



U.S. Department of Energy

OAK RIDGE NATIONAL LABORATORY

CHP Subcontractors Coordination Review Meeting

Enhancements to Distributed Generation
Operational Reliability Database

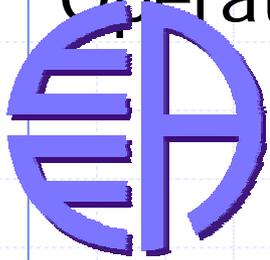
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Energetics, Inc.
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Enhancements to Distributed Generation Operational Reliability Database



Energy & Environmental Analysis, Inc.

- ORNL Subcontract 4000021456
- Principal Investigators: Paul Bautista/
Anne Hampson
- Partners: NYSERDA, Energy Solutions Center,
GTI, Solar Turbines

Task 1 - DG/CHP Operational Reliability Database

- Establish baseline operating and reliability data for industrial and commercial distributed generation and combined heat and power systems
 - DG/CHP system reliability and availability is a critical element in market development
- Data from maintenance logs, operation records, and other available sources
 - Methodology is based on industry standard definitions and actual customer data
 - Dependent on customer participation
 - Leverages substantial prior work by others on evaluating on-site power system reliability
- Identify and classify DG/CHP system failures and causes of forced outages

Task 1 - DG/CHP Operational Reliability Database

- Create DG/CHP OR DB version 2.0 with additional units - >120 total units
 - Consistent with established industry standards
- Includes operational and operating data over a two year period
 - 731 MW of capacity
 - 2,991 outage events
 - 1,669,411 unit-hours of operation
- Includes users in commercial, institutional and industrial sectors

Summary of Results

Entire Sample

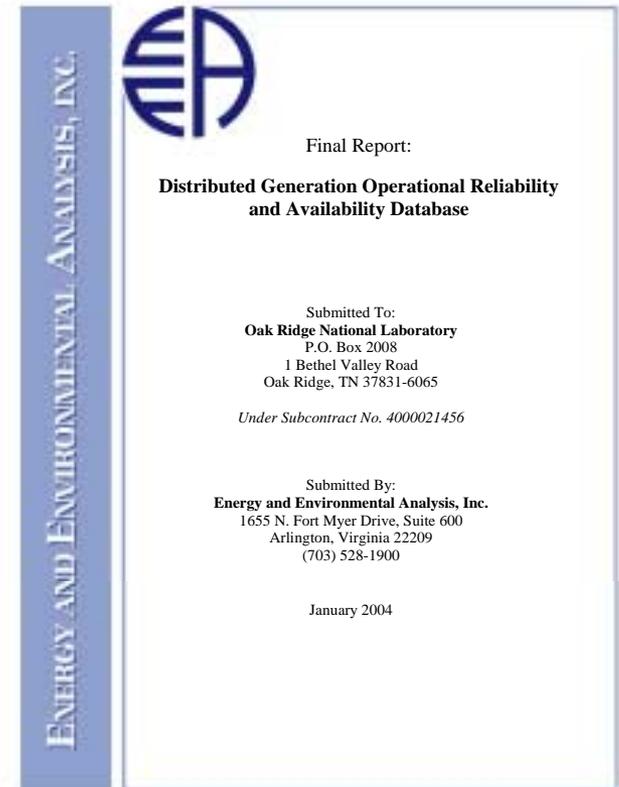
	Technology Group	n	Availability (%) Avg.	Outage Rate (%)	Outage Factor (%)	Factor (%) Avg.	Between Forced	Mean Down Time (hrs)
RE	1	14	97.93	1.76	0.73	75.11	784.75	13.71
	2	8	95.99	1.98	2.47	51.76	1,352.26	50.66
	3	18	98.22	0.85	1.12	40.59	3,582.77	27.06
FC	4	15	76.84	22.94	0.92	74.01	2,004.47	369.24
GT	5	11	97.13	2.89	0.99	57.93	2,219.72	65.38
	6	21	94.97	2.88	2.39	82.24	1,956.46	68.63
	7	9	93.53	1.37	5.14	88.74	3,604.62	75.30
ST	9	25	92.02	2.34	6.01	81.12	5,317.73	292.06
	Entire Sample	121	93.09	4.65	2.66	70.23	2,869.83	138.53

Progress Against Tasks and Milestones

- Task 1: DG/CHP OR Database Enhancements
 - Contact screened participant sites - *completed*
 - Data review and entry - *completed*
 - Calculate OR measures - *completed*
 - System Forced Outage Analysis - *completed*
 - Report and DG/CHP OR DB Version 2.0 – *completed*

Deliverables and Availability

- Task 1: DG/CHP OR Database Enhancements
 - Version 2.0 of DG/CHP OR Database
 - CD
 - Final Report
 - DOE Web Site



http://www.eere.energy.gov/de/pdfs/distributed_generation_database.pdf

Coordination with Stakeholder Groups and Other Project Teams

- Task 1: DG/CHP OR Database Enhancements
 - CHP user participation critical
 - Manufacturers, Packagers, and Developers
 - Industry Associations
 - Project Partners
 - NYSERDA, Energy Solutions Center, GTI, DOD ERDC/CERL
 - Methodology is basis of NYSERDA-funded effort on a web-based tool to allow for secure entry and assessment of operational reliability performance data
 - Included in NYSERDA CHP Data Integrator as well
 - DER Webcast
 - <http://www.intermountainchp.org/initiative/support/eea041013.pdf>

Questions?

