UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY

Response of NRG Energy, Inc.

Request for Information Regarding Establishment of a Civil Nuclear Credit Program

Reference Number: DOE-HQ-2022-0006

March 17, 2022

NRG Energy, Inc. ("NRG") respectfully submits these responses to Questions 1, 2, 3, 9, and 10 of the above-entitled Request for Information Regarding Establishment of a Civil Nuclear Credit Program ("RFI") published in the Federal Register on February 15, 2022 by the United States Department of Energy ("DOE").

> *(1) Do the proposed approach and considerations for certification of a qualified nuclear reactor, including key aspects of CNC Program implementation and other aspects and outcomes of the CNC Program, as described in Section III, support the intent of Congress to assist nuclear reactors at risk of early closure? Why or why not? If not, please suggest alternative approaches to be considered.*

The Civil Nuclear Credit ("CNC") program is bounded by the statute's requirement that an owner must apply and the Secretary must certify that that "the nuclear reactor is *projected to cease operations* due to economic factors."[1] DOE, in its proposed guidance, clarifies that the program is intended to support "nuclear reactor owners or operators that are *at risk of ceasing operations* due to economic factors."[2]

Few, if any, nuclear reactors anywhere in the United States have told their regulators or investors that they will close next year or in the next four years. Indeed, the reactors that have been in this situation, through their lobbying efforts targeting state governments, have successfully obtained state subsidies through the establishment of state zero-emissions credit programs and other policies in Illinois, New York, New Jersey, and Connecticut.[3] A similar subsidy program in Ohio was adopted by that state's legislature, but subsequently was repealed after it emerged as the central feature of one of the largest public corruption scandals in modern American life.[4] The new owner of the Ohio reactors indicated just this week that it would close down all its fossil

[1] Public Law 117-58 (Nov. 15, 2021), ("Infrastructure Investment and Job Act"). Sec. 40323(2)(A)(i).
[2] Notice of Intent and Request for Information Regarding Establishment of a Civil Nuclear Credit Program. ("Notice"). 82 Fed. Reg. 8570 (Feb. 15, 2022).
[3] In Illinois, the Legislature enacted the Future Energy and Jobs Act, 20 ILCS 3855/1–75(d-5) (eff. June 1, 2017). In New York, the New York Public Service Commission issued an order adopting a Clean Energy Standard, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard at 119, Case Nos. 15-E-0302, et al. (Aug. 1, 2016). In New Jersey, the Legislature enacted the Zero Emission Certificate Act, P.L. 2018, c. 16 (codified at N.J.S.A. 48:3-87.3 to -87.7). In Connecticut, the Legislature enacted Public Act 17-3 (June 2017 Special Session), *An Act Concerning Zero Carbon Solicitation and Procurement*.
[4] Deferred Prosecution Agreement, *United States of America v. FirstEnergy Corp.*, Case No. 21-cr-86 (S.D. Ohio) (filed July 22, 2021).

assets and continue operating its nuclear fleet.[5] Meanwhile, certain reactors have retired or are retiring, but with the encouragement of state policymakers, notwithstanding the economic or environmental considerations entailed by this law; unfortunately, the CNC Program will not affect those retirements, which are not being driven by want for federal subsidies.[6]

In light of a situation where few, if any, nuclear reactors are plausibly able to claim they will close but for DOE's financial support, NRG is concerned that the CNC Program, as proposed, will create a perverse incentive to engage in brinkmanship whereby nuclear reactor owners or operators will be encouraged to threaten closure in order to avail themselves of government support, instead of offering a more candid depiction of economic risks that face their facilities.

Therefore, NRG encourages a different approach to certification for the CNC Program, even while respecting the law's requirement that certification correspond to the risk of ceasing operations. DOE can do so by certifying owners or operators of reactors, so long as those market participants are exposed to the volatility of competitive markets and can plausibly forecast downside risks that could result in conditions warranting a cessation of operations. However, such owners or operators would not be paid credits *ex ante*, but only after such risks actually materialized, affecting the owner or operator's financial performance during a given CNC program year.

Improbable future events can result in sudden, negative outcomes in this sector, including cessation of operations, and by incorporating downside risks, DOE can ensure that not only base-forecasted events are entailed in decisions on certification.[7] Because the law affords taxpayers protection if downside risks do not materialize, allowing certification based on downside risks will not diminish the program's purpose to subsidize only reactors that are not economical. Under the approach NRG is recommending, many certified reactors would never receive credits with a positive value because downside risks did not materialize. Adopting such a framework for certification would help to avoid the brinkmanship of threatened closure, and it would vindicate the statutory purpose to "allocate credits to as many certified nuclear reactors as possible."[8]

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[5] Energy Harbor, "Energy Harbor Transitions to 100% Carbon Free Infrastructure Company in 2023," PR Newswire (March 14, 2022). https://www.prnewswire.com/news-releases/energy-harbor-transitions-to-100-carbon-free-energy-infrastructure-company-in-2023-301501879.html.

[6] *See Application of Pacific Gas and Electric Company for Approval of the Retirement of Diablo Canyon Power Plant, Implementation of the Joint Proposal, and Recovery of Associated Costs Through Proposed Ratemaking Mechanisms*, Decision Approving Retirement of Diablo Canyon Nuclear Power Plant, California Public Utility Commission, Application 16-08-006 (Decision Issued January 16, 2018) and *Proceeding on Motion of the Commission to Establish Policies and Procedures Regarding Generation Unit Retirements*, Confirmation of Permanent Retirement of Generating Facility Indian Point Energy Center – Unit 3, New York Public Service Commission Case 05-E-0889 (filed May 12, 2021).

[7] The law provides that "to the maximum extent practicable" the Secretary should consider "information" DOE requires to be submitted by parties so that "the Secretary determines that the nuclear reactor is projected to cease operations due to economic factors." Sec. 40323(c)(2)(A)(ii). NRG submits that it is not always "practicable" to include only a single baseline forecast for a plant operating in an inherently dynamic environment, and that the "information" in question should be permitted or required to include downside analysis around one more or more scenarios where the cessation of operations would be threatened for the purpose of certification.

[8] Sec. 40323(e)(3).

(2) Are the evaluation criteria being considered for certification as described in this RFI appropriate? If not, please suggest alternative criteria.
(3) Is the information requested for the applications for certification appropriate and sufficient? Why or why not?

Evaluation criteria and information-submission requirements should include a consideration of downside risks for the purposes of certification

As described in the Response to Question #1, the CNC Program certification criteria should allow nuclear owners or operators to submit one or more forecasts of downside risks, in addition to their base forecast of "Economic Factors," in order to obtain certification.[9] Different views of risk will inform whether an owner or operator forecasts retirement—but the CNC Program should identify and measure those risks for the purpose of certification, and not simply treat as a threshold question the subjective declaration of an owner that threatens retirement (or, alternatively, of an owner that may not have appropriately embedded risks in their decision-making). Put another way, one may forecast that a reactor would risk ceasing operations due to economics *if* revenue declined to a certain level or costs rose to a certain level, *even if* one may believe at the moment in time at which a reactor applies for certification that forward market prices will be sufficient to recover a facility's costs. The CNC Program should take account of those downside risks.

DOE should take a broad view of downside risks.[10] The agency also should consider that these risks may be unique to the market in which a reactor operates. In ERCOT, for example, a major redesign of the energy market in the wake of last year's severe winter storm is posing substantial changes to how generators will be compensated for their production. Additionally, the growth in ERCOT's renewable resources—while a frequently abundant source of low-cost energy for Texas consumers—has led to more volatile pricing, a suppression on average of energy prices, and a growing incidence of negative prices. Unlike other markets, where capacity is compensated separately, the ERCOT energy-only market relies on a scarcity-pricing mechanism to pay all power generators, which concentrates the market's risk/reward dynamic. With respect to negative prices specifically, there may be numerous hours when nuclear reactors are paying ERCOT to stay online, accumulating losses, to be available for the peak demand.

DOE should acknowledge that nuclear reactors may have co-owners with different financial situations, operations structures, and costs

DOE indicates "the representation of economic circumstance should be made by the reactor owner or operator," on a unit-by-unit basis, although "if the applicant asserts that there are multiple units at a given site with substantially identical financial situations, operations structures, and costs" that a single application for an entire multi-unit facility may be made.[11]

[9] NRG generally agrees with the "Economic Factors" the DOE has identified. However, DOE should specify what a base forecast should entail, including the elements that Vistra Corporation ("Vistra") has proposed. See Vistra's Response to RFI/NOI (March 17, 2022), Response to Question 3.
[10] DOE "is seeking comment on types of risk to consider and whether it should consider a wide range of risk factors." Notice at 8,573. NRG generally agrees with the risks that Vistra has identified in Response to Question 2.
[11] Notice at 8,571-8,572.

NRG seeks to ensure that, for reactors that have multiple owners, any given owner may seek certification. This clarification is useful because a number of reactors are co-owned by entities with different "financial situations, operations structures, and costs." For example, one co-owner may be subject to income taxation while another is not, or one may have recourse to regulated revenues that another does not. There are approximately six nuclear-reactor facilities in the United States that have both competitive and utility-monopoly owners. The statute provides that a reactor may be certified by an "owner or operator."[12] NRG would expect that all or nearly all eligible, co-owned reactors would be jointly certified by owners, or certified through the operator. However, it is possible that differences in business models and cost structures could give rise to different economic outlooks, and thus different results for certification and credits under the law and CNC Program. DOE should countenance this possibility in its guidance.

(4) – (8) [question text omitted]

NRG has no responses to these questions.

(9) Is the use of an indexing mechanism to re-set annually the value of credits allocated to a nuclear reactor as described herein appropriate? Please consider the advantages and disadvantages of such an approach and the basis for such an approach. Should the indexing mechanism be subject to a floor and/or cap? How would an indexing mechanism interact with the recapture provision discussed herein?

Rather than an indexing mechanism, the CNC Program should employ an insurance-like mechanism that pays credits only after the fact, and only when downside risks materialize, leading to an outcome where market revenues are insufficient to cover costs. Such a crediting mechanism is in itself a provision for recapture, leading to the elimination of a duplicative step of the CNC Program. The payment of credits only based on actual losses also provides a protection for the program's overall budget, even though the approach it contemplates a broader certification of reactors in competitive markets as described in Response to Question #1.

In order to simplify the administration of such an approach, an owner or operator should be able to submit their actual revenues and actual costs, in comparison to and in substantially the same form as the base projection they first made when they sought certification. The actual losses, as measured by the difference between actual revenues and actual costs for a program year, would be the total amount a certified owner was entitled to in credits. To the degree a credit is defined as a payment per megawatt-hour, the credits would be denominated by the actual losses divided by the megawatt-hours the facility produced in that program year.[13] The reactor's actual revenue, costs, and losses should all be subject to audit—with particular cost and revenue elements

[12] Sec. 40323(c)(1)(A).

[13] Another important feature of this *ex post* compensation methodology is that it constitutes insurance against the risk of a forced or unforced outage, while an *ex ante* per-megawatt-hour subsidy will not. Meanwhile, to the degree the values of avoided emissions must be internalized in the payment structure, that can be accomplished through the method to limit total overall expenditures identified in NRG's Response to Question #10, which would give more weight to payments for losses associated with plants that continue to produce energy but are under-recovering their costs, as versus those plants that produced less energy but whose viability is threatened due to outages.

excluded as appropriate.[14] This calculation should be done for each year for which an eligible reactor is certified and for which year it asserts an actual loss that it entitles it to a credit.

The floor price for credits should be zero, and many certified reactors—namely those that do not show a loss during the applicable program year—should have their credits valued at zero. This simultaneously fulfills the statutory requirement for recapture. Meanwhile, refer to NRG's Response to Question #10 for a description of how credit prices could be capped if the total program budget otherwise would be exceeded.

> *(10) Using the bid requirements in the Act of price per megawatt-hour and megawatt-hour commitment for a 4-year period, should DOE award credits starting with the lowest price bid and continuing until available funds are exhausted? What policy considerations or parameters other than bid price would inform the determination of which bids would most cost-effectively achieve the objectives of the Act? Should DOE use any other methodology or criteria for awarding credits to bidders?*

Refer to NRG's Response to Question #9, for a description of how the value of a megawatt-hour-based credit should be calculated.

In the event that the program budget does not have sufficient capacity to fund all allowed claims for credits, DOE should establish a methodology that allocates necessary reductions appropriately, for example by employing the year's available statutory appropriation as a divisor, using the number of megawatt-hours of owners that sustained compensable losses and using as the dividend, which would yield a quotient that is the maximum allowable credit payment on a per-megawatt-hour basis.

> *(11-12) [question text omitted]*

NRG has no responses to these questions.

Respectfully submitted,

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[14] Again, NRG generally agrees with the framework of what should be included and excluded based on the Economic Factors that DOE has put forward, as modified by Vistra's proposal. *Supra* fn 9.