Carbon Mitigation Credits

CARBON MITIGATION CREDIT PROCUREMENT PLAN

FINAL PLAN

December 13, 2021

Prepared in accordance with the Illinois Power Agency Act (20 ILCS 3855), Public Act 102-0662, and the Final Order of the Illinois Commerce Commission in Docket No. 21-0718

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1 Introduction

Public Act 102-0662, which took effect on September 15, 2021, created a new subsection of the Illinois Power Agency Act: Section 1-75(d-10), Nuclear Plant Assistance; carbon mitigation credits. This new subsection requires the Illinois Power Agency ("IPA" or "Agency") to create this Carbon Mitigation Credit Procurement Plan (the "Plan", or "CMC Plan", or "CMC Procurement Plan"). This Plan sets out the provisions for the procurement of carbon mitigation credits ("CMCs") from carbon-free energy resources. Carbon mitigation credits represent a tradeable form of the environmental benefits of certain nuclear power generating facilities that do not emit carbon dioxide.

Included in the legislative findings of Public Act 102-0662 is a declaration that "nuclear power generation is necessary for the State's transition to 100% clean energy, and ensuring continued operation of nuclear plants advances environmental and public health interests through providing carbon-free electricity while reducing the air pollution profile of the Illinois energy generation fleet." To best achieve these goals, the General Assembly found "it necessary to establish carbon mitigation credits to ensure decreased reliance on more carbon-intensive energy resources, for transitioning to a fully decarbonized electricity sector, and to help ensure health and welfare of the State's residents." To this end, Public Act 102-0662 established a new subsection 1-75(d-10) of the IPA Act, creating carbon mitigation credits and requiring the IPA to develop this Carbon Mitigation Credit Procurement Plan setting forth its approach for ensuring compliance with a carbon mitigation credit procurement requirement.

1.1 Plan Organization

The Plan contains the following Chapters:

Chapter 1 is this Introduction. It contains a brief summary of the Chapters of this Plan as well as an Action Plan for specific items that the Illinois Power Agency requests that the Illinois Commerce Commission approve as part of the approval of this Plan.

Chapter 2 provides an overview of legislative background for the newly enacted Section 1-75(d-10) of the Illinois Power Agency Act.

Chapter 3 describes the Plan development and procurement requirements. This chapter outlines the approach for how CMCs are priced and the timeline for plan development and approval.

Chapter 4 contains a detailed discussion of the consumer protection cap, the Baseline costs used to establish the customer protection cap, and CMC procurement volume limits.

Chapter 5 covers Bid Evaluation and Selection. It describes the public interest criteria, how the criteria are applied, the public interest factors that ensure the public interest criteria are applied to the procurement, weighting of factors and scoring of bids, and the methodology applicable to

assessing the impacts of carbon dioxide ("CO_2"), nitrogen oxides ("NO_x"), sulfur dioxide ("SO_2"), and Particulate Matter ("PM") emissions. This chapter also describes the incremental environmental benefits that will result from the procurement of CMCs.

Chapter 6 describes the Procurement Process itself. This includes a discussion of the practicability of the application of the provisions of Section 16-111.5 of the Public Utilities Act to the procurement process, bidder authorization, the procurement process itself, CMC contract development, and CMC tracking.

Appendices to this Plan provide more detailed data and calculations.

1.2 Action Plan

In approving this Plan, the Agency requested the following Action Items be explicitly approved by the Commission.

1. A finding that this Plan will result in the procurement of cost-effective carbon mitigation credits.
2. Approval of the calculations contained in Chapter 4.
3. Approval of the Bid Evaluation and Selection methodology contained in Chapter 5.
4. Approval of the Procurement Process, timeline, and provisions as described in Chapter 6, including the summary of the applicability of Section 16-111.5 provisions to the procurement process.
5. Approval of the use of Emission Free Energy Certificates as tracked in the PJM Generation Attribute Tracking System as the means for tracking the generation, transfer, and retirement of Carbon Mitigation Credits.
6. Approval of the Bidder Eligibility form contained in Appendix B.

Consistent with the requirements of Section 1-75(d-10)(3)(D) of the Illinois Power Agency Act, the Illinois Power Agency filed this Carbon Mitigation Credit Procurement Plan with the Illinois Commerce Commission for approval on September 29, 2021. The Commission approved the Plan on November 10, 2021 through its Final Order in ICC Docket No. 21-0718.

2 Legislative Overview

This Chapter of the 2021 CMC Procurement Plan, as well as the Chapter that follows, describe the legislative background and requirements applicable to the development of the Illinois Power Agency's Plan to procure CMCs. Chapter 2 (Legislative Overview) provides background on the Agency and its process for developing procurement plans and conducting procurement events, as well as a discussion of similarities and differences between the procurement of carbon mitigation credits versus zero emission credits. Chapter 3 (Plan Development and Procurement Requirements) focuses on issues specific to the state's carbon emission credit procurement requirements.

2.1 Illinois Power Agency Authority

The Illinois Power Agency ("IPA" or "Agency") was established in 2007 through omnibus energy legislation ultimately enacted as Public Act 95-0481. Public Act 95-0481 touched on many aspects of energy sector's legal and regulatory structure and instituted major energy reforms into Illinois law, including a new electricity procurement process to serve eligible retail customers, the establishment of state's initial Renewable Portfolio Standard to support renewable energy generation (20 ILCS 3855/1-75(c)), the Clean Coal Portfolio Standard (20 ILCS 3855/1-75(d)), and the Energy Efficiency Portfolio Standard (220 ILCS 5/8-103), and, more broadly, the establishment of the Illinois Power Agency Act ("IPA Act"), 20 ILCS 3855.

As evident in the IPA Act itself, in creating the Agency, the General Assembly found that Illinois citizens should be provided "adequate, reliable, affordable, efficient, and environmentally-sustainable electric service at the lowest total cost over time, taking into account benefits of price stability."[1] Thus, one primary purpose of the IPA Act, and in turn the creation of the Agency, was to ensure that ratepayers, specifically customers in service classes that had not been declared competitive and who take service under a utility's bundled rate ("eligible retail customers"),[2] benefit from retail and wholesale competition. A primary objective for creating the Agency was therefore to improve the process to procure electricity and other standard wholesale products for those customers.[3]

As initially conceived, the Agency's primary responsibility concerned developing procurement plans and conducting competitive procurement events to help the state's large investor-owned electric utilities meet the supply requirements of those entities' "eligible retail customers," i.e., those customers who continued to receive supply service from their utility even as the competitive

[1] 20 ILCS 3855/1-5(1).

[2] 220 ILCS 5/16-111.5(a).

[3] 20 ILCS 3855/1-5(2)-(4).

supply market developed in Illinois.[4] As set forth in Section 16-111.5 of the Public Utilities Act ("PUA"), the Agency's process for meeting those requirements begins with the receipt of load forecasts from the utilities themselves each year by July 15, with the IPA and its procurement planning consultant then having 30 days to draft and publish an annual "procurement plan" setting forth its proposed strategy for conducting procurements to bring necessary "standard wholesale products" (i.e., block energy, capacity, ancillary services, etc.) under utility contract. After comments are received on the draft procurement plan, that plan is revised and filed with the Illinois Commerce Commission ("ICC" or "Commission") for approval through a formal docketed notice and comment proceeding.[5]

After Commission approval of an IPA Procurement Plan, the Agency then works with its Procurement Administrator[6] to prepare for and conduct the procurement events proposed in the Plan and authorized through the Commission's Order approving the Plan. The results of those procurement events likewise require Commission approval, with the Commission receiving confidential reports from both its Procurement Monitor[7] and the IPA's Procurement Administrator to inform its approval of the Procurement Administrator's selection of winning bids. Shortly after the Commission's approval of procurement results, standard form supply contracts are executed between winning suppliers and the utilities whose supply requirements were met through the procurement event.

2.2 Renewable Energy Resource Procurement

In establishing the IPA, the General Assembly also acknowledged the importance of including cost-effective renewable resources as part of a "diverse electricity supply portfolio" that provided "environmentally sustainable electric service," with an aim of "decreasing environmental impacts" and "avoiding or delaying the need for new generation, transmission, and distribution infrastructure."[8] This informed enactment of the state's Renewable Portfolio Standard, or "RPS."

[4] Public Act 95-0541 also required the development of an IPA Resource Development Bureau for potentially constructing and operating electric generating facilities to meet the load requirements of municipal electric systems, governmental aggregators, or rural electric cooperatives in Illinois. As this function has proven unnecessary or unwise to undertake, the Agency has never established a Resource Development Bureau, and in 2016 the Illinois General Assembly amended the IPA Act to ensure that the establishment of that Bureau was a permissive ("may establish") and not prescriptive ("shall establish") requirement.

[5] Since 2009, the IPA has each year developed an annual procurement plan and (except for in 2013) conducted competitive procurements to meet the needs of the eligible retail customers of Ameren and ComEd. Beginning in 2016, MidAmerican Energy elected to participate in the IPA's planning and procurement process to serve a portion of its load requirements for its eligible customers in Illinois.

[6] The Procurement Administrator is a third-party consultant mandated pursuant to Section 1-75(a)(2) of the IPA Act to be retained by the IPA in order to conduct the Agency's competitive procurement processes. The Agency's current Procurement Administrator is NERA Economic Consulting.

[7] The Procurement Monitor is a consultant retained by the Commission pursuant to Section 16-111.5(c)(2) of the PUA to monitor and review all aspects of the Agency's procurement processes. The Commission's current Procurement Monitor is Bates White, LLC.

[8] 20 ILCS 3855/1-5(5), (6).

The state's original RPS required that the above-referenced process be used to bring under contract environmental attributes of electricity generated from renewable power (with those tradeable attributes known as "renewable energy resources," which may be met through procuring renewable energy credits, or "RECs").[9]

The RPS established percentage-based procurement targets for ensuring that utilities' eligible retail customer load was met through an annually increasing percentage of renewable energy credits. Consistent with the requirements of Section 1-75(c) of the IPA Act and Section 16-111.5 of the PUA, procurement events to procure those RECs were proposed as part of the Agency's annual procurement plan. The results of approved procurement events were likewise subject to Commission approval, with winning suppliers of RECs and the utilities' whose RPS requirements were met through the REC procurement required to execute standard form supply contracts shortly after the approval of procurement results.

RPS spending was (and continues to be) subject to the limitations of a rate impact cap. Prior to Public Act 102-0662, amounts that could be recovered from eligible retail customers to fund RPS procurements were limited to "no more than the greater of 2.015% of the amount paid per kilowatt hour by [eligible retail] customers during the year ending May 31, 2007 or the incremental amount per kilowatt hour paid for these resources in 2011," resulting in the establishment of a budget cap as this value was multiplied against previously supplied utility load. Purchases that would cause that cap to be exceeded would not be authorized, even if such purchases were necessary to meet the percentage-based procurement targets found in the RPS.[10]

Public Act 99-0906 brought about significant reforms to the Illinois RPS. Perhaps the most important reform concerned transitioning from different RPS requirements based on supply source – while the IPA developed plans and conducted procurement events to meet *eligible retail customer* RPS requirements, alternative retail electric suppliers were subject to very different requirements[11] – to a model through which the RPS budget is established through a delivery service charge applied to all retail customers, regardless of supply source, with procurement targets applicable to retail customer (and not merely *eligible* retail customer, i.e., utility supply) load.

Changes instituted through Public Act 102-0662 largely maintain the form of the RPS as redesigned through Public Act 99-0906, but with significant expansions in available budgets and REC procurement targets. The IPA is now responsible for procuring renewable energy credits in an amount equal to 40% of each utility's load by 2030, with quantitative targets for the

[9] Under revisions to the RPS initially made through Public Act 99-0906 and continued through Public Act 102-0662, meeting the state's RPS requirements requires the development of a separate "long-term renewable resources plan," required to be updated at least every two years. .

[10] Long-term renewable resources contracts approved as part of the 2010 procurement cycle also included curtailment provision to ensure that the rate impact cap was not exceeded. Those provisions were invoked for ComEd's contracts in 2013 and 2014.

[11] See 220 ILCS 5/16-115D.

procurement of RECs increasing from 10,000,000 RECs annually by the end of the 2021 delivery year to 45,000,000 RECs to be delivered annually by the end of the 2030 delivery year. All of those RECs are to be sourced from new wind and solar projects. For certain project types, REC prices now vary by energy market conditions. As opposed to a model where a bidder bids a fixed REC price for delivered quantities across a defined term, the procurement of RECs from new utility scale wind and solar projects now requires the use of indexed-priced RECs, with that index price determined by the real-time energy price at the applicable Illinois trading hub.

Additional changes also include a separate procurement process, without predicate plan development and approval, for RECs derived from utility-scale solar projects located at or adjacent to electric generation facilities that burned coal for the facility's primary fuel as of January 1, 2016. REC delivery contracts for these projects feature a statutorily prescribed REC price—$30 per REC—with additional grant funding available to support storage development at "coal-to-solar" sites.

This overview demonstrates that the Agency's role in developing procurement plans and conducting procurement events to meet statutory targets for the environmental attributes of electric generation is not a new one, nor is the Commission's role in adjudicating the review of those plans and approving the results of environmental attribute procurement events.[12] Further, more recent changes indicate a transition from prior approaches to pricing the environmental attributes at either a) competitively bid fixed prices or b) administratively set fixed prices. REC prices for certain procurements are now established at prices that float based on market conditions, or prices capped by statute, providing new corollaries for the pricing approach taken to CMCs through Section 1-75(d-10) of the IPA Act.

While the Agency does not yet have experience under these new REC pricing structures, the Agency has drawn upon its prior lessons learned from planning and conducting REC procurements and from the procurement of ZECs (as discussed further below) in developing this Carbon Mitigation Credit Plan. Procedural specifics regarding the procurement process for carbon mitigation credits can be found in Chapter 3, with key elements of that process explained in further detail in the Chapters that follow.

2.3 Zero Emission Credits and Carbon Mitigation Credits

Public Act 99-0906 also featured the establishment of a new standard intended to support the environmental attributes of nuclear power generation,[13] and that Zero Emission Standard—and its

[12] Indeed, through the Agency's Supplemental Photovoltaic ("SPV") procurement process (authorized by 20 ILCS 3855/1-56(i), enacted through Public Act 98-0672), the Agency even has experience developing a standalone plan for the procurement of environmental attributes only from a specific type of underlying generation—in that case, renewable energy credits from "new" solar photovoltaic distributed generation systems. (See generally ICC Docket No. 14-0651 approving the IPA's SPV Plan).

[13] See generally 20 ILCS 3855/1-75(d-5).

differences and similarities to CMC procurements—provides a helpful reference point in understanding the requirements applicable to CMC procurement. To support at-risk nuclear power plants, Public Act 99-0906 established a definition of "zero emission facilities" covering generating facilities "fueled by nuclear power" located within PJM and MISO, similar to Section 1-75(d-10)'s new definition of "carbon-free energy resource" (with the latter allowed to be located only within PJM). Similarly, the environmental attributes of "zero emission facilities" can be decoupled from the underlying energy production and sold and retired separately as "zero emission credits," just as can be done with renewable energy generation and renewable energy credits—and now likewise with Section 1-75(d-10)'s carbon mitigation credits.

Among Public Act 99-0906's legislative findings was a declaration that "[r]educing emissions of carbon dioxide and other air pollutants, such as sulfur oxides, nitrogen oxides, and particulate matter, is critical to improving air quality in Illinois for Illinois residents," and that, as a result, "… Illinois must expand its commitment to zero emission generation and value the environmental attributes of zero emission generation that currently falls outside the scope of the existing renewable portfolio standard, including, but not limited to, nuclear power."[14] With regard to existing zero emission facilities, the legislature found that "[p]reserving existing zero emission energy generation and promoting new zero emission energy generation is vital to placing the State on a glide path to achieving its environmental goals and ensuring that air quality in Illinois continues to improve."[15] To best achieve these goals, Public Act 99-0906 established a new subsection 1-75(d-5) of the IPA Act, creating the Zero Emission Standard and requiring the IPA to develop a Zero Emission Standard Plan setting forth its plan for ensuring compliance with that standard.

Public Act 99-0906 directed the IPA to develop a Zero Emission Standard Procurement Plan and hold a procurement for zero emission credits ("ZECs"). As outlined above, a ZEC is a tradable credit representing the environmental attributes of one megawatt hour of energy produced by a zero-emission facility (which is a facility that is fueled by nuclear power and is interconnected to either PJM or MISO). The Act specifies that zero-emission facilities were to be selected based on public interest criteria that included minimizing carbon dioxide emissions which result from electricity consumed in Illinois as well as minimizing sulfur dioxide, nitrogen oxide and particulate matter emissions that adversely affect the State's citizens. The selection of the winning zero emission facilities, as directed by the Act, took into consideration the incremental environmental benefits resulting from the procurement which included any existing environmental benefits that were preserved by the procurement which would otherwise cease to exist if the zero-emission facilities ceased operation.

After Public Act 99-0906 took effect on June 1, 2017, the Agency developed its Zero Emission Standard Procurement Plan across the following weeks, which was first published for public

[14] P.A. 99-0906, Zero Emission Standard Legislative Findings (Section 1.5).

[15] Id.

comment, next filed with the Illinois Commerce Commission, and then lastly approved by the Illinois Commerce Commission through ICC Docket No. 17-0333. On January 10, 2018, the IPA held a procurement event for ZECs in accord with the ZES Plan. The winning zero emission facility suppliers were Quad Cities Nuclear Power Station, Units 1 and 2 and the Clinton Power Station, Unit 1.

Through Public Act 102-0662, the General Assembly has again found that "nuclear power generation is necessary for the State's transition to 100% clean energy, and ensuring continued operation of nuclear plants advances environmental and public health interests through providing carbon-free electricity while reducing the air pollution profile of the Illinois energy generation fleet." Regarding preserving additional carbon-free energy resources, the General Assembly found that "[a]bsent immediate action by the State to preserve existing carbon-free energy resources, those resources may retire, and the electric generation needs of Illinois' retail customers may be met instead by facilities that emit significant amounts of carbon pollution and other harmful air pollutants at a high social and economic cost until Illinois is able to develop other forms of clean energy."

In early 2021, the Illinois Environmental Protection Agency commissioned a report assessing the financial condition of the nuclear plants in Illinois not receiving revenues from the sale of ZECs to help identify the specific nuclear units that are at risk of retirement and subsequently losing the environmental benefits associated with these plants.[16] The results of the report, which involved a financial audit of the nuclear plants, indicated that under certain assumptions, subsidies may be needed to provide sufficient cash flow to continue the operation of several specific nuclear generating units. By contrast, that audit showed that the LaSalle facility would continue to operate without subsidy under the market and operating conditions assumed by the audit. In developing Section 1-75(d-10) of the IPA Act, the General Assembly thus expressly specified that the LaSalle facility is "not eligible to participate in the carbon mitigation credit program."

The Illinois EPA report also provided a forecast which projected that, between 2022 and 2027, a carbon-free energy resource could earn on average approximately $30.28/MWh from the sale of energy and capacity. This earnings forecast provided a comparative basis with regard to the baseline costs established in the legislation for determining the additional revenue that the nuclear facilities could receive from the sale of carbon mitigation credits.

Enacted through Public Act 102-0662, Section 1-75(d-10) of the IPA Act established the definitions of a "carbon-free energy resource" and "carbon mitigation credits," with the latter being the tradeable environmental attributes of energy generated by the former. By allowing additional at-risk nuclear power facilities to receive revenue for the environmental attributes of their carbon-free generation through the sale of CMCs, the Illinois General Assembly hoped to ensure continued

[16] Synapse Energy Economics, Inc. "Exelon Illinois Nuclear Fleet Audit. Findings and Recommendations," April 14, 2021

availability of carbon-free energy resources as the state transitions to a decarbonized energy sector. A carbon-free energy resource can thus sell CMCs, but these attributes can only be sold once after which these credits must be retired—and thus a facility cannot sell these attributes as both CMCs and ZECs. The IPA was authorized to develop this Carbon Mitigation Credit Procurement Plan to develop process for the procurement of CMCs generated by the carbon-free energy resources.

While ZEC contracts "shall be for a term of 10 years ending May 31, 2027,"[17] with contracts including deliveries for the (2017-2018) delivery year, CMC contracts are for 5 years with deliveries starting with the 2022-2023 delivery year.[18] However, as is the case with the entire Zero Emission Standard, the carbon mitigation credit requirements in subsection (d-10) "shall become inoperative on January 1, 2028."[19] The IPA understands this to mean that no payments for CMCs may be made after the CMC contract delivery terms have ended or after the law has sunset.

In the legislative findings to Public Act 99-0906, the General Assembly found that the Social Cost of Carbon was an appropriate valuation of the environmental benefits provided by zero emission facilities.[20] Hence, the pricing mechanism used in the Zero Emission Standard begins with the Social Cost of Carbon as a baseline price for the environmental attributes represented by a Zero Emission Credit, with that price potentially adjusted downward should market conditions allow nuclear facilities to receive greater revenues than a baseline amount (while also being subject to a $1 per year ZEC price increase beginning June 1, 2023).[21] While CMCs also constitute the environmental attributes of nuclear power generation with prices that will likewise vary based on market capacity and energy revenues, CMCs are priced differently (and possibly more affordably for ratepayers) than ZECs—and may operate as a credit to ratepayers should market revenues exceed a baseline annual cost cap. Also unlike the Zero Emission Standard, CMC prices may be adjusted based on the "value of any monetized federal tax credits, direct payments, or similar subsidy" provided by a unit of government that would not otherwise be reflected in market prices, and owners of applicant or participating facilities must "make commercially reasonable efforts" to apply for such subsidies, if available (as doing so would lessen any burden on ratepayers through a reduction in CMC prices). This new approach to CMC pricing is explained in detail across Chapters 3 and 4.

The amount of CMCs required to be procured also differs from the amount of ZECs required to be procured under the Zero Emission Standard. For the Zero Emission Standard, the amount of ZECs to be procured annually is set at "an amount approximately equal to 16% of the actual amount of

[17] 20 ILCS 3855/1-75(d-5)(1).

[18] Section 1-75(d-5)(1) makes clear that ZEC contracts are to "begin[] with the delivery year commencing June 1, 2017." Section 1-75(d-10)(3)(A) specifies that the CMC procurements will have deliveries starting June 1, 2022.

[19] 20 ILCS 3855/1-75(d-5)(7), (d-10)(3)(I)

[20] Public Act 99-0906, Zero Emission Standard Legislative Findings (Section 1.5).

[21] Section 1-75(d-5) of the IPA Act specifies that the Social Cost of Carbon is $16.50/MWh. 20 ILCS 3855/1-75(d-5)(1)(B)(i).

electricity delivered by each electric utility to retail customers in the State during calendar year 2014" for Commonwealth Edison Company ("ComEd") and Ameren Illinois, and 16% of applicable load (that for which the IPA conducts procurements) for MidAmerican Energy Company's Illinois retail sales. That quantity was 20,118,672 ZECs annually. By contrast, Section 1-75(d-10) specifies that "no more than approximately 54,500,000 cost-effective carbon mitigation credits" are to be procured annually, a significantly greater quantity than ZECs procured under the Zero Emission Standard.

As with the Zero Emission Standard and ZECs, carbon mitigation credits are to be received and retired by the electric utility counterparty, and paid for using tariffed charges collected by the counterparty electric utility from its ratepayers. However, unlike the Zero Emission Standard (which supports at-risk nuclear facilities in both PJM and MISO), the counterparty for CMC delivery contracts is only ComEd, and thus only ComEd ratepayers are to be assessed surcharges for CMC procurement (which, correspondingly, supports at-risk nuclear facilities located only within ComEd's regional transmission organization, PJM).

Also similar to the Zero Emission Standard is a requirement that potential bidders must submit specific unit information to the Agency on or before a date established by the Agency in order to register as an authorized bidder in the CMC procurement process. Criteria utilized for the selection of winning bidders for CMC delivery contracts under Section 1-75(d-10) of the Act largely mirrors that used for winning bidders under the Zero Emission Standard—utilizing public interest criteria and taking into account a facility's risk of closure, and thus environmental attributes being lost—and the Agency thus can draw upon its experiences in reducing that criteria down to a scoring system from developing the ZES Plan.[22] However, bidders must also bid a pre-adjustment price with their submittal (i.e., before adjusting for market energy and capacity revenues and any federal credits), with those pre-adjusted prices subject to a year-by-year cap. While bids are not selected on the basis of price, bid price is to be utilized as a tiebreaker should applicant facilities tie under public interest criteria. Bid selection and evaluation are discussed more across Chapters 4 and 5 of this Plan.

2.4 Carbon Mitigation Credit Procurement Plan Development Timeline

Section 1-75(d-10)(3)(F) of the IPA Act envisions that the entire CMC procurement process – including the execution of CMC delivery contracts – "shall be completed no later than December 3, 2021." The IPA was required to publish a draft Carbon Mitigation Credit Procurement Plan

[22] In developing the ZES Plan, the IPA considered various potential evaluation approaches for applying public interest criteria to the selection of bids. Each approach offered potentially valid methodological considerations, but all approaches faced challenges of insufficient data to support some of the necessary assumptions for bid selection. In addition, the IPA considered the comments and suggestions that were provided in the public comment period for the draft ZES Plan. The insights and suggestions considered for the ZES Plan regarding the evaluation and application of the public interest criteria have been carried over, where applicable, to the CMC Plan.

within 7 days of the effective date of Public Act of the 102nd General Assembly.[23] Copies of the draft plan were published and posted on the IPA's website on September 17, 2021. Interested parties were then allowed 7 days from the date of publishing the draft Plan to provide comments on the draft Plan. Comments were received from ComEd, Exelon, and the Office of the Illinois Attorney General. Those comments have been posted on the IPA's website.[24]

After the end of the draft Plan comment period, and within the statutory 19-day deadline from the effective date of the amendatory Act, the IPA reviewed the comments received and revised the Plan as necessary. On September 29, 2021, the IPA filed that revised Plan with the ICC for Commission review and approval. The Act provides the Commission with 42 days to review the filed Plan.[25] After "notice and hearing," should the Commission determine that the Plan would result in the cost effective[26] procurement of CMCs, "then the Commission shall . . . approve the plan or approve with modification."[27] The Commission's Final Order in Docket No. 21-0718 approving the Plan was issued on November 10, 2021.

Following Plan approval by the Commission, the Agency, through its Procurement Administrator, shall proceed with conducting the process described in Chapter 5 to procure 5-year contracts for CMCs.

In addition, after Plan approval by the Commission, the IPA has required that bidders interested in participating who own facilities meeting the definition of a carbon-free energy resource under the Act submit the information outlined in Section 1-75(d-10)(3)(B) of the Act. Appendix B provides the form used for this submittal. Interested bidders had 5 days after the approval of the Plan by the Commission to submit the required information in order to participate in the procurement. Additional detail regarding the information to be provided to the IPA by potential bidders is found in Chapter 6.

[23] See 20 ILCS 3855/1-75(d-10)(3)(D).

[24] See: https://www2.illinois.gov/sites/ipa/Pages/DraftProcurementPlanComments2021.aspx

[25] 20 ILCS 3855/1-75(d-10)(3)(E). This mirrors the time previously taken for the review and approval of the Zero Emission Standard Procurement Plan.

[26] For the purposes of this Plan, the Act defines "cost effective" as meaning that "carbon mitigation credits that are procured from carbon-free energy resources at prices that are within the limits specified " in paragraph (3) of Section 1-75(d-10).

[27] 20 ILCS 3855/1-75(d-10)(3)(E).

3 Plan Development and Procurement Requirements

As discussed in Chapter 2, IPA procurements begin with the publishing of a procurement plan on which comment is taken, progress next to a docketed proceeding for approval of that plan before the Illinois Commerce Commission, and culminate in a procurement event used to bring procured resources under contract. Section 1-75(d-10) of the IPA Act directs the IPA to develop and publish its plan for when and how to procure CMCs from qualifying carbon-free energy resources and submit that CMC Procurement Plan with the Commission for approval.

This Chapter discusses both key required elements of the CMC Procurement Plan as well as necessary elements of the CMC procurement process.

3.1 Carbon-free Energy Resources and Carbon Mitigation Credits

Nuclear power plants generate electricity without the air pollutant emissions that result from the combustion of fuels to generate electricity. In most states—including under Illinois law—these nuclear power generating facilities are not considered to be "renewable" resources and therefore are not eligible to produce or receive benefit from the sale of RECs. As a consequence, they cannot be used to meet state renewable energy resource procurement targets, such as the Illinois RPS, leaving them without a mechanism to receive value for the zero emission and carbon-free attributes associated with their generation. To recognize the zero-emission value of nuclear generation, the Zero Emission Standard was previously enacted to procure contracts for the sale of ZECs produced by qualified nuclear generating facilities selected as winning bidders. The procurement of CMCs, which represent the environmental benefits of carbon-free generating facilities, has now been determined by the General Assembly to be necessary to reduce the reliance on carbon-intensive energy resources and preserve the environmental benefits associated with the continued operation of additional nuclear generating units.

This Carbon Mitigation Credit Procurement Plan exists to explain and define the process through which the IPA will conduct a procurement event to procure CMCs from carbon-free energy resources. Only "carbon-free energy resources" are capable of producing the "carbon mitigation credits" to be delivered under the contracts entered into through this procurement process. The IPA Act defines carbon-free energy resource as a generating facility that is "fueled by nuclear power" and is interconnected to PJM.[28] Likewise, a CMC is defined as "a tradable credit that represents the carbon emission reduction attributes of one megawatt hour ("MWh") of energy produced from a carbon-free energy resource.[29]

Throughout Section 1-75(d-10) (including in requirements related to submitting facility information), the statute uses the terms "generation facility fueled by nuclear power," "nuclear

[28] 20 ILCS 3855/1-75(d-10)(2).

[29] *Id*.

units" and "nuclear plants," to refer to the carbon-free resources that could be authorized to participate in a carbon mitigation credit procurement. For the purposes of this Plan, in addressing the information to be reported by a carbon-free resource and from whom bids will be received, the IPA defines a carbon-free resource to be at the individual unit (i.e., reactor) level for multi-unit nuclear plants. Thus, information reported in Appendix B and CMC bids are to be provided on an individual unit basis.

3.2 Requirements of the Plan

The Act requires the Plan to provide details for how the IPA will design and implement a carbon mitigation credit procurement process to meet the requirements of Section 1-75(d-10) of the Act. To achieve the goals of "…100% clean energy and decarbonizing the electricity sector in a safe, reliable, and affordable manner" as stated in the Act,[30] the Plan developed by the IPA seeks to do at least the following:

1. Ensure that all CMCs purchased under the Plan will be cost effective as defined in the Act,
    - Section 1-75(d-10)(3)(E) provides that "cost effective" carbon mitigation credits means CMCs procured from clean energy resources that meet the pricing conditions specified in 1-75(d-10)(3)(C) and the Baseline Costs requirements which are described in Chapter 4 of this Plan.
2. Describe and communicate the bidder information submittal requirements specified in the Act,
    - Additional information regarding the required information to be submitted to the IPA by carbon-free energy resources that are interested in participating in the CMC procurement event is described in Chapter 6. A bid submission form containing the submittal requirements of Section 1-75(d-10)(3)(B)(i)-(iv) is included as an Appendix to this Plan.
3. Provide details regarding the bid evaluation and selection process that describe how the public interest criteria specified in the Act are formulated and applied toward selecting the winning bids.[31]

[30] 20 ILCS 3855/1-75(d-10)(1)(H).

[31] See 20 ILCS 3855/1-75(d-10)(3)(D). The Act provides that "…winning bids shall be selected by taking into consideration which resources best match public interest criteria that include, but are not limited to, minimizing carbon dioxide emissions that result from electricity consumed in Illinois and minimizing sulfur dioxide, nitrogen oxide and particulate matter emissions that adversely affect the citizens of the State." The Act further states "The selection of winning bids shall also take into account the incremental environmental benefits resulting from the procurement or procurements, such as any existing environmental benefits that are preserved by a procurement…" "The plan shall describe in detail how each public interest factor shall be considered and weighted in the bid selection process to ensure that the public interest criteria are applied to the procurement."

- Chapter 5 discusses how the public interest criteria specified in the Act will be applied to the selection of winning bids.

4. Explain the CMC pricing conditions, price-per-megawatt-hour calculation, and baseline costs that are applicable to CMC bids.
    - The price conditions and calculation for CMCs to be procured can be found in Chapter 4 below.
5. Explain how the CMC bid evaluation and selection process takes into consideration the incremental environmental benefits associated with existing carbon-free energy resources.
    - Chapter 5 explains how the evaluation and selection process takes into account the maintenance of incremental environmental benefits, specifically through impacting scoring by two key factors: a) whether the facility's costs are recovered through rates, and b) the economic stress that may be faced by the facility.
6. Provide information regarding the contract forms and requirements for completing the procurement of cost-effective CMCs.

In addition to these requirements, the IPA has also identified additional discrete requirements applicable to the Plan stemming from the governing law; those requirements, as well as Section 1-75(d-10) which addresses the requirements, may be found in the Legislative Compliance Index included as Appendix C.

3.3 CMC Procurement Contracts

The quantity of CMCs to be annually procured through this process, as well as the counterparty to CMC contracts, are defined through the IPA Act. Specifically, beginning with the delivery year commencing on June 1, 2022, the IPA shall, for electric utilities that serve at least 3,000,000 retail customers in Illinois (ComEd), procure contracts for no more than approximately 54,500,000 cost-effective CMCs annually. Subsection (d-10)(3)(A) further states that "[t]he Agency shall not make a partial award of a contract for carbon mitigation credits covering a fractional amount of a carbon-free energy resource's projected output." The IPA interprets this requirement to mean that the CMC contracts executed with the winning bidders, selected on the basis of their public interest criteria score as described in Chapter 5 of this Plan, will be for all of the CMCs that are offered by the bidder with the highest score which will be taken first before procuring CMCs from the bidder with the next highest score. Contracts for CMCs will only be executed for the full amount of CMCs offered by each winning bidder up to approximately the procurement limit—with "approximately" allowing for flexibility should the marginal bid slightly exceed the 54,500,000 annual CMC delivery amount—such that only contracts for the full CMC output of a bidder will be procured and no contracts for a partial amount of CMCs produced by a winning bidder will be executed. For this Plan, the IPA proposes to interpret "approximately" as referring to total CMCs for purposes of bid selection to be within a band of plus or minus 2.5% around the 54,500,000

CMC annual delivery amount. Delivery contracts for each selected carbon-free energy resource will be for all CMCs produced during the delivery term.

Initial generation of CMCs eligible for delivery is to begin on June 1, 2022 for a term of 5-years ending on May 31, 2027. The Act states that these contracts are "for delivery of carbon mitigation credits, and are not energy or capacity sales contracts requiring physical delivery." The CMC contracts procured under Section 1-75(d-10) of the IPA Act feature the electric utility as the counterparty for CMC deliveries, with the electric utility required to "retire all carbon mitigation credits used to comply with the requirements of" subsection (d-10) of Section 1-75 of the Illinois Power Agency Act. Under Section 1-75(d-10)(3)(A), only "electric utilities serving at least 3,000,000 retail customers in the State" are counterparties, and only one such electric utility in Illinois meets this criteria (ComEd). As stated in subsection (d-10)(2)(H), in the event of a change in ownership of a selected carbon-free resource, the CMC delivery contracts become obligations of the new owner.[32]

3.4 CMC Pricing

As required under Section 1-75(d-10)(3)(C), the price for CMCs will be determined based on adjustments to the accepted bids by carbon-free energy resources through a "cost-per-megawatt-hour calculation" that reflects energy prices at the PJM Northern Illinois Hub or at the relevant busbars for the carbon-free energy resources, ComEd zone capacity price, and any monetized federal tax credits or direct payments of subsidies that would be provided to the carbon-free energy resource that is not reflected in energy prices. To ensure that retail customers do not pay more for CMCs than "the value such credits provide," the Act specifies a customer protection cap equal to the baseline costs of carbon-free energy resources. The Agency "shall not accept bids for contracts that exceed a customer protection cap equal to the baseline costs."

3.5 CMC Customer Protection Cap

In addition to providing an approximate annual limit on the number of CMCs that can be procured, the Act establishes a customer protection cap to determine the maximum CMC bid price that the Agency can accept. The customer protection cap is determined by the statutorily prescribed baseline costs of carbon-free energy resources. The language in the Act references the independent audit conducted for the Illinois Environmental Protection Agency in conjunction with the Baseline costs that are used to establish the consumer protection cap. The Baseline costs for the customer protection cap reflect the costs of carbon-free energy resources and a projection from the independent audit report that "a clean energy resource has the opportunity to earn on average approximately $30.28 per megawatt hour, for the sale of energy and capacity during the time period between 2022 and 2027." The sale of CMCs thus provides an opportunity for carbon-free

[32] Section 1-75(d-10)(3)(H) states "If a Carbon-free energy resource is sold to another owner, the rights, obligations, and commitments under this subsection (d-10) shall continue to the subsequent owner."

resources to receive additional revenue beyond that received from energy and capacity prices in recognition of those facilities' carbon-free and other environmentally beneficial attributes.

The consumer protection cap limits the potential cost of CMCs and resulting impacts on retail customers, thus helping to ensure that the mechanism used to preserve beneficial environmental attributes from carbon-free generation is affordable for Illinois ratepayers.

3.6 CMC Procurement Process Overview

Certain elements of the carbon mitigation procurement process — such as the need to develop an underlying procurement plan, the means for determining the CMC price, the limit on the annual CMC quantity that can be procured, and the information that carbon-free resources which are interested in participating in the CMC procurement process must submit to the Agency — are outlined in subsection (d-10). For other elements of the CMC procurement process, the CMC procurement and plan approval processes "shall be conducted in conjunction with the procurement and plan approval processes required by Section 16-111.5 of the Public Utilities Act, to the extent practicable. However, the Agency and Commission may, as appropriate, modify the various dates and times under this subparagraph and subparagraphs (D) and (E) to meet the December 3, 2021 contract execution deadline."[33] It is not "practicable" for the carbon mitigation credit procurement, the contracts for which must be procured and executed no later than December 3, 2021, to coincide with standard wholesale product procurements under Section 16-111.5 from a *timing* standpoint (given that the IPA's annual electricity procurement plan will be filed in late September, approved in December, and result in procurement events in the spring of next year). The Agency understands this provision to instead require that the carbon mitigation credit procurement process be handled "in conjunction with" the requirements of Section 16-111.5 procurement from a *process* standpoint, to the extent practicable.

Stated differently, where procedural aspects of Section 16-111.5 (especially Section 16-111.5(c)(1) and Section 16-111.5(e)) do not conflict with Section 1-75(d-10), then those processes are adopted. However, where aspects of Section 16-111.5 either a) directly conflict with Section 1-75(d-10), or b) indirectly conflict as they would be impracticable to adopt given other requirements present in Section 1-75(d-10) (such as Section 16-111.5(f)'s requirement that the Commission "shall accept or reject the recommendations of the procurement administrator within 2 business days after" the receipt of reports, which may be ill-fitting for a CMC procurement process requiring that the Commission produce a very detailed and intricate "public notice" of its own accompanying its acceptance or rejection of procurement results), then it is not "practicable" for the CMC procurement process to proceed "in conjunction with" Section 16-111.5 of the PUA.

In order to comply with CMC procurement process schedule specified in the Act, the Agency will seek to develop the CMC Plan in parallel with the development of the bid forms, CMC contracts

[33] 20 ILCS 3855/1-75(d-10)(3)(F).

and other procurement documents by its Procurement Administrator. During the period from the preparation of the CMC Plan for public comment, submittal of the Plan to the Commission, and subsequent approval of the Plan by the Commission, the Agency will also develop the carbon-free resource information request form, the bid evaluation form, and will work with its Procurement Administrator (and other parties, to the extent envisioned under Section 16-111.5) on the development of bid forms, rules for the resulting bid process, the development of a CMC delivery contract, and other forms, documents, and guidelines governing the procurement event. These forms and documents will be modified as may be necessary to comply with any conditions associated with the Commission's approval of the Plan.

As described in more detail in Section 6.1, only bidders authorized to participate will be invited to submit bids for the carbon mitigation credit procurement. Bids submitted will include "all-in" prices for each year of the 5-year procurement period and will reflect the total actual and projected annual MWh production from the carbon-free resource, which will in turn determine the annual CMC quantity to be procured from that facility. The IPA, through the carbon mitigation credit procurement, will seek to procure up to the approximately 54,500,000 cost effective CMCs annual delivery limit set forth in subsection (d-10)(3)(A).

The Procurement Administrator will recommend winning bids to the Commission under scoring based on the public interest criteria specified in the Act. Should a tiebreaker be needed, the Program Administrator will use bid prices to differentiate between bidders that have the same public interest criteria score. If the bids remain tied subsequent to considering the public interest criteria score and the bid price, the final tiebreaker will be the amount of that bidding facility's electricity generation, with the resource having the higher projected energy generation selected first. As detailed in Section 1-75(d-10)(3)(D), the public interest criteria used for bid evaluation focus on the emissions that are avoided through the continued operation of a carbon-free energy resource, which Chapter 5 describes in detail. The winning bidders, subject to approval by the Commission, will be those bidders that achieve the highest scores as determined through the bid evaluation process, also described in Chapter 5, which is based on the which resources best match the public interest criteria. Should the Commission approve the Procurement Administrator's selection of bids, successful bidders will execute CMC delivery contracts with ComEd.

4 CMC Price, Volumes and Consumer Protection Cap

4.1 Social Cost of Carbon

The General Assembly found that a consumer protection cap is required to "ensure that the cost of carbon mitigation credits will be less than its value, based upon the social cost of carbon" and that "a carbon-free energy resource receiving payment for carbon mitigation credits receives no more than necessary to keep those units in operation." The consumer protection cap is determined based on the baseline costs of carbon-free resources; these are outlined in the law itself, under Section 1-75(d-10)(3)(C)(iv), and vary by delivery year.

4.2 CMC Price Calculation

The price to be paid for CMCs for a delivery year as determined through the "price-per-megawatt-hour calculation" described in Section 1-75(d-10)(3)(C)(iii), is equal to the accepted bid price less the following:

1. An energy price index as selected by the bidder at the time of bid submittal of either 1) the weighted average hourly day ahead price for the applicable delivery year at the PJM busbar of all carbon-free resources procured, weighted by actual production from the carbon-free resources, or 2) the projected energy price for the PJM Northern Illinois Hub for the applicable delivery year.

   In the event that a bidder selects to use the energy price index based on the busbar price, the Act does not specify (i) the source of the energy to be used for the weighting, and (ii) the source of the busbar locations. The IPA recommends that, for (i), each successful bidder of selected carbon-free energy resources be required to provide on a monthly basis hourly energy generation for each carbon-free resource for the applicable delivery year. The energy generation for each month must be provided no later than ten business days after the last day of the applicable month. The IPA will use the hourly generation for the applicable month in calculating the weighted-average hourly day ahead busbar price. The generation data provided will be considered final and will not be subject to reconciliation. For (ii), the bidder shall provide the names of the applicable busbar for each facility included in their bid (the pricing locations for the carbon-free resources as identified by PJM and as used by PJM in the energy settlement for the carbon-free resources). The bidder must also provide the hourly day ahead busbar prices for each respective pricing location, for the applicable month of the applicable delivery year. The hourly day ahead busbar prices provided will be considered final and will not be subject to reconciliation. Hourly day ahead prices for the applicable month shall be provided no later than ten business days after the last day of the applicable month. The CMC price for the selected carbon-free energy resources will be calculated on a monthly basis as follows: For each hour, the energy generation for each selected carbon-free energy resource for that hour would be multiplied by the applicable day-ahead busbar price for that hour. The sum of all

those products for all the hours of the month for all carbon-free resources procured would then be divided by the total generation for the month from all carbon-free resources procured to determine the weighted-average hourly day-ahead price for use in the calculation of the CMC price for all the selected carbon-free energy resources that selected this energy price index.

In the event that a bidder selects to use the energy price index based on the PJM Northern Illinois Hub, the IPA will calculate the energy price as described in Section 1-75(d-5)(1)(B)(iii)(aa) of the Act. Section 1-75(d-5)(1)(B)(iii)(aa) states that the projected energy price for the applicable delivery year shall be calculated using the energy forward market price for the PJM Northern Illinois Hub. The Act further states that the energy forward market price for each month of the applicable delivery year will be averaged for each trade date during the calendar year immediately preceding that delivery year to produce a single energy forward price of the delivery year. The forward market price calculation will use data published by the Intercontinental Exchange ("ICE"), or its successor. For a given delivery year, the IPA will collect the relevant ICE data. For example, for the 2022-2023 delivery year, the IPA will collect the forward market data for the 2021 calendar year. For each month of the delivery year, the ICE data will include peak and off-peak settlement prices for each trading day of the 2021 calendar year. The IPA will determine the average peak and off-peak prices for each month of the delivery year. Using the peak and off-peak hours of each month of the delivery year, taking into account NERC holidays,[34] the IPA will calculate the weighted-average price for each month. The IPA will use the weighted average price for the applicable month for setting the CMC price for that month.

2. The PJM base residual auction ("BRA")[35] capacity price for the ComEd zone divided by 24 hours per day for the first 3 delivery years. Under Section 1-75(d-10)(3)(C)(iii)(II) of the Act, for the two subsequent delivery years, if PJM applies the Minimum Offer Price Rule ("MOPR") to the carbon-free resources selected to supply CMCs, then the value subtracted for the capacity price will be zero.[36] By law, that determination is subject the carbon-free energy resource providing notice to the Commission and the Commission confirmation:

> *(II) the Base Residual Auction Capacity Price for the ComEd zone as determined by PJM Interconnection, LLC, divided by 24 hours per day, for the applicable delivery year for the first 3 delivery years, and then any subsequent delivery years* ***unless the PJM Interconnection, LLC applies the Minimum Offer Price Rule***

[34] NERC Holidays are those days which are defined as holidays by the North American Electric Reliability Corporation, and which provide additional off-peak days.

[35] PJM employs a forward capacity market through which generators offer capacity to serve load. The Base Residual Auctions ("BRAs") are the primary capacity market auctions held by PJM.

[36].

> ***to participating carbon-free energy resources because they supply carbon mitigation credits pursuant to this Section at which time, upon notice by the carbon-free energy resource to the Commission and subject to the Commission's confirmation, the value under this subitem shall be zero, as further described in the carbon mitigation credit procurement plan****;*

The IPA proposes that the value subtracted from the CMC bid price for the capacity price adjustment should only be zero if a carbon-free energy resource was or would have been subject to non-clearance due the MOPR. The IPA understands that the rationale for this statutory zeroing out of capacity prices, and thus raising the resulting carbon mitigation credit price, is to ensure the ongoing receipt of environmental benefits from a carbon-free generating facility even if a third-party determination (a Minimum Offer Price Rule by PJM) left the carbon-free energy resource unable to receive necessary capacity revenues for continued operation in that delivery year. Under the IPA's reading, the Commission's confirmation ("subject to the Commission's confirmation") serves to ensure that the rule did or would have excluded that resource from successful participation, with the minimum offer price applicable to that facility exceeding the clearing price such that capacity revenues were in fact unavailable to it.

Under this approach, under no circumstances will the availability of a CMC delivery contract be predicated on a resource's participation (successful or otherwise) in PJM's capacity market. Participating carbon-free energy resources are not bound or required to also participate in any wholesale markets or auctions. Instead, by limiting an upward CMC price adjustment to only situations where a third party's determination made capacity revenues in fact unavailable to a carbon-free energy resource (as the applicable MOPR price for that facility exceeded that auction's clearing price), the Plan serves to ensure that Illinois consumers pay no more for the continued environmental benefits of carbon-free resources than is absolutely necessary—thus addressing the state's concern in "achieving 100% clean energy and decarbonizing the electricity sector in a safe, reliable, and affordable manner" and "enhance[ing] the health and welfare of Illinois residents through decreased reliance on more highly polluting generation" as cost-effectively as possible.[37]

In terms of the mechanics of MOPR notice, the Agency proposes that such notice occur through a filing made in the ICC proceeding approving this Plan and accompanied by a verified statement to this effect from a senior officer of the resource owner. As that notice is by law subject to Commission confirmation, upon receipt of such notice, the IPA and Commission shall promptly confer about the process for obtaining such confirmation. Staff of the Illinois Commerce Commission shall have 45 days, subject to extension for good cause, to provide a corresponding filing outlining the basis for confirming (or not

[37] 20 ILCS 3855/1-75(d-10)(1)(H).

confirming) whether the capacity price should indeed be zero in the CMC price formula. The owner of a carbon-free energy resource that benefits from a CMC delivery contract shall work constructively with the Commission in ensuring that the Commission has all information necessary for making that determination.

If PJM modifies or replaces the BRA approach with another capacity market construct, the capacity price developed for the ComEd zone under the successor capacity market construct will be used for this calculation.

3. The monetized value in $/MWh of any federal tax credits or direct subsidies that would be provided to the carbon-free resource by any level of government which are not reflected in energy prices. As specified in Section 1-75(d-10)(2)(C)(i), "contract payments shall fully deduct the value of any monetized federal production tax credits, credits issued pursuant to a federal clean energy standard, and other federal credits if applicable." To account for this potential deduction, in the event that federal legislation or PJM market rules change to accommodate carbon pricing or other related subsidies, the resource owner will be obligated to notify the Agency and Commission of any such changes, although that notice is not required for a potential deduction to be necessary. Upon recognition of a credit or subsidy, the Agency will file notice of a credit or subsidy with the Commission in the docketed proceeding for the approval of this Plan. If the Agency determines that the calculation of the price adjustment is straightforward and mechanical, then that filing shall take the form of a compliance filing outlining the necessary changes to the CMC pricing calculation to include a line item representing the price adjustment in $/MWh. However, if the Agency determines that calculating a price adjustment is not purely mechanical, then the Agency shall petition the Commission to reopen that Plan approval proceeding to allow for the development of the record necessary for determining what CMC price change shall result from the credit or subsidy.[38] Depending on the nature of the price adjustment approach that is adopted (through either a compliance filing or a Commission approval on reopening), the price adjustment may be applied on a monthly or an annual basis. Because the timing of accounting for any such credit or subsidy may not align with the monthly payment cycles (and the form which the credit or subsidy may take is not known at this time), the mechanism for implementing any payment adjustment to account for such credit or subsidy will be accounted for in the contract development process and may include provisions to allow for future contract amendments to comply with a future Commission Order on Reopening.

   The successful bidder will be responsible for making all commercially reasonable efforts to ensure that it applies for any known federal tax credits, direct payments, or similar subsidy programs that support carbon-free generation and for which the successful bidder

[38] This approach to determining the price adjustment required due to a federal subsidy was affirmed by the Commission through its Final Order in Docket No. 21-0718. See Docket No. 21-0718, Final Order dated November 10, 2021 at 8.

is eligible. The successful bidder will notify the IPA upon applying for any credits or subsidies.

Failure to apply for federal subsidies will be considered an event of default under a CMC delivery contract. The CMC delivery contract shall reflect that the IPA is responsible for determining whether commercially reasonable efforts were made by a Seller under a CMC delivery contract, with a Seller under a CMC delivery contract required to provide the Agency with information necessary to making this determination, and the IPA shall notify the successful bidder and utility counterparty about its determination. The CMC delivery contract shall contain provisions allowing a Seller with a limited opportunity to cure an event of default resultant from the failure to make commercially reasonable efforts at applying for subsidies.

The bidder, at the time of bid submittal, has the option to use either the energy price index based on the PJM busbar price, or the energy price index based on the PJM Northern Illinois Hub. Depending on the selection, the IPA will calculate the price-per-megawatt-hour on a monthly basis within 25 days of the end of the applicable month of the applicable delivery year. While statutory language could be understood to suggest that this calculation should only be performed on an annual basis, subsection d-10 allows for the utilization of the "weighted-average hourly day-ahead price for the applicable delivery year at the busbar of all resources procured pursuant to this subsection (d-10), weighted by actual production from the resources"; as actual production data will be available for the prior month at the conclusion of that month, the IPA believes monthly CMC price calculations are appropriate for payment purposes (similar to how monthly adjustments are made to the Purchased Electricity Adjustment). As ComEd's tariff to collect customer charges has not yet been established, the IPA will publish prices on a frequency that conforms with the frequency of the adjustments to customer charges contained in that tariff.

If the monthly price-per-megawatt-hour calculation results in a net positive value, the utility will multiply that value by the applicable contract quantity and pay the total value to the supplier. If the price-per-megawatt-hour calculation results in a net negative value, the CMC supplier will multiply this value by the applicable CMC contract quantity and pay the net value to the electric utility.

To "ensure that retail customers in Northern Illinois do not pay more for carbon mitigation credits than the value such credits provide," the Agency will not accept CMC bids that are greater than the customer protection cap. The customer protection cap is equal to the Baseline Costs of carbon-free energy resources. By statute, the Baseline Costs for the carbon-free energy resources for each applicable delivery year are specified as follows:

$30.30/MWh for the 2022-2023 delivery year

$32.50/MWh for the 2023-2024 delivery year

$33.43/MWh for the 2024-2025 delivery year

$33.50/MWh for the 2025-2026 delivery year

$34.50/MWh for the 2026-2027 delivery year

For illustrative purposes, Table 1 below provides two examples showing how the CMC price would be calculated on a monthly basis for the 2022-2023 delivery year, assuming the energy price index selected by the bidder is the weighted average hourly day ahead busbar price at the applicable PJM busbar for the carbon-free energy resource. The calculation is shown for the months of June and May, which start and end the 2022-2023 delivery year. The PJM busbar prices for the 2022-2023 delivery year will be based on actual monthly prices for that year. For the example in Table 1, actual PJM busbar prices in 2021 for a representative pricing location for a potential carbon-free energy resource have been used for illustrative purposes only to demonstrate calculations that would result in either a positive or a negative CMC price.

Table 1: Illustrative Calculation of CMC Price without Federal Subsidy[39]

		2022-2023 Delivery Year	
		June	**May**
Baseline Cost for the 2022-23 delivery year ($/MWh)	A	30.30	30.30
Accepted CMC Bid Price ($/MWh)	B	30.25	30.25
Weighed Monthly Average PJM Busbar Price ($/MWh)	C	30.35	24.77
ComEd Zone Capacity Price ($/MW-Day)	D	68.96	68.96
ComEd Zone Capacity Price ($/MWh)	E = D/24	2.87	2.87
Federal Tax Credit or Subsidy ($/MWh)	F	0	0
CMC Price ($/MWh)	G = B-C-E-F	-2.97	2.61

As shown in Table 1, due to a change in the illustrative energy price, the CMC price for June is net negative whereas the CMC price for May is net positive.

In the event that a bidder selects to use the energy price index based on the PJM Northern Illinois Hub, the calculation of the CMC price in Table 1 remains the same. The Weighted Monthly Average PJM Busbar Price will be replaced by the Weighted Monthly Average PJM Northern Illinois Hub Price.

If a federal subsidy is applied and can be reduced to a $/MWh that can be applied on a monthly basis, Table 2 illustrates how the CMC Price would be calculated. As discussed above, depending on the nature of any future federal subsidy (in particular tax credits which may not be calculated until well after a given delivery year), if the adjustment cannot be reduced to a monthly $/MWh adjustment, the Agency may petition the Commission to reopen the docketed proceeding

[39] The values for A and B are illustrative values only and do not represent actual bid prices or energy prices.

approving this Plan to consider how the adjustment would be applied. This may result in a contract amendment to implement the provisions of the Commission's Order on Reopening.

Table 2: Illustrative Calculation of CMC Price with Federal Subsidy[40]

		2022-2023 Delivery Year	
		June	**May**
Baseline Cost for the 2022-23 delivery year ($/MWh)	A	30.30	30.30
Accepted CMC Bid Price ($/MWh)	B	30.25	30.25
Weighed Monthly Average PJM Busbar Price ($/MWh)	C	30.35	24.77
ComEd Zone Capacity Price ($/MW-Day)	D	68.96	68.96
ComEd Zone Capacity Price ($/MWh)	E = D/24	2.87	2.87
Federal Tax Credit or Subsidy ($/MWh)	F	2.00	2.00
CMC Price ($/MWh)	G = B-C-E-F	-4.97	0.61

4.3 CMC Procurement Volume

The total number of cost-effective CMCs that can be procured by the Agency in any delivery year is approximately 54,500,000 CMCs. The contract volume for each bidder will be the total amount of CMCs produced by that bidder's carbon-free resource. The law prohibits the Agency from making a "partial award of a contract for carbon mitigation credits covering a fractional amount of a carbon-free energy resource's projected output." Therefore, the Agency will procure each bidder's total production of CMCs, starting with the bidder with the highest public interest criteria score, until the last facility for which that bidder's total CMC estimated average annual production can be accommodated by the approximate annual CMC procurement within the 2.5% band around the 54,500,000 CMC delivery amount.

[40] The values for B, C and F are illustrative values only and do not represent actual bid prices, energy prices or Federal subsides.

5 Bid Evaluation and Selection

As the public interest criteria utilized for bid selection generally mirrors that used for the Zero Emission Standard (and the two laws often use identical language), for the bid selection approach described in this Plan, the IPA has endeavored to include the refinements developed for the final ZES Plan bid selection approach.[41] This Chapter describes that approach.

The IPA believes this approach to evaluating the relative merits of competing carbon-free energy resources adequately considers the goals of preserving those at-risk carbon-free energy resources and the environmental benefits associated with the operation of these facilities. Further, this bid scoring approach determines which carbon-free resources best match the public interest criteria described in the Act while minimizing methodological complexity to the extent that is reasonably possible, and utilizes assumptions that can be reasonably drawn from publicly available information to reduce the exercise of discretion, maximize transparency, and leverage the utilization of reliable data.

5.1 Public Interest Criteria

One of the most important components of the Zero Emission Standard Procurement Plan was the process for selecting winning bids based on the public interest criteria described in the Act. These criteria remain as primary considerations for the selection of the winning CMC bids. Section 1-75(d-10)(3)(D) of the Act specifies that,

> *"…winning bids shall be selected by taking into account which resources best match public interest criteria that include, but are not limited to, minimizing carbon dioxide emissions that result from electricity consumed in Illinois and minimizing sulfur dioxide, nitrogen oxide, and particulate matter emissions that adversely affect the citizens of this State."*

A key focus of the "public interest criteria" concerns environmental benefits maintained through the continued operation of carbon-free resources that would potentially cease to operate without a carbon mitigation credit program that monetizes some or all of the value associated with the environmental attributes of the generation from these resources. Section 1-75(d-10)(3)(D) also states that,

> "*The selection of winning bids shall also take into account the incremental environmental benefits resulting from the procurement or procurements, such as any existing environmental benefits that are preserved by a procurement held under this subsection (d-10) and would cease to exist if the procurement were not held, including the preservation of clean energy resources."*

[41] Zero Emission Standard Plan, October 31, 2017.

Quantifying the benefits associated with these environmental attributes, and how that quantitative calculation may be altered by the CMC procurement process resulting in the continued operation of a carbon-free resource, is necessary to meet the Act's requirements that,

> *"The plan shall describe in detail how each public interest factor shall be considered and weighted in the bid selection process to ensure that the public interest criteria are applied to the procurement."*[42]

This Chapter fulfills that requirement. It includes a consideration of each public interest factor and provides a scoring (weighting) approach. While the Act allows the IPA to consider additional public interest criteria other than those specified in the Act ("…but are not limited to…"),[43] the IPA believes the criteria specifically described in the Act are sufficient for effectuating the purposes of this Plan and the IPA is not proposing additional criteria.

Quantifying incremental environmental benefits is a complex process that involves determining the amount and nature of emissions that would result from the mix of generation sources which would provide the replacement generation for the carbon-free resource, had the resource been retired. The Agency's bid selection process takes into account the incremental benefits of the environmental attributes associated with a carbon-free resource (in terms of public interest criteria emissions) that would be avoided by the continued operation of the carbon-free resource.

The Agency's development of the CMC bid selection process—and the development of this plan generally—is based on the public interest criteria-focused bid evaluation approach utilized in the ZES Plan. That Plan's approach utilized information from reports issued by state agencies, boards, or commissions, as well as publicly available analyses and studies performed by or for PJM and their independent market monitors. The Agency's primary focus for the CMC Plan was updating prior sources of information utilized for the ZEC Plan as well as utilizing where appropriate publicly available reports and analyses that have become available since the ZES Plan. This approach allows the Agency to leverage the best available information for the evaluation of carbon-free resource benefits consistent with the criteria in the statute.

As specified in the Act, the public interest criteria to be applied for bid evaluation include minimizing carbon dioxide (CO_2) emissions that result from electricity consumed in Illinois, as well as minimizing sulfur dioxide (SO_2), nitrogen oxides (NO_x), and particulate matter (PM) emissions that adversely affect residents of the state. The bid selection process is thus focused on quantifying the relative benefits provided by each carbon-free resource based on a determination of how each resource meets these public interest criteria. The bid evaluation process is described in more detail in the following sections of this chapter.

[42] 20 ILCS 3855/1-75(d-10)(3)(D).

[43] *Id*.

Public interest criteria pollutants are not emitted during the operation of nuclear-powered generating facilities; these facilities have been designated by statute to be carbon-free resources. If carbon-free resources ceased operating, the electricity generated by these facilities generally would be replaced by electricity generated from a resource mix that is predominantly fueled by fossil fuels. For retiring carbon-free resources, replacement generation would likely be derived primarily from natural gas and coal units in PJM. Initially, in-state replacement generation for the nuclear units would come from coal plants with a total capacity of 9,146 MW and natural gas plants with a total capacity of 5,852 MW. However, approximately 43% of this coal-fired generation is scheduled to retire between 2021 and 2025 including the Waukegan, Will County, Baldwin and Joppa coal plants. The coal generation from these plants will be replaced with increased generation from the remaining coal capacity in the state, existing natural gas-fired generation in Illinois, the start-up of the 1,250 MW natural gas-fired Three Rivers Energy plant, and supplemented by increased natural gas and coal generation from elsewhere in PJM.[44]

The focus of emission impacts associated with the retirement of carbon-free resources are the additional emissions that would result from the increased generation from fossil fuel resources. Fossil fuel resources, even if equipped with state-of-the-art emission controls, by the nature of the combustion of fuels that contain or form pollutant generating materials, would inevitably emit the public interest criteria pollutants including CO_2, SO_2, NO_x, and PM in generating the replacement electricity.

Electric generating resources are dispatched to minimize the total system-wide cost of producing electricity while safely operating the transmission system. To achieve this objective, resources with the lowest variable cost are dispatched first. Following industry-standard system dispatch logic, carbon-free resources along with renewable energy resources are the first resources dispatched followed by the next-most efficient fossil-fueled resources.[45] In some states, including Illinois, renewable generation (primarily wind and solar resources) represents a growing portion of the generation mix. However, given the likely position of renewable energy generation in the dispatch queue over the lifetime of the five-year CMC delivery contracts,[46] the bid evaluation process only considers the emissions associated with the portion of the replacement generation that would be composed of coal and natural gas-fueled generation.[47] This is because, in general

[44] See Brattle Group report, "The Impacts of Illinois Nuclear Power Plants on the Economy and the Environment," reissued December 2020 p.5, fossil generation replacement for retired nuclear generation approximately two-thirds natural gas generation and one-third coal generation. Also see, PJM, "PJM Interconnection Response to the Pennsylvania Public Utility Commission & Ohio Consumers' Counsel Requests to Analyze Certain Impacts of Nuclear Power Plant Retirements", June 5, 2019.

[45] PJM State & Member Training Department presentation, "Generation Dispatch" July 13, 2017. Hogan, W. "Handbook on the Economics of Electricity Chapter 7, Strengths and Weaknesses of the PJM Market Model," November 26, 2019.

[46] Section 1-75(d-10) becomes inoperative on January 1, 2028. 20 ILCS 3855/1-75(d-10)(3)(I).

[47] Replacement generation would constitute a combination of increased dispatch of existing units as well as potentially new generation yet to be built.

terms, generating facilities are dispatched by the independent system operators (PJM in this Plan) in terms of production cost with the least expensive units dispatched first until sufficient generation is dispatched to meet the load; this process is known as economic dispatch. All of the units that are dispatched receive the clearing price, which is the cost of generation for the last quantity of generation needed to meet the load. Some generating units that need to operate whenever the facility is available, such as nuclear or wind, participate in the economic dispatch process as price takers. These units bid low enough prices to ensure dispatch and take the clearing price which, in some hours, may be less than their operating costs. These units are almost always dispatched as they are at the bottom, or low price end, of the dispatch queue. In PJM, coal and natural gas-fired generating units typically operate at the margin in the dispatch queue and are thus the last units dispatched to meet load.[48] Therefore, the replacement generation mix used in the CMC bid scoring reflects the increased emissions from the coal and natural gas generation sources that would serve as the replacement generation mix for the carbon-free resource that would be retired.[49]

5.2 Bid Scoring and Selection

The proposed bid evaluation and selection process involves developing a selection score for each CMC bid using the public interest criteria to develop that score, with the highest scoring facilities emerging as winning bidders. In developing the scoring process, emphasis was placed on using an approach that incorporates the emission factors into bid selection and which reflects the environmental attribute benefits associated with the emissions-related public interest criteria that would be provided by the continued operation of a carbon-free resource (i.e., "existing environmental benefits that are preserved").

Statewide emissions and generation-related data were utilized to develop the CMC scoring methodology. These data were sourced from publicly available databases including emissions data from the U.S. EPA National Emissions Inventory ("NEI") and emissions and generation data from the U.S. EIA.[50] The data from these sources have been updated for use in the CMC bid

[48] Page 20 of the PJM State of the Market 2021 Quarterly report (issued by Monitoring Analytics, Inc. the PJM Market Monitor on May 13, 2021) provides the breakdown of marginal resources (i.e. the last unit dispatched): Marginal Resources. In the PJM Real-Time Energy Market, in the first quarter of 2021, coal units were 18.0 percent of marginal resources and natural gas units were 69.4 percent of marginal resources. In 2015, coal units were 51.7 percent and natural gas units were 35.5 percent of the marginal resources.

http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2016/2016-som-pjm-volume1.pdf

[49] State-wide emission and generation data are utilized in the IPA's bid selection methodology in part because data reported by the U.S. EPA and U.S. EIA is available at the State level on a consistent and comparable basis. Such data is not available in a consistent and comparable way for, say, the location of a facility *within* a state or through viewing the facility as part of a broader region, thus introducing the potential for inconsistent or discretionary treatment in scoring facilities through utilizing a different approach.

[50] The most recent emissions data are taken from the NEI 2020 release, www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei, which includes data for 2017 for emissions of SO_2, NO_x, PM_{10}, and $PM_{2.5}$ from electric generation by fuel source by state. CO_2 emissions are sourced from the U.S. EIA State Carbon Dioxide Emissions data for 2017, www.eia.gov/environment/emissions/state. The electric generation data by fuel

scoring and selection process. To determine the impact of the public interest criteria, the proposed bid selection methodology uses generation weighted emission factors for all emission criteria, with the exception of CO_2, in terms of pounds of relevant pollutant per megawatt hour (pounds/MWh), developed on a statewide basis. In a way to connect this methodology with the facility's statutorily required disclosures to the extent possible, the proposed bid selection methodology also utilizes the facility information that bidders are required to submit for carbon-free resources seeking to bid CMCs into the IPA's procurement.[51]

The quantity of emissions resulting from the expected generation resource mix that would replace the electricity generated by a carbon-free resource submitting a bid to the procurement provides the basis for scoring bids.[52] The proposed bid selection methodology also calculates adjusted emission factors that are applied to the score available for each of the public interest criteria CO_2, SO_2, NO_x, and PM emissions. PM emissions are divided into primary fine particulate matter for particulates with a diameter of 2.5 micrometers or less ($PM_{2.5}$) and particulates with a diameter of greater than 2.5 micrometers but not more than 10 micrometers (PM_{10}).[53] Scoring to reflect the CO_2 emissions benefits associated with a carbon-free resource is based on the fraction of the bidding facility's generation that can be expected to be consumed in Illinois.

The statute does not provide express guidance on the weighting attributed to each pollutant in determining an overall facility score. While the actual adverse impacts of these pollutants to citizens of Illinois may not be evenly distributed, the IPA believes that any attempts to prioritize one pollutant above another could introduce problematic discretion into the bid scoring process and may be inconsistent with language in the Act that does not differentiate among the importance of the public interest criteria.[54] Thus, under the proposed bid selection methodology, up to a maximum of 25 points would be awarded for each of the CO_2, SO_2, NO_x, and PM emission criteria (PM_{10}, and $PM_{2.5}$ each would receive 12.5 points, totaling 25 points overall for PM) for an equal weighting for each criterion in the CMC bid selection process. Notably, equal *treatment* would not necessarily result in each pollutant having equal *influence* in bid scoring, as this approach still captures the intensity of differences offered between competing bids for a given pollutant.

The overall score for each resource will be the sum of the resulting emissions scores adjusted for facility economic stress.

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source is sourced from the U.S. EIA State Electricity Profiles, Electric power industry generation by primary energy sources, 2017, www.eia.gov/electricity.state.

[51] The eligibility information template is shown in Appendix B.

[52] The quantity of CO_2 emissions is based on the statewide average.

[53] $PM_{2.5}$ and PM_{10} cover the bulk of the primary particulate matter emitted from fossil fuel fired generating plants.

[54] Section 1-75(d-10)(3)(D) states that public interest criteria include "minimizing carbon dioxide emissions that result from electricity consumed in Illinois and minimizing sulfur dioxide, nitrogen oxide and particulate matter emissions that adversely affect the citizens of this State."

5.2.1 Non-CO_2 Emissions Scoring Metrics

For non-CO_2 emissions, a primary focus of the proposed bid selection methodology involves determining the degree to which emissions from a facility's replacement generation would indeed have adverse impacts on Illinois citizens.

For measuring those adverse impacts – and producing resulting carbon-free resource bid scores accordingly – the proposed approach focused on three main sources of information: 1) the expected replacement generation mix; 2) the pollutant intensity associated with the replacement generation mix in the states in which the replacement generation is located; and 3) the degree to which wind patterns result in those airborne pollutants being blown into Illinois causing adverse impacts to Illinois residents.

The Non-CO_2 emissions scoring metrics will be calculated as follows:

1. Estimate the likely location of the replacement generation;
2. Determine the emissions intensity for each pollutant by state providing the replacement generation, based on the state average emission rate for each pollutant associated with the replacement generation mix divided by the RTO average emissions rate for that pollutant associated with the replacement generation mix;
3. Adjust the emissions intensity for each pollutant by state providing replacement generation based on wind direction and distance factors;
4. Multiply the adjusted emissions intensity for each pollutant for each state providing replacement generation by the share of replacement generation provided by that state; and
5. Sum the state-specific results from every state providing replacement generation to obtain the Emissions Scoring Metric for that pollutant.

5.2.1.1 Replacement Generation Mix

The Brattle Group report conducted analyses using production simulation modeling to identify the generation and emissions impacts of carbon-free resource retirements in Illinois for two cases, the first for the retirement of two of the existing nuclear plants in Illinois and second for the retirement of the four nuclear plants in the state not covered under the ZES plan. These results—which are based on Brattle's specific assumptions and inputs to the modeling process—provide an indication the relative mix of replacement generation by location and fuel. The IPA reviewed the results of these analyses; along with the Agency's analysis of the source power flows into Illinois. The Agency's analysis and the Brattle Group report combined provide an indication of the relative amounts of natural gas and coal replacement generation that would be required to compensate for the retirement of at-risk nuclear plants.

The Brattle results were also adjusted to reflect the impact on in-state coal generation that will result from the recently announced retirements of the Will County, Waukegan and Joppa coal plants which were included in Brattle's modeling assumptions.[55] Based on these data and adjustments, the IPA projects that in-state coal and natural gas generation will make up 43% of the replacement generation with the remaining 57% sourced from coal and gas plants outside of the state primarily in other parts of PJM. The relative contributions of coal and natural gas sources to the replacement generation mix are 65% natural gas and 35% coal.[56]

Similarly, in calculating the Emission Scoring Metric for each non-CO_2 pollutant, 43% of the replacement generation for the retiring carbon-free resource is assumed to be in Illinois, and the remaining 57% of the replacement generation is assumed to occur in shares proportionate to the generation in each of the other states in the relevant RTO, either PJM or MISO.

5.2.1.2 Determining State Emissions Intensity

For each non-CO_2 pollutant, the emissions intensity will be determined for each state in which replacement generation is located. Because coal and natural gas generation are likely to be the marginal resources that comprise the replacement generation mix, the state's weighted average emissions rate for each pollutant emitted from coal and gas generation in the state will be calculated. Each state's weighted average emission rate is calculated using the following formula:

> Weighted Average Emission Rate for a pollutant = (state's tons of coal emissions of pollutant + state's tons of gas emissions of pollutant) * (2,000 lbs/ton) / (MWh of coal generation + MWh of gas generation).

To determine each state's emission intensity for the pollutant, the Weighted Average Emission Rate for a pollutant will be divided by the Weighted Average Emission Rate for all states in the RTO according to the following formula:

> State Emission Intensity for a pollutant = State Weighted Average Emission Rate for coal and gas generation / PJM Weighted Average Emission Rate for coal and gas generation.

5.2.1.3 Wind and Distance Adjustments to State Emission Intensity

For NO_x, SO_2, $PM_{2.5}$, and PM_{10} emissions, the public interest criteria in the Act are focused on the adverse effects of these emissions on the citizens of Illinois, which is a different standard from that applied to CO_2 which is minimizing the CO_2 emissions from electricity consumed in the state. The non-CO_2 emission factors for the carbon-free resource replacement generation will depend on the

[55] The retirement of these three plants scheduled for 2022 through 2025 account for 2,213 MW or 24% of the Illinois coal generation in Brattle's modeling assumptions.

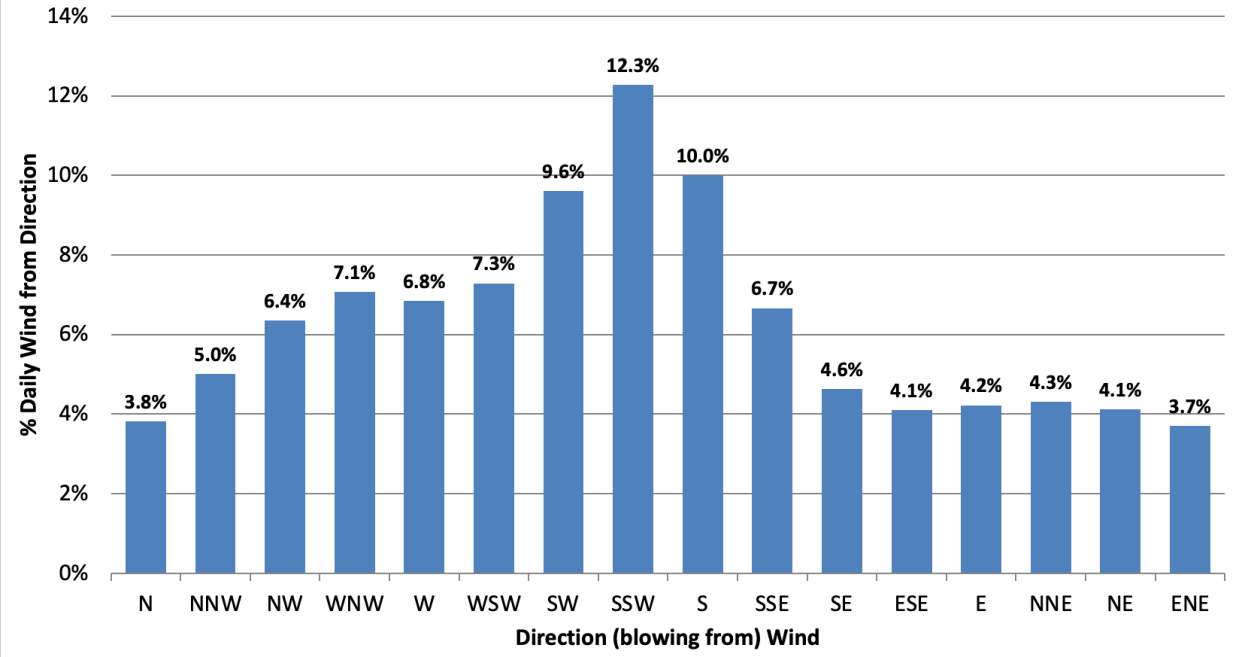
[56] This does not include the increase in generation in Illinois or decrease outside of Illinois from wind and solar since there are no emissions associated with these sources and the public interest criteria are focused on the increased emissions associated with any replacement generation.

location of the replacement generation relative to Illinois. As these emissions are airborne pollutants emitted from fossil fuel electric generating facilities, the proposed weighting is determined based on the average amount of time that the wind blows into Illinois from the state where the replacement generation is located, adjusted for the distance that state is from Illinois to account for the increasing dispersion and deposition of pollutants over increasing distances.

The wind direction weighting methodology for the non-CO_2 emission factors was developed for efficient and transparent application in the bid selection methodology and uses publicly available state-wide generation and emissions data to maximize its transparency.

A 25-year average of wind direction into Illinois is used to determine the adjustments to the State Emissions Intensity for each of the non-CO_2 emission factors. The average wind direction data is shown in Figure 1. The data are reported by the Illinois State Water Survey, Water and Atmospheric Resource Monitoring Program. The stations that had a full 25 years of data, 1996 through 2020, were utilized to develop the average wind direction distribution for the state. The data sources utilized included the following stations which had a complete data set over that time period: Belleville, Bondville, Brownstown, Carbondale, Champaign, DeKalb, Dixon Springs, Fairfield, Freeport, Monmouth, Olney, Peoria, Rend Lake, Springfield, and St Charles.

Figure 1. 25-year Average Illinois Wind Direction[57]



To calculate the emission factor weights for each state, first, the sum of the primary direction and the two adjacent directions is taken: for example, if the facility is located to the southwest of Illinois, the three directional components are taken (*i.e.* components WSW, SW, and SSW, in the figure above). By way of example, the sum for a replacement generation facility located in Ohio would be 12.2%, since that would be the total amount of time, on a 25 year average, that wind would be blowing into Illinois from the east-southeast, east and east northeast directions. Second, that sum is then multiplied by the distance adjustment factor. The distance adjustment factor accounts for the reduction in the concentration of pollutants over increasing distances and is one minus the ratio of the approximate distance of the center of each state from the center of Illinois divided by 1,000 miles. To take Missouri as an example again, that distance adjustment ratio is 0.64, leading to an overall wind direction and distance emission factor weight of 0.08.

A summary of the results of the calculations of the wind direction and distance emission factor weights for each state are provided in Appendix A.

Finally, for each non-CO_2 pollutant, the product of the wind and direction adjustment is multiplied by the state Emission Intensity to give the Adjusted State Emission Intensity.

[57] Water and Atmospheric Resources Monitoring Program. Illinois Climate Network. (2021). Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820-7495. http://dx.doi.org/10.13012/J8MW2F2Q.

5.2.1.4 Calculating the Non-CO_2 Emission Scoring Metric

To calculate the Non-CO_2 Emissions Scoring Metric for a pollutant for each state that provides a share of the replacement generation, the state's Adjusted State Emission Intensity for that pollutant is multiplied by the state's share of replacement generation. For each state, that result indicates the degree to which replacement generation in that state will adversely impact Illinois residents through the emission of the pollutant being scored. The resulting state-level scores are then added together to yield the Emission Scoring Metric.

This approach is used only for NO_x, SO_2, $PM_{2.5}$, and PM_{10}. CO_2 emissions benefits present a different case: the bid selection process is instead directed to consider "minimizing carbon dioxide emissions that result from electricity consumed in Illinois,"[58] and thus a different methodology is used that considers the sources of the electricity consumed in Illinois. As discussed further in Section 5.2.2 below, the impact of the CO_2 emission factors is weighted using a proxy for the relative flow of power between the ComEd market area of PJM and the rest of PJM for any carbon-free resources that are located in the PJM states outside of Illinois.

5.2.2 CO_2 Scoring

The scoring to reflect the impact of CO_2 emissions for carbon-free resources located both in and outside of Illinois could be developed through several approaches depending on data availability. The Act specifies that the CO_2 emission criterion consider the CO_2 emissions "that result from electricity consumed in Illinois."[59] However, Illinois is a net exporter of electricity. Since the replacement generation is assumed to come predominantly from coal and natural gas-fired generation located within the same state as the carbon-free resource being replaced, one approach could be to assume that only carbon-free resources located in Illinois would qualify to receive *any* CO_2 emissions scoring credit because any resource located in another state would not impact net CO_2 emissions from electricity consumed in Illinois. This approach would reflect an "all or nothing approach" based on a narrow interpretation of the Act.

Another approach would be to base the CO_2 emissions criteria scoring on modeled power flows between Illinois and the other states in PJM. Under this approach to CO_2 scoring, carbon-free resources located in states outside of Illinois in PJM would be credited for the CO_2 emissions generated based on the portion of the replacement generation that originated from outside of Illinois but produced power modeled to be consumed in Illinois. While that approach may be attractive in certain respects, the IPA does not view production simulation modeling as an entirely cost-effective approach to determining the emissions generated by the resources that would replace carbon-free resources. In developing any such model, the wide range of assumptions that would need to be made and significant data inputs developed for production simulation modeling, these

[58] 20 ILCS 3855/1-75(d-10)(3)(D).

[59] Id.

assumptions and inputs would require significant analytical efforts, access to a simulation modeling system, and the exercise of a tremendous amount of discretion by the modeler. For example, assumptions would have to be made about the future of federal carbon regulations, possible future changes to energy and capacity markets, retirements of coal and natural gas plants beyond those currently announced or planned, or future trends in natural gas and/or coal prices or regulations, all of which are issues for which there is no consensus.

Perhaps the optimal way of determining electricity consumed in Illinois from other states' facilities would be simply to base the credit for CO_2 emissions avoided by carbon-free resources located outside of Illinois on the *actual* power flows into and out of Illinois. Unfortunately, electrons are not "tagged" or tracked at so granular a level, and consistent and verifiable data regarding actual interstate power flows between Illinois and the other states in PJM is not readily available from a public source.[60] But there may be proxies for that information. To the extent that a proxy for power flows relies on actual, documented, verifiable information about imports and exports of electricity, the IPA believes that it represents a superior alternative to the open-ended discretion required by modeling.

This proxy exists in the form of capacity imports into Illinois, and given the limitations on available data, the IPA believes that it constitutes the best option for determining "carbon dioxide emissions that result from electricity consumed in Illinois" in scoring resources authorized to participate in the IPA CMC procurement. PJM does not publish the results of the actual capacity that a locational deliverability area ("LDA")[61] imports from other LDAs in PJM. However, PJM provides the capacity that cleared in each LDA in the BRA. For each LDA, PJM also publishes the Reliability Requirement.[62] The difference between an LDA's cleared capacity and the applicable Reliability Requirement can serve as a proxy for the amount of capacity that is imported into the LDA relative to its overall capacity needs. PJM started modeling the Illinois portion of PJM (the ComEd Zone) as an LDA beginning with the 2017-2018 delivery year. The ComEd LDA's cleared capacity for the 2022-2023 delivery year is 19,198 MW and the Reliability Requirement is 23,931 MW. The difference is 4,733 MW or 19.8%. The table below shows the import proxy that would be used as a percentage (19.8%) to adjust the CO_2 emissions benefits for carbon-free resources located in the PJM zone in Illinois and in the PJM states outside of Illinois.

[60] The IPA contacted PJM to ascertain if interstate power flow data were publicly available. Power flow data for PJM has been designated as critical energy infrastructure information (CEII) and cannot be publicly disseminated.

[61] An LDA is a geographic area within the PJM region that has limited transmission capability to import capacity to satisfy the area's reliability requirement.

[62] For LDAs the reliability requirement is the sum of the LDA's internal capacity and the Capacity Emergency Transfer Objective ("CETO"). CETO represents the amount of capacity that a given LDA must be able to import (i.e., the import capability required) in order to meet the PJM reliability criteria.

Table 2. 2022-2023 Delivery Year Import Proxy for PJM's ComEd LDA[63]

	PJM ComEd LDA
BRA Cleared Capacity (MW)	19,198
Reliability Requirement (MW)	23,931
Imports (MW)	4,733
Import Proxy (%)	**19.8%**

Therefore, a ratio of 0.198, reflecting that 19.8% of ComEd Zone requirements are to be met with imports from elsewhere in PJM, would be applied to the benefits score for the CO_2 emissions avoided for carbon-free resources located in PJM outside of Illinois. A ratio of 0.802 would be applied to the CO_2 emissions benefit score for carbon-free resources located in the PJM portion of Illinois.

5.3 Incremental Environmental Benefits Preserved

As was the case for the Zero Emission Standard, CMC requirements in Section 1-75(d-10)(3)(D) expressly address four discrete pollutants to be considered, and then also require that "[t]he selection of winning bids shall also take into account the incremental environmental benefits resulting from the procurement or procurements, such as any existing environmental benefits that are preserved by the procurements held under this subsection (d-10) and would cease to exist if the procurements were not held, including the preservation of clean energy resources." As a result, the IPA understands that the statute directs it to ensure that facility scoring "take into account" the risk that an authorized carbon-free resource may "cease to exist if the procurement were not held," and the resource did not receive revenues for the environmental attributes of its generation. As the potential for closure impacts benefits across all four public interest pollutant criteria, the IPA's proposed scoring approach includes a multiplier to those pollutant scores to account for the risk of closure faced by a resource due to economic stress.

There is simply no easy method for determining whether a given resource would in fact close without the benefit of a carbon mitigation credit contract. Public statements by facility owners could be helpful but may also be made for any number of reasons—including posturing to obtain advantageous policy outcomes—and past statements about a facility's risk of closure may not reflect anticipated future market conditions. Similarly, obtaining statements of intention from resource owners as part of this procurement process may also lend itself to false positives. The

[63] 2022-2023 BRA Planning Parameters and 2022-2023 BRA Results at: https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2022-2023/2022-2023-planning-period-parameters-for-base-residual-auction.ashx; https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2022-2023/2022-2023-base-residual-auction-results.ashx.

IPA has instead sought to rely on objective and obtainable information to determine whether a carbon-free resource indeed faces a risk of closure without receiving revenues for its environmental attributes, and thus that the selection of winning bids helps ensure that the resource's "environmental benefits" are "preserved."

5.3.1 Economic Stress Multiplier

The degree to which a carbon-free resource may be at risk of closure due to economic and market conditions can be assessed through the resource's operating costs measured against a proxy for revenues. If a resource has a particularly high-cost structure, it should have a higher level of economic stress (unless it is in a region in which electricity prices are higher). If a resource is able to produce electricity at a lower cost, then it is presumably facing reduced economic stress and at less risk of closure (unless it is in a region with lower electricity prices).

To capture this dynamic, the IPA proposes the use of an economic stress multiplier ("ESM"), which works to determine whether a given resource faces economic stress greater or lesser than a baseline market rate adjusted for regional differences in electricity prices. The ESM reflects the general condition that carbon-free resources with higher operating costs (as defined below) relative to imputed revenues, are more likely to face economic stress and potential closure than resources with lower operating costs relative to imputed revenues.[64]

The ESM is calculated as follows: to maintain consistency with other information found in the statute, the ESM is calculated through the ratio of the carbon-free resource's operating costs (expressed in $/MWh), divided by the Illinois Environmental Protection Agency's consultant report of the $30.28/MWh that a clean energy resource "has the opportunity to earn" from the sale of energy and capacity during the 5-year CMC contract term.

The Economic Stress Multiplier is the resource's operating costs (in $/MWh) divided by $30.28/MWh. The ESM will be capped using a multiplier of 1.19 so that bids from high-cost carbon-free resources will not have undue influence on the bid selection. The cap is determined by the ratio of the highest average annual generating costs for multi-unit nuclear plants over the last 10 years as estimated by the Nuclear Energy Institute and reported in Table 7-42 of the 2020 PJM State of the Market Report divided by $30.28/MWh. For the Illinois multi-unit nuclear plants, the highest average generating costs were estimated to be $36.06/MWh for 2012.

5.3.1.1 Operating Costs

To calculate the ESM, the carbon-free resource's operating costs shall be the sum of the fuel expenses, operating and maintenance expenses, and the capital expenses necessary to maintain

[64] Potomac Economics, "A Review of Nuclear Costs and Revenues in PJM," April 2021. U.S. EIA, Today in Energy, "Future of U.S. nuclear power fleet depends mostly on natural gas prices, carbon policies," May 8, 2018. Congressional Research Service, "Financial Challenges of Operating Nuclear Power Plants in the United States," December 14, 2016.

operation of the resource that are reported in the information the resource is required to submit to the Agency. The resource's information will be reported through the Carbon-Free Resource Required Information Form, which is provided in draft format as Appendix B. For purposes of making this determination, operating cost data will be taken from the information that each carbon-free resource interested in submitting a bid is required to submit to the IPA (thus maintaining additional consistency with information expressly required to be submitted in the statute).[65] This information will be certified by the bidder for accuracy and will be subject to additional review by the Agency and the Procurement Administrator.

5.4 Scoring Calculation

The score for NO_x, SO_2, $PM_{2.5}$ and PM_{10} equals the Emission Scoring Metric for each pollutant times the maximum points for the relevant pollutant.[66]

The CO_2 score is equal to the CO_2 Emission Scoring Metric times 25.

The resource's total score, the sum of the emissions criteria, is then multiplied by the Economic Stress Multiplier to provide the Final Public Interest Criteria Score. The Final Public Interest Criteria Score will be used to determine which facilities are selected as winning bidders. If bidders have the same public interest criteria score, the relative ranking of the bidders will be based on the price bid, with the lowest bid price receiving the higher relative ranking.

Appendix A provides the proposed bid scoring calculations. All inputs, formulas and results will be reviewed and updated by the Agency and Procurement Administrator following the methodology outlined in this Plan, as ultimately approved by the Commission.

[65] See 20 ILCS 3855/1-75(d-10)(3)(B).

[66] Maximum scoring is 25 points each for CO_2, NOx, and SO_2, and 12.5 points each for $PM_{2.5}$ and PM_{10}.

6 Procurement Process Administration

The CMC procurement goals and procedural requirements for the CMC procurement process are described in Section 1-75(d-10) of the Act. As described in Chapter 3, to the extent not expressly described in the statute, the IPA understands that the procurement process should be conducted consistent with Section 16-111.5 of the Public Utilities Act, as the process is to be conducted "in conjunction with" that Section.[67]

One difference between the procurement of CMCs and the IPA's competitive procurement processes for energy or renewable energy resources (including RECs from utility scale wind and solar projects) is that the selection of winning bids involves "a procedure for sealed, binding commitment bidding with pay-as-bid settlement, and provision for selection of bids on the basis of price."[68] That bid selection process is also guided by the establishment of market-based price benchmark.[69] Alternatively, bidding for carbon mitigation credit contracts involves selection of bids based on public interest criteria focused on the amount of emissions avoided if the carbon-free resource remains in operation. Therefore, unlike other IPA procurements for which a price benchmark and bid selections based on competitive bid prices were used to determine the winning bidders, bid prices are used to determine the winners of the CMC procurement only in event that competing bidders have the same public interest criteria score.

6.1 Bidder Information Submittal

Owners/operators of carbon-free resources interested in becoming bidders must also submit to the IPA an acceptable form of the information specified in Section 1-75(d-10)(3)(B). While nuclear units at a multiple unit site can be operated independently, nuclear utilities usually operate nuclear plants on a site basis rather than as individual units. However, specific units at many multi-unit sites can have different levels of financial performance related to different output levels and different capacity factors.[70] The IPA proposes to request the carbon-free resource information on an individual unit basis to evaluate and score the CMC bids received. For the purposes of this procurement, each generating unit at a multi-reactor site will be considered individually. Registration as an authorized bidder is contingent on submittal and acceptance by the IPA of the unit information. A draft template for submitting the required information is attached as Appendix B to this Plan to help potential bidders prepare for this submittal.

[67] 20 ILCS 3855/1-75(d-10).

[68] 220 ILCS 5/16-111.5(e)(3).

[69] Id.

[70] Nuclear Energy Institute, Nuclear Operating Plant Basic Information. Unit Capacity Factor (%) 2018 – 2020. See Dresden, Quad Cities, Braidwood, Byron and LaSalle nuclear generating units. www.nei.org/resources/statistics/us-nuclear-operating-plant-basic-information.

Completed unit information submissions were required to be submitted to the IPA within five days of the Commission's approval of this Plan. Those carbon-free resources that intend to participate in the procurement were required to submit to the IPA complete templates that included the following information for each carbon-free resource unit:

- The in-service date and remaining useful life of the carbon-free resource;
- The amount of power generated annually for each of the years 2010 through 2020, which shall be used to determine the capability of each resource;
- A commitment to continue operating the carbon-free resource at an average annual capacity factor of at least 88% over the life of the CMC contract, subject to the exceptions contained in Section 1-75(d-5)(1)(E) of the Act;
    - The commitment for each carbon-free resource holding a CMC contract will be determined based on the unit summer MW capacity information provided by the bidder in Appendix B. The unit summer MW capacity will be multiplied by 88% and 8,760 hours to determine the minimum delivery commitment that will be applicable across the 5-year contract period. The determination of whether the carbon-free resource is achieving that minimum delivery commitment will be made within 30 days of the end of each delivery year by calculating an average of the actual generation for all completed delivery years and the projected generation for future delivery years as specified in the winning bidder's bid. If that average falls below the minimum delivery commitment and thus the carbon free resource does not maintain the 88% capacity factor, then, with the exception of such underperformance being excused due to a force majeure event, that failure to maintain an 88% capacity factor would be considered to be an event of default under the contract.[71]
- The annual carbon-free resource's cost projections, expressed on a per MWh basis, over the 5 delivery years starting with 2022-2023 delivery year, which shall include the following:
    - Operation and maintenance expenses;
    - Fully allocated overhead costs, which shall be allocated using the methodology developed by the Institute for Nuclear Power Operations;
    - Fuel expenditures;
    - Non-fuel capital expenditures;
    - Spent fuel expenditures;

[71] In its Order approving the Plan, the Commission confirmed that compliance with this 88% capacity factor operation requirement shall be evaluated at unit level, and not at the plant or plant-owner level. See Docket No. 21-0718, Final Order dated November 10, 2021 at 5.

- A return on working capital;
- The cost of operational and market risks that could be avoided by ceasing operation; and
- Any other costs necessary for continued operations, provided that "necessary" means, for purposes of this item, that the costs could reasonably be avoided only by ceasing operations of the carbon-free resource; and,

- The revenue projections for the carbon-free resource including energy, capacity, ancillary services, any other direct State support, known or anticipated federal attribute credits, known or anticipated tax credits, and any other direct support.
  - The carbon-free resource shall specify the PJM busbar location applicable to that resource, *i.e.* the pricing location for that resource as identified by PJM --- and as used by PJM in the energy settlement for the resource.

These items are all specifically mandated by Section 1-75(d-10)(3)(B). In addition to these specific items, the Agency required that interested bidders also provide a detailed narrative walkthrough that explains the source and rationale of the assumptions and calculations used to support each specific cost projection item.

Section 1-75(d-10)(3)(B) provides that cost projection information may be submitted to the IPA on a confidential basis, which the IPA will then treat and maintain as confidential.

> *"The information described in subparagraph (B) may be submitted on a confidential basis and shall be treated and maintained by the Agency, the procurement administrator, and the Commission as confidential and proprietary and exempt from disclosure under subparagraphs (a) and (g) of paragraph (1) of Section 7 of the Freedom of Information Act. The Office of Attorney General shall have access to, and maintain the confidentiality of, such information pursuant to Section 6.5 of the Attorney General Act."*

The IPA will review the Eligibility Information received and, within two business days, notify applicants of any deficiencies in their submittal. Once so notified, applicants will have one business day to provide additional information to cure those deficiencies.

6.2 Procurement Process

As required under the Act, the Agency sought public comments on the draft CMC Plan for seven days after issuance of the Plan. The Agency then revised and filed the Plan on September 29, 2021, five days before the statutorily allowed 19 days after the effective date of Public Act 102-0662. Prior to this Plan's approval by the Commission, the Agency's Procurement Administrator released a schedule for the procurement event, and prepared, in conjunction with the Agency, utility, ICC Staff, and the Procurement Monitor, draft contracts and released them for comments

(See Section 6.4 below). Comments on contract documents were due within 12 business days of the issuance of these documents. Contracts were finalized shortly after the Commission's November 10, 2021 approval of this Plan.

Section 1-75(d-10)(3)(F) states that the "[t]he procurements described in this paragraph (3), including, but not limited to, the execution of all contracts procured, shall be completed no later than December 3, 2021." This will require that the procurement event be held by November 24, 2021, assuming that there are no delays created by requests for rehearing, complications in the contract development process, or other items outside of the Agency's direct control.

Section 1-75(d-10)(3)(A) specifies that the Agency will not seek to procure CMC contracts for more than approximately 54,500,000 CMCs beginning with the 2022-2023 delivery year. Further the Agency "shall not make a partial award of a contract for carbon mitigation credits covering a fractional amount of a carbon-free energy resource's project output." Given the "lumpiness" in the output of carbon-free resources, it is unlikely that the total amount of CMCs produced by winning facilities in the procurement will perfectly match that number; the Agency understands that use of the term "approximately" in the law is intended to allow for those marginal differences.

As described in Chapter 5, bids will be evaluated based upon each resource's Final Public Interest Criteria Score (the number of points awarded to each facility), with more points resulting in a more highly rated bid. Selected bids will be the bids up to where the last bid's total annual volume fits under the CMC procurement limit of approximately 54,500,000 CMCs. Ties among bidders that have the same public interest criteria score will be decided based on the price bid. The price to be used for tie breaking will be the average of the five prices submitted for each year for each bid. If bidders with the same public interest criteria score also have the same bid price, the winning bidder will be selected based on the projected energy generation output from the carbon-free resource, with the bidder featuring the higher generation output selected first. For the resources that are selected as winning bidders, once the procurement results are approved by the Commission, contracts will be executed with the utility.

Under Section 16-111.5(f), the Agency's procurement process includes the provision that the Procurement Administrator provide to the Commission a confidential report on the recommended winning bids within two business days of the bid date (and concurrently on a confidential basis the Procurement Monitor also provide a separate report on their assessment of the procurement), and the Commission would have two more business days to accept, or reject, those recommendations.

Supplier fees will be assessed to winning bidders to cover the costs of conducting the CMC procurement, and winning bidders are responsible for payment of supplier fees to the Illinois Power Agency within seven business days of the Commission's approval of procurement results. The final supplier fee amount will be announced by the Procurement Administrator prior to the bid date.

6.3 Commission Approval of Procurement Results

The Commission's decision approving the procurement results and the release of the public notice of successful bidders will occur at a Commission meeting subsequent to the bid date. Contracts between successful bidders and the utility will then be executed within two business days of that decision. The Agency, in consultation with the Procurement Administrator, the ICC Staff, and the Procurement Monitor may adjust these dates as needed.

Under the IPA's traditional competitive procurement process, upon the Commission's approval of procurement results in procurement events conducted under Section 16-111.5, " [t]he names of the successful bidders and the load weighted average of the winning bid prices for each contract type and for each contract term" are required to be "made available to the public at the time of Commission approval of a procurement event," with other bidder and supplier information is considered "confidential." Section 1-75(d-10) of the IPA Act requires a different and more (publicly) thorough approach and envisions the Commission issuing detailed findings explaining its affirmation of the selection of winning bids. Specifically, for the procurement of CMCs, the Commission must release a "public notice" in which it must:

> (i) identify how the winning bids satisfy the public interest bid selection criteria described in the law (i.e., minimizing carbon dioxide emissions that result from electricity consumed in Illinois and minimizing sulfur dioxide, nitrogen oxides, and particulate matter emissions that adversely affect the citizens of this State);
>
> (ii) specifically address how the selection of carbon-free resources with winning bids takes into account the incremental environmental benefits resulting from the procurement, including any existing environmental benefits that are preserved by the procurements held under this amendatory Act and that would have ceased to exist if the procurements had not been held, including the preservation of carbon-free resources;
>
> (iii) quantify the environmental benefit of preserving the resources identified in item (ii), including the following:
>
> (I) an assessment of the value of avoided greenhouse gas emissions measured as the product of the carbon-free resources' output over the contract term, using generally accepted methodologies for the valuation of avoided emissions; and
>
> (II) an assessment of the costs of replacement with other carbon-free resources and renewable resources, including wind and photovoltaic generation, based upon an assessment of the prices paid for renewable energy credits through program and procurements conducted by the Agency and "the additional storage necessary to produce the same or similar capability of matching customer usage patterns."

Section 1-75(d-10)(3)(F) also provides that, following the CMC procurement event, the Agency shall "calculate the payments to be made under each contract in a timely fashion." All contracts will be settled on a monthly basis at the calculated monthly CMC price. The Agency will coordinate with ICC Staff, the Procurement Monitor, and the counterparty electric utility on the CMC price calculation.

6.4 CMC Contracts

The Act specifies that an electric utility will be the counterparty for the winning suppliers of CMC contracts selected in the procurement event. Under Section 1-75(d-10)(3)(A), contracts for CMCs are to be procured for "electric utilities serving at least 3,000,000 retail customers in the State," thus effectively limiting the CMC procurement to Commonwealth Edison. The IPA shall not serve as a Buyer for any contracts executed with the successful bidders selected as the result of the CMC procurement. By law, the term of the contracts resulting from the IPA's CMC procurement process will be for 5 years, and will otherwise follow applicable provisions of state law and outlined in this Plan. The contract forms were developed in accordance with Section 16-111.5(e)(2)'s requirement that "[t]he procurement administrator, in consultation with the utilities, the Commission, and other interested parties and subject to Commission oversight, shall develop and provide standard contract forms for the supplier contracts that meet generally accepted industry practices."[72] Due to the compressed timeframe for this procurement, the contract development process took place in parallel with the development and approval of this Plan, with contract finalization occurring once the Plan was approved by the Commission.

In developing the standard contract forms, the procurement administrator may, in consultation with the utility, rely on the standard credit instruments developed for the ZES procurement. The Agency proposes to set the collateral requirement for the procurement at $0.80 per CMC multiplied by the minimum annual delivery commitment as a means to ensure the delivery of CMCs from winning bidders even in the event that CMC prices are negative and payments are due from the bidder to the utility. This collateral requirement is also intended to be calibrated to be roughly consistent with the collateral requirements for the Zero Emissions Standard Plan procurement.

As specified in Section 16-111.5(e)(2), if consensus is not reached among applicable parties regarding the CMC delivery contract terms, then "the procurement administrator must notify the Commission of any disputed terms and the Commission shall resolve the dispute."[73] Should there be a dispute related to the contract terms that must be resolved by the Commission, then the IPA will seek to have that issue resolved on an expedited basis so as to maintain the December 3, 2021 CMC procurement process conclusion date.

[72] 220 ILCS 5/16-111.5(e)(2).

[73] *Id*.

6.5 Tracking CMCs

CMCs will be created and tracked utilizing the Generation Attribute Tracking System ("GATS") operated by PJM.[74] GATS is one of the tracking systems used to track RECs, and is also currently used to track ZECs. It tracks all generating facilities in PJM, and can also track systems located outside of PJM that choose to register in GATS. For the generation and delivery of carbon mitigation credits, the applicable Certificate/Credit to be used is the "Emission Free Energy Certificates," and that certificate type is already part of the GATS system.

The GATS Operating Rules[75] define an Emission Free Energy Certificate as a "Certificate from a generating unit that produces Emission-Free Energy." The Operating Rules define "Emissions-Free Energy" as "Electric power output from a generating unit that does not directly produce any air emissions (sulfur dioxide, nitrogen oxide, or carbon dioxide) as reported in the GATS system. Eligible fuel types include new and existing: Solar Photovoltaic, Solar Thermal, Wind, Hydro, Nuclear, Tidal Energy and Wave Energy."[76]

Carbon mitigation credits as defined under subsection (d-10) of Section 1-75 of the IPA Act must be produced by a carbon-free energy resource, which is "(1) is fueled by nuclear power; and (2) is interconnected to PJM Interconnection, LLC." Therefore, like Zero Emission Credits, carbon mitigation credits are a subset of Emission Free Energy Certificates. Emission Free Energy Certificates from facilities that do not meet the definition of a carbon-free energy resource (e.g., resources that are photovoltaics, wind, or hydro) are not be eligible for this procurement.

GATS Operating Rules shall apply to CMC generation and deliveries, and selected carbon-free energy resource sellers will deliver and convey to the utility all rights and title to their contractual volume of CMCs for each contract executed with the utility, with the contractual volume being all CMCs produced by the facility over the contract term. Under Section 1-75(d-10)(3)(G), the electric utility shall "retire all carbon mitigation credits used to comply with the requirements of this subsection (d-10)." All CMCs must be retired by the counterparty electric utility promptly following conveyance. As required by Section 1-75(i) of the IPA Act, a carbon mitigation credit can only be used once to comply with a single portfolio or standard, and cannot be used to satisfy the requirements of more than one standard.

Selected bidders will be required to set up an irrevocable Standing Order for the transfer of CMCs from the system to the utility.

[74] See: gats.pjm-eis.com

[75] See www.pjm-eis.com/~/media/pjm-eis/documents/gats-operating-rules.ashx

[76] *Id*.