

Gas Mart - Chicago

Pat McKinnon

May 2011

Strategic Awareness

Utility and End User Market/Supply Management

Pat McKinnon

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Lets talk about...

Market circumstances are evolving at an accelerated pace involving more potential impact factors than ever before.

Topics

- Regional supply shifts
- Expanding storage resources
- Cleared products for supply
- Production Assets Shifting
- Unclear Regulatory Environment
- Engaging the process

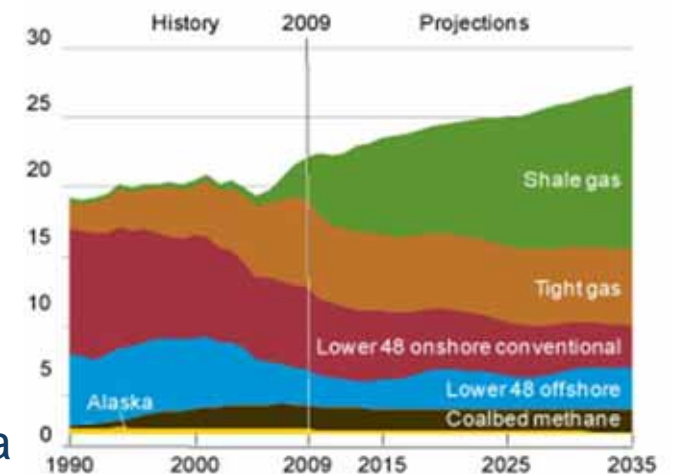
Regional Supply Shifts

Traditional supply resources are shifting.

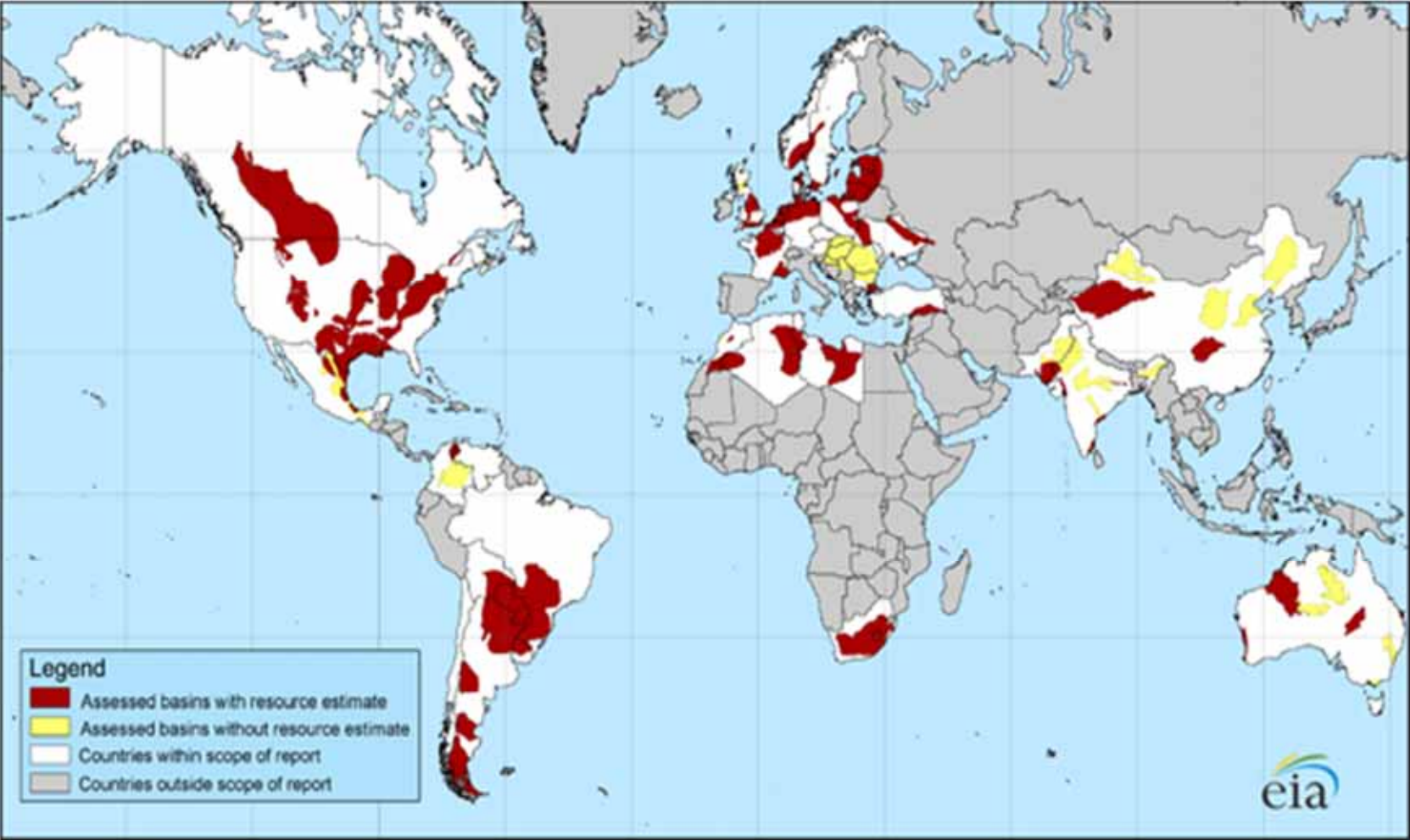
Using gas as an example...

- Declining offshore production
- Declining “tight sand” production
- Offset of rapidly increasing shale production
- Developing infrastructure
- Tight regional spreads – expanded acquisition area

Figure 2. U.S. natural gas production, 1990-2035
(trillion cubic feet per year)



Shale Gas is Global



Strategic Storage

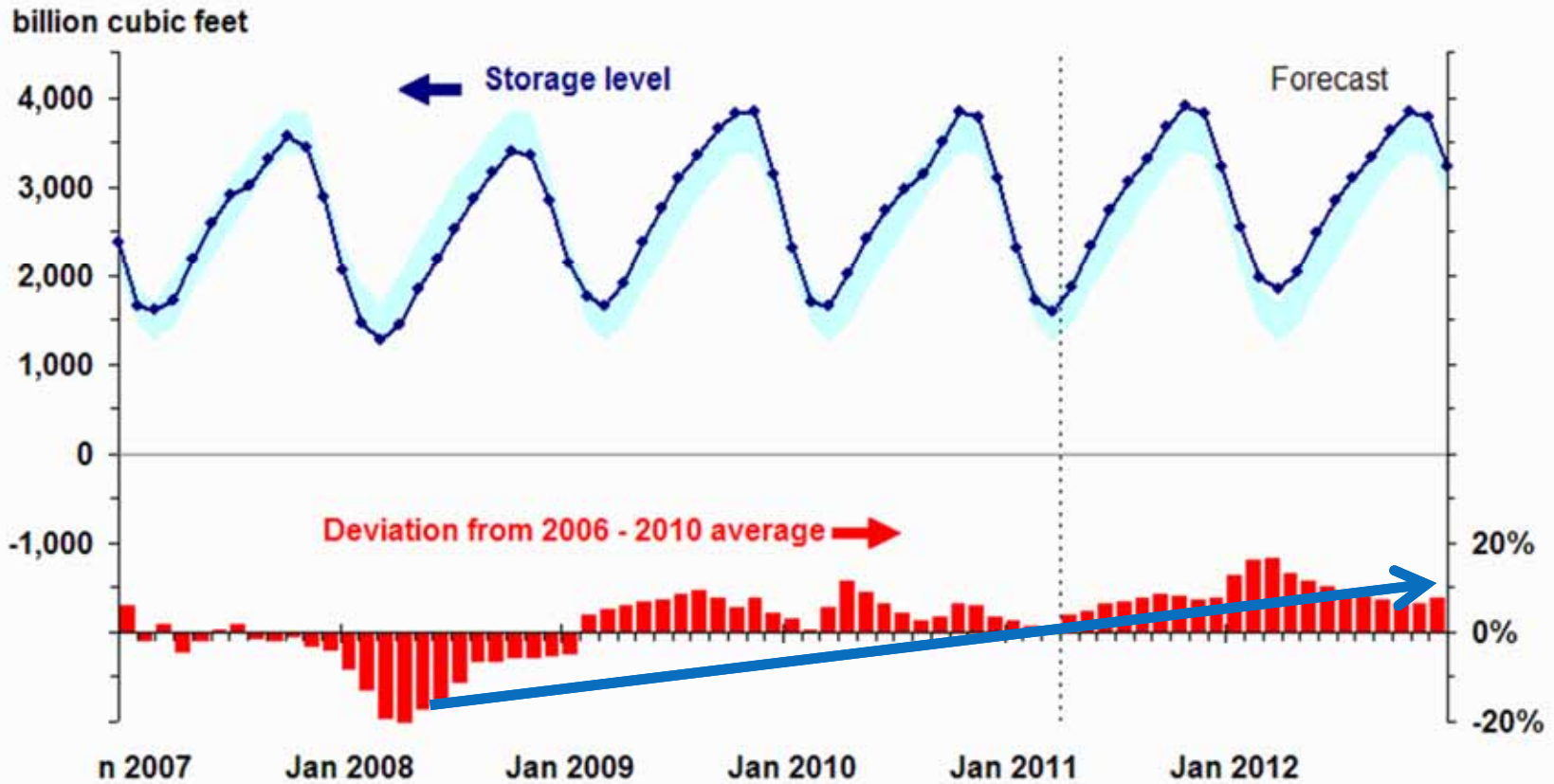
Warehousing vs. Seasonal

Shifts in storage use impact inventories and storage activities...

“The natural gas industry has experienced significant changes in inventory management practices and storage utilization over the past decade or more as a result of market restructuring. During that time, the operational practices of many U.S. underground storage sites became much more market oriented. Seasonal factors are less important now in the use of underground storage inventories. Many storage gas owners (marketers and other third parties) are attempting to synchronize their buying and selling activities more effectively with market needs while minimizing their business costs”...(EIA)

“Base loading – Just in time”

U.S. Working Natural Gas in Storage



Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2006 - Dec. 2010

Source: Short-Term Energy Outlook, April 2011



Growth in High Cycle Storage

240 BCF coming online...

FERC Storage Projects		May-11	
1 Perryville Gas Storage LLC	Franklin/Richland	LA	5
2 PetroLogistics Natural Gas Storage LLC	Iberville	LA	18
3 Tricor Ten Section Hub	Kern	CA	22.4
4 Pine Prairie Energy Center LLC	Evangeline	LA	32
5 Turtle Bayou Natural Gas Storage Company LLC	Chambers/Liberty	TX	12
6 Ryckman Creek Resources LLC	Uinta	WY	35
7 Leader One Energy	Adams	CO	11
8 UNIGAS Corporation		OK	30
9 Tres Palacios Gas Storage LLC		TX	9.5
10 Wabash Gas Storage LLC		IL	12
11 Picacho Peak Gas Storage		AZ	8
12 Sawgrass Storage LLC		LA	25
13 Arizona Natural Gas Storage LLC		AZ	20

240

Pending

Horizon

Prefiling



Creative supply solutions

Cleared and exchange cleared delivered physical contracts

These products change the landscape by creating more flexible supply management in tighter time frames.

Improved Economics and Optionality

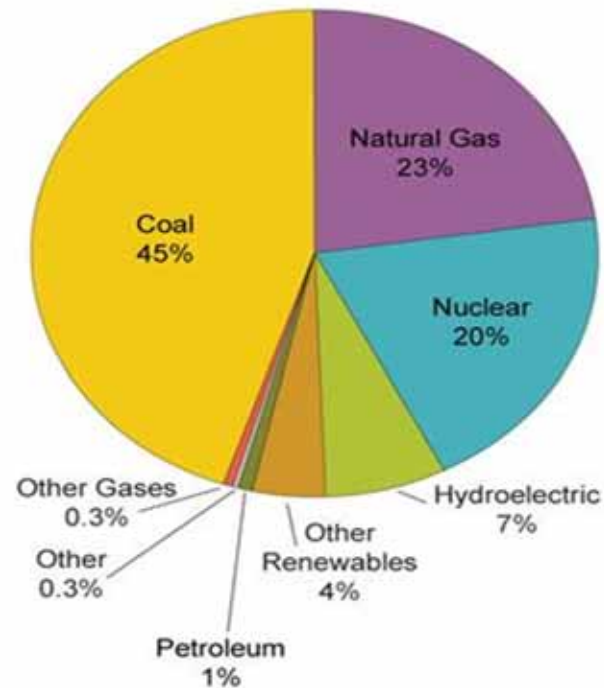
- Counterparty Mutualization
- Credit Mitigation
- Daily through seasonal terms
- Full suite (fin/phys) offsetting margins*
- Firm Physically Backstopped Delivery*
- Futures margining and payment schedules*

*CME/NYMEX DNG

Shifting Electrical Production Assets

- Renewable
- Gas
- Coal

U.S. Electric Power Industry Net Generation by Fuel, 2009



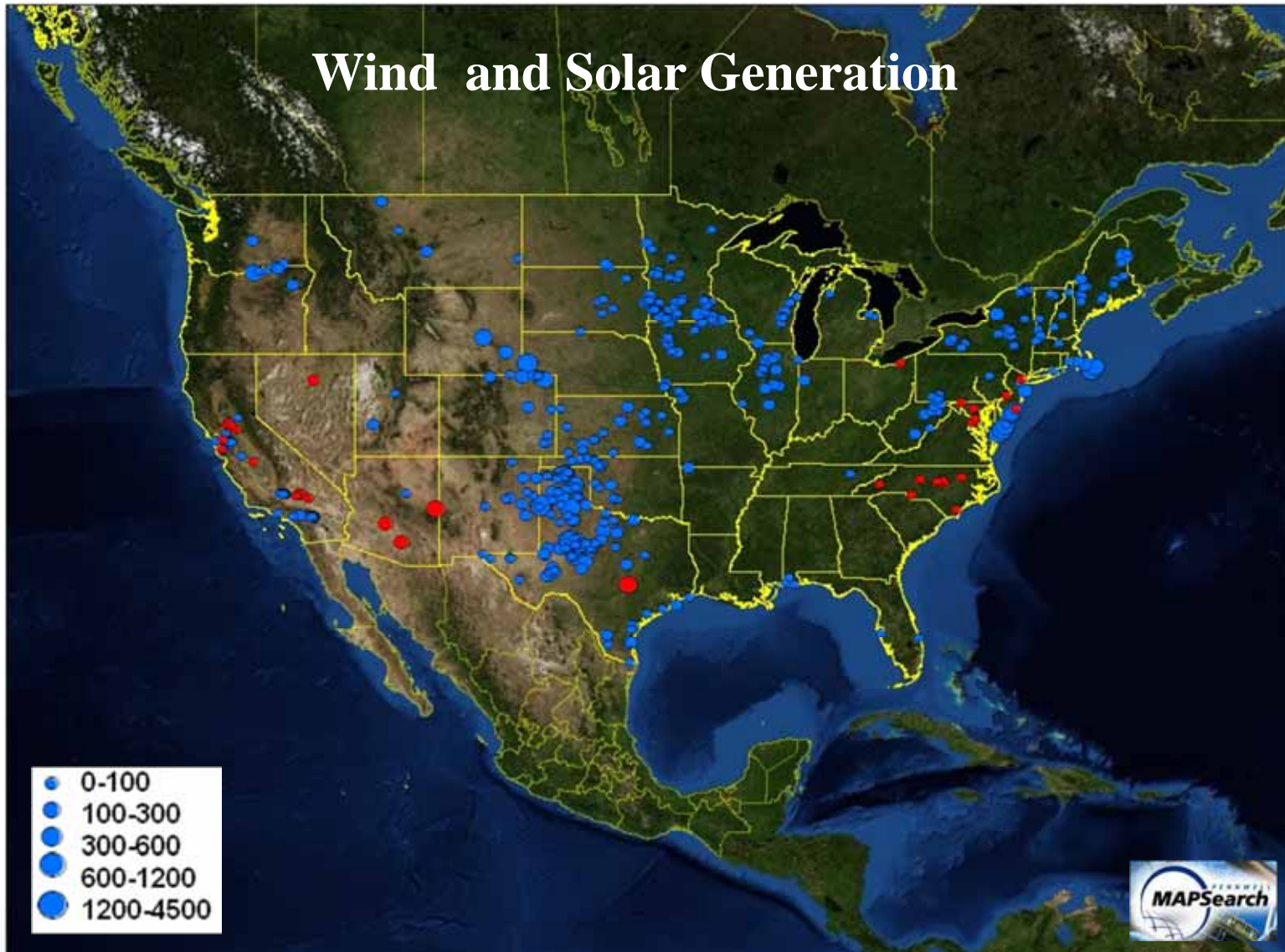
Source: U.S. Energy Information Administration, *Annual Energy Review 2009* (August 2010).

Renewable

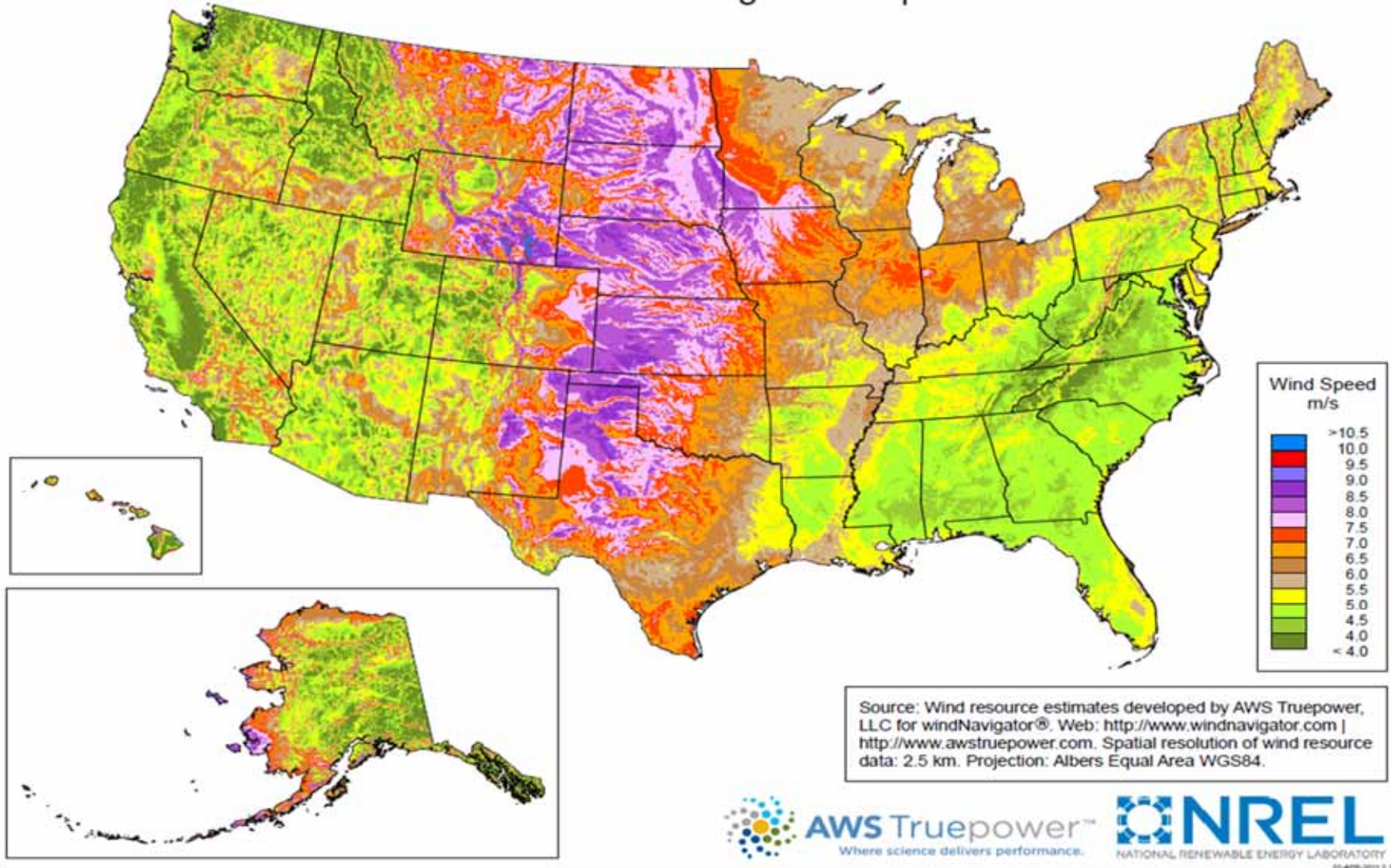
"GREEN ENERGY"



Wind and Solar Generation



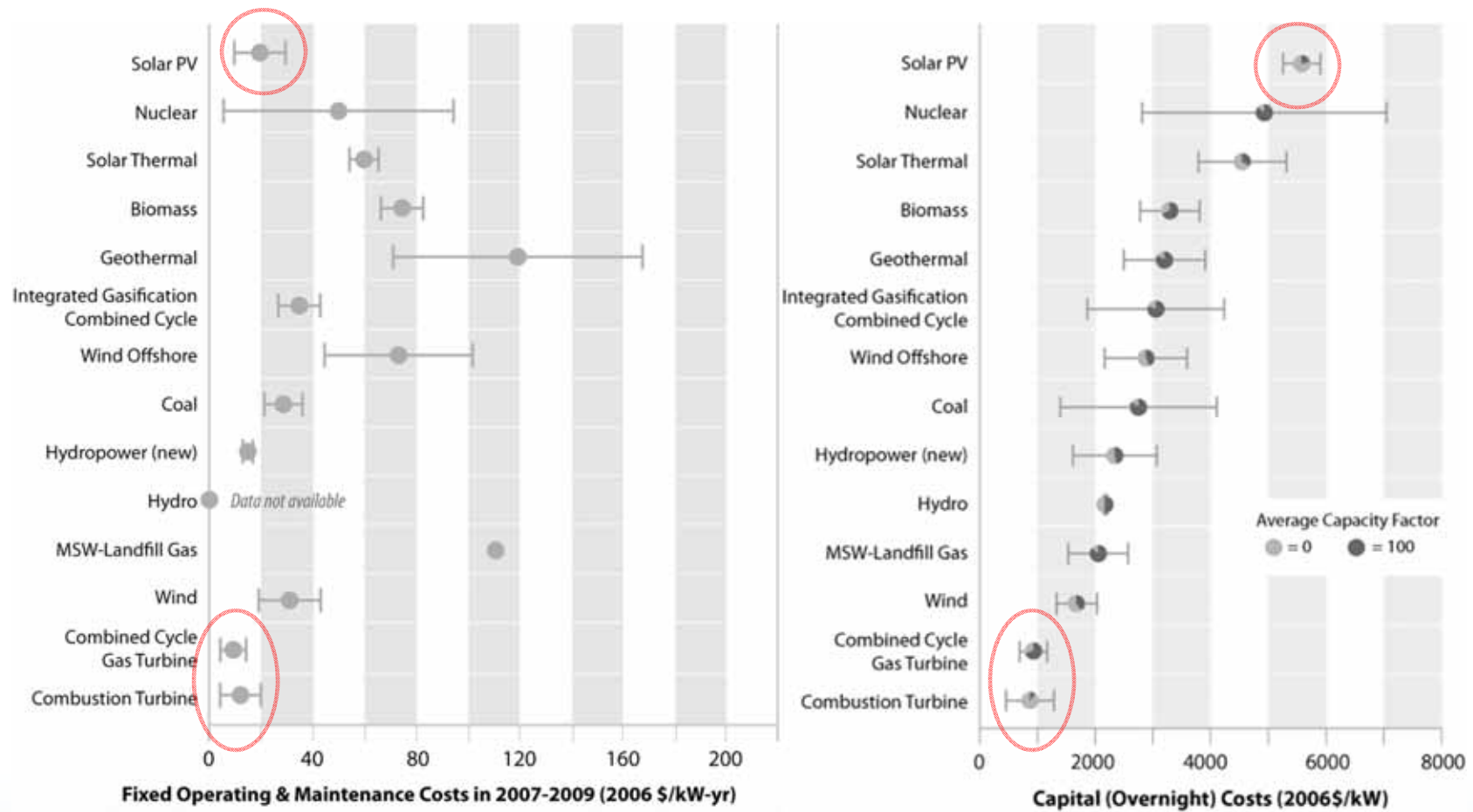
United States - Annual Average Wind Speed at 80 m



Renewables

- Low but growing percentage
 - Q410 Wind nameplate capacity installed = 36,000 mW
 - Source DOE: Energy Efficiency & Renewable Energy – Wind Powering America (WPA)
- Questionable but improving economics
 - In average solar energy (around 18 cents per kilowatt hour) is three times more expensive than coal, natural gas or nuclear energy (6-7 cents per kilowatt hour)
 - Source DOE: Energy Efficiency & Renewable Energy – Solar
- Favorable to regulators and consumer
 - FTC (Federal Tax Credit) or ITC (Federal Investment Tax Credit)
 - State level Property and Corporate and Personal Income Tax Incentives – while varied by state and type, can be as high as 50%*
 - Source NREL – report State Clean Energy Policies Analysis: State Tax Incentives, October 2009

Renewables



Source: DOE: Energy Efficiency & Renewable Energy – Wind Powering America



Renewables

Exchange instruments improve enterprise risk management –



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Listed & Cleared by NYMEX

OVERVIEW
Environmental markets are growing rapidly and broadly as the global community reacts to the challenges posed by climate change. These fundamental changes create a continuous need for effective and innovative financial tools to meet the diverse needs of a broad range of participants for these developing markets, including consumers, industrialists, project developers and investors. To meet this growing challenge, thirteen of the world's most innovative and powerful financial institutions have come together to form the Green Exchange.

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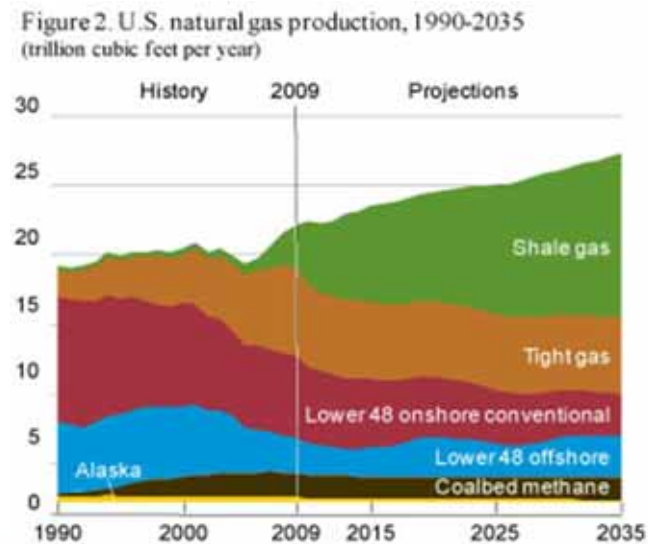
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Gas

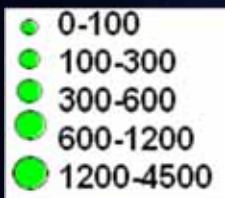
Gas

- Diverse and plentiful supply
- Scalable
- Environmentally acceptable



Source - EIA

Utility Natural Gas Fired Generation By Nameplate Capacity



Gas

Exchange instruments improve enterprise risk management

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Energy Product Slate

CME Globex | CME ClearPort

Featured

Product Name	Code	Contract	Charts	Last	Change	Open	High	Low	Globex Volume
Light Sweet Crude Oil (WTI)	CLM1	Jun 2011		98.06	-1.74	99.76	102.30	94.63	568671
Natural Gas (Henry Hub)	NGM1	Jun 2011		4.271	+0.010	4.235	4.344	4.217	121561
RBOB Gasoline	RBM1	Jun 2011		3.1250	+0.0348	3.1032	3.1822	2.9856	60406

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Market Commentary | All Commentary

Nat Gas To Continue to Drift Lower
Friday, 06 May 2011 14:40:01 CDT
 Follow my intraday comments on Twitter @daccenergy. Friday Afternoon May 6, 2011 Quote of the Day Wisdom is not wisdom when it is derived from books alone. Horace This week...

Recap Energy Market Report
Friday, 06 May 2011 14:27:01 CDT
 The energy complex at times managed a noted bounce off the overnight low and at times the crude oil market was up as much as \$7.75 a barrel above the early Friday...

Mid-Session Energy Market Report
Friday, 06 May 2011 11:09:00 CDT
 The energy complex saw a very active two sided trade today as the overly negative broad based liquidation wave of the prior trading session initially tried to extend...

Quick Links

Contract Related

- Advisory Notices
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<http://www.cmegroup.com/trading/energy/>

Coal

COAL

- Established but aging infrastructure
 - Oldest plant installed date 1903 - S. D. Warren Somerset Plant 80.9 Mw
 - Total installed capacity 40+ yrs = 398,215.6 mW
- Declining – 65 gig out of service by 2018
 - EPA requirements:
 - Clean Air Transport Rule
 - Clean Water Act
 - Mercury Rule
 - Coal Combustion Residuals Disposal Regs
- Unfavorable regulatory perspective
 - Environmentally unfriendly

Coal Fired Power Generation by Nameplate Capacity

Coal Generation

NAME_CAP

- 0.000000 - 330.000000
- 330.000001 - 500.000000
- 500.000001 - 1500.000000
- 1500.000001 - 2500.000000
- 2500.000001 - 4000.000000

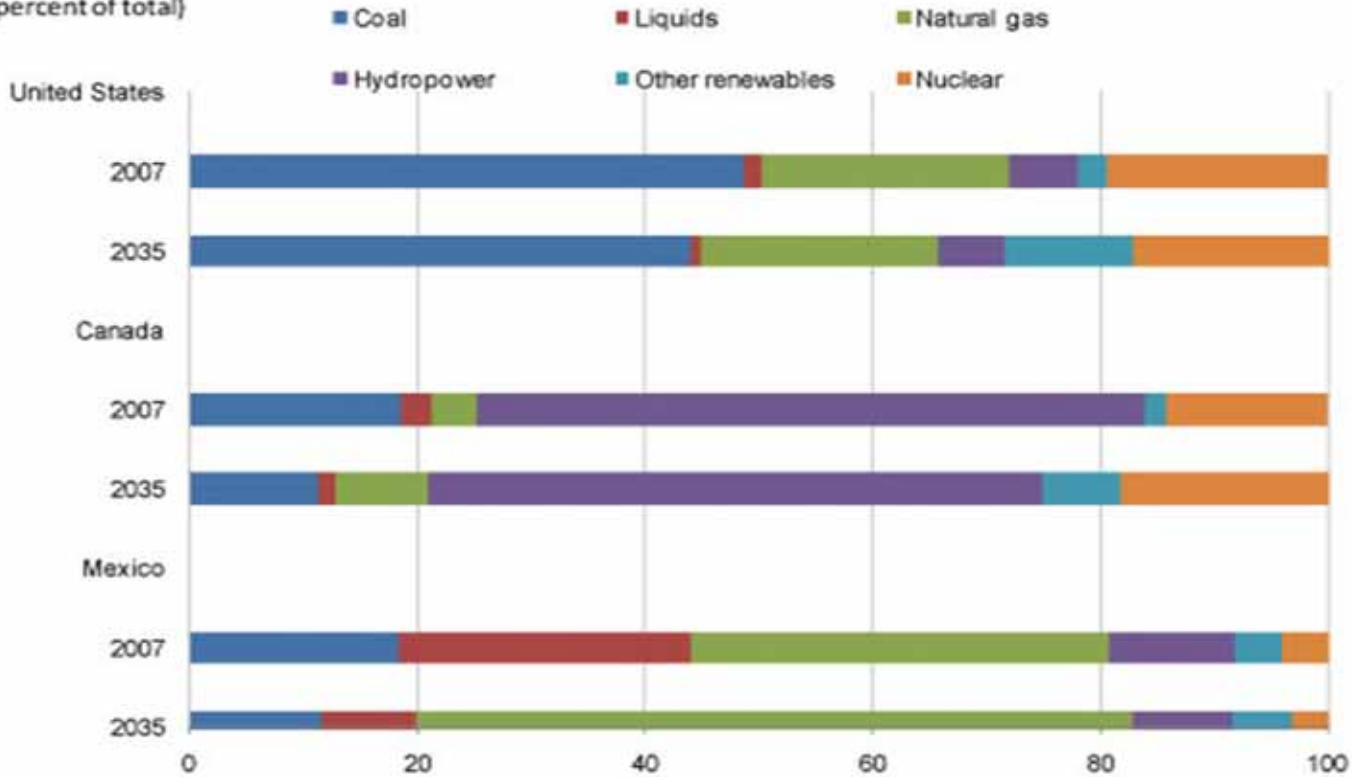


Utility Coal Fired Power Gen 40 Yrs+ By Nameplate Capacity



Shifting Electrical Production Assets

Figure 73. Net electricity generation in North America by fuel, 2007 and 2035
(percent of total)



Source - EIA



Regulatory

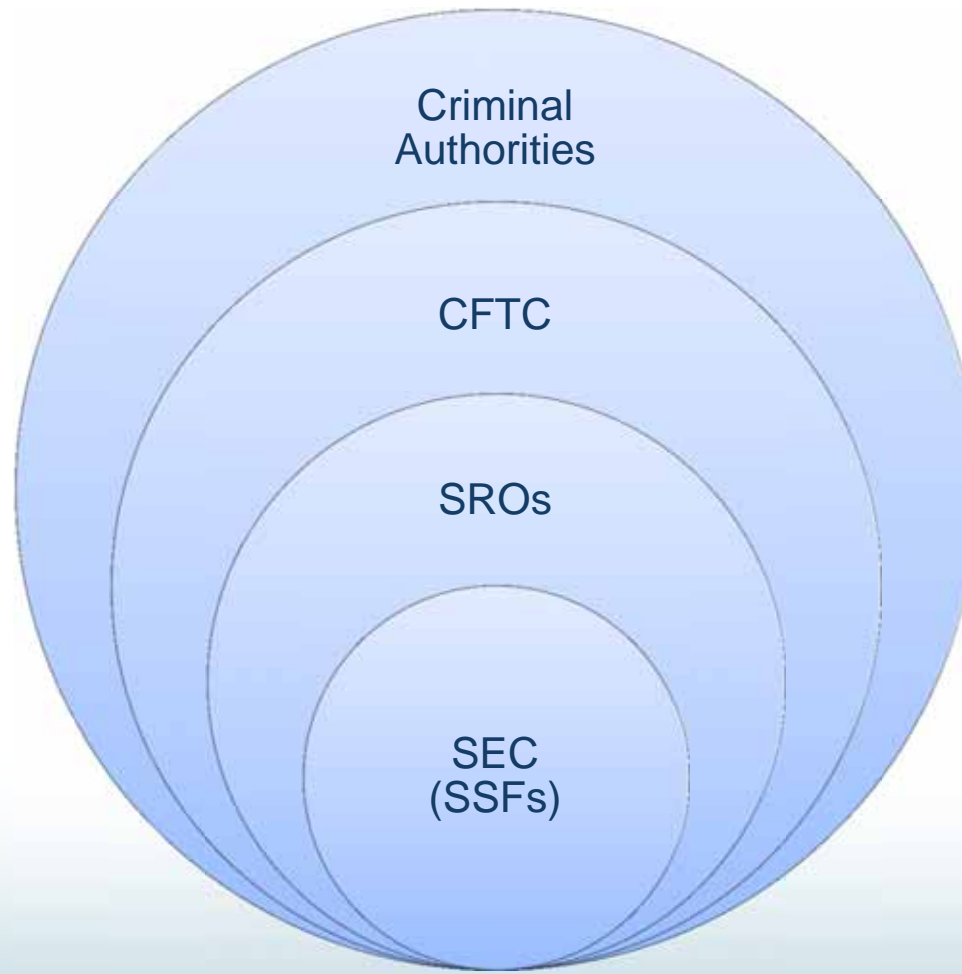
Regulatory

Significance of Dodd-Frank Act

▶ **Signed by the President July 21, 2010, it requires**

- 243 rulemakings
- 67 one-time reports/studies to be conducted
- 22 new periodic reports required in the aggregate
- Timeline for implementation varies for various provisions from 180 days to 12 years (Volcker rule implemented in its entirety)

U.S. Regulatory Structure



Overview of U.S. Regulatory Structure

U.S. Regulators include:

- Commodity Futures Trading Commission (CFTC)
- National Futures Association (NFA)
- Securities and Exchange Commission (SEC)
- Financial Industry Regulatory Authority (FINRA)
- Federal Energy Regulatory Commission (FERC)
- Federal Trade Commission (FTC)
- Self-Regulatory Organizations (SROs)

What's the right approach?



OR



Regulatory

End user exemption does not mean end user IMMUNE

- Requirements remain unclear
- Reporting requirements are engineered to capture PRE and post trade transparency
- DCM – Designated Contract Market
- SEF – Swap Execution Facility
- SDR – Swap Data Repository
- **And much more.....**

CME Group Regulatory Outreach Program

USE THE RESOURCE

- Program serves as a compliance resource to external customers (members, member firms and nonmember market participants)
- Group email: MarketRegOutreach@cmegroup.com
- Visit the Website:
<http://www.cmegroup.com/market-regulation/index.html>

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