



Market Conditions Impacting LFGE Project Development

SWANA Quad State Conference
Virginia Beach, VA

Brent L. Dieleman

Project Professional

SCS Engineers

July 28, 2011

Discussion Points

- Incentives
 - Private Sector Incentives
 - Public Sector Incentives
- Renewable Portfolio Std. (RPS) vs. Clean Energy Std. (CES)
 - REC Pricing
- Market Pricing
 - Natural Gas
 - Wholesale Electricity
- Key Observations

Public and Private Sector Incentives

Private Sector Incentives

- **Section 45 - Production Tax Credit (PTC)**
 - 1.1¢/kwh for electricity produced (adjusted each year for inflation) for 10 yrs.
 - Facility must be placed-in-service by December 31, 2013
- **Section 48 – Investment Tax Credit (ITC)**
 - In lieu of the Section 45 PTC – worth 30% of the eligible capital invested in a facility
 - Facility must be placed online by December 31, 2013
- **Modified Accelerated Cost-Recovery Systems (MACRS)**
 - Establishes various “classes” for the depreciation for property
 - A number of renewable energy technologies are classified as 5-year property (typically PTC and ITC eligible property)
- **DOE Loan Guarantees**
 - Designed for large projects (>\$25 million)
 - Full repayment required within 30 years (or less)
 - Program has provided \$26 billion in loans producing over 58,000 permanent and construction jobs

Summary of 1603 Grant Projects

1603 Grant Projects Funded Through June 16, 2011		
Property Type	# of Projects	Funding Approved
Solar	14,595	\$1,145,000,000
Wind	376	\$6,120,000,000
Geothermal	46	\$272,000,000
Biomass	34	\$138,000,000
Other	74	\$68,000,000
TOTAL	15,125	\$7,700,000,000

Source: U.S. Dept. of Treasury

Public Sector Incentives

- New Clean Renewable Energy Bonds (CREBs)
 - Used to finance qualified renewable energy projects that produce electricity, including LFGE
 - Facilities must be owned by government bodies, Public Private Partnerships, or corporate electric companies
 - \$1.6 billion in new CREBs were allocated in 2008 and 2009
 - No new applications accepted – bond volume is maxed out
- Qualified Energy Conservation Bonds (QECBs)
 - Similar to New CREBs; however more entities can participate in programs
 - Bondholder receives tax credits in lieu of interest
 - Bond volume is allocated to states based on their population
- USEDA & USDA Programs
- Municipal finance

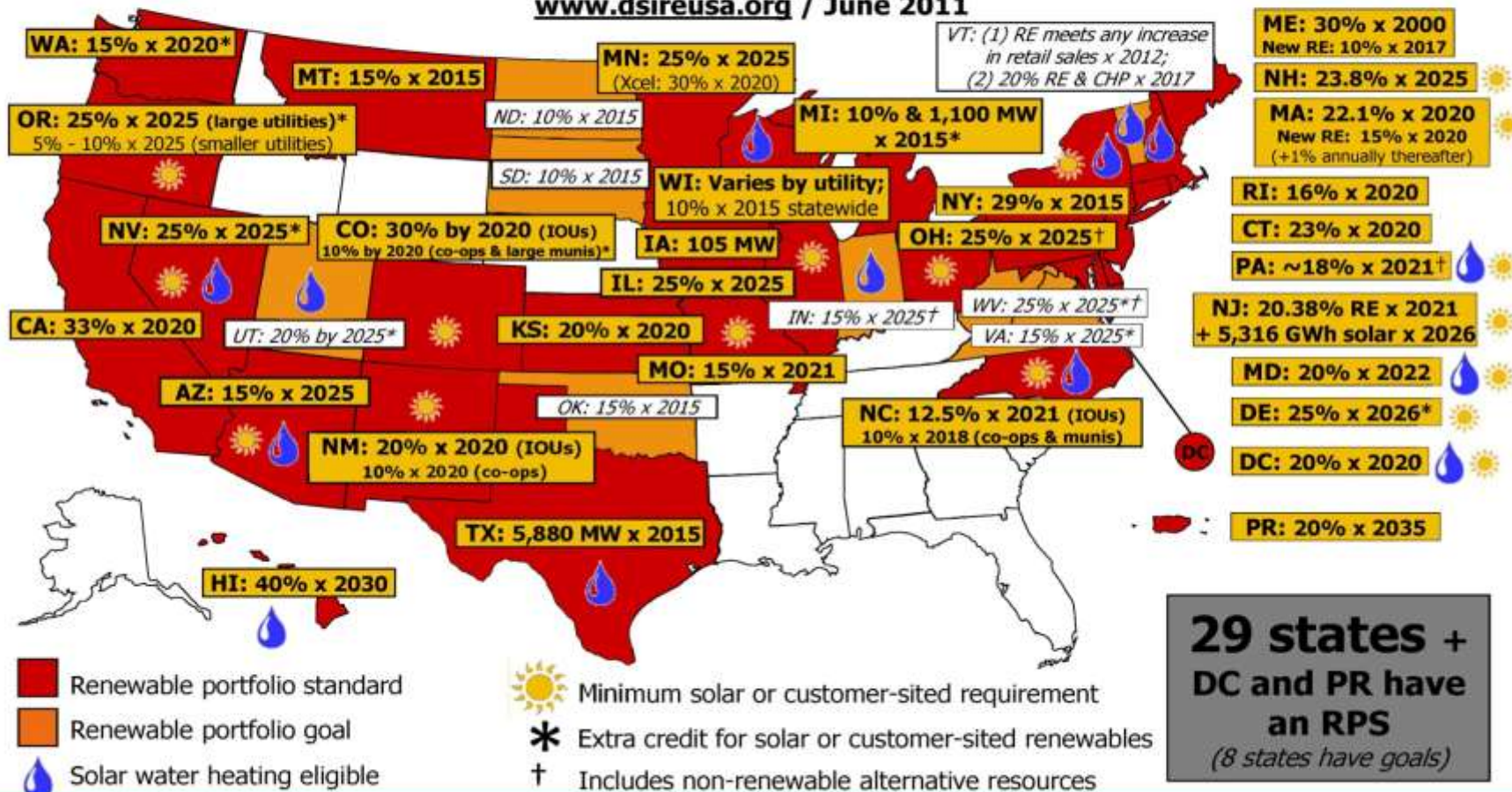
Public Sector Incentives (cont.)

- Virginia Resources Authority (VRA) – Project and Equipment Financing
 - Various financing and loan programs are available
 - Eligible projects include landfill gas
 - Local governments are eligible for funding
 - Interested entities must submit their project data on the VRA website (www.virginiaresources.org)

RPS and CES

RPS Policies

www.dsireusa.org / June 2011



Renewable Energy & Energy Efficiency Portfolio Standard for NC

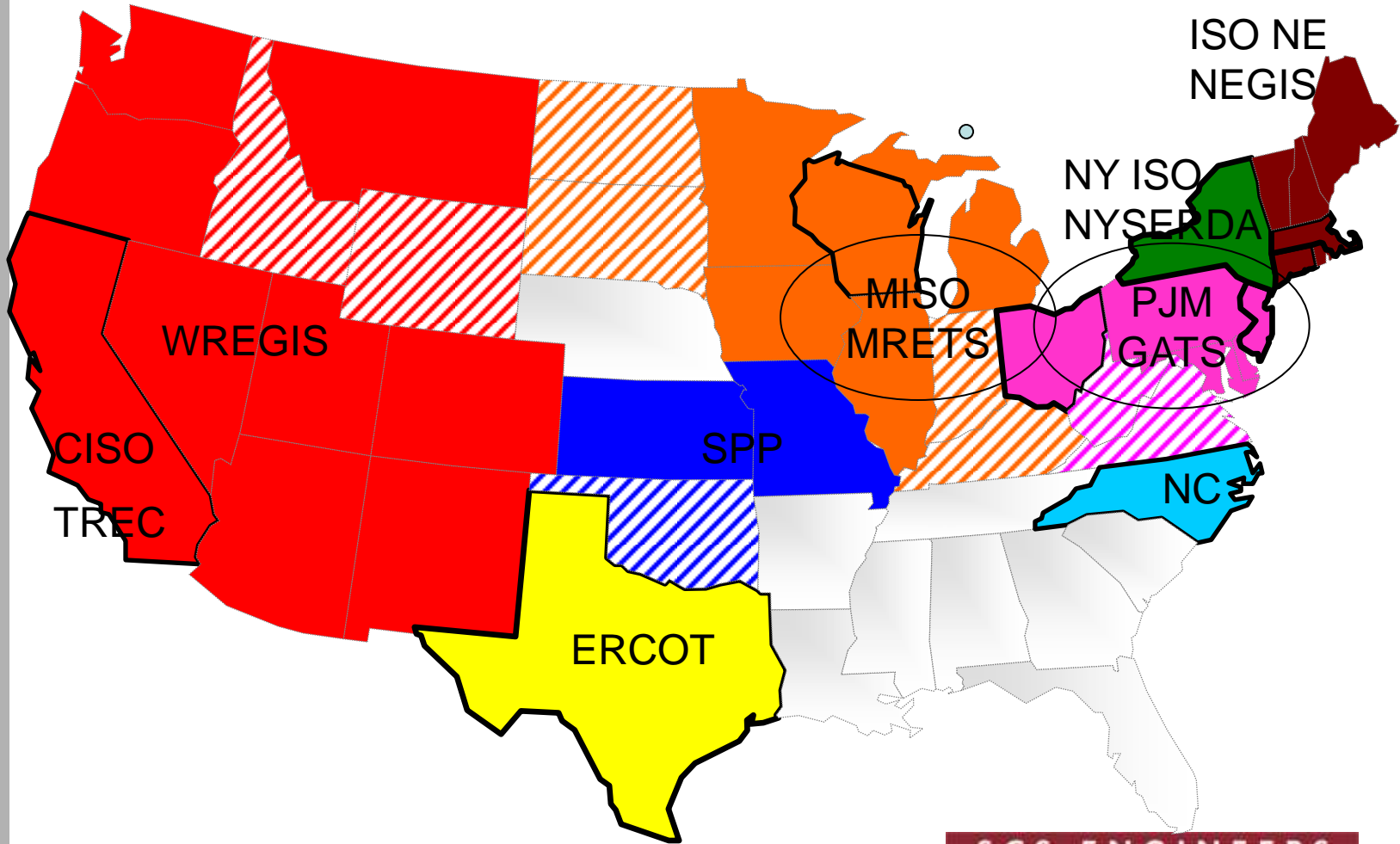
- Standard:
 - Investor-owned utilities: 12.5% by 2020
 - Municipal utilities and rural electric cooperatives: 10% by 2018
 - Includes carve-outs for solar and swine & poultry waste
- Compliance demonstrated through obtaining RECs earned after 1/1/2008
- Landfill gas qualifies as renewable energy resource
- Landfill gas energy projects must demonstrate BACT

Clean Energy Standard

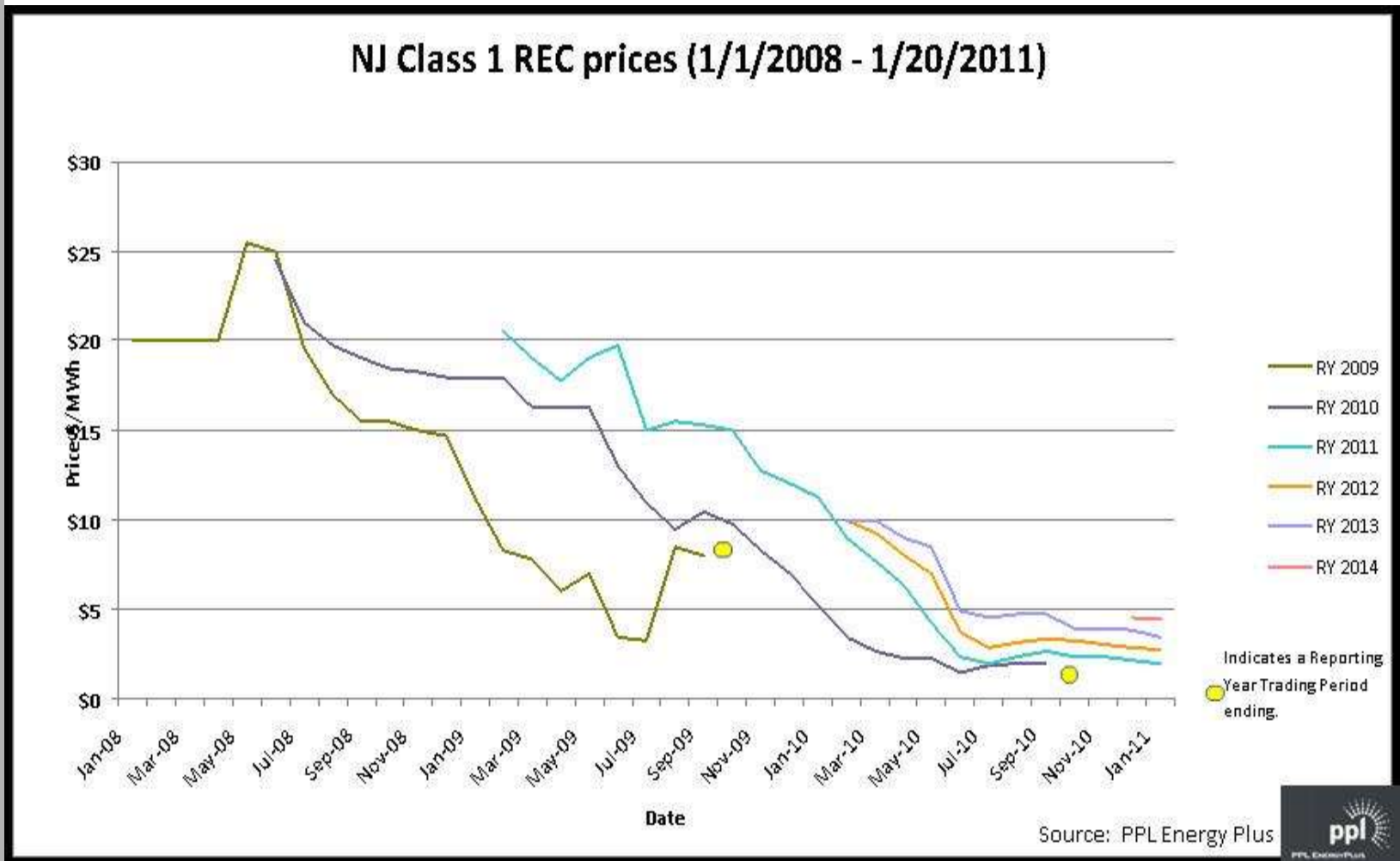
- The “new talk” of Washington
- Mechanism to ensure that utilities are meeting an increasing percentage of their electricity from *clean* sources
- More broad than a RPS
- Includes:
 - Renewables
 - Clean coal, nuclear, natural gas

RECs

Actively Traded REC Markets

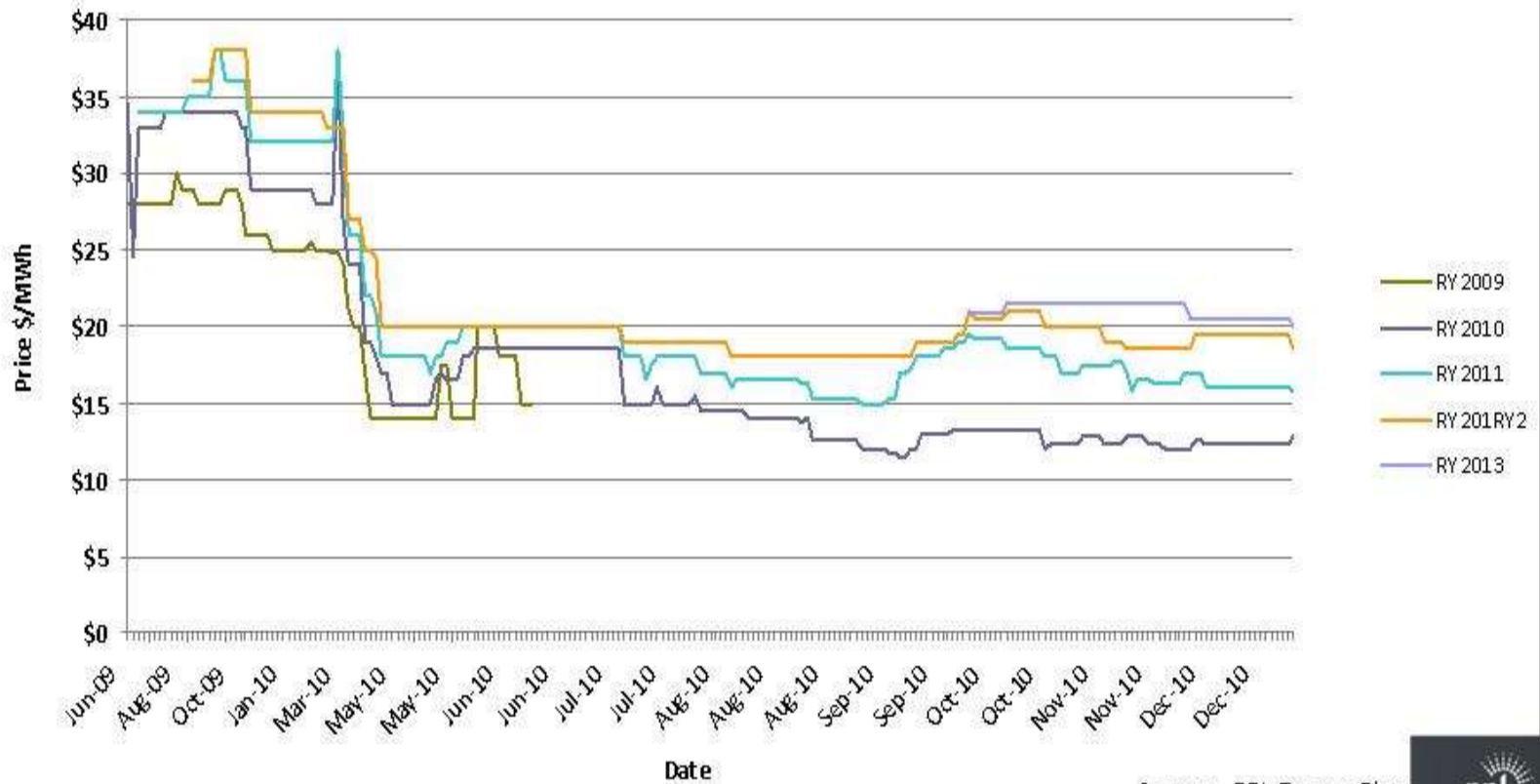


NJ Class 1 REC



MA Class 1 REC

MA Class 1 REC prices (6/5/2009 - 12/31/2010)



Source: PPL Energy Plus



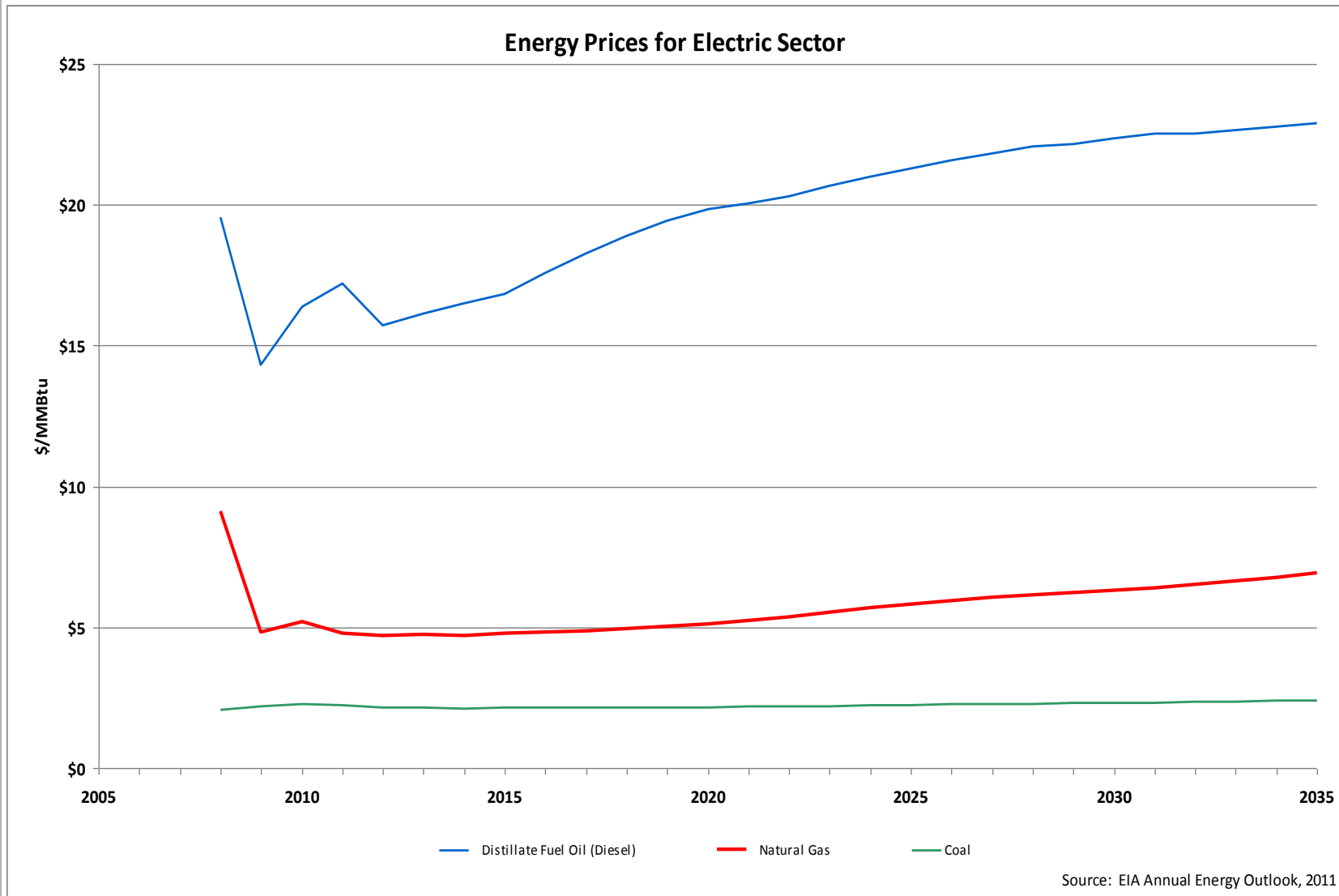
Natural Gas and Wholesale Electricity Pricing

Natural Gas Pricing

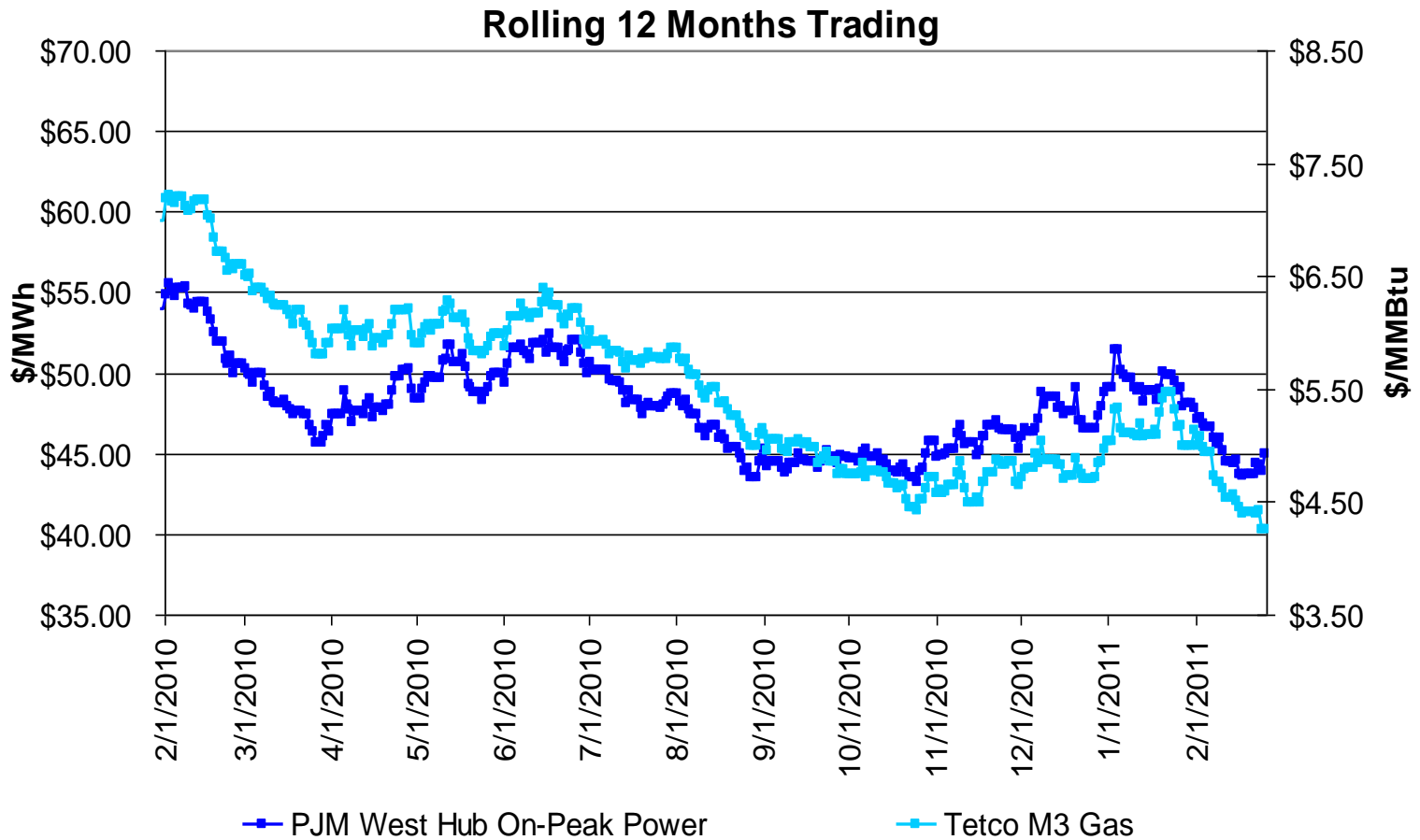
- NG prices dropped over 50% on average between 2008 and 2009
- Drivers
 - US economic slowdown
 - New technologies to extract gas from shale “**Game Changing**” event
 - NG available for production increased 58% between 2004 and 2008 – 100+ year supply*!
- In some markets, efficient combined cycle NG electric facilities able to be dispatched ahead of older, less efficient coal facilities – NG facilities lower cost producers of electricity.
- “Green Gas” markets –
 - Typically, where RECs are value the highest
 - California, Northeast

* Potential Gas Committee (PGC)

Energy Price Trends & Projections



March On-Peak Power & Gas



As of Trade Date
2/25/11

Source: PPL Energy Plus, LLC



Key Markets Electricity Pricing

	2008 Wholesale (\$/MWh)	2009 Wholesale (\$/MWh)	2009 Ave Retail (\$/MWh)
PJM	\$71.13	\$39.05	\$89.30 (VA)
New England ISO	\$80.56	\$42.02	\$154.50 (MA)
NY ISO	99.35	\$48.68	\$164.10
East			
West	73.24	\$35.89	
Midwest ISO	\$46.50	\$26.04	\$84.20 (MN)
ERCOT (Texas)	\$77.19	\$34.03	\$98.60
SPP (Southwest)	\$52.88	\$27.50	\$60.94
California	\$53.00	\$38.00	\$140.50

Key Observations

- Good News
 - Short Term - Significant market incentives exist for LFGE; but trend is there will be less
- Less Promising News
 - 1603 Grants combined with less REC demand have created oversupply of RECs
 - RECs pricing - Continued depressed price in many REC markets due to oversupply
 - Wholesale electricity pricing will continue to be low, driven by abundant supply of natural gas
 - Lots of uncertainty
- Path Forward for Our Industry
 - Work with Congress and states to increase the demand for renewable projects
 - Stay involved in discussions if/when CES moves forward
 - “Carve-outs” for renewable energy, so LFG doesn’t have to compete with clean coal and nuclear

Contact

Jim Michelsen
SCS Engineers
(703) 471-6150

jmichelsen@scsengineers.com

Brent Dieleman
SCS Engineers
(703) 471-6150

bdieleman@scsengineers.com

Special thanks to:

Roland Moor
PPL Energy Plus LLC
(610) 774-4147

ramoor@pplweb.com

Gauri Potdar
Element Markets LLC
(281) 207-7225

gp@elementmarkets.com