

**Session I3
Building an Energy Efficiency Program at
Small & Medium Sized Manufacturing
Companies
Allergan's Experience Building an Energy
Efficiency Program
September 26, 2013
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GETTING STARTED

- Environmental Health and Safety Policy
- Energy Policy
- Requirements
- Capital Committee Membership
- Begin Demand Side Analysis
 - Understanding Where Energy is Consumed
 - Monitoring and measuring
- Begin Supply Side Analysis
- Goal setting
- Training
- Communication
- Energy Conservation Promotion, Recognition and Reporting

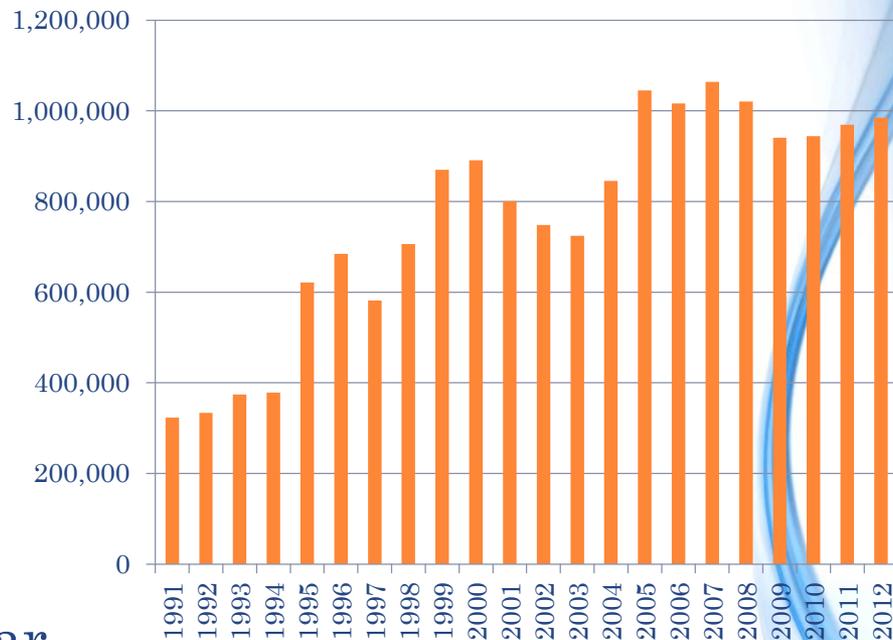
THE NEXT FIFTEEN YEARS

- Multi-year Strategic and Tactical Planning
- HVAC Systems - Effectiveness
- HVAC needs researched
- Air Handling Systems – Effectiveness
- Compressed Air Systems – Evaluated
- Lighting System Technology Evaluations and Upgrades
- Preventive Maintenance Systems Installed and Upgraded
- New Construction Energy Evaluations

THE NEXT FIFTEEN YEARS – CONSUMPTION AND COST TRENDS

○ Total Energy Consumption Trend

- Not all facilities included pre-1996
- Building area (m²) grew two times since 2001
- Production grew three times since 1991
- 2010 previous 5-year plan resulted in a reduction of 10%



THE NEXT FIFTEEN YEARS – CONSUMPTION AND COST TRENDS

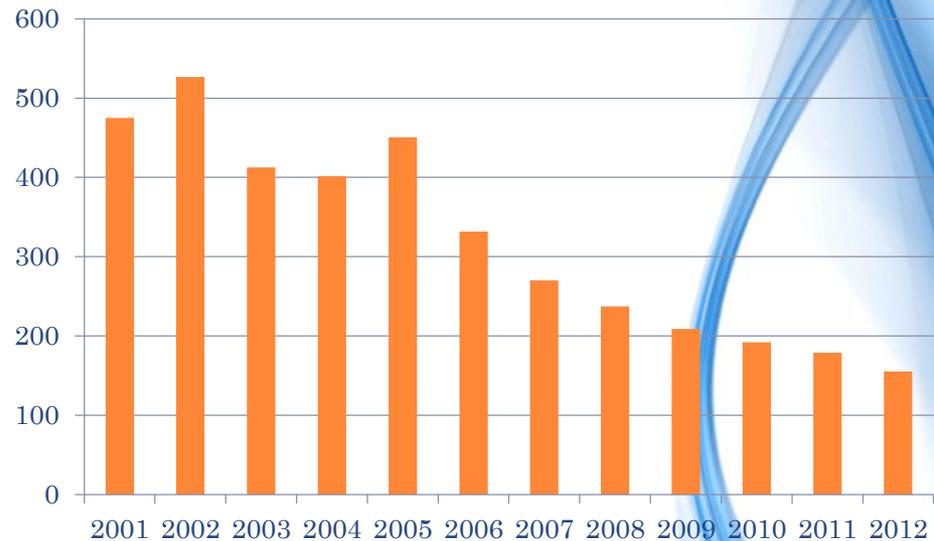
○ Total Energy (GJ)/Area (m²) Consumption Trend

- Efficiency improved by 36%
- 2003 - 5 divested AMO plants (3)
- 2006 – 12 added Inamed, Groupe Corneal, Serica, MAPP (8 plants)



THE NEXT FIFTEEN YEARS – CONSUMPTION AND COST TRENDS

- Total Energy (GJ)/Sales (\$M) Consumption Trend
 - Efficiency improved by 67%
 - Total energy cost savings ~ \$15M
 - Cost savings ~ 1 year of total Allergan energy costs



CURRENT STATUS

- Maintaining Existing Systems
- Beginning Real-Time Monitoring of Clean Room Spaces
- Challenging Clean Room Status Quo – Recalibrating to Actual Measurements and Use
- Use of L6S Tools such as Gemba Walks, Tracking and Reporting, Kaizen Events, Daily Five-Minute Meetings
- Benchmarking sites and other businesses
- Employee Engagement, Training and Communication
- Staying in Front of New Construction

VISION OF THE FUTURE

- Manufacturing
- Energy Consumption and Cost Projections
- GHG Impacts
- Supply Chain Management and Expectations
- Customer Expectations
- Technology Shifts

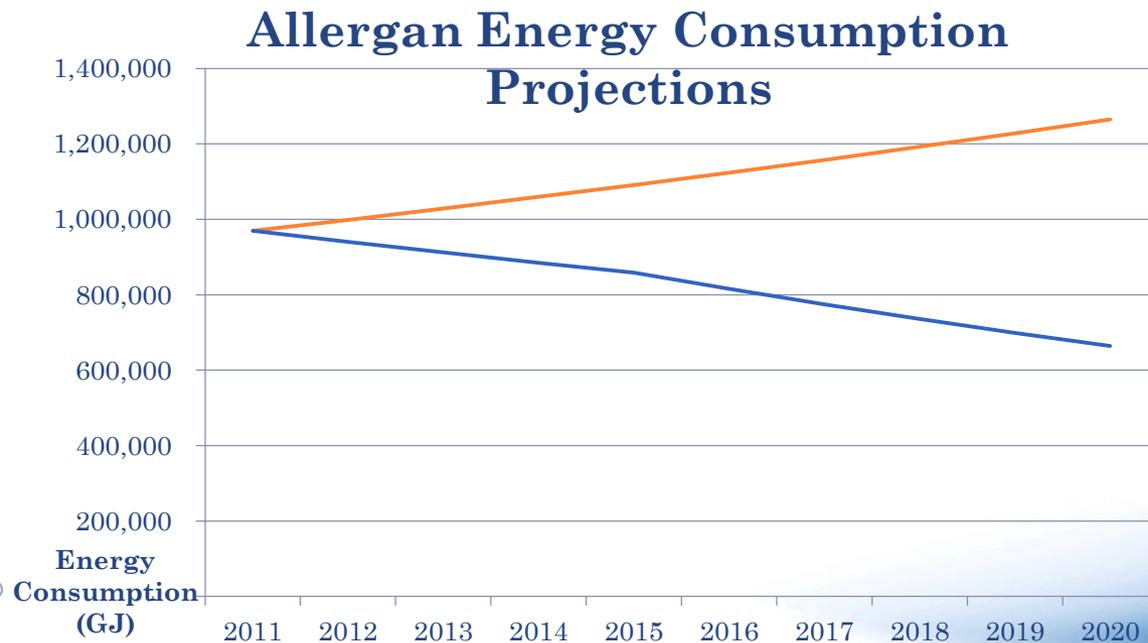
MANUFACTURING

- Product options changing
 - Current Mix – UD, MD, Vials, Tubes and Implants
 - Projected Mix – Injectables, Rx Implantables + current
- More time release implantables expected
- Targeted dosing vs. systemic
- Increasing use of RABS and Isolator systems
- Compounding and filling operation opportunities for HVAC energy reductions – smaller footprint
- Potential for HVAC demand to be tied to real-time particle and bioburden measurements
- Continued improvement in equipment and system energy efficiency

ENERGY COST PROJECTIONS

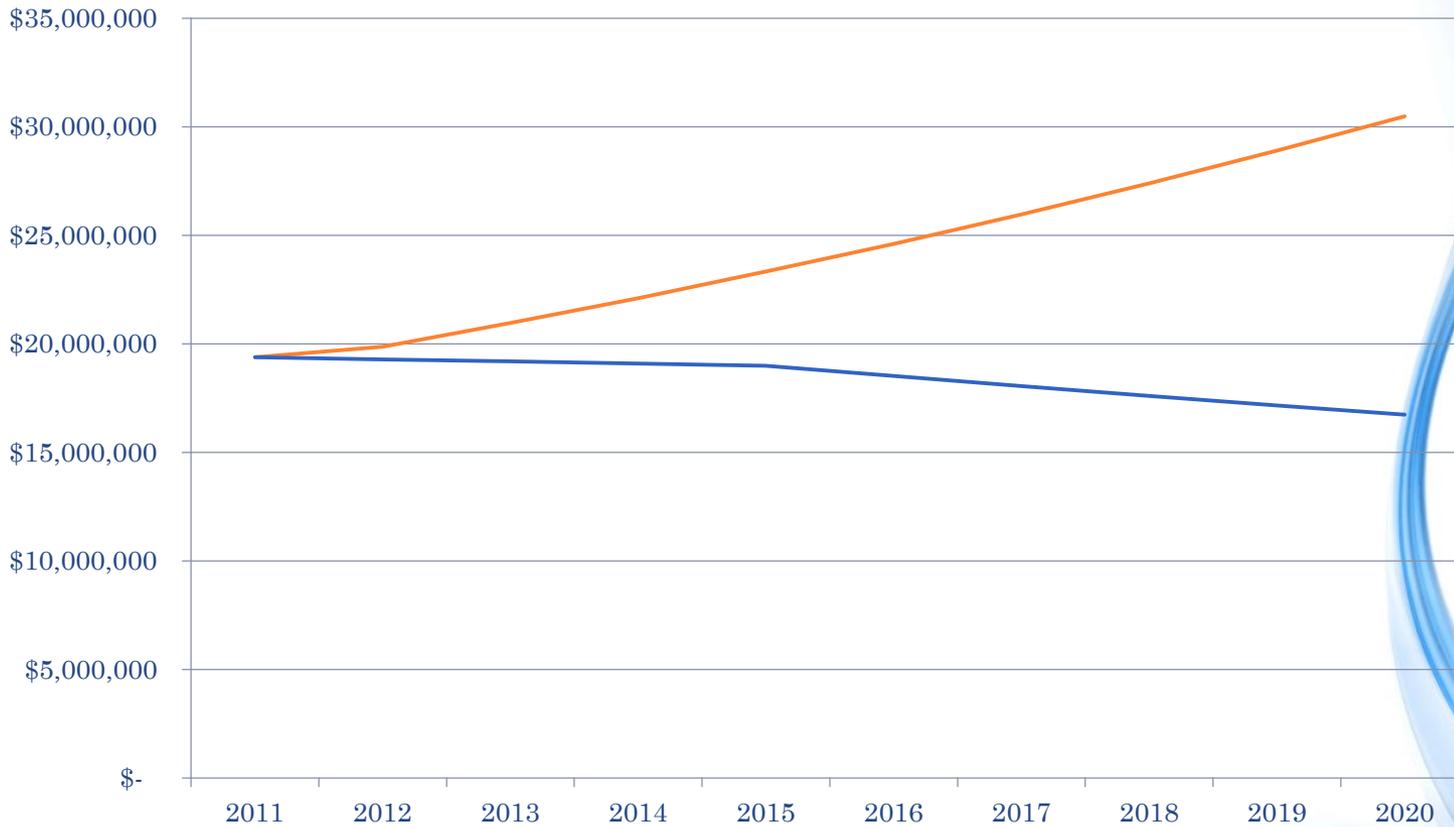
○ Growth & Inflation Projections

- Assume Allergan Energy reduction plans reduce energy consumption @ 5% per year
- Assume inflation @ 2.5% per year
- Does not include M&A or divestitures



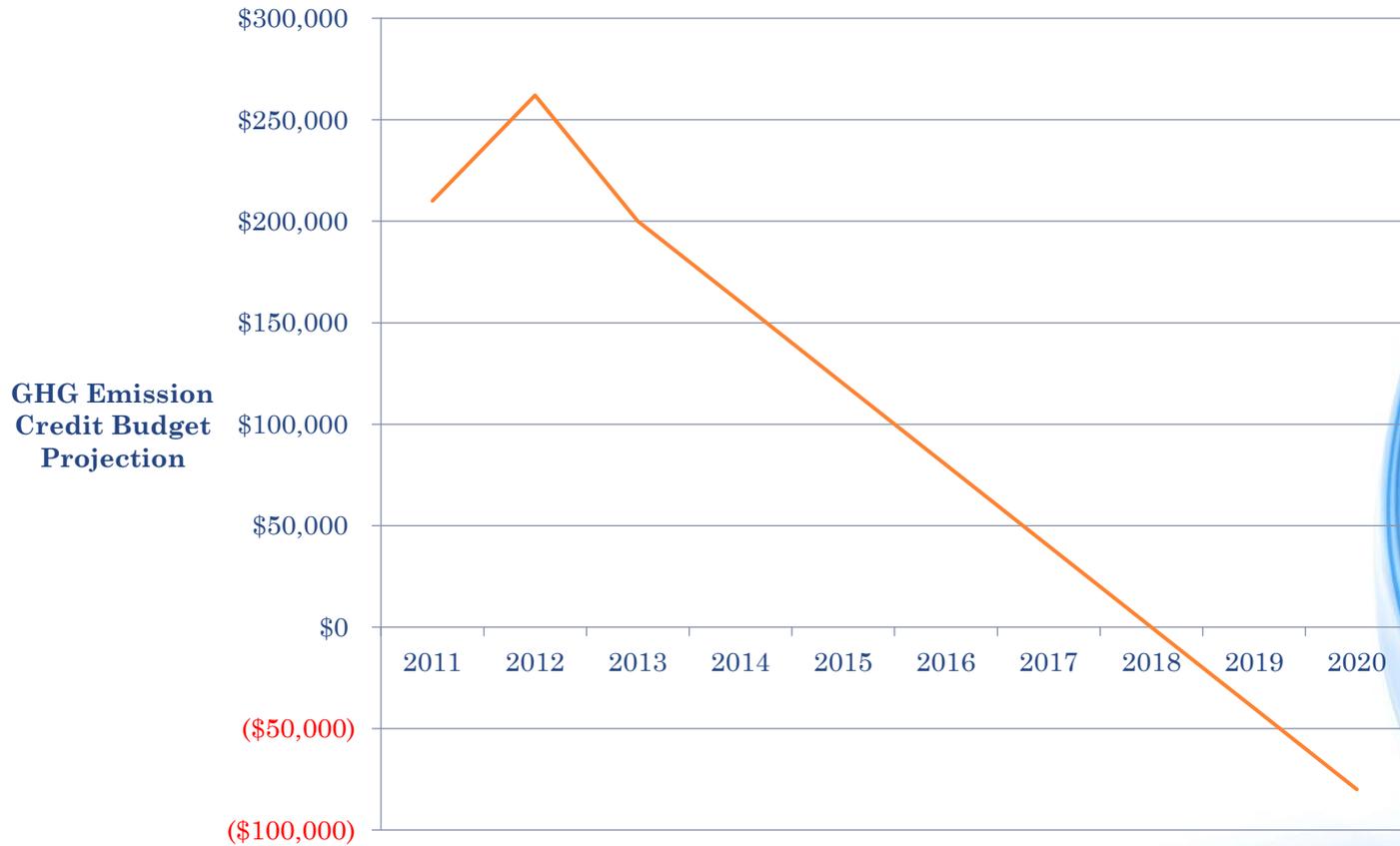
ENERGY COST PROJECTIONS

Allergan Energy Cost Projections



GHG COST PROJECTIONS

Allergan GHG Emission Credit Projection



SUPPLY CHAIN MANAGEMENT AND EXPECTATIONS

- Carbon footprint label – possible but difficult to do and have meaning
- Life cycle impact assessments for products – product energy profiles
- Ingredient and packaging evaluation and choices
- Product transportation evaluation – energy, GHG
- Reporting
 - NGOs – CDP, GRI, Media, Customers
 - Investors – Stock Exchanges, SEC, DJSI, FTSE4Good, Maplecroft, > 100 systems asking for data
 - Governments – National and local legislation and regulation

CUSTOMER EXPECTATIONS

- Starting to want to know:
 - Do you have a sustainability program?
 - Is it third-party verified?
 - How much energy consumed in final product?
 - What are the GHG emissions associated with each product unit?
 - What are you doing to reduce these impacts?
- Purpose:
 - Meet internal goals
 - Improve reputation
 - Satisfy stakeholders and other interested parties
 - Use to manage supplier selection
 - Various leverages with the supply chain

TECHNOLOGY SHIFTS

○ Product

- Targeted disease and organ focus
- Sustained release implants
- Genetic, recombinant and antibody focus
- More potent compounds
- Smaller dosages
- Manufacturing more highly contained and connected

○ Energy and GHG Impact

- Manufacturing area size reduction
- Potential reduced air flow requirements
- Potential reduced packaging and related systems
- Potential for reduced transportation energy

CONCLUSION

- Energy management has become a strategic management objective over the past 22 years and will continue to be in the future
- Competitive edge is significant for Allergan even with energy costs only at 1% of operating costs
- Allergan is starting to influence its supply chain
- Tools, guidance, and recognition through Energy Star has made this process much easier for Allergan to promote, develop and maintain