

Decision-Making In A Time Of Uncertainty: Is There Ever A 'Right' Answer?

Richard W. Cortright, Jr.
Managing Director
Utilities & Infrastructure Group

August 6, 2012
National Conference of State Legislatures
Energy Summit
Chicago, IL

Basic Truths About Electricity

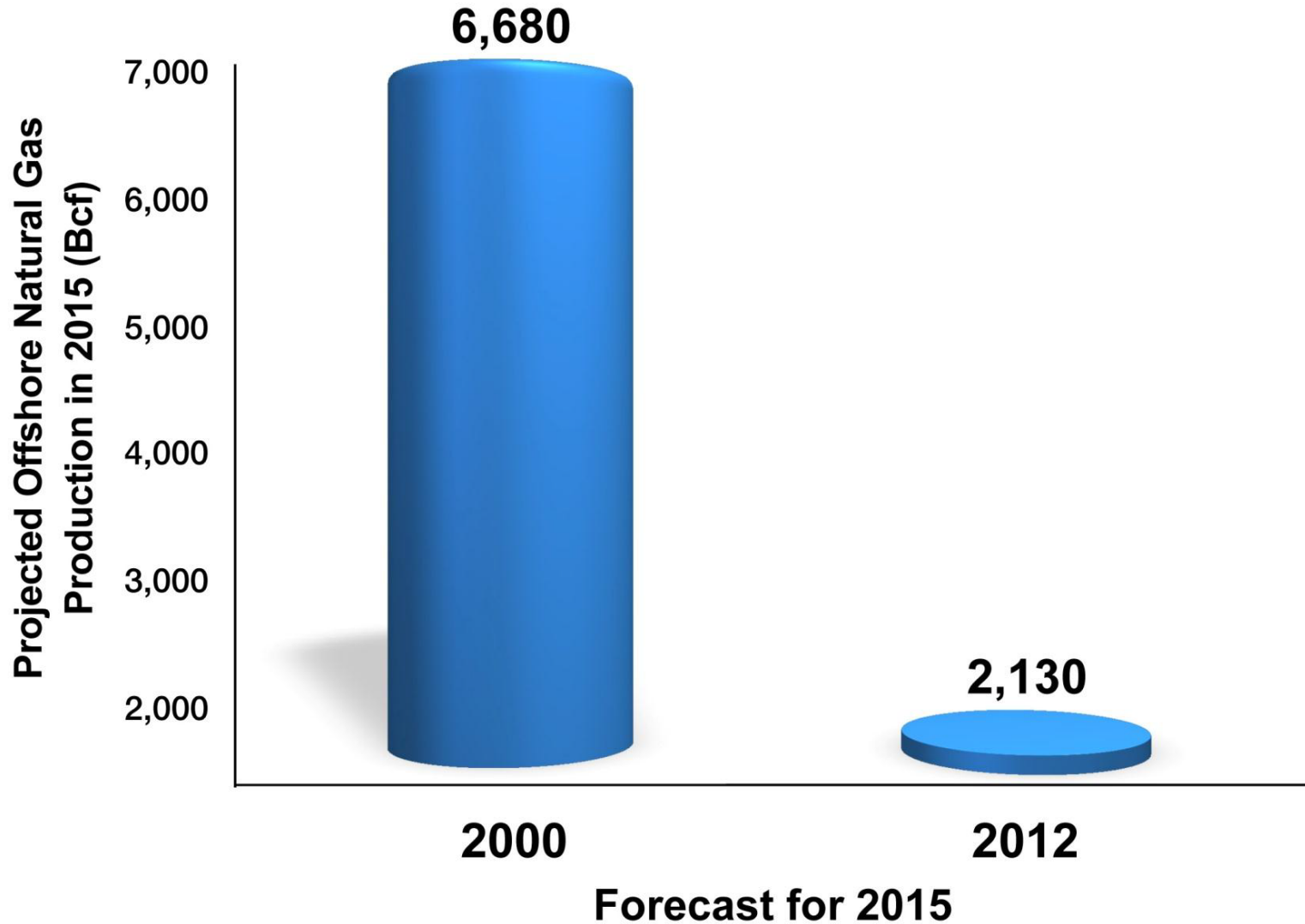
“You Know What I Want More Than Cheap Electricity? I Want Electricity.” – Paul Patton, Former Governor Of Kentucky

“Juice From The Grid Now Penetrates Every Corner Of Our Lives, And We Pay No More Attention To It Than We Do To The Oxygen In The Air.” – National Geographic

“In Our Business We Build Plants For 40 To 60 Years, So We Have To See (Deep) Into The Future.”

-- Jim Rogers, CEO Of Duke Energy

How Go The Prognostications?

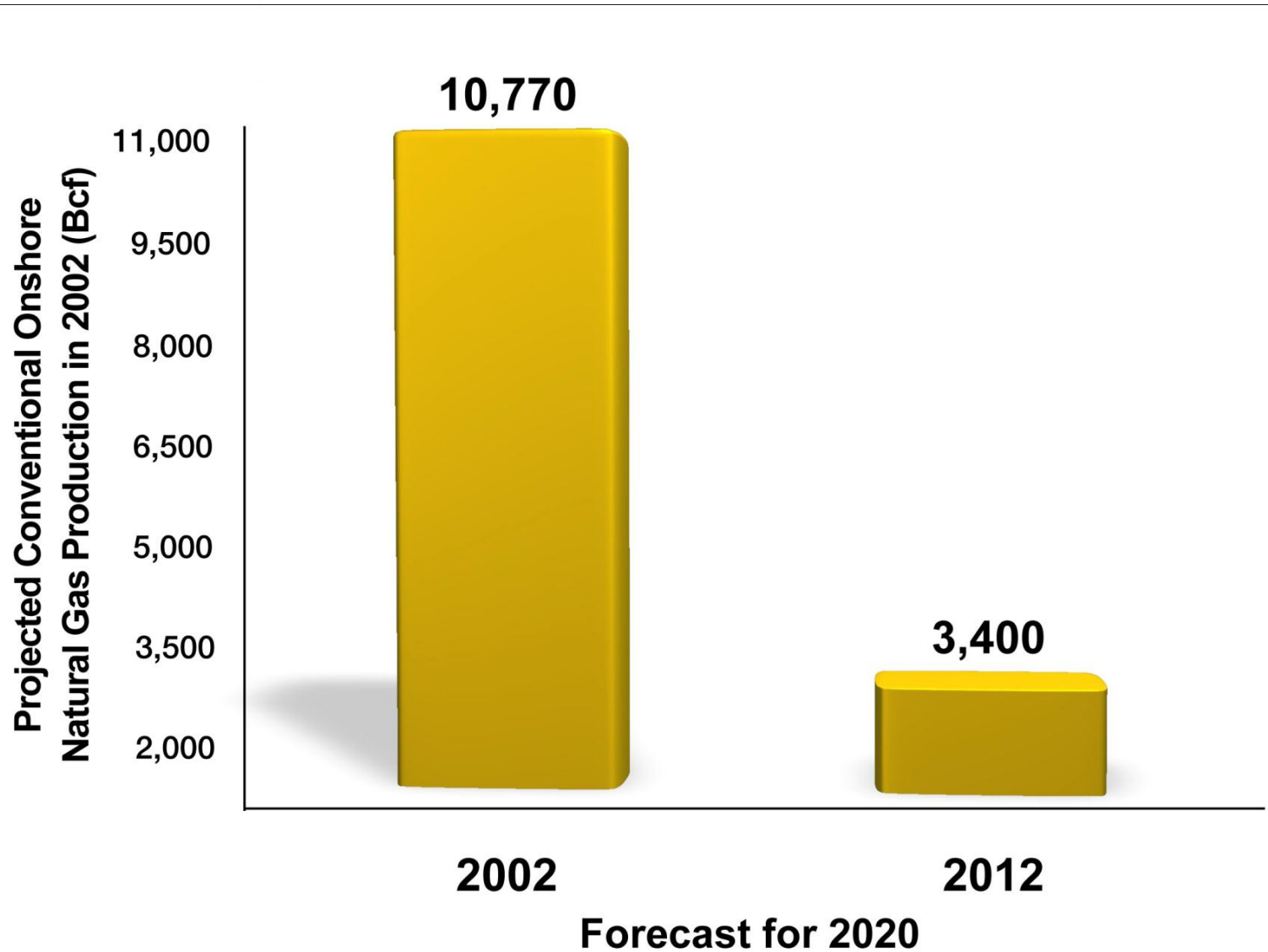


Source: U.S. Energy
Information Administration

Permission to reprint or distribute any content from this presentation requires the prior written approval of Standard & Poor's.

**STANDARD
& POOR'S**
RATINGS SERVICES

How Go The Prognostications?



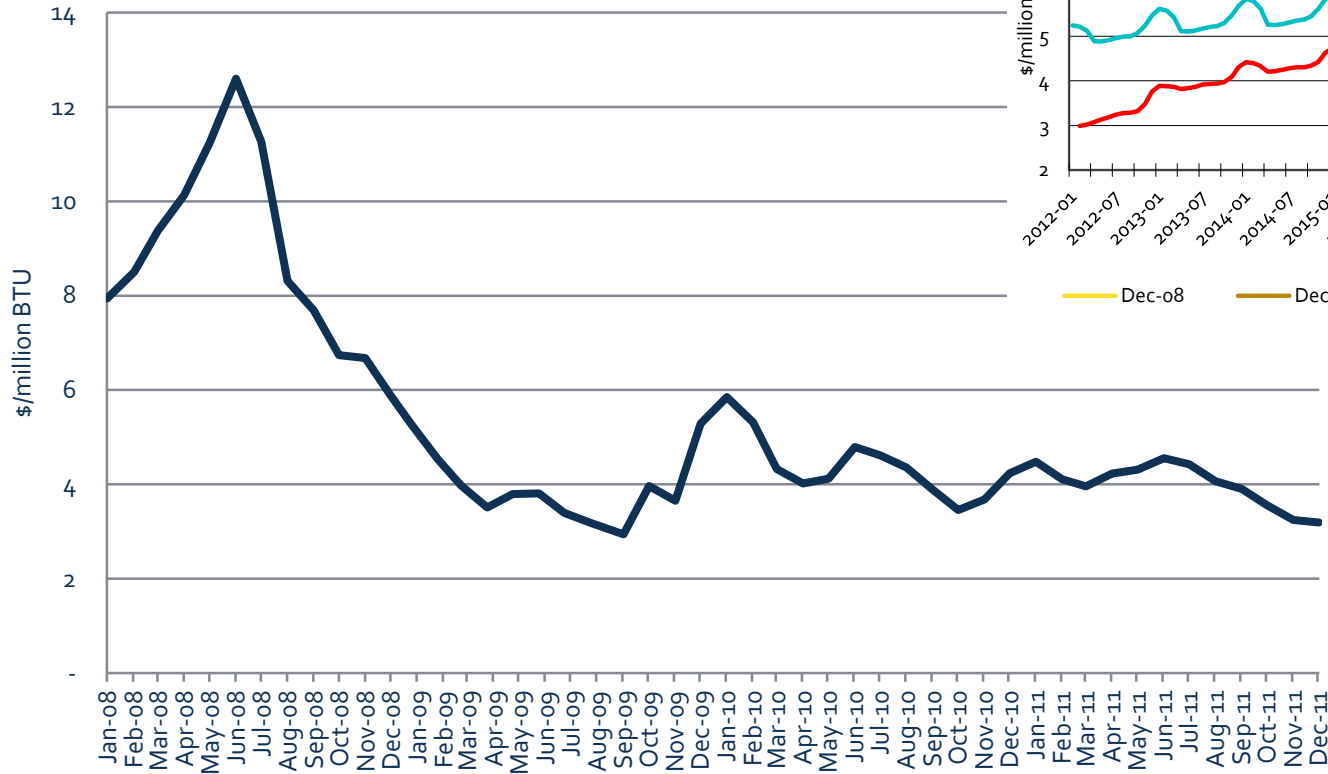
Source: U.S. Energy
Information Administration

Permission to reprint or distribute any content from this presentation requires the prior written approval of Standard & Poor's.

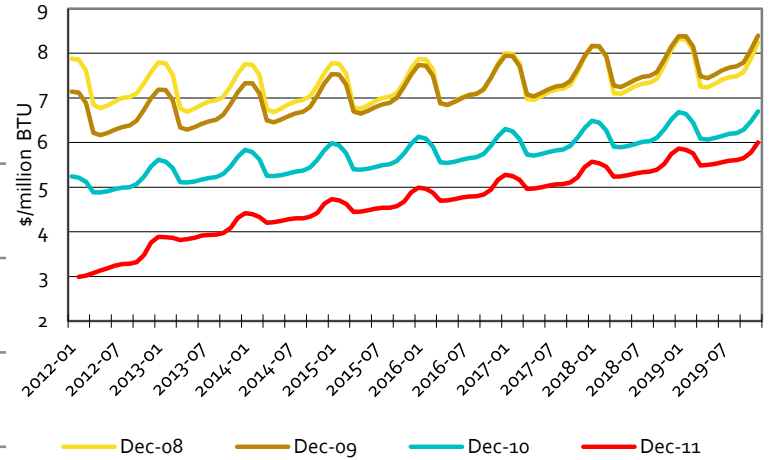
**STANDARD
& POOR'S**
RATINGS SERVICES

The Fly In The Ointment

Henry Hub Spot Price



Henry Hub Futures Price



Source: EEI



Snapshot Of Today's Significant Utility Challenges

- Aging utility infrastructure
- Federal/state environmental/renewable requirements
- New technology deployment
 - Smart grid, alternative generation
- ***Flat to marginal growth in power sales***

Aging Infrastructure

- **Substantial Infrastructure Spending Requirements...**

- \$1.8 trillion over 20 years for electric* --- 2.4 times net book value of current asset base
- \$335 billion over 20 years for water; \$1 trillion, including waste water**

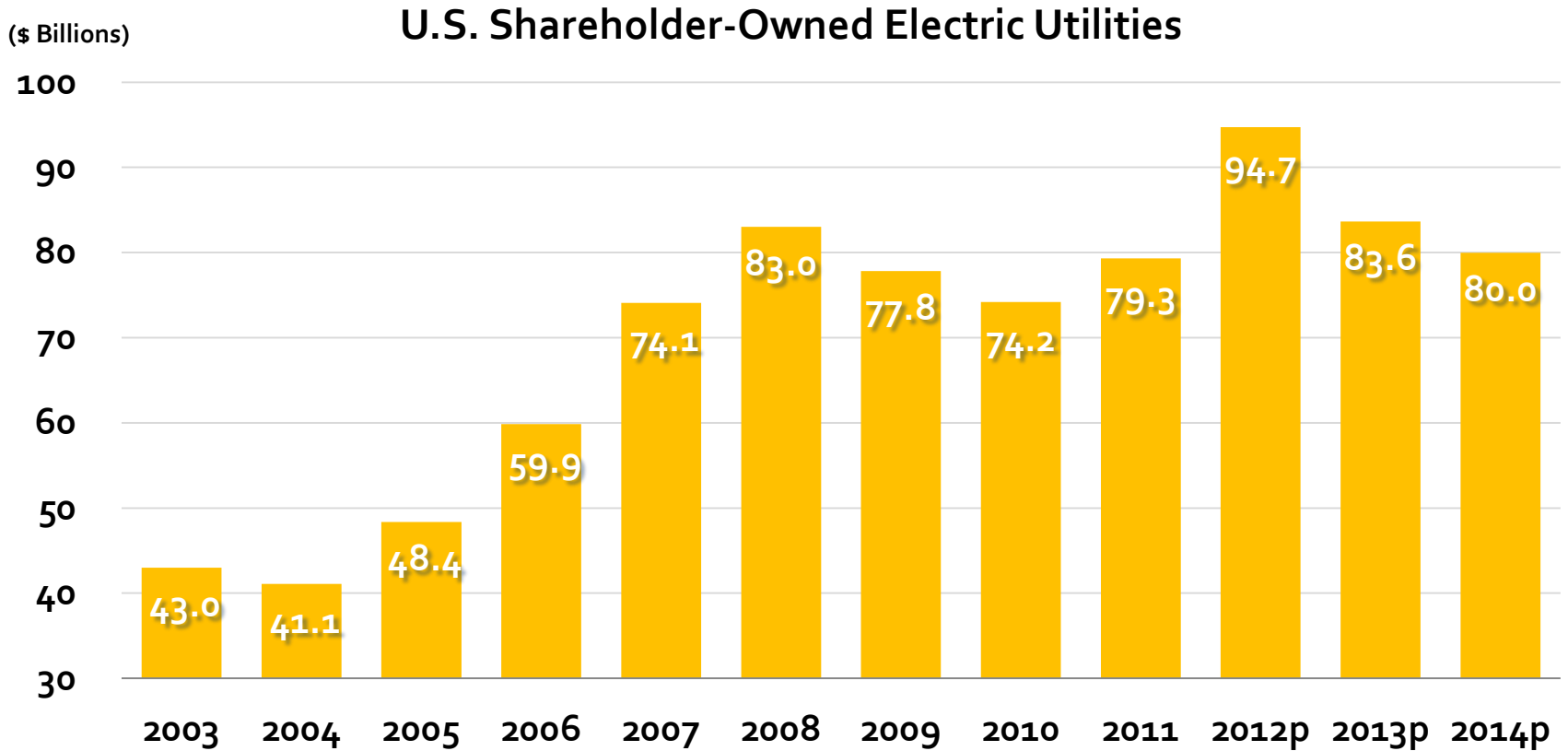
- **... As Utility Physical Plant Ages:**

- About 45% of total electricity generating capacity is greater than 30 years old; about 20% is greater than 40 years old
- About two-thirds of coal capacity is at least 30 years old; about one-third is greater than 40 years old
- About 70% of transmission lines are at least 25 years old

*Brattle Group estimates

**EPA estimates

EEI's Capital Expenditure Forecast



Source: Edison Electric Institute Finance Department, company reports, SNL Financial (June 2012)

An Environmental Compliance Juggernaut

- **Environmental Mandates**

- EPA Regulations

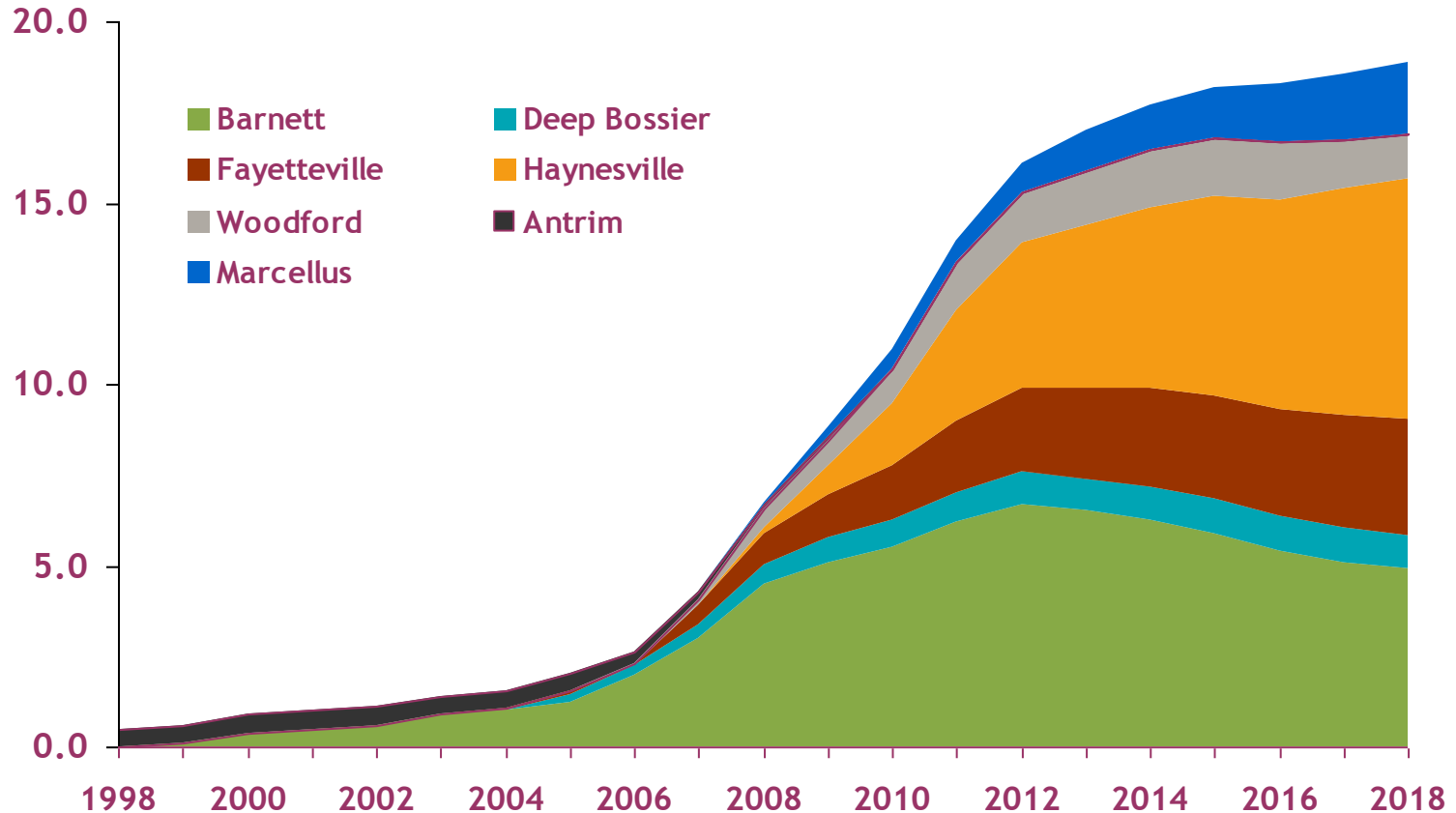
- Cross-State Air Pollution Rule (currently under legal challenge)
 - MACT
 - Cooling Water Intake (316(b))
 - Ash Disposal
 - Greenhouse Gas Restrictions

- **Industry Response**

- Retrofit, repower, or retire virtually entire coal fleet (~53GW announced through 2022, ~34MW of which will be retired)

The Bull In The China Shop

Shale Gas Production



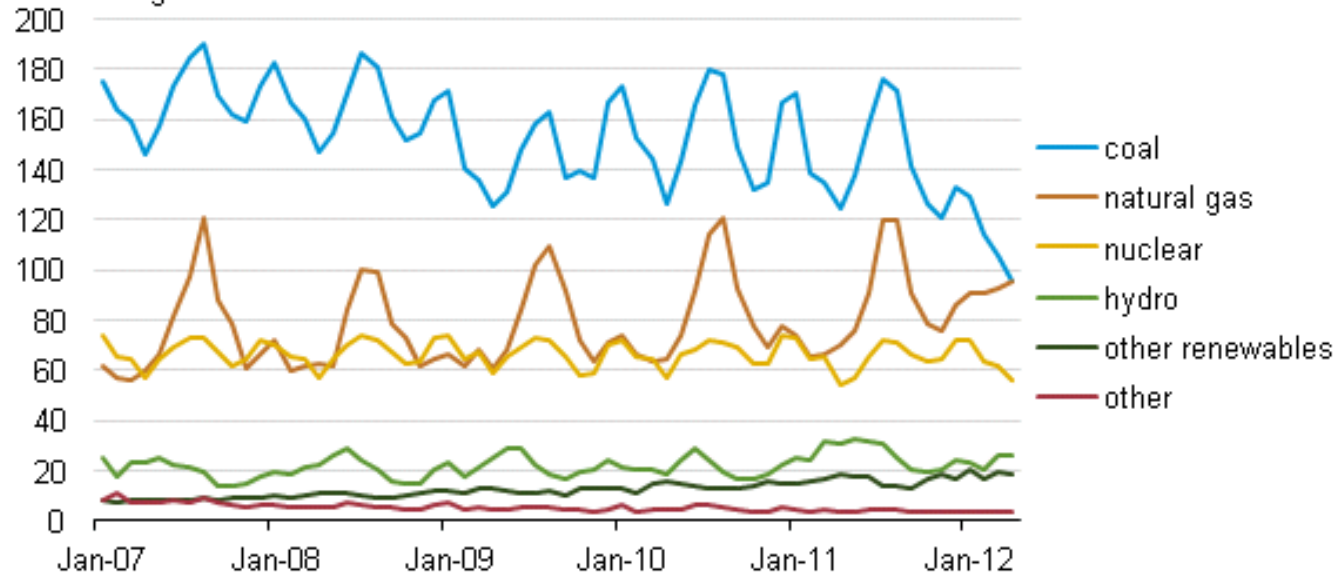
Source: Tristone Capital, Devon Energy

Monthly Gas- And Coal-Fired Generation

Equal For The First Time (April 2012; 32%)*

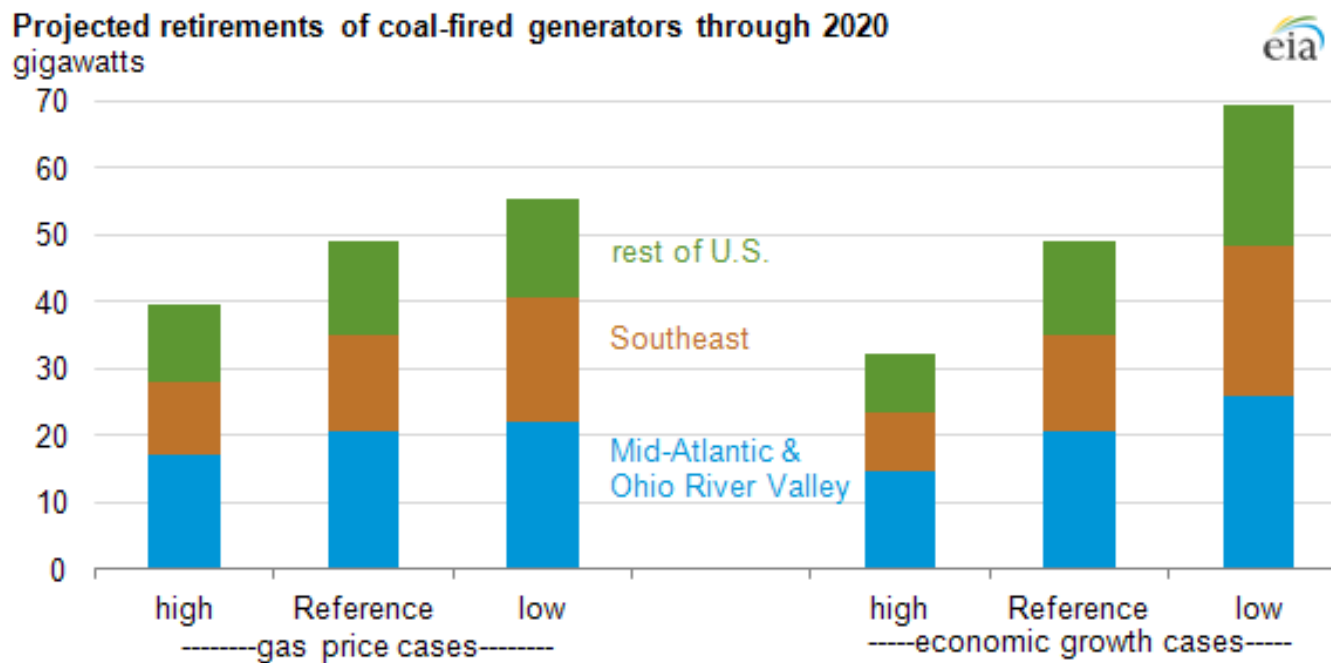
U.S. monthly net electric power generation, January 2007 – April 2012

million megawatthours



*Preliminary; Source: U.S. Energy Information Administration

EIA's Coal Plant Retirement Scenarios



Energy Information Agency,
July 31, 2012

The 'Shale Gale'

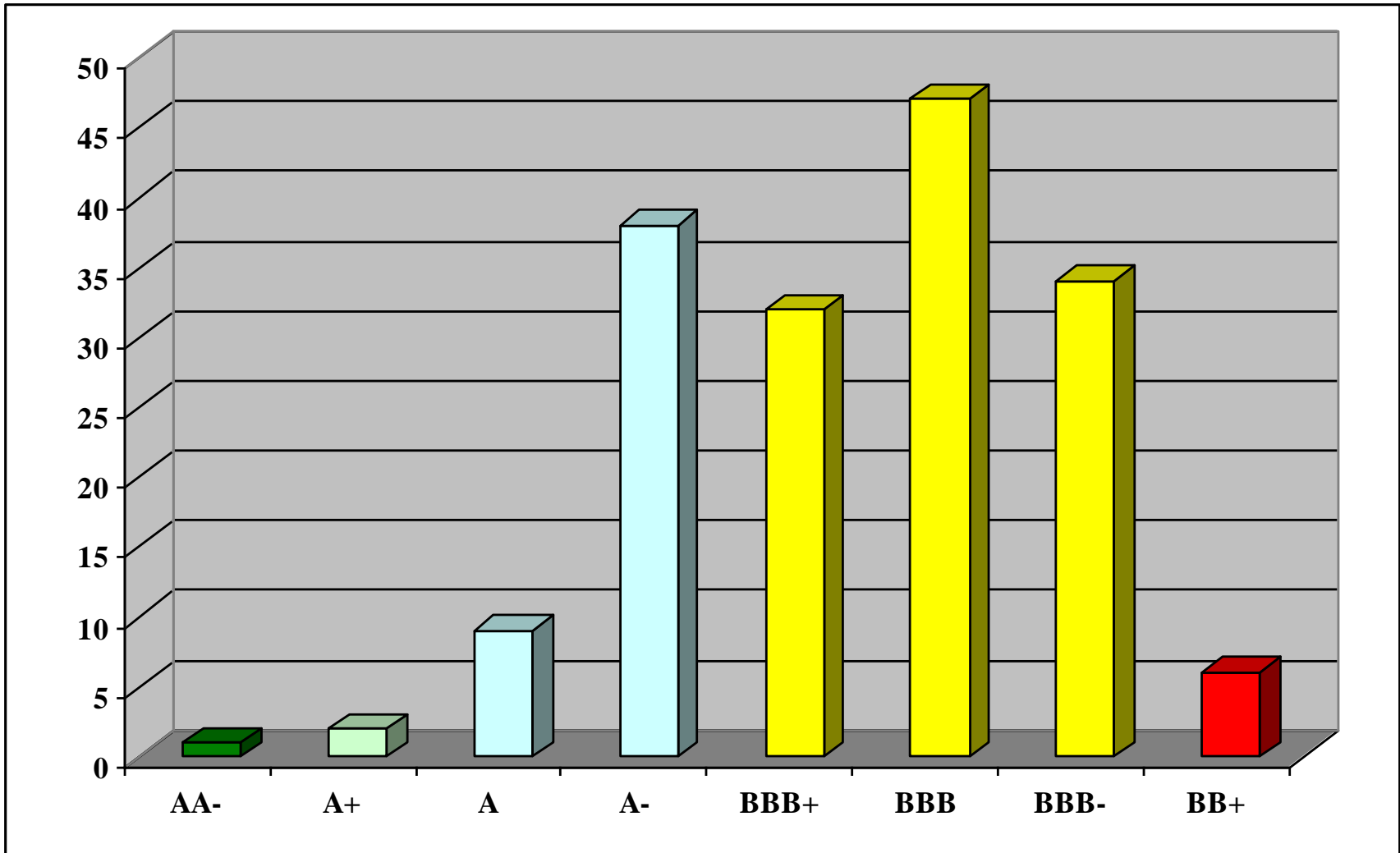
- **93 gigawatts of gas-fired capacity additions over next ten years***
 - YTD 2012 electric sector consumption of gas increased 21% over 2011
 - 24,000 miles of pipeline will be necessary to transport the fuel to new gas plants
 - Adjustments may be necessary to traditional scheduling protocol: firm versus interruptible transportation contracts
- **Incremental coal capacity is in doubt**
- **Renewable alternatives are substantially disadvantaged**

*North American Electric Reliability Corp. estimate

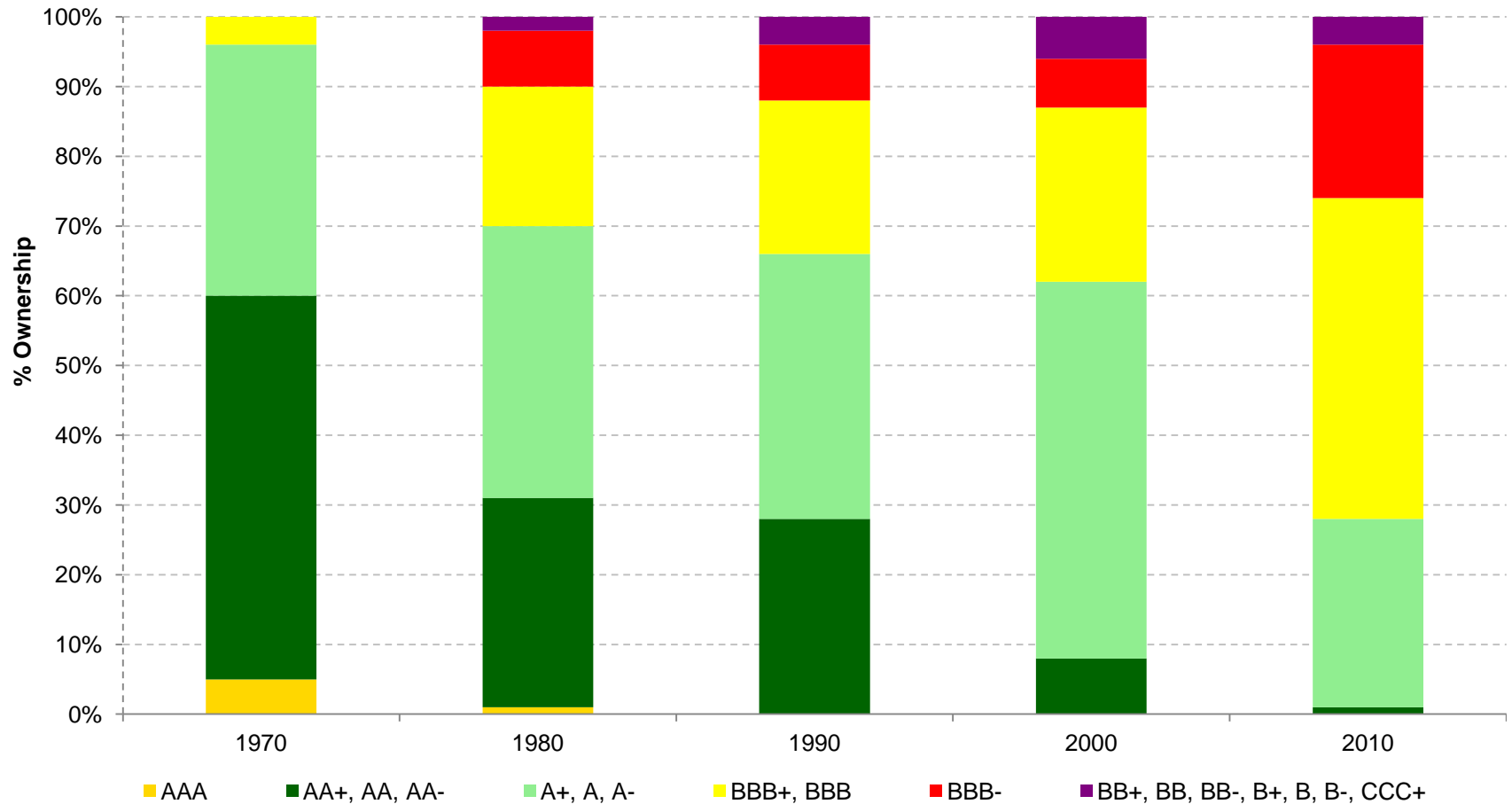
Smart Grid

- **Enables two-way flow of electricity and information, automates controls for a widely distributed energy delivery network**
 - Implications
 - An industry that is no longer primarily dependent on central station power and one-way power flow
 - An industry that is increasingly dependent on distributed and central station renewables/storage
 - Increased usage of demand response

Electric Utilities Ratings --- Emphatically High Grade, But...



Credit Quality Has Eroded Considerably In 40 Years



Permission to reprint or distribute any content from this presentation requires the prior written approval of Standard & Poor's.

STANDARD & POOR'S RATINGS SERVICES

www.standardandpoors.com

Copyright © 2011 by Standard & Poor's Financial Services LLC (S&P), a subsidiary of The McGraw-Hill Companies, Inc. All rights reserved.

No content (including ratings, credit-related analyses and data, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of S&P. The Content shall not be used for any unlawful or unauthorized purposes. S&P, its affiliates, and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact or recommendations to purchase, hold, or sell any securities or to make any investment decisions. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P's opinions and analyses do not address the suitability of any security. S&P does not act as a fiduciary or an investment advisor. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain credit-related analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com and www.globalcreditportal.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

STANDARD & POOR'S, S&P, GLOBAL CREDIT PORTAL and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.