Suppliers Partnership for the Environment
Q2 2015 Meeting

Andy Hobbs
Director, Environmental Quality Office

Ford's Sustainability Vision

Our vision for the 21st century is to provide SUSTAINABLE transportation that is affordable in every sense of the word:

Environmentally, Socially & Economically

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

- Bill Ford

Manufacturing Environmental Strategic Direction

- Adopt holistic approach to reducing overall environmental impact of manufacturing operations:
  - Pursue integrated air emissions control approach that also reduces greenhouse gas emissions and improves energy efficiency.
  - Take resource conservation actions specifically toward eliminating land disposal and reducing water usage.
  - Evaluate and reduce toxicity of manufacturing byproducts (e.g., air emissions, wastewater, waste) in addition to quantity.

Provides consistent foundation for environmental improvement and allows for detailed strategies by topic (CO_2, water, waste, etc.).

Environmental Strategies

- Environmental strategies are the bridge between our strategic direction and tactical delivery of our objectives

Strategic

Tactical

Manufacturing Environmental Strategic Direction

Environmental Strategies: Compliance, CO2, Materials, Waste, Water, VOC

Environmental Actions

Business Plan Objectives / Targets

Metrics (Region/Plant/Department)

Environmental Strategic Direction

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SLIDE 4

Env. Operating System

SAMPLE: 201X ENVIRONMENTAL PLAN

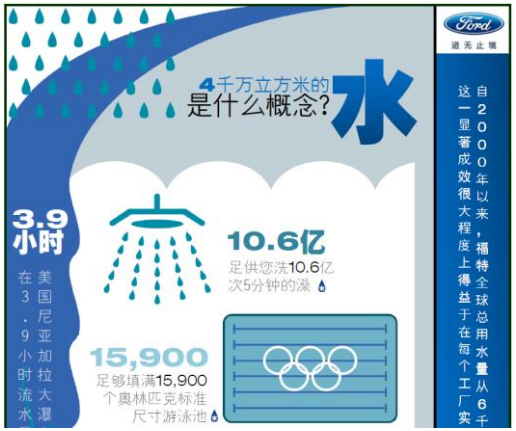
Note: Sample Data Only - Do Not Use

Metric	2011 Target / Comments	FNA	FSAO	FOE	FAPA
Environmental Compliance	• Environmental Compliance Index = 100	G	R	G	Y
Water Usage (m³/vehicle)	• X% YOY reduction	G	Y / G	G	G
CO_2 Emissions (tons/vehicle)	• X tons/vehicle	G	G	G	G
Landfill Waste (kg/vehicle)	• X% YOY reduction	G	G	G	G
VOC Emissions (g/sq m)	• 2011 targets: FNA = X g/sq m; FSAO = X g / m2; FoE = X g / m2; FAPA: X g / sq m	G	G	G	G

G Satisfactory Y Marginal-Plan to Recover R Unsatisfactory Y/G Change From / To

Strategies define internal and external commitments

- Global **CO2** Strategy
  - 30% reduction between 2010 and 2025
- Global **Water** Strategy
  - 30% reduction between 2009 and 2015 (achieved two years early)
- Global **Energy** Strategy
  - 25% reduction between 2011 and 2016
- Global **Waste** Strategy
  - 40% reduction between 2011 and 2016



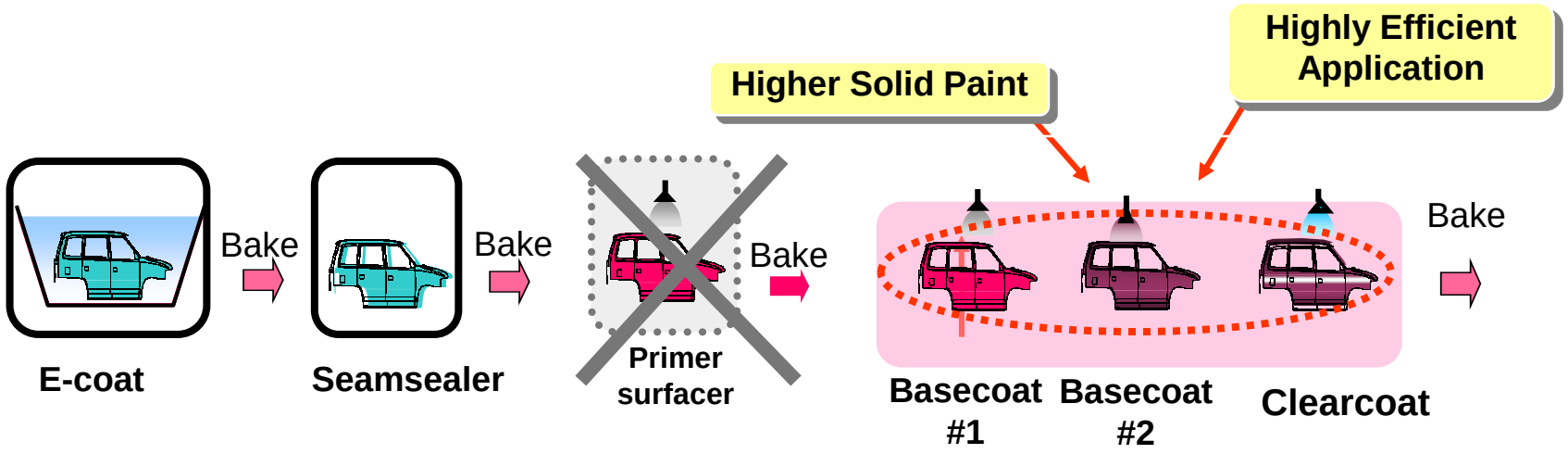
Cost-effectiveness and environmental benefit are not mutually exclusive with the appropriate reduction glide paths.

How regulatory policy can enable effective corporate environmental strategies

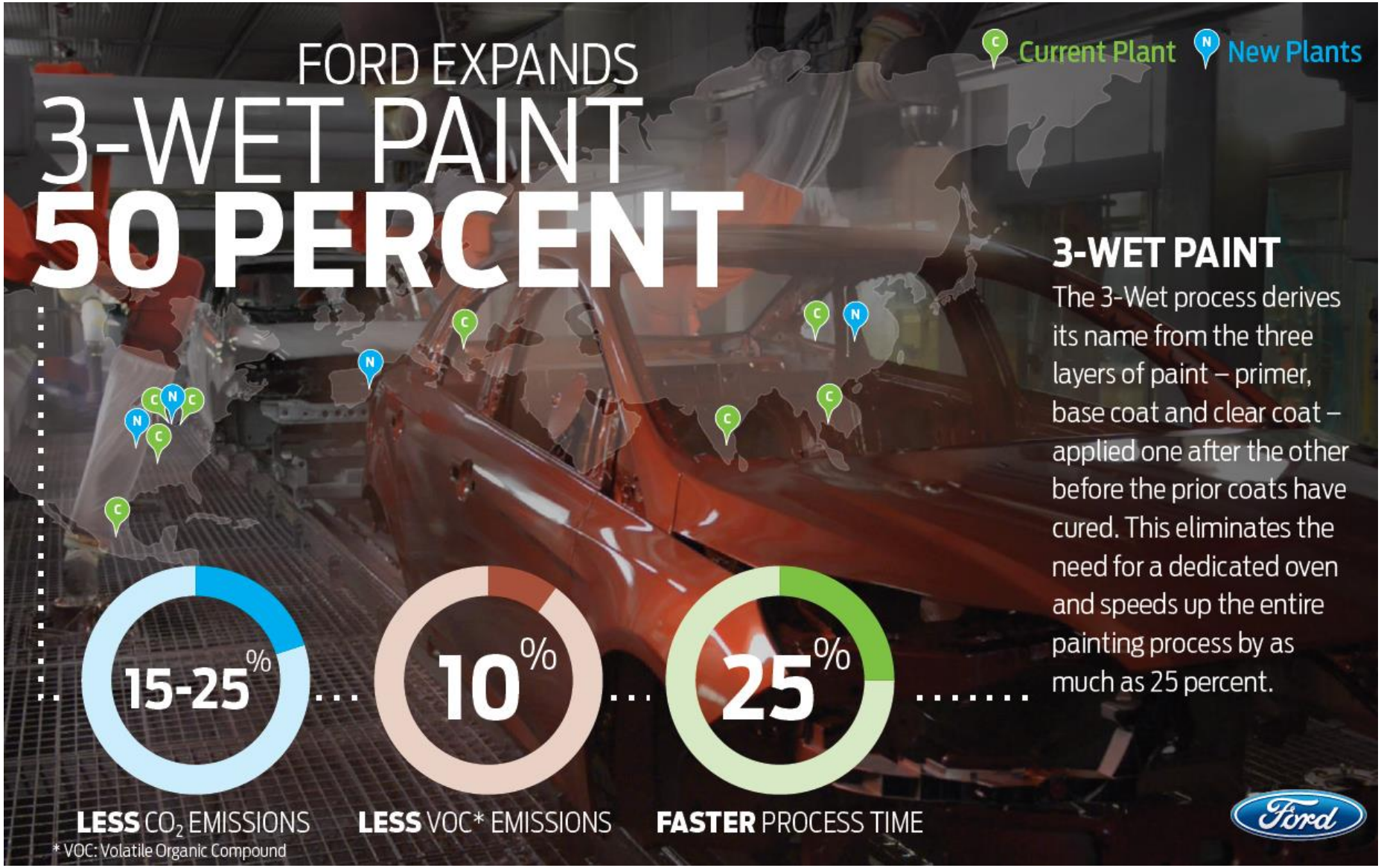
- Set targets and let industry determine the most effective way to achieve them
- Ford's high solids, solvent-borne paint strategy provides an illustrative example
- Landfilling waste is not sustainable, current regulations and policies drive too much waste to landfill, e.g., F019, recovered paint solids (RPS).

3-Wet Paint Process

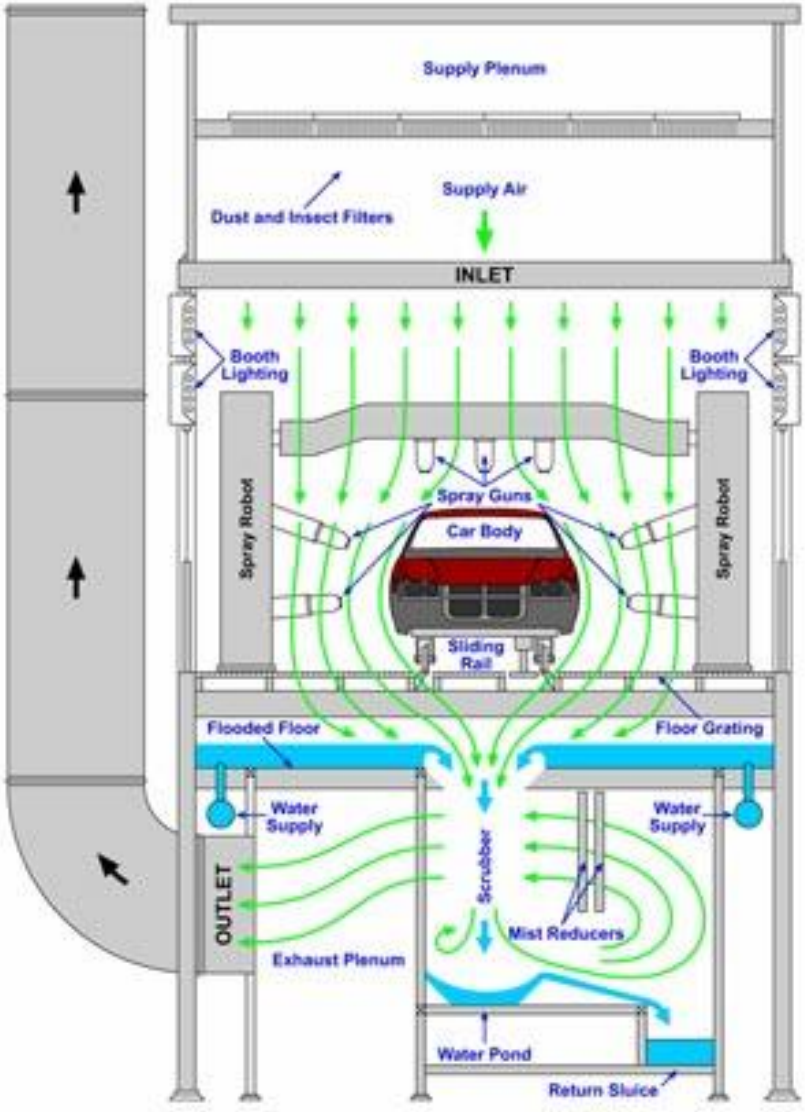
- Three-wet painting eliminates the stand-alone primer spray booth and oven
  - Process integration saves energy and lowers VOC (solvent) emissions



3-Wet Paint Process



Overview – Solvent Emissions from a Spraybooth

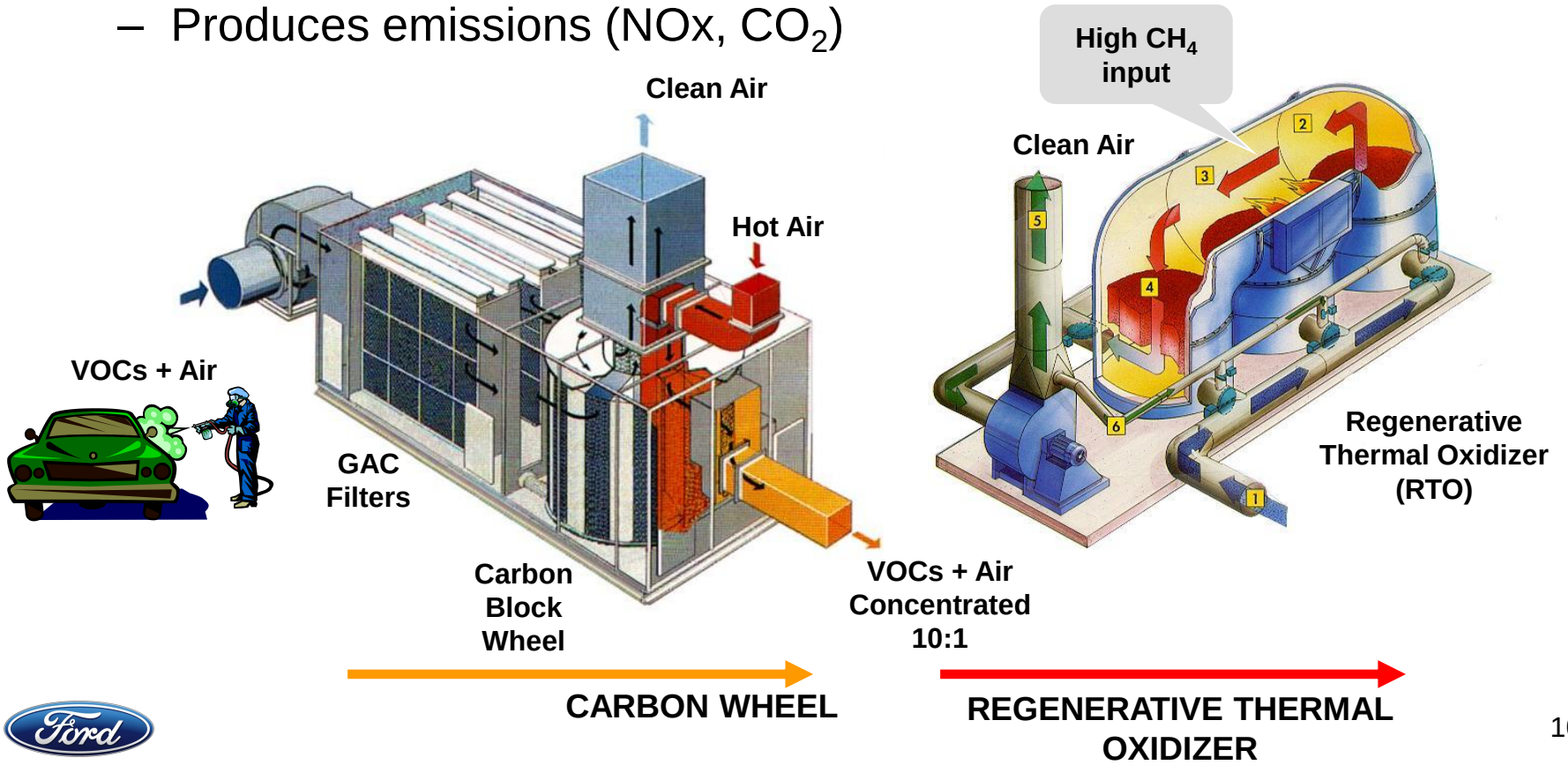


Collection and Concentration of Solvents → Reuse / Transformation to Electricity

Paint Emissions Concentrator Concept

Traditional VOC Abatement Technology

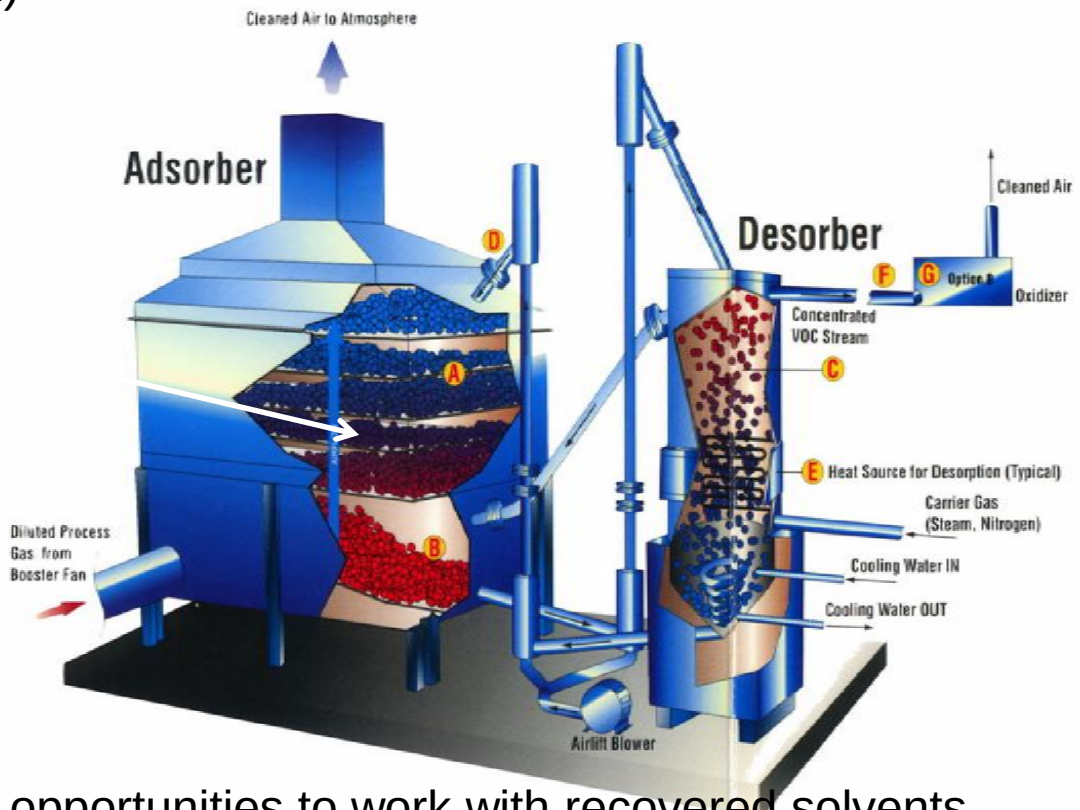
- 10:1 Concentration of VOCs
- Meets environmental regulations
- However…
  - High natural gas (CH_4) input required for incineration
  - Large footprint
  - Produces emissions (NOx, CO_2)



Paint Emission Concentrator

- Paint Emission Concentrator concentrates VOC paint emissions 1500:1 vs. 10:1 for traditional abatement
  - Smaller footprint and lower emissions (decreased NOx, 70 – 80% reduction in CO2)

Fluidized Bed in Operation



- Allows for innovative opportunities to work with recovered solvents
  - Thermal Oxidation
  - Internal Combustion Engine / Generator, Reformulation for Fuel Cell
  - Recycling back into paint shop