

International Markets and Climate Change

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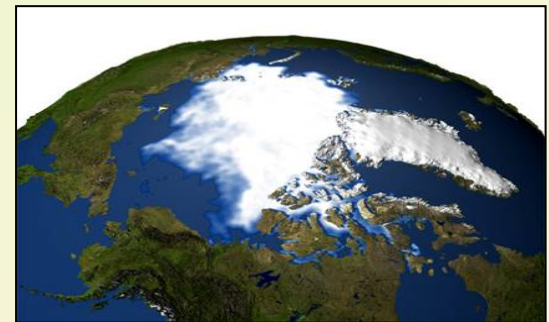
*ACEEE National Symposium on Market Transformation
Washington, D.C.
31 March 2008*

Climate: What is different now?

- **You can see the climate change**
 - Arctic, glaciers
 - The Arctic is likely to be ice-free in Summer in our lifetimes
- **Ice dynamics is a newly-perceived threat**
- **Oceans becoming acidified**
- **Past the point of no return**



1979



2003

Source: U.S. National Aeronautics and Space Administration

Too Late for Action?

“Every imaginable energy supply alternative...will come too late, be too small, and cost too much to make a real difference unless matched with an urgent, full-scale effort to reduce demand for energy.”

“Realizing the Potential of Energy Efficiency: Targets, Policies, and Measures for G8 Countries,” Expert Group on Energy Efficiency, UN Foundation, 2007

Elements of Post-Kyoto Leadership

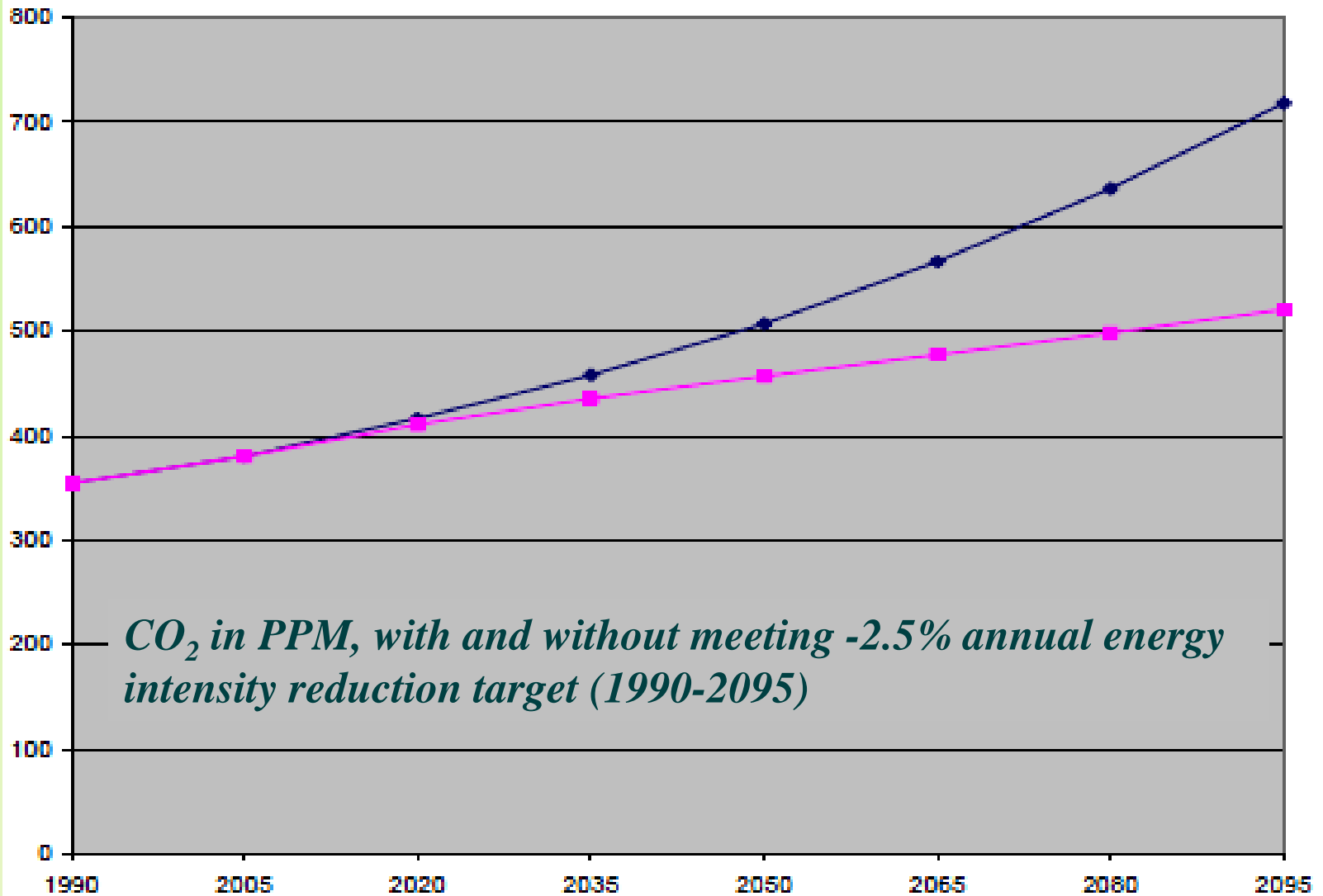
- 1. Goals must be stronger**
- 2. Implementation must be effective**
- 3. The U.S. & China must participate**

UNF 2007



**Realizing the Potential of Energy Efficiency
Expert Recommendations to the G-8+5**
UN Foundation

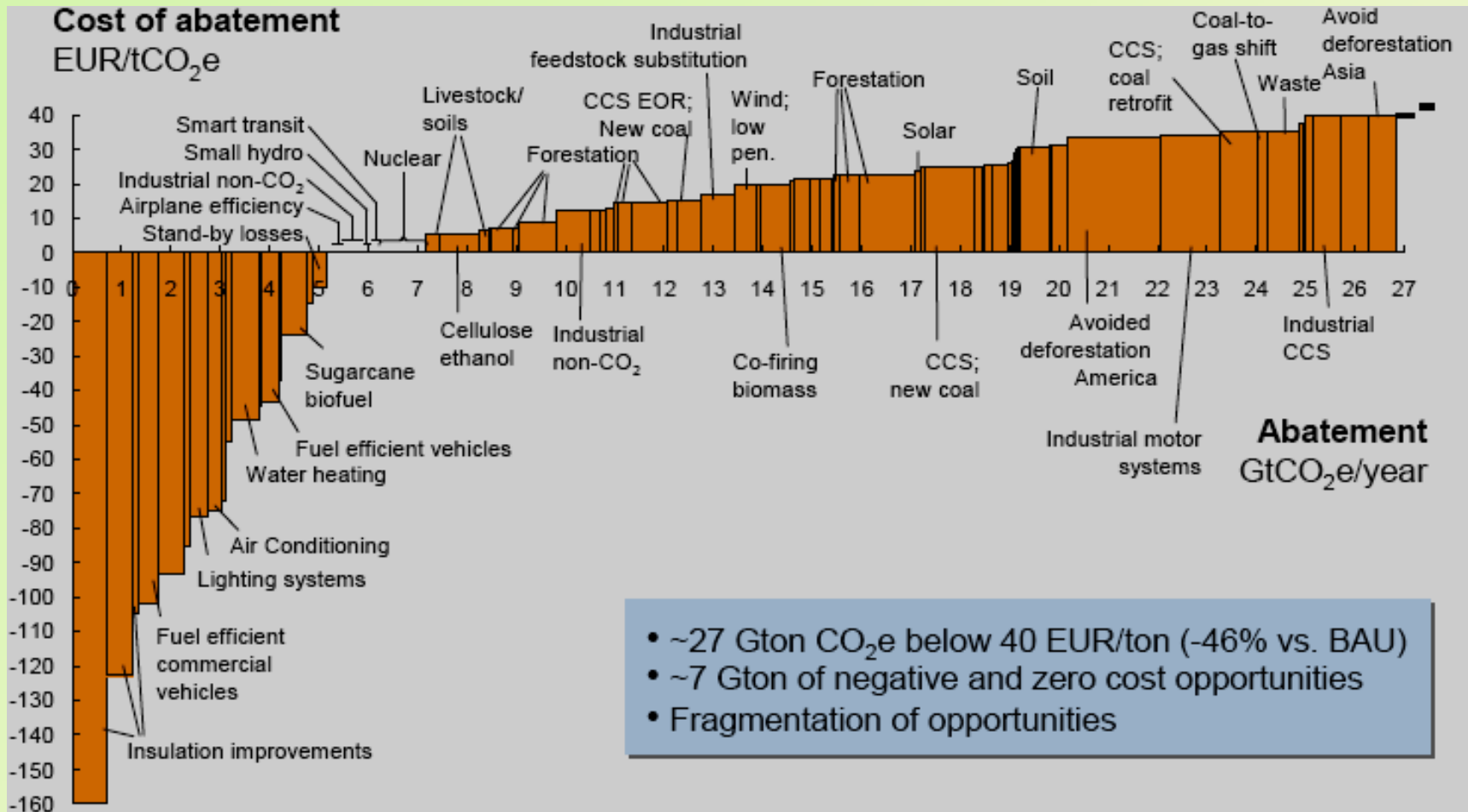
Linking Energy Demand to Mitigation



CO₂ in PPM, with and without meeting -2.5% annual energy intensity reduction target (1990-2095)

Source: *Realizing the Potential for Energy Efficiency*, UN Foundation, 2007

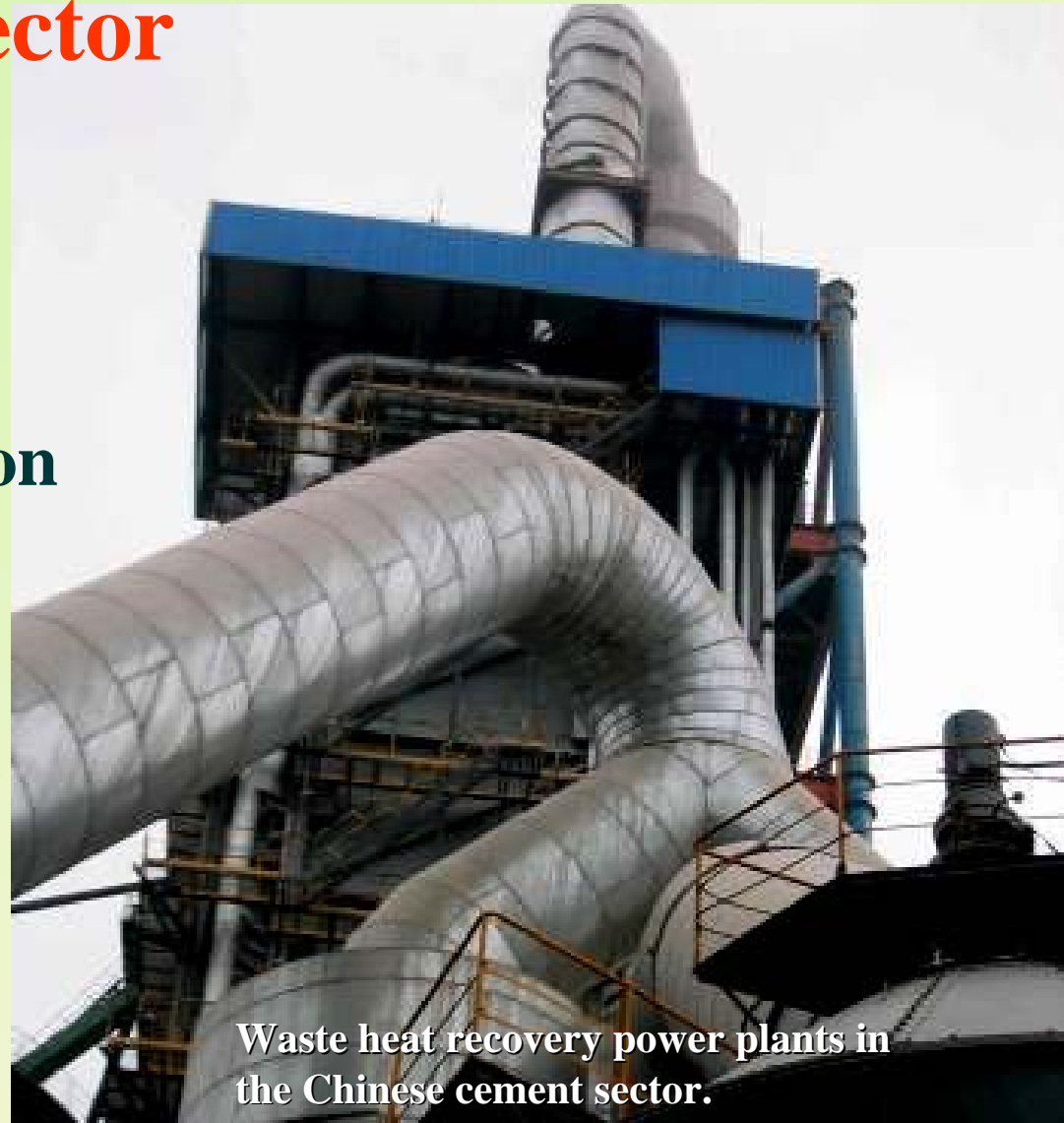
Efficiency Compared to New Supply



Source: UNF, with analysis of CO₂ mitigation options prepared by Vattenfall, 2007.

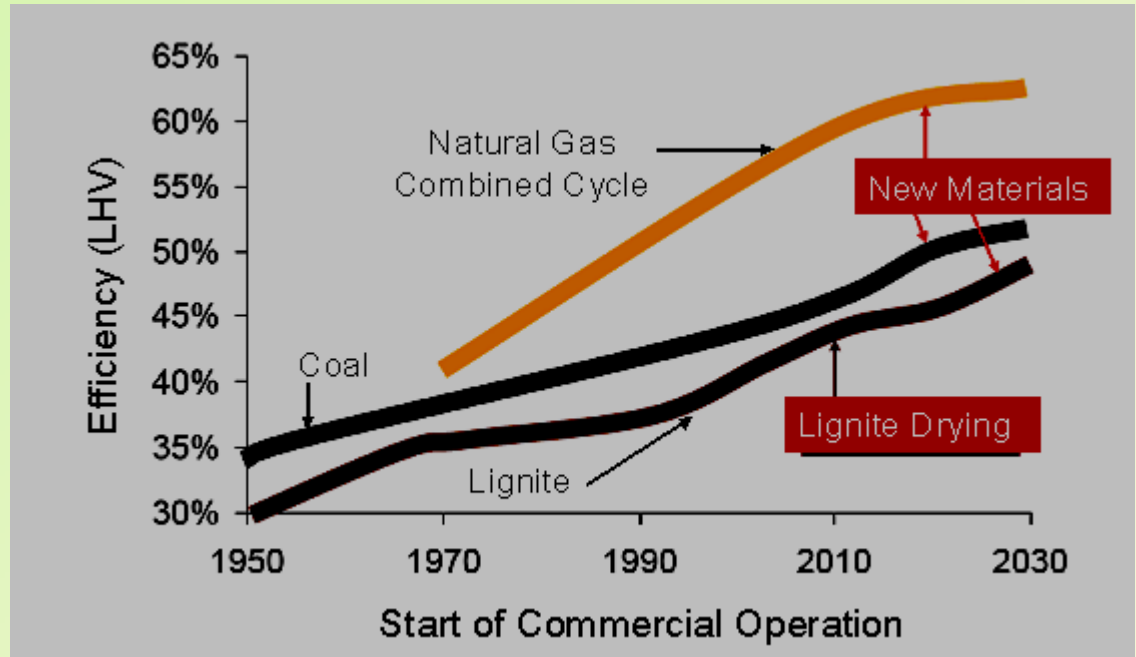
G-8: Industrial Sector

- Binding targets to reduce energy use
- Minimum standards on motors, boilers, pumps



Waste heat recovery power plants in the Chinese cement sector.

G-8: Utility Sector



- Higher return on investments in energy efficiency
- Meet 30% of new capacity on the demand-side
- Standards for power plants

G-8: Transport Sector

- **Auto FE**
- **Increase efficiency of heavy-duty vehicles 35% by 2030**
- **Reduce vehicle travel and freight movement by 15% by 2030**



G-8: Buildings Sector



**TWO
COMPRESSORS**

**TOP OF
THE LINE
PERFORMANCE**

R22
Refrigerant

Energy Star

XL19i - 19 SEER

LIMITED WARRANTY
*10 YEAR PARTS
*10 YEAR COMPRESSOR

TRANE

BEST OF THE BEST

- Save 25 to 30% in appliances by 2020 through standards
- Reduce buildings energy use by 30% by 2030 relative to present consumption by standards

The U.S. and China Have to Act

- **They produce 40% of global emissions**
- **Half of U.S. states have set goals**
- **China is considering a target**

What Can the U.S. Do?

Buildings, lighting, equipment

- **30% energy reduction by 2030**

Passenger Vehicles

- **60% increase in efficiency by 2030**

Industry

- **40% demand reduction by 2030**

Source: Realizing the Potential for Energy Efficiency, UN Foundation, 2007

What Can China Do?

- **Improve buildings efficiency 75% (2030)**
- **Impose fuel tax (2015)**
- **Require 40% power plant efficiency (2030)**

Source: “Energy Demand and Emissions in 2030 in China: Scenarios and Policy Options,”
Jiang Kejun, Hu Xiulian, Energy Research Institute, 2006

Barriers to Technology Deployment

- **Developers' lack of experience**
- **Lenders' lack of experience**
- **Industrial policy**
- **Company law**
- **Taxes**

**Source: William Chandler and Holly Gwin, "Financing Energy Efficiency in China,"
Carnegie Endowment, 2007**

Policy Solutions

- **Provide VAT holidays and exemptions for clean energy companies and services**
- **Shift CDM from payment-on-delivery to payment-as-investment**
- **Shift to risk-based clean energy lending**

Framework for U.S.-China Cooperation

- **Jointly set equitable goals**
- **Agree on enforceable measures**
- **Cooperate on deployment policies**
- **Cooperate on long-term R&D**

- *Standards*

- *Finance*

- *Info*

- *R&D*

Stating A Theory of Change

Governments can do only four things

- **Regulate**
- **Tax**
- **Spend (R&D, subsidies)**
- **Provide Information**

Governments can do nothing without support