

Climate Change Policy in the Trump Era

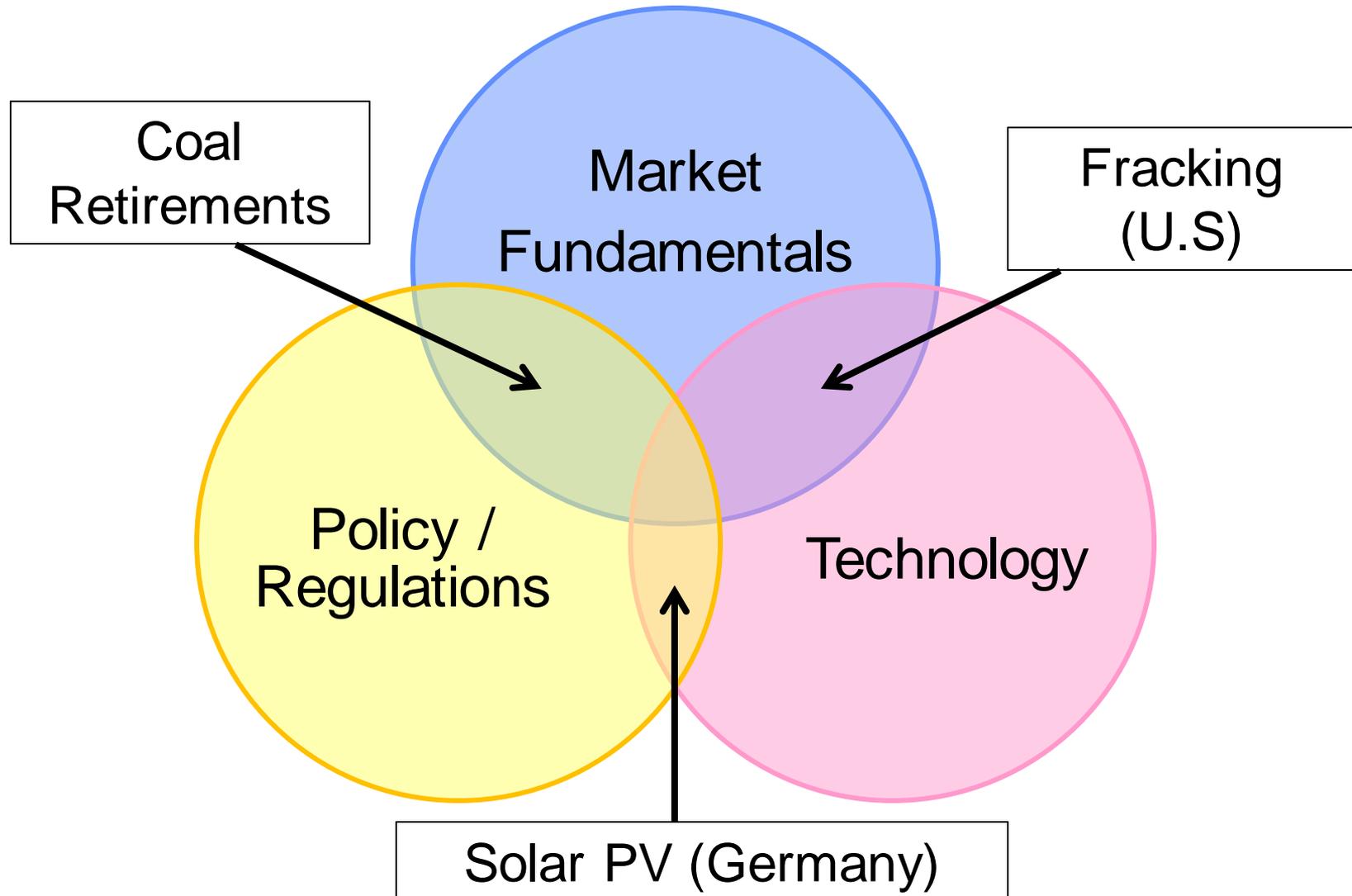
Corporate, State, Federal, Global

New York Energy Forum

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Policy Remains a Crucial Component of Long-Run Energy Trends



Energy Policies Can Have Multiple Objectives

Broader Policy Objectives Include:

- » Reduce Carbon Emissions
- » Reduce Emissions of Other Pollutants (NO_x, SO₂, Hg)
- » Promote Renewables
- » Encourage Energy Independence / Resiliency / Diversity
- » Encourage Economic/Domestic Job Growth
- » Bolster Political Support from Key Constituencies

Policies hitting multiple objectives more likely to gain traction

Overlapping environmental policies may not interact efficiently

Policies Implemented at Many Levels; President Trump Represents One – But Can Impact Others

Level	Implementing Bodies	Policies impacting Energy Sector (e.g.)
International/Global	UN, UNFCCC, IMO, ICAO	Kyoto Protocol, Montreal Protocol, <u>Paris Talks</u> , WTO
International/Regional	EU, NAFTA	Trade-policy, Regional standards, EU ETS
National	National Governments	Emissions/RE targets, Taxes, Incentives
Sub-National	States (CA), Provinces (ON, QC), Regional organizations	Emissions/RE targets, Taxes, Incentives, Gvt purchasing
Local	Cities, Municipalities	Emissions/RE targets, Gvt purchasing, permitting
Private Sector	Corporations, Banks	Internal carbon pricing, offsetting, RE purchasing



Pres. Trump's Exec Order on Climate: Attempts at "Repeal," Questions about "Replace"

- Released March 2017
- Agencies Must Identify and Target Regs for Review
- Orders Review of CPP and NSPS for New Plants
 - » CPP stayed by U.S. Supreme Court in Feb 2016
 - » CPP never included in PIRA's long-term outlook
 - » Potential legally defensible replacements (via rulemaking)
 - CPP: "inside-the-fence" standard based on efficiency potential
 - NSPS: remove partial carbon sequestration requirement
- Revisit Assumptions in Social Cost CO₂ Calculation
 - » Premise of social cost of emissions not directly challenged
- Key Issues Not Addressed in EO:
 - » [EPA GHG Endangerment Finding](#)
 - » Paris Agreement Commitments (INDC)
 - » Obama criteria pollutant regs (Ozone, PM, Regional Haze)

Federal PTC/ITC Already Slated to Phase Down, But Its Interpretation May Be at Risk

	PTC Value	*ITC Value
2015	Full*	Full (30%)
2016	Full	Full (30%)
2017	80%	Full (30%)
2018	60%	Full (30%)
2019	40%	Full (30%)
2020	<i>Expired</i>	26%
2021	<i>Expired</i>	22%
2022	<i>Expired</i>	<i>10% for Commercial; Expired for Residential</i>

* Act also contains provision giving ITC credit at “start construction” aligned with PTC, rather than “placed in service” date.

* **2015 value of PTC \$23/MWh.**
Adjusted for inflation each year.

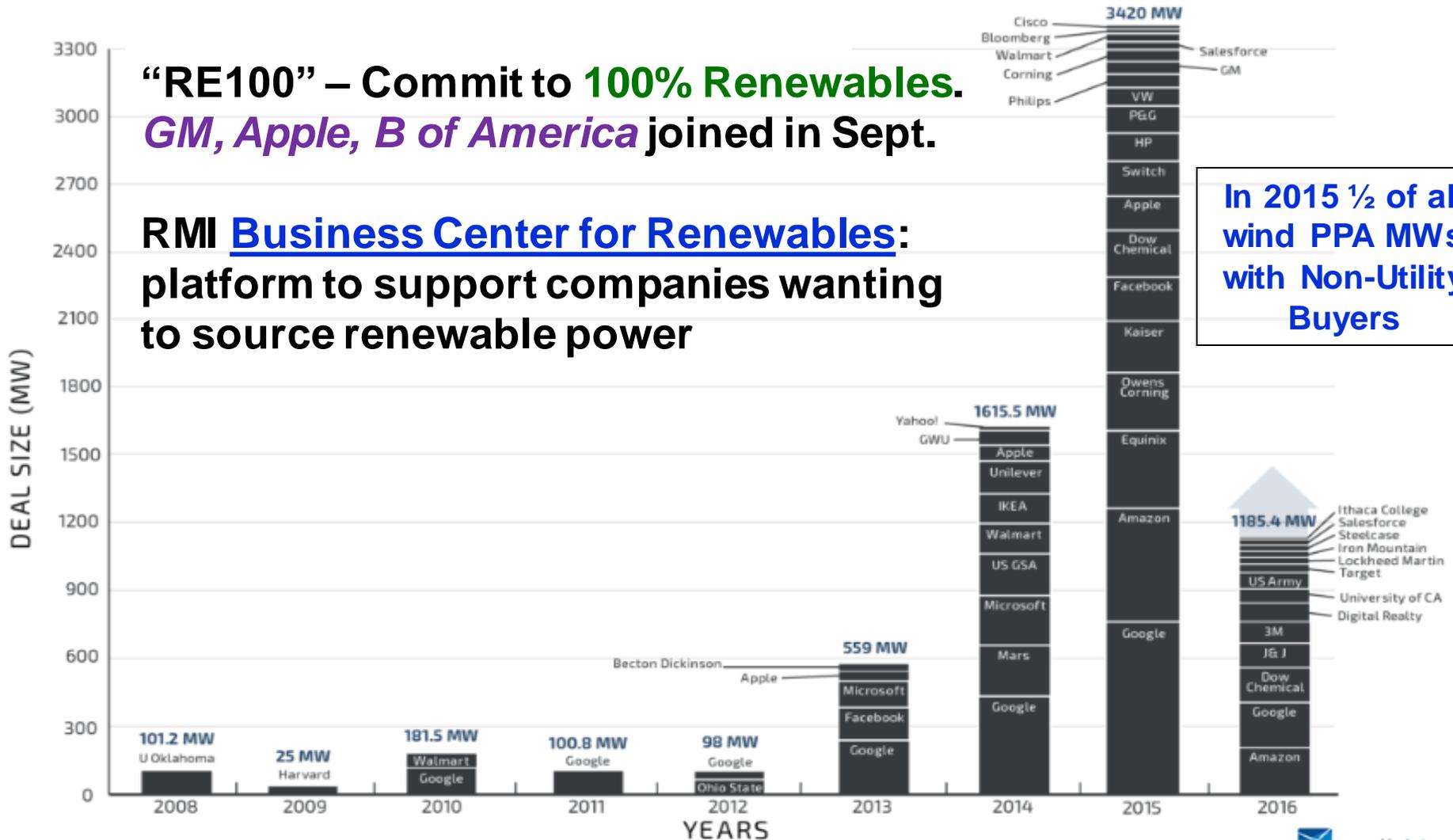
May 2016 – IRS PTC Guidance giving 4 years from start of construction to place facility in service. Previously, just 2 years.
ITC Guidance expected soon.
Can it be revised under Trump?

U.S. Corporates/Industrials Increasingly Buying Renewables – Will This Continue?

“RE100” – Commit to **100% Renewables**.
GM, Apple, B of America joined in Sept.

RMI Business Center for Renewables:
platform to support companies wanting
to source renewable power

In 2015 ½ of all
wind PPA MWs
with Non-Utility
Buyers



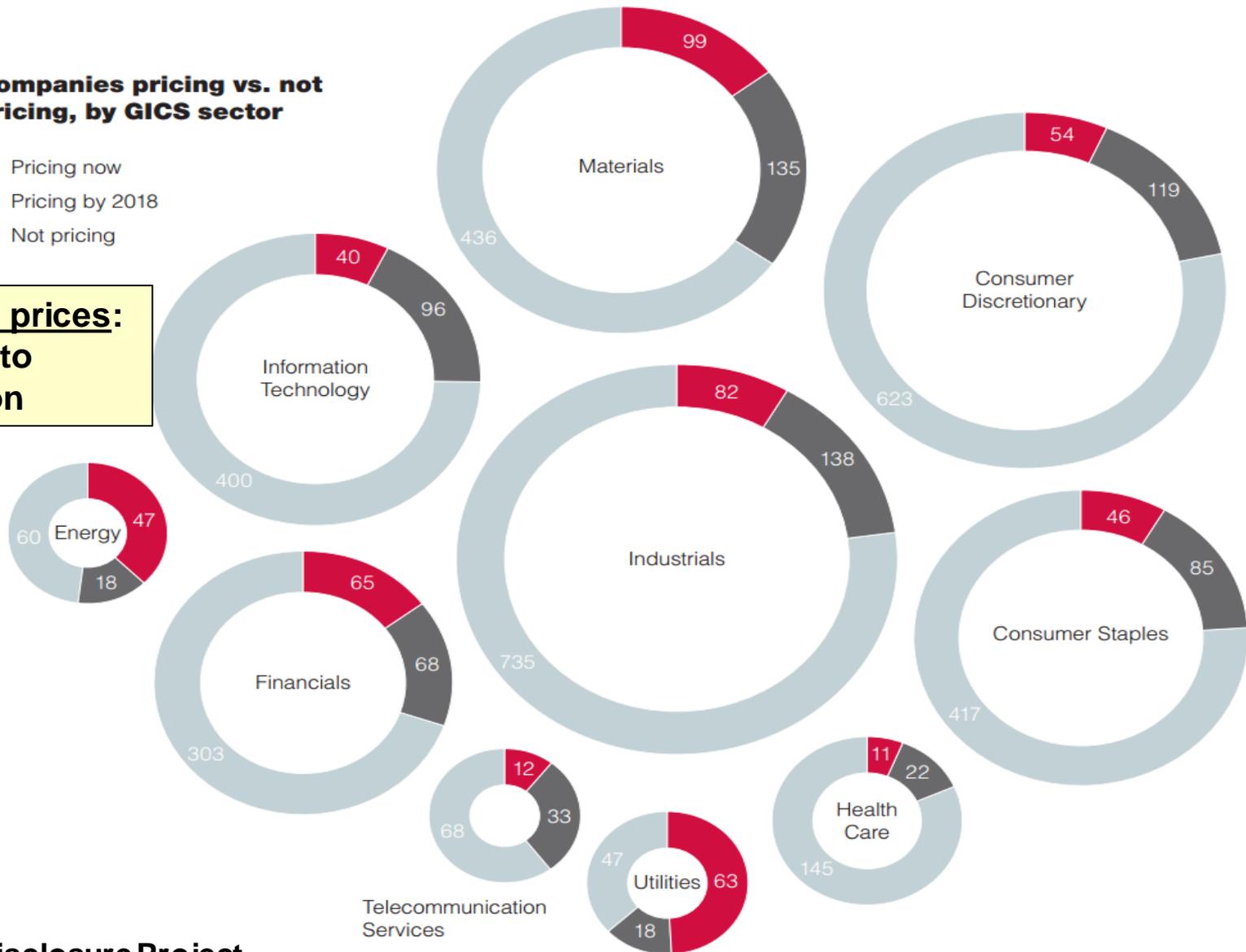
*Based on publicly announced C&I PPAs (direct, synthetic, green tariff, and tax equity) in North America. Excludes onsite PPAs. Last updated 9.16.16.

Companies Also Factoring Internal Carbon Prices into Decisions

Companies pricing vs. not pricing, by GICS sector

- Pricing now
- Pricing by 2018
- Not pricing

**Internal carbon prices:
Range from \$2 to
\$200+/-/metric ton**



State-Level Policies Remain a Key Driver of Renewables

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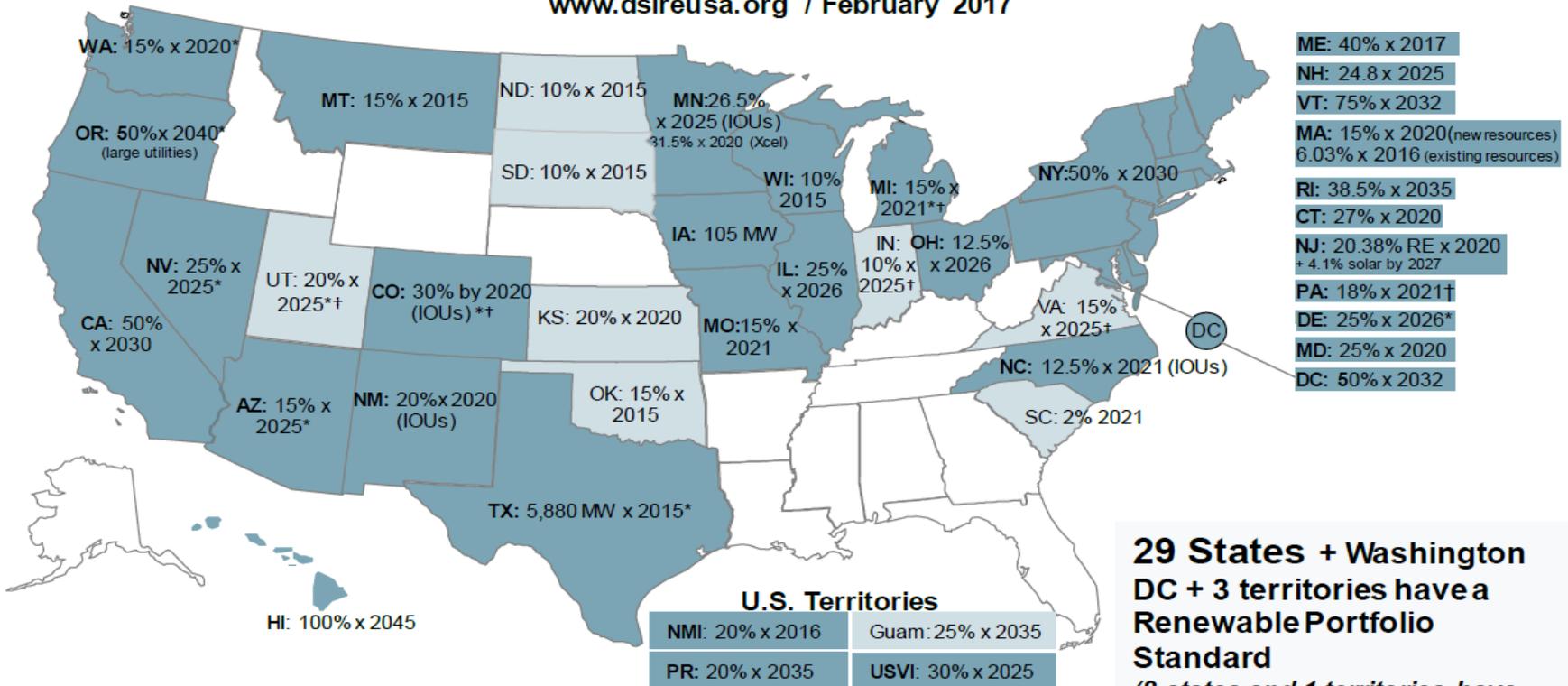


U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

Renewable Portfolio Standard Policies

www.dsireusa.org / February 2017



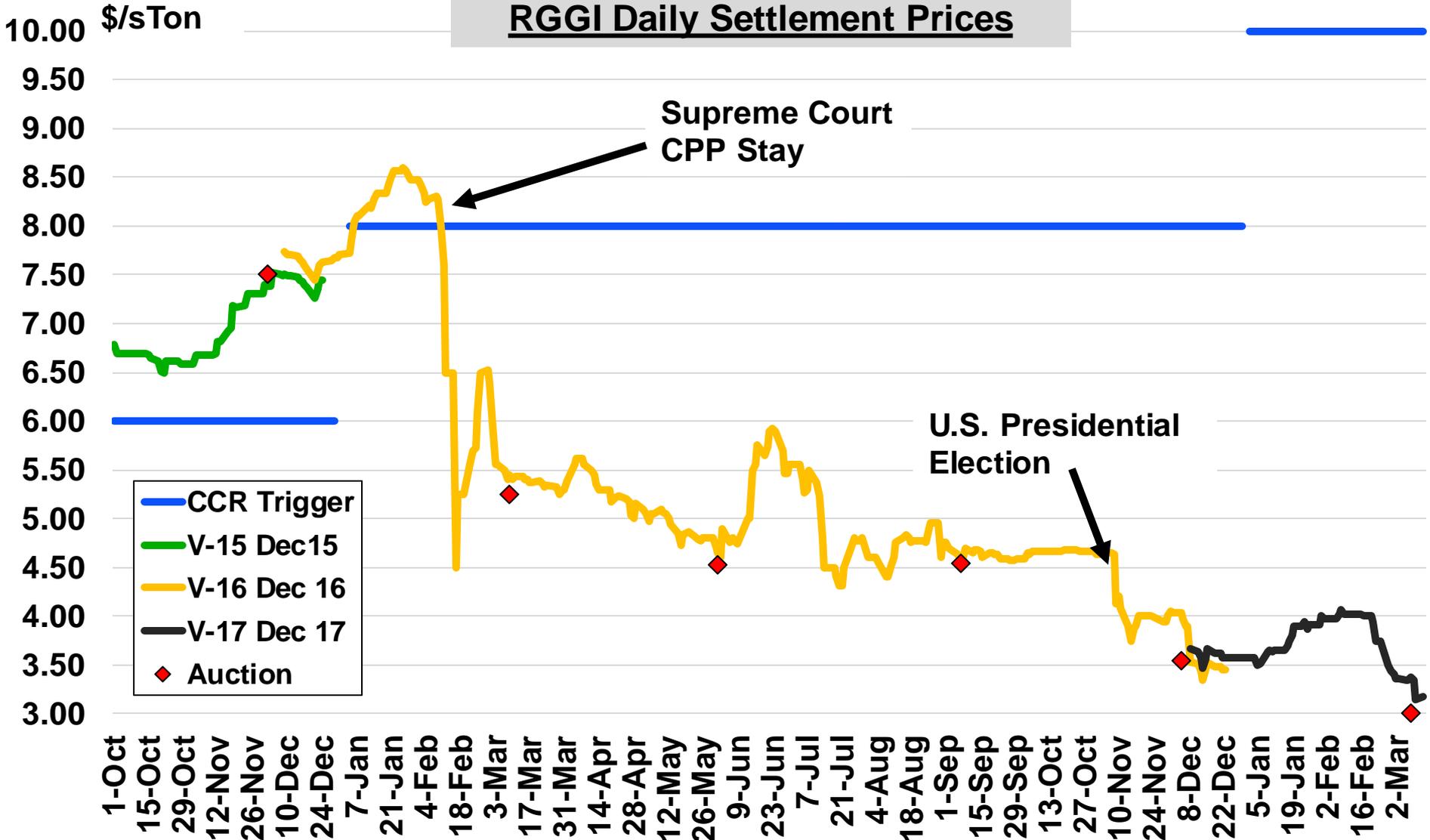
29 States + Washington DC + 3 territories have a Renewable Portfolio Standard
(8 states and 1 territories have renewable portfolio goals)

Renewable portfolio standard
 Renewable portfolio goal

* Extra credit for solar or customer-sited renewables
† Includes non-renewable alternative resources

State-Level Carbon Markets Still Impacted By Federal Developments

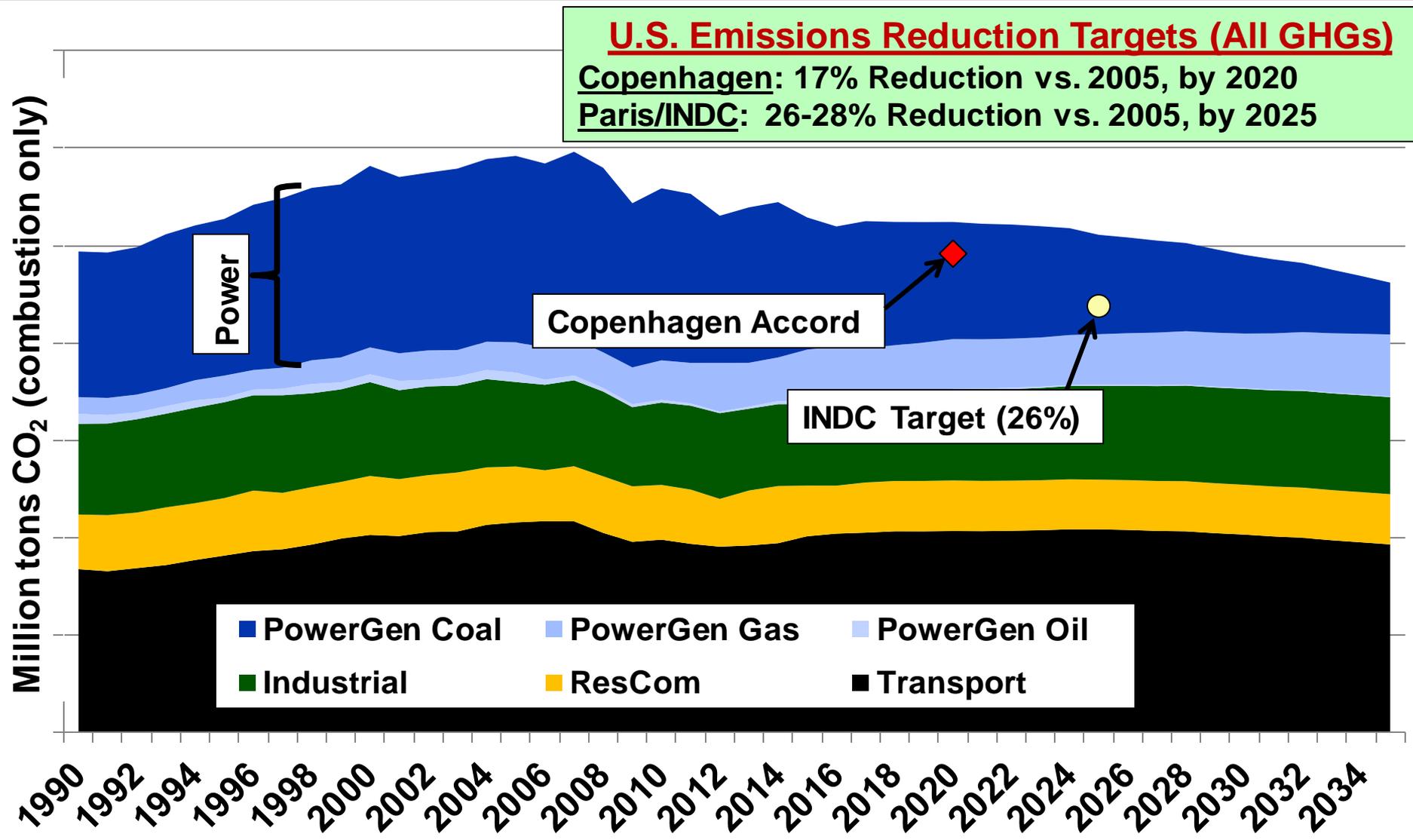
RGGI Daily Settlement Prices



Note: RGGI prices based on prompt-December contracts on ICE, supplemented by SNL/S&P Global.

U.S. Challenged To Meet International GHG Targets;

Transport Emissions Remain Crucial



Note: Historical Data and PIRA projections from the *World Energy Demand Model*.
 Chart illustrates CO₂ combustion emissions only – and targets are proportionately allocated

Chinese CO₂ Emissions Policy: Explicit Targets, But Questions Remain

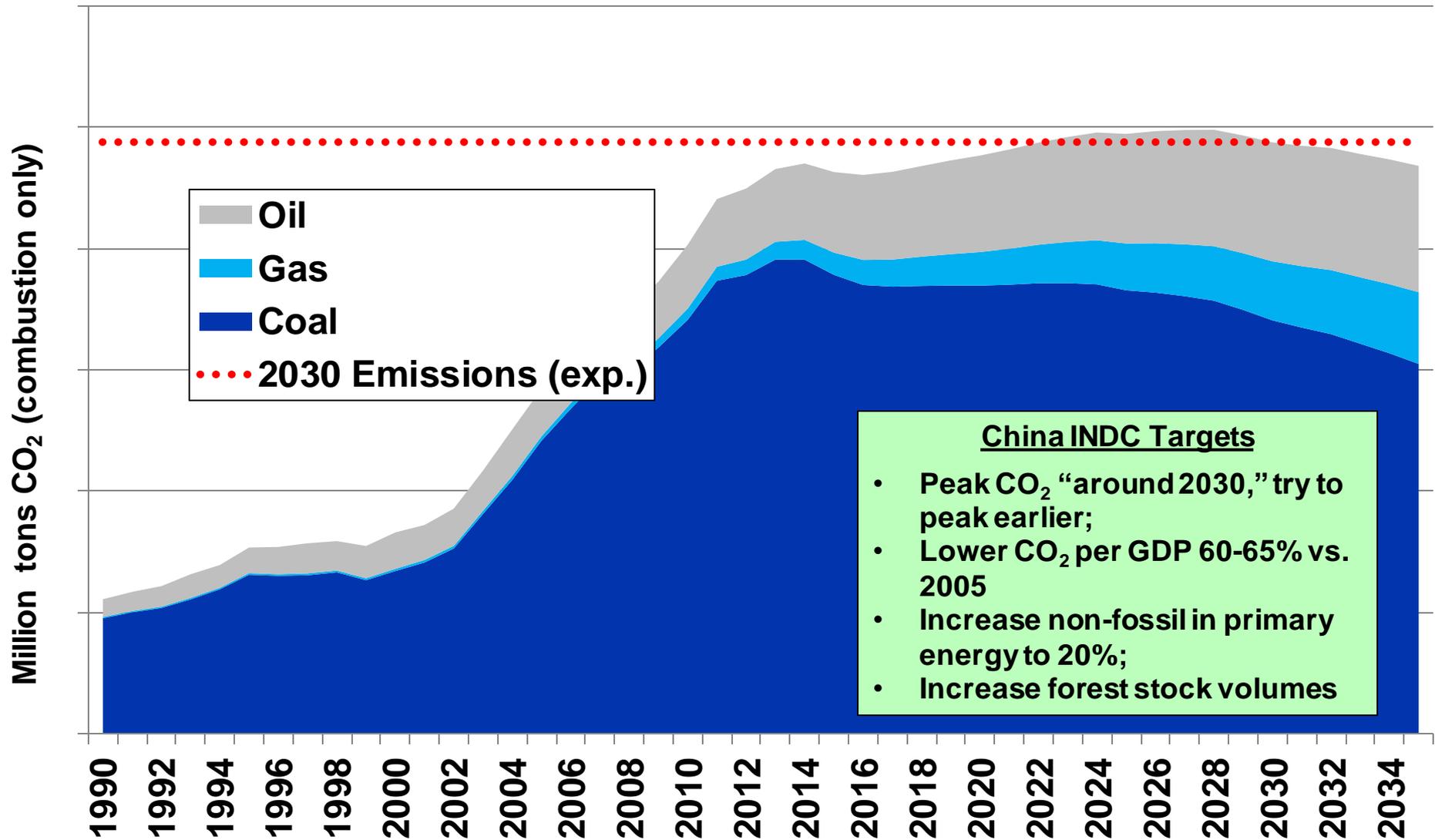
History:

- Signed Kyoto Protocol without binding targets

Current:

- **Commitment under Copenhagen Accord (Jan 2010)**
 - » 40-45% reduction in carbon intensity (CO₂/GDP) vs. 2005 by 2020
- **INDC targets (Paris), Bilateral cooperation with U.S. (2014-2015)**
 - » Stabilize emissions by 2030, Improve emissions intensity
 - » Increase share of “clean energy”/renewables
 - » \$3 billion to fund climate change efforts in developing countries
- **Carbon Pricing:**
 - » Seven pilot regional schemes started in 2013-2014, leading to....
 - » National carbon program to start in 2017 (announced in U.S., Nov. 2014)

China Emissions To Plateau After 2025



Note: Historical Data and projections from PIRA's *World Energy Demand Model*. CO₂ combustion emissions only.

The Election of Donald Trump Does Not Make China's Environmental Problems Go Away

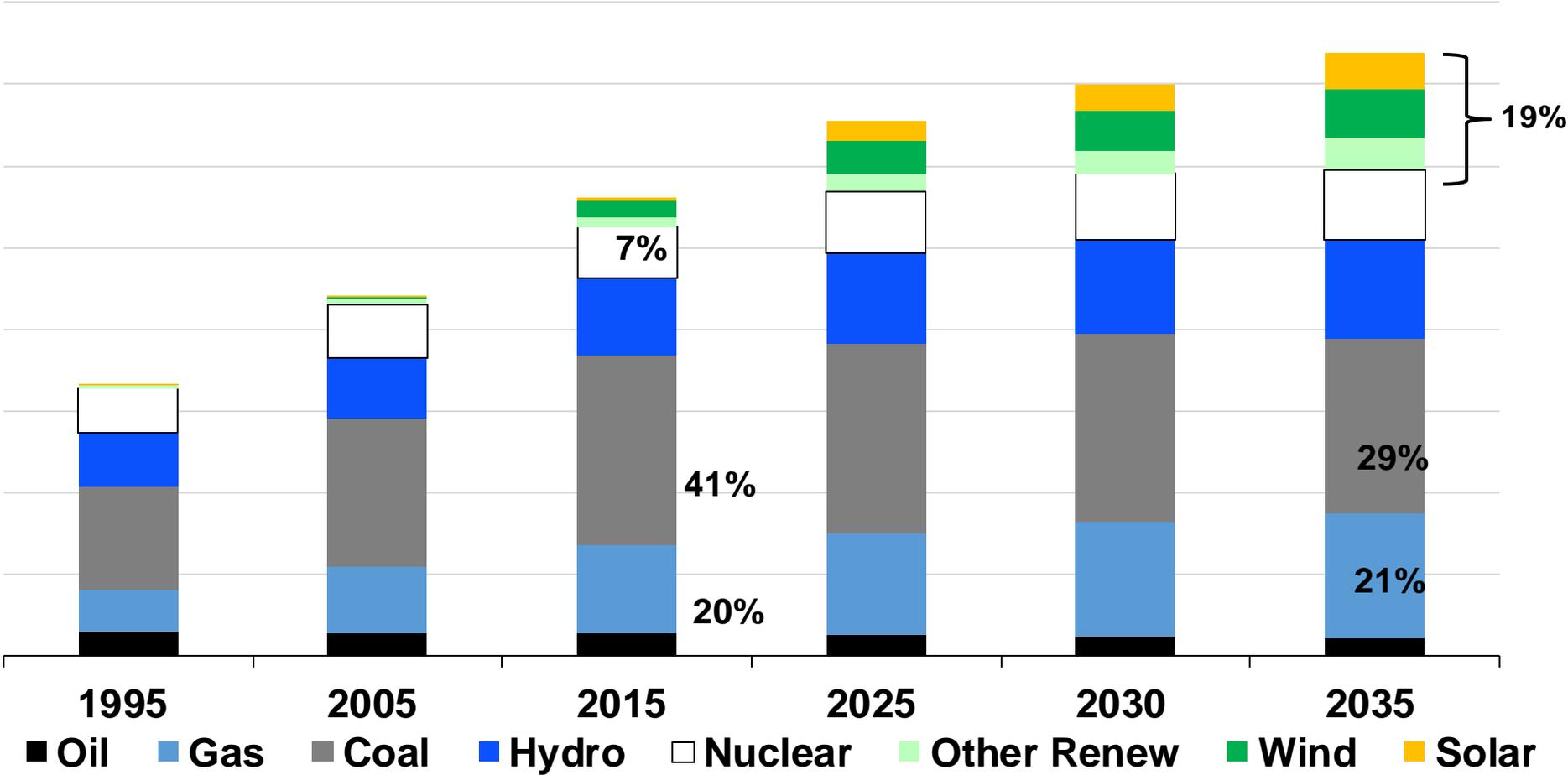
Obligatory Photo of Chinese Smog



Global PowerGen Energy Demand

Renewables Share Up Sharply, Coal Down, Gas Flat

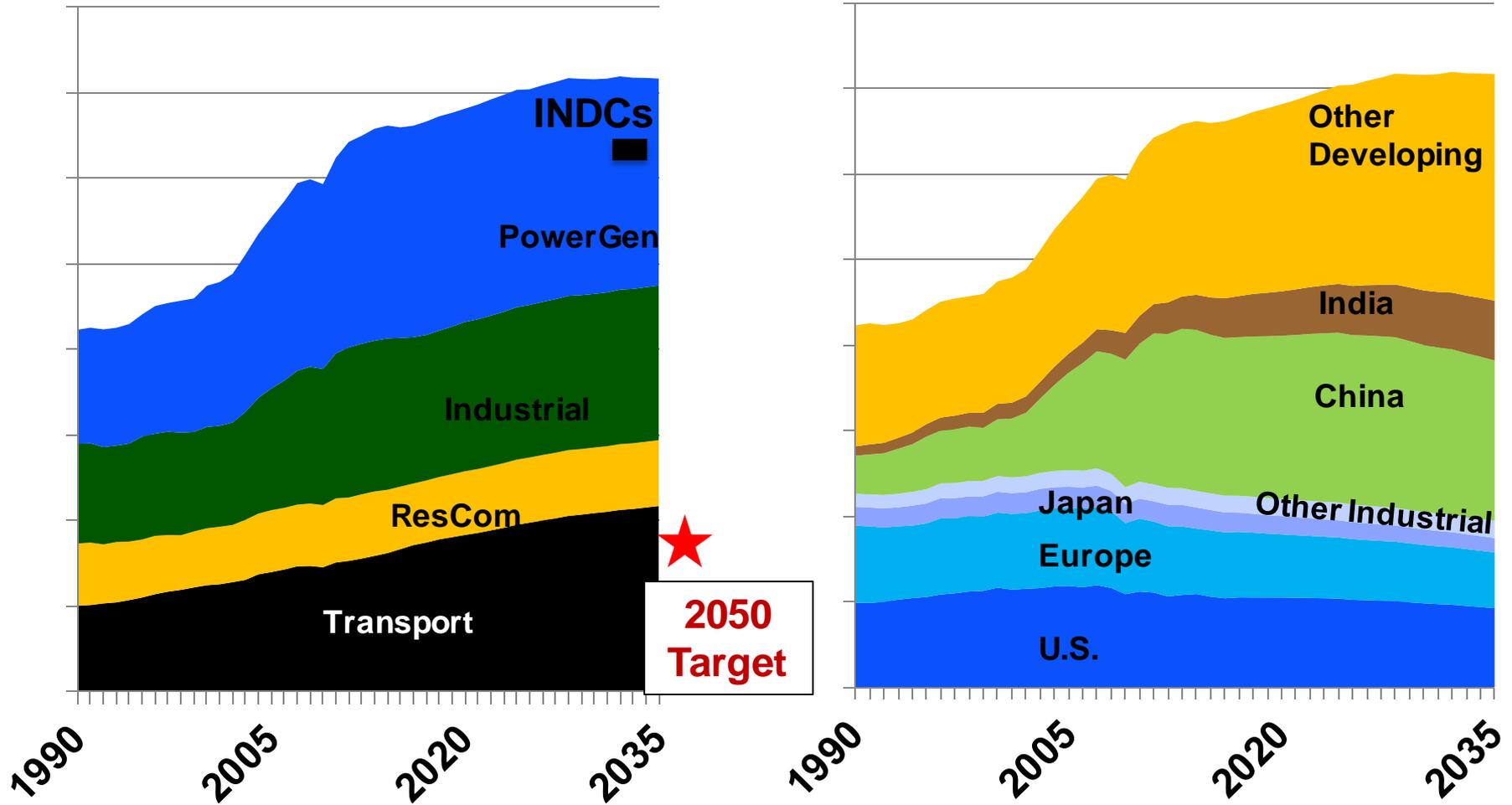
MMBOE/D



Note: Historical Data and projections from PIRA's World Energy Demand Model. CO₂ combustion emissions only.

Paris Targets/INDCs Only the Start of Required Reductions, Transport Emissions Keep Growing

MTons CO₂



Note: Historical Data and projections from PIRA's *World Energy Demand Model*. CO₂ combustion emissions only.

Take-Aways

- **Policies (on multiple levels), interact with Markets and Technology to set energy sector trends**
- **President Trump represents one level (Federal), but can impact others**
- **Question on how recent Executive Order on Climate will be implemented**
- **Corporate and state-level initiatives already play a major role – but may still draw guidance from Federal policy**
- **U.S. long-term GHG targets remains difficult to meet**
- **China is crucial to long-term global trends, their domestic environmental constraints may drive policy**
- **INDC/Paris GHG Targets represent the start of required emissions reductions, transport will be a major factor**

LEADERS IN ENERGY MARKET ANALYSIS

Providing the Total View of the Global Energy Market

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