



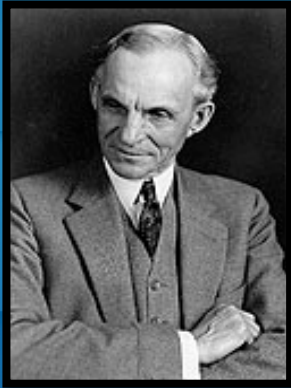
FORD EXPERIENCE WITH BETTER PLANTS ENERGY/ WATER CHALLENGE

JEFF WHITE

Energy Efficiency Manager

SUSTAINABILITY AT FORD

ENERGY AND WATER



“ A business that makes nothing but money is a poor business.”

- Henry Ford



“Improved sustainable performance is not just a requirement, but a tremendous business opportunity.”

- Bill Ford



Meeting The Needs Of The Present Without Compromising The Future

SUSTAINABILITY AT FORD

ENERGY

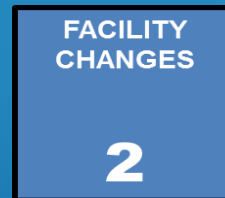
A Standardized, Proactive and Disciplined Operating System that drives reductions in energy consumption per unit produced through continuous improvements in processes, designs and culture.

1. Facility Modernization
2. Embed Energy Efficiency in Facility and Process Specifications
3. Engineering, Feasibility Studies & Evaluations

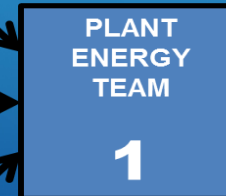
1. Collection & Storage
 - Record & Interval Data
2. Standard Reporting
 - Monthly - Weekly Reporting
 - Daily - Energy Report
3. Analytics and Benchmarking

1. Reliability / Quality
2. Bidding/Contracting Process
3. Risk Management
4. Tariff Intervention

Functions support Energy Team Actions



1. Energy Health Assessment Process
2. Shutdown & Startup Processes
 - Non-Production
 - Demand Response
 - Emergency
3. Energy Roadmap / POR Process



GOAL

Energy Team responsibility is to drive plant performance to Best in World

SUSTAINABILITY AT FORD

ENERGY

Facility Changes - Embedded Energy Efficiency Specifications

- Results in CO2/Energy reductions
- Historically the most cost effective strategy

Energy Supply

- Regulatory standards define renewable/clean energy
 - May include solar, wind, geo exchange, hydro, biomass and energy efficiency
 - Ford supports Renewable Portfolio Standards (RPS)
 - Large scale installations are generally more cost effective
 - Renewable supply contracted where cost effective
- Renewable supply opportunities are expanding via maturing technologies and markets

SUSTAINABILITY AT FORD ENERGY

Global Program Actions

- Plant Modernization
- New facilities constructed
- Global Facilities Forum (GFF) specs
- 100 point Sustainability program
- Shutdown inefficient facilities

Project Funding

- Programs including Sustainability line items
- Plant “Mega Projects”
- Performance Contracts (lighting, compressed air, steam elimination)
- Facility Health Assessment capital spending

Reduced facility energy consumption per vehicle 25% since 2011

SUSTAINABILITY AT FORD

ENERGY

25% = 3,700,000 MWh = 1,300,000 tons
metric tons of CO₂ emissions avoided which is equivalent to....



325 wind turbines



**5,600 acres of solar
panels**

SUSTAINABILITY AT FORD

ENERGY

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Energy Supply

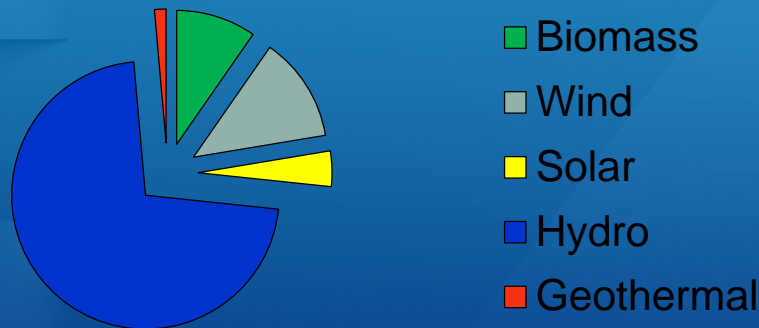
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SUSTAINABILITY AT FORD

ENERGY

- 18% of global electricity is renewable
- 1,075,000 MWh total

Renewable Electricity Supply



2% of the 18% is on-site renewable energy

2% On Site Renewable Energy

Solar PV installations

2.8 MW total installed capacity at 4 facilities in Europe and North America

Wind Turbine installations

6.4 MW total installed capacity at 2 facilities in Europe

Geo exchange Installations

1.0 MW total equivalent installed capacity at 1 facility in North America

SUSTAINABILITY AT FORD

ENERGY

1,075,000 MWh = 746,000 tons
metric tons of CO₂ emissions avoided which is equivalent to....

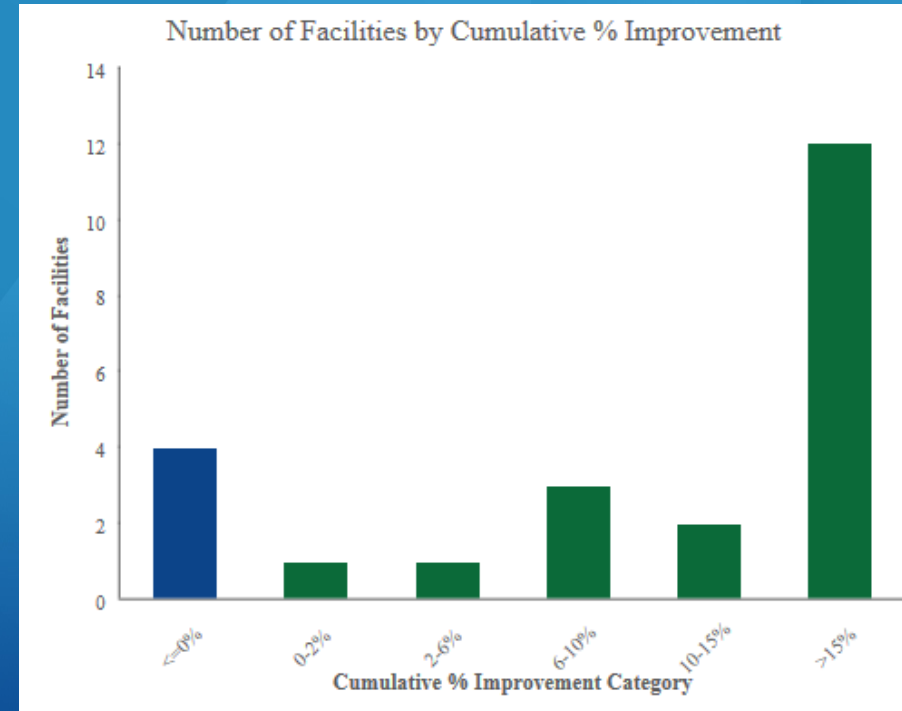
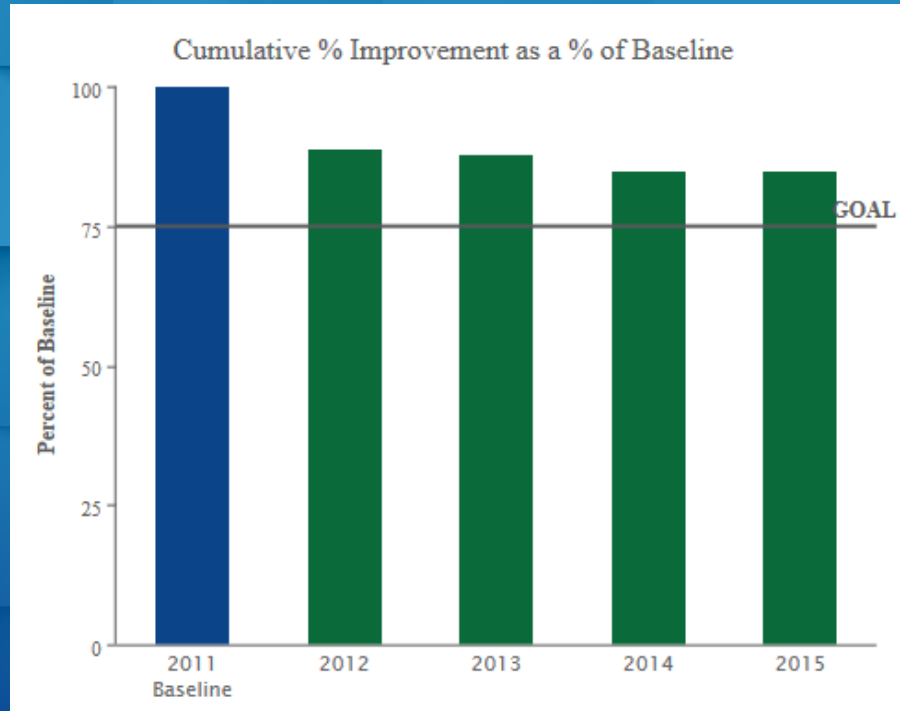


180 wind turbines



1,700 acres of solar panels

SUSTAINABILITY AT FORD BETTER BUILDINGS UPDATE



FORD INCLUDES 25 BUILDINGS IN THE BETTER BUILDINGS CHALLENGE

SUSTAINABILITY AT FORD WATER

In June 2000, Bill Ford attended the opening of the *Viva el Agua* exhibit at the Papalote Children's Museum in Mexico City, where he announced a Global Water Management Initiative focused on water conservation, reuse and water quality management.



DEVELOPING A MANUFACTURING WATER STRATEGY

Ford achieved its global water target two years early, in 2013.

Ford committed to a 3% year-over-year reduction in water use per vehicle produced at its manufacturing facilities globally.

This commitment resulted in a 42% reduction in water use per vehicle, from 2000 to 2009.

In 2010, a formal global manufacturing water strategy was developed, setting a target of 30% reduction in water use per vehicle from 2009 to 2015.

This target was achieved two years early, in 2013.

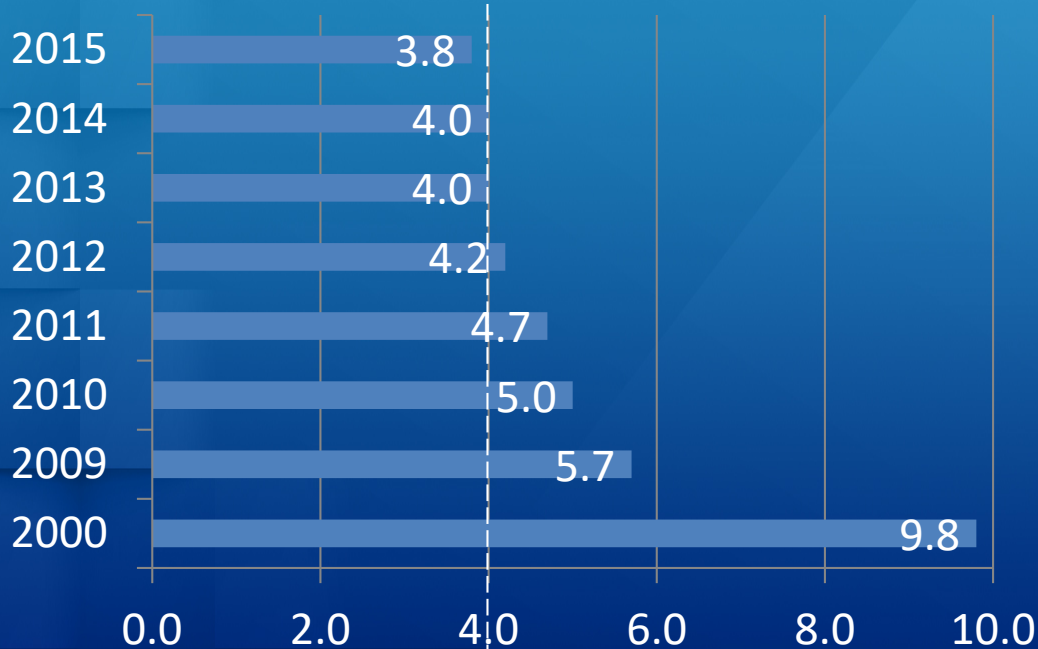
In 2014, after development of a corporate water strategy, Ford endorsed the UN CEO Water Mandate.

2014 also saw Ford joining the U.S. DOE Better Plants Water Pilot, building on its successful energy program with the U.S. DOE.

FORD'S WATER JOURNEY

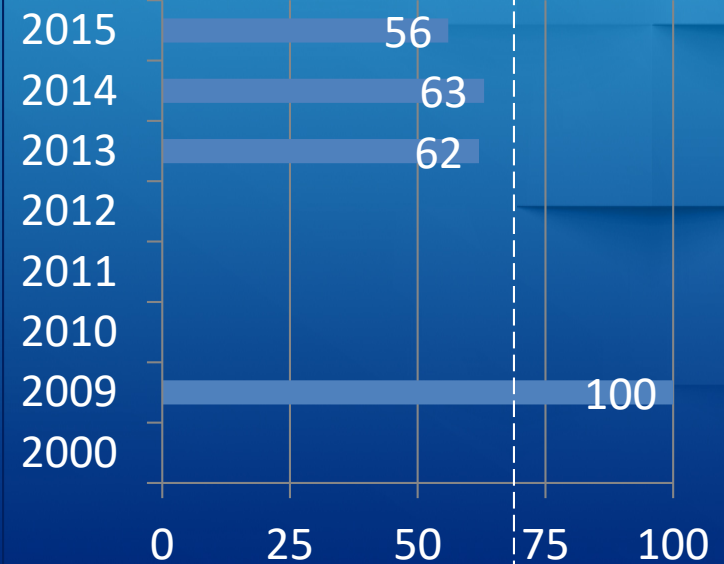
The success of the manufacturing water strategy led to receptivity to the development of a corporate water strategy.

Global Water Use per Vehicle Produced (m³/vehicle)



*2015 target of 4 cubic meters per vehicle

U.S. Cumulative % Improvement as a % of Baseline



*2015 target of 30% reduction

FORD'S CORPORATE WATER STRATEGY

Ford's corporate water strategy aligns with the elements of the UN CEO Water Mandate.



Companies that support the CEO Water Mandate commit to implementing the framework's six core elements for water management and pledge to publicly report their progress annually.

Ford was an inaugural responder to CDP Water and was named to the 2015 CDP Water "A" List of Leaders.

THE PACE PROCESS

PACE consists of a five-step iterative process:



1. Suppliers create roadmaps - multi-year plans for increasing environmental performance through either greenhouse gas (GHG) emission reductions or water use reductions - and report progress.

2. Baseline environmental data is entered into the roadmap.

3 and 4. As leading practices are implemented, the reductions in GHG emissions or water use are calculated, and progress toward goals is reported against the baseline.

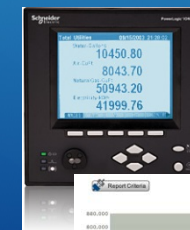
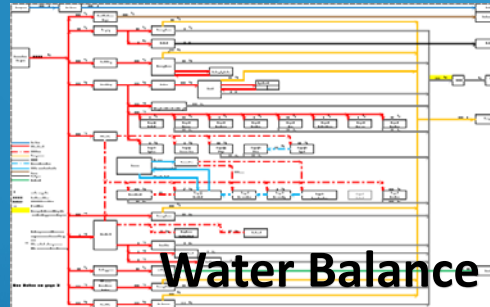
5. Leading practice lists are periodically updated to include additional leading practices reported to us by our suppliers or implemented in our own facilities.

Ford shares its leading practices with suppliers participating in PACE.

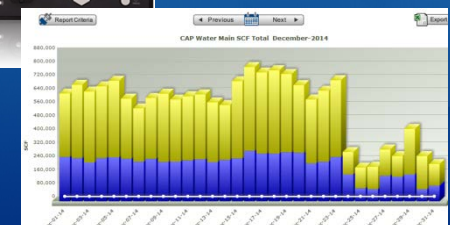
WATER LESSONS LEARNED

Develop a strategy and obtain buy in at all levels

1. Determine tracking methodology
2. Water leak teams
3. Water savings fixtures
4. Natural landscaping and irrigation
5. Water balance
6. Cooling Towers
7. Daily/weekly review of internal metering



Internal Metering



Water reductions can be achieved in conjunction with energy reductions. Projects should be evaluated holistically.



Go Further