



Baxter

BioPharma
Solutions

Bloomington's Lean Energy Journey

Baxter's Bloomington, Indiana Facility



Courthouse Square



Baxter's BioPharma Solutions (BPS)
Facility in Bloomington, Indiana



Indiana University Campus

Site Overview and History

- **Plant Manager:** Susan Easton
- **Date Site Opened:** 1991
- **6th Largest Employer** in the region
- **Footprint:** 600,000 ft² total facility space with 35,220 ft² of Clean Room/Classified space
- **Employees:** 617
 - 279 Direct Labor
 - 338 Indirect Labor
- **Key Products:** ~40 Clients representing >60 products (vaccines, cancer, MS, diabetes, Ebola)
- **Equipment:** 3 filling buildings (2 vial lines, 3 syringe lines, 1 cartridge line), 1 offsite packaging complex, 2 offsite warehouses
- **Manufacturing Technologies:** Aseptic Processing, Product Serialization, Lyo Center of Excellence, High Speed Automated Inspection
- **Manufacturing Shift Structure:** 24/7 as needed, 52 weeks



Bloomington

Indiana



Proudly Manufacturing Product
for the Top Pharmaceutical
Companies in the World

Baxter Sustainability & Lean Energy

Sustainability & Lean Energy.

- At Baxter, our mission of saving and sustaining lives is accompanied by a commitment to responsible operations
- As part of corporate responsibility, minimizing impact to environment & sustainability have been key aspects of company's growth strategy
- Baxter has set 2020 Corporate Responsibility Goals in line with its strategy

OPERATIONS

Reduce environmental footprint through increased efficiency and resource conservation

- Reduce total energy and water use and total waste generation by 15% indexed to revenue
- Reduce absolute GHG emissions by 10%
- Pursue zero waste-to-landfill by achieving a landfill diversion rate of 95% or higher at all manufacturing locations

- Lean energy program has been rolled out to sites to help achieve these goals
- Bloomington site being one of the largest users of utilities – energy and water & large quantity generator of waste, has implemented lean energy with site goal to reduce utility usage and waste generation by 3% year over year

Lean Energy Projects Completed

Installation of Boiler Control Systems to prevent short cycling

Energy savings of 1,600 MMBTU's and cost savings of \$9,780 annually
- Building D

Turn off production machines during non productive schedules

Energy savings of 16,800 kWh and cost savings of \$1,237 annually
- Building G

Insulation of exposed valves, pipes and tanks

Energy savings of 700 MMBTU's and cost savings of \$4,300 annually
- Buildings A, C D

Installation of high EER Air Handling Units in Building B.

Energy savings of 23,255 kWh and cost savings of \$1,000 annually
- Building B

Addition of ductwork to Boiler intake to reuse warmer air in Boiler room

Energy savings of 1,186 MMBTU's and cost savings of \$7,260 annually
- Building A

Installation and commissioning of Voltage Optimizers

Energy savings of 6,762 kGal and cost savings of \$65,520 annually
- Building C Phase II

Turn off compressor and dryer when not in use

Energy savings of 168,000 kWh and cost savings of \$12,369 annually
- Building C Phase III

Lean Energy Projects Completed

Installation of VFDs for Cooling Towers and Chilled Water Pumps.

Energy savings of 437,725 kWh and cost savings of \$18,882 annually - Building C

Installation of New Water Softener Skid

Combined Electricity and Water savings of \$20,970 annually. - Building C

Shutdown of EC71 in Building G.

Energy savings of 113,825 kWh and cost savings of \$8,537 annually - Building G

Reduce backwashing frequency on Water Softener Skids

Annual Savings of \$4,195. - Building A, C, and D

Installation of 600 Ton Oil Free Liquid Cooled Chiller

Energy savings of 547,500 kWh and cost savings of \$41,062 annually - Building C

Shutdown of Physical Servers and migrate to Virtual Servers.

Energy savings of 94,608 kWh and cost savings of \$7,096 annually - Building D

Installation of Data Loggers to monitor Secondary Utilities

To determine efficiencies which will drive future Lean Energy projects - Buildings A, C and D

Shutdown unused equipment in Building G Cafeteria.

Energy savings of 328,947 kWh and cost savings of \$24,671 annually - Building G

Lean Energy Projects in progress and under consideration

Projects in progress

Building G, Building Management System Upgrade

Energy savings of 122,774 kWh and cost savings of \$9,208 annually
- Building G

Recover reject water from RO Skid

Estimated annual savings of \$13,000.
- Building C Phase II

Projects under consideration

WFI Start and Stop levels.

Energy savings to be evaluated.
- Building A,C and D

Upgrade existing T8 lamps to LEDs.

Installation cost \$275,000.
Savings of \$93,541 annually.

Building A Chiller Upgrade.

To be evaluated

Replace Faucet adaptors with 0.35 GPM adaptors.

Annual Savings of \$3309.96. Cost for heating savings to be calculated.

Lean Energy Projects in progress and under consideration

Building C free cooling in the winter season

Energy saving of 520,000 kWh
Estimated annual savings of \$37,013 (Winter 2017)

Convert Building C Chilled Water System from 3-way valves to 2-way valves.

Energy saving of 806,000 kWh
Estimated annual savings of \$63,978 (Summer 2018)

Thank you

Questions?