<https://www.smartgrid.gov/document/us_doe_office_electricity_delivery_and_energy_reliability_sgig_final_report.html>

Grid Impacts, Benefits, and Lessons Learned  
Key Documents from DOE’s Recovery Act Smart Grid Investment Grant and Demonstrations Programs

This document provides a list of key reports and case studies,   
and will be updated periodically as new materials are published and posted on

# Document Contents

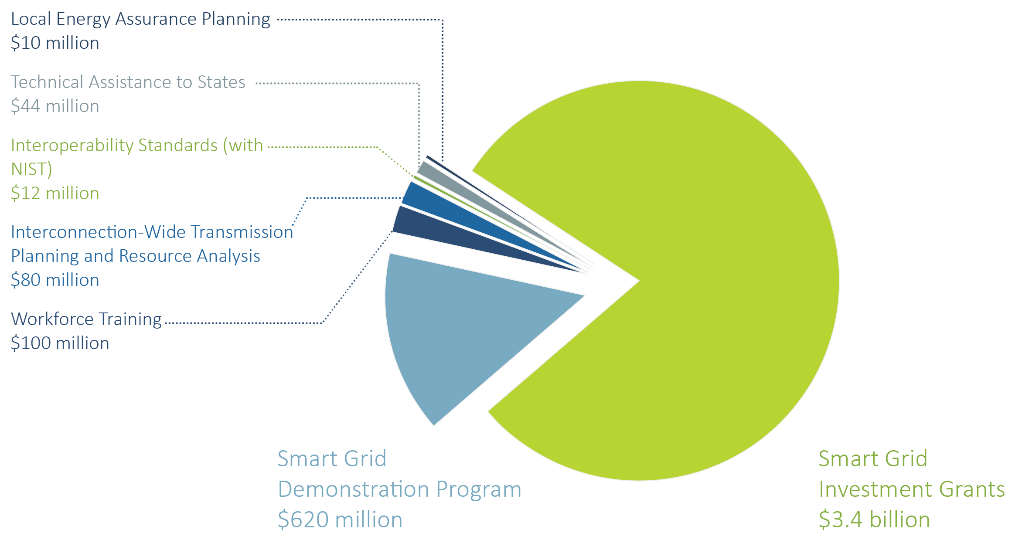
|  | **Smart Grid Investment Grant Program (SGIG)** | **SGIG Program-Level Documents** |
| --- | --- | --- |
| **SGIG Reports on Technology Applications and Results**  These documents cover the following areas:  Advanced metering infrastructure for peak and overall energy reduction through customer based technologies and to improve the operational efficiencies of utilities   1. Distribution automation technologies to improve reliability through the use of fault location, isolation and service restoration technology—such as automated feeder switches—and improve energy efficiency through the use of volt/VAR optimization techniques, including conservation voltage reduction 2. Synchrophasor and other technologies in transmission systems to improve reliability and efficiency (via improved operations and asset utilization) |
| **Reports on Consumer Behavior Studies (CBS)**  DOE-developed and recipient-developed reports on time-based rate and pricing pilots |
|  | **Smart Grid Demonstration Program (SGDP)** | **Regional Demonstration Projects** |
| **Energy Storage Demonstration Projects** |
|  | **Case Studies** | [**Project-Specific Documents from SGIG and SGDP Projects**](#_Case_Studies) |



# Recovery Act Smart Grid Overview

In 2009, the U.S. Department of Energy (DOE) Office of Electricity Delivery and Energy Reliability (OE) received $4.5 billion in funds to support grid modernization activities under the American Recovery and Reinvestment Act (ARRA, or Recovery Act). The Recovery Act was an economic stimulus package enacted by the 111th United States Congress in February 2009 and signed into law on February 17, 2009, by President Barack Obama.

Much of the funding was applied to activities articulated within Title XIII of the Energy Infrastructure and Security Act of 2007, which states grid modernization policies leading to a smarter grid. OE apportioned the funding among several programs:



Although these programs are managed by various offices within OE, the Advanced Grid Initiatives (AGI) Office is largely responsible for managing the Smart Grid Investment Grant Program (SGIG) and the Smart Grid Demonstration Program (SGDP), and for reporting information on progress, grid impacts, benefits, and lessons-learned. (DOE’s National Energy Technology Laboratory is responsible for implementing the SGDP under AGI management.) Information on the project activities associated with these programs is conveyed through conferences, reports, case studies, and other documents produced by Recovery Act funding recipients and by DOE (including supporting contractors and national laboratories).

Much of this information is housed in a central repository located on [](http://www.smartgrid.gov/)

# Smart Grid Investment Grant Program

The Smart Grid Investment Grant (SGIG) program is authorized by the EISA, Section 1306, as amended by the Recovery Act. The purpose of the grant program is to accelerate the modernization of the nation’s electric transmission and distribution systems and promote investments in smart grid technologies, tools, and techniques that increase flexibility, functionality, interoperability, cybersecurity, situational awareness, and operational efficiency. The SGIG projects were selected through a merit-based, competitive solicitation by which successful projects were eligible to receive federal financial assistance for up to 50% of eligible costs. There are 99 SGIG projects with a total budget of about $8 billion; the federal share is about $3.4 billion. Project descriptions of these 5-year projects can be found on [**SmartGrid.gov**](https://www.smartgrid.gov/recovery_act/project_information.html), in addition to the following documents (where links are provided).

## SGIG Program Final Analysis Reports

| report cover | **Smart Grid Investment Grant Program Final Report**  December 2016 | [report cover](https://www.smartgrid.gov/document/Synchrophasor_Report_201603.html) | [**Advancement of Synchrophasor Technology in Projects Funded by the American Recovery and Reinvestment Act of 2009**](https://www.smartgrid.gov/document/Synchrophasor_Report_201603.html)  March 2016 | [report cover](https://www.smartgrid.gov/document/SGIG_Results_for_Distribution_Automation_2016.html) | [**Distribution Automation: Results from the Smart Grid Investment Grant Program**](https://www.smartgrid.gov/document/SGIG_Results_for_Distribution_Automation_2016.html)  September 2016 |
| --- | --- | --- | --- | --- | --- |
| [report cover](https://www.smartgrid.gov/document/SGIG_Results_for_AMI_and_Customer_Systems_2016.html) | [**Advanced Metering Infrastructure and Customer Systems: Results from the Smart Grid Investment Grant Program**](https://www.smartgrid.gov/document/SGIG_Results_for_AMI_and_Customer_Systems_2016.html)  September 2016 | [report cover](https://www.smartgrid.gov/document/CBS_Results_Time_Based_Rate_Studies.html) | **[Final Report on Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies](https://www.smartgrid.gov/document/CBS_Results_Time_Based_Rate_Studies.html)**  November 2016 |

### Early SGIG Progress Reports

| [Report cover](https://www.smartgrid.gov/document/smart_grid_investment_grant_progress_report_2013.html) | [**Smart Grid Investment Grant Progress Report 2013**](https://www.smartgrid.gov/document/smart_grid_investment_grant_progress_report_2013.html)  October 2013 | [Report cover](https://www.smartgrid.gov/document/economic_impact_recovery_act_investments_smart_grid.html) | [**Economic Impact of Recovery Act Investments in Smart Grid**](https://www.smartgrid.gov/document/economic_impact_recovery_act_investments_smart_grid.html)  April 2013 | [report cover](https://www.smartgrid.gov/document/smart_grid_investment_grant_progress_report.html) | [**Smart Grid Investment Grant Progress Report 2012**](https://www.smartgrid.gov/document/smart_grid_investment_grant_progress_report.html)  July 2012 |
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### Evaluation and Analysis Guidance Documents

| [Report cover](https://www.smartgrid.gov/document/methodological_approach_estimating_benefits_and_costs_smart_grid_demonstration_projects.html) | [**Methodological Approach for Estimating the Benefits and Costs of Smart Grid Demonstration Projects**](https://www.smartgrid.gov/document/methodological_approach_estimating_benefits_and_costs_smart_grid_demonstration_projects.html)  EPRI 1020342, January 2010 | [Report cover](https://www.smartgrid.gov/document/guidebook_arra_smart_grid_program_metrics_and_benefits_1.html) | [**Guidebook for ARRA Smart Grid Program Metrics and Benefits**](https://www.smartgrid.gov/document/guidebook_arra_smart_grid_program_metrics_and_benefits_1.html)  May 2010 | [Report cover](https://www.smartgrid.gov/document/doe_smart_grid_computational_tool_users_guide_20) | [**DOE Smart Grid Computational Tool Users Guide 2.0**](https://www.smartgrid.gov/document/doe_smart_grid_computational_tool_users_guide_20) | [Report cover](https://www.smartgrid.gov/document/smartgrid_computational_tool) | [**Smart Grid Computational Tool**](https://www.smartgrid.gov/document/smartgrid_computational_tool) |
| --- | --- | --- | --- | --- | --- | --- | --- |

## SGIG Reports on Technology Applications and Results

Technology-specific reports using results from SGIG projects have been published in the following topics areas:

* **AMI Demand Management** – Consumer-Based Demand Management Programs enabled by Advanced Metering Infrastructure (AMI)
* **AMI Operations** – AMI Applied to Operations
* **Distribution Automation** – Reliability Enhancements Achieved via Distribution Automation Technologies
* **Volt/VAR** – Improved Voltage and VAR Management
* **Transmission** – Transmission System Technology Advancements
* **Integration** – Integration of Renewable and Distributed Energy Resources

### SGIG Interim Technology Reports

| SGIG Reports on Technology Applications and Results | | Date | AMI Demand Management | AMI Operations | Distribution Automation | Volt/VAR | Transmission | Integration |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Published Documents** | | | | | | | | |
| [Report image icon](https://www.smartgrid.gov/document/demand_reductions_application_advanced_metering_infrastructure_pricing_programs_and_custome) | [**Demand Reductions from the Application of Advanced Metering Infrastructure, Pricing Programs, and Customer-Based Systems - Initial Results**](https://www.smartgrid.gov/document/demand_reductions_application_advanced_metering_infrastructure_pricing_programs_and_custome) | Dec 2012 | **•** |  |  |  |  |  |
| [Report image icon](https://www.smartgrid.gov/document/operations_and_maintenance_savings_advanced_metering_infrastructure_initial_results) | [**Operations and Maintenance Savings from Advanced Metering Infrastructure - Initial Results**](https://www.smartgrid.gov/document/operations_and_maintenance_savings_advanced_metering_infrastructure_initial_results) | Dec 2012 |  | **•** |  |  |  |  |
| [Report image icon](https://www.smartgrid.gov/document/reliability_improvements_application_distribution_automation_technologies_initial_results) | [**Reliability Improvements from the Application of Distribution Automation Technologies - Initial Results**](https://www.smartgrid.gov/document/reliability_improvements_application_distribution_automation_technologies_initial_results) | Dec 2012 |  |  | **•** |  |  |  |
| [Report image icon](https://www.smartgrid.gov/document/application_automated_controls_voltage_and_reactive_power_management_initial_results) | [**Application of Automated Controls for Voltage and Reactive Power Management - Initial Results**](https://www.smartgrid.gov/document/application_automated_controls_voltage_and_reactive_power_management_initial_results) | Dec 2012 |  |  |  | **•** |  |  |
| [Report image icon](https://www.smartgrid.gov/document/synchrophasor_technologies_and_their_deployment_recovery_act_smart_grid_programs.html) | [**Synchrophasor Technologies and their Deployment in the Recovery Act Smart Grid Programs**](https://www.smartgrid.gov/document/synchrophasor_technologies_and_their_deployment_recovery_act_smart_grid_programs.html) | Aug 2013 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/model_validation_using_synchrophasors_naspi_technical_workshop.html) | [**Model Validation Using Synchrophasor - NASPI Technical Workshop**](https://www.smartgrid.gov/document/model_validation_using_synchrophasors_naspi_technical_workshop.html) | Oct 2013 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/pmus_and_synchrophasor_data_flows_north_america.html) | [**PMU Data Flows in North America**](https://www.smartgrid.gov/document/pmus_and_synchrophasor_data_flows_north_america.html) | Mar 2014 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/phasor_tools_visualization_naspi_technical_workshop.html) | [**Phasor Tools Visualization – NASPI Technical Workshop**](https://www.smartgrid.gov/document/phasor_tools_visualization_naspi_technical_workshop.html) | Jun 2014 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/synchrophasor_technology_and_renewables_integration.html) | [**Synchrophasor Technology and Renewables Integration - NASPI Technical Workshop**](https://www.smartgrid.gov/document/synchrophasor_technology_and_renewables_integration.html) | Jun 2014 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/use_iec_61850_90_5_transmit_synchrophasor_information_according_ieee_73118_naspi_tutorial) | [**Use of IEC 61850-90-5 to Transmit Synchrophasor Information According to IEEE 73.118: NASPI Tutorial (October 16, 2012 – August 2014 Update)**](https://www.smartgrid.gov/document/use_iec_61850_90_5_transmit_synchrophasor_information_according_ieee_73118_naspi_tutorial) | Aug 2014 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/customer_participation_smart_grid_lessons_learned.html) | [**Customer Participation in the Smart Grid – Lessons Learned**](https://www.smartgrid.gov/document/customer_participation_smart_grid_lessons_learned.html) | Sep 2014 | **•** |  |  |  |  |  |
| [Report image icon](https://www.smartgrid.gov/document/municipal_utilities_investment_smart_grid_technologies_improves_services_and_lower_costs.html) | [**Municipal Utilities’ Investment In Smart grid Technologies Improves Services and Lowers Costs**](https://www.smartgrid.gov/document/municipal_utilities_investment_smart_grid_technologies_improves_services_and_lower_costs.html) | Oct 2014 | **•** | **•** | **•** |  |  | **•** |
| [Report image icon](https://www.smartgrid.gov/document/factors_affecting_pmu_installation_costs.html) | [**Factors Affecting PMU Installation Costs**](https://www.smartgrid.gov/document/factors_affecting_pmu_installation_costs.html) | Oct 2014 |  |  |  |  | **•** |  |
| [Report image icon](https://www.smartgrid.gov/document/smart_grid_investments_improve_grid_reliability_resilience_and_storm_response_0) | [**Smart Grid Investments Improve Grid Reliability, Resilience, and Storm Response**](https://www.smartgrid.gov/document/smart_grid_investments_improve_grid_reliability_resilience_and_storm_response_0) | Nov 2014 |  |  | **•** |  |  |  |
| [Report image icon](https://smartgrid.gov/document/evaluating_electric_vehicle_charging_impacts_and_customer_charging_behaviors_experiences) | [**Evaluating Electric Vehicle Charging Impacts and Customer Charging Behaviors - Experiences from Six Smart Grid Investment Grant Projects**](https://smartgrid.gov/document/evaluating_electric_vehicle_charging_impacts_and_customer_charging_behaviors_experiences) | Dec 2014 |  |  |  |  |  | **•** |
| [Report image icon](https://www.smartgrid.gov/document/fault_location_isolation_and_service_restoration_technologies_reduce_outage_impact_and) | [**Fault Location, Isolation, and Service Restoration Technologies Reduce Outage Impact and Duration**](https://www.smartgrid.gov/document/fault_location_isolation_and_service_restoration_technologies_reduce_outage_impact_and) | Dec 2014 |  |  | **•** |  |  |  |
| [Report image icon](https://www.smartgrid.gov/document/Bridging-the-Gaps-on-Prepaid-Utility-Service.html) | [**Bridging the Gaps on Prepaid Utility Service**](https://www.smartgrid.gov/document/Bridging-the-Gaps-on-Prepaid-Utility-Service.html) | Sept 2015 | **•** | **•** |  |  |  |  |

## Reports on Consumer Behavior Studies (CBS)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [report cover](https://www.smartgrid.gov/document/CBS_Results_Time_Based_Rate_Studies.html) | **[Final Report on Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies](https://www.smartgrid.gov/document/CBS_Results_Time_Based_Rate_Studies.html)**  November 2016 | Forthcoming report icon image | Spillover Benefits from  Time-Based Rates and  Inter-Temporal Demand Impact  *Forthcoming – TBD* | Forthcoming report icon image | Relative Merits of Alternative Experimental Designs for Studies and Evaluations of Time-Based Rates  *Forthcoming – TBD* |
| report cover | **Experiences of Vulnerable Residential Customer Subpopulations with Critical Peak Pricing**  September 2016  *Coming to smartgrid.gov* | report cover | [**Time-of-Use as a Default Rate for Residential Customers: Issues and Insights**](https://www.smartgrid.gov/document/tou_default_rate_for_residential_customers_issues_insights.html)  June 2016 | [Report cover](https://www.smartgrid.gov/document/CBS_interim_program_impact_report_FINAL.html) | [**Interim Report on Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies**](https://www.smartgrid.gov/document/CBS_interim_program_impact_report_FINAL.html)  June 2015 |
| [Report cover](https://www.smartgrid.gov/document/experience_consumer_behavior_studies_engaging_customers.html) | [**Experiences from the Consumer Behavior Studies on Engaging Customers**](https://www.smartgrid.gov/document/experience_consumer_behavior_studies_engaging_customers.html)  September 2014 | [Report cover](https://www.smartgrid.gov/document/analysis_customer_enrollment_patterns_time_based_rate_programs_initial_results_sgig.html) | [**Analysis of Customer Enrollment Patterns in Time-Based Rate Programs - Initial Results from the SGIG Consumer Behavior Studies**](https://www.smartgrid.gov/document/analysis_customer_enrollment_patterns_time_based_rate_programs_initial_results_sgig.html)  July 2013 | [Report cover](https://www.smartgrid.gov/document/quantifying_impacts_time_based_rates_enabling_technology_and_other_treatments_consumer_0.html) | [**Quantifying the Impacts of Time-Based Rates, Enabling Technology, and Other Treatments in Consumer Behavior Studies: Protocols and Guidelines**](https://www.smartgrid.gov/document/quantifying_impacts_time_based_rates_enabling_technology_and_other_treatments_consumer_0.html)  July 2013 |
| [Report cover](https://www.smartgrid.gov/document/smart_grid_investment_grant_consumer_behavior_study_analysis_summary_utility_studies_0.html) | [**Smart Grid Investment Grant Consumer Behavior Study Analysis: Summary of Utility Studies**](https://www.smartgrid.gov/document/smart_grid_investment_grant_consumer_behavior_study_analysis_summary_utility_studies_0.html)  June 2013 | [Report cover](https://www.smartgrid.gov/document/us_department_energy_approach_conducting_consumer_behavior_studies_within_smart_grid_inve.html) | **[U.S. Department of Energy’s Approach for Conducting Consumer Behavior Studies within the Smart Grid Investment Grant Program](https://www.smartgrid.gov/document/us_department_energy_approach_conducting_consumer_behavior_studies_within_smart_grid_inve.html)**  October 2011 |  |  |

### Guidance Documents

See the [**Consumer Behavior Section**](https://www.smartgrid.gov/recovery_act/overview/consumer_behavior_studies.html) on [](https://smartgrid.gov/recovery_act/consumer_behavior_studies) for the complete set of ten Consumer Behavior Guidance Documents.

### CBS Utility Evaluation Reports

| Participating Utilities | Evaluation Reports | | | |
| --- | --- | --- | --- | --- |
|  | **Interim** | | **Final** | |
| [**Central Vermont Public Service to “Green Mountain Power” – eEnergy Vermont**](https://www.smartgrid.gov/project/vermont_transco_llc_eenergy_vermont.html) | [Report icon image](https://www.smartgrid.gov/document/vermont_transco_interim_report.html) | [**Oct 2013**](https://www.smartgrid.gov/document/vermont_transco_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/load_impact_analysis_green_mountain_power_critical_peak_events_2012_and_2013.html) | [**Mar 2015**](https://www.smartgrid.gov/document/load_impact_analysis_green_mountain_power_critical_peak_events_2012_and_2013.html) | |
| [**Detroit Edison – SmartCurrents Home Project**](https://www.smartgrid.gov/project/detroit_edison_company_smartcurrents.html) | [Report icon image](https://www.smartgrid.gov/document/dte_energy_smartcurrents_dynamic_peak_pricing_pilot_consumer_behavior_study.html) | [**Jan 2014**](https://www.smartgrid.gov/document/dte_energy_smartcurrents_dynamic_peak_pricing_pilot_consumer_behavior_study.html) | [Report icon image](https://www.smartgrid.gov/document/dte_energy_smartcurrents_dynamic_peak_pricing_pilot_final_evaluation_report.html) | [**Aug 2014**](https://www.smartgrid.gov/document/dte_energy_smartcurrents_dynamic_peak_pricing_pilot_final_evaluation_report.html) | |
| [**First Energy – Smart Grid Modernization Initiative**](https://www.smartgrid.gov/project/firstenergy_smart_grid_modernization_initiative.html) | [Report icon image](https://www.smartgrid.gov/document/firstenergys_consumer_behavior_study_preliminary_evaluation_summer_2012.html) | [**May 2013**](https://www.smartgrid.gov/document/firstenergys_consumer_behavior_study_preliminary_evaluation_summer_2012.html) | [Report icon image](https://www.smartgrid.gov/document/FirstEnergy-Smart-Grid-Consumer-Behavior-Study.html) | [**Jun 2015**](https://www.smartgrid.gov/document/FirstEnergy-Smart-Grid-Consumer-Behavior-Study.html) | |
| [**Lakeland Electric – Smart Metering Infrastructure Initiative**](https://www.smartgrid.gov/project/lakeland_electric_smart_grid_initiative.html) | [Report icon image](https://www.smartgrid.gov/document/lakeland_electric_consumer_behavior_study_interim_year_1_evaluation_report) | [**Feb 2015**](https://www.smartgrid.gov/document/lakeland_electric_consumer_behavior_study_interim_year_1_evaluation_report) | [Report icon image](https://www.smartgrid.gov/document/Lakeland-Consumer-Behavior-Final-Report.html) | [**Apr 2015**](https://www.smartgrid.gov/document/Lakeland-Consumer-Behavior-Final-Report.html) | |
| [**Marblehead Municipal Light Department – Residential Dynamic Pricing Pilot Project**](https://www.smartgrid.gov/project/marblehead_municipal_light_department_integrated_ami_system_real_time_pricing_pilot_program.html) | [Report icon image](https://www.smartgrid.gov/document/marblehead_municipal_light_department_interim_report.html) | [**May 2012**](https://www.smartgrid.gov/document/marblehead_municipal_light_department_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/marblehead_municipal_light_department_final_report.html) | [**Jun 2013**](https://www.smartgrid.gov/document/marblehead_municipal_light_department_final_report.html) | |
| [**Minnesota Power – AMI Behavioral Research**](https://www.smartgrid.gov/project/minnesota_power_smart_grid_advanced_metering_infrastructure_project.html) | [Report icon image](https://www.smartgrid.gov/project/minnesota_power_smart_grid_advanced_metering_infrastructure_project.html) | [**Mar 2014**](https://www.smartgrid.gov/project/minnesota_power_smart_grid_advanced_metering_infrastructure_project.html) | Report icon image | *TBD* | |
| [**NV Energy – Nevada Dynamic Pricing Trial of the Advanced Services Delivery Project**](https://www.smartgrid.gov/project/nv_energy_inc_nv_energize.html) | [Report icon image](https://smartgrid.gov/sites/default/files/MN%20Power%20CBP%20Interim%20Report.pdf) | [**Dec 2014**](https://www.smartgrid.gov/document/Nevada-Dynamic-Pricing-Trial-Interim-Report.html) | [Report icon image](https://www.smartgrid.gov/document/NV_Energy_NDPT_Final_Report.html) | [**Oct 2015**](https://www.smartgrid.gov/document/NV_Energy_NDPT_Final_Report.html) | |
| [**Oklahoma Gas and Electric – Smart Study TOGETHER**](https://www.smartgrid.gov/project/oklahoma_gas_electric_positive_energy_smart_grid_integration_program.html) | [Report icon image](https://www.smartgrid.gov/document/oge_smart_study_interim_report.html) | [**Mar 2011**](https://www.smartgrid.gov/document/oge_smart_study_interim_report.html) | [Report icon image](https://smartgrid.gov/document/oklahoma_gas_and_electric_final_evaluation_report) | [**Aug 2012**](https://smartgrid.gov/document/oklahoma_gas_and_electric_final_evaluation_report) | |
| [**Sacramento Municipal Utility District – SmartSacramento Project**](https://www.smartgrid.gov/project/sacramento_municipal_utility_district_smartsacramento.html) | [Report icon image](https://www.smartgrid.gov/document/smud_interim_report.html) | [**Oct 2013**](https://www.smartgrid.gov/document/smud_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/smartpricing_options_final_evaluation.html) | [**Sep 2014**](https://www.smartgrid.gov/document/smartpricing_options_final_evaluation.html) | |
| [**Vermont Transco, LLC – eEnergy Vermont**](https://www.smartgrid.gov/project/vermont_transco_llc_eenergy_vermont.html) | [Report icon image](https://www.smartgrid.gov/document/vermont_transco_interim_report.html) | [**Oct 2013**](https://www.smartgrid.gov/document/vermont_transco_interim_report.html) | [Report icon image](https://www.smartgrid.gov/sites/default/files/doc/files/DTE-SmartCurrents_FINAL_Report_08152014.pdf) | [**Jun 2015**](https://www.smartgrid.gov/document/vermont_electric_cooperative_consumer_behavior_study_final_report.html) | |

Smart Grid Demonstration Program

The Smart Grid Demonstration Program (SGDP) is authorized by EISA, Section 1304, as amended by the Recovery Act, to demonstrate how a suite of existing and emerging smart grid concepts can be innovatively applied and integrated to prove technical, operational, and business-model feasibility. The aim is to demonstrate new and more cost-effective smart grid technologies, tools, techniques, and [system](https://www.smartgrid.gov/lexicon/6/letter_s#System) configurations that significantly improve on the ones commonly used today. SGDP projects were selected through a merit-based solicitation in which provides financial assistance of up to 50% of the project’s cost. Note that SGDP projects are cooperative agreements, whereas the Smart Grid Investment Grant projects are grants.

Two types of smart grid projects were selected for the SGDP. One includes regional smart grid demonstrations to verify smart grid viability, quantify smart grid costs and benefits, and validate new smart grid business models at scales to promote replication. The second includes energy storage technologies such as batteries, flywheels, and compressed air energy storage systems for [load](https://www.smartgrid.gov/lexicon/6/letter_l#Load) shifting, ramping control, [frequency regulation](https://www.smartgrid.gov/lexicon/6/letter_f#Frequency_Regulation) services, distributed applications, and the grid integration of renewable resources such as wind and solar power.

The program consists of 32 projects in the two areas: Smart Grid Regional Demonstrations (16 projects) and Energy Storage Demonstrations (16 projects). The total budget for the 32 projects is about $1.6 billion; the federal share is about $600 million.

The recipients of SGDP awards are required to submit interim and final Technology Performance Reports (TPRs) to DOE. Each TPR contains the following information:

* An overview of the project including a list of objectives, system designs, schedules and milestones, and interactions with project stakeholders.
* Descriptions of the technologies and systems used in the project, including the sizes, types, and configurations of the storage module, power conversion devices, and balance of plant equipment.
* Descriptions of the methodologies and algorithms for estimating the physical and financial performance of the energy storage systems, their grid impacts, and the value of the benefits.
* Summaries of the results of the performance of the systems and technologies derived from lab tests, field tests, or grid-connected applications.
* Summaries of the results of the analysis of grid impacts and estimation of benefits.
* Summary of the major finding and conclusions including lessons learned and best practices.
* Summary of future plans and next steps with respect to additional testing, demonstration, or deployment.

Regional Demonstration Projects

Smart Grid Regional Demonstration projects involve assessments of the integration of advanced technologies with existing power systems including those involving renewable and distributed energy systems and demand response programs. The technical and economic performance of these technologies are being evaluated for applications such as microgrids, automated distribution systems, advanced metering infrastructure, time-based rate programs, and plug-in electric vehicles.

The recipients of SGDP awards for regional demonstrations are required, in most cases, to submit interim and final Technology Performance Reports according to the guidance documents linked below.

Program-Level SGDP Reports – Regional Demonstration

| report cover | **Final Progress Report for OE ARRA Smart Grid Demonstration Program**  May 2015  *Coming to smartgrid.gov* | report cover | **Key Takeaways Presentation from the Progress Report for OE ARRA Smart Grid Demonstration Program**  May 2015  *Coming to smartgrid.gov* |  |  |
| --- | --- | --- | --- | --- | --- |
| report cover | **Microgrid Demonstration Topical Report**  December 2016  *Coming to smartgrid.gov* | [Report cover](https://www.smartgrid.gov/document/dynamic_line_rating_systems_transmission_lines.html) | **[Dynamic Line Rating Systems for Transmission Lines](https://www.smartgrid.gov/document/dynamic_line_rating_systems_transmission_lines.html)**  April 2014 |  |  |

Technology Performance Report Guidance

| [Report cover](https://www.smartgrid.gov/document/outline_sgdp_regional_demo_metrics_and_benefits_reporting_plans) | [**Outline for SGDP Regional Demo Metrics and Benefits Reporting Plans**](https://www.smartgrid.gov/document/outline_sgdp_regional_demo_metrics_and_benefits_reporting_plans)  June 2010 | [Report cover](https://www.smartgrid.gov/document/guidebook_measuring_costbenefit_analysis_smart_grid_demonstration_projects.html) | [**Guidebook for Cost/Benefit Analysis of Smart Grid Demonstration Projects, Revision 1**](https://www.smartgrid.gov/document/guidebook_measuring_costbenefit_analysis_smart_grid_demonstration_projects.html)  EPRI 1025734, December 2012 |  |  |
| --- | --- | --- | --- | --- | --- |

NRECA Topical and Case-Based Technology Performance Reports

| [Report icon image](https://www.smartgrid.gov/sites/default/files/doc/files/NRECA_DOE_AMI-Based_Load_Research-KIUC_Demo.pdf) | **[AMI-Based Load Research - KIUC Demonstration](https://www.smartgrid.gov/files/NRECA_DOE_AMI-Based_Load_Research-KIUC_Demo.pdf)** | May 2014 |
| --- | --- | --- |
| [Report icon image](https://www.smartgrid.gov/document/building_consumer_acceptance_maximize_value_grid_modernization.html) | [**Building Consumer Acceptance to Maximize the Value of Grid Modernization**](https://www.smartgrid.gov/document/building_consumer_acceptance_maximize_value_grid_modernization.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/communications_smart_grids_enabling_technology.html) | [**Communications: The Smart Grid's Enabling Technology**](https://www.smartgrid.gov/document/communications_smart_grids_enabling_technology.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/conservation_impact_prepaid_metering_motivation_and_incentives_pre_pay_systems.html) | [**Conservation Impact of Prepaid Metering Motivation and Incentives for Pre-Pay Systems**](https://www.smartgrid.gov/document/conservation_impact_prepaid_metering_motivation_and_incentives_pre_pay_systems.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/costs_and_benefits_conservation_voltage_reduction_cvr_warrants_careful_examination.html) | [**Costs and Benefits of Conservation Voltage Reduction: CVR Warrants Careful Examination**](https://www.smartgrid.gov/document/costs_and_benefits_conservation_voltage_reduction_cvr_warrants_careful_examination.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/costs_and_benefits_smart_feeder_switching_quantifying_operating_value_sfs.html) | [**Costs and Benefits of Smart Feeder Switching: Quantifying the Operating Value of SFS**](https://www.smartgrid.gov/document/costs_and_benefits_smart_feeder_switching_quantifying_operating_value_sfs.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/delaware_county_electric_cooperative_dr_capability_and_predictability.html) | [**Delaware County Electric Cooperative: DR Capability and Predictability**](https://www.smartgrid.gov/document/delaware_county_electric_cooperative_dr_capability_and_predictability.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/demand_response_testing_theoretical_basis_dr.html) | [**Demand Response: Testing the Theoretical Basis for DR**](https://www.smartgrid.gov/document/demand_response_testing_theoretical_basis_dr.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/energy_storageE28094_benefits_E2809Cbehind_the_meterE2809D_storage_adding_value_ancillary_services.html) | [**Energy Storage-The Benefits of "Behind-the-Meter" Storage Adding Value with Ancillary Services**](https://www.smartgrid.gov/document/energy_storageE28094_benefits_E2809Cbehind_the_meterE2809D_storage_adding_value_ancillary_services.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/multi_tenant_meter_data_management_systems_approach_hierarchical_value.html) | [**Multi-Tenant Meter Data Management: A Systems Approach to Hierarchical Value**](https://www.smartgrid.gov/document/multi_tenant_meter_data_management_systems_approach_hierarchical_value.html) | May 2014 |
| [Report icon image](https://www.smartgrid.gov/document/washington_st_tammany_case_study_stress_testing_designs_deployment_0.html) | [**Washington-St. Tammany Case Study Stress-Testing Designs Before Deployment**](https://www.smartgrid.gov/document/washington_st_tammany_case_study_stress_testing_designs_deployment_0.html) | May 2014 |

Technology Performance Reports for SGDP Regional Demonstration Projects

| Project Lead | Regional Demonstration Project Title | Technology Performance Reports | | | |
| --- | --- | --- | --- | --- | --- |
|  |  | **Interim** | | **Final** | |
| [**AEP Ohio**](https://www.smartgrid.gov/project/aep_ohio_gridsmartsm_demonstration_project.html) | [gridSmart Demonstration Project](https://www.smartgrid.gov/project/aep_ohio_gridsmartsm_demonstration_project.html) | [Report icon image](https://www.smartgrid.gov/document/aep_ohio_interim_report.html) | [**Mar 2013**](https://www.smartgrid.gov/document/aep_ohio_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/aep_ohio_gridsmart_demonstration_project.html) | [**Jun 2014**](https://www.smartgrid.gov/document/aep_ohio_gridsmart_demonstration_project.html) |
| [**Battelle Memorial Institute**](https://www.smartgrid.gov/project/battelle_memorial_institute_pacific_northwest_division_smart_grid_demonstration_project.html) | [Pacific Northwest Smart Grid Demonstration Project](https://www.smartgrid.gov/project/battelle_memorial_institute_pacific_northwest_division_smart_grid_demonstration_project.html) | [Report icon image](https://www.smartgrid.gov/document/Pacific_Northwest_Smart_Grid_Technology_Performance.html) | [**Jun 2015**](https://www.smartgrid.gov/document/Pacific_Northwest_Smart_Grid_Technology_Performance.html) | [Report icon image](https://www.smartgrid.gov/document/Battelle_Pacific_Northwest_Smart_Grid_Demonstration.html) | [**Jun 2015**](https://www.smartgrid.gov/document/Battelle_Pacific_Northwest_Smart_Grid_Demonstration.html) |
| [**Boeing Co**](https://www.smartgrid.gov/project/boeing_company_boeing_smart_grid_solution.html) | [Demonstrating a Cyber Secure, Scalable, Interoperable, and Cost-Effective Smart Selection for Optimizing Regional Transmission System Operation](https://www.smartgrid.gov/project/boeing_company_boeing_smart_grid_solution.html) | [Report icon image](https://www.smartgrid.gov/document/boeing_interim_report.html)  [Report icon image](https://www.smartgrid.gov/document/project_boeing_sgs_interim_technology_performance_report_2.html)  [Report icon image](https://www.smartgrid.gov/document/project_boeing_sgs_interim_technology_performance_report_3.html) | **[Dec 2012](https://www.smartgrid.gov/document/boeing_interim_report.html)**  [**Jun 2013**](https://www.smartgrid.gov/document/project_boeing_sgs_interim_technology_performance_report_2.html)  [**Nov 2013**](https://www.smartgrid.gov/document/project_boeing_sgs_interim_technology_performance_report_3.html) | [Report icon image](https://www.smartgrid.gov/document/project_boeing_sgs_final_technical_report.html) | [**Dec 2014**](https://www.smartgrid.gov/document/project_boeing_sgs_final_technical_report.html) |
| [**Center for Commercialization of Electric Technologies**](https://www.smartgrid.gov/project/ccet_technology_solutions_wind_integration.html) | [Technology Solutions for Wind Integration in ERCOT](https://www.smartgrid.gov/project/ccet_technology_solutions_wind_integration.html) | [Report icon image](https://www.smartgrid.gov/document/ccet_interim_report.html) | [**Sep 2013**](https://www.smartgrid.gov/document/ccet_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot)  **[Report icon image](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot_final_technical_report_appendices_part_i.html)**  **[Report icon image](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot_final_technical_report_appendices_part_2.html)** | [**Feb 2015**](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot)  [(Appendix)](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot_final_technical_report_appendices_part_i.html)  [(Appendix)](https://www.smartgrid.gov/document/technology_solutions_wind_integration_ercot_final_technical_report_appendices_part_2.html) |
| [**Consolidated Edison Company of NY**](https://www.smartgrid.gov/project/consolidated_edison_company_new_york_inc_secure_interoperable_open_smart_grid_demonstration.html) | [Secure Interoperable Open Smart Grid Demonstration](https://www.smartgrid.gov/project/consolidated_edison_company_new_york_inc_secure_interoperable_open_smart_grid_demonstration.html) | [Report icon image](https://www.smartgrid.gov/files/conedinterimreport.pdf) | **[Jul 2012](https://www.smartgrid.gov/document/con_edison_new_york_technology_performance_report.html)** | **[Report icon image](https://www.smartgrid.gov/document/secure_interoperable_open_smart_grid_demonstration_project_final_technical_report.html)**  **[Report icon image](https://www.smartgrid.gov/document/secure_interoperable_open_smart_grid_demonstration_project_final_technical_report_0.html)** | **[Dec 2014](https://www.smartgrid.gov/document/secure_interoperable_open_smart_grid_demonstration_project_final_technical_report.html)**  [(Appendices)](https://www.smartgrid.gov/document/secure_interoperable_open_smart_grid_demonstration_project_final_technical_report_0.html) |
| [**Kansas City Power & Light Co**](https://www.smartgrid.gov/project/kansas_city_power_and_light_green_impact_zone_smartgrid_demonstration.html) | [KCP&L Green Impact Zone Smart Grid Demonstration](https://www.smartgrid.gov/project/kansas_city_power_and_light_green_impact_zone_smartgrid_demonstration.html) | [Report icon image](https://www.smartgrid.gov/document/kansas_city_power_and_light_interim_report.html)  [Report icon image](https://www.smartgrid.gov/document/kcpl_green_impact_zone_smartgrid_demonstration_interim_technology_performance_report.html) | [**Mar 2013**](https://www.smartgrid.gov/document/kansas_city_power_and_light_interim_report.html)  [**Dec 2013**](https://www.smartgrid.gov/document/kcpl_green_impact_zone_smartgrid_demonstration_interim_technology_performance_report.html) | **[Report icon image](https://www.smartgrid.gov/document/Kansas_City_Power_Light_Green_Impact_Zone_Demonstration.html)** | [**Apr 2015**](https://www.smartgrid.gov/document/Kansas_City_Power_Light_Green_Impact_Zone_Demonstration.html) |
| [**Long Island Power Authority**](https://www.smartgrid.gov/project/long_island_power_authority_long_island_smart_energy_corridor.html) | [Long Island Smart Energy Corridor](https://www.smartgrid.gov/project/long_island_power_authority_long_island_smart_energy_corridor.html) | [Report icon image](https://www.smartgrid.gov/document/long_island_power_authority_interim_technology_performance_report.html)  [Report icon image](https://www.smartgrid.gov/document/interim_technology_performance_report_long_island_smart_energy_corridor.html) | [**Jun 2013**](https://www.smartgrid.gov/document/long_island_power_authority_interim_technology_performance_report.html)  [**Jul 2014**](https://www.smartgrid.gov/document/interim_technology_performance_report_long_island_smart_energy_corridor.html) | [Report icon image](https://www.smartgrid.gov/document/long_island_power_authority_final_technology_performance_report.html) | [**Apr 2015**](https://www.smartgrid.gov/document/long_island_power_authority_final_technology_performance_report.html) |
| [**LA Department of Water & Power**](https://www.smartgrid.gov/project/los_angeles_department_water_and_power_smart_grid_regional_demonstration.html) | [LA Department of Water & Power Smart Grid Regional Demonstration Project](https://www.smartgrid.gov/project/los_angeles_department_water_and_power_smart_grid_regional_demonstration.html) | [Report icon image](https://www.smartgrid.gov/document/Los_Angeles_Water_and_Power_Demonstration.html) | [**Jan 2015**](https://www.smartgrid.gov/document/Los_Angeles_Water_and_Power_Demonstration.html) | Forthcoming report icon image | TBD |
| [**National Rural Electric Cooperative Association**](https://www.smartgrid.gov/project/national_rural_electric_cooperative_association_enhanced_demand_and_distribution_management.html) | [NRECA Smart Grid Demonstration Project](https://www.smartgrid.gov/project/national_rural_electric_cooperative_association_enhanced_demand_and_distribution_management.html) | [Report icon image](https://www.smartgrid.gov/document/NRECA_DOE_Smart_Grid_Demonstration_Project_DE_OE0000222_Interim_Technology_Performance_Report.html)  [Report icon image](https://www.smartgrid.gov/document/nreca_interim_reports.html) | [**Apr 2013**](https://www.smartgrid.gov/document/NRECA_DOE_Smart_Grid_Demonstration_Project_DE_OE0000222_Interim_Technology_Performance_Report.html)  [**Nov 2013**](https://www.smartgrid.gov/document/nreca_interim_reports.html) | [Report icon image](https://www.smartgrid.gov/files/NRECA_DOE_Communications_0.pdf) | **[May 2014](https://www.smartgrid.gov/files/NRECA_DOE_Communications_0.pdf)** |
| [**NSTAR Electric & Gas Corporation**](https://www.smartgrid.gov/project/nstar_electric_and_gas_corporation_automated_meter_reading_based_dynamic_pricing.html) | [NSTAR Automated Meter Reading-Based Dynamic Pricing](https://www.smartgrid.gov/project/nstar_electric_and_gas_corporation_automated_meter_reading_based_dynamic_pricing.html) | [Report icon image](https://www.smartgrid.gov/document/nstar_interim_report.html) | [**Mar 2013**](https://www.smartgrid.gov/document/nstar_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/NSTAR_Electric_and_Gas_Dynamic_Pricing_Demonstration.html) | [**Jun 2015**](https://www.smartgrid.gov/document/NSTAR_Electric_and_Gas_Dynamic_Pricing_Demonstration.html) |
| [**NSTAR Electric & Gas Corporation**](https://www.smartgrid.gov/project/nstar_electric_and_gas_corporation_urban_grid_monitoring_and_renewables_integration.html) | [NSTAR Urban Grid Monitoring and Renewables Integration](https://www.smartgrid.gov/project/nstar_electric_and_gas_corporation_urban_grid_monitoring_and_renewables_integration.html) | [Report icon image](https://www.smartgrid.gov/document/NSTAR_Electric_and_Gas_Renewables_Integration_Demonstration.html) | [**Sep 2014**](https://www.smartgrid.gov/document/NSTAR_Electric_and_Gas_Renewables_Integration_Demonstration.html) | Forthcoming report icon image | TBD |
| [**Oncor Electric Delivery Co**](https://www.smartgrid.gov/project/oncor_electric_delivery_company_dynamic_line_rating.html) | [Dynamic Line Rating Project](https://www.smartgrid.gov/project/oncor_electric_delivery_company_dynamic_line_rating.html) | [Report icon image](https://www.smartgrid.gov/document/oncor_electric_delivery_interim_report.html) | [**Sep 2011**](https://www.smartgrid.gov/document/oncor_electric_delivery_interim_report.html) | [Report icon image](https://www.smartgrid.gov/sites/default/files/FTR_Final_Oncor_DE-OE0000320.pdf) | **[Aug 2013](https://www.smartgrid.gov/document/oncor_electric_delivery_company_dynamic_line_rating.html)** |
| [**Pecan Street Project**](https://www.smartgrid.gov/project/pecan_street_project_inc_energy_internet_demonstration.html) | [The Pecan Street Project Energy Internet Demonstration](https://www.smartgrid.gov/project/pecan_street_project_inc_energy_internet_demonstration.html) | [Report icon image](https://www.smartgrid.gov/document/pecan_street_smart_grid_demonstration_program_interim_technology_performance_report.html) | [**June 2014**](https://www.smartgrid.gov/document/pecan_street_smart_grid_demonstration_program_interim_technology_performance_report.html) | [Report icon image](https://www.smartgrid.gov/document/pecan_street_smart_grid_demonstration_program_final_technology_performance_report.html) | [**Feb 2015**](https://www.smartgrid.gov/document/pecan_street_smart_grid_demonstration_program_final_technology_performance_report.html) |
| [**New York Power Authority**](https://www.smartgrid.gov/project/new_york_power_authority_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead.html) | [Evaluation of Instrumentation and Dynamic Thermal Ratings for Overhead Lines](https://www.smartgrid.gov/project/new_york_power_authority_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead.html) | [Report icon image](https://www.smartgrid.gov/document/nypa_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead_lines.html) | [**Aug 2011**](https://www.smartgrid.gov/document/nypa_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead_lines.html) | [Report icon image](https://www.smartgrid.gov/document/nypa_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead_lines_0.html) | [**Oct 2013**](https://www.smartgrid.gov/document/nypa_evaluation_instrumentation_and_dynamic_thermal_ratings_overhead_lines_0.html) |
| [**Southern California Edison**](https://www.smartgrid.gov/project/southern_california_edison_company_irvine_smart_grid_demonstration.html) | [Irvine Smart Grid Demonstration](https://www.smartgrid.gov/project/southern_california_edison_company_irvine_smart_grid_demonstration.html) | [Report icon image](https://www.smartgrid.gov/files/SCE-ISGD-TPR-1_Final.pdf)  [Report icon image](https://www.smartgrid.gov/document/technology_performance_report_2_irvine_smart_grid_demonstration_regional_smart_grid.html) | **[Dec 2014](https://www.smartgrid.gov/files/SCE-ISGD-TPR-1_Final.pdf)**  [**Jan 2015**](https://www.smartgrid.gov/document/technology_performance_report_2_irvine_smart_grid_demonstration_regional_smart_grid.html) | Report icon image | [**Sep 2016**](o%09https:/www.smartgrid.gov/document/irvine_smart_grid_demonstration_final_report.html) |
| [**SuperPower (formerly Waukesha Electric Systems)**](https://www.smartgrid.gov/project/superpower_inc_fault_current_limiting_superconducting_transformer.html) | [Fault Current Limiting Superconducting Transformer](https://www.smartgrid.gov/project/superpower_inc_fault_current_limiting_superconducting_transformer.html) |  | N/A | Forthcoming report icon image | TBD |

Energy Storage Demonstration Projects

Energy Storage Demonstration projects involve a variety of technologies including advanced batteries, flywheels, and underground compressed air systems. These projects are demonstrating a variety of size ranges and system configurations and their impacts on the grid. Technical and economic performance is being evaluated for a variety of applications including load shifting, ramping control, frequency regulation services, voltage smoothing, distributed energy, and the grid integration of renewable resources such as wind and solar power. The recipients of SGDP awards for energy storage projects are required to submit interim and final Technology Performance Reports according to the guidance below.

| Technology Performance Report Guidance | | Program-Level SGDP Reports – Energy Storage | |
| --- | --- | --- | --- |
| [Report cover](https://www.smartgrid.gov/document/outline_sgdp_energy_storage_metrics_and_benefits_reporting_plans) | [**Outline for SGDP Energy Storage Metrics and Benefits Reporting Plans**](https://www.smartgrid.gov/document/outline_sgdp_energy_storage_metrics_and_benefits_reporting_plans)  August 2010 |  | [**ARRA Energy Storage Demonstration Projects: Lessons Learned and Recommendations**](https://www.smartgrid.gov/document/155242_ARRA_Storage_Lessons_Learned.html)  June 2015 |

| Cost-Benefit Analysis Guidance | | | | | |
| --- | --- | --- | --- | --- | --- |
| [Report cover](https://www.smartgrid.gov/document/doe_energy_storage_computational_tool_user_guide_12.html) | [**DOE Energy Storage Computational Tool User Guide 1.2**](https://www.smartgrid.gov/document/doe_energy_storage_computational_tool_user_guide_12.html)  July 2012 | [Report cover](https://www.smartgrid.gov/recovery_act/analytical_approach/energy_storage_computational_tool.html) | [**Energy Storage Computational Tool**](https://www.smartgrid.gov/recovery_act/analytical_approach/energy_storage_computational_tool.html) | [Report cover](https://smartgrid.gov/document/energy_storage_electricity_grid_benefits_and_market_potential_assessment_guide) | [**Energy Storage for the Electricity Grid: Benefits and Market Potential Assessment Guide, Sandia Report (SAND2010-0815)**](https://smartgrid.gov/document/energy_storage_electricity_grid_benefits_and_market_potential_assessment_guide)  February 2010 |
|  | **[Methodology to Determine the Technical Performance and Value Proposition for Grid-Scale Energy Storage Systems](https://www.smartgrid.gov/document/Methodology_to_Determine_the_Technical_Performance_and_Value_Proposition_for_Grid_Scale_Energy_Storage_Systems.html)**  December 2012 |  |  |  |  |

Technology Performance Reports for Energy Storage Projects

| Project Lead | Energy Storage Project Title | Technology Performance Reports | | | |
| --- | --- | --- | --- | --- | --- |
|  |  | **Interim** | | **Final** | |
| [**Amber Kinetics**](https://www.smartgrid.gov/project/amber_kinetics_inc_flywheel_energy_storage_demonstration.html) | [Demonstration of a Flywheel System for Low Cost, Bulk Energy Storage](https://www.smartgrid.gov/project/amber_kinetics_inc_flywheel_energy_storage_demonstration.html) | [Report icon image](https://www.smartgrid.gov/document/amber_kinetics_interim_report.html) | [**Apr 2012**](https://www.smartgrid.gov/document/amber_kinetics_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/Amber_Kinetics_Flywheel_Storage_Demonstration.html) | [**Dec 2015**](https://www.smartgrid.gov/document/Amber_Kinetics_Flywheel_Storage_Demonstration.html) |
| [**Aquion Energy**](https://www.smartgrid.gov/project/aquion_energy_sodium_ion_battery_grid_level_applications.html) | [Demonstration of Sodium-ion Battery for Grid-level Applications](https://www.smartgrid.gov/project/aquion_energy_sodium_ion_battery_grid_level_applications.html) |  | N/A | [Report icon image](https://smartgrid.gov/sites/default/files/Aquion_Energy_DE-0000226_Final_Report.pdf) | **[Aug 2012](https://www.smartgrid.gov/sites/default/files/Aquion_Energy_DE-0000226_Final_Report.pdf)** |
| [**City of Painesville**](https://www.smartgrid.gov/project/city_painesville_ohio_vanadium_redox_battery_demonstration_program.html) | [Painesville Municipal Power Vanadium Redox Battery Demonstration Program](https://www.smartgrid.gov/project/city_painesville_ohio_vanadium_redox_battery_demonstration_program.html) | [Report icon image](https://www.smartgrid.gov/document/painesville_vanadium_redox_flow_battery_project_american_recovery_and_reinvestment_act_arra.html) | [**Feb 2015**](https://www.smartgrid.gov/document/painesville_vanadium_redox_flow_battery_project_american_recovery_and_reinvestment_act_arra.html) | Forthcoming report icon image | TBD |
| [**Detroit Edison Company**](https://www.smartgrid.gov/project/detroit_edison_advanced_implementation_energy_storage_technologies.html) | [Detroit Edison’s Advanced Implementation of A123s Community Energy Storage Systems for Grid Support](https://www.smartgrid.gov/project/detroit_edison_advanced_implementation_energy_storage_technologies.html) |  | N/A | [Report icon image](https://www.smartgrid.gov/document/DTE_Energy_Advanced_Implementation_of_Energy_Storage_Final_TPR.html) | [**Mar 2016**](https://www.smartgrid.gov/document/DTE_Energy_Advanced_Implementation_of_Energy_Storage_Final_TPR.html) |
| [**Duke Energy Business Services**](https://www.smartgrid.gov/project/duke_energy_business_services_notrees_wind_storage_demonstration_project.html) | [Notrees Wind Storage](https://www.smartgrid.gov/project/duke_energy_business_services_notrees_wind_storage_demonstration_project.html) | [Report icon image](https://www.smartgrid.gov/document/technology_performance_report_duke_energy_notrees_wind_storage_demonstration_project.html) | [**Nov 2013**](https://www.smartgrid.gov/document/technology_performance_report_duke_energy_notrees_wind_storage_demonstration_project.html) | [Report icon image](https://www.smartgrid.gov/document/Duke_Energy_Notrees_Wind_Storage_Demonstration.html) | [**Nov 2015**](https://www.smartgrid.gov/document/Duke_Energy_Notrees_Wind_Storage_Demonstration.html) |
| [**East Penn Manufacturing**](https://www.smartgrid.gov/project/east_penn_manufacturing_co_grid_scale_energy_storage_demonstration_using_ultrabattery.html) | [Grid-Scale Energy Storage Demonstration for Ancillary Services Using the UltraBattery Technology](https://www.smartgrid.gov/project/east_penn_manufacturing_co_grid_scale_energy_storage_demonstration_using_ultrabattery.html) | [Report icon image](https://www.smartgrid.gov/document/east_penn_manufacturing_interim_report.html) | [**Jan 2014**](https://www.smartgrid.gov/document/east_penn_manufacturing_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/East_Penn_Mfg_Energy_Storage_Demonstration.html) | [**Aug 2015**](https://www.smartgrid.gov/document/East_Penn_Mfg_Energy_Storage_Demonstration.html) |
| [**Hazle Spindle**](https://www.smartgrid.gov/project/hazle_spindle_20mws_flywheel_frequency_regulation_plant.html) | [Beacon Power 20MW Flywheel Frequency Regulation Plant](https://www.smartgrid.gov/project/hazle_spindle_20mws_flywheel_frequency_regulation_plant.html) | [Report icon image](https://www.smartgrid.gov/document/Beacon_Power_Interim_TPR_Hazle_Spindle.html) | [**Jun 2015**](https://www.smartgrid.gov/document/Beacon_Power_Interim_TPR_Hazle_Spindle.html) | Report icon image | [**Feb 2016**](o%09https:/www.smartgrid.gov/document/hazle_spindle_20mws_flywheel_frequency_regulation_plant.html) |
| [**Ktech Inc.**](https://www.smartgrid.gov/project/ktech_corp_flow_battery_solution_smart_grid_renewable_energy_applications.html) | [Flow Battery Solution for Smart Grid Renewable Energy Applications](https://www.smartgrid.gov/project/ktech_corp_flow_battery_solution_smart_grid_renewable_energy_applications.html) |  | N/A | [Report icon image](https://www.smartgrid.gov/document/Raytheon_Ktech_Flow_Battery_Demonstration.html) | [**Jun 2015**](https://www.smartgrid.gov/document/Raytheon_Ktech_Flow_Battery_Demonstration.html) |
| [**New York State Electric & Gas Corporation**](https://www.smartgrid.gov/project/new_york_state_electric_and_gas_advanced_compressed_air_energy_storage.html) | [Advanced CAES Demonstration 150 MW Plant Using an Existing Salt Cavern](https://www.smartgrid.gov/project/new_york_state_electric_and_gas_advanced_compressed_air_energy_storage.html) |  | N/A | [Report icon image](https://www.smartgrid.gov/document/seneca_compressed_air_energy_storage_caes_project.html) | [**Sep 2012**](https://www.smartgrid.gov/document/seneca_compressed_air_energy_storage_caes_project.html) |
| [**Pacific Gas & Electric**](https://www.smartgrid.gov/project/pacific_gas_and_electric_company_advanced_underground_compressed_air_energy_storage.html) | [Advanced Underground CAES Demonstration Project Using a Saline Porous Rock Formation as the Storage Reservoir](https://www.smartgrid.gov/project/pacific_gas_and_electric_company_advanced_underground_compressed_air_energy_storage.html) |  | N/A | Forthcoming report icon image | TBD |
| [**Primus Power Corporation**](https://www.smartgrid.gov/project/primus_power_corporation_wind_firming_energyfarm.html) | [Wind Firming Energy Farm](https://www.smartgrid.gov/project/primus_power_corporation_wind_firming_energyfarm.html) |  | N/A | Forthcoming report icon image | TBD |
| [**Public Service Company of New Mexico**](https://www.smartgrid.gov/project/public_service_company_new_mexico_pv_plus_battery_simultaneous_voltage_smoothing_and_peak.html) | [PV Plus Battery for Simultaneous Voltage Smoothing and Peak Shifting](https://www.smartgrid.gov/project/public_service_company_new_mexico_pv_plus_battery_simultaneous_voltage_smoothing_and_peak.html) | [Report icon image](https://www.smartgrid.gov/document/public_service_company_new_mexico_interim_report.html) | [**Sep 2012**](https://www.smartgrid.gov/document/public_service_company_new_mexico_interim_report.html) | [Report icon image](https://www.smartgrid.gov/document/smart_grid_demonstration_project_public_service_company_new_mexico.html) | [**Apr 2014**](https://www.smartgrid.gov/document/smart_grid_demonstration_project_public_service_company_new_mexico.html) |
| [**Seeo Inc.**](https://www.smartgrid.gov/project/seeo_inc_solid_state_batteries_grid_scale_energy_storage.html) | [Solid State Batteries for Grid-Scale Energy Storage](https://www.smartgrid.gov/project/seeo_inc_solid_state_batteries_grid_scale_energy_storage.html) |  | N/A | [Report icon image](https://www.smartgrid.gov/document/SEEO_Solid_State_Battery_Storage_Demonstration.html) | [**Apr 2015**](https://www.smartgrid.gov/document/SEEO_Solid_State_Battery_Storage_Demonstration.html) |
| [**Southern California Edison**](https://www.smartgrid.gov/project/southern_california_edison_company_tehachapi_wind_energy_storage_project.html) | [Tehachapi Wind Energy Storage Project](https://www.smartgrid.gov/project/southern_california_edison_company_tehachapi_wind_energy_storage_project.html) | [Report icon image](https://www.smartgrid.gov/document/tehachapi_wind_energy_storage_project_technology_performance_report_1.html)  [Report icon image](https://www.smartgrid.gov/document/tehachapi_wind_energy_storage_project_technology_performance_report_2.html) | [**Apr 2015**](https://www.smartgrid.gov/document/tehachapi_wind_energy_storage_project_technology_performance_report_1.html)  [**Feb 2016**](https://www.smartgrid.gov/document/tehachapi_wind_energy_storage_project_technology_performance_report_2.html) | Forthcoming report icon image | TBD |
| [**SustainX Inc.**](https://www.smartgrid.gov/project/sustainx_inc_isothermal_compressed_air_energy_storage.html) | [Demonstration of Isothermal Compressed Air Energy Storage to Support Renewable Energy Production](https://www.smartgrid.gov/project/sustainx_inc_isothermal_compressed_air_energy_storage.html) | [Report icon image](https://www.smartgrid.gov/document/technology_performance_report_sustainx_smart_grid_program_interim.html) | [**Jul 2014**](https://www.smartgrid.gov/document/technology_performance_report_sustainx_smart_grid_program_interim.html) | [Report icon image](https://www.smartgrid.gov/document/technology_performance_report_sustainx_smart_grid_program_final.html) | [**Apr 2015**](https://www.smartgrid.gov/document/technology_performance_report_sustainx_smart_grid_program_final.html) |
| [**VionX Energy (formerly Premium Power)**](https://www.smartgrid.gov/project/vionx_energy_distributed_energy_storage_system.html) | [Distributed Energy Storage System Demonstration](https://www.smartgrid.gov/project/vionx_energy_distributed_energy_storage_system.html) | Forthcoming report icon image | Feb 2017 | Forthcoming report icon image | Apr 2018 |

# Case Studies

Project-specific case studies, using results from both SGIG and SGDP projects, have been published in the following topics areas:

* **AMI Demand Management** – Consumer-Based Demand Management Programs enabled by Advanced Metering Infrastructure (AMI)
* **AMI Operations** - AMI Applied to Operations
* **Distribution Automation** – Reliability Enhancements Achieved via Distribution Automation Technologies
* **Volt/VAR** – Improved Voltage and VAR Management
* **Transmission** – Transmission System Technology Advancements
* **Integration** – Integration of Renewable and Distributed Energy Resources
* **Cyber Security** – Cyber Security, System Integration, and Communications Technology
* **Equipment Monitoring**
* **Workforce Development**

| Case Studies | | Performer | Date | AMI Demand Management | AMI Operations | Distribution Automation | Volt/VAR | Transmission | Integration | Cyber Security | Equipment Monitoring | Workforce Development |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Published Documents** | |  |  |  |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/western_electricity_coordinating_council_case_study) | [**A Smart Grid Strategy for Assuring Reliability of the Western Grid**](https://www.smartgrid.gov/document/western_electricity_coordinating_council_case_study) | WECC | May-11 |  |  |  |  | **•** |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/oklahoma_gas_and_electric_case_study) | [**Reducing Peak Demand to Defer Power Plant Construction in Oklahoma**](https://www.smartgrid.gov/document/oklahoma_gas_and_electric_case_study) | OG&E | May-11 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/national_rural_electric_cooperative_association_case_study) | [**National Rural Electric Cooperative Association - Helping America's Electric Cooperatives Build a Smarter Grid to Streamline Operations and Improve Service**](https://www.smartgrid.gov/document/national_rural_electric_cooperative_association_case_study) | NRECA | May-11 |  |  |  |  |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/electric_power_board_chattanooga_case_study) | [**A Smarter Electric Circuit: Electric Power Board of Chattanooga Makes the Switch**](https://www.smartgrid.gov/document/electric_power_board_chattanooga_case_study) | EPB | May-11 |  |  | **•** |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/consolidated_edison_company_case_study) | [**Bright Lights, Big City: A Smarter Grid in New York**](https://www.smartgrid.gov/document/consolidated_edison_company_case_study) | Con Edison | May-11 |  |  | **•** | **•** |  |  |  | **•** |  |
| [Report icon image](https://www.smartgrid.gov/document/woodruff_electric_cooperative_case_study) | [**Smart Meter Investments Support Rural Economy in Arkansas**](https://www.smartgrid.gov/document/woodruff_electric_cooperative_case_study) | Woodruff | Jul-11 | **•** | **•** |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/north_american_synchrophasor_initiative_naspi_case_study) | [**Synchrophasor Technologies for a Better Grid**](https://www.smartgrid.gov/document/north_american_synchrophasor_initiative_naspi_case_study) | NASPI | Jul-11 | **•** | **•** |  |  | **•** |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/tri_state_electric_membership_cooperative_case_study) | [**Smarter Meters Help Customers Budget Electric Service Costs**](https://www.smartgrid.gov/document/tri_state_electric_membership_cooperative_case_study) | Tri-State | Sep-11 |  |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/naperville_case_study) | [**At the Forefront of the Smart Grid: Empowering Consumers in Naperville, Illinois**](https://www.smartgrid.gov/document/naperville_case_study) | City of Naperville | Sep-11 | **•** |  | **•** |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/workforce_training_case_study) | [**Workforce Training Case Study**](https://www.smartgrid.gov/document/workforce_training_case_study) | N/A | Sep-11 |  |  |  |  |  |  |  |  | **•** |
| [Report icon image](https://www.smartgrid.gov/document/m2m_communications_case_study) | [**Agricultural Demand Response Program in California Helps Farmers Reduce Peak Electricity Usage, Operate More Efficiently Year­‐Round**](https://www.smartgrid.gov/document/m2m_communications_case_study) | M2M Communi-cations | Nov-11 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/energy_vermont_case_study) | [**Vermont Pursues a Statewide Smart Grid Strategy**](https://www.smartgrid.gov/document/energy_vermont_case_study) | eEnergy Vermont | Nov-11 | **•** |  | **•** |  |  |  |  |  | **•** |
| [Report icon image](https://www.smartgrid.gov/document/ppl_electric_utilities_corporation_case_study) | [**Building a Smarter Distribution System in Pennsylvania**](https://www.smartgrid.gov/document/ppl_electric_utilities_corporation_case_study) | PPL | Dec-11 |  |  | **•** | **•** |  |  | **•** |  | **•** |
| [Report icon image](https://www.smartgrid.gov/document/orange_and_rockland_utilities_case_study) | [**A “Model-Centric” Approach to Smarter Electric Distribution Systems**](https://www.smartgrid.gov/document/orange_and_rockland_utilities_case_study) | ORU | Dec-11 |  |  | **•** |  |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/pacific_northwest_batelle_smart_grid_demonstration_project_2012_annual_report) | [**Pacific Northwest - Battelle Smart Grid Demonstration Project 2012 Annual Report**](https://www.smartgrid.gov/document/pacific_northwest_batelle_smart_grid_demonstration_project_2012_annual_report) | Battelle | Dec-11 | **•** |  |  |  |  | **•** | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/glendale_case_study) | [**Glendale, California Municipal Invests in Smart Grid to Enhance Customer Services and Improve Operational Efficiencies**](https://www.smartgrid.gov/document/glendale_case_study) | GWP | Feb-12 | **•** |  | **•** |  |  | **•** | **•** |  | **•** |
| [Report icon image](https://www.smartgrid.gov/document/centerpoint_energy_case_study) | [**CenterPoint Energy's Smart Grid Solutions Improve Operating Efficiency and Customer Participation**](https://www.smartgrid.gov/document/centerpoint_energy_case_study) | CenterPoint | Feb-12 | **•** | **•** | **•** |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/talquin_case_study) | [**Transforming Electricity Delivery in Florida**](https://www.smartgrid.gov/document/talquin_case_study) | TEC | Mar-12 |  | **•** |  | **•** |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/sioux_valley_energy_case_study) | [**Critical Peak Pricing Lowers Peak Demands and Electric Bills in South Dakota and Minnesota**](https://www.smartgrid.gov/document/sioux_valley_energy_case_study) | SVE | May-12 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/florida_power_light_company_case_study) | [**Smart Grid Solutions Strengthen Electric Reliability and Customer Services in Florida**](https://www.smartgrid.gov/document/florida_power_light_company_case_study) | FPL | Jun-12 | **•** |  | **•** | **•** |  |  | **•** | **•** |  |
| [Report icon image](https://www.smartgrid.gov/document/demand_response_defers_investment_new_power_plants_oklahoma) | [**Demand Response Defers Investment in New Power Plants in Oklahoma**](https://www.smartgrid.gov/document/demand_response_defers_investment_new_power_plants_oklahoma) | OG&E | Mar-13 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/smart_meter_investments_yield_positive_results_maine) | [**Smart Meter Investments Yield Positive Results in Maine**](https://www.smartgrid.gov/document/smart_meter_investments_yield_positive_results_maine) | CMP | Jan-14 | **•** | **•** | **•** | **•** |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/smartmeter_investments_benefit_rural_customers_three_southern_states) | [**Smart Meter Investments Benefit Rural Customers in Three Southern States**](https://www.smartgrid.gov/document/smartmeter_investments_benefit_rural_customers_three_southern_states) | Tri-State | Feb-14 | **•** | **•** |  |  |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/oncors_pioneering_transmission_dynamic_line_rating_demonstration_lays_foundation_follow_on) | [**Oncor's Pioneering Transmission Dynamic Line Rating Demonstration Lays Foundation for Follow-On Deployments**](https://www.smartgrid.gov/document/oncors_pioneering_transmission_dynamic_line_rating_demonstration_lays_foundation_follow_on) | Oncor | Apr-14 |  |  |  |  | **•** |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/control_center_and_data_management_improvements_modernize_bulk_power_operations_georgia.html) | [**Control Center and Data Management Improvements Modernize Bulk Power Operations in Georgia**](https://www.smartgrid.gov/document/control_center_and_data_management_improvements_modernize_bulk_power_operations_georgia.html) | GSOC | Jul-14 |  |  |  |  | **•** |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/using_smart_grid_technologies_modernize_distribution_infrastructure_new_york) | [**Using Smart Grid Technologies to Modernize Distribution Infrastructure in New York**](https://www.smartgrid.gov/document/using_smart_grid_technologies_modernize_distribution_infrastructure_new_york) | Con Edison | Jul-14 |  |  | **•** |  |  |  |  | **•** |  |
| [Report icon image](https://www.smartgrid.gov/document/integrated_smart_grid_provides_wide_range_benefits_ohio_and_carolinas) | [**Integrated Smart Grid Provides Wide Range of Benefits in Ohio and the Carolinas**](https://www.smartgrid.gov/document/integrated_smart_grid_provides_wide_range_benefits_ohio_and_carolinas) | Duke Energy | Aug-14 |  | **•** | **•** |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/automated_demand_response_benefits_california_utilities_and_commercial_industrial_customers) | [**Automated Demand Response Benefits California Utilities and Commercial/Industrial Customers**](https://www.smartgrid.gov/document/automated_demand_response_benefits_california_utilities_and_commercial_industrial_customers) | Honeywell | Aug-14 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/new_forecasting_tools_enhance_wind_energy_integration_idaho_and_oregon) | [**New Forecasting Tools Enhance Wind Energy Integration in Idaho and Oregon**](https://www.smartgrid.gov/document/new_forecasting_tools_enhance_wind_energy_integration_idaho_and_oregon) | IPC | Aug-14 |  |  |  |  | **•** | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/PNM_Energy-Storage-System-Firms-Renewable-Resource.html) | [**Energy Storage System Firms a Renewable Resource**](https://www.smartgrid.gov/document/PNM_Energy-Storage-System-Firms-Renewable-Resource.html) | PNM | Oct-15 |  |  |  |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/AEP_Smart-Grid-Technologies-Cut-Emissions-Costs-Ohio-SGDP.html) | [**Smart Grid Technologies Cut Emissions and Costs in Ohio**](https://www.smartgrid.gov/document/AEP_Smart-Grid-Technologies-Cut-Emissions-Costs-Ohio-SGDP.html) | AEP Ohio | Oct-15 | **•** | **•** | **•** | **•** |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/Battelle_Demonstrating-Coordinated-Resources-Pacific-Northwest.html) | [**Demonstrating Coordinated Resources in the Pacific Northwest**](https://www.smartgrid.gov/document/Battelle_Demonstrating-Coordinated-Resources-Pacific-Northwest.html) | Battelle | Oct-15 | **•** | **•** |  | **•** |  | **•** | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/Aquion_Energy-Storage-Staying-Power.html) | [**Energy Storage with Staying Power**](https://www.smartgrid.gov/document/Aquion_Energy-Storage-Staying-Power.html) | Aquion | Oct-15 |  |  |  |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/Hazle_Spindle_Spinning-Solution-Momentary-Electric-Grid-Disturbances.html) | [**Spinning a Solution to Momentary Electric Grid Disturbances**](https://www.smartgrid.gov/document/Hazle_Spindle_Spinning-Solution-Momentary-Electric-Grid-Disturbances.html) | Hazle Spindle | Oct-15 |  |  |  |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/NYPA_Improving-Efficiency-Dynamic-Line-Ratings.html) | [**Improving Efficiency with Dynamic Line Ratings**](https://www.smartgrid.gov/document/NYPA_Improving-Efficiency-Dynamic-Line-Ratings.html) | NYPA | Oct-15 |  |  |  |  | **•** |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/Pecan_Street_Making-Electricity-Value-Proposition-Consumer.html) | [**Making Electricity a Value Proposition for the Consumer**](https://www.smartgrid.gov/document/Pecan_Street_Making-Electricity-Value-Proposition-Consumer.html) | Pecan St. | Oct-15 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/NSTAR-292_Power-People-Automatic-Meter-Reading-Supports-Consumer-Programs.html) | [**Power to the People: Advanced Meter Reading Supports Consumer Programs**](https://www.smartgrid.gov/document/NSTAR-292_Power-People-Automatic-Meter-Reading-Supports-Consumer-Programs.html) | NSTAR 292 | Oct-15 | **•** |  |  |  |  |  |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/LIPA_Improving-Security-Growing-Smart-Energy-Corridor.html) | [**Improving Security in the Growing Smart Energy Corridor**](https://www.smartgrid.gov/document/LIPA_Improving-Security-Growing-Smart-Energy-Corridor.html) | LIPA | Oct-15 |  | **•** |  |  |  |  | **•** |  |  |
| [Report icon image](https://www.smartgrid.gov/document/East_Penn_Manufacturing-Delivers-New-Battery-Technology-Electrical-Grid-Support.html) | [**East Penn Manufacturing Delivers New Battery Technology for Electrical Grid Support**](https://www.smartgrid.gov/document/East_Penn_Manufacturing-Delivers-New-Battery-Technology-Electrical-Grid-Support.html) | East Penn | Oct-15 |  |  |  |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/CCET_Harnessing-New-Generation-Storage-Technologies-Grid.html) | [**Harnessing New Generation and Storage Technologies for the Grid**](https://www.smartgrid.gov/document/CCET_Harnessing-New-Generation-Storage-Technologies-Grid.html) | CCET | Oct-15 |  |  |  |  | **•** | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/KCPL_Case_Study_SGDP.html) | [**Renovating the Grid and Revitalizing a Neighborhood**](https://www.smartgrid.gov/document/KCPL_Case_Study_SGDP.html) | KCP&L | Oct-15 | **•** | **•** | **•** |  |  | **•** |  |  |  |
| [Report icon image](https://www.smartgrid.gov/document/Voltage-Power-Optimization-Saves-Energy-Reduces-Peak-Power.html) | [**Voltage and Power Optimization Saves Energy and Reduces Peak Power**](https://www.smartgrid.gov/document/Voltage-Power-Optimization-Saves-Energy-Reduces-Peak-Power.html) | AEP, Battelle,  KCP&L, NRECA | Oct-15 |  |  |  | **•** |  |  |  |  |  |