



Development of an Interactive Valuation Model for Distributed Energy Resource Value

Cooperative Research and Development Final Report

CRADA Number: CRD-18-00762

NREL Technical Contacts: Alison Holm and Karlynn Cory

NREL is a national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
Operated under Contract No. DE-AC36-08GO28308

Technical Report
NREL/TP-7A40-95284
August 2025

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Suggested Citation

Holm, Alison, and Karlynn Cory. 2025. *Development of an Interactive Valuation Model for Distributed Energy Resource Value: Cooperative Research and Development Final Report, CRADA Number CRD-18-00762*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-7A40-95284. <https://www.nrel.gov/docs/fy25osti/95284.pdf>.

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15013 Denver West Parkway
Golden, CO 80401
303-275-3000 • www.nrel.gov

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Cooperative Research and Development Final Report

Report Date: February 11, 2025

In accordance with requirements set forth in the terms of the CRADA agreement, this document is the final CRADA report, including a list of subject inventions, to be forwarded to the DOE Office of Scientific and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

Parties to the Agreement: Oklahoma Secretary of Commerce & Tourism

CRADA Number: CRD-18-00762

CRADA Title: Development of an Interactive Valuation Model for Distributed Energy Resource Value

Responsible Technical Contacts at NREL:

PI: Alison Holm, Alison.Holm@nrel.gov

Contributors: Karlynn Cory, Karlynn.cory@nrel.gov

Name and Email Address of POC at Company:

Marshall Vogts Marshall.Vogts@okcommerce.gov

Sponsoring DOE Program Office:

Office of Energy Efficiency and Renewable Energy (EERE), Strategic Programs Office

Joint Work Statement Funding Table showing DOE commitment:

Estimated Costs	NREL Shared Resources a/k/a Government In-Kind
Year 1	\$9200.00
TOTALS	\$9200.00

Abstract of CRADA Work:

The Oklahoma Office of the Secretary of Energy and Environment (OSEE) seeks to address perceived challenges and barriers to the deployment of distributed energy generation resources (DERs), including solar and other technologies, in the state of Oklahoma. The Scope of Work (SOW) associated with CRD-18-762 covers two tasks: (1) Interactive Valuation Model Requirements Document and (2) Consumer Protection Assessment. Follow-on work was completed under a separate CRADA (CRD-19-00788).

Summary of Research Results:

1. Task 1: Interactive Valuation Model Requirements Document

NREL initiated the development of an interactive model for expressing DER value based on user inputs. The first task in developing the model is to prepare a Requirements Document. The Requirements Document outlined the following:

- a. Overview of the interactive valuation model and what it will do
- b. Data requirements
- c. Data gaps
- d. Functionality and usability requirements
- e. Assumptions
- f. Constraints
- g. Methodology

Work completed

- NREL developed a draft “Distributed Solar Interactive Valuation Model: Technical Requirements Document” for internal use within OSEE and with relevant stakeholders.
- In developing this Technical Requirements Document, NREL worked with OSEE and the Oklahoma Distributed Generation Thought Group (Thought Group), a stakeholder working group tasked with exploring DER technical and economic opportunities and constraints in the state, to present different calculation methods and resulting fidelity considerations for each input variable included in the analysis. The Technical Requirements Document considered all variables that are typically included in DER valuation analyses.
- It was ultimately up to OSEE and the Thought Group to determine whether to select or ignore individual variables and associated values for inclusion in a valuation model. In other words, NREL presented the full range of potential market terms and input variables but did not determine which of those variables Oklahoma stakeholders would select to include in their DER valuation calculation. NREL outlined options and approaches but ultimately did not direct any of the decisions OSEE and the Thought Group made about data sources used, desired level of complexity, and resulting fidelity of the methodology. To foster informed decision-making, NREL subject matter experts did provide information and resources about what variables other jurisdictions were considering and the tradeoffs between different approaches, including the challenges and costs associated with data collection at different levels of fidelity.

Outcome

- OSEE convened the Thought Group to work with NREL to explore underlying methodologies and data requirements that would ultimately inform the development of a DER valuation model. This was a critical first step in advancing a streamlined DER valuation approach within the state of Oklahoma and provided stakeholders with a data-driven approach for decision-making.
- Follow-on work to develop the valuation model was completed under a separate CRADA (CRD-19-00788).

2. Task 2: Consumer Protection Assessment

NREL developed a summary report outlining considerations and best practices for enhancing consumer protection in the DER market. The report synthesized research and provided analysis of considerations, challenges, and best practices. The report was developed for internal use and consideration within OSEE and was not published publicly.

Work completed

- NREL synthesized research and analysis on consumer protections, including considerations related to consumer education, guidelines and standardized contracts, workforce standards and credentialing, enacting consumer protection regulations, and establishing grievance procedures. The summary report also included background information on existing consumer protection laws and safety standards across the U.S. and case studies on rooftop PV installations, fire safety, and community solar.

Outcome

- OSEE used the summary report internally to inform their thinking on potential consumer protection factors associated with DER development.

Summary Conclusion

Over the course of this CRADA with the state of Oklahoma, two main accomplishments were successfully achieved:

1. The technical specifications in the document **Interactive Valuation Model Requirements Document** were developed and discussed with relevant stakeholders in Oklahoma.
2. a high-level analysis of consumer protection considerations was developed and delivered.

References: None

Subject Inventions Listing: No subject inventions under this CRADA.

ROI#: None