

Energy Sustainability



David Shenefield
Site Utility Manager
Fort Wayne Assembly



Energy Sustainability

We strive to reduce emissions & petroleum dependence by being more energy efficient

Our focus is on

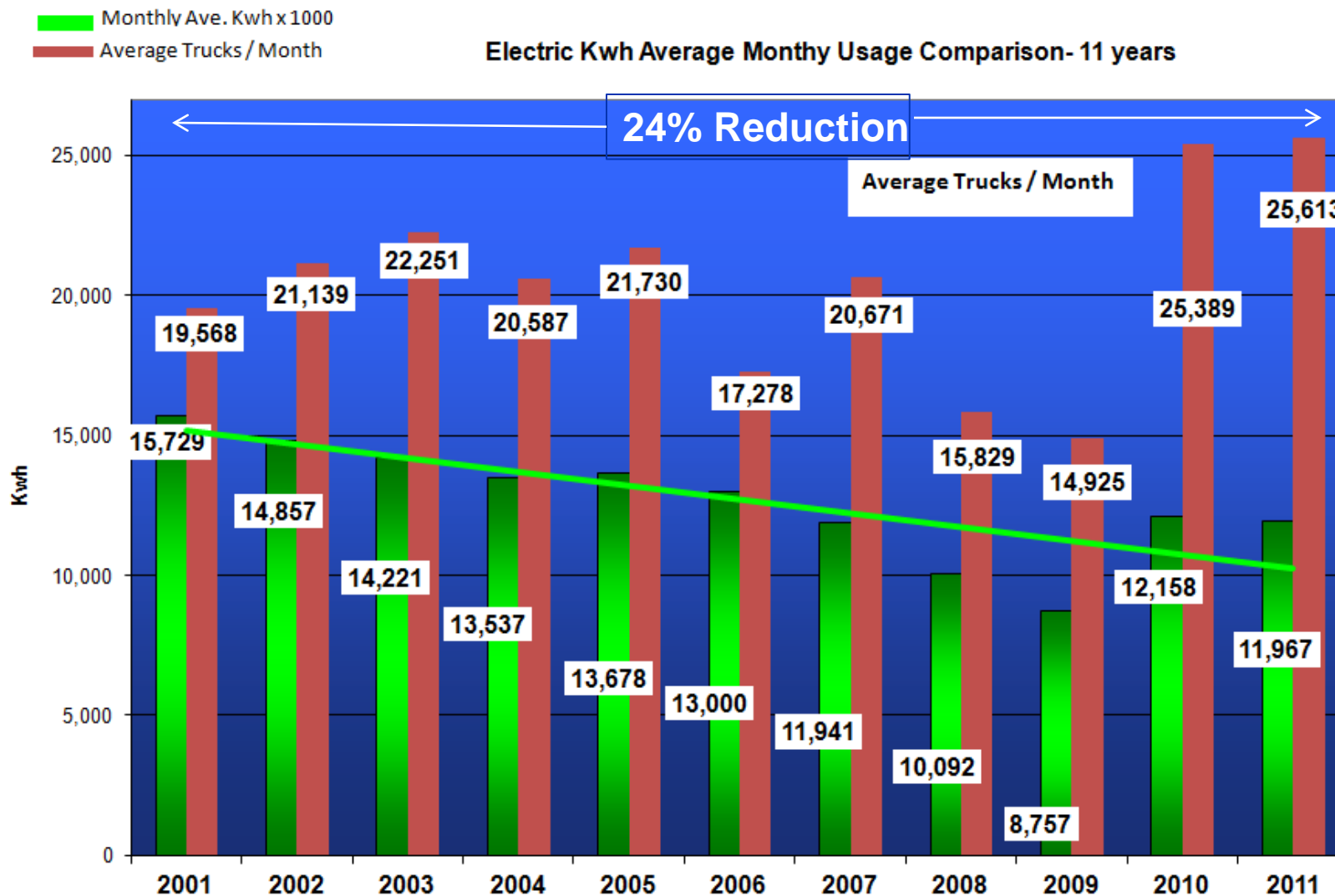
- Reducing Energy Use
- Renewable Energy
- Reducing Emissions

Reduced global manufacturing
energy demands **28%** in last 5 years

Enough to produce electricity for
377,805 homes



Electrical Reduction

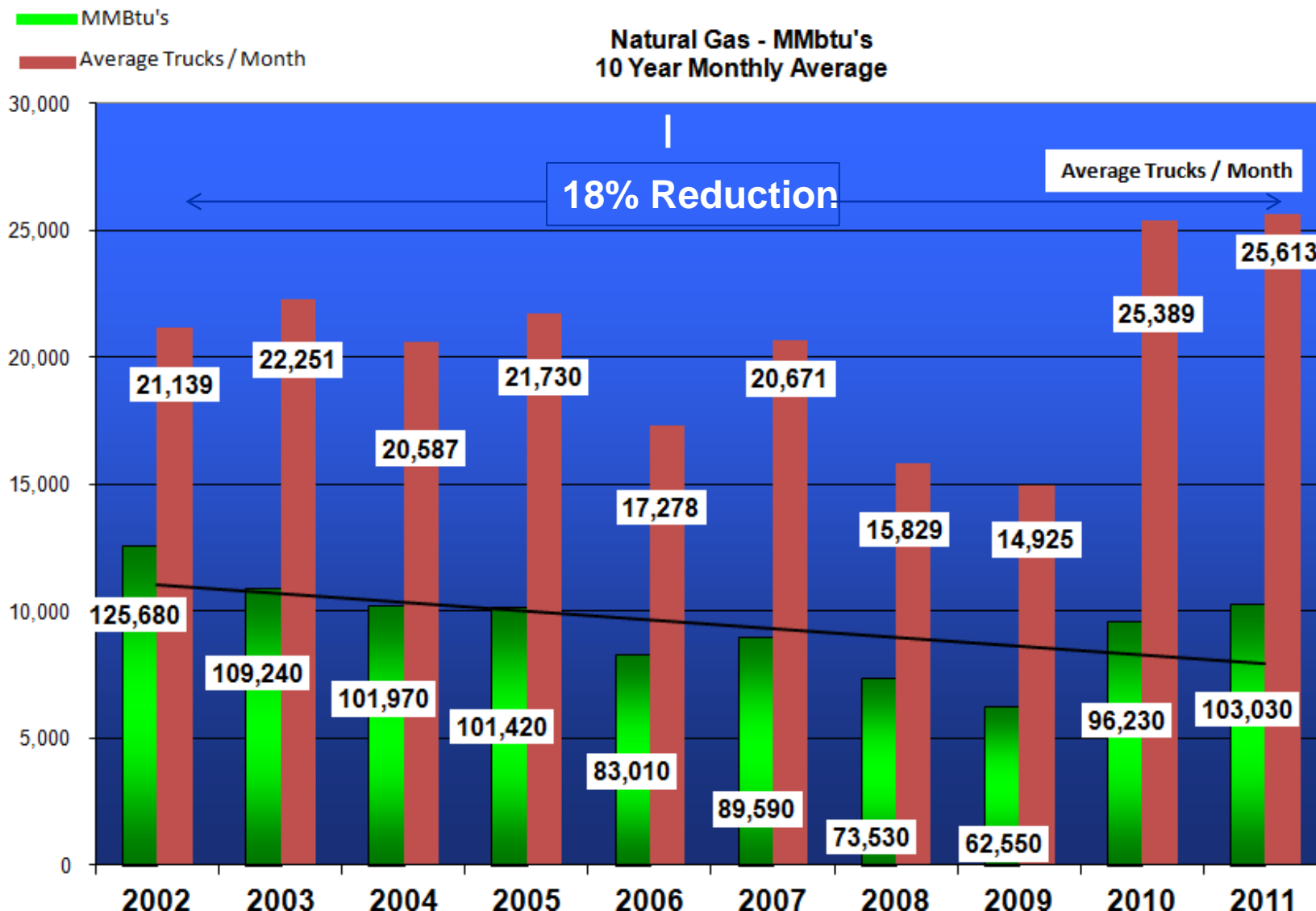


Reduced global manufacturing
energy demands **28%** in last 5 years

Reduction of Greenhouse Gas Emissions
3.34 Million Metric Tons



Natural Gas Performance



EPA Energy Star Partner of the Year

Energy Star Partner of the Year for
energy efficiency and GHG emissions
reductions



30 GM plants met EPA's Challenge for Industry,
cutting energy intensity by an average of 25% at
plants in North America over 3 years

- Equivalent to emissions from
powering 97,000 homes
- Avoided \$50M in energy costs



Emissions Reduction

Reduced CO2 emissions of worldwide facilities **28%** in last 5 years



**60% reduction
since 1990**

- Drive energy conservation
- Implement energy efficiency improvement projects
- Implement cost effective fuel switching (to lower carbon fuel)
- Implement cost effective renewable energy supply



LEED Certification...More Evidence

All of these efforts in green building design and operation are paying off... and the world is taking notice.

- **Our Lansing Delta Township Assembly Plant - 1st auto manufacturing facility in the world and the largest facility at that time to receive LEED Certification – Gold (2006)**
- **Our GM International Operations and GM China Headquarters building – Gold (2010)**
- **Currently pursuing LEED certification for 9 other sites around the world, including our Milford facility and our new Warren Data Center**

Renewable Energy

We believe in harnessing the power of renewable and alternative energy and we're one of the leading users in the manufacturing sector.

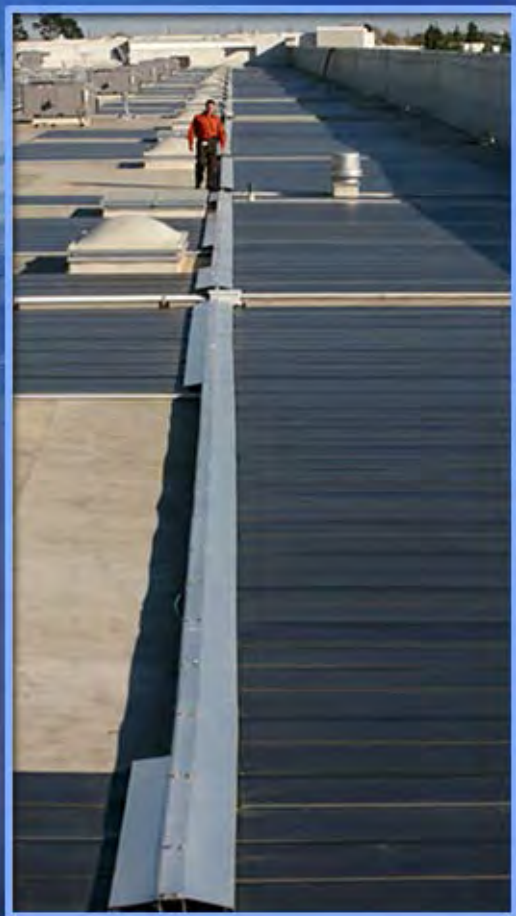
We derive energy for manufacturing from solar, hydro and landfill gas resources

Solar Power – Zaragoza, Spain

The world's largest industrial rooftop solar installation



Solar Installations



Zaragosa, Spain: 12 Mw of power

Russelsheim, Germany: 11 Mw

Fontana, California: 910 Kw

Rancho Cucamonga, California: 1 Mw

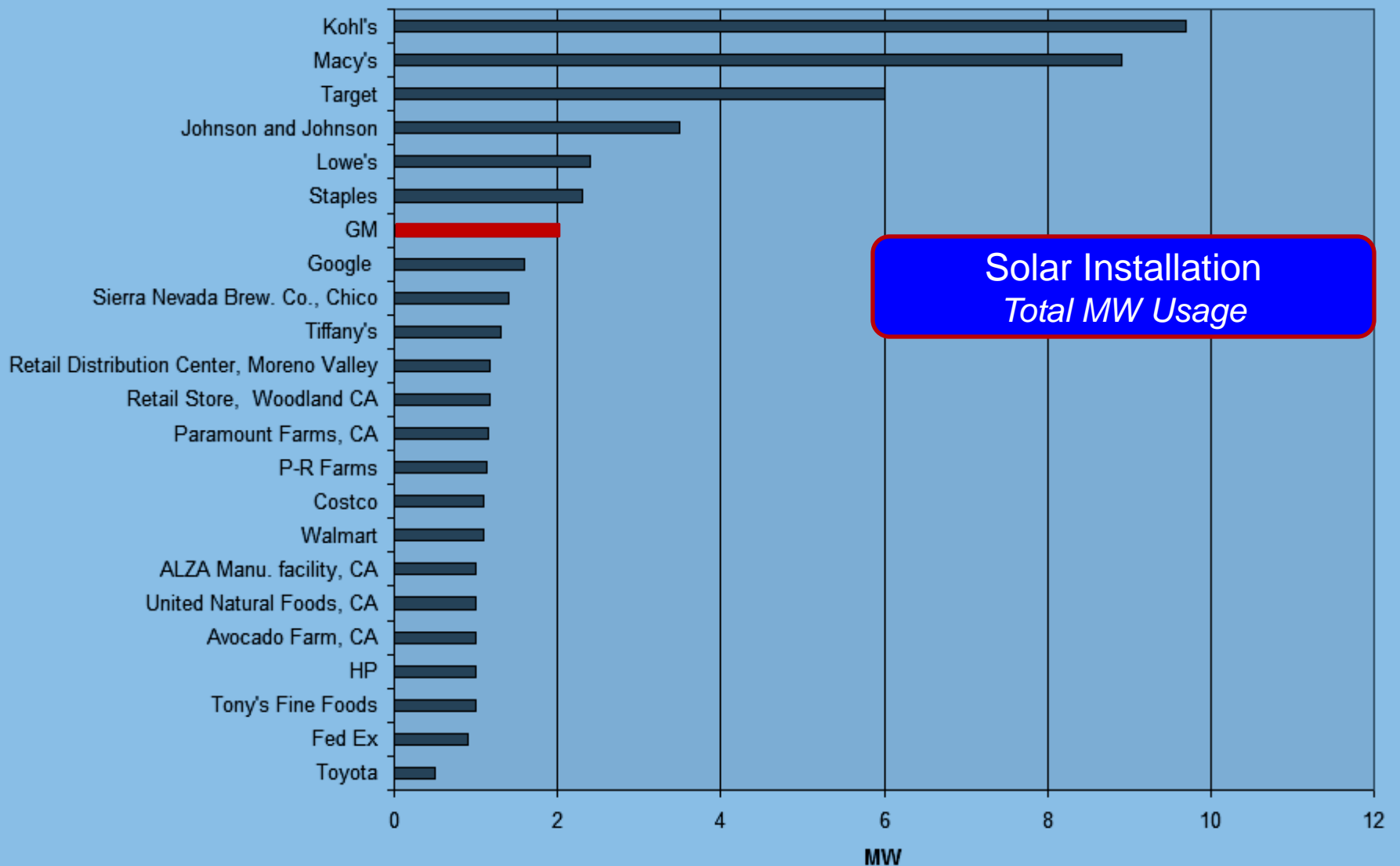
Baltimore, Maryland: 1.23 Mw

Detroit Hamtramck, Michigan: 516 Kw

Kaiserslautern, Germany: 1.97 Mw & 797 Kw

**Commitment to double
solar capacity by 2015**

Current Ranking "Top Corporate Users of Solar"

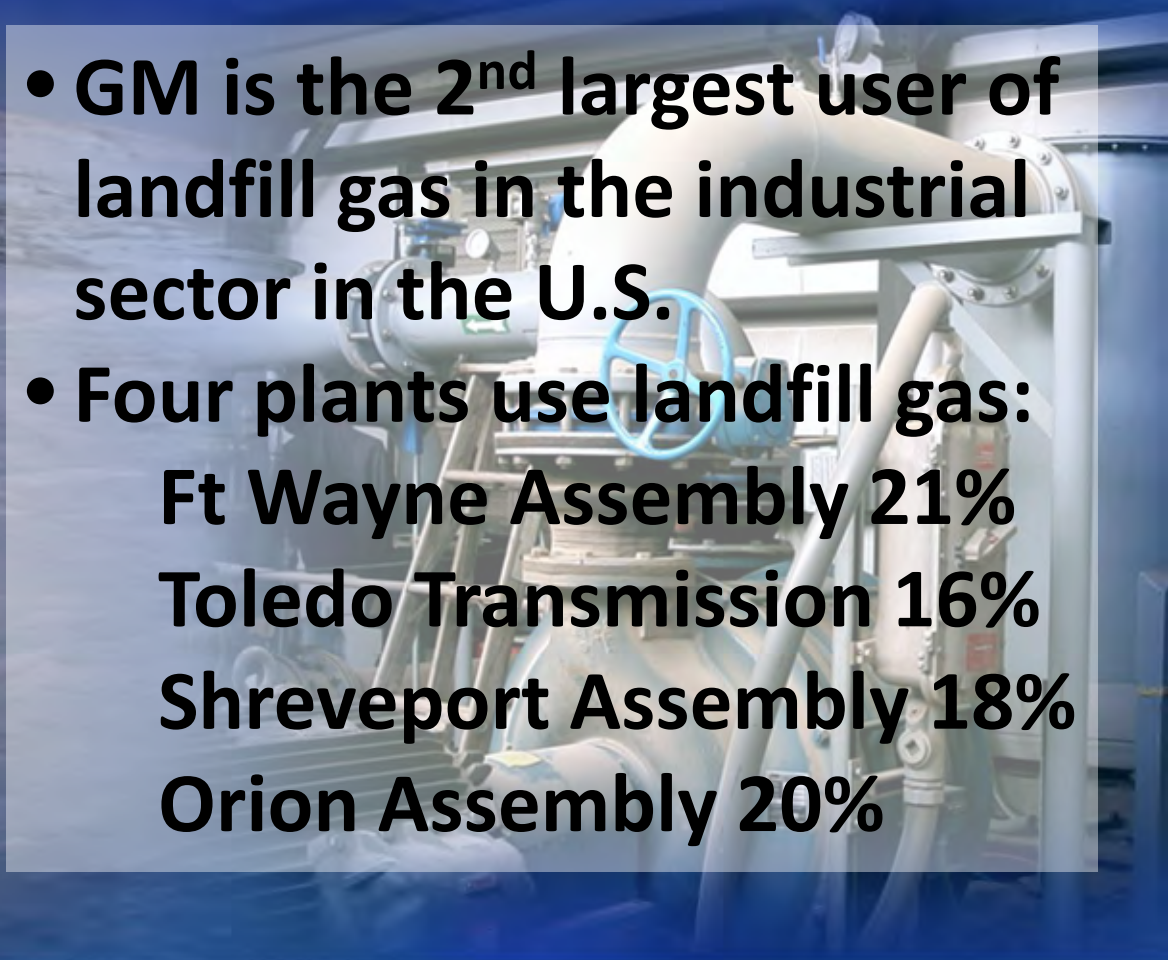




Landfill Gas



- GM is the 2nd largest user of landfill gas in the industrial sector in the U.S.
- Four plants use landfill gas:
 - Ft Wayne Assembly 21%
 - Toledo Transmission 16%
 - Shreveport Assembly 18%
 - Orion Assembly 20%



Renewable Energy and Landfill Gas

- General Motors is the leading automotive manufacturer in the use of Landfill Gas
 - We use it to make steam!
 - We use it to pump water!
 - We use it to heat this plant!
 - We use it to air condition this plant!
 - This plant has saved over 10.2 million dollars by using LFG since 2002.
 - ★ Currently this plant is working with Landfill to double the amount of LFG to this site.

NOTICE
No Smoking

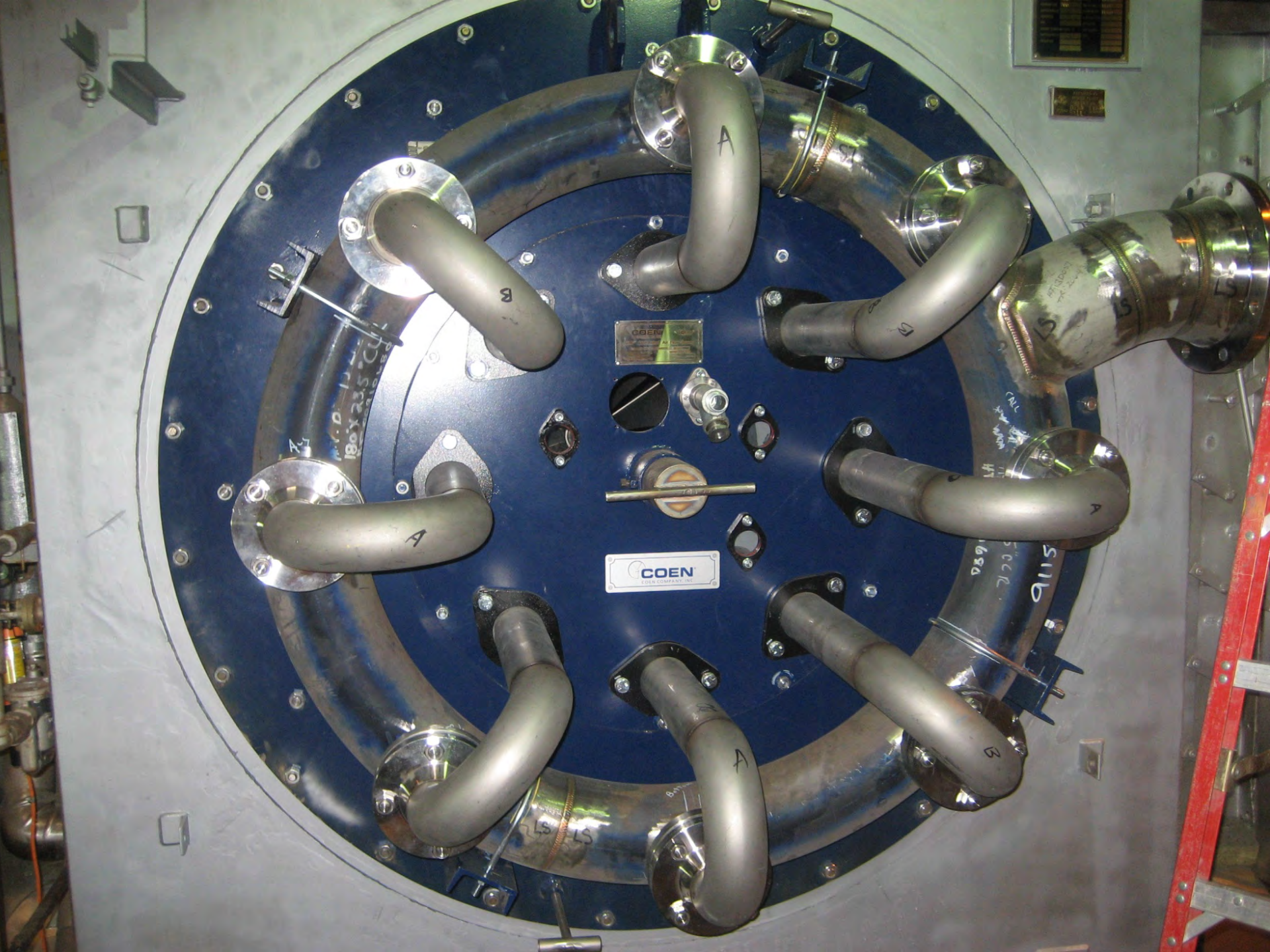




DANGER

Safety valve

No Work



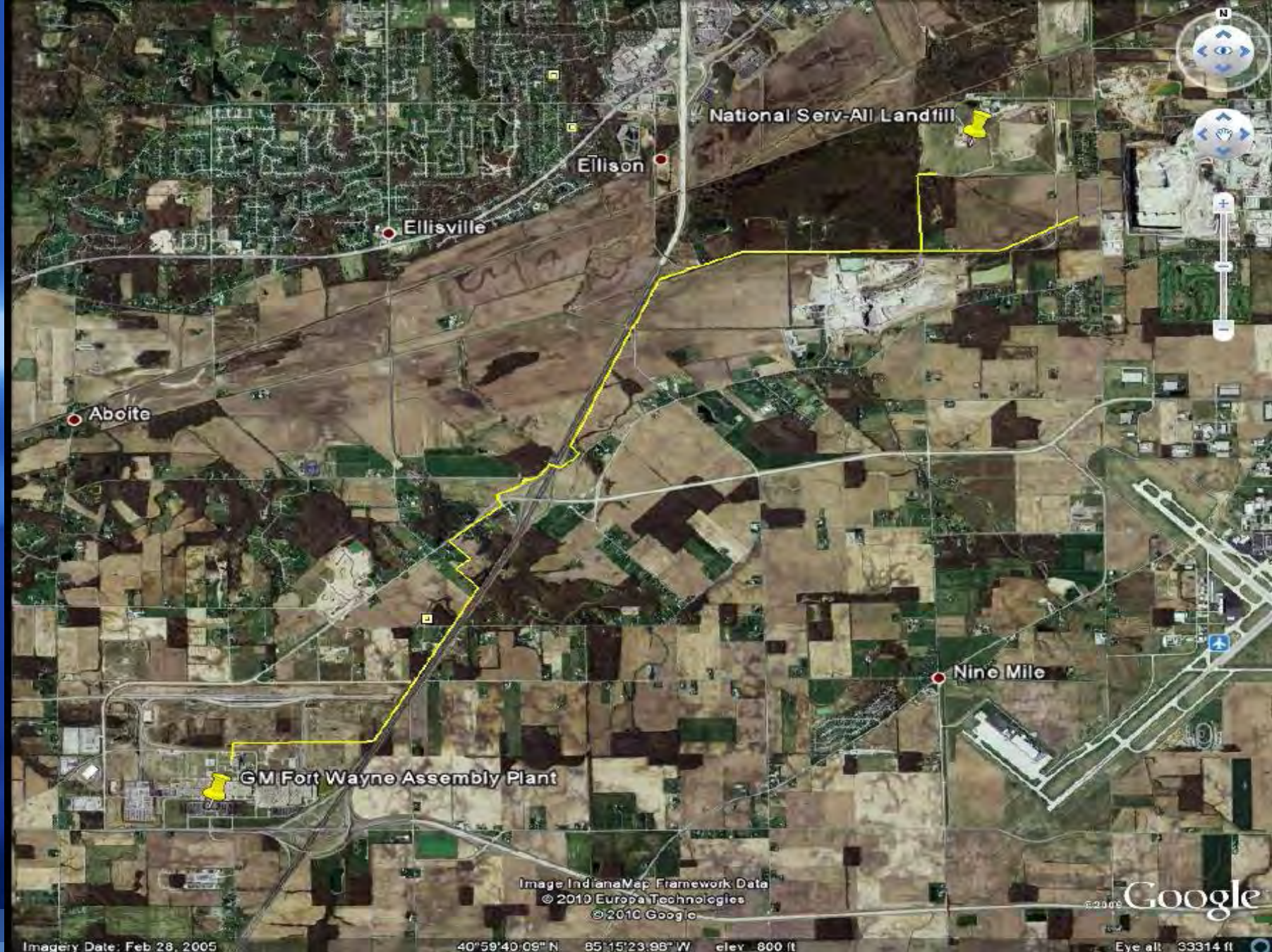


Image IndianaMap Framework Data
© 2010 Europa Technologies
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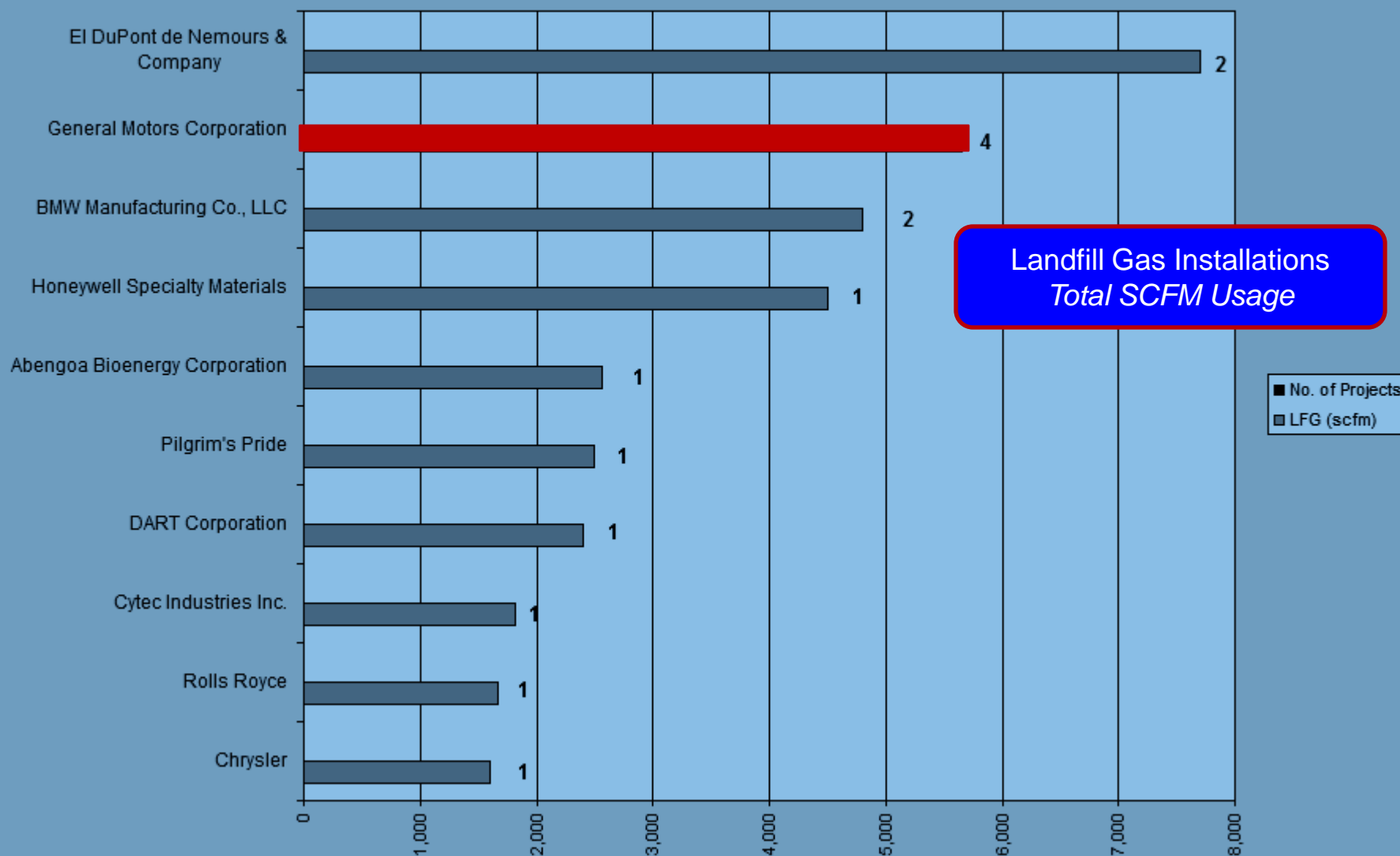
Imagery Date: Feb 28, 2005

40°59'40.06"N 85°15'23.96"W elev 800 ft

Google

Eye alt 33314 ft

Top 10 Corporate Direct End Users of LFG



City Renewable Energy Installations





Resource Preservation

We preserve natural resources and enhance habitats surrounding our facilities

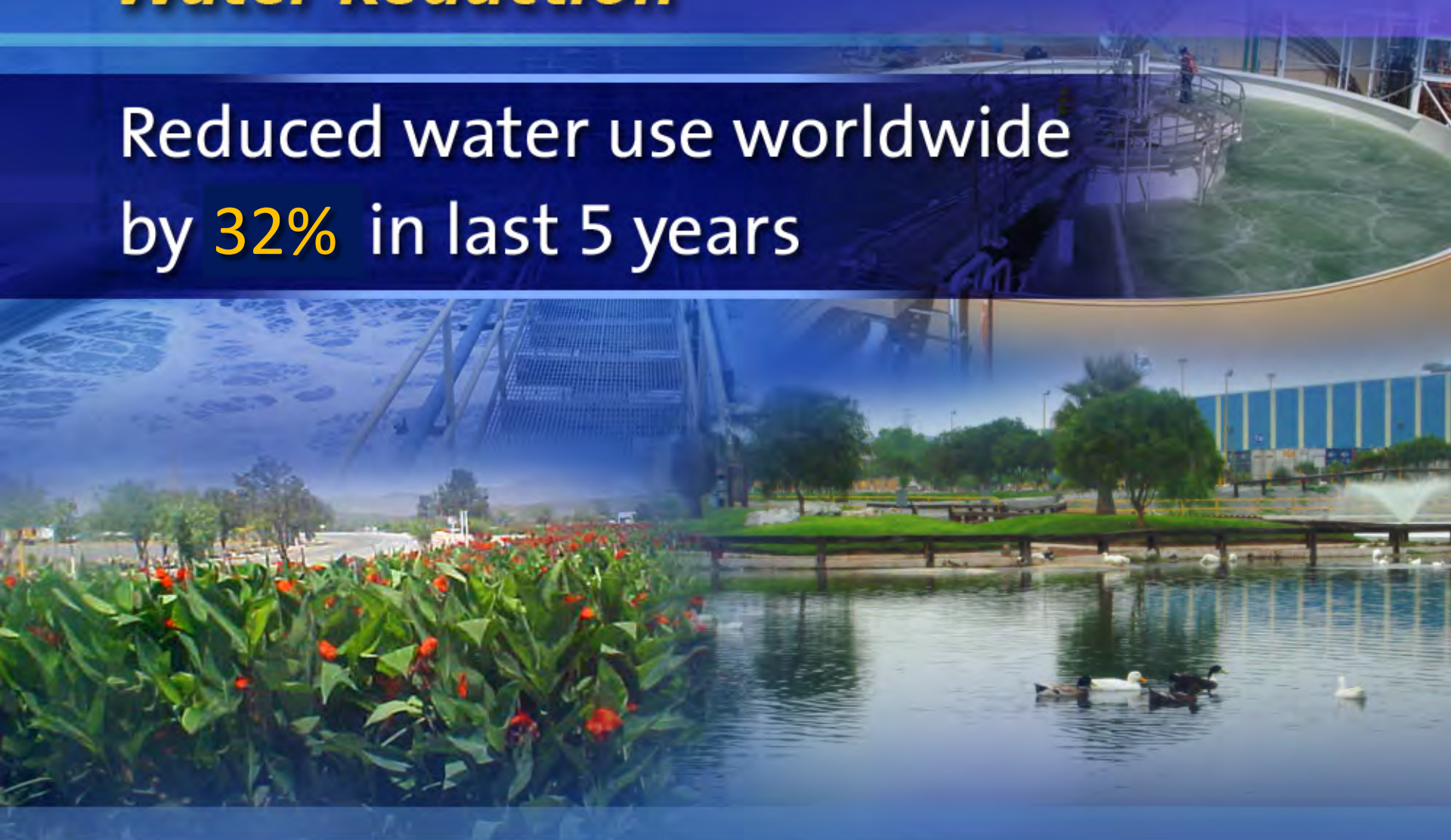
Our focus is on

- Reducing water use
- Habitat enhancement
- Watershed education

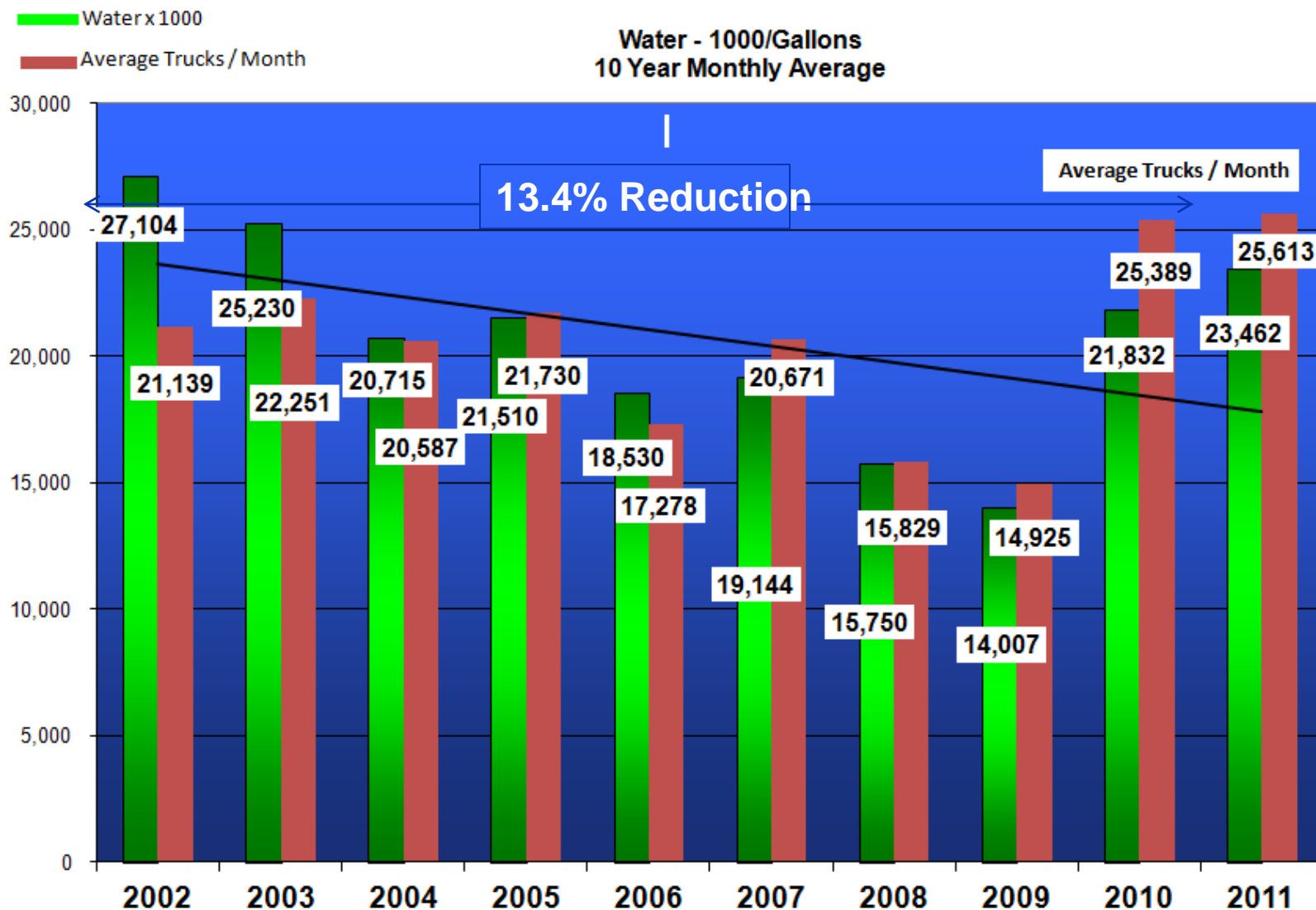


Water Reduction

Reduced water use worldwide
by **32%** in last 5 years



Water Performance



GM CleanTech Patent Leader

- GM received more clean-energy patents last year than any other organization, according to Clean Energy Patent Growth Index of U.S. patents.
- Our 135 patents covered:
 - hybrid electric vehicles
 - fuel cells
 - solar energy
 - improvements to technologies





FUEL EFFICIENCY



BIOFUELS



HYBRID



ELECTRIC



FUEL CELL



Chevrolet Volt

- Electric car with extended range capability
- For an average of \$1.50 per day, most drivers can have a gas- and tailpipe-emissions free commute
- Volt has all the features of an upscale midsize sedan





Chevrolet Cruze Eco



- Delivers best fuel economy in compact segment – estimated 42 mpg highway
- Hybrid-like fuel economy without the hybrid price



Chevrolet Sonic

- Standard Ecotec 1.8L engine with 5-speed manual or 6-speed automatic transmission
 - Fuel economy – 40 mpg highway



- Available Ecotec 1.4L Turbo delivering 138 hp – 18 hp more than Ford Fiesta



Conserve Energy



You have the Power