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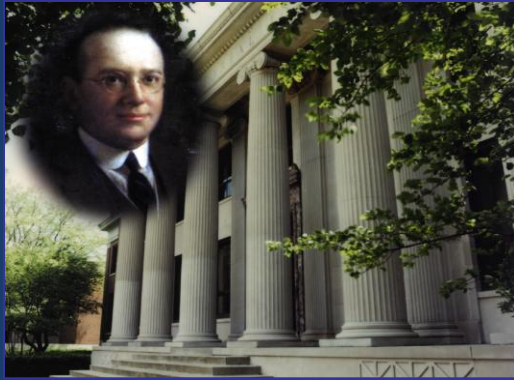


New Energy Economy

- Affordable Energy Has Been a Key Driver For Mid-West Industries Business Competitiveness
- Coal Is The Dominant Fuel For Power Production
 - Over 50% of US Energy From Coal
 - Over 50% of US Coal Fired Power Plants In Mid-West
- The Future Requires Energy To Be
 - Environmentally Responsible
 - Reliable
 - Affordable



Battelle: A global leader in Research and Development for over 8 decades



Founded in 1929 in Columbus, Ohio:

- To do “creative and research work”;
- The “making of discoveries and inventions”
- Their “reduction to practice and disposal on such terms as seems most advantageous”

Today:

- \$5.1 billion revenues
- 21,000 staff
- 9 major laboratories
- \$920 million energy RD&D



Our core purpose is translating scientific discovery to innovative commercial applications

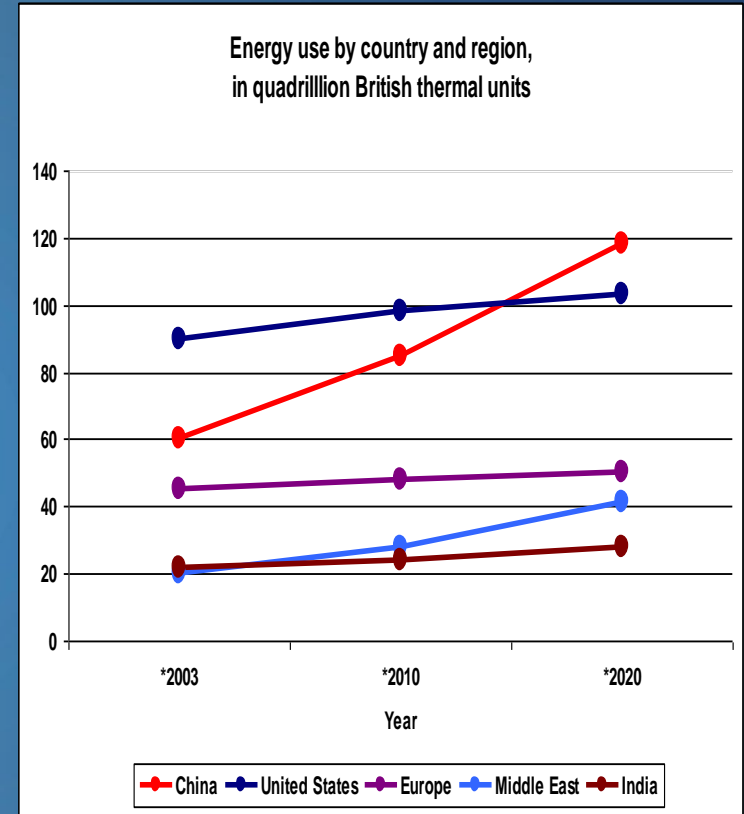
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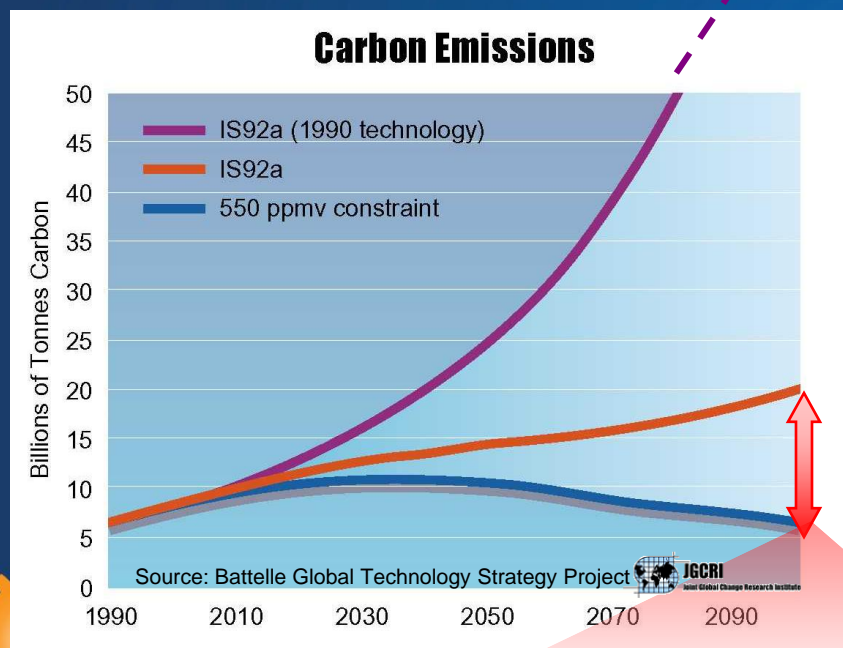
The Challenge: Fossil fuels remain the most significant global energy source

- World primary energy demand projected to grow by 55% between 2005 and 2030
- Coal sees the biggest increase in demand in absolute terms from 25% in 2005 to 28% in 2030
- Over 80% of the increase in coal use arises in China and India
- Electricity use doubles its share of total energy consumption rising from 17% to 22% globally
- Demand for transportation fuels grows rapidly in China and India



Energy growth in non-OECD Countries 3X OECD by 2030
Non OECD growth may increase global carbon emissions 70% by 2030

Meeting the climate challenge will require an expanded suite of technologies



Where today's technology will take us (~2000 GT over budget)

**Solar & Wind power
Nuclear
Efficient Fossil Electric
Advanced Transportation
End Use Efficiency
Conventional Biomass**

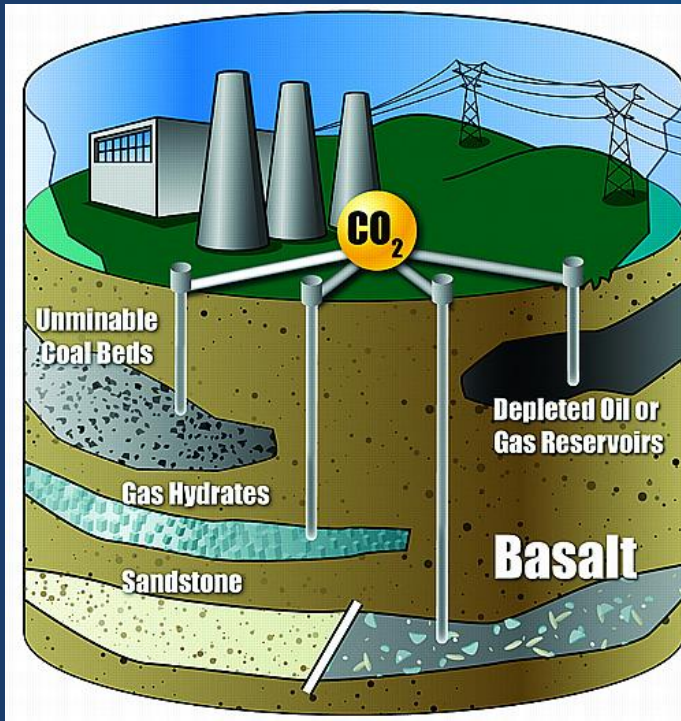
Where most advanced versions of current technologies will take us (~500 GT over budget)

**Path we need to be on to stabilize carbon at 550ppm
(Carbon Budget = ~1043 Gigatons)**

CO₂ capture and sequestration

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Total cost of available carbon capture & sequestration technology remains high



Percent increase in cost of electricity

Pulverized Coal

43-91%

**Natural Gas
Combined Cycle**

37-85%

**Integrated Gasification
Combined Cycle**

21-78%

Source: IPCC Special Report on Carbon Dioxide Capture and Storage, 2005 Table 8.3a

Progressive/ phased transition strategies and incentives can aid in reducing the economic impact of climate technology deployment

New Energy Economy

The Future Requires:

- 1) Educated Population & Educated Workforce
- 2) Technology to Provide Solutions & Create New Jobs Domestically & Abroad
- 3) Public, Private, and Governmental Collaboration to Create the Environment For Change
- 4) Midwestern Tenacity to Provide Leadership & to Succeed

