

GE Energy

Power Market Overview

Carnegie Mellon
University
Pittsburgh, PA
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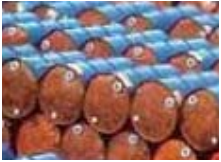
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A Changing World ...



Growing Population & Energy Density



Fuel Sourcing Complexity



Increasing Environmental Requirements



Escalating Security Concerns



Technology & Talent Globalization



Heightened Investor Demands

Everyone
Under
Pressure

What We're Hearing from Our Customers

Environment is a Key Issue

- We'll be living in a carbon constrained world
- Renewables can be part of the solution ... but only part
- Nuclear ... needed and becoming more likely in US
- Grid congestion still a major issue
- Permitting remains a major challenge
- Technology needs to address requirements cost-effectively



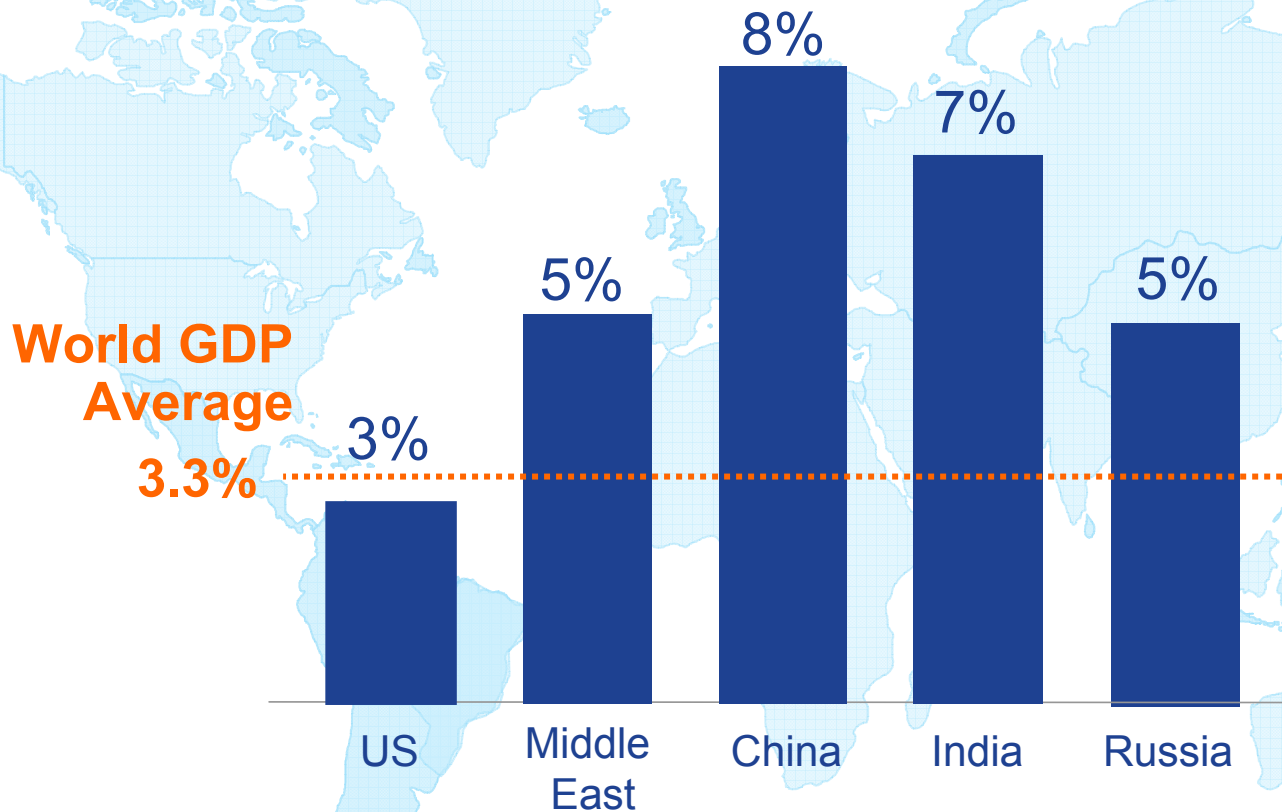
Topics

- Global outlook
- US market assessment
 - Capacity additions and reserve margin
 - Trends in fuel pricing
 - Renewed interest in coal
 - Renewables
 - Energy prices
- Energy Policy Act of 2005
- Technology Solutions



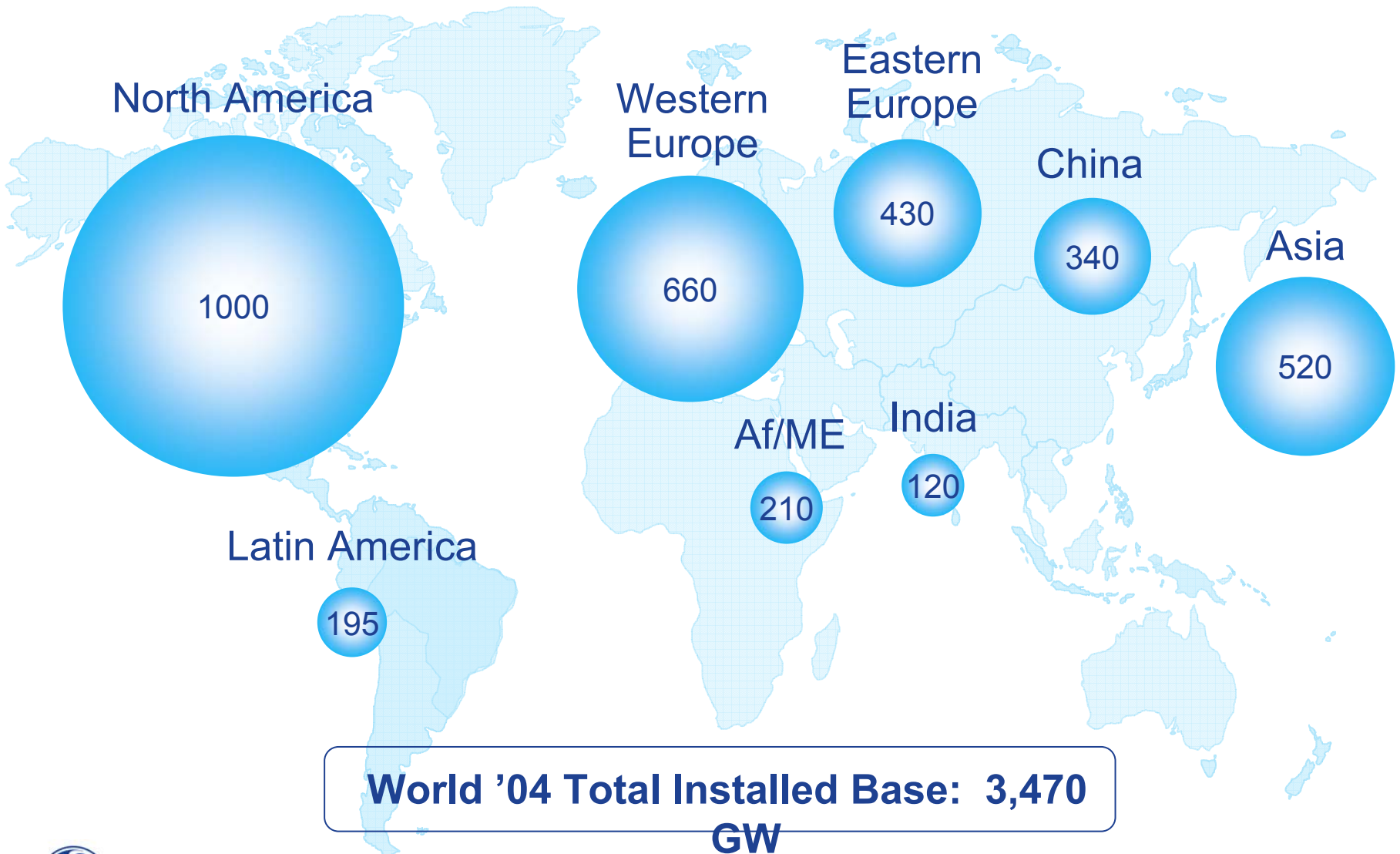
Growth Market Perspective

**GDP Growth -
% (2005-2009)**

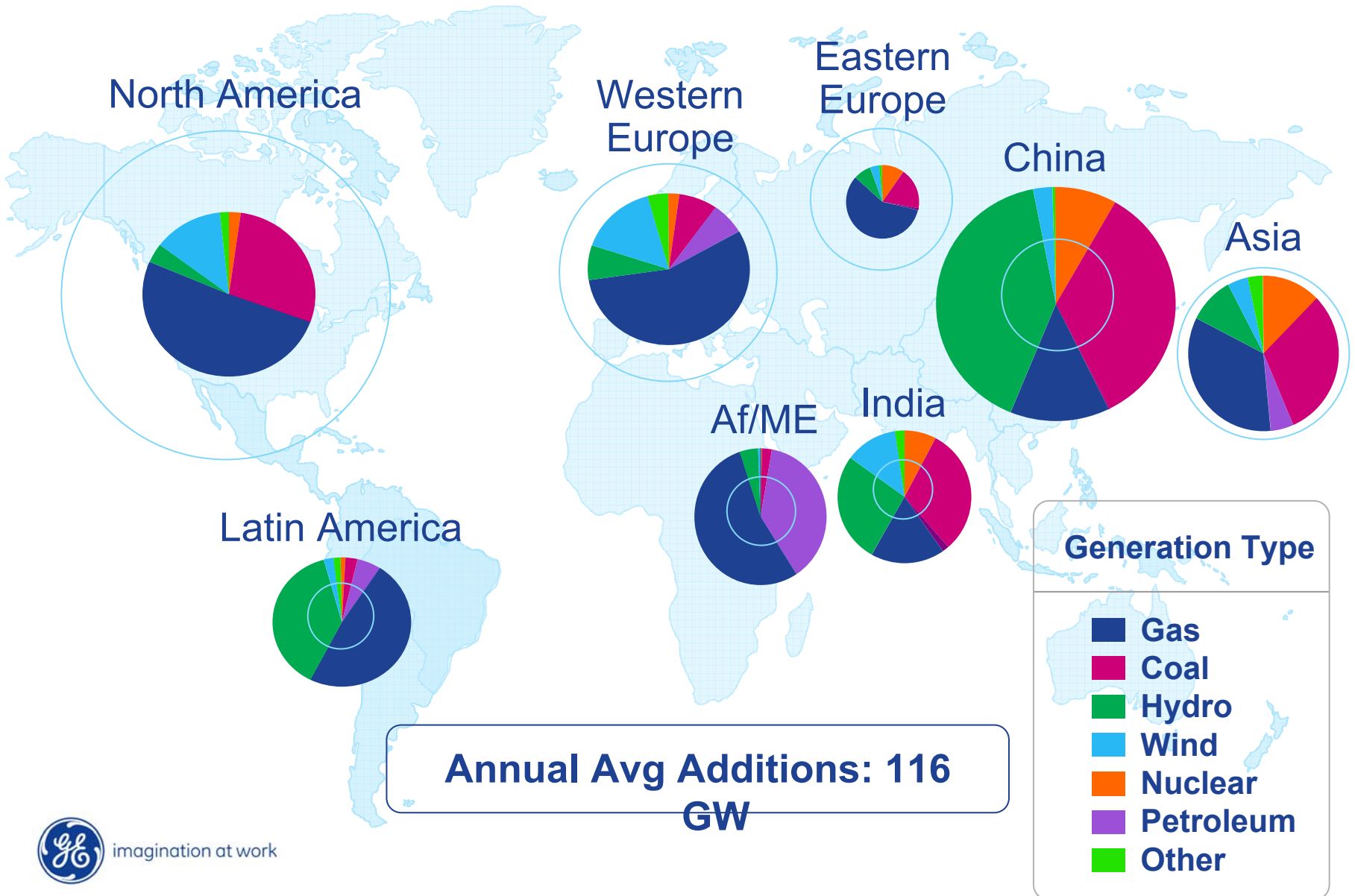


World GDP led by China, India, Middle East & Russia

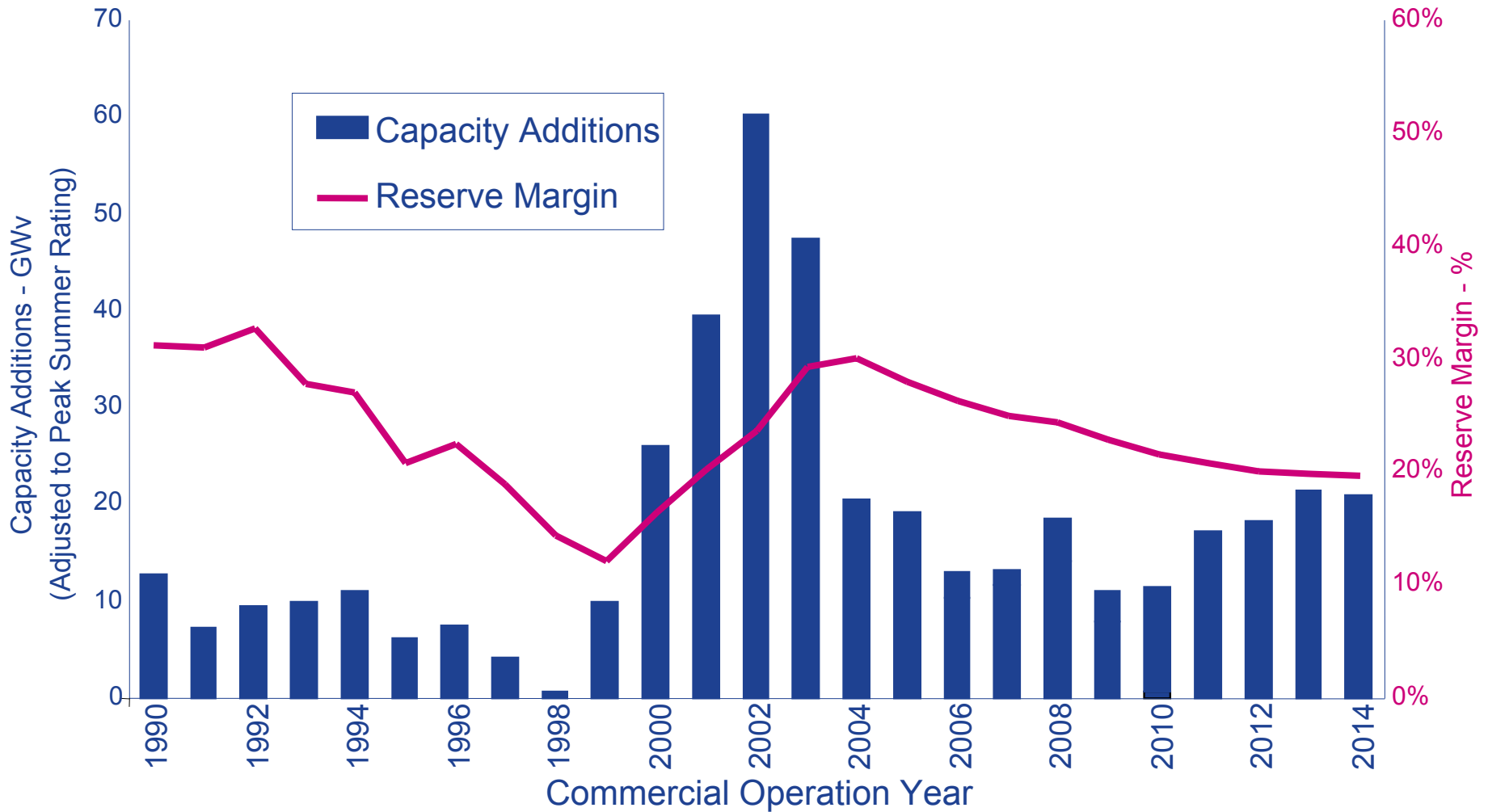
Power Gen Landscape - Current



Power Gen Landscape - Future

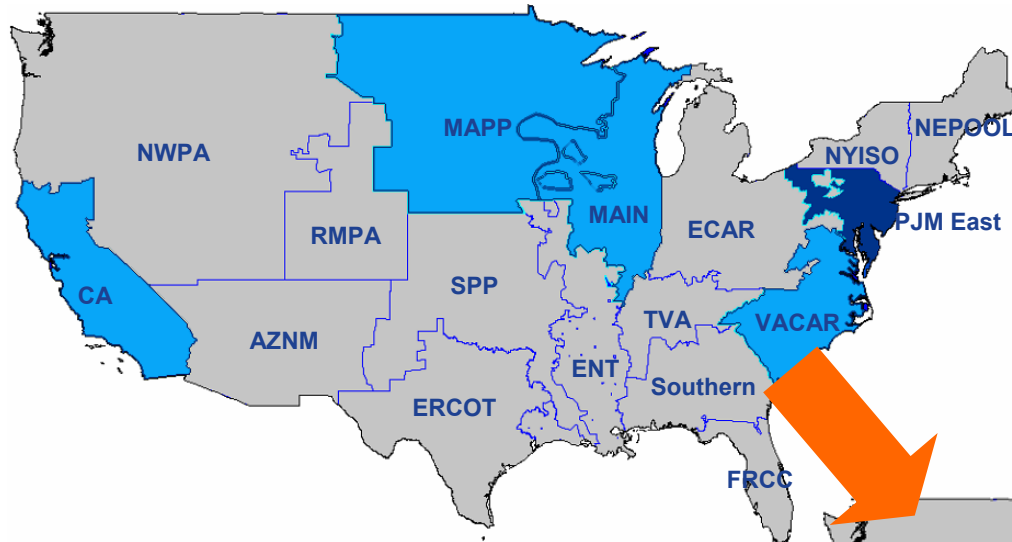


U.S. Capacity Additions and Reserve Margins



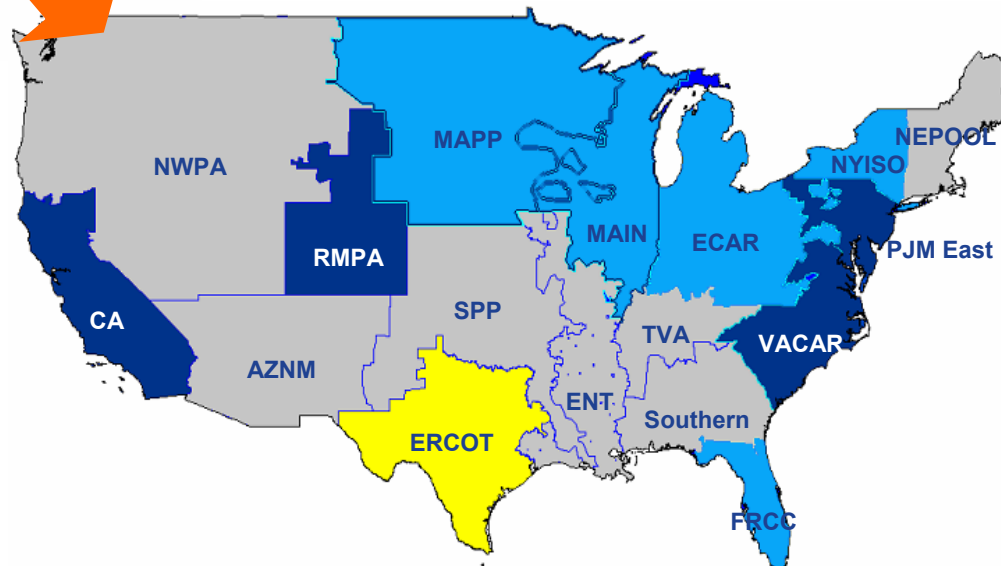
U.S. Reserve Margin by Region

2005

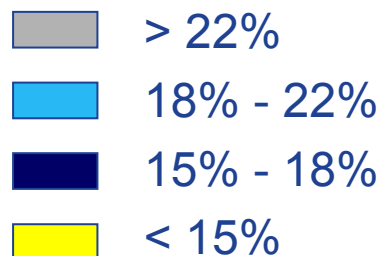


Regional Reserve Margins Dropping

2008



Reserve Margins

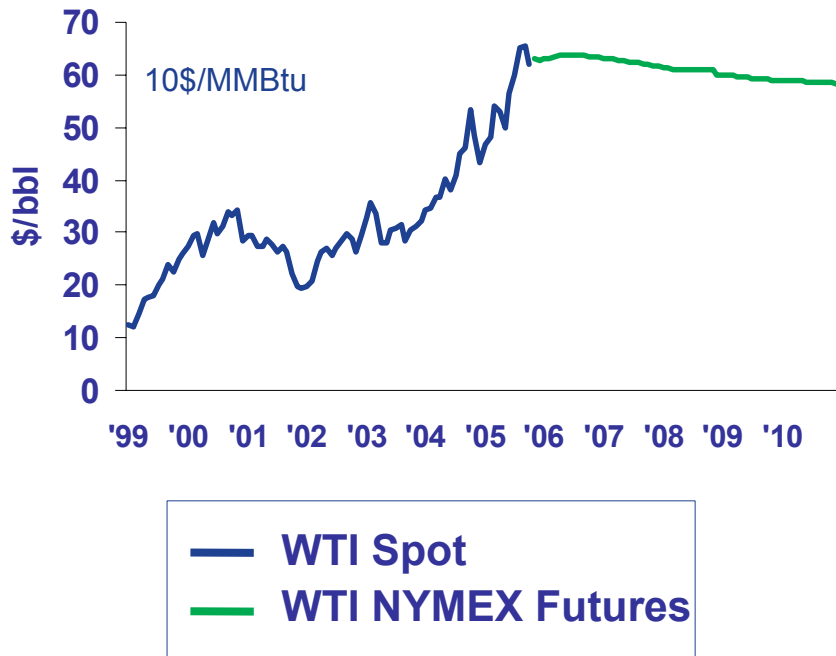


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Sources: EIA; NERC ES&D; BaseCase from Platts, a unit of the McGraw-Hill Companies, Inc.; GE Energy analysis

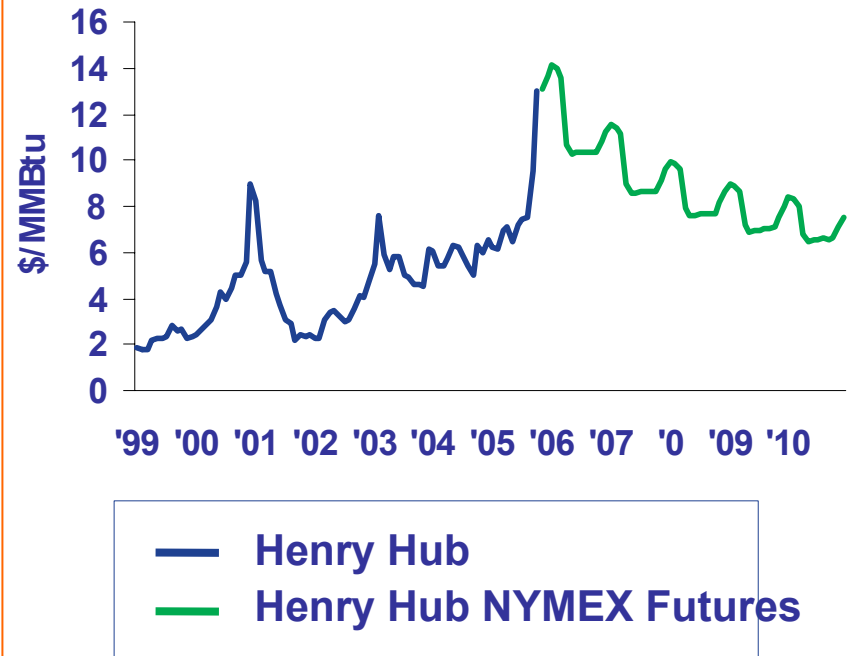
Oil and Natural Gas Prices

Oil Prices



Source: EIA WTI Spot Prices; NYMEX Future Prices October 14, 2005

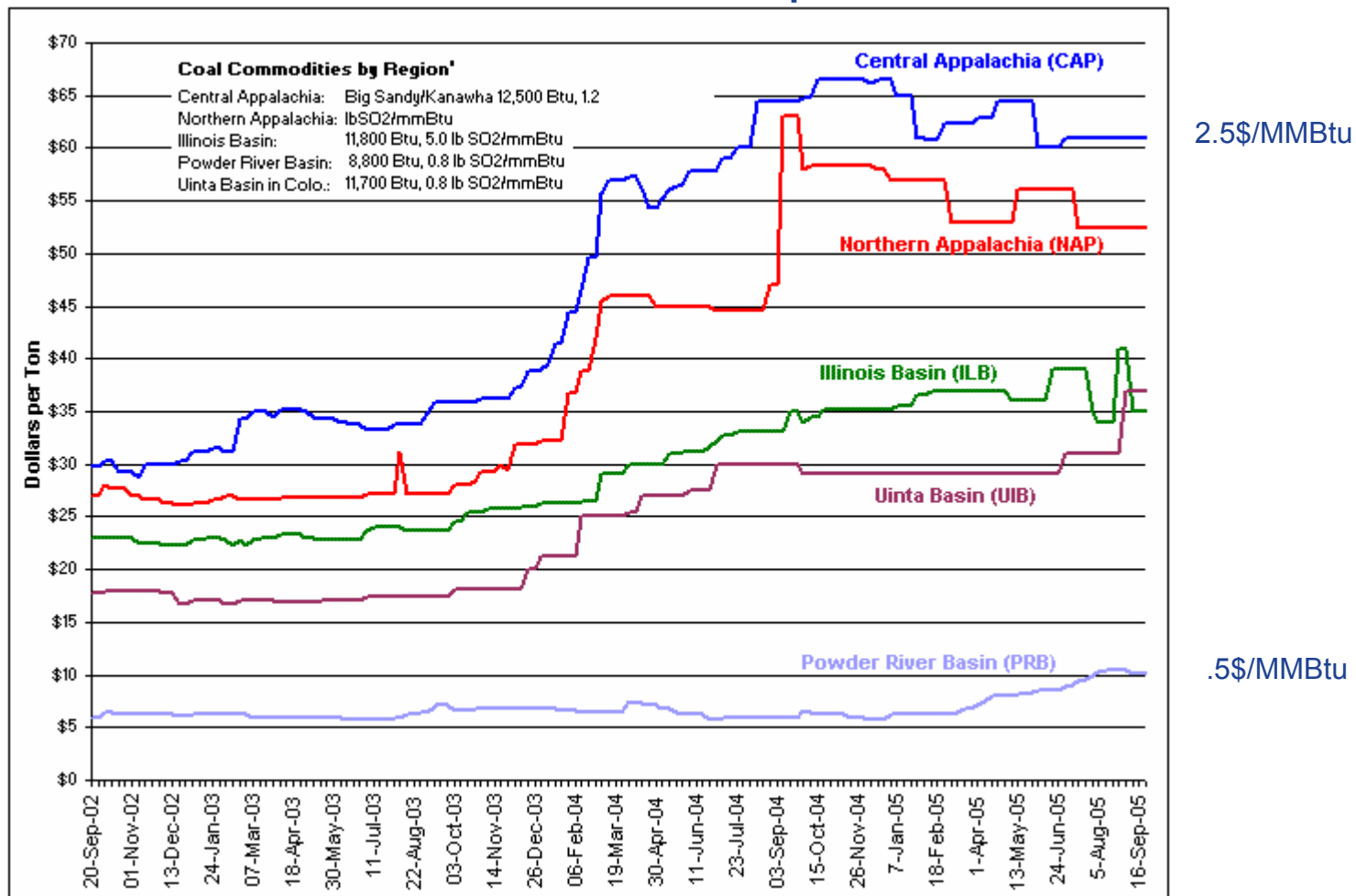
Gas Prices



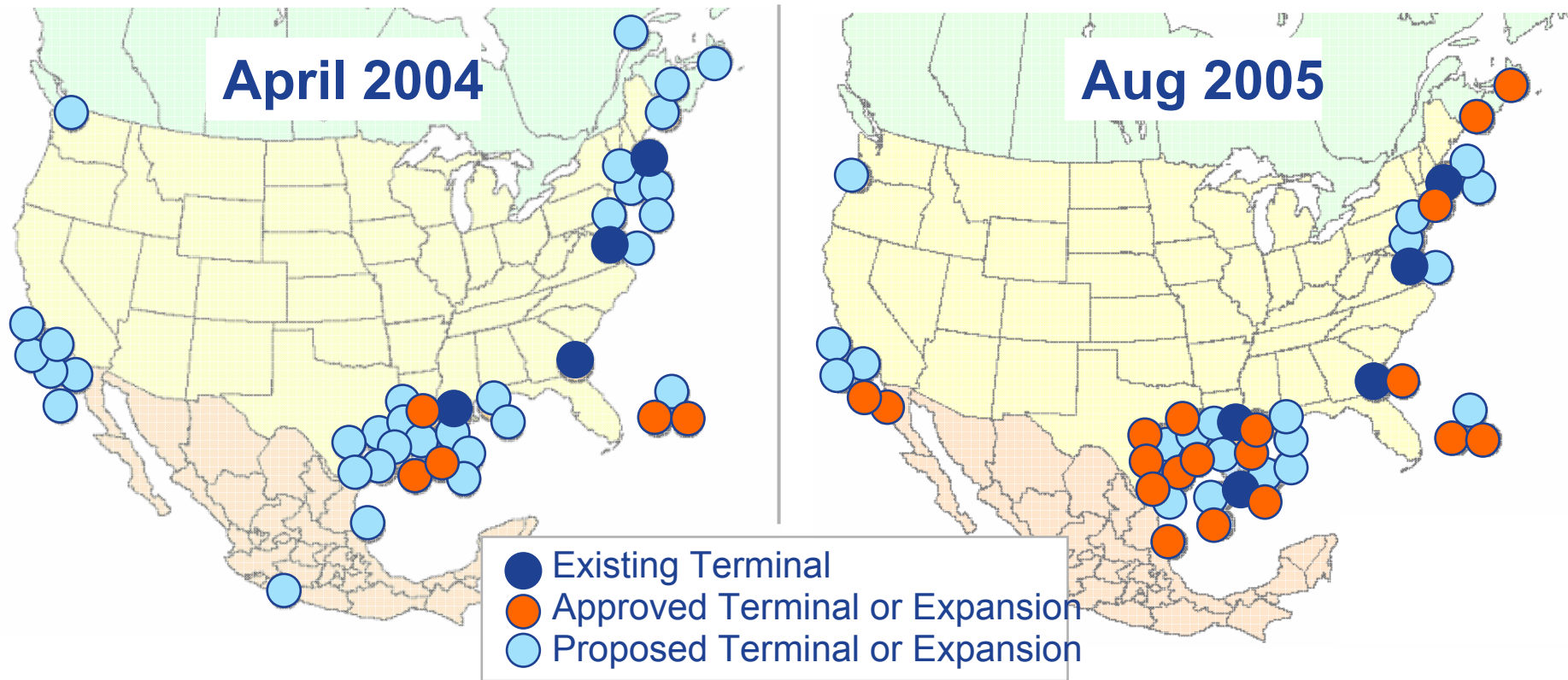
Source: PowerDat from Platts, a unit of the McGraw-Hill Companies; NYMEX Future Prices October 14, 2005

Coal Prices

Average Weekly Coal Commodity Spot Prices Business Weeks Ended Sept 23, 2005

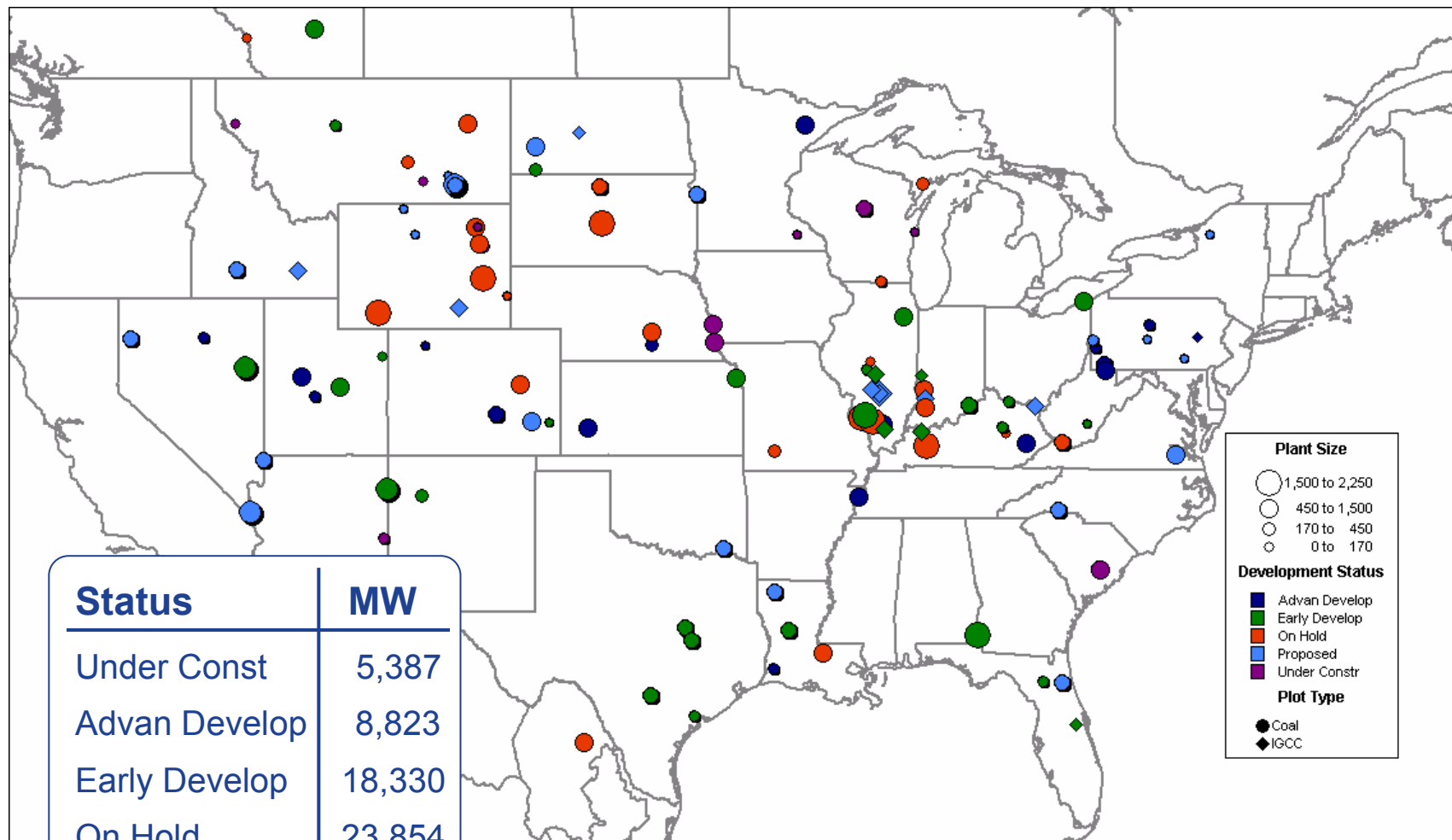


Expanding LNG ...Key to Meeting Demand



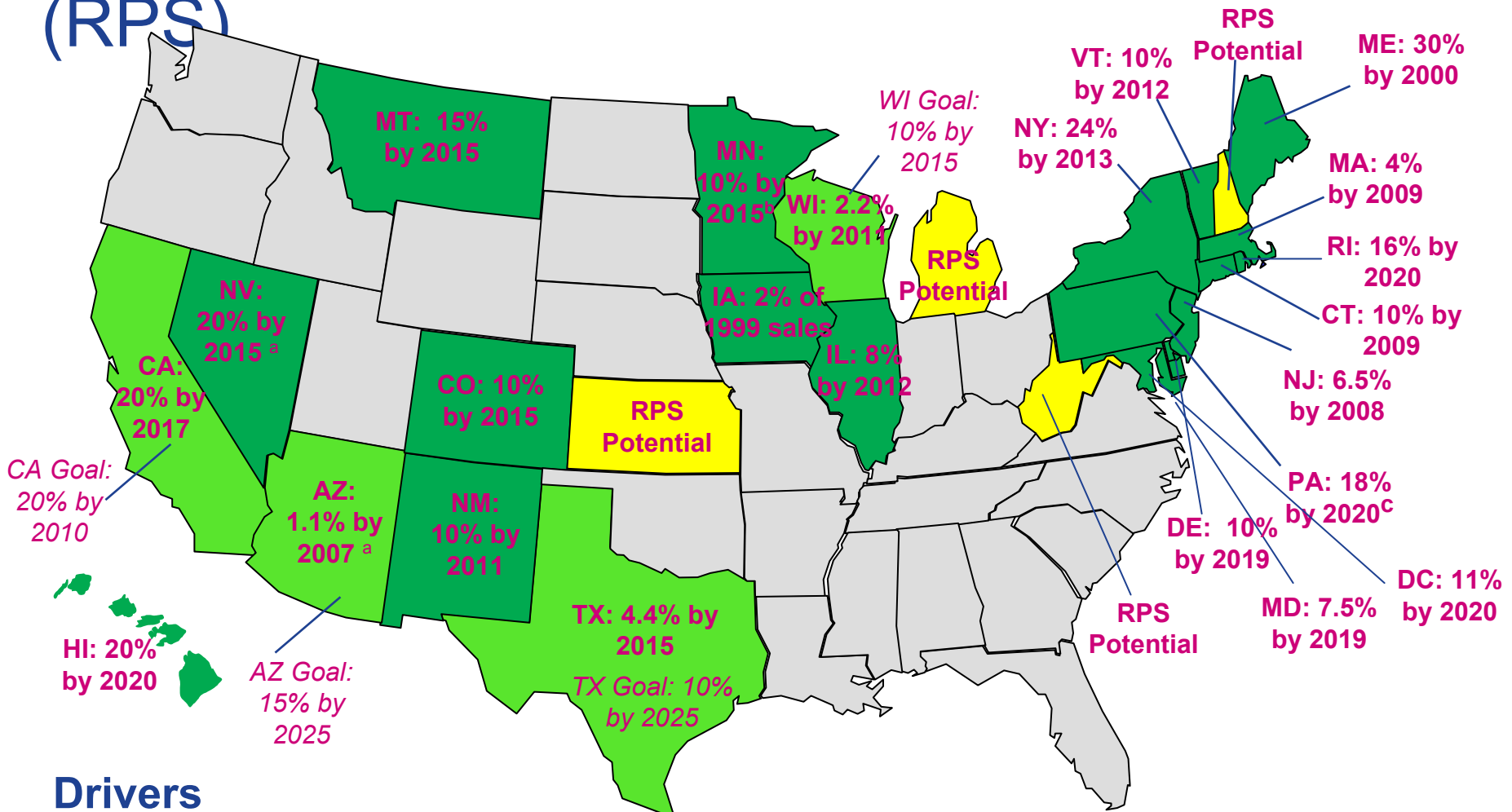
- Approved terminals and expansions total 19
- Additional 21 terminals + proposed
- Energy Policy Act of 2005 designates FERC as lead agency for siting LNG

Coal Interest Grows



Map created with Powermap from Platts, a division of the McGraw-Hill Companies
Source: NewGen database from Platts; GE Energy analysis

State Renewable Portfolio Standards (RPS)

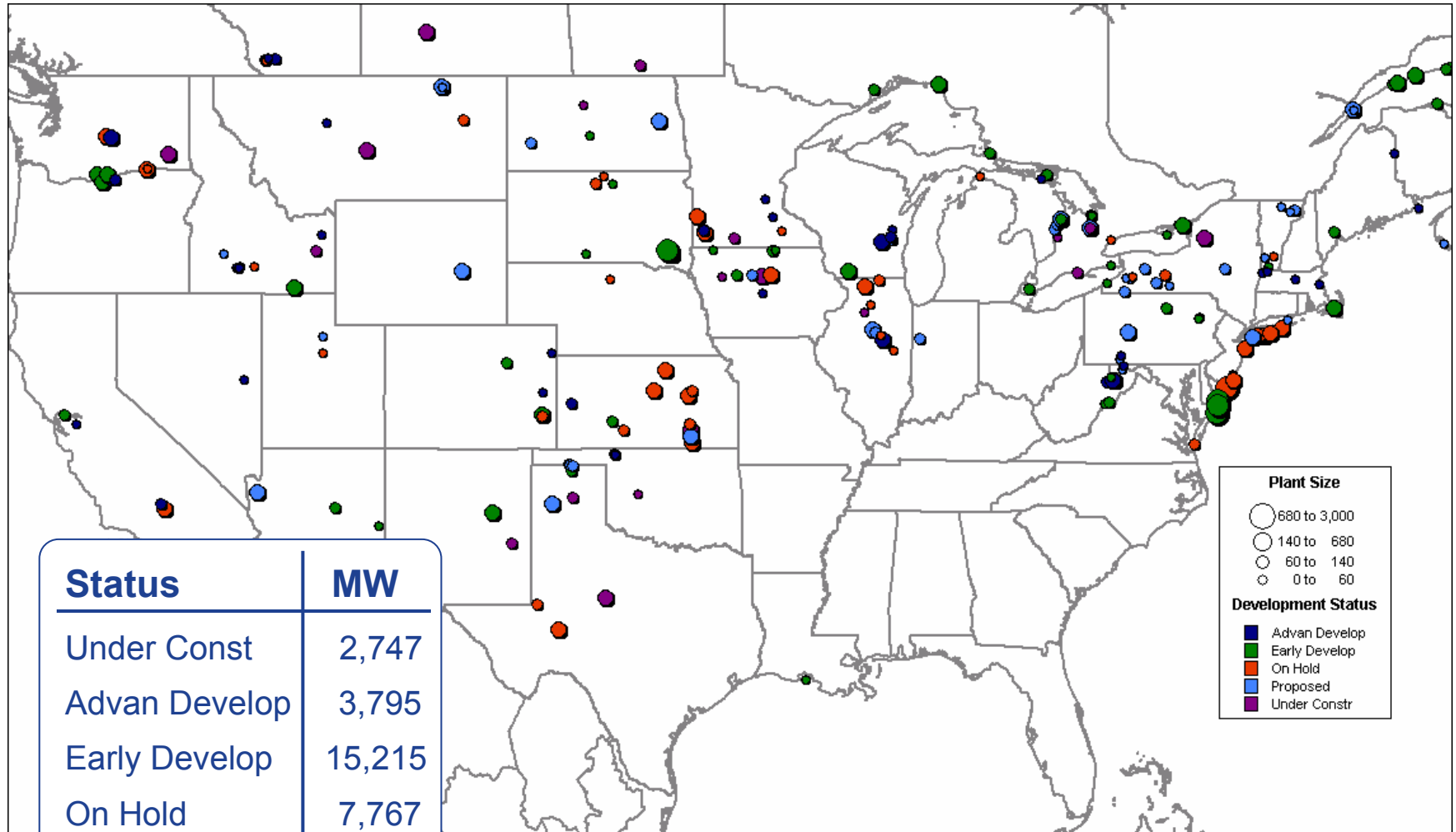


Drivers

- Continued pressure to reduce emissions
- Drive toward sustainable energy production
- Renewable Portfolio Standards (RPS) and economic incentives

Note: Standards expressed as total renewable energy generation as a percent of covered companies' retail sales.

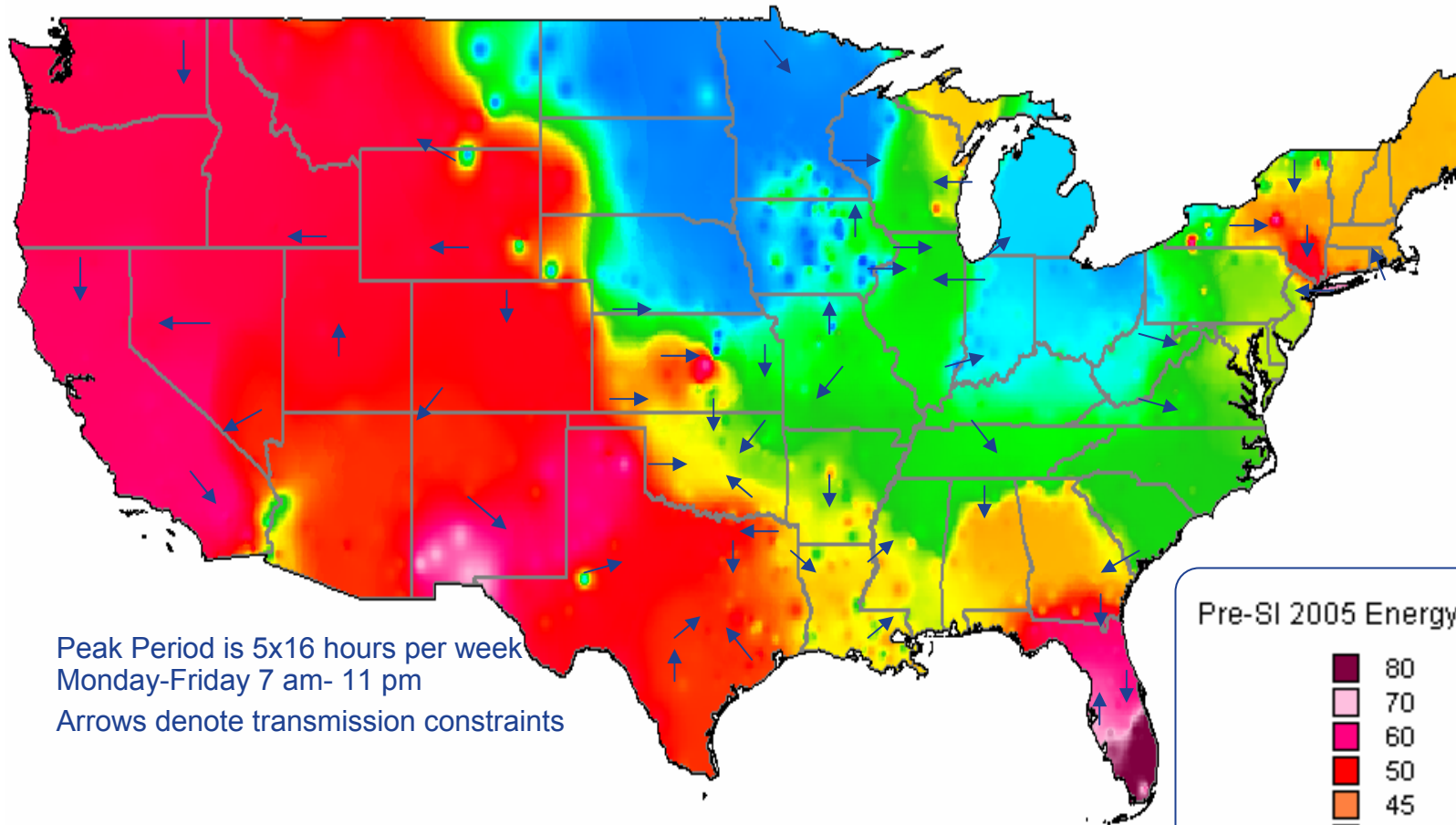
Wind Plant Development



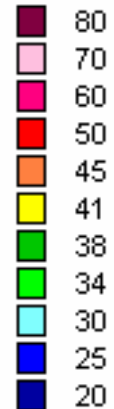
Status	MW
Under Const	2,747
Advan Develop	3,795
Early Develop	15,215
On Hold	7,767
Proposed	10,524
Grand Total	40,049

Sources: NewGen from Platts, a unit of the McGraw-Hill Companies, Inc.
Map created with PowerMap from Platts, a unit of the McGraw-Hill Companies, Inc.

Peak Period Energy Prices



Pre-SI 2005 Energy Prices



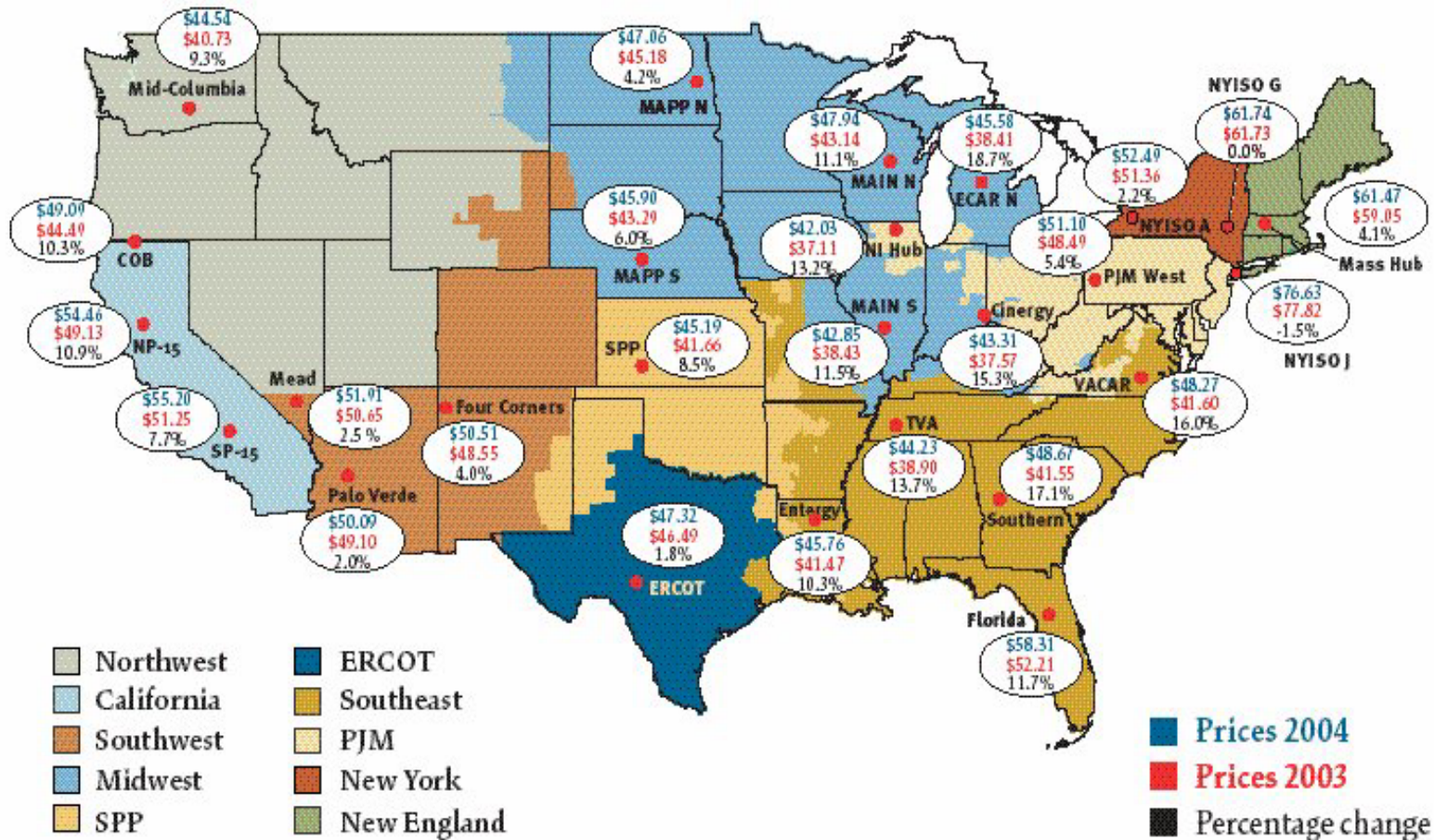
- Energy prices strongly correlated to natural gas price
- Analysis based on \$ 6.3 / MMBtu



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Map created with PowerMap from Platts, a unit of the McGraw-Hill Companies

Electric Regions with Pricing Nodes On-Peak Prices (\$/MWh)



Energy Policy Act of 2005

Power Gen

- Wind: PTC Extended through Dec. 31, 2007 @ 1.9-cents per kWh (adjusted for inflation)
- IGCC: 20% investment tax credit
- IGCC: Authorizes a \$1.8 billion clean coal demonstration program at DOE
- IGCC: Authorizes DOE 80% loan guarantees for advanced technology projects
- IGCC: Authorizes a loan guarantee and a demonstration project for 'western' coals

Nuclear

- PTC @ 1.8-cents per kwh for new ESBWR **and** ABWR plants
- Extends Price Anderson liability through 2025
- Provides Risk Insurance for new ESBWR **and** ABWR – up to \$500MM for the first 2 and up to \$250MM for the next 4 plants
- Authorizes DOE 80% loan guarantees for advanced technology projects
- Authorizes the Next Generation Nuclear Plant Project



Energy Policy Act of 2005

T&D & Services

- Sets Mandatory Grid Reliability Standards
- Gives x-mission siting authority to FERC if states delay approval in 'corridors of national interest'
- Provides 7-year recovery on new pollution control equipment installed on coal plants
- Provides favorable tax treatment for existing refinery and new transmission investments
- Requires FERC to provide incentive pricing for new transmission investment

Oil and Gas

- Favorable tax treatment for investments in refineries, NG distribution and gathering lines
- Designates FERC as the lead agency for LNG siting

Miscellaneous

- Repeals the Public Utility Holding Company Act (PUHCA)
- Creates a Climate Change Technology Program @ DOE
- Encourages states to establish net metering and smart metering requirements
- Extends Day-Light Savings Time by one month
- Residential and commercial PV investment tax credit



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Observations

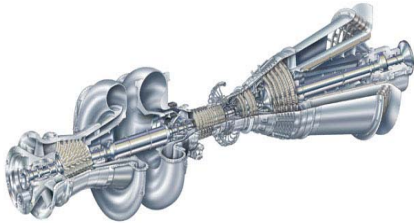
- National surplus persists until 2008; pockets of need emerge by 2006
- High gas and oil prices:
 - Increase CC start-stop cycles
 - Encourage LNG
 - Encourage new coal power plants
- Wind is an attractive option to fulfill Renewable goals
- Energy bill:
 - Stimulate fuel diversity and technology innovation
 - Spur investment in infrastructure modernization

Technology Solutions

Technology Solutions ... Today



- **H System™** ... 60% combined cycle efficiency platform, 10,000+ operating hours at Baglan Bay



- **LMS100®** ... aero derivative gas turbine launched ... 46% simple cycle efficiency



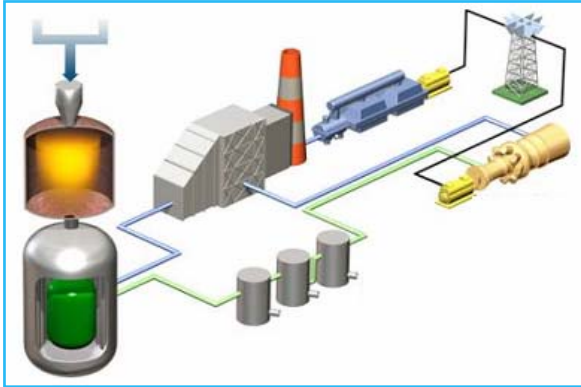
- **Wind** ... 3,300+ 1.5 MW units worldwide, offshore growth
- **Gas Reciprocating Engines** ... 5,000+ MW installed worldwide ... multiple fuels (bio-gas, landfill gas, coal mine gas)

Technology Solutions ... Today



- **Nuclear** ... fuel / plant performance optimization ... building advanced reactors in Asia
- **Environmental Services** ... Hg & NOx reduction and control ... fine filtration for particulate matter
- **Asset Optimization Services** ... expanding to plant-wide condition monitoring and control
- **T&D** ... help utilities better manage assets, improve reliability while reducing costs
- **Grid Decongestion** ... use technology to maximize transmission line capacity & optimize grid capability

Technology Solutions ... Tomorrow



- **(IGCC) "Cleaner Coal"** ... COE parity with pulverized coal with launch plant, CAPEX parity/lower COE with mature product
- **Nuclear** ... U.S. next-gen units (ESBWR) driven by DOE 2010 program & U.S. Energy bill.
Global growth in Asia and emerging areas
- **Solar** ... cost of energy from 30¢/kWhr to 10¢ by 2010. Grid connected or stand alone
- **Solid Oxide Fuel Cells** ... 5 MW, 65% + efficiency, available in 2010+

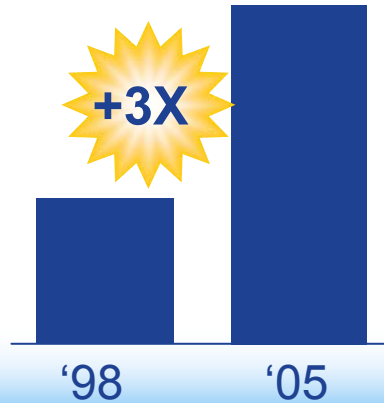
Our Global Customers Want....

- Lower Environmental Impacts,
including reduced GHG emissions
- Higher Efficiency
- Fuel Flexibility
- Greater Operating Flexibility
- Lower O&M Costs

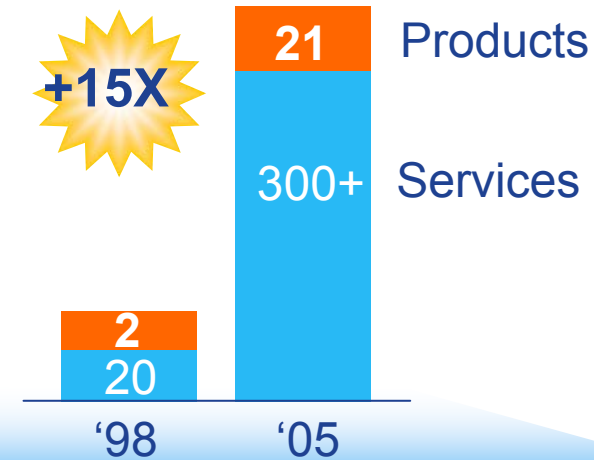


We've Responded with a Massive Growth Spend

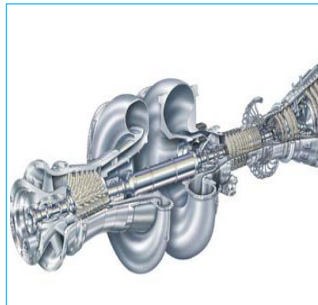
New Product Investment



New Product/Service Launches



3.6MW Wind
Turbine



LMS100®
Aeroderivative



Cleaner Coal
IGCC



H System™
Combined
Cycle

GE Energy

Power Market Overview

Hamid Elahi

Thank You



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