

Overview of State and Federal Incentives for the Use of Distributed Generation

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ABSTRACT

This article¹ presents a summary of some of the primary state and federal incentives that are currently available for the use of distributed generation (DG).² Although there are various definitions for DG, in general it refers to the use of small-scale power generation technologies located at or near the point of use.

At present, there are many important incentives available, from both federal and state sources, for the development and use of DG. Although not all states provide incentives for the development of DG, and many impediments to development remain, the rate of growth in this sector is impressive. In fact, it is hard to overestimate the importance of this energy sector. Not only does DG represent a significant new source of electric generating capacity, it is also changing the structure of the electric generating industry. As more businesses and homes produce much if not all of their own electricity, the demand for new large-scale generating projects and new transmission and distribution facilities is likely to be reduced as well.

Today, DG developers in many states still confront problems when they attempt to connect with the utility transmission system or grid, seek to net meter, or struggle through a mountain of bureaucratic red tape in order to qualify for incentives. The good news, however, is that many energy policymakers have awakened to the promise and value of DG. This in turn is resulting in a growing body of new regulations and legislation that seeks to foster this important new energy sector.

A. EXECUTIVE SUMMARY

Incentives for distributed generation on the federal, state, and local levels are emerging but are far from uniform. While current laws and regulations, and pending federal legislation, require utilities to “interconnect” companies or individuals to the electric transmission system or grid so they may produce as well as consume electricity, most of the direct incentives on the federal level are for renewable energy or cogeneration production. On the state and local level, there are a growing number of states and municipalities that have proposed or implemented direct incentive programs, and many states are working to remove impediments to the use of DG. The jurisdictions that have recently adopted policies with the aim of encouraging this development include California, New York, and Washington.

In addition, many states have enacted net metering statutes to foster the growth of DG. For example, Utah requires utilities to net meter and pay consumers if they supply more electricity than they take from the utility. The state of Washington requires net metering for residential and small commercial customers using DG. The state’s utilities are not required to purchase excess energy from DG consumers, although they must provide credits on future use, in effect making the transmission system a free storage facility for a DG user. As of 2004, there were at least 32 states with state net metering statutes, including Arkansas, California, Connecticut, Delaware, Georgia, Hawaii, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming. In addition, individual utilities in Arizona, Colorado, Florida, Idaho, Illinois, and Kentucky also have instituted programs to facilitate DG by offering net metering opportunities. Several other states and the District of Columbia are considering net metering as well. It is important to note that each state has restrictions on the types of technologies or fuels that can be utilized, may limit eligibility to certain types of customers, and may have capacity limits for the generating source that will be net metered.

Another central requirement for DG development is the right to interconnect with the utility distribution system or interstate transmission grid. The Federal Energy Regulatory Commission has issued rules requiring electric utilities to permit interconnection by generators, and

recently issued an order specifically tailored to small generating units (under 20 MW). For DG units that will connect to a utility distribution line rather than with the grid, a few states have developed workable procedures for interconnection, including California's Rule 21 program; however, much work remains. Significantly, the Public Utility Regulatory Policies Act of 1978 provides an interconnection right for any qualifying facility (generally renewables and cogenerators), as well as the right to backup and supplemental power. The proposed Energy Policy Act of 2005 would extend these interconnection rights to any consumer served by an electric utility. Thus, although interconnection rights have sometimes been difficult for DG producers to obtain, or hampered by high costs and delay, there is a concerted effort at the federal level, as well as in some states, to resolve this problem so that the promise of DG can be realized.

The following analysis summarizes a representative list of the incentives available to DG facilities. This analysis of various incentive programs does not include utility-specific or local incentives, although these too should be checked by any prospective developer of a DG facility.

The primary resources used for this analysis and summary include federal and state legislative acts, federal and state regulatory orders, the United States Department of Energy and the various state agency equivalents, and the Database of State Incentives for Renewable Energy, funded by the United States Department of Energy and managed by the North Carolina Solar Center. Please note that much of this information is available from agency websites and referenced in the glossary.

B. FEDERAL INCENTIVES

Although the federal government does not currently provide direct incentives for the use of distributed generation, there are numerous federal incentive programs that may be applicable to distributed generation facilities. The most important of these potential incentives are listed below.

1. Incentives for Renewable Energy Equipment Procurement

a. Federal Business Investment Tax Credit for Qualifying Energy Property

Up to 10 percent of the investment or purchase and installation amount of qualifying energy property can be claimed by a business when filing annual tax returns. Qualifying energy property includes equipment that:

- Uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide process heat; or
- Produces, distributes, or uses energy derived from a geothermal deposit.

There are exclusions for public utility property and reductions on the amount of credit claimed if the qualifying property is/was financed by subsidized energy financing or by tax-exempt private activity bonds.

See Internal Revenue Code Title 26, § 48(a).

b. Federal Modified Accelerated Cost Recovery System

Title 26, Section 168 of the Internal Revenue Code contains a Modified Accelerated Cost Recovery System (MACRS) under which businesses can recover investments in solar, wind, and geothermal property through accelerated depreciation deductions. The MACRS establishes a set of class lives for various types of property, ranging from 3 to 50 years, over which the property may be depreciated. For solar, wind, and geothermal property placed in service after 1986, the current MACRS property class is five years. The property (equipment) allowable by MACRS must meet the same standards for eligibility required by the Federal Investment Credit (see above), with the inclusion of wind energy systems.

The Job Creation and Tax Relief Reconciliation Act of 2003, signed into law in May 2003, allows for a first-year bonus depreciation under MACRS for solar equipment purchased and placed into service between May 6, 2003 and January 1, 2005. The first-year bonus depreciation is now 50 percent, an increase from the current 30 percent bonus depreciation, which reduces the remaining depreciable basis of the equipment.

See Internal Revenue Code Title 26, § 168(e)(3)(B)(vi).

c. Federal Tax Exemption for Nontaxable Energy Grants or Subsidized Energy Financing

Energy grants and subsidized energy financing received by a business from federal, state, or local government entities may be exempt from federal taxation. Such grants and financing must be for the principal purpose of conserving or producing energy and meet certain other requirements.

d. Federal Support for Renewable Energy Project Development

The federal government has various programs and mechanisms that may provide funds or financing to support renewable energy projects. In general, these funds are available under specific programs of individual agencies and are dependent on annual appropriations from the U.S. Congress. The U.S. Department of Energy (DOE) has funding programs focused on developing new technologies, and from time to time may have funds available for project feasibility studies and technology demonstrations. Most of these funding grants focus on specific technologies or applications, and are often cost-shared. When funds are available, the DOE, or an agency or organization representing the DOE, issues a competitive solicitation or Request for Proposals, with specific conditions for submitting proposals.

Another potential source of project funding is the Supplemental Environmental Projects program of the U.S. Environmental Protection Agency (EPA). This is a policy vehicle designed by the EPA to give companies that have violated environmental laws an alternative to paying fines for noncompliance. Instead of paying the full amount of a fine, a violator can volunteer to fund environmentally beneficial projects. These settlements are a viable source of funding for both renewable energy projects and fossil fuel projects that use innovative, low emission technologies.

2. Incentives for Production of Electricity and Fuels Produced from Renewable Resources

The National Energy Policy Act of 1992 (or “EPAAct”; Public Law 102-486-Oct. 24, 1992) contains two major provisions that encourage the production of electricity from renewable energy resources: the Renewable Electricity Production Credit and the Federal Renewable Energy Production Incentive.

a. Renewable Electricity Production Credit (REPC)

Private entities subject to taxation (corporations, small businesses, and individuals) that generate electricity from wind and “closed-loop” biomass facilities and sell this electricity to an unrelated party are eligible to receive an REPC for electricity sold to unrelated parties. A “closed-loop” facility is a biomass power facility that utilizes biomass grown exclusively for energy production. It is not available for a taxpayer cutting standing timber to produce electricity, nor is it available for projects using residues from agricultural or forestry operations, where the residues are the result of some non-energy-related activity. In 1999 the REPC was made available to poultry waste facilities that generate and sell electricity if the facility was placed in service after 1999.

Section 710 of the “American Jobs Creation Act of 2004” (HR 4520), signed into law on October 22, 2004, expanded REPC to include additional eligible resources. This credit, which formerly applied only to wind energy, closed-loop biomass, and poultry-waste energy projects, now applies to the following:

- Wind;
- Closed-loop biomass;
- Open-loop biomass;
- Geothermal energy;
- Solar energy;
- Small irrigation power (150 kW - 5 MW); and
- Municipal solid waste.

The REPC provides a tax credit of 1.5 cents/kWh, adjusted annually for inflation, for wind, solar, closed-loop biomass, and geothermal. The adjusted credit amount for projects in 2005 is 1.9 cents/kWh. Electricity from open-loop biomass, small irrigation hydroelectric, and municipal solid waste resources

will receive half that rate—currently 0.9 cents/kWh. The duration of the credit for closed-loop biomass and wind continues to be 10 years, while open-loop biomass, solar, geothermal, small irrigation hydro, and municipal solid waste resources are eligible for the credit for a five-year period. Refined-coal facilities will receive \$4.375 per ton (indexed for inflation) for a 10-year term.

The credit applies to facilities placed in service after October 22, 2004, for most of the newly eligible technologies and before January 1, 2006, with the exception of refined-coal production facilities, which must be placed into service before January 1, 2009. The credit for wind, closed-loop biomass, and poultry waste is retroactive to January 1, 2004, as a result of the Working Families Tax Relief Act of 2004. Significantly, under the currently pending Energy Policy Act of 2005, many of these deadlines, including the December 31, 2005 in-service date, would be extended by three or more years.

Finally, it is important to note that owners of solar and geothermal projects who claim the 10 percent federal business energy tax credit may not also claim this production tax credit.

b. Federal Renewable Energy Production Incentive (REPI)

Although REPI expired in 2003, several projects continue to receive this incentive payment. Under EPAct (Section 1212), non-taxpaying entities could apply for an incentive payment from the U.S. Department of Energy for electricity produced and sold by new qualifying renewable energy generation facilities. Eligible electric production facilities are those owned by state and local government entities (such as municipal utilities) and not-for-profit electric cooperatives that started operations between October 1, 1993 and September 30, 2003. Qualifying facilities are eligible for annual incentive payments of 1.5 cents per kilowatt-hour (1993 dollars and indexed for inflation) for the first 10-year period of their operation, subject to the availability of annual appropriations in each federal fiscal year of operation. Qualifying facilities must use solar, wind, geothermal (with certain restrictions as contained in the rulemaking), or biomass (except for municipal solid waste combustion) generation technologies.

3. Other Incentives for Utilities and Independent Power Producers: Utility Purchases of Renewable Energy

The Public Utilities Regulatory Policy Act of 1978 (PURPA) (Section 210) requires regulated utilities to interconnect with, provide backup power to, and purchase electricity produced from a “qualifying facility” (QF). A QF includes generators that use renewable resources to produce electricity, including biomass, waste, geothermal, hydroelectricity, solar, and wind (referred to as small power production facilities). It also includes cogenerators, which produce both heat and electricity using any type of fuel. Significantly, there are fossil fuel use and MW size limitations that apply to small power production facilities, and utilities cannot own more than 50 percent of either type of QF. PURPA requires utilities to purchase electricity from these power producers at a rate approved by a state utility regulatory agency under federal guidelines and based on the utility’s avoided costs. See 18 C.F.R. § 292.201 et seq. PURPA also requires utilities to sell back-up and station service power to these producers. QFs are required to meet the utility’s standards for power quality, connection to their system, and safety. The prices that utilities will pay for such electricity and the method of accounting for it (i.e., metering) are largely state and utility-specific but must meet the avoided cost standard.

An “avoided cost” price may not make a potential DG project profitable. In recent years many states have reduced “avoided cost” prices, and hence payment levels, to the point where PURPA may not provide a viable funding source for new projects. In addition, because most PURPA programs were not developed with DG in mind, they may not have a payment structure, contracts, or other features suitable for DG development. A state’s PURPA programs should be considered, but in many cases may not be suitable for or financially sufficient to help fund a DG project. It is noteworthy that under the pending Energy Policy Act of 2005, the mandatory QF purchase requirement would be repealed for new projects.

The Federal Energy Regulatory Commission (FERC) is the U.S. government agency that has authority over the interpretation and implementation of PURPA and the certification of QFs. However,

there are certain local and state regulations that may apply to the construction and operation of a renewable energy system.

The Energy Policy Act of 1992 created a new category of electricity producer: the “exempt wholesale generator” (EWG), which does not have to meet QF standards. While utilities are not required to purchase power from EWGs, they do have to allow access to their transmission lines for wholesale power transmission at just and reasonable rates, as defined by FERC.

While PURPA requires utilities to connect DG customers to the grid, “micro” QFs may have a difficult time doing so in the absence of state or local regulations. This is because many DG facilities directly connect to the local utility’s distribution system and are not large enough to make the federal procedures and approved costs affordable. It is noteworthy, however, that in a recent FERC Order, the Midland Power Cooperative was required to purchase electricity from and sell back-up electricity to an individual with a small-scale wind facility. Of particular significance, FERC directed Midland to provide this facility with net metering even though there was no net metering requirement in the state (Iowa). See Gregory Swecker, 111 FERC ¶ 61,365 (June 6, 2005).

Because the traditional power contracting structure and metering regulations can be difficult to satisfy and expensive for small DG facilities, at least 32 states have enacted net metering statutes. Most of these statutes have provisions for smaller scale projects.

4. Pending Legislation: Energy Policy Act of 2005 (Senate Version)

Although there are many provisions in the currently pending Energy Policy Act of 2005 that are potentially available to assist renewable and cogeneration facility development, including most significantly a three-year extension of the renewable electricity production credit, the discussion below will focus on those provisions that are of specific relevance to DG production.³

a. Section 1254: Revised Interconnection Standards

As currently drafted, the Senate version of the Energy Policy

Act of 2005 would amend the Public Utility Regulatory Policies Act of 1978 § 111(d) (16 U.S.C. § 2621(d)) to require “each electric utility to make available, on request, interconnection service to any electric consumer that the electric utility serves.” Energy Policy Act of 2005, S. 10, 109th Cong. § 1254(B)(i) (June 9, 2005).⁴ In addition, electric utilities would be required to establish agreements and procedures providing that the interconnection services “promote current best practices of interconnection for distributed generation, including practices stipulated in model codes adopted by associations of state regulatory agencies.” § 1254(C)(i).

b. Section 1318: Study of Distributed Generation

As currently drafted, the Senate version of the Energy Policy Act of 2005 would require the Secretary of Energy to conduct a study on the potential benefits of distributed generation within 18 months of enactment.

c. Sections 1401—1404: Incentives for Innovative Technologies

Title XIV of the proposed Energy Policy Act of 2005 directs the Secretary of Energy to provide loans, not to exceed 80 percent of cost, to projects that employ new or significantly improved technologies, including:

- Renewable energy systems;
- Hydrogen fuel cell technology; and

Efficient electrical generation, transmission, and distribution technologies.

See Energy Policy Act of 2005, S. 10, 109th Cong. § 1403(b) (June 9, 2005), for a complete listing of eligible technologies.

5. FERC Interconnection Rules

FERC recently issued an order establishing uniform interconnection rules and policies for small generating units (under 20 MW) that will interconnect with the transmission grid. The new rule includes a standard form contract, uniform procedures, and limitations on the costs that can be charged for interconnection-related

upgrades to the transmission system. Although the order is a major step forward for larger DG systems, the rule may not be useable by smaller systems or those directly connected to the utility's distribution system. If, however, a small generating facility proposes to interconnect with a portion of the utility's distribution system that is subject to a FERC-approved tariff ("OATT") for the purpose of making wholesale sales, then the new FERC rule would apply. See Order No. 2006, RM02-12-000 (May 12, 2005).

C. STATE INCENTIVES

1. California

a. Self-Generation Incentive Program (SGIP)

On March 27, 2001, the California Public Utilities Commission (CPUC) announced new incentive programs to encourage residential and commercial electricity customers to install renewables and "clean"⁵ Distributed Generation systems, pursuant to Assembly Bill 970, that are interconnected with a utility transmission system. The SGIP offers incentives to encourage customers to produce electricity with microturbines, small gas turbines, wind turbines, photovoltaics, fuel cells and internal combustion engines. The incentive payments range from \$0.60/W to \$4.50/W, depending on the type of system, and will be funded through the end of 2007. Assembly Bill 1685, signed into law on October 12, 2003, provided funding of approximately \$500 million and extended the program expiration date from December 31, 2004 to January 1, 2008.

At present, there is insufficient funding for all of the projects that have sought to use this very successful incentive program. To help weed out those on the waiting list that may not have a project ready for immediate development, a capacity-based reservation fee has been proposed. This fee would be refunded upon project completion.

b. Emerging Renewables Rebate Program

The California Energy Commission (CEC) offers cash rebates on installations of renewable-energy electric generating systems as

part of the Emerging Renewables Rebate Program. Eligible technologies include photovoltaics, small wind turbines, fuel cells that use renewable fuels, and solar thermal electricity systems.

This program is offered to all utility customers connected to the utility transmission system and located within the electric utility service areas of Pacific Gas & Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, or Southern California Water Company (doing business as Bear Valley Electric Service).

Beginning January 1, 2005, the rebate amounts are as follows:

- PV (Photovoltaics): \$2.80/W for systems less than 30 kW in capacity;
- Wind: \$1.70/W for first 7.5 kW and \$0.70/W for increments >7.5 kW up to 30 kW;
- Solar thermal electric: \$3.20/W; and
- Fuel cells using renewable fuels: \$3.20/W.

Rebates for owner-installed systems are further discounted by 15 percent. The rebate levels for all technology types will continue to be reduced by \$0.20/W every six months (every January 1st and July 1st).

Rebates for eligible renewable energy systems installed on affordable housing projects are available at 25 percent above the standard rebate level up to 75 percent of the system's installed cost.

Note that wind systems up to 50 kW in size may participate, but the rebates for such systems are limited to less than 30 kW.

Participants in the ERP program for photovoltaic systems may choose to receive the incentive as a capacity-based rebate in a lump sum as described above or as a performance-based incentive. The incentive is based on the amount of electricity

generated by a system and is paid over a three-year period. A total of \$10 million is allocated to this pilot performance-based incentive program for PV systems. The performance based incentive level will remain constant for the duration of the pilot program. The PV performance-based incentive is \$0.50/kWh for three years.

There is no limitation on the size of an eligible system, but the funding cap for any system or group of systems at one site is capped at \$400,000. In addition, the maximum funding available for all systems installed by any corporate or government parent is capped at \$1,000,000. The incentive program cannot be combined with other funding under the ERP, the Self Generation Incentive Program, the Rebuild San Diego Program approved by the California Public Utilities Commission, or any other rebate program funded with electric utility ratepayer funds.

Incentives received from sources other than this program, such as other utility incentive programs, a State of California-sponsored incentive program, or a federal government-sponsored incentive program, other than tax credits, will reduce the amount of the Emerging Renewables rebate by 50 percent of other incentives received or expected.

The following system requirements apply:

- Must be connected to the utility transmission system;
- Electricity production is not to exceed 200 percent of the site's historical or current electricity needs;
- The equipment retailer must provide a five-year warranty;
- Systems/components must meet national standards;
- Only new equipment is eligible;
- Systems must be installed by licensed contractors or owner-installed;
- All systems must be installed with a performance meter; and

- System audits will be conducted by the CEC.

As of January 2005, it is reported that over 11,000 new systems had been installed under this rebate program, which began in 1998. As with the SGIP program, however, there are funding limitations and waiting lists for many types of projects that would otherwise be eligible for payments under this program.

- c. Personal and Corporate Solar or Wind Energy System Credit**
California's Solar or Wind Energy System Credit (SB 1702) was approved by the Governor on October 8, 2001. The law provides personal and corporate income tax credits for the purchase and installation of photovoltaic or wind-driven systems with a peak generating capacity of up to 200 kilowatts. After January 1, 2004 and before January 1, 2006, the tax credit is equal to 7.5 percent of the net installed system cost after deducting the value of any municipal, state, or federal sponsored financial incentives, or \$4.50 per watt of rated peak generating capacity, whichever is less. A 15 percent tax credit was available from January 1, 2001 to December 31, 2003.

The California Franchise Tax Board administers the program in consultation with the California Energy Commission. The solar or wind system must be certified by the CEC. A five-year warranty is required for each system. Taxpayers claiming the credit cannot sell the electricity produced by the system; however, they may utilize California's net metering law, if otherwise eligible.

- d. Personal and Corporate Property Tax Exemption for Solar Systems**
According to California Revenue and Taxation Code § 73, when assessing property for property tax purposes, active solar energy systems installed between January 1, 1999 and January 1, 2006 are not subject to property taxes.
- e. Consumer-Producer Interconnection With the Transmission System**
California's interconnection standards for DG and renewable resources have evolved over recent years, culminating in the

current version of “Rule 21,” which was formally issued in December 2000. Rule 21 specifies the technical interconnection rules for all DG under 10 MW, including renewables, with separate simplified rules for small renewables under 10 kW. Rule 21 is a utility tariff; thus, each of the three major utilities—Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (SCE)—have filed their own Rule 21 tariffs with the California Public Utilities Commission, although each is essentially the same.

Net metering in California now applies to renewable energy systems up to 1 MW. The recent changes in the law include provisions for net metering biogas systems and time-of-use net metering. And, significantly, net metered systems up to 1 MW are exempt from paying costs associated with the interconnection studies, distribution system modifications, or application review fees discussed below.

It is noteworthy that the Federal Energy Regulatory Commission recently adopted interconnection policies and procedures for the interconnection of small generators (under 20 MW). The purpose of this new rule is to eliminate many of the costs and burdens of interconnecting smaller electric generating facilities to the grid, and to establish uniform procedures and interconnection contracts. Although this new rule may be very helpful for many DG systems, it does not apply to generators that interconnect to the utility’s distribution system. It is noteworthy that to the extent FERC’s interconnection policies apply (i.e., the DG does not come within any exemption in this rule), it will preempt any existing or future state interconnection policy that imposes more stringent requirements.⁶ See Order 2006, RM02-12-000 (May 12, 2005).

1) Large DG Systems up to 10 MW

California’s interconnection rules are based on a screening process that determines the level of review process for interconnected systems. After DG operators apply for interconnection, the utility performs the initial review process (IRP) of the

project plans. If all screens are passed, then the system qualifies for simplified interconnection, whereby no additional studies are needed. If a system does not pass the IRP, it must undergo a supplemental review process (SRP).

As an outcome of the SRP, systems may be permitted to undergo “simplified interconnection” with some additional requirements, or where one or more screens are not passed, the system must undergo a formal interconnection study, for which the costs are determined by the utility and borne by the system owner.

Technical requirements for DG installations mirror those established in IEEE 1547, including requirements regarding flicker, harmonics, voltage and frequency fluctuations, islanding, DC injection, and protection devices. Now that the IEEE 1547 standard has been formally adopted, portions of the new standard are expected to be incorporated into the California standards. As of November 2004, advice letters addressing IEEE 1547 incorporation have been issued, and approval is pending. It is important to note that IEEE 1547 will not supersede Rule 21, given that Rule 21 has a wider scope and is more specific in many instances than IEEE 1547.

In parallel to the technical and procedural processes developed as part of Rule 21, the California Public Utilities Commission also investigated and ruled on rate design issues for standby generators. With regard to exit fees in particular, the CPUC ruled in 2003 that systems smaller than 1 MW that are net metered and/or eligible for CPUC or CEC incentives for being “clean” and “super-clean” are fully exempt from any exit fee surcharge. This includes many solar and wind systems, as well as fuel cells.

2) Small PV and Wind Under 10 kW

PV and wind systems under 10 kW qualify for net metering and simplified interconnection, whereby no supplemental review or interconnection studies are necessary. Such systems must comply with the requirements in National Electrical Code Article 690 and UL 1741. Note that while utilities must provide

a bidirectional meter for net-metered systems, system owners taking advantage of net metering with time-of-use metering must pay for the meter.

f. Net Metering

California's net metering law requires that all three of California's investor-owned electric utilities (PG&E, SCE, and SDG&E), and rural cooperatives, allow net metering for all customer classes for systems up to 1,000 kW (1 MW). Municipal utilities are allowed to permit either net metering or co-metering, and both the Los Angeles Department of Water and Power and the Sacramento Municipal Utility District (SMUD) offer net metering. Eligible systems include solar electric and wind facilities, or a hybrid system of both.

In addition, Assembly Bill 2228, enacted in September 2002, provides that biogas electrical customer-generated facilities up to 1 MW are eligible for net metering until January 1, 2006. The pilot program limits biogas digester generation to 5 MW per energy service provider service territory; that is, each of the three major IOUs must only offer net metering up to the first 5 MW of digester systems. Additionally, the law provides for retail cost recovery of revenue loss from net-metered digesters.

The 2002 net metering amendments (AB 58) also:

- Limit the total amount of net metering to one-half of one percent (0.5 percent) of a utility's peak demand;
- Exempt net metering from "exit fees" or "departing load fees";
- Prohibit utilities from engaging in inter-class cost shifting that results from net metering;
- Allow municipal utilities to permit either net metering or co-metering, which credits customers for generation on a "time-of-use" basis for the generation value of their production;

- Require the California Energy Commission to establish a separate rebate for public sector affordable housing projects of up to 75 percent of the total installed costs for these projects;
- Establish that the Treasurer should consider net metering and co-metering projects as sustainable building methods or distributed energy technologies for purposes of evaluating low-income housing projects;
- Grandfather in projects permitted prior to December 31, 2002, and completed before September 30, 2003;
- Permit wind energy projects up to 50 kW to net meter; and
- Require wind energy projects from 50 kW up to 1 MW to utilize "wind energy co-metering," which provides for time-of-use pricing and credits.

AB 1214, enacted in October 2003, added fuel cells to the list of technologies eligible for net metering until the total cumulative rated generating fuel cell capacity reaches 45 megawatts within the service territory for an electrical corporation with a peak demand above 10,000 MW, or until the capacity reaches 22.5 MW within the service territory of an electrical corporation with a peak demand of 10,000 MW or below. The maximum total capacity throughout all service territories is limited to 112.5 MW. This provision expires January 1, 2006.

Net metering customers are allowed to carry forward kWh credits for up to 12 months. Any net excess generation at the end of each 12-month period is granted to the utility. Customers subject to time-of-use rates are entitled to deliver electricity back to the system for the same time-of-use (including real-time) price that they pay for power purchases. However, time-of-use customers choosing to net meter must pay for the metering equipment capable of making such measurements.

California does not allow any new or additional demand charge, standby charge, customer charge, minimum monthly charge,

interconnection charge, or other charge that would increase an eligible customer-generator's costs beyond those of other customers in the rate class to which the eligible customer-generator would otherwise be assigned. The CPUC has explicitly ruled that technologies eligible for net metering (up to 1 MW) are exempt from interconnection applications fees, as well as from initial and supplemental interconnection review fees.

g. Other Incentives

California has a number of other incentives for which distributed generation systems may apply, including municipal incentives such as the Municipal Utility District (SMUD) PV pioneer program in Sacramento. For more information on this program and other local incentives, see <http://www.energy.ca.gov/distgen/incentives/incentives.html>.

2. Oregon

a. Business Energy Tax Credit

Oregon's Business Energy Tax Credit (BETC) is for investments in energy conservation, recycling, renewable energy resources, or less-polluting transportation fuels. Any business located in Oregon may qualify. For example, projects may be in manufacturing plants, stores, offices, apartment buildings, farms, and transportation systems.

The BETC establishes a 35 percent tax credit that is taken over five years: 10 percent the first and second years and 5 percent for each year thereafter. Any unused credit can be carried forward for up to eight years. Those with eligible project costs of \$20,000 or less may take the tax credit in one year.

This program also has a pass-through option under which a project owner may transfer a tax credit to a pass-through partner in return for a lump-sum cash payment (the net present value of the tax credit) upon completion of the project. The pass-through option allows nonprofit organizations, schools, governmental agencies, tribes, other public entities, and businesses with and without tax liability to use the BETC by transferring their tax credit for an eligible project to a partner with

a tax liability.

Projects that use solar, wind, hydro, geothermal, biomass, or fuel cells (renewable fuels only) to produce energy, displace energy, or reclaim energy from waste may qualify for a tax credit. Renewable resource projects must replace at least 10 percent of the electricity, gas, or oil used. The energy can be used on site or sold.

General retrofit projects, in addition to those for lighting, and weatherization projects for rental property may be eligible for the program, as well as new construction projects, including energy efficiency and lighting. Retrofit projects must be 10 percent more energy efficient than existing installation; lighting retrofit must be 25 percent more efficient than existing lighting. For new buildings, all measures must reduce energy use by at least 10 percent compared to a similar building that meets the minimum requirements of the state energy code.

Certain cogeneration projects may also be eligible. Projects that develop new markets for recycled materials or recycle materials not required by law may be eligible for the tax credit. Projects that reduce employee commuting (or work-related travel) and investments in cleaner-burning fuels may also qualify.

In 2001, the Oregon legislature added sustainable buildings to the list of measures and systems eligible for the tax credit. This addition became effective October 8, 2001 and is retroactive to January 1, 2001. In addition to several requirements set forth by the Oregon Department of Energy (ODOE), the building must meet established standards set by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) for Silver Certification.

Applications and instructions are available on the program website. To date, more than 7,400 energy tax credits have been awarded to Oregon businesses. Altogether, those investments are said to have saved or generated energy worth approximately \$215 million a year.

b. Energy Trust Open Solicitation Program

In order to provide opportunities for Oregonians to take advantage of incentives for innovative applications of renewable technology, the Energy Trust of Oregon, a nonprofit organization created to invest public purpose funding for energy efficiency and renewable energy in Oregon, created the Open Solicitations program in May 2002.

This program was designed to support renewable energy projects that do not already have an established incentive program developed and launched by the Energy Trust of Oregon. The program also seeks to reserve 10 percent of the Renewable Energy program budget, or about \$1 million annually, for open solicitation incentives. Projects will generally be awarded in the areas of small wind, solar photovoltaics, biomass, biogas, small hydro, and geothermal electric. There is no funding cap for projects, but the projected program budget is expected to fund four to six projects each year.

The program does not fund R&D or precommercial activities. Reportedly, the program is likely to fund projects that follow certain guidelines, including:

- New, commercial technologies in established applications;
- Old technologies in new applications;
- Projects that can be implemented quickly; and
- Market defining demonstrations.

The Energy Trust may fund all or a portion of the above-market costs of a project, defined generally as the difference between current wholesale or retail electricity prices and the cost of electricity generated by the project. There is no fixed percentage for the amount of the above-market costs the Energy Trust will pay.

Eligible projects must either be located in the Oregon service territory of Pacific Power or Portland General Electric (PGE), or have a power purchase agreement with one of those utilities. Off-grid projects are not eligible for Energy Trust support.

The open solicitation program has provided funds for various types of applicants since its inception in 2002, including farm-

ers, ranchers, schools, nonprofits, local governments, and private businesses. Projects funded include small wind, solar electric, and micro-hydro. For more information on previously funded projects, see the Open Solicitation Success Stories website.

c. Energy Trust Solar Electric Buy-Down Program

The Energy Trust of Oregon's Solar Electric Buy-down Program, launched in May 2003, is available to customers of Pacific Power and PGE who install new photovoltaic systems on their new or existing homes, commercial and community buildings, farms, and municipal facilities.

Buy-down amounts for residential customers are currently \$3.00/W DC installed for Pacific Power customers and \$3.25/W for PGE customers, with a \$10,000 cap per site.

The buy-down for commercial customers (formerly \$2.25/W DC with a \$15,000 maximum per site) was modified in April 2005 to a two-tiered incentive with shared green tag ownership. The commercial incentive is calculated as follows:

- \$2.00/watt for first 10 kW;
- \$1.00/watt for each Watt over 10 kW;
- Up to \$35,000 maximum total incentive.

The new green tag ownership structure is based on system size:

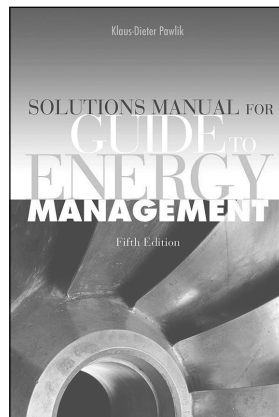
- 0 - 10 kW: First two years;
- 10 kW - 15 kW: First three years; and
- 15 kW or over: First four years.

Energy Trust will own the tags for the remaining of 20 years (i.e., participant get first 2 years, Energy Trust gets next 18 years).

Examples of various system sizes:

- 5 kW: Incentive = \$10,000; Participant owns green tags first two years;
- 15 kW: Incentive = \$25,000; Participant owns green tags first three years; and

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- 25 kW: Incentive = \$35,000; Participant owns green tags first four years.

The incentive rates will be periodically reassessed and may be reduced at any time.

As of January 2005, 188 PV systems have been installed, 171 of which are residential systems. The average cost of residential systems installed under the program is \$6.77 per watt (DC). Note that although this cost is lower than that experienced in most other states with buy-down programs, Oregon has no sales tax.

All PV systems must be interconnected with the utility grid and net metered and no larger than 25 kW. Preapproval of projects is required. The Energy Trust will provide referrals to contractors from their Trade Ally Network (self-installed systems will not qualify). The solar contractor selected advises the customer on installation options and best siting designs to obtain the maximum performance and satisfaction from the solar electric system. The contractor will provide a system quote that estimates the PV system annual performance, installation date, and the cost after Energy Trust incentive deductions. Once the Energy Trust approves the customer's PV system, the buy-down incentive will be paid to the solar contractor and deducted from the final cost.

Other available incentives include a residential tax credit through the Oregon Office of Energy of \$3.00/watt, up to \$1,500 maximum, and a business tax credit through the Oregon Office of Energy of approximately 35 percent of installed system cost applied over five years.

d. Photovoltaic Rebate Program

Oregon Trail Electric Cooperative (OTEC) consumers who install a grid-connected consumer-side solar PV system that meets the installation standards of OTEC's Net-Metering and Interconnection Agreement may receive \$600 per 1 kW of PV installed generation.

e. Property Tax Exemption

Additional property value resulting from the installation of solar equipment is exempt from property taxes under Oregon state law until December 31, 2012. See ORS § 307.175. This exemption does not apply to businesses whose primary activity and purpose is directly or indirectly the production, transportation, or distribution of energy, such as utilities.

f. Business Energy Tax Credit

Oregon offers a tax credit of up to 35 percent of the incremental cost of a solar energy system. The tax credit is claimed over five years: 10 percent the first two years and 5 percent the remaining three years. If the eligible project costs are \$20,000 or less, the tax credit may be taken in one year. There is no limit on project size.

g. Public Utility Net Metering and Future Credit Requirement

Oregon's net metering law, HB 3219 of July 1999, allows net metering for customers with solar, wind, or hydropower systems up to 25 kW. All customer classes are eligible, but enrollment is limited to a total installed capacity of 0.5 percent of a utility's historic single-hour peak load. Above this installed capacity, net metering eligibility can be limited by regulatory authority.

Net excess generation is either purchased at avoided cost or credited to the customer's next monthly bill. At the end of an annual period, any unused credit is granted to the electric utility. This credit is then either granted to customers enrolled in the utility's low-income assistance programs, credited to the generating customer, or "dedicated to other use."

h. Other

Oregon also provides a number of low-interest loan alternatives for high-efficiency combined heat and power (CHP), solar and other renewable resources projects.

i. Regulatory Barriers to Development of Distributed Generation

In February 2005, the Oregon Public Utility Commission issued a report outlining the key barriers to the development of DG in the state, which include:

- Lack of uniform technical standards, procedures, or agreements that allow for quick, inexpensive, and simple inter-connection of small generators with utility systems, where appropriate;
- Rates for back-up power do not always reflect actual costs;
- Owners of DG facilities cannot easily sell power from on-site generation to the utility (through a competitive bidding process), to a marketer; or to customers directly;
- Utility planning for energy and capacity needs is done in isolation from distribution and transmission system planning, and neither generally considers DG; and
- Utilities revenues are based on how much power they sell and move over the wires, and they lose sales when customers develop generation on site. Utilities also do not earn return on non-utility resources or make profits on them through operational efficiencies.

For the Commission's discussion of these issues and its recommendations going forward, see the full report at http://www.puc.state.or.us/elecnat/dg_report.pdf.

3. Washington

a. Renewable Energy Production Incentives

On May 6, 2005, the Governor signed Senate Bill 5101 into law, establishing production incentives of 15 cents per kilowatt-hour (capped at \$2,000 per year) for individuals, businesses, or local governments that generate electricity from solar, wind, or anaerobic digesters. The incentive amount paid to the producer is adjusted according to how the electricity was generated by multiplying the incentive by the following factors:

- For electricity produced using solar modules manufactured in Washington state, 2.4;
- For electricity produced using a solar or wind generator equipped with an inverter manufactured in Washington state, 1.2;

- For electricity produced using an anaerobic digester, by other solar equipment, or using a wind generator equipped with blades manufactured in Washington state, 1.0; and
- For all other electricity produced by wind, 0.8.

Ownership of the renewable energy credits associated with generation remains with the customer/producer and does not transfer to the state or utility. Initially, the incentive applies only to off-grid power sources, but will extend to grid-connected power sources once utilities serving 80 percent of the state's total customer load adopt uniform interconnection standards.

The state's utilities will pay the incentives and earn a tax credit equal to the cost of those payments. However, the credit paid may not exceed the greater of \$25,000 or 0.025 percent of a utility's taxable power sales. The incentive amount may be uniformly reduced if requests for the incentive exceed available funds.

The Washington Department of Revenue is responsible for submitting a report measuring the impacts of this legislation, including any change in the number of solar energy system manufacturing companies in Washington, and the effects on job creation, such as the number of jobs created for Washington residents.

The incentives apply to power generated as of July 1, 2005, and remain in effect through June 30, 2014. A utility may not claim any tax credits for incentive payments after June 30, 2016.

b. Sales and Use Tax Exemption

On May 8, 2001, the state enacted signed House Bill 1859, expanding the sales and use tax exemption for solar, wind, and landfill gas electric generating facilities to include fuel cells. In addition, the exemption now applies to smaller systems, those that have a generating capacity of at least 200 watts. See RCW § 82.08.02567.

c. Tax Abatement for Solar Manufacturers

Senate Bill 5111, enacted on May 6, 2005, created a reduced

business and occupation (B&O) tax rate for Washington manufacturers and wholesale marketers of solar-electric (photovoltaic) modules or silicon components of those systems. The reduced B&O tax rate of 0.2904 percent is 40 percent lower than the standard B&O tax rate of 0.484 percent.

Businesses claiming the credit under this program are required to file annual reports with the Washington Department of Revenue, detailing employment, wages, and health and retirement benefits. The Department must conduct a study from existing sources of data and report the impacts of this incentive to the legislature by December 1, 2013.

d. Public Utility Net Metering and Future Credit Requirement

Washington's net metering law, enacted in March 1998 (HB 2773), allows net metering for customers with solar, wind, and hydropower systems of 25 kW or less that are intended primarily to offset part or all of the customer's requirements for electricity. In 2000, EH 2334 added fuel cells as another type of eligible system. All customer classes are eligible for enrollment. Enrollment is limited to a statewide installed generating capacity of 0.1 percent of the utility's 1996 peak demand.

Net excess generation is credited to the customer's next monthly bill. At the beginning of each calendar year, any remaining unused kilowatt-hour credit accumulated during the previous year must be granted to the utility, without any compensation to the customer.

Systems must meet all of the requirements established by the National Electric Code, the National Electrical Safety Code, the Institute of Electrical and Electronic Engineers (IEEE), and Underwriters Laboratories.

4. Idaho

a. Solar, Wind, and Geothermal Residential Deduction

Idaho Statute 63-3022(c) provides residential taxpayers with an income tax deduction for 40 percent of the cost of a solar, wind, or geothermal device used for heating or electricity generation.

Taxpayers can apply this 40 percent deduction in the year in which the system is installed and can also deduct 20 percent of the cost for three years thereafter. The maximum deduction in any one year is \$5,000. The total maximum deduction is \$20,000.

b. Renewable Energy Equipment Sales Tax Refund

Idaho Statute 63-3622(q), enacted on April 12, 2005, provides a sales/use tax rebate for qualifying equipment and machinery used to generate electricity from fuel cells, low impact hydro, wind, geothermal resources, biomass, cogeneration, solar, or landfill gas. Purchasers may qualify for a rebate only if equipment is used to develop a facility or project capable of generating no less than 25 kW of electricity. The rebate is scheduled to sunset July 1, 2011.

c. Renewable Energy Project Bond Program

Enacted on April 6, 2005, Idaho Senate Bill 1192 allows independent (non-utility) developers of renewable energy projects in the state to request financing from the Idaho Energy Resources Authority, a new state bonding authority created in March 2005 through the Environment, Energy and Technology Energy Resources Authority Act (House Bill 106). The Authority was created to finance the construction of electric generation and transmission projects by electric utilities. SB 1192 extends the financing opportunities to independent renewable energy producers.

For the purposes of this program, renewable energy is defined as "a source of energy that occurs naturally, is regenerated naturally or uses as a fuel source, a waste product or byproduct from a manufacturing process including, but not limited to, open or closed-loop biomass, fuel cells, geothermal energy, waste heat, cogeneration, solar energy, waterpower and wind."

d. Low-Interest Energy Loan Program

This low-interest loan program, administered by the Energy Division of the Idaho Department of Water Resources, makes

funds available at a 4 percent interest rate for active solar, photovoltaic, wind, geothermal, hydropower, and biomass energy projects. The program also makes loans for energy conservation projects. Residential loans are available from \$1,000 to \$10,000. In commercial and industrial sectors there is a minimum loan amount of \$1,000 and a maximum cap of \$100,000. Loans are repaid in five years or less.

Loans for 80 percent of the project costs are available to residents for on-grid, residential PV systems, with a maximum of \$10,000. Payback criteria are waived for these projects only.

Certain restrictions apply to this program. For existing homes or businesses, the savings from reduced usage of conventional fuel must be sufficient to pay for the project's installation cost (e.g., simple payback of 10 years or less). For new projects, use of a renewable energy resource must be the least cost alternative. Renewable energy projects that are intended to sell the energy generated or the commodity produced are not eligible. While the program's financing requires repayment within five years, this further stipulation for existing homes and businesses states that the project's cumulative energy savings over a 10-year period must be great enough to offset the cost of the project.

e. Interconnection

Idaho has not established uniform interconnection rules and procedures for net-metered systems or for large DG systems. However, through their respective net metering tariffs, Idaho Power and Avista Utilities have established outlines for the interconnection of small renewable energy systems up to 25 kW. Idaho Power's guidelines also address interconnection of systems over 1 MVA.

Idaho Power's interconnection tariff and guidelines, which were revisited by the Idaho Public Utilities Commission in August 2002, cover net-metered systems up to 25 kW as well as larger DG over 1 MVA. Idaho Power's rules are broken down for systems under 100 kW; 100 kW to 1 MW; and over

1 MW. The rules are intended to be simple for systems under 100 kW and particularly easy for net-metered systems under 25 kW:

- For small net-metered systems, simple bidirectional meters are used;
- Dedicated transformers can be required by the utility but are not expected to be required for systems under 100 kW;
- Manual, lockable disconnect switches are required for all systems;
- All electrical specifications such as voltage ranges, harmonics, and power factor are based on current UL, IEEE, and NEC standards;
- Control relays are required for systems not using IEEE 929 compliant inverters;
- Acceptance testing is not required for UL listed inverters; and
- Systems under 25 kW must be inspected once every three years if the projects use interconnection equipment that meets nationally recognized standards and are approved by Idaho Power in advance. All other projects must be inspected annually.

DG systems larger than 100 kW have more complex interconnection requirements, which are detailed in the company's interconnection guidelines.

f. Residential Net Metering

The State of Idaho does not have a statewide net metering rule. However, each of the three investor-owned utilities, including Idaho Power, has net metering tariffs on file with Idaho's Public Utilities Commission (PUC).

In 2002, the PUC issued Order No. 28951, which allowed Idaho

Power to file a new net metering tariff, Schedule 84. This schedule made net metering available only to residential and small commercial customers generating up to 25 kW of wind, solar, biomass, hydro, or power from fuel cells. In August 2002, the PUC issued Order No. 29094 amending Idaho Power's Schedule 84 to include other schedules, such as large commercial and irrigation. This allows net-metered projects up to 100 kW for schedules other than residential and small commercial. Excess kWh generation per month is paid at 85 percent of the Mid-Columbia market price for non-firm energy. Total enrollment cannot exceed 2.9 MW, or 0.1 percent of Idaho Power's peak demand in 2000.

Idaho Power credits its residential and small commercial customers for their excess generation at the retail rate.

History: On January 22, 1997, Idaho's PUC issued Order No. 26750 to Idaho Power. This modified Order No. 16025 of December 1980, which allowed qualifying facilities under 100 kW to net meter. The new order modified the previous one and still allowed net metering as a pricing option for Idaho Power.

5. Nevada

a. Renewable Energy Credits

Nevada's Renewable Energy Portfolio Standard (RPS) requires the state's two investor-owned utilities to obtain a set minimum percentage of the electricity they sell from renewable energy resources. To date, that program has not been very successful, and the state's utilities have failed to obtain sufficient renewable generation to satisfy the standard. Two reasons are commonly given for this shortfall. First, some renewable generators report that they cannot obtain acceptable financing for new construction because the state's utilities are not rated as investment grade. Second, the state's RPS program effectively prevents any renewable generators located outside the state from participating.

Included in the RPS standard is a Renewable Energy Credit (REC) program. In May 2002, the Public Utilities Commission

of Nevada opened Docket 02-5029 to consider regulations to implement a REC program. In November 2002, the Commission adopted a temporary regulation (T016-02) for a REC program. In 2003, Docket 03-8010 was opened to consider new regulations as a result of AB 32, AB 296, AB 429, and AB 431. The Commission is in the process of drafting the permanent regulations for RECs.

As of January 1, 2003, Nevada's renewable energy producers can earn RECs, which can then be sold to utilities that are required to meet Nevada's portfolio standard.

Renewable energy is defined as biomass, geothermal energy, solar energy, wind, and waterpower. Solar energy includes any displacement of fossil energy use and could include photovoltaics, solar water heating, etc.

One REC will represent a kilowatt-hour of electricity generated from a renewable energy system, with the exception of photovoltaics, which counts as 2.4 RECs per kWh. This is pursuant to Assembly Bill 296 of 2003. The value of a REC is market-driven. RECs are issued by the Commission and are valid for a period of five years.

b. Renewable Energy Producers Property Tax Exemption

Enacted by Senate Bill 227 on June 1, 2001, NRS § 361.0687 allows certain new or expanded businesses (but not residential property) to claim a 50 percent property tax exemption for real and personal property used to generate electricity from renewable energy. The exemption may be taken over a 10-year period by a business that uses renewable energy as its primary source of energy and that has a generating capacity of at least 10 kW.

c. Renewable Energy Systems Exemption

NRS § 361.079 states that any value added by a qualified renewable energy source shall be subtracted from the assessed value of any residential, commercial, or industrial building for property tax purposes. Qualified equipment includes solar,

wind, geothermal and solid waste. This exemption applies for all years following installation.

d. Renewable Energy/Solar Sales Tax Exemption

The sales/use tax rate for any sales, storage, consumption, or use of products or systems designed or adapted to use renewable energy to generate electricity and all of its integral components is 2 percent in all counties for those purchases made from January 1, 2002 through June 30, 2005. Sales, storage, consumption, or use of such products or systems are exempt from any local taxes pursuant to NRS §§ 374, 374A, and 377.

Renewable energy means a source of energy that occurs naturally or is regenerated naturally, including without limitation biomass, fuel cells, geothermal energy, solar energy, waterpower and wind. Biomass includes agricultural crops, wastes and residues; wood, wood wastes, and residues; animal wastes; municipal wastes; and aquatic plants. SB 489 of 2003 extended this exemption to solar water heating and solar lighting systems, as well as extending the expiration date to July 1, 2005. "Systems designed or adapted to use renewable energy to generate electricity" means a system of related components from which at least 75 percent of the electricity generated is produced from one or more sources of renewable energy and that is designed to work as an integral package such that the system is not complete without one of its related components.

e. Net Metering

In 1997, Nevada enacted a law allowing customers of the state's two investor-owned utilities that generate up to 10 kW of solar or wind power to net meter. In 2001, AB 661 removed the limit on the amount of energy a utility can receive through net metering. In 2003, AB 429 increased the limit on system size from 10 kW to 30 kW and added waterpower (restricted to certain types) to the definition of renewable energy, which already includes biomass, geothermal, solar, and wind.

Also in 2003, per AB 296, in complying with a portfolio standard, each 1 kWh of electricity generated from solar photovol-

taics counts as 2.4 kWh if the electricity is generated on the premises of a retail customer who uses at least 50 percent of the electricity.

Customer generators are billed monthly except in situations where the customer and the utility agree on annual billing. Net excess generation is credited to the utility and is considered renewable energy that the utility has generated to fulfill its renewable energy portfolio requirement. Utilities are required to supply a two-way meter to measure flow in both directions, and utilities are prohibited from adding any additional charges to the bills of those customers participating in net metering.

6. Arizona

a. Interconnection

Statewide interconnection rules have not been established in Arizona, although the state's utilities have individually developed distributed-generation interconnection agreements. In 1998-1999, the Arizona Corporation Commission convened a DG working group to establish recommendations to the Commission on interconnection. The draft rules were released in November 1999, and the DG working group report was released the following summer. The Commission, however, has not formally acted on this report.

The Salt River Project, which is not regulated by the Commission on utility matters, developed its own DG interconnection rules and agreement based on the Commission working group document. The project's rules include technical protection requirements, an interconnection process flow chart, and a two-page interconnection application. They establish separate requirements for units based on the following size classes:

- Class I: 50 kW or less, single or three-phase;
- Class II: 51 kW to 300 kW, three-phase;
- Class III: 301 kW to 5 MW, three-phase; and
- Class IV: over 5 MW, three-phase.

Tucson Electric Power and Arizona Public Service, the other two major electric utilities in Arizona, have similarly established their own interconnection rules for distributed generators.

b. Solar and Wind Equipment Sales Tax Exemption

Arizona provides a sales tax exemption for the sale or installation of "solar energy devices." A solar energy retailer may exclude from tax up to \$5,000 from the sale of each solar energy device, and a solar energy contractor may exclude up to \$5,000 of income derived from a contract to provide and install a solar energy device. For contractors, the deduction cap of \$5,000 applies to the contract, rather than each energy device.

The statutory definition of "solar energy device" includes wind electric generators and wind-powered water pumps in addition to daylighting, passive solar heating, active solar space heating, solar water heating, and photovoltaics. The sales tax exemption does not apply to batteries, controls, etc., that are not part of the system.

According to the Arizona Solar Center's website, another provision of Arizona sales tax exemption may apply, without value limit, to the basic power generating part of the system (consisting of at least PV modules, structure, array wiring and controls; the limits have not been clearly defined).

Most cities have a 0.5 to 2 percent city privilege ("sales") tax that is applicable to sales or installations of solar energy devices, unless a city specifically exempts such sales under its city tax code. Solar energy retailers and contractors should check with the city in which the retail business is located to find out whether the city privilege tax is applicable.

7. Utah

a. Corporate Renewable Energy Systems Tax Credit

Utah provides a corporate income tax credit for renewable energy systems, which applies to 10 percent of the cost of installation of a system, up to a \$50,000 limit. Eligible technologies

include active and passive solar systems, photovoltaics, biomass, hydropower, and wind. For residential buildings owned by a business, the credit is 25 percent of the cost of installation of a system up to a maximum credit of \$2,000 per system. This tax credit expires on December 31, 2006.

b. Personal Renewable Energy Systems Tax Credit

The state provides an individual income tax credit for renewable energy systems on residential buildings, which applies to 25 percent of the cost of installation of a system, up to a maximum credit of \$2,000 per system. Eligible technologies include active and passive solar systems, wind, biomass, and hydro energy. The tax credit applies to systems placed in service from January 1, 2001, through December 31, 2006.

c. Renewable Energy Sales Tax Exemption

Utah exempts the purchase or lease of equipment used to generate electricity from renewable resources from the state sales tax. Eligible purchases or leases must be made for or by a renewable energy production facility on or after July 1, 2004 and before June 30, 2009. All leases must be for at least seven years.

Renewable resources include wind generation, solar, biomass, landfill gas, anaerobic digestion, hydroelectricity, and geothermal energy. Eligible facilities must use renewable energy to produce electricity and have a production capacity of 20 kW or greater. A facility that has its generation capacity increased by one or more MW as a result of the machinery or equipment may also be eligible for the exemption.

Equipment eligible for the exemption includes wind turbines, generating equipment, control and monitoring systems, power lines, substation equipment, lighting, fencing, pipes, and other equipment for locating power lines and poles. Equipment not eligible for the exemption includes tools and other equipment used in construction of a new facility, contracted services required for construction and routine maintenance activities, and equipment utilized or acquired after the project is operational.

This exemption is scheduled to be repealed on June 30, 2009.

d. Public Utility Net Metering and Payback Requirement

On March 15, 2002, the state enacted House Bill 7, Net Metering of Electricity. This law requires all electric utilities and cooperatives in Utah (municipal utilities are excluded) to allow customers to connect renewable energy systems to the grid for their own use and to supply excess electricity to the electric grid. Eligible renewable energy systems include fuel cells, solar, wind, or small hydropower facilities with a generating capacity of up to 25 kilowatts. Total participation in the program is capped at 0.1 percent of the cumulative generating capacity of the electrical corporation's peak demand during 2001.

Utilities are required to give the customer a credit for electricity generated that exceeds the amount supplied. If net metering results in excess customer-generated electricity during the billing period, the utility must credit the customer for the excess customer-generated electricity at a minimum value of avoided cost. All credits that the customer does not use during the calendar year expire at the end of the calendar year.

The act prohibits the electrical corporation from imposing additional charges or fees to customers participating in a net metering program unless authorized by the Utah Utilities Commission.

8. New York

a. Interconnection Standards

New York was one of the earliest states to issue uniform interconnection standards for DG systems. The New York Public Service Commission (PSC) originally adopted standard interconnection requirements (SIR) for units of 300 kW or less in December 1999. Because of concerns over some of the burdensome procedures, the PSC revisited the rules, and in November 2002 issued an order adopting several modifications to the SIR. These changes streamlined the application process and provided a more ordered progression for the study and review phases of the procedure. In November 2004 the PSC issued an order further modifying the SIR by increasing the maximum capacity of

interconnected systems from 300 kW to 2 MW and expanding interconnections to the state's network systems, primarily in the state's larger cities (e.g., New York City).

The SIR addresses technical guidelines for interconnection and application procedures, but it leaves many details to the discretion of utilities. It includes simplified requirements for small systems that qualify for net metering. (Prior to the PSC's November 2002 order, interconnection standards for net-metered systems were separate from the DG standards in the SIR.) Procedurally, the standard includes an 11-step process that covers initial inquiry to final utility acceptance for interconnection. Included in the appendices are a standard contract and standard application forms.

The SIR provisions for type-tested systems (approved by New York State Energy Research and Development Authority) allow some systems to bypass many of the procedural steps. Type-tested equipment includes, for example, PV inverters and complete microturbine systems. A current list of PSC type-tested equipment can be found on the Commission's DG site.

The SIR applies to the state's six investor-owned local electric utilities: Central Hudson Gas and Electric, Consolidated Edison Company of New York, New York State Electric & Gas, Niagara Mohawk, Orange and Rockland Utilities, and Rochester Gas and Electric.

b. Net Metering

In 1997, New York enacted a net-metering law for residential photovoltaic systems of 10 kW or less. In 2002 the net-metering law was expanded (see SB 6592) to include qualified farms that generate electricity from biogas produced by the anaerobic digestion of agricultural waste, such as livestock manure, farming waste, and food processing wastes. Under this law, eligible systems must have a rated capacity of not more than 400 kW. In 2004, the Governor signed SB 4890-E, further expanding the law to include residential wind turbines up to 25 kW and farm-based wind turbines up to 125 kW. Utilities were also directed to prepare tariffs, which must be submitted to the New York Public Service Commission for approval.

Utilities are obliged to accept customers into the net metering program on a first-come, first-served basis until the total solar electric capacity signed up for net metering equals 0.1 percent of the utility's 1996 electric demand; farm waste system capacity equals 0.4 percent of the utility's 1996 demand; and wind system capacity equals 0.2 percent of 2003 demand. Individual utilities, however, can choose to allow a greater capacity to enroll in net metering.

For solar-electric systems, farm biogas systems, and small wind systems (10 kW and less), net excess generation in a given month is credited toward the following month's bill at the retail rate. At the end of the annual billing cycle, if there is any net excess generation by the customer, consumers are paid the utility's avoided cost for this generation. However, net excess generation for wind systems larger than 10 kW is credited to the next month's bill at the state's avoided cost rate. Excess generation at the end of the year is still paid at the avoided cost rate.

c. Solar and Fuel Cell Electric Generating Equipment Residential Tax Credit

In 1997 New York enacted legislation providing a personal income tax credit for expenditures on solar electric equipment used on residential property. This tax credit provision was passed as part of a bill that included provisions for the net metering of this equipment as well. The credit is for 25 percent of the cost of equipment and installation of photovoltaic systems.

Qualified expenditures under this program are capped at \$6.00/watt of rated capacity. For example, if a homeowner installs a 500-watt system for a total equipment and installation cost of \$4,000, the tax credit would allow a maximum cost of \$3,000 (\$6/watt), and the tax credit would be 25 percent of this amount, or \$750. Any amount of credit that exceeds a taxpayer's liability in a given year can be carried forward for the five following years. Any amount of the system cost provided by a grant from any source cannot be counted toward the tax credit.

While there is no explicit limit on the size of a system eligible

for the tax credit, there is a 10 kW limit on the size of equipment eligible for net metering. There is also a statewide limit on the amount of total capacity that may be net metered. This limit is set at one tenth of one percent (0.1 percent) of 1996 peak demand for each electrical corporation. That is, each electric utility is obligated to provide net metering to customers only until the total net metered capacity in that utility's service district reaches 0.1 percent of that utility's 1996 peak load. This limit is intended to provide insurance against excessive revenue loss by utilities, although to date this limit has reportedly not limited the number of installations.

Effective on or after January 1, 2003, a fuel cell installed at a taxpayer's principal residence is eligible for a 20 percent tax credit, up to \$1,500. Eligible fuel cells provide a rated baseload capacity of no more than 25 kW and utilize proton exchange membrane technology.

For both solar and fuel cell technologies, any credit amount in excess of the tax due for 2003 can be carried over for a maximum of five years. However, the amount of any nontaxable federal, state, or local grant used for the purchase and/or installation of the equipment cannot be included in the amount of eligible expenditures.

According to the state's Department of Taxation and Finance, about \$800,000 was claimed from the 1998 to 2001 tax years. Tax credit data for 2002 or later was not available as of January 2005.

d. Solar, Wind and Biomass Energy Systems Exemption

Section 487 of the New York State Real Property Tax Law provides a 15-year real property tax exemption for solar and wind energy systems constructed in New York State. On September 17, 2002, the property tax exemption was expanded (SB 6592 of 2001) to include farm waste electric generating equipment, which is equipment that generates electric energy from biogas produced by the anaerobic digestion of agricultural waste, such as livestock manure, farming waste, and food processing wastes, with a rated capacity of not more than 400 kW.

The exemption applies to systems that are (a) existing or constructed prior to July 1, 1988 or (b) constructed subsequent to January 1, 1991 and prior to January 1, 2006. The intent of the law is to encourage the installation of solar, wind, and farm waste energy equipment systems and assure property owners that their real property taxes will not increase as a result of the installation of these systems. The amount of the exemption is equal to the increase in assessed value attributable to the solar, wind, or farm waste energy system.

With respect to systems constructed after January 1, 1991, and before January 1, 2006, each county, city, town, village, and school district (except the city school districts of New York, Buffalo, Rochester, Syracuse, and Yonkers) may choose whether to disallow the exemption. The option must be exercised by counties, cities, towns, and villages through adoption of a local law and by school districts by adoption of a resolution.

e. Renewables R&D Grant Program

This competitive research program is run by the New York State Energy Research and Development Authority (NYSERDA). The program is a multistep approach to assist companies in the development, testing, and commercialization of renewable energy technologies that will be manufactured in New York. NYSERDA provides funding support along the product development-to-commercialization continuum and provides the due diligence necessary to acquire private sector funding. Funding levels vary according to the stage of product development. Projects are selected, in part, on the relative likelihood that a technology will be commercially competitive in the near term and the ability of the company to reach specific performance and quality milestones.

Eligible technologies include solar thermal electric, photovoltaics, hydropower, alternative fuels, wind, and biomass. This program focuses on product and technology development as opposed to the installation of individual renewable energy systems.

f. Energy "Smart" Loan Fund

The New York Energy Smart Loan program, administered by

NYSERDA, provides reduced-interest loans through participating lenders to finance renovation or construction projects that improve a facility's energy efficiency or incorporate renewable energy systems. Any commercial, industrial, retail, agricultural, nonprofit, residential, or multifamily facility is eligible for this loan reduction program. To qualify for the loan program, the facility must be an electric distribution customer of one of the state's six investor-owned utilities.

For residential borrowers (1-4 family homes), the interest rate reduction will only apply to secured loans, except loans for the purchase and installation of ENERGY STAR® Appliances, grid-connected photovoltaic systems, wind turbines, or heat pump hot water heaters. These measures can be financed through secured or unsecured loans.

Other borrowers can qualify for reduced interest rates on loans to improve the energy conservation of other facilities. Nonresidential facilities can also qualify for Green Building Improvement Loans of up to \$500,000. To be eligible for a loan for Green Building Improvements, the borrower must provide evidence that the building has been registered for LEED certification with the United States Green Building Council.

g. Energy Smart New Construction Program

The NYSERDA New Construction Program is designed to accelerate the incorporation of energy efficiency and renewable energy sources in the design, construction, and operation of commercial, industrial, institutional, and multifamily buildings. Initially, \$10 million was made available through Program Opportunity Notice 913 (PON 913) to conduct technical assessments of energy-efficiency measures in building designs and to offset up to 60 percent of the incremental capital costs needed to purchase and install energy-efficient equipment in these buildings to reduce electric energy consumption. Applicants may choose among prequalified equipment, custom measure, or whole building capital cost incentives.

The program provides opportunities to:

- Implement permanent energy efficiency and load man-

agement improvements in building envelopes and major systems (e.g., HVAC, lighting, controls, building envelope) at the time of new construction or substantial renovation;

- Conduct building commissioning;
- Construct a qualified Green Building (Green Building is defined as a building that meets or exceeds the requirements of the U.S. Green Building Council LEEDTM rating system);
- Install advanced solar and daylighting technologies, such as lighting controls, electrochromic glazing, light shelves, building overhangs, passive solar design features, and solar preheated ventilation;
- Implement measures to manage peak electrical demand in buildings; and
- Monitor and benchmark actual energy performance.

NYSERDA will provide incentives of up to \$200,000 per project for design and installation of advanced solar and daylighting technologies, but only in Custom and Whole Building Design projects. Incentives are capped at 60 percent of the incremental cost of the design and installation of eligible measures for advanced solar and daylighting technologies.

Building integrated photovoltaic incentives are ineligible under this new program. See the DSIRE summary of New York's PV Incentive Program for funding opportunities for PV.

Eligible applicants are New York State electricity distribution customers of Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

h. PV Incentive Program

The New York State Energy Research and Development Au-

thority (NYSERDA) provides incentives of \$4 to \$4.50 per watt (DC) to eligible installers for the installation of approved, grid-connected PV systems. The maximum system size eligible for an incentive was increased from 15 kW to 50 kW in June 2004. Larger systems are permitted, but incentives are based on a maximum of 50 kW. Incentives are only available to eligible installers, and incentives must be passed on to customers. Once eligible, installers reserve incentives for approved systems, for specific customers, on a first-come, first-served basis, for as long as funds are available. The total available budget was increased from \$2.5 million to \$7 million in June 2004, and nearly \$3.5 million has already been reserved.

The program continuously accepts applications from installers who would like to participate in the program. The goal is to increase the network of eligible installers across New York State, offering customers a choice of qualified or certified installers in their area. Installer eligibility will be determined and maintained based on factors such as acceptance of all program terms and conditions, training, installation experience, track record related to utility interconnections, overall performance, monitoring, customer references, customer satisfaction, and commitment to become certified through a national certification program. NYSERDA also seeks to provide accredited training opportunities for PV installers. Training opportunities are posted at www.powernaturally.org. This website provides a list of eligible installers. There are currently over 30 installers on the list.

Incentives are based on direct current module ratings at standard test conditions and are:

- \$4.00 per watt for all grid-connected systems;
- \$4.50 per watt for grid-connected systems that are installed on New York ENERGY STAR® Labeled Homes; and
- \$4.50 per watt for building integrated PV (BIPV) systems that are approved as part of a technical analysis conducted under NYSERDA's New Construction Program.

All incentives are capped at 60 percent of the total installed cost for all systems. PV systems must be sized to meet specific site energy needs (local load or demand) and cannot exceed 110 percent of the demonstrated energy demand for the site, taking into account any other on-site electrical power generation systems.

Incentives will be paid to installers in two increments and will be tied to specific installation milestones. The first incentive payment, or 75 percent of the total incentive amount approved by NYSERDA, will be paid after all system components have been delivered to a customer's site and the appropriate form is completed, submitted, and approved by NYSERDA. The second incentive payment, or the remaining 25 percent of the total incentive amount approved by NYSERDA, will be paid after a PV system has been connected to the utility grid and/or inspected by NYSERDA or its representatives and the appropriate form has been completed, submitted, and approved by NYSERDA.

Eligible customers are those that are New York electricity distribution customers of Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation who pay the system benefits charge.

PV incentives are available for many end-uses (building or nonbuilding) and sectors including residential, commercial, industrial, agricultural, institutional, educational facilities, not-for-profit facilities, and government-owned buildings. Incentives provided to customers under this program may not be combined with any other incentive programs offered by NYSERDA, such as the \$/Watt incentive, which is designed to directly offset the cost of a PV installation.

All systems, system components, and installations must comply with all applicable laws, regulations, codes, licensing and

permit requirements, including but not limited to the New York State Building Code, the National Electric Code, New York State's standard interconnection requirements, and all applicable local ordinances. Additional requirements apply, including a five-year PV system warranty to the purchaser.

i. RPS Program

In September 2004 the state adopted a program for the development and use of renewable energy by the state's investor-owned utilities. Under this program, utilities are required to obtain at least 25 percent of their electricity from renewable sources by 2013. Because the state already obtains approximately 17 percent of its electricity from renewables (mostly large hydro), this is an important program but not an aggressive requirement. In April 2005 the Commission approved an implementation plan, setting out the procedures and guidelines for participation. Under this program and plan there are two tiers of eligible resources: a main tier, consisting of medium to large scale renewable generation facilities, and a tier for smaller on-site or "behind the meter" technologies. The eligible resources for the small tier include fuel cells, photovoltaic, and wind technologies.

Under the RPS, NYSERDA administers the procurement programs and establishes procedures and policies for eligible systems. It also monitors compliance and issues RFPs for specific projects. This program is paid for through a "wires" charge, which the utilities add to consumer electricity bills. NYSERDA issued its first RFP for eligible generation in late 2004, with a January 2005 response deadline. A second RFP is expected later in 2005.

Although only seven renewable projects received contracts in response to the first RFP, the RFP for later in 2005 will seek more renewable generation and is likely to give more attention to smaller tier resources. Those interested in this program should contact NYSERDA or review its website.

SOURCES

The following is a list of the primary sources used in preparing this report. Please note that not all of the legislation and regulations referenced in this report are included.

A. Federal

1. Incentives

U.S. Department of Energy, Energy Efficiency and Renewable Energy: <http://www.eere.energy.gov/>

U.S. Department of Energy, Energy Efficiency and Renewable Energy, Weatherization and Intergovernmental Program, Renewable Energy Production Incentive: <http://www.eere.energy.gov/wip/program/rep.html>

Internal Revenue Service: <http://www.irs.gov/>

IRS Publication 525: Taxable and Nontaxable Income

IRS Publication 946: How to Depreciate Property

IRS Form 3468: Investment Credit

IRS Form 3800: General Business Credit

IRS Form 4562: Depreciation and Amortization, and Instructions

IRS Form 8835: Renewable Electricity Production Credit

Database of State Incentives for Renewable Energy, Federal: <http://www.dsireusa.org/library/includes/genericfederal.cfm?currentpageid=1&search=federal&state=US>

2. Pending Legislation: Energy Policy Act of 2005

Energy Policy Act of 2005, S. 10, 109th Cong. § 1403(b) (June 9, 2005)

B. State and Local

1. California

California Energy Commission: <http://www.energy.ca.gov/>

California Energy Commission Consumer Energy Center,

Energy Incentives: <http://www.consumerenergycenter.org/renewable/index.html>

California Public Utilities Commission, Distributed Generation: <http://www.cpuc.ca.gov/static/industry/electric/distributed+generation/index.htm>

Database of State Incentives for Renewable Energy, California: <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=CA>

2. Oregon

State of Oregon Public Utility Commission: <http://www.puc.state.or.us/>

Oregon Department of Energy, Business Energy Tax Credits: <http://egov.oregon.gov/ENERGY/CONS/BUS/BETC.shtml>

Energy Trust of Oregon, Inc., Renewable Program Incentives: <http://www.energytrust.org/RR/index.html>

Database of State Incentives for Renewable Energy, Oregon: <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=OR>

3. Washington

Washington Utilities and Transportation Commission, Energy Division: <http://www.wutc.wa.gov/88256517005D4221/7A5B07B1059EA3A68825684300811513/706F1E0E9AEEAB5C8825696F007231E6>

Database of State Incentives for Renewable Energy, Washington: <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=WA>

4. Idaho

Idaho Department of Water Resources, Energy Division: <http://www.idwr.state.id.us/energy/>

Database of State Incentives for Renewable Energy, Idaho:
<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=ID>

5. Nevada

Public Utilities Commission of Nevada: http://www.puc.state.nv.us/renewable_energy.htm

Office of the Governor, Nevada State Office of Energy, Renewable Energy Incentives in Nevada: <http://energy.state.nv.us/renewable/incentives.htm>

Solar Generations, Nevada Solar Incentive Program: <http://www.solargenerations.com/>

Database of State Incentives for Renewable Energy, Nevada:
<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=NV>

6. Arizona

Arizona Corporation Commission: <http://www.cc.state.az.us/>

Arizona Solar Center, Incentives: <http://www.azsolarcenter.com/economics/incentives.html>

Database of State Incentives for Renewable Energy, Arizona:
<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=AZ>

7. Utah

State of Utah Natural Resources, Utah Energy Office: <http://www.energy.utah.gov/>

Database of State Incentives for Renewable Energy, Utah:
<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=UT>

8. New York

New York State Energy Research and Development Authority (NYSERDA): <http://www.nysesda.org/>

NYSERDA Power Naturally Program: <http://www.power-naturally.com/>

New York State Public Service Commission, Distributed Generation Information: <http://www.dps.state.ny.us/distgen.htm>

New York State Office of Real Property Services: <http://www.orps.state.ny.us/>

Database of State Incentives for Renewable Energy, New York: <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=NY>

Acknowledgement

The author wishes to thank Edwin Jager, Summer Associate at Perkins Coie LLP, for his assistance in preparing this article.

Caveat

The information presented in this article is a selective summary of applicable laws and regulations, some of which may be in draft form or otherwise subject to change. Much of the information provided was taken from government or other websites, with the major sites relied upon listed. Please note that this article does not constitute legal advice and should not be relied upon for making business, legal or investment decisions. Should you have any questions about the information provided, please contact Carol A. Smoots or other attorneys in the Environment and Natural Resources Practice Group at Perkins Coie LLP.

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Endnotes

1. This article was presented at GlobalCon 2005 and appears on the Perkins Coie LLP web site at <http://www.perkinscoie.com/page.cfm?id=775>. Reprinted with permission.
2. Because this article is intended only as a summary, and relies heavily on information provided by government agencies and commissions, it will be important to look at the full text of the provisions

discussed in order to see exact language and to check for updates on these rapidly changing programs.

3. Please check the Perkins Coie website at www.perkinscoie.com for regularly updated legislative summaries and an overview of the major provisions in the Energy Policy Act of 2005.
4. It is noteworthy that this legislation is subject to further amendments and may also be changed in conference as the Senate version has certain differences from the House passed version.
5. The reference to "clean" relates to the level of emissions. Under Sections 353.2(a) and 379.6(b) of the Public Utility Code, the state has established emission limits needed for a facility to qualify as "clean" and "ultra clean."
6. As noted above, the Energy Policy Act of 2005, which is currently under consideration by Congress, would extend the interconnection right to all electricity consumers served by an electric utility.

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Carol Smoots is a partner with Perkins Coie, LLP located in Washington, DC, where she is a member of the firm's national Environment and Natural Resources Practice Group. Ms. Smoots' practice covers a broad spectrum of energy issues, from power marketing to energy licensing, and from renewable energy to pipelines and utility work, as well as international issues. Ms. Smoots is a national leader in the development of renewable energy projects and an active participant in the development of state renewable portfolio standard programs. She serves as vice chair of the American Bar Association Renewable Energy Committee and is a frequent speaker on renewable energy issues. She is a member of The District of Columbia Bar; the Oregon State Bar; the American Bar Association; the Energy Bar Association (officer and board member, 1991-2000); and the International Bar Association. Over the years, she also served as the editor-in-chief of *The Natural Gas Lawyers Journal* followed by several years as the reports editor for the *Energy Law Journal*. Ms. Smoots received her law degree from Willamette University. She may be contacted at CSmoots@perkinscoie.com.