



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

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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



Columbus Energy Independence Team

What was measured? Why?

All City of Columbus government buildings and functions that use/consume energy (electric, natural gas, diesel, gas) were measured. These include the Aquatic Center, Park Pavilion, Fire Station, Public Works Garage, City Hall, Senior Citizens Center, Library, Boy Scout Cabin, Park Garage, Cemetery Garage, Columbus Water & Light and all vehicles.

At the beginning, we believed all buildings and functions had a potential for energy conservation/efficiency and conversion to renewable energy usage.





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Discoveries/Surprises

- Energy intensity of Library 9.05
- Low energy intensity of Park Pavilion, a very large historic 100 year old wooden building 2.46
- Outdoor Lighting (street lights) was 9% of total energy usage
- Fleet energy consumption was a relatively low 6% of energy consumption
- Anaerobic digester and bio-fuel furnace not an energy conservation/renewable fit for Wastewater Treatment Plant
- Non-applicability of bio-mass and bio-fuel to current Columbus buildings and facilities because of small size, space limitations, or aesthetics.



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Total Projects Considered (a list)

- LED Street Light Conversion-EECB Grant
- Purchase Additional renewable electricity (currently 16%)
- Solar Thermal at Aquatic Center + pool cover
- Solar at New Police Administration Building
- Building Efficiency Improvements (Police, DPW, Municipal Parking Lots, Library)
- Renewable/Efficiencies with New Library Expansion-
Future Solar Installation
- Wastewater Treatment Plant bio-fuel energy generation and
anarobic digester (would be a net energy gain)



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Pathways to 25 x 25

- **Energy Efficiency/Conservation/New Technology:**
 - LED Street Light Conversion 2010/2014 221,908 kWh
 - Building Efficiencies 2009-2011+ 48,000 kWh
- **Replace with Solar Power:**
 - 3 solar generation projects in 2010-2011
213,000 kwh + 1513 therms
- **Purchase Renewable Power**
 - Now 16 %. Increase to 38 % in 2010. Increase to 46% by 2011
996,000 kWh
- **NEV/PHEV Hybrid Conversion – 2009**
 - 1 NEV Truck, 2 PHEV-converted Prius = 422 Gallons UL Saved
- **Wisconsin Renewable Energy Standard** 10% = 648 kWh



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Projects Selected – Explanation

- **LED Street Light Project – 100 % conversion. 59%+ energy savings or 221,908 kWh saved**
- **Increasing Purchase Renewable Electricity. 3320 blocks purchased for 990,000 kWh saved/46% of total. City Leading Columbus by Example and leveraging WPPI Energy's expertise, technology, and economy of scale.**
- **Solar Thermal at Pool + Cover 1513 therms saved**
- **Solar at New Police Administration Building: 12,264 kWh saved**
- **Future Solar Installation: 24, 528 Kwh saved**
- **Building Efficiency Improvements including Police, Public Works, Community Center, Library Expansion, and Historic buildings: 48,000 kWh saved**
- **Converting Gas Powered Vehicles to NEV/PHEV Hybrid with recent NEV truck and 2 PHEV Hybrids: 422 gallons saved**



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Potential Renewable Feedstocks

- **Wind** not an option at this point because of cost
- **Solar** project feasibility at Pool and new Police Building
- **Biogas**: methane from nearby dairy farm (Crave) not an option at this point. 500 cow herd availability vs. 1,000 cow herd needed.
- **Biomass** (wood, prairie grasses, other):
 1. Leaf/Yard refuse from Columbus and neighboring communities
 2. Food Waste from Columbus Schools
 3. Harvested weeds from Lazy Lake
- **Hydro** not an option. Study shows Columbus dam does not have enough flow.



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Existing Unknowns: Necessary Information for Future

- Will Columbus receive an EECB Grant for led street light conversion?
- Addressing energy conservation/efficiency improvements in historic City buildings with unique needs, addressed individually.
- Timing and size of library expansion.
- The future cost of solar and other renewable energy. Cost to generate per kWh expected to drop as cost for coal generated power to rise.
- The future technology of NEVs to meet Columbus' needs.



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Action Steps – Immediate & Long – Term

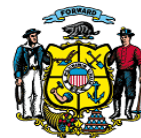
- Share report with Columbus Water & Light Commission (CWL) and City Council for funding, planning, buy-in, and WPPI municipal borrowing and construction, conservation/renewable energy incentives for projects.
- Begin LED street light action agenda to plan and begin led street light conversion: file PSC letter, order led fixtures, budget and create timetable for installation in 2010.
- Finalize 2012 Capital Budget, initiate/finalize WPPI municipal borrowing to install 35 % of remaining led street lights.
- GCETF (EI Team) and Other CWL/City Approvals for Solar Projects. City Council Budget Approval for Renewable Power Purchase Increase.
- Meet with Library Board and Library architects to incorporate energy efficiencies in new library expansion, including budget.
- Meet with Aquatic Center Board to recommend solar/cover project.
- Working with HSPC and City to address City historic buildings



Columbus Energy Independence Team

Greater Columbus Energy Task Force Members

- Nancy Osterhaus, former Mayor - Chair
- Bob Link, Mayor
- Eric Anthon, Asst Superintendent, Columbus Water & Light
- Martin Day, Community Member
- Rob Goebel, Plant Manger, American Packaging Corp
- Curt Hansen, President, Mid State Equipment
- Ed Harding, President, Columbus Community Hospital
- Mark Jansen, Superintendent, Columbus School District
- Al Strohschein, Chair, Columbus water & Light Commission
- Advisors: Steve Sobiek, City of Columbus, and Jim Schieble, CWL Energy Services Rep



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Additional Comments, Observations, Recommendations

- Do not be afraid to think boldly, propose new ideas, and challenge “conventional-we’ve always done it this way” methods and operations.
- This process and plan offers Columbus, and other cities, opportunities for leadership, innovation, and education, as well as opportunities for energy efficiencies and conservation.
- There has not been a road map to follow – we are making the first map!

Greater Columbus Energy Task Force



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