer remembering to turn out the lights when leaving a room. "Energy efficiency" refers to processes that provide the same energy service but consume less electricity. An example would be switching from incandescent to compact fluorescent light bulbs. "Demand response" refers to customers temporarily altering their energy-consuming behavior in response to signals from the utility or grid operator. An example would be lighting fixtures that can be dimmed remotely by utility personnel during times of high electricity demand. Collectively, these resources are referred to as "demand-side management" ("DSM"), although the term "conservation" is sometimes used to refer to all DSM measures.

Many states such as Oregon, California, and New York have made strong commitments to energy conservation and efficiency. More recently energy conservation and efficiency have

[10] BBi International, "Ethanol Impact Assessment for the State of Idaho". Prepared for Idaho Department of Water Resources, January 2004. http://www.idwr.idaho.gov/energy/alternative_fuels/bio.htm

gained support from the Western Governor's Association[11] and the United States Environmental Protection Agency[12]. The Northwest Power and Conservation Council ("Power Council") produces estimates of the amount of conservation that can be acquired cost-effectively in the four-state Pacific Northwest region. The Power Council's most recent estimate, published in the Fifth Northwest Electric Power and Conservation Plan[13], places that figure at approximately 2800 aMW over 20 years. Idaho accounts for approximately 15 percent of regional electricity load, so a simple allocation suggests that there are approximately 420 aMW of conservation in Idaho that could be acquired cost-effectively over the next 20 years.

Cost-effective conservation provides more economic benefits than any other resource available to Idaho utilities. Conservation reduces the energy bills paid by consumers, freeing up dollars to be spent on other goods and services and representing, in economic terms, an increase in disposable income. Moreover, implementation of conservation measures requires a local labor force. Thus, increased investment in conservation not only reduces total energy expenditures but shifts a portion of the remaining expenditures from imported fuel to locally-provided goods and services.

2.4. HISTORICAL PERFORMANCE IN KEY AREAS

2.4.1. Energy rates compared to other states

The most important story about Idaho's current energy picture is the very low average electricity and natural gas rates that Idahoans enjoy. Idaho's low electricity rates are largely the result of its hydro-thermal resource base. Baseload coal plants built in neighboring states in the 1970s and 1980s provide a constant source of reliable, low-cost power to Idaho utilities. Large hydroelectric facilities on the Snake River and other tributaries of the Columbia River provide energy as well as flexible and very low-cost capacity for meeting peak demands. As a result, Idaho's average electricity rates were the 2nd lowest among the fifty states in 2005 (see Figure 2.6).

Idaho's proximity to major natural gas supply basins in the Rocky Mountains and western Canada has also allowed Idaho to benefit from relatively low natural gas rates, despite the lack of natural gas resources in Idaho. Idaho's average natural gas rates were the 6th lowest among U.S. states in 2005. However, Idaho's prices for petroleum products are typically somewhat higher than the national average, as Idaho relies principally on refineries in Montana, Utah and Washington for its supplies of gasoline, diesel, and other petroleum products. Idaho's average gasoline prices were 12th highest among U.S. states in 2005.

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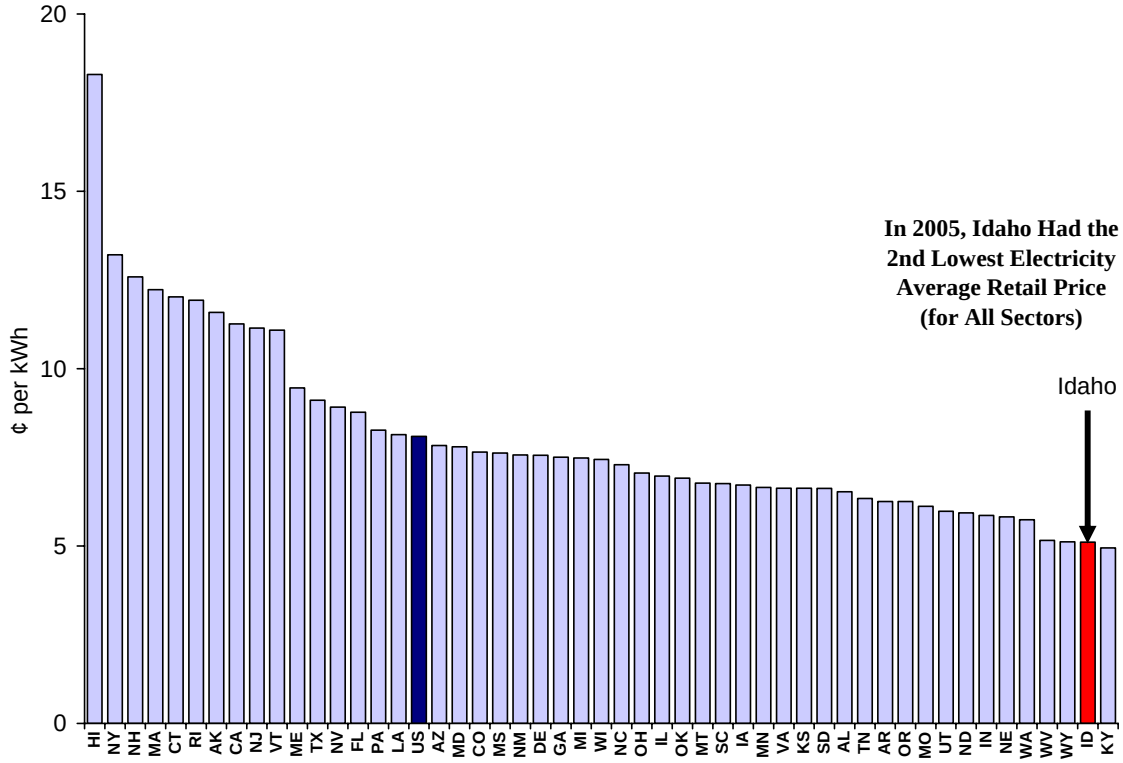
[11] Western Governors' Association, *Clean Energy, A Strong Economy, and a Healthy Environment*, Report of the Clean and Diversified Energy Advisory Committee to the Western Governors, June 2006, http://www.westgov.org/wga/publicat/CDEAC06.pdf

[12] U.S. Environmental Protection Agency, National Action Plan for Energy Efficiency, July 2006, http://www.epa.gov/cleanrgy/actionplan/report.htm

[13] Published May 2005, http://www.nwcouncil.org/energy/powerplan/plan/Default.htm

Figure 2.6. Idaho's Average Electricity Rates Compared to Other States

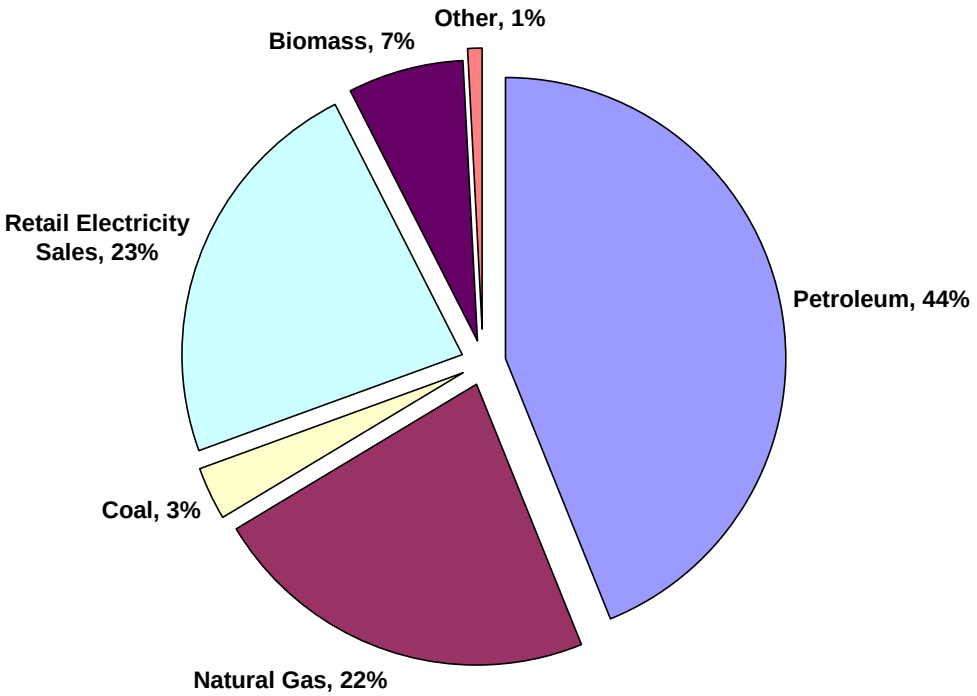


2.4.2. Sources of Idaho's energy

Petroleum fuels, mostly used for transportation, account for approximately 44 percent of Idaho's end-use energy consumption. Electricity (23 percent) and natural gas (22 percent) are also important energy sources, while the remaining 10 percent is attributable to direct burning of coal and biomass. Energy demand growth both in Idaho and across the country is placing upward pressure on energy rates as low-cost sources of energy are exhausted and energy suppliers must turn to higher-cost resources.

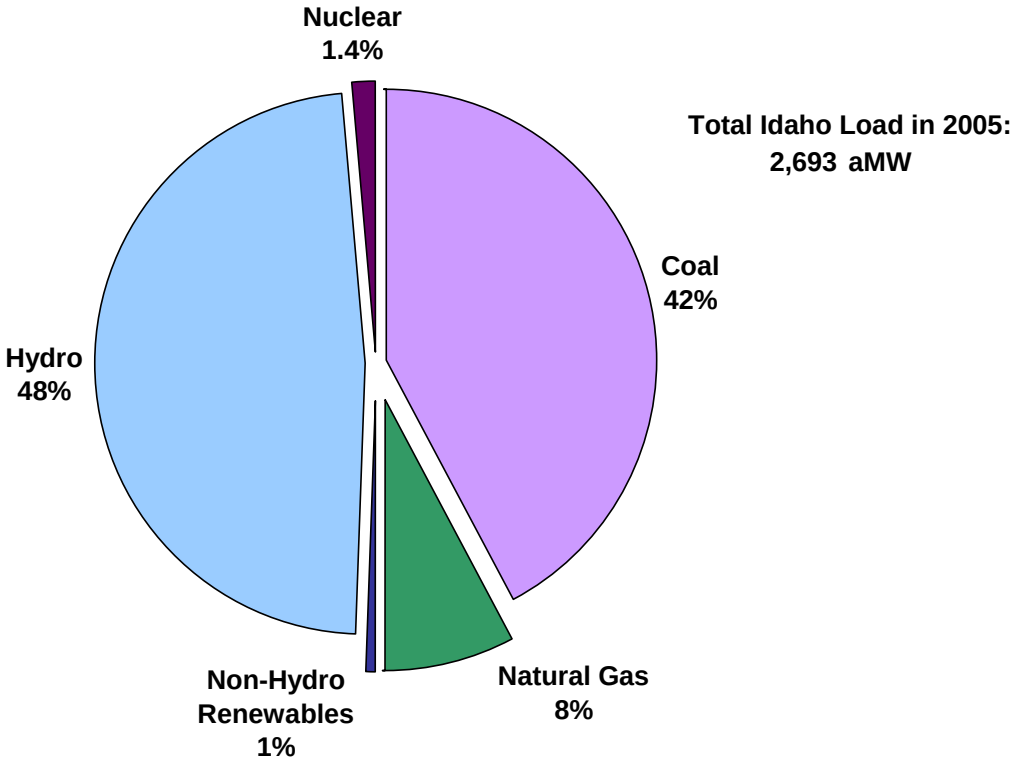
Figure 2.8 shows the sources of Idaho's electricity in 2005, i.e., Idaho's "fuel mix". The chart shows that hydroelectricity and coal are the dominant sources of Idaho's electricity, comprising 48 and 42 percent, respectively. Natural gas comprises eight percent, with non-hydro renewables, principally wind power, accounting for approximately one percent. Idaho's municipal and cooperative utilities also receive a small share of the output of the Columbia Generating Station nuclear plant in Washington.

Figure 2.7. Sources of Energy Consumed in Idaho in 2003



Note: "Other" consists of Wood, Geothermal and Ethanol

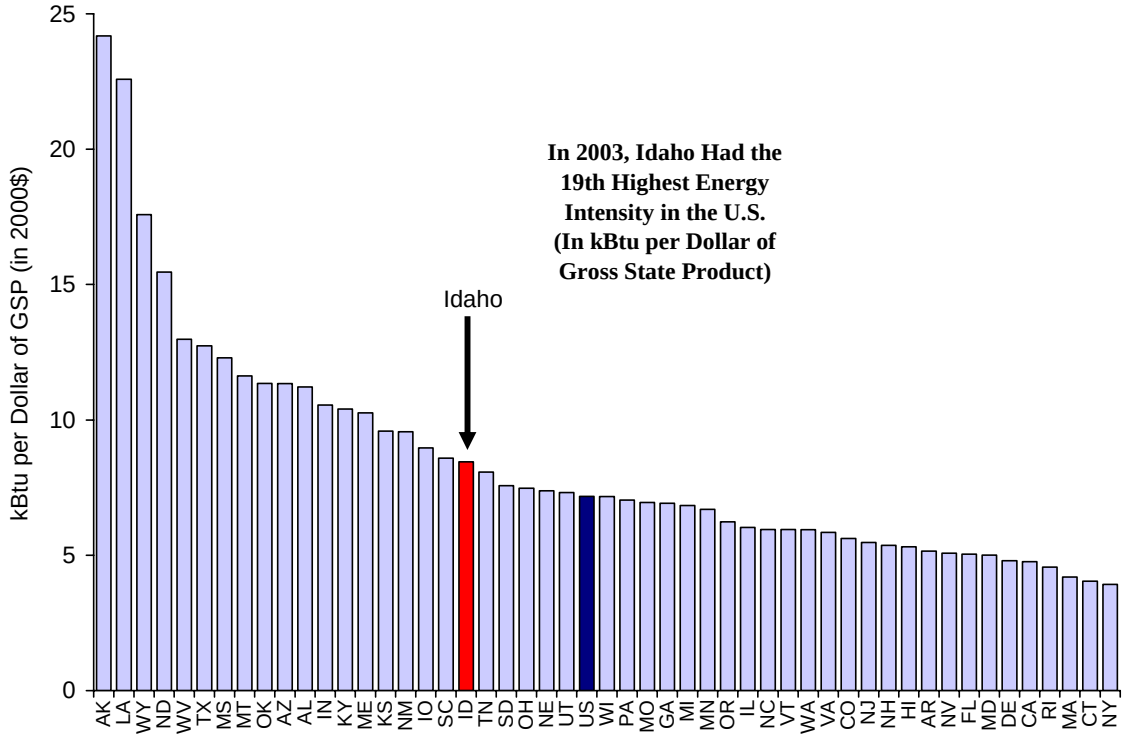
Figure 2.8. Idaho's 2005 Electricity Fuel Mix



2.4.3. Energy intensity

Idaho's historically low rates for electricity and natural gas have allowed it to attract and retain energy-intensive industries, including mining, pulp and paper, and food processing. As a result, Idaho's economy is more energy-intensive than many other states. Idaho's energy use per dollar of Gross State Product (GSP) was 19th among U.S. states in 2003, the most recent year for which figures are available. Idaho's energy use per capita was 33rd highest in 2003, slightly higher than neighboring states such as Washington, Oregon and Utah.

Figure 2.9. Idaho's Energy Intensity Compared to Other States



2.4.4. Household energy bills

The average Idaho household spent approximately $3,000 on energy in 2003. This figure includes monthly electricity and natural gas bills as well as an estimate of Idaho households' gasoline expenditures, as can be seen in Table 2.1. Energy expenditures consume approximately 8 percent of median household income in Idaho. These figures place Idaho slightly above the average for the U.S. as a whole, despite Idaho's very low electricity and natural gas rates. This is because 1) Idahoans drive more miles and purchase more gasoline than residents of more densely-populated states, and 2) Idaho's median household income of $39,492 in 2003 was lower than the U.S. average of $43,564. Thus, energy is a significant burden for many Idaho households, despite the low energy rates that Idahoans continue to enjoy.

Figure 2.10. Idaho's Household Energy Bill as a Share of Median Household Income Compared to Other States

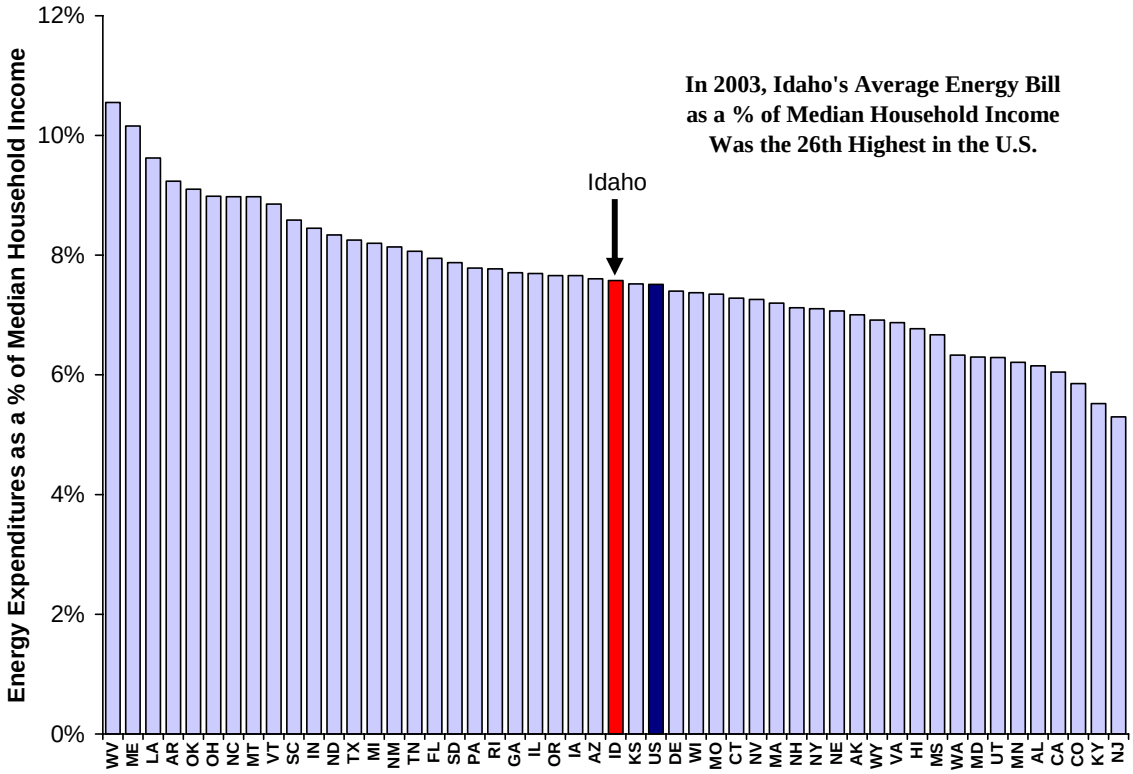


Table 2.1. Average Household Energy Bill in Idaho, 2003

	Dollars per year	Share
Gasoline and diesel fuel	$1,700	57%
Electricity	$894	30%
Natural gas	$290	10%
Other petroleum (propane, fuel oil, kerosene)	$101	3%
Other	$8	0%
Total	*$2,992*	*100%*

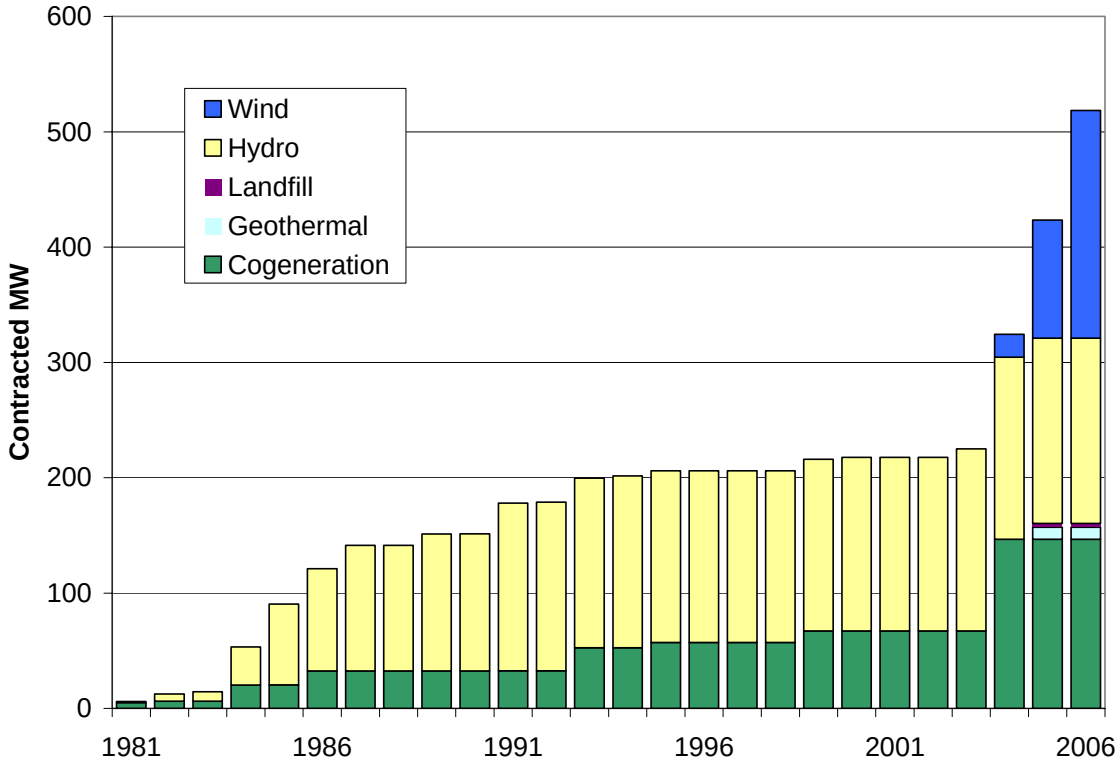
2.4.5. Historical investments in Idaho renewable resources

Idaho's domestic resource base consists largely of renewable energy sources such as hydro, wind and geothermal energy. Idaho is home to 136 hydroelectric dams, which combined produce 1,300 aMW of low-cost energy each year. Aside from a few co-generation projects, hydro power has been the only resource of any significance that has been developed in Idaho until very recently. Recent years have seen the development of geothermal and wind sites, however, and there are a number of plans to develop additional sites or to expand capacity at existing sites.

One of the vehicles for developing smaller-scale resources in Idaho has been the Public Utility Regulatory Policies Act (PURPA) of 1978. PURPA requires utilities to purchase energy from

"qualifying facilities" ("QFs") at their avoided energy costs, but leaves the determination of avoided costs as well as other implementation details to the states. The policies established by the Idaho PUC have been relatively favorable toward QFs, and a result, Idaho saw development of 200 MW of QF resources by the early 1990s, principally industrial co-generation and small hydro projects. While momentum slowed with the move toward competitive markets in the 1990s, recent years have seen a resurgence of interest in using the PURPA vehicle to develop small projects. Many of the recent projects have been wind facilities sized to come in just under the 10 MW maximum established by the PUC. By the end of 2006, the combined nameplate rating of PURPA contracts had reached 500 MW. The PUC has temporarily reduced the 10 MW limit to 100 kW for wind facilities while it examines the cost to utilities of integrating new, small wind energy resources into their existing hydro-thermal systems.

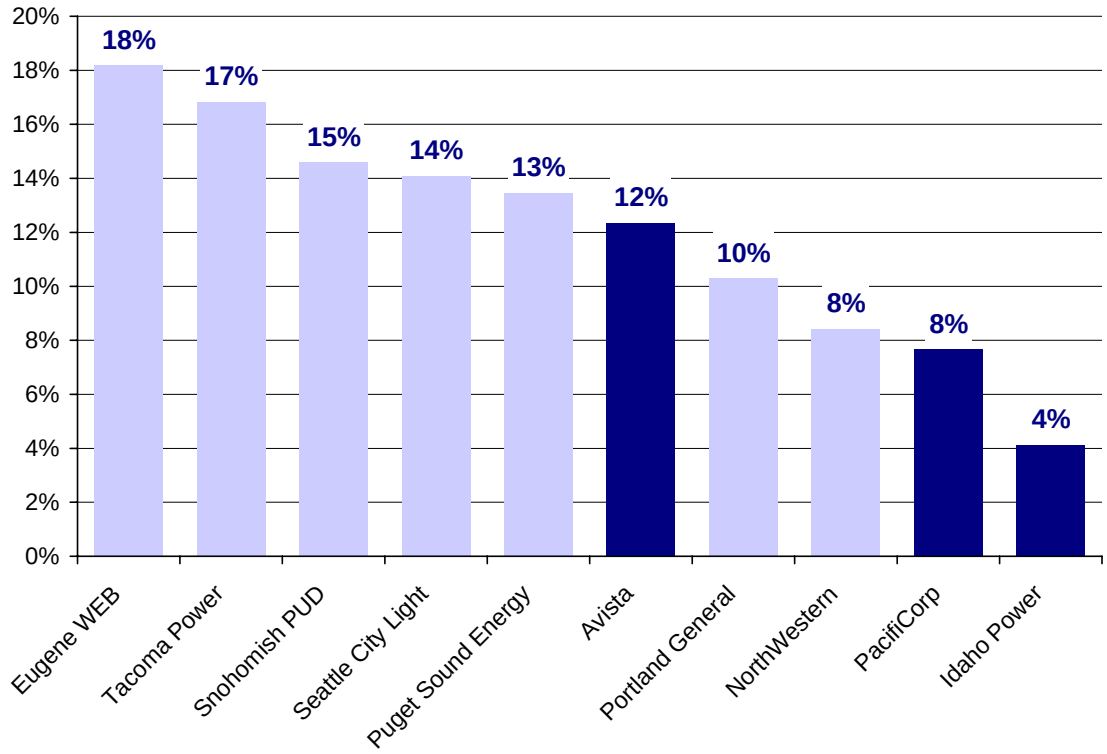
Figure 2.11. PURPA Contracts in Idaho, 1981-2006



2.4.6. Historical investments in conservation and energy efficiency

According to the Power Council, Idaho has historically lagged behind neighboring states in acquisition of energy conservation and efficiency. Many large electric utilities in the Pacific Northwest region have displaced between 13 and 18 percent of their retail load through cost-effective conservation investments made over the years, while Idaho investor-owned utilities have displaced an average of 6 percent. This figure includes conservation investments made by utilities or by state agencies using utility funds, but does not include savings attributable to energy-saving aspects of building codes or appliance standards.

Figure 2.12. Electric Utility Conservation Achievements through 2004 as a Share of 2004 Retail Electricity Sales for Ten Northwest Utilities



Note: Idaho Power has historically focused its demand-side efforts on programs that reduce peak demand, which are not reflected on this chart, rather than programs that reduce overall energy consumption

2.5. ENERGY RESPONSIBILITIES IN IDAHO STATE GOVERNMENT

Idaho does not have a cabinet-level agency focusing on energy issues. Energy responsibilities are carried out principally by the Idaho Public Utilities Commission and the Energy Division of the Idaho Department of Water Resources. In addition, Idaho is a member of the Northwest Power and Conservation Council, a multi-state compact that develops power plans and fish and wildlife mitigation plans that guide BPA's expenditures in these areas. Finally, the Idaho Legislature in 2005 created the Idaho Energy Resources Authority to promote the development of generation and transmission resources in Idaho.

2.5.1. Idaho Public Utilities Commission

The Idaho Public Utilities Commission ("PUC") supervises and regulates Idaho's investor owned electric, natural gas, telecommunications and water utilities in order to ensure adequate service at just, reasonable and sufficient rates. The three-member commission was established by the 12th Session of the Idaho Legislature and was organized May 8, 1913 as the Public Utilities Commission of the State of Idaho. In 1951 it was reorganized as the Idaho Public Utilities Commission. Statutory authorities for the commission are established in Idaho Code titles 61 and

62. The PUC also has authority to promulgate administrative rules, and the PUC's official rules are published in IDAPA 31.[14]

The PUC consists of three Commissioners who are appointed by the governor, subject to Senate confirmation, to staggered, six-year terms. No more than two commissioners may be of the same political party. Current Commissioners are Paul Kjellander, President (Republican, first appointed 1999), Marsha Smith (Democrat, first appointed 1991), and Dennis Hansen (Republican, first appointed 1995). Mack Redford was nominated by Governor Otter in 2007 to replace Commissioner Hansen.

The PUC holds formal hearings on utility issues on a case-by-case basis. These hearings resemble judicial proceedings and are recorded as well as transcribed by a court reporter. Formal parties to the case under consideration present testimony and evidence, subject to cross-examination by attorneys and staff from the other parties and the commissioners. The Commission renders a decision based on the evidence that is presented in the case record.

2.5.2. Energy Division of the Idaho Department of Water Resources

The Energy Division of the Idaho Department of Water Resources ("Energy Division") employs approximately 18 full-time staff working principally on administering federal funds for promoting energy efficiency. The Energy Division currently relies exclusively on federal funds to support its program work; no employees are supported by legislative appropriations. As a result of its reliance on federal grant money, Energy Division staff are restricted to activities that are provided for in the federal grants and have limited ability to engage in state-level energy policy work. The Energy Division operates under Executive Order and is not referenced in Idaho statute.

2.5.3. Northwest Power and Conservation Council

The Northwest Power and Conservation Council ("Power Council") is a multi-state entity that helps the Pacific Northwest states of Idaho, Montana, Oregon and Washington balance the multiple purposes of the Columbia River and its tributaries. The Council was authorized by Congress in the Northwest Power Act of 1980 and approved by a vote of the legislatures of all four states. The governor of each state appoints two members to serve on the Council. The Power Act contains three principal mandates for the Council to carry out: 1) Develop a 20-year electric power plan that will guarantee adequate and reliable energy at the lowest economic and environmental cost to the Northwest; 2) Develop a fish and wildlife program to protect and rebuild populations affected by hydropower development in the Columbia River Basin; and 3) Conduct an extensive program to educate and involve the public in the Council's decision-making processes. The plans and policies the council develops and approves are implemented by numerous agencies including BPA, U.S. Army Corps of Engineers, Bureau of Reclamation, and Federal Energy Regulatory Commission, as well as state, tribal and local governments.

2.5.4. Idaho Energy Resources Authority

The Legislature established the Idaho Energy Resources Authority ("IERA") in 2005 for the purpose of promoting transmission, generation and renewable energy development in the state and the region. The IERA provides a vehicle for Idaho's municipal and cooperative utilities to

[14] See http://www.puc.state.id.us/Rules.htm or http://adm.idaho.gov/adminrules/rules/idapa31/31index.htm.

jointly own and finance transmission and generation projects for the benefit of their ratepayers. While the IERA has bonding authority and other powers to promote specific projects, it has no appropriation, no full-time staff, and no ability to finance projects that are not backed by utility ratepayers.

3. Idaho's Future Energy Supply under Existing Plans

3.1. OVERVIEW

This chapter describes Idaho's future energy supply under the current plans of Idaho energy suppliers for investing in new resources and infrastructure. For electricity and natural gas, the information presented in this chapter is based largely on the integrated resource plans that Idaho's investor-owned utilities file every two years with the PUC. Idaho's municipal and cooperative utilities also conducted and made available to the Committee a joint resource planning study to inform the process of developing this Energy Plan. The IRPs evaluate a variety of different resources, including demand-side resources such as conservation and energy efficiency, and typically select a "preferred resource strategy" based on evaluation criteria such as cost, risk and reliability. For petroleum, the projections are based on the best publicly-available information, as petroleum suppliers do not file IRPs with state regulators.

Idaho's electric utilities have historically relied on coal and hydroelectricity as their predominant energy sources. New investments in these two resources are becoming problematic, however, as the large hydro resources are mostly developed and coal is increasingly associated with the impacts of global climate change. Moreover, these existing resources are now themselves sources of risk due to hydro relicensing and possible carbon regulation. Idaho utility resource plans have focused on developing a diverse resource base and include wind, geothermal and new, small hydro resources as well as new baseload coal resources. In addition, Idaho utilities have placed an increasing emphasis on conservation in recent years, as growth of Idaho loads has accelerated and the cost of developing new resources has risen.

With respect to natural gas and transportation fuels, demand growth will be met with increased shipments of fuel via pipelines from neighboring states. Natural gas production in Western Canada is expected to grow at a slower rate or even decline in the near future, while the Rocky Mountain region is expected to continue its healthy growth rate of about five percent per year. While these two basins should maintain a comparative advantage over the eastern half of the continent, the relative advantage is expected to narrow. Similarly, fuel production has increased at refineries in Montana, Utah and Washington that provide most of Idaho's petroleum products, and shipments into Idaho via the Chevron and Yellowstone pipelines and via Columbia-Snake River barge will continue to increase to meet growing demand.

As a whole, the Committee finds that current plans by Idaho suppliers result in an outcome that lines up reasonably well with the Idaho Energy Plan policy objectives. The Committee is also mindful that major restructuring initiatives can have unintended consequences. As a result, the Committee does not recommend major structural changes to Idaho's energy industry at this time.

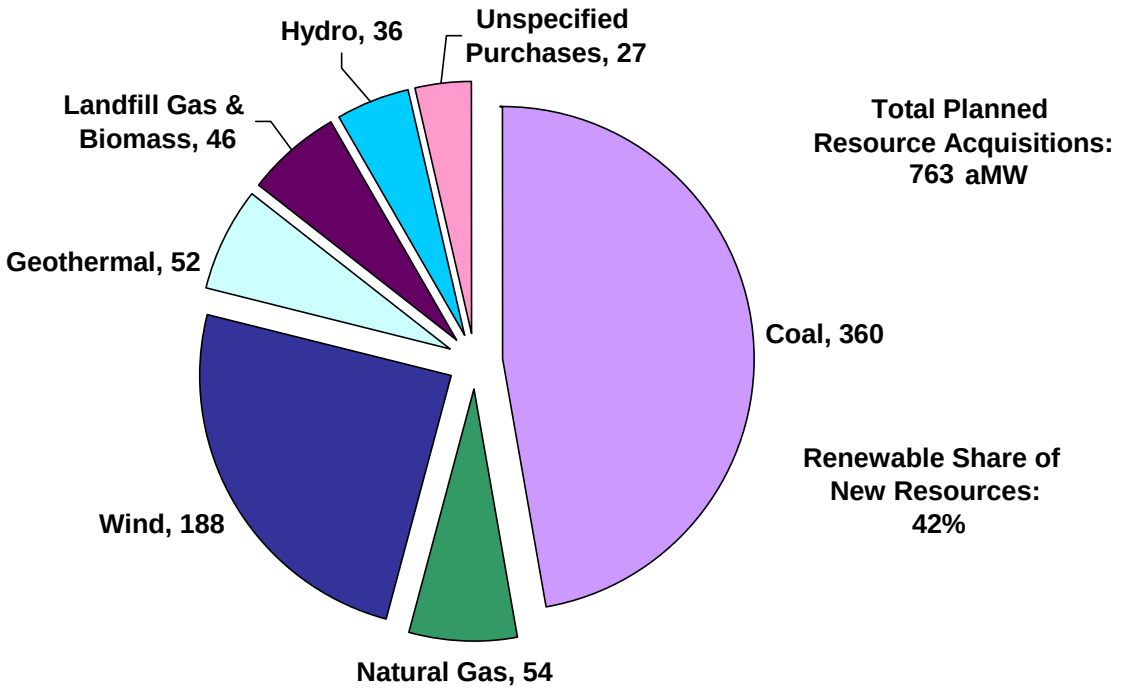
However, there are a few key areas where action is recommended. First, the Committee finds that energy conservation provides the greatest economic and environmental benefits for Idaho and should be Idaho's highest-priority resource; however, there are many barriers that currently prevent this resource from being utilized to its full potential. Second, the Committee finds that increased investments in local renewable energy resources such as wind energy and biofuels would also provide economic benefits, particularly in rural areas of the state, while representing an environmentally-friendly source of energy. Third, the Committee finds that conventional resources such as oil, coal, natural gas or nuclear power will continue to be needed to meet Idaho's energy demand; however, the Committee would like to encourage suppliers to invest in

the most environmentally-sound methods of extraction, production and delivery of conventional energy. Finally, the Committee finds that local officials asked to make decisions about whether and under what conditions to allow the construction of major electric generating facilities would benefit from access to the expertise and information of state agencies.

3.2. SUMMARY OF ELECTRIC UTILITY IRPS

Avista states that its strategy in planning new resource additions is to "own or control a diverse mix of low-cost/low-risk resource, both on the supply- and demand-side, that meet our customer loads while reducing both rate variability and our environmental footprint." This is consistent with general practices among other electric utilities, and the results can be seen in Figure 3.1 which shows the planned electric resource additions for Idaho utilities. The figure shows the total planned additions by all companies, weighted by the percentage of each company's load located in Idaho. The actual resources may be located outside of Idaho. Major investments are listed by online date in Table 3.1.

Figure 3.1. Electric Utility Planned Resource Additions on Behalf of Idaho Customers through 2015 (aMW)



3.2.1. Conventional Resources

Figure 3.1 shows that coal is the dominant fuel source for planned new electric generation. Coal offers the advantage of a known technology that can produce electricity at a low and stable cost. Coal plants are best suited to baseload operation, where their electricity output is stable from hour to hour and day to day. Also, because of the coal handling facilities associated with a coal plant, the economics generally dictate that coal plants be large in scale.

Table 3.1. Planned Investments in Electric Generating Facilities by Idaho Utilities, 2005-2015

Year	Investment Type	Nameplate Capacity (MW)	Utility
2005-2007	PURPA purchases from wind projects (16 sites)	207	Idaho Power
2006-2007	PURPA purchases from biomass projects (4 sites)	24	Idaho Power
2007	Raft River Geothermal (Purchase contract)	10	Idaho Power
2008	South-central or Southeastern Idaho Wind	100	Idaho Power
2009	Southeastern Idaho Geothermal (Binary)	50	Idaho Power
2010	Southern Idaho Combined Heat and Power	50	Idaho Power
2010	Transmission – Path C Upgrade (Southeastern Idaho to North Utah)	300	PacifiCorp
2012	South-central or Southeastern Idaho Wind	150	Idaho Power
2012	Transmission – McNary-Boise	225	Idaho Power
2012	Southern Utah Coal (Brownfield Supercritical)	575	PacifiCorp
2012	Southern Utah Coal (Brownfield Supercritical)	25	IDEA group
2012	Hydro (non-BPA)	20	IDEA group
2012	Gas (Greenfield Combined Cycle)	561	PacifiCorp
2012	Montana Pulverized Coal	250	Avista
2014	Wyoming Coal (Brownfield Supercritical)	500	PacifiCorp
2010-2015	Wind	400	Avista
2010-2016	Biogas (Landfill & Manure)	80	Avista

Note: This table reports the nameplate capacity of each proposed plant rather than the share allocated to Idaho customers. "IDEA" refers to the Idaho Energy Authority, a grouping of Idaho municipal and cooperative utilities.

Natural gas plants are built in smaller, more modular units that can quickly ramp their output up and down to follow changing electricity demands. Natural gas is more expensive as a fuel feedstock and has greater price volatility than coal. Nevertheless, natural gas units are often required because of the operational flexibility that they provide. In addition, the capital costs of a natural gas plant are lower on a per-MW basis that a coal plant.

With both coal and natural gas, air emissions are risk factors that Avista, PacifiCorp, and Idaho Power include in their IRP analyses. In particular, coal is a highly carbon-intensive fuel source, so future carbon dioxide emission limits and emission costs are specifically addressed. Other emission such as particulates, sulfur dioxide and oxides of nitrogen are also considered.

3.2.2. Renewable Resources

The utility IRPs show planned additions of hydroelectric, wind, geothermal, and landfill/biomass gas resources. The cost and operational flexibility of hydroelectric plants depends upon the location, availability of a storage basin, timing of river flows, and fish flow requirements. The most cost-effective and operationally flexible sites have already been developed, so the potential for cost-effective hydroelectric power is limited. This is reflected in the relatively small hydropower additions in the utility IRPs.

In contrast, wind power offers the potential for large expansion. Wind power is a mature technology that can produce electricity at a generally low cost relative to other renewable resources. However, wind power is an intermittent power source that introduces operational

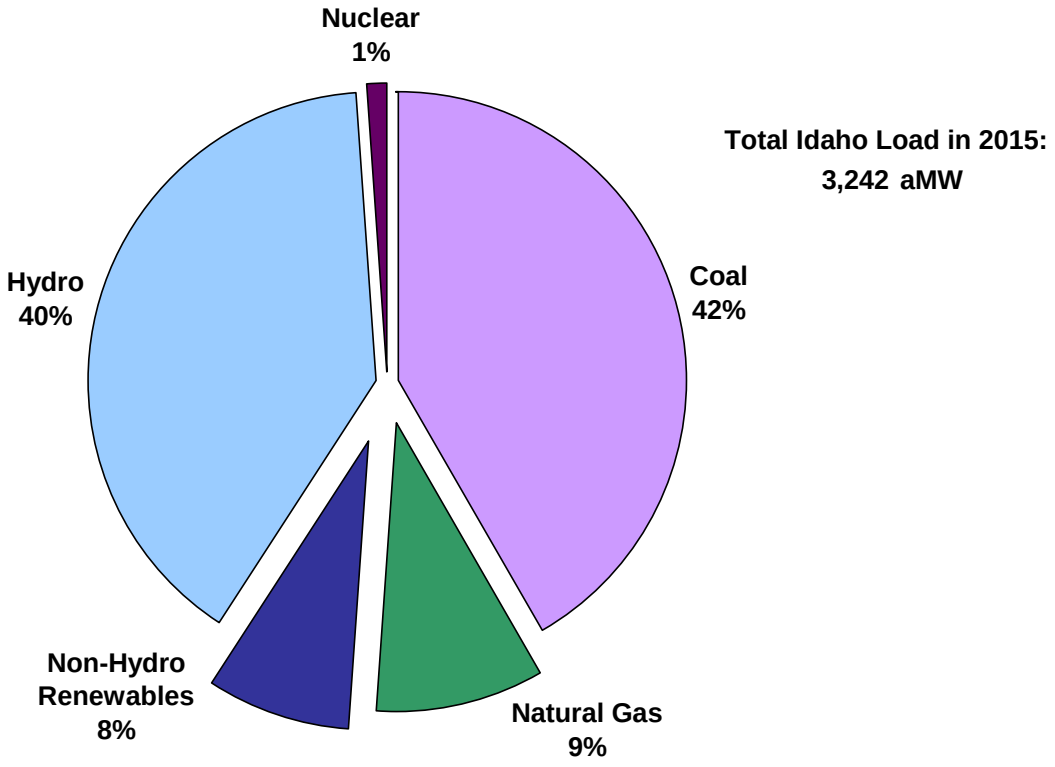
complexities and costs. System planners must assure that there is sufficient capability in the rest of the electric system to provide reliable service when the wind power output drops. In addition, the variability of wind resources can cause overall system dispatch costs to increase. These "system integration" issues generally limit projections of wind power expansion.

In addition to hydropower and wind energy, nearly 100 MW of geothermal and biomass/landfill gas plants are planned on behalf of Idaho customers through 2015.

3.2.3. 2005 and 2015 electricity fuel mix

Figure 2.8 above shows that Idaho currently receives nearly half of its electricity from hydroelectric power facilities. Coal provides about 42 percent, and non-hydro renewables only 1 percent. Given the planned plant additions shown in Figure 3.1, the share of power from renewables is forecast to increase substantially. Figure 3.2 updates Idaho's fuel mix to 2015, assuming that the investments targeted in the utilities' preferred strategies occur as planned. The chart shows that coal's share of Idaho's electricity supply holds steady at 42 percent, while hydro declines from 48 percent to 40 percent. Natural gas increases from 8 percent to 9 percent, while non-hydro renewables increase from 1 percent to 8 percent.

Figure 3.2. 2015 Fuel Mix for Electricity Production

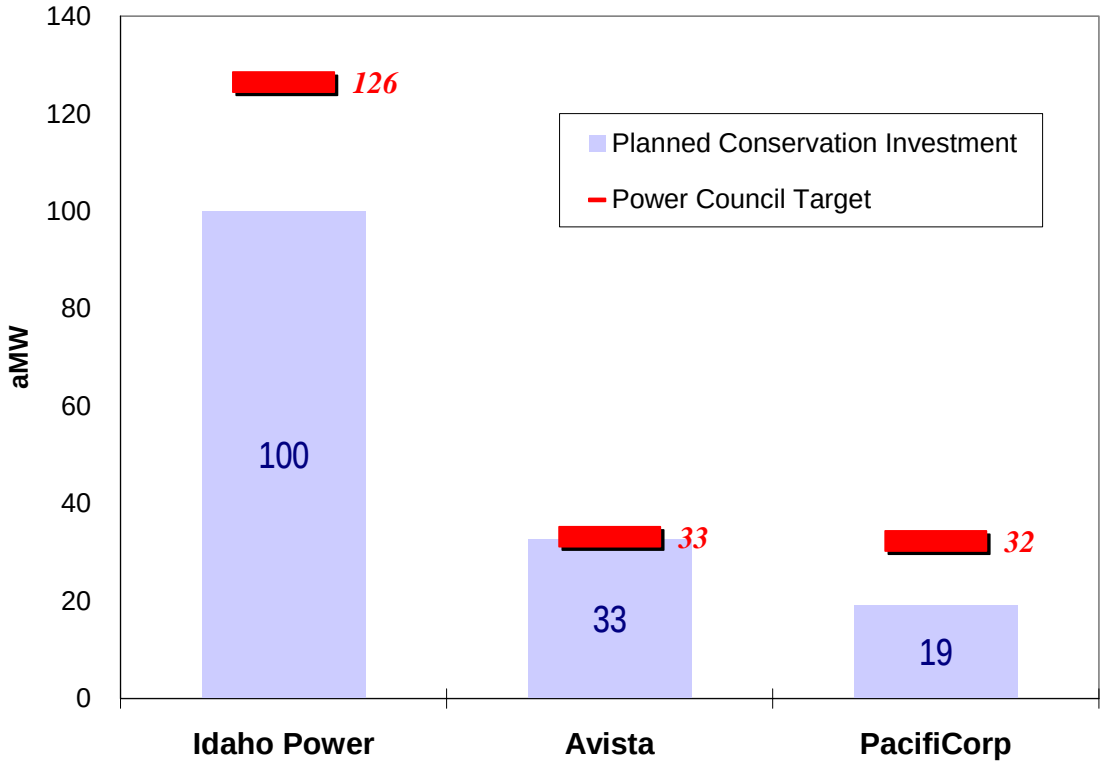


3.2.4. Conservation and energy efficiency

Figure 3.3 compares the Power Council's estimate of cost effective electric conservation and energy efficiency potential in Idaho to the planned conservation and energy efficiency activities of Avista, Idaho Power, and PacifiCorp in Idaho. This chart includes future expected

conservation achievements from programs that are already in existence, as well as an allocated share of savings that are expected to be captured by the Northwest Energy Efficiency Alliance, to which all three utilities contribute funds.

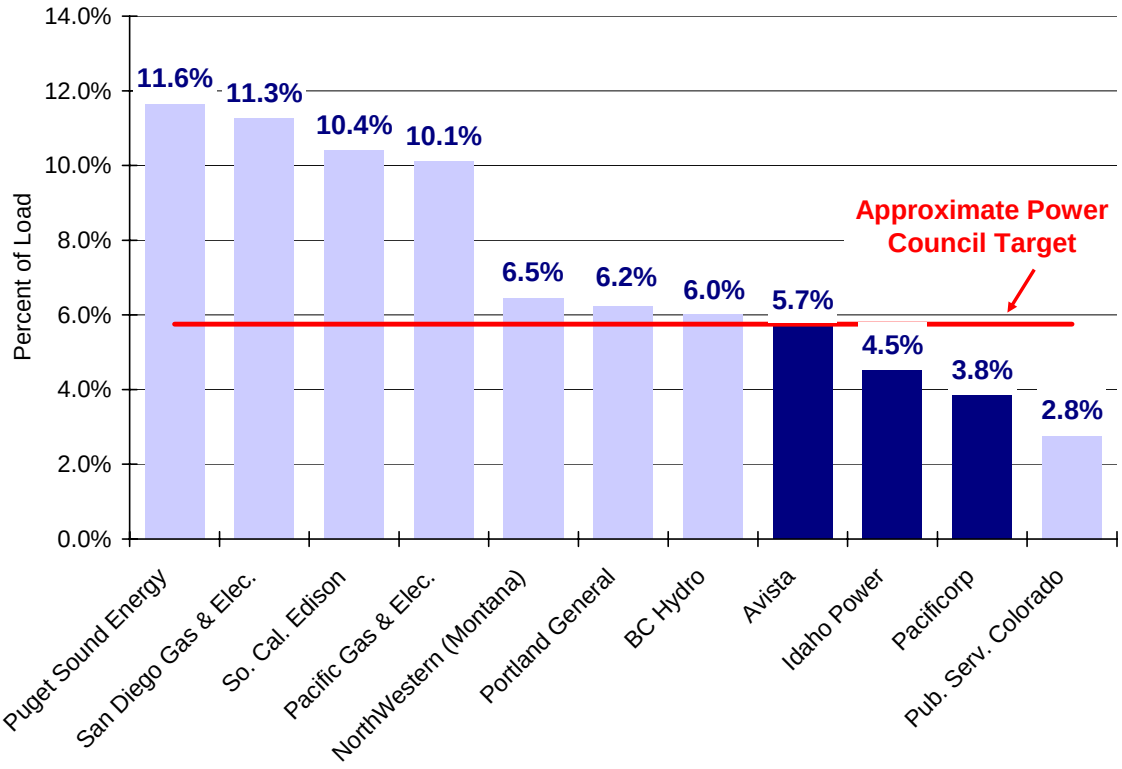
Figure 3.3. 2015 Planned Idaho Conservation Investments by Idaho Utilities vs. Power Council Targets



The figure shows that Avista's planned Idaho conservation acquisitions of 33 aMW are in line with its Power Council target. Idaho Power's and PacifiCorp's planned acquisitions of 100 aMW and 19 aMW are below the Power Council targets of 126 aMW and 32 aMW, respectively. Both Idaho Power and Avista dramatically increased their planned investments in energy conservation with their most recent IRPs. Avista's planned energy conservation acquisitions increased by 20 percent from its 2003 to its 2005 IRP, while Idaho Power's 2006 IRP called for 62 aMW of energy savings by 2015 in addition to the 18 aMW included in its 2004 IRP.

Figure 3.4 compares planned investments in conservation and energy efficiency by Idaho utilities with those of other utilities in the West. The chart shows the percent of total electricity demand that each utility is planning to meet with conservation and energy efficiency in 2013. The chart shows that, despite the recent increases in their energy conservation targets, Idaho's utilities are planning to acquire less conservation than many utilities in the West.

Figure 3.4. 2013 Planned Conservation Investments as a Share of Total Electricity Demand by Selected Western Utilities



3.3. NATURAL GAS SUPPLY

The natural gas supply demand balance for Idaho and the Northwest is expected to tighten in the future. Demand for natural gas is growing in the region, particularly in the residential and commercial sectors. In addition, increasing quantities of natural gas are burned to make electricity. This is a new and relatively small demand in the Pacific Northwest, but electric generators have the potential to become a major consumer of natural gas supplies.

Demand outside of the Northwest for natural gas from the Western Canadian Sedimentary Basin and Rocky Mountain basins is also growing. Several major pipeline expansions are proposed, dramatically increasing the capacity to transport Rocky Mountain and WCSB gas to more lucrative eastern markets. At the same time, the development of oil sands deposits in Canada is poised to significantly increase local demand for WCSB gas in Alberta.

Liquefied natural gas (LNG) shipped from foreign supply basins is expected to become an important source of new supply. The siting of LNG terminals will be challenging, however, due to concerns about safety and coastal development. So-called "Arctic gas" from northwestern Canada and Alaska is also a potentially large source of future supply; however, developing the pipeline infrastructure necessary to import that gas to demand centers in Canada and the lower 48 states faces significant cost and engineering challenges.

3.4. PETROLEUM SUPPLY

U.S. production of crude oil has been declining steadily since 1986. The Rocky Mountain region has steadily increased imports from Canada since the mid 1980s even as local production increased somewhat in recent years in response to higher oil prices. While global crude oil production has continued to grow despite repeated predictions that it would soon peak, there is general agreement that future oil demand in the Northwest, and in the U.S. as a whole, will need to be met with increased imports and more expensive remote and unconventional resources such as Alberta oil sands.

3.5. AREAS WHERE ACTION IS RECOMMENDED

The Committee finds that, on the whole, the current plans of Idaho's energy companies to meet the energy needs of Idaho's citizens and businesses line up reasonably well with the policy objectives of this Idaho Energy Plan, and consequently does not recommend major changes to the structure and functioning of Idaho's energy industry. However, the Committee recommends action in a few key areas in order to further advance progress toward meeting its five policy objectives. These areas are described below.

3.5.1. Energy conservation and direct use of natural gas

In its review of the energy resources available to Idaho, the Committee finds that conservation, including energy efficiency and demand management, should be the highest priority resource. Conservation contributes to the reliability and the stability of the energy system by reducing the demands placed upon it and helping to insulate consumers from the effects of external events. It contributes to low energy costs by allowing utilities to avoid burning expensive fossil fuels and to defer or avoid the construction of capital-intensive new energy facilities. Health and environmental benefits from conservation include lower air emissions from burning less fuel, reduced water consumption, and reduced impacts from the extraction and delivery of fossil fuel resources. Finally, conservation contributes to economic growth by reducing energy bills, creating local jobs, and keeping dollars in Idaho that would otherwise flow to other states or abroad.

Despite the benefits of conservation, Idaho's performance in acquiring these resources has lagged behind that of neighboring states. This is due, at least in part, to the very low cost electricity and natural gas prices that Idaho has enjoyed in the past. However, the cost of new energy resources today is substantially higher than the cost of existing resources that are currently used to serve Idaho customers. This means that the rapid growth in energy demand that Idaho is currently experiencing will lead to higher energy rates for all consumers as more and more expensive new resources are required. Using energy more wisely by investing in conservation and energy efficiency allows Idahoans to get the most benefit out of existing, low-cost energy resources. This 2007 Idaho Energy Plan urges government, utilities and consumers to make a renewed effort to make energy efficiency the highest priority resources for Idaho going forward.

The Committee's review identifies a number of barriers to increased deployment of energy efficiency. Chief among these is the fact that energy efficiency reduces energy sales and would, in the absence of countervailing regulatory initiatives, lead to lower revenues for utilities. This, in turn, reduces both shareholder profits and the recovery of investments in fixed infrastructure, providing a disincentive for utilities to invest in efficiency. At the same time, energy consumers lack information about energy saving technologies and typically require very short payback periods for incremental investments in more efficient technologies. The Committee proposes a

number of policies and actions such as shareholder incentives and tax incentives intended to address these barriers.

3.5.2. Developing in-state renewable resources

Idaho currently imports more than 80 percent of its energy needs. While developing in-state resources would create jobs and result in economic benefits to Idaho, the state lacks conventional resources such as coal, oil and natural gas. The resources that can be developed in Idaho in the near future are renewable resources such as wind, geothermal, small hydro and biomass (for either electric generation or the production of biofuels such as ethanol or biodiesel). Developing in-state renewable resources will contribute to a secure, reliable energy system by reducing dependence on remote resources that must be transported over long distances (although care must be taken to ensure that intermittent resources such as wind energy can be integrated reliably). In addition, renewable resources provide fuel diversity, reducing Idaho's exposure to high and fluctuating natural gas, oil and coal prices. In-state renewables also typically have superior environmental attributes because of substantially reduced air and water emissions, including carbon dioxide. Finally, in-state renewable resources contribute to economic growth by creating jobs and tax revenues in Idaho, frequently in rural areas that are most in need of new economic stimulus.

Cost is the principal barrier to increased investment in local renewable resources. Renewable resources can be more expensive than conventional resources, and the Committee wishes to avoid burdening Idahoans' energy bills with needless investment in high-cost resources. While the Committee endorses renewable resources in general because of the many benefits they provide, it declines to adopt specific targets or standards out of concern that setting arbitrary targets could conflict with the goals of maintaining Idaho's low-cost energy supply and ensuring access to affordable energy for all Idahoans. The Committee is also concerned that adopting firm targets may not provide sufficient flexibility for Idaho energy providers given the rapid development of new energy technologies. At the same time, the Committee recognizes that new technology has reduced the cost of renewable resources in recent years just as the cost of fossil fuels has increased. This has made some renewable resources cost-competitive today, particularly when considering their human health and environmental benefits and the fact that renewables are not subject to fuel price volatility. This Energy Plan contains a number of recommendations that would further reduce the cost of renewable resources in Idaho and help make them more competitive with conventional resources.

3.5.3. Environmental impacts and carbon regulation

Large energy facilities can have significant and complex environmental impacts. Generating plants fired by fossil fuels consume large volumes of water and emit carbon dioxide and mercury as well as regulated pollutants such as carbon monoxide, sulfur dioxide, particulates, and oxides of nitrogen. Nuclear power plants pose a safety risk to surrounding communities and create radioactive waste that must be safely stored for thousands of years. Even renewable resources can have large environmental impacts: large hydroelectric facilities can alter stream flows and degrade riparian habitat; wind energy farms have visual impacts and can cause avian mortality; and geothermal energy projects can emit sulfur dioxide gas and are sometimes located in culturally or environmentally-sensitive areas. The Committee takes note of the recent controversy over the environmental impacts of coal-fired generating facilities, and establishes as

one of the Energy Plan Objectives the protection of Idaho's public health, safety and natural environment.

The Committee is particularly concerned about the possible impact of federal regulation of carbon dioxide and other greenhouse gas emissions. The Committee did not debate the science of global climate change. The Committee found it sufficient to note that there is enough momentum behind efforts to regulate greenhouse gases at the federal level that it is prudent for Idaho and its energy suppliers to incorporate that likelihood into their energy planning.[15] Many Idaho utilities are already doing so. For example, both Idaho Power and PacifiCorp assume a modest carbon dioxide "adder", meant to represent the cost of purchasing carbon allowances, in their "base case" resource planning scenarios. In addition, all three investor-owned utilities, including Avista, model a case with a very high carbon allowance price. The Committee encourages these utilities and all Idaho energy producers, deliverers, and consumers to improve their preparedness by pursuing less carbon-intensive resources as part of a diversified resource portfolio.

3.5.4. Energy facility siting

The final area where the Committee recommends action is energy facility siting. The controversy spawned by the Jerome coal plant proposal led the Legislature to consider bills that would have established an energy facility siting body at the state level. These bills were not successful, and the Committee does not recommend moving energy facility siting decisions from the local to the state level at this time. However, the Committee finds that local officials would benefit from the technical expertise and the information of state agencies when making decisions about how to mitigate the impacts of large energy facilities on their communities. The Committee therefore recommends that state resources be made available in the form of an Energy Facility Site Advisory Team, composed of key employees from a number of state agencies, to provide information and advice upon request of local officials.

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[15] Idaho's investor-owned utilities share this sentiment. For example, Avista's 2005 Integrated Resource Plan (p. 6-23) states that "the company believes that some form of GHG emissions regulation will occur at some point in the future." Idaho Power's 2006 IRP (p. 78-79) similarly concludes that "It is believed that CO2 emissions will be regulated within the 20-year timeframe addressed in the 2006 IRP . . . Accordingly, Idaho Power believes it is prudent to incorporate reasonable estimates for the cost of CO2 emissions into the IRP resource modeling and analysis, and to actively seek to lessen the exposure to financial risk associated with carbon emissions." PacifiCorp's 2004 IRP (p. 19) goes farther: "The global scientific community has offered compelling evidence of the effect of man-made greenhouse gas emissions on future climate conditions. It is therefore prudent to recognize … the potential for costs associated with …climate change policy."

4. Recommendations

4.1. OVERVIEW

This chapter presents the 2007 Idaho Energy Plan recommendations. The Committee's Objectives for this Energy Plan are to:

1. Ensure a secure, reliable and stable energy system for the citizens and businesses of Idaho;
2. Maintain Idaho's low-cost energy supply and ensure access to affordable energy for all Idahoans;
3. Protect Idaho's public health, safety and natural environment and conserve Idaho's natural resources;
4. Promote sustainable economic growth, job creation and rural economic development; and
5. Provide the means for Idaho's energy policy to adapt to changing circumstances.

Specific recommendations are classified either as "Policies", establishing the direction that Idaho should pursue in a given topic area in order for Idaho's energy systems to meet the Objectives, or "Actions", specific items that help advance each Policy. This Energy Plan contains eighteen Policies and forty-four Actions that were approved by the Committee on a consensus basis.

4.2. SUPPORT FOR THE "25X25" CONCEPT

In addition to the specific Policies and Actions listed here, the Committee supports the "25x25" concept promoted by a nationwide cross-section of interests, including farmers, businesses and environmentalists, with the goal of reducing America's dependence on fossil fuels. The 25x25 vision is stated as follows: "By 2025, America's farms, forests and ranches will provide 25 percent of the total energy consumed in the United States, while continuing to produce safe, abundant, and affordable food, feed and fiber."[16] While this vision will require substantial effort by many parties at both the state and federal levels, the Committee believes that many of the recommendations in this Energy Plan will help Idaho do its part toward achieving a national goal of 25 percent renewable energy.

4.3. ELECTRICITY

Policies

RESOURCE DIVERSITY

1. Idaho utilities should acquire reliable, diverse, cost-effective and environmentally sound resource portfolios sufficient to meet their customers' long-term electricity needs.

[16] http://www.25x25.org

2. ***Idaho utilities should have access to a broad variety of resource options consistent with Idaho's policy objectives, including both renewable and conventional resources.***

3. ***Idaho electric utilities should conduct Integrated Resource Plans that assess the relevant attributes of a diverse set of supply-side and demand-side resource options and provide an opportunity for public input into utility resource decisions.***

The Committee finds that it is in Idaho's interest that Idaho energy consumers be served from reliable, diverse, cost-effective and environmentally sound resource portfolios. The Committee recognizes that fuel diversity contributes to reliable and stable electricity service by avoiding over-reliance on any one source of energy, and urges utilities to incorporate fuel diversity as a means of reducing risk. Moreover, in order to maintain Idaho's low electricity rates, the Committee finds that Idaho's utilities need to have access to a broad variety of resources, both conventional and renewable, and nothing in this Energy Plan should be read as precluding a utility from investing in a particular resource. There are many important attributes to a given resource portfolio, including adequacy to meet customer demands under a variety of circumstances, overall cost, exposure to commodity price and regulatory risk, and environmental impact. The Committee endorses integrated resource planning as a useful vehicle for utilities and their stakeholders to assess the tradeoffs among these different attributes. The Committee notes that each of Idaho's investor-owned utilities has developed detailed IRP studies over the past several years under the direction of the PUC, and urges Idaho's municipal and cooperative utilities to utilize IRPs as they meet their new responsibilities to plan for their future energy needs under their next BPA contracts.

RESOURCE PRIORITY

4. ***In order to protect and enhance Idaho's quality of life, it is incumbent on all citizens to use Idaho's precious natural resources, including energy, in a wise and responsible manner.***

5. ***When acquiring resources, Idaho and Idaho utilities should give priority to: (1) Conservation, energy efficiency and demand response; and (2) Renewable resources; recognizing that these alone may not fulfill Idaho's growing energy requirements.***

6. ***The Idaho PUC and Idaho's municipal and cooperative utilities should ensure that their policies provide ratepayer and shareholder incentives that are consistent with this priority order.***

7. ***It is Idaho policy to encourage the development of customer-owned and community-owned renewable energy and combined heat and power facilities.***

The Committee investigated the characteristics of a broad variety of resource options, and evaluated the degree to which each resource contributes to the Idaho Energy Plan Objectives. The Committee finds that demand-side resources, including energy conservation, energy efficiency and demand response, possess the best mix of low-cost and low environmental impact, while contributing to fuel diversity and helping to grow Idaho's economy by keeping dollars at home. Local renewable resources also provide fuel

diversity and help create jobs in Idaho. Consequently, the Committee establishes conservation, energy efficiency and demand response as the highest-priority resource for Idaho, and local renewable resources as the second-highest priority. The Committee further urges the PUC, city commissions, and utility directors to ensure that their policies are consistent with this resource priority order, and urges all Idaho citizens and businesses to use Idaho's natural resources, including energy, in a wise and responsible manner.

ELECTRICITY TRANSMISSION

8. Idaho utilities should have the ability and the appropriate incentives to construct transmission facilities that are needed to provide reliable, low-cost energy service to their customers, access to regional markets, and access to a diverse set of resources.

9. The Idaho PUC, Idaho's investor-owned utilities and the Bonneville Power Administration should work together to ensure that Idaho's Consumer-Owned Utilities have access to reliable transmission service for cost-effectively integrating new resources.

Transmission construction in the United States is not keeping up with increased electricity demand.[17] The Committee is concerned that this trend could negatively affect Idaho, and finds that it is important for Idaho utilities to have the appropriate incentives to construct transmission facilities that are needed to provide reliable, low-cost energy service to Idaho ratepayers. Idaho's municipal and cooperative utilities, in particular, could suffer if new transmission facilities cannot be constructed in a timely and cost-effective manner to allow those utilities to acquire new resources to meet their future energy needs. These utilities have historically taken transmission service from BPA, despite their physical location on the grids of IOUs. BPA has, in turn, relied upon a system of agreements with the IOUs known as General Transfer Agreements ("GTAs"), which allow BPA to serve its customers without having to construct duplicate transmission facilities. It is unclear for many of these utilities whether, how, and at what cost they will be able to bring new resources to load, and the Committee urges BPA, the IOUs, and the IPUC to work together to ensure that these utilities continue to receive reliable and cost-effective transmission service.

ENVIRONMENT

10. Idaho and Idaho utilities should encourage technologies that minimize emissions of harmful pollutants and consumptive use of water.

11. Idaho and Idaho utilities should prepare for the possibility of federal regulation of greenhouse gas emissions.

The Committee recognizes that Idaho's clean air and water are not only critical for the health of Idaho citizens but also an economic asset that helps draw visitors as well as new businesses and residents to the state. In addition, Idaho's water resources are limited in

[17] For a discussion of this issue, see "Testimony of Pat Wood, III, Chairman, Federal Energy Regulatory Commission Before the Government Reform Subcommittee on Energy and Resources United States House of Representatives", June 8, 2005 http://www.ferc.gov/EventCalendar/Files/20050608124932-testimony-wood.pdf

their capacity to accommodate large new consumptive uses. Finally, the Committee takes note of the gathering scientific evidence for global climate change and the growing likelihood of federal regulation of greenhouse gas emissions. Idaho has historically benefited in each of these areas from its reliance on clean, renewable hydroelectricity to provide nearly 50 percent of its electricity. However, Idaho's cost-effective hydroelectric resources are largely developed, and Idaho's utilities are considering coal, natural gas and nuclear-powered generating resources for meeting future customer needs. While the Committee recognizes that some conventional resources will be needed to meet load cost-effectively, it urges Idaho utilities and state agencies to ensure that the impact of new generating resources on Idaho's air and water quality is minimized.

Actions

CONSERVATION, ENERGY EFFICIENCY AND DEMAND RESPONSE

E-1. All Idaho utilities should fully incorporate cost-effective conservation, energy efficiency and demand response as the priority resources in their Integrated Resource Planning.

The Committee intends that Idaho utilities should make cost-effective conservation, energy efficiency and demand response the highest priority resources in their IRPs. The Committee recommends the "Total Resource Cost" perspective as the appropriate test of the cost-effectiveness of conservation measures, and provides the following definition of cost-effectiveness as guidance: "Cost-effectiveness of a conservation measure means that the lifecycle energy, capacity, transmission, distribution, water and other quantifiable savings accruing to Idaho citizens and businesses exceed the direct costs of the measure to the utility and participant."

E-2. The Idaho PUC should establish annual targets for conservation achievement based on estimates of cost-effective conservation in the service territories of Idaho's investor-owned utilities.

The Committee believes it would be useful to for the PUC to establish targets for conservation achievement by Idaho's investor-owned utilities based on estimates of available cost-effective conservation in each utility's Idaho service territory. The PUC could establish these targets in a formal evidentiary proceeding or, alternatively, could work with the Power Council to adapt its estimates of cost-effective conservation in the Pacific Northwest region for use by Idaho utilities.

E-3. The Idaho PUC should establish and periodically update an avoided-cost benchmark for each utility to be used in evaluating the cost-effectiveness of conservation and renewable resource investments and in calculating payments to Qualifying Facilities under the Public Utility Regulatory Policy Act (PURPA).

The PUC currently publishes avoided costs that are used for payments to QFs. With some minor modification, these avoided costs would also be suitable for evaluating the cost-effectiveness of conservation, efficiency and renewable resource investments. The Committee finds that establishing avoided costs for conservation and renewables in a

public forum would be beneficial in helping stakeholders understand the value of conserving energy and is a necessary step for the PUC to establish conservation targets.

E-4. The Idaho PUC should establish appropriate shareholder incentives for investor-owned utilities that achieve the conservation targets established by the PUC. Shareholder incentives may include, but are not limited to:

i. Recovery of revenues lost due to reduced sales resulting from conservation investments;

ii. Capitalization of conservation expenditures;

iii. A share of the net societal benefits attributable to the utility's energy efficiency programs;

iv. An increase in the utility's return on equity for each year in which savings targets are met; or

v. "Decoupling" of utility revenues from sales.

The Committee recognizes the disincentives to conservation investments that are inherent in traditional, cost-of-service ratemaking, and urges the PUC to adopt incentive mechanisms that not only avoid punishing utilities that invest in conservation but provide shareholder benefits that are at least as large as would accrue from investing in a like quantity of conventional generating facilities. The Committee and offers some incentive mechanisms for the PUC to consider, but leaves to the PUC the decision as to which mechanisms, if any, are appropriate to spur increased conservation investments by Idaho utilities. The Committee also recognizes recent efforts by the PUC and some Idaho utilities in this area.

E-5. The Idaho PUC should support market transformation programs that provide cost-effective energy savings to Idaho citizens.

"Market transformation" refers to energy efficiency programs that promote the manufacture and purchase of energy-efficient products and services. The goal of market transformation is to induce lasting structural and behavioral changes in the marketplace, resulting in increased production and adoption of energy-efficient technologies and energy savings that continue to accrue even after the program ends. Idaho's investor-owned utilities participate along with many other regional utilities in the Northwest Energy Efficiency Alliance (NEEA)[18], which administers market transformation programs on a regional scale. BPA also provides funding to NEEA on behalf of Idaho municipal and cooperative utilities. The Committee encourages the PUC and utilities to continue supporting market transformation as long as doing so continues to provide net benefits to Idaho citizens.

[18] http://www.nwalliance.org

E-6. The Idaho PUC and Idaho utilities should consider adopting rate designs that encourage more efficient use of energy.

Idaho's generally low electricity rates provide customers with a limited incentive to reduce their electricity use. However, the current cost of new resources is substantially higher than the cost of existing resources on which these low rates are based. This mismatch between the rates that consumers pay for electricity and the cost to utilities of investing in new resources presents a barrier to increased investment in cost-effective energy efficiency. Innovative electric utility rate designs can help to overcome this barrier by better aligning the incentives of ratepayers with the costs faced by utilities. Examples of innovative designs include tiered rates, which charge a higher rate for larger quantities of electricity used in a given month, or time-of-use rates that change by season and perhaps even by time of day. The Committee encourages Idaho utilities to consider rate designs that provide customers with more financial incentive to conserve energy and reduce the need for expensive new resources. The Committee is mindful, however, that many Idaho ratepayers continue to rely on electricity for space heating, and urges utilities to consider impacts on these customers in their rate design decisions.

E-7. Idaho's municipal and cooperative utilities should annually report to the Energy Division their estimates of cost-effective conservation in their service territories, their plans for acquiring this resource, their conservation and energy efficiency expenditures, and their estimated savings in electrical energy (MWh) and peak capacity (kW) during the lifetime of the measures implemented.

The Committee recognizes that municipal and cooperative utilities are governed by locally-elected city councils and boards of directors, and the Committee does not recommend increased state oversight of these utilities. At the same time, the Committee expects municipal and cooperative utilities to be guided by the policies and recommendations of this Energy Plan. The Committee finds that state government needs to have good information about the efforts of municipal and cooperative utilities to capture energy savings in their service territories, and recommends that these utilities report on such efforts to the Energy Division as part of the follow-up to this Energy Plan.

E-8. Idaho should offer an income tax incentive for investments in energy efficient technologies by Idaho businesses and households.

The high initial cost of many energy-saving technologies is among the most important barriers to increased deployment of energy efficiency. While the life-cycle cost of these technologies (including the cost of energy during the lifetime of the product) is lower than the cost of less-efficient technologies, consumers typically demand very rapid payback periods for efficiency investments. The state can help to lower the initial cost of these technologies by providing tax incentives. Idaho's current Residential Alternative Energy Tax Deduction allows an income tax deduction up to $20,000 over four years for solar, wind, geothermal and pellet stoves.[19] The Committee recommends expanding this

[19] Idaho Statutes § 63-3022C

program to include energy efficient technologies and provide an income tax incentive for businesses as well as residences.

E-9. Idaho should offer a sales and use tax exemption on the purchase of energy efficient technologies.

Idaho's current state sales tax is 6 percent. Under this recommendation, Idaho would not collect sales tax for a list of approved energy-efficient technologies. This would provide a visible signal to customers encouraging energy efficiency at the time of purchase, and would at the same time educate the sales force about which technologies meet the state's energy efficiency guidelines.

E-10. Idaho should adopt international building codes on a three-year cycle as a minimum for building energy efficiency standards and should provide technical and financial assistance to local jurisdictions for implementation and enforcement.

The International Building Code sets minimum performance standards for residential and commercial buildings.[20] Requiring that new buildings meet these energy efficiency requirements will result in gradual but significant and long-lasting reductions in building energy consumption, often with little or no increase in total project cost. Without adoption and enforcement of the energy efficiency standards, many opportunities to cost-effectively lower building energy usage would be lost. The International Building Code is updated on a three-year cycle. Idaho adopted the 2003 International Building Code in 2004, and the Committee recommends that Idaho adopt the recently-completed 2006 International Building Code and subsequent codes as soon as they are completed. Additionally, the Committee recommends that the state provide both technical and financial assistance to help local jurisdictions implement and enforce the building codes.

E-11. State Government will:

i. Demonstrate leadership by promoting energy efficiency, energy efficient products, use of renewable energy and fostering emerging technologies by increasing energy efficiency in all facets of State government;

ii. Ensure that public facility procurement rules provide appropriate incentives to allow full implementation of cost-effective energy efficiency and small-scale generation at public facilities;

iii. Collaborate with utilities, regulators, legislators and other impacted stakeholders to advance energy efficiency in all sectors of Idaho's economy;

iv. Work to identify and address all barriers and disincentives to increased acquisition of energy conservation and efficiency; and

[20] More information about International Building Codes can be found at the International Code Council website: http://www.iccsafe.org/

v. Educate government agencies, the private sector and the public about the benefits and means to implement energy efficiency.

Idaho state buildings are large consumers of electricity, and state procurement rules can present barriers to the adoption of energy efficient technologies if they require agencies to make procurement decisions based on lowest initial cost rather than lowest lifecycle cost. The Committee recommends that the Energy Division work together with the Idaho Department of Administration to develop incentives for state agencies to maximize their investments in cost-effective energy efficiency and renewable energy. State government can also play a positive role in educating consumers about how they can benefit from energy efficiency, and in informing both utilities and policy-makers about how to increase investment in energy efficiency. The Committee envisions the Energy Division playing the lead role in this area, working in concert with the PUC, the DEQ, and other state agencies as appropriate.

RENEWABLE GENERATION RESOURCES

E-12. Idaho should offer an income tax incentive for investment in customer-owned renewable generation and combined heat and power facilities by Idaho businesses and households.

Like energy conservation and efficiency, renewable energy provides Idaho with greater environmental and economic development benefits than conventional resources, but investment in renewables tends to be hindered due to higher initial costs. Idaho's Residential Alternative Energy Tax Deduction already provides a limited income tax incentive for households to invest in renewable resources. The Committee recommends that this incentive be broadened to include additional technologies and extended to Idaho businesses as well as households.

E-13. Idaho should provide a credit backstop to enable the Idaho Energy Resources Authority to provide low-cost financing for customer-owned renewable generation and combined heat and power facilities.

The IERA was granted the authority during the 2005 legislative session to provide financing for renewable energy projects.[21] However, IERA has only limited ability to finance non-utility projects due to credit issues. The Committee recommends that the state grant IERA additional ability to provide low-cost financing for utility and non-utility renewable energy and combined heat and power projects through a limited credit backstop mechanism.

E-14. Idaho utilities should offer voluntary "green pricing" programs that allow customers to support environmentally preferred and renewable energy resources.

Many utilities, including Idaho's three investor-owned utilities, offer programs that allow customers to voluntarily support clean, renewable energy sources through their electricity bills. The Committee encourages all Idaho utilities to offer such programs, to

[21] HB106, http://www3.state.id.us/oasis/2005/H0106.html

focus these programs on local, Idaho resources, and to provide sufficient funding, support and marketing to maximize potential participation in these programs.

E-15. The Idaho PUC should establish appropriate shareholder incentives for investments in Idaho renewable resources by investor-owned utilities. Shareholder incentives may include, but are not limited to:

i. Increased return on investments in renewable resources located in Idaho; or

ii. A share of the net societal benefits attributable to a renewable energy purchase.

Utilities do not face the same mixed incentives to invest in renewable resources as they do with energy conservation and efficiency. Nevertheless, the Committee wishes to encourage Idaho utilities to invest in Idaho renewable resources and urges the PUC establish appropriate shareholder incentives to encourage such investments.

E-16. The Idaho PUC should administer its responsibilities under the Public Utility Regulatory Policy Act in a way that encourages the development of customer-owned renewable generation and combined heat and power facilities.

Customer-owned generation and combined heat and power facilities provide additional economic benefits beyond conventional, central station generation by helping keep local businesses competitive. The PUC has historically been among the leaders in encouraging customer-owned and local renewable generation through its implementation authority under PURPA. The Committee endorses this direction and urges the PUC to continue to administer its authorities in a way that encourages the development of local generation opportunities.

E-17. The Idaho PUC should establish uniform policies for interconnection and net metering that promote investment in customer-owned renewable energy facilities. Idaho's municipal and cooperative utilities should work together to develop a uniform policy for municipal utilities and rural electric cooperatives.

The Committee finds that it is in Idaho's interest to encourage customer ownership of small-scale renewable generation such as wind, solar or micro-hydro in addition to larger facilities that qualify for PURPA payments. Idaho's investor-owned utilities have established interconnection and "net metering" policies for these resources and Idaho's municipal and cooperative utilities have developed model policies through the Idaho Consumer-Owned Utilities Association. The Committee urges the PUC and Idaho utilities to review these policies to ensure that they encourage investment in small-scale renewable resources, and to fully implement these policies as quickly as possible.

E-18. Idaho utilities shall report annually to their retail customers their sources of electricity (their "fuel mix").

Utilities in Washington, Oregon and many other states regularly report the sources of the electricity sold to retail ratepayers. This initiative, known as "fuel mix disclosure", is intended to educate customers about the fuels that are used in producing the electricity they use in their homes and businesses. The Committee finds that Idaho ratepayers

would benefit from having access to this information, and urges the Legislature to pass fuel mix disclosure legislation for Idaho.

CONVENTIONAL GENERATION RESOURCES

E-19. The Idaho PUC and the Departments of Water Resources and Environmental Quality should investigate and report on the status of "clean coal" technologies and barriers that prevent Idaho utilities from investing in environmentally-preferred uses of coal.

Many new technologies have been developed and proposed in recent years to make use of the United States' abundant domestic coal resources. These range from "supercritical" boilers designed to improve efficiency and reduce emissions to coal gasification and coal-to-liquids technologies. While Idaho has no commercial coal resources, nearly 50 percent of Idaho's electricity supply is generated from coal, and Idaho utility IRPs call for more coal-fired power plants to serve Idaho's growing load. The Committee recognizes that new conventional fuel resources will continue to be necessary to keep Idaho's electricity rates low, and that alternative "clean coal" technologies have not yet been thoroughly field-tested. The Committee therefore recommends that the PUC, DWR and DEQ study and report to the Legislature on the current status of coal technology and any barriers that might currently prevent Idaho utilities from investing in environmentally-preferred uses of coal. The study should also report on the use of the term "clean coal" and propose a definition that is appropriate for Idaho.

E-20. Idaho and Idaho utilities should work with the Idaho National Laboratory to investigate the feasibility of bringing a "next-generation" nuclear facility to Idaho.

Nuclear power is another conventional fuel option that U.S. utilities are beginning to reconsider. Nuclear power fell out of favor in the U.S. during the 1980s due to excessive costs and concerns about safety in the wake of the core meltdown accidents at Three Mile Island and Chernobyl. Additionally, the federal government has not yet followed through on its obligation to establish a repository for long-term storage of high-level nuclear waste. Nevertheless, there is renewed interest in nuclear power due to its potential to provide large quantities of baseload power with minimal emissions of carbon dioxide and toxic air pollutants. The federal Energy Policy Act of 2005 established a number of incentives for the development and construction of a "next generation" nuclear power plant. Idaho is well-positioned to participate in the development of such a plant due to the existence of the INL, and the Committee encourages state agencies and Idaho utilities to pursue this idea in cooperation with INL.

E-21. Idaho should encourage the use of "dry cooling" or "gray water" cooling for new thermal facilities.

Like most western states, Idaho's climate is semi-arid to arid, and water resources are likely to be an increasingly binding constraint on future economic development. The Committee wishes to conserve Idaho's water resources for the use of agriculture and industry and encourages developers of thermal power plants in Idaho to utilize cooling technologies that minimize the consumptive use of water.

TRANSMISSION

E-22. Idaho should participate in regional efforts aimed at increasing the capability of the western transmission grid and bringing to Idaho the benefits of cost-effective remote resources.

A number of long-distance transmission projects have been proposed for the western interconnection that would bring low-cost energy from remote areas such as eastern Wyoming, eastern Montana or northern Alberta to load centers in California and the Southwest. Idaho is unlikely to be a primary destination for such a project due to its relatively small electric load, but many of the projects would transit through Idaho and participation by Idaho utilities could result in some benefit from these projects to Idaho ratepayers. The PUC and Idaho's investor-owned utilities are already participating in many western forums that relate to regional transmission expansion, and the Committee encourages them to continue in this activity.

E-23. Idaho should provide a credit backstop to enhance the Idaho Energy Resources Authority's ability to provide low-cost financing for transmission projects that benefit Idaho citizens.

The IERA has participated in the financing of several transmission projects that will provide benefits Idaho utilities and their ratepayers, and the IERA is generally more able to finance utility projects than non-utility projects because utilities have the ability to raise retail rates if necessary to maintain good credit standing. Nevertheless, the IERA's ability to offer low-cost financing for transmission projects may be enhanced if the state provides a limited credit backstop.

E-24. Idaho should support efforts to amend the Internal Revenue Code to provide additional ability for municipal and cooperative utilities to use tax-exempt financing to construct needed transmission facilities.

Municipal and cooperative utilities sometimes rely on tax-exempt bonds to finance construction of energy facilities, including transmission. However, FERC's "Open Access" policy requires owners of transmission facilities to make available to third parties any capacity in excess of the facility owner's needs. This has sometimes caused publicly-owned utilities to fall into technical violation of the Internal Revenue Code regarding "private use" of facilities financed with tax-exempt bonds, jeopardizing those entities' continued ability to use tax-exempt bonds for project finance. Idaho should support efforts to amend the Internal Revenue Code to allow Idaho's municipal and cooperative utilities to comply with FERC rules while retaining the ability to finance transmission projects with tax-exempt bonds.

4.4. NATURAL GAS

Policies

12. It is Idaho policy to employ the highest and best use of natural gas and ensure that Idaho consumers have access to an abundant and reliable supply from diverse and varied resources.

13. It is Idaho policy to support responsible exploration and production of natural gas supplies and the expansion of the transmission, storage and distribution infrastructure.

Natural gas is an increasingly important fuel for Idaho, accounting for approximately one-fifth of Idaho's end-use energy consumption in 2003. However, natural gas pricing is determined in a wholesale market over which Idaho has little authority; like gas utilities across the country, Idaho utilities purchase their natural gas supplies from the wholesale market and pass through their costs to residential customers. This Energy Plan recommends that Idaho support and encourage efforts to increase natural gas production and delivery capacity to Idaho utilities. Additionally, the state can support current and future efforts on the part of Idaho's gas utilities to promote energy conservation programs aimed at reducing demand for natural gas. Finally, the Committee finds it is in Idaho's interest to encourage the use of natural gas rather than electricity for space and water heating in order to make the most efficient use of Idaho's limited natural gas supplies.

Actions

NG-1. The Idaho PUC should ensure that its line extension policies, electric and natural gas tariffs, and other policies encourage the direct use of natural gas in applications for which natural gas is the most efficient energy source.

Heating homes and businesses with natural gas is more efficient than heating them with electricity when energy losses due to fuel conversion and delivery are considered. Therefore, the Committee finds it is in Idaho's interest to encourage the use of natural gas rather than electricity in these instances. The PUC regulates both electric and natural gas utilities, and its line extension policies can affect the rate at which natural gas service is extended to new Idaho communities. The Committee recommends that the PUC consider the net cost of energy service to Idahoans, including energy conversion losses and the relative cost of natural gas and electric energy, when establishing policies governing line extensions and other aspects of natural gas and electricity service.

NG-2. Idaho should provide incentives for investments in non-traditional natural gas supply resources, including landfill methane, anaerobic digesters, and biomass methane.

Fossil natural gas is typically found in the same types of geologic formations as crude oil. However, there are many other possible sources of methane gas, including landfills, sewage treatment facilities, dairy operations, and others. In many of these cases, the methane currently escapes into the atmosphere causing both ground-level pollution and

contributing to global climate change.[22] Properly conditioned, this gas can serve as a fuel for powering electric generators or for direct end-use. The Committee finds it is in Idaho's interests for both economic and environmental reasons to encourage the capture and use of methane gas from non-fossil sources.

NG-3. Idaho should support the siting of liquefied natural gas terminals and other infrastructure in the United States to provide delivery capability to Idaho.

As an inland state with no commercial natural gas resources, Idaho depends on other states and foreign countries such as Canada to supply the natural gas that Idaho consumers need. While Idaho has very little ability to directly increase the supply of natural gas in Idaho, there may be cases where intervention by Idaho entities can help to improve the supply-demand balance on a regional basis. The Committee encourages the PUC, Energy Division and other Idaho entities to do so as necessary and appropriate.

4.5. PETROLEUM AND TRANSPORTATION FUELS

Policies

14. It is Idaho policy to promote the production and use of cost-effective and environmentally-sound alternative fuels.

15. It is Idaho policy to promote conservation and efficiency as a means of reducing the burden of transportation fuel expenditures on Idaho households and businesses, improving the reliability and cost of Idaho's transportation fuel supply, and reducing transportation-related emissions.

16. It is Idaho policy to support responsible exploration and production of petroleum supplies and the expansion of transmission, storage and distribution infrastructure benefiting Idaho.

Like natural gas, Idaho has little direct control over petroleum supply or pricing. Prices for the gasoline, diesel, and other petroleum products consumed by Idaho citizens and businesses are closely tied to crude oil, which is traded in a global market. Thus, Idaho consumers are directly exposed to price effects resulting from political uncertainty in regions that are thousands of miles away. Unlike natural gas, Idaho exercises no price regulation over the infrastructure for distributing petroleum products. While petroleum products make up nearly 50 percent of Idaho's end-use energy consumption, Idaho has less leverage over the petroleum industry than it does over electricity and natural gas. Thus, the Committee's recommendations in the area of petroleum and transportation fuels are principally aimed at reducing Idaho's petroleum dependence through more efficient use of oil products and increased utilization of locally-produced biofuels such as ethanol and biodiesel. At the same time, the Committee recognizes that Idaho is at a competitive disadvantage to other states with respect to production of corn-based ethanol and therefore declines to endorse renewable fuel standards or other mandates at this time.

[22] Methane is a potent greenhouse gas, with 21 times the heat-trapping capability of carbon dioxide.

Actions

ALTERNATIVE FUELS

T-1. Idaho should ensure that its state vehicle procurement rules promote purchases of high-efficiency, flex-fuel, natural gas and alternative-fuel vehicles where cost-effective.

Idaho state government owns and operates a very large fleet of passenger vehicles. With centralized purchasing, maintenance and fueling, fleets present a particularly attractive venue for the adoption of alternative fuel vehicles. This represents an opportunity for Idaho to help demonstrate and support the market for technologies that reduce Idaho's petroleum dependence, and the Committee encourages Idaho state agencies to explore ways to increase their purchases of high-efficiency and alternative-fuel vehicles.

T-2. Idaho should provide incentives for the purchase of efficient, flex-fuel and alternative fuel vehicles.

As with other alternative technologies, high initial cost is a barrier to increased deployment of high-efficiency and alternative fuel vehicles. Incentives such as income tax credits and sales-and-use tax exemptions can help to reduce the initial cost, making these technologies more affordable for Idaho citizens and businesses.

T-3. Idaho should provide incentives for investments in retail and wholesale alternative fuel supply infrastructure.

Alternative fuels, such as ethanol and biodiesel, require substantial investment in new infrastructure, as they cannot be transported or dispensed with the existing equipment used for petroleum fuels. The large capital investment required for this new infrastructure is a significant barrier to the distribution and sale of alternative fuels. The Committee finds that it is in Idaho's interest to promote the development of alternative fuel distribution infrastructure, and recommends tax incentives as a way to help reduce the high initial cost.

T-4. Idaho should establish an incentive for the production of ethanol and biodiesel that reflects the cost of alternative fuel production relative to the price of gasoline and diesel fuel.

In lieu of renewable fuel purchase mandates, the Committee believes that a production incentive is an appropriate and effective way of encouraging Idaho-grown biofuels, reducing Idaho's petroleum dependence and promoting rural economic development. The Committee also recognizes that the fluctuating price of crude oil makes it difficult to establish a fixed incentive that is effective at promoting alternatives without unnecessarily burdening the state's general fund when oil prices are high. Thus, the Committee recommends a "countercyclical" production incentive that varies inversely with the price of crude oil. The incentive would grow when crude oil prices fall, but would shrink and go to zero when oil prices are high enough that alternative fuels are cost-effective on their own.

T-5. Idaho should promote research and development and business-university partnerships to speed the commercialization of alternative fuel technologies, with particular emphasis on cellulosic ethanol.

The biofuels industry is still in its infancy, and stands to benefit from additional research into methods for increasing the net energy yield of the biofuels cycle (energy produced through combustion of the biofuels relative to the energy used to produce the fuel). The Committee believes that commercialization of cellulosic ethanol, in particular, would benefit Idaho because it could utilize wood waste and crop residues such as wheat straw, which are abundant in Idaho. The INL and University of Idaho are active in a variety of research efforts related to alternative fuels and may be good partners in this area.

T-6. Idaho should prohibit "exclusivity" requirements in future contracts between fuel suppliers and retail service stations that prevent the stations from offering alternative fuels.

One barrier to increased deployment of alternative fuels is the existence of "exclusivity" requirements in contracts between fuel suppliers and retail service stations. Such requirements typically prohibit retail stations from obtaining or selling any brands of fuel from a source other than their contracted wholesaler, most of which do not currently offer ethanol or biodiesel blends. While existing contracts cannot be breached by legislative action, some states have taken the step of prohibiting such clauses in future contracts, allowing retail stations to seek such supplies from an alternative source. The Committee believes that such a step would be beneficial to Idaho, because it would help to remove a barrier to the development of an alternative fuel distribution infrastructure.

TRANSPORTATION FUEL CONSERVATION

T-7. Idaho should work with other states to promote an increase in Federal CAFE standards.

The federal legislation that created the Corporate Average Fuel Economy (CAFE) standard program prohibits Idaho and other states from regulating the fuel economy of personal vehicles, and federal CAFE standards have remained largely unchanged for the last twenty years. Because Idahoans drive more miles every year than residents of most other states, the Committee finds it is in Idaho's interest to improve the fuel economy of new vehicles that are available in the marketplace. The federal CAFE standards are currently the only regulatory mechanism for accomplishing this, and the Committee recommends that Idaho work with other states to prompt federal action to increase CAFE standards.

T-8. Idaho should permit local authorization of transit option taxes to support the use and expansion of public transportation.

Mass transit can be a more fuel-efficient way of moving people around than personal vehicles, particularly in relatively dense areas where jobs are concentrated in an urban core or industrial park. The Committee believes that local option taxes are an appropriate way to fund public transportation systems, and encourages lawmakers to pass legislation authorizing such taxes subject to public vote.

T-9. Idaho should provide incentives for the installation and operation of equipment that reduces truck and tour bus idling.

Truck and tour bus idling wastes millions of gallons of diesel fuel each year and results in increased emissions of particulates and sulfur dioxide. Truck idling is necessary when truck drivers stop to sleep in a rest area or parking lot and need to run the heater or air conditioner to keep the cab at a comfortable temperature. Programs are underway to encourage the installation of technology that would allow trucks and tour buses to plug in to the local grid instead of idling. The Committee wishes to encourage the deployment of these technologies in Idaho through tax incentives.

T-10. Idaho should encourage regional land use planning and policies that minimize vehicle-miles traveled.

Petroleum consumption in Idaho is very closely related to the number of miles that Idahoans drive (referred to as vehicle-miles traveled). Vehicle-miles traveled are, in turn, strongly influenced by the physical layout of the communities in which Idahoans live. The proximity of homes to grocery stores and other retail services and to places of work, for example, has a direct bearing on the number of miles driven by Idahoans each year. Similarly, the layout of neighborhoods and subdivisions can have an impact on vehicle-miles traveled; fewer miles are driven by residents of neighborhoods with multiple access points such as a traditional grid pattern, relative to neighborhoods with only one access point with many homes located some distance from the entry. While energy is only one of a number of criteria that must be considered when making land-use planning decisions, the Committee finds that it is in Idaho's interest to encourage land-use planning and policies that allow Idahoans to drive fewer miles.

4.6. ENERGY FACILITY SITING

Policies

17. Idaho state agencies should play a role in providing technical information to support local energy facility siting decisions.

Many states have energy facility siting bodies that weigh the costs and benefits of new large energy facilities and make the decision about whether and under what conditions the facility should be allowed to operate, and the Committee considered a variety of proposals that would move energy facility siting decisions from the local to the state level in Idaho. However, many stakeholders felt that the existing system under which local officials make energy facility siting decisions meets Idaho's needs, and the Committee does not endorse moving energy facility siting decisions to the state level at this time. At the same time, the Committee recommends that resources be made available at the request of local officials to provide information and advice.

Actions

S-1. The Idaho PUC should be vested with the authority to site transmission facilities within areas that have been designated by the U.S. Department of Energy as National Interest Transmission Corridors.

The 2005 Energy Policy Act granted authority to the U.S. Department of Energy to establish "National Interest Transmission Corridors". These corridors would represent important routes for the transmission of electric energy across state lines. EPACT 2005 also vested FERC with the authority to override local siting decisions for transmission facilities within these National Interest Transmission Corridors, unless a state-level authority exists and acts in a timely fashion to approve the project. The PUC recommends, and the Committee endorses, limited legislation to grant transmission siting authority to the PUC only within areas that have been designated as National Interest Transmission Corridors.

S-2. *For electric generating facilities 50 MW or larger, an "Energy Facility Site Advisory Team" shall be established consisting of members appointed by the Departments of Environmental Quality, Water Resources, Commerce, Health and Welfare, Fish and Game, and Agriculture to provide technical information as requested by the local jurisdiction.*

The Committee finds that it is in Idaho's interest to make state resources available to assist local officials in making energy facility siting decisions. The Committee endorses as the mechanism for this an Energy Facility Site Advisory Team, consisting of state employees from the agencies listed above that have expertise in relevant areas. This team would be appointed upon request from a local jurisdiction that has been asked to site an electric generating facility of 50 MW or larger. While the Committee recommends retaining the ultimate decision-making authority at the local level, the Committee hopes that the existence of the Energy Facility Site Advisory Team will help local officials make informed decisions.

S-3. *When permitting large electric generating facilities, local jurisdictions should be required to make a reasonable effort to hear testimony about the impact of the facilities from citizens and businesses in neighboring jurisdictions.*

One of the issues that has caused some states to move energy facility siting decisions to the state level is a possible mismatch between the constituency of the local authorities making the siting decisions and the population that bears the economic and environmental impacts of the facility. For example, air pollution from a coal-fired power plant would be deposited over multiple counties, and residents of downwind jurisdictions currently have no formal say in the siting of large energy facilities. The Committee recommends that jurisdictions that are making a decision about the siting of a large energy facility be required to make a reasonable effort to hear testimony from citizens and businesses in neighboring jurisdictions about the impact of the facility on their health and welfare. While the Committee recommends retaining the ultimate decision at the jurisdiction most directly affected by the project, it hopes that this requirement will help to ensure that the views of all affected citizens and businesses will be heard.

4.7. IMPLEMENTATION

Policies

18. Idaho should raise the profile of energy within state government and provide additional resources to oversee and promote implementation of the recommendations of this Energy Plan.

Energy is a critically important industry. Reliable, affordable energy supplies are not only critical to the functioning of a modern economy but are necessary to protect the public health and safety. In addition, the extraction, generation and delivery of energy require energy facilities with a large "footprint". In short, the nature of energy systems necessitates a strong degree of public oversight, and regulation of electric and natural gas utilities places the state in a very active oversight role. Thus, the Committee believes that it is crucial for policy-makers to maintain consistent oversight of the energy industry and to stay informed about the latest technological and institutional developments. To that end, the Committee recommends a number of steps to raise the profile of energy issues within state government and to promote and oversee implementation of the recommendations of this Energy Plan.

Actions

I-1. The Department of Water Resources should become the Department of Water and Energy Resources, and Idaho should establish a statutory framework that prescribes the duties of the Energy Division within the Department.

One way to raise the profile of energy in Idaho state government is to formalize and expand the role of the Energy Division of the Department of Water Resources. The Energy Division currently operates under the framework of an expired Executive Order, and there is no mention of it in Idaho statute and no appropriation of state funds. Moreover, the Energy Division's duties are prescribed by the federal grants upon which it relies to fund its activities, limiting its ability to engage in state policy work. This Energy Plan recommends a number of new policy-related responsibilities for the Energy Division, which would necessitate the appropriation of state funds and the expansion of the Energy Division staff. The Committee recommends further that the Department of Water Resources be renamed the Department of Water and Energy Resources to recognize the importance of energy issues within state government and the newly expanded role of the Energy Division to help shape state policy.

I-2. The Energy Division should engage in public outreach and education and work with Idaho energy stakeholders to promote a reliable, diverse, cost-effective and environmentally-sound energy system for the benefit of Idaho citizens and businesses.

One of the roles that the Committee envisions for the Energy Division is to work with the public, policy-makers, utilities and other Idaho energy stakeholders to promote the development and maintenance of a portfolio of energy resources that support the Objectives of this Energy Plan. The Energy Division would serve as a clearinghouse for information about new technologies and ways to use energy more efficiently, and would provide this information in a variety of energy policy forums.

I-3. The Energy Division and PUC should report to the Legislature every two years on the progress of Idaho state agencies, energy providers and energy consumers in implementing the recommendations in this Energy Plan.

The Committee recommends that the standing committees with jurisdiction over energy issues maintain active oversight over the implementation of this Energy Plan. To that end, the Committee recommends that the Energy Division and PUC submit a report to the Legislature and testify to the standing committees every two years regarding the progress that has been made in implementing the recommendations of this Energy Plan. It is the Committee's expectation that this will provide a forum for standing committee members to consistently engage with state energy policy issues.

I-4. The Interim Committee recommends that the Legislature revisit this Energy Plan and develop new recommendations on a five-year cycle.

The Committee finds that it is important that the recommendations in this Energy Plan be subject to an organized review on a regular, scheduled basis to ensure that they continue to reflect the best interests of Idaho citizens and businesses. While the Committee cannot bind future Legislatures to a schedule for Energy Plan updates, the Committee recommends that the plan be revisited and new recommendations approximately every five years.

Appendix A. Minority Reports

FIFTY-NINTH IDAHO LEGISLATURE
2007 SESSION

MINORITY REPORT – Energy Facility Siting

IN RESPONSE TO THE STATE ENERGY PLAN PREPARED AND SUBMITTED TO THE IDAHO LEGISLATURE BY THE ENERGY, ENVIRONMENT AND TECHNOLOGY INTERIM COMMITTEE

We, the undersigned do respectfully submit this Minority Report to the Idaho Legislature based on the following facts and conclusions:

1. The selection of a particular site for the construction and operation of a large electric generation facility in Idaho will have a significant impact upon the health, safety and welfare of the population in the immediate and adjoining communities, the location and growth of industry and the use of the natural resources of the state.

2. Site selection for large electric generation facilities is a matter of statewide concern.

3. Current Idaho law provides a piecemeal process for the selection of a site for a large electricity generation facility. The existing law gives several state and local agencies authority to ensure that a proposed project complies with certain aspects of Idaho law: the Idaho Department of Water Resources ensures the developer acquires a water rights permit or transfer; the Department of Environmental Quality ensures the developer complies with permitting requirements for wastewater discharge, solid waste disposal, and air pollution emissions; the local county commissioners or city council where the facility is proposed to be located ensures that the proposed use is compatible with that jurisdiction's zoning and land use laws; and, for utility-owned generation, the Public Utilities Commission ensures the project qualifies for a certificate of public convenience and necessity. However, the current process does not balance the cumulative and comprehensive impacts and benefits of a proposal. The citizens of this state – and the entities proposing potential generation facilities – deserve a reasoned, predictable, effective method of establishing such sites. Idaho also needs an energy facility siting process that recognizes the cross-jurisdictional impacts of the decision, effectively provides for broad public participation and considers public opinion in the end result.

4. The third of the five objectives of the Idaho Energy Plan is to **"[p]rotect Idaho's public health, safety and natural environment** and conserve Idaho's natural resources." [emphasis added]. The undersigned believe that, consistent with this objective, the Energy Plan should recognize the significant impact of large electric generation facilities, and ensure through available and reasonable methods Energy, Environment and That the location and Operation of such facilities will produce minimal adverse effects on the health and safety of Idaho's citizens and the environment, and provide maximum benefit to the economy and ratepayers. The decision making process should seek courses of action that balance the demands for electric generation facility location and operation with the broad interests of the public. **The existing Idaho law has proven inadequate for this purpose.**

5. As approved, the Energy Plan recommends that for facilities 50 MW or larger an Energy Facility Site Advisory Team should be made available to provide technical information as

requested by the local jurisdiction making the siting decision. The undersigned believe that – at a minimum – the use of the Site Advisory Team should be **required** in the siting of all facilities 50 MW or larger and that the local jurisdiction should be **required** to consider and respond to the findings and recommendations of the Team in the final decision making process. **However, it is the preference, and recommendation of the undersigned that the Energy Plan include policies and actions which would – like many other states - endorse the adoption of a siting process to be implemented statewide, but to include representation from the local, affected jurisdictions.**

Over the objection of the undersigned, a majority of the members of the Energy, Environment and Technology Interim Committee declined to include in the Energy Plan a recommendation that the state of Idaho put in place a statewide energy facility siting process or include more stringent requirements for the use of an Energy Facility Site Advisory Team. Such provisions are important to protect the interests of the citizens of this State and to render meaningful the objectives of the Energy Plan. For the reasons set forth above, the undersigned submit this Minority Report to the Idaho Legislature.

Dated this 19th day of January, 2007.

_____	_____
Senator Kate Kelly	Representative Elaine Smith
_____	_____
Senator Elliot Werk	Representative Wendy Jaquet, Ad Hoc

FIFTY-NINTH IDAHO LEGISLATURE
2007 SESSION

MINORITY REPORT – Energy Assistance

IN RESPONSE TO THE STATE ENERGY PLAN PREPARED AND SUBMITTED TO THE IDAHO LEGISLATURE BY THE ENERGY, ENVIRONMENT AND TECHNOLOGY INTERIM COMMITTEE

We, the undersigned do respectfully submit this Minority Report to the Idaho Legislature based on the following facts and conclusions:

1. Low-income families are particularly vulnerable to energy price increases and supply disruptions. During extreme weather conditions, people living in poverty may have to choose between buying fuel to heat or cool their homes and buying food for themselves and their families.

2. In Idaho, average annual household energy costs (including electricity, natural gas, and gasoline) are $3,000. Low-income households shoulder a disproportionate energy burden. Approximately 21,000 Idaho households live with incomes below 50% of the federal poverty level. These households spend on average 36% of their annual income on household electricity, natural gas and heating fuels (before accounting for gasoline expenditures), compared to 3% for the average Idaho household. An additional 14,000 Idaho households live with incomes between 50% and 74% of the federal poverty level, spending 14% of their incomes on household electricity, natural gas and heating fuels.

3. Two basic forms of energy help are available to low-income families: energy assistance and weatherization.

4. Energy assistance programs typically address one-time emergency situations involving imminent service disconnection. In Idaho, the federal Low-Income Home Energy Assistance (LIHEAP) block grant program makes assistance available to utilities on behalf of households at or below 150% of the federal poverty level. According to the Idaho Community Action Partnership, there are over 100,000 eligible households in Idaho. In recent years because of a lack of funding far less than half actually received LIHEAP assistance.

5. Weatherization describes building improvements that reduce energy use such as installing insulation and weather stripping, and replacing inefficient furnaces. Weatherization reduces overall demand for energy, keeping rates low and helping to create more affordable energy bills for all ratepayers. The federal government provides weatherization funds to help low-income homeowners better manage their energy use. According to the N.W. Energy Coalition, for every Idaho dollar invested in weatherization there is a return of about $3.77 in direct energy savings and non-energy related benefits. But the need is far greater than the available funds. Families can spend years on weatherization waiting lists.

6. In addition to federal and limited state funding, the Bonneville Power Administration provides some support for low-income weatherization in Idaho, while Idaho utilities solicit voluntary donations from their customers and shareholders to minimally supplement the federal energy assistance and weatherization programs. Still, this funding is unpredictable.

Idaho is one of the few states that do not allow utility companies to add a surcharge to all bills to help low-income residents pay for their energy costs.

7. In Idaho, the energy assistance and weatherization programs are managed by the private, non-profit community action agencies. In 2005, energy assistance allocations in Idaho totaled over $8.1 million; in FY2006, the state provided an additional $3 million in one-time funds for this program. Funding for the Weatherization Assistance Program in 2005 was over $5 million in Idaho when taking into account federal, private and owner investment funds. And yet the need far exceeds the help available.

8. The second of the five objectives of the Idaho Energy Plan is to "[m]aintain Idaho's low-cost energy supply and **ensure access to affordable energy for all Idahoans**." [emphasis added]. The undersigned believe that, consistent with this objective, the Energy Plan should include specific policies and/or actions that indicate support for efforts to work towards the stated objective. To ensure that a lack of heat and power does not jeopardize the health and safety of our most vulnerable citizens, the Energy Plan of the state of Idaho should recognize a goal of a baseline level of affordable energy service available to **all** Idaho households. For this to happen, the Idaho Energy Plan should endorse the concept that Idaho utilities be allowed to offer reduced rates with a tiered rate design that offers quantities of energy at a reduced "lifeline" rate, and indicate support for state funds to supplement the other available energy assistance and weatherization programs.

Over the objection of the undersigned, a majority of the members of the Energy, Environment and Technology Interim Committee declined to include in the Energy Plan any language regarding energy assistance for low-income energy users in Idaho. It is the conclusion of the undersigned that official recognition of this issue is important to render meaningful the objectives and intent of the Energy Plan. For the reasons set forth above, the undersigned submit this Minority Report to the Idaho Legislature.

Dated this 19th day of January, 2007.

_____ _____

Senator Kate Kelly Representative Elaine Smith

_____ _____

Senator Elliot Werk Representative Wendy Jaquet, Ad Hoc

Appendix B. List of Idaho Electric and Natural Gas Utilities

Table B.1. Idaho Electric Utilities

Utility Name	Customers In Idaho (2005)	Idaho Load in aMW (2005)
Investor Owned Utilities (IOUs)		
Avista Corp	112,924	377.8
Idaho Power Company	430,866	1,439.8
PacifiCorp	64,219	387.7
Municipal Utilities		
City of Albion	139	0.3
City of Bonners Ferry	2,378	8.0
City of Burley	4,309	11.2
City of Declo	131	0.2
City of Heyburn	1,182	3.3
City of Idaho Falls	24,277	74.3
City of Minidoka	43	0.1
City of Plummer	775	3.5
City of Rupert	2,729	8.8
City of Soda Springs	1, 745	2,6
City of Weiser	2,772	6.4
Rural Electric Cooperatives		
Clearwater Power Company	8,821	17.8
East End Mutual Electric Company, Ltd.	775	2.1
Fall River Rural Electric Coop, Inc.	11,174	20.0
Farmers Electric Company, Ltd.	125	0.4
Idaho County Light and Power Coop Association, Inc.	3,304	4.8
Inland Power & Light Company	1,397	2.8
Kootenai Electric Coop, Inc.	20,266	41.1
Lost River Electric Coop, Inc.	2,455	6.9
Lower Valley Energy, Inc.	1,392	6.5
Missoula Electric Coop, Inc.	52	0.1
Northern Lights, Inc.	13,194	23.3
Raft River Rural Electric Coop, Inc.	2,152	15.0
Riverside Electric Company	750	2.2
Salmon River Electric Coop, Inc.	2,559	25.0
South Side Electric, Inc.	968	5.2
United Electric Coop, Inc.	5,640	19.4
Vigilante Electric Coop, Inc.	31	0.01

Source: Energy Information Administration, EIA Form 861

Table B.2. Idaho Natural Gas Utilities

Utility Name	Customers In Idaho (2005)	Idaho Demand in Million Therms (2005)
Avista Utilities	64,955	119.4
Intermountain Gas Company	264,850	481.3
Questar Gas	1,748	2.0

Source: Idaho Public Utilities Commission

Appendix C. Table and Figure Notes

Table 1.1. Facts about Energy in Idaho

Idaho energy expenditure (total, per household, and as a percent of median household income): See notes to Figure 2.10.

Idaho's 2005 state rank in average electricity prices: See notes to Figure 2.6.

Idaho's 2005 state rank in residential natural gas prices: As reported by EIA, based on Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; data updated on 6/29/2006. (http://tonto.eia.doe.gov/dnav/ng/xls/ng_pri_sum_a_EPG0_PRS_DMcf_a.xls)

Idaho's 2005 state rank in average gasoline prices: As reported by EIA, based on Form EIA-782B, "Resellers'/Retailers' Monthly Petroleum Product Sales Report." (http://tonto.eia.doe.gov/dnav/pet/xls/pet_pri_allmg_a_EPM0_PTA_cpgal_m.xls)

Coal, oil and natural gas production in Idaho for 2005: Various sources.

Share of Idaho's 2003 energy that was imported: Data based on the latest year of EIA's State Energy Consumption, Price, and Expenditure Estimates (SEDS, http://www.eia.doe.gov/emeu/states/_seds.html). Geothermal and biomass sources were assumed 100% domestic; coal, natural gas, and petroleum were assumed 100% imported. Electricity generation from hydropower was assumed 100% domestic. Production from Idaho Power Company's Hell's Canyon Complex (including the Brownlee, Oxbow and Hell's Canyon dams) was allocated 95% to Idaho and 5% to Oregon based on the state shares of company loads. Remaining electricity was assumed imported.

Share of Idaho's 2005 electricity that was imported: calculated using EIA databases titled Form EIA-906 (Electricity Generation by state) and Form EIA-861 (Retail electricity sales by state and by provider). Electricity imports to Idaho were calculated as retail electricity sales in Idaho plus an assumed value of 8% for line losses minus total Idaho generation. Production from Idaho Power Company's Hell's Canyon Complex was allocated 95% to Idaho and 5% to Oregon based on the state shares of company loads.

Share of Idaho's 2005 electricity that was from hydroelectricity, coal, and non-hydro renewables: See notes to Figure 2.8.

Share of Idaho's 2015 electricity that is expected to come from non-hydro renewables: See notes to Figure 3.2.

Share of Idaho's 2004 electricity that was saved due to historical conservation investments: See notes to Figure 2.12.

Average share of 2004 electricity demand that was saved due to historical investments in energy conservation for ten large Pacific Northwest utilities: See notes to Figure 2.12.

Figure 2.5. Transportation Fuel Pipelines and Refineries Serving Idaho:

This map was developed based on information from the U.S. Department of Energy's Dark Mountain Western States' Energy Assurance Exercise. (http://darkmountain.ea.govtools.us/documents/Overview_Oil_Industry.pdf)

Figure 2.6. Idaho's Average Electricity Rates Compared to Other States:

Data from EIA, based on EIA-861 Database, "Electric Sales, Revenue, and Average Price" (http://www.eia.doe.gov/cneaf/electricity/epa/average_price_state.xls)

Figure 2.7. Sources of Energy Consumed in Idaho in 2003:

Data from EIA's State Energy Consumption Price, and Expenditure Estimates (SEDS). This chart shows the sources of end-use consumption, meaning that fuels used for electricity generation are categorized as retail electricity sales rather than direct fuel consumption.

Figure 2.8. Idaho's 2005 Electricity Fuel Mix:

Resources owned or controlled by Idaho IOUs were derived from the most recent IRPs and confirmed and clarified in follow-up communication with utility representatives. Resources were assigned to Idaho based on Idaho's share of each utility's 2005 load. Purchases and contracts with identifiable fuel sources were assigned to their respective fuel type. Unspecified purchases and contracts were allocated to resource types based on the 2005 Northwest Power Pool (NWPP) net system mix, as reported by the Energy Policy Division of the Washington Department of Community, Trade, and Economic Development (CTED, http://cted.wa.gov/_CTED/documents/ID_3185_Publications.pdf). Load data for Idaho municipal and cooperative utilities was obtained from EIA (Form EIA-861) and allocated to fuel types based on the BPA fuel mix as reported by CTED.

Figure 2.9. Idaho's Energy Intensity Compared to Other States:

Energy consumption data are from EIA's State Energy Consumption Price, and Expenditure Estimates (SEDS). Gross State Product Data are from the Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2.10. Idaho's Household Energy Bill as a Share of Median Household Income Compared to Other States:

Households by state are from the U.S. Census Bureau (http://usda.mannlib.cornell.edu/data-sets/specialty/FLO/2004/F15.xls). Median household income by state is from the U.S. Census Bureau, 2003 American Community Survey, (http://factfinder.census.gov/servlet/GRTTable?_bm=y&-geo_id=01000US&-_box_head_nbr=R07&-ds_name=ACS_2003_EST_G00_&-_lang=en&-redoLog=false&-format=US-30&-mt_name=ACS_2005_EST_G00_R2001_US30&-CONTEXT=grt).

Residential sector energy expenditure data (excluding transportation) are from EIA's State Energy Consumption Price, and Expenditure Estimates (SEDS). Household gasoline and diesel expenditures are derived from regional values reported in the 2001 National Household Travel Survey (http://www.eia.doe.gov/emeu/rtecs/nhts_survey/2001/tablefiles/table-a01.pdf). The NHTS values were extrapolated to 2003 based on the growth in total fuel expenditures and

allocated to states based on each state's share of the region's total motor fuel consumption in 2003. This estimate of household motor fuel consumption was then multiplied by the 2003 average motor fuel prices for Idaho, as reported in the SEDS database, to obtain total household motor fuel expenditures.

Table 2.1. Average Household Energy Bill in Idaho, 2003:

See notes to Figure 2.10.

Figure 2.11. PURPA Contracts in Idaho, 1981-2006:

Qualifying Facility data were provided by Ben Johnson and Associates.

Figure 2.12. Electric Utility Conservation Achievements through 2004 as a Share of 2004 Retail Electricity Sales for Ten Northwest Utilities:

Historic conservation achievements are from the Regional Technical Forum's "Utility Conservation Achievements Reports" (http://www.nwcouncil.org/energy/rtf/consreport/Default.asp). Conservation achievements also included an allocated share of savings attributable to the Northwest Energy Efficiency Alliance (NEEA). 2004 utility loads are from EIA, Form EIA-861. For PacifiCorp and Northwestern, the data include loads and conservation achievements in Washington, Oregon, Idaho and Montana.

Figure 3.1. Electric Utility Planned Resource Additions on Behalf of Idaho Customers through 2015 (aMW):

Planned resources additions for IOUs were derived from the most recent IRPs and confirmed and clarified in follow-up communication with utility representatives. Resources were assigned to Idaho based on Idaho's projected share of each utility's 2015 load. Idaho municipal and cooperative utilities were assigned 25 MW of coal resources and 11 aMW of hydro beginning in 2012 (8/10/2006 presentation by Idaho Energy Authority (IDEA) and Idaho Consumer Owned Utilities Association (ICUA) to Generation Subcommittee, http://www.legislature.idaho.gov/sessioninfo/2006/Interim/energy0810s_IDEA_ICUA.pdf).

Table 3.1. Planned Investments in Electric Generating Facilities by Idaho Utilities, 2005-2015:

See notes to Figure 3.1.

Figure 3.2. 2015 Fuel Mix for Electricity Production:

Resources owned or controlled by Idaho IOUs were derived from the most recent IRPs and confirmed and clarified in follow-up communication with utility representatives. Resources were assigned to Idaho based on Idaho's projected share of each utility's 2015 load. Purchases and contracts with identifiable fuel sources were assigned to their respective fuel type. Unspecified purchases and contracts were allocated to resource types based on the 2005 NWPP net system mix, as reported by Washington State CTED (see notes to Figure 2.8). Municipal and cooperative utility loads as of 2005 were assigned the BPA fuel mix as reported by CTED. New municipal and cooperative utility loads between 2006 and 2015 not served by specified coal and hydro additions (see notes to Figure 3.1) were assigned the 2005 NWPP net system mix.

Figure 3.3. 2015 Planned Idaho Conservation Investments by Idaho Utilities vs. Power Council Targets:

Planned conservation investments were derived from the most recent IRPs and confirmed and clarified in follow-up communication with utility representatives. Conservation investments were assigned to Idaho based on Idaho's projected share of each utility's 2015 load, with the exception of PacifiCorp, which reported planned conservation for its Idaho service territory. The totals include an allocated share savings attributable to NEEA (regional NEEA savings were assumed to continue through 2015 at 35 aMW per year). Avista's total includes 17.9 aMW of future savings from existing programs, 9.0 aMW from new programs identified in its 2005 IRP, and 6.0 aMW of NEEA savings. Idaho Power's total includes 17.1 aMW of future savings from existing programs, 59.1 aMW from new programs identified in its 2006 IRP, and 23.8 aMW of NEEA savings. PacifiCorp's total includes 12.6 aMW of conservation for its Idaho service territory (PacifiCorp 2004 IRP, Technical Appendix, p. 48, http://www.pacificorp.com/File/File47424.pdf) and 6.5 aMW of NEEA savings.

The Power Council targets were based on a regional target of 1500 aMW of new savings by 2015. The Power Council's annual targets for 2005-2009 were provided by Tom Eckman, and were extrapolated to obtain 2800 aMW of regional savings by 2025 as follows:

Year	Annual Target (aMW)	Cumulative Target (aMW)	Notes
2005	130	130	Provided by Power Council
2006	135	265	
2007	140	405	
2008	145	550	
2009	150	700	
2010	145	845	Extrapolated
2011	135	980	
2012	130	1,110	
2013	130	1,240	
2014	130	1,370	
2015	130	1,500	
2016	130	1,630	
2017	130	1,760	
2018	130	1,890	
2019	130	2,020	
2020	130	2,150	
2021	130	2,280	
2022	130	2,410	
2023	130	2,540	
2024	130	2,670	
2025	130	2,800	

Figure 3.4. 2013 Planned Conservation Investments as a Share of Total Electricity Demand by Selected Western Utilities:

Data were derived from Appendix D of "Energy Efficiency in Western Utility Resource Plans: Impacts on Regional Resource Assessments and Support for WGA Policies" by Hopper, et al. (http://eetd.lbl.gov/ea/ems/reports/58271.pdf). The original chart was modified in three ways. First, NEEA participants (Avista, Idaho Power, Northwestern, PacifiCorp, Portland General, and Puget Sound Energy) were allocated a share of savings attributable to NEEA, which were not included in the original report. Second, Idaho Power numbers were updated to include savings from planned new programs in its 2006 IRP (the source material was based on Idaho Power's 2004 IRP). Third, an approximate Power Council target was added to the chart. The actual Power Council target of 6.5% of regional load by 2013 (see notes to Figure 3.3) was adjusted downward to exclude new savings from existing programs to make it comparable with the savings numbers in the source material.

Appendix D. Definitions

Alternative Fuel Vehicles. A vehicle designed to operate on an alternative fuel such as compressed natural gas, ethanol or electricity. The vehicle could be either a dedicated vehicle designed to operate exclusively on alternative fuel or a non-dedicated vehicle designed to operate on alternative fuel and/or a traditional fuel.

Anaerobic Digesters. Devices that promote decomposition of manure or "digestion" of the organics in manure into biogas and other by-products.

Arctic Gas. Natural gas reserves from supply basins in Northern Alaska and Northwestern Canada. Arctic gas currently has limited access to markets in more populous areas due to lack of pipeline infrastructure, but has the potential to be an important source of natural gas in U.S. and Canadian markets.

Avoided Costs or Avoided Cost Benchmark. The amount of money that an electric utility would need to spend to produce or purchase the next increment of electric generation that it instead buys from a cogenerator or small-power producer, or acquires through energy efficiency programs.

Biodiesel. Any liquid biofuel suitable as a diesel fuel substitute, additive or extender. Biodiesel fuels are typically made from oils such as soybeans, rapeseed, or sunflowers, or from animal tallow. Biodiesel can also be made from hydrocarbons derived from agricultural products such as rice hulls.

Biofuels. Liquid fuels and blending components produced from biomass (plant) feedstocks, used primarily for transportation.

Biogas. A medium-Btu gas containing methane and carbon dioxide, resulting from the action of microorganisms on organic materials such as a landfill.

Biomass. Organic nonfossil material of biological origin constituting a renewable energy source.

British Thermal Unit (Btu). The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Cellulosic ethanol. Fuel ethanol made from cellulosic (plant fiber) biomass, such as agricultural forestry residues, industrial waste, material in municipal solid waste, trees, and grasses.

Coal. A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

Coal Gasification. The process of converting coal into gas. The basic process involves crushing coal to a powder, which is then heated in the presence of steam and oxygen to produce a gas. The gas is then refined to reduce sulfur and other impurities. The gas can be used as a fuel or processed further and concentrated into chemical or liquid fuel.

Cogeneration or Combined Heat and Power (CHP). The production of electrical energy and another form of useful energy (such as heat or steam) through the sequential use of energy. A typical configuration involves generating electricity by burning natural gas in a turbine, and using the heat from the combustion to make steam to power an industrial process.

Conservation. Steps taken by consumers to cause less energy to be used than would otherwise be the case. Technically, "conservation" refers to a specific type of energy usage reduction in which consumers act to reduce their use of energy-consuming appliances, such as remembering to turn out the lights when leaving a room, but the term can also be used broadly to include many methods of energy reduction, such as energy efficiency, market transformation, and general reduction in energy use.

Criteria pollutants. A pollutant determined to be hazardous to human health and regulated under EPA's National Ambient Air Quality Standards. The 1970 amendments to the Clean Air Act require EPA to describe the health and welfare impacts of a pollutant as the "criteria" for inclusion in the regulatory regime.

Crude oil. A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Decatherm (Dth). A measure of heat content, commonly used for natural gas, that is equivalent to ten therms or 1,000,000 Btu.

Decoupling. A technique for setting the rates of a utility so that the earnings a company can achieve do not depend on the level of sales, thus removing a disincentive to utility-acquired conservation.

Demand (electricity). The amount of energy used at a specific moment in time, measured in Watts, kilowatts (kW=1000 Watts), or megawatts (MW=1000 kilowatts, or 1 million watts).

Demand response. A temporary reduction in energy demand during times of peak demand or high energy prices, typically in response to signals from the utility or grid operator.

Demand-Side Management (DSM). The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand.

Diesel fuel. A fuel composed of distillates obtained in petroleum refining operation or blends of such distillates with residual oil used in motor vehicles. The boiling point and specific gravity are higher for diesel fuels than for gasoline.

Distributed generation. Small generators located on a utility's distribution system or behind the customer meter for the purpose of meeting local peak loads and/or displacing the need to build additional (or upgrade) local distribution lines.

Dry cooling. Power plant cooling systems that use air flow, rather than the evaporation of water, to remove heat from the power station in order to reduce the consumptive use of water.

Electricity. A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

Energy. The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Electrical energy is usually measured in kilowatt-hours, while heat energy is usually measured in British thermal units (Btu).

Energy efficiency. Reducing energy consumption without reducing the end-use benefits.

Ethanol fuel (C_2H_5OH). A fuel made from plant material such as corn or sugar cane. Ethanol is typically blended with gasoline as a transportation fuel. Most traditional automobiles can use up to a 10 percent ethanol fuel blend, while other cars are designed to function with fuel containing a higher concentration of ethanol (See also: cellulosic ethanol; flex fuel vehicle).

Federal Columbia River Power System (FCRPS). A system of 31 federal dams on the Columbia River and its tributaries, a number of non-federal dams, and the Columbia Generating Station nuclear power plant that produces power for the Bonneville Power Administration.

Feedstock. Raw material supplied to a machine or processing plant from which other products can be made.

Flex fuel vehicle. A vehicle that can operate on alternative fuels, 100-percent petroleum-based fuels, or any mixture of an alternative fuel (or fuels) and a petroleum-based fuel.

Gasoline. A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines.

Greenhouse gases. Those gases, such as water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

Hydrocarbon. An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, a constituent of natural gas) to the very heavy and very complex.

Integrated Resource Plan (IRP). A planning process for new energy resources that evaluates the full range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency, cogeneration and district heating and cooling applications, and renewable energy resources, in order to provide adequate and reliable service to a customer's electric consumers.

Intermittent resource. An electric generating plant with output controlled by the natural variability of the energy resource rather than dispatched based on system requirements. Intermittent output usually results from the direct, non-stored conversion of naturally occurring energy fluxes such as solar energy, wind energy, or the energy of free-flowing rivers (that is, run-of-river hydroelectricity).

Investor-owned utility (IOU). A privately-owned electric utility whose stock is publicly traded. It is rate regulated and authorized to achieve an allowed rate of return.

Kilowatt (kW). One thousand Watts of electric power.

Kilowatt-hour (kWh). One thousand Watt-hours of electric energy.

Landfill gas/ landfill methane. Gas that is generated by decomposition of organic material at landfill disposal sites. The average composition of landfill gas is approximately 50 percent methane and 50 percent carbon dioxide and water vapor by volume. The methane in landfill gas may be vented, flared, combusted to generate electricity or useful thermal energy on-site, or injected into a pipeline for combustion off-site.

Liquefied natural gas (LNG). Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.

Market transformation. Energy efficiency programs that promote the manufacture and purchase of energy-efficient products and services and produce energy savings that endure beyond the end of the program.

MDth/d. One thousand decatherms per day. (See *decatherm*.)

Megawatt (MW). One million Watts of electric power.

Megawatt-hour (MWh). One thousand kilowatt-hours or 1 million Watt-hours of electric energy.

Methane. A colorless, flammable, odorless hydrocarbon gas (CH_4) which is the major component of natural gas.

Natural gas. A gaseous mixture of hydrocarbon compounds, the primary one being methane.

Nameplate capacity. The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.

National Interest Electric Transmission Corridor (NIETC). A designation by the Secretary of Energy of a "geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers" that would grant "backstop" siting authority to the Federal Energy Regulatory Commission.

Net metering. A method of crediting customers for electricity that they generate on site in excess of their own electricity consumption. Customers with their own generation offset the electricity they would have purchased from their utility. If such customers generate more than they use in a billing period, their electric meter turns backwards to indicate their net excess generation. Depending on individual state or utility rules, the net excess generation may be credited to their account, carried over to a future billing period, or ignored.

Oil sands. Sands and other rock minerals containing crude bitumen that can be refined to produce petroleum products. Large reserves of oil sands are located in Alberta, Canada,

Peak demand. The maximum instantaneous demand for electricity during a specified period of time.

Peaking power plant ("peaker"). A power generating station that is normally used to produce extra electricity during periods of peak demand.

Petroleum. A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids.

Petroleum refinery. An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Public Utility Regulatory Policies Act of 1978 (PURPA). The Public Utility Regulatory Policies Act of 1978, passed by the U.S. Congress. Among other things, this statute requires states to implement utility conservation programs and create markets for co-generators and small energy producers who meet certain standards by establishing avoided-cost rates at which utilities must purchase power from such facilities.

Qualifying Facility (QF). A cogeneration or small power production facility that meets certain ownership, operating, and efficiency criteria established by the Federal Energy Regulatory Commission (FERC) pursuant to the Public Utility Regulatory Policies Act (PURPA).

Rate design. The structuring of energy prices based on customer classification and subclassification and costs associated with these classifications, operating costs, legislative requirements and policy goals, among other factors.

Renewable energy resources. Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

Supercritical. A thermal power plant (such as coal-fired) that uses boilers that operate at pressures beyond the supercritical point for steam, allowing the steam to convert directly from a liquid to a vapor without needing a steam separation device such as a boiler drum. This increases the steam's ability to absorb more heat from the fuel resulting in a more efficient power plant, reducing fuel consumption as well as emissions such as carbon dioxide.

Thermal generation resource. Electricity generation resources created through the combustion of a fuel such as coal, petroleum, natural gas or biofuels.

Therm (th). A measure of heat content, commonly used for natural gas, that is equivalent to 100,000 Btu.

Watt (W). The unit of electrical power equal to one ampere under a pressure of one volt. A Watt is equal to 1/746 horsepower.

Watt-hour (Wh). A measure of electrical energy equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour. One Watt-hour is equivalent to 3,412 Btu.

Western Canadian Sedimentary Basin (WCSB). A vast sedimentary basin underlying 550,0000 sq. mi. of Western Canada including southwestern Manitoba, southern Saskatchewan, Alberta, northeastern British Columbia and the southwest corner of the Northwest Territories. The WCSB contains some of the world's largest reserves of petroleum and natural gas.

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