Multi-Criteria Solar Site Suitability Analysis

STONE ENVIRONMENTAL

Services / Expertise
Spatial Analysis
Suitability Analysis
Database Development
Data Compilation
ArcGIS

Markets
Renewable Energy
Clean Energy Economy

Project Location
Georgia, Indiana, Michigan, Ohio, Oklahoma, Wisconsin, Michigan

Date Completed
2020

Project Owner
Orion Renewable Energy Group

Project ID#
19-169

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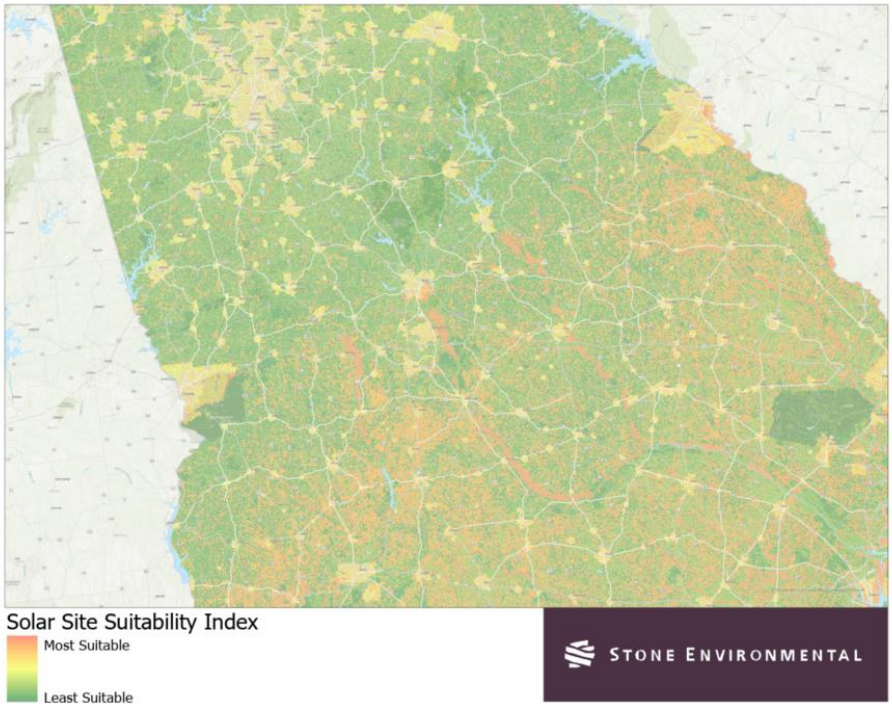

Stone gathered and processed data for eleven different environmental criteria to find the most suitable sites for solar panel installations.

STONE conducted statewide GIS analyses to identify potential sites for solar panel installations in seven different US states. We gathered and processed raster and vector data for eleven different environmental and regulatory criteria that affect the suitability of a potential solar site, including:

- Proximity to Federal lands and protected areas
- Proximity to Wetlands
- Municipal boundaries
- Proximity to coal mines that may create gaps in the energy grid
- Residential density
- Presence of oil and gas lines
- Extent of tree cover and shadow that might affect sunlight exposure
- Transmission line shadows
- Flood zones
- Percent Slope
- Percent Slope change from North to South

Stone cleaned, standardized, and converted data layers to rasters for each state, then combined them in a weighted overlay to identify sites with the highest overall suitability score. We produced pdf maps to show the extent of coverage for incomplete data layers and built an ArcGIS Pro model to streamline the process and ensure workflow replicability.