2012-2013
OMEP, OSU, PPRC
OMEP – Material and Labor

OSU – Energy Efficiency Center

PPRC – Supplemental P2
Good Environmental Practices (Already in Place)

- Heat exchanger
- Spent grain to feed
- Reuse pallets (not landfilled)
- Attempting to recycle stretch wrap
- Good housekeeping
- Restaurant grease recycle
- Enclosed room for boiler
Good Environmental Practices (Already in Place)

• Salvaged material
OMEP Projects: Labor & Material Focus
Canning and Keg Washing
Mark Biederback

Labor:

• Significant reduction in transfer of the product from process to cans and out the door
  - lifting, carrying, climbing ladders
  - picking up and tossing defect cans
• Keg cleaner functioning again

Material:
• Number of cans dropped before filled (~8’ high palletized raw cans federal into feed chute)
• Enhanced some of the filling machine mechanics to decrease can and beer loss as a result of filling/canning.
OMEP Projects: Water Canning and Keg Washing
Mark Biederback

Water conservation targeted but not resolved in can washing operation

Can flush water used inside then be used to clean the outside of the can?
OSU Energy Efficiency Center

Three Primary Analyses/Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Estimated payback (with local/state incentives)</th>
<th>Potential Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting Retrofit</td>
<td>3.9 years</td>
<td>21,700 kwh</td>
</tr>
<tr>
<td>Insulate steam pipes</td>
<td>0.4 years</td>
<td>276 MMBtu/yr</td>
</tr>
<tr>
<td>Expansion Analysis (lighting)</td>
<td>0.2 years</td>
<td>~11,000 kwh (compared to installation of incandescents)</td>
</tr>
</tbody>
</table>

Wort Vapor Capture
Water Heater (On-Demand)
Heat Bridging (Warehouse metal I beams)
Canning Line Water Use
Refrigeration Controls
PPRC Walk-Through and Sampling of Recommendations

- Promote OMEP and OSU Recommendations
- Find outlets for ‘energy waste sources’ (Hop liquor and yeast)
PPRC Walk-Through

Work on increased recycling (tough in Astoria...)
PPRC Walk-Through and Sampling of Recommendations

- Keg collars
- Further minimize air flow from cold storage, with better curtains, seals, etc.
- Compressed air leak test
- Keg cleaning – standardize, NO HOT WATER for exterior, water reuse
- Dry/waterless cleaning techniques to extent possible
- Infrared camera assessment to identified
IR Assessment
Hot Tank (Doors)

Cold Beer
Compression Tank & Adjacent

Note – temperature pointer/reading not at hottest point on tank
Cold storage
Cold storage
Pub kitchen
Cold storage/refrigeration
Steam / Condensate Lines – Throughout Facility
Steam / Condensate Line
Insulation Options:
Mineral Wool or Calcium Silica

Mineral wool pipe insulation from [IIG-LLC](#). They recommend a metal wrap around the outside of this product.

Mineral wool pipe insulation from [Isover](#).

Calcium silicate insulation [Calsil](#).

See article comparing features / costs, of two different materials: [Megha Insulations](#).
Pub tank door & steam? lines
Warehouse

Door closed (purple area (beam on left side, 65 dF next to hand image) maybe not insulated well?

Note air leaks at bottom of door. Did not measure temperature at the ‘draft’ area.
Warehouse - Door
Warehouse – Showing Areas of Lower Spray Insulation Efficacy