Powering Energy Efficiency & Impacts Framework Project

Project Partners:

Upper Coastal Plain Council of Governments
NC Clean Energy Technology Center
NCSU Center for Geospatial Analytics
NCSU System Design Optimization Lab
NC Sustainable Energy Association
ResiSpeak, Inc.
NC Justice Center
Vermont Law School
University of South Carolina

Sponsored by: *U.S. Department of Energy*

Cities Leading through Energy Analysis and Planning (Cities-LEAP)

Local Government Partners

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Presenters

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Daniel Pate, Energy Program Specialist, North Carolina Sustainable Energy Association

Al Ripley, Consumer & Housing Project Director, N.C. Justice Center

Mark James, Assistant Professor, Vermont Law School

Charlynne Smith, Director of Recreation Resources Service, North Carolina State University

Daniel Kauffman, President, ResiSpeak Inc.

Agenda

- Introductions
- Using Technology and Building Relations to Address Low Income Energy Burdens: A North Carolina Pilot Project
- The Powering Energy Efficiency & Impact Framework Project Tool: A Public View of our Storyboard
- Q&A

About the UCPCOG

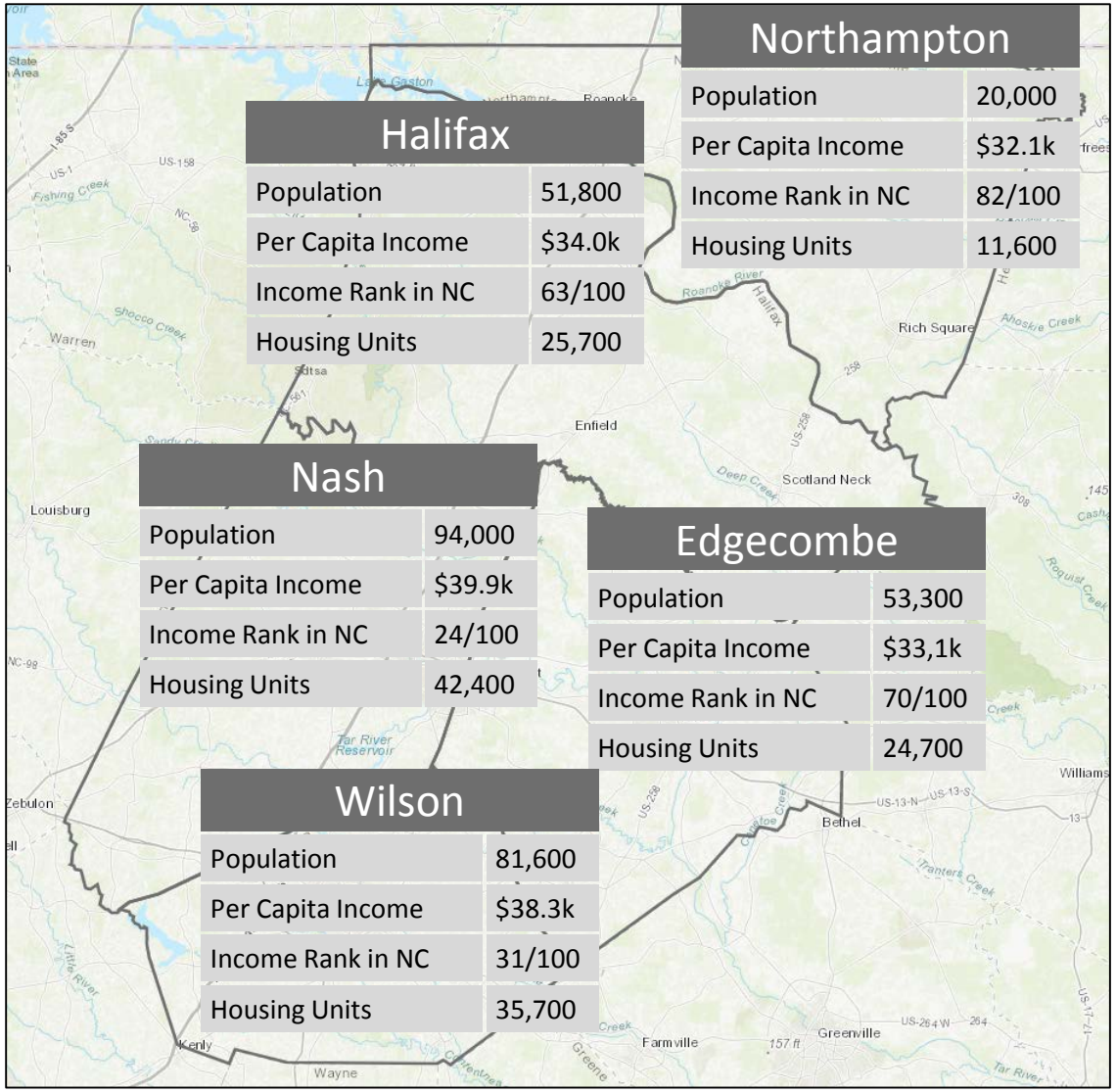
- Upper Coastal Plain Council of Governments is one of sixteen Regional Councils in the state of North Carolina
- Designated Economic Development District by the U.S. Economic Development Administration
- Comprised of five (5) county governments and forty-one (41) municipal governments
- PEEIF's fit with Regional Priorities

UCPCOG Area: A Region of Opportunities and Challenges

Credit:
Mossy Oak Properties

Background on Five Counties

Combined Statistics (5 Counties)	
Population	~300,000
Per Capita Income	~$36.0k
Income <150% of poverty line	~110,000
Housing Units	~140,000
Electric Membership Coops	5
Municipal Electric Utilities	9
Tier 1 Counties (among most distressed in the state)	3 of 5



Why This Project?

PEEIF focuses on developing a geospatial database that can be used by governments and utilities to enhance the efficiency of energy services delivered to low-income households in a region of North Carolina.

- Low-income households spend a disproportionate amount of disposable income on energy costs.
- Government agencies, utilities, non-profits, and municipalities often serve the same residents.
- To qualify for services, program-participating residents are required to provide information such as utility use data and income.
- It is a challenge for residents and the agencies to collect, deliver, and maintain this data.
- The creation of a central database with GIS capability allows data to be gathered, shared, and analyzed. This increases program effectiveness, relieves burden on residents, and provides visual displays of large amounts of data.
    - PEEIF allows different data "visibility" granularity depending on data sharing agreements between partners.

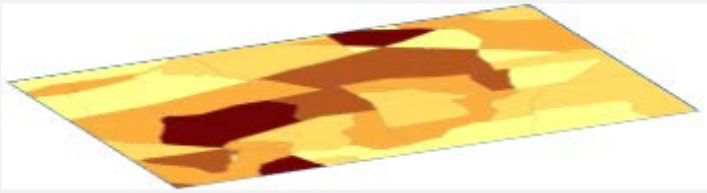
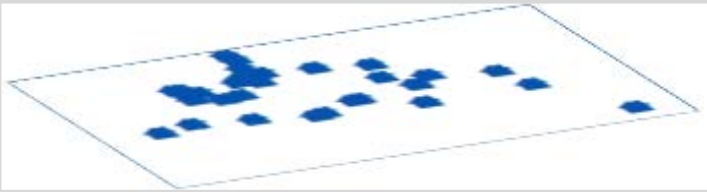
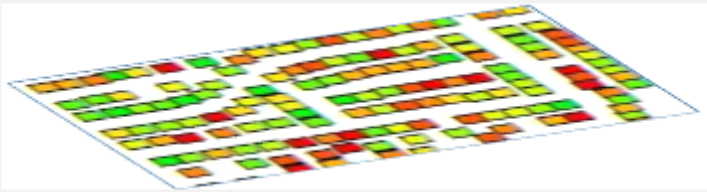
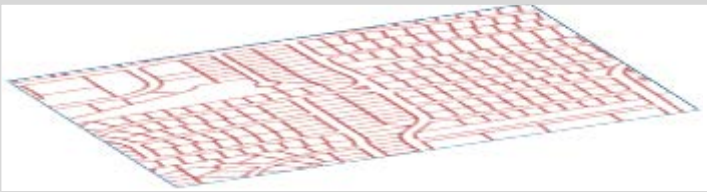
Why This Region?

- Established relationships with electric cooperatives
- Easier access to utility data compared to investor-owned utility
- Presence of quality energy efficiency programs
- Partners had a good relationship with UCPCOG
- A rural, underserved area with residential, institutional and capacity needs

Database Information

- Data types
  1. Electric utility data
  2. Efficiency- and energy-related assistance program data
  3. Census information such as socio-demographic data
  4. Tax parcel data
  5. Housing characteristics data
- The project concurrently utilizes multiple datasets, customized for each program in a web-based GIS platform.

Geospatial Data Layers and Contributions

Data Layers		Contribution To Data
Socio-Demographic Data US Census, State of NC		68 Census Tracts 240 Block Groups
Program Participation Retrofits: home characteristics, work performed Financial Assistance: age, income, disability		12,000 Participants
Energy Use Data Utility Meter Usage		10,680 Homes
Tax Parcel Locational Information Square Footage, Year Built, Structure Type		183,000 Locations
Geographic Information Jurisdictional Boundaries, ZIP Codes		5 Counties 41 Municipalities

User Groups

- Weatherization Assistance Program (WAP) & Heating Repair & Replacement Program (HARRP) ~ N.C. Dept. of Environmental Quality (NC DEQ)
- Low Income Energy Assistance Program (LIEAP) & Crisis Intervention Program (CIP) ~ N.C. Dept. of Health and Human Services (NC DHHS)
- Electric utilities
  - Cooperatives ~ Roanoke Electric Membership Coop
  - Municipalities ~ City of Wilson Energy, Town of Enfield
- Local governments
- Other local programs

Issues and Needs

- NC DEQ/Community Action Agencies - WAP & HARRP
  - Institutional capacity, applicant burden, applicant data, measurement and verification, program delivery
- NC DHHS/County Divisions of Social Services - LIEAP and CIP
  - Chronic need, outreach to most vulnerable residents, coordination with other low-income energy efficiency service providers
- Electric Membership Corporations and Municipal-Owned Utilities
  - Serving customers, shaving peak demand, and on-bill financing of energy efficiency upgrades (REC’s Upgrade to $ave Program)

General Assumptions

- Utilities would be reluctant to share data
- Data would be clean and easy to use
- Utilities would use data to inform programs
- Once utilities and agencies decided to share data, there would be no legal restrictions

Legal Assumptions

- Data would be easy to secure
- Could skip over the business argument and avoid making strong policy argument
- A standardized approach existed for securing data access and facilitating data sharing

Legal Issues

- After demonstrate business value, the project gets passed to the legal department
- Restrictions on accessing and sharing confidential data
  - NC DEQ and NC DHHS
    - WAP and LIHEAP programs collect confidential information/personally identifiable information
  - NC Housing Finance Agency
    - Federal banking laws prevented anticipated participation as a data providing partner

Legal Issues

- Identifying nature of relationship between state agencies and local program implementers
- Participating utilities – not governed by North Carolina Utilities Commission
  - Need assurances of how data will be used and if it will serve purposes identified in Articles of Incorporation or State Statute
- State agencies must comply with N.C. Statewide Information Security Manual

Legal Solutions

- Immediate - Created a single data collection point
  - Restricted flow into and out of database
- Immediate - Non-Disclosure Agreements (NDAs)
  - Data-sharing parties and data-receiving parties
  - Confidential information and non-confidential information
  - Not able to use single template
- Short-term - Existing data sharing regulations
  - Data-sharing agreement – N.C. DEQ and N.C. DHHS
- Long-term - Waiver forms
  - Client consent

PEEIF Portal Demonstration

NCSU Center for Geospatial Analytics

Charlynne Smith, Ph.D., GISP
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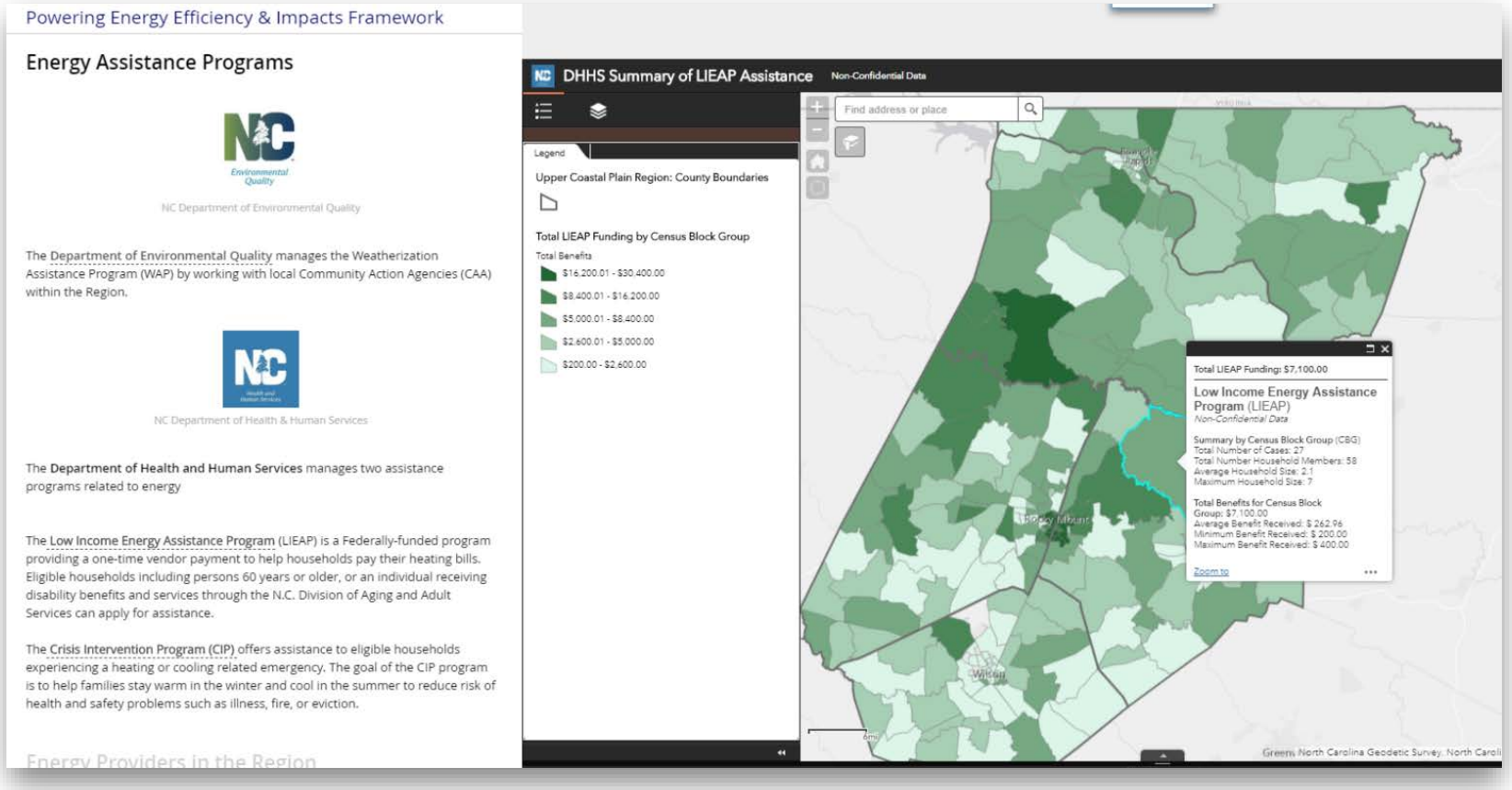
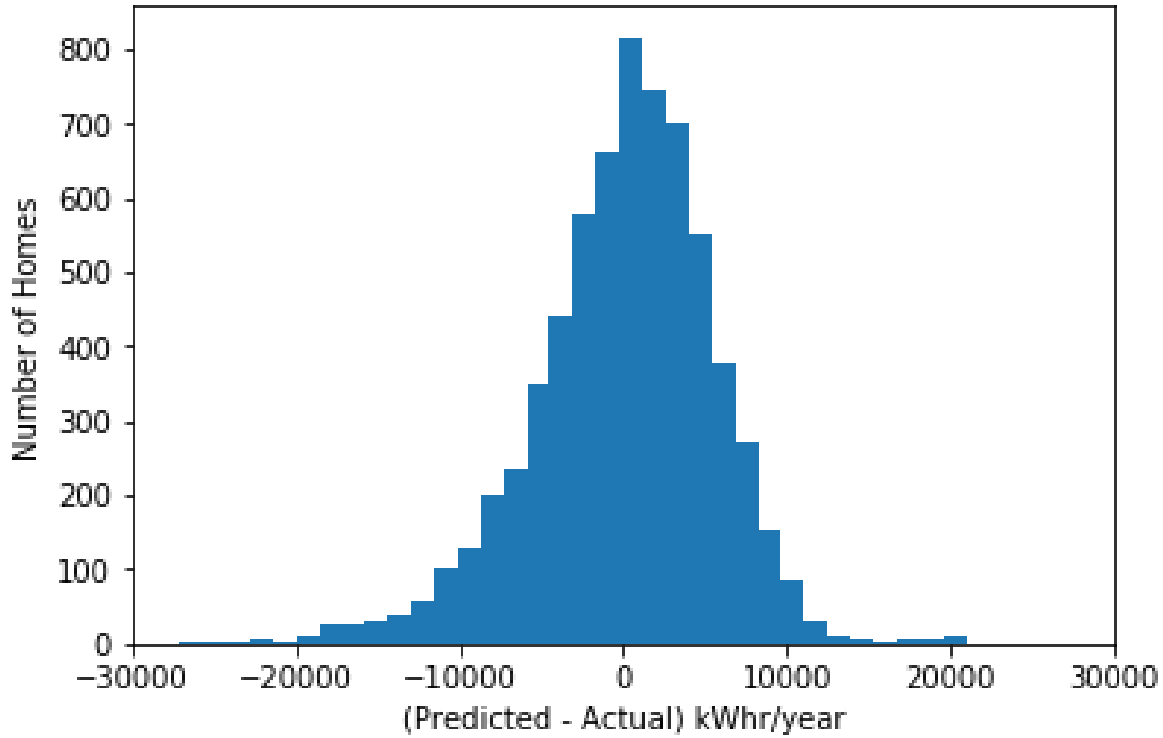
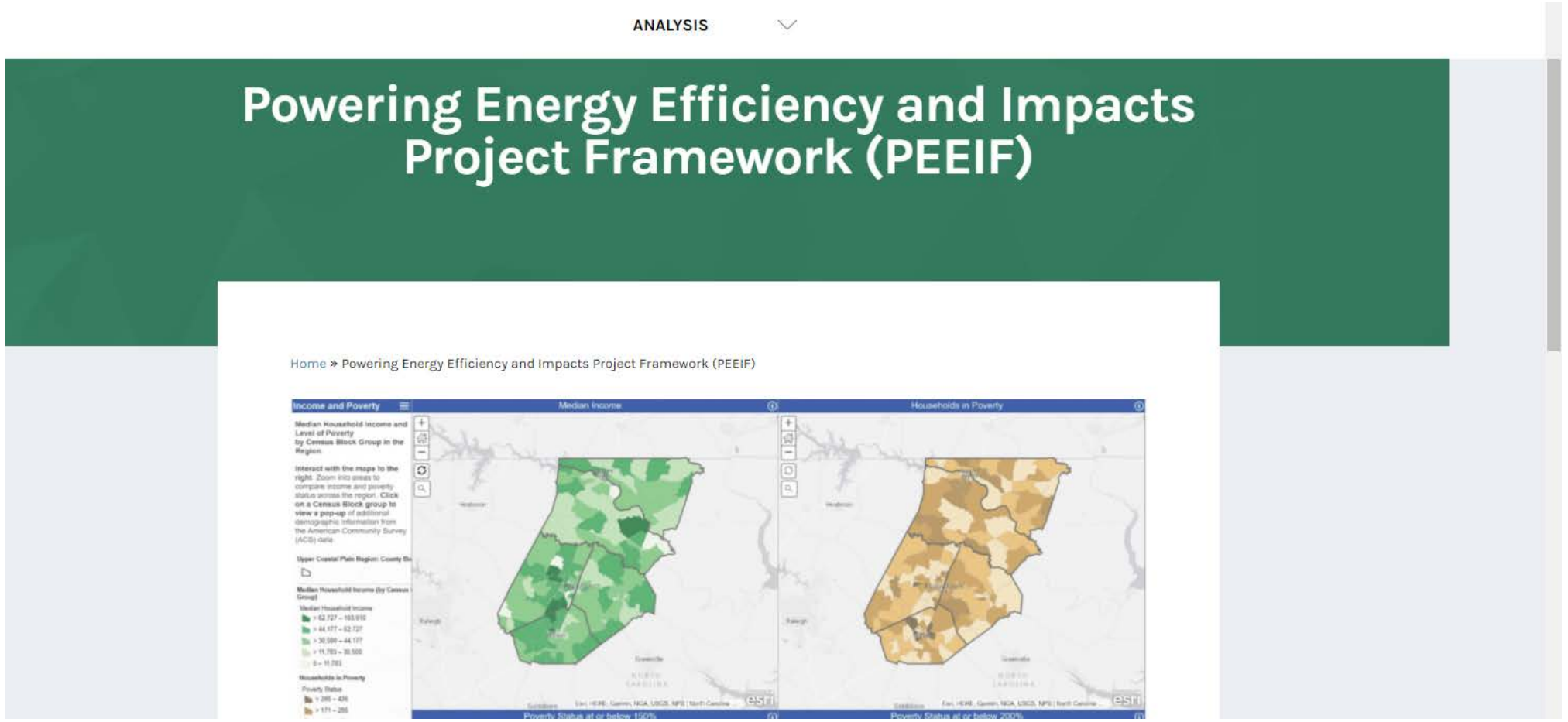


Energy Efficiency Opportunities

- Linear regression to predict energy usage:
  - Year Built
  - Square Footage
  - Type of Home
- Actual energy usage in excess of Predicted usage identifies homes with energy savings opportunity



Find us on the web



www.energy.gov/eere/analysis/powering-energy-efficiency-and-impacts-project-framework-peeif