Reap the Financial Benefits:
Innovative Approach to Energy Conservation Projects
Tuesday, September 15, 2009

Session Overview:
The City of Marietta, Ohio has implemented a Comprehensive Energy Management and Energy Conservation Program for all city facilities including office buildings, fire stations, wastewater and water treatment plants, city parks and recreation facilities, street lighting and traffic signals.

Find out which Energy Conservation Measures they are implementing and how they are funding them.
Learning Objectives:

By attending this session, participants will learn to:

- Implement a comprehensive Energy Management and Energy Conservation Program for your facilities.
- Identify funding opportunities that will enhance your return on investment.
- Determine the types of Energy Countermeasures that are cost effective, make sense for your facilities and can be incorporated into your long term Capital Improvement Plan.

If no one is complaining, why is this important?

- Total energy reduction goal for every federal agency is 30% by 2015, relative to the baseline of the agency’s energy use in FY 2003. (Executive Order 13423 – Enacted 1/24/2007)
- State of Ohio – Executive Order 2007-02S: All agencies were directed to conduct an energy audit for all owned and leased facilities by June 2007.
- State of Ohio – H.B. 251: (for Higher Education)
  - Goal: reduce energy consumption 20% by 2014
  - Minimum efficiency standards for new projects
  - Each board to develop 15 year plan to phase in energy efficiency and conservation w/ progress reporting.
Other Facts to Consider:

- Utility Costs represent 42% of the Operating Budget for an average building.
- Buildings consume 70% of the electricity load and are responsible for 39% of CO₂ emissions in the U.S. per year (more than any other country in the world except China!) - U.S. Green Bldgs. Council
- Once salaries are removed from the equation, energy use becomes the single largest influence in the facility operating budget.
- Most energy audits include calculated return on investments based upon today’s energy prices or conservative inflation rates.

Learning Objective #1 - How do I get started with implementing?

- Get familiar with and be aware of your organization’s:
  - Long range financial plan w/ 5 year projections (CAFR)
  - Strategic Plan and Comprehensive Land Use Plan
  - 5 Year Capital Improvement Plan
  - Facilities Master Plans / Program Requirements
- Example: Currently, the City of Marietta has 3 municipal city office buildings at 301, 304 and 308 Putnam St.
  - Relocation of Municipal Court by Jan. 2011 to a recently acquired facility located one block away from City Hall.
  - Marietta College 20 year Master Plan – To acquire property at 308 Putnam St.
City of Marietta - Municipal Office Buildings

- 301 Putnam St.
  - Constructed in 1936
  - 3 Floors (Historic Structure)
  - Total Floor Area = 23,635 sf
  - Energy Consumption:
    - Electric = 330,080 kWh  Gas = 1161.3 MCF
    - $25,686/year  $15,298/year
  - Occupants: Mayor, Police, Fire, Municipal Court, Law Director and supporting staff

- 304 Putnam St.
  - Constructed in 1930
  - 4 Floors (Former Selby Hospital)
  - Total Floor Area = 15,374 sq. ft.
  - Energy Consumption:
    - Electric = 186,540 kWh
    - $20,039/year
    - Gas = 1250.6 MCF
    - $16,780/year
  - Occupants: Health Department, Probation, Utilities Admin., Development, Engineering Department and supporting staff.
City of Marietta - Municipal Office Buildings

- 308 Putnam St.
  - Constructed in 1902
  - 3 Floors
  - Total Floor Area = 6,032 sf
  - Energy Consumption:
    - Electric = 34,543 kWh
      - $4,048/year
    - Gas = 445.5 MCF
      - $5,946/year
  - Occupants: Utility Maintenance, Income Tax, City Treasurer, City Auditor, Information Systems, City Council and supporting staff

Step #2 – Gather Previous Information and Reports on your Facilities

- Request annual billing history from your utility companies. Review of this information helps identify largest consumers, demand meter charges, seasonal variations, etc.
- May of 2004 – Chevron Energy Solutions Company performed a Feasibility Energy Analysis (FEA) for City of Marietta.
- Results and Recommendations: The FEA identified $1,100,000 of improvements that could be financed over 10 years utilizing projected energy and operational savings.
Feasibility Energy Analysis
Financial Strategy / Cash Flow

Chevron Energy Solutions FEA Report - 2004

Cost of Improvements $1,100,000.00
Down Payment $ 0.00
Financed Amount $1,100,000.00

Support Services $ 6,000/year
Projected Energy Savings $136,054/year
Operational Savings $ 12,000/year

Interest Rate 3.5%
Inflation Rate 3.0%
Step #3 – Determine Scope of Services Required

- Identify which facilities are to be included in the Energy Audit.
  - Current facilities owned/operated by City
  - Facilities owned by City/operated by others
  - Leased facilities
  - Identify facilities that can be eliminated or consolidated
  - New facilities (to be constructed or purchased)

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Step #3 – Determine Scope of Services Required

- Identify services required for the Energy Management and Energy Conservation Program
  - Comprehensive Energy Audit
  - Energy Project Design/Engineering Services
  - Project Management and Construction Admin.
  - Measurement and Verification
  - Education and Awareness Training
Step #4 – Decide on Project Delivery Method

- Energy Performance Based Contract (69%)
  - What is Energy Performance Contracting?
- Engineering Procurement and Construction Services - Selection of Professional Engineering firm Quality Based Selection (Multi-Discipline or MEP Engineering Firms)
- Design-Build

Step #5 – Prepare Request For Qualifications

- Sample RFQ can be obtained from other organizations, engineering firms, or Energy Service Companies.
- Use a reputable and trusted source, then review and edit document to make selection criteria reflect the items most important to your organization.
- City of Marietta RFQ is included as an electronic file with your handouts.
- Proceed with selection and negotiate contract/agreement with selected firm.
Funding Opportunities

- State of Ohio - Department of Development
  Energy Efficiency Revolving Loan Fund
- Loan Amount: $506,626.00 (AEP Ohio)
- Interest Rate: 2.7%
- Performance Standard: 15% Less Energy Usage
- Funding used to pay for Energy Audit, Phase 1 improvements to two city municipal buildings and to convert 36 intersections to LED Traffic Lights.
- Very Important First Step – This money was used to pay for engineering costs for the Energy Audit

Best Resource for researching financial incentives:

- DSIRE – Database of State Incentives for Renewables & Efficiency (http://www.dsireusa.org/)
- Serves as the nation’s most comprehensive one-stop source of information on federal, state, local, and utility incentives and policies that promote renewable energy and energy efficiency.
- Website is funded by U.S. Department of Energy and is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council.
- Example: Search for rebate programs for Marietta, OH.
Funding Opportunities

Other Resources for researching financial incentives:

- USEPA Energy Star - ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices. (http://www.energystar.gov/)
  - Tools and Resources including Energy Star Cash Flow Opportunity Calculator

Funding Opportunities

Federal Grants:

- Rural Energy for America Program Grants/Energy Audit and Renewable Energy Development Assist (REAP/EA/REDA)
  - Grant for energy audits and renewable energy development assistance.
  - Who is eligible? Eligible entities include State, tribal, or local government; institutions of higher education; rural electric cooperatives; or a public power entity located in a rural area.
  - Grant Amount: Up to $100,000 and the recipients are required to pay at least 25% of the cost of the energy audit.
  - Application Deadline: The next application opportunity is expected to be in FY 2010. The deadline for the Notice of Solicitation of Applications was June 9, 2009.
Funding Opportunities

Federal/State Grants:

- **State Energy Plan – Solar and Wind Deployment Systems**
  - Competitive grant for solar electric, solar thermal, and wind electric systems within the State of Ohio.
  - **Who is eligible?** Individuals, partnerships, unincorporated associations, corporations, limited liability companies, limited partnerships, governmental agencies, or any combination thereof.
  - **Grant Amount:** Minimum of $250,000 up to maximum award of $1,000,000 except solar thermal systems limited to $500,000.
  - **Incentive Level:** $3.00/watt (Min. 75 kW Direct Current)
  - **Application Deadline:** One page project proposal must be submitted by 5:00 p.m. on Sept 21, 2009. Complete application must be submitted no later than 3:00 p.m. on Sept 25, 2009.

State Grants:

- **ODOD State Grant – Ohio Advanced Energy Fund**
  - **Notice of Funding Available (NOFA) 08-09**
  - Grant for implementing renewable energy projects limited to solar electric, wind electric, and solar thermal systems
  - **Who is eligible?** Commercial, industrial, institutional and government institutions served by AEP, First Energy, Duke Energy or Dayton Power and Light.
  - **Grant Amount:** Up to $150,000 and the maximum incentive is 50% of the eligible system costs for a solar electric system.
  - **Incentive Level:** $3.50/watt (Min. 10 kW Direct Current)
  - **Application Deadline:** Applications accepted beginning on May 1, 2008 and will continue until ODOD/OEO closes the NOFA.
Funding Opportunities
Utility Rebate Program:

- **AEP Ohio – Commercial Custom Project Rebate Program**
  - Rebate Amount: $0.08/kWh (for one year energy savings) plus $100/kW demand reduction (at summer peak).
  - Maximum Incentive Level: 50% of total project cost
  - Expiration Date: 12/31/2009
  - Website: [http://www.gridsmartohio.com](http://www.gridsmartohio.com)

- **City of Marietta obtained this rebate for $8841.60 for changing out lights in two municipal buildings**
Funding Opportunities
Utility Rebate Program:

- **AEP Ohio – Commercial Self Direct Rebate Program**
  - Rebate for commercial customers who have implemented energy efficient upgrades and/or peak demand reductions associated with Refrigerators/Freezers, Lighting, Lighting Controls/Sensors, Chillers, Furnaces, Boilers, Heat pumps, Air conditioners, CHP/Cogeneration, Heat recovery, Processing and Manufacturing Equipment and other custom equipment.
  - Rebate Amount: 75% of the calculated incentive payment under the Commercial Lighting or Custom Program.
  - Expiration Date: 12/31/2009
  - Website: [http://www.gridsmartohio.com](http://www.gridsmartohio.com)

- City of Marietta will submit for a rebate on a boiler installed in 2006.

Example: Funding Opportunities w/LED Signal Retrofit at 31 signalized intersections

- Total Project Cost = $203,584
- Total City Share = $82,858
- Total ODOT Share = $120,726 (ODOT funding through MPO)
- City of Marietta applied for and obtained 80% reimbursement for construction engineering costs. (Reimbursed $7,137)
- City identified 3 intersections that can be billed to ODOT at $1000 per intersection = $3000 per year.
Example: Funding Opportunities w/LED Signal Retrofit at 31 signalized intersections

- Total City Share = $82,858
- Energy Loan Fund = $49,995
- Streets Fund = $32,863
- Est. Energy Savings = $34,324/yr
- Safety benefits of the project:
  - Backplates w/ reflective border
  - Countdown pedestrian timers
  - Battery back up system @ 5 locations.
  - Signage and other safety improvements.

Energy Conservation Measures

- ECM #1 – Interior Lighting
- ECM #2 – LED Technology
- ECM #3 – HVAC
- ECM #4 – Windows
- ECM #5 – Water Meters
- ECM #6 – Power Factor Correction
- ECM #7 – Load Leveling
- ECM #8 – Virtualized Servers
- ECM #9 – Virtualized Desktops
- ECM #10 – Water Conservation
- ECM #11 – Solar
ECM #1 – Interior Lighting

Introduction

- Lighting Efficiency Improving Every Year
- Justifies Complete Replacement in 3-5 yrs.
- Q: “Why destroy what is working?”
- A: Reap the Long Term Benefits
  - Save 30% to 50% of the Electric used by Lighting
  - Obtain Equal or Better Light Levels
  - Everything is Recycled
  - Resource Management Saves Energy

From T12 to T8

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<th></th>
<th>Total Input Power</th>
<th>Bulb / Ballast Life (Hr)</th>
<th>Electric Power (KW)</th>
<th>Savings s/yr / fixture</th>
<th>Savings / 120 Fixtures</th>
<th>Maint. Savings / 120 Fixtures</th>
<th>Total Fixture Cost</th>
<th>Simple Payback</th>
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<tr>
<td>Existing 4-bulb T12 34W Magnetic Ballast</td>
<td>148 Watts</td>
<td>20,000</td>
<td>30,000</td>
<td>187KW</td>
<td>$15.13</td>
<td>$1,815</td>
<td>$2,178</td>
<td>$14,022</td>
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<tr>
<td>New 3-bulb T8 28W Electronic Ballast</td>
<td>65 Watts</td>
<td>36,000</td>
<td>50,000</td>
<td>301 Putnam</td>
<td>$63.12 / fixture + $45 install</td>
<td></td>
<td></td>
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</table>

Notes:
- 250 days/yr * 9 hr/day = 2250 hrs/yr
- $0.081/k WH

Page 29
ECM #1 – Interior Lighting

Summary

- Scope of Work - Marietta
  - Change 433 Light Fixtures in 2 Buildings

- Total Cost of ECM
  - C5 – Installation Labor $20,590
  - V1 – Light Fixtures $19,921
  - Total $40,511

- AEP Ohio – Rebate Program -$ 8,842
- Total Annual Savings -$11,095
- Simple Payback = 2.85 yrs

Page 30

ECM #2 – LED Technology

- Use LED Technology for:
  - Traffic Lights
  - Roadway Lighting
  - Decorative Street Lights
  - Parking Lot Lighting

- Careful Design Considerations
  - Heat Transfer is Critical
  - “Droop” is Concern
  - IEEE Spectrum 8.09 “LED’s Dark Side”

Update from Marietta, OH
- All Traffic Signals Replaced
- Participating in Pilot Street Light Project

Page 31
ECM #3 – HVAC Design

- All Systems Designed for Energy Efficiency
- No Direct Burning of Fossil Fuels
- Extensive use of Heat Pump Technologies
  - Geothermal & Solar
  - Heat Pumps
  - Recovery Units
- Back to the Basics
  of Thermodynamics!

ECM #3 – HVAC Model

City Hall Energy Model Summary
Software Used: Trace Trace & Energy Pro 5

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<th>Before</th>
<th>After</th>
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<tr>
<td>Roof R-Value</td>
<td>R-10 to R-20</td>
<td>R-20 Min</td>
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<tr>
<td>Windows R-2</td>
<td></td>
<td></td>
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<tr>
<td>Walls R-4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doors R-2</td>
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<td>Gas Used /Yr</td>
<td>MMBTU 1,196</td>
<td>MMBTU 679</td>
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<td></td>
<td>MCF 1,161</td>
<td>MCF 659</td>
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<td></td>
<td>$ 15,287.91</td>
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<td>Electric Used /Yr</td>
<td>KW 330,000</td>
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<td>$ 25,686</td>
<td>$ 25,328</td>
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<td>Total $ / Yr</td>
<td>$40,864</td>
<td>$38,060</td>
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<td>Total $ Saved Per Year</td>
<td>$4,794</td>
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ecoheatwise.co.uk
ECM #4 - Windows

- New windows will include energy efficient features such as:
  - Double paned glass
  - U value of 0.3
  - Vinyl frames
  - Gas filled panes, Low E
  - Painting and Caulking Trim

55 Windows Replaced
Estimated Cost: $30,810
Energy Cost Saved / Year: $3,969

ECM #5 – Wi-Fi Water Meters

- Water Meters Fail to Favor Customer
- Walk By and Drive By Meter Reading is Costly
- Convert to Complete WiFi system
- Replace all Meters
- Central Computer Systems Continuously “Know” rate of water usage.
- Computers turn off non-paying Customers

Badgetmeter.com
ECM #6 – Power Factor Basics

- Motors take Reactive Power (KVAR)
- Electric Companies can Bill for KVAR’s
- Can be nearly Eliminated by adding Capacitance
- Must be done by Engineered Methods
- Active switching of Capacitive loads for continuous correction of PF to near unity.

ECM #6
Understanding Power Factor

Marietta Aquatic Center
Main Pool Pump

Existing Power Factor
0.73 Lagging

New Power Factor
0.98 Lagging
ECM #7 – Load Leveling

- Electric Companies Prefer Equal Total Power Usage at all times during the day and night.
- Sometimes called “Demand Side Management”
- Municipalities can aid Power Companies by Managing Power Usage times and thus lower total energy costs.
- Example: Water Treatment and/or Pumping at Night instead of day.
- “smart” systems control when power is used.
  - Soft Start and VFD’s
  - DCS’s with load leveling features and routines
- Management Training for Reduced Power Consumption
- Coordinated Motor Starting

ECM #8 – Virtualized Servers

- Typical server installations have dedicated servers for every business function.
- New computer hardware and software allows one or more large computer servers to take the place of many.
- In Marietta – 20 servers > 2.
- Energy Savings
- Better Reliability
ECM #8 – Virtualized Servers LSC

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<th>Option #</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Description</td>
<td>Do Nothing – Servers remain at 304</td>
<td>Move Existing to 2nd Floor 301</td>
<td>Switch to Virtualized Server - Move to 2nd Floor 301</td>
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<tr>
<td>Protected from Water?</td>
<td>No. Under Restroom</td>
<td>Yes</td>
<td>Yes</td>
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<td>Automatic Redundancy?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<td>Electric Used (KW / Hr)</td>
<td>7.95</td>
<td>7.95</td>
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<td>Cost of Electricity per Year</td>
<td>$6,283.71</td>
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<td>Heat Produced (BTU / Hr)</td>
<td>27,152</td>
<td>27,152</td>
<td>3,763</td>
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<td>Cost to Cool per Year</td>
<td>$3,902.81</td>
<td>$1,902.81</td>
<td>$544.03</td>
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<td>Cost of Energy Consumed</td>
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<td>$6,930.96</td>
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<td>$1,253.56</td>
<td>$6,206.94</td>
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<td>Average % used of existing equipment</td>
<td>90%</td>
<td>90%</td>
<td>0%</td>
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<td>Predicted Average Useful Life (yrs)</td>
<td>5</td>
<td>5</td>
<td>6</td>
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<tr>
<td>Maintenance Cost Per Year</td>
<td>$2,500</td>
<td>$1,000</td>
<td>$1,000</td>
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<tr>
<td>System Appraisal Today</td>
<td>$108,000</td>
<td>$138,000</td>
<td>$72,000</td>
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<td>Existing Life Remaining (yrs)</td>
<td>0.5</td>
<td>0.5</td>
<td>6</td>
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<td>Life Remaining in 10 yrs</td>
<td>0.5</td>
<td>0.5</td>
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<td>Salvage Value in 10 yrs at no interest</td>
<td>$10,800</td>
<td>$13,800</td>
<td>$24,000</td>
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<tr>
<td>Total Life Cycle Costs for 10 years @ no interest</td>
<td>$230,200</td>
<td>$272,200</td>
<td>$130,000</td>
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<tr>
<td>Saved Per Year</td>
<td>$2,200</td>
<td>$4,200</td>
<td>$14,220</td>
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ECM #9 – Virtualized Desktops

- Typical Desktops have Hard Drives and Run their Own Programs accessing only Data from File Servers.
- Returning to the “Main Frame” idea has some advantages.
- Much lower Electrical Usage
  - Perhaps 120W > 20W
  - Less Heat Load in Summer
- Reduced Hard Drive Failures
- Network Program Software easier to maintain and Control.
ECM #10 – Water Conservation

- Saving Water is Saving Energy
- Decreasing Inflow and Infiltration I&I
- Recycling Grey Water
- Re-circulating Effluent at WWTP
- WTP and WWTP Process Improvements
- Decreasing Water Usage of Appliances

![Diagram of water flow and filtration system]

ECM #11 – Solar Options

- Solar Electric
  - Traditional Solar Cells
  - Directly Applied Solar Membranes
- Solar Heat
  - Hydronic Heating
  - Domestic Hot Water
  - Recreational Water Heating

![Image of solar panels]

2,640 watts while in full sun. 10 kilowatt-hours per day. Solar.world.org
ECM #11 – Implementing Solar

- Requires Cooperative Team of
  - Engineers
  - Owners
  - Lawyers
  - Investors
  - Government Agencies
  - Technical Service Providers

ECM #11 – Solar Ownership

- Direct Purchase
- Lease Agreements
- Power Purchase Agreements

PPAs at a glance:
- Third-party financing company purchases a solar electric system for your facility, then charges you for the electricity generated.
- No up-front capital required.
- No maintenance work or risk.
- You secure a long-term contract for power, often below current utility rates.
- Stabilize an operating cost that was once highly variable.
- Fixed electricity rates are a hedge against rising energy costs or spikes.
- Recsolar.com
ECM #11
Implementing Solar

Single Contract Award via Public Bid

Building Owner

Engineering and Construction Management

Detailed Design for Public RFQ

System Owner Power Purchase Agreement

Legal Services Setup Agreements

Solar Installation Co. Solar Installation

Specialty Solar Consultants

Basic Size & Design

Power Purchase Agreement
REQUEST FOR QUALIFICATIONS

For

PROFESSIONAL ENGINEERING AND
CONSTRUCTION MANAGEMENT SERVICES

The City of Marietta’s HB300 Energy Conservation Project
Marietta, Ohio
(Revised July 23, 2008)

Introduction
The City of Marietta, Ohio is soliciting Statements of Qualifications from Professional Engineering Firms for the design and construction management of its House Bill 300 Energy Conservation Project. Qualified professional engineers shall have until 4:30 PM on August 29, 2007 to submit their Statement of Qualifications to the City Engineer, City of Marietta, 304 Putnam Street, Marietta, Ohio 45750. Submittals shall comply with the standards set forth in this Request for Qualifications for Professional Engineering and Construction Management Services.

There will be a pre-proposal meeting on Thursday, August 14, 2008 at 8:30 a.m. at 304 Putnam Street in the second floor conference room. There will be several City officials attending to give an overview and review of goals and objectives for the project. A tour of most of the larger City facilities (e.g. Wastewater Treatment Plant, Water Treatment Plant, Marietta Aquatics Center, Equipment Garage, etc.) and buildings will then be conducted to give all interested parties an opportunity to ask questions, take photographs and gain a better understanding of the types of projects the City is preparing to undertake.

Background
The Ohio HB300 program allows municipalities to borrow money at low interest and use this money to implement any improvement that will lower its energy usage. The City of Marietta seeks to take advantage of this program. Money will be borrowed and the loan repaid with the savings. As soon as the savings pays off the loan, the city’s energy expenses will be lower than before the project. The engineering company chosen for this work will study building by building, equipment by equipment to compute the energy used now vs. the energy that would be used should an upgrade be made. The difference in this energy usage times the unit cost of the energy will be the basis for its inclusion or exclusion in the program. Using this method of careful study and by employing an engineering company for this work, the city seeks to spend this money wisely and reduce its operating costs for many years.
**Scope of Services**

Upon selection, the **selected** engineering company shall prepare and submit a technical proposal as to the project phasing, detailed scope of services and deliverables for this project. In general, this project involves the detailed study, design, and construction management of an extensive citywide effort to reduce energy consumption and operational costs and increase revenue. The successful engineering firm shall provide all basic and detailed engineering services necessary to produce multiple prime contract bid packages. The successful engineering firm shall provide all construction management services necessary to publicly bid the project and administer the construction.

At minimum, the project must have a fast-track Phase One. The city requires that a portion of the entire project be completed in an accelerated, but reasonable time in order to start realizing savings from the higher payback items of the project. Also included shall be a list of the facilities to be studied and the relative timing of implementation.

**Project Schedule**

Phase One of the project is to start immediately upon award of the engineering contract with a target date of 4/3/09 for completion of construction. During phase 1 work, the Engineer shall perform a city-wide study and determine the scope of work for Phase 2. Detailed design for phase 2 shall begin on 1/5/09 with construction complete by 12/31/09. The project schedule of Phase One is critical and the selected engineering company shall prepare a detailed schedule for its target completion milestones.

The remaining phases of the project will be completed within the next 12 months.

**Submittal Evaluation and Rating**

Statement of Qualifications from interested firms will be evaluated primarily based upon the evaluation criteria and weights listed below. Evaluation of the criteria listed can be very subjective in many areas and the decision of the City’s Selection Committee will be final and not subject to re-evaluation by the firms submitting a Statement of Qualifications.

The Statement of Qualifications should be organized and indexed to facilitate evaluation of the submittal based upon the following evaluation criteria:

A. Professional Qualifications and Experience
B. Project Understanding and Design Approach / Methodology
C. Recent Experience with Similar Projects
D. Operations and Maintenance Concerns for City Facilities
E. Fiscal Management and Analysis of Energy Projects

The following Section describes the elements that should be included in each of these proposal sections and the weighted point system that will be used for evaluation of the proposals.
A. Professional Qualifications and Experience - 25 points

1. State the full name and address of your organization and, if applicable, the branch office or other subordinate element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include the state in which it is incorporated and indicate whether it is licensed to operate in the State of Ohio.

2. Briefly state history of the firm, in terms of length of existence, types of services provided etc. Specifically, identify the technical details that make the firm qualified for this work.

3. Identify the proposed project team that will most likely work on this project. Members listed should include all key personnel from the partner-in-charge down to the engineer level. Sub-professional level employees not providing a significant role on the project do not need to be included. A resume for each member of the team is required and should detail relevant experience, length of services with the firm and job duties during his/her tenure, educational background and professional background.

4. Briefly describe your firm's construction administration support and management capabilities.

5. If teaming with another Engineering firm, explain why and what value the team brings to the City. Identify the strengths being provided by the proposed team. Identify the extent of work for which team members will be responsible.

6. Identify all consulting firms that comprise the project team for this project, and the extent of work for which they will be responsible. Indicate any previous experience you have had with these firms in jointly performing similar projects.

B. Project Understanding and Design Approach / Methodology - 20 points

1. Describe how the proposed project team will utilize and incorporate all existing data including but not limited to the following documents:
   - Feasibility Energy Analysis dated May 2004 by Chevron Energy Solutions
   - Energy Loan Fund Application and Executive Summary
   - Preliminary Contract Documents for Wastewater Treatment Plant Upgrade
   - LED Retrofit Project for replacement of all Traffic Lights with LED
   - Additional Electrical Circuits at 301 Putnam Street

2. Familiarity with all required permitting and regulatory requirements including Ohio EPA, the Ohio Building Code, Ohio Plumbing Code, International Energy Conservation Code, International Mechanical Code, National Electrical Code, Washington County Building Permits, the City of Marietta Permits and Regulations.

3. Technical approach on design and project management based upon the City's Master Facilities Plan.

C. Recent Experience with Similar Projects - 25 points

1. The City requests that in addition to a general list of representative projects, responding firms select at least one of its completed projects of similar size and scope for a detailed project description. The selected project shall be a project that have been "up and running" for at least one years but no more than five years. A detailed description of
services rendered, total budgeted vs. final construction costs, total design fees, the name, mailing address and phone number of the client's project manager, facilities manager, superintendent and each prime contractor.

2. Identify any of the specific individuals on this proposed project team that were involved in the examples provided. Describe the individual's involvement with the project.

3. Identify any recent experience your firm has had with assisting a municipality to prepare, negotiate and execute any changes in metering and/or rates with utility companies.

D. Operations and Maintenance Concerns of City Facilities - 10 points

1. Demonstrated ability to maintain operations and compliance during project and references

2. Provide a brief summary of your firm's past experience with design for energy efficiency. The City is interested in any work in the past with energy audit performance and potential savings from energy efficiency that helped pay for costs of improvements.

3. Describe your firm's experience on projects that improve O&M issues such as the replacement of water meters with AMR or wi-fi technology and identifying and correcting inflow and infiltration problems with the sanitary sewer collection system.

4. Describe how your firm typically evaluates the value of existing equipment to be used versus replacement of existing equipment. Describe your firm's expertise with regard to life cycle cost analysis of new and existing equipment.

5. Describe how your firm will ensure orientation and training of City personnel will be addressed with regard to new equipment, instrumentation and controls.

E. Fiscal Management and Analysis of Energy Projects - 20 points

1. Provide a brief description of how your firm will prepare accurate and detailed opinions of probable construction and equipment costs with inflation factors included to address anticipated increases in these costs.

2. Provide detailed information regarding how previous projects have been administered during construction with minimal change orders to the contract due to errors or omissions in the contract documents.

3. Describe your firm's ability to identify and assist the City with low interest loans, grants, and other available funding opportunities (e.g. Energy Efficiency and Conservation Block Grant (EECBG) and Alternative Energy Grants).

4. Describe your firm's ability to prepare and present total financial analysis of this project including future operations and maintenance, utility costs, personnel requirements, etc. Financial analysis capabilities should include the ability to calculate the Return On Investment (ROI) if applicable.

INTERVIEWS

The City reserves the right to conduct face-to-face interviews with any, all or none of the responding firms. In the event the City selection committee deems interviews necessary to select the best firm, the City will establish a meeting at a mutually acceptable time. The City
selection committee will meet with key members of the firm’s proposed project team. It shall be
the selection committee's sole decision on whether any interviews are held and with which firms'
interviews are held.

**Submission**
Interested firms shall provide five (5) complete submittals no later than 4:30 p.m. **on August 29, 2007**, to the City Engineer at the following address:

City of Marietta
Engineering Department
304 Putnam Street
Marietta, Ohio 45750

**Public Advertisement**
This RFQ shall be publicly advertised on the following dates

July 4, 2007

__________________________________________
Joseph R. Tucker, P.E.
City Engineer
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