



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

December 16, 2022

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. E-100, Sub 180
Duke Energy Progress, LLC and Duke Energy Carolinas, LLC
Investigation of Proposed Net Metering Policy Changes

Dear Ms. Dunston:

Attached for filing please find the Proposed Order of the Public Staff in the above-referenced docket.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,
Electronically submitted
/s/ Robert B. Josey
Staff Attorney
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cc: Parties of Record

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**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-100, SUB 180

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of		
Investigation of Proposed Net Metering)	THE PUBLIC STAFF'S
Policy Changes)	PROPOSED ORDER

BY THE COMMISSION: On November 29, 2021, Duke Energy Progress, LLC (DEP), and Duke Energy Carolinas, LLC (DEC) (collectively, Duke or the Companies), filed a Joint Application for Approval of Net Energy Metering Tariffs in Compliance with N.C. Gen. Stat. § 62-126.4 and S.L. 2021-165 (HB 951) (Application) in Docket Nos. E-2, Sub 1219, and E-7, Sub 1214 (collectively, the Rate Case Dockets). In the Application, Duke petitions the Commission to issue an order approving its proposed net energy metering tariffs (NEM Tariffs).

On January 10, 2022, the Commission established this docket and issued an order requesting comments and reply comments on the Application. Petitions to intervene were filed and granted by the Commission for the North Carolina Sustainable Energy Association (NCSEA); NC WARN; Carolina Industrial Group for Fair Utility Rates II and Carolina Industrial Group for Fair Utility Rates III (collectively, CIGFUR); Southern Alliance for Clean Energy (SACE) and Vote Solar; the Attorney General's Office (AGO); Environmental Working Group (EWG); 350 Triangle; North Carolina Alliance to Protect our People and the Places We Live (NC-APPPL); 350 Charlotte; Solar Energy Industries Association (SEIA);

Sundance Power Systems, Inc, Southern Energy Management, Inc., and Yes Solar Solutions (collectively, the NC Rooftop Solar Installers); North Carolina Climate Solutions Coalition (NCCSC); Donald E. Oulman; Sunrise Movement Durham Hub (Sunrise Durham); and the North Carolina Electric Membership Corporation (NCEMC).

On March 28, 2022, Mr. Oulman filed initial comments. On March 29, 2022, initial comments were filed by the Public Staff; SEIA; NCSEA, SACE, and Vote Solar (collectively, NCSEA, *et al.*), jointly; NCEMC; NC WARN, NCCSC, and Sunrise Durham (collectively, NC WARN, *et al.*), jointly; 350 Triangle, 350 Charlotte, and NC-APPPL (collectively, the 350 Triangle, *et al.*), jointly; the AGO; and EWG. On May 12, 2022, NC WARN, *et al.*; EWG; 350 Triangle, *et al.*; and NCSEA, *et al.*, filed reply comments.

On May 19, 2022, Duke and the NC Rooftop Solar Installers filed a stipulation (Stipulation) regarding a transitional rate option for NEM customers (Proposed Bridge Rate). On May 20, 2022, the NC Rooftop Solar Installers, SEIA, and Duke filed reply comments in support of the Proposed Bridge Rate. Also on May 20, 2022, the Public Staff filed a letter in lieu of reply comments regarding the Proposed Bridge Rate.

On May 26, 2022, the EWG filed sur-reply comments opposing the Application and the Proposed Bridge Rate. On May 27, 2022, the Public Staff filed a letter in lieu of further responsive comments supporting the Proposed Bridge Rate; NC WARN, *et al.* filed joint sur-reply comments; Mr. Oulman filed responsive

comments opposing the Stipulation; and NCSEA, *et al.* filed joint responsive comments supporting the Stipulation.

On June 16, 2022, a joint motion was filed by EWG; 350 Triangle, *et al.*; and NC WARN, *et al.*, requesting that an evidentiary hearing be held in this matter (Joint Motion). Responses were filed on June 23, 2022, by Duke and on June 24, 2022, by NCSEA, *et al.* On November 8, 2022, the Commission issued an order denying the Joint Motion and requiring the filing of proposed orders and briefs in this matter.

NEM History

The Commission first approved NEM rates in its August 4, 2000 Order Allowing Rate Riders to Become Effective and Requesting Comments in Docket No. 100, Sub 83 (2000 NEM Order). In the 2000 NEM Order, the Commission approved experimental/pilot photovoltaic (PV) rate riders for a maximum of 25 customers per utility that provided residential and nonresidential participating customers owning small-scale PV generating facilities of 10 kilowatts (kW) or less in capacity the opportunity to operate the facilities in parallel with the utility and use the generation to offset some or all of the electricity that would otherwise be provided by the utility. These pilot programs would be compensated for excess generation under the Public Utility Regulatory Policies Act of 1978 (PURPA) avoided cost rates. 18 U.S.C. § 824a-3. Non-residential customers would also be subject to metering and stand-by charges.

The Commission's October 20, 2005 Order Adopting Net Metering (2005 NEM Order) established a framework for NEM. The Commission noted that the Public Staff had concerns "about discrimination and cross-subsidies because a net metering customer could impose demand and consume energy during on-peak periods, while generating during off-peak periods, would pay a utility nothing for standby service and transmission and distribution facilities, and could impose additional administrative costs and burdens." 2005 NEM Order at 1-2. The 2005 NEM Order approved NEM, noting that all parties conceded that allowing NEM would result in the potential for subsidies for those customers, and referred to NEM as a:

billing arrangement whereby the customer-generator is billed according to the difference over a billing period between the amount of energy consumed by customer at its premises and the amount of energy generated by the renewable energy facility. "True" net metering allows the customer generator to receive a billing credit for excess generation delivered to the utility grid.

Other requirements that the 2005 NEM Order established were: (1) a capacity size limit of 20 kW for residential and 100 kW for non-residential NEM systems; (2) a prohibition on the use of battery storage; (3) a requirement that customers must be on a time-of-use (TOU) rate schedule; (4) compensation for excess energy credits at rates commensurate with the TOU period (on-peak rates applied to on-peak excess energy); (5) elimination of all types of stand-by charges; and (6) a requirement that excess energy credits would apply to a subsequent monthly billing period and be reset to zero at the beginning of each summer and winter billing season.

The Commission altered the NEM tariffs in its July 6, 2006 Order on Reconsideration Modifying Net Metering Tariffs and Riders (2006 NEM Order) by requiring utilities to amend their NEM tariffs and riders to allow for any residual excess on-peak energy, after applied against on-peak consumption, to be applied against any remaining off-peak consumption during a monthly billing period. 2006 NEM Order at 6. The 2006 NEM Order also, in part, modified the reset of excess energy credits by requiring an annual reset at the beginning of the summer season, eliminating the prohibition on batteries, and limiting NEM contracts to a term of no longer than one year unless mutually agreed to by the customer and utility. *Id.* at 6 and 8. The Commission, however, maintained its position that the TOU-demand rate schedule requirement for NEM was not too complicated as well as its position that renewable energy credits (RECs) associated with excess energy would be granted to the utility to help offset the costs otherwise borne by the utility and ratepayers in general that were incurred to accommodate NEM. *Id.* at 6-7.

Governor Easley signed Session Law 2007-397 or Senate Bill 3 (SB 3) on August 20, 2007, which directed the Commission to “[c]onsider whether it is in the public interest to adopt rules for electric public utilities for net metering of renewable energy facilities with a generation capacity of one megawatt or less.” N.C.G.S. § 62-133.8(i)(6). In response to SB 3, the Commission, issued its Order Amending Net Metering Policy (2009 NEM Order) on March 31, 2009, concluding that the NEM rule needed revision to support the new State policy to further develop renewable energy in the State and enhance the value of NEM as a viable alternative for customers.

The 2009 NEM Order required utilities to offer customer-generators the option of NEM under any rate schedule available to customers in the same rate class but allowed customers on the TOU-demand tariff to retain all the RECs associated with the customer's generation while allowing the utility to retain the RECs of NEM on all other retail rate schedules at no cost as part of the NEM arrangement. The Commission further stated that customers on any TOU rate schedule must have on-peak generation first applied to offset on-peak consumption and excess off-peak generation first applied to offset off-peak consumption.

The Commission reiterated its definition of NEM contained in the 2005 NEM Order, echoing that NEM was a billing arrangement between the customer-generator and the utility to describe the difference in the amount of energy consumed by the customer at its premises and the amount of energy generated by the customer's own generation. While the Commission increased the size limit on eligible customer-owned generation to 1 MW and allowed credit for excess electricity generated during a monthly billing period to be carried forward to the following monthly billing period, it maintained the reset of excess energy credits at the beginning of the summer season at no cost to the utility as a means of limiting the size of individual NEM facilities and the policy of applying stand-by charges to NEM facilities that exceeded 20 kW and 100 kW limits.

The Commission concluded that "[i]n approving [these] revisions to the net metering policy, the Commission continues to adopt a reasonable balance

between utilities, net metering customers, and the utilities' remaining customers while recognizing the significance of changes in State policy." (2009 NEM Order at 15).

In 2017, the General Assembly passed Session Law 2017-192 or House Bill 589 (HB 589), which required that "each public utility shall file for Commission approval revised net metering rates" and that such rates should be "established only after an investigation of the costs and benefits of customer-sited generation." N.C.G.S. § 62-126.4(a)-(b).

Lastly, HB 951, signed into law on October 13, 2021, by Governor Cooper, provides further support for the development of renewable generation as a means of achieving carbon reduction goals. House Bill 951 not only articulates specific carbon policy goals for the utilities, it also requires that utilities pursue a least-cost means of developing their carbon reduction plans that require consideration of power generation, transmission and distribution (T&D), grid modernization, energy storage, energy efficiency (EE), demand-side management (DSM), and the latest technological breakthroughs in order to achieve a least-cost approach. In doing so, HB 951 requires that any carbon reduction plan be accomplished under the existing laws and regulations associated with the recovery of the costs of EE and DSM. Section 1. House Bill 951 also requires, among other things, the Commission to evaluate and modify as necessary NEM rates. Section 5.

The Companies' Application

In its Application, Duke describes how its Rate Design Study investigated the costs and benefits of customer-sited generation and how the results of the study provide a detailed look at the current costs and benefits of serving NEM customers under the existing NEM programs. Using these results of the study, Duke contends that it created rate structures that accurately capture the current costs to serve these customers while ensuring NEM customers pay their “full fixed cost of service” in accordance with HB 589.

The Companies state that the Rate Design Study uncovered the possibility that residential NEM customers were not paying their full fixed cost-of-service – an issue raised by the Commission in the 2005 and 2009 NEM Orders – resulting in upward pressure on residential customers' rates according to both a marginal cost study and an embedded cost study that applied industry-standard rate design metrics to the full output of the PV system. The embedded cost analysis estimated a potential monthly embedded cost (costs already incurred and part of the utility's revenue requirement) cross-subsidy for each NEM customer of \$25 to \$30 in DEC and \$35 to \$40 in DEP. The marginal cost framework estimated a potential monthly marginal cost (costs of the next unit) cross-subsidy for each NEM customer of \$30 to \$35 in DEC and \$58 to \$63 in DEP.

The Companies' Application asserts that the under-recovery of both the embedded and marginal costs from residential NEM customers primarily arises from the simplistic NEM rate design currently in effect. While the two-part rate

design is generally adequate to recover the costs of service for non-NEM customers because there is a higher correlation between demand and total energy usage, many NEM customers are able to avoid significant energy purchases from their utility because current energy rates include fixed and other demand costs. These customers are therefore able to avoid paying for a significant portion of these costs. The simplistic rate design results in NEM customers receiving bill reductions larger than the actual reduction in the utility's cost to serve them. Thus, Duke asserts that NEM customers are not paying the full cost to provide them with electric service, and this cost recovery gap is currently socialized and collected from all ratepayers. Duke contends that the revised NEM tariffs proposed in the Application (NEM Tariffs) resolve the issue of cross-subsidization in compliance with HB 589. Under the NEM Tariffs, DEC estimates that its embedded cost cross-subsidy is reduced by approximately 95%, and DEP estimates that its embedded cost cross-subsidy is reduced by 102%. Under the NEM Tariffs, DEC estimates that its marginal cost cross-subsidy is reduced by approximately 49%, and DEP estimates that its marginal cost cross-subsidy is reduced by approximately 78%.

According to Duke, the NEM Tariffs are new innovative rate structures in compliance with HB 589 and HB 951 that work in conjunction with TOU and critical peak pricing (CPP) rate schedules to align the costs to serve NEM customers and represent certain best practices that ensure each customer pays its "full fixed cost of service" in order to minimize the risk of cross-subsidization. Duke also states that if the NEM Tariffs are approved, the basic design and structure of the NEM

Tariffs would not be changed for ten years to provide consistency for NEM customers.

The Application describes five specific rate components of the NEM Tariffs and how each works together to achieve the principles established in HB 589 and HB 951. The first is a monthly minimum bill (MMB) amount proposed to ensure the recovery of costs related to the distribution system that are largely fixed in nature. The initial amounts of the MMB are proposed to be \$22 in DEC and \$28 in DEP. The Application states the MMB can be satisfied by the basic customer charge or basic facilities charge (BFC) plus the portion of the monthly volumetric energy charges specific to customer and distribution costs and riders. If the sum of those charges is less than the proposed MMB, the MMB charge would apply to residential NEM bills. If the sum of those costs is equal to or greater than the MMB, there would be no MMB charge.

Second, the new proposed Grid Access Fee (GAF), according to Duke, would apply only to solar facilities with a capacity rating greater than 15 kW direct current (DC). The Companies state that customers with large system sizes represent the greatest potential for under-recovery because those customers' billed kilowatt-hours (kWh) are reduced substantially. Duke states that the GAF helps mitigate this risk by ensuring the recovery of distribution demand costs, which is why the GAF is set in accordance with the distribution demand unit cost. DEP proposes a GAF of \$1.50 per kW per month, while DEC proposes a GAF of \$2.05 per kW per month.

Third, the non-bypassable charges are designed to recover all costs related to DSM and EE, storm cost recovery, and cyber security according to the Application. Duke states that this fee will be based upon the full capacity rating of the NEM facility. DEC's and DEP's proposed non-bypassable charges are \$0.36 and \$0.44 per kW per month, respectively. The rate is derived from estimating the total kWh bypassed per kW_{DC} of solar. According to Duke, without requiring these charges, the program expenses and non-energy linked costs would be avoided by NEM customers and ultimately collected inappropriately from non-solar customers.

Fourth, Duke states that certain core NEM principles remain the same, such as a customer's ability to consume the power generated from generating facilities and export power that exceeds the customer's usage. Customers would also be able to net exported energy against imports made by the utility over the month within each TOU pricing period, with any net imports billed at the rate in effect for that pricing period. At the end of the month, customers would be credited for any net monthly exports at an annualized rate (weighted average rate for all hours assuming a fixed block of energy) for avoided energy costs, as specified by the per kWh rates at the Companies' Commission-approved avoided cost rates. During CPP-designated hours, the CPP rate would apply to all imports, and any energy exports during the CPP hours would be considered non-CPP peak exports and would only offset non-CPP peak imports.

The avoided cost rates that the Companies propose to pay to NEM customers for exported power represent Commission-approved rates that the

Companies pay to utility-scale qualifying facilities (QFs) under PURPA. The Companies state that they believe that these avoided cost rates, while currently paid to utility-scale QFs, would be appropriate in the NEM context as well, given that these NEM customers are deemed QFs under PURPA and deliver the same intermittent solar energy to the grid as the utility-scale facilities. By using this methodology, the rates paid to the NEM customers for exported generation would accurately capture the benefits provided to the grid by the customer-generation and would align the costs of serving these customers with the benefits the Companies receive in accordance with HB 589 and reflected in the Rate Design Study.

Fifth, Duke says that these rate structures contained within the NEM Tariffs were designed to work in concert with the Companies' TOU-CPP rate schedules to produce rates that are more reflective of the costs and help reduce cost shifts by incentivizing load to be shifted to low-cost times and ensuring cost recovery for higher cost peak periods. The Application states that the NEM Tariffs would net exports and imports within pricing periods established by TOU-CPP, with any excess energy credited monthly at avoided cost rates and therefore no longer reset accrued credits on June 1 of each year.

Duke's Application proposes to transition legacy NEM customers to the new rate by January 1, 2027, as required by HB 589 but, in an effort to meet that requirement and the mandate to address cross-subsidization.

Finally, Duke states that it believes since net exports are compensated at the avoided cost rate approved by the Commission under PURPA, the Companies are permitted to recover those costs through the Companies' respective fuel riders.

Memorandum of Understanding

Duke filed, as an attachment to the Application, a Memorandum of Understanding (MOU) signed by Duke; NCSEA, *et al.*; SEIA; and Sunrun, Inc. (collectively, the Signing Parties). The MOU "sets forth certain non-binding understandings and certain binding agreements among the Parties intended to cooperatively advance the residential NEM Program." MOU at 1. The MOU states that the Signing Parties came to a non-binding understanding that the Companies would propose the NEM Tariffs as set out in Exhibit A of the MOU to the Commission with a requested effective date of January 1, 2023, and that the Companies would propose incentives to the Commission as set out in Exhibit B to the MOU, which would be available to eligible customers, including customers taking service under the NEM Tariffs.

The MOU also set out a non-binding understanding that the Companies would explore a solar program tailored to low-income customers as a potential future EE or demand response program; that the Signing Parties would review and provide feedback on the Companies' marketing materials and disclosures for customers to ensure customer communications are transparent and understandable and that customers are educated on the NEM Tariffs and incentives, including the mechanics of the rate structure; that the Understanding

Parties would support the proper collection of monthly avoided cost bill credits; and that the Companies would work collaboratively with stakeholders to develop a policy proposal for the next generation of non-residential NEM.

Initial Comments

The Public Staff

The Public Staff states that, as of December 2021, the Energy Information Administration (EIA) estimates that North Carolina has approximately 301 MW of small-scale solar capacity,¹ which ranks the State as 17th in the nation. Of the 16 states that have more total small-scale solar capacity, 75% have initiated or approved reforms to their NEM policies and tariffs. Of the 33 states that have less total small-scale solar capacity, only 27% have initiated or approved reforms to their NEM policies and tariffs.² The Public Staff notes that net metering proceedings in other states have been highly contentious. The Public Staff believes that as distributed energy resources (DERs) such as rooftop solar generation continue to grow and mature, states across the country have been reviewing and will continue to review their respective DER policies, including NEM, to identify the benefits of DERs and reduce cost shifts between customers investing in their own DERs and customers who do not.

¹ Defined by the EIA as 1 MW or less, typically located at the customer's site to serve local load.

² See North Carolina Clean Energy Technology Center, *The 50 States of Solar: 2021 Policy Review and Q4 2021 Quarterly Report*, January 2022, at 17-24.

The Public Staff also reviewed over 400 statements of position filed in response to the NEM Tariffs, finding that the most common topics mentioned are related to making rooftop solar more accessible, generally due to climate change concerns; a fear that the NEM Tariffs could harm the solar industry; and a desire for corporate and environmental responsibility. After a review of these consumer statements, the Public Staff believes there are some misconceptions as to the cross-subsidy issue being addressed or the impact of the modifications on the economics of NEM. The Public Staff states that Duke's proposal will not do away with or prohibit NEM. Rather, the Application appears to offer straightforward reforms of the structure of the NEM program that complies with the requirements of HB 589 and HB 951 and should reduce the cross-subsidization of NEM customers by non-NEM ratepayers.

a) Embedded and Marginal Cost Studies

The Public Staff generally found the methodology and results of the embedded and marginal cost studies to be a reasonable analysis of the cost, benefits, and cross-subsidies associated with NEM. According to the Public Staff, the primary purpose of the NEM Tariffs is to reduce the cross-subsidy borne by non-NEM customers, which the proposed modifications to Riders NM and the new Rider RSC largely achieve. While the total subsidy is not eliminated, it is significantly reduced.

The Public Staff first describes the Companies' embedded cost study, stating that Duke first calculates the difference between the cost to serve a non-

NEM customer and the cost to serve a NEM customer, based upon unit costs from their respective cost-of-service studies filed in the most recent Rate Case Dockets. This reduction in the cost to serve a NEM customer represents the quantifiable system benefits of NEM. Next, Duke estimates the average revenue reduction (equal to the estimated customer annual bill savings relative to a non-NEM customer) expected for a NEM customer under the existing NEM tariffs and the proposed NEM Tariffs, using a SAS^{®3} model that estimates hundreds of customer bills under various rate structures using actual AMI customer data. The embedded cost cross-subsidy is calculated by subtracting the benefits (cost-of-service reduction) from the costs (utility revenue reduction). When the revenue reduction is greater than the reduction in cost to serve, the difference represents costs that must be recovered from all ratepayers.

The Public Staff then describes Duke's marginal cost study, stating that the Companies first calculate the benefits of solar generation by conducting multiple DSM model runs using a residential NEM solar generation profile as the input. These benefits include avoided energy, avoided capacity, and avoided T&D costs.⁴ The revenue reduction from NEM customers is estimated in the same manner as the revenue reduction for the embedded cost study. The marginal cost cross-subsidy is calculated by subtracting the solar generation benefits from the revenue reduction. When the revenue reduction is greater than the reduction in

³ SAS stands for Statistical Analysis System, developed by SAS Institute, Inc., a multi-national developer of analytics software based in Cary, North Carolina.

⁴ Avoided energy and capacity rates are from Docket No. E-100, Sub 167. Avoided T&D rates are from the DEC's most recent EE/DSM filings in Docket No. E-7, Sub 1265.

cost to serve, the difference represents costs that must be recovered from all ratepayers.

The Public Staff states that the embedded and marginal cost studies estimate the reduction in cross-subsidies under expected future conditions. The actual, realized reduction in cross-subsidies may be more or less, depending on many factors. Because both analyses represent a point-in-time perspective, the Public Staff believes it is impossible to absolutely eliminate any cross-subsidy. The Public Staff contends that, while it could be argued that elimination of all cross-subsidy is an appropriate strategy to pursue (i.e., a target reduction of 100%), it believes that reductions within 90% to 110%, on an embedded cost basis, are within an appropriate band of reasonableness and that the NEM Tariffs achieve that goal. While the marginal cost study is informative, the Public Staff believes that the embedded cost study best represents the overall retail rate and revenue situation of the Companies.

The Public Staff also believes that Duke has made a reasonable effort to comply with Section VI(a) of HB 589, which requires Duke to develop rates that are nondiscriminatory and to “ensure that the net metering retail customer pays its full fixed cost of service.” Quantifying the full fixed cost-of-service is often a highly debated topic in general rate case proceedings. The Public Staff asserts that some intervening parties have asserted that the utilities have little to no fixed costs to serve customers (i.e., all costs of service vary in proportion to the units of energy sold). Duke and the Public Staff have argued that fixed costs of service do exist,

particularly those costs that are related to the demand and customer functions of utility service. The Public Staff states that the Application discusses the simple two-part rate design currently found in the basic residential service rate schedules and with such a simple design, all things being equal, the fixed costs of service must be recovered through the basic customer charge and the energy charges that comprise the basic residential schedules.

The Public Staff notes that once approved by the Commission, rate schedules are presumed just and reasonable for the recovery of the full costs to serve customers (both fixed and variable costs of service) based on an average level of consumption for each customer as represented by the utility's cost-of-service study. The embedded cost model results in some residential customers paying more than their share of fixed costs, while others pay less. In other words, higher usage customers pay a higher share of fixed costs and lower usage customers pay a lower share of the fixed costs, but on average, residential customers as a whole are paying their full, allocated share of the fixed cost of service, including both NEM customers and non-NEM customers.

The Public Staff also assessed the marginal cost of compliance with HB 589. The Public Staff states that the marginal cost study suggests NEM customers are not paying their full share of costs required to serve them, including the fixed costs of service. The Public Staff, however, believes the cross-subsidies highlighted by the marginal cost study (78% reduction for DEC and 49% reduction for DEP) are not appropriate to use in this case for two reasons. First, the utilities

do not set marginal rates for residential service. Marginal rate designs are more appropriate for customer classes that desire some level of non-firm service and have more sophisticated rate designs. Residential electric utility service has never been considered “non-firm” utility service. The Commission has routinely and appropriately maintained all residential customers in a single customer class that includes all residential sub-classes on all residential rate schedules (NEM and non-NEM customers alike and whether they are all-electric, gas-electric, TOU customers, etc.), because, as a whole, residential customers are not materially different in their consumption behaviors. The Public Staff asserts that separating NEM customers from all other residential customers and establishing rates for them on a marginal cost basis would require a more in-depth analysis before establishing new rates for all residential customers. The Public Staff contends that analysis should occur only in a general rate case where all factors of cost-of-service and rate design can be evaluated. Accordingly, the Public Staff does not recommend this separation at this time.

Second, The Public Staff contends the benefits that NEM customers bring to the residential customer class and to the utility system result primarily from lower class demands, particularly during certain peak periods, and lower overall energy usage. NEM customers directly receive some benefits in the form of lower electric utility bills, and the system receives lower variable costs (fuel and other operational expenses) to serve the residential class. The Public Staff believes that Duke’s balance of costs and benefits represents a reasonable compromise between NEM and non-NEM residential customers. The Public Staff further believes that this

balance must be monitored on a regular basis, as costs and benefits change and as more non-utility DERs are added.

The Public Staff contends that while a value of solar study, which several parties requested, may provide some additional insights into the benefits solar generation can provide, the majority of known and verifiable benefits of solar generation were analyzed through the marginal and embedded cost studies. The Public Staff stressed that the value of distributed energy resources must be based upon quantifiable benefits and costs to the utility. The Public Staff also notes that while the value of avoided T&D is included in Duke's studies, it is not included in the Net Excess Energy Credit (NEEC) calculation.

b) Rate Components

The Public Staff reviewed the proposed MMB, GAF, the non-bypassable charges, the new netting of exports against imports, and the TOU-CPP rate schedule and noted that it believes that the specific fee amounts that customers would pay under the NEM Tariffs may be changed in future general rate cases, just as any other rate schedule may.

The Public Staff says that Duke stated in discovery that the GAF is intended to recover higher than average distribution-related costs that are imposed by larger NEM systems, rather than socializing those costs across all ratepayers. Duke further stated that the 15 kW_{DC} threshold was a negotiated level that was well above the average nameplate capacity for most residential rooftop solar systems.

In contrast, the MMB is intended to recover distribution-related costs associated with an average residential system.

As to the non-bypassable charges, the Public Staff stated that in response to the Public Staff's discovery, Duke indicated that the DSM/EE, storm cost recovery, cyber security, and other similar charges recover costs that are not incurred on a per kWh basis (i.e., not classified as energy costs). A customer's rooftop solar panels do not reduce the costs that are recovered from these riders. By making these riders non-bypassable, NEM customers would contribute fully toward these costs. Duke further indicated that other riders that are recovered on a kWh basis could be bypassed. Those riders are related to excess deferred income taxes, fuel, and the competitive procurement of renewable energy. DEP also included riders related to the recovery of the Joint Agency Asset Rider and the Regulatory Asset and Liability Rider.

The Public Staff believes that the proposed netting of imports and exports within the same peak period would reduce, though not completely eliminate, cross-subsidization. By netting exports and imports in the same peak period, the Public Staff asserts that Duke's proposal assigns the same value to both exports and imports. The NEM customer, according to the Public Staff, therefore, receives full retail credit for all exports within a pricing period, up to the level of its imports; any net excess energy exported to the grid would be credited at the NEEC rate. Excess generation produced in a particular pricing period cannot be used to reduce

imports during other pricing periods. Net imports during each pricing period will be billed at the TOU-CPP rate for that pricing period.

The only exception to the netting process is related to CPP periods. Under the TOU-CPP rate schedules, Duke is permitted to call up to 20 CPP days per calendar year. During a CPP-designated day, the CPP rate will be charged for all imports during the on-peak pricing period. The CPP rate is approximately 82% higher than the on-peak rate in DEC and 86% higher than the on-peak rate in DEP. Duke proposes that during CPP hours, the CPP rate will apply to all imports, while any energy exports during CPP hours will only offset on-peak imports. In response to the Public Staff's discovery, Duke indicated that valuing exports during CPP-designated hours at on-peak rates rather than CPP rates was based on using an average annualized avoided cost rate as a proxy for what otherwise would be a more complicated calculation.

At the end of each month, the total net exports during each pricing period, if any, are summed and multiplied by the NEEC to calculate the monthly bill credit issued to the customer. The NEEC is a single annual rate that is based upon the annualized two-year avoided cost rate approved by the Commission in the biennial avoided cost docket. The NEEC proposed in each NEM Tariff is based upon avoided cost rates approved in Docket No. E-100, Sub 165. Duke has indicated it will update the NEEC upon the approval of new avoided costs. As discussed above, along with the possibility of updating the fees in general rate case proceedings, the NEEC rates may be updated within the context of the biennial

avoided cost proceedings. The Companies propose to recover the NEEC bill credit paid to NEM customers through their annual fuel adjustment proceedings. The Public Staff supports the use of the NEEC but has concerns with how Duke calculates it. The Public Staff recommends that the NEEC rate reflect a solar generation profile, rather than a flat always-available generation profile, in recognition that the vast majority of net metered generation facilities are solar, and also recommends the use of a five-year avoided cost rate. Further, the Public Staff believes that the Commission should deem customer-sited generation QFs under PURPA.

In its embedded and marginal cost studies, Duke estimates the impact to NEM customer savings from each component of the NEM Tariffs. The Public Staff states that Duke considers the customer savings to represent the revenues that Duke does not collect from NEM customers because of the customer's solar generation, and the reduction in the utility's cost to serve NEM customers represents the benefits of NEM. DEP estimates that the average NEM customer monthly savings (relative to a home with no solar) is \$98 under the current Rider NM. The proposed Rider RSC would reduce savings to approximately \$68. DEC estimates that the average NEM customer monthly savings (relative to a home with no solar) is \$80 under the current Rider NM, and \$56 under Rider RSC. The largest reduction in NEM customer savings results from adopting the TOU-CPP rate schedule with intra-period netting. On average the customer savings under the proposed NEM revisions are reduced approximately 30%.

Based on the data provided by the Companies, the Public Staff stated that it analyzed the impacts of the NEM Tariffs on quartiles of residential customers. The customer data was separated based on solar generation in kWh as a percent of load in kWh. The top quartile of customers on average generates 102.84% of their electricity needs, leading to a current average bill of \$26.38. Under the proposal, their bill would on average increase to \$57.65. On the other end of the spectrum, the bottom quartile of customers only generates 50.3% of their electricity needs, leading to an average monthly bill of \$100.77. Under the proposal, their average bill would increase to \$117.49. The first quartile percent change in bill would be 118.53% while the last quartile would increase by 16.59%. The Public Staff believes that, generally, the NEM customers that would see the largest increase in their bills under the NEM Tariffs are those that are exporting the greatest amount of energy to the grid, often times generating more energy than their annual load requirements. NEM customers who have systems with capacities greater than their load requirements may also be exporting larger amounts of energy to the grid.

The Public Staff disagrees with Duke's proposed treatment of CPP exports and imports. Specifically, the Public Staff believes that exports during the CPP period should be netted against imports within the CPP period, rather than netted against imports within the on-peak period. Duke has not provided sufficient justification for this provision. The Public Staff believes, because CPP days are designated based upon an analysis of system conditions, expected load, and the number of days in which CPP has been implemented in the calendar year, that

exports during a CPP period are more valuable than exports during non-CPP on-peak periods. The Public Staff recommends that Duke revise its NEM Tariffs to net CPP exports against CPP imports. While Duke tested the hypothesis of valuing CPP exports at the CPP rate and the results suggested that valuing CPP exports at the CPP rate would have a negligible effect on the costs and benefits to NEM customers, it would have the added benefits of simplifying the tariffs and incentivizing NEM customers with energy storage to dispatch their energy storage devices in such a way as to reduce overall grid demand during CPP periods. This would benefit not only NEM customers but all customers.

Renewable Energy Certificates

The Companies propose to continue to retain ownership of all Renewable Energy Certificates (RECs) produced by NEM customers under the NEM Tariffs. These RECs will continue to be used for compliance with N.C.G.S. § 62-133.8. The Public Staff states, however, the value of these RECs has not been included in the embedded cost analysis or marginal cost analysis described above. The Public Staff notes that granting the RECs to the utility will further decrease the cross-subsidy. The Public Staff explains, using an illustrative \$3 per REC price, DEC estimates that the embedded solar cross-subsidy with utility REC ownership will be reduced by approximately 112% and the marginal solar cross-subsidy will be reduced by approximately 87%. DEP estimates that the embedded solar cross-subsidy with utility REC ownership will be reduced by approximately 102% and the marginal solar cross-subsidy will be reduced by approximately 54%.

The Public Staff understands Duke's proposal to require utility ownership of all RECs generated by customer-sited generation. The Public Staff says a similar provision exists in Rider NM, where utility ownership of RECs was designed to mitigate the cost shift from NEM customers to non-NEM customers. However, the Public Staff argues that the proposed NEM Tariffs essentially eliminate the embedded cost shift and reduce the marginal cost shift. In addition, utility ownership of RECs would result in an embedded cost shift reduction of over 100% in both DEC and DEP, indicating that on an embedded cost basis, NEM customers would be subsidizing non-NEM customers.

Given the reduction in cross-subsidies as a result of the NEM Tariffs, the Public Staff believes requiring utility ownership of all RECs is no longer necessary. Solar RECs from NEM customers do not provide significant value to the Company, as the REC value was not included in Duke's embedded or marginal cost studies; furthermore, a significant quantity of zero cost solar RECs has been recently procured through the Competitive Procurement of Renewable Energy (CPRE) Program. However, as a small marginal cost shift still does exist, all ratepayers would benefit from the Company using zero cost RECs from NEM customers to meet Renewable Energy and Energy Efficiency Portfolio Standard (REPS) compliance. At the same time, ratepayers should be allowed to own attributes of the energy they generate from capital investments they have made in their property. To balance these competing factors, the Public Staff proposes an opt-out provision from utility REC ownership. If a NEM customer expresses a desire to own the customer's RECs, Duke should provide a pathway for customers to retain

REC ownership through an affirmative opt-out process. While solar RECs may not have significant value today, in a future carbon constrained scenario where solar RECs appreciably gain value, it would be appropriate to provide a pathway for motivated ratepayers to retain these RECs. NEM customers could sell their RECs into voluntary REC markets, such as PJM's Generation Attribute Tracking System or to REC aggregators; or they may decide not to do anything with their RECs.

The Public Staff, therefore, recommends that the Commission require Duke to refile its NEM Tariffs with two changes. First, the Rider RSC language should be revised so that for those customers that do not opt-out, the utility retains all RECs produced, not only RECs associated with energy delivered to the grid. This opt-out option should only be available to customers on Rider RSC. Customers on Rider NM are not eligible for the opt-out. This would reduce administrative complexities related to the process by which Duke estimates the number of RECs generated from NEM customers for REPS compliance. Second, Rider RSC should be revised to add an option for customers to opt-out of utility REC ownership. Duke will not be able to use the RECs of customers who opt-out of utility REC ownership for REPS compliance. Whether or not a customer opts out should have no effect on other aspects of the NEM Tariffs.

The Public Staff also requests that Duke maintain records on customers requesting to opt-out, so that the Public Staff can audit Duke's REPS cost recovery proceedings to ensure RECs from NEM customers who opt-out are not double

counted for Duke's REPS compliance. Duke should also report the number of customers who have opted out in each annual REPS rider proceeding.

c) *Energy Storage*

The Public Staff states its concern that the NEM Tariffs, as filed, do not consider how energy storage might be adopted, installed, and dispatched by NEM customers over the next decade. As previously discussed, the provision prohibiting CPP exports from reducing CPP imports would have the effect of discouraging the addition of energy storage to NEM facilities. The Public Staff recommends that the Commission direct Duke to study and consider how the NEM Tariffs might be modified, in the near future, to better facilitate and accommodate energy storage coupled with renewable generation. This analysis should include assurance that the projected reductions to cost cross-subsidies are maintained even if significant quantities of behind the meter energy storage are installed at NEM facilities, and that customers with NEM storage are adequately compensated for the value they provide to the grid. Other issues that should be studied within an energy storage docket should include: (1) whether a customer can retroactively add storage to an existing NEM system; (2) if an energy storage device could benefit the distribution system by charging during the discount or off-peak periods and discharging during the on-peak or CPP periods; (3) if utility control of customer storage could provide system benefits; and (4) how electric vehicle batteries could be incorporated into a storage paradigm if manufacturer standards reach commercial viability.

d) Complexity of Proposed NEM Tariffs

The Public Staff notes that another common topic found in the consumer statements filed in this docket raised concerns about the increased complexity of the NEM Tariffs. As such, the Public Staff supports Duke's commitment in the MOU to "develop an online savings calculator that will be shared and previewed with the [Signing] Parties for feedback within two years of the NEM Tariffs' implementation." Application, Exhibit A at 2. With the completion and implementation of the Customer Connect billing system, the Public Staff recommends that Duke work with other interested parties to develop this online savings calculator prior to implementation of the NEM Tariffs.

e) Non-Residential NEM

The Public Staff states that the Application does not specifically address how non-residential NEM would be treated. Currently, the provisions identified in the Application, NEM Tariffs, and the discovery responses reviewed by the Public Staff suggest non-residential NEM would remain unchanged.

In response to the Public Staff's discovery, Duke indicated that the Application focused on residential NEM because concerns over cross-subsidization are more pronounced for residential NEM customers, in part due to the fact that current residential NEM customers do not have the demand charges and more sophisticated rate designs that are applied to most non-residential NEM customers. Duke further indicated that it plans to discuss non-residential NEM rate

designs with stakeholders at a later time. The Public Staff did not specifically review in depth the cross-subsidy issue for non-residential NEM as part of its investigation into the Application. The Public Staff agrees that the cross-subsidy issue is not as critical for non-residential NEM as it is for residential NEM. Nevertheless, the Public Staff strongly encourages Duke to engage with stakeholders on how non-residential NEM could be restructured, alongside residential NEM.

Oversight and Recommendations

The Public Staff recommends that the Commission approve Duke's NEM Tariffs for a period of four years. Six months prior to expiration, the Public Staff suggests that Duke should make a filing to propose any modifications to its NEM Tariffs as appropriate. The Public Staff does not recommend that this review of NEM Tariffs eliminate the updating of inputs that may arise from other proceedings such as biennial avoided cost cases or general rate cases. Inputs should be updated annually as appropriate. If the Commission determines revisions are necessary, Duke should allow customers who take service under the NEM Tariffs to keep their contracts for a period of ten years, and any changes resulting to the structure of the NEM Tariffs would apply to subsequent contract periods.

In order to assess the ongoing performance and administration of NEM Tariffs, the Public Staff believes it is appropriate to require Duke to file annual reports on the implementation of its revised NEM program and tariffs. The Public Staff would also propose to coordinate with Duke and other interested parties to

determine the format and content of the annual report. As a start, the Public Staff proposes that the content include:

- a. Number of customers remaining on Rider NM and those enrolling or transferring into Rider RSC;
- b. The amount of enrolled NEM load under both Riders NM and RSC and a comparison to NEM projections used in Duke's Integrated Resource Plans;
- c. The average kW capacity per customer;
- d. The number of customers and the capacity of any storage technologies deployed;
- e. An updated marginal and embedded cost-of-service study for NEM in the same manner as presented with the Application;
- f. The number of RECs received by the Companies and the number retained by NEM customers;
- g. An assessment of interconnection costs and related issues that, including costs of any upgrades assigned to NEM customers, any costs incurred by the Companies to resolve any load conditions, require network or other upgrades to distribution facilities; and
- h. A load analysis or summary of imports and exports over each TOU-CPP period.

Finally, the Public Staff notes that the Application does not address the proposed incentives outlined in Exhibit B to the MOU. The Public Staff states it will

address those incentives on an individual basis as each proposed incentive is filed with the Commission.

NC WARN, et al.

NC WARN, *et al.* recommend that the Commission reject the NEM Tariffs proposed by the Companies for a variety of separate reasons. First, according to NC WARN, *et al.*, N.C.G.S. § 62-126.4(b) requires that the Commission establish NEM rates under “all tariff designs,” yet Duke has sought to require all NEM customers – including existing flat-rate NEM customers – to operate under TOU tariffs with CPP windows that are “extremely disadvantageous” to rooftop solar. By failing to propose tariffs under all tariff designs as required by statute, including for flat-rate customers, NC WARN, *et al.* contend that the Companies’ proposed NEM Tariffs violate the mandate and intent of N.C.G.S. § 62-126.4(b).

NC WARN, *et al.* further state that N.C.G.S. § 62-126.4(b) requires that the NEM rates be established only after an “investigation of the costs and benefits of customer-sited generation,” with Duke having failed in this instance to conduct any such investigation in this matter and relying, instead, on an outdated Cost-of-Service Study from 2018 which focuses merely on the costs of rooftop solar, rather than the benefits thereof, such as environmental impacts. NC WARN, *et al.* assert instead that principles of statutory construction ensure that the Commission, as the “prime mover regarding the establishment of new NEM Tariffs,” must lead a Value of Solar Study and establish NEM Tariffs based upon the results of that Commission-led study.

Next, NC WARN, *et al.* contend that the Companies' proposed NEM Tariffs would disincentivize the installation of rooftop solar, citing data request responses in which Duke acknowledged that the proposed NEM Tariffs would reduce the economic value of rooftop solar for NEM customers by approximately 30%. NC WARN, *et al.* describe this as a catastrophic disincentive of rooftop solar at the worst possible time in light of carbon reduction goals, which violates the purpose and goals of both HB 951 and Governor Cooper's Executive Order 80.

In addition, NC WARN, *et al.* state that the proposed NEM Tariffs would impose an unnecessarily extravagant MMB upon NEM customers in a manner that is both redundant with the BFC that is already in place by the utilities and illusory in nature. In its cost-shifting analysis the Companies failed to account for the elimination of T&D measurements which would result from the proliferation of rooftop solar; and the Companies failed to correctly analyze the potential savings achieved by NEM solar when it is used as a substitute for remote utility-scale solar that is reliant upon new or upgraded transmission to enable it to be delivered to demand centers.

Finally, NC WARN, *et al.* state that Duke's proposed NEM Tariffs omit several important provisions, such as batter storage, which NC WARN, *et al.* asserts is rapidly becoming a standard element of NEM solar systems. NC WARN, *et al.* suggest that it is especially important that customers be allowed to avoid high on-peak pricing through battery storage technology. Moreover, NC WARN, *et al.* contend that the proposed NEM Tariffs fail to include provisions for low- and fixed-

income customers. As such, NC WARN, *et al.* recommend that an equitable, well-funded on-bill financing and/or on-bill repayment program, tied to the electric meter and not to the customer, would potentially lessen the barriers presented in the Companies' application. NC WARN, *et al.* further recommend that the Commission order the Companies to propose new NEM Tariffs which, among other things, address NEM customers with battery storage.

EWG

EWG states, much the same as NC WARN *et al.*, that the Commission must require a new cost benefit analysis that properly evaluates the costs and benefits of DER. EWG believes the NEM Tariffs proposed by the Companies are unduly complex, discriminatory against residential solar customers, not supported by transparent data or analysis, heavily rely on fixed charges that are unfair, and violate applicable law and public policy.

Donald Oulman

Mr. Oulman is a Durham County resident who installed a 6.5 kW PV solar system on the roof of his home in April 2016 in part to realize a reasonable long-term financial return on the investment via the NEM rate structure. Through his own analysis, he believes that the Companies' proposed NEM rate structure versus the current flat-rate tariff would result in a 100% increase in his cost of electricity for the one-year period that he evaluated. He argues that under the proposed NEM rate structure the excess energy that he banks during high solar

production months would no longer benefit usage during low solar production months as it does under the existing NEM rate structure.

Mr. Oulman observes that the windows for summer and non-summer on-peak energy demand in the Companies' TOU-CPP tariff, 6:00 PM - 9:00 PM and 6:00 AM - 9:00 AM, respectively, do not line up with the Companies' actual peak energy demand, which is approximately 2:00 PM - 7:00 PM and 7:00 AM - 11:00 AM, respectively. He believes that the Companies' proposed CPP time period seems to intentionally negatively impact roof-top solar producers financially while benefiting from solar producer energy production during the real peak demand periods. Mr. Oulman notes that distributed PV solar roof-top energy producers in the service territory provide the Companies with numerous economic and environmental benefits. He believes that the Companies' Application for changes to NEM rate structure will retroactively create a significant change in the economics of his decision to install a PV solar system on his home, and that it will have the same impact on all other homeowners who made, and will make, similar decisions to install rooftop PV solar systems. Mr. Oulman recommends that the Commission deny the Companies' NEM Tariffs and request to implement the proposed TOU-CPP tariff.

SEIA

SEIA requests that the Commission approve the Companies' NEM proposal in this docket, with the caveat that a sustainable market in North Carolina depends upon approval of the MOU. SEIA notes its recognition that the Companies'

proposals – which introduce new rate components while retaining monthly netting and avoiding draconian fixed charge increases – could be a potential model for the future growth of customer-sited distribution energy programs of all types that recognize the total value of a DER.

SEIA cautions that the proposed rate changes will likely reduce the average system size of solar facilities in the Companies’ territories as well as the value of self-generation compared to the status quo. Without considering the availability of the upfront Smart \$aver Solar incentive, SEIA stated that it would tend to agree with critics that the changes may slow growth of the nascent rooftop solar market in North Carolina. However, SEIA asserts that the incentive for the Smart \$aver Solar program is durable and openly available to all who meet eligibility requirements and are willing to participate, and is cost-effective and provides demonstrable net savings to non-participating customers. As such, SEIA states that the industry can learn to adopt and thrive under this new paradigm, achieving a durable overall framework to grow the customer-sited solar market well into the future. In SEIA’s view, pairing NEM reform with demand-response and under an EE framework (for behind the meter (BTM) consumption) as the innovative foundation of many future programs that will also increase load flexibility, directly offset carbon emissions from the Companies’ in-state generation fleet, and provide customers more control over their monthly electric bills is a “win-win” as a customer-empowering policy that produces net benefits for all ratepayers and provides a pathway for sustainable growth of the rooftop solar industry.

NCSEA, et al.

NCSEA, *et al.* states that conversations between these multiple parties resulted in the Joint Petition and MOU and application filed by the Companies on November 29, 2021, which seeks to fulfill the legislative directives related to NEM and to benefit customer-generators, ratepayers, and the utilities. The MOU includes two main components: a proposed resolution for new NEM Tariffs for residential customer-generators (the Solar Choice NEM Tariffs) and a proposed resolution for incentives for residential customer-generators (Smart \$aver Solar Program). The proposed Solar Choice NEM Tariffs include: a requirement for customer generators to take service under existing TOU rate schedules that include TOU-CPP; a monthly GAF; an MMB; monthly netting of excess energy credits within each TOU pricing period at the utility's approved avoided cost rate; and non-bypassable charges. The parties also propose that customer generators will continue to transfer RECs to the Companies, and the Companies will keep the general rate design structure available for at least ten years and develop an online savings calculator for potential customer generators.

NCSEA, *et al.* submitted a report on the proposed Solar Choice NEM Tariffs and Smart \$aver Solar Program prepared by R. Thomas Beach and Patrick G. McGuire of Crossborder Energy. The Report includes an assessment of the cost effectiveness of the proposed Solar Choice NEM Tariffs and the Smart \$aver Solar Program incentive and found that the bill savings from solar adoption are similar to those available under the existing NEM paradigm, but only if the Smart \$aver

Solar Program incentive is included. The report also concludes that the requirement that Solar Choice customers take service under a TOU-CPP rate schedule can provide significant benefits for both customer-generators and the grid because customer-generators will have the opportunity to realize significant savings from incremental off-peak electric use, such as for EV charging.

NCEMC

NCEMC states that it does not take a position on the specific rates included in the Companies' NEM Tariffs, the MOU, or the related Smart Saver Solar Program filing but that it had several general observations that it wished to note. Specifically, NCEMC states its view that the Companies' proposed NEM Tariffs seek to ensure that each NEM customer "pays its full fixed costs of service" consistent with N.C.G.S. § 62-126.4 through better alignment of the NEM rates with the costs to serve the NEM customers, as opposed to socializing the revenue shortfall from NEM customers among all customers like the current NEM Tariffs do. NCEMC noted its general agreement with Duke that a combination of approaches can provide a framework to more appropriately capture the benefits provided to the power system by BTM generation, provide tools and flexibility to better align the cost and benefits of serving those customers, and minimize the risk of cross-subsidization.

NCEMC further explains its view that, with regard to TOU and CPP rates, time-differentiated rates that are reflective of the value of energy that the electric supplier would otherwise generate or purchase to provide energy to the customer

can help to align costs and also provide price signals to current NEM customers as well as future customers considering investing in BTM generation. The pairing of BTM generation with other devices such as energy storage or demand response mechanism can, according to NCEMC, further increase the value of the DERs to both the customer and the electric supplier in a more cost-effective fashion. Finally, NCEMC notes its agreement with Duke's proposal to include a MMB, stating that doing so will assign distribution system costs and other costs that do not typically vary with customer incurring those charges to ensure that those fixed costs are recovered from all customers.

350 Triangle, et al.

350 Triangle, *et al.* urge the Commission to reject the Companies' Application because they contend it is premature based on the need for development and completion of an appropriate Carbon Plan and independent Value of Solar Study; because the complex business practices outlined in the Application will exacerbate the climate crisis and have deleterious public health impacts in derogation of Commission's obligations under North Carolina law and public policy; and fails to recognize the societal benefits of distributed energy resources and incorporate a plan for low-and-moderate-income communities.

350 Triangle, *et al.* further argue that the Companies' application fails to evaluate the societal benefits of customer-sited generation. They argue that until the Companies address societal benefits such as offsetting fossil fuel generation thereby reducing carbon emissions, enhancing local economies, and improving

grid resiliency, the Application must be rejected. 350 Triangle, *et al.* state that rooftop solar is an underutilized resource that could have the potential to meet 30 percent of the state's energy needs and a resource that enriches communities by supporting businesses and creating jobs, attracting new companies to our economy, and by generating zero emissions energy. 350 Triangle, *et al.* also note that distributed energy generation contributes to a resilient and diverse grid distribution system because they allow flexibility during grid disturbance events. They believe that discouraging the installation of rooftop solar inappropriately devalues its benefits, such as microgrids, which can help mitigate the risks of centralized vulnerabilities common to the existing power grid.

350 Triangle, *et al.* propose a framework for climate friendly NEM Tariffs that asks the Companies to consider a list of 8 programs, incentives, and factors in response to the numerous concerns raised in their comments. 350 Triangle, *et al.* ask the Commission to reject the Companies' application and to require them to file a revised Application that takes into account the benefits and costs of customer-sited energy generation and contains climate-friendly elements that serve the public interest.

NC Rooftop Solar Installers

The NC Rooftop Solar Installers contend that Duke's proposed NEM Tariffs are not just and reasonable and violate the spirit and letter of HB 589 for a variety of reasons, and ask that the Commission deny the Companies' proposed NEM Tariffs. First, the NC Rooftop Solar Installers suggest that N.C.G.S. § 62-126.4

calls for an independent study of the costs and benefits of customer-sited generation to be conducted by the Commission and not by the utility. In light of the fact that Duke has proposed NEM rates that will last for the next ten years, the NC Rooftop Solar Installers assert that there should have been a wider array of stakeholders involved in the discussions about setting new NEM rates, with the stakeholders that are most directly impacted by the new tariffs – including the NC Rooftop Solar Installers – having been left out of the stakeholder process. In the NC Rooftop Solar Installers’ view, the proposed NEM Tariffs, if approved, will have a devastating impact to the rooftop solar industry and appear to be “unworkable” to the industry.

Despite Duke’s claims that impacts of the proposed NEM Tariffs would be minimal, the NC Rooftop Solar Installers explain that Duke customers with solar systems installed would experience a reduction in value to the customer of 20 to 35% over the life of the solar system under the proposed NEM rate structures, primarily due to the financial disadvantages of sizing a system closer to a home’s actual energy usage. The result of this would, in the NC Rooftop Solar Installers’ view, be that customers’ ability to own their own power supplies would be reduced and North Carolina’s progress toward achieving carbon reduction goals would be slowed.

The NC Rooftop Solar Installers also warn that the proposed NEM rates are overly complicated and will require solar installers to calculate the value of new solar installations for their customers, which they tout as an “impossible” task given

the complexity of the proposed rates and credits. The NC Rooftop Solar Installers explain that, under the current NEM Tariffs, they need 24 energy data points to model solar effectively, but would need 17,520 data points to continue to model solar effectively under the proposed NEM Tariffs, without even factoring in CPP rates, which they contend are unknowable. This, in the NC Rooftop Solar Installers' view, adds magnitudes of complication to the design process while adding no value for solar system owners and, in addition, there is no accessible means for a customer to access their hourly usage data in a "human-readable format" from Duke's website, which moves this analysis from complicated to impossible. The implementation of the proposed TOU rates, in the NC Rooftop Solar Installers' view, may result in customers installing panels that face a different direction that is ideal for maximum energy production purely for the sake of earning a credit for kWh at peak times. The NC Rooftop Solar Installers state their concern that customers will be taken advantage of and that the complexity and vagueness of the proposed NEM Tariffs will make it so difficult to estimate solar benefits that actual benefits will fall outside the range of projections, resulting in an erosion of confidence in the industry and a loss of credibility.

The NC Rooftop Solar Installers also assert that the avoided cost rate for QFs is too low (the lowest in the past 20 years) and that Duke should not be permitted to lock in the current NEEC for the next ten years at the Commission-approved avoided cost rate under PURPA. Instead, the NC Rooftop Solar Installers suggest that, in considering a reasonable export rate, the Commission should weigh the costs and benefits of any generation resources symmetrically

and should develop a process that identifies known or reasonably expected measurable costs and benefits that can be factored into the ratemaking process for NEM rates that compensate eligible customer-generators for energy exported to the grid in a forward-looking, long-term, and incremental analysis. The NC Rooftop Solar Installers cite to recent 2021 orders from the Kentucky Public Service Commission⁵ (KPSC) in which the KPSC considered avoided distribution capacity costs, avoided carbon costs, environmental compliance, and job benefits in setting its NEM rates, and ask that this Commission consider the same, and perhaps other, factors when setting NEM rates.

AGO

The AGO stated that the Rate Design Study did not analyze potential benefits of customer-sited generation, despite the many benefits that it brings. Although those benefits may not be possible to fully quantify until there is more clarity on the role that customer-sited generation will play in meeting carbon reduction goals, the AGO noted that the Commission has acknowledged the importance of these benefits, citing the Commission's Order Amending Net Metering Policy, Docket No. E-100, Sub 83, p. 11 (March 31, 2009), and that the General Assembly's passage of HB 951 demonstrates its recognition of the need for revised metering rates, with residential solar playing an undoubtedly significant role in achieving the goals contained therein. The AGO also emphasizes the

⁵ See Kentucky Public Service Commission Case No. 2020-00174, Order (May 12, 2021); and Case Nos. 2020-00349 and 350, Order (September 24, 2021).

importance that the NEM rates fully reflect the value that residential rooftop solar provides to the electric system, Duke, and to the State, and that additional investigation is likely necessary to gain such an understanding.

May 12, 2022 Reply Comments

NC WARN, et al.

NC WARN, *et al.* reiterated its initial arguments in its Reply Comments stating that several parties agree that the Companies did not conduct the necessary investigation pursuant to statute and the proposed NEM Tariffs will reduce the economic value of rooftop solar and are too complex.

EWG

EWG reasserts its position that the revised NEM tariffs work against public policy goals, violate clear statutory requirements and regulatory best practices, would discourage investment in customer-sited generation and would hinder development of the least-cost, safe and resilient electric system. EWG notes that there is broad agreement from multiple intervenors that the Companies' application does not meet statutory requirements and should be rejected by the Commission or delayed until there has been an investigation of the costs and benefits of customer sited generation.

EWG contends that the Public Staff asserts, wrongly, that the Companies' cost-of-service study is sufficient to meet the statutory requirement of an evaluation

of the benefits and costs of customer-sited solar, a position it believes is contrary to the position of multiple intervenors. EWG next argues that there is no evidence that NEM customers are not already paying their full cost of service. EWG posits that the residential class of customers, as a whole, may already be paying more than their share of cost of service, and that by singling out NEM customers only from the residential class for a MMB charge, the Companies are acting discriminatorily.

350 Triangle, et al.

350 Triangle, *et al.* reiterates its prior arguments echoing those made by NC WARN *et al.* and EWG.

NCSEA, et al.

NCSEA, *et al.* highlight numerous points of agreement between various intervenors. They note that the AGO agrees that the MOU must be considered in tandem with the Smart \$aver Solar incentive and that distributed solar energy can contribute to carbon reduction goals. They believe that the carbon reduction benefits from rooftop solar can be compensated through avoided cost rates used to compensate rooftop solar customers for their excess generation. NCSEA, *et al.* states that the Companies has provided numerous stakeholders with its analyses of the benefits and costs related to NEM, but have no objection to further study of the benefits and costs of rooftop solar but are concerned that any delay caused by doing so would have an effect on consumer investment in rooftop solar. Lastly,

NCSEA, *et al.* agree with the Public Staff that solar production to the grid during CPP events should earn a CPP rate rather than just the peak rate because CPP time periods represent the most resource-constrained time periods on the Companies' energy systems.

Stipulation

On May 19, 2022, Duke filed a Stipulation agreed to by the Companies and the NC Rooftop Solar Installers, which presented a "Proposed Bridge Rate" for NEM customers "while creating additional benefits for all customers (participating, non-participating, and low-income)." The Proposed Bridge Rate devised in the Stipulation will be offered as a limited alternative to the TOU-CPP tariffs the Company proposed in the Application and includes monthly netting at the applicable avoided cost rate and includes the same MMB and non-bypassable charge that are included within the NEM Tariffs. The Proposed Bridge Rate as proposed, however, does not include a GAF or mandatory TOU rates. The Stipulation states that the Proposed Bridge Rate would be an alternative to the default TOU rate design for NEM proposed in the Application and would be available to all residential customers, regardless of their current rate schedule, who apply for the NEM on or after January 1, 2023, until December 31, 2026, subject to the yearly caps.

The Stipulation states that current NEM customers may remain on their current rate until January 1, 2027, at which point they will transition to the Proposed Bridge Rate or may choose to move to the NEM-TOU rate in effect at the time.

Customers can remain on the Proposed Bridge Rate for 15 calendar years after the date on which the customer submitted an interconnection application, less the number of years they were on an alternative NEM rate structure prior to January 1, 2027. After that, the customer will move to the NEM-TOU rate in effect at the end of the Proposed Bridge Rate period. The Stipulating Parties state they agree that if the Proposed Bridge Rate is approved by the Commission the Proposed Bridge Rate would comply with HB 589.

Customers that are LIHEAP recipients, CIP recipients or live in homes specifically built for low-income and vulnerable customers will be exempt from the MMB under the Proposed Bridge Rate. Customers that receive the MMB exemption must have a PV system no greater than 8 kW_{DC}.

The Proposed Bridge Rate is subject to participation caps, which are limited by the amount of total capacity interconnected in each utility and varies from year to year. A table listing the caps is on page 4 of the Stipulation. If the cap is reached, customers could still add rooftop solar, but would only have the option of being on Schedule Purchased Power or one of the applicable TOU rates (RSTC or TOU-CPP). The Proposed Bridge Rate annual capacity is available on a first come/first serve basis and customers have one year from the application date to make their system operational or they lose their Proposed Bridge Rate capacity reservation.

There are several instances where the Proposed Bridge Rate would terminate early for some or all customers. Those events include if the Commission approves a Smart \$aver Solar Program for electric heat customers that contains

an amount equal to or greater than the total amount an eligible participant is proposed to receive in Docket Nos. E-7, Sub 1261, and E-2, Sub 1287, the Proposed Bridge Rate will terminate only for electric heat customers and electric heat customers will not be eligible for the Proposed Bridge Rate. If the Proposed Bridge Rate terminates for electric heat customers, the Proposed Bridge Rate capacity limits shall be reduced by 50% from the original caps. The Bridge Rate will also terminate if at any time during the Proposed Bridge Rate period, an energy efficiency (EE) program associated with the installation of solar rooftop PV containing a total incentive or combination of incentives that equal at least \$0.60/watt for applicable TOU rates is approved by the Commission for all eligible residential customers (regardless of heating source) in Docket Nos. E-2, Sub 1280, and E-7, Sub 1253, the Proposed Bridge Rate will terminate for applicable customers.

The Stipulation also states that the Companies would propose, and the other Stipulating Parties will support, incentives for DSM/EE measures related to adding solar plus other measures available to eligible gas heat customers. The Stipulating Parties would vigorously advocate in North Carolina for approval of these incentives, as well as the Recovery of net lost revenues and Portfolio Performance Incentive that are permitted for any Commission-approved cost-effective EE or DR program.

May 20, 2022 Reply Comments

The Public Staff

The Public Staff filed a Letter in Lieu of Comments, stating that it had spoken with Duke about the Stipulation and, in particular, the Proposed Bridge Rate. The Public Staff stated that after a short inquiry and initial review of the Stipulation that it generally supported the Stipulation and Duke's intent to offer the Proposed Bridge Rate as an alternative to the TOU-CPP tariffs set out in the Application and modified by the Public Staff's Initial Comments.

The Public Staff also stated that it had reviewed the initial comments of other parties and does not agree with the interpretation of N.C.G.S. § 62-126.4(b) provided by NC WARN, *et al.* in their Joint Initial Comments (NC WARN's Comments). The Public Staff states that it agrees with Duke that the statute's intent is to ensure that NEM customers pay at least their full fixed cost-of-service and not that there should be a NEM option under all rate designs and therefore the Commission should reject the interpretation NC WARN, *et al.* of N.C.G.S. § 62-126.4(b).

NC Rooftop Solar Installers

The NC Rooftop Solar Installers wrote briefly to note their view that the Stipulation is "an improvement" to the proposed NEM rates that should allow rooftop solar developers to serve North Carolinians that want to invest in solar through 2026. In the longer term, the NC Rooftop Solar Installers urge the

Commission to work with all stakeholders to develop NEM rates that fully reflect the value that customer-owned solar provides to Duke’s generation, transmission, and distribution systems and the value of solar to North Carolina’s statutory carbon reduction goals. Accordingly, the NC Rooftop Solar Installers recommend that the Commission approve the Stipulation in its entirety.

SEIA

SEIA recommends approval of the Stipulation, noting its belief that the Stipulation is “additive” to the original program structure described in the Smart \$aver Solar Programs and allows greater flexibility and consumer choice for customers looking to adopt solar in the Companies’ North Carolina service territory. According to SEIA, the Stipulation allows the solar industry the additional time that is needed to alter its business models and practices to accommodate new and innovative tariff structures through the Proposed Bridge Rate and notes its support of expanding program offerings to both electric and gas hearing customers, which it asserts will at least double the existing market for potential adopters and expand the program to an even wider range of participants. SEIA states that approving this Stipulation, as well as any solar efficiency incentive program within the broader umbrella of demand-side customer programs, would signal the importance that these systems and their functions play in transitioning North Carolina’s energy economy to one that is cleaner and more resilient, while creating greater agency for consumers when it comes to choosing the sources of their energy.

Duke

Duke rebuts arguments made by several parties that claim the Rate Design Study did not meet the requirements of HB 589, stating that the results of the study arise from Commission-approved and industry-accepted methodologies, utilize the most recent Commission-approved cost-of-service data, and properly account for recognized costs and benefits arising from NEM customers. Duke further contends that the investigation was utilized to create rate structures that accurately capture the currently recognized benefits and costs to serve these customers and ensure that NEM customers pay their “full fixed cost of service” in accordance with HB 589. Duke also argues that the 2018 test year for the cost-of-service study was appropriate because neither of the Companies have had a rate case since the compliance cost-of-service studies were filed based on the 2018 test year and no costs have been added to base rates since the 2018 year. Thus, it would not be prudent to consider the recovery of costs that are not currently in retail rates.

Duke responded to the argument of NC WARN, *et al.* that the cross-subsidy estimates provided by the Companies were unreliable because the analysis focused on the residential customers. Duke asserted that residential customers are the primary driver of cross-subsidies on the Companies system because under the current rate structure NEM customers use less energy throughout the year than non-NEM customers but need the same service during the winter peak, causing the volumetric rates to over-represent cost avoided when a customer only reduces energy consumption. Further, Duke states that a similar unwarranted

cross-subsidy arises when utilities overpay for the power exported to the grid by NEM customers because the volumetric charge for residential customers includes the recovery of non-energy costs, which are not necessarily reduced due to these exports.

Duke reiterated its support for the fee components of its proposed NEM Tariffs stating that they are all necessary to ensure that cross-subsidization is minimized. Duke contends that the MMB mirrors the minimum cost to serve NEM customers and is not a penalty as the 350 Parties suggest. Duke states that the GAF is only applied to solar facilities in excess of 15 kW in order to mitigate the risk of cross-subsidy by ensuring recovery of distribution demand costs. Duke goes on to state that the non-bypassable charges are required because without them the program expenses and non-energy linked costs would be avoided by NEM customers and ultimately collected disproportionately from non-NEM customers. The Companies believe that these mechanisms are necessarily more complex than the current volumetric rates under the existing NEM programs and as such, they are developing a bill calculator that will help customers estimate savings from adding rooftop solar. Duke says that the calculator will model all aspects of a customer's bill, including the MMB, GAF, and non-bypassable charges, and will help customers overcome some of the additional complexity in adopting rate designs better aligned with cost causation. A similar calculator was deployed in South Carolina.

The Companies also agreed with the Public Staff that the avoided cost docket is the appropriate forum for deciding excess export rates for NEM customers, which would have the NEEC updated every two years for all customers under the NEM Tariffs, concurrent with the avoided cost rates. Further, Duke agreed with the Public Staff to base the NEEC rates on a five-year term, including both energy and capacity credits where applicable and weighted using a typical rooftop solar production profile. Duke stated that weighting avoided cost credits based on a typical rooftop solar production profile will help ensure that annualized NEEC rates accurately reflect the average value of energy and capacity from NEM customers over TOU periods and across months.

Duke rebuts statements made by other parties that claim the NEM Tariffs proposal will intentionally drive down the market for NEM in North Carolina, contending that the proposed tariffs allow customers to obtain savings similar to if not better than the current NEM tariffs. Duke acknowledges that its modeling shows that the proposed NEM Tariffs would reduce annual savings compared to current NEM programs but that the estimate does not account for reforms that provide incentives to NEM customers where they choose to complement actions that benefit all customers, such as TOU-CPP pricing signals or the Smart Saver Solar Energy Efficiency Program. Customers can take advantage of the TOU-CPP rates and increase their bill savings by consuming power during off-peak and discount time periods when electricity costs are lower and choose to export power during on-peak and critical peak periods when the power is more valuable to the system.

Duke agrees with the Public Staff that the Companies should study and consider how the NEM Tariffs may be altered to better facilitate and accommodate energy storage paired with renewable generation. Duke states that it believes that further study of energy storage is appropriate to better understand potential interactions between NEM generation and energy storage.

Duke does not agree with the Public Staff that requiring utility ownership of RECs is no longer necessary in light of the significant reduction in the cross-subsidy under the proposed NEM-Tariffs. The Companies believe maintaining ownership of the RECs allows the benefits to flow to all customers, which Duke contends helps further reduce the potential marginal cost cross-subsidy. Duke does, however, agree with the Public Staff that the Rider RSC language should be revised so that the utility retains all RECs produced, not only RECs associated with energy delivered to the grid because it reduces administrative complexity.

Duke does argue that the NC WARN *et al.*'s argument that HB 589 requires a flat rate NEM tariff because the statute states that “[t]he Commission shall establish net metering rates under all tariff designs” is unfounded. N.C.G.S. § 62-126.4(b). Duke contends that NC WARN *et al.* omitted part of the statute in its reading, specifically that each “net metering retail customer pays its full fixed cost of service” and the “flat-rate” design is what created the cross-subsidization issue in the first place. *Id.* The Companies believe that if the General Assembly intended to mandate a specific tariff design, the statute would have done so. Duke further

asserts that the proposed tariffs address the statute's requirement that NEM customers pay their "full fixed cost of service."

Duke then states that the proposed NEM Tariffs address residential and not non-residential tariffs because the current residential NEM tariffs, as also acknowledged by the Public Staff, is the primary driver of cross-subsidization. This is due to non-residential rate structures including mechanisms such as demand charges to better align costs with benefits. The Companies agreed with the Public Staff that non-residential NEM reform should be addressed in the future and state that is why the Companies agreed in the MOU to develop a policy proposal for the non-residential NEM. Duke argues that not having new non-residential NEM proposals should not delay the approval of the NEM Tariffs currently before the Commission.

Duke also contends that while the NEM Tariffs and Smart \$aver Solar program work in conjunction to provide increased benefits to all customers, the Commission should not link consideration of these proposals. Duke states that the NEM Tariffs were designed to meet the requirements of HB 589 and that the Smart \$aver Solar program was developed pursuant to N.C.G.S. § 62-133.8 and Commission Rule R8-68. According to Duke, nothing in HB 589 or the Commission's procedural schedule in either docket require the Commission to withhold a decision on the NEM Tariffs in anticipation of an order in the Smart \$aver Solar docket.

Lastly, Duke agrees with the Public Staff that the Carbon Plan should not affect the Commission's decision in this docket. Both the Companies and the Public Staff agree that rooftop solar should be analyzed with all other options to determine the least-cost path to compliance with HB 951. The Companies believe that the purpose of the proposed NEM Tariffs (meeting the requirements of HB 589) and the carbon-emission goals of 951 are separate from one another. The legislature did not expressly include NEM reform as part of meeting the carbon emission goals of HB 951.

Concerning the Stipulation, Duke states that the Proposed Bridge Rate will replace the legacy NEM rate proposed in the application. Duke also asserts that the Stipulation agreed to between the Companies and the NC Rooftop Solar Installers provides for a gradual transition from the current NEM tariffs to the new NEM tariffs while still complying with HB 589.

May 26 and 27, 2022 Further Responsive Comments

The Public Staff

In its Letter in Lieu of Further Responsive Comments, the Public Staff stated that it had reviewed the Stipulation and reply comments of the parties and does not object to the Proposed Bridge Rate.

EWG

EWG urges the Commission to reject the Application as well as the Proposed Bridge Rate and continues to argue that the Companies' cost-of-service study is not sufficient to satisfy statutory requirements. EWG provides additional argument in support of its position that the Companies' cost-of-service analysis did not provide analyses of the benefits of customer-sited generation and that costs and benefits must be evaluated using the NSPM-DER as has been done in a number of other states. EWG argues that a full consideration of all of the benefits of customer-sited generation is consistent with the requirements of HB 951. EWG notes that the NC Rooftop Installers agree that an independent study of the costs and benefits of customer-sited generation should be conducted. EWG disagrees with the Companies that a value of solar study would cause needless delay because they believe the study is a statutory requirement and that the status quo would remain in effect during such time.

NCSEA, et al.

NCSEA, *et al.*, stated their support of the Stipulation in light of their view that the Proposed Bridge Rate is a reasonable modification of the Companies' proposed NEM Tariffs which provides additional customer choice for a defined time period, addresses the concerns about the proposed Smart \$aver Solar incentive being unavailable for customers with gas-heated homes, and eases the transition to the TOU-CPP rates. NCSEA, *et al.* also notes their support of the exemption from the MMB requirement for low-income and vulnerable households as a

“creative way” to help make sure that the bill-saving benefits of rooftop solar will be available to lower-income households. Finally, NCSEA, *et al.* states that the commitment in the Stipulation to pursue an additional incentive program that would be compatible with gas-heated households which cannot participate in the Smart \$aver Solar incentive is consistent with the expectation in the MOU and would be a welcome addition to the innovative package of new solar proposals that are reflected in these agreements with Duke.

Donald Oulman

Mr. Oulman asserts that the Stipulation actually worsens the financial harm to him in terms of the out-of-pocket costs that he will incur, as compared to the proposed NEM Tariffs prior to the Stipulation. Mr. Oulman notes that it is his understanding that the Stipulation also decreases the amount of time that he could stay on a lower bridge rate from the time set forth in the proposed NEM Tariffs, and that it appears as though customers who installed solar in 2011 or earlier may receive no benefit from the Proposed Bridge Rate at all – a result which he describes as unconscionable. Mr. Oulman explains that, if the Commission allows the Companies to materially change the NEM Tariffs prior to the end of the useful life of the PV solar system he purchased in 2016, it will unfairly impact the financial basis for his good faith investment that supported what was, at the time, the General Assembly’s intent to promote distributed PV solar rooftop development.

NC WARN, et al.

NC WARN, *et al.* again restates its initial arguments on statutory compliance. NC WARN, *et al.* also argue that the proposed stipulation does not correct what they see as the serious defects in the Companies' Application and note that the Stipulation does not replace or change the NEM Tariffs proposed in the Application, but offers an alternative to those tariffs. They note the 4-year eligibility period, annual participation caps, and treatment of legacy NEM customers as areas of concern. NC WARN, *et al.* also voice concern over the short period of time to review the Stipulation and the fact that the Stipulation is nonunanimous. NC WARN, *et al.* argue that the Commission should reject the Companies' Application and lead a cost-benefits analysis of NEM generation which would include a Value of Solar Study.

Discussion and Conclusions**Statutory Compliance**

It has been over 22 years since the Commission initially approved NEM as a pilot program in 2000. Since that time, the Commission has issued a series of orders and the General Assembly has passed several pieces of legislation that have significantly changed the landscape of renewable energy generation in North Carolina. Further, rooftop solar technology has evolved during that time, including steep declines in solar panel prices, leading to the proliferation of NEM that could not have been envisioned at the turn of the century. Throughout the two decades

since NEM was approved, one of the main issues at the center of all NEM tariff proceedings has been non-participating customers subsidizing NEM customers.

In the Commission's 2005 and 2006 NEM Orders, the Commission acknowledged that all parties conceded that NEM would result in potential subsidies for NEM customers but stated that other benefits had been proposed by intervenors that could potentially offset such subsidies. To minimize those subsidies, the Commission established size limits, required customers be on a TOU rate schedule, and granted RECs associated with excess energy to the utility.

After the enactment of SB 3 in 2007, the Commission issued its 2009 NEM Order, modifying the utilities' NEM programs. The 2009 NEM Order increased the size of NEM systems to 1 MW to match the language in SB 3, shifted the reset credit for exports that are carried over month-to-month from the winter to the beginning of the summer season, and made taking NEM service under a TOU tariff optional. 2009 NEM Order at 15. The Commission held that the modifications to the NEM programs were made to recognize the change in State policy and to strike a "reasonable balance between utilities, NEM customers, and non-NEM customers." *Id.*

The legislature addressed cross-subsidization in 2017, when it passed HB 589. House Bill 589 required that "each public utility shall file for Commission approval revised net metering rates" and that such rates should be "established only after an investigation of the costs and benefits of customer-sited generation." N.C.G.S. § 62-126.4(a)-(b). House Bill 589 also stated that "cross-subsidization

should be avoided by holding harmless electric public utilities customers that do not participate in such arrangements.” N.C.G.S. § 62-126.2.

House Bill 951 was enacted in October of 2021, which required the Commission to revise NEM rates.

With this history in mind, the Commission reviews whether that Duke’s proposed NEM Tariffs meet the statutory requirements established in HB 589. As part of the Rate Design Study required by the Commission in the Rate Case Dockets, Duke, along with a number of stakeholders, conducted an investigation of the current NEM tariffs. The Rate Design Study found that there is potential for significant cross-subsidies for each NEM customer in both the embedded cost analysis (\$25 to \$30 per NEM customer per month in DEC and \$35 to \$40 in DEP) and the marginal cost analysis (\$30 to \$35 per NEM customer per month in DEC and \$58 to 63 in DEP).

In response to these findings, Duke, through a stakeholder process, developed the proposed NEM Tariffs which include rate mechanisms such as the MMB, GAF, non-bypassable charges, and export credit to help lessen or eliminate the cross-subsidies. Approval of the proposed NEM Tariffs was supported by a wide coalition of parties representing utility, environmental, and solar interests who signed onto the MOU filed with the Application. The Public Staff, while not signing onto the MOU, stated in its Initial Comments that it generally found that the methodology and results from the Rate Design Study related to NEM were a reasonable analysis of the cost, benefits, and cross-subsidies associated with

NEM and that the Companies had made a reasonable effort to comply with HB 589. The Public Staff also noted that the agreements enshrined in the MOU should substantially reduce the number of contested issues relative to contentious processes in other states.

Parties including NC WARN, *et al.*, EWG, and Triangle 350, *et al.* state that the Commission should deny the Application arguing that Duke has yet to meet the requirements of HB 589 because it has not developed NEM rates under “all tariff designs.” Further, the parties contend that a proper investigation was not conducted because HB 589 tasks the Commission with investigating NEM rates which should include a broader analysis of the full benefits and costs of NEM than the outdated Cost-of-Service Study relied on by Duke.

The Commission is not persuaded by NC WARN, *et al.*, EWG, and Triangle 350 *et al.* that argue that neither Duke nor the Commission have met their statutory obligations under HB 589. First, the Commission agrees with Duke and the Public Staff that the statute’s intent is to ensure that NEM rates were filed and approved “after an investigation of the costs and benefits of customer-sited generation” and that those “rates under all tariff designs...ensure that the net metering retail customer pays its full fixed cost of service.” N.C.G.S. § 62-126.4(a) and (b). There are a large number of rate designs currently in use - DEP alone has approximately 26 different rate schedules for residential, non-residential, and lighting customers. It would not be practical, nor would it meet the intent and spirit of HB 589 and 951, to direct Duke to craft a separate NEM tariff for each of its rate schedules. As noted

by the Public Staff, Duke made a reasonable effort to comply with Section VI(a) of HB 589. The Public Staff further noted that the subject of fixed costs and the recovery of those costs are often highly debated topics in rate case proceedings. As such, Duke's proposal provides an adequate mechanism to reduce the cross-subsidy of fixed cost recovery by incorporating a number of rate design elements into its proposal, including the requirement that NEM customers take service under a time-of-use rate schedule to enable intra-period netting. Further, the Commission does not interpret HB 589 to require a simultaneous filing of modifications to the non-residential NEM programs. As noted by the Public Staff, the issue of cross-subsidization for non-residential customers is not as prominent and need not be contemplated at this time in an effort to meet the statutory requirements because those rate schedules do not have the same risk of cross-subsidization. Duke contends in its Reply Comments, that this lower risk is largely due to the use of rate designs that include demand charges, which from a cost-causation perspective are primarily designed to recover fixed costs. As Duke and the Public Staff contend and the Commission concludes, the simplicity of the current residential NEM tariffs has led to cross-subsidization within the residential class because significant fixed costs are recovered via volumetric charges in residential tariffs. Further, Duke states in its reply comments that it is necessary to address non-residential NEM reform in a subsequent Commission proceeding and via the MOU has agreed to work collaboratively with stakeholders on this issue. The Commission also notes that DEP has filed a new NEM tariff for non-residential customers in Docket No. E-2, Sub 1300. Accordingly, the Commission finds that

Duke's proposed residential NEM Tariffs have met the statutory requirement to develop NEM rates that address an NEM customer's full fixed cost of service. The Commission will address the merits of the proposed non-residential NEM tariff in the Sub 1300 proceeding and declines to order a separate study now.

The Commission also disagrees with the argument that the HB 589 required the Commission to conduct the investigation of the costs and benefits of customer-sited generation. The statute states that "rates shall be...established only after an investigation of the costs and benefits of customer-sited generation." N.C.G.S. § 62-126.4(b) The statute then requires the Commission to establish the rates. *Id.* Nothing in the plain language of the statute mandates that the investigation must be conducted by the Commission, only that an investigation take place prior to being established. While the statute provides the Commission with the ability to direct an investigation, nothing in the plain language of the statute requires the Commission, itself, to conduct the investigation. The Commission concludes that the statute only mandates that an investigation be conducted prior to the establishment of rates, which indeed has occurred.

The Commission also disagrees that the investigation was insufficient to meet the statutory requirement. The statute required an investigation of the costs and benefits of customer-sited generation. *Id.* NC WARN, EWG, and Triangle 350 assert that because Duke relied on an outdated Cost-of-service Study and that the Commission or Duke must conduct a Value of Solar Study prior to the approval of new NEM tariffs. The analysis in the embedded and marginal costs studies that

the Companies conducted capture the majority, if not all, of the known and verifiable benefits of solar generation. However, as noted by the Public Staff, the Cost-of-Service Study and the Value of Solar Study include the benefits of avoided transmission and distribution (T&D) costs, but the NEEC does not. The Commission further finds that the Companies' use of the cost-of-service studies conducted in 2019, as part of DEC's and DEP's last general rate cases, is appropriate. Those 2019 studies, using a 2018 test year, were used as the basis for developing the Companies' current retail rates and were the most recent cost-of-service studies approved by the Commission. Given that the cost-of-service studies used for this investigation were the last ones conducted and no costs have been added to base rates since that time, the Commission finds that the 2018 test year for the cost-of-service study and the embedded and marginal cost analyses were sufficient to determine the need for the proposed NEM Tariffs.

Consideration of avoided T&D benefits and the compensation of those benefits through the NEEC or some other mechanism should be considered further. NC WARN *et al.* highlight the failure of Duke's proposal to properly consider the benefits of avoided T&D benefits. NC WARN *et al.* further cite the failure to consider T&D-related losses and capacity. (NC WARN *et al.* Initial Comments at 30), and that a Value of Solar Study could assess the T&D costs and benefits of NEM. Duke's Reply Comments restated the fact that both the embedded and marginal cost studies recognized the benefits of not having to build T&D assets. However, Duke's Reply comments did not determine the avoided T&D benefits in its NEEC calculations.

The Commission notes that the record in this proceeding on including avoided T&D benefits in the NEEC is inconclusive and will not require that such benefits be added to the NEEC calculations at this time, but rather will be revisited in future avoided cost proceedings. The Commission does note that the parties make a distinction between what T&D assets could be avoided initially by NEM as well as those assets that would be deferred in the future. The Commission reiterates its position that only known and measurable benefits and costs should be included in the determination of the NEEC. Consistent with the Commission's November 22, 2022 Order Establishing Standard Rates and Contract Terms for Qualifying Facilities (Avoided Cost Order) in Docket No. E-100, Sub 175, Duke's inclusion of costs and benefits associated with not building T&D assets is based on the capacity and reliability benefits associated with NEM. The Commission cannot speculate on future deferrals of T&D costs. The Commission is also not persuaded that NEM will always provide a grid deferral benefit, which alone justifies the exclusion of avoided T&D benefits from the NEEC. The costs and benefits of NEM facilities have changed since the Commission issued its 2009 NEM Order, and the Commission recognizes that those costs and benefits will continue to change in the future. The Commission stated in the Avoided Cost Order that it is not appropriate currently to include the implied cost of carbon in the calculation of avoided cost rates because it is not "known and verifiable" but stated that "the Commission does anticipate that the next avoided cost proceeding will address the cost of carbon and the approved Carbon Plan." Avoided Cost Order at 29-30. Given that the benefits of NEM may be more known and verifiable in the

future, the Commission finds and concludes that it is appropriate to revisit the appropriate NEEC, and whether avoided T&D and carbon costs should be included in the calculation in future avoided cost proceedings.

The Commission finds and concludes that the Companies properly conducted an investigation of the costs and benefits of customer-sited generation as required by HB 589. Accordingly, the Commission finds and concludes, based on all the foregoing evidence, that Duke has complied with its statutory requirements established in HB 589 and N.C.G.S. § 62-126.4 by conducting an investigation and filing for approval the NEM Tariffs. The Commission further finds and concludes that given the dynamic nature of the inputs of these calculations, that a periodic review of these costs and benefits is appropriate.

Marginal and Embedded Cost Models

As stated above, the Commission generally supports the proposed NEM Tariffs included in the Application. However, the Commission finds that some of the proposed rate components should be modified before it can grant approval. First, while the marginal cost study is informative, the Commission agrees with the Public Staff that the embedded study best represents the overall retail rates and revenues of the Companies. Further, the cross-subsidies enumerated by the marginal cost study are not appropriate for determination of the cross-subsidy because the utilities do not set marginal cost rates for residential service, and the benefits that residential NEM customers provide to the class and the utility result mostly from a lower class demand placed on the system. Marginal cost rates are

more appropriate for non-residential customer classes desiring non-firm service with more sophisticated rate designs, including specific demand charges. The Commission does not find it appropriate to have a NEM customer rate separate from all other residential customer rates at this time, although as NEM adoption continues to grow it may become necessary to create a separate rate class to reflect the substantial difference in load profiles between NEM and non-NEM customers. Duke did not dispute the Public Staff's comparison of the embedded cost analysis and the marginal cost analysis and the Commission finds this comparison supports the use of the embedded cost studies rather than the marginal cost studies. Therefore, the Commission concludes that while the marginal cost analysis is informative, the Companies' reliance on the embedded cost studies for the development of NEM rates is appropriate. This is another reason the Commission is requiring periodic review.

NEM Tariff Components

The Commission agrees with Duke that the MMB, GAF, and non-bypassable charges included in the proposed NEM Tariffs are essential components in ensuring that the Companies recoup a reasonable portion of the fixed and other rider costs from NEM customers, thus addressing the cross-subsidy issue. 350 Triangle, *et al.* label the MMB as a penalty, but the Commission agrees with Duke that the appropriately MMB recovers distribution-related costs associated with an average residential system. These costs, which are normally recovered through the volumetric charge, may not be recovered from NEM

customers who consume fewer kWh than a non-participating customer. Unless and until it can be definitively determined that distribution-related costs to serve NEM residential customers are significantly less than the cost to serve non-NEM residential customers, the Commission finds that MMB reflects the minimum cost to serve NEM customers and is therefore necessary to ensure that NEM customers are paying their own cost to serve. The Commission further agrees with Duke and finds that the GAF as applied to solar facilities over 15 kW is also a key element to mitigate the risk of cross-subsidies by ensuring recovery of distribution demand costs. The Commission also finds that the non-bypassable charges, which include DSM/EE, storm cost recovery, cyber security, and other similar charges, are necessary to guarantee that program expenses and non-energy-related costs are collected from all residential customers, including NEM customers. The costs included in the non-bypassable charges are costs the utility incurs that cannot be reduced by NEM. Thus, the Commission finds and concludes based on all the foregoing evidence that the MMB, GAF, and non-bypassable charges are necessary to help abate subsidization of NEM customers by non-NEM customers and are therefore appropriate for inclusion in the NEM Tariffs.

The Commission agrees with Duke and the Public Staff that these mechanisms are necessarily more complex than the current tariffs, and thus the Commission is in favor of the Companies developing an online savings calculator that will model all aspects of a customer's bill to enable customers to estimate savings as stated in the MOU and Duke's Reply Comments. The Commission agrees with the Public Staff that such a tool is critical to have in place prior to the

effective date of the NEM tariffs. Therefore, the Commission directs Duke to work with stakeholders to develop and publicize the online savings calculator within 90 days of the date of this order and at least 30 days prior to the effective date of the NEM tariffs.

Netting of Imports and Exports

The Commission agrees with Duke's proposal regarding the netting of imports and exports within the same peak period because it assigns the same value to both imports and exports that take place during the same period with any excess exports being credited at the avoided cost rate. The Commission, however, finds the Public Staff's position, which was supported by NCSEA *et al.*, regarding netting during CPP periods reasonable and appropriate. The Commission finds that Duke's proposal, which does not net exports during the CPP period with imports during the CPP period, is not appropriate. Duke stated in its Reply Comments that it did not object to this revision as recommended by the Public Staff. Accordingly, the Commission accepts Duke's proposal as modified by the Public Staff.

NEEC Calculation

Duke proposed to pay NEM customers the Commission's approved avoided cost rate that has historically been paid to utility-scale QFs because NEM generation facilities are considered QFs under PURPA. The NC Rooftop Solar Installers stated that the avoided cost rate for a QF is too low, and that Duke should

not be permitted to lock in the current NEEC for the next ten years. The Public Staff agreed with Duke that NEM generating facilities should be deemed QFs and also proposed that the NEEC reflect a solar generation profile and the use of a five-year avoided cost rate. Duke supported the Public Staff proposal in its Reply Comments. Duke also indicated that it would update the NEEC upon approval of new avoided cost rates.

The Commission finds and concludes that NEM customers are QFs under PURPA and as such, the Commission can set the price for excess energy exported to the grid. Therefore, the Commission finds and concludes based on all the foregoing evidence that it is appropriate for the NEEC to be calculated using a solar profile and be based on a five-year avoided cost term that will be set in the Commission's biennial avoided cost proceeding. The Commission further concludes that the NEEC will be fixed for a period of at least five years, and that Duke shall file in future avoided cost proceedings its calculation of the NEEC. The Avoided Cost Order filed on November 22, 2022, put into effect new avoided cost rates and the Commission directs Duke, in its compliance filing, to use the Sub 175 methodology to update the NEEC.

Proposed Bridge Rate

The Commission accepts the proposal reached by the Parties regarding the option for legacy and future NEM customers to transition to the new NEM Tariffs through the Proposed Bridge Rate. Duke stated that this Bridge Rate will replace the legacy NEM rate proposed in the Application. House Bill 589 allows for current

NEM customers to remain on current NEM rates until January 1, 2027. The Bridge Rate provides an alternative to the default TOU rate design in the original Application that requires a CPP-oriented rate schedule for legacy NEM customers and new NEM customers who enroll between January 1, 2023, and December 31, 2026. The Commission finds that the NEM Tariffs, as Duke initially proposed in its Application, are the most direct way to quickly minimize and potentially eliminate cross-subsidization. The Commission last adjusted the NEM tariffs when it issued the 2009 NEM Order modifying rates to meet State policy changes while striking a “reasonable balance between utilities, NEM customers, and non-NEM customers.” The Commission is doing the same here by recognizing the need to balance the interest of NEM customers, non-NEM customers, the utilities, and compliance with HB 589. The Commission finds that the annual capacity caps for participation in the Bridge Rate will provide an additional rate option for NEM customers while ensuring that the new NEM Tariffs are phased in over time. Therefore, the Commission finds and concludes based on all the foregoing evidence that the Proposed Bridge Rate meets the intent of HB 589 by allowing legacy NEM customers to remain on their current rate schedule while the utilities minimize the cross-subsidization of those customers by phasing in the new tariffs over time.

As pointed out by the Public Staff, NEM reform proceedings in other states can be exceedingly contentious. The Commission acknowledges the give and take of the stakeholder process, and appreciates the extensive work and compromises made by all parties to reach agreement and resolve contested issues prior to the filing of the NEM tariffs, as reflected in the MOU and the Stipulation. Accordingly,

the Commission approves the Proposed Bridge Rate described in the Stipulation to provide multiple options for current and future NEM customers to avoid rate shock while transitioning to the new rates and to provide a gradual reduction in cross-subsidies for both groups of customers.

DSM/EE Incentives and Programs Contained in the MOU and Stipulation

The Commission notes that the issue of whether recognizing the reduction of a customer's net consumption by its rooftop solar generation would constitute DSM/EE is pending in Docket Nos. E-2, Sub 1287, and E-7, Sub 1261. This Order does address the threshold issue of whether the proposed Smart \$aver Solar Program constitutes a DSM/EE program, nor does it approve any form of incentive for any programs, including the Smart \$aver Solar Program that is contemplated in the MOU and the Stipulation, in this docket. The MOU executed and attached to the Application contemplated an agreement on the proposed NEM Tariffs currently before the Commission in this docket as well as the Smart \$aver Solar Program that is currently pending in Docket Nos. E-2, Sub 1287, and E-7, Sub 1261. The Stipulation also includes references to this incentive program as part of the agreement between the parties. Duke states that, while the Smart \$aver Solar program was developed to work in conjunction with the proposed NEM Tariffs, the two items should not be linked. The Commission agrees with Duke that the approval of the Smart \$aver Solar program is not linked to the NEM Tariffs. The Commission also acknowledges that should the Smart \$aver Solar Program be approved as a DSM/EE program, the costs of all DSM/EE programs filed pursuant

to Commission Rule R8-68 are recovered through a separate mechanism that is approved pursuant to Commission Rule R8-69. The costs associated with NEM are recovered through base revenues. Therefore, the Commission has determined that the Smart \$aver Solar Program should not be considered in this docket, but in the separate dockets in which they are pending. Therefore, the Commission concludes that any part of the Application or Stipulation contemplating approval of or linkage to the Smart \$aver Solar Program shall be denied in as far as it applies to this docket. The Commission will address the Smart \$aver Solar Program on the merits in the respective dockets.

Renewable Energy Certificates

The Commission agrees with the Public Staff's argument that the utilities no longer need to retain ownership of the RECs created when the NEM customers export energy to the grid. The Commission originally allowed the utilities to collect unused credits for excess generation and the RECs created from that excess generation for the benefit of the utilities' other non-NEM customers to lessen the cross-subsidization created by NEM customers. 2006 NEM Order at 7. Now, as the Public Staff correctly asserts, the reduction in cross-subsidies that will result from the approval of these new NEM Tariffs reduces the need to transfer the RECs to the Companies and the non-NEM customers. Requiring the Companies to retain the RECs once the new rates go into effect would, in some scenarios, result in an embedded cost shift reduction of greater than 100%, meaning that NEM customers would then be subsidizing non-NEM customers. Duke contends that the utilities

should continue to obtain these RECs to allow the benefits to flow to all customers and further reduce the marginal cost cross-subsidy. The Commission does not find Duke's argument persuasive. The marginal cost cross-subsidy should be minimal under the new tariffs and Duke is already procuring a significant amount of zero-cost solar RECs through the CPRE Program and ongoing Carbon Plan solar procurement cycles. Lastly, NEM customers should be able to determine if they want to keep the RECs their facility generates. The Commission therefore finds it appropriate for Duke to develop an opt-out program so that NEM customers can retain the RECs at no cost; if the customer does not affirmatively opt-out of utility REC ownership, the Companies will retain the RECs and use them to reduce REPS compliance costs for all ratepayers.

Given these new procedures, the Commission concludes that Duke's proposed NEM Tariffs should be modified to reflect two changes. First, the Rider RSC language should be revised to state that, if a customer does not opt-out, the utility obtains all the RECs produced by the customer-owned generation – not only those from excess energy exported to the grid – in an effort to reduce administrative complexity. Second, Rider RSC should be revised to add an option for customers to opt-out of utility REC ownership and retain and retire the RECs, which would require registration of the NEM facility and recording the RECs in the North Carolina Renewable Energy Tracking System (NC-RETS).

Finally, the Commission adopts the Public Staff's proposal to require Duke to maintain records on customer opt-outs allowing the Public Staff to audit Duke's

REPS cost recovery proceedings and ensure RECs are properly accounted for. Duke shall also report the number of opt-out customers and number of RECs transferred to NEM customers in each of the Companies' respective annual REPS rider proceeding.

Energy Storage

The Commission shares the Public Staff's concerns that energy storage is not contemplated in the proposed NEM Tariffs. The Commission also agrees with NCEMC that energy storage paired with BTM generation could increase the value of the DERs to both the customer and the electric supplier in a more cost-effective fashion. The Commission removed the prohibition on batteries in its 2006 NEM Order and believes that energy storage will have an increasingly important role in customer-sited generation in the future. The Commission therefore finds and concludes that Duke should study and consider how these NEM Tariffs could be modified to better facilitate coupling energy storage with renewable generation. The analysis should include: (1) whether a customer can retroactively add storage to an existing NEM system; (2) if an energy storage device could benefit the distribution system by charging during the discount or off-peak periods and discharging during the on-peak or CPP periods; (3) if utility control of customer storage could provide system benefits; and (4) how electric vehicle batteries could be incorporated into a storage program if manufacturer standards reach commercial viability.

IT IS, THEREFORE, ORDERED as follows:

1. That the NEM Tariffs proposed in the Application, as modified above and subject to the ordering paragraphs below, are approved effective July 1, 2023, for a period of four years from the effective date. Six months prior to the expiration of these rates, Duke shall make a filing to continue its NEM Tariffs with any modifications that are appropriate to address any further cross-subsidization discovered, or to comply with any statutory or regulatory changes that may occur;

2. That the NEM Tariffs approved herein should be periodically updated as changes in costs and benefits occur as the result of changes to base revenues approved in a general rate case filed pursuant to N.C.G.S. § 62-133, or biennial avoided cost proceedings. Any modified NEM Tariffs resulting from these periodic updates should allow customers taking service under these newly approved tariffs to remain on the tariffs for a period of ten years;

3. That the rates for the Monthly Minimum Bill, Grid Access Fee, and non-passable charges as identified in the Application are hereby approved;

4. That the NEM Tariffs shall net exports against imports in the same pricing periods including the CPP periods, and shall be netted monthly;

5. That the NEEC shall be calculated using the avoided cost rates approved in the Avoided Cost Order, a solar generation profile and based on five-year term, including both energy and capacity credits if applicable and reset in the Commission's biennial avoided cost docket;

6. That no later than 90 days from the date of this Order, Duke shall develop, with input from stakeholders, an online bill savings calculator that will model all aspects of a customer's bill to enable customers to estimate savings ;

7. That the Proposed Bridge Rate as described in the Stipulation is approved;

8. That Duke shall include an opt-out program for Rider RSC which allows the NEM customer to retain all RECs produced by the NEM facility, rather than the utility;

9. That Duke shall maintain records on customer opt-outs to allow the Public Staff to audit Dukes' REPS cost recovery proceedings to ensure RECs are properly accounted for and that Duke shall report the number of opt-out customers in each of the Companies' respective annual REPS rider proceeding;

10. That Duke shall conduct a study to determine how the NEM Tariffs herein approved may be amended to incorporate energy storage. The study shall include all aspects described in the Commission's discussion section above; and

11. That Duke shall file annual reports on the implementation of NEM service. Duke is to work with stakeholders, including the Public Staff, to develop the format and content of the annual report, which should include, at a minimum:

- a. the number of customers on each NEM rate schedule;

- b. the amount of load in each NEM rate schedule, including a comparison to NEM projections used in Duke's Integrated Resource Plans;
- c. the average kW capacity per NEM customer;
- d. the number of customers with storage and the capacity of that storage;
- e. an updated marginal and embedded cost study in the same manner as presented with the Application;
- f. an assessment of interconnection costs and related issues, including costs of any upgrades assigned to NEM customer;
- g. any costs incurred by the utilities to resolve any load conditions, required network or other upgrades to distribution facilities; and
- h. a load analysis of imports and exports over each TOU-CPP period.

12. That Duke shall file with the Commission, within 10 days following the date of this order, revised NEM Tariffs compliant with this order and showing an effective date of July 1, 2023, for the tariffs.

ISSUED BY ORDER OF THE COMMISSION.

This the ____ day of _____ 2022.

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Chief Clerk