2025 MENV Capstone Project

Go-to-market assessment of two solar development strategies to expedite interconnection processes

INDUSTRIAL CUSTOMER-FIRST	SOLAR + EXISTING THERMAL
Behind-the-meter solar at industrial facilities	Solar at peaker plants or retiring coal plants, utilizing existing points of interconnection

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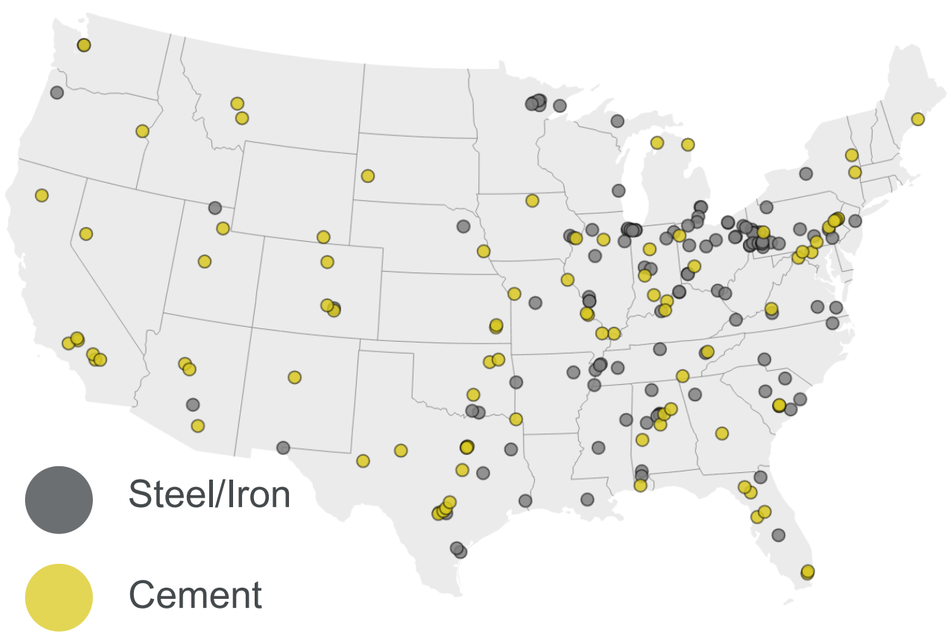
Location of U.S. Steel and Cement Plants[1]



Industrial Customer-First Strategy

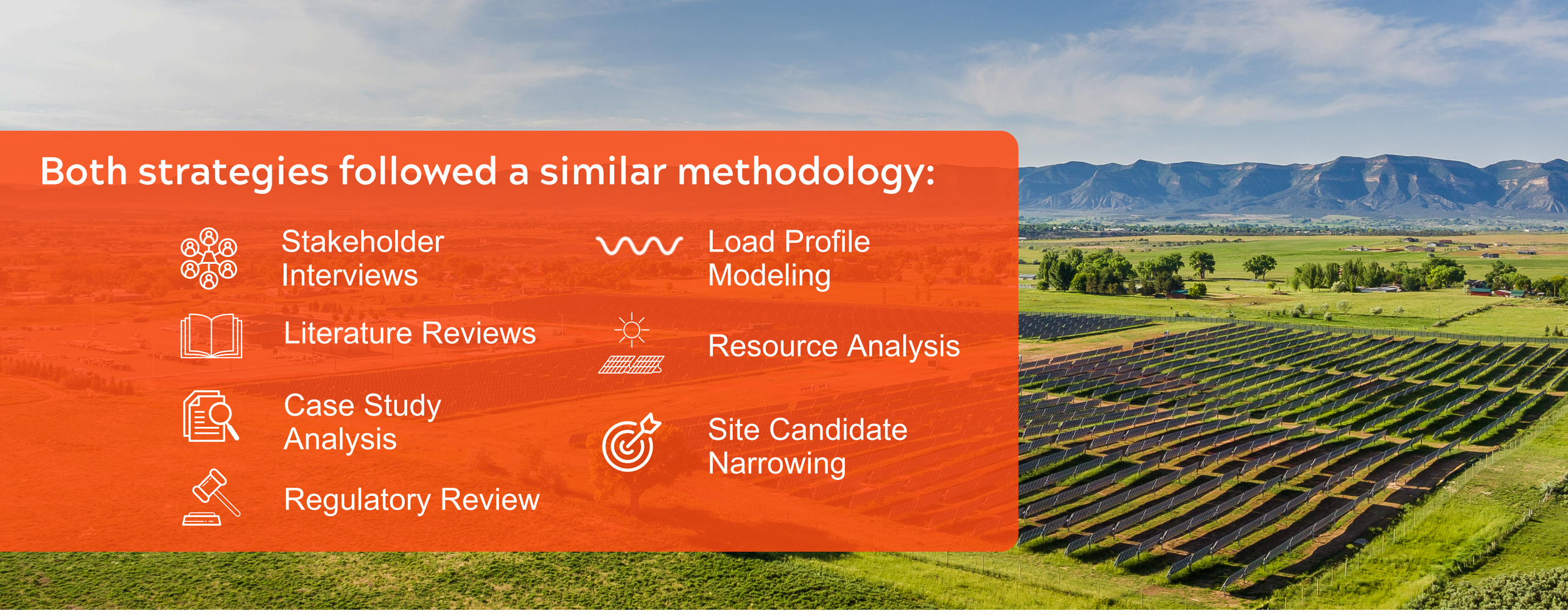
- Target electricity-intensive industries such as steel and cement for behind-the-meter (BTM) solar.
- Drivers for customer adoption of onsite solar include reduced operating costs, improved resilience, and supporting green product declarations.
- Drivers of success include land availability and high industrial electricity retail rates.

Behind-the-meter = No queue

The Industrial Customer-First strategy involved:

- Evaluating utility rate tariffs
- Identifying potential customers
- Determining ideal PV system sizes
- Creating project finance models
- Distinguishing sites that are proximal to active OneEnergy projects

While research focused on solar at cement and steel facilities, these industries are proxies for *any* electricity-intensive manufacturing facility.



Both strategies followed a similar methodology:

- Stakeholder Interviews
- Literature Reviews
- Case Study Analysis
- Regulatory Review
- Load Profile Modeling
- Resource Analysis
- Site Candidate Narrowing

Solar + Existing Thermal Strategy

- Utilize surplus interconnection capacity or generator replacement for solar to supplement or replace generation at thermal facilities.
- Maximize the use of existing grid infrastructure.

Existing infrastructure = Expedited interconnection

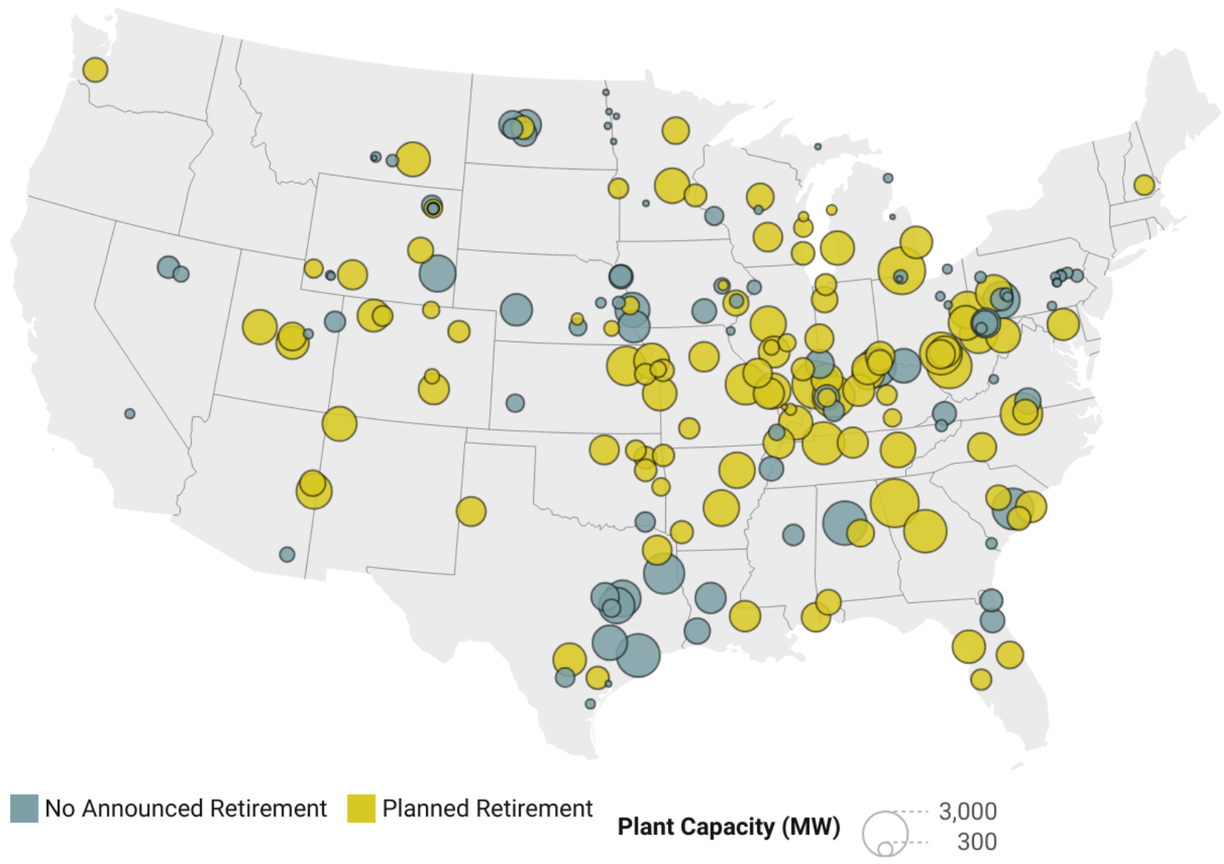
The Existing Thermal strategy included:

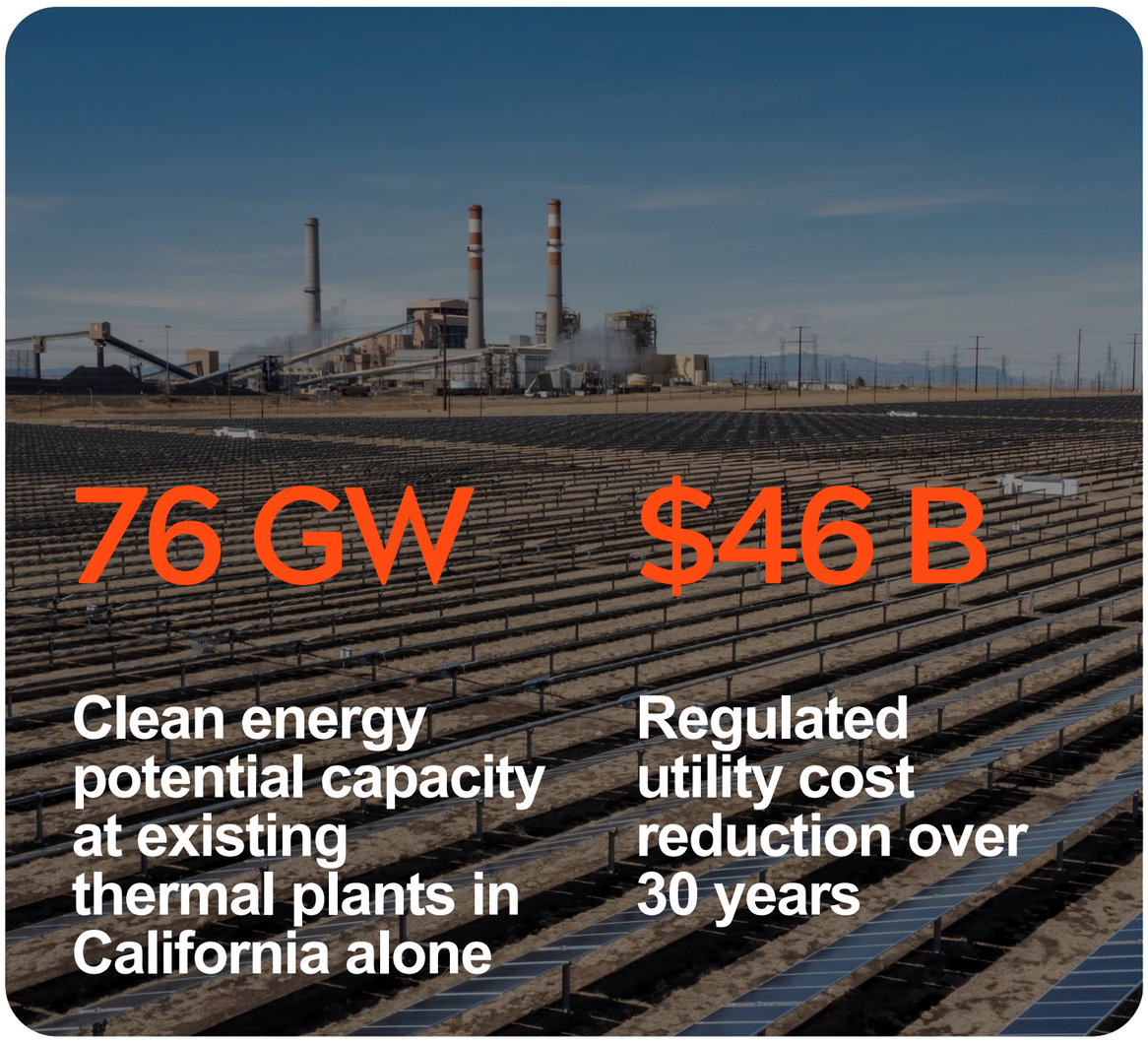
- Policy review
- Financial modeling
- Site-level analysis

to identify potential regions where OneEnergy could install solar at retiring coal plants or peaker plants with surplus capacity.

By co-locating or replacing solar with existing or retiring fossil fuel plants, developers can expedite interconnection queues, add cheap electricity, and utilize current grid infrastructure.[2]

U.S. Coal Power Plants: Retirement Outlook and Capacity (MW)[3]





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REFERENCES: 1.Map created with Data Wrapper. Data resources utilized U.S. EPA Greenhouse Gas Reporting Program FLIGHT available at www.epa.gov/ghgreporting. Date accessed: May 21, 2025. 2.Paliwal, Umed, and Amol Phadke. "Existing Power Plants Sharing Grid Access with New Resources Can Lower Costs and Double California's Generation Capacity." Center for Environmental Public Policy, Goldman School of Public Policy, University of California, Berkeley, 2025. https://gspp.berkeley.edu/assets/uploads/page/Surplus_Interconnection_California.pdf. 3. U.S. Department of Energy. "Coal Power Plant Reinvestment Visualization Tool." Doe.gov, Pacific Northwest National Laboratory, 2025, arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?id=d9bac1bca7a9457b9e4b5c8893f5a004#data_s=id%3AdataSource_3-194707f1eba-layer-14%3A95.

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