

CHAPTER 8 HYDROPOWER INCENTIVES

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HYDROPOWER INCENTIVES

8.0 Summary

The policy of the federal government and the State of Oregon is to encourage the development of renewable energy. Toward that end, there are a number of construction and operation incentives for entities that are willing to undertake renewable energy projects including hydroelectric projects. Many incentives require that a public entity such as the City of Bend (City) align itself with one or more private sector partners who have either a federal or state income tax liability or both. Since the potential savings of partnering could exceed 50 percent of the cost of the project, our recommendation is that the City find a partner or partners for the construction of the power plant, penstock, and well generation systems. The U.S. Department of Energy (USDOE) made substantial revisions to its programs July 27 to July 29, 2009. We are still in the process of evaluating the subtle nuances of those changes and the changes to many programs as a result of the American Recovery and Reinvestment Act of 2009 (ARRA). The changes generally increased the amount of funding available although some deadlines were made very short. Programs of other federal and state agencies have also undergone recent revisions.

8.1 Grant and Subsidy Options

There are a number of incentives available for renewable energy. Changes required by the ARRA may impact the amount of funds and programs available to help pay the costs of construction and operation of renewable energy facilities. Rules for the implementation of ARRA are still being written and may change the mix of incentives recommended by Brown and Caldwell as they become final. Similarly, the 2009 Oregon Legislature changed the rules for the Oregon Business Energy Tax Credit (OBETC) on the staging of projects. The proposed OBETC rule changes, while generally positive, would have reduced the amount of available tax credits. Although the bills passed the legislature, they were vetoed on August 7 by the governor. However, the Oregon Department of Energy is writing new administrative rules to reduce the ability to stage projects and thus make it more difficult to avoid the annual cap on project tax credits.

8.2 Private Sector Partners

Many of the federal financial incentives both for construction and operation of hydroelectric facilities that we have identified are in the form of tax credits. For a tax credit to assist in financing a hydroelectric project, the City will need to partner with a private sector entity or entities that have a federal and/or state tax liability. The partner(s) could then use the tax credit to help offset its federal or state tax liability and in turn would pay the City a portion of the value. Other incentives are designed for the private sector and cannot be accessed by the City without a partner. As a result of the ARRA, several of the tax credit programs now result in the U.S. Treasury issuing a check rather than just a tax credit. However, these programs still require the City to have a private sector partner or partners to participate.

8.3 Federal Construction Incentives

This section discusses various federal incentives available for the construction of renewable energy facilities.

8.3.1 Federal Business Energy Investment Tax Credit (ITC)

Historically, the U.S. government has provided financial incentives for the construction of renewable energy facilities, including hydroelectric facilities. ITC is a federal corporate tax credit authorized under the U.S. Code of Federal Regulations (CFR) Title 26. ARRA allows the corporation with a federal tax liability to receive the tax credit or a cash grant from the U.S. Treasury. Under the ITC, the project may be eligible for a tax credit of 30 percent of the cost construction including all project (engineering, financing, etc.) costs. We expect that the City will be eligible for 30 percent of the cost of the hydroelectric portion of the projects. We have included \$12,420,000 from this source for the Outback Hydrogeneration Facility (Outback Facility) project.

8.3.2 Federal Renewable Energy Grants

Federal Renewable Energy Grants are authorized by ARRA and are administered by the U.S. Treasury; www.treasury.gov. H.R.1, Division B, Sec. 1104 allows for either a tax credit or a grant. The amount is \$200 per kilowatt (kW). We expect that the City will be eligible for \$200 per kW for each of the projects. The Outback Facility project would receive about \$600,000 for this tax credit or grant.

8.3.3 U.S. Department of Agriculture (USDA) Rural Energy for America Program (REAP) Grants

REAP Grants are authorized by the Food, Conservation, and Energy Act of 2008, CFR Title 7, and are administered by the USDA; www.rudev.usda.gov/rbs/busop/pbrog.html. REAP Grants are federal grants limited to individual amounts of \$25 million or 25 percent of the project cost, whichever is less. While primarily for rural communities, the USDA is currently writing the rules for this program with significant latitude, and the City's projects may be eligible. Total funds available nationwide for this program in 2009 are \$55 million, rising to \$70 million in 2011 and thereafter. Under current rules, it does not appear that the City's projects meet the requirements for this program.

8.3.4 Clean Renewable Energy Bonds (CREBs)

Together, ARRA and the Energy Improvement and Extension Act of 2008 have \$3.2 billion in bonds available for renewable energy projects. The program is authorized by CFR Title 26 and IRS Notice 2009-33 and is administered by the IRS; www.irs.gov. CREBs may be used by governmental and tribal entities to finance renewable energy projects, and are essentially loans with a zero percent interest rate. The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest. For all practical purposes, a CREB is a zero-interest loan used to finance renewable energy. CREBs can loan up to \$2.4 billion under current authorization. The bonds must be authorized by December 31, 2011. The City applied for CREBs bonds in early August 2009.

8.3.5 Qualified Energy Conservation Bonds (QECBs)

QECBs are similar to CREBs in that they may be used by government and tribal entities, and are essentially loans with a zero percent interest rate. They are authorized by CFR Title 26 and IRS Notice 2009-29 and are administered by the IRS; www.irs.gov. (Contact Timothy Jones or David White at the IRS Office of Associate Chief Council for further information; 202/622-3890.) The difference is that they are used to finance certain types of energy conservation and generation projects, and the amount available is \$3.2 billion. Funds are allocated to each state on the basis of its population relative to the total U.S. population.

8.3.6 USDOE Loan Guarantee Program

The USDOE Loan Guarantee Program paves the way for federal support of clean energy projects that use innovative technologies, and spurs further investment in these advanced technologies. It was designed to avoid the production of greenhouse gases, and has authorized funding of \$16 billion. The program is authorized by CFR Title 42 and CFR Title 10, and is administered by USDOE; www.lgprogram.energy.gov. The program will allow the City to place bonds without bond insurance or the need to establish a debt service reserve fund for the bonds. Loan agreements must be signed by September 30, 2011. As of July 29, 2009, the deadline for the Loan Guarantee Program for 2009 was September 14, 2009. We expect that the loan guarantee program will be offered again in 2010 and 2011.

8.4 Oregon Construction Incentives

This section discusses various state incentives available for the construction of renewable energy facilities.

8.4.1 OBETC

OBETC is a corporate tax credit. It is equal to 50 percent of the cost of construction for partnered projects and 35 percent of the cost of construction for non-partnered projects, up to \$10 million per project. It is generally taken over 5 to 8 years depending on circumstances. Our understanding is the Oregon Department of Energy is currently rewriting the administrative rules for this program to reduce the possibility of staging projects to avoid the \$10 million per project cap. In anticipation of the rule changes before the project is built, for the sake of our economic analysis we have assumed the project will be built in a manner that will allow one \$10,000,000 credit. However, if the new rules allow a project to be constructed in stages, we will advise the City to take advantage of that option. This credit is authorized by Oregon Administrative Rules (OAR) 330-090-105 to 330-090-015; <http://egov.oregon/ENERGY?CONS/BUS/BTEC.html> or <http://www.oregon.gov/Energy/> Contact Suzanne Dillard, Oregon Department of Energy, 503/373-7565. We expect that the City will be eligible for the 50 percent tax credit up to the \$10,000,000 cap for hydroelectric portion of the project.

8.4.2 Energy Trust of Oregon (ETO) Open Solicitation Program

The Open Solicitation Program is a grant program. The program issues grants, including those for the construction of facilities to generate renewable energy. The program is funded through a public purpose charge added to the bills of regulated utilities such as Pacific Power & Light (PP&L). ETO has wide discretion in both the amount of money granted and conditions of the program. ETO can provide payment of a rate of return on investment. The program also allows ETO to provide funds that would take an above-market cost project to a market cost project; <http://www.energytrust.org/grants/up/index.html>. Contact Betsy Kauffman, ETO, 503/459-4072. Brown and Caldwell met with Betsy Kauffman and Jed Jorgenson of ETO in early September. ETO will provide guidance on what we can expect from it when the project is further along. A formal agreement on the amount must wait until after the Federal Energy Regulatory Commission license is issued.

8.4.3 Other Funding Programs

This section discusses several other state incentives.

8.4.3.1 Energy Trust Program

ETO has another unnamed program that we will refer to as the Energy Trust Program. It provides about \$12 million per year for renewable energy projects. ETO has wide discretion in the application of funds under this program; <http://www.energytrust.org>. Contact Peter West, ETO, 503/493-8888 x 209.

8.4.3.2 Oregon Small Scale Loan Program

The Oregon Small Scale Loan Program offers loans from \$20,000 to \$20 million for projects for terms of 5 to 15 years. The term of the loan cannot exceed the expected project life. The loans are typically used in conjunction with OBETC and authority is granted through OAR 990-110-0005 et. seq. and OAR 470-050 et. seq. <http://egov.oregon.gov/ENERGY/LOANS/selphm.shtml>. Contact Kathy Estes, Oregon Department of Energy, 503/378-5048.

8.4.3.3 Industrial Production Efficiency Program

While not a source of funds for the hydroelectric projects, the Industrial Production Efficiency Program will provide rebate funding to municipalities to make their existing pumps and water and sewage treatment plants more energy efficient. Contact Production Services, ETO, 503/445-7643, email: production@energytrust.org.

8.5 Renewable Energy Production Incentives

This section discusses various incentives available for the production of renewable energy.

8.5.1 Green Tags

Green Tags, also referred to as renewable energy certificates and carbon credits, are tradeable commodities that represent proof that energy is generated from renewable energy sources. The value of Green Tags is based on market forces and is subject to fluctuation. Many power utilities are required to provide a percentage of their power from renewable energy sources. This is accomplished through the purchase of Green Tags from the entity that generates renewable energy.

The Green Tag market is highly competitive but subject to change depending upon demand, availability, and the current economic climate. Several other factors can affect the value of Green Tags, including the source of the energy and whether Green Tags are sold bundled with associated renewable power or sold unbundled on a wholesale market. The California Public Utility Commission is expected to issue new rules on Green Tags that could have a positive impact on the price of Green Tags from the City's projects. California's rules allow a greater credit toward the utilities meeting their sustainable portfolio goals if the purchased green tags are tied to sustainable power coming into California. If the California Public Utility Commission acts as expected, the value of Bend's green tags associated with power, will likely increase.

Some entities may be more interested in purchasing Green Tags from renewable sources such as solar or wind power than they are in purchasing them from hydropower sources. This is because solar and wind sources are considered to have less of an overall environmental impact than hydropower sources due to the effect on fish species from river projects.

Because of disruption in the economy in 2009, current market analysis indicates that Green Tags could be valued at between \$0.01 and \$0.02 per kilowatt hour (kWh). It is expected that they will rise in value in the future as the economy stabilizes and as demand for renewable energy increases. Some agencies expect that the value of Green Tags could rise to \$0.05 per kWh or above when the economy returns to normal.

We have taken a conservative approach by assuming an initial green tag value of \$0.022 per kWh in 2012. In 2013 (the first full year of operation), the green tags for the Outback Facility project are expected to be worth \$274,862.

8.5.2 Federal Hydroelectric Production Incentives

The Energy Policy Act provides for a Hydroelectric Production Incentive. This is a financial incentive for hydroelectric production for the first 10 years of operation that escalates with inflation and expect that in

2012 it will be valued at approximately \$0.022 per kWh. We have included this incentive in our economic evaluation of the projects. In 2013 (the first full year of operation, the Hydroelectric Production Incentive for the Outback Facility project is expected to be worth \$274,862.

This program was extended in the recent energy bill passed in October 2008 and is included in the ARRA. It is set to expire in 2015, although historically since its inception, the program has been extended when its deadline for termination neared. We believe it will be extended at least through 2023, the time period of interest to these projects. We have included the current level of production incentive from this program in our estimated revenue to 2023.

8.5.3 Federal Renewable Electric Production Tax Credits (PTCs)

PTCs are corporate tax credits for the production of renewable energy. The program is authorized by CFR Title 26 and is administered by the IRS; www.irs.gov. Not to be confused with the Federal Hydroelectric Production Incentives above, this program allows for a private sector partner to obtain a tax credit of \$0.022 per kWh in 2012 for the first 10 years of operation. To use this program, the City will be required to enter into partnership with a private entity. To be eligible, facilities must be placed in service by December 31, 2013. We have included the current level of production incentive from this program in our estimated revenue analysis. In 2013 (the first full year of operation, the PTCs for the Outback Facility project is expected to be worth \$274,862.

8.6 Summary of Incentives

There are several financial incentives available to the City. Some are relatively new and are a part of or have been modified by ARRA.

8.6.1 Construction Incentives

With reasonable certainty, Brown and Caldwell believes that the City will qualify for the following programs to aid in the construction of the projects. (We have indicated the expected values for the construction incentives for the Outback Facility project):

- Federal Business Energy ITC ~ \$12,420,000
- Federal Renewable Energy Grants ~ \$600,000
- CREBs
- QECBs
- USDOE Loan Guarantees
- OBETC ~ \$10,000,000
- Oregon's Small Scale Loan Program

Brown and Caldwell also believes the City will qualify for the following incentives, but given the flexibility and discretion given to ETO, we have assumed a conservative role for their funds in the project. We will be able to evaluate the potential ETO contribution to the project when the project is further along.

- ETO Solicitation Program
- ETO Programs

Brown and Caldwell believes that the City does not qualify for the USDA REAP Grant.

Table 8-1 summarizes the construction incentives.

Table 8-1. Construction Incentives		
Construction incentives	Amount of incentive	Requires private partner
Federal Business Energy ITC	30 percent of the cost of the hydroelectric portion of the project ~ \$12,420,000	Yes
Federal Renewable Energy Grants	\$200 per kW ~ \$400,000 max	Yes
CREBs	Low cost bonds, effectively a near zero interest rate	No
QECBs	Low cost bonds, effectively a near zero interest rate	No
USDOE Loan Guarantees	Reduces need for Debt Service Reserve Funds or Bond Insurance	No
OBETCs	50 percent of cost or \$10 million, whichever is least of the hydroelectric portion of the projects ~ \$10,000,000	Yes, has more value with a partner
ETO Open Solicitation Program	Must wait until project is further along to determine amount	No
ETO Programs	Must wait until project is further along to determine amount	No
Oregon Small Scale Loan Program	Up to \$50 million	No

8.6.2 Renewable Energy Production Incentives

Brown and Caldwell believes that the City will qualify for the following:

- Green Tags
- Federal Hydroelectric Power Production Incentives
- Federal Renewable Electric PTCs

Table 8-2 summarizes the operational incentives.

Table 8-2. Operational Incentives		
Operation incentives	Amount of incentive	Requires private partner
Green Tags	\$0.022 to \$0.05 per kWh in the beginning. Payments to the City inflate for life of project ~ \$279,000 initially	No
Federal Hydroelectric Production Incentives	\$0.022 per kWh for first 10 years ~ \$279,000 initially—inflates	No
Federal Renewable Electric PTCs	\$0.022 per kWh for first 10 years ~ \$279,000 initially—does not inflate	Yes

8.7 Conclusion

The use of federal and state incentives will greatly reduce the cost of construction of the facilities planned for the City. We expect that just the two largest the construction incentives will likely reduce the cost of the facilities to the City by about 54 percent for the powerhouse and penstock project and a greater percentage for the other hydroelectric projects. With a private sector partner, the City can expect 30 percent of the cost of the powerhouse and penstock from the Federal Business Energy Investment Tax Credit (\$12.42 million), \$10 million from the BETC, and a \$400,000 renewable energy grant for a total of \$22,820,000 million of the \$41.4 million cost of the project. In addition, bond guarantee and other bonding programs of the federal government effectively could reduce the bond interest rate to zero, saving the City tens of millions of dollars over the life of the project. The bond guarantee program could eliminate the necessity of establishing a costly debt service reserve fund.

There are also programs that enhance the value of each kW of renewable energy produced. The Federal Hydroelectric Production Incentive increases the value of power by \$266,000 plus inflation each year for the first 10 years of the project. The Federal Renewable Electric PTC increases the value of each kW of power produced by \$266,000 plus inflation each year for the first 10 years of the project. Finally, Green Tags or renewable energy certificates increase the value of the energy by \$266,000 plus inflation each year over the entire life of the project.

The construction incentives bring the cost of the powerhouse and penstock from \$41,400,000 (minus \$22,820,000) to \$18,580,000. The operational incentives and Green Tags raise the value of power over that which PP&L will pay \$848,000 by \$799,000. Total payments for power during the first full year of operation for the Outback project should be \$1,647,000. The over the fifty year life of the project, the Outback Facility project should be highly cost-effective.