U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

Geospatial Analysis and the OpenCarto Framework: Spatial Analysis, Data Provision, and Decision Support at all Levels of Renewable Energy Development



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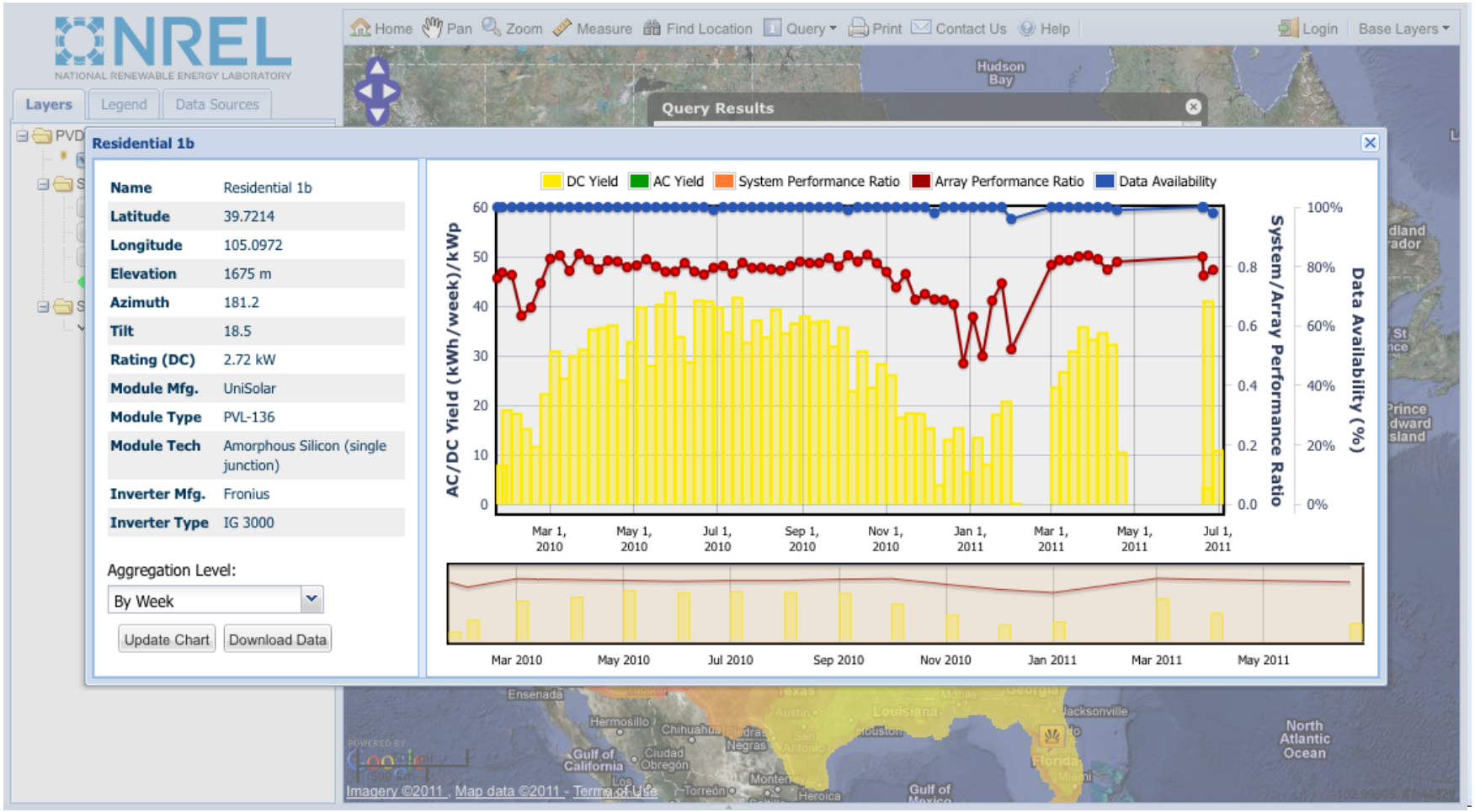
August 16th, 2011

OpenCarto Framework

OpenCarto is a web based GIS framework designed to support analysis, visualization, and data exploration



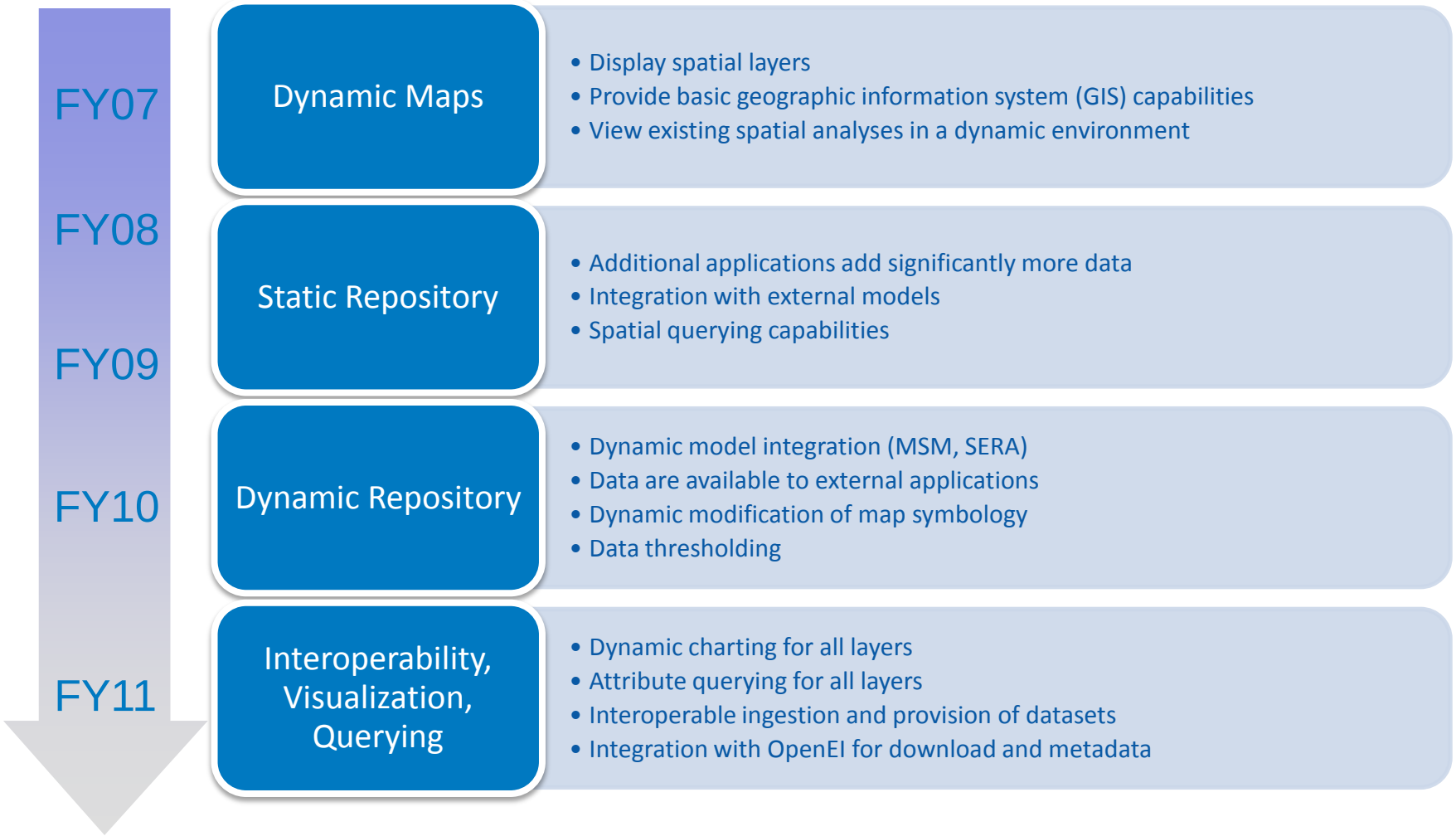
OpenCarto Framework

OpenCarto framework was made possible by collaboration at every level

- Project began as an LDRD
- Sponsored projects evolved the application into a framework
- Framework gained stability and adoption inside and outside of DOE
- Result of collaboration between
  - Internal and external funding
  - Multiple centers collaborating within NREL
  - Multiple sponsoring offices and agencies
  - Collaboration between domain expertise in several renewable technologies, software development, and spatial analysis

OpenCarto Framework

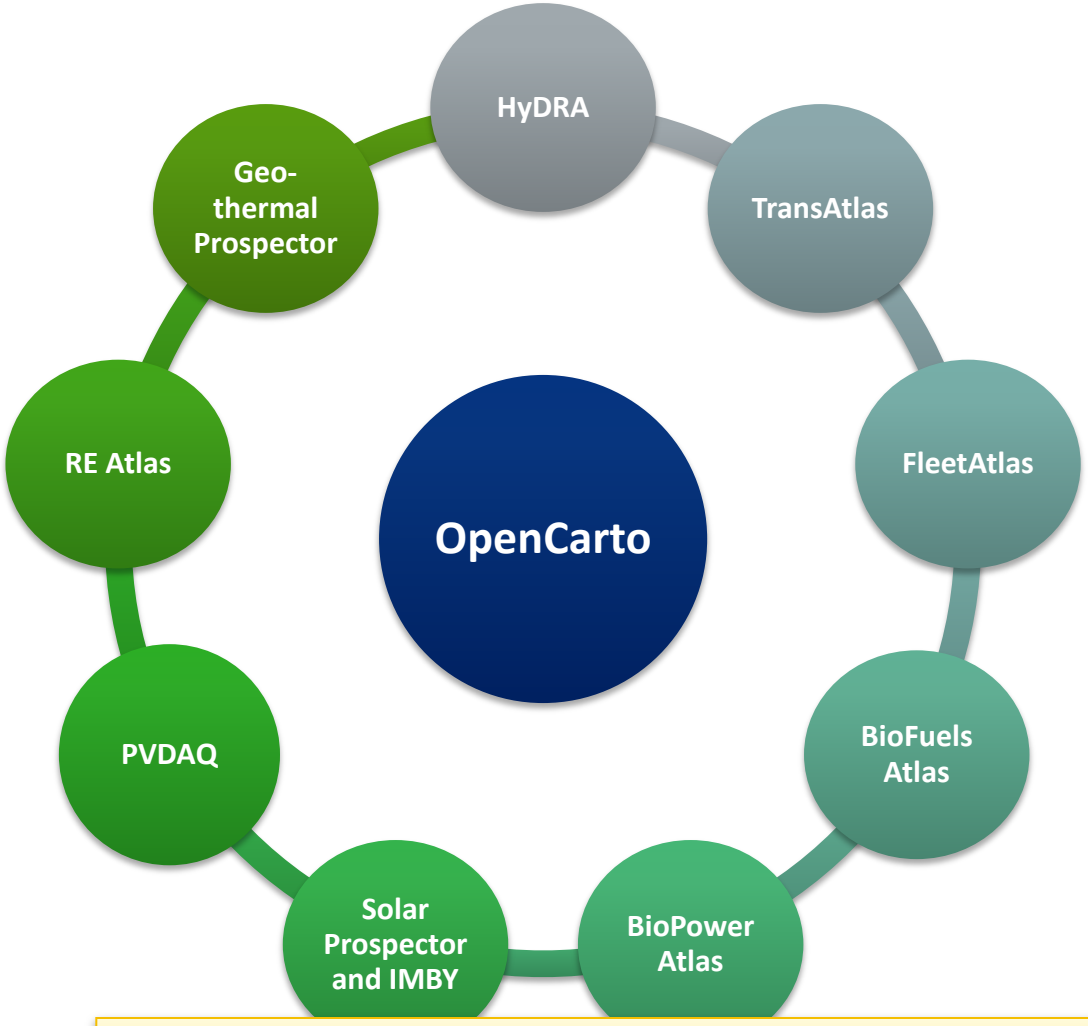
OpenCarto has evolved from a basic display of spatial data to a repository that provides hundreds of dynamic datasets to thousands of users



OpenCarto Framework

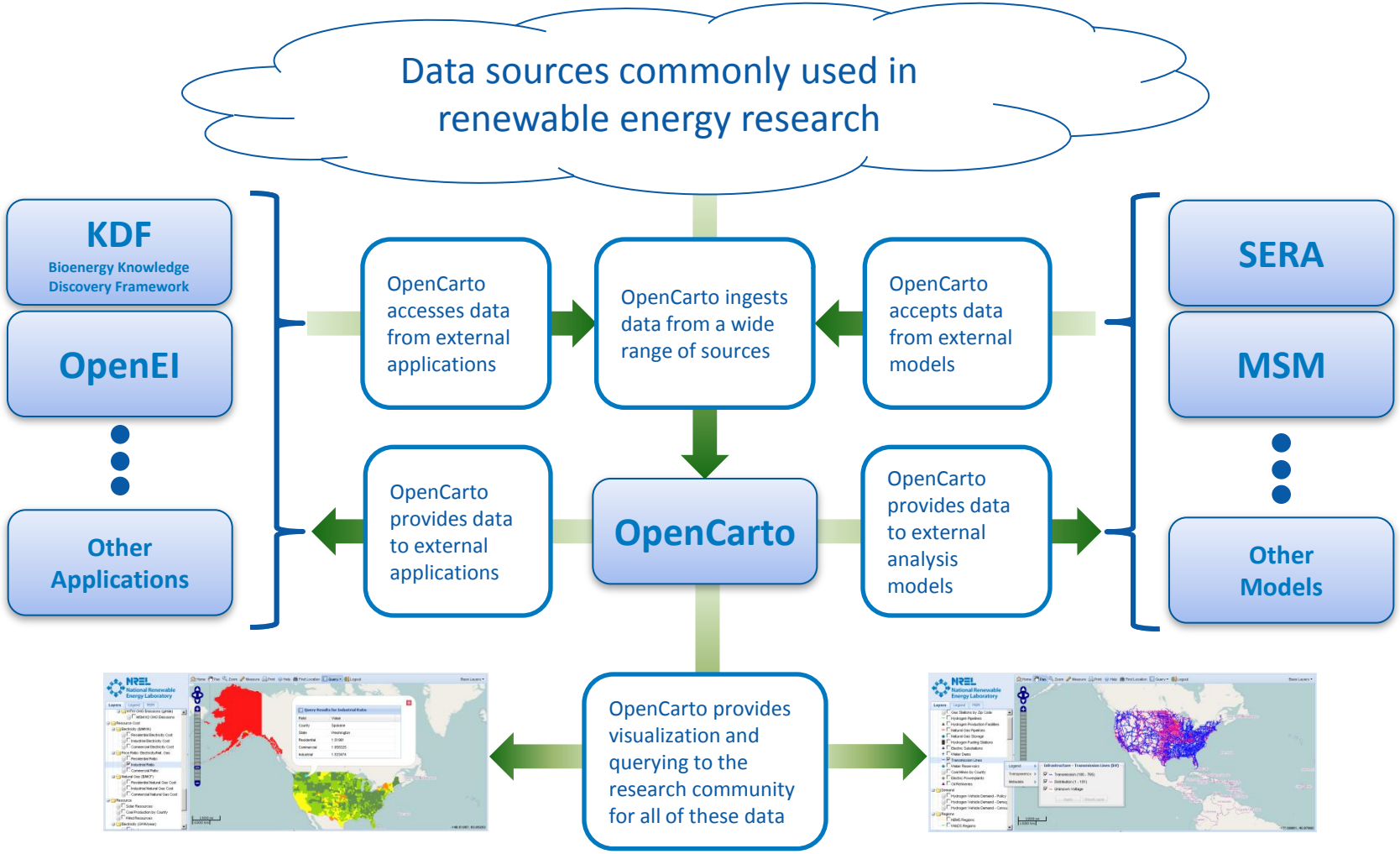
REAtlas is built on OpenCarto, a web-based GIS platform that hosts multiple web mapping tools funded by eight different clients.

Client	Tool
DOE Solar	IMBY PVDAQ Solar Power Prospector
DOE Hydrogen	HyDRA
DOE Biomass	BioFuels Atlas
DOE Clean Cities	TransAtlas
DOE FEMP	FleetAtlas
DOE Vehicle	FleetAtlas
DOE Geothermal	Geothermal Prospector
EPA	BioPower Atlas



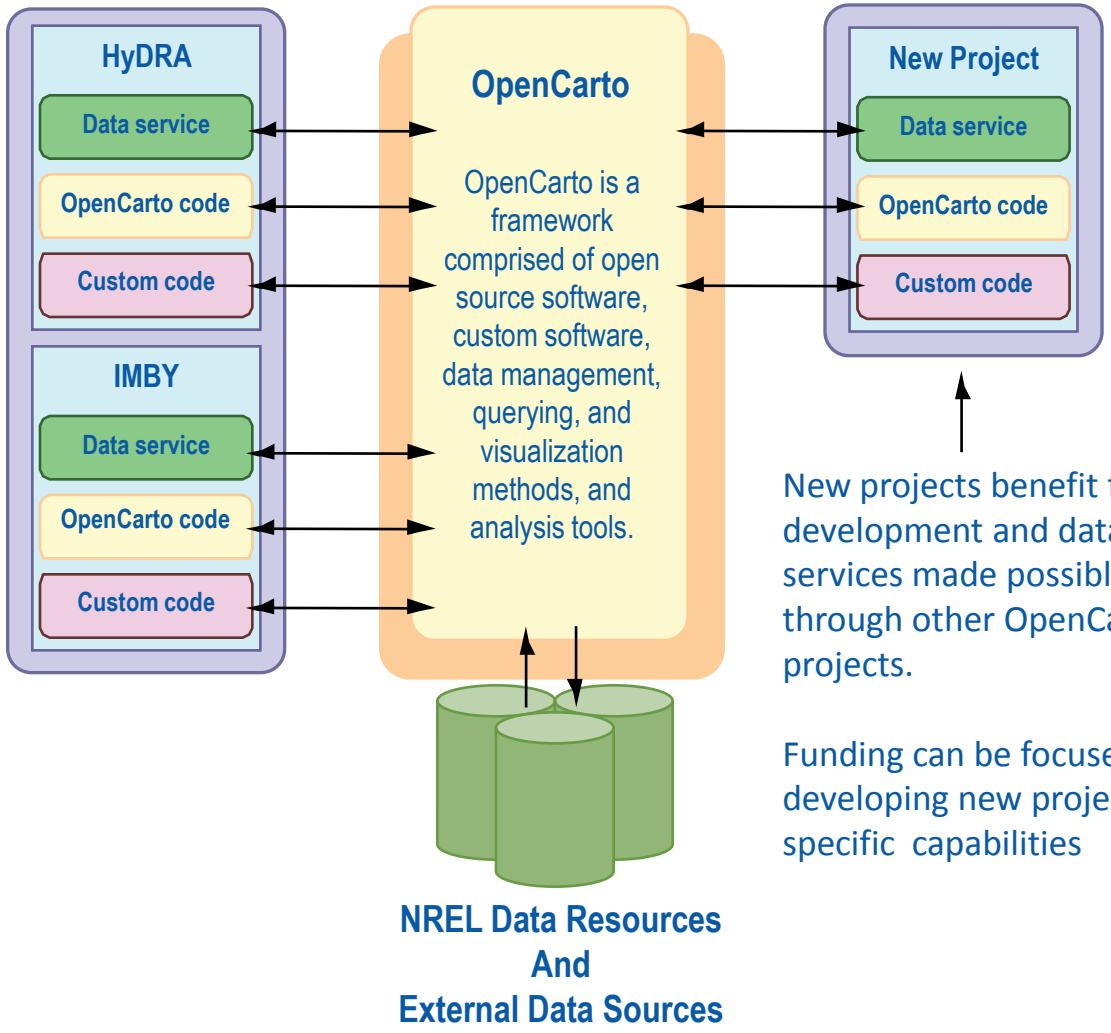
Tools are available at http://maps.nrel.gov

OpenCarto: Data Interoperability



OpenCarto: Value Proposition

- No code duplication
- Enhancements and data sources easily shared
- Supports user authentication and role-based access control
- Uses existing geospatial standards
  - SLD
  - WMS
  - WFS
- Open Source Stack
  - MapServer
  - FeatureServer
  - TileCache
  - Ext-JS
  - OpenLayers
  - Postgres
  - Apache
  - Drupal



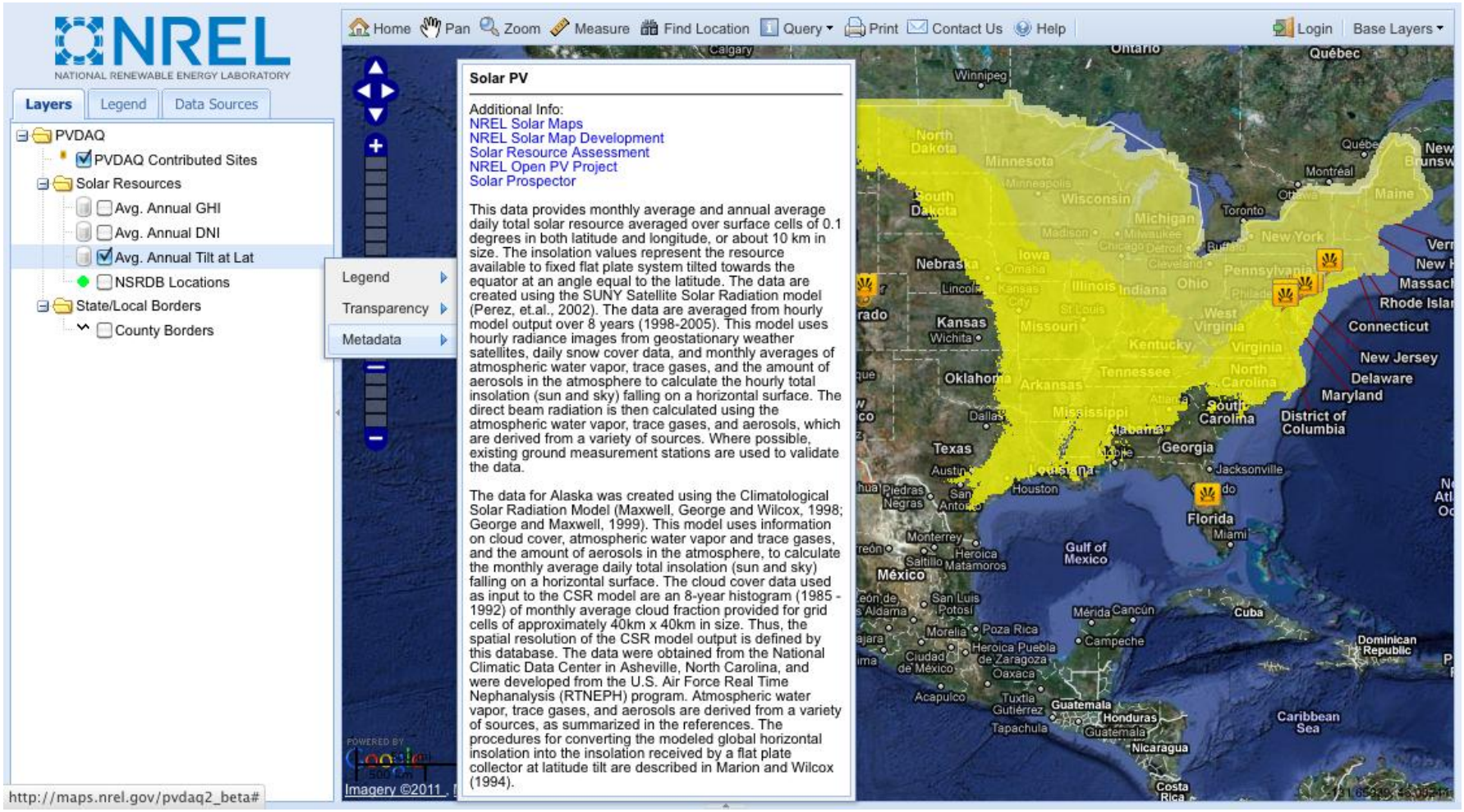
New projects benefit from development and data services made possible through other OpenCarto projects.

Funding can be focused on developing new project specific capabilities

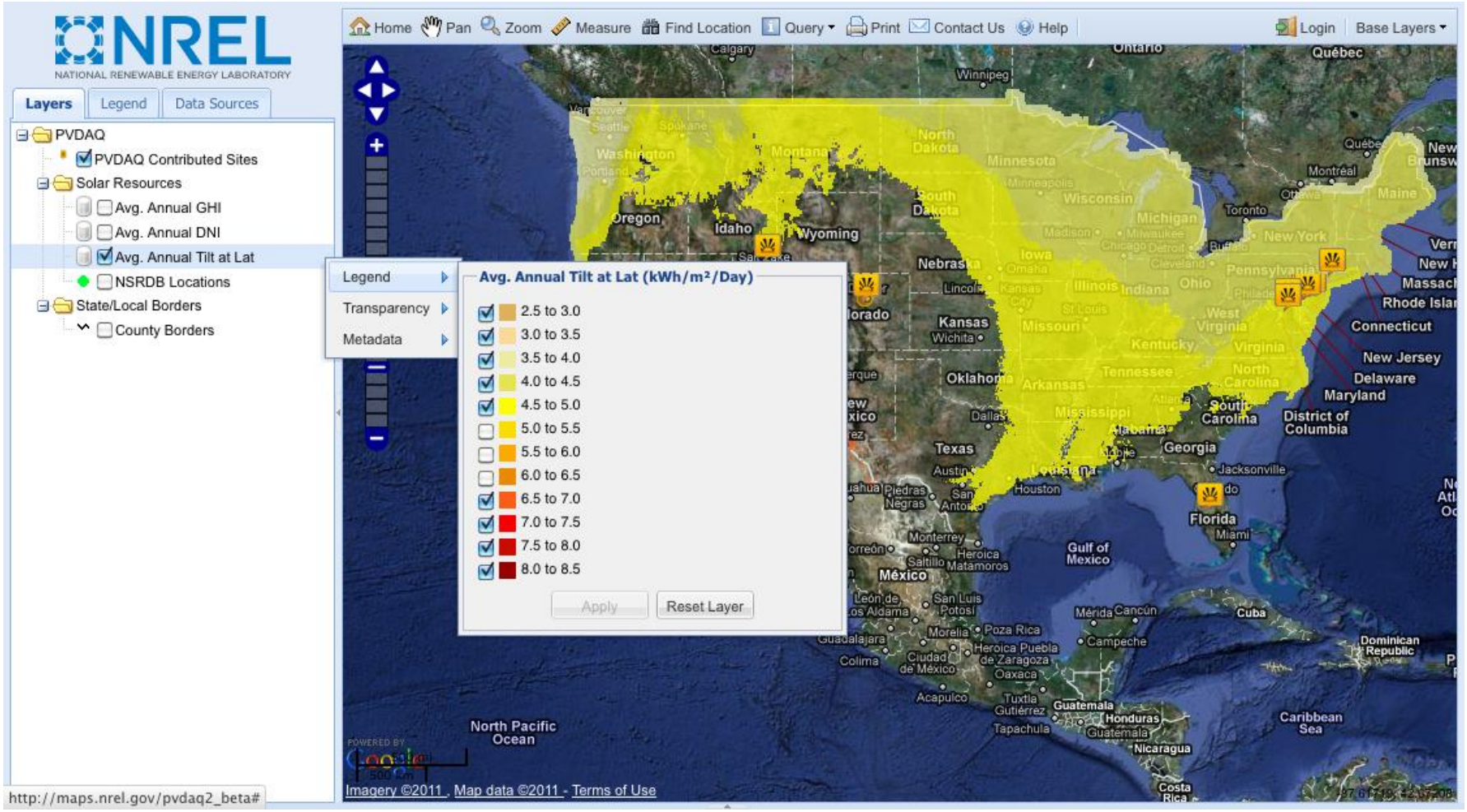
OpenCarto: Capabilities

- Standard Mapping Interface
  - Pan, Zoom, Measure
- Tree based layer navigation
- Print
- Find Location (Georeference)
- Query
  - Point, Region, Attribute
  - Results Downloadable to Excel
- Thresholding
- User-Selectable Thematic Maps
- Drag and Drop Layer Ordering
- Dynamic Layer Charting

OpenCarto: Metadata and Linking



OpenCarto: Layer Thresholding



OpenCarto: Analysis

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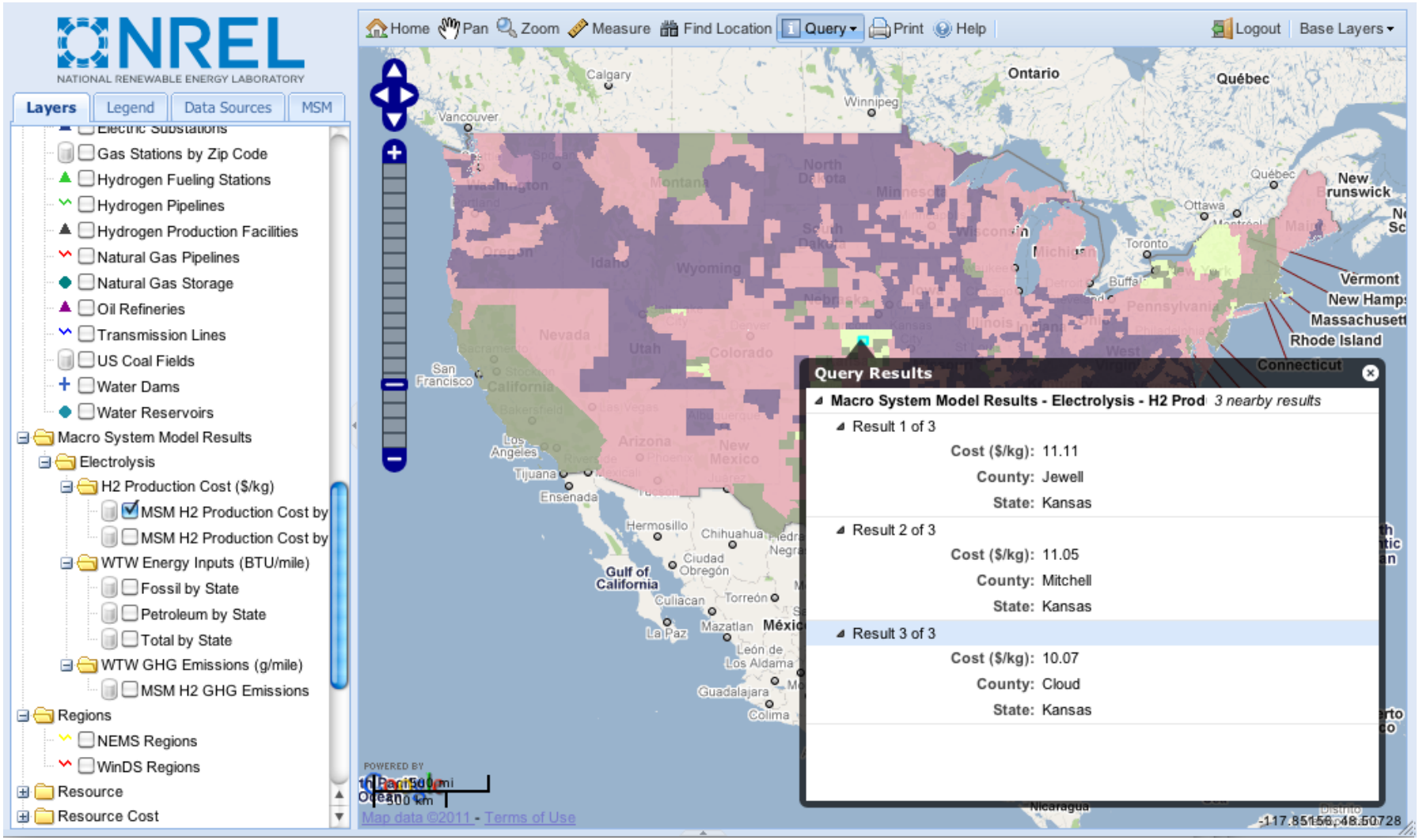
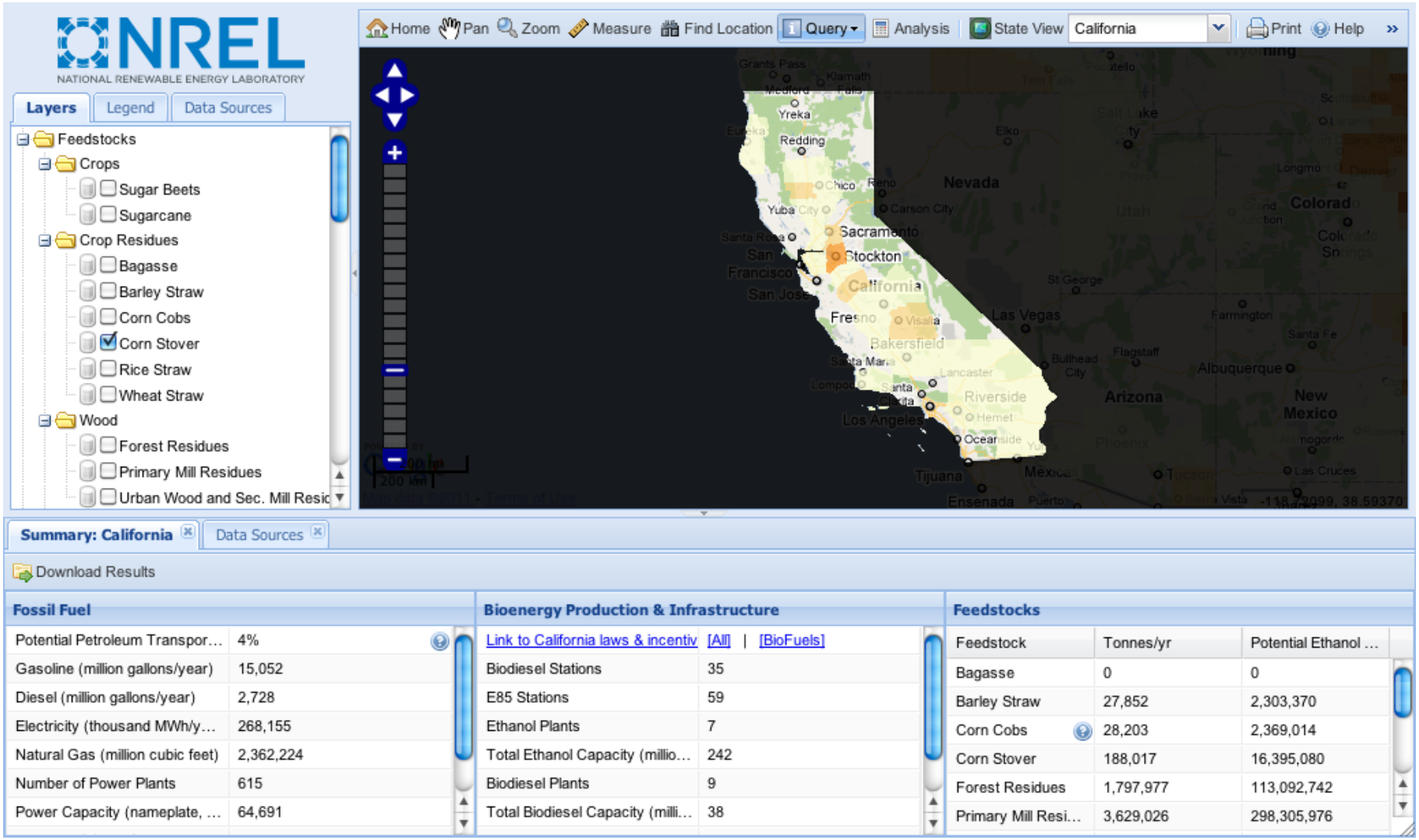
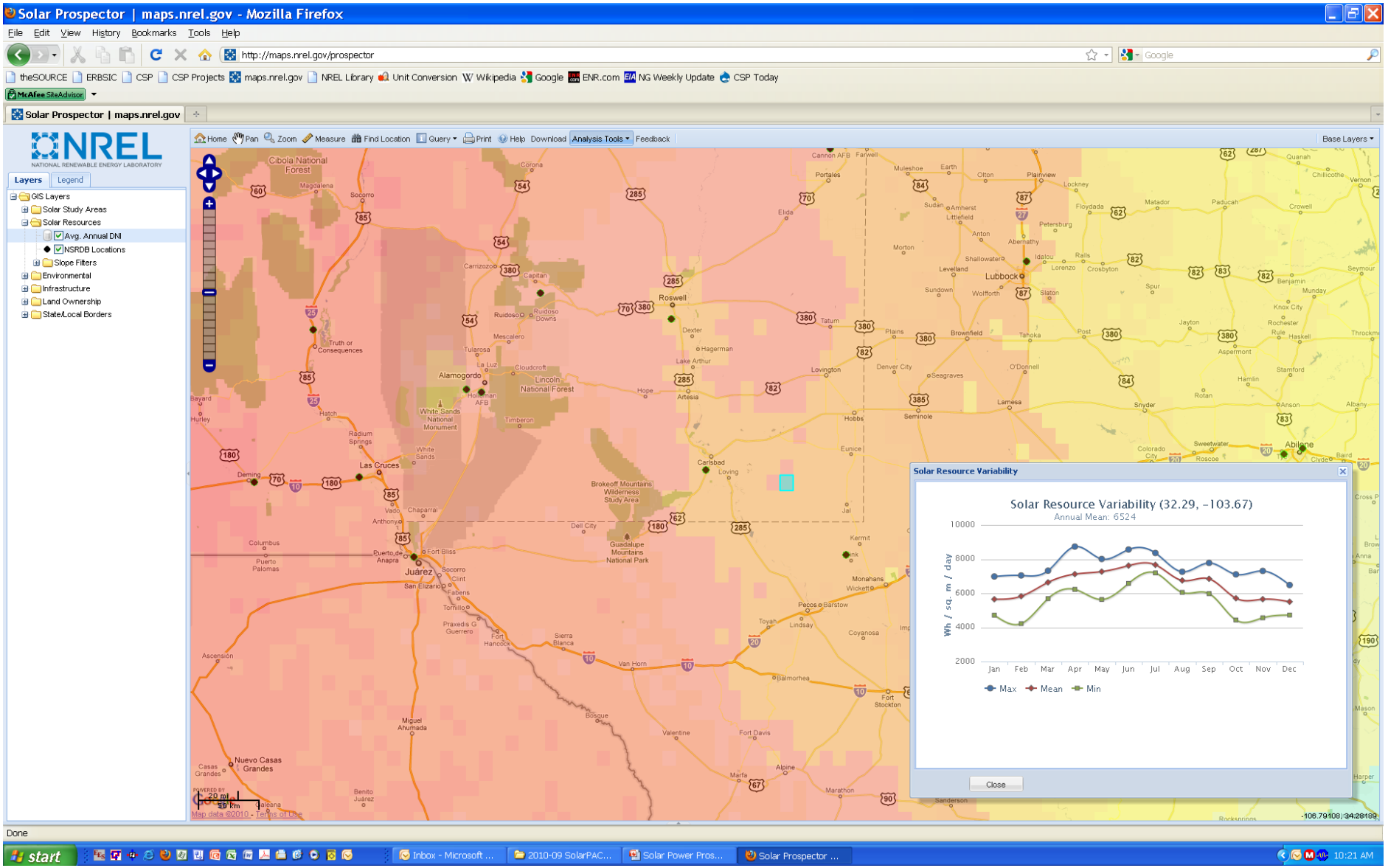


OpenCarto: Analysis



OpenCarto: Analysis



OpenCarto: Services

The analysis available in IMBY, PVDAQ, OpenPV, and other applications is also available as API based services that provide the same data, and same analytical results, without the need for the application itself.

Industry is actively using these to develop their own applications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  },
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    - incentives: {
        - all: [
            - {
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                PV Com. Rebate Max. Size (kW): 25,
                PV NP/Govt Max. Rebate $: 15000,
                PV NP/Govt Rebate $/kW: 1500,
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                gid: 63,
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                notes: "The per-watt rebate rate specified below may be less if local incentives
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Discussion

Questions?

dan.getman@nrel.gov

Mapping at NREL	http://maps.nrel.gov
REAtlas	http://maps.nrel.gov/reatlas
IMBY	http://mercator.nrel.gov/imby
HyDRA	http://maps.nrel.gov/hydra
BioFuels Atlas	http://maps.nrel.gov/biomass
Solar Prospector	http://maps.nrel.gov/prospector
PVDAQ	http://maps.nrel.gov/pvdaq
GeoREServ API	http://rpm.nrel.gov/docs/georeserv/