

# CORNING

The Business Council  
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Environment Conference

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**GEM**

Global Energy  
Management

# Corning Incorporated

**Founded:**  
1851

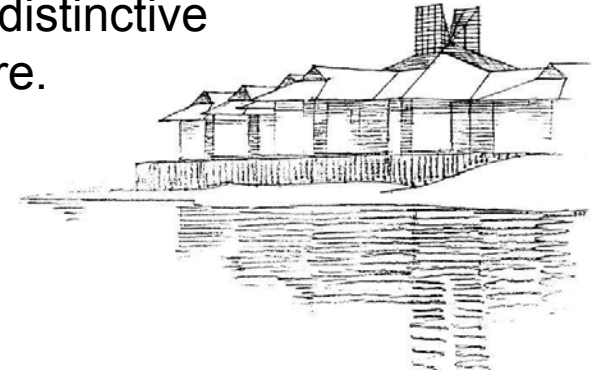
**Headquarters:**  
Corning, New York

**Employees:**  
Approximately 23,600 worldwide

**2008 Sales:**  
\$5.9 Billion

**Fortune 500 Rank (2009):**  
414

- Corning is the world leader in specialty glass and ceramics.
- We create and make keystone components that enable high-technology systems for consumer electronics, mobile emissions control, telecommunications and life sciences.
- We succeed through sustained investment in R&D, more than 150 years of materials science and process engineering knowledge, and a distinctive collaborative culture.



# Corning Incorporated

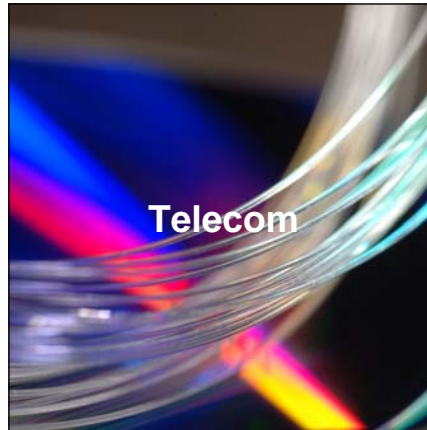
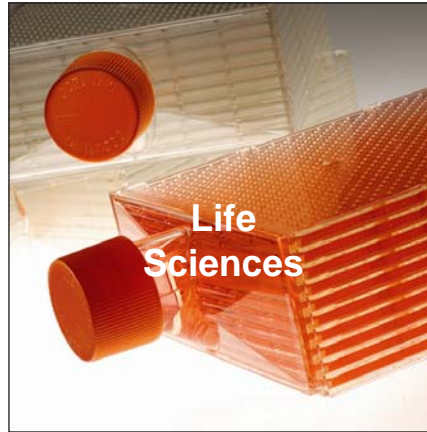
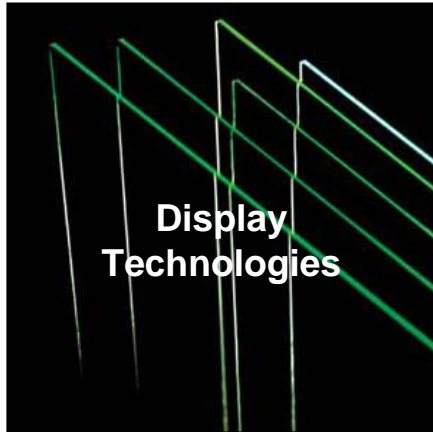
## Our New York “foot print”

- 18 facilities, including:
  - Manufacturing plants
  - Corporate HQ
  - R&D center
- In the following communities:
  - Big Flats
  - Canton
  - Corning
  - Erwin
  - Oneonta
  - Rochester/Fairport
- ~ 5,000 employees



# Corning's Businesses

We spend \$300 million annually on utilities



We are an energy-intensive organization!

# Why is Global Energy Management important?

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- Cost reductions
- Supply reliability
- Market leadership & competitive advantage
- Tightening regulations
- Good corporate citizenship

# Information Gathering

Voice of  
the  
Customer



DOE  
&  
EPA  
&  
NYSERDA



# Findings

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- Energy policy
- Global leader
- Senior sponsorship
- Active energy teams
- Reliable data
- Baseline data
- Corporate, division, and site goals
- Available capital
- Technical action plan
- Defined roles, resources, and responsibilities
- Long-term energy master plan
- Education and training programs
- Communications plan

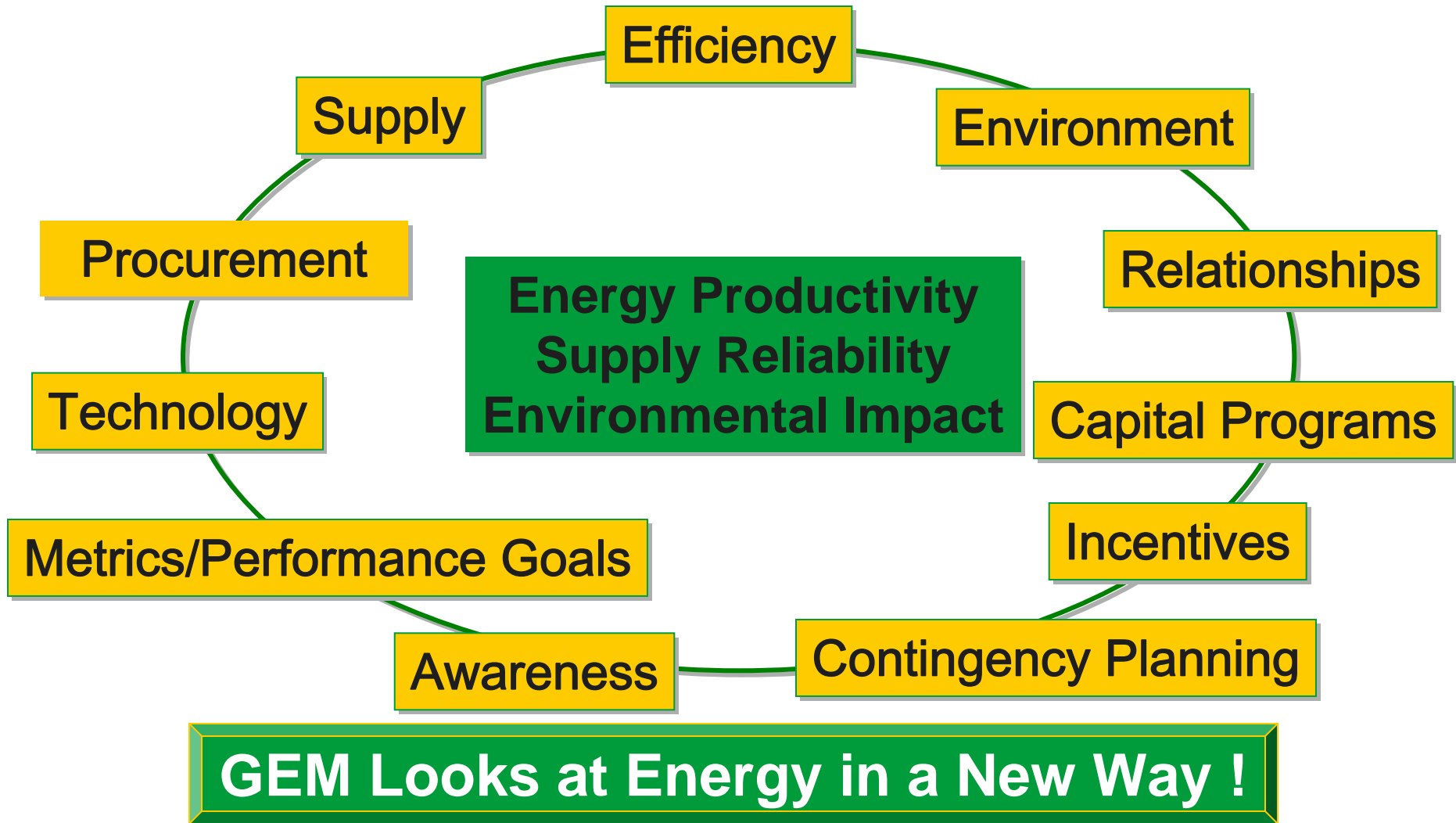
# Previous Considerations in Energy Management

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**Procurement**

**Energy Productivity  
Supply Reliability  
Environmental Impact**

# Considerations in Global Energy Management (**GEM**)



# GEM Objectives

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- To Strategically Manage Global Energy By:
  - Ensuring a **reliable** energy supply
  - **Reducing consumption** of energy using an integrated, multi-functional approach
  - Achieving a positive **return on investment**
  - Utilizing “**greener**” energy when possible
  - Maintaining more **efficient** and **productive buildings**
  - Improving energy **productivity**
  - Minimize **carbon risk**

# GEM Scope

## Commodities

- Natural Gas
  - Propane
  - Electricity
  - Fuel Oil
  - Aviation Fuel
- Combustible Gases
    - Oxygen
    - Nitrogen
    - Helium
  - Water
  - Waste Water

# Corning Incorporated Worldwide Energy Commitment

- **Mission Statement:**

Corning Incorporated will become world-class in the way it purchases and uses energy, resulting in lower unit costs, potentially lower greenhouse gas emissions, and a healthier environment.

- **Commitment to Energy Management:**

- Cost reduced, optimized returns for energy efficiency investments
- Minimized environmental impacts, conserved natural resources, and potentially lowered greenhouse gas emissions
- Corning is committed to maintaining a long-term view of energy

# Energy Management Guidelines

- **Continuously improve** energy productivity through effective energy management programs that support manufacturing capabilities while providing a healthy work environment.
- Encourage **ongoing energy conservation** by all employees.
- Implement plans to **protect operations** from energy supply interruptions.
- Secure adequate and **reliable energy** supplies at the most advantageous rates.
- Manage energy supplies to potentially **lower greenhouse gas** content.
- Incorporate **energy productivity** in new product design and development.
- Consider **energy efficiency** in the selection of all real estate, equipment, goods, and services.
- Drive further development and investment in **innovative energy technologies**.
- Engage governmental agencies and utility companies to utilize and develop effective energy productivity **incentives**.
- Support national and regional energy **policy and climate change** activities.

# GEM Team Roles and Responsibilities

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## Corporate Sponsors

- Visible support and oversight

## Global Energy Manager

- Overall Global Energy Management policy, process and funding

## Global Energy Operations Manager

- Rollout of GEM process to divisions and plants

## Division Energy Manager (DEM)

- Owns operating strategy for divisions

## Site Energy Manager (SEM) and Team

- Owns site operating strategy

## Corporate Team

- Supports corporate, division and site strategies

# Corning's Framework for Energy Productivity

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## Adopted from the California Loading Order and the European Union's "Trias Energetica"

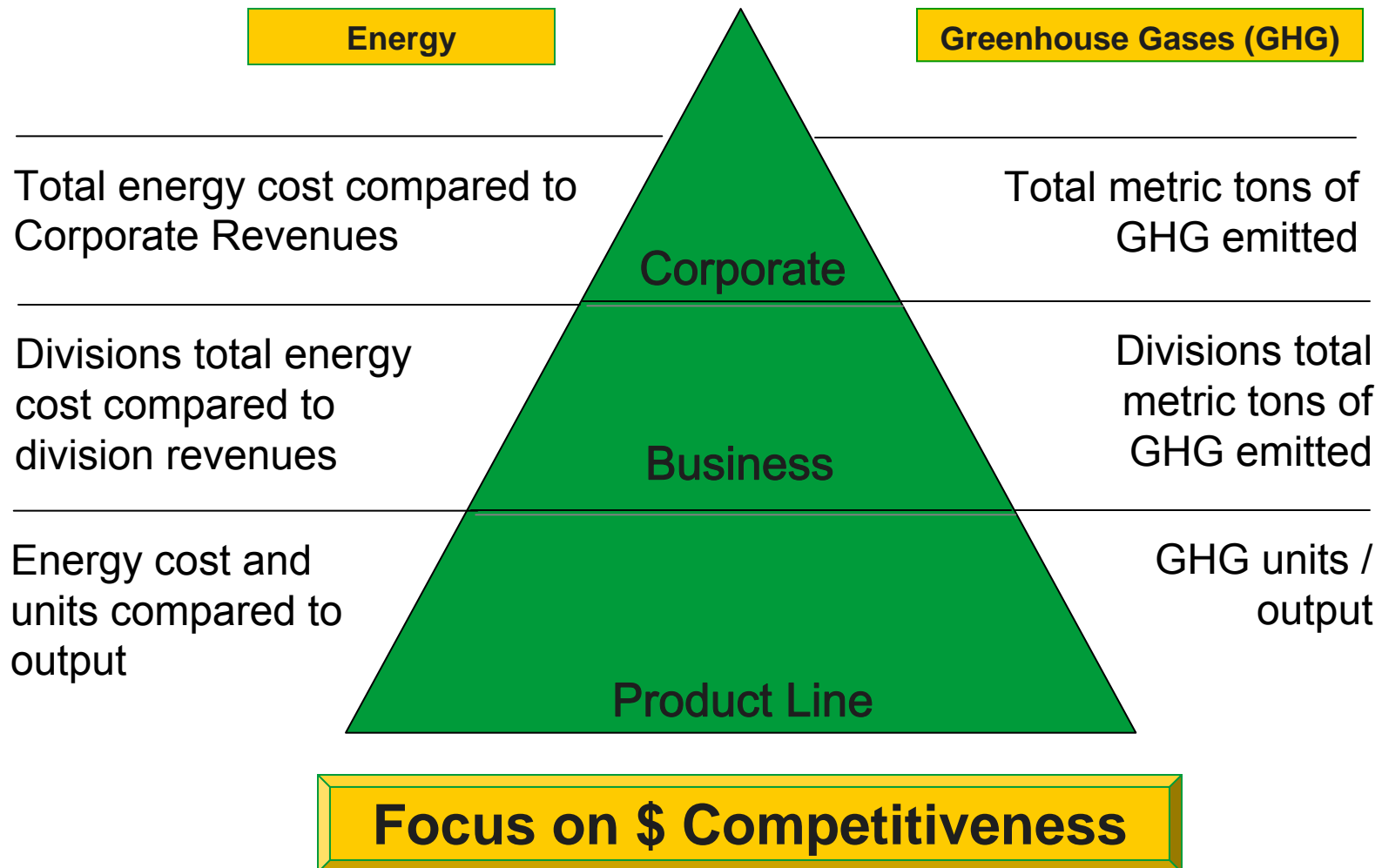
1. Maximize energy efficiency
2. Use as much economically viable renewable energy and combined heat and power (Cogeneration) as possible
3. Partner with utilities to maximize the use of existing electric and gas grids

# Corning's Framework for Effective Engagement in the Legislative Arena

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1. We're guided by our Values
2. We work hard to establish and maintain productive working relationships with governmental agencies, NGOs and local regulators
3. We know our subject matter and communicate pro-actively
4. We're here in good times – and in bad

# Measuring Results



# Accomplishments

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## *Corning Internal Projects*

- State incentives / NYSERDA
- Utilized commissioning
- U.S. Dept. of Energy audits
- Consulting agreement with Syracuse University and Center of Excellence in Environmental and Energy Systems
- Benchmarking ~~completed~~

# Accomplishments

## *Corning Cogeneration Project*

- A first for Corning
- All energy is re-used
- Natural gas generator creates electricity to power 8 buildings
- Heat recovery system provides heat and hot water
  - Supplies the buildings with 30% of their energy needs
  - Provided 85 - 90% of steam used to heat and de-humidify Rackow Library



# Accomplishments

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## *Industry Leadership*

- Awarded certification to the California Climate Registry
  - Protocols recognized by WRI/WBCSD
  - 2005 base line registered
  - 2006 data: 1,181,894 Metric tons CO<sub>2</sub>
  - 2007 data: 1,262,326 Metric tons CO<sub>2</sub>
- Energy Manager of the year Award, 2007, Association of Energy Engineers (AEE)
- Industrial Engineering Technology Conference (IETC) Award 2008

# Accomplishments

## *LEED Certification – Decker Building*

- Corning’s first LEED certification
- Good energy management practices:
  - Improved lighting
  - Better insulation
  - High-efficiency equipment
  - “Greener” carpet & cleaning products
  - Comprehensive recycling program
- Four more LEED projects underway



# The GEM Journey – Current Results

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- Established energy policy and standards
- Provided capital funds for 143 projects
  - 39 projects with NYSERDA
  - <1½ year average return on investment
- Reduced GHG by 96,000 metric tons
- Delivered \$65M in cost savings since 2006

CORNING