US Energy Generation & Storage

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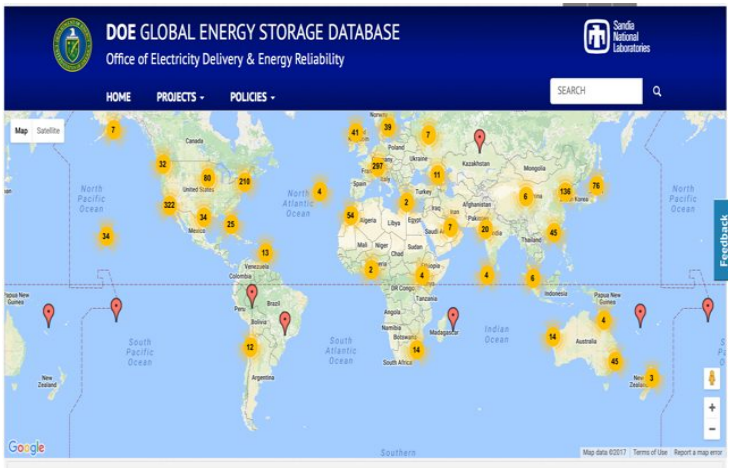
Project goals:

- Learn about the distribution of U.S. energy generation and storage facilities by type
- Create a tool for accessing information about local and regional energy generation/storage patterns

1. Predicting U.S. energy generation and storage methods by location

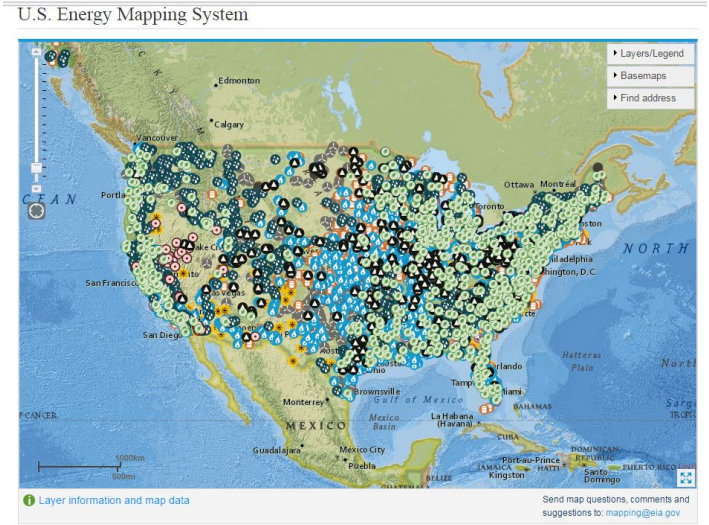
Databases:

- DOE Global Energy Storage Database http://www.energystorageexchange.org
- EIA U.S. Energy Mapping System http://www.eia.gov/state/maps.cfm
- EPA eGRID data on energy generation https://oaspub.epa.gov/powpro/ept_pack.charts
- Potentially, other EIA and NREL maps of renewable energy resources



Classification model:

- Input: Latitude, Longitude → Output: predicted energy storage type
- KNN or similar model - experiment with different K or different models to find the best accuracy



2. User Interface & Visualization

Zip code lookup:

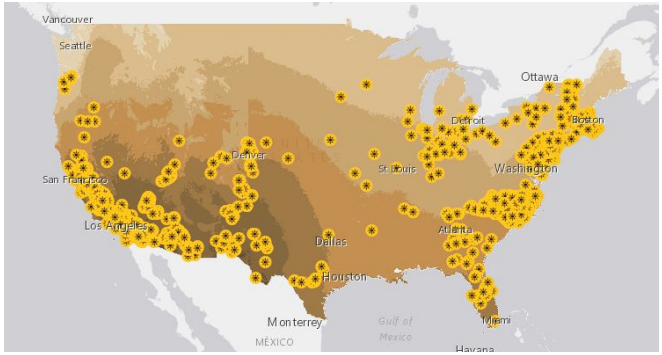
- User enters a zip code and some other settings
- Program can return:
  - Predicted energy generation and storage types for that location (predicted from our model)
  - The types and capacities of the nearest energy generation and storage facilities (DOE and EIA data)
  - Breakdown of electricity generation by source (EPA data)

Visualization:

- Map showing predicted energy generation and storage types across the US (decision boundaries of our classification models)
- Comparisons to existing maps of renewable energy resources

Energy storage facilities by type and capacity (DOE)

Solar power plants and solar resources (EIA)



3. References To Existing Work

Zip code

Renewable Energy Ready Home Solar Site Assessment Tool

Solar Resource Data

Regional electricity generation data

Maps

Energy generation facilities and resources

Renewable energy resources and climate/geographic data

Energy storage facilities