FEDERAL RENEWABLE and DISTRIBUTED ENERGY ACCESSING STATE, CLEAN AIR AND HOMELAND SECURITY FUNDS

By Scott Sklar, President of The Stella Group, Ltd.
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Introduction

Three pools of existing resources at the state government level can be utilized by federal facilities for clean and renewable energy projects.

First, State Clean Energy Trust Funds have been established as a result of state deregulation where state governments have instituted small electric wires charges escorted primarily in quasi-government trust funds. These funds summarized below now have an aggregate of $3.4 billion to spend on clean energy through 2007, and in some cases 2011.

Second, almost all states through their State Implementation Plans (SIPs) to comply with the Clean Air Act. Many of the state SIP plants specifically include clean energy deployment as long as emissions reductions are clear, controlled, and defined. DG displacing older diesel gensets, small coal peaking plants and fuel oil facilities appear most easiest to qualify.

Third, homeland security "first responder" grants are now available to the states of which a major portion after training, communications, and protective clothing will be directed towards infrastructure hardening. The paper below addresses aspect of where DG fits in this area. Over $2 billion over the FY'03 - FY'04 will be available, and may states are relying on federal facilities and state and local government facilities to be operational for emergency, detection, protection, and safe havens in emergencies.

Security implementation can be viewed from many perspectives. But whatever the issue and implementation approach, the supply and access to energy is a critical component.

The discussion, below, explores the options using distributed energy, primarily from renewable energy, advanced batteries, heat engines and fuel cells.

The three security areas covered are:

- low-power sensors, cameras, motion detectors and chemical sniffers - **detection**
- hardening infrastructure and buildings such as back-up power, sensors, uninterruptible power, and power quality – **prevention**
- scanners, electric fences, communications and emergency preparedness – **offensive and defensive preparations and actions**

In the ultra-high-security arena, advanced batteries, solar, small wind, and even on a more limited basis, fuel cells are utilized today. But in industrialized country settings, most is still interconnected with the electric grid or through the use of diesel generators.

DETECTION

From perimeter defense to remote sensing – all sorts of devices are utilized. These devices, in general, are small power to run cameras (traditional to night vision), heat and motion detectors, chemical and biological sensors, and audio taps. As these devices have become solid state, digital, and miniaturized – use of batteries and transformers to grid interface is very common.

Obviously, batteries have limitations for long duration uses. So use of photovoltaics primarily have immense options in adding to the life batteries through trickle charging near or far from the units. Even mini-wind turbines and handheld fuel cells have begun to enter the picture.

The real issue faces the sophistication of terrorists in deterring these devices. Using explosions or "arcs" that emit high electromagnetic pulses can essentially overpower many of these devices. But more easily, is pulsing through grid interconnects of electricity which more naturally burns out sophisticated equipment. The more that is detached from the grid and can be made "longer life" will be far more agile and resistant.

Newer systems can also be hardened from electromagnetic pulsing as part of the package if forethought is given.

The higher and harder to reach any sensing and detection equipment is placed, the harder to disable. PV, small-wind, and mini-fuel cells all have great capacity to be co-located with these devices and hardened themselves appropriately.

Traditionally wired systems are easy to disable, and greater care needs to be given to the more sophisticated and better trained individual.

The military and intelligence agencies have had vast expertise with advanced distributed power technologies which have a solid record of performance.

PREVENTION

Systems that provide rust prevention (cathodic protection), pipeline protection (density sensors), spill and agent pre-detection (chemical and biological sensors), and crime and penetration sensing (heat and motion detectors, cameras and night vision) – as stated earlier – are generally run off of grid-intertied systems, conventional battery banks, and diesel engines.

These larger systems used in prevention of damage to pipelines, electric grid, area and perimeter security, building and facility defense – are even easier to disable than small detection systems.

Diesel engines, aside from their unreliability, generally must have their fuel tanks outside. Aside from fuel disruptions and general breakdowns, any individual with low training skills can damage diesel tanks. Not only can they disable diesel generators, but they can induce the flammable fuel to combust outside the tanks – and all this can be done from afar. Natural disasters have also shown diesel to be an absurd back-up strategy for emergency prepared- ness since they are susceptible to flooding by water and their fuel floats on water.

Larger systems that are grid intertied can have wires cut or transformers disable (which can be done from afar). Battery banks are reliable for short power outages but not long ones. On-site PV along with small

wind systems and even small fuel cells can lengthen battery life for long periods, and in some cases, indefinitely.

Clearly, it is time to invest in renewable-based back-up systems for police, fire, regional homeland security communications, and infrastructure hardening devices – in all its aspects.

Blending energy sources and having redundancy in sensing, communicating and powering should be the basic principle used by federal, state and local government – and private sector – approaches to security.

Emergency Preparedness and Defensive/Offensive

"Drop and Plop" power for the military and traditional emergency preparedness is based upon the reliance of diesel generators. In the military, more than half the support structure relates to fuel delivery. Over-reliance on diesel will cause the cost and back-up logistical to become astronomical as we face homeland security challenges as well as trends to harsher weather patterns relating to global climate change.

Primarily PV and lately fuel cells are used by the military in "theater of war" activities. NASA employs these technologies in very harsh environments. Other technologies including solar absorption cooling, heat engines, micro wind turbines, micro hydropower, and modular biomass systems are all on the verge of becoming more easily available. Aggregated purchasing and training, will lower costs, increase availability, and enhance user confidence.

Systems that provide aggressive protection such as electric fences, eye scanners, and molecular sensors must be used in a more aggressive fashion to protect critical infrastructure. These systems can only be inviolate if power systems can be co-located and have low-maintenance and minimal fuel requirements.

Noise of traditional diesel systems actually create a lure for individuals wishing to cause disruptions. Power lines dropping from transformers are listed in most handbooks as to "what to look for" if anyone wants to disable security systems.

For those relying on diesel after natural disasters, always comment on the harsh environment of being housed near big diesels with their noise and fumes. A more sophisticated approach is needed in even traditional emergency response planning, and now a range of technologies are commercially available.

Lower weight photovoltaics, mobile fuel cells on hydrogen and methanol, micro-wind turbines that can be snapped on existing light and telephone poles, and micro-hydro systems that can be dropped on pontoons – are all now in the market place for very small niche applications.

Heat engines represent the newest technology options. Four US companies have commercialized units at 1 kW, 25 kW, 50 kW, and 250 kW sizes, the larger being in the market over 20 years tied to geothermal applications. The units are quiet, meet high and even stricter proposed emission standards, and can run off a variety of fuels including: industrial and compressor waste heat, natural gas and propane, hydrogen, landfill gas and biogas, geothermal, and concentrated solar. The units do not need highly cleaned gas or as high pressure as is required by most fuel cells and all microturbines. Thus it is possible to have these units running off of traditional fuels but surround them with other resources to be utilized as required.

Conclusion

The world is not a safe place but more technologies are available now than in any time in the past to provide reliable power for an increasingly digital age.

Market signals that allow US industry to evolve, hybridize, and harden technologies to meet security needs are critical.

Smarter training of procurement officials and security planners are critical to know what new technologies are available.

Users of these new technologies must be allowed to be available for government facility, security planners and local governments, so they understand the options, limitation and benefits of these new technologies.

Greater technical support for potential users by experts within the security, distributed energy, smart controls, and wireless communications sectors must be encourages and funded.

Reliance on old technologies is a luxury that can no longer be supported. These traditional technologies – standard battery banks, diesel engines, and grid-intertied systems – are too easy to disable, are unreliable, and do not have long term "staying" power necessary for the emergencies we all may realistically face.

A list of existing State Clean Energy Trust Funds compiled by Clean Energy Funds Network (CEFN) is listed below and is for reference only. The Stella Group, Ltd. works with many of these state funds, State clean air funds, philanthropic funding entities, and private investors on a broad portfolio of clean energy and renewable distributed generation technologies, in many cases blended, for security, clean air, and power quality and reliability projects.

Submitted by

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Clean Energy Funds Network (CEFN)

State Clean Energy Trust Fund List

California

Fund Name - Renewable Energy Program / Renewable Resource Trust Fund

Administrator - California Energy Commission (municipal utilities administer their own funds)

Contact Info - Energy Call Center -- In-state: 800-555-7794; Out -of-state: 916-654-4058 Email: CallCntr@energy.state.ca.us; Web: http://www.energy.ca.gov/ or see additional contact info below

Legal Authority - Assembly Bill 1890, c. 854, Stats. 96 and Senate Bill 90, c. 905, Stats. 97 Extended Authorization, AB 995 and SB 1194 (Sept., 2000)

Years - 1998-2002 (funding ends 3/2002, some program components active through 2006); Extension: 2002-2012

Amount of Fund - Initial Period -- $540 million:

- Existing Renewables - 45% ($243 million)
- New Renewables - 30% ($162 million)
- Emerging Renewables - 10% ($54 million)
- Customers - 15% (customer credit 14% - $75.6 million; education 1% -- $5.4 million)

2002-2012 -- $1.35 billion

Programs/Features - Existing Renewables

- $/kWh production credit
- 3 "tiers" of eligible renewable types with target prices and caps

New Renewables

- $/kWh production incentive awarded to lowest bidders
- Distributed over 5 years from on-line date, must be on line by end of 2001
- Bid bond required for 10% of funding; milestones

Emerging Renewables

- PV, Solar Thermal, Fuel Cells (using digester gas, landfill gas, or other renewable fuel) and Small Wind (£ 10kW).
- 5 fund "blocks," support ratchets down ($3 /watt to $1/watt) over time
- 5-year warranty required against breakdown or degradation of output

Customer Credit

- $/kWh credit reimbursed to suppliers, passed through to consumers, for each kWh of eligible renewable energy consumed; may change every six-months, depending on demand

Public education campaign Process:

- Certification of eligibility, plus submission of invoices/records, for Existing Renewables and Customer Credit programs.
- Bid process for New Renewables; Application process for Emerging Renewables.

Criteria/Limitations -

- Solar, wind, geothermal, solid fuel biomass, whole waste tire combustion, MSW (not consisting primarily of products from fossil fuels), gas from anaerobic digestion of biological wastes, hydro (less than 30 MW)
- Generation source must be physically located "in-state"
- Additional criteria may apply in individual programs

Status: (Nov. 2000)

- Existing Renewables -- Recent high spot market prices mean payments have slowed, producing a large "rollover" surplus through 2001. Target price for Tier 1 (e.g., biomass) to be increased to 5 cents/kWh going forward.

- New Renewables -- $40 million of the surplus from the Existing account to be auctioned off for New projects. Due date for bids 11/15/00. 12 facilities funded by program are currently on-line, providing 104 MW of new capacity. 40 others still being developed
- Emerging Renewables -- $5 million paid to date, plus $3.88 million encumbered for total of 811 reservation requests.
- Customer credits -- 46 grid products from 30 providers are eligible. Credit reduced to 1 cent/kWh on 7/1/00.
- Next 5 year implementation plan draft to be available for comment winter 2000-2001.

Additional California Contact Information:

Existing Technologies Account
Tony Goncalves
916-654-5168
TGoncalv@energy.state.ca.us

Emerging Technologies Account
Sanford Miller
916-653-2834
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New Technologies Account
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Customer Credit Account
Heather Raitt
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Consumer Education
Ann Peterson
916-653-4246
APeterso@energy.state.ca.us

Renewable Providers Registration Program
Jason J. Orta
916-653-5851
JOrta@energy.state.ca.us

Power Content Label
Drake Johnson
916-654-4536
DJohnson@energy.state.ca.us

Renewable Suppliers Registration Program
Tony Goncalves
916-654-5168
TGoncalv@energy.state.ca.us

California Energy Commission
Energy Call Center
1516 Ninth Street, MS-25
Sacramento, CA 95814

Connecticut

Fund Name - Connecticut Clean Energy Fund

Administrator - Connecticut Innovations, Inc.

Advisors: Clean Energy Fund Advisory Committee

Contact Info

Robert Green
CT Clean Energy Fund
999 West Street
Rocky Hill, CT 06067
Phone: 860-563-0015
Email: robert.green@ctinnovations.com

Legal Authority - Public Act 98-28, Section 44

Years - 2000-2005 (no sunset)

Amount of Fund - $118 million over 5 years, System Benefit Charge collected as follows:

- 2000-2001: 0.5 mills/kWh;
- 2002-2003 0.75 mills/kWh;
- 2004 forward: 1 mill/kWh

Programs

- Expected Investment Portfolio: The bulk of the Fund's investments are expected to be in lower-grade, higher-risk positions. In compensation for this higher risk, the Fund will expect higher than average returns.
- "Non-investment" projects: Promotion of clean energy technology as an important near-term contributor to the economy and energy markets of Connecticut is a prime objective of the Fund. Lower priority will be given to projects or proposals that are focused on R&D, demonstrations, market assessments, or other efforts that do not contribute directly to the economy of Connecticut. These projects will be considered, but primarily in terms of their direct contribution to the expected commercialization of the product or technology involved.

Criteria/Limitations

To be considered for investment, a business plan must demonstrate that the investment will:

- Benefit Connecticut ratepayers;
- Stimulate the demand for or production of clean energy;
- Involve one of the clean-energy technologies listed in the legislation: solar, wind, ocean thermal, wave or tidal, fuel cells, landfill gas, low emission advanced biomass conversion technologies and other non-fossil/non-nuke technologies with high commercialization potential.

Status (Nov. 2000)

- Staffed up by adding project finance manager, investment director and administrative staff;
- Made $500,000 loan, convertible to equity, in Conn. Energy Cooperative, an aggregator marketing grid power from clean sources and home solar systems
- In joint venture with ASE Americas, gave seed funding for start-up company Solar Dynamics, Inc., focused on portable solar power systems;
- Commissioned wind energy study for Connecticut.

Illinois

Renewable Energy Resources Program - Illinois Clean Energy Community Trust (CECT)

Fund Name - Renewable Energy Resources Program (and Renewable Energy Resources Trust Fund)
Administrator - Illinois Department of Commerce and Community Affairs

Contact Info - Rex Buhrmester; 217.557.1925; rbuhrmes@commerce.state.il.us

Legal Authority - Public Act 90-561, Article 6, Section 6-1 through 6-5.

Years - 10 years

Amount of Fund +/- $5 million/year -- System Benefit Charge on T&D as follows:
- 5 cents/month for residential gas and electric customers
- 50 cents/ month for non residential gas and electric customers
- $37.50/mo for large C/I gas and electric customers

50% of revenues to fund Trust Fund

Programs - Grants -- to defray project costs up to the lesser of:
- 60% or $300,000 for wind;
- 50% or $150,000 for solar thermal
- 60% or $300,000 for PV
- 50% or $150,000 for certain biomass crops
- 50% or $550,000 for organic waste biomass
- 50% or $1 million for hydro

Rebates for solar thermal and PV systems only, owners may apply for up to:
- 50% or $5,000 for solar thermal
- 60% or $5,000 for PV cells and panels

Criteria/Limitations: Projects must be located in Illinois and constructed after Jan. 1, 1998. "Renewable energy resources" includes energy from wind, solar thermal energy, photovoltaic cells and panels, dedicated crops grown for energy production and organic waste biomass, hydropower that does not involve new construction or significant expansion of hydropower dams, and other such alternative sources of environmentally preferable energy. "Renewable energy resources" does not include energy from the incineration, burning or heating of waste wood, tires, garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, or construction or demolition debris. The Department will accept applications for grants, loans, and other incentives to foster investment in and the development and use of renewable energy resources.

Status (Nov. 2000)
- Supported approx. 40 PV systems to date, constituting more than 100 kW capacity, including $175,200 grant ($6/Watt) for a 29 kW rooftop/awning at a customer service center
- A $550,000 grant for a 7.2 MW, $5.15 million landfill gas project (organic waste), and now working on the first biogas (dairy) system.

Fund Name - Illinois Clean Energy Community Trust (CECT)

Administrator - Illinois Clean Energy Community Foundation

- Directors comprise 6 appointees of House, Senate, Governor, Utility (which appointed Environmental Law and Policy Center), plus 3 nonvoting positions (representatives of state agencies).

Contact Info

Ed Miller, Program Director
Illinois Clean Energy Community Foundation
2 N. LaSalle Street, Suite 950
Springfield, IL 62701
Phone: 312-372-5191
Email: emiller@illinoiscleanenergy.org

Legal Authority - May 27, 1999 Commonwealth Edison Settlement and Public Act 91-0781

Years - Undetermined

Amount of Fund - $250 million (one-time payment from utility - Commonwealth Edison)

- $200-225 million for Efficiency and Renewables
- $25 million for Clean Coal initiatives to Southern Illinois University
- $1 million/year for Citizens Utility Board for 7 years

Programs

Specifics to be determined; Generally, CECT will offer grants, loans, venture capital support, and other financial incentives to develop, improve and implement energy efficiency and renewable energy projects and programs. For the $200-225 million block, efficiency and renewables are the top priority. Expenditures will go to programs and projects to improve energy efficiency, develop renewable energy resources, support other energy-related projects that improve Illinois' environmental quality, and support programs and projects needed to preserve or enhance the natural habitats and wildlife of Illinois. Up to $25 million of this block shall be made available to programs or projects related to clean coal.

Criteria/Limitations

Projects, such as solar, wind, or biomass energy, or energy efficiency programs that reduce electricity consumption and prevent pollution will eligible for funding. Not necessarily limited to projects in-state, but must be shown to benefit Illinois' environment and/or economy.

Status (Nov. 2000)

- Board of Trustees has been appointed and funds have been received from ComEd
- Aiming to hire executive director by 12/31/2000
- Board preliminarily authorized $30M to be made available through grants, loans, etc. in 2001.
- Planning to issue grantmaking and program guidelines in January 2001

Massachusetts

Fund Name - Massachusetts Renewable Energy Trust Fund

Administrator - Massachusetts Technology Park Corp.
- Massachusetts Renewable Energy Trust (MRET)

Contact Info

Rob Pratt
MA Renewable Energy Trust (MTC)
75 North Drive
Westborough, MA 01581
Phone: 508-870-0312
Email: robpratt@masstech.org
http://www.mtpc.org/massrenew/

Legal Authority - General Laws of Mass., c. 25, § 20, and c. 40J, §4E

Years - At least 5, from March 1, 1998 - February 28, 2003. Will continue indefinitely unless otherwise legislated.

Amount of Fund: +/- $150 million total for renewables over 5 years. Derived from a $/kWh SBC charge as follows: 1998 - $0.00075; 1999 - $0.001; 2000 - $0.00125; 2001 - $0.001; 2002 - $0.00075; 2003 and after - $0.0005

Programs - Statutorily allowable programs allow expenditure of monies to "make grants, contracts, loans, equity investments, energy production credits, bill credits, or rebates to customers, to provide financial or debt service obligation assistance, or to take any other actions, in such forms, under such terms and conditions and pursuant to such selection procedures as the board deems appropriate and otherwise in a manner consistent with good business practices; provided, however, that the board shall generally employ a preference for competitive procurements ..." §4E, c.40J. Focus on 5 initiatives: (1) support distributed generation; (2) support the green power market; (3) develop renewable energy sector in the state; (4) help educational facilities to develop renewable energy programs; and (5) pursue special opportunities.

Criteria/Limitations
Projects must demonstrate that they will advance at least one of the following: (i) the growth of the renewable energy-provider industry; (ii) the use of renewable energy by electricity customers in the commonwealth; (iii) public education and training regarding renewable energy; (iv) product and market development; (v) pilot and demonstration projects and other activities designed to increase the use and affordability of renewable energy resources by and for consumers in the commonwealth; (vi) the provision of financing in support of the development and application of related technologies at all levels, including, but not limited to, basic and applied research and commercialization activities; (vii) the design and making of improvements to existing renewable energy projects and facilities as defined herein which were in operation as of December 31, 1997; and (viii) matters related to the conservation of scarce energy resources. Renewable energy technologies eligible for assistance include: solar photovoltaic and solar thermal electric energy; wind energy; ocean thermal, wave, or tidal energy; fuel cells; landfill gas; waste-to-energy which is a component of conventional municipal solid waste plant technology in commercial use; naturally flowing water and hydroelectric; low emission, advanced biomass power conversion technologies, such as gasification using such biomass fuels as wood, agricultural, or food

wastes, energy crops, biogas, biodiesel, or organic refuse-derived fuel; and storage and conversion technologies connected to qualifying generation projects.

Status - (Nov. 2000)

- Collections began with commencement of competition.
- Implementation and disbursement of funds has been delayed for two years in part due to the Shays lawsuit that was decided in the April, 2000.
- Draft Strategic Plan provisionally approved by Board on June 28, 2000.
- More than 200 applications for support have been received

Minnesota

Fund Name - Renewable Energy Development Fund

Administrator - Renewable Development Board
- Managed by local utility, Northern States Power, the Board will consist of two NSP employees and two representatives from the environmental community
- Public Utility Commission gets final sign-off

Contact Info

John Lupo
Xcel Energy Renewable Development Fund Administrator
Xcel Energy
414 Nicolett Mall
Minneapolis, MN, 55401
mailto:john.lupo@xemkt.com; (Email)
http://www.xcelenergy.com/EnergyMarkets/EnergyMarketsRFPmain.asp (Web)

Legal Authority - Sec. 779, Ch. 116C, Minnesota Statutes 1999

Years- Beginning 1999 and lasting until radioactive waste shipped to permanent storage/disposal

Amount of Fund - $500,000 per year per cask of radioactive waste
- $4.5 million in 1999
- $8.5 million/year expected by 2003

Programs
- Grants
- Loans and/or revolving loan funds;
- Production incentives; and
- Equity partnerships

Criteria/Limitations
- run of river hydro, solar, and wind
- must be new
- must be commercially viable

Status (Nov. 2000)
- Summer 2000, advisory committee held public process to develop qualifications criteria, which will send to the MN PUC for approval
- Once PUC has accepted the plan, a Renewable Energy Board will be formed to implement a competitive funding process and ultimately disburse funds to successful applicants.

Montana

Fund Name - Universal System Benefits Program

Administrator - Utilities (Montana Power Company (MPC), Montana-Dakota Utility, co-ops)

Contact Info

David Ryan, 406.497.2322; Email - dnryan@mtpower.comWeb - http://www.MTPower.com/eplus/en_renewable_energy.htm

Legal Authority - Electric Utility Industry Restructuring and Customer Choice Act, §69-8-402

Years - Jan 1, 1999 - July 1, 2003 – Collection of System Benefit Charge

Amount of Fund - Revenue -- 2.4% of each utility's annual retail sales revenue for the calendar year ending 12/95. Large customers (>1 MW) contribute 0.9 mills/kWh or $500,000, less any amount they spend directly toward the purposes of the universal system benefits program. 17% of total fund must go to low-income and weatherization purposes. For Renewables -- +/- $2 million/year ($1.1 million/year by MPC; about $64,000/year by Montana-Dakota).

Programs - MPC funding is going to a $1.5 million buy-down for 3 MW of central wind generation and also supports the National Center for Appropriate Technology (NCAT) located in Butte, MT. The NCAT program administers:

- Sun4Schools Project – Putting 2 kW PV systems on schools, net metered, monitored, plus solar energy curriculum, 100% of cost subsidized
- Residential PV Group Purchase Project – 1 kW net metered PV systems
- Affordable Solar Project – Solar space heating and hot water for low-income residences
- AgSolar Project – Developing and installing solar powered water-pumping and electric fencing systems for use in agriculture
- Solar Adaptable House Design
- A website at http://www.montanagreenpower.com/

Process – MPC issues both open and directed Request for Proposals

Criteria/Limitations - MPC

- Projects, applications, and research leading to the use of technologies to encourage the use of renewable energy may qualify for incentives.
- Purchase of electric supply derived from renewable sources may qualify for cost sharing by MPC.
- Projects must benefit MPC distribution customers.
- "New renewable resource projects" are technologies that create electricity, or useful work that replaces distributed electricity, from virtually inexhaustible energy sources.
- Preference given to solar, geothermal, and wind projects; other eligible energy sources include biomass and small hydro projects.
- Siting to minimize environmental impacts and maximum benefit to MPC's distribution system and MPC distribution customers is considered.
- Projects proposed which demonstrate benefits to more than one public purpose will be preferred.

Status - (Nov. 2000)

- PV on 12 schools with plans for 12 more, 100% subsidy
  • PV at 26 residences with plans for 15 more, +/- 75% subsidy
- PV in 3 commercial applications (ranging from 4.5 kW to 5.5 kW)
- 6 agricultural solar applications
- Plans for +/- 16 micro-wind distributed generation projects and 2 low-income PV applications
- Black Feet 1, LLC selected to receive $1.5 million production credit toward 3 MW of wind capacity at 23 MW site, still under development

New Jersey

Fund Name - Societal Benefits Charge - Renewable Energy Programs

Administrator - To Be Determined

Contact Info

Cassandra Kling
NJ Board of Public Utilities
2 Gateway Center
Newark, NJ 07102
Email: cassandra.kling@bpu.state.nj.us

Legal Authority - Section 12, Electric Discount and Energy Competition Act of 1999 (SB 7)

Years - 2000-2007

Amount of Fund

- $117.5 million per year, first 4 years, for renewables and energy efficiency, at least 25% ($29.375 million) for Class I renewables
- Grows to $140 million per year over the following 4 years, at least 25% ($35 million) for Class I renewables.

Programs - Two proposals under consideration:

1. Utility-NRDC-Environmental Defense et al Proposal
   - Customer-sited Clean Energy Generation Program (50%)
   - Grid-Supply Clean Energy Generation Program (25%)
   - Research, Development and Commercialization Projects/Market Development Program (25%)

2. Ratepayer Advocate-Pace-NJ PiRG et al Proposal
   - Market Development Program (40%) to help supply (Competitive Solicitation Program) and demand (Customer Credit Program)
   - Direct Incentives for Small Emerging Technologies Program (40%)
   - Infrastructure development programs (20%)

Criteria/Limitations - Details To Be Determined

Class I Renewables:

- electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells, geothermal technologies, wave or tidal action, and methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner.

Status (Nov. 2000)

- Comprehensive Resource Analysis of energy programs completed, under review by the Board of Public Utilities (BPU).
- Jan.10, 2000 was the initial deadline for settlement between the utilities and stakeholders as to programming and administrative issues; however, disagreements about who should administer the funds and concern about the impact on consumers rates have delayed a settlement.

- On 10/10/2000, BPU approved, on an interim basis, releasing $10 million (25% of which is for renewables) to the utilities, with oversight by the BPU, to begin program work until a final settlement/decision on administration can be reached.
- BPU staff is developing a process by which interested parties may submit project proposals to the Board for approval.

New Mexico

Fund Name - Electric Industry System Benefits Fund

Administrator - New Mexico Environment Department

Contact Info:

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melinda_hall@nmenv.state.nm.us (Email)
http://www.nmenv.state.nm.us/ (Web)

Legal Authority - Section 15, Senate Bill 428 of 1999 - (Electricity Utility Industry Restructuring Act)

Years - January 1, 2002 - indefinitely

Amount of Fund: +/- $5.5 million total, from $.0003/kWh system benefits charge.

- No more than $100,000/year for administration;
- $500,000/year for consumer education;
- No more than $4 million/year to encourage the use of renewable energy.

SBC doubles as of Jan. 1, 2007.

Programs; Consumer education; Types of support for eligible renewables to be determined in negotiated rulemaking (see below).

Criteria/Limitations - Solar, Wind, Geothermal, Biomass, Landfill gas, Hydropower, Other non-fossil fuel powered energy sources are eligible. Recipients limited to school districts and governing bodies of cities, towns, villages or counties. Factors for project approval include:

- contribution to potential commercialization of the renewable technology
- geographic area of the state
- project cost and relative contribution of public funds to the project
- in the case of school recipients, number of students involved.

Status - (Nov. 2000)
Implementation Rules -- In order to create rules to govern the Fund, the NM Environment Department began a negotiated rulemaking process. As of November 1, 2000 the System Benefits Fund Task Force had met five times since been convened since May 2000. The Draft Rule is available on website as of 9.19.00. The task force expects to have a final report and rule recommendation to the Cabinet Secretary by early November 2000.

New York

Fund Name - New York Energy $mart

Administrator - NY State Energy Research and Development Authority (NYSERDA)

Contact Info

Jeff Peterson, jmp@nyserda.org, 518.862.1090
http://www.nyserda.org/

Legal Authority - Opinion 96-12 of the Public Service Commission (PSC) , and PSC Order Approving System Benefits Charge Plan with Modifications (Case 94-E-0952)(July 2, 1998)

Years - 3 years, beginning July 1, 1998

Amount of Fund - $234.3 million total over three years

- $62 million administered by utilities
- $172 million administered by NYSERDA

- of which, $26.2 million over 3 years available for Research and Development, including $12.7 million for renewables

Programs

- Wind Power Plant Demonstration Program
- Wind Prospecting Program
- Residential PV
- PV on Buildings
- High Value PV & Wind
- Biomass – Willow Plantation Development
- Environmental Monitoring, Evaluation and Protection
- Static Inverter Test Procedure Demonstration

Criteria/Limitations - Target markets and installations must be located in state. Looking for co-funding (of more than 50%) from project proposers. Technologies targeted through the solicitations.

Status - (Nov. 2000)

- Interim status report on the renewables SBC program on-line Sept. 2000
- Wind -- $2 million in performance-based incentives given to 11.5 MW Madison project, operational 10/2000. Funding for a second project, abandoned due to lack of progress, was recently reallocated for a 7.5 MW project and a 10 MW project (under negotiation) expecting installation in summer 2001.
- Wind Prospecting –$300,000 toward site identification and characterization, winning proposal(s) will be selected by 12/31/2000.
- PV -- 3 separate PV projects awarded $1.25 million total in 1999 to identify dealers and installers and to support a local manufacturer/dealer; expected to install 285 residential systems.
- PV on Buildings – Plans in place for 781 kW of new PV (186kW at library installed 10/00), using $2.1 million in subsidies to 7 different winning proposals
- High Value PV & Wind – 11 proposals to identify market barriers and market assistance needs have been received and under review.

- Willows -- $878,000 contributed to market development study on commercializing dedicated energy crop in NY.
- Static Inverter -- $53,000 SBC funds added to $36,000 of Plug Power money to demonstrate various distributed generation inverters' compliance with state Standard Interconnection Requirements.

Ohio

Fund Name - Energy Efficiency Revolving Loan Fund Program

Administrator - Ohio Department of Development, Office of Energy Efficiency
- Public Benefits Advisory Board

Contact Info - Main Phone (614) 466-6797; Fax (614) 466-1864

Judy Jones (614) 466-8139; jsjones@odod.state.oh.us
Sara Ward; (614) 466-8396; sward@odod.state.oh.us

Legal Authority - Section 4928.61 et seq., Amended Substitute Senate Bill No. 3; 123rd General Assembly, Regular Session, 1999-2000

Years - Collections last for 10 years or $100 million, whichever comes first, beginning on first day of competitive retail electric service.

Amount of Fund - $100 million total -- Allocation for renewables TBD

Programs - Low-interest loans, loan guarantees for such loans, and linked deposits for such loans.

Criteria/Limitations - Must include an investment in products, technologies or services for use by entities located in the state. Must use most appropriate standards and best practices. Must benefit the economic and environmental welfare of the state. Receipt of public funds must be a "major factor" in completing the project

Status (Nov. 2000)
- Slated to begin operations in January, 2001 and to receive first revenues at the end of the first quarter of 2001.
- In the process of hiring new administrative staff to oversee the program.
- Currently seeking input into the appropriate criteria and process for determining which renewable projects will be funded.
- Will use the spring 2001 to put a process in place with hopes of beginning funding for renewable projects in the middle of 2001.

Oregon

Fund Name - Public Purpose Charge

Administrator - Energy Trust of Oregon
- final decisions approved by Oregon Public Utility Commission

Contact Info

Peter West, Director
Renewable Energy Trust of Oregon
733 SW Oak Street, Suite 200
Portland, OR 97214
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Email: peter@energytrust.org

Legal Authority - Section 3, Senate Bill 1149, 1999 Regular Session

Years - Collection of SBC lasts 10 years beginning October 1, 2001 or when direct access is offered.

Amount of Fund - Collection of 3% of total revenues collected by electric utilities and electricity service suppliers, of which:
- Statute allocates 19% for the above-market costs of new renewable energy resources. After deducting mandatory 10 % pass-through to schools, 17.1% of fund will remain for renewables (approximately $8.7 million per year).

Programs - Customer credits or other incentive mechanisms for the above-market cost of new renewable energy purchases or investment, details TBD.

Criteria/Limitations
'Renewable energy resources' means:

(a) Electricity generation facilities fueled by wind, waste, solar or geothermal power or by low-emission nontoxic biomass based on solid organic fuels from wood, forest and field residues.
(b) Dedicated energy crops available on a renewable basis.
(c) Landfill gas and digester gas.
(d) Hydroelectric facilities located outside protected areas as defined by federal law in effect on the effective date of [the Restructuring] Act.

'New renewable energy resource' means a renewable energy resource project, or a new addition to an existing renewable energy resource project, or the electricity produced by the project, that is not in operation on the effective date of the Act. 'New renewable energy resource' does not include any portion of a renewable energy resource project under contract to the Bonneville Power Administration on or before the effective date of this 1999 Act.

Large customers (>1MW) may "self-direct" expenditure of the renewables and conservation portions of their Public Purpose Charge after project certification by state Office of Energy.

Status (Nov., 2000)
- Oct. 20, 2000, PUC approved establishment of a quasi-independent, nonprofit administrator to manage the Public Purposes program

- July 10, PUC staff issued a White Paper on the establishment of an independent, nonprofit entity to administer Fund
- July 11, PUC issued a Notice of an informal public process to review White Paper proposals
- Initial rules for implementation of public purpose provisions and electric restructuring adopted summer, 2000 in Docket AR 380
- PUC looking to appoint a board of directors and start the process of writing a draft Strategic Plan by spring of 2001.

Pennsylvania

GPU Sustainable Energy Fund
PECO Energy Service Territory
PPL Service Territory
West Penn Service Territory

Fund Name - GPU Sustainable Energy Fund

Administrator - The GPU Sustainable Energy Fund has a single Advisory Board but has separate administrators for the Met Ed and for the Penelec service territories.

For the Met Ed region:
Berks County Community Foundation
For the Penelec region: Community Foundation Serving Cambria, Bedford & Somerset Counties

Contact Information
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Pennsylvania Environmental Council
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Phone: 412.481.9400
Fax 412.481.9401
Scott Vandermark, 412.481.9400 pecpgh@sgi.net

Legal Authority - Joint Petition for Full Settlement of the Restructuring Plans, Paragraph H.5, dated September 24, 1998, approved by Order of the PA PUC entered October 20, 1998 in Dockets R-00974008 and R-00974009.

Years - Funding is guaranteed from January 1, 1999 through December 31, 2004. After 1/1/2005, funding will continue at the level of 1/100 of a cent per kWh unless a T&D rate case concludes continued funding is not just, reasonable and in the public interest.

Amount of Fund - $12.1 million in a lump sum representing payments through 12/31/04. The allocation between the two service territories is $5.7 million for the Met-Ed territory and $6.4 million for Penelec territory.

Programs - Financing is available in the form of:

- Commercial loans
- Subordinated debt
- Royalty financing
- Equity investment
- Grants

Criteria/Limitations

The Fund's stated purpose is to promote (1) the development and use of renewable energy and advanced clean energy technologies, (2) energy conservation and efficiency, (3) sustainable energy businesses, and (4) transmission and distribution projects which improve the environment.

Status (Nov 2000)

- Board nominations were approved by the PA PUC on May 21, 1999
- Bylaws were approved by the PA PUC on April 27, 2000

Pennsylvania - PECO Energy Service Territory

Fund Name - Sustainable Development Fund

Administrator - The Reinvestment Fund

Contact Information

Sustainable Development Fund
Cast Iron Building – Suite 300 North
718 Arch Street
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Phone: 215.925.1130
Fax: 215.923.4764
Web: www.trfund.com/sdf
Robert G. Sanders 215.925.1130 x252 rob.sanders@trfund.com
Roger E. Clark 215.925.1130 x227 roger.clark@trfund.com

Legal Authority

- Joint Petition for Full Settlement of PECO Energy Company's Restructuring Plans, Section P, dated April 29, 1998, approved by Order of the PA PUC entered May 14, 1998 in Docket R-00971265.
- Joint Petition for Settlement in PECO Energy's Application for Approval of Corporate Restructuring, dated March 23, 2000, approved by Order of the PA PUC entered June 22, 2000 in Docket No. A-110550F0147.

Years - Funding is guaranteed from January 1, 1999 through December 31, 2006. After 12/31/2006, funding will continue at the level of 1/200 of a cent per kWh unless a T&D rate case concludes continued funding is not just, reasonable and in the public interest.

Amount of Fund

- Total funding is approximately $32 million.
- The PECO/Unicom merger settlement added $12 million program for new PA wind development; $4 million solar photovoltaic program; and $2.5 million program for public education about renewable energy

- Additional capital may be raised by The Reinvestment Fund as needed.

Programs - Financing is available in the form of:
- Commercial loans
- Subordinated debt
- Royalty financing
- Equity investment
- Grants

Loans range from $50,000 to $250,000. Interest rate is below market. Grants (8 per year) average $25,000 for sustainable energy business planning, start-up costs and green building computer modeling design work.

Criteria/Limitations
The Fund's stated purpose is to promote (1) the development and use of renewable energy and advanced clean energy technologies, (2) energy conservation and efficiency, and (3) sustainable energy businesses.

Status (Nov 2000)
Board nominations were approved by the PA PUC on May 21, 1999. Bylaws were approved by the PA PUC on December 16, 1999. To date, SDF has committed $2,084618 for projects:
- $1,870,000 in seven financial deals (loans and near equity financing)
- $214,618 in ten grants

Pennsylvania - PPL Service Territory

Fund Name - PPL Sustainable Energy Fund

Administrator - PPL Sustainable Energy Fund

Contact Information

PPL Sustainable Energy Fund
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Web: http://www.sustainableenergyfund.org

Legal Authority - Joint Petition for Full Settlement of PP&L's Restructuring Plans, Paragraph E.5, dated August 12, 1998, approved by Order of the PA PUC entered August 27, 1998 in Docket R-00973954.

Years - Funding is guaranteed from January 1, 1999 through December 31, 2004. After 12/31/2004, funding will continue at the level of 1/100 of a cent per kWh unless a T&D rate case concludes continued funding is not just, reasonable and in the public interest.

Amount of Fund
- 1/100 of a cent per kWh in T&D rates until T&D rates are changed after Dec. 31, 2004.
- Estimated receipts projected to be $3.3 million in 1999 and to grow with sales.
- 6 year total will be approximately $20.5 million.

Programs - Financing is available in the form of:
- Commercial loans
- Subordinated debt
- Royalty financing
- Equity investment
- Grants

Criteria/Limitations - The Fund's stated purpose is to promote (1) the development and use of renewable energy and advanced clean energy technologies, (2) energy conservation and efficiency, and (3) sustainable energy businesses.

Status (Nov. 2000)
- Board nominations were approved by the PA PUC on May 21, 1999
- Bylaws were approved by the PA PUC on June 2, 2000
- First financing deals were approved by the board on November 7, 2000

Pennsylvania - West Penn Service Territory

Fund Name - West Penn Sustainable Energy Fund

Administrator - Economic Growth Connection of Westmoreland County

Contact Information

Economic Growth Connection of Westmoreland County
540 South Main Street - Suite 6
Greensburg, PA 15601
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John Skiavo 724.830.9604 jskiavo@charterpa.net

Legal Authority - Joint Petition for Full Settlement of West Penn Power Company's Restructuring Plans, Paragraph D.3, dated November 3, 1998, approved by Order of the PA PUC entered November 19, 1998 in Docket R-00973981.

Years - Funding is guaranteed from January 1, 1999 through January 1, 2006. After 1/1/2006, funding will continue at the level of 1/100 of a cent per kWh unless a T&D rate case concludes continued funding is not just, reasonable and in the public interest.
Amount of Fund - $ 11.4 million in a lump sum representing payments through 1/1/06.

Programs - Financing is available in the form of:
- Commercial loans
- Subordinated debt
- Royalty financing
- Equity investment
- Grants

Criteria/Limitations - The Fund's stated purpose is to promote (1) the development and use of renewable energy and advanced clean energy technologies, (2) energy conservation and efficiency, and (3) sustainable energy businesses.

Status (Nov 2000)

- Board nominations were approved by the PA PUC on May 21, 1999.
- Bylaws were approved by the PA PUC on June 2, 2000.

Rhode Island

Fund Name - Rhode Island Renewable Energy Collaborative

Administrator - Public Utilities Commission:

- Collaborative administration includes input from: RI Div. of Public Utilities and Carriers; Public Utilities Commission; Office of Attorney General; RI State Energy Office; Outside Advisor; Utilities; Conservation Law Foundation; Energy Council of RI

Contact Info

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RI State Energy Office
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Legal Authority - Section 39-2-1.2(b), Chapter 316, 96-H 8124B, the Electricity Restructuring Act of 1996

Years - Beginning Jan. 1, 1997, lasting five (5) years.

Amount of Fund

- 2.3 mills/kWh (may be raised in commission's discretion),
- Total SBC estimated at $26 million for 2000, of which the renewables allocation depends on the number and size of approved applications.
- Projected to be about $3.5 million/year for renewables for 2000.

Programs - Project by project applications in response to open RFP (or Request for Qualifications) direct RFP/RFQs to potentially interested parties.

- See details of awarded contracts in Status Box, below.
- Fuel Cells -- In 2000, $840,000 available for two large-scale International Fuel Cell (200 kW) units and $60,000 available for smaller residential-scale Avista fuel cells of less than 10 kW.

Criteria/Limitations

- "Renewable energy resources shall mean power generation technologies that produce electricity from wind energy, small scale (less than 100 MW) hydropower plants that do not require he construction of new dams, solar energy, and sustainably managed biomass. Fuel cells may be considered an energy efficiency technology to be included in demand-side management programs.
- Projects limited to "new," commercially available renewables systems or related public education.

Status (July, 2000)

- Open solicitation -- In 2000, RIREC sent out an open request for proposals for $425,000 in renewable electric generation projects not covered by other targeted RFPs.
- Summer 2000 -- Commissioned comparative study of other state incentive programs for renewable energy.

- Fuel cell projects: In 1999, allocated $325,000 each to the University of Rhode Island (URI) and South County Hospital to install 200 kW ONSI PC25 fuel cells plus $30,000 for outreach about the installations. Only the hospital project went forward. 2000 funds for fuel cells still available.
- Wind Project -- Completed review of existing wind speed data, direct measurement of the wind resource at one or more promising sites for commercial wind installations. Construction and commissioning phase suspended due to limited resource quality and landowner concerns.
- Residential and commercial PV programs merged into new PV Vendor program in 2000, provides $1.50/Watt buy-down. Five vendors selected to participate.
- Landfill gas project -- $300,000 allocated to replace the existing 480 kW landfill gas generating unit at the Cranston landfill with a more efficient 800 kW unit. Project on hold.
- PV Outdoor Lighting awarded $50,000 for installation and monitoring several PV-powered outdoor light demonstration projects.
- Residential PV -- roughly ten systems installed, total project award reduced from $250,000 to $50,000.
- Commercial PV -- budgeted $450,000 on a performance basis to two contractors to install up to 300 kW at through 1999. 43 kW PV installed on the roof of BJ's wholesale club.
- Program development studies, including in-depth study of market development in the photovoltaic industry (1997-98)

Wisconsin

Fund Name - Utility Public Benefits Fund
• Wisconsin Focus on Energy (name of pilot program)

Administrator - Wisconsin Department of Administration (DOA), Division of Energy and Public Benefits
- contracting implementation to one or more non-profit administrators
- operate in consultation with 11-member Council on Public Benefits
- investor owned utilities currently manage a portion of the funds, but after 2002 must forward all funds to state DOA.

Contact Info

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State of Wisconsin
Department of Administration
PO Box 7868
Madison, WI 53707-7868
http://www.wifocusonenergy.com/cycleone.html

Legal Authority - Reliability 2000 Law, Part of 1999 Wisconsin Act 9

Years - Continuous, beginning April 1, 1999

Amount of Fund ; +/- $3 million/year for renewables (4.5% of total SBC for renewables)
Plus 1.75 % of SBC available for R&D. Derived from a "non-taxable customer charge"

Programs
- Solar: daylighting, off-grid PV, hot water, passive and active space heating
- Off-grid wind: residential, rural, commercial, industrial
- Biomass: clean wood stoves, waste wood burning, paper pellets as fuel, and biogas from waste
- Ground-source heat pumps: residential and commercial
- Small-scale hydro: off-grid, commercial, and industrial, all at existing dams
- Public awareness campaign

Financing Programs include:
- low interest loans (4%, for residential only)
- interest rate buy-downs (take 4% off commercially available rates)
- installation rewards
- contractors' guaranteed savings program

Criteria/Limitations
- Renewable Resource includes electricity derived from a fuel cell that uses a renewable fuel (as determined by the Commission), tidal or wave action, solar thermal electric or PV, wind power, geothermal technology, biomass, and hydro (less than 60MW).
- Eligible renewable resources must be:

- placed in service no later than Jan. 1, 1998
- demand-side, customer-sited applications

Status (Nov. 2000)

- Program expands statewide in 2001. RFP to select new nonprofit administrator(s) expected Dec. 2000, decision expected winter 2001.
- The first "Non-taxable Customer Charge" on electric bills issued in October 2000 billing cycles.
- Second Interim Evaluation Report on Wisconsin Focus on Energy Program issued 10.20.2000, available at http://www.wifocusonenergy.com/newsviews/2ndinter.html
- Pilot project - Demand-Side Application of Renewable Energy (DSARE) spent more than $1 million supporting 41 renewable energy projects in WPSC service territory over past two years. Second Round of $800,000 began Sept. 1, 2000 with contracts going through 12.31.2002.
- July, 2000, the Bureau of Energy issued a Request for Information. Questions and selected responses can be found at http://www.wifocusonenergy.com/newsviews/wordfiles/sec07.doc