UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY

Comments of the Electric Power Supply Association on Notice of Intent and Request for Information Regarding Establishment of a Civil Nuclear Credit Program

Reference Number: DOE-HQ-2022-0006

March 8, 2022

I. INTRODUCTION

The Electric Power Supply Association ("EPSA")[1] respectfully submits these comments in response to the Notice of Intent and Request for Information Regarding Establishment of a Civil Nuclear Credit Program ("NOI/RFI" or "Notice")[2] published in the *Federal Register* on February 15, 2022, by the United States Department of Energy ("Department" or "DOE"). The notice requests, among other things, stakeholder input on the "application, certification, and selection processes" of the Civil Nuclear Credit ("CNC") program. In general, EPSA's comments are intended to aid the Department in the development of a robust and objective certification process with adequate oversight and transparency, which we believe is consistent with the intent of Congress.

Our comments address the following components of the Notice: CNC program certification criteria, the proposed CNC credit auction, CNC program oversight and transparency, the proposed adjustment mechanism, and credit recapture. Specifically,

- To appropriately satisfy the threshold requirement that a Certified Nuclear Reactor "compete in a competitive electricity market," an applicant must demonstrate that: the nuclear reactor is physically interconnected to, and participates in, an RTO or ISO, and the nuclear reactor is physically located in a restructured state. An applicant must also

[1] EPSA is the national trade association representing competitive power suppliers in the U.S. EPSA members provide reliable and competitively priced electricity from environmentally responsible facilities using a diverse mix of fuels and technologies. EPSA seeks to bring the benefits of competition to all power customers. This pleading represents the position of EPSA as an organization, but not necessarily the views of any particular member with respect to any issue.

[2] Notice of Intent and Request for Information Regarding Establishment of a Civil Nuclear Credit Program ("Notice").

demonstrate all sellable output that is under contract through a Power Purchase Agreement or other bilateral contract for a duration of at least one year over the 4-year certification period.

- Several nuclear reactors across four states already receive state-level out-of-market support for their zero emissions attributes which will reduce the level of funds those nuclear reactors need from the CNC program. All received or anticipated revenues from these programs, and all other revenue sources, must be considered in the application for CNC program funds.

- While we recognize that the Secretary will make the final decision regarding all applications, in order to expedite certification and avoid unnecessary administrative burden, we recommend that DOE require all applications to be reviewed and certified by an independent party with the expertise necessary to appropriately and rigorously evaluate the underlying data and market risk included in an application.

- Given the specificity of the economic data required in the certification process to determine the "average projected annual operating loss, in dollars per megawatt-hour, inclusive of the cost of operational and market risks, expected to be incurred over the 4-year period for which credits would be allocated," the CNC auction should cap bids at the dollar per megawatt-hour shortfall projected in the certification stage.

- We strongly support the establishment of a review panel, including staff from other federal agencies and independent experts.

- DOE should keep an up-to-date spreadsheet on its public website with the following information for each Certified Nuclear Reactor: reactor name, date certified, the dollar per megawatt-hour value of the allocated CNC credit, the megawatt-hour quantity associated with the CNC credit, and the CNC credit termination date.

- While we appreciate the administrative ease that an indexing metric may pose, it is insufficient to comply with the text of the law and may allocate CNC funds to nuclear reactors that did not operate at an annual loss. If the economic conditions facing a Certified Nuclear Reactor receiving CNC program funds change materially during the duration of the 4-year award period, it is incumbent on the recipient of CNC funds to notify DOE of the changes.

II. BACKGROUND

EPSA is a fuel- and technology-neutral organization committed to preserving and promoting well-functioning competitive wholesale electricity markets. Our members own and operate all types of electric generation resources, including two nuclear power plants in the

competitive Texas electricity market. Furthermore, EPSA supports efforts to combat climate change through transparent, open, and nondiscriminatory competitive markets[3] in an affordable and reliable manner, such as an economy-wide price on carbon[4] or a well-designed clean energy standard ("CES").[5] These tools recognize the environmental benefits that all non-emitting generators, including nuclear, provide, and create revenue opportunities for those resources, thereby reducing the risk of closure of existing carbon-free resources.

Unfortunately, the Congressional establishment of a national, market-based policy to address carbon emissions in the near-term appears unlikely; instead, targeted technology- and fuel-specific policies are prevailing. Given our commitment to well-functioning wholesale electricity markets, EPSA has long opposed fuel- or technology-specific policies, such as state-level Zero Emission Credits ("ZECs") that provide credits to existing nuclear power plants, on the grounds that out-of-market revenues to a subset of resources distort wholesale electricity market outcomes for all other resources. Additionally, independent expert analysis demonstrates much of the existing nuclear fleet operating today in competitive electricity markets is profitable

[3] https://epsa.org/about-epsa/our-principles/
[4] Economy-wide Carbon Price: The Least-Cost Path to Reduce Carbon Emissions, https://epsa.org/economy-wide-carbon-price-the-least-cost-path-to-reduce-carbon-emissions/
[5] Competitive Decarbonization: Reducing Emissions Through Carbon Pricing or a Clean Energy Standard https://epsa.org/competitive-decarbonization-reducing-emissions-through-carbon-pricing-or-a-clean-energy-standard/

without state or federal support.[6] For similar reasons, we opposed the CNC program included in the Infrastructure Investment and Jobs Act ("IIJA").[7]

However, as a means to help meet President Biden's goal of 100 percent carbon pollution free energy by 2035, the retention of existing nuclear power plants has been identified as a priority for the Administration.[8] Consistent with this priority, section 40323 (Civil Nuclear Credit Program) of the IIJA is intended to provide federal credits to nuclear power plants located in competitive electricity markets that are "projected to cease operation due to economic factors."[9] President Biden signed the bipartisan IIJA into law in November 2021.

Despite our view that the CNC program will distort competitive wholesale market outcomes in order to provide largely unnecessary economic support, we recognize the will of Congress, and are committed to helping the Administration achieve its climate goals as affordably and efficiently as possible. We believe the CNC program can be designed in a manner that strikes a balance between providing limited financial support to nuclear reactors that are truly at risk of closure and the preservation of vibrant competitive wholesale electricity markets that can, if designed properly, provide incentives to deploy the extensive resources necessary to meet the Administration's clean energy and decarbonization goals.

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[6] PJM Interconnection ("PJM") is the nation's largest competitive electricity market, providing electricity to over 65 million people. There are sixteen nuclear power plants in PJM representing over 32,000 MW of installed capacity. Each year, the Independent Market Monitor ("IMM") for PJM performs an analysis of the expected profitability of the nuclear resources in PJM based on market revenues and estimated costs. In report dated May 13, 2021, the IMM shows the expected profitability of nuclear resources in PJM. All but three nuclear resources are expected to be profitable in 2021, some to the tune of hundreds of millions of dollars. The most profitable resource is expected to earn nearly $280 million in 2021.
https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2020/2020-som-pjm-sec7.pdf, at P. 361.

[7] Testimony of the Electric Power Supply Association Regarding the Energy Infrastructure Act, U.S. Senate Energy and Natural Resources Committee, June 24, 2021, available at: https://epsa.org/wp-content/uploads/2021/06/EPSA_Sec3203_Testimony_June24FINAL.pdf

[8] https://www.reuters.com/business/sustainable-business/white-house-climate-adviser-says-existing-nuclear-essential-reach-emissions-2021-05-18/

[9] IIJA, sec. 40323 (b)(1).

III. CERTIFICATON CRITERIA

A. Category 1—Compete in a Competitive Electricity Market.

The threshold requirement for a nuclear reactor to become a Certified Nuclear Reactor is that it must "compete in a competitive electricity market."[10] The Notice outlines several circumstances and commercial arrangements that could be used to qualify as participating in a competitive electricity market, including "market dispatch by an Independent System Operator or a Regional Transmission Organization in a real time energy market," and "sales from the nuclear reactor using Federal Energy Regulatory Commission market-based rate authority."[11] The Notice also proposes that a nuclear reactor may be deemed to compete in a competitive electricity market regardless of ownership status, that is, whether the resource is owned by a merchant generation company, a regulated utility, a public power utility, or another entity.[12]

The extent to which a nuclear reactor is facing economic pressure that may lead to its closure depends heavily on the level of exposure a particular resource has to market risk. While physical interconnection to, and participation in, an Independent System Operator ("ISO") or Regional Transmission Organization ("RTO") market should be a necessary condition for qualification, it is not sufficient. As a supplemental requirement, a Certified Nuclear Reactor should also be located in a state that has restructured its electric industry such that owners of generation assets are no longer eligible to recover the costs of owning and operating those assets from captive retail ratepayers.[13] Nuclear reactors located in vertically integrated states (i.e., those that have not restructured) face virtually no market risk and therefore should not be eligible to become a Certified Nuclear Reactor. Even in instances where vertically integrated states are

[10] IIJA, sec. 40323 (a)(1)(a).
[11] Notice at 8573
[12] Notice at 8573
[13] https://www.eia.gov/todayinenergy/detail.php?id=6250

members of an ISO or RTO (e.g., Arkansas is in the Midcontinent Independent System Operator ("MISO") and the Southwest Power Pool ("SPP"), and Virginia is in PJM Interconnection ("PJM")), generation resources are eligible to receive cost recovery from captive ratepayers. So, while ownership status should not, in and of itself, matter for purposes of certification, the ability of the nuclear reactor owner to recover costs through retail electricity rates should. We believe this is consistent with the spirit of the Notice and should be a foundation of the program.[14]

Once a nuclear reactor has demonstrated that it is in both an RTO or ISO and a restructured state, it should then demonstrate the extent to which its total sellable output is under contract through a Power Purchase Agreement ("PPA") or long-term bilateral contract, and thus not exposed to market risk. Generation owners utilize bilateral contracts to hedge against market exposure and ensure a revenue stream for some or all of the output of a power plant. This practice is particularly common in regions that lack liquid markets for capacity or capacity markets altogether. Any portion of a nuclear reactor's output that is under contract faces limited or no market risk as presumably any risk is factored into the contract terms. As such, the total amount of a nuclear reactor's sellable output that is contracted through PPAs or bilateral contracts for a length of at least one year must be identified as part of the certification process and be ineligible for CNC payment.

In summary, to appropriately satisfy the threshold requirement that a Certified Nuclear Reactor "compete in a competitive electricity market," an applicant must demonstrate:

- The nuclear reactor is physically interconnected to, and participates in, an RTO or ISO, and;
- The nuclear reactor is physically located in a restructured state, and;

[14] Notice at P. 8573: "With respect to a regulated or public power utility (*e.g.,* with cost recovery in retail rates) revenue would also include amounts collected in rates relating to or arising from the nuclear reactor for which the certification is sought."

- All sellable output (in MW) that is under contract through a PPA or other bilateral contract for a duration of at least one year over the 4-year certification period.

These threshold criteria will help streamline the application review and certification process and appropriately ensure that CNC program funds are directed to those nuclear reactors truly exposed to market risk, and therefore, most susceptible to closure due to economic factors, consistent with the intent of Congress.

B. Category 2—Economic Factors

The economic factors proposed in the Notice appear comprehensive.[15] In addition to seeking information regarding the anticipated cost of producing electricity, the Notice appropriately seeks input on all sources of revenue, including market-based and out-of-market revenues streams. Several nuclear reactors across four states—New York, Illinois, New Jersey, and Connecticut—already receive state-level out-of-market support for their zero emissions attributes which will reduce the level of funds those nuclear reactors need from the CNC program. All received or anticipated revenues from these programs, and all other revenue sources, must be considered in the application for CNC program funds.

The Notice also seeks data regarding the "monetization of risk using reasonable and appropriate methods for the specific market which may include impacts of renewable and clean energy mandates" and includes an extensive list of potential sources of risk.[16] Several nuclear reactors likely to seek CNC funds are located in regions that have liquid, three-year forward capacity markets, liquid energy markets with robust forward price projections, and may have access to multi-year state-level ZEC payments. Of the three categories for which economic data

[15] Notice at P. 8573 – category 2, A.
[16] Notice at P. 8573 – category 2, A. CNC payments should not be predicated on the market impacts created by clean energy mandates. Subsidies beget subsidies. Rather than create a cyclical environment where resources are in need of a subsidy due to the impact that another resource's subsidy has on the market, it would be far more prudent to establish a market-based mechanism that compensates all carbon free resources for their environmental benefits.

is sought—cost, revenues, and risk—risk is the most subjective. Legitimate risk depends on the extent an asset is *actually* exposed to the market, which, for many of the nuclear reactors at issue here, may be small.

Given the breadth and inherent subjectivity of the types of economic data being solicited, and the subsequent analysis required for the Secretary to determine certification, the process is more akin to a traditional ratemaking process than a generic application process. In order to expedite certification and avoid unnecessary administrative burden, we recommend that DOE require all applications to be reviewed and certified by an independent party with the expertise necessary to appropriately and rigorously evaluate the underlying data and market risk included in an application. Such a review will provide additional assurance to the Secretary that the economic data included in an application, including the risks facing a particular reactor, are legitimate and that a nuclear reactor is projected to "cease operations due to economic factors" absent a CNC payment.[17] The IIJA clearly gives the Department the authority to do so.[18]

While we are confident in the ability of DOE to select a qualified independent expert, we recommend the Department consider the RTO and ISO Independent Market Monitors ("IMMs") for the role. There are several benefits to the inclusion of an IMM as the independent expert: they are intimately familiar with the cost structures of all generating resources (including nuclear), have unique insight into market pricing and risk, and handle confidential market-participant data on a daily basis. Further, each RTO or ISO has a unique IMM that can provide a granular, region-specific assessment of a nuclear reactor's application.

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[17] IIJA, sec. 40323. A more stringent approach to ensuring funds are provided to the most "at risk" resources would be to require an officer from the company that owns the asset to sign an affidavit stating that absent CNC funds, the reactor will close within the 4-year period.

[18] IIJA, sec. 40323 (c)(1)(A): "In order to be certified under paragraph (2)(A)(i), the owner or operator of a nuclear reactor that is projected to cease operations due to economic factors shall submit to the Secretary an application at such time, in such manner, and ***containing such information as the Secretary determines to be appropriate***…" (emphasis added).

In addition to providing an independent and expert review which will expedite the process and provide additional assurance to the Secretary regarding the integrity of the application, such a requirement will obviate the need for a standard format and methodology for each application to present their data to support their application for certification.[19] Such a process would be an administrative burden that would ultimately frustrate implementation of the program. In the event that DOE elects to allow nuclear reactors outside of an ISO or RTO to apply for CNC funding, the application certification function could instead be performed by an official at the state public utility commission with jurisdiction over the asset. Draft language is below:

> **Independent Expert Review of Economic Factors Included in Application**
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> All applications will be reviewed by in Independent Expert, such as an RTO or ISO Independent Market Monitor ("IMM") for the RTO or ISO in which the resource is physically located and to which it is interconnected, or an appropriate official from the state public utility commission with jurisdiction over the nuclear reactor submitting the application.[20] The Independent Expert would provide a review and assessment of the economic factors included in an application, including the costs, revenues, and risks facing a particular reactor. Based on this review, the Independent Expert would make a recommendation to the Secretary as to whether the nuclear reactor should become a Certified Nuclear Reactor. This recommendation would include an assessment of the expected economic losses for the nuclear reactor over the course of the program.

C. Category 3—Emissions Impact

After finding that a nuclear reactor is projected to cease operations due to economic factors, the Secretary must then determine that "pollutants would increase if the nuclear reactor were to cease operations and be replaced with other types of power generation."[21] The impact on emissions that a particular resource closure may have is highly sensitive to the underlying modeling assumptions and is dependent on several factors outside of the control of the nuclear

[19] Notice at P. 8574, Question 6.
[20] This should only be included if DOE allows nuclear reactors located in vertically integrated states to participate in the CNC program.
[21] IIJA, sec. 40323 (c)(2)(A)(ii)(II).

asset owner, including, for example: demand for electricity, the type of generation used to replace the closing asset, and other nearby industrial processes that create emissions. As such, it is plausible that an applicant could create a scenario where any closure of their asset would lead to an increase in pollutants.

In order to ensure the applicant's assumptions underlying its emissions impact analysis are reasonable, we recommend that DOE include staff on its review panel from federal agencies with the expertise necessary to evaluate the emissions impacts presented in the application, such as the Environmental Protection Agency ("EPA"). Like the suggestion above for an independent expert to review the economic factors, specific expertise will help the Secretary determine whether the closure nuclear reactor can reasonably be expected to an increase in air pollutants.

IV. BIDS FOR CREDITS – CNC PROGRAM AUCTION DESIGN

Question 10 of the Notice seeks information regarding the parameters around the bidding requirements outlined in the IIJA.[22] First and foremost, given the specificity of the economic data required in the certification process to determine the "average projected annual operating loss, in dollars per megawatt-hour, inclusive of the cost of operational and market risks, expected to be incurred over the 4-year period for which credits would be allocated," the CNC auction should cap bids at the dollar per megawatt-hour shortfall projected in the certification stage.[23] After an extensive review and certification process, there is no reason a Certified Nuclear Reactor should be able to bid *above* the determined shortfall level; this would, in essence, eliminate the need for the certification process in the first place and amount to a "name your price tool" detached from the actual costs necessary to keep a plant in operation. A robust and

[22] Notice at P. 8574, Question 10.
[23] IIJA, sec. 40323 (c)(1)(A)(i)(I).

subjective certification process should determine the amount a resource needs to avoid closure and should represent the maximum amount that resource can receive from the CNC program for a given period.

The CNC auction should allocate credits on a "pay-as-bid" basis starting with the lowest bid and continuing until there are no additional bids or funds or exhausted. Capping CNC bids at the "average projected annual operating loss" determined in the certification stage will help ensure program funds are available for "as many nuclear reactors as possible," consistent with the IIJA.[24]

V. CNC PROGRAM OVERSIGHT AND TRANSPARENCY

The Notice states that "DOE intends to establish a review panel to evaluate the applications for certification."[25] While the law requires the Secretary to make the final decision on determination, we strongly support the establishment of a review panel to inform that decision. In addition to DOE staff, the review panel should include staff from other federal agencies, such as the Federal Energy Regulatory Commission ("FERC") and the EPA. Additionally, given the nature of the information solicited as part of the certification process, DOE should consider adding independent industry experts to the panel, such as the various RTO and ISO IMMs, RTO and ISO staff, and state public utility commission staff. These experts possess the skills necessary to adequately evaluate the technical aspects of the applications and appropriate measures to protect the confidentiality of the data included in the applications can, and should, be taken.

[24] IIJA, sec. 40323 (e)(3).
[25] Notice at P. 8574, Section V, a.

Additionally, with respect to confidentiality, we fully appreciate the need to keep certain business-related data confidential. However, once a nuclear reactor has been designated a Certified Nuclear Reactor, the name of the asset should be made public. Once a Certified Nuclear Reactor has received a CNC credit, the dollar per megawatt-hour value and quantity of megawatt-hours receiving a credit should both also be made public. The value of the ZEC payments provided in several states is public information. The results of the annual audit and any monies subject to recapture should also be made public on an annual basis. DOE should keep an up-to-date spreadsheet on its public website with the following information for each Certified Nuclear Reactor: reactor name, date certified, the dollar per megawatt-hour value of the allocated CNC credit, the megawatt-hour quantity associated with the CNC credit, and the CNC credit termination date.

VI. MISCELLANOUS COMMENTS

A. Adjustment, Recapture, and the Proposed "Settlement Mechanism"

The IIJA is clear that the Secretary shall "provide for the recapture of the allocation of any credit to a certified nuclear reactor that…does not operate at an annual loss in the absence of an allocation of credits to the certified nuclear reactor."[26] However, the IIJA does not appear to give DOE the authority to provide *additional* funds through recapture or a settlement mechanism to a Certified Nuclear Reactor that does not operate at an annual loss in the absence of an allocation of credits. While we appreciate the administrative ease that an indexing metric may pose, it is insufficient to comply with the text of the law and may allocate CNC funds to nuclear reactors that did not operate at an annual loss. We see little value in an extensive and rigorous

[26] IIJA, sec. 40323 (g)(2)(B).

certification process if a Certified Nuclear Reactor can use an indexing mechanism to increase its CNC payment, effectively side-stepping the certification process altogether. All Certified Nuclear Reactors receiving program funds should be required to demonstrate on an annual basis that they did or did not operate at an annual loss in the absence of CNC credits.

If the economic conditions facing a Certified Nuclear Reactor receiving CNC program funds change materially during the duration of the 4-year award period, it is incumbent on the recipient of CNC funds to notify DOE of the changes. If, for example, economic conditions change such that a Certified Nuclear Reactor needs additional financial assistance, the asset owner should be required to go through a recertification process, whereby the new information is subject to a full review. Once this is completed, if the reactor remains a Certified Nuclear Reactor, it should then submit a revised bid for CNC credits. To the extent a Certified Nuclear Reactor does not operate at an annual loss in the absence of a CNC credit, those funds must be recaptured by DOE.

VII. CONCLUSION

We appreciate the opportunity to provide our input on the Notice. Our recommendations are intended to aid the Department in the development of a robust and objective certification process with adequate oversight and transparency, which we believe is consistent with the intent of Congress. We welcome the opportunity to further discuss any of our recommendations, should they be of interest.

Respectfully submitted,

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