



February 15, 2022

Senate Bill 528 – Climate Solutions Now Act of 2022

INFORMATION ONLY

Nuclear Powers Maryland (NPMD), a coalition of like-minded organizations who recognize that Maryland has an important opportunity to become a clean energy leader by embracing carbon-free nuclear power, appreciates the opportunity to submit this informational testimony on SB 528 – Climate Solutions Now Act of 2022.

Nuclear Powers Maryland was founded in 2021 as an organization to advocate for state policies that recognize nuclear energy's role in accelerating clean energy progress and economic growth. Our members include the Baltimore-DC Metro Building Trades Council, Calvert County Chamber of Commerce, Calvert County Government, Center for Climate and Energy Solutions (C2ES), Centrus Energy, Constellation, Nuclear Energy Institute, LiUNA! Laborers Local 11, Orano USA and X-energy. As Maryland's largest source of carbon-free power, nuclear energy is the state's most important tool for quickly and cost-effectively transitioning to clean energy.

As the Committee begins its debate on the benefits of the Climate Solutions Now Act of 2022, we urge you to not take for granted clean, emissions-free nuclear energy. As part of a final bill, the General Assembly should formally recognize the essential role that nuclear energy plays in meeting SB 528's greenhouse gas reduction targets in a timely and cost-effective manner.

As currently drafted, SB 528 would reduce GHG emissions by 60 percent of 2006 levels by 2030, increasing our current goal by 50 percent. Unfortunately, the bill fails to acknowledge the vital role of nuclear in achieving these goals and simply assumes the uninterrupted operation of Calvert Cliffs Nuclear Power Plant through the end of its existing license in 2034. If this assumption is incorrect, however, Maryland would lose 15 million megawatt-hours of clean, carbon-free electricity annually - more than 80 percent of Maryland's carbon-free clean energy - and 40 percent of the state's energy overall.

NPMD believes that any final legislation, must address how the absence of nuclear generation would impact the cost and timeline for Maryland to meet its emissions reduction goals. This can be accomplished by requiring the state to study, as part of the GHG reduction plan contemplated in SB 528, the impact to the cost and timeline of achieving the bill's GHG reduction goals if Calvert Cliffs were to prematurely retire.

Over the past several months, Nuclear Powers Maryland has been working with the Brattle Group to examine just how devastating the lack of nuclear energy would be to Maryland’s climate goals and economy. Just last month, NPMD hosted a workshop where the Brattle Group presented preliminary findings from a study it is expecting to release in the near future. As demonstrated below, the Brattle Group findings show that without nuclear energy, Maryland would see an annual emissions increase of about 4 million tons of carbon - the equivalent of driving 3 million vehicles for a full year – with the cost of this increased pollution to Marylanders exceeding \$2 billion.

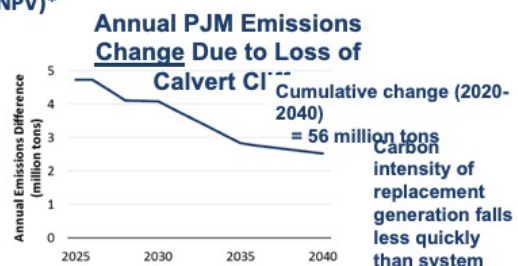
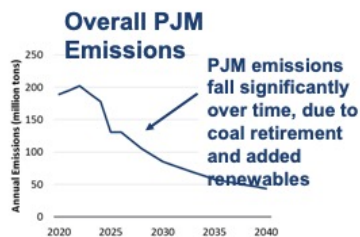
DRAFT RESULTS – REFERENCE CASE, WITHOUT CCNPP

Impact on Emissions

Loss of CCNPP raises emissions by ~2.5%, ~4.5 million tons CO₂/year initially – **56 million tons** by 2040

- Difference is essentially the emissions rate of efficient gas plant: ~0.4 tons/MWh * lost nuclear generation
- Most of the increase in generation and emissions occurs outside Maryland
 - Less nuclear generation in Maryland, and more gas outside, means Maryland net imports increase to ~65% (from 40%)
- Emissions impact diminishes as the grid gets cleaner – though replacement energy does not get cleaner as quickly

These incremental emissions carry a social cost of **\$2.5 billion (NPV)***



*Social cost of carbon is estimated using the Interagency Working Group SCC (IWG SCC, 3% case, is \$56/ton in 2025, rising to \$98/ton in 2040). \$2.5 billion is the NPV (to 2025) of annual incremental carbon emissions (without vs with CCNPP), times each year’s social cost of carbon

DRAFT Preliminary Results – For discussion purposes

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The clean, reliable and affordable energy production from Maryland’s nuclear resource cannot be replaced overnight. It would take an additional 4,600 MW of solar and wind energy combined to replace Maryland’s clean energy output from nuclear— that’s the same as one-third of all the renewable energy in operation across the 13 states and Washington, D.C., that make up the PJM power market.

When examining Marylanders energy costs, the Brattle Group found that if nuclear energy were to be removed from the state’s energy portfolio, energy costs would increase at least \$47 million annually. Moreover, if Maryland were to increase its already aggressive RPS program even further in an attempt to replace the state’s lost nuclear output with new wind and solar it would cost Marylander’s close to \$900 million over a ten year period.

Calvert Cliffs is a Major Clean Asset for Maryland and PJM



Our study of impacts in a decarbonizing power system show CCNPP:

- Emissions Savings**
 - Avoids ~4 million tons CO₂ annually (56 million tons over 2025-2040)
 - Increased fossil generation (primarily gas) would replace Calvert Cliffs
 - Preventing \$2.5 billion in damages (NPV) from carbon emissions*
* Based on current federal IWG Social Cost of Carbon
- Customer Cost Benefits**
 - Prevents moderate increase in customer costs \$47 million/year
 - Tradeoff between emissions and customer cost: With policy action to mitigate emissions impact, customer cost impact could rise to \$87 million/year
- Grid Compatibility**
 - Renewables and nuclear are complements, not substitutes
 - Renewable resources like wind and solar cannot easily replace nuclear
 - Each plays a key role in decarbonizing the grid

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There is nothing comprehensive about a climate plan that fails to acknowledge the largest source of carbon-free energy in the state. The Education, Health, and Environmental Affairs Committee must formally recognize the essential role of nuclear energy through a provision that requires the state to study, as part of a GHG reduction plan, the impact to achieving GHG reduction goals if Maryland were to prematurely lose its most abundant and reliable source of carbon free energy.

Signed,

American Nuclear Society
Baltimore-DC Metro Building Trades Council
Calvert County Chamber of Commerce
Calvert County Government
Center for Climate and Energy Solutions (C2ES)
Centrus Energy
Constellation
EXCEL Services Corporation

Nuclear Energy Institute
Nuclear Matters
LiUNA
The Nuclear Alternative Project
Orano USA
Sensible Energy Matters to America (SEMA)
Studsvik Scandpower
WSC
X-energy

Maryland Needs Nuclear Power to Meet Climate Goals

Let's not take nuclear power for granted. The Maryland General Assembly must formally recognize the essential role that nuclear energy, and the continued operation of Maryland's own Calvert Cliffs Nuclear Power Plant, must play in meeting Maryland's greenhouse gas reduction goals in a timely and cost-effective way.



Two bills under consideration in the General Assembly (SB528 and HB708) seek to reduce statewide greenhouse gas (GHG) emissions and address climate change. The Senate's Climate Solutions Act of 2022 would reduce GHG emissions by 60% of 2006 levels by 2030—increasing our current goal by 50%. Meanwhile, the House's Comprehensive Climate Solutions Act would meet that same goal by 2032.



These bills take for granted that Calvert Cliffs will make it to the end of its current license (expires in 2034), which would enable Maryland to meet 60% GHG emission reductions from 2006 levels by 2030. **But what if this assumption is incorrect?**

Nuclear Powers Maryland seeks to *meaningfully* include nuclear energy in Maryland's climate plan.

Nuclear power enables companies, cities and communities to reduce emissions; supports grid reliability and carbon-free renewables growth; and prevents harmful pollutants from being emitted into the air we breathe. Our legislative proposal would ensure this progress continues in two important ways:



PROPOSAL 1

Recognize Calvert Cliffs as a Clean Power Workhorse

Our legislative proposal seeks formal recognition by the Maryland General Assembly that nuclear, and the continued operation of Calvert Cliffs in particular, is essential to Maryland meeting its greenhouse gas reduction goals in a timely and cost-effective way. Maryland is behind other environmentally active states in formally recognizing nuclear's environmental contributions and now is the time. Without Calvert Cliffs, Maryland will lose 15 million megawatt-hours of clean electricity annually—the equivalent of adding an estimated 2.3 million cars' worth of carbon dioxide to the air we breathe.



PROPOSAL 2

Consider Nuclear Energy as Part of a GHG Reduction Plan

Our proposal also includes a nuclear energy scenario in the development of a greenhouse gas reduction plan. To the extent that climate legislation requires the development of an action plan, our Coalition proposes that the plan consider a potential future scenario where Calvert Cliffs is under economic distress and the impact an early retirement could have on Maryland's environment, economy, health and greenhouse gas reduction requirements.

Nuclear energy is necessary to reduce emissions.

- ✔ Provides 15 million megawatt-hours of clean energy each year – enough to power 1.3 million homes.
- ✔ Avoids 2.25 million cars' worth of carbon dioxide in electricity generation.
- ✔ Supports renewables expansion by providing grid stability with its round-the-clock power.

Nuclear energy is a **vital** part of the Maryland economy.

- ✔ Maryland's nuclear industry supports nearly 1,200 in-state full time jobs.
- ✔ Maryland's nuclear industry provides nearly \$15M in state tax revenues annually.
- ✔ Calvert Cliffs employs a highly skilled workforce, providing 691 family-sustaining jobs to Marylanders. Annual aggregate employee salaries and benefits is nearly \$180M.
- ✔ Nuclear power saves consumers an average of 6% on their electricity bills and contributes approximately \$60 billion to the country's GDP annually.

Nuclear Powers Maryland Coalition members look forward to working with the Maryland General Assembly as we all work to meet the ambitious goal of achieving net-zero statewide GHG emissions by 2045 and support good-paying jobs in our community and Maryland's overall economy.

National Democratic Leaders Have Already Embraced Nuclear's Vital Role in Climate Policy

“Carbon-free nuclear power is an absolutely critical part of our decarbonization equation.”

“The first priority ... is to preserve the existing nuclear fleet, which generates 20% of US electricity and represents more than half of its carbon-free power”

**- SECRETARY JENNIFER GRANHOLM,
U.S. DEPARTMENT OF ENERGY, JUNE 2021**

“In addition to being carbon-free, nuclear is the only source of generation that can reliably produce mass amounts of clean energy 24/7, 365 days a year. As crucial as solar and wind are, only nuclear can consistently power homes and businesses regardless of weather conditions.”

**- LONNIE R. STEPHENSON,
INTERNATIONAL PRESIDENT OF THE INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS**



MEMBERS OF THE COALITION

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Baltimore-DC Metro Building Trades Council
Calvert County Chamber of Commerce
Calvert County Government
Center for Climate and Energy Solutions (C2ES)

Centrus Energy
EXCEL Services Corporation
Exelon Generation
Nuclear Energy Institute
Nuclear Matters
LiUNA

The Nuclear Alternative Project
Orano USA
Sensible Energy Matters to America (SEMA)
Studsvik Scandpower
WSC
X-energy

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