Spatial Modelling of Western U.P. Stationary Energy Demand & Demand-Side Opportunities

April 6th, 2016
UP GIS Users Group Meeting

Brad Barnett, Assistant Regional Planner
bbarnett@wuppdr.org
Western Upper Peninsula Planning & Development Region
Project Goals

1. Generate household-level estimates for building energy services and energy drivers

2. Develop model to estimate building sector energy end-intensity for Western Upper Peninsula Counties

3. Use model to provide recommendations for determining high ROI investment in energy efficiency and alternative energy projects
Average Upper Peninsula Residential Electricity Rates (Est) 2014


2014 Michigan Residential $/kWh Average

~$0.144/kWh

- 0 – 75% of State Average
- 75.1 – 90% of State Average
- 90.1 – 110% of State Average
- 110.1 – 125% of State Average
- 125.1% + of State Average
**Aspatial Survey Data**
1. Cost of consumers’ building energy services
2. Energy sources for space/water heating, A/C, & major appliances
3. Structural characteristics (e.g. age, square footage, primary use, equipment)
4. Penetration of demand-side activities
5. Sociodemographic characteristics (e.g. age, income, education)

**Spatial Data**
1. Parcel files for Houghton & Gogebic Counties

**Other Aspatial Data**
1. EIA Residential & Commercial Building Energy End-Use Ratios
2. EIA EE gains for common demand-side project
Survey Implementation

- Partnership with townships, cities, and counties in Gogebic & Houghton Counties
- Summer property tax mailings
- Online and mail-back response options
- Estimated ~20,000 survey recipients
Identify Priority Zones for Demand-Side Programs

Connect with existing programs when possible
Natural Gas Service Areas - Est

Michigan Public Service Commission - 2011
Thank you!

Additional questions, comments, and/or suggestions:

Brad Barnett

bbarnett@wuppdr.org or 906-482-7205 (ext. 316)