

## ***Remarks As Prepared***

### **John W. Rowe, Chairman and CEO Exelon My Last Nuclear Speech American Nuclear Society Utility Working Conference Hollywood, Fla. August 15, 2011**

#### **Grace Notes/Introduction**

Thank you, Amir, for your kind introduction.

#### **Personal History with the Industry**

As you may know, I am nearing the end of a four decade career – most of which has been spent in the utility and nuclear industries.

I began as a lawyer licensing the Dresden, Quad Cities and Zion plants for my client, ComEd.

In 1984, I received my first CEO position at Central Maine Power and was hired to deal with a nuclear project called Seabrook.

CMP had more than its total book equity invested in a 6% share of Seabrook, but had to sell it at \$0.15 on the dollar, and wrote off about a third of the original investment.

Seabrook nearly bankrupted CMP, did bankrupt the company that bought our stake, and also bankrupted its largest owner.

While at CMP, I also faced the third public referendum to close Maine Yankee.

Through a \$7 million campaign in a state with only a million people, we ended up keeping the plant open for a few more years.

I learned from that experience that the public trust in nuclear is delicate indeed.

Things were calmer at my second company, New England Electric Systems. Even though we owned a minority stake in most of New England's nuclear plants, we were protected from a variety of state political foibles and FERC regulation of New England Power.

We did, however, end up shutting down Maine Yankee because QFs undercut its value, and its management failed to keep up with NRC requirements.

By the time I came back to Illinois in 1998 as CEO, ComEd was the uncontested winner of the title “Worst Nuclear Fleet in the Country.”

It was running at a fleet-wide capacity factor below 50%. The Board shut down two units at Zion and contemplated shutting down Dresden and Quad Cities.

As CEO, I flew air cover for Oliver Kingsley and Chris Crane while they turned around the fleet.

Today, Exelon’s fleet consistently has a capacity factor of 93% or better and is, at least in my view, the best nuclear fleet in the country.

So I have known the nuclear downside.

I have also known the boom years for nuclear – the middle of the last decade when gas prices were high and our plants were performing superbly due to the efforts of Oliver and Chris. In those years our nuclear fleet was worth nearly \$50 billion.

The fleet drives our very attractive profits, and about three-quarters of our \$28 billion market cap. It gives us more upside than any other utility. But the average age of the plants is 31 years.

Today, I work on the challenges and frustrations of resolving the spent fuel issue as a member of Secretary Chu’s Blue Ribbon Commission. Like you, I must deal with the impacts and implications of the Fukushima event.

Fukushima has left people in Japan terrified of nuclear power in a country that is nuclear-dependent.

Here at home, support for nuclear power is waning and although still relatively strong, recent polls show nearly a 20 point drop in support for nuclear power from pre-Fukushima levels of support.

While not Chernobyl, Fukushima is a tragic event and the worst to hit the nuclear industry outside Russia. I would solemnly ask all of you to remember Fukushima in your jobs every day.

## **Nuclear is a Business – Not a Religion**

Having seen the good and the bad, I still have never met a nuclear plant I don’t like. I am a “nuke” through and through. But – we nukes are best served by cold blooded analysis.

The country needs nuclear power if it is going to tackle the problem of climate change, clean up our generation stack, maintain reliability and improve overall energy security.

But we must keep our hopes for new generation harnessed to facts. Nuclear needs to be looked at in the Age of Reason and not the Age of Faith. It is a business and not a religion.

When making decisions about what to build, the same standards that we say should be applied to renewable, coal and gas must be applied to nuclear:

How much does it cost? Is it economic in today's market conditions?  
Tomorrow's? How many tomorrows from now?

Is there a need for new generation?

What is the impact on U.S. energy security?

How much help from the government does the plant need?

Politicians ignore many of these factors, especially economics, and want to promote their favorite technologies.

Most Democrats want more wind and solar and advocate for unaffordable renewable portfolio standards and tax credits.

Some Republicans want 100 new nuclear plants or coal with unproven carbon capture and sequestration capability.

On either side, billions more would have to be spent by the government to make these technologies economically competitive, much less adequately reliable.

So, even though some politicians ignore the cost, we cannot. At Exelon, we do not.

In 2008, we developed Exelon 2020, our plan to achieve the dual objectives of meeting our generation targets and load obligations while also reducing, offsetting or displacing our entire carbon footprint by 2020.

It serves as our resource plan, as a guide to our investment decisions and as our framework for public policy advocacy.

Each year, we develop a supply curve to show the costs of various supply technologies taking into account current market conditions.

This is our original curve from 2008. (See Slide 2 below.)

The width of each of these blocks represents the amount of carbon abated by a given electricity supply option.

The height of the bar represents the carbon price needed to make the investment breakeven.

The curve indicates:

Energy efficiency (yellow) and some nuclear uprates (light blue) were the cheapest options.

New nuclear (dark blue) was not the cheapest option, but reasonable and not too far away with a booming economy and high gas prices.

This is 2010, our most recent curve. (See Slide 3 below.) The change from our 2008 curve to this one is dramatic.

Retiring inefficient coal plants (purple) has become the cheapest option.

Most energy efficiency and nuclear uprates remain attractive.

But other options begin to get very pricey.

Wind (orange) requires a carbon price between \$80-\$120 per tonne.

New nuclear – \$100 per tonne to break even.

Solar cost is down, but is still \$450 per tonne and still off the chart.

A proposed clean coal project without carbon capture and sequestration in Illinois requires \$500/tonne to be economic.

Federal subsidies and other mandates shift a portion of the costs from electric ratepayers to taxpayers or shareholders, but do not change the overall economics.

What changed in two years to make the curves dramatically different?

In 2008, prices for electricity were climbing quickly as a result of rising natural gas prices and high expectations for future electricity demand.

Today, electricity demand is stagnant due to the recession and energy efficiency measures. Low demand and excess generating capacity means there is not a need for new generation – until we replace a significant part of the coal fleet.

2008 load is not expected to return until the mid-decade. EIA projects slow load growth from the next 25 years and in turn low demand for new generation capacity.

New natural gas finds and their impact on price have changed how we look at the world.

The U.S. is now the second-largest producer of natural gas after the Middle East.

The Colorado School of Mines estimates that the total potential of U.S. gas supply increased by 71 percent from 2000 to 2010.

And they are not alone; CERA, MIT and others believe that the U.S. is flush with natural gas.

The process of getting to this shale gas is raising some environmental concerns. We believe, as many experts do, that additional environmental regulations will increase the price of extracting shale gas but will not destroy its cost.

This new supply has caused natural gas prices to plummet from their historic highs. It is the most affordable fuel for at least one, perhaps two decades.

These economics are driving the announced coal retirements – even more than EPA regulations.

What have we learned from Exelon 2020?

1. The world is not stagnant. Economic conditions can and have changed dramatically even over as little as 2 years.
2. Changes in gas price and demand forecasts have dramatic impacts on the need and costs of building any new generation.
3. Some technologies that were affordable or on the verge of being affordable in 2008 are out of the money now.
4. We cannot pray for the future we want and hope that it will happen. We are a business and must make rational, economic decisions based on the cold, hard facts at hand.

### **Vision of Future Electricity Mix**

I do not purport to know what the exact future of our sector will be. But I do know that if we don't pay attention to the grim economic facts, we, our customers, and shareholders will get burned.

New nuclear may be part of that future. It has several things going for it:

Its low operating cost. Nuclear production costs for today's plants average 2.14 cents per kWh – cheaper than coal (3.06cents) and natural gas plants (4.86 cents);

Innovations in passive design for the next generation of plants;

Advantage of scale and baseload generation;

It contributes to American energy security.

But it is far from perfect. There are issues that must be addressed before the renaissance can become a reality. (See Slide 4 below.)

Twenty years ago, I offered four preconditions for investing in new nuclear plants.

First we must have the right reactor technology. We must have more passive designs, designs that are simpler to operate and simpler to protect against disasters. The new reactor designs have made great progress in this area, and this condition has been met.

Second, we must have a workable solution to the waste problem. The Blue Ribbon Commission has offered a road map. But it will take the federal government and national political will to make it a reality. Unfortunately the federal government is further away from keeping its promise on waste disposal than ever and this condition cannot be met.

Third, there must be a need for new generation. As I stated earlier, there is not currently a need for new baseload generation because of minimal load growth and excess generation capacity. This could change with more coal plant retirements, but right now this condition cannot be met.

Last, there must be a shortage of natural gas and stable high prices to make the economics right. This condition cannot be met due to the influx of shale gas into the market. Shale is good for the country, bad for new nuclear development.

So it's not the technology – it's the economics that we are challenged by.

## **Conclusion**

Despite not meeting my test for new build right now, nuclear energy presents a challenge and an opportunity, and remains, in my view a career of choice for bright, talented people.

We have the great and terribly important job of running one-quarter of the world's reactors for decades to come.

These reactors are 72% of the nation's clean energy and an important building block to the energy future.

Fukushima reinforces the importance of operating excellence. We have to continue to be self-critical and strive to remove vulnerability from our operations.

The nuclear industry has proven itself very durable despite tremendous challenges.

It has survived the cost overruns of the early to mid-80s.

It has survived the serious accidents of TMI-2 and Chernobyl and learned from them and come out a stronger industry.

It will survive Fukushima.

I don't know what the future holds for new nuclear.

For all the reasons I've talked about, I personally think the odds for the renaissance are about 5:4 against.

But that doesn't matter for you. Things change. What matters is that you have confidence in the future and certainty of success, despite the harsh realities of the present.

This is called the Stockdale paradox, based on the brutality Admiral James Stockdale faced while a prisoner of war in North Vietnam.

When asked about his coping strategy, he said, "I never lost faith in the end of the story, I never doubted that I would get out, but also that I would prevail in the end..."

I have every confidence that each of you is tough enough to make it regardless of what the future holds for new nuclear.

You can believe my forecast for the next several years – that the business of new nuclear will be miserably hard and extremely challenged by economics.

Or you can believe other equally informed and reasonable forecast for new nuclear – that it can and will be done, in the right circumstances and with the right political and financial support.

What I do know is that you will be fine either way.

You are talented; you are tough; and, you have the right skills and dedication.

You will have every opportunity to succeed in either forecast scenario.

I am proud to have spent my career in your midst, in this business.

Thank you.



# My Last Nuclear Speech

**American Nuclear Society  
Utility Working Conference**

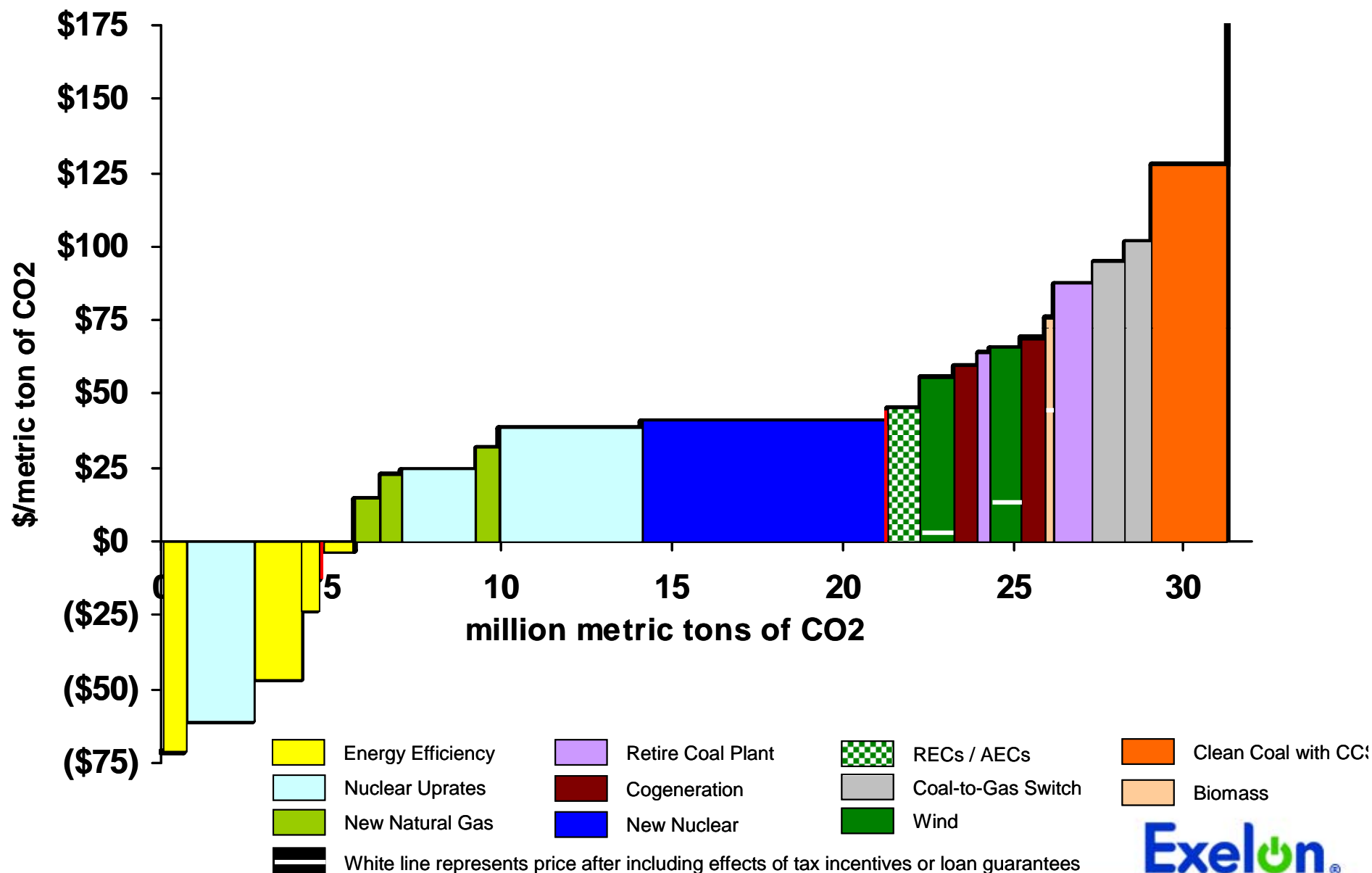
**John W. Rowe  
Chairman and CEO  
Exelon Corporation**

**August 15, 2011**



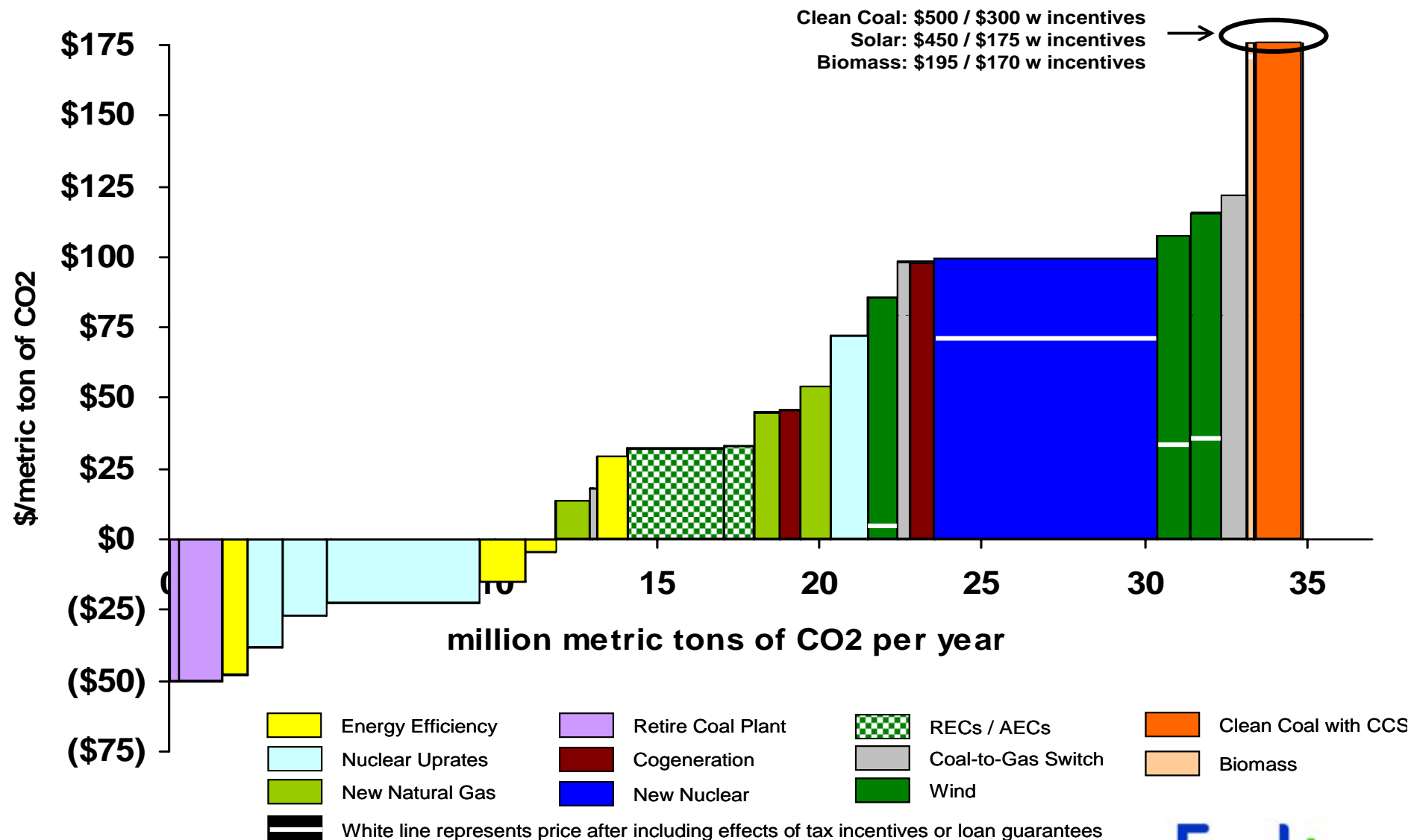
# Exelon's View of Supply Options 2008

2



# Exelon's View of Supply Options – 2010

3



## Four Preconditions for Building a New Nuclear Plant

- 1 Right Reactor Technology ✓
- 2 Workable Solution to Waste Problem ✗
- 3 Need For New Generation ✗
- 4 Natural Gas (High Prices/Low Supply) ✗