THE DATABASE OF STATE INCENTIVES FOR RENEWABLE ENERGY: UTILITY PROGRAMS AND INCENTIVES REPORT

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ABSTRACT

The past three decades saw the rapid development of renewable energy technologies and the concurrent evolution of state and federal financial and regulatory incentives, programs and policies to augment that development. Within the past two years, utility companies have created new incentives and programs that promote the use of renewable energy. Many of these incentives are in response to electric utility restructuring, while others are part of a broader corporate perspective that seeks to diversify into renewable energy generation, manage demand-side growth, or reap environmental benefits.

This paper will present the current status of available utility incentives and programs throughout the United States as collected and databased by the Interstate Renewable Energy Council's (IREC) Database of State Incentives for Renewable Energy (DSIRE) project. Discussion will focus on putting the status of utility incentives programs into the context of the current restructuring movement, as well as how the DSIRE project can assist local, state, and national policy makers; industry, businesses and consumers; environmental and consumer advocates; and energy policy researchers.

As various interested parties debate the most effective method for promoting renewables in a restructured electric utility industry, an important tool for guiding such decisions is a database of programs that exist throughout the country. DSIRE is funded by the U.S. Department of Energy's Office of Power Technologies and is managed by the North Carolina Solar Center on behalf of IREC.

1. INTRODUCTION

DSIRE includes separate databases of state financial, state regulatory and utility incentives, programs and policies. Information from these databases were published in two previous reports, entitled the *National Summary Report on State Financial Incentives for Renewable Energy* and the *National Summary Report on State Programs and Regulatory Policies for Renewable Energy*. These reports summarize all current incentives, programs and policies that promote active and passive solar, photovoltaics, wind, biomass, alternative fuels, geothermal, hydropower, and waste energy sources.

The third report, the ***National Summary Report on Utility Programs and Incentives for Renewable Energy***, was published in the spring of 1999. Highlights from this report are the focus of this paper. Included are grants and rebates, loans, green pricing/investment programs, leasing/lease-purchase programs, direct equipment sales, voluntary net metering provisions, voluntary disclosure of fuel use and emissions, line extension analysis services, DSM programs incorporating renewables, public information/technical assistance centers, demonstration projects and utility sponsored renewable energy research centers.

While reports serve as a snapshot of the status of incentives, constant revisions and additions to the database maintain DSIRE's role as the most up-to-date, national clearinghouse of information on state incentives for renewable energy. In addition to printed reports, the DSIRE database is available as an application, *DSIRE on Disk*, from the North Carolina Solar Center, and is accessible via a website, *DSIRE on Line*, at: **http://www.ncsc.ncsu.edu/dsire.htm**. Both the database application and DSIRE website offer search capabilities. The

website also includes the text of relevant state incentive statutes and rulings.

2. THE ENVIRONMENT FOR UTILITY INCENTIVES UNDER RESTRUCTURING

Last year, the N.C. Solar Center presented DSIRE's information on state regulatory incentives. At that time, electric utility restructuring was dominating energy policy discussions around the United States. As of 1999, the shift towards restructuring has yet to subside. As 1997 came to a close, ten states had passed restructuring legislation: California, Illinois, Maine, Massachusetts, Montana, Nevada, New Hampshire, Oklahoma, Pennsylvania, and Rhode Island. In 1998, four more states joined their ranks: Arizona, Connecticut, New Jersey, and Virginia. Additionally, four states—Maryland, Michigan, New York, and Vermont—had passed final regulatory decisions or recommendations and four others had developed pending legislation or regulatory rulings: Arkansas, Delaware, Ohio, and Texas.

Meanwhile, nearly every other state had taken steps to debate the topic, often with pending legislation being held up in court actions. Clearly, restructuring in the states is on the rise, while Congressional action threatens to mandate restructuring in all states.

As was the case last year, the stakes for renewable energy under restructuring are enormous. What we have learned during the past year is that even the perceived threat to electric utilities of loss of monopoly interests is forcing them to take action regarding renewable energy incentives or programs. In general, electric utilities can be grouped into two categories: those that are afraid to lead, and those that are afraid to follow. In the former category, utilities are dismantling or "destaffing" DSM programs, repealing commitments to energy efficiency and renewables education projects, and fighting efforts to enable net metering or retail access to electric generation.

This is a flight for survival response primarily by non-competitive, inflexible companies tied to expensive and out-dated generation technology. For companies with an emphasis on generation, all efforts to control growth of demand are suspended since outside energy marketers are expected to claim some of their market. For companies focused on distribution, all generation capacity, not just renewables investment, is seen as a hindrance to rapid reaction to market changes.

For most utilities, there is an across the board retrenchment of customer services that are perceived as expensive and expendable in the name of cutting costs. Unfortunately, some of those customer services were created in negotiation with utility commissions and advocates as a settlement condition in a rate or plant ruling. Even with restructuring merely a possibility, commissions are reluctant to enforce such prior agreements for fear of penalizing companies involved. Additionally, as utility mergers increase, those companies who are anticipating being acquired by another are not bringing new incentives or programs onboard.

On the other hand, those companies that are taking the lead in the electric utility arena are establishing aggressive programs for acquiring market share, diversifying generation into advanced and sustainable technologies, and promoting good relationships with their consumers. Programs and incentives created by companies daring to be innovative in this time of fear, uncertainty and doubt are the focus of this paper.

The recently printed *National Summary Report on Utility Programs and Incentives for Renewable Energy* focuses on those programs developed, sponsored or funded by utilities.
The three sections of the report reflect the degree of involvement by the utility for each incentive type:
(1) programs with direct financial investment by utilities;
(2) voluntary adoption of incentives in the regulatory domain; and
(3) public assistance programs funded by electric utilities.

These three sections are then broken down into twelve subsections based on incentive type. These include: (1) grant and rebate programs; (2) loan programs; (3) green pricing/ investment programs; (4) leasing/lease-purchase programs; and (5) direct equipment sales in the first section; (6) voluntary net metering; (7) voluntary disclosure and certification; (8) line extension policies; and (9) demand-side management programs that incorporate renewables in the second; and (10) utility sponsored public information/technical assistance programs; (11) renewable energy demonstration projects; and (12) utility sponsored renewable energy research centers in the third.

The focus of the subsections are the summaries of all current utility programs and incentives. The specific criteria used in selecting the programs is identified and care was taken to include only those programs that are currently in place. In total, 155 utility programs are identified in the report. Excluding green pricing programs, there are 127.

3. DIRECT FINANCIAL INCENTIVES

The programs with a direct financial incentive component are grants and rebates; low- or no-interest loans; green pricing/investment; and leasing/lease-purchase programs. Green pricing/investment programs and leasing/lease purchase programs will continue to increase if restructuring increases. These programs are either a direct result of open retail access or an indirect result of universal access laws and an unfavorable cost benefit analysis of grid extension. The future of grants, rebates and loans is less certain. Some programs are of a public benefits type that would be directly impacted by a restructuring of regulated utilities; others are offered by public utilities, such as cooperative and municipal power companies, that are responding to consumer environmental or renewable energy interests or are seeking to reduce growth in demand.

3.1 Grant and Rebate Programs

These grant and rebate programs are listed together since they both have a direct impact on first costs of renewable energy technologies.

1. Alabama Power Company/Georgia Power Company/Southern Company – AL
2. City of Boulder City – NV – Energy Efficient Appliance Program
3. Emerald People's Utility District – OR – EPUD Solar Water Heater Program
4. Eugene Water and Electric Board – OR – The Bright Way To Heat Water
5. Gainesville Regional Utilities – FL – GRU Solar Rebate Program
6. Hawaiian Electric Utilities – HI – Residential Efficient Water Heating Program
7. Los Angeles Dept. of Water and Power – CA – Residential/Commercial Rooftop Partnering Program
8. Madison Gas & Electric – WI – Rebates for Solar Water Heating
9. Palmetto Electric Cooperative – SC
10. Plumas-Sierra Rural Electric Cooperative – CA, NV
11. Public Service Company of New Mexico – NM – Enchantment Energy Trust
12. Sacramento Municipal Utility District – CA

3.2 Loan Programs

The majority of programs listed in this section are targeted toward increasing the use of renewables—even to the extent of not charging interest like the Eugene Water and Electric Board's "Bright Way" program. A few of the programs are broader residential energy efficiency programs that explicitly mention renewable energy equipment as qualifying for a loan. Utility programs that provide low interest loans for energy efficiency, under which renewable equipment could possibly be purchased but isn't mentioned, are not listed.

1. Alabama Power Company/Georgia Power Company/Southern Company – AL
2. Austin Energy – TX – Home Energy Loans
3. Emerald People's Utility District – OR – EPUD Solar Water Heater Program
4. Eugene Water and Electric Board – OR – The Bright Way To Heat Water
5. Los Angeles Dept. of Water and Power – CA – Residential/Commercial Rooftop Partnering Program
6. Tallahassee Electric – FL – Solar Water Heater Loans
7. Traverse City Light and Power Company/Bay Energy Services – MI – Green Rate Wind Project
8. Sacramento Municipal Utility District – CA

3.3 Green Pricing/Investment Programs

Green pricing programs allow consumers to pay a premium above the utility's standard rates for electricity generated in part or in whole from renewable energy resources. Green investment programs solicit billing contributions from rate payers to fund public benefit and demonstration projects. Though there are numerous green pricing programs in place in states that have shown little action in restructuring, they were created and are driven by restructuring. As was demonstrated in retail pilot programs in Massachusetts and New Hampshire, green pricing will command a large audience in the residential and small commercial sectors when competition is introduced.

1. Alameda Bureau of Electricity – CA – Clean Future Fund
2. Arizona Public Service – AZ – Solar Partners
3. Austin Energy – TX – Solar Explorer
4. Central and South West Corporation – AR, LA, OK, TX – ClearChoice
5. City of Fort Collins Utilities – CO – Wind Power Pilot
6. Colorado Springs Utilities – CO – Green Power (through NCE WindSource)
7. Detroit Edison – MI – SolarCurrents, Solar Schools
8. Gainesville Regional Utilities – FL
9. Great River Energy – MN – Wellspring [Cooperative Power], Its a Breeze [United Power Association], Wellspring [Dakota Electric Association]
10. Green Mountain Energy Resources – CA, PA
11. Gulf Power – FL – Solar for Schools
12. Hawaiian Electric Utilities – HI – SunPower for Schools
13. Holy Cross Electric Association – CO – WindSource
14. Lincoln Electric System – NE – Renewable Energy Program
15. Moorhead Public Service – MN – Capture The Wind

16. Nebraska Public Power District – NE – Prairie Power
17. Nevada Power Company – NV – Green Power Option
18. New Century Energies/Public Service Company of Colorado – CO – WindSource
19. Northern States Power – MN – Energy Wise Solar Advantage
20. PacifiCorp – OR – Klamath County Customer Choice Program
21. Price Electric Cooperative/Dairyland Power Cooperative – WI – Evergreen Power
22. SMUD – CA – Greenergy, PV Pioneers I
23. Salt River Project – AZ – Solar Choice
24. Southwestern Public Service Co. – AR,LA,OK,TX
25. Traverse City Light and Power Company/Bay Energy Services – MI – Green Rate
26. Wheat Belt Public Power District/Tri-State G&T – NE – Renewable Resource Power Service Program
27. Wisconsin Electric – MI,WI – Energy for Tomorrow
28. Wisconsin Public Service Corporation – MI, WI – SolarWise (SolarWise for Schools/Round-up)

While most of the twenty-eight green pricing programs target residential customers, a handful of utilities have begun marketing to commercial customers.

3.4 Leasing/Lease-Purchase Programs

1. Arizona Public Service – AZ – Remote Solar Energy Service (in tandem with direct sales)
2. Carbon Power and Light – WY
3. Plumas-Sierra Rural Electric Cooperative – CA, NV
4. Southwestern Public Service Co. – AR,LA,OK,TX

3.5 Direct Equipment Sales

1. Big Country Electric Cooperative – TX
2. Carbon Power and Light – WY – (part of leasing)
3. Green Mountain Energy Resources – CA, PA
4. SMUD – CA – PV Pioneers II

4. VOLUNTARY ADOPTION OF INCENTIVES IN THE REGULATORY DOMAIN

Programs in this category include net metering, line extension policies, fuel use and emissions disclosure and demand-side management programs. Unlike those programs in the first grouping, these programs are normally established and used under a regulated model and will likely see changes as a result of restructuring. Utilities listed have voluntarily adopted these programs, often as a recognition of their economic benefits to company and consumer alike.

4.1 Voluntary Net Metering Provisions

Net metering allows for the installation of a single meter that monitors electricity flowing to and from the utility. The advantage to the customer-generator is that at times when the customer's generation exceeds their use, flows from the customer to the utility offset any consumption of electricity from the utility. Twenty-three states have net metering rules or laws in place. Outside of those states, there is one state that benefits from a voluntary net metering agreement. Public Service Company (PSC) of Colorado allows net metering for small producers of electricity.

4.2 Fuel Use and Emissions Disclosure

Disclosure of fuel mixes to retail consumers, as well as certification of green energy resources and providers, is growing as a consumer information and protection issue in the retail competition between generation providers.

1. Alliant Energy – IA, IL, MN, WI
2. Ameren Services Company – MO, IL
3. Austin Energy – TX
4. Burlington Electric Dept. – VT
5. City of Aspen Electric Dept. – CO
6. Colorado Springs Utilities – CO
7. Edison Source* – CA
8. Gainesville Regional Utilities – FL
9. Green Mountain Power Corporation – VT
10. Green Mountain Energy Resources* – CA, PA
11. Hawaii Electric Light Company – HI
12. Holy Cross Electric Association – CO
13. Kansas City Power & Light Company – KS, MO
14. Madison Gas and Electric Company – WI
15. Northern States Power – MN
16. Portland General Electric – OR
17. Reedy Creek Energy Services Inc. – FL
18. San Antonio City Public Service Board – TX
19. Tallahassee Electric – FL
20. Wisconsin Electric – MI,WI

At issue is the extent of the information provided and whether the information is provided during the marketing of green power/pricing programs or stated on billing statements. So far, eleven of the fourteen states that have passed restructuring legislation have included language supporting disclosure of information that will help consumers choose power generators: California, Connecticut, Illinois, Maine, Massachusetts, Montana, Nevada, New Jersey, New Hampshire, Pennsylvania and Virginia. However, only utilities that voluntarily disclose their "green" fuel mix and/or emissions are listed in this section. Utilities listed may not have a formal green pricing program or provide services in a restructured state. Those

companies that have been certified as a green energy provider are marked with an asterisk (*).

4.3 Line Extension Analysis Services

When a electric customer requests service, they are charged a distance based fee for the cost of extending power lines to their load. It is often cheaper for the customer to buy a renewable energy system to meet their electricity needs if that distance is more than a mile. Four states require that when a line extension is requested, information on renewable energy alternatives be provided: Arizona, Colorado, New Mexico and Texas. Unfortunately, often what is provided is the cost of extending the grid and a list of renewable energy providers that can provide a quote for the renewable energy system. Two states—Arizona and Texas—require utilities to perform a full cost-benefit analysis, which is needed to fully evaluate the benefits of renewables. Below is a list of utilities that voluntarily provide some form of line extension analysis.

1. Alaska Village Electric Cooperative – AK
2. Alliant Energy – IA, IL, MN, WI
3. Carbon Power and Light – WY
4. Chelan County Public Utility District #1 – WA
5. Clatskanie People's Utility District – OR
6. Georgia Power Company – AL
7. Golden Valley Electric Association – AK
8. Idaho Power Company – ID, NV, OR
9. Madison Gas & Electric Company – WI
10. Navajo Tribal Utility Authority – AZ
11. Northern States Power – MN
12. Plumas-Sierra Rural Electric Cooperative – CA, NV
13. Portland General Electric – OR
14. Southern Maryland Electric Cooperative – MD
15. Tallahassee Electric – FL
16. Wheat Belt Public Power District – NE

4.4 Demand-Side Management Programs Incorporating Renewable Energy

Demand-side management programs offer financial incentives and technical assistance to electric consumers in order to reduce their demand for power. This makes it possible to meet certain power reserve requirements without expanding plant capacity or purchasing reserves—both increasingly expensive options. Three states mandate the inclusion of renewables in DSM programs as part of a broader integrated resource plan: Florida, Indiana and Wisconsin. Other utilities are actively promoting demand-side management that includes renewables.

1. Eugene Water and Electric Board – OR
2. Gainesville Regional Utilities – FL
3. Hawaiian Electric Utilities – HI
4. Idaho Power Company – ID, NV, OR
5. Madison Gas and Electric Company – WI
6. Northern States Power – MN
7. SMUD – CA
8. Tallahassee Electric – FL

Because utility commissions no longer have oversight authority over the resource decisions of power generators following restructuring, DSM will become a less common means of promoting renewables. Most states are looking to establish public benefits funds to promote DSM measures.

5. TECHNICAL ASSISTANCE AND PUBLIC INFORMATION PROGRAMS

Programs in this category include utility sponsored public information/technical assistance programs, renewable energy demonstration projects, and utility sponsored renewable energy research centers. These programs play a critical role in removing the barriers of information access and technology acceptance.

5.1 Utility Sponsored Public Information/Technical Assistance Programs

The utilities listed below have a formal financial relationship with a public service provider or maintain a dedicated in-house program for renewable energy public assistance. Some of these programs are more actively promoted than others.

1. Arizona Public Service – AZ
2. Austin Energy – TX
3. Carbon Power and Light – WY
4. Colorado Springs Utilities – CO
5. Eugene Water and Electric Board – OR – U. of Oregon Solar Information Center
6. Georgia Power Company – AL
7. Hawaiian Electric Utilities – HI
8. Navajo Tribal Authority – AZ
9. New York Power Authority – NY
10. Northern States Power – MN
11. Portland General Electric – OR
12. Reedy Creek Energy Services, Inc. – FL
13. Southern CA Edison – CA
14. Southern Maryland Electric Cooperative – MD
15. Tallahassee Electric – FL
16. Western Area Power Administration – CO
17. Wheat Belt Public Power District – NE
18. Wisconsin Electric – MI, WI
19. Wisconsin Public Service Corporation – MI, WI

5.2 Renewable Energy Demonstration Projects

The utilities listed below have active demonstration projects that include a public information component. This may include facility tours, technical reports or educational materials for students and teachers.

1. Algona Municipal Utilities – IA
2. Alameda Bureau of Electricity – CA
3. Arizona Public Service – AZ
4. Austin Energy – TX
5. Burbank Public Service Dept. – CA
6. Central and South West Corporation–AR,LA,OK,TX
7. Detroit Edison – MI
8. Gainesville Regional Utilities – FL
9. Gulf Power – FL
10. Hawaiian Electric Utilities – HI
11. Idaho Power Company – ID, NV, OR
12. Navajo Tribal Utility Authority – AZ
13. New York Power Authority – NY
14. Nevada Power Company – NV
15. Portland General Electric – OR
16. SMUD – CA
17. Southwestern Public Service Co. – AR, LA,OK,TX
18. Springer Electric Cooperative – NM
19. TU Electric Company – TX
20. Tucson Electric Company – AZ
21. Waverly Light and Power – IA
22. Wheat Belt Public Power District – NE
23. Wisconsin Electric – MI,WI
24. Wisconsin Public Service Corporation – MI, WI

5.3 Utility Sponsored Renewable Energy Research Centers

The renewable energy research centers listed below have a formal financial relationship with one or more utilities. Some of these centers only provide services to their funding utilities. Others provide renewable energy assistance to the public. The common denominator is that these organizations have a strong focus on renewable energy and are wholly or partly funded by electric utilities.

1. Energy Center of Wisconsin – WI – Wisconsin Electric and other utilities
2. Iowa Energy Center – IA – all Iowa utilities
3. Kansas Electric Utilities Research Program (KEURP) – KS – multiple Kansas utilities – ends June 1999
4. Midwest Renewable Energy Association – WI – Wisconsin Electric and other utilities
5. OSU Wind Research Cooperative – OR – Portland General Electric, PacifiCorp, Eugene Water and Electric Board, and Bonneville Power Administration
6. PVUSA Test Center – CA – SMUD and other utilities
7. Regional Solar Radiation Data Monitoring Project – OR – PacifiCorp, Portland General Electric, Eugene Water and Electric Board, and Bonneville Power Administration

6. DSIRE PROJECT METHODOLOGY

The primary method for identifying both state and utility programs, policies and incentives were surveys of state agencies, regulatory agencies, utilities, IREC state contacts and others familiar with renewable energy programs and policies in their respective states. Once an incentive was identified through the survey, the N.C. Solar Center collected relevant documents including statutes, rulings and decisions, legislation, fact sheets, reports, utility material and other information describing the incentive program.

Extensive follow-up telephone contact was necessary with many of the key audiences. The DSIRE project also performed electronic searches of several on-line sources and internet web sites operated by trade, industry, nonprofit organizations, federal government and many others. Any program that was identified through these sources was verified with the help of a state or utility contact or through a state's on-line statutes or utility company's website via the world wide web. Searches were also made of appropriate literature sources.

Information collected from the surveys is compiled in reports that summarize incentives on a state-by-state basis. All of the incentives are indexed by incentive type, state, and applicable renewable energy technology. Agencies and contact persons responsible for overseeing the incentive are identified. Only those incentives that are currently available to consumers are described.