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# **Using Service and Product Providers to Leverage Your Energy Efforts**

***Prenova/Owens Corning Energy Process Optimization***

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## Who is Owens Corning?

- **World leader in building materials systems and composites systems**
- **\$5 billion in sales in 2003**
- **70+ Manufacturing Facilities**
- **Proactive approach to managing energy costs**



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## Who is Prenova?

- **Expertise in Energy Process Management Solutions**
- **Independent broker for energy supply/demand ideas**
- **\$1.6 billion in energy spend - 35,000 locations**
- **Collaborative approach to energy management**
- **Customers**
  - ✓ **pay less for energy**
  - ✓ **use less energy**
  - ✓ **risk less as they manage future energy strategies**



# Owens Corning - Prenova

## Relationship Overview

Since 2002, Prenova provides an energy management solution to Owens Corning's North American facilities for:

- Energy Supply Management
- Energy Price Risk Management
- Energy Process Optimization
- Bill Payment and Data Management
- Utility Due Diligence
- Remote Monitoring, Scheduling, Alarming and Trending



# Owens Corning – Prenova

## Energy Process Optimization Overview

- **11 Insulation and Composite Glass plants**
- **Total energy spend of over \$50 million per year**
- **Optimization phase: 4 - 7 months per plant**
- **No process area off limits for energy savings investigation**



# What is Energy Process Optimization?

- A methodology that realizes energy savings by leveraging existing assets and implementing processes and procedures that create sustainable results
- Benefits are:
  - ✓ Improves Return on Net Assets (RONA)
  - ✓ Establishes and propagates best practices
  - ✓ Offers low barrier to implementation
  - ✓ Requires little capital
  - ✓ Provides process for continuous improvement
  - ✓ Reduces maintenance and raw material costs



# Energy Process Optimization Principles

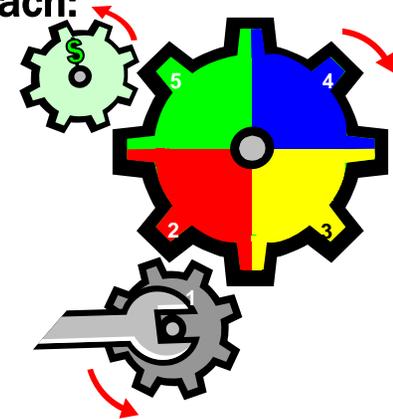
- **Process focused approach**
  - ✓ Pareto analysis of energy usage
  - ✓ Statistical process control methodology
  - ✓ Cross functional team involvement
- **Data driven decision making**
- **No cost or low cost to implement**
  - ✓ Operations and maintenance opportunities
  - ✓ Capital opportunities identified - not essential to success
- **Provide resources focused on energy reduction**
- **Ensure sustainable savings/continuous optimization**



# Energy Process Optimization Process

- **Phase One - Energy process optimization using a five step approach:**

-  **Culture Change**
  - Education and increased energy awareness
  - Processes and procedures developed and implemented
-  **Assess the facility**
  - Pareto analysis of energy use by process area
  - Material and energy balancing
-  **Define the process**
  - Regression analysis
  - Measurement and verification systems defined
  - Define the infrastructure to support sustainability and continuous improvement
-  **Understand and manage process variation**
  - SPC techniques
-  **Improve the process**
  - Savings opportunities identified, quantified, and implemented
  - Web based reporting of opportunities
  - Project Management for the opportunity implementation effort



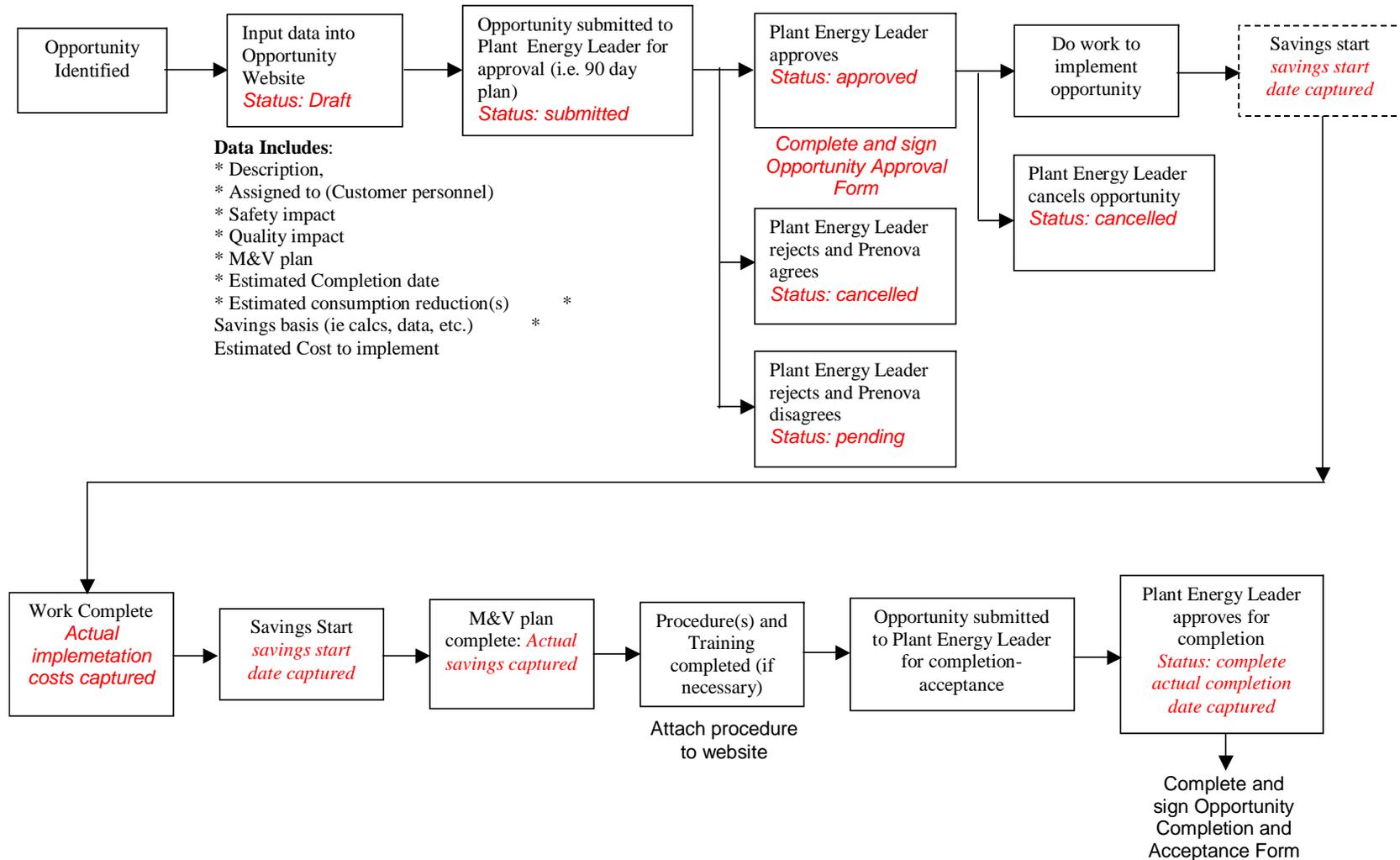
- **Phase Two – Sustainability and Continuous Improvement**

-  System in place to measure and monitor energy process performance
- Alarming and reporting
- Data analysis enables additional opportunities to be identified and implemented



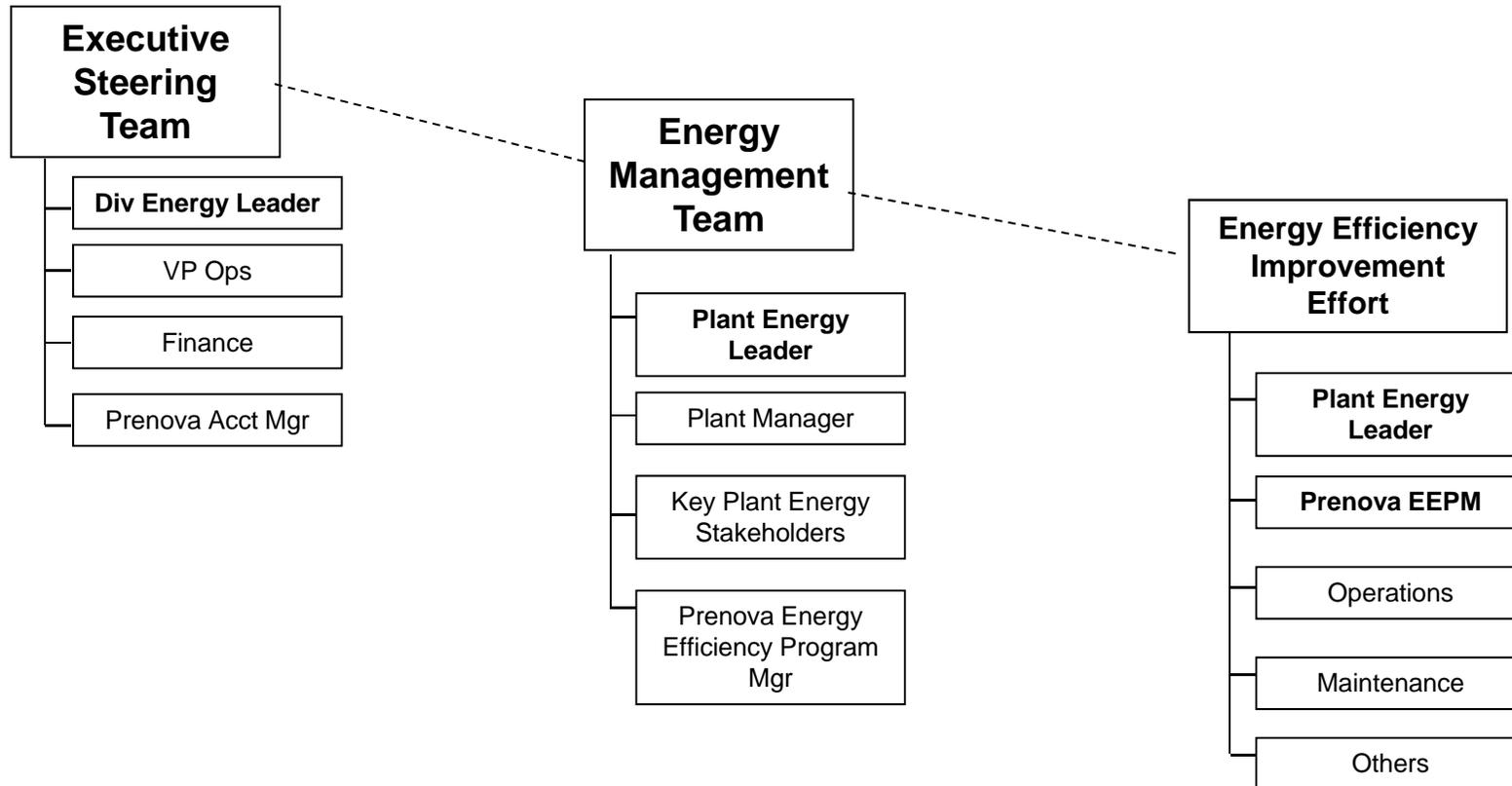


# Opportunity Identification, Approval and Acceptance Process





# Energy Process Optimization Organization





# Sustainability

## Performance Monitoring and Management System

- **Implemented at 6 plants**
- **Implementation in progress at remaining 5 plants**
- **Enhanced visibility to energy performance by plant and process area**
  - ✓ **Web reporting**
  - ✓ **Alarming**
- **Desired Results**
  - ✓ **Drive sustainability of energy savings**
  - ✓ **Platform for continuous improvement**
- **Demo: PMMS and PreVUE**

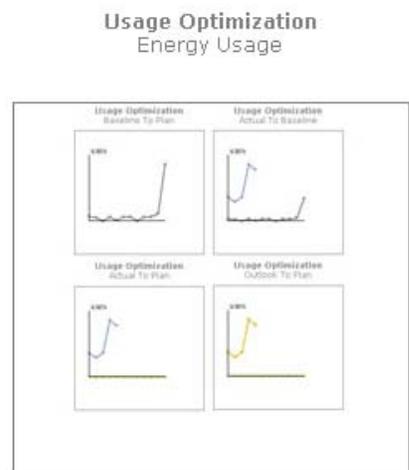
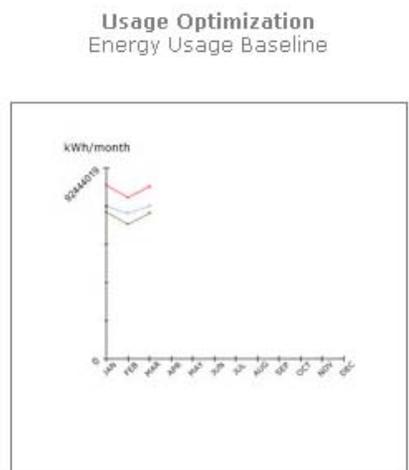


User: Owens Corning User1

Level: Corporate

Company: Owens Corning

- Financial
- Financial
- Usage Optimization
- Price Optimization
- Key Perf. Indicators
- Utility Management
- Asset Performance
- Service Performance
- Business Assurance
- Assumptions
- Business Operations
- Weather
- Energy Contracts
- Benchmarks
- Benchmarks



#### Calendar

< October 2004 >

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Day  
 Month  
 Year  
 Custom (mm/yyyy)

Start Date:

End Date:

#### Level

Corporate  
 Division:   
 Plant:   
 Process Line:   
 Process Area:

#### Type

Electricity  
 Gas  
 Compressed Air  
 Total Energy

#### Units

Usage  
 Usage/UOP



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## Results Achieved

- **Energy Savings**
  - ✓ 7% average reduction in annual energy spend
  - ✓ 71,000,000 kWh
  - ✓ 476,500 MMBtu
- **Costs**
  - ✓ Average cost per plant was \$120,000 after rebates
  - ✓ Rebate funding was \$775,000
- **Financial Return**
  - ✓ Less than 4 months average payback



## **Energy Process Optimization Additional Benefits**

- **Energy Efficiency Program Managers integrated into plant teams**
- **Synergy between supply and demand efforts**
- **Focus on energy use and reduction**
- **Awareness of energy usage/cost by process area**
- **Process and procedures to drive sustainable savings**
- **Best practices and common opportunities replicated**
- **“Engaged” other organizational teams in the effort**
- **Performance Measurement and Monitoring System**
- **Facilitates EPA Energy Star Partner of the year**



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## Contact Information

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