

Cooperative Research Network's Distributed Generation Portfolio

Recent CRN Research: See CRN's Renewable Energy & Distributed Generation [<http://www.crn.coop>] research area for detailed summaries on these projects and CRN's renewable energy research portfolio. Full results are available only to CRN members.

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The Impacts of DG & Wind Generation on Distributions Systems, 03-15. A suite of software tools ("applets") to aid distribution and planning engineers in their assessment and application of wind generation on their systems' distribution feeders. This guide also seeks to help engineers understand and comply with IEEE P1547 DG Interconnection Standard and flicker standards.

Distributed Generation Resource Guide, 04-08. Multimedia project that provides an overview of distributed generation systems (DG) to help co-op staff members get a broad sense of the issue related to DG. The guide provides detailed information on all aspects working with DG on a co-op system, for example including establishing policies, putting a DG team together, and understanding interconnection procedures.

Renewables Assessment Guide, 05-09. Guide provides a detailed overview of renewable power technologies, targeted to needs of the co-op utility professional. This 2006 CRN guide allows co-op planners conduct an accurate assessment of renewable energy options, while providing technology and economic information valuable for responding to customer inquiries.

Biopower Toolkit: Analyzing the Economics of Generating Power from Renewable Biofuels, 01-03. Computer software and documentation to help co-ops decide whether a biofueled generation project—based on solid biomass (such as crop and wood residues or hay) or gases (such as methane from landfills or animal waste)—is economically feasible.

Evaluation of Microturbine Performance, 97-17. Final report published in fall of 2005 presents the results of a 2-year study of microturbine operation by seven cooperatives, including data from a companion EPRI demonstration. The report compares price and performance of currently available microturbine products from key manufacturers such as Capstone, Elliott, and Ingersoll-Rand. The report offers product-selection criteria and review potential thermal recovery applications.

Additional CRN Research

Note: Some older projects are not available online.

On-Site Generation Aggregation, 01-37. Plan to aggregate on-site generators for the benefit of the grid and co-op customers.

Biopower Decision Tools, 01-03. Development of hardware/software tools to evaluate biomass options, including the possible economic benefits to a locality.

Megawatt Turbines & Engines, 01-02,. Survey of available engines and turbines for generating power in the range of about 1-to-10 MW.

European Mini CHP, 00-42. Review of moderate-sized DG applications that combine heat and power in Europe, where CHP has a long tradition.

Wind Generation Grid Impacts, 00-40. Study on the effects of large wind farms on transmission systems.

Designing Rates for DG, 00-28. Processes and methods to facilitate the determination of equitable rates for distributed generators, other customers and the co-op.

Overview of DG Benefits, 00-25. Tools and techniques to calculate the benefits of a DG system at specific locations, both on and off grid.

Guide to Backup Generation, 00-24. Review of typical applications for backup generators, their costs and common errors in usage.

Wind Power Assessment, 00-08. Survey of co-op experiences with wind power systems and expectations of those planning to tap wind resources.

DG Technology Applications, 00-07. Matrix of DG technologies, their characteristics and most suitable applications.

DG Market Assessment of C&I Sector, 99-32. Survey of major commercial and industrial customers' attitudes, experiences and expectations.

Residential Fuel Cell Demonstration, 99-31. Field test of near-commercial residential fuel cells at nine co-op sites across the nation.

DG Market Assessment of Residential Sector, 99-26. Results of residential focus groups probing the suitability and attractiveness of various product attributes.

SOFC Demonstration, 99-13,. Field test of 250-kW solid-oxide fuel cell at BP America gas-to-liquid test facility in Alaska.

1-MW Phosphoric Acid Fuel Cell Power Plant, 98-04. Application of five commercial fuel cells to power U.S. Post Office in Anchorage.

Solid Oxide Fuel Cell Commercialization, 98-03. CRN membership in organization advancing solid-oxide fuel cell technology and applications.

Energy Storage Simulators, 97-28. Development of hardware/software to simulate various DG technologies in peak-shaving and power-quality applications.

Transportable Fuel Cell Power Plant, 95-08,. Field tests of 200-kW phosphoric acid fuel cell in Georgia, Colorado and Alaska.

PV-Powered AC Pumping System, 94-23,. A water-pumping system, suitable for livestock watering, serviced by a photovoltaic system.

Photovoltaics in Residential Use, 93-07,. A remote residence serviced by a stand-alone photovoltaic system.

Ethanol Fuel Cells for Rural Power Generation, 92-03. Conceptual design of a fuel cell power plant operating on minimally processed ethanol.

Dispersed Generation Overview, 91-15. Ways that dispersed generation may fit into the new energy environment being wrought by deregulation.

Technical Assessment of Waste-to-Electric Energy Options, 90-04. Feasibility of converting agricultural and other waste into electric energy in 11 states.