Preserving the Nuclear Reactor Fleet in the US

American Nuclear Society Washington, DC Section
September 21, 2016

Donald R. Hoffman
President & CEO
Excel Services Corporation
Past President
American Nuclear Society (ANS)
Chair
Virginia Nuclear Energy Consortium Authority
President & CEO
Sensible Energy Matters to America (SEMA)

Sensible Energy
Matters to America

Agenda

I. Introduction/Background
II. Saving the Existing Fleet
III. Revision of Clean Power Plan
IV. Premature Shutdown of Nuclear Plants/ The Value of Nuclear Energy and SEMA Actions in Response
V. Other SEMA Supporting Actions
   a) Addressing the Flawed Electricity Market
   b) Meeting with Governors and their staffs
   c) Meeting with Federal, Regional, and State Regulatory Agencies
   d) States with Moratoriums/Bans on Building New Nuclear
   e) Nuclear Power Plant as National Assets Legislation
   f) Virginia Nuclear Energy Consortium Authority and Impacts on Other States
   g) Influencing Energy Policy of Presidential Candidates
VI. Imperativeness of the Nuclear Fleet
VII. Next Actions
VIII. Global Applicability and Actions

Sensible Energy
Matters to America

Introduction and Background

- Until late 2013, the U.S. had 104 operating reactors
- As of May 2016, the U.S. has 100 operating reactors
- There are 4 AP1000s in construction in Georgia and South Carolina
- There are 5 sites in some level of active decommissioning: Zion, San Onofre 2/3, Crystal River 3, Kewaunee, and Vermont Yankee

Sensible Energy Matters to America

Introduction and Background

- There have been recently announcements of 8 more premature shutdowns based solely on economic conditions: Pilgrim, FitzPatrick, Fort Calhoun, Clinton, Quad Cities 1 and 2, Nine Mile Point 1 and Ginna
- More announcements of premature shutdowns may follow if no action is taken

Sensible Energy
Matters to America

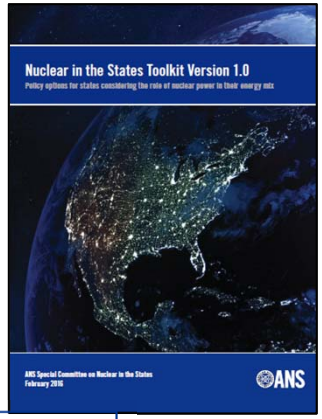
Saving the Existing Fleet

- I formally served as co-chair of the *ANS Special Committee on Nuclear in the States* with Dr. Pete Lyons, in its first year 2015-2016 – the new Co-Chair with Dr. Pete Lyons is Gene Grecheck, Immediate Past President of ANS
- Engage our members in state-by-state efforts to maintain the current nuclear fleet and support nuclear new builds
- Provide a consistent and standard approach for each of the states in valuing nuclear energy as an asset in their compliance with Section 111D of the Clean Power Plan or other Clean Energy Standard

Sensible Energy
Matters to America

Saving the Existing Fleet

- Special Committee formally rolled out Version 1 of "*Nuclear in the States Toolkit*"
  of state and federal tools and actions to be taken to appropriately value nuclear in meeting the requirements of the
  Clean Power Plan to the Press and Media on February 8, 2016
- Special Committee received very good feed back from the media
- Partial *Politico* blurb from that morning:



WANNA KEEP NUCLEAR? YOU BETTER HAVE THE RIGHT GEAR: The American Nuclear Society hasn't necessarily cracked the code for saving the nation's nuclear power plants but they've collected a lot of recipes to do so. The group gave ME an unfettered sneak peek at the 40-page "toolkit" they're presenting today, which is aimed at extending lifelines to an economically shaken fleet of reactors - and you'd be hard-pressed to find a more comprehensive list. It's got everything you've thought of (power purchase agreements, clean energy standards), a few things you may have overlooked (selling a nuclear unit to another utility with a power plant nearby, like Exelon buying Fitzpatrick plant from Entergy), and some that advocates don't typically like to say in polite company (public ownership, utility re-regulation). Pete Lyons, DOE's former top nuclear energy official, Donald Hoffman of Excel Services, and nuclear economics consultant Edward Kee are presenting at 11 a.m. at ANS's D.C. office, 2000 M Street, NW. It'll be webcast too.

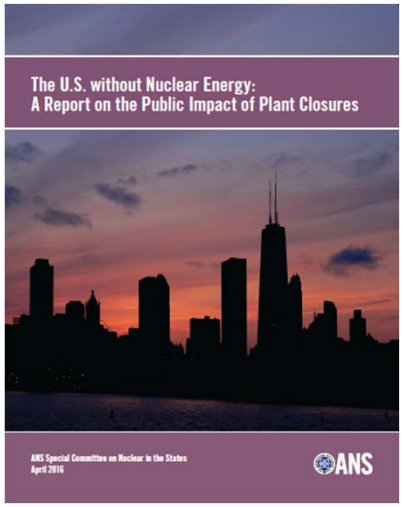
Saving the Existing Fleet

- The Special Committee plans to tailor this Toolkit for each State administration to appropriately consider and value nuclear in the decision related to the energy, economy and environment in that State

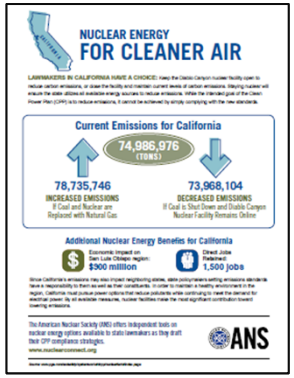
Sensible Energy
Matters to America

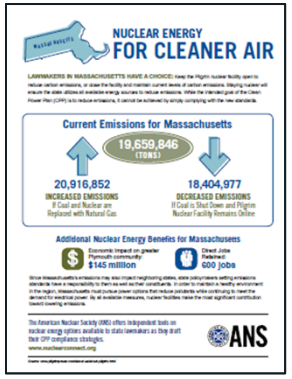
Saving the Existing Fleet

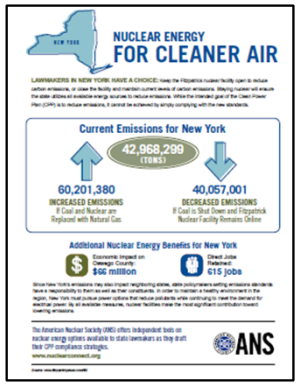
- The Special Committee rolled out the "*Impact of No Nuclear*" Report that outlines the impacts of no nuclear energy by states, regions and the nation on April 19, 2016, at ICAAP that informs state and federal policy makers of the impacts of various actions related to nuclear power plants



- The Special Committee created infographics for the states
of CA, MASS and NY that inform policy makers of the benefits of nuclear energy in their respective states







Saving the Existing Fleet

- The Special Committee plans to create state infographics for each state they visit their Governors and administration
- The Special Committee presented a Consolidated Report and a Plan Forward to the ANS President and incoming President at the June 2016, ANS Annual meeting in New Orleans and will continue the Special Committee until June 2017
- The Special Committee plans to rollout a "*Case Studies on the Effects of Nuclear Plant Closures and Models of Emissions and Power Generation*" along with "*Methods of Compliance with the Clean Power Plan*", in the late Summer or early Fall 2016

Sensible Energy
Matters to America

Clean Power Plan Implementation

- The Environmental Protection Agency (EPA) issued the final Clean Power Plan (CPP) in August, 2015
- The CPP requires each of the 48 contiguous states (Vermont and DC are exempt) to reduce the carbon emission levels by 32% from the 2005 levels by the year 2030
- The CPP provides very little guidance on how to implement this Plan

Sensible Energy Matters to America

Revision of Clean Power Plan (CPP)

- The Clean Power Plan (CPP) as written did not accomplish the goals for which it was intended
- The CPP, as written, would permit a state to increase carbon emissions and still be in compliance (malicious compliance)
- The CPP did not adequately value nuclear
- SEMA will work with ANS Special Committee on Nuclear in the States to markup the CPP to assure it meets the intended goals and meet with the EPA in late fall 2016

Sensible Energy Matters to America

Announced Premature Shutdown of Nuclear Plants and SEMA Actions in Response

- Two plants have already prematurely shutdown based solely on economic conditions: Kewanee and Vermont Yankee

Massachusetts

- Entergy has announced the premature site shutdown of Pilgrim based solely on economic conditions
- Entergy is citing poor market conditions, reduced revenues, and increased operational costs → annual loss of $40 million in revenue for Pilgrim

Sensible Energy Matters to America

Announced Premature Shutdown of Nuclear Plants and Actions in Response

New York

- Entergy has announced premature shutdown of FitzPatrick based solely on economic conditions
- Exelon announced it must make critical business decisions about NMP1 and Ginna by the end of September 2016
- Exelon needs to know if the ZEC compensation plan will be approved by the state of New York

Sensible Energy
Matters to America

Announced Premature Shutdown of Nuclear Plants and Actions in Response

California

- Concern that California state government may not appropriately value Diablo Canyon in its energy mix
- Diablo Canyon announced it will not apply for license renewal and with approval of necessary permits will only operate until 2024/2025

Sensible Energy Matters to America

Announced Premature Shutdown of Nuclear Plants and Actions in Response

Nebraska

- The management of Omaha Public Power District (OPPD) has recommended Fort Calhoun be prematurely shutdown by December, 2016, quoting, *"Rising costs, record low natural gas prices, and flat or declining demand for electricity have made it impossible to run the reactor in the black."*
- OPPD CEO started the utility position is financially untenable

Sensible Energy Matters to America

Announced Premature Shutdown of Nuclear Plants and Actions in Response

Illinois

- Exelon announced intention to shutdown Clinton in 2017 and Quad Cities in 2018 solely due to economic conditions

Sensible Energy
Matters to America

Announced Premature Shutdown of Nuclear Plants and Actions in Response

What is contributing to these premature shutdowns of nuclear plants?

- U.S. Electricity Market is severely flawed.
- U.S. Electricity Market favors subsidized wind and solar
- U.S. Electricity Market recognizes no unique value for Nuclear
- Not all KW are created equal:

The unique value of nuclear is:

Energy, Economy, and Environment

Sensible Energy Matters to America

Energy

- Nuclear produces affordable, available, reliable energy 7 days per week/24 hours per day as the only environmentally friendly baseload energy supply
  - **Supports grid stability**
  - **Provides price stability**
  - **Runs when needed**
  - **Contributes to fuel and technology diversity**

Sensible Energy
Matters to America

Economy

- Each year, the average nuclear facility generates approximately $490 million (U.S.) in sales of goods and services
- The same average nuclear facility will create nearly $46 million (U.S.) in total labor income
- Operation of the same average nuclear facility generates 700-1200 permanent jobs, which pay 36 to 42% more than average salaries in the local area and the state

Sensible Energy
Matters to America

Economy

- Permanent jobs at nuclear plants create equivalent numbers of support jobs locally- grocery stores, restaurants, dry cleaners, car dealers
- Every dollar spent by the average nuclear plant produces $1.04 in the local community- anchors the local community
- Each nuclear plant generates an average of $16 -$20 million (U.S.) in state and local tax revenue for schools, roads and similar infrastructure
- And the federal tax payments of each nuclear unit is roughly $67 million (U.S.)
- The cost of waste is included in nuclear and not in other energy sources

Sensible Energy
Matters to America

Environment

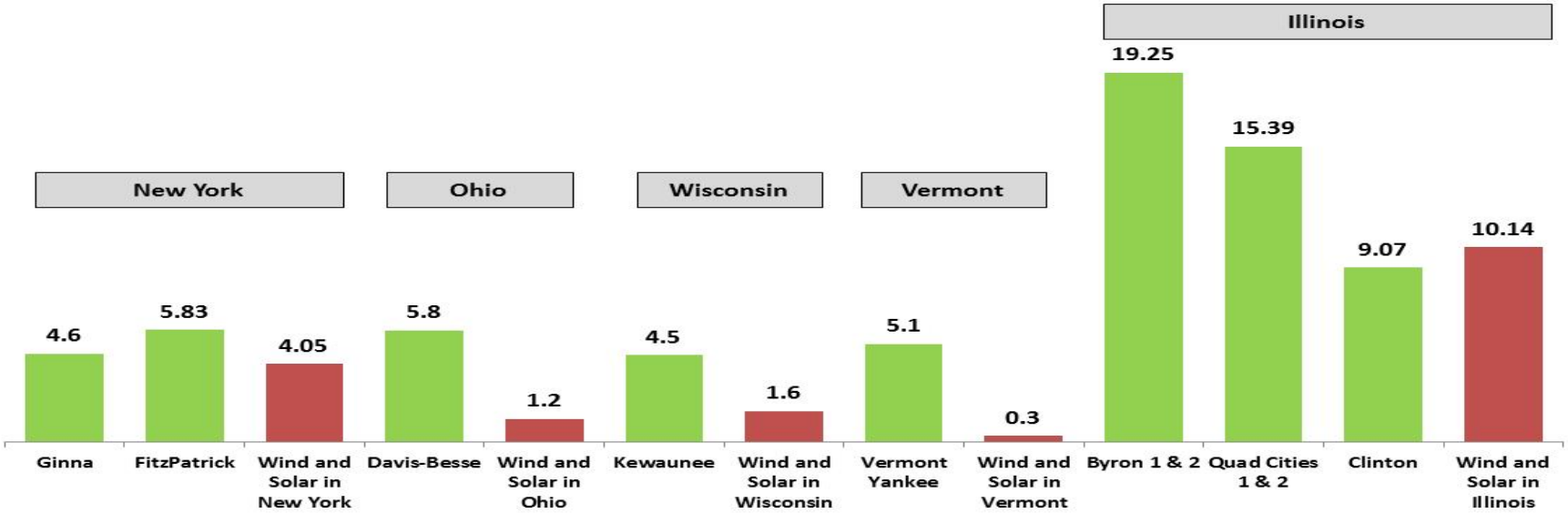
Nuclear produces approximately 20% of the U.S. energy but provides over 63% of the carbon-free emitting energy in the U.S.

- **Provides clean air compliance value**
- **Avoids carbon emissions**

Sensible Energy
Matters to America

The Challenge of Replacing Nuclear with Renewables

(billions of kilowatt-hours)



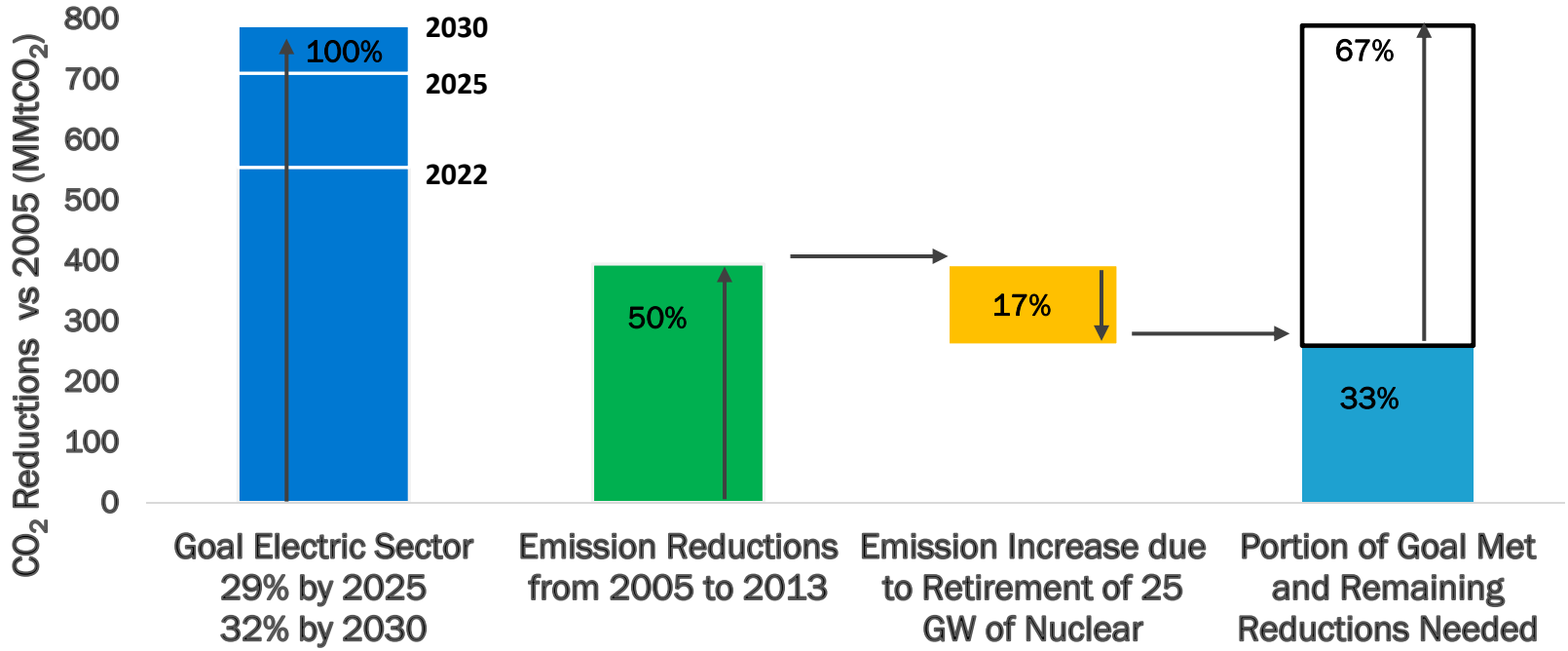
- In reality, a nuclear plant would never be replaced with renewables because solar and wind are intermittent and non-dispatchable. Nuclear plants are dispatchable and operate 24-by-7. Prematurely retired nuclear is replaced largely by emitting generation.
- Following nuclear retirements, electricity demand is met by increased utilization of other resources such as natural gas-fired plants. As the electric grid becomes more dependent on natural gas, the greater use of fossil generation translates to higher wholesale electricity prices. These price increases are reflected in cost increases to consumers.

Source: Energy Information Administration. 2014 data except for Kewaunee (Wisconsin), which is 2012 generation, its last full year of operation

22

The Nation Cannot Meet Carbon Goals Without Nuclear

Nuclear Retirements Could Negate A Third of the CO_2 Reductions to Date



Source: EPA; Exelon estimates
Nuclear units assumed to operate at 92% capacity factor, and displace CO_2 at a rate of 0.67 metric tons per MWh of lost output.

EPA estimates its Final Rule could reduce CO_2 emissions nearly 400 million metric tons beyond 2013 levels, but back-sliding with nuclear retirements could erase 1/3 of those reductions .

Sensible Energy Matters to America (SEMA)

- ANS will continue to focus on nuclear and I will focus on sensible energy policy which includes nuclear as a major asset
- I have formed a 501 (c) (3) to address the need for a sensible energy policy which considers the strengths and weaknesses of all energy sources
- I am working with the Oil, Natural Gas, Coal, Wind and Solar, Hydro and biodegradable communities to develop Sensible Energy Policy that benefits all energy sources to the detriment of none and for the benefit of all America

Sensible Energy
Matters to America

Actions

Initial States

- Met with the Governors and their staffs of Virginia, Maryland, New Jersey, and South Carolina and these Governors have agreed to work with the Special Committee to address nuclear in those states

Massachusetts

- Have also begun developing justification to keep Pilgrim operating and to meet with the state government in 2017
- Currently, Pilgrim will be refueled in 2017 and shutdown in 2019

Sensible Energy
Matters to America

Actions

New York

- Supported development and approval of the Zero Emissions Credit (ZEC) concept with the state of New York
- On August 1, 2016, the New York Public Service Commission issued its Order Adopting a Clean Energy Standard (CES)
- The CES Order was an outgrowth of a December 2, 2015, directive from New York Governor Cuomo to develop a Clean Energy Standard (CES) to achieve emissions reductions and renewable resource development goals

Sensible Energy Matters to America

Actions
New York

- General Elements of the Clean Energy Standard adopted in the CES Order
  1. Adopts the goal that 50% of NY electricity needs be satisfied through renewables by 2030.
  2. Adopts a Renewable Energy Standard requiring
     - Load serving entities to invest in new renewables (Tier 1) and
     - Distribution utilities to continue investing in existing renewables (Tier 2).
  3. Adopts a Zero Emissions Credit program (Tier 3) requiring LSEs to invest in preserving existing at-risk nuclear zero-emissions attributes.
     - The carbon-free benefits of nuclear zero-emissions attributes contribute to NY's comprehensive goal to reduce greenhouse gas emissions by 40% by 2030, but does not count towards the goal of 50% renewables by 2030.

Sensible Energy Matters to America

New York Zero Emission Credit Program

- <u>Purpose of ZEC Program</u>

  "The intent of the ZEC program is to preserve the zero-emissions attribute benefits of the [nuclear] facilities to prevent backsliding in the State's carbon reduction performance that likely could not be avoided in any other way."

- <u>General Structure</u>
  - Builds on well-established REC programs to "properly value[]" the "emission-free attributes from eligible operating nuclear generating plants."
  - A ZEC reflects "the zero-emissions attributes of one megawatt-hour of electricity production by an eligible Zero Carbon Electric Generating Facility which credit is purchased by NYSERDA or a Load Serving Entity to reduce carbon consumption by retail electric consumers in New York State."
  - ZECs will be sold by eligible generators to NYSERDA, and all LSEs will be required to purchase ZECs from NYSERDA annually in proportion to their load ratio share.
  - Contract term: 12 years, made up of six two-year tranches.
  - Program designed to accommodate future federal zero emissions programs.

- <u>Eligibility Requirements: Finding of "Public Necessity" to preserve zero-emissions attributes</u>
  - Verifiable historic contribution of facility to NY clean energy resource mix.
  - Wholesale revenues inadequate to preserve the zero-emission attributes.
  - Costs and benefits relevant to other alternatives.
  - Ratepayer impact & public interest.
  - Ginna, Nine Mile Point, and FitzPatrick found eligible for first tranche; other nuclear potentially eligibl for future tranches.

Sensible Energy Matters to America

New York ZEC Pricing Mechanism

- Overview
  - Value based on social cost of carbon by USIWG, but can be adjusted downward after first two years to account for forecasted increases in energy and capacity prices, thereby protecting consumers if electricity prices are forecasted to rise.
- ZEC Formula

  SCC – (Baseline RGGI Effect) – (Energy + Capacity Forecast in Excess of $39/MWh)
- Elements of Formula
  - SCC is based on values developed by USIWG in 2015 and escalates over six, two-year tranches.
  - Baseline RGGI Effect is intended to avoid double counting RGGI and is set for all tranches at $10.41/short ton.
  - The Forecast Energy & Capacity Price Change Adjustment can reduce the ZEC price below the SCC if energy and capacity prices are forecasted to rise above $39/MWh. Energy forecasts are based on ICE futures for NYISO Zone A. Capacity forecasts are based on NYMEX futures for rest-of-state.
- ZEC Price -- $17.48/MWh for first two-year tranche.
- ZEC Value – ZEC necessarily cost justified based on the carbon benefit alone.

Sensible Energy Matters to America

Actions

New York

- Supported Exelon and Entergy to have Exelon acquire FitzPatrick
- Still working to have the ZEC Concept apply to Indian Point
- ZEC Concept receives first challenge this week- Ampersand Hydro, LLC (which controls 12 small hydropower stations in New York) wants the same subsidy as a clean energy source of electricity
- This is still being discussed in the state

Sensible Energy Matters to America

New York

In a letter to a group of Democratic state lawmakers, state Public Service Commission Chairwoman Audrey Zibelman rebutted their argument that downstate energy consumers bore a disproportionate burden of the cost of state subsidies that will support three upstate nuclear power plants under the state's Clean Energy Standard Program.

A Sept. 7 **letter to PSC** — signed by Assembly members James Brennan, Amy Paulin, Jeffrey Dinowitz, Steve Englebright and Charles Lavine — groused about the $965 million in state aid that will go to help maintain the James A. Fitzpatrick Nuclear Power Plant and Nine Mile Point Nuclear Generating Station outside Oswego and the R.E. Ginna plant east of Rochester. Exelon Corp. currently owns Nine Mile and R.E. Ginna; it is **in the process** of purchasing Fitzpatrick, which the current owner, Entergy, had flagged for closure last year before the state stepped in.

New York

The lawmakers called on the PSC to make public the full analysis of costs Exelon will face to run the plants, and ask the panel to **re-determine the rate increases** that downstate power consumers will have to pay to support the subsidies.

In her response — dated Sept. 9 (speedy!) — Zibelman made the case that the state's carbon reduction plan was a statewide effort with a global goal of fighting climate change. In a more bottom-line sense, she noted that the cost of decommissioning the plants would be $1.7 billion, or three times the near-term costs of keeping them on line.

Actions

California

- Spoke with the Senior Policy Advisor on Energy, Climate, and the Environment of the State of California on the phone in April and June 2016, to discuss the situation in California related to the need for the approval of Permits and License Renewal for Diablo Canyon
- Meeting with Governor and Lt. Governor of California now scheduled for September 2016 to discuss how Diablo Canyon can and should fit in the California Energy Plan

Sensible Energy
Matters to America

Actions

Nebraska

- Fort Calhoun announced on June 16, 2016 that it would shutdown in December 2016
- Trying to get the Nebraska state government to work with the ZEC concept to support keeping Fort Calhoun operating
- Met with Galen Hadley, Speaker of Nebraska Legislature at NCSL 8/9/16- interests exists in the Clean Energy Standard ZEC Concept to preserve Ft. Calhoun
- Scheduling presentation to Legislature and Governor in October 2016

Sensible Energy
Matters to America

Actions

Illinois

- Meeting with Exelon to determine what is necessary to keep Clinton and Quad Cities operating
- Met with Governor and staff of Illinois in September 2016 to discuss Zero Emissions Credit (ZEC) concept in Illinois
- Developing concept approach for Illinois

Sensible Energy
Matters to America

Illinois Zero Emission Standard

As part of the Next Generation Energy Plan, the Zero Emission Standard (ZES) makes Illinois a trailblazer in low-carbon energy, making Illinois one of the first states to fully recognize the zero-carbon benefits of nuclear energy.

The ZES portion of the bill avoids wholesale electric rate increases, saves jobs, preserves economic output, maintains system reliability and upholds Illinois' place as the national leader in clean energy production.

Saves 4,200 highly skilled, good-paying jobs

Preserves $1.2 billion in economic activity

Avoids $10 billion over 10 years in economic damages associated with increased carbon emissions

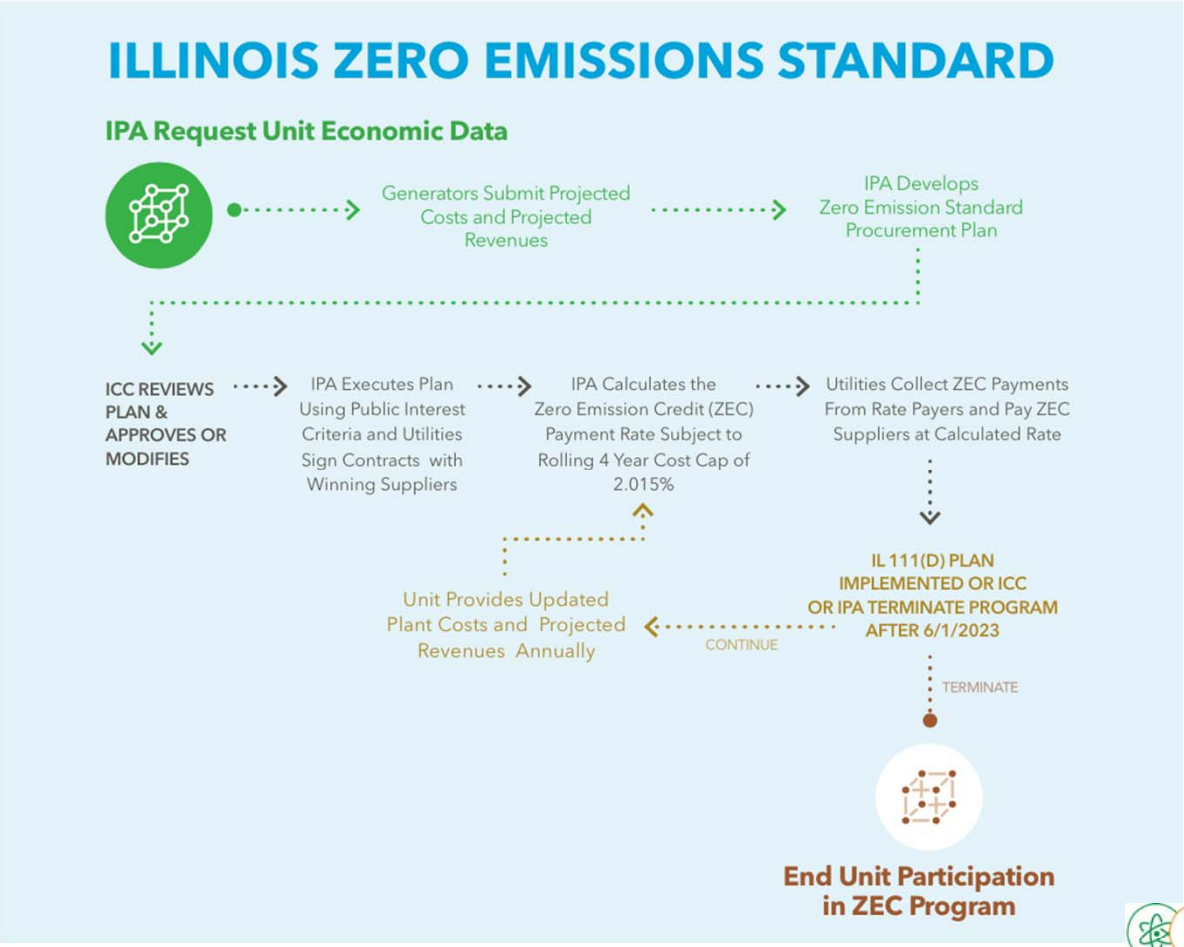
Avoids the need to spend hundreds of millions of dollars on new transmission lines

Maintains Illinois' position as having **the nations' lowest electric price** trend since 1997

Sensible Energy Matters to America

Zero Emission Standard

The ZES allows the State of Illinois to purchase zero-carbon energy credits (ZECs) from nuclear energy plants—which emit virtually no carbon—that would otherwise be at risk of closing, bridging Illinois to a clean energy future, ensuring electric reliability, saving Illinois jobs and keeping our air clean.



Sensible Energy Matters to America

Other Actions

- First energy is monitoring recent efforts by New York to help subsidize the continued operation of at-risk nuclear plants owned by Exelon and Entergy, and may support a similar scenario for its three nuclear plants in Ohio and Pennsylvania, a company official said Thursday

  Davis Besse } Ohio
  Perry

  Beaver Valley ½ - Pennsylvania

- Other utilities owning and operating nuclear plants are evaluating their respective situations and evaluating the New York efforts

Actions

- There is an urgent need to develop policies that will prevent additional, premature nuclear plant retirements, because the economic and environmental consequences are incredibly detrimental

Sensible Energy Matters to America

Addressing the Flawed Electricity Market

- The U.S. Electricity Market is severely flawed and cannot fulfil its key functions
- Symptoms include:
  - Falling wholesale prices at a time of rising generation costs
  - Early plant closures
  - Financial problems for utilities, which are nonetheless expected to engage in the biggest investment program in history to meet carbon targets

Sensible Energy Matters to America

Addressing the Flawed Electricity Market

- The frequent occurrence of zero or negative prices
- Debates over the need for market reforms, in particular the introduction of capacity mechanisms to underpin investment in the plants needed to maintain supply security
- Complaints from consumers about constantly rising prices, etc.

Sensible Energy Matters to America

Addressing the Flawed Electricity Market

- We are developing solutions to be implemented in the near term and long term to provide a level playing field for all energy assets and to recognize the strengths and weaknesses of each and determine the relative percentages of each that should make up our energy portfolios short term and long term
- Current Plan is to leverage the Zero Emissions Credit (ZEC) Concept in all states where nuclear is threatened

Sensible Energy Matters to America

Addressing the Flawed Electricity Market

- We are recommending an Energy Policy that will shape our approach to energy solutions for decades to come
- Sensible Energy Policy which considers the strengths and weaknesses of all energy sources

Informed on a routine basis providing for reliable, available, affordable, and environmentally friendly energy

Sensible Energy
Matters to America

Meeting with Governors and Staffs

- Met with twenty Republican Governors at the Republican Governors Association meeting at the Republican National Convention (NRC) in July 2016 and discussed proposed Sensible Energy Policy and the role the states could/ should have in enacting energy policy
- Will meet with the Democratic Governors at the Democratic Governors Association Meeting in 2016
- I will personally plan to visit each Governor and staff over the next 24-36 months to discuss sensible energy policy and benefits of nuclear
- Priority will be the states where nuclear is threatened to bring the Clean Energy Standard Zero Emissions Concept to the dialogue and the state specific approaches in implementing the Clean Power Plan (CPP) or a Clean Energy Standard (CES)

Sensible Energy
Matters to America

States with Moratoriums/Bans on Building New Nuclear

- Working with the states that have a Moratorium on building new nuclear
- Supported Governor Walker with recent decision in Wisconsin
- Currently working with Governor and staff of Kentucky
- We are in talks with the Governor of Oregon and others
- Plan to address other states and provide templates used for Wisconsin to assist these states with lifting bans/moratoriums

Sensible Energy
Matters to America

States with Moratoriums/Bans on Building New Nuclear

- States with a ban

  Hawaii/Minnesota

- States with a Restriction

  3 types: 3a Waste Limit

  3b Cost limit

  3c Ratification

3a Waste Limit

California	Maine	West Virginia
Connecticut	Massachusetts	Wisconsin
Illinois	New Jersey	
Kentucky	Oregon	

Sensible Energy Matters to America

States with Moratoriums/Bans on Building New Nuclear

3b Cost Limit

Connecticut	Minnesota	North Carolina
Illinois	Missouri	Pennsylvania
Indiana	Montana	Rhode Island
Iowa	New Jersey	West Virginia
Kansas	New York	Wisconsin

3c Ratifications

California	Maine	Oregon
Hawaii	Massachusetts	Pennsylvania
Illinois	Montana	Rhode Island
		Vermont

Sensible Energy Matters to America

Saving the Existing Fleet

- I presented to the National Governors Association (NGA), the National Association of State Energy Officials (NASEO), and the National Association of Regulatory Utility Commissioners (NARUC), in Washington, D.C. in February 2016 and August of 2016 and will continue to interface with them
- We will be meeting with FERC and PJM in September 2016 to discuss market changes that level the playing field for nuclear

Sensible Energy
Matters to America

Independent Supporting Activities

National Assets Legislation

- I have proposed legislation that would have the Federal Government/ Congress formally acknowledge our Nuclear power plants as "National Assets"
- **1960's**
  Years of design, licensing and construction to place into operation at cost of hundreds of millions of dollars
- **Now**
  More years of design, licensing and construction to place into operation at costs of billions of dollars

Sensible Energy
Matters to America

Independent Supporting Activities

National Assets Legislation

- Provide a funding mechanism until such time as the plant could economically compete in the region in which it is operating
- Currently in informal Senate/House Review for inclusion in a future Congressional action
- 33 Senators/ Congressmen and Congresswomen currently strongly support- continuing to get more support
- Hope for resolution in 2017

Sensible Energy Matters to America

SEMA Supporting Activities

Virginia Nuclear Energy Consortium Authority (VNECA)

- I currently chair the Virginia Nuclear Energy Consortium Authority (VNECA)
- VNECA is charged with the responsibility for making the Commonwealth a national and global leader in nuclear energy and to serve as an interdisciplinary study, research, and information resource for the Commonwealth on nuclear issues
- VNECA reports directly to the Governor of Virginia. I am working with other state's governors to establish a similar type of entity to ensure that nuclear is valued as it should be

Sensible Energy Matters to America

SEMA Supporting Activities

Presidential Candidates

- Met with Donald Trump as a member of the Trump Leadership Council (TLC)- "stand alone organization whose purpose is to provide candidate Trump with the best ideas from America's brightest business and civic leaders" on June 9, 2016
- 10 Sectors- one is Energy

  I am advising on energy related to all energy sources
- Spoke to Mr. Trump of need for sensible Energy Policy for energy solutions for decades to come and the unique value of the nuclear contribution to the Energy Mix and outlined actions needed to be taken short term and long term to provide a level playing field for nuclear

Sensible Energy Matters to America

SEMA Supporting Activities

Presidential Candidates

- Presentation was very well received. Mr. Trump asked for, and I provided, a draft written plan. We had a meeting in July 2016 to discuss the draft plan and will meet again in early September 2016
- Will meet with Democratic Presidential candidate, Hillary Clinton and her staff last week of September 2016 in Washington, DC to discuss the same principles

Sensible Energy
Matters to America

Imperativeness of the Nuclear Fleet

- America developed the nuclear technology
- Global leader for six decades
- Losing that global leadership position rapidly
  - Political and policy driven, not technology driven
- What does that mean to the US
  1. Loss of seat at table or meaningful voice in global nuclear activities
  2. Loss of overview of regulatory and safety issues for immature or emerging nuclear nations
  3. Loss of oversight and control of nuclear proliferation issues
  4. Loss of economic benefits to US nuclear suppliers
  5. Loss of basis for research and development for new and advanced reactors

Sensible Energy
Matters to America

Imperativeness of the Nuclear Fleet

- What does this mean to the globe?
  1. Loss of US leadership and regulation and technology transfer
  2. Loss of US experienced and competent supply chain

Sensible Energy Matters to America

Next Actions

1. Continue to develop product/ tools that the state and federal staff can use to appropriately value nuclear in the energy decisions
2. Continue to develop the technical information that creates informed energy policy
3. Continue to meet with Governors and their staff about energy policy and the value of nuclear in the state, region and nation

Sensible Energy
Matters to America

Next Actions

4. Continue to meet with policy makers and utilities to broker agreements so nuclear plants do not shutdown prematurely
5. Continue to work with Governors and state legislatures to lift all new nuclear build moratoriums and bans
6. Continue to work with the states, region and federal to revise the flawed electricity policies

Sensible Energy
Matters to America

Next Actions

7. Plan is to halt premature shutdowns, lift bans/moratoriums, revise CPP and revise flawed electricity markets and
8. Provide a level playing field for nuclear so that it can play the role for which it is qualified, intended and needed for US energy needs

Sensible Energy
Matters to America

Global Applicability and Actions

- Other countries experiencing similar difficulties related to acceptance/understanding of nuclear power and flawed electricity markets impact on nuclear power being competitive

<u>Our Common Actions</u>

- Continue to operate our nuclear facilities at the highest levels of safety
- Refine and deliver the message to our country policy makers
- Ban together to develop a state, country, region, global solution