The analysis and conclusions presented in this report are those of the author and do not represent those of Boise State University nor the Energy Policy Institute, nor the Center for Advanced Energy Studies. The author has made every effort to ensure that the information contained in this report is accurate. However, neither the Energy Policy Institute, Boise State University, nor the Center for Advanced Energy Studies makes any type of warranty or assumes any legal responsibility for the accuracy or usefulness of any information contained in this report.

Acknowledgments

Thank you to the following for providing information used in the preparation of this analysis:

Avista
Idaho Department of Commerce
Idaho Power
Idaho Public Utilities Commission
Idaho Tax Commission
Mike Nelson (Northwest Solar Center and Washington State University)
PacifiCorp
US Department of Energy
US Energy Information Administration
Washington Department of Revenue
EXECUTIVE SUMMARY

The Idaho Office of Energy Resources requested that the Center for Advanced Energy Studies’ Energy Policy Institute provide an analysis of Washington State’s Senate Bill 5101 (SB5101), with a particular emphasis on its possible applicability to Idaho. SB5101’s major component is an incentive for solar power with an innovative twist—if the components of eligible renewable systems are manufactured in Washington, the incentive payments to the systems’ owners are multiplied.

Background:
Washington SB5101 became effective on July 1, 2005, and the program incentives expire on July 1, 2014. In the findings of the bill, the legislature promotes the reduction of the load on the state’s electricity grid by providing nonpolluting sources of distributed generation (DG). As explicitly stated, the purpose of the bill is the creation of a renewable energy incentive to support and retain local industries, and to create opportunities for companies to develop and sell renewable energy products and technologies, helping to generate more employment.\(^1\) The bill also requires that utilities must agree on a uniform interconnection standard for 80 percent of the total customer load in the state before DG systems that are interconnected can qualify for the benefit. Utilities are not required to participate in the incentive/credit program.

For qualifying renewable energy systems that meet existing net-metering standards of 25 kilowatts (kW) or less,\(^2\) SB5101 creates a final incentive of 12 to 54 cents per kilowatt hour (kWh) of actual production, depending on the type of system and whether specified components were manufactured in Washington. For consumers with qualifying systems (solar, anaerobic digesters, and wind), the incentive is paid to them by their local utility. The local utility then receives a credit against its public utility tax (assessed to both public and private light and power companies in Washington, which goes primarily to the state’s general fund). Payments made to customers are considered a rebate for the purchase of the system and are not taxed by the state.

Analysis:
The proportion of electricity supplied by renewable DG since the bill’s enactment is virtually indistinguishable from the prior period—in the thousandths of one percent. However, the incentive in SB5101 is above-all an economic development tool, not a mechanism to appreciably increase the generation of renewable energy. It is certainly too early to gauge whether the program will be a success over its full duration, and what the state’s return on investment

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\(^1\) The incentive created by SB5101 is commonly referred to as a renewable energy payment system, or “feed-in tariff,” where the government guarantees interconnection and the purchase of electricity produced by certain renewables at above-market rates.

\(^2\) “With net metering… electricity supplied by the customer to the utility offsets the electricity the customer must purchase from the utility at another time during the same billing period. In effect, during a single billing period, the customer uses any excess generation to offset electricity the customer otherwise would have had to purchase at the utility’s retail rate. The electric grid is used for storing electricity.” In cases where the customer generates more electricity than used in a month, the utility must buy it from the customer at a specific rate. Rusty Haynes and Chuck Whitaker, A Guide to Distributed Generation Interconnection Issues, 5th ed., prepared by the North Carolina Solar Center under subcontract with the Interstate Renewable Energy Council (IREC) with funding provided by the US Department of Energy to IREC, 2007.
(foregone utility tax revenue and administration costs) will be in terms of jobs created and tax receipts from solar DG sales.

Thus far, the success of the program measured against its stated goals and original bill scoring is mixed. The uniform interconnection requirement was satisfied, and the Washington Department of Revenue issued final program rules on August 31, 2006. The rules allowed for customers to recover the incentive payment for electricity produced between the program begin date of July 1, 2005, and the issuance of final rules.\(^3\) While Washington manufacturers are appreciative of the incentive, it is unclear what effect on facility siting and employment in Washington is attributable to SB5101. Three years into the program, there are no Washington-certified solar modules on the market for customers to receive the additional multiplier to the renewable energy payment. One Washington company cites SB5101 for its decision to enter the solar module business. It is currently field testing PV modules and may have products ready for the market by the end of the year, which would drastically change the economics for select consumers weighing solar PV as an option.\(^4\)

For the period in which data is available from the Washington Department of Revenue, the number of kilowatt hours and payments is 32 percent of what was forecasted in the bill’s original scoring. A total of $152,172 has been claimed by utilities in credits for the years 2006 and 2007.\(^5\) A total of 661 systems have been entered into the program, with approximately 530 of the systems being purchased after the program’s commencement.\(^6\) To date, the incentive is largely a basic feed-in tariff for DG at a 15 cent base rate. Some customers are receiving 18 cents by using a Washington-manufactured inverter. With a 3.5 kW system and an eligible inverter, they are receiving a maximum of $630 per year from the SB5101 incentive, rather than $1890 if they were using the still unavailable Washington-manufactured solar modules.

Regarding its applicability to Idaho, an incentive similar to SB5101 could provide a basis for public support for more renewable DG in the future. However, adapting a version of SB5101 to Idaho is unlikely to meaningfully increase employment or enhance renewable DG as a proportion of Idaho’s electricity portfolio. For Idaho’s purposes, the Washington bill is too narrowly drafted and is effectively a solar DG incentive. Wind DG is actually penalized in SB5101 and anaerobic digesters receive no multiplier bonus.

Idaho’s investor-owned utilities (IOUs) could readily handle an incentive similar to SB5101. The IOUs have net metering policies covering 88 percent of the state’s population; presently there are 79 net-metering customers between the three IOUs. The fiscal mechanism employed in Washington to make the renewable energy payments has no equivalent in Idaho; a different


\(^5\) Email communication from the Washington Department of Revenue, August 14, 2008.

\(^6\) Information provided by Mike Nelson, Washington State University PV Projects Director and Director of the Northwest Solar Center, via phone, August 12, 2008.
offset or revenue-raiser would be required to fund an incentive similar to SB5101. Some of the multipliers in SB5101 were developed to target existing Washington manufacturers (e.g. inverters and silicon); the same manufacturing mix is not present in Idaho.

The potential market in Idaho for solar DG systems is also very small due to the state’s small population and the $13,000 to $25,000 up-front cost of a system to offset a significant proportion of the typical customer’s electricity usage. Washington’s case suggests a manufacturer may stand up an Idaho subsidiary exclusively to take advantage of a multiplier market, but growth potential may be limited.

There are lessons to be learned from the Washington State program. As a prospective local economic development engine, it is innovative because it selectively targets renewable energy businesses for which the state already has a competitive advantage. A similar program might instead target industries that are already producing the exact products for which a multiplier incentive is designed. A prospective program could incent a wider variety of renewable DG and/or larger scale power generation for commercial sale or industrial use. A positive and negative for SB5101 is that it is not expensive to the state because the benefit is capped. At the same time, even if the program is successful in helping to retain and attract companies (and therefore increase employment and tax receipts), it will not meaningfully impact the amount of renewable generation nor emissions in the state—precisely because of the cap.

**Analysis Structure:**
The first section describes and analyzes SB5101 to date, the second section describes the current situation in Idaho and analyzes SB5101’s potential applicability to the State; the last section is the conclusion. Appendix I is a FactSheet for the Washington program. Appendix II uses the calculator at [www.findsolar.com](http://www.findsolar.com) to provide a ballpark cost of a solar DG system for a typical Idaho customer.8

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7 The typical Idaho Power customer averages 1,050 kWh per month. The installed cost for solar PV varies, but an accepted ballpark figure before any rebates or tax credits is $8,000-$10,000 per kW of capacity, without any building preparation or options such as the purchase of batteries. For SB5101, it was estimated that a customer buying a 2 kW system would spend $13,000, and the system would generate its full capacity (2,000 kWh a year). This would offset approximately 15 percent of a typical customer’s usage; See Mike Nelson, “5101 and 5111 Provide Boon to State Revenue Picture in this Biennium,” Northwest Solar Center, undated.

**Washington State SB5101**

**Background:**
Renewable distributed generation (DG) is attractive because it has no emissions and a negligible carbon footprint over the product lifecycle. Unlike some commercial renewable generation projects, there is no need for new infrastructure or transmission lines. Solar photovoltaic (PV) also has the advantage of supplying the bulk of its power during the day during peak load, a benefit to utilities and the public.

In addition to environmental reasons, Washington State views solar DG as a growth industry. According to the *Final Bill Report - SSB5101*, the bill’s origin stems from recommendations in a 2003 report by the Washington State University Cooperative Extension Energy Program. 9 The WSU report identified the solar electric industry as important to Washington but found that solar corporations were leaving the state despite local growth. The report recommended additional incentives for the industry so that the state could reap future benefits from job growth as the demand for solar photovoltaic systems increased in state, US, and global markets. 10 The report also noted that Washington had a significant DG industry presence as an outgrowth of solar electric work done by Boeing in the early 1980s, the silicon industry, and the marine industry’s focus on inverters to provide onboard AC power. 11

Washington SB5101 became effective on July 1, 2005. The incentive program expires July 1, 2014. As explicitly stated, the purpose of the bill is the creation of a renewable energy incentive to retain select industries, attract new ones to Washington, and create opportunities to develop and sell renewable energy products and technologies. The bill also requires utilities to agree on a uniform interconnection standard for 80 percent of the total customer load in the state before DG systems that are interconnected can qualify for the benefit.

For qualifying renewable energy systems that meet existing net-metering standards of 25 kW or less, SB5101 creates a base cost recovery incentive of 15 cents per kWh of electricity produced. In addition, the incentive is multiplied by a factor from 0.8 to 2.4 for generation from particular products manufactured in Washington State. The final incentive is 12 cents to 54 cents per kWh produced, depending on the type of system and its manufacturing origin.

The Washington State multiplier preference system is as follows. The 15 cent incentive rate is multiplied by: 2.4 for customer-generated electricity produced using solar modules manufactured in Washington State; 1.2 for solar or wind that uses an inverter manufactured in Washington State; 1.0 for customer-generated electricity produced by an anaerobic digester, other solar, or wind generator equipped with blades manufactured in Washington State; and 0.8

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10 To forecast potential employment growth, the report utilized “rough extrapolations based on a linear projection of industry trends.” The potential size of the market was based upon the solar electric industry’s own projections.

11 Larger companies identified in the report had a combined $150 million in revenues. Inverters are required to invert the flow of electricity from DG systems back to the grid. The normal flow is from grid to end-use customer.
for all other customer-generated electricity produced by wind. Incentives can be cumulative and as high as 54 cents if both a solar system and its inverter are manufactured in Washington State.

For consumers with qualifying systems, the incentive is paid to them by their local utility. The local utility receives a credit against its public utility tax (assessed on gross receipts of public and private light and power companies in Washington, which goes primarily to the state’s general fund). The payments are capped at $2,000 per year for each customer. The total credit available each year for a given utility is limited to $25,000 or 0.25 percent of its taxable power sales.

To qualify a system, an applicant must submit a request for system certification to the Washington State Department of Revenue, which forwards the request to the Climate and Rural Energy Development Center at Washington State University for processing. A customer with a qualifying system must also submit a yearly application to the utility by August 1 in order to receive the renewable energy payment. The Department of Revenue is required to conduct a study and report on the impact of the incentives to the legislature by December 1, 2009.

**Analysis:**
Thus far, the success of the program measured against its stated goals and original bill scoring is mixed. The uniform interconnection requirement was satisfied, and the Washington Department of Revenue issued final program rules on August 31, 2006. The rules allowed for customers to recover the incentive payment for electricity produced between the program begin date of July 1, 2005, and the issuance of final rules.

The logic behind the incentive is that consumers will opt to purchase solar photovoltaic systems with components manufactured in Washington to receive the additional benefit, and companies will remain in or locate to Washington to meet this particular market demand. The base benefit and the Washington component multipliers were calculated to assure purchasers that PV systems would be paid off within a ten-year period. Additionally, the incentive is designed to have a minimal up-front cost to the government by utilizing the ongoing renewable energy payment—as opposed to providing an up-front, lump sum payment to the consumer based on the capacity of the system.

Beyond the existing federal tax credit of up to $2,000 per system and state tax credits, the additional incentive was judged necessary because the price of solar PV systems is high in comparison to other sources of electricity. DG solar produces electricity at virtually no-cost after a system is purchased, so the consumer is buying electricity up-front with the cost and installation of the system. A typical manufacturer’s warranty for PV systems is 25 years and inverters usually last 5-10 years before first failure. Inverters account for 10 to 20 percent of initial system cost. Satisfied customers tout minimal electric bills, and cases in which their

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12 The ten-year payback does not account for opportunity costs and assumes a 54 cent multiplier rate. The final bill provides a nine-year period to generate electricity to claim credits as a compromise with legislators opposing a program of ten years or longer. Phone conversation with WSU PV Projects Director, July 28, 2008.

13 The Energy Information Administration uses a 30-year lifespan for residential PV systems.

meters run backward, they are paid by the utility for excess electricity produced. Even accounting for these benefits, however, solar DG costs approximately 30 to 40 cents per kWh before incentives and tax credits.\textsuperscript{15} Idaho residential electricity customers average 6.47 cents/kWh and Washington customers 7.50 cents/kWh as of March 2008.\textsuperscript{16} An additional factor impacting consumer choice is that the cost of solar systems is not decreasing despite economies of scale. Tight markets in silicon are increasing the cost of inputs, and numerous government incentives provide opportunities throughout the manufacturing and installation supply chain to capture a portion of those intended for the end-consumer.

According to the Washington Department of Revenue, credits claimed by utilities through the program for 2006 and 2007 are $152,172. This value is assumed to equal renewable energy payments made by the utilities to program participants. This implies a range of 845,400 to 1,014,480 kWh produced from qualified systems, assuming a low incentive rate of 15 cents per kWh and a high of 18 cents per kWh for all customers. The bill’s original scoring had assumed 3,128,314 kWh produced for the same period.\textsuperscript{17} After three years, the actual number of qualifying systems is 661, with 528 of those being “new”—based on a survey that there were 133 existing systems prior to the bill’s enactment. Of qualifying systems, 98.5 percent are solar.\textsuperscript{18}

### Program Performance Versus Original Scoring

<table>
<thead>
<tr>
<th>Year</th>
<th>Econ Dev kWh</th>
<th>Max Implied Actual Econ Dev kWh</th>
<th>Production Payments</th>
<th>Actual Tax Credits</th>
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<td>843,525</td>
<td>321,507</td>
<td>126,529</td>
<td>48,226</td>
</tr>
<tr>
<td>2007</td>
<td>2,284,789</td>
<td>689,973</td>
<td>342,718</td>
<td>103,496</td>
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<td>2008</td>
<td>4,552,966</td>
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<td>682,945</td>
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<tr>
<td>2009</td>
<td>8,246,299</td>
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<td>1,236,945</td>
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</tr>
<tr>
<td>2010</td>
<td>13,601,632</td>
<td></td>
<td>2,040,245</td>
<td></td>
</tr>
</tbody>
</table>

Red is the bill’s original scoring. Actual Tax Credits supplied by Washington Department of Revenue.

\textsuperscript{15} The cost of solar kWh varies according to price of the particular system and installation costs, and how much power is generated. Power produced depends on many factors including directional orientation of the roof on which a system is installed and how much sun an area receives over the year. The Northwest Solar Center estimates a figure of 25-27 cents kWh in Washington after accounting for all federal and state incentives. See Deirdre Gregg, “Coming Soon: Solar System That’s Made in Washington,” \textit{Puget Sound Business Journal}, August 8, 2008.

\textsuperscript{16} \url{http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html}.

\textsuperscript{17} Department of Revenue Fiscal Note, Bill Number: 5101 SB AMH FIN H2998.1, p. 3. WSU developed the scoring for the bill. The revenue and kWh seem to assume a growth rate of 500 4 kW or 1,000 2 kW systems per year.


* According to the bill, Economic Development kWh “means the actual kilowatt-hour measurement of customer-generated electricity multiplied by the appropriate economic development factor.”
There are no Washington solar module manufacturers with products eligible for the program, so the 36 cent and 54 cent multiplier benefits are not yet available to customers. Washington’s Silicon Energy LLC is currently field testing solar modules and cites SB5501 as the primary driver to enter that market segment.19

Customers who purchased qualifying systems before the incentive was initiated are eligible for the payments because they are producing renewable power with no emissions. The incentive is rewarding behavior based on production and not just system nameplate capacity; this is the basis for any feed-in tariff. At the same time, the government is incenting behavior after the fact, effectively stranding money on old systems.

Because of the underperformance in qualifying systems, it is unlikely that the incentive program has significantly affected any solar manufacturing company’s bottom line as of yet. If Silicon Energy LLC can get its certification for Washington solar modules and scale-up production quickly, things will certainly change for that particular company. However, it is beyond the scope of this analysis to make a final determination as to what impact SB5101 will have regarding the success of Silicon Energy LLC or other companies that may enter the market. If the incentive expires without being renewed, an important measuring stick for the program would be whether Washington becomes a solar DG manufacturing center, companies relocate from Washington, or manufacturers exit the solar module business when the Washington multipliers expire.

Arguments For and Against the Program:
Proponents of the program argue that the incentive is justified to ensure that a nascent market is sustained and early adopters are not stranded until the price of solar PV becomes more affordable in the ten- to twenty-year timeframe. Subsidization of early adopters is minimal over the total rate base and does not negatively impact individual consumers without DG. If solar businesses can be kept in the state until PV achieves market saturation, then Washington will stand to gain much in future employment and tax receipts, strengthening the nation’s manufacturing base. Also, if a national price on carbon is enacted, then solar DG becomes much more competitive and in a quicker timeframe. More federal solar incentives may be approved in the future, magnifying the value of SB 5101’s incentives. Finally, the certification of a Washington solar module manufacturer will cause a spike in demand, making the program an unqualified success.

Critics argue that a DG feed-in tariff only serves as giveaway to early adopters by the rest of the ratepayers. Because the size of the market and electricity produced is so small, there is no real environmental benefit. Utility sponsored conservation and efficiency programs are more cost-effective, have a larger societal benefit, and are available to all rate-payers—not just those that can afford an upfront investment in the tens of thousands of dollars. If a smaller carbon footprint is a customer’s motivation, paying an additional monthly fee to buy renewable power directly from a utility is a much cheaper option.20 Furthermore, critics argue, even if a price on carbon is


20 For example, a customer can opt to pay an additional $10-20 per month on the electric bill to purchase “green” power to offset a typical family’s monthly non-renewable energy usage, as opposed to buying a 3 kW solar system
agreed to, it will be capped at a level too low to make currently uncompetitive solar PV a smart choice for consumers. Future generations of PV technology will not require these subsidies so they are not needed at this time.\textsuperscript{21} The growth rate for Washington solar DG systems in the last few years mirrors national growth and interest in solar, and is not an effect of the incentive program.

\textit{Idaho and Potential Applicability of SB5101}

\textit{Background:}

Idaho has ample resources to produce renewable power from wind and solar. Idaho also has a long history of using renewable hydropower for electricity. In 2005, hydropower comprised 48 percent of Idaho’s electricity, coal 42 percent, and natural gas 8 percent. Non-hydropower renewables fulfilled only 1 percent of the load (equal to nuclear), and the majority of this is wind power.\textsuperscript{22} The focus on green energy projects is expected to spur development of commercial generation projects for the foreseeable future. Commercial wind projects are moving forward, and the Raft River geothermal project is now online. Solar and biomass projects for electricity generation are not yet being utilized on a significant scale at the state level, although industry is actively pursuing biomass for cogeneration and other purposes.

In regard to DG, Idaho has a large rural population used to being self-sufficient. Renewable DG and net-metering have great potential to fit into this self-reliance ethic. The three main Idaho investor-owned utilities (IOUs) have established net-metering tariffs covering 88 percent of the state’s population. The limit on generating capacity is 25 kW for residential and small business customers, and 100 kW for large commercial and agricultural customers. For residential and small customers that generate more electricity than they consume, the utilities are generally required to buy the power back at the retail rate.\textsuperscript{23}

\begin{center}
\begin{tabular}{l}
\textbf{Idaho and Potential Applicability of SB5101} \\
\textit{Background:} \\
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\begin{itemize}
\item at approximately $25,000 to offset approximately 33 percent of a customer’s bill. There is a debate on how “green” green payments are; utilities in the region tend to purchase wind power or green tags for their green power programs. The PV system calculator at www.findsolar.com estimates a 3 kW PV system installed in Ada County would cost $26,730 before all federal and state incentives and deductions, and $17,032 net after incentives and deductions. Findsolar.com is a joint partnership between the American Solar Energy Society, Solar Electric Power Association, Energy Matters LLC, and the US Department of Energy.
\item \textsuperscript{22} 2007 \textit{Idaho Energy Plan.}
\item \textsuperscript{23} See \url{http://www.dsireusa.org/library/includes/map.cfm?State=ID&CurrentPageId=1&RE=1&EE=0}, under Rules, Regulations, and Policies for a summary of Idaho’s net metering tariffs.
\end{itemize}
\end{tabular}
\end{center}
While Idaho net-metering customers are growing at a very healthy rate in percentage terms, their actual numbers are low. According to the US Energy Information Administration, there were 21 net-metering customers in 2005 and 34 in 2006. Currently, Idaho has 79 net-metering customers among the IOUs: Avista has 10 net-metering customers for a total of 25 kW of capacity, Idaho Power 64 customers, and Pacificorp/Rocky Mountain Power 5 customers.

Idaho does not tax the gross receipts of utilities as Washington State does; therefore, the same fiscal mechanism to fund the renewable energy payment does not exist. Idaho does have a 3 percent tax on the gross sales of commercial wind power and other renewables in lieu of property tax. Idaho also applies a kWh tax on hydropower facilities that dates back to 1931. The revenue generated from this tax was $1.6 million in FY 2008 and revenues go to the general fund. There are exemptions from the kWh tax if the power is used for manufacturing or irrigation.

Conclusion

There are lessons to be learned from the Washington State program. It is first and foremost an incentive for local economic development and not a program that will have a great effect on the state’s portfolio of renewable energy production. As a prospective local economic development engine, it is innovative because it selectively targets renewable energy businesses for which the state already has a competitive advantage. If successful, the program is not expensive because it is capped. However, as noted in this analysis, the program has underperformed against the bill’s original scoring. It is also likely that if the program is successful in helping to establish some companies’ solar DG presence and increasing tax revenues, it will not meaningfully impact the amount of renewable generation and emissions in the state.

While Idaho does not have a decades-long history of solar DG companies, the state does have core competencies in power/energy and agriculture/biosciences. These two core competencies can be cross-cutting. The 2007 Idaho Energy Plan recommended increasing investments in-state renewable resources. The state may consider it a worthwhile exercise to examine its existing portfolio of renewable and other energy companies to create targeted incentives to serve the dual

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25 Idaho Power has 15 customers currently in process. Of their active net-metering customers, 47 are solar PV, 9 wind, 4 small hydropower, and 4 that use a combination of renewables. Thus far in 2008, Idaho Power has paid customers between $18,000 and $19,000 for excess generation.

26 Of Rocky Mountain Power’s 5 customers, 4 are solar and one is wind; another wind customer is in process. In terms of capacity, the total for net-metering customers is 9.7 kW (7.3 kW solar; 2.4 kW is wind).


28 Source: Idaho Tax Commission, phone conversation, August 7, 2008; email communication August 18, 2008.

purpose of economic development and promoting renewable energy production. Such a program would be more heavily weighted to local economic development, at least initially.

Alternatively, if rapid expansion of renewable energy is of primary importance, a performance-based program such as the Energy Trust of Oregon may serve as an example. The Energy Trust provides financial support for DG and utility generation, as well as conservation. It is funded by a 3 percent “public purposes charge” for the customers of the largest investor-owned utilities. The Trust provides an up-front Solar DG payment for the purchase and installation of solar DG systems. For the purchase of a 2 kW system, the payment is $4,500 (based on the capacity of the system), as opposed to the Washington State incentive that is a renewable energy payment based on actual electricity generated over the life of the system.

Programs such as the Energy Trust require significant public investment and overwhelming political support. Greatly increasing public investment requires a dedicated funding source, and possibly comprehensive energy restructuring legislation. Currently, Idaho is not headed in this direction.
APPENDIX I Washington SB

5101 FactSheet

- Number of Systems Registered to Date: 661
- Number of Systems Prior to Enactment: 133
- Number of “New” Systems Post-Enactment: 528
- Solar Proportion of Eligible Systems: 98.5%
- Maximum Number of Kilowatt Hours Produced Through 2007: 1,011,480
- Renewable Energy Payments Received by Customers Through 2007: $152,172
- Current Annual Payment to Customer with 4 kW System: $600 - 720
- Potential Annual Payment to Customer with 4 kW WA Module System: $2,000
- Percentage of Energy Payments/Tax Credits Against Bill Scoring: 32%
- Number of Washington PV Solar Module Manufacturers: 0/1
- Number of Direct/Indirect Jobs Created: N/A
- Uniform Interconnection Requirement Achieved: YES

* There are no solar companies selling multiplier-eligible modules as of yet. One company is field-testing modules and getting required UL certification. It expects to have PV modules on the market by the end of 2008.
APPENDIX II

Cost for Sample Idaho Customer from www.findsolar.com

The parameters entered were 1,100 kWh and $70 electricity bill as monthly averages. The calculator does not account for the benefits of net-metering.

This estimate is to provide [33]% of your electricity, on average, over the course of a year. Enter another value above to recalculate costs for a different percentage of energy supplied by solar power.

* Recalculate

Help us improve. We rely on feedback from our users to help keep our service accurate and useful: »Send us your Feedback

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<th>Building Type:</th>
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<tbody>
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<tr>
<td>Utility:</td>
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<td>Assumed Average Monthly Electricity Usage:</td>
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<tr>
<td>Time-of-Use Metering Offered:</td>
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</tr>
<tr>
<td>Net-Metering Available:</td>
<td>Yes - See Notes, below!</td>
</tr>
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ESTIMATED SYSTEM SIZE

The system size best for your situation will vary based upon product, building, geographic and other variables. We encourage you to work with a Solar Pro who can better estimate the system size best for your situation. We estimate your building will need a system sized between 2.38 kW and 3.56 kW of peak power. This estimate assumes the mid-point of this range.

Solar Rating: Great (5.23 kWh/sq-...
Roof Area Needed: 297 sq-ft
Solar System Capacity Required: 2.97 kW of peak power (DC watts)

**ESTIMATED SYSTEM COST**

This is only an estimate based upon many assumptions. Installation costs can vary considerably. We encourage you to work with a Solar Pro who can provide you with a more detailed cost estimate. We estimate that a 2.97 kW peak power system will cost between $21,384 and $32,076. This estimate assumes the mid-point of this cost range.

**Assumed Installation cost:** $26,730
(before rebates, incentives or tax credits). See the Cost Notes, below!

To recalculate, enter a value for assumed cost/watt installed and press "enter" on your keyboard.

- **Expected Idaho Power Co Utility Rebate:** ($ 0 )
- **Expected ID State Rebate:** ($ 0 )
- **State incentive does not apply to this utility**
- **ID State Tax Credit/Deduction:** ($ 10,692 )
  (40% of net system cost)
  (Maximum of $20000)
- **Federal Tax Credit:** ($ 2,000 )
- **Income Tax on Tax Credit:** $ 2,994

**YOUR ESTIMATED NET COST:** $ 17,032

**SAVINGS & BENEFITS**

- **Monthly Payment (6.5% apr, 30 years):** $ 108
- **Increase in Property Value:** $4,880
- **Exempt from Property Tax:** No
- **Accelerated (5 yr) Depreciation:** No
- **First-year Utility Savings:** $244
  Since this is not a business application, these savings are in after tax dollars. So, your realized savings may actually be higher!
- **Average Monthly Utility Savings:** $34
  (over 25-year expected life of system)
- **Average Annual Utility Savings:** $410
  (over 25-year expected life of system)
<table>
<thead>
<tr>
<th><strong>25-year Utility Savings:</strong></th>
<th>$10,239</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Return on Investment (ROI):</strong> (with Solar System ave. cost set as asset value)</td>
<td>140%</td>
</tr>
<tr>
<td><strong>Return on Investment (ROI):</strong> (with Property appreciation set as asset value)</td>
<td>489%</td>
</tr>
<tr>
<td><strong>Internal Rate of Return (IRR):</strong></td>
<td>-1.0% - 3.0%</td>
</tr>
<tr>
<td><strong>Years to Break even:</strong> (Includes property value appreciation)</td>
<td>18 years</td>
</tr>
<tr>
<td><strong>Years to Break even:</strong> (Assuming no property value appreciation)</td>
<td>25 years</td>
</tr>
<tr>
<td><strong>Greenhouse Gas (CO2) Saved:</strong> over 25-year system life</td>
<td>89.0 tons (178,000 auto miles)</td>
</tr>
</tbody>
</table>