



Energy Independent Communities: 25x25 Plan Grants Pilot Presentations 4th Quarter Report

Mayor Sandy Decker
City of Evansville, Wisconsin
Green Bay, WI
December 17th, 2009



Overview

What was measured? Why?

Discoveries/Surprises

Total Projects Considered

Pathways to 25 x 25

Projects Selected – Explanation

Potential Renewable Feedstocks

Existing Unknowns: Necessary Information for Future

Action Steps – Immediate & Long - Term

Energy Independence Team Members



City of Evansville, Wisconsin Energy Independence Team

What was measured? Why?

- Electricity/fuel data was obtained for municipal buildings, infrastructure (water treatment and outdoor lighting), and vehicles.
- Data was used to calculate 2008 municipal energy baseline of 12,472 MMBtu.
- 2025 municipal energy baseline was estimated to be 15,797 MMBtu, using an estimated annual energy growth rate of 1.4%. 25% of 2025 energy use from renewable sources is 3,949 MMBtu.
- Reducing dependence on use of fossil fuels is one goal of developing 25 x 25 energy independence plan.
- Reduction of greenhouse gas emissions is another important component of the 25 x 25 plan. Generation of 4,618,535 lbs. of carbon dioxide is estimated for projected 2025 energy use. 25 x 25 projects will significantly reduce emissions.



City of Evansville, Wisconsin Energy Independence Team

Discoveries/Surprises

- Total annual municipal energy costs in 2008 were \$333,427. While costs were in city budget by department, aggregating costs was illuminating. With tight municipal budgets, selected energy efficiency, energy conservation, and renewable projects can significantly reduce energy costs.
- Lack of certain detailed energy data. Individual vehicle fuel usage was not complete. Some buildings or lights were not metered. Conversely, some meters were measuring multiple facilities/lights. Better expense tracking is necessary.
- During the planning process, it became evident that smaller communities lack many renewable options because projects are not economically feasible. It is difficult accomplishing sizable renewable resource generation. Energy efficiency and energy conservation activities are much easier to implement.
- A pleasant discovery over the last year has been citizen engagement and acceptance of local energy planning and initiatives. The Evansville community continues to grow its interest in sustainability.



City of Evansville, Wisconsin Energy Independence Team

Total Projects Considered (a list)

1. 2009 waste water treatment plant upgrade, with renewable and energy efficiency components.
2. LED street light upgrade.
3. Energy efficiency improvements to public works facility, with possible renewable components.
4. Upgrade of south distribution loop from single phase to three phase.
5. New vehicle purchases incorporating energy efficiency improvements, such as hybrid technology and use of biofuels.
6. Energy efficiency possibilities in remodel of old fire station for relocation of police department.
7. Construction of West Side Park shelter/bathroom.
8. Upgrade to variable speed pumps at wells and lift stations.
9. City Hall tuck pointing and other energy reduction measures.
10. Planting/landscaping in city parks and other city areas to reduce mowing and decrease runoff.



City of Evansville, Wisconsin Energy Independence Team

Pathways to 25 x 25

- Completed small solar hot water project at outdoor public swimming pool.
- WWTP upgrade complete in 2010.
- Three 100 kW wind turbines at WWTP site by 2025 (first turbine installed in summer 2010).
- Public works facility heating and lighting projects.
- Wisconsin Renewable Portfolio Standard of 10% included.
- Well and lift station pumps upgrade as yet not in measurement.
- Second phase of LED street light upgrade not included in measure.
- Vehicle upgrades for efficiency and renewable fuels as yet not in measurement.
- Purchase blocks of renewable energy.

These features as calculated result in carbon dioxide reduction of 33% by 2025. As presently calculated, in 2025 we have reached 25% renewables. Likely options to exceed 25% are inclusion of additional projects as above, expected increase in the renewable portfolio standard, and additional energy efficiency and conservation projects.

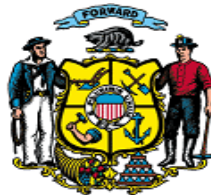


City of Evansville, Wisconsin Energy Independence Team

Projects Selected – Explanation

Refined list of five potential projects (all reduce carbon dioxide emissions):

- Waste water treatment plant upgrade already underway. Installation of first 100kW wind turbine scheduled for completion late summer 2010. Two additional sites for turbines identified at site for installation by 2025 (renewables and energy innovation).
- Upgrade well and lift station pumps to high-efficiency variable frequency drive models. One pump has been in operation over 50 years (efficiency and cost savings).
- Public works building lighting and heating retrofits. Biomass burner serves dual purpose of heat and destruction of diseased wood. Lighting plan includes off-the-grid solar light pipes (renewables, cost savings, 2-fer).
- Investigate best efficiency possibilities for all future vehicle purchases, e.g. flex-fuel, plug-in hybrid. Promote local availability of biofuels.
- LED street light upgrade (multiple benefits of removal of mercury vapor bulbs, project visibility, and budget savings).



City of Evansville, Wisconsin Energy Independence Team

Potential Renewable Energy Sources & Feedstocks

Wind

- 100 kW turbine at WWTP site. Locations for two additional 100 kW turbines identified.
- Community wind project proposed in Town of Union. Awaiting PSC rules for turbines. Test tower is monitoring wind speed. Three 1.5 MW turbines connected to local utility would provide approximately 18% of annual community energy use.

Solar

- Projects possible at WWTP and public works facilities.

Biogas (landfill, agriculturally-based)

- Larson Acres, with expanded herd of more than 5000 dairy cows, likely location for methane digester that could feed to Evansville Water & Light.

Biomass (wood, prairie grasses, other)

- Agrecol pelletizing chaff, stover, etc. as fuel product.
- Soybean capital of Wisconsin.
- Biomass burner at emerald ash wood debris.



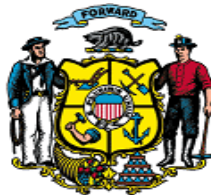
public works garage, using
borer-diseased wood and



City of Evansville, Wisconsin Energy Independence Team

Existing Unknowns: Necessary Information for Future

- Future legislation, specifically action on carbon constraints and increases in renewable portfolio standards.
- Changes in technology, e.g. new lighting technologies and smart grid and smart metering development.
- Funding sources and availability that make cutting-edge energy projects financially feasible for the community, for example LED street light upgrades.
- Future global energy demand with impacts on energy costs. Dynamics of energy projects and policies may change.
- Biofuels development (new sources and appropriate economics).
- Local availability of biofuels.



City of Evansville, Wisconsin Energy Independence Team

Action Steps – Immediate & Long – Term Projects

- Complete WWTP upgrade and first wind turbine installation in 2010.
- Complete public works facility lighting and heating retrofits in 2010.
- With funding, complete LED street light upgrade in 2010. Upgrade remaining historic lights with LEDs when feasible by 2020.
- Upgrade well and lift station pumps over next 2-3 years.
- Fund and install two additional 100kW turbines by 2025.

Administrative

- In 2010, set up use of Energy Star Portfolio Manager to monitor future energy use of municipal facilities and results of selected energy projects.
- In 2010, undertake detailed energy audits of all municipal facilities. Capture efficiencies of improving building envelope, proper use and maintenance of equipment, etc.
- In 2010, chief elected official will undertake second community challenge to increase participation of business and residences in renewable energy purchase program.
- EIT will continue meeting regularly to monitor 25 x 25 plan implementation, results, and promote energy projects to local businesses, school district, and residences. Team will revise and update 25 x 25 plan as needed. Team will search for funding sources to undertake additional projects.



City of Evansville, Wisconsin Energy Independence Team

Energy Independence Team Members

1. Dane Albright-original Evansville Initiative member, community renewable energy supporter.
2. Butch Beedle-school teacher, coordinator of annual community energy fair.
3. Steve Carlson-principal engineer in energy consulting firm, original Initiative member.
4. Heidi Carvin-school district administrator, Initiative member.
5. Sandy Decker-mayor, Initiative member, Team leader.
6. Georgia Duerst-Lahti-professor at Beloit College, retired school board member, original Initiative member
7. Scott George-Evansville Water & Light superintendent
8. Fred Juergens-retired alderman, Initiative member.
9. John Morning-chamber of commerce president.
10. Alicia Rankin-WPPI Energy service representative for Evansville.
11. John Rasmussen-retired water & light foreman, performed municipal energy audit and data/information gathering.
12. Janis Ringhand-retired mayor, current alderwoman, original Initiative member.
13. Jodi Sam-city staff member, Team scribe, and performed data entry.
14. Dave Wartenweiler- Evansville Public Works superintendent.
15. Kendall Wethal-small business owner using solar energy, community renewable energy supporter.



City of Evansville, Wisconsin Energy Independence Team

Additional Comments, Observations, Recommendations

Evansville thanks the Wisconsin Office of Energy Independence for selecting our city to participate as an inaugural Wisconsin Energy Independent Pilot Community over this past year. The experience has been extremely beneficial, helpful, and rewarding as our community grows its sustainability efforts.

Good luck to the new communities that will undertake development of 25 x 25 energy independence plans. We are happy to be a resource for you. Contact information is below.

Sandy Decker, Mayor

PH: (608) 882-2266

E-mail: sandy.decker@ci.evansville.wi.gov

City of Evansville

P.O. Box 76

Evansville, WI 53536

