Attachment 2

PJM Interconnection, L.L.C.

STATEMENT OF PROJECT OBJECTIVES

Recovery Act: Eastern Interconnection Planning Collaborative (EIPC)

Topic A

A. Objectives

NOTE: Topic A involves the Interconnection-Level Analysis and Planning. Topic B includes the cooperation among states, with input from stakeholders, on electric resource planning and priorities. The work being performed under this Cooperative Agreement is work designated under Topic A.

The objective of this project is to address the Eastern Interconnection Topic A efforts to prepare analyses of transmission requirements under a broad range of alternative futures and develop long-term interconnection-wide transmission expansion plans in response to the alternative resource scenarios selected through the stakeholder process. The process does not supplant the existing FERC Order 890 approved regional planning processes, rather the information gained from this project should help inform the 890 regional processes going forward. The Recipient will perform analysis and planning for the Eastern Interconnection in a transparent and collaborative manner that is open to participation by state and federal officials, representatives from independent system operators (ISOs) and regional transmission organizations (RTOs), utilities, and relevant stakeholder bodies or non-government organizations (NGOs), including appropriate entities in Canada, with an approach to ensure consensus among stakeholders on key issues.

This work will be completed and funded by a single Budget Period; two Phases will exist, separated by a GO/NO GO Decision. During Phase I, the Recipient will establish processes for aggregating the modeling and regional transmission expansion plans of the entire Eastern Interconnection and perform interregional analyses to identify potential conflicts and opportunities between regions. This interconnection-wide analysis will also serve as a reference case for modeling various alternative grid expansions based on the scenarios developed by stakeholders. In addition, macroeconomic analyses will be performed by the Recipient to assist the stakeholders in development of the scenarios to be analyzed in Phase II. During Phase II, the Recipient will perform transmission scenario analysis as guided by broad stakeholder input and the consensus recommendations of the Stakeholder Steering Committee (SSC) to aid federal, state, and provincial regulators; other policy makers; and other stakeholders in assessing interregional options and policy decisions.

B. Scope of Project

This project will use a collaborative approach to conduct interconnection-wide analysis and planning. The Recipient, along with other Eastern Interconnection Planning Authorities, created a new collaboration of planning entities called the Eastern Interconnection Planning Collaborative (EIPC). Through the EIPC, the Recipient will prepare analyses of transmission requirements and develop long-term interconnection-wide transmission expansion plans. To accomplish the objectives of this project, the Recipient will:

- Give appropriate attention to the merits of alternative configurations of the interconnection's Extra High Voltage (EHV) Alternating Current (AC) and Direct Current (DC) network;
- Establish a multi-constituency Stakeholder Steering Committee (SSC) that will provide strategic guidance to the scenarios to be modeled, the modeling tools to be used, key assumptions for the scenarios, and other essential activities; at least one-third of the members of the SSC shall be state officials;
- Make available to the public the modeling tools and databases used and developed under this project, and open all events and meetings of study groups;
- Provide resources to enable representatives of relevant non-profit NGOs to participate in the development of interconnection-level analyses and plans;
- Satisfy all reliability standards approved by FERC while achieving and balancing the following:
    - Consider all available technologies (to the extent that they may become economic) for electricity generation, energy storage, transmission, end-use energy efficiency, demand resources, and management of transmission- and distribution-level facilities;
    - Satisfy all current state and federal requirements (as of the date of the analysis underlying the plan(s)) for renewable energy goals, energy efficiency goals, and goals for reducing greenhouse gas emissions;
    - Analyze the long-term costs of producing and delivering electricity to consumers;
    - Analyze the overall long-term impacts of electricity supply activities on the environment; and
    - Provide a path for efficient grid development; e.g., build fewer but larger long-distance transmission lines.

This project will aggregate modeling and regional expansion plans developed in the annual regional processes for 2010, and will conduct base plan and scenario analysis to identify potential impacts and interregional transmission expansion options. This project will provide the initial results of the analysis to stakeholders and the SSC and complete a formal commenting process with stakeholders on the results. The resulting Eastern Interconnection transmission model developed by integrating the regional plans will be analyzed to identify opportunities for potential transmission enhancements to regional expansion plans in order to

increase the ability to move power or reduce costs. In Phase II, the Recipient will provide the results of the reliability and production cost analyses performed for the resource expansion scenario(s) selected for further study, including the interregional transmission expansion options identified and the associated cost estimates. This project will facilitate meetings with the associated regional planning entities to provide this input for use in their subsequent planning processes. This project will provide for an EIPC website to publicize analysis results, modeling, work papers, and other materials, subject to applicable regulations associated with licensing requirements and protection of Critical Energy Infrastructure Information (CEII) and Confidential Data.

C. Tasks and Subtasks to Be Performed

Task 0. Project Management and Planning

The Recipient will revise the Project Management Plan (PMP) to include details from the final cooperative agreement and revised project schedule and milestone dates. The approach, tools, and techniques will be revised as necessary along with project timeline and milestones.

The Recipient will revise the PMP periodically throughout this project as needed to reflect the results of work completed and the changes necessary to accomplish objectives in accordance with project delivery dates. Quarterly reporting on schedule progress, actual expenditures versus budget, and revised expenditure projections will be reflected in the PMP updates.

Phase I

Phase I will focus on establishing group structures, methodology development, macroeconomic sensitivity development, and interregional analysis of the regional plans**.**

Task 1. Initiate Project

The Recipient shall meet with the Eastern Interconnection Topic B Recipient and stakeholders to assess potential adjustments needed in the process for selecting the SSC or study team structures. The Recipient will update or establish study processes as required. The Recipient will facilitate the formation of the SSC, stakeholder working groups (SWGs), and any necessary subgroups. The SWGs will be responsible for facilitating the interchange of information between the broader stakeholder community, the SSC, and the Recipient.

The Recipient will conduct a series of regional stakeholder meetings to timely communicate this project's structure, processes, and deliverables; work toward the establishment of the SSC and selection of representatives from multiple constituencies; and initiate work toward consensus on scenarios for analysis. The

Recipient will conduct webinars and conference calls to facilitate timely input from the broader stakeholder community and the SSC regarding project tasks.

Subtask 1.A Adjust structure of SSC as needed.
Subtask 1.B Commission SSC.
Subtask 1.C Select SSC members.
Subtask 1.D Establish SSC By-Laws, elect officers.
Subtask 1.E Project task and scope development.
Subtask 1.F Develop process for selection of NGOs and Consumer Advocate (CA) groups.

Task 2. Integrate Regional Plans

The Recipient, building upon the existing regional plans of the NERC Planning Authorities within the Eastern Interconnection, will aggregate and update the modeling required to perform Interregional Analysis for the entire Eastern Interconnection. This modeling will serve as the basis both for the Interregional Analysis of the existing regional plans and for the expansion scenario analysis selected by stakeholders through the SSC. Interregional Analyses will include contingency analysis, transfer analysis, and other reliability assessments performed on an interregional basis to identify potential conflicts among regional plans and opportunities for efficiencies in transmission expansion.

This integration and Interregional Analysis will assess compatibility among the regional plans; which are developed to meet all current state, provincial, and federal regulatory and reliability requirements; and will identify potential opportunities to enhance the regional plans across regions. Key inputs for Task 2 include the existing regional plans and the Eastern Interconnection Reliability Assessment Group's (ERAG's) Multiregional Modeling Working Group's (MMWG's) modeling.

Subtask 2.A Develop study guide for documenting Interregional Analysis processes that refine the MMWG modeling and regional plans as needed for Roll-up Integration Case analysis.
Subtask 2.B Conduct interregional transmission analyses for Roll-up Integration Case and identify potential transmission conflicts/opportunities among regional plans; e.g., gap analysis.
Subtask 2.C Develop transmission options to address reliability impacts associated with potential conflicts among regional plans.
Subtask 2.D Document and communicate results for consideration in regional planning activities and post the analysis on the EIPC website.
Subtask 2.E Develop flowgates.

Task 3. Production Cost Analysis of Regional Plans

The Recipient will perform economic analysis of the integrated regional plans

using production cost modeling. Production cost analysis will assess all hours of the future year and will forecast energy production costs, constraints limiting dispatch and interregional transactions, anticipated emissions, renewable energy production, and other pertinent factors. The production cost analysis will be performed for multiple future sensitivities such as high/low loads, high/low fuel costs, high/low carbon taxes, or similar parameters.

The Recipient will perform the production cost analysis using a model that simulates the hour-by-hour operation of the transmission and generation system in the Eastern Interconnection, incorporating transmission reliability and environmental considerations. The analysis will quantify economic and environmental impacts under multiple sensitivities including changes in costs, prices, emissions, and reliability. The Recipient will utilize a model that uses a highly detailed database of generation and transmission facilities in the Eastern Interconnection, which will be refined using input from EIPC members and stakeholders. Any changes to this model may impact the project performance, cost, and schedule. Key inputs for Task 3 include the interregional modeling generated in Task 2.

Subtask 3.A Perform production cost modeling for the Roll-up Integration Case.

Subtask 3.B Document and communicate results of production cost modeling and post the analysis on the EIPC website.

Task 4. Macroeconomic Futures Definition

The Recipient will conduct meetings to generate strategic guidance from the SSC toward developing a set of macroeconomic sensitivities that will be analyzed and compared. The Macroeconomic Analysis will be conducted for up to eight different futures, with up to nine sensitivities performed for each future. The selection of different futures to be considered in the Macroeconomic Analysis will be determined by the SSC. The Recipient will allow the Topic B Recipient to select a certain number of the eight futures for the Macroeconomic Analysis.

The Recipient will assist and inform the SSC and SWGs to aid the SSC in reaching consensus on these sensitivities. The SSC and SWGs will gather and synthesize input from the broader stakeholder community on inputs and implications of the Macroeconomic Analysis and other phases of the analysis. The Recipient will provide resources to facilitate the ongoing interchange between the SSC, SWGs, and the broader stakeholder community. For the Macroeconomic Futures, the Recipient will coordinate with the SSC to identify and develop the various inputs needed to perform the Macroeconomic Analysis and other modeling assumptions. The Recipient will inform the SSC of the modeling tools and analysis methods planned for performing the work in connection with the Macroeconomic Analysis, explain their operation, inputs and outputs, and appropriately include strategic guidance received from the SSC.

The macroeconomic sensitivities are intended to provide the SSC, stakeholders and policy makers a forecast of how the interconnected electrical system might evolve for a range of potential policy and economic futures. For example, a set of macroeconomic sensitivities selected by the SSC might be a 20% Renewable Energy Standard (RES) under high, medium, and low fuel costs. Another set might be a 20% RES with $30 carbon allowances under high, medium, and low fuel costs. Such analysis will show potential renewable resource development, impacts on loads, emissions reductions, energy exchanges between regions, and other metrics of interest. These analyses will provide useful information to the SSC in determining the expansion scenarios to be chosen in Task 6. Key inputs for Task 4 include the SSC formation and stakeholder input, both from Task 1.

Subtask 4.A Complete initial macroeconomic sensitivities definitions.
Subtask 4.B Coordinate and conduct initial stakeholder regional meeting(s) to develop consensus on resource expansion scenarios.

Task 5. Macroeconomic Analysis

The Recipient will provide Macroeconomic Analyses for up to eight futures, with up to nine sensitivities for each future to provide a high-level assessment of the outcomes of numerous proposed scenarios to be determined by the SSC at the start of Phase II. To help inform their decisions, the SSC will receive high-level results such as economics of resources in various regions, impacts on renewable development, impacts on emissions, impacts on economic development and demand, and other factors.

The Recipient will perform the Macroeconomic Analysis using a model that considers impacts both to the electric power supply and to the other sectors of the US economy. Because the macroeconomic approach accounts for all sectors of the economy and not just electric power, it also conveys potential impacts on electric demand and prices that may result related to energy policy impacts in other areas of the economy. Any changes to this model may impact the project performance, cost, and schedule.

The Recipient will provide high-level transmission analysis for the sensitivities of interest indicated by the SSC. This analysis will not be detailed power flow analysis, but rather conceptual assessments made by the Planning Authority engineers of potential interregional transmission expansion to support the magnitude of interregional energy exchanges identified in the Macroeconomic Analysis sensitivities. The Macroeconomic Analysis will provide the SSC with information regarding potential resources in other regions and associated interregional energy exchanges that may be desirable under certain policy or economic futures. Key inputs for Task 5 include the SSC's consensus from Task 4.

Subtask 5.A Coordinate and conduct SSC meeting(s) to finalize consensus on resource expansion scenarios.
Subtask 5.B Conduct Macroeconomic Analysis and high-level transmission analysis.
Subtask 5.C Review results of analyses with the SSC.
Subtask 5.D Facilitate conference calls to review the results and provide for SSC interaction and discussion.

Task 6. Expansion Scenario Concurrence

The Recipient will develop Expansion Scenario(s) of interest which provide a platform for the SSC to consider higher levels of energy exchange between regions than may be included in existing regional plans. The Recipient will develop proposed scope documents for the Expansion Scenario(s) based upon the input received from the SSC during development and review of the Macroeconomic Analyses in Tasks 4 and 5. The range of resource options that the SSC will choose from may include those that are not currently feasible but could become feasible in coming decades. These could include additional energy efficiency; demand response; combined heat and power (CHP); clean coal/carbon capture and storage (CCS); advanced nuclear; renewables such as wind, central solar, rooftop solar, geothermal (hydrothermal, geopressured, co-production/low-temperature, enhanced geothermal systems), biopower, water (incremental and new hydroelectric, ocean, hydrokinetics, pumped storage); and other storage technologies.

The Recipient will incorporate state and load serving entity inputs in developing the level of external resources (imports) to be assessed for each area and/or the level of resources sited within each area to be assessed for exports to other areas. State input is anticipated to be provided by state authorities consistent with state processes for making resource selections. One state or region shall not impose resource assumptions on another state or region in developing the scope outside of a consensus among the states. The Recipient will review the proposed scope documents with the SSC to receive strategic guidance and adjust the scopes as appropriate. One of the three Expansion Scenarios will meet the Topic B Recipient's requirements.

A draft Part I report will be developed by the Recipient and provided for SSC and stakeholder review prior to the regional stakeholder workshop(s). The Recipient will conduct regional stakeholder workshop(s) to present the results of the analysis, respond to questions, and solicit input from stakeholders. The SSC, taking into consideration the input from the workshop(s) and other stakeholder venues, will provide consensus-based comments on the draft report. Key inputs for Task 6 include the Macroeconomic Analysis and high-level transmission analysis results from Task 5, individual state and load serving entity resource guidance on the level of external resources (imports) to be addressed for each region, and SSC inputs from Tasks 4 and 5.

Subtask 6.A Obtain Expansion Scenario Concurrence.
Subtask 6.B Prepare Phase I Report: Reference Case and Expansion Scenarios.

A GO/NO GO Decision will be made by the DOE Project Officer based on the results of the Phase I efforts. The Recipient shall not proceed to Phase II without written approval of the DOE Project Officer. Within 10 days of receipt of the Phase I Report, the DOE Project Officer will provide written notification to the Recipient of the decision. In the event the project does not proceed beyond Phase I, the maximum DOE liability to the Recipient is the funds available in support of the project effort up to and including Phase I and closeout costs.

Phase II

The Recipient will perform reliability and production cost analyses of alternative transmission options to support the expansion scenarios selected during Phase I. High-level cost estimates will also be developed for both the generation and transmission expansion facilities for each scenario.

Task 7. Interregional Transmission Options Development

The Recipient will modify the Eastern Interconnection modeling developed in Task 2 to build interregional expansion models. This task will focus on transmission reinforcements to support the interregional energy exchanges for each of the Expansion Scenario(s) from Task 6. The Recipient will develop transmission expansion options focused on the EHV transmission network (230 kV and above), and will also consider operating options and other potential solutions. The Recipient will consider the transmission facilities required to integrate new resources within a region using a similar high voltage focus, but will not attempt to resolve potential local transmission issues. The Recipient will leverage the expertise of EIPC's membership in considering high voltage direct current (HVDC) and advanced technologies in developing expansion options.

The Recipient will identify transmission expansion options for each Expansion Scenario and the associated solved Eastern Interconnection modeling necessary to perform reliability and economic analyses. The transmission expansion options will align with the future study period; e.g., 10, 15, or 20 years; selected for the Expansion Scenarios. This project will not identify specific routing, siting, environmental, or other related issues associated with any potential enhancements to the grid.

The Recipient will conduct stakeholder outreach and meetings to share preliminary results of potential transmission reinforcements needed to support the Expansion Scenarios and solicit input from the SSC and other stakeholders. Key inputs for Task 7 include the Expansion Scenarios from Task 6 and the Eastern Interconnection modeling from Task 2.

Subtask 7.A Develop and/or adjust transmission reinforcements needed to support the Expansion Scenarios.
Subtask 7.B Develop Eastern Interconnection model for each scenario.

Task 8. Reliability Review

The Recipient will perform reliability analyses consistent with NERC reliability criteria for transmission planning to assess in aggregate for the Eastern Interconnection the interregional transmission options developed in Task 7. Key inputs for Task 8 include the Eastern Interconnection models from Task 7.

Subtask 8.A Perform reliability analysis for each scenario.
Subtask 8.B Review Detailed Transmission Analysis results with the SSC and stakeholders.
Subtask 8.C Develop flowgates.

Task 9. Production Cost Analysis of Each Scenario

Economic analysis will be performed using production cost modeling for each scenario based upon the power flow modeling and transmission expansion options developed in Task 7. Consistent with Task 3, production cost analysis will assess all hours of a future year and will forecast energy production costs, constraints limiting dispatch and interregional transactions, anticipated emissions, renewable energy production, and other pertinent factors. The production cost analysis will be performed for multiple future sensitivities such as high/low fuel costs, high/low carbon taxes, and similar parameters using the same analysis tool as utilized in Task 3. Any changes to this model may impact the project performance, cost, and schedule. Key inputs for Task 9 include the Eastern Interconnection models from Task 7 and flowgates identified during Task 8 analysis.

Task 10. Generation and Transmission Cost Development

During Task 10, the Recipient will provide high-level estimates of the capital costs of the interregional generation resource and transmission expansion options considered. Transmission costs will be developed by the Recipient using generic planning-type estimates referenced to the study year and will represent "overnight" costs. "Overnight" assumes the facilities could be built and placed in service in a given year and does not include significant financing costs for construction work in progress. Costs associated with resource additions and retirements will be developed by the Recipient and will be informed by SSC assumptions regarding technology characteristics and costs. Key inputs for Task 10 include the Interregional Expansion Options (generation and transmission) from Tasks 6 and 7, and high-level, generic cost information such as dollar per mile estimates for transmission lines rather than detailed cost estimates based on specific route selection and engineering designs.

Task 11. Review of Results

The Recipient will develop a draft Phase II report and provide it for SSC and stakeholder review. The Recipient will conduct regional stakeholder workshop(s) to present the results of the analysis, respond to questions, and solicit input from stakeholders. The SSC, taking into consideration the input from the workshop(s) and other stakeholder venues, will provide consensus-based comments on the draft report. Key inputs for Task 11 include results from Tasks 1 through 10.

Subtask 11.A Review results and develop first draft of Phase II report.
Subtask 11.B Review results with SSC and solicit input on the draft report.
Subtask 11.C Review report during workshop with stakeholders.

Task 12. Phase II Report

The Recipient will review the input received from the SSC and address it in the final Phase II report. In addition to the final report, associated modeling, databases, and other work products will be made available electronically during this project through the EIPC website, subject to legal and regulatory requirements for CEII and treatment of Confidential Information. Key inputs for Task 12 include the draft report and stakeholder input from Task 11.

Subtask 12.A Incorporate stakeholder feedback and prepare final Phase II report; post report on EIPC website.

D. Deliverables

The periodic, topical, and final reports will be submitted in accordance with the attached "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist.

In addition to the deliverables identified in the Federal Assistance Reporting Checklist, the Recipient will submit the following reports to DOE within 30 calendar days of the completion of the respective Task:

Task 0. Project Management and Planning

- Revised, detailed Project Management Plan
- Coordination document developed in concert with Eastern Interconnection Topic B Recipient identifying coordination points throughout the projects and coordination of deliverables involving each Recipient

Phase I

Task 1. Initiate Project

- Stakeholder Meetings Materials – Meeting materials include items prepared for the meeting such as agendas and presentations as well as materials generated as a result of the meeting including participant lists, minutes, formal decisions, etc.
- SSC By-Laws
- SSC Roster
- SWG Roster(s)
- Project Task Scopes
- NGO and CA Selection Process

Task 2. Integrate Regional Plans

- Study guide for Interregional Analysis processes
- Roll-up Integration Case
- Interregional Transmission Analysis for Roll-up Integration Case
- Transmission expansion options to address conflicts among regional plans
- Documentation that results have been communicated to regional planning authorities for use in future regional planning activities
- List of flowgates to be used in production cost analysis

Task 3. Production Cost Analysis of Regional Plans

- Production cost analysis results

Task 4. Macroeconomic Futures Definition

- Consensus from SSC on futures for Macroeconomic Analysis
- Stakeholder regional meeting(s) materials – Meeting materials include items prepared for the meeting such as agendas and presentations as well as materials generated as a result of the meeting including participant lists, minutes, formal decisions, etc.

Task 5. Macroeconomic Analysis

- Macroeconomic Analysis results for Resource Expansion Scenarios
- High-level transmission analysis

Task 6. Expansion Scenario Concurrence

- Description of Expansion Scenario Concurrence
- Phase I Report

Phase II

Task 7. Interregional Transmission Options Development

- Interregional transmission expansion options to support Expansion Scenarios
- Eastern Interconnection model for each scenario
- Stakeholder regional meeting(s) materials – Meeting materials include items prepared for the meeting such as agendas and presentations as well as materials generated as a result of the meeting including participant lists, minutes, formal decisions, etc.

Task 8. Reliability Review

- Reliability assessments of interregional transmission expansion options that support Expansion Scenarios
- List of flowgates to be used in production cost analysis

Task 9. Production Cost Analysis of Each Scenario

- Production cost analysis results

Task 10. Generation and Transmission Cost Development

- High-level cost estimates for expansion option facilities

Task 11. Review of Results

- Draft Phase II report
- SSC and stakeholder input on draft report

Task 12. Phase II Report

- Final Phase II report
- Related work papers

E. BRIEFINGS/TECHNICAL PRESENTATIONS

The Recipient shall provide and make presentations on the results of this work at the DOE Annual Review Meeting to be held at either the NETL facility located in Pittsburgh, PA or Morgantown, WV; or other location specified by the DOE Project Officer.

The Recipient shall provide and make presentations on the results of this work at the DOE Peer Review Meeting to be held at either the NETL facility located in Pittsburgh, PA or Morgantown, WV; or other location specified by the DOE Project Officer.