

The Energy Industry Update

Highlights of Recent Significant Events and Emerging Trends

Summer 2009

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A New Administration and a New Era

Despite talk of “green shoots” of economic recovery, the global economy continues to endure a difficult recession and a challenging financial environment. Utilities, however, have weathered this downturn with some resilience and have been more favorably positioned than other sectors.

“It’s the Recession, Stupid”

Despite dire headlines, credit markets have remained open for most energy and utility companies. The cost of debt has eased after rising abruptly in late 2008.

Retail kilowatt-hour sales were down 1.1% in 2008 and continue to lag in 2009. Carbon markets have softened as well, as industrial and power output have decreased.

Recession-driven demand reduction, along with vastly increased shale reserves and drilling and infrastructure improvements, have pushed natural gas prices lower. Some are expecting prices to remain below \$7 per MMBTU for some time to come.

Congress enacted a \$787 billion economic stimulus bill—the American Recovery and Reinvestment Act (ARRA)—focused on job creation and preservation. ARRA offers vastly increased funding and/or improved/extended tax incentives for smart grid, efficiency, and renewables to firms willing to act quickly, apply thoughtfully, and comply with monitoring, measurement, and verification requirements.

Regime Change

The assumption of power by a new Democratic president and control of Congress by his party has led to changes in policies pursued by the previous administration.

Most significantly, energy and climate change legislation has been introduced in both the House and Senate, with the House’s Waxman-Markey bill taking center stage for now. The contour of possible legislation is emerging and will have critical impacts on many players in our industry.

In addition, differing proposals have been made on controversial green power renewable energy zones, which would give the FERC more control over siting, approval, and cost allocation for high-voltage lines that would move power from renewable resource-rich zones (like the Midwest) to load centers.

All Politics (and Much Regulation) Are Local

Utilities continue to look for ways to recover costs associated with upgrading and modernizing infrastructure, but given the economic climate, these are sensitive matters with regulators.

Rate case activity continues apace across the United States, but the allowed rates have been varying significantly among utilities and have declined significantly over the past few years.

Some public utility commissions have been signing on to innovative incentives and approaches (such as establishing a sustainable energy utility) to advance green energy, infrastructure upgrades, or energy efficiency policy objectives.

The bottom line: The energy industry is actively navigating policy, investment, and the economic slowdown, in hopes that normalcy will return soon. However, it is not yet clear what that “normal” will look like.

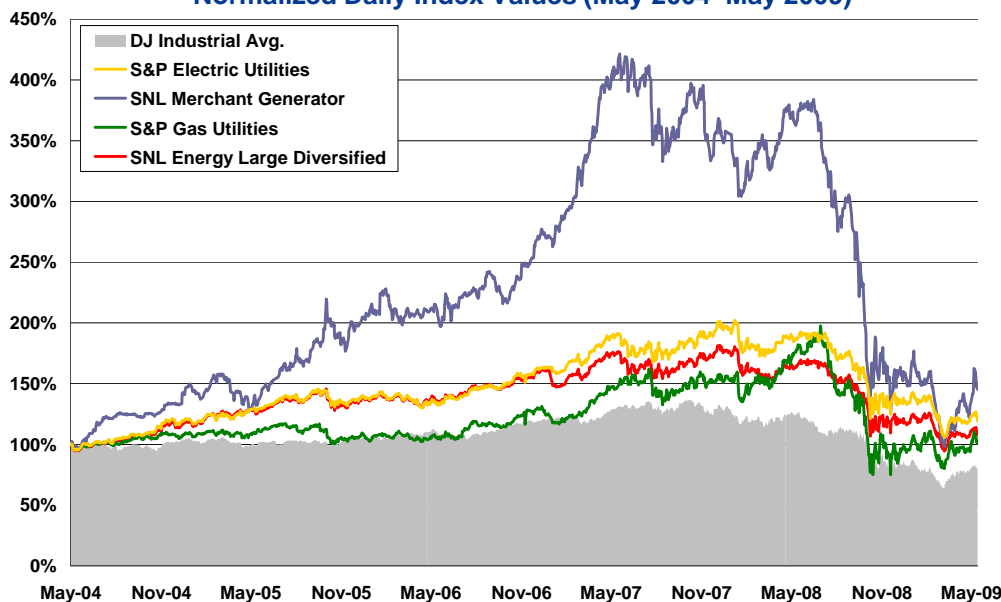
Energy Industry Stock Prices

- ❑ Over the past 18 months, utility stock prices have performed comparably with broader averages, while outperforming those averages over the long term.
- ❑ Merchant generator stock prices declined steeply following the mid-2007 stock market peak, but recently have experienced an uptick.

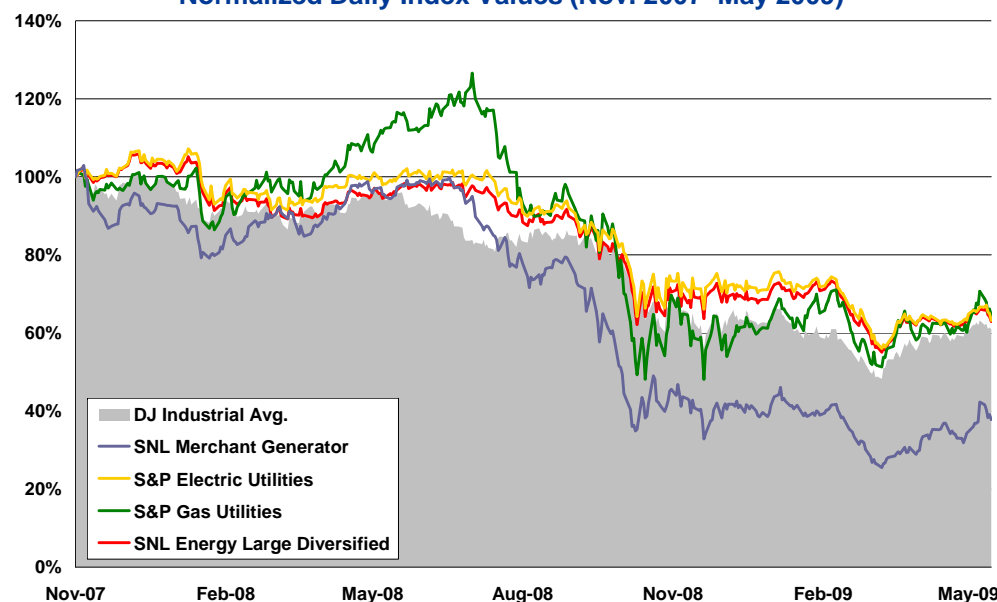
Index Value as of Mid-May 2009 vs. Initial Index Value (= 100%)

Index	Sector Member Description	5-Year	3-Year*	18-Month
SNL Energy Large Diversified	Selected companies with power and gas sales and market cap >\$4 billion	108%	80%	63%
S&P Gas Utilities	U.S. gas companies in the S&P 500	101%	96%	65%
S&P Electric Utilities	U.S. electric companies in the S&P 500	119%	90%	63%
SNL Merchant Generator	Publicly traded IPPs and merchants	145%	69%	38%
Dow Jones Industrial Average	30 leading U.S. industrial companies	80%	73%	61%
Citigroup MLP**	Natural resource-related MLPs with market cap >\$300 million			65%
SNL Energy Small Diversified*	Selected companies with power and gas sales with market cap <\$4 billion	94%	79%	72%
DJ Utility Index*	15 large utilities spread across the United States	120%	84%	63%

Five-Year Sector Performance
Normalized Daily Index Values (May 2004–May 2009)



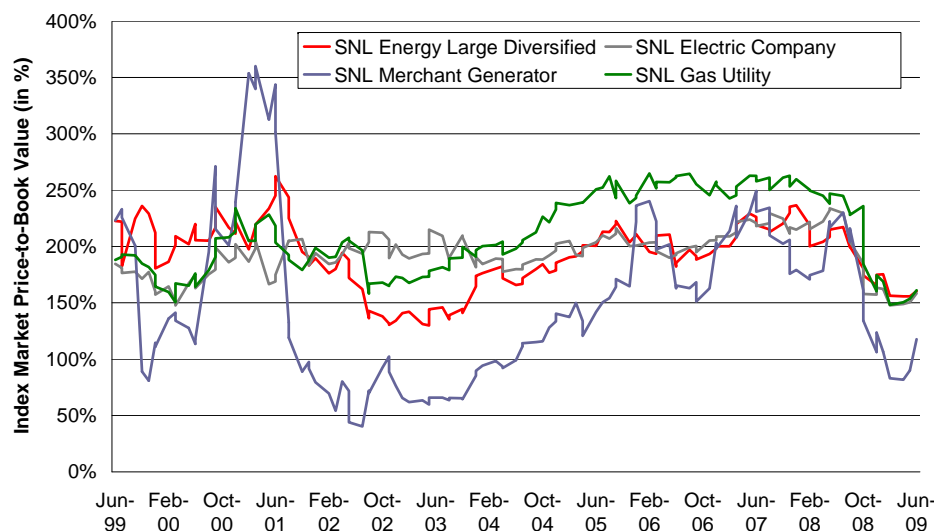
Eighteen-Month Sector Performance
Normalized Daily Index Values (Nov. 2007–May 2009)



Notes: *means not depicted; †MLP is master limited partnership, a legal structure frequently used for the upstream gas sector
Sources: SNL Financial; Dow Jones & Co.; Standard & Poor's; Citigroup; ScottMadden analysis

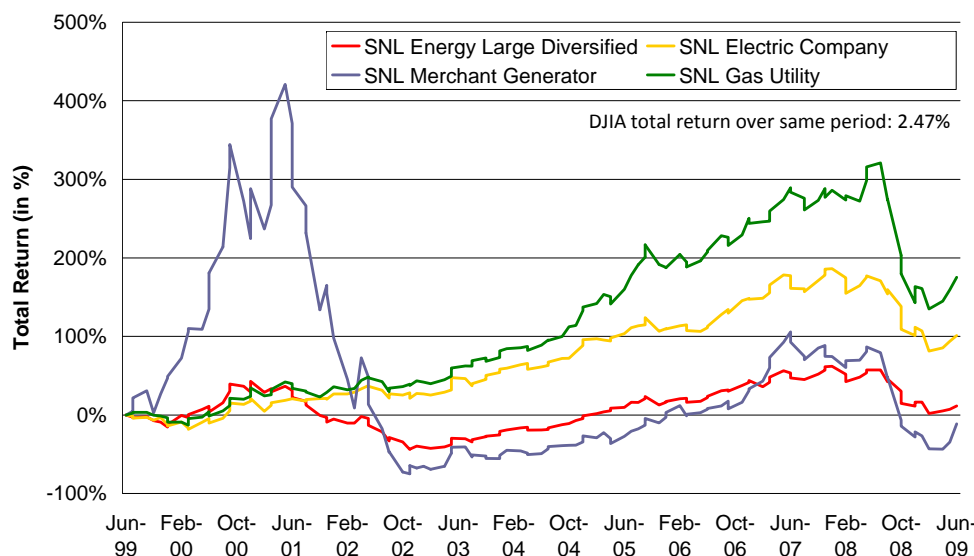
Energy Industry Ratios: A Ten-Year Retrospective

**Market-to-Book Value for Selected Energy Indexes
(June 1999–June 2009)**

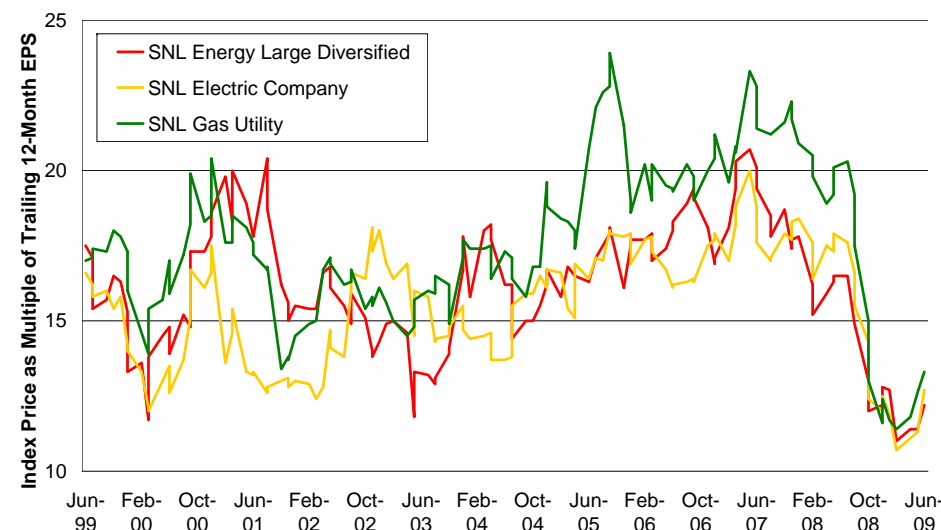


- ❑ The utility sector—gas, electric, and diversified (combination electric and gas)—has oscillated (+/- 50%) around 2X book value.
- ❑ Merchant generators, after a period of wide swings in valuation (standard deviation of 72%), are trading near book value, perhaps indicating potential acquisition opportunities or declining fortunes.
- ❑ The total return for electric and gas utilities has been favorable for pure-play electric and gas utilities. However, buy-and-hold investors who bought large diversified utilities or merchants in 1999 have just about broken even as of June 2009.
- ❑ Trailing price-earnings ratios for the utility sector have historically seen downward resistance at the 12X level. After testing the 11X level during the current recession, the industry P/Es are recovering but remain well below their historical averages of around 16X earnings.

**Total Return (with Dividends Reinvested) for
Selected Energy Indexes (June 1999–June 2009)**



**Price-to-Trailing 12-Month Earnings for Selected Energy Indexes
(June 1999–June 2009)**



Notes: Ratios calculated monthly; index members per SNL coverage universe
Source: SNL Financial

Heard on the Street: Factors Considered by the Investment Community

“Power markets will eventually recover, driven by a prolonged period of underinvestment that will become apparent following a recovery in demand. Long-term we believe this may be true, but in the present market conditions we believe forward spark spreads and heat rates will continue to be under pressure as demand and natural gas (sparks) remain weak.”

—RBC Capital Markets

“[We are] skeptical that Congress will adopt carbon legislation this year, as there seems to be a disagreement in the Democratic party.”

—Jefferies & Co.

“To do something that alters the carbon leverage (like buy coal), management will demand that the acquired target provide returns that compensate for the change in value (or even perceived value).”

—Credit Suisse

“Our new natural gas price assumptions are \$4.25/MMBtu, \$5.75/MMBtu, \$6.50/MMBtu and \$6.50/MMBtu in 2009, 2010, 2011 and 2012, respectively.”

—Deutsche Bank

Earnings growth	<ul style="list-style-type: none"> ↑ Investment in rate base, positioning for earnings growth when economy recovers ↑ Diversified geographic exposure, especially in emerging markets, where electricity demand typically grows at a faster rate than economic recovery ↑ Availability of liquidity to fund growth ↑ Mostly regulated business models that are recession resilient ↓ Economic downturn driving sales volumes lower, especially among industrials ↓ A cautious view towards earnings is appropriate, given the recession; flat sales growth assumptions for 2009 may prove optimistic ↓ Potential impact on margins of pension expense if equity markets do not improve in 2009
Regulation	<ul style="list-style-type: none"> ↑ Successful navigation of the regulatory process ↑ Stable regulatory model with mechanisms for navigating difficult economic environments ↔ Uncertainty around climate legislation and how it might affect different firms ↓ Need to file for frequent rate relief in multiple jurisdictions to offset inflationary pressures and to have capital expenditures reflected in rates
Gas prices	<ul style="list-style-type: none"> ↑ Hedging natural gas price exposure, either as seller or buyer
Liquidity	<ul style="list-style-type: none"> ↑ Removal of credit overhang that might limit ability, increase cost of tapping capital markets ↓ Large construction expenditures putting pressure on cash flow
Generation	<ul style="list-style-type: none"> ↑ Aggressive hedging of commodity margin ↑ Leverage of a nuclear fleet to expected U.S. carbon policy ↓ Reduced margins on merchant and off-system sales due to low wholesale power prices ↓ Shorter-term (<18 months) PPAs or low hedged volumes, exposing firms to re-contracting while prices and demand are depressed
Renewables	<ul style="list-style-type: none"> ↑ Stimulus bill ↑ Long-term macro-dynamics of a future ‘green’ energy world
T&D	<ul style="list-style-type: none"> ↑ Safe haven with highly predictable earnings and cash flow ↑ Favorable decoupling mechanisms providing immunity to lower sales
Trading	<ul style="list-style-type: none"> ↓ Potential counterparty defaults, higher bad debt expense in tough economic environment
Mergers & acquisitions	<ul style="list-style-type: none"> ↑ Potentially attractive opportunities among wind developers, as some smaller developers could be capital constrained and find themselves unable to tap the financing markets

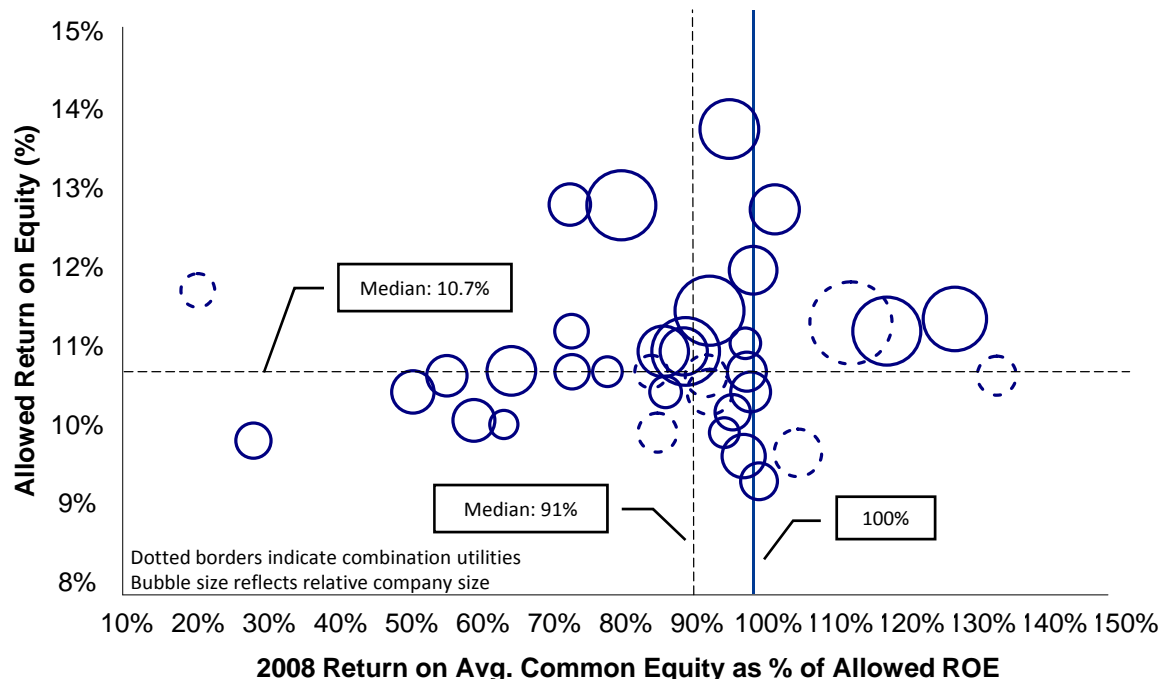
↑ means tailwind or opportunity for the sector; ↓ means headwind or risk for the sector;
↔ means neutral for the sector or dependent upon individual firm situation

Sources: Brean Murray, Carret & Co.;
Credit Suisse; Deutsche Bank; Hilliard
Lyons; J.P. Morgan; Jefferies & Co.;
Jesup & Lamont; KeyBanc Capital
Markets; Ladenburg Thalmann;
Macquarie Research;
RBC Capital Markets

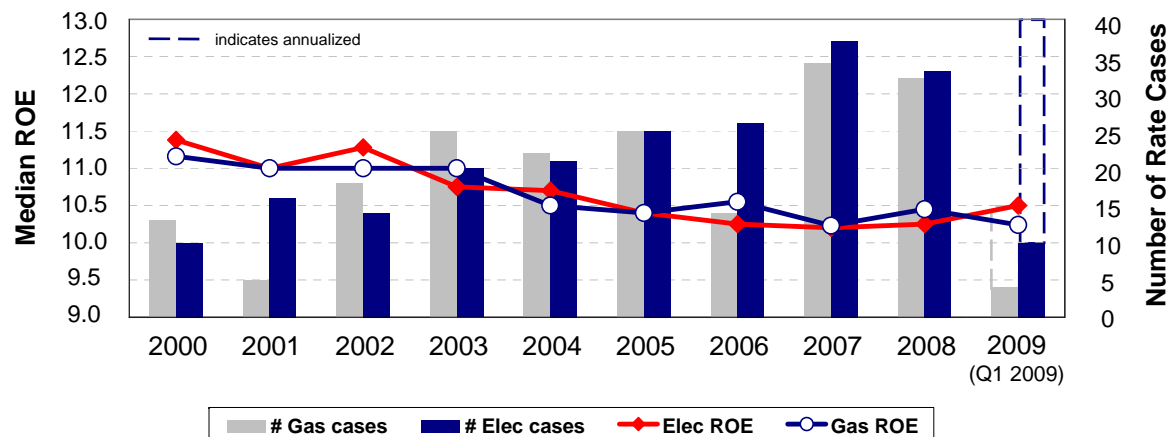
Vigorous Rate Case Activity Produces Varied ROE Results

- ❑ Rate case activity among both electric and gas utilities remains high (71 cases in 2007, 65 cases in 2008, and 54 new cases in 2009 through mid-June).
- ❑ Allowed returns on equity (ROEs) for both gas and electric utilities have been declining but appear to have stabilized. However, 2008 median ROEs were 120 (gas) to 150 (electric) basis points below approved levels ten years before.
- ❑ Range of allowed ROEs is still quite broad, with some utilities still enjoying allowed ROEs of over 12%. The lowest is Connecticut Light and Power Co. at 9.4%.
- ❑ But utility performance against those ROEs has been mixed—returns in 2008 showed the median electric utility slightly underearning.
- ❑ There are especially wide spreads in earned vs. allowed performance among utilities in the West, the Midwest, and the Mid-Atlantic.
- ❑ Southern utilities (including Florida), aided by a constructive regulatory climate and programs that allow for higher ROEs, were strong performers in realizing those returns in 2008.

Comparison of Allowed ROE and 2008 Return on Average Common Equity for Selected Large Electric and Combination Operating Companies

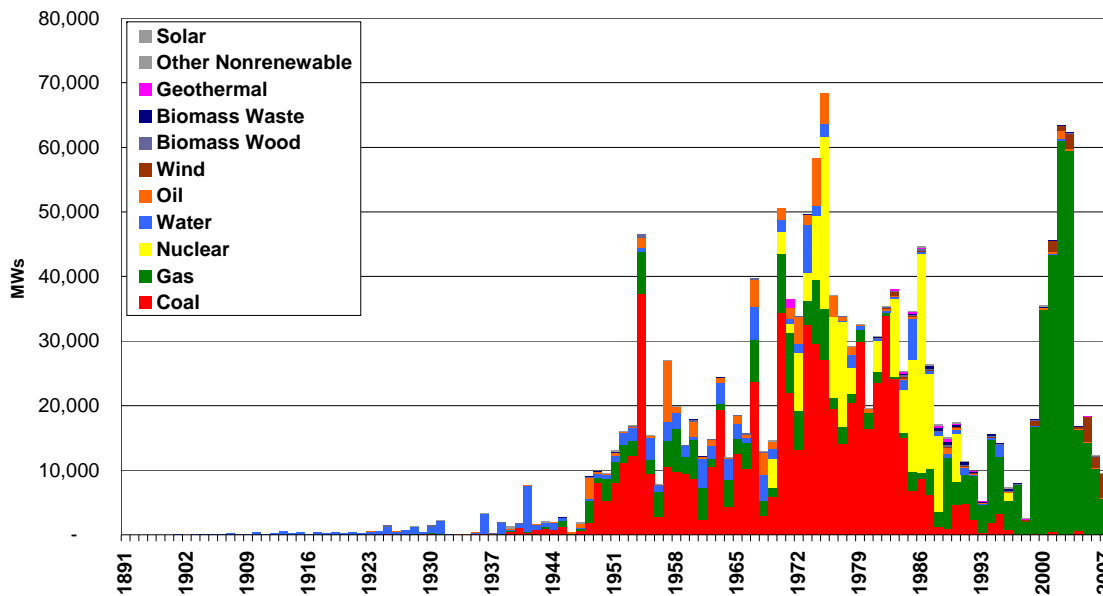


Median ROE and Rate Cases Approved 2000–2008

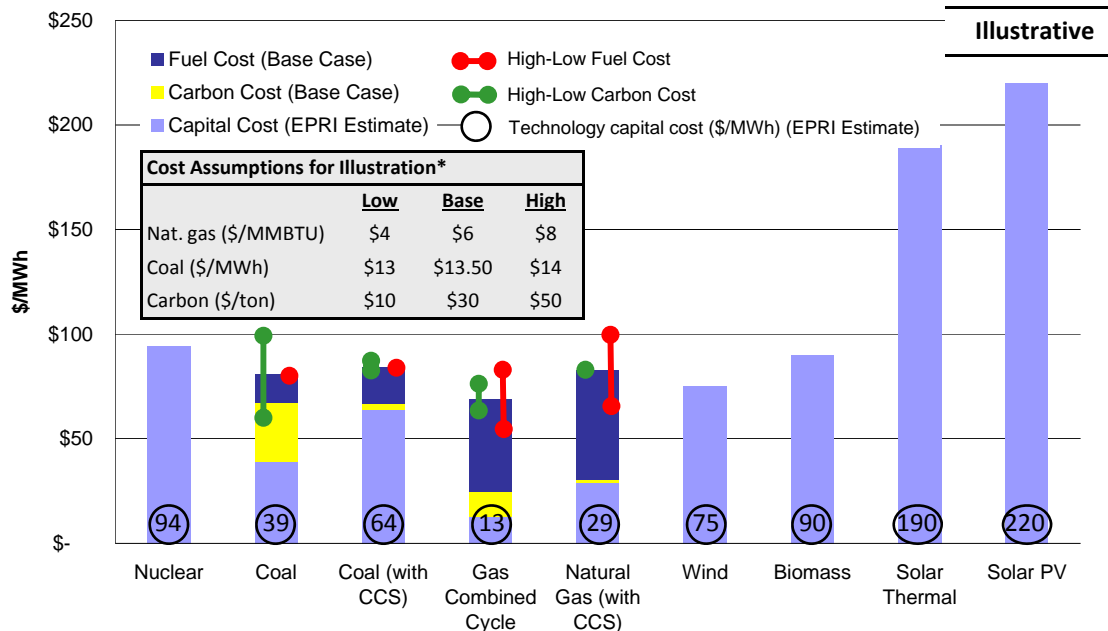


Power Generation Costs: What Price for Natural Gas and Carbon?

Total U.S. Operating Installed Capacity by Vintage and Fuel Type (as of Dec. 31, 2007)



Scenario Planning: Relative Cost of Generation Technologies Can Vary Significantly Due to Uncertainties About Fuel and Carbon Prices



Aging Fleet, Uncertainty and the Gas "Bridge"

- Much of the U.S. coal fleet is now at least 30 years old, in many cases much older.
- Several factors continue to drive the industry toward installing more gas-fired generation, among them:
 - Regulatory uncertainty over new coal facilities
 - Immaturity of utility-scale carbon capture and storage (CCS)
 - Standby generation for intermittent resources
 - Long development time for new nuclear units

Driving Down Cost of "Clean" Supply

- With renewed federal focus on greenhouse gas emissions regulation, driving down technology costs for multiple lower-carbon options is critical.
- EPRI recently noted that nuclear and coal with CCS could be the dominant baseload generation with 45% to 58% of net generation, but the economic effect of carbon constraints varied depending upon:
 - Nuclear installed cost
 - CCS cost and timing (by 2030 vs. by 2020)
 - CO₂ emissions prices

Energy Cost: Increasingly Driven by Beliefs About Gas and Carbon Cost

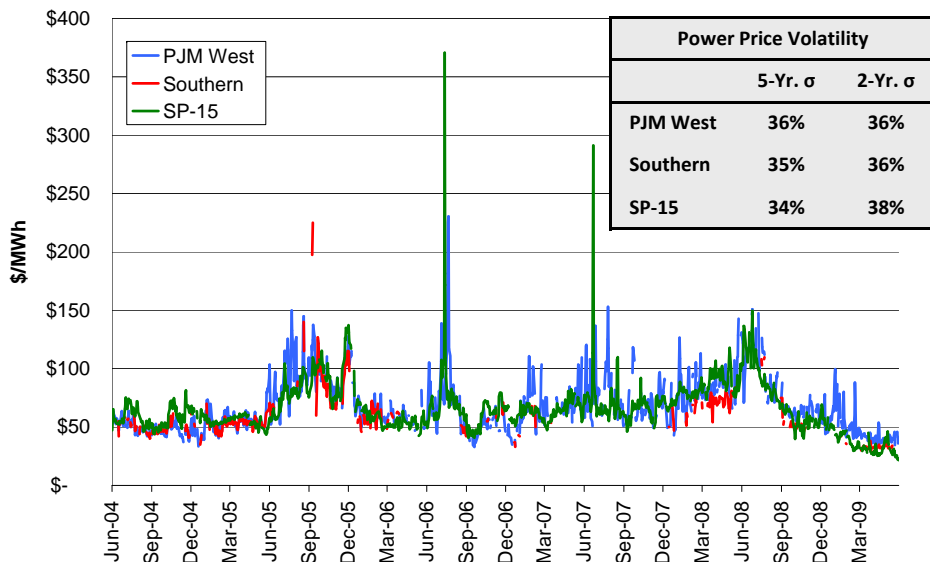
- Gas-fired generation is competitive with coal, as high carbon costs can offset high fuel costs, to a point.
- Biomass and wind can be in the ballpark, depending on scenario, but other costs like grid support could alter this.
- At low gas prices (based upon promising unconventional sources), gas-fired generation looks compelling. But the industry may risk a replay of its gas overbuild and price run-up from earlier in this decade.

Notes: *Assumed capital cost and some fuel and carbon price assumptions from EPRI report noted below.

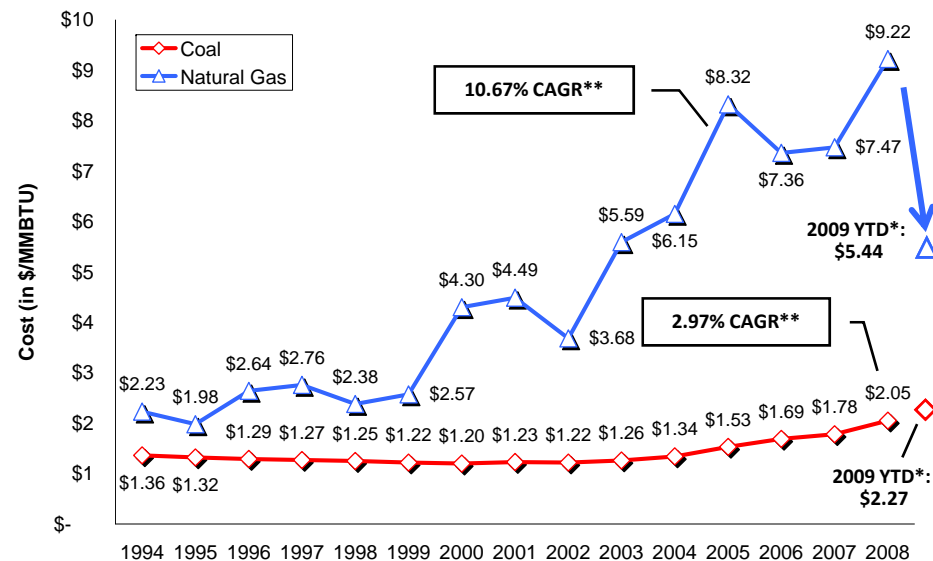
Sources: SNL Financial; EPRI, *The Power to Reduce CO₂ Emissions: The Full Portfolio: 2008 Economic Sensitivity Studies* (Dec. 2008); EIA; NETL; ScottMadden analysis

Power Markets Remain Soft with Slack Demand and Falling Gas Prices

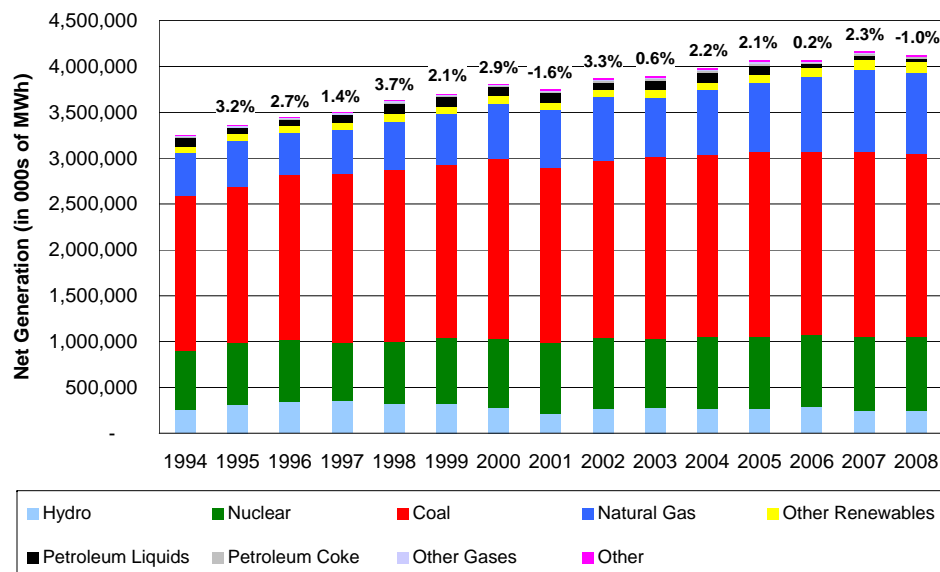
Volume-Weighted Average Electricity Prices for Selected Market Hubs (Jun. 2004–Jun. 2009)



Average U.S. Fuel Prices for Utility Power Generation (1994–YTD 2009*)



U.S. Net Generation by Fuel Type and Year-over-Year Growth Rate (1994–2008)



- Power market prices have declined dramatically since a rapid run-up in mid-2008, impelled by falling demand due to a recessionary economy, mild weather, and a precipitous drop in natural gas prices. Price volatility, however, has not declined from longer-term (five-year) averages.
- Net generation was down by 1% in 2008. The fuel mix, however, has remained relatively unchanged in the past two years: about 48% for coal, more than 21% for gas, and more than 19% for nuclear.
- This trend has continued into 2009, as 2009 net generation through February was 4.7% lower than the same period in 2008.
- With significantly reduced demand, an emerging dynamic in some North American regions is off-peak-hour cycling of baseload generation.

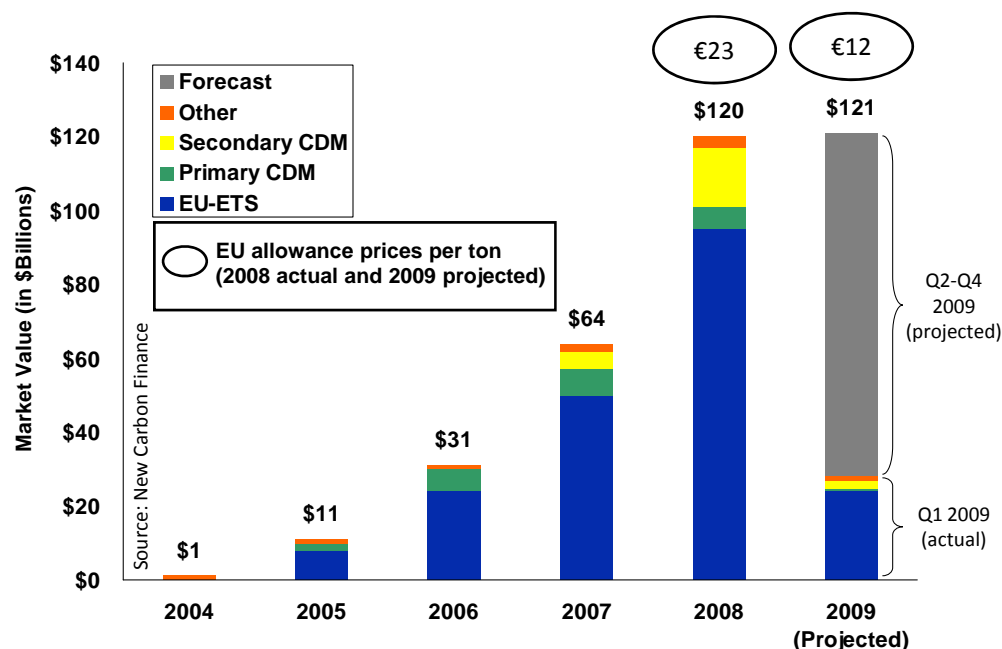
Notes: *indicates year-to-date through March 2009; **indicates CAGR from 1994 through 2008; σ is standard deviation of volume-weighted daily prices over the past 2 and 5 years, respectively, through mid-June 2009

Sources: Energy Information Administration; SNL Financial; ScottMadden analysis

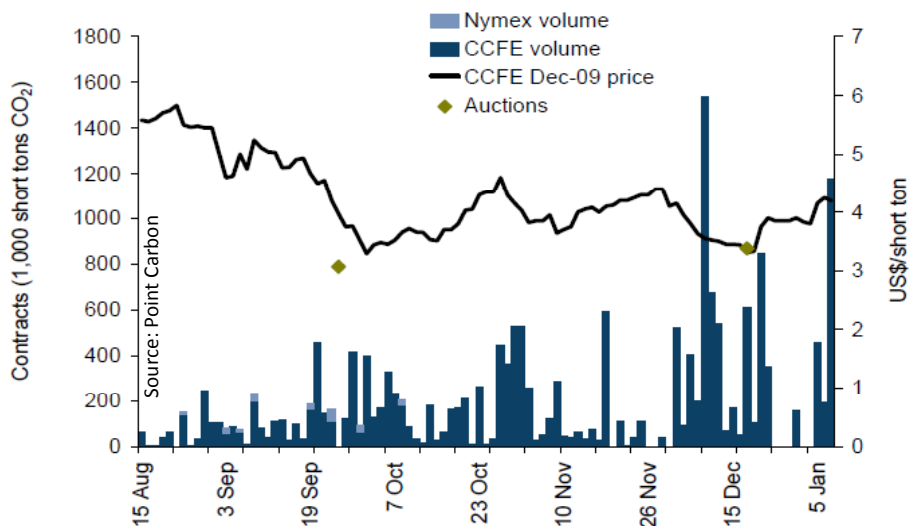
Global Carbon Markets: Strong Growth in 2008, but a Soft 2009

- ❑ The global carbon market grew by 84% to nearly \$120 billion in 2008, increasing in volume over 2007 by 42%.
- ❑ However, global recession has reduced industrial and power production (and the need for allowances) and dampened the carbon market outlook for 2009.
- ❑ Estimates for 2009 market value range from stabilization at 2008 levels to a drop of one-third, with higher expected trading volumes but lower prices as firms sell off their EU allowances.
- ❑ This market sluggishness is expected to continue until 2012, as many expect prices to remain low in the major schemes, especially the EU-ETS. However, New Carbon Finance estimates that the 2012 market will reach \$408 billion.
- ❑ In North America, RGGI conducted three successful auctions with strong demand, as most entities are using allowances for compliance (vs. secondary market allowance purchases or offset projects). December 2009 allowances have hovered around \$3.50 per ton since the last auction in March 2009.

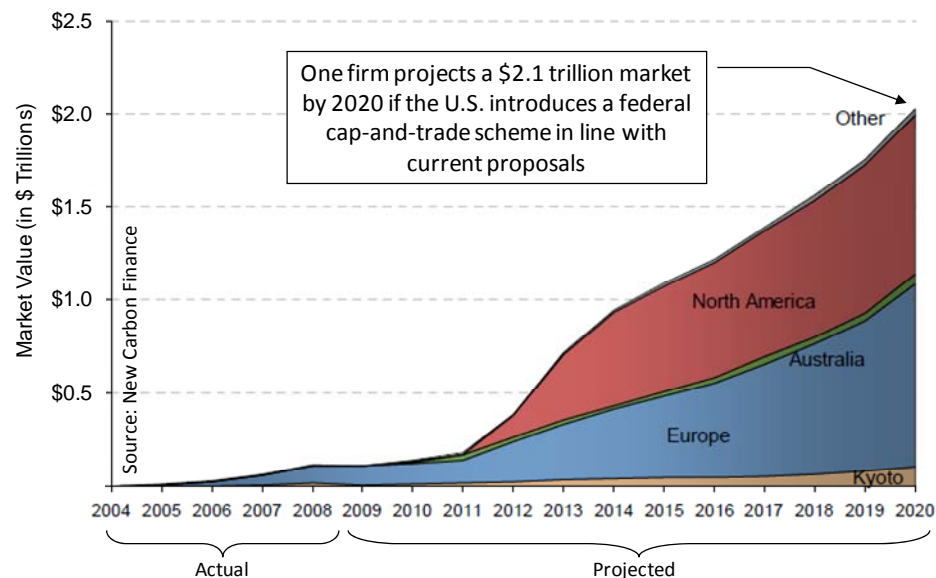
Carbon Market Size by Segment (in \$Billions)
2004–Q1 2009 Actual and 2009 Estimated



Prices and Volumes of RGGI Allowances (Dec. 2009 Delivery)
on NYMEX and CCFE (Aug. 15, 2008–Jan. 7, 2009)



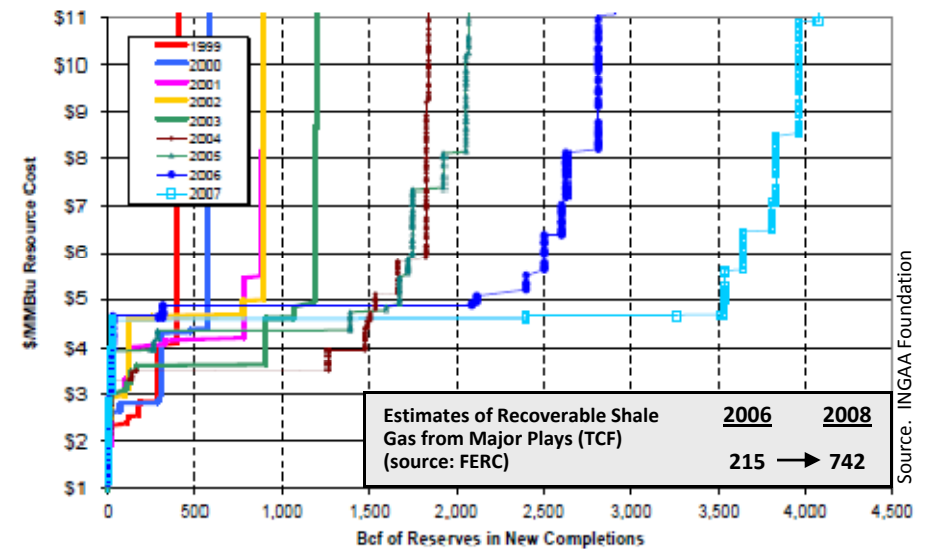
Actual and Projected Size of Global Carbon Markets by Region (in \$Trillions)



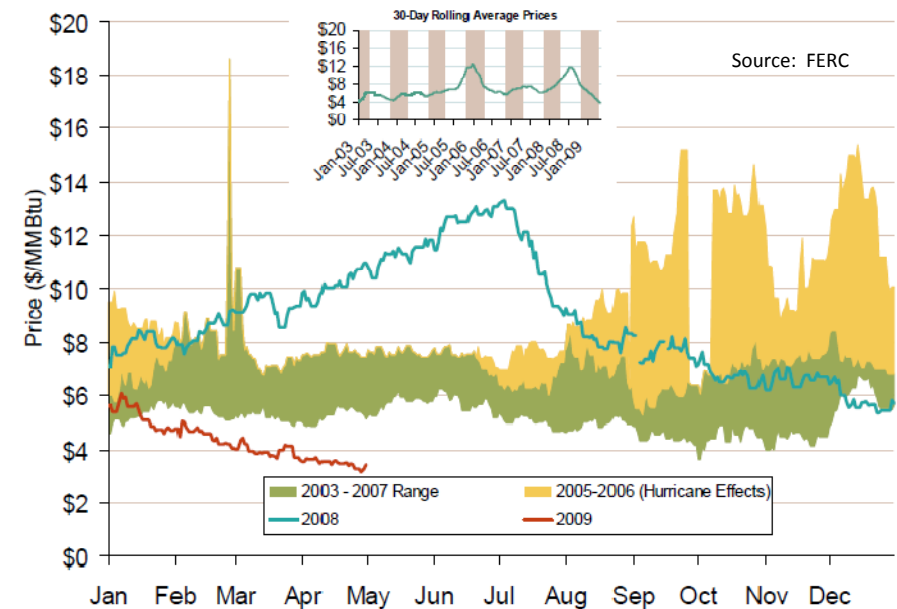
Gas Glut: From Supply Concerns to Forecasts of Abundance

- After an incredible run-up, recession and mild weather have helped soften demand and tamp natural gas prices. Most believe that gas demand will be suppressed near-term, perhaps through 2012.
- Infrastructure development in areas such as LNG terminals, pipeline additions like the Rockies Express, and expanded storage capacity have improved deliverability. More is on the horizon:
 - Storage: 8 projects totaling 117.4 Bcf
 - Pipeline: 3,970 miles totaling 36.94 Bcf/day
- Just a year or two ago, many feared a gas shortfall due to competition for LNG and potential restrictions on offshore oil and gas development. Those fears have given way to overabundant supply and plummeting prices.
- Improved horizontal drilling technology is now seen as a “game-changer,” more than tripling estimates of the recoverable amount of some types of unconventional gas, lowering the cost of recovery (some say to as low as \$3.50 to \$4.00/MMBTU), and expanding projections of its relative contribution to the U.S. gas supply portfolio.
- Some believe that production levels of unconventional wells (5X traditional wells) will make supply more responsive to increases in demand, limiting any sustained price run-ups.

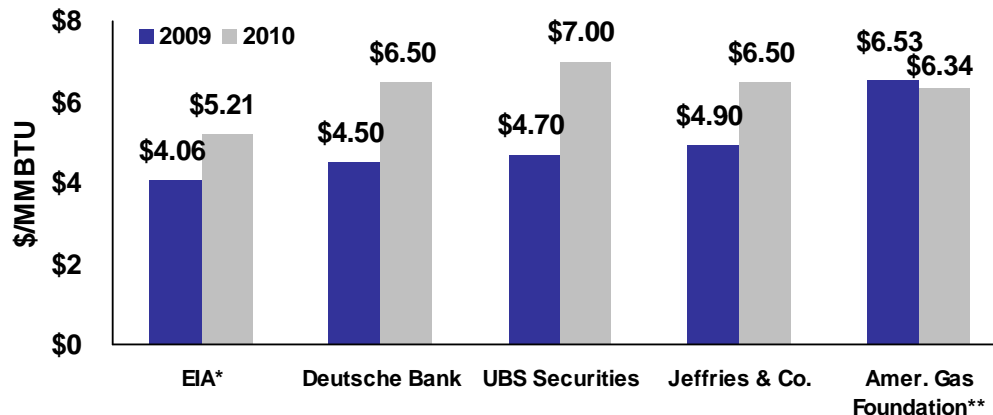
Supply Curves: Estimated Annual Lower 48 Shale Gas Wellhead Supply Doubles Between 2004 and 2008



Henry Hub Natural Gas Daily Spot Prices 2008, 2009 and 2003–2007 Year Range



Selected U.S. Natural Gas Price Projections for 2009 and 2010



Various sources. Notes: *Henry Hub; **as of Oct. 2008

Sources: INGAA Foundation, *Availability, Economics, and Production Potential of North American Unconventional Natural Gas Supplies* (Nov. 2008) (prepared by ICF International), Fig. 52; FERC Office of Enforcement, Division of Energy Market Oversight; industry reports

ACES Are Wild: Another Charge Toward Climate Change Legislation

- ❑ In late June, the House of Representatives passed the Waxman-Markey energy and climate change bill, the America Clean Energy and Security Act of 2009 (H.R. 2454) (ACES), by a narrow margin of 219 yeas to 212 nays.
- ❑ A number of compromises were made by House Energy Committee Chairman Waxman in exchange for speedy disposition by his committee and other House committees, particularly the Agriculture Committee.
- ❑ ACES has the following principal features:
 - An economy-wide cap-and-trade program
 - Incentives (nearly \$200 billion) and standards for clean energy and energy efficiency
 - GHG standards for vehicles, stationary sources, and fuels
- ❑ Some key points of debate over ACES:
 - Pace and level of reduction: The bill targets an 83% reduction over 2005 levels (compared with Lieberman-Warner at 70%)
 - Increasing the number of auctioned allowances (~80% are freely allocated in early years of 2014-2025)
 - Lack of a price “collar” for allowances
 - Lack of a “safety valve” for economic hardship, such as job losses, fuel and electricity prices, threatened industries
 - Potential for creating unlevel playing field for U.S. in competition with other countries (esp. China)

Key Provisions of ACES

Covered Sectors	<ul style="list-style-type: none">▪ Economy-wide cap▪ Electricity and industrial facilities (large sources), regulated at points of emission▪ Regulates natural gas distributors as well as producers and importers▪ Phased in for industry (2014) and natural gas distributors (2016)▪ Entities that emit less than 25,000 tons CO₂-equivalent annually (85% of emissions covered) are exempt
Pace and Level of Reduction	<ul style="list-style-type: none">▪ 17% reduction over 2005 levels by 2020▪ 83% reduction by 2050
Allocation vs. Auction	<ul style="list-style-type: none">▪ Allocation of about 80% of allowances in early years (2014-2025); remainder auctioned▪ Most allocations phased out by 2030
Safety Valve/ Cost Containment	<ul style="list-style-type: none">▪ No safety valve or terms under which ACES caps would be suspended or loosened due to economic conditions▪ Beginning in 2015, emissions auction reserve (ceiling) prices based upon historic allowance prices (two times the 2012 auction price, then a rolling 36-month average + 60%)▪ Price floor of \$10 (2009\$) on allowances▪ “Strategic reserve” of allowances (1%, growing to 3% in 2030) in case prices rise faster than expected
Banking and Borrowing	<ul style="list-style-type: none">▪ Banking is permitted▪ Borrowing up to 15% of requirements of allowance vintages from periods up to five years in the future▪ Borrowing of next year’s vintage is interest free, with subsequent vintages bearing 8% annual interest rate
Offsets	<ul style="list-style-type: none">▪ Up to 2 billion tons of credits in offsets; at least half from domestic sources▪ 1:1 offset ton-to-allowance ton “exchange rate,” except 1.25:1 rate for international offsets beginning 2017▪ Dept. of Agriculture administration of agricultural offsets

- ❑ Like the Lieberman-Warner bill in the 110th Congress, ACES sets the context for discussion of climate change legislation in the 111th Congress.
- ❑ Few hold out hope that the Senate will move forward on the legislation anytime soon. If it does, many expect that the legislation could be significantly altered, with the following possible flashpoints of contention:
 - Safety valves
 - The offset regime
 - Carbon-based import restrictions or tariffs
 - Extension of the allocation phase-out period

Key Provisions of ACES (Cont'd)

Competitiveness Adjustments

- Rebates for energy-intensive, trade-exposed industries such as iron, steel, cement, and paper, phased out after 2025

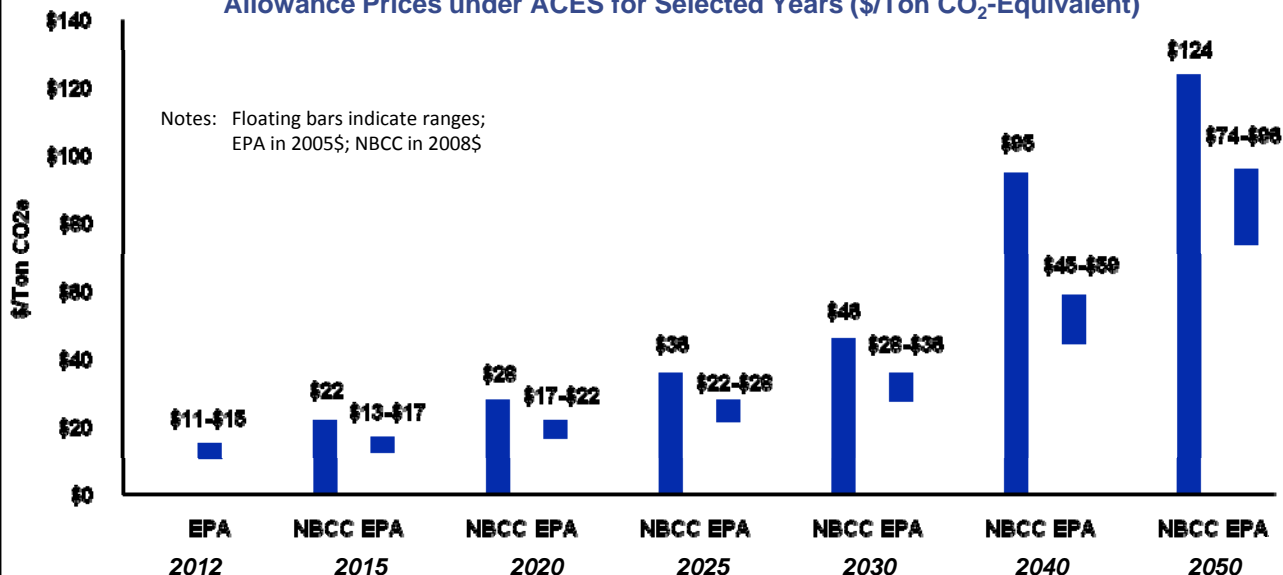
Renewables and Energy Efficiency

- 15% renewable portfolio standard and 5% improved energy efficiency standard (20% total) by 2020 (note: proposed Senate energy legislation contemplates a more modest RPS)
- Creation of a Federal renewable energy credit scheme
- Aggressive efficiency goals: new buildings 30% more efficient; 50% more efficient beginning 2015
- Building energy efficiency “label” requirements
- Lighting, appliance, building, and industrial energy efficiency programs

Coal Retrofits

- Requires all coal plants permitted after 2009 to be retrofitted with carbon capture and storage technology by 2025, earlier if 4 gigawatts of generation with CCS is deployed before 2025
- Ties eligibility for federal financial assistance for CCS retrofits to retrofit completion dates (before or within certain time after commencing operations, depending upon plant vintage)

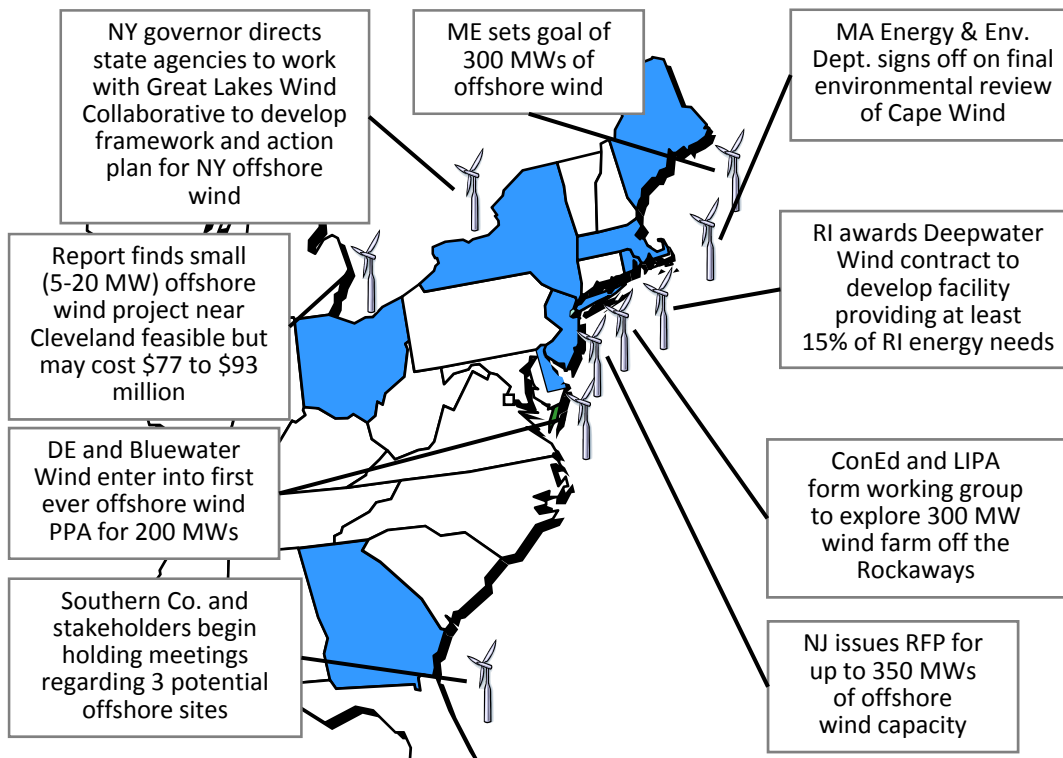
EPA and NBCC Projected Greenhouse Gas Emissions Allowance Prices under ACES for Selected Years (\$/Ton CO₂-Equivalent)



Debating the Cost of ACES

- EPA and the National Black Chamber of Commerce (NBCC) commissioned studies of Waxman-Markey legislation and its potential cost and impact on GDP.
- The studies came to different conclusions about the potential cost, with NBCC projecting a larger economic cost of ACES, including higher emissions allowance costs.
- Despite lower cost estimates, EPA said that critical to cost containment is the availability of adequate international offsets. Without international offsets, EPA’s projected allowance prices would almost double.

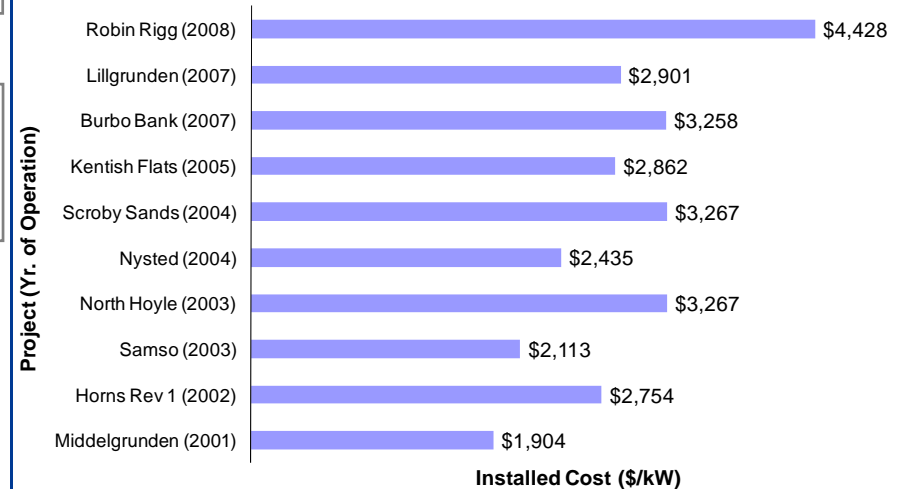
Offshore Wind Developments: 2008-09



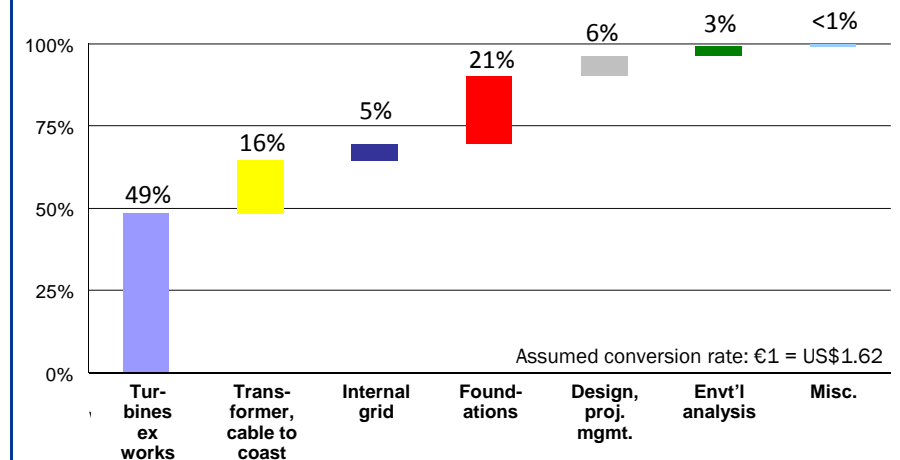
- ❑ Interest in offshore wind power has picked up in the Northeast and Mid-Atlantic regions. Excessive ocean depth limits opportunities on the West Coast.
- ❑ Challenges include:
 - Integrating resources into the grid cost effectively yet reliably
 - Overcoming siting limitations and lengthy reviews (e.g., Cape Wind)
 - Reducing costs of offshore wind installations, now 50%–100% higher than onshore due to (A) turbine costs (+20%), (B) offshore towers and foundations (2.5 times costlier), and (C) higher construction, installation, and grid-connection costs
 - Developing generally accepted construction methods, design codes, specification guidelines, and safety margins
 - Addressing equipment delays affecting manufacturing capacity and installation vessels
 - Offsetting high O&M and balancing costs. European installations' annual costs are ~\$26/MWh in O&M and ~\$5/MWh in balancing

Installed Cost Reduction: An Imperative for Increased Offshore Wind Power

Illustrative Offshore Wind Installation Costs for Recent European Projects



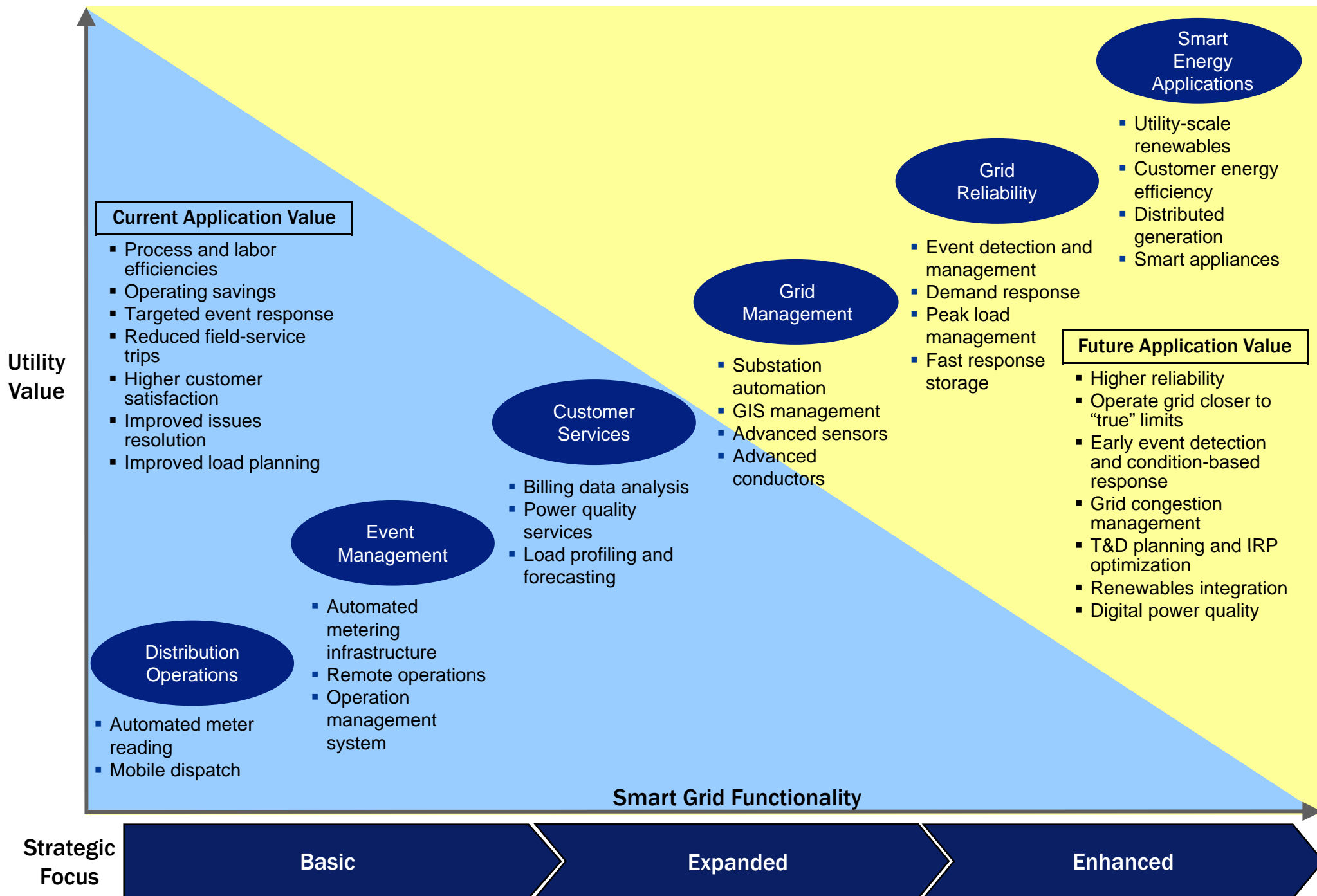
Illustrative Offshore Wind Installed Cost by Component (% of Total)



Note: European values are illustrative only; costs vary based upon offshore depth, equipment transportation costs, etc.

Sources: U.S. Offshore Wind Collaborative; National Renewable Energy Laboratory; European Wind Energy Association; industry reports

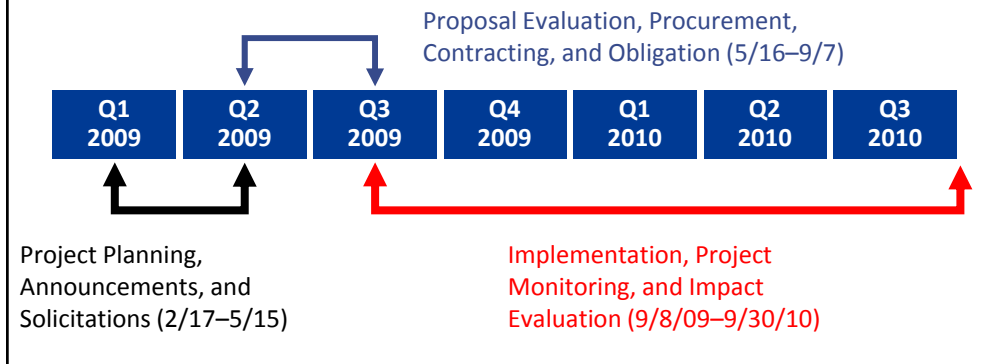
Smart Grid Functionality: A Strategic Focus



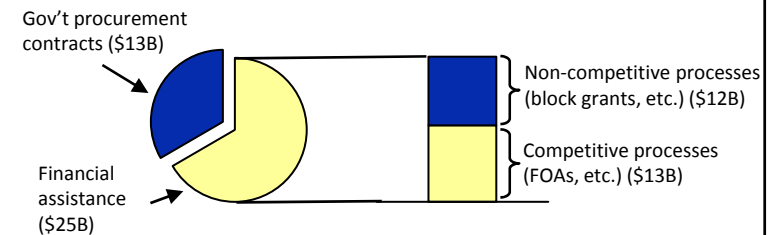
American Recovery and Reinvestment Act: Stimulating Energy Investment

- ❑ In February, Congress enacted a \$787 billion economic stimulus bill, the American Recovery and Reinvestment Act of 2009 (ARRA), which grants nearly \$39 billion in budget authority to the Department of Energy (DOE).
- ❑ Funding will go primarily to initiatives and programs already contemplated under existing laws such as the Energy Policy Act of 2005, the Energy Conservation and Reduction Act, and the Energy Independence and Security Act of 2007.
- ❑ Disbursement so far by DOE has been limited, as it focuses on developing Funding Opportunity Announcements (FOAs). FOAs will govern applications and awards of this “bow wave” of massive stimulus funding.
- ❑ About half of the authorized funds will be disbursed through formula-based state and local block grants, mostly for energy efficiency and conservation projects.
- ❑ Many applications are due in the next few months; most awards are expected by the end of 2009. DOE has shown a preference for projects with a shorter (~36 months) duration.

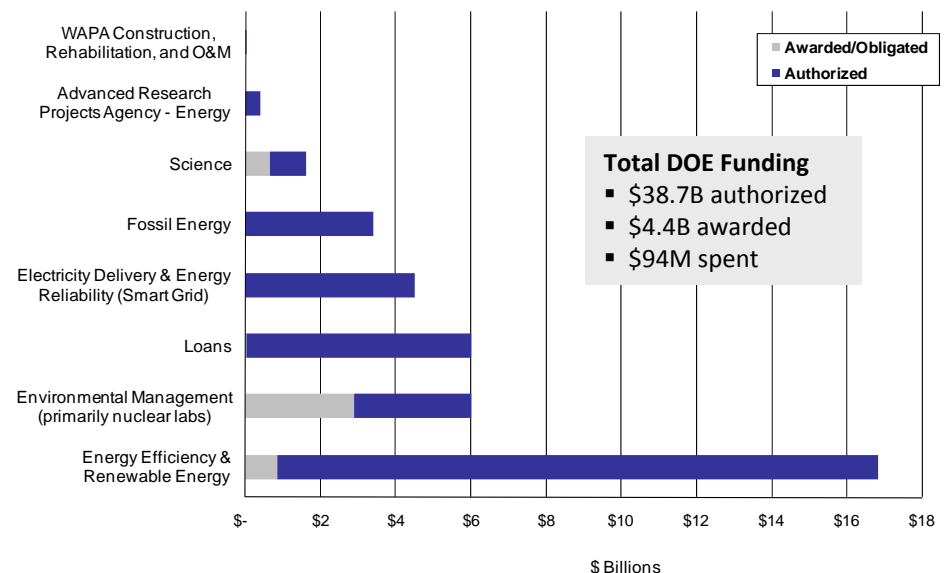
A Short Fuse: ARRA DOE Project Solicitation and Funding Timeline



DOE's Expected Distribution of \$38.7B in Recovery Act Funding



DOE Recovery Act Funding by Program/Office as of June 5, 2009 (in \$Billions)



Some High-Profile DOE Funding Announcements

Program	Amount (in \$Billions)	Date Announced
Weatherization funding and energy efficiency grants	\$8.0	3/12
Next generation electric vehicles	2.4	3/19
Local energy efficiency block grants	3.2	3/26
Smart grid development grants	4.0	4/16
Advanced biofuels development	0.8	5/5
Carbon capture and storage projects	2.4	5/15

Sources: DOE Recovery website; www.recovery.gov (accessed June 15, 2009); ScottMadden research

Building Green “Superhighways”

The Situation

- ❑ There are a number of proposals for long, high-voltage transmission corridors to bring renewable energy to market, spurred by:
 - State and potentially federal renewable portfolio standards
 - Distance of renewable resources from load centers

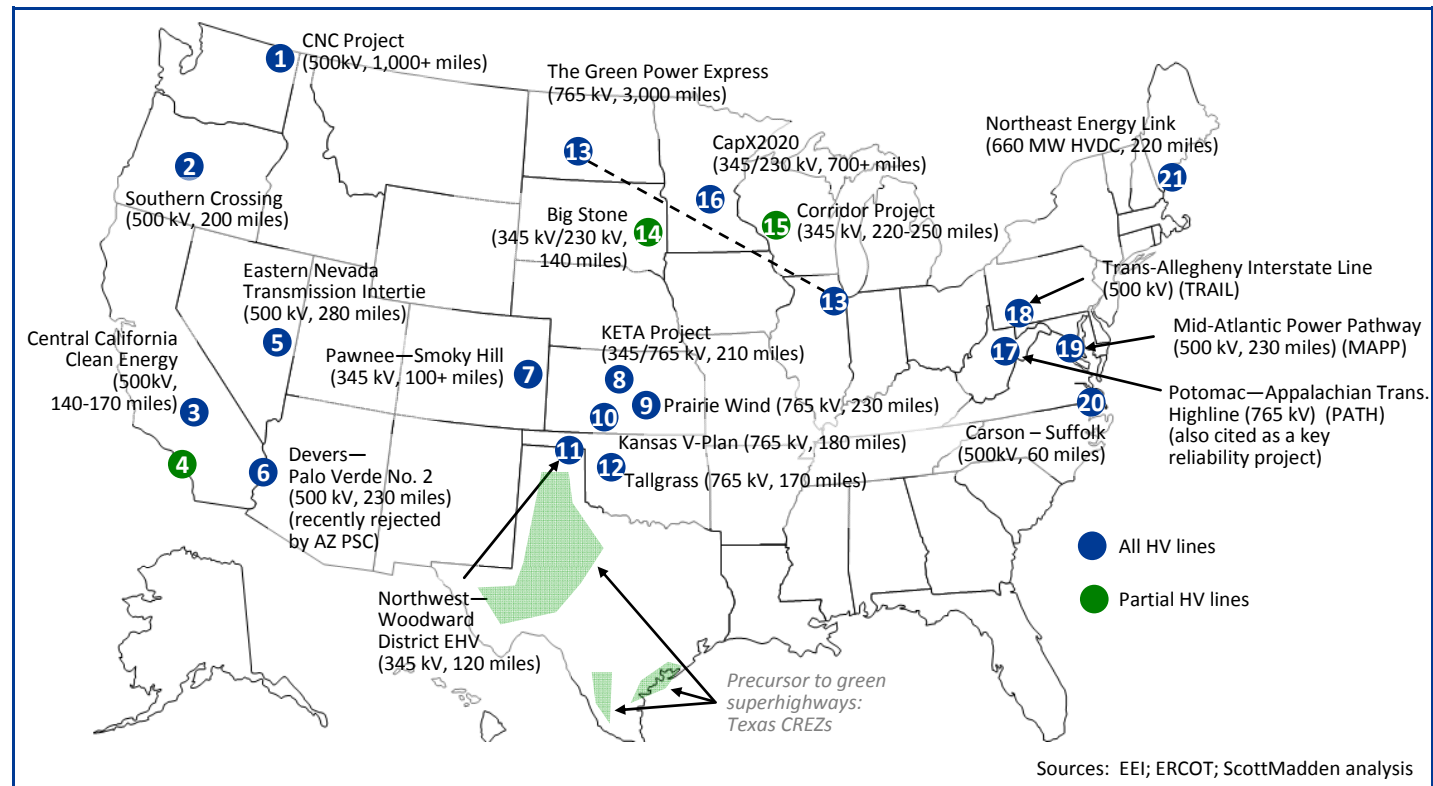
Key Points of Debate

- ❑ NIMBY and lack of interstate cooperation in transmission siting
- ❑ Environmental opposition to lines that also might carry coal-fired electricity
- ❑ Inability of FERC’s backstop siting authority to overcome state outright denials of siting approval
- ❑ Socialization of costs
- ❑ Regions (e.g., the Northeast) pursuing home-grown green jobs opposed to importing renewable energy
- ❑ Physical issues – grid stability, reliability, and needed short-term storage and grid support

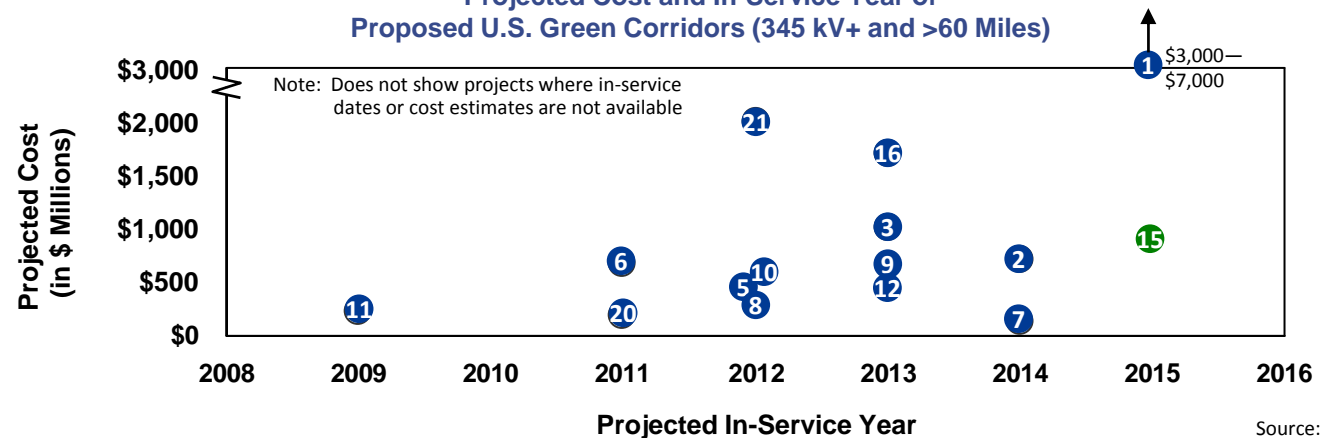
Legislative Interest Building

- ❑ Sen. Reid has proposed federal legislation (S.B. 539) which would establish:
 - Presidential creation of national renewable energy zones
 - A streamlined national planning and siting process for renewable energy
 - FERC backstop authority to issue construction permits and “equitably” allocate costs

Proposed Green Corridors in the United States (345 kV or more and longer than 60 miles)






Projected Cost and In-Service Year of Proposed U.S. Green Corridors (345 kV+ and >60 Miles)



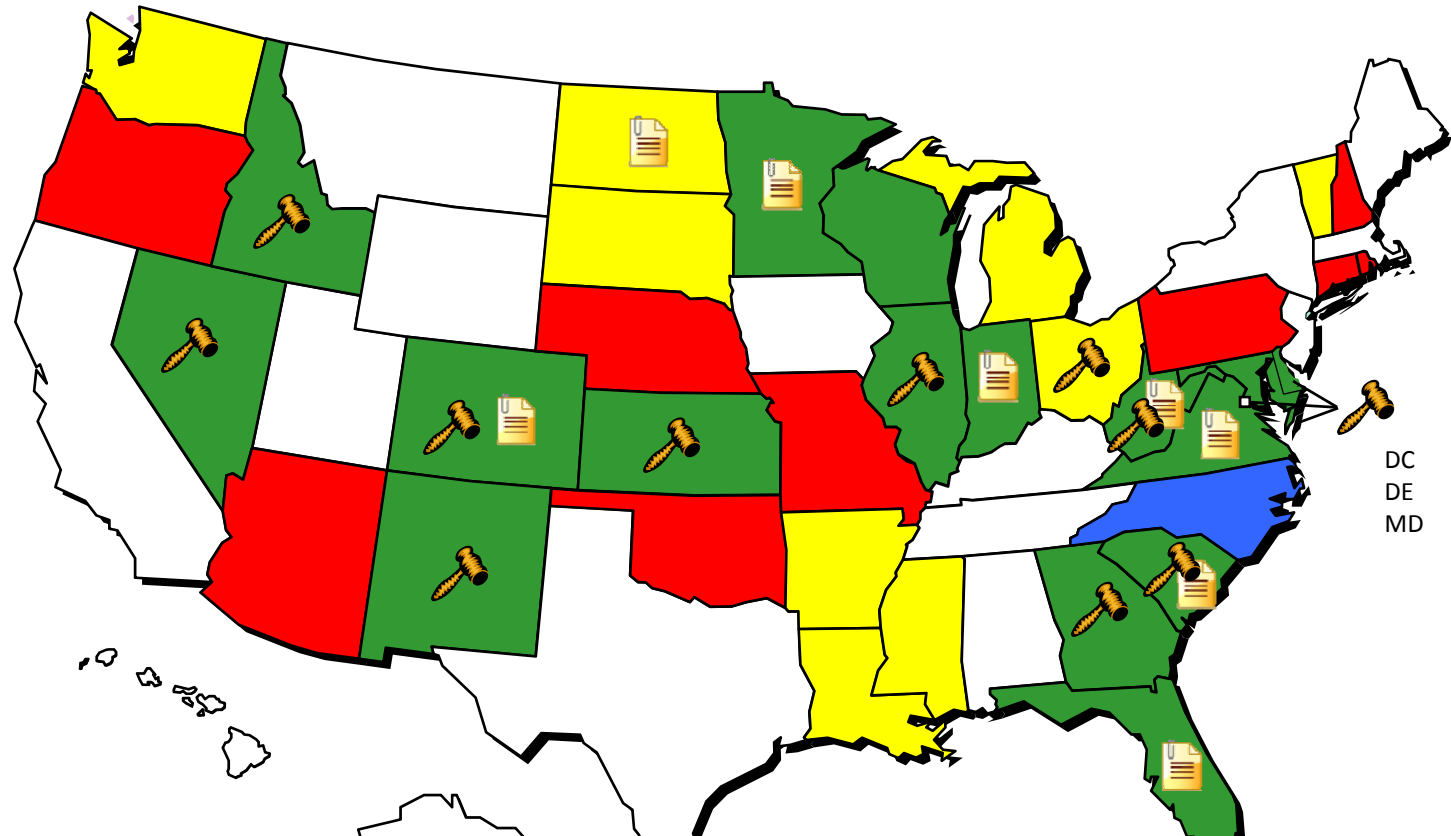
Shifts in Regulatory Tactics: Enabling Returns on Policy Objectives

Conflicts between higher capital costs and conflicting incentives on one hand, and public policy impetus for energy efficiency and green resources on the other, are leading to regulatory innovations. Some examples...

	Sustainable Energy Utility (SEU) 	Accelerated Investment Plans 	Decoupling 
Approach	<ul style="list-style-type: none"> ❑ Non-profit corporation is charged with funding programs that meet certain policy objectives—e.g., energy efficiency, green energy deployment, and jobs ❑ SEU is funded through utility system benefit or similar charges directed to a trust fund ❑ SEU issues RFPs, selects vendors, manages contracts, and pays for projects delivering “sustainable energy services” and energy efficiency measures ❑ Advisory board comprised of stakeholders from the political sector, private industry, and advocacy groups (e.g., low income, environmental, consumers) is formed to oversee SEU 	<ul style="list-style-type: none"> ❑ Programs permit acceleration of planned investment in efficiency, conservation, renewables, and other infrastructure programs ❑ Programs comport with state economic stimulus priorities, including job creation ❑ Utility recovers all direct program costs through separate adjustment mechanisms, including those related to invested capital ❑ Cost recovery occurs over 15 to 20 years, aided by benefits from electricity provided to grid, renewable certificates, and tax credits netted back to customers ❑ Programs are akin to federal transmission incentives that have now been granted for a few years and have factored into the use of innovative technologies 	<ul style="list-style-type: none"> ❑ Differences are tracked between authorized revenues and revenues actually received and rates periodically adjusted to true-up and recover differences caused by declining consumption, e.g., due to energy conservation ❑ Authorized revenues are typically adjusted annually for customer growth and inflation, as well as to exclude weather-related effects on consumption ❑ Overcollection or undercollection is typically capped and allowed ROE may be reduced to reflect reduction in financial risk due to decoupling ❑ Regular reports show the effect of energy conservation programs ❑ Adjustments eliminate or reduce disincentives for conservation/efficiency ❑ Expected results include a lower cost of capital and thus lower rates
Examples	<ul style="list-style-type: none"> ❑ DE, DC, VT 	<ul style="list-style-type: none"> ❑ Five of seven major NJ utilities (\$956 million in programs approved, creating an expected 1,300 direct jobs) 	<ul style="list-style-type: none"> ❑ Approved in CA, CT, MD, MA, NY, and VT; pilots in ID, MN, OR and WI ❑ Proposals in DE, DC, HI, NH, and NJ
Issues	<ul style="list-style-type: none"> ❑ Displacement of private sector investment and administration ❑ Multiple goals and diverse stakeholder interests (low-income subsidy, low rates, jobs, efficiency, etc.) may not yield most cost-effective implementation 	<ul style="list-style-type: none"> ❑ Investment recovery generally not tied to measurement and verification results of specific initiatives ❑ Difficulty in linking investment recovery to permanent initiative results ❑ Perception that utility has less incentive to control investment costs 	<ul style="list-style-type: none"> ❑ Perceived windfall for utility, as profit margins are maintained whether decreased usage stems from economic conditions or efficiency measures ❑ Efficiency benefits versus other measures, such as cost effectiveness of programs

Rate Recovery of Construction Work-in-Progress Grows in Importance

- ❑ Despite recession-related cutbacks, expected utility capital spending remains high (by some estimates 18% to 22% higher than 2007 capex), although spending will likely be flat from 2009 through 2011.
- ❑ Much of this spending will be on long-lead-time capital projects, such as replacing or enhancing transmission and distribution infrastructure, environmental and carbon emissions compliance, and proposed new nuclear units.
- ❑ Timely recovery of these investments will be critical for the financial health and cost of capital for regulated electric and gas utilities.
- ❑ Absent other tools to manage or compensate for financial exposures (e.g., guarantees, incentive ROE, and rate riders), some riskier projects will not proceed without construction work-in-progress in rate base, as utilities fear possible deferred recovery and significant cash drain.



Legislative Policy or Commission Rule and Recent Treatment

- Limited permission and approved
- Limited permission, but not addressed
- Prohibited or denied
- Not addressed
- Permitted without restriction, but not addressed

Recovery Mechanism

- Rider
- Rate case

NERC Compliance: Cybersecurity in the Spotlight

Revised Standards Promulgated

- ❑ In May, NERC, at FERC's order, modified its cybersecurity standards to remove some flexibility in compliance, specifically:
 - Providing specific conditions under which an entity may invoke an exception to a standard requirement if "technically infeasible"
 - Eliminating "reasonable business judgment" as an avenue to implement a standard differently
 - Providing guidance for development of a risk-based assessment methodology for identifying the critical assets that are subject to cybersecurity compliance

Front Page News Spurs Government Involvement

- ❑ Recent allegations of Chinese and Russian activities involving electrical grid "hacking" have raised public awareness and Congressional interest in grid security.
- ❑ Whether real or not, these reports have provided momentum for action by Congress, which is considering giving FERC authority over cybersecurity matters, including the ability to issue emergency orders.

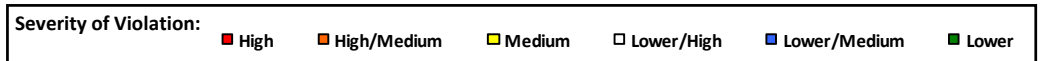
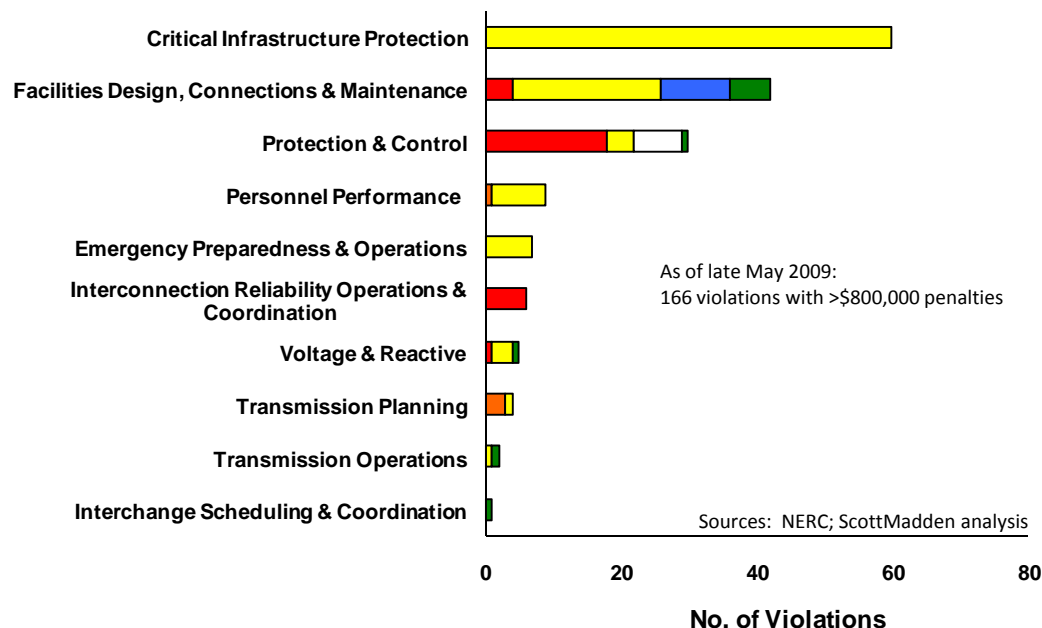
Increasing Vulnerability

- ❑ As SCADA and other network information are now communicated over phone- and Internet-based networks, the IP-based smart grid communications technologies slated for installation in several jurisdictions will only increase cyber-attack vulnerability.

Some Utilities Bristling at Paperwork

- ❑ NERC is slated to begin compliance audits in July.
- ❑ Some are concerned that lingering action on compliance violations has begun to degrade reliability by diverting resources from actually performing reliable operations to preparing documentation as required by NERC's reliability standards.

Reliability Standards Violated in NERC Enforcement Actions (as of May 29, 2009)



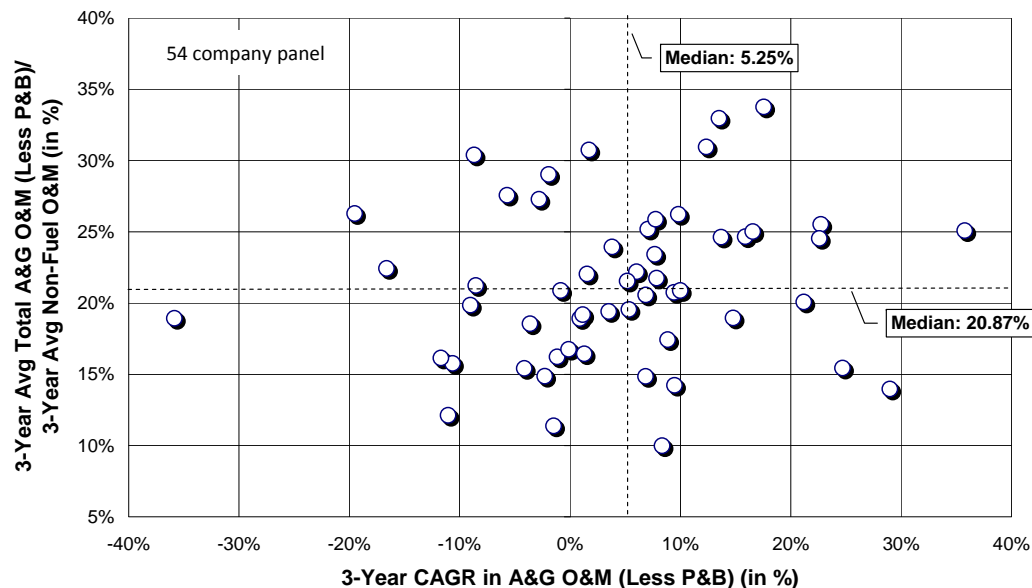
NERC reliability standards were promulgated two years ago. While many critical infrastructure standard violations have been recorded, adherence to "blocking and tackling" standards—like vegetation management and system protection—continue to pose problems for many utilities.

Notes: Since enforcing mandatory reliability standards, NERC has identified 166 violations of those standards, totaling more than \$800,000 in penalties as of late May 2009. The majority of violations involve critical infrastructure protection standards, specifically CIP-001-1, which mandates procedures for sabotage events.

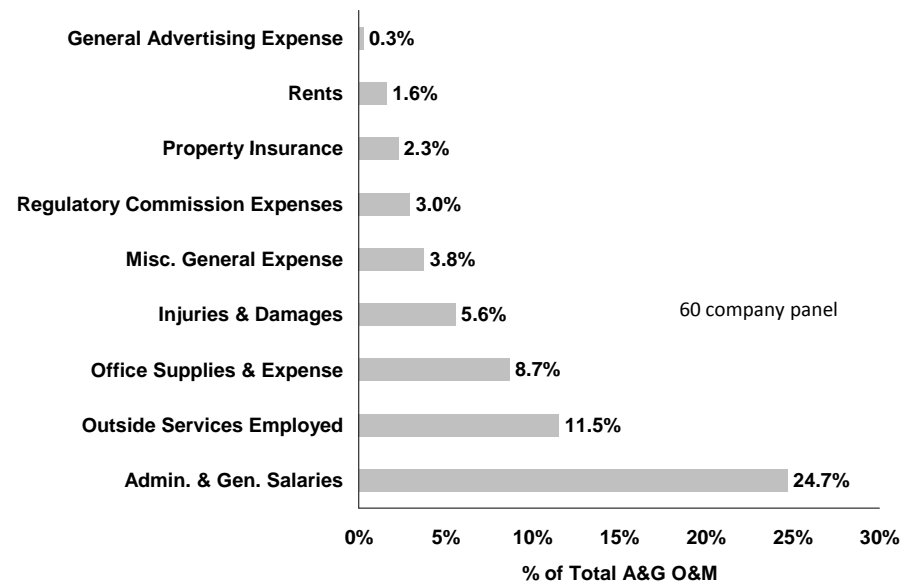
Sources: Industry news; *The Wall Street Journal*; NERC; APPA; ScottMadden analysis

Electric Utility Administrative and General Expense Growth Outstrips Inflation

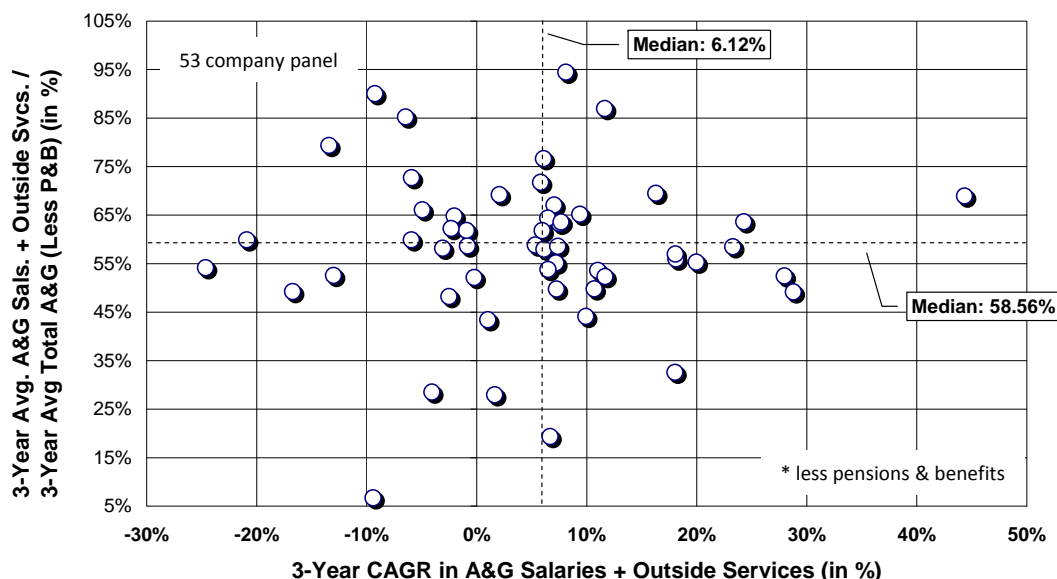
2006–2008 Three-Year Average A&G O&M (less Pensions & Benefits) as % of Total Non-Fuel O&M vs. Three-Year Compound Annual Growth Rate



2006–2008 Median as Percent of Total A&G O&M of Selected Cost Types



2006–2008 Three-Year Average A&G Salaries + Outside Services as % of Total A&G O&M* vs. Three-Year Compound Annual Growth Rate



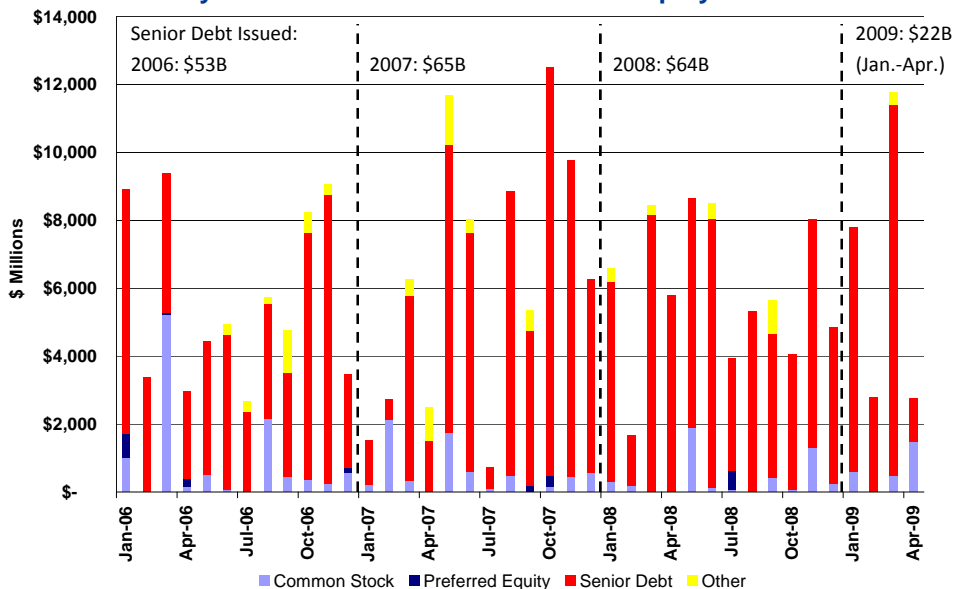
Sources: SNL Financial (FERC Form 1 data); U.S. Bureau of Labor Statistics; ScottMadden analysis

- ❑ During 2006-08, electric utility administration and general expense (excluding pensions and benefits) grew at a 5.25% median annual pace. Annual growth in the CPI over the same period was 3.36%.
- ❑ Larger companies (>\$20 billion capitalization) had slower median growth in A&G than smaller companies.
- ❑ Firms with service companies had higher A&G growth rates on average, but results within that group varied widely.
- ❑ Median A&G was about 21% of total non-fuel O&M (NFOM) during that period. Overall, NFOM grew at a slightly higher annual rate of 5.8%.
- ❑ When outside services and salaries are combined, they comprise nearly 59% of total A&G. Together they grew at a 6% annual rate. By comparison, median salary growth was lower (about 3.5%) and trailed the U.S. Employment Cost Index (~4.6%).
- ❑ Office supplies and expense grew at over 5% during this period, well ahead of the CPI.
- ❑ One important dynamic: There was wide dispersion among firms along each of these measures.

Utilities Navigate the Credit Market "Freeze": A Review of Financing Trends

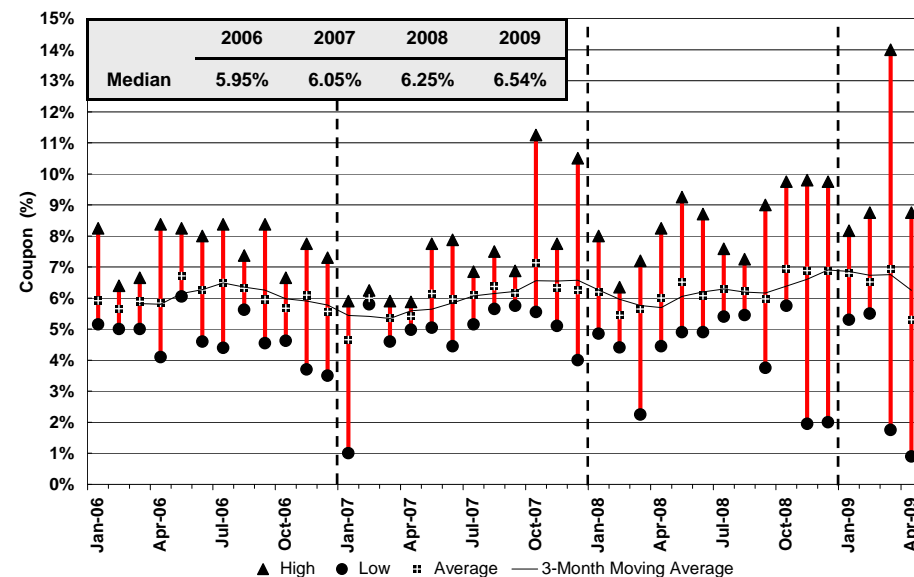
Utility Credit Activity Remained Steady Throughout Downturn, Although Q1 2009 Saw an Uptick

Monthly Power and Gas Sector Debt and Equity Issuances



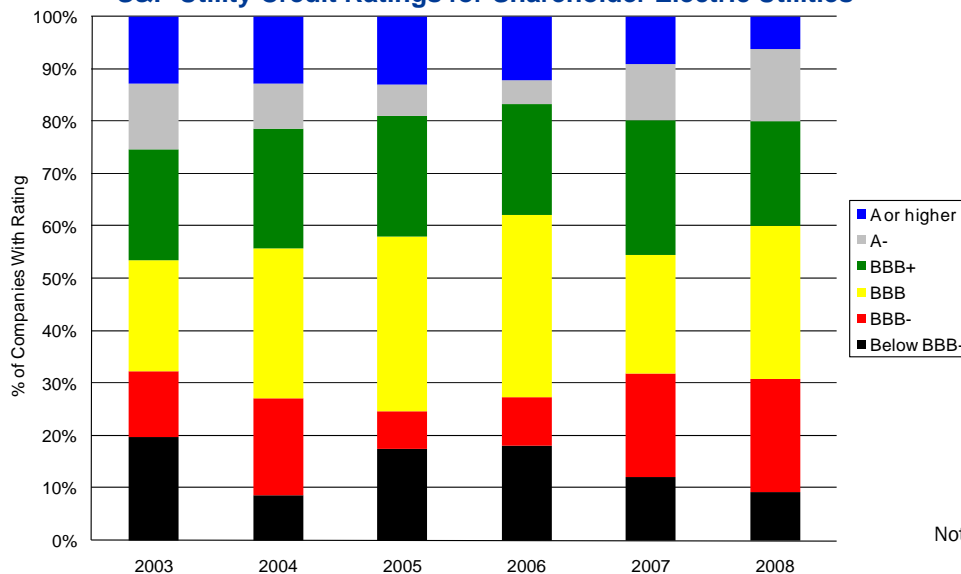
Average Rates Are Settling after Late 2008 Run-up But Variance Has Increased Significantly

High, Low, and Average Coupon Rate on Senior Debt Issuances



Utility Debt Ratings Remain Largely BBB- or Better Across Regulated, Mostly Regulated, and Diversified Electrics

S&P Utility Credit Ratings for Shareholder Electric Utilities



Investment Grade Concentration by Industry (% Rated BBB- or Higher)

	Mar. 2008	Mar. 2009
100-90	<ul style="list-style-type: none"> Insurance Banking & Finance 	<ul style="list-style-type: none"> Insurance Banking & Finance Transportation
89-80	<ul style="list-style-type: none"> Transportation Food, Bev. & Tobacco Real Estate 	<ul style="list-style-type: none"> Food, Bev. & Tobacco Supermarkets & Drug Stores Utilities Consumer Products
79-70	<ul style="list-style-type: none"> Telecom Retail Industrial/Mfg. 	<ul style="list-style-type: none"> Telecom Industrial/Mfg. Cable Chemical Real Estate Healthcare & Pharma Energy Computers & Electronics

Note: Rates shown above are coupon rates and not yields and thus have not been adjusted for offering discounts to par. "Other" issuances include subordinated debt and trust preferred securities

Sources: ScottMadden analysis; SNL Financial data; FitchRatings; Edison Electric Institute

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Recent ScottMadden Insights

The American Recovery and Reinvestment Act of 2009

J. Jacobi & S. Pearman, *The Stimulus Bill—What Are the Opportunities?* (Spring 2009), <http://www.scottmadden.com/insight/269/Stimulus-Bill-What-You-Should-Do-Now.html>

Smart Grid

J. Jacobi & C. Scott Wilson, *Integrating Smart Grid into Strategic and Business Planning* (May 2009), <http://www.scottmadden.com/insight/279/Integrating-Smart-Grid-into-Strategic-and-Business-Planning.html>

Generation

J. Jacobi & S. Pearman, *Merging Two Generation Organizations* (June 2009), <http://www.scottmadden.com/insight/355/Merging-Two-Generation-Organizations.html>

Gas Infrastructure

E. Baker & J. Davis, *Infrastructure Investment in the Gas Industry* (June 2009), <http://www.scottmadden.com/insight/354/Infrastructure-Investment-in-the-Gas-Industry.html>

Transmission

C. Lyons, *Strategic Issues in Transmission* (February 2009), <http://www.scottmadden.com/insight/278/Strategic-Issues-in-Transmission.html>

Renewables

C. Lyons, *Renewables and Transmission* (April 2009), <http://www.scottmadden.com/insight/272/Renewables-and-Transmission.html>

Electricity Markets

J. Jacobi, *Emerging Regional Electricity Market Issues* (April 2009), <http://www.scottmadden.com/insight/271/Emerging-Regional-Electricity-Market-Issues.html>

Workforce Management

S. Pearman & S. Manning, *Embracing the Changing Workforce: 7 Tips to Sustain a Successful Strategy*, published in *Electric Light & Power* (March-April 2009), <http://www.scottmadden.com/insight/275/Embracing-the-Changing-Workforce-7-Tips-to-Sustain-a-Successful-Strategy.html>

Supply Chain

S. Bucalo, *Escalating Supply-Chain Costs* (February 2009), <http://www.scottmadden.com/insight/9/Escalating-SupplyChain-Costs-.html>

Energy Practice

The energy industry landscape is one of sharpening contrasts and accelerating change. The shelf life for conventional wisdom seems to grow shorter with each headline. Every day in this challenging and exciting environment, experienced ScottMadden consultants offer our clients deep energy knowledge and practical business acumen, collaborate with them, and help them succeed.

We have done this for more than 25 years, served more than 150 energy organizations, and completed thousands of successful projects. We have helped some of the best in the business in nuclear and fossil generation, renewables, transmission, distribution, gas, regulatory, and a host of other areas.

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