Northwest Power and Conservation Council

August 30, 2012

MEMORANDUM

TO: Council Members

FROM: Charlie Grist

SUBJECT: Energy Efficiency Industry Briefing on Conservation Implementation

The Council's 6th Northwest Power Plan set a goal for region to acquire 1,200 average megawatts of energy efficiency during 2010-2014. Reaching this overall target requires efforts by utilities, BPA, ETO and NEEA. Local, state and federal governments set minimum efficiency standards, offer programs and do research.

In addition, a host of other entities do extensive work on the implementation front. Planners, marketers, financiers, and managers design and operate efficiency initiatives. Product designers, manufacturers, distributors and retailers join forces to get efficient products on store shelves and into service. It also takes the combined efforts of engineers, architects, installers and service providers to get efficiency measures installed in buildings and facilities. Success hinges on strong relationships between these companies and the purchasers, owners and operators of all the gear that uses electricity.

At the meeting in Astoria, we will take a look at one important part of how energy efficiency actually gets implemented in the field. This will happen through a briefing by three companies that develop and deliver energy efficiency services. Executives from each company will describe the products and services they offer to customers, the manner in which they provide energy solutions, and a real-world example of their work.

The presenters will be Marcus Wilcox, President of Cascade Energy, Tom Konicke, Business Unit Lead for McKinstry Company and Phil Welker, Executive Director at PECI. They are eager to have a dialogue with the Council and address any questions.

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These companies focus on customers in the commercial, institutional, and industrial sectors, including end users across all four states in the region. Each company is well established in the region and combined these three employ a workforce of over 2,000.

A short self-description provided by each company follows.

Marcus Wilcox, President – Cascade Energy

Cascade Energy, Inc. specializes in optimizing the energy performance of industrial systems. We work with industrial refrigeration, compressed air, chilled water, steam, oil and gas, process equipment, fans and pumps, hydraulics, and lighting.

Since 1993, we have helped clients in many industries—from food processing and distribution to wood and metal products to oil and gas—optimize their refrigeration, compressed-air, fan-and-pump, hydraulic, and chilled-water systems.

At Cascade, energy management is more than a single product or service. Instead it's a combination of strategies that when properly combined produce energy cost savings that are measurable, reliable and sustained.

Tom Konicke, Business Unit Leader – McKinstry Company

McKinstry Company is the leading design/build construction, engineering and facilities management firm in the Northwest. We also offer building solutions that include commissioning, mechanical and electrical services, and energy services. Specifically, our energy services offerings include strategic energy planning, energy retrofits, and performance contracting for private and public clients. We are pre-approved by the State of Washington to provide performance-contracting services to all municipal agencies, as well as all community and technical colleges. We are also a qualified K12 energy auditing firm in Oregon.

Phil Welker, Executive Director – PECI

Change is challenging, and though changes in energy use will happen, we want to accelerate the pace. We think the industry will benefit by shifting the focus from measures to customers. PECI's approach is to concentrate on the people who make, sell, buy, install and use energy efficiency technologies. By developing long-term relationships with these stakeholders, and the entities that regulate and advocate for energy efficiency, we assist our utility clients in finding deeper energy savings and persistence.

Also at the presentation will be Stan Price, Executive Director of the Northwest Energy Efficiency Council (NEEC). NEEC is an industry association that represents companies in the region that provide energy efficient products and services to customers in the residential, commercial, industrial and agricultural sectors. NEEC was formed in 1995 to help grow market opportunities for the industry and to represent their interests in policy and program decisions that affect the energy efficiency marketplace.

Cascade**Energy**

Energy Efficiency in the Industrial Sector

By Marcus Wilcox, CEO, PE

Introduction to Cascade Energy

1. Primary offices in Oregon, Utah, and Washington
   - Staff of ≈85 (incl. ≈55 Engineers)
2. Specialized in industrial energy efficiency
   - By sector
   - By process
   - By sub-system or equipment
3. Design, management or support of utility conservation programs
   - Program Partner for BPA Energy Smart Industrial Program
   - Program Delivery Contractor for ETO Production Efficiency Program
   - PacifiCorp, PSE, Idaho Power, etc.
4. Corporate energy management services
   - Sysco's 100+ food distribution centers (largest in world)
   - Americold's 160+ public refrigerated warehouses (largest in world)

Cascade Energy

Some Stats on U.S. Manufacturing

- U.S. manufacturing is largest in the world, at 21%
- Manufacturing accounts for nearly 12% of U.S. GDP
- U.S. manufacturing would be the 9th largest economy in the world
- Manufacturing directly employs 9% of the U.S. workforce

Source: http://www.nam.org/Statistics-And-Data/Facts-About-Manufacturing/Landing.aspx

Pacific Northwest Industries

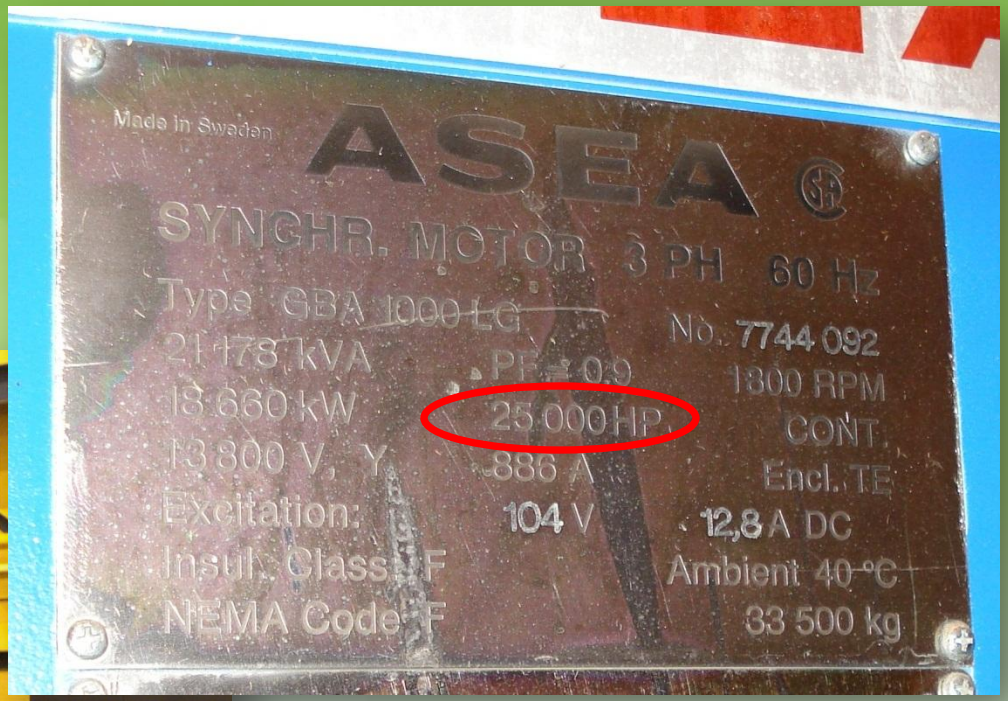
- Pulp & Paper
- Food Processing
- Refrigerated Warehouses / Fruit Storage
- High-Tech
- General Manufacturing
- Chemical
- Primary Metals & Value-Added

Characteristics of Industrial

- Can be VERY large equipment or systems
- Long operating hours
- Highly interactive & complex systems
- Many systems are custom or one-off
- Operating strategies and staff may be specialized
- Institutional or "tribal" knowledge is commonly involved
- Safety, environmental & production always trump energy efficiency

Cascade Energy

Refiners



A 25,000 hp Motor
Draws 20 MW

Energy Use Equal
to 17,500 Homes

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Refrigeration Systems

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Pumping Systems

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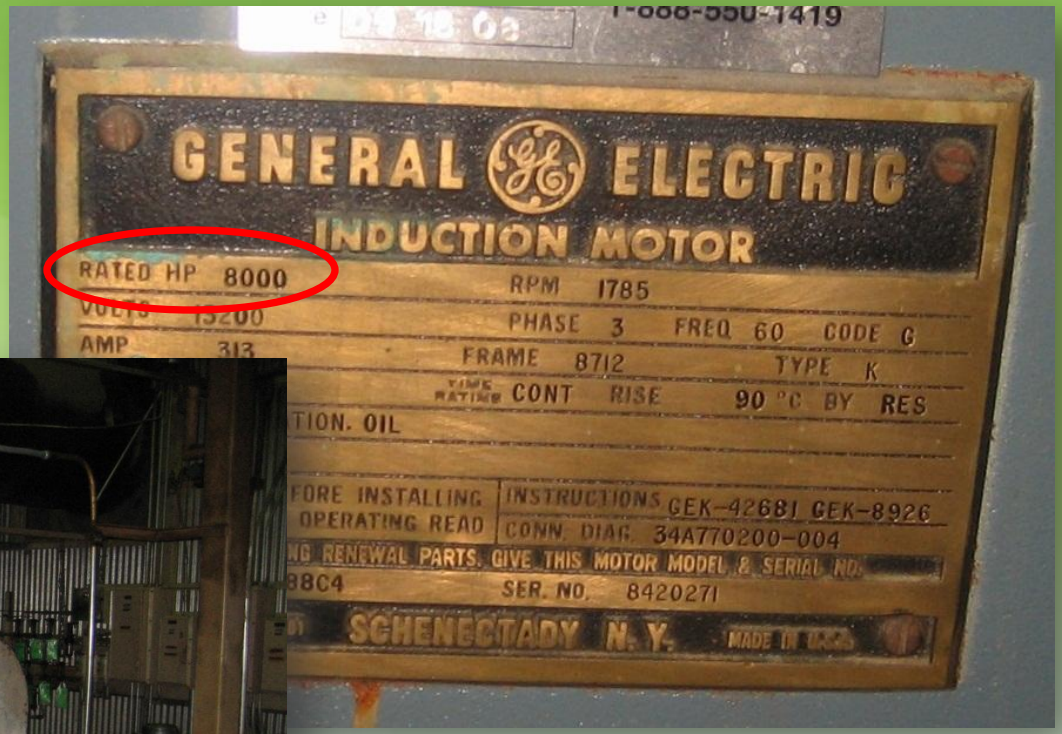
Process Compressors



A 8,000 hp Motor
Draws 6 MW

Energy Use Equal to
5,000 Homes

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Water Treatment

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Compressed Air

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Electric Resistance

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Common Industrial Efficiency Projects

- Fundamental Process Improvement
- System Configuration Upgrades
- More Efficient Equipment
- VFDs & Control Upgrades
- Energy Management
  - Energy Project Managers (aka, RCMs)
  - O&M Opportunities
  - Strategic/Continuous Energy Management
  - Technical Coaching/Training

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Characteristics of Industrial

- Energy is taken seriously in industry
- Accuracy and performance are mandatory
- Highly technical
- Relationship-driven
  - Often requiring years to establish
  - Requires "boots on the ground"
- Time sensitive
  - Budgeting cycles, plant down time
- Mostly custom assessment
  - Prescriptive is limited
- "Lumpy" delivery of savings

Examples of Savings

- DSM Program - BPA's Energy Smart Industrial (ESI) program delivered 42+ aMW of savings in FY2010 & FY2011 biennium.
  - Relative to a base load of ~2,200 aMW
- Corporate - Sysco's companywide energy intensity (kWh/ft^3) has been reduced by 35%+ over 6 years.
  - Equal to nearly 2 years of free energy use

Questions or Discussion?

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Cascade Energy