John W. Rowe Remarks
"Carbon, Competition and Kilowatts"
Brookings Institution
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Good morning

It is a pleasure to visit Brookings, particularly when there are so many familiar faces in the audience

Slide – Twain Quote

As Mark Twain observed over a century ago, "Everybody talks about the weather, but nobody ever does anything about it."

Well, it's time for Washington to do something about the weather

Climate change is a difficult issue in a town that typically has an attention span measured from one public opinion poll to the next

But while Super Tuesday didn't decide who will be the next President, I think it did clear the way for action on climate change

The remaining candidates, McCain, Clinton and Obama, are all outspoken proponents

Comprehensive climate legislation should be an imperative in the first 100 days of any new administration

But the truth is, we need not – and should not – wait for a new president

Senators Lieberman, Warner, Bingaman and Specter have all put forward thoughtful, meaningful, proposals that could be the basis of an effective bipartisan bill

On the Democratic side, Speaker Pelosi, Chairman Dingell, Chairman Markey and Subcommittee Chair Boucher have all recognized the need to act

They can proceed confident that both the environmental community and labor are supporting workable solutions

And President Bush could even now seize the opportunity to help shape a pragmatic solution . . .

Confident that he has the support of large parts of industry and the evangelical community

Time is not our friend with respect to global climate change – we must begin a long journey to a low carbon economy

The usual DC approach – doing too much, too late – will not work

Nor will enacting extravagant 30-year goals with no means of achieving them

Slide – Pogo

Now I will not belabor this discussion with a lengthy review of the science of climate change

The science is overwhelming

Reports by the Intergovernmental Panel on Climate Change and the National Academy of Sciences persuade all but the most skeptical

That global average temperatures are rising

And human activity, specifically the burning of fossil fuels, is a major contributor

Less certain is the long range effect that increased temperatures will have on the world's ecosystem

Predictions range from the inconvenient to the catastrophic

As one who cannot tell you what the price of natural gas will be six months from now, I am not at all surprised by the variety of views

Our uncertainty cannot be an excuse for inaction –

Just as I must make billion dollar investments on less than perfect knowledge, so must we as a nation now make a decision on climate change

Nor should it goad us into actions that will be ruinous to our economy

We must be both decisive <u>and</u> prudent

In my "Whig-Free Soil" view, there are three essentials to a decisive and prudent response to climate change

1. **<u>The first is comprehensive government policy</u>**

Over the past five years, I have served as a co-chair for the National Commission on Energy Policy, an independent, bipartisan group

In 2004 the Commission called for a mandatory, economy-wide tradable permit system with a safety valve for GHG emissions

I myself would have preferred a modest carbon tax that would steadily ratchet upwards

But I support a cap and trade system that incorporates the costs of greenhouse gases into the marketplace, so long as it also includes a meaningful cost containment mechanism

No one knows the actual cost of addressing climate change

All of the estimates turn on technology assumptions

We must start soon and still protect consumers and the economy

I also favor an allowance allocation system that will protect against economic windfalls

In the electricity sector, that means that allowances should either be auctioned, or go to local distribution companies based on what we call load – the actual customers they serve

Any substantial allocation of free allowances to generators would result in unacceptable economic windfalls – the Congressional Budget Office has emphasized this point time and again

But the Commission also recognized that solving climate change requires more than just new regulations

We need both new <u>regulations</u> and new <u>machines</u> if we are to successfully overcome climate change, and here too government has an essential role

Government at all levels must adopt more stringent efficiency standards for buildings, equipment and appliances

We need increased federal investment in research and development, particularly with respect to renewables and carbon sequestration

We must have tax incentives for limited quantities of renewables and federal loan guarantees for the first new nuclear plants

And the federal government must make good on its 30-year commitment to find a repository for used nuclear fuel

Slide – Dilbert Cartoon

2. <u>The second essential is market-driven innovation and investment</u>

Climate change is as much about economic transformation as environmental regulation

As Tom Friedman pointed out in a recent <u>New York Times</u> piece, we simply must enlist the dynamism and creativity of our free market system

There is no quick or easy technological solution to climate change, there is no silver bullet

For the electricity sector, natural gas remains the principal <u>bridge</u> to a lower carbon future in the near term

But domestic supplies have plateaued, prices are volatile, and LNG will depend upon new infrastructure and world gas markets

Energy efficiency likewise offers huge opportunities, but no one knows just how large, or how best to obtain it

Exelon recently earned LEED Platinum certification for the renovation of its downtown headquarters in Chicago

We reduced our electric consumption by almost 50% through state of the art energy efficient lighting, advanced controls on HVAC, and Energy Star rated equipment and appliances

Renewables are unquestionably part of our energy future

We are busy implementing the renewable portfolio standards enacted in Pennsylvania and Illinois

But renewables are an awfully expensive way to reduce carbon

According to a study released last week by Cambridge Energy Research Associates (CERA) the cost of abating carbon dioxide with wind power is approximately $67 per ton after federal subsidies

New coal technologies must be developed

Globally, we cannot succeed unless we develop technologies that will enable us to capture and sequester GHG emissions from existing coal plants

But the technology remains elusive, the costs will be very high, and MIT recently released a report that poses serious unanswered questions about geological sequestration

And then we must come to terms with nuclear energy

Now I say this as the CEO of the largest nuclear generator in the US, and with some understandable bias

But I also say it as someone who is 63 years old, and therefore not likely to get rich from operating the next nuclear unit

Nuclear power today supplies the vast majority of US low carbon electric energy

Existing plants are safe and efficient, and the next generation promises to be more passively safe, and more efficient

While the federal government must first keep its commitment with respect to used nuclear fuel, I am convinced that we will need at least 25-30 new reactors by 2030 if we are to succeed in limiting greenhouse gases

The real "inconvenient truth" of climate change is that addressing it won't be cheap

The Energy Information Administration estimates that the utility industry is the source of just over a third of current carbon emissions

And that we will have to invest $400 billion in new electric generation by 2030 to address climate

And that doesn't include our other substantial capital needs

$400 billion is almost as much as today's market cap for the entire investor owned utility industry – ($525 billion for 63 EEI companies)

And everything I see suggests that EIA's estimate is conservative

A recent Citigroup Replacement Cost Analysis found that the estimated cost for all forms of new generation has increased significantly since 2005

Traditional coal and IGCC have increased by 60%

Nuclear by 45%

The question is, do we have a system in place that will allow the industry not only to recover its costs, but to earn on its investment

I have served as a utility CEO for 24 years

I have guided companies under traditional rate base regulation, under so-called integrated resource management (which essentially means that state regulators decide what to build, and when), and most recently through the transition to competition

In each case, I have had to deal with the reality that state policy makers consistently change the rules whenever prices go up

This time, however, changing the rules will do more than undermine utility balance sheets

This time, it will undermine effective greenhouse gas regulation

One of the ironies of the current debate is that even as federal and state policymakers are embracing markets and cap and trade systems as an effective way to regulate GHG emissions . . . .

Others, sadly including industry groups, are undermining competitive wholesale and retail markets for electricity itself

Despite the fact that competition has delivered an impressive record of new, environmentally preferred investment, dramatically improved the operating performance of existing generation, and contained wholesale price increases

The electric industry will need to invest many billions of dollars in the most cost effective new sources of low carbon generation and infrastructure if we are to address climate change

That will not and cannot occur if we are obliged to invest in expensive, unproven technologies, and then not allowed to recover our costs and investment

3. **<u>Which brings us to the third essential for a successful climate change program – industry leadership</u>**

Exelon is already providing some of that leadership, and we are prepared to do more

That is why Exelon elected five years ago to endorse mandatory economy wide climate regulation

That is at least in part why we sold much of our coal-fired generation seven years ago

That is why we have adopted aggressive voluntary carbon reduction goals under the US Climate Leaders Program, goals that I am confident that we will exceed

That is why we have committed $100 million to actively pursuing a combined construction and operating license for a new nuclear facility to be located in Victoria County, Texas

Slide – The Exelon Carbon Abatement Curve

And that is why we have recently initiated a corporate wide effort to develop a comprehensive Low Carbon Energy Strategy, a sustainability strategy – frankly, a strategy that only a nuclear driven utility could do

Our goal is to reduce, displace or offset the equivalent of our entire carbon footprint by 2020

First, we will continue to reduce our own emissions

While we already have one of the lowest emission rates in the country, we are actively looking for ways to further improve the efficiency of our buildings, our transportation fleet (which is already predominately bio fueled or hybrid), our transmission and delivery operations, and to make our supply chain a model of low carbon procurement

Second, we will help our customers reduce their GHG emissions

ComEd has already begun implementing what will soon be one of the largest energy efficiency programs in the country

PECO is actively working with Pennsylvania policymakers to craft a similar program

And Exelon Generation and Exelon Energy, our competitive wholesale and retail affiliates, are actively developing conservation and efficiency products for their customers

Third, we will reduce the GHG emissions of others by building new, economic, low carbon generation

This slide is a simplified version of an Exelon carbon abatement curve.

The costs shown are societal costs, before federal subsidies or loan guarantees

The dotted lines show the cost impact of renewable subsidies and loan guarantees

The slide is a product of a rigorous evaluation of new demand and supply side resources, ranked in order of economic efficiency in reducing carbon

Includes increased efficiency, nuclear uprates, new nuclear plants, new gas-fired combined cycle facilities and renewable resources like wind

Depending upon economic and political developments, we intend to build new generation to displace existing, carbon intensive generation

In order to do that, we will need a realistic cap and trade system, and continued federal support for R & D, including federal loan guarantees for new nuclear

But most of all, we need a continuing commitment to competition – both for carbon reductions, and in electricity

<u>IF</u> we allow competitive markets to choose the most cost effective demand or supply side solutions, our analysis suggests that the Exelon companies can reduce and displace

12 – 15 million tons of GHG emissions, which is about what we emit today in the markets we serve, at an incremental cost to customers of approximately 2.2 cents/kWh

We could do much more, at an even lower incremental cost, if the federal government makes good on the nuclear loan guarantees included in EPACT 2005

If policymakers abandon competition, however, and insist that we invest only in uneconomic renewable resources and untested technology, it will cost three times as much, or 6.7 cents/kWh, to reduce or displace those same 12 – 15 million tons

And keep in mind that 12 million tons is a small fraction of more than 2 billion ton total annual reduction the industry must make if we are to meet the Lieberman Warner 2030 target

Slide – Twain Quote

Now I accept that claiming credit for displacing the emissions of others is a vexed question, at least for some

But inasmuch as we don't yet have a technology to remediate existing coal plants, everything we do in the electricity sector is some form of displacement – true of energy efficiency, renewables, natural gas, etc.

The whole purpose for adopting a carbon cap and trade system is to find the cheapest form of carbon reduction – that's how markets work

Some would argue that our money would be better spent "neutralizing" our own emissions

I think they miss the point

If only those who emit carbon can clean it up, we might as well resort yet again to a command and control regulatory limit

The fact is that Exelon is very good at low carbon electrical generation, and we are committed to getting good at energy efficiency

If we invest in cost effective efficiency, we can reduce both our costs and those of our customers while reducing carbon

And if we invest in new, low carbon generation, we can displace significantly more carbon while promoting innovation, creating jobs, and furthering economic development – and we can make money at it

We can begin to build the low carbon future we all desire

The stakes, ladies and gentlemen, are huge

If government and industry work together, and if competitive markets are preserved, I believe that the industry can meet a 2030 national reduction target at an incremental cost of 3 to 5 cents per kWh, assuming reasonable technological development

But if we abandon competition, resort to command and control regulation, pursue unproven and uneconomic solutions at more than 3 times the competitive cost, reliability will suffer, and customers will end up paying an incremental cost of as much as 10 cents per kWh

And we still will not have done anything about the weather

America's Energy Future: Carbon, Competition and Kilowatts

An Address by
John W. Rowe
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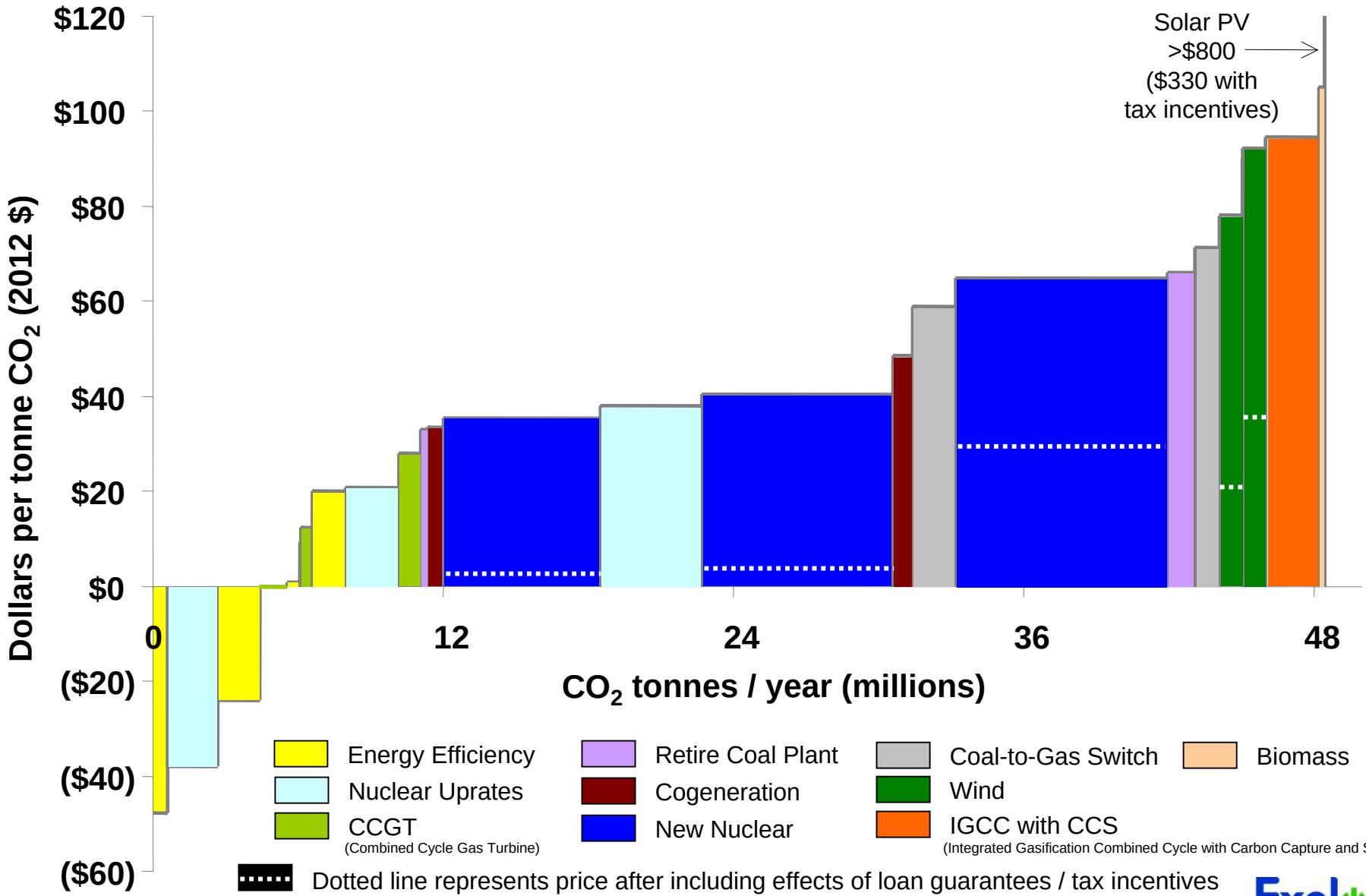
Confronting Climate Change
"Everybody talks about the weather, but nobody does anything about it."
-Mark Twain

Exelon CO_2 Abatement Curve



Exelon


Confronting Climate Change
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