

DTE Energy®



Energy Decisions in the Midst of Major Regulatory Change

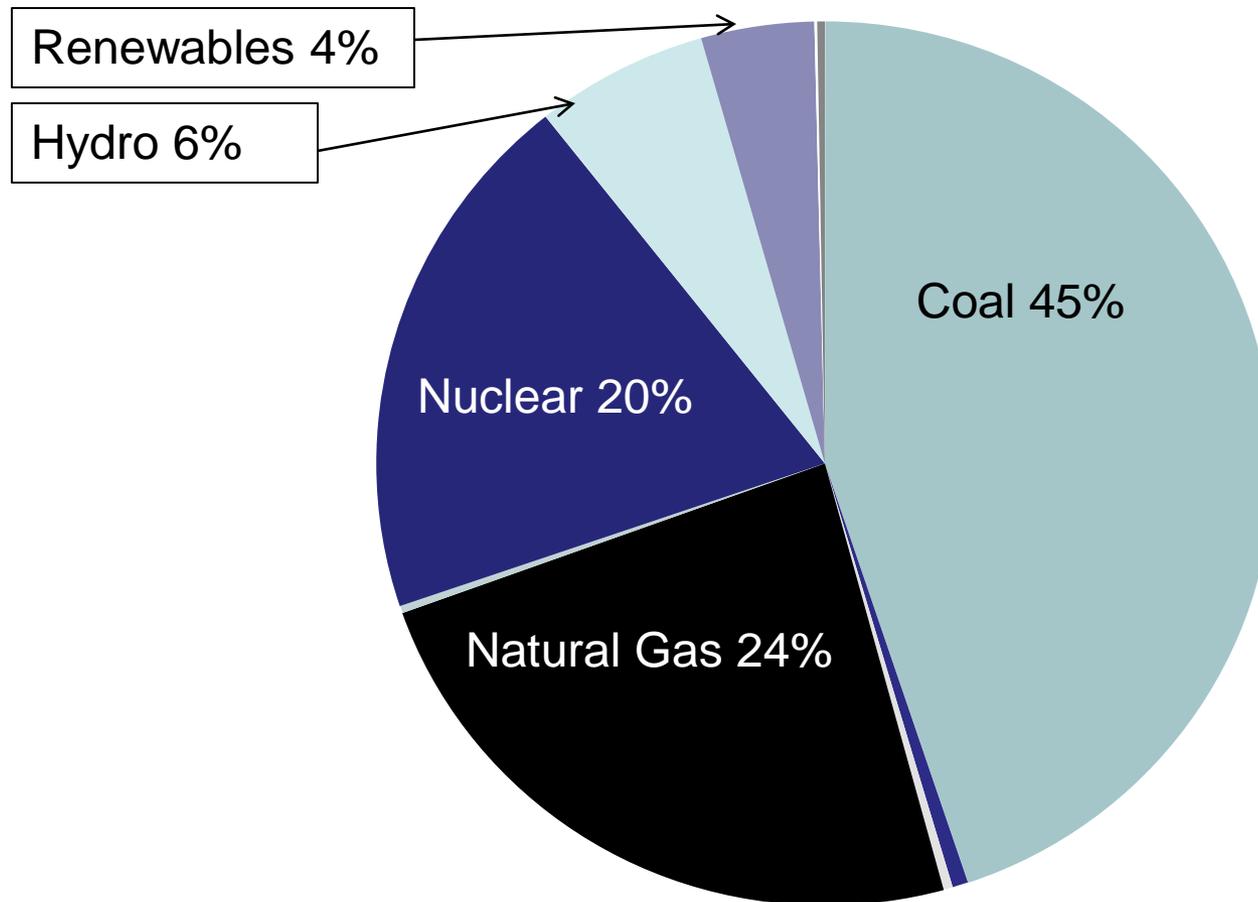
**IEEE Detroit Power and Energy Society General Meeting
July 26, 2011**

Skiles W. Boyd

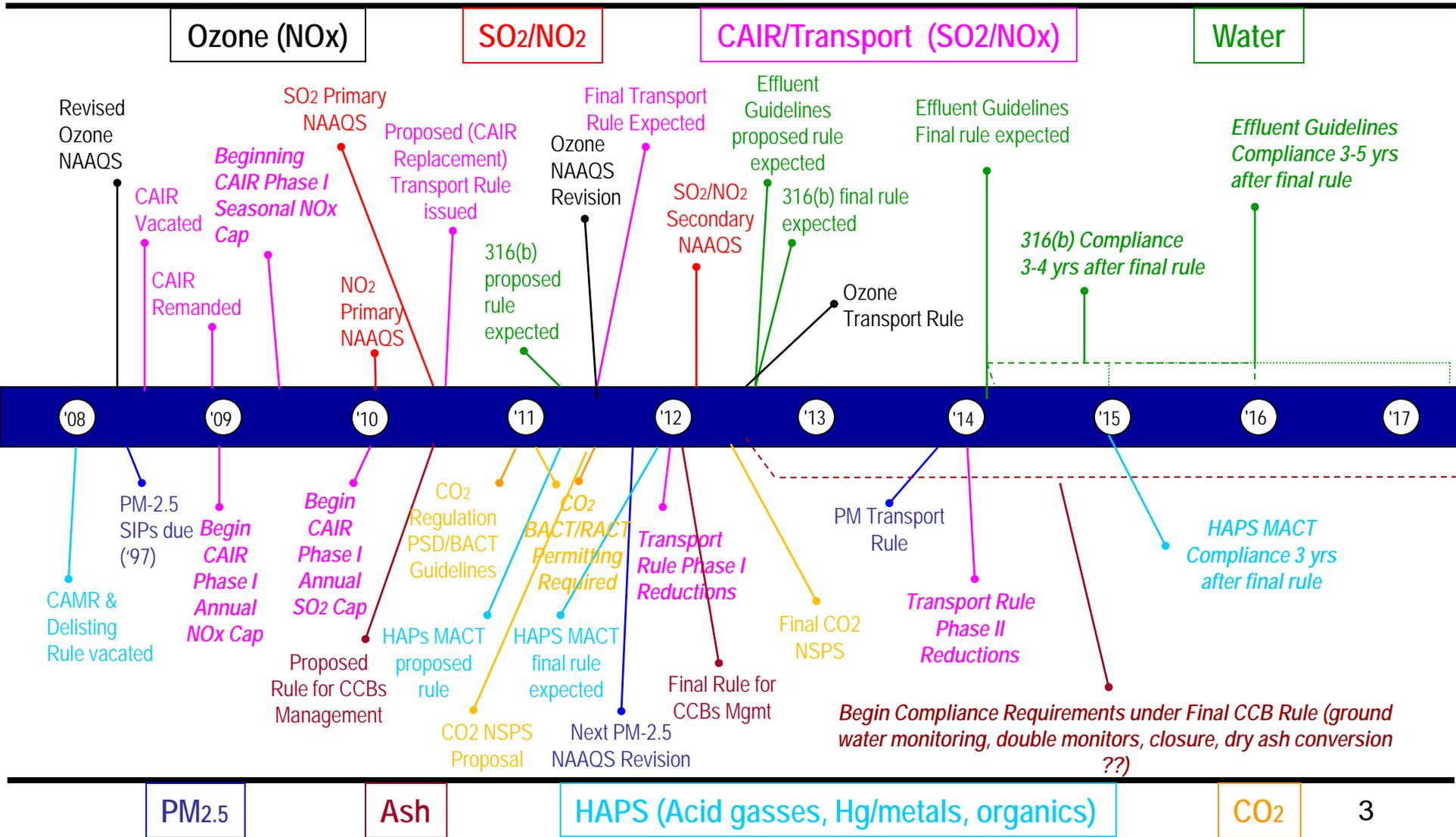
V.P. Environmental Management & Resources



Where we are today – 2010 Electricity Generation (EIA)



Likely Timeline for Environmental Regulatory Requirement Development and Implementation for the Electric Utility Industry (“Train Wreck Chart”)



Key Question for Power Companies and others: How Much to Keep Existing Coal Units Running?



Estimates of 50-100 GW of capacity “at risk”

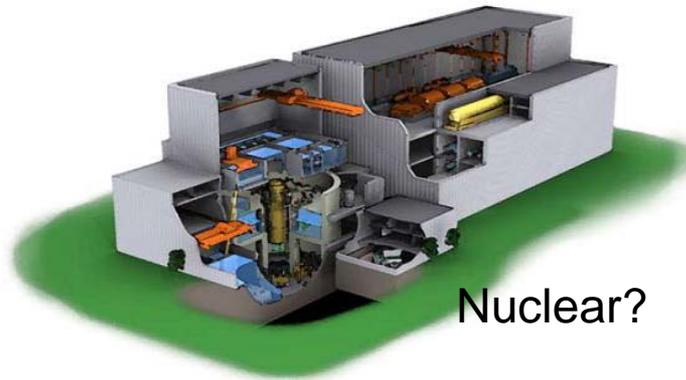
Second Question for Power Companies and others: What Should be the Replacement?



Efficiency?



Money Isn't All You're Saving



Nuclear?



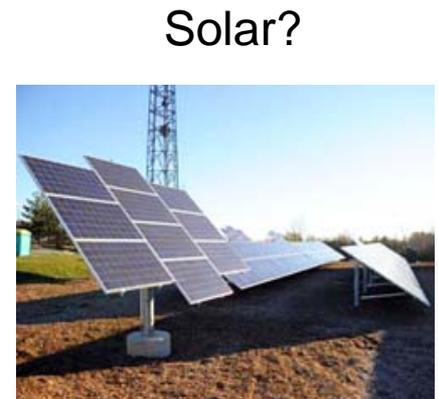
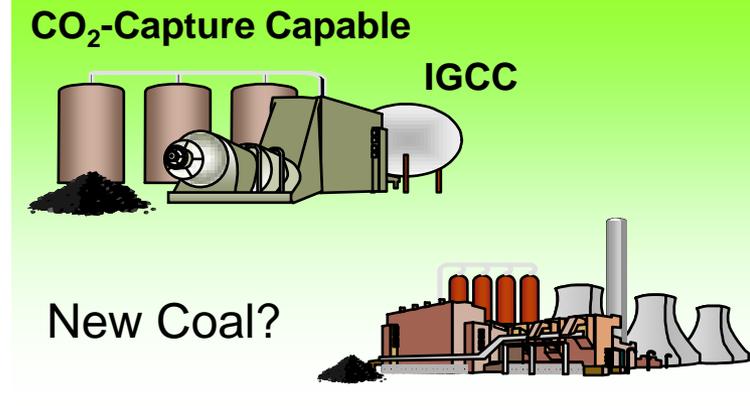
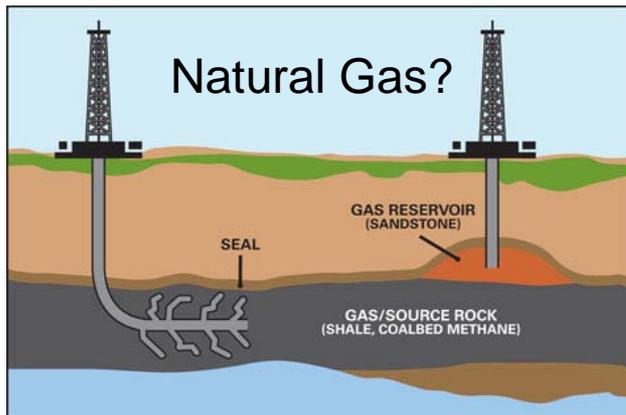
Wind?

Need

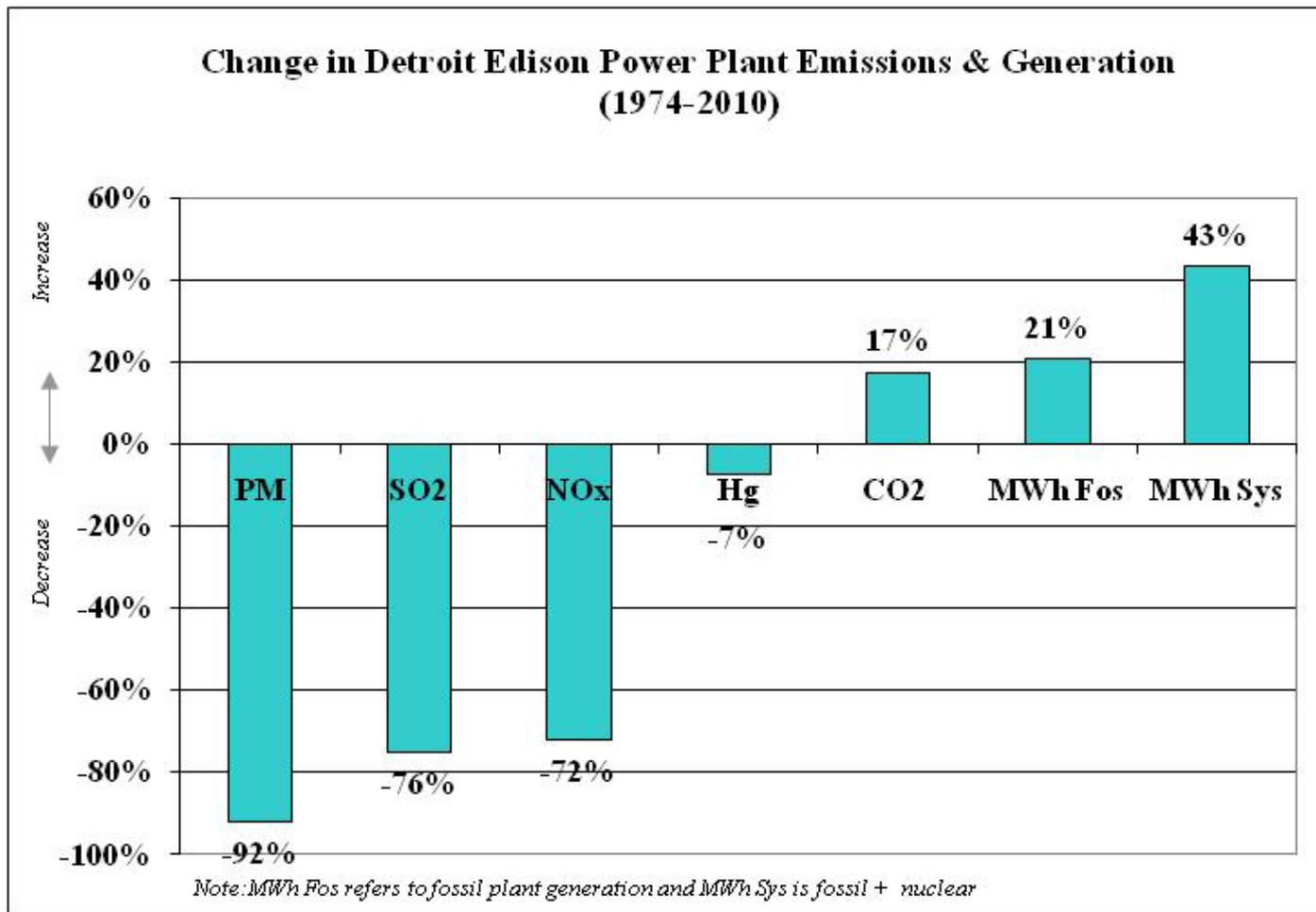
Cost

Time

Capability



We have already made tremendous progress in reducing emissions

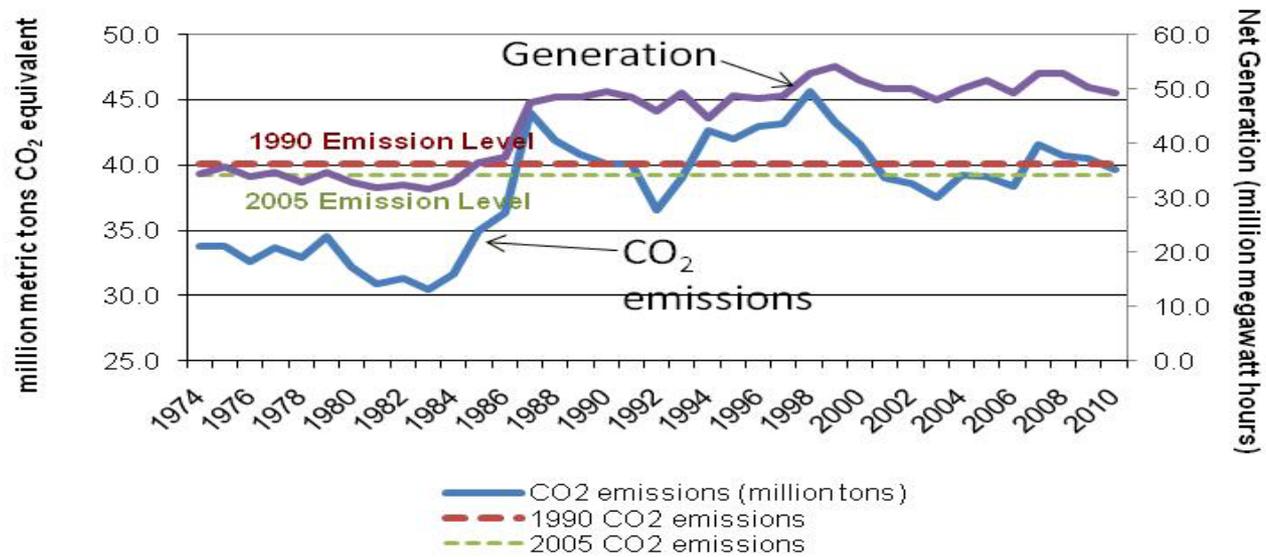


The Air is Much Cleaner Today

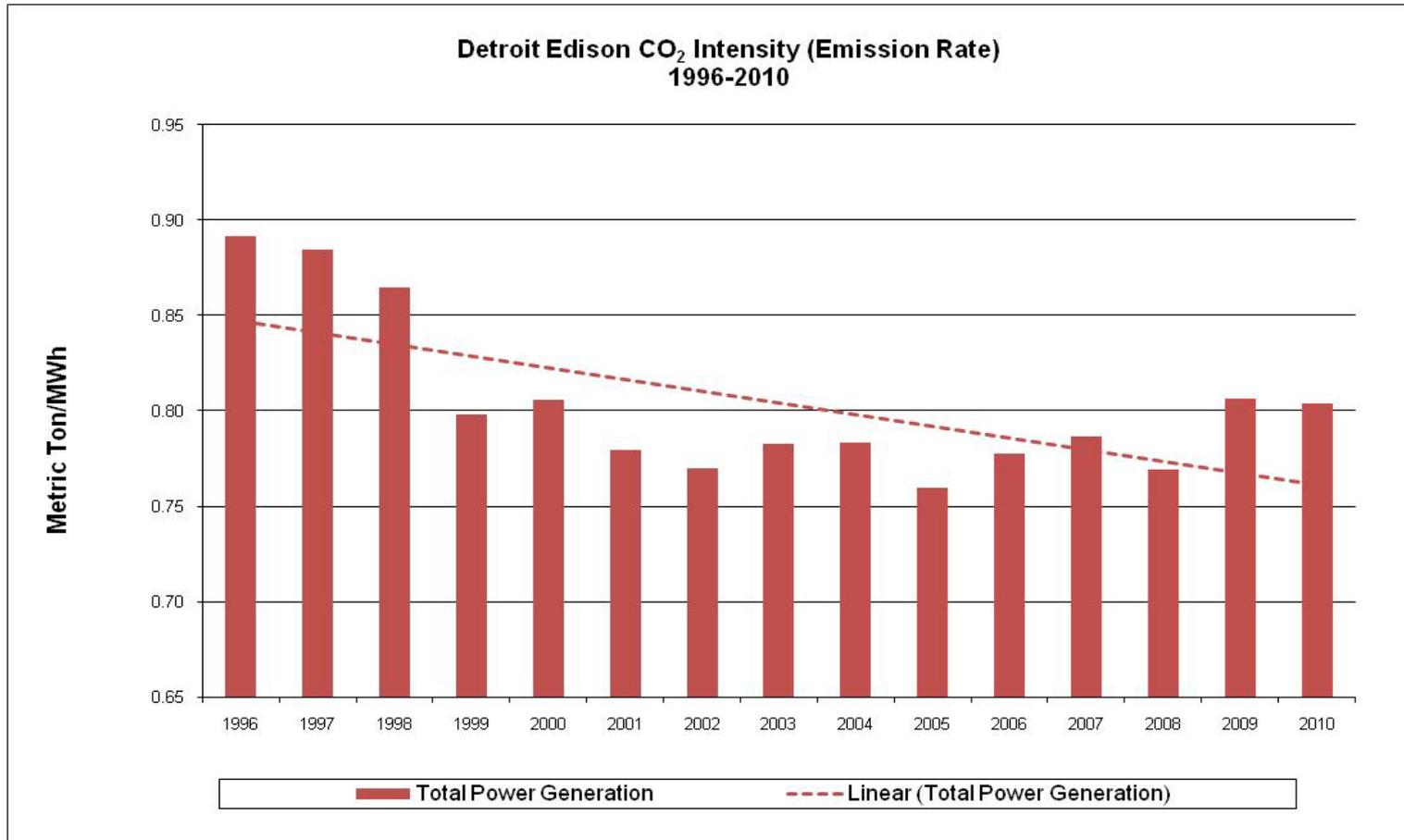
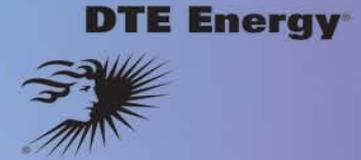


Detroit Edison Carbon Dioxide Emissions are Roughly at 1990 levels

Detroit Edison CO₂ Emission and Generation Profile

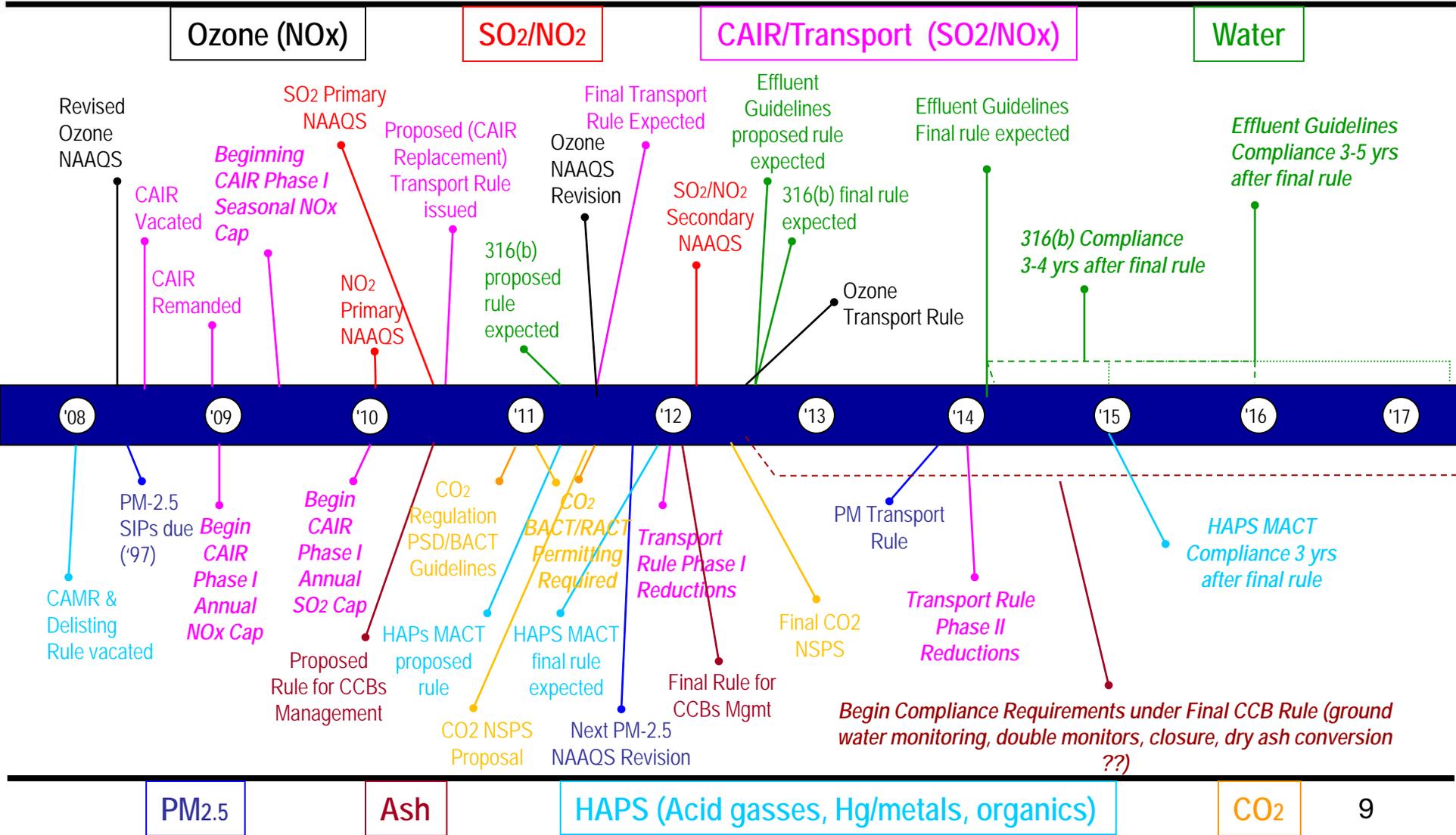


Detroit Edison's GHG Intensity has been steadily decreasing



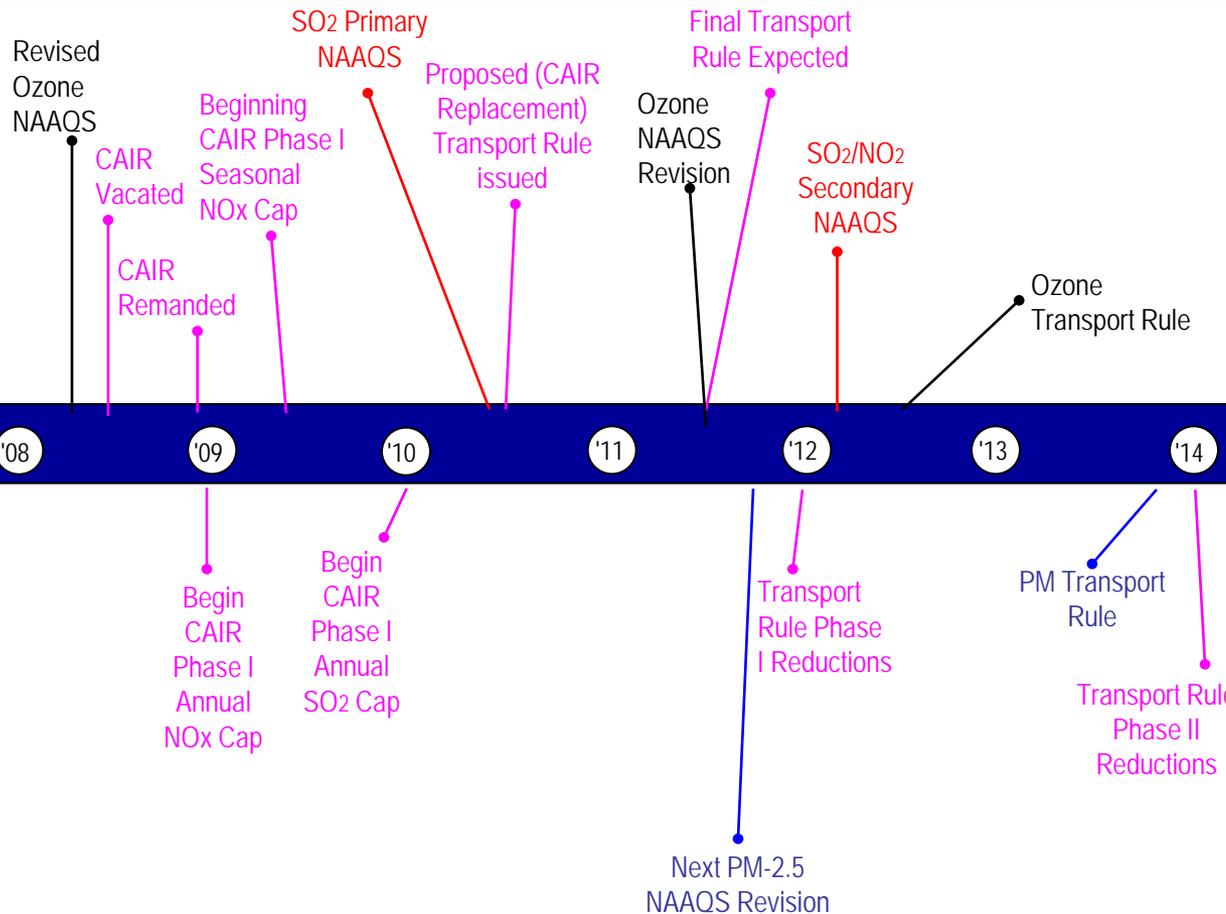


The Pieces of the Regulatory Wave Broken Down





Cross-State Air Pollution Rule (Transport Rule)



- Rules are Final
- Compliance Phases Start in 2012 and 2014 (Time to React??)
- Interstate Trading is Limited (Ability to trade?)

- Emission Allowances Reduced (Availability?)
- Natural Gas Units Available for Base Generation? (Market Price?)
- More Reductions Coming

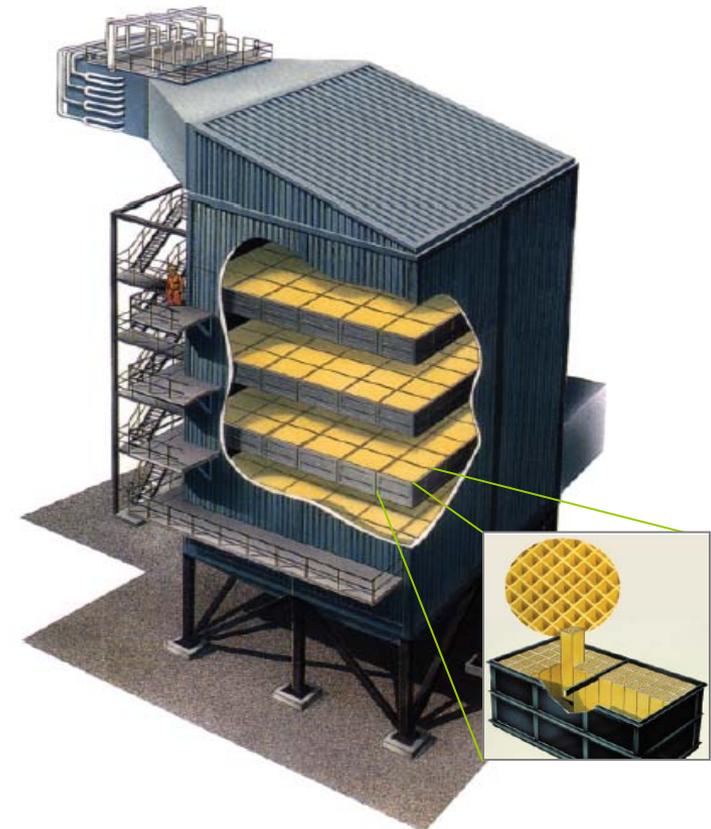
CAIR/Transport (SO2/NOx)

We have installed 3 SCR's at our Monroe Plant with 1 more under construction



Selective Catalytic Reduction (SCR)

- Reduced NO_x emissions by 90 percent
- Installed in flue gas stream between economizer and air preheater
- Uses ammonia to convert NO_x to nitrogen and water
- Do we build more?
(~\$300M per)



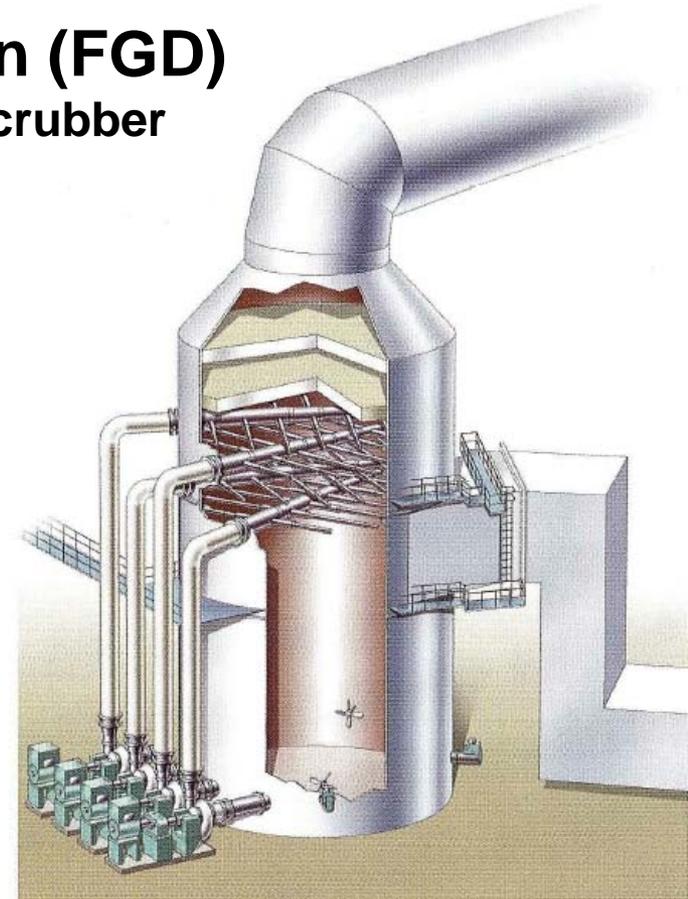


Installed 2 FGDs at our Monroe plant with 2 more under construction

Flue Gas Desulfurization (FGD)

Commonly referred to as a scrubber

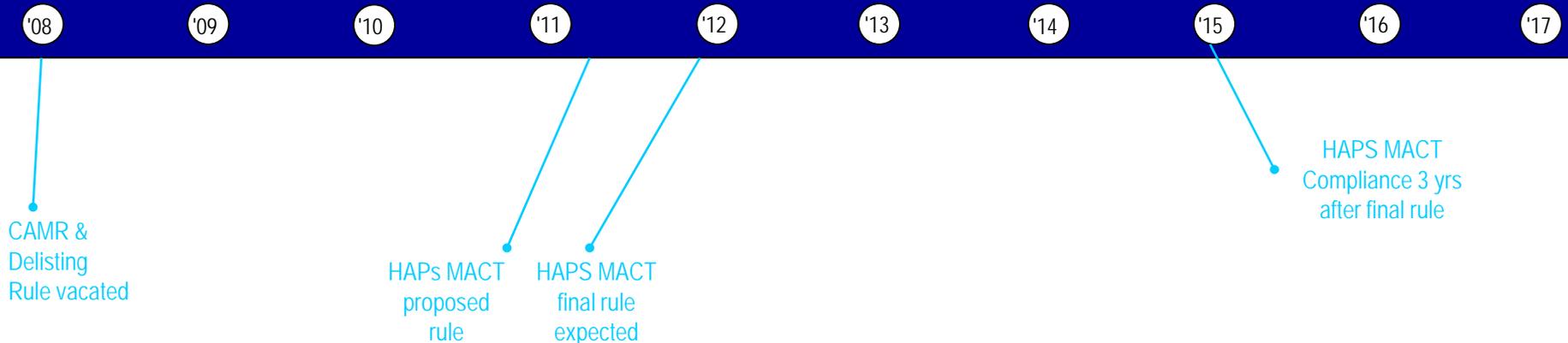
- Reduces SO₂ emissions by up to 97 percent
- Installed in flue gas stream immediately before new stack
- Do we build more?
(~\$250M per)



Hazardous Air Pollutants Rulemaking (EGU MACT) (Acid Gasses, Mercury and other metals, Organics)



- Finalizing by November, 2011 (Why the rush?)
- Compliance required within 3 years following final rules (Administrator/delegated state may extend 1 year, President 2 years)
- How to comply with Acid Gas Limits?
 - Scrubbers – Time
 - Dry Sorbent Injection – Will it work? Bridge Technology?
- Compliance monitoring at the levels of detection for the equipment



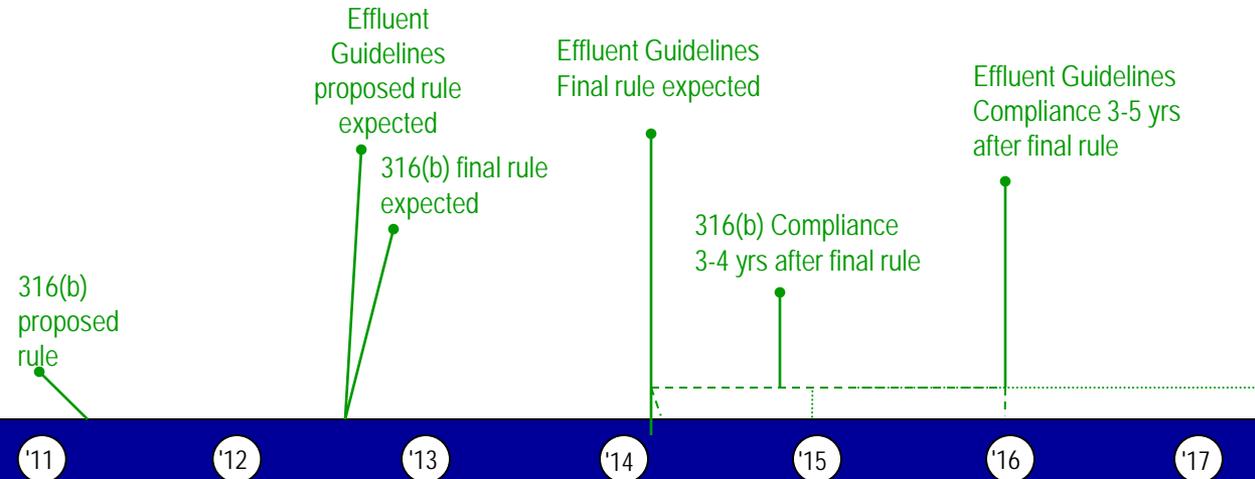
HAPS (Acid gasses, Hg/metals, organics)

Potentially most significant impact on Midwest generation



Cooling Water Intake (316b) Regulations

Water



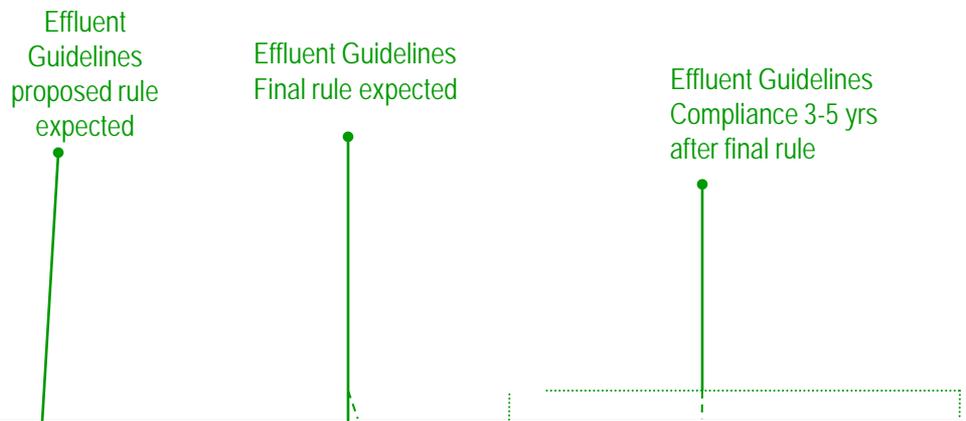
- EPA proposed rules for cooling water intake for existing facilities March 28, 2011 (published April 20) and plans to finalize them by mid-2012 (?)
- No blanket requirement for cooling towers, but may require by default
- Compliance phased in through 2020
- Influence needed – State Control and Flexibility



Coal Combustion Byproducts or Residue (Fly ash, bottom ash, scrubber sludge)

- Coal combustion byproduct regulations to be finalized by mid-2012
- Hazardous Waste Designation Would Eliminate Reuse
- The effluent guideline rulemaking effort scheduled for mid-2012 going forward is also focused on coal combustion byproduct management as it relates to water discharge
- Significant handling cost

Water



Proposed Rule for CCBs Management

Ash

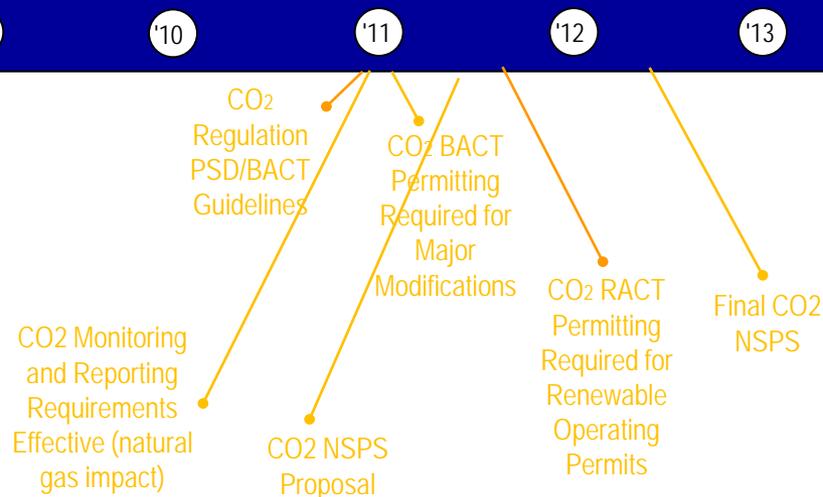
Final Rule for CCBs Mgmt

Begin Compliance Requirements under Final CCB Rule (ground water monitoring, double monitors, closure, dry ash conversion ??)

Climate Change/Greenhouse Gas Regulations, Or Return of Cap and Trade?



- Beginning January, 2011 CO2 regulations
 - Permitting guidelines for “major modifications”
 - Renewable operating permit requirements effective when permit is renewed (every 5 years staggered) or modification resulting in increase in emissions (100k-75k-50k ton)
 - Permitting requirements will cause uncertainty and delay
 - Schedule to finalize New Source Performance Standards (NSPS)
 - Additional regulations likely going forward
- Legal challenges ongoing and more are likely going forward – Uncertainty
- If Cap and Trade, what will be the price?





Climate Change is a World Issue

- Countries are independent
- Much of the developed world is taking mandatory action
- China and India are experiencing significant development
 - Huge growing populations
 - Economic standard of living below Western world
 - China's annual emissions have exceeded U.S.
 - China and India's annual emissions will soon surpass Western developed countries
- **Moving economy around the world will not reduce emissions**
- Energy dependencies will escalate tensions
- Possible impact of climate change could escalate tensions



We are increasing Detroit Edison's energy generation from renewable resources to 10 percent by 2015



Renewable energy development and energy efficiency improvements

Progress: We are on track to meet the goals set by Michigan's Renewable Portfolio Standard (RPS) and are planning to do so through constructing new renewable projects we will own and by purchasing renewable energy generation, primarily wind, from third-parties to add 1,200 megawatts over the next 20 years. We have increased our renewable energy portfolio to roughly 4 percent of our total generation.

5% energy efficiency improvements required by 2015 – well ahead of schedule

Is this the Answer? (~\$1-2B for 10%)



We are also preparing for future low carbon baseload nuclear generation

- Nuclear power is the nation's largest source of carbon-free electricity.
- Our Fermi 2 nuclear power plant generated nearly 8.1 million megawatt-hours of electricity in 2010, avoiding nearly 8 million tons of CO₂ emissions that would have been produced by a fossil-fueled plant.
- Recognizing the need to reduce carbon emissions from the nation's power plants, the company has begun the process for a potential new unit at its Fermi site.
- In September 2008, Detroit Edison filed a Combined License Application (COLA) with the Nuclear Regulatory Commission (NRC).
- While the company has not committed to building a new plant, the license application preserves the option to do so in the future.





What will they all decide?



- How much environmental improvement is necessary/desired, and at what speed?
- How much can we afford?
- How fast will the economy improve?
- How much natural gas do we have and how much will it cost?
- How critical is the climate change risk and how should it be addressed? What will the rest of the world do?

DTE Energy is committed to economic growth AND environmental progress



- **Detroit Edison has invested \$2 billion on state-of-the-art emissions controls at our power plants.**
- **Plant retirements are inevitable, but we don't want to be forced by unwise regulations to shut units down prematurely causing job losses and lost tax revenue for local communities**
- **If not planned carefully, a massive fuel switch to natural gas for electric generation could drive up prices for Detroit Edison and MichCon customers.**
- **We support moving ahead on environmental progress**
 - At a pace that is reasonable and cost-effective
 - That provides measurable health benefits without jeopardizing the economy
 - That preserves a balanced mix of generation technologies that will serve our needs well into the future





For More Information

- For more info on DTE Energy's commitment to the environment please visit:
www.dteenergy.com/dteEnergyCompany/environment/
- For more info on DTE Energy savings programs please visit:
www.dteenergy.com/residentialCustomers/saveEnergy/
- To send a message to your elected officials about the price impacts of new EPA rules, please visit (before August 4):
www.keepourpoweraffordable.com/

**Be Engaged
This Affects Us All**