Fuel Cell Power
Office of Power Technologies
DOE

FUEL CELL SUMMIT

Volume 4, Issue 1

A quarterly newsletter published by the U.S. Department of Energy for the U.S. fuel cell industry to foster development and adoption of codes and standards

DOE turning C&S Needs into Action Plan

The U.S. Department of Energy (DOE) recognizes that development of affordable hydrogen and fuel cell technologies and the promulgation of domestic and international codes and standards must occur simultaneously to enable the timely commercialization and safe use of these technologies. This was one of the key messages delivered in an August 19-20, 2002,workshop convened by Neil Rossmeissl, the Hydrogen, Fuel Cells, and Infrastructure Technologies Program (HFCITP) Manager responsible for the development of codes and standards for hydrogen and fuel cell technologies. This meeting was the first gathering of top-level representatives from the code-writing bodies, fuel cell manufacturers, industrial gas producers, government regulators, and trade associations to report on current efforts and needs. In attendance were representatives from the International Code Council, Underwriters Laboratory, CSA America, American Gas Association, Society of Automotive Engineers, National Fire Protection Association, Department of Transportation, NASA, and National Hydrogen Association and Fuel Cell Council, just to name a few.

In total, 41 representatives from industry and code organizations participated in the meeting. The meeting, held in the Washington, D.C. office of the National Renewable Energy Laboratory, included presentations and facilitated sessions to engage the participants and identify critical areas for DOE to focus its activities. The results from this meeting are being used to produce a Hydrogen Codes & Standards Five-Year Plan to be used internally to guide the proactive development of necessary codes and standards in partnership with stakeholders.

Neil Rossmeissl opened the meeting by presenting DOE's interest in codes and standards, government's responsibility in their development, and the Hydrogen Codes & Standards Five-Year Plan. Experts in these areas made three additional presentations to set the stage for the workshop:

- Algis Vasys, a consultant to DOE and NREL, presented the status of model building codes and the hearings in Fort Worth, Texas on the proposed changes to the International Code Council (ICC) family of model codes
- John Donohue, UTC Fuel Cells, presented the status of equipment standards
- Robert Mauro, a consultant to the National Hydrogen Association, presented information on the development of international standards and global harmonization of these hydrogen standards by the international community.

The two-day meeting identified and prioritized codes and standards needs to be addressed in the Hydrogen C&S plan. For six specific areas the most significant were considered to be

- Buildings-fuel cell and hydrogen applications: model building codes; component and product standards; installation (& interconnect) standards; and hydrogen storage
- Vehicles: motor vehicle safety standards and on-board storage
- Fueling Facility: hydrogen storage-pressure vessel code; model building codes-refueling station; setback/separation distances; and dispensing protocol standard
- Service Repair Facilities: certification and training
- Delivery: hydrogen transport
- Portables: hydride tanks; product standard; and standard for refueling systems

For more information on the development of hydrogen and fuel cell codes and standards, contact Neil Rossmeissl, DOE HFCITP Manager, at (202) 586-8668 or email neil.rossmeissl@ee.doe.gov. The workshop proceedings are available at www.eren.doe.gov.

We've moved. . . and we're expanding!

The Fuel Cell Summit newsletter's new home is the Hydrogen, Fuel Cells, and Infrastructure Technologies Program. Starting with the January issue, the newsletter will expand to include information on hydrogen – its production, distribution, storage, and use.

For additional information on hydrogen as a fuel, visit the Hydrogen Information Network (www.eren.doe.gov/hydrogen/) and the National Renewable Energy Laboratory (www.nrel.gov/clean_energy/hydrogen.html) websites.

For additional information on the Hydrogen, Fuel Cells, and Infrastructure Technologies Program, visit the website (www.eren.doe.gov/hydrogen_fuelcell.html) or contact Neil Rossmeissl via email (Neil.Rossmeissl@ee.doe.gov) or at (202) 586-8668.

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Visit the Fuel Cells website at: www.pnl.gov/fuelcells

Model Interconnection Standards Contributing to Success of Distributed Technologies

Utilities and states currently have diverse and often burdensome requirements for interconnecting nonutility-owned distributed generation (DG) with the distribution grid. Industry groups have identified grid interconnection as a major barrier to the installation of DG technologies. Barriers exist for all DG technologies in all regions of the country.

Lengthy approval processes and a lack of model consensus standards for connecting equipment to the grid are some of the barriers discouraging interconnection in the U.S. market. DG proponents agree that a simplified, uniform set of interconnection standards for small-scale DG technologies are urgently needed to advance the deployment of these technologies.

Efforts are underway at the state, national, and international levels to establish standards for grid interconnection. Over the last few years, the National Association of Regulatory Utility Commissioners (NARUC), the Federal Energy Regulatory Commission (FERC), the Institute of Electrical and Electronics Engineers (IEEE), and several states have developed DG interconnection requirements for small generators to ensure safety and system reliability. Several other states are considering how to implement DG. Interconnection requirements address technical and contractual issues that define the relationships between the small-system owner and the utility.

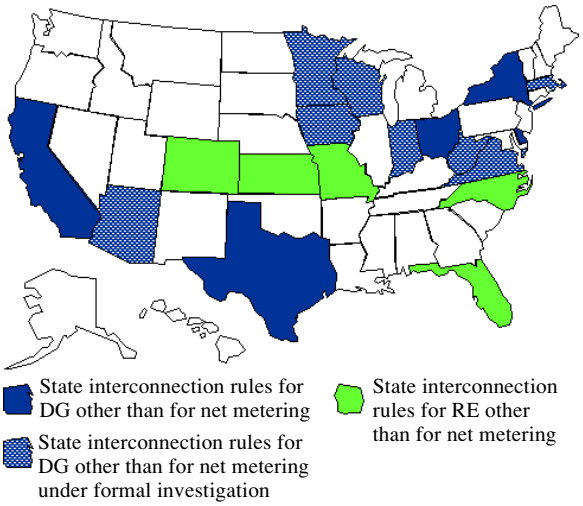
IEEE Standard

The IEEE Standards Coordinating Committee 21 (IEEE SCC21), supported by representatives from industry, utilities, manufacturers, and national laboratories, is developing IEEE P1547, "Standard for Distributed Resources Interconnected with Electric Power Systems." The consensus standard will contain performance, operation, testing, safety, and maintenance requirements for interconnections between distributed resources and other electric power systems. It will address electrical interconnection at the point of interface or point of common coupling but will not cover broader impacts of DER on the power system.

Industry experts expect the IEEE standard to be a key milestone in realizing a standardized and appropriate interconnection standard for the U.S. power industry.[1]

DOE has provided funding to help IEEE develop the standard on an accelerated schedule of two to three years. Balloting opened on the standard on August 28, 2002, and closed on September 26, 2002. IEEE received 230 ballots. The IEEE SCC21 plans to meet in October 2002 to discuss the ballot results.

For more information, visit the IEEE website at www.ieee.org/.



State Interconnection Policies

FERC Model

On August 16, 2002, FERC issued an Advance Notice of Proposed Rulemaking on a proposed national standard for the interconnection of small distributed generators to the grid. Although the proposed standard would only directly apply to FERC-regulated generators, it would influence states that are developing their own interconnection standards.

The proposed rule is intended to develop consensus among interested parties for a national standard applying to small generators below 2 MW in size and those from 2 to 20 MW. It includes a simple standard form agreement and small fees for simple interconnections. Interconnections would be approved within 15 days of application unless the interconnection utility applies for a case-by-case waiver.

If the proposed standard as presented becomes a final rule, it would be a major step forward for a single national DG interconnection standard. The rule is based on the simple fundamentals of pre-certified generators ready for "plug and play" operation.[2]

For more information, visit the FERC website at www.ferc.fed.us/.

NARUC Model

To promote uniform interconnection standards, NARUC developed the *Model Distributed Generation Interconnection Procedures and Agreement*. The model is a compilation of the best practices and provisions currently used by various states. It is based on provisions previously developed in open state proceedings so that the source documents reflect comments from the DG community. The document is intended to provide a model for voluntary adoption or adaptation by state and local regulatory commissions or rural electric cooperative organizations.

The model includes "light bulbs" to denote points in the document where an individual state must make

(cont'd on page 5)

Standards Committee Activity Updates

ICC Codes. Public hearings for "Final Action Consideration" on code change proposals published in August 2002 will be held at the International Code Council (ICC) Joint Annual Conference of BOCA, ICBO, and SBCCI on September 29-October 4 in Fort Worth, Texas. The resulting publications are the 2003 Editions. March 3, 2003 is the application dead-line for code committees and new code change proposals for the 2004 Supplement. The 2006 Edition will be the next publication scheduled in late 2005. Contact: Eric Stafford (SBCCI), (205) 591-1853, (205) 592-7001 (fax), estaffor@sbcci.org.

NFPA 5000. The National Fire Protection Association has issued NFPA 5000 (Building Construction and Safety Code). To obtain this ANSI-accredited building code, call (800) 344-3555 or visit www.nfpacatalog.org. NFPA 5000 is a key component of the Comprehensive Consensus Codes (C3). Contact: Karen Stein (NFPA), (617) 984-7263, kstein@nfpa.org.

ISO TC 197, Hydrogen Technologies. Outcomes of the June 2002 meeting in Montreal, Canada, include WG 8 (Hydrogen Generators Using Water Electrolysis Process) exploring a possible joint working group cooperation with IEC/TC 105 on regenerative fuel cell systems; a joint working group that includes an ISO/TC 197 work item overlapping the IEC/TC 105 scope of work; a cooperative agreement with ISO/TC 22 (Road Vehicles); cooperation with the UN ECE WP.29 GRPE ad hoc group on Hydrogen Vehicles-On Board Hydrogen Storage; and efforts toward formal cooperation with ISO/TC 220 (Cryogenic Vessels). Target dates of August and October 2002 were set for the technical report for WI 15916 (Basic Considerations for the Safety of Hydrogen Systems), and the first draft for WI 22734 (Hydrogen Generators Using Water Electrolysis Process), respectively. Contact: Karen Miller (NHA), (202) 223-5547, kmiller@ttcorp.com.

IEC TC 105, Fuel Cell Technologies. IEC TC 105 (Fuel Cell Technologies) has cooperation agreements with ISO TC 197 (Hydrogen Technologies) and ISO TC 22 SC 21 (Electric Road Vehicles). These groups met on June 13-14, 2002, in conjunction with the ISO TC 197 meeting, in the frame of the World Hydrogen Energy Conference 2002 in Montreal, Canada. The central topic of the meeting was a discussion on the first two committee drafts: (1) Project IEC 62282-2 Ed.1.0 (Fuel Cell Technologies - Part 2: Fuel Cell Modules), with a second draft expected in August, and (2) Project IEC 62282-3-2 Ed.1.0 (Fuel Cell Technologies - Part 3-2: Stationary Fuel Cell Power Plants - Test Methods for the Performance), with a second draft expected in October. Negotiations with the Society of Automotive Engineers (SAE) seek to establish a category D liaison with WG 6 (Propulsion). WG 3 (Safety) and WG 5 (Installation) committees plan to meet in December 2002 in Houston, Texas. The WG 7 (Portable) committee is working to combine CSA FC3 and Japanese standards, using IEC terminology, and expects to complete the draft in September 2002. The next meeting of WG 7 will be in October in the UL offices. Contact: Steve Kazubski (CSA America), (216) 524-4990 ext. 8303, steve.kazubski@csa-america.org or steve.kazubski@csa-international.org.

ASME PTC 50, Performance Test Code on Fuel Cell Power Systems. PTC 50 has been submitted for publication. The published code should be available in October or November 2002. Contact: Jack Karian (ASME), (212) 591-8552, karianj@asme.org.

NFPA 853, Installing Fuel Cells. The Report on Proposals has been released for public review. Comments are due by October 2, 2002. Because the whole document was modified (format changed), the entire document is open to comment. NFPA prefers that individuals submit comments directly to NFPA. The technical committee will meet, if necessary, in late November or early December 2002 to act on each public comment and develop the Report on Comments to be presented in May 2003 for adoption by the Standards Council. No other Technical Committee meetings are planned for calendar year 2003. Contact: Don Drewry (Hartford Steam Boiler), Don_Drewry@hsb.com; or Carl Rivkin (NFPA), (617) 984-7418, crivkin@nfpa.org.

NFPA 70 - Article 692, Fuel Cell Plant. The closing date for 2005 NEC proposals, as well as proposals for changes to Article 692, is November 1, 2002. Action on proposals by the code-making panel will be in January 2003. Contact: Jean O'Connor (NFPA), (617) 984-7421, (617) 984-7070 (fax), joconnor@nfpa.org.

National Evaluation Service (NES). The Protocol for Evaluation of Stationary Fuel Cell Power Plants is available to help fuel cell manufacturers and technology users better understand the testing and documentation that may be necessary to validate compliance with U.S. model building codes, and to secure more timely and widespread acceptance by the building community and approval by code officials. A copy of the protocol is available at www.nateval.org (copy and distribute as appropriate). Contact: Darren Meyers (BOCA), (708) 799-2300, dmeyers@bocai.org.

IEEE P1547, Distributed Resources and Electric Power Systems Interconnection. The DR Interconnection work groups met in Vail, Colorado, in June 2002 to refine P1547 Draft 9 and complete a final (No. 10) draft for IEEE ballot. The 90% affirmatives in the ballot is a major milestone toward IEEE publication of a body of standards—P1547.1 (Draft Standard for Conformance Test Procedures), P1547.2 (Draft Application Guide for IEEE Standard 1547), P1547.3 (Draft Guide for Monitoring, Information Exchange and Control). The writing group will address ballot comments in October 2002 in San Francisco, California. The final draft will be sent to the IEEE Standards Board for approval and publication as an ANSI/IEEE consensus standard. Contact: Richard DeBlasio (NREL), (303) 275-4333, ddeblasi@tcplink.nrel.gov; or Tom Basso (NREL), (303) 275-3753, thomas_basso@nrel.gov.

UL1741, Standard for Inverters, Converters and Controllers for Use in Independent Power Systems. A draft Second Edition of UL 1741 was published and distributed for public comment in June 2002. The deadline for comments is September 6, 2002. A second draft will address the comments received and incorporate refinements to IEEE 1547, which was incomplete as of June. Contact: Tim Zgonena (UL), (847) 272-8800 ext. 43051, (847) 509-6298 (fax), timothy.p.zgonena@us.ul.com; or Susan Malohn (UL STP Secretary), (847) 664-1725, susan.p.malohn@us.ul.com.

2002 Calendar of Events

OCT

16-17 **EPGA 3rd Annual Power Generation Conference**. Hershey Lodge and Convention Center, Hershey, PA. Contact: Ann Kulp at (717) 909-3742, (717) 909-1941 (fax).

17-18 **The Giga-NOPR: FERC's Vision of a Restructured Industry**. Hyatt Regency Downtown, Houston, TX. Contact: (202) 944-4144, (202) 944-4145 (fax).

21-23 **Energy Technology Showcase 2002**. Conference and exhibit. Doubletree Jantzen Beach, Portland, OR. U.S. Department of Energy, Bonneville Energy Web and Pacific Northwest National Laboratory. Contact: Tracy Benzen at (206) 285-4848 ext. 216. See www.newdata.com.

23-25 **3rd Annual National CHP Roadmap Workshop**. Doubletree Guest Suites, Boston, MA. CHP & DER for Federal Facilities and EPA CHP Partnership meeting. Contact: Lauren Giles at (410) 953-6250.

24-25 **US-Mexico Border Energy Forum IX**. Hotel Camino Real, Saltillo, Mexico. Texas General Land Office. Contact: Soll Sussman at (512) 463-5039, (512) 463-5233 (fax).

24-25 **Communication and Control for Distributed Energy**. Dolce Skamania Lodge, Stevenson, WA. U.S. Department of Energy, Bonneville Power Administration and Pacific Northwest National Laboratory. Contact: (410) 953-6277, (410) 423-2193 (fax), cs@energetics.com. See www.energetics.com/candc.html.

27-1 **66th IEC General Meeting**. Beijing International Convention Center, Beijing, China. Contact: + 86-10-649802-46, + 86-10-649830-85 (fax).

NOV

4-5 **CARILEC Renewable Energy Conference**. Royal St. Lucian Hotel, Rodney Bay, Saint Lucia. Contact:Cheryl Hosier at (758) 452-0140.

4-7 **E Source Technology Exhibition**. Broadmoor Hotel, Colorado Springs, CO. Contact:(720) 548-5778.

6-8 **50th Annual Energy Information Technology Conference & Expo**. Caesars Palace, Las Vegas, NV. Contact: Debra McDonald at (800) 991-6979, occasionsmtgs@aol.com. See www.energyitexpo.platts.com.

10-12 **4th Annual International Symposium on Distributed Energy Resources**. Hyatt Regency Islandia, San Diego, CA. California Alliance for Distributed Energy Resources. Contact:(916) 654-4880.

11-5 **Energy Utility Basics**. University of Wisconsin-Madison, Fluno Center, Madison, WI. Wisconsin Public Utility Institute. Contact: Wendy Grapentine at (608) 263-4180, (608) 265-2737.

12-15 **ISAF XIV The 14th International Symposium on Alcohol Fuels**. Phuket Arcadia Hotel, Phuket, Thailand. Contact: see www.mtec.or.th.

13-15 **NAESCO's 19th Annual Convention**. Hyatt Regency Grand Cypress, Orlando, FL. National Association of Energy Services Companies. Contact: Mary Lee Berger-Hughes at (202) 822-0954, (202) 822-0955 (fax). See www.energycentral.com/sections/events/event_share.cfm?id=8277.

18-20 **North American LNG**. Marriott West Loop, Houston, TX. Contact: (818) 888-4444, (818) 888-4440 (fax).

18-21 **2002 Fuel Cell Seminar**. Palm Springs Convention Center, Palm Springs, CA. Contact: (202) 973-8671, (202) 331-0111 (fax), fuelcell@courtesyassoc.com. See www.gofuelcell.com.

19-20 **Distributed Generation**. Gaylord Palms Hotel, Orlando, FL. Association of Energy Engineers. Contact: (770) 925-9633, (770) 381-9865 (fax).

23 **LNG North America Strategic Workshop**. The Woodlands Conference Center, The Woodlands, TX. Contact: James Harrington at (281) 367-1403, (281) 367-2990 (fax).

DEC

4-5 **Shanghai Fuel Cell Vehicle Forum: Commercializing Fuel Cell Vehicles in China**. Shanghai, China. Contact: senzheng@online.sh.cn.

10-12 **Power-Gen International**. Orange County Convention Center, Orlando, FL. Contact:(888) 299-8057.

10-13 **2nd EVAA Electric Transportation Industry Conference: Battery-Hybrid-Fuel Cell**. Westin Diplomat Resort and Convention Center, Hollywood Beach, FL. Electric Vehicles Association of the Americas. Contact: Kateri Callahan at (202) 508-5995, (202) 508-5924 (fax).

(cont'd from page 2)

a decision, and provides information on how other states have solved issues. It provides sufficient flexi-bility for states wanting to provide incentives for the installation of DG units, and for states that choose to have DG facilities compete in the marketplace.

In July 2002, the NARUC Board of Directors adopted the model procedures and agreement and recommended that its members (all state public utility commissions) use the model. NARUC is also preparing a complete reference package that includes the model procedures and agreement, an explanation of policy decisions required before a state adopts an interconnection process, examples of how other states have solved policy issues, and comments received during the development process.

Solar Energy Industries Association and the Interstate Renewable Energy Council (IREC) praised NARUC for their effort to promote standardized national interconnection rules but suggested that the model be further detailed and less subject to interpretation by individual states.[3]

The full text of the model procedures and a summary of initial and reply comments on the proposed model are available at http://www.nrri.ohio-state.edu/. For additional information, contact Diane Barney, Chair of the NARUC Staff Committee on Electric Reliability, at (518) 486-2943 or email at Diane_Barney@dps.state.ny.us.

California Model

California is one of the first states to adopt a standard for interconnecting DER devices to the electric grid. In October 1999, the California Public Utilities Commission (CPUC) issued an order instituting a new rulemaking (99-10-025) to address interconnection standards, resulting in a new version of Rule 21. The new version specifies standard interconnection, operating, and metering requirements for DER generators. Rule 21 includes an Interconnection Application Form and Interconnection Agreement.

Unlike the Texas model, the California model requires that developers pay directly for upgrades and engage in extensive negotiations with local transmission owners to define responsibilities for each project, often delaying the interconnection process. [4]

For more information, visit the CPUC website at www.cpuc.ca.gov.

Texas Model

In December 1999, the Texas Public Utility Commission (PUC) adopted final rules (Project No. 21220) addressing technical and contractual issues related to installing distributed resources. The rules, designed to ensure customers have access to on-site DG, prescribe terms and conditions for connecting small power generation and establish technical requirements to promote safe and reliable operation of DG. The rules place the burden of proof to show if an interconnection should be disallowed on the utility. PUC also adopted a standard tariff interconnection agreement and form.

According to a General Accounting Office (GAO) report, the Texas rules for plugging new plants into the grid are less costly for independent developers and administratively simpler than approaches used in California and Pennsylvania, contributing to the success in Texas' newly opened market.[5]

On March 15, 2001, PUC published a "Distributed Generation Interconnection Manual" (Project No. 21965) to guide the inclusion of DG into the Texas electric system. The manual covers the most important interconnection issues.

For additional information, visit the PUC website at www.puc.state.tx.us.

New York Model

In December 1999, the New York Public Service Commission (NYPSC) issued a final order addressing interconnection of DG resources 300 kVA or less and operating in parallel with the utility distribution system. The order addresses general technical guidelines for interconnection and application procedures, although it gives utilities discretion on several details.

The standard includes a simplified application process for interconnecting distributed generators operating at 15 kVA or less, and a preapproval process for systems already approved for given conditions or configurations.

For more information, visit the NYPSC website at www.dps.state.ny.us.

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[1] Source: www.newrules.org/electricity/interconnect.html

[2] Source: www.irecusa.org/articles/static/1/1030092289_987096450.html

[3] Source: Interstate Renewable Energy Council. August 7, 2002. NARUC Releases Model Procedures for Interconnection of Distributed Generation. Available: www.irecusa.org/articles/static/1/1028730526_987096450.html

[4] Source: Interstate Renewable Energy Council. June 28, 2002. Connecting to the Grid. Available: www.irecusa.org/articles/static/1/1025295527_987096450.html

[5] Source: Interstate Renewable Energy Council. June 28, 2002. Connecting to the Grid. Available: www.irecusa.org/articles/static/1/1025295527_987096450.html

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On the Road Again. . . DER "Road Show" Heads to the Pacific Northwest

Get the latest information on installing, permitting, and operating new distributed generation technologies!

The U.S. Department of Energy's Office of Distributed Energy and Electric Reliability continues its series of Distributed Energy Resources (DER) Road Shows. The free workshops are one-day events designed to show code officials; fire marshals; utility interconnection engineers; builders; architects; engineers; electrical contractors; local government permitting, planning, and licensing administrators; and others ways to streamline the siting and permitting process for distributed generation (DG) technologies. The road show brings various manufacturers and their products directly to interested agencies and includes presentations on the various codes and standards relevant to the local jurisdictions.

The one-day format can accommodate up to three technologies, one fuel and/or application, and a session on electrical grid interconnection.

TECHNOLOGIES		
PV/solar	**Wind Fuel cells**	**Microturbines**
Natural gas-fired reciprocating engines		**Electrical interconnection/ switchgear**
APPLICATIONS		
Peak shaving	**Combined heating and power**	
FUEL CHOICES		
Natural gas/methane		**Hydrogen**

The U.S. Department of Energy (DOE) and the Bonneville Power Administration (BPA) are co-hosting DER Road Shows in the Pacific Northwest at the following locations and dates:

Upcoming DER Road Shows

Portland, OR	October 24
Eugene, OR	October 25
Seattle, WA	October 30
Boise, ID	November 21

For more information or to register to attend one of the road shows in the Pacific Northwest, contact Mira Vowles of BPA at (503) 230-4796 or email at mkvowles@bpa.gov, or visit www.bpa.gov/Energy/N/tech/dg/index.shtml.

To request a road show in your state, contact Anne-Marie Borbely-Bartis of DOE's Office of Distributed Energy and Electric Reliability at (202) 586-5196 or email at anne-marie.borbely-bartis@ee.doe.gov.

Tool Kit Guides Utility on DG Interconnects

A Distributed Generation Interconnection Tool Kit is now available to help local utilities create effective distributed generation (DG) interconnection policies and programs. The National Rural Electric Cooperative Association (NRECA), the Cooperative Research Network, the National Rural Utilities Cooperative Finance Corporation, and Energy Co-Opportunity jointly funded the development effort to help ensure the DG market will continue to expand.

The tool kit contains seven model documents that electric cooperatives or other interested parties can use to draft rules, policies, tariffs, and contract documents for DG interconnection to their grid or to purchase DG energy from the DG operator/owner:

1. **A Business and Contract Guide for Interconnection** to help cooperatives and their employees move smoothly through the interconnection process.
2. **Consumer Guidelines for Interconnection** to educate consumers about the interconnection process.
3. **A Model Interconnection Application** to be filled out by consumers interested in installing their own generation.
4. **A Model Short Form Interconnection Contract** for consumers installing small DG units with a capacity of 3 kW or less.
5. **A Model Long Form Interconnection Contract** for consumers installing DG units with a capacity of 3 kW or 3 MW.
6. **A DG Rates Manual** to help each cooperative think through the issues required to design a rate that meets that cooperative's specific goals.
7. **A Technical Application Guide** that provides rules of thumb in developing detailed technical interconnection requirements that work for a cooperative's system.

The kit provides models and guidance that cooperatives can use and adapt to their own unique needs to create effective DG interconnection policies and programs.

The tool kit is available at no charge to all interested parties at http://www.nreca.org/leg_reg/DGToolKit/.

NRECA is the national service organization that represents the Nation's more than 900 private, consumer-owned electric cooperatives, which provide electric service to more than 35 million people in the 46 states. For more information, contact Patrick Lavigne at (703) 907-5732, Patrick.Lavigne@NRECA.org or visit the NRECA website at http://www.nreca.org.