STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 113

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Rulemaking Proceeding to Implement Session Law 2007-397	)))	ORDER ON NCSEA'S REQUEST

BY THE COMMISSION: On June 1, 2015, the North Carolina Sustainable Energy Association (NCSEA) filed a Request for Declaratory Ruling on Meaning of N.C.G.S. 62-133.9 and NCUC Rule R8-67 and, if Necessary and Appropriate, a Rulemaking to Clarify NCUC Rule R8-67 (Request) in the above-captioned docket. In summary, NCSEA requests that the Commission issue a declaratory ruling that:

> A new topping cycle combined heat and power ("CHP") system - including such a system that uses nonrenewable energy resources - that both (a) produces electricity or useful, measureable thermal or mechanical energy at a retail electric customer's facility and (b) results in less energy being used to perform the same function or provide the same level of service at the retail electric customer's facility constitutes an "energy efficiency measure" for purposes of [G.S.] 62-133.9 and Commission Rule R8-67.

In addition, if necessary, NCSEA requests that the Commission issue a complimentary declaratory ruling that:

> It is inconsistent with the clear and unambiguous language of [G.S.] 62-133.8 and 62-133.9 to recognize only the heat recovery component of a new topping cycle CHP system as an "energy efficiency measure." [Emphasis in original.]

Finally, NCSEA requests that, in the event that one or both of the requested declaratory rulings are issued, the Commission initiate a rulemaking to make clarifying changes to Commission Rule R8-67.

On June 2, 2015, and on June 18, 2015, NCSEA filed a compilation of letters of support for NCSEA's position from business and academic interests.

On August 13, 2015, the Chairman issued an Order Requesting Comments allowing all parties to file initial comments on or before September 30, 2015, and reply comments on or before October 15, 2015. In addition to requesting comments on NCSEA's Request, the Chairman sought comment on whether an actual dispute exists between a CHP

operator and an electric utility or whether NCSEA's petition is more in the nature of an advisory opinion. If the latter, the Chairman sought comment on whether a controversy exists justiciable under the Declaratory Judgement Act.

On August 24, 2015, NCSEA filed its initial comments. On September 28, 2015, Duke Energy Carolinas, LLC (DEC), and Duke Energy Progress, LLC (DEP) (collectively Duke), filed joint initial comments. On September 30, 2015, Dominion submitted a letter in lieu of formal comments generally supporting Duke's comments. On September 30, 2015, the Public Staff – North Carolina Utilities Commission (Public Staff) filed initial comments.

On October 14, 2015, NCSEA filed reply comments.

REQUEST OF NCSEA

As outlined above, NCSEA seeks a ruling as to whether new topping cycle CHP systems constitute energy efficiency measures under G.S. 62-133.9 and Commission Rule R8-67. NCSEA claims jurisdiction under G.S. 62-60, contending that the Commission may exercise the powers under the Declaratory Judgment Act with respect to all subjects over which the Commission has jurisdiction.

NCSEA, through the testimony of Isaac Panzella, explains that CHP, also known as cogeneration, is an energy efficient approach to generating electricity and useful thermal energy from a single fuel source at the point of use. Panzella states that an on-site CHP system can provide both electricity and thermal energy at an efficiency of 75% versus the combined efficiency of the conventional method of providing electricity and thermal requirements via separate systems.

Panzella explains there are two types of CHP systems, a topping cycle CHP system and a bottoming cycle CHP system. In a topping cycle CHP system the fuel is first combusted in a prime mover, such as a gas turbine, for purposes of generating electricity. The thermal energy, or waste heat, that would otherwise be lost is recovered to provide process or space heating, cooling, and/or dehumidification. These systems are sized to meet a facility's baseload thermal demand. In a bottoming cycle CHP system, also called a waste heat to power system, the waste heat, that is generated as part of an industrial process and that would normally be lost, is used to produce high-grade steam through a heat recovery process that feeds into a steam turbine to generate electricity.

Panzella indicates that North Carolina has 66 CHP systems totaling 1,540 MW of capacity, of which 62 are topping cycle systems. Further, there is great potential for CHP systems in North Carolina. ICF, International and Southeast Clean Energy Application Center (SE-CEAC) estimate approximately 6,428 MW of new topping cycle technical potential in North Carolina, with 4,667 MW in the industrial sector and 1,761 MW in the commercial sector.

NCSEA argues that topping cycle CHP meets the definition of energy efficiency.

Pursuant to the statute, "energy efficiency measure" means, in relevant part:

> An equipment, physical, or program change implemented after January 1, 2007, that results in less energy used to perform the same function. "Energy efficiency measure" includes, but is not limited to, energy produced from a combined heat and power system that uses nonrenewable energy resources.

G.S. 62-133.8(a)(4). The phrase "combined heat and power system," as used in the statutory definition, is itself defined as "a system that uses waste heat to produce electricity or useful, measurable thermal or mechanical energy at a retail electric customer's facility." G.S. 62-133.8(a)(1).

NCSEA argues that read together, the statutes clearly and unambiguously state that "energy produced from a combined heat and power system that uses nonrenewable energy resources" is an energy efficiency measure. "Where the language of a statute is clear and unambiguous, there is no room for judicial construction and the courts must give it its plain and definite meaning, and are without power to interpolate, or superimpose, provisions and limitations not contained therein." In re Town of Smithfield, 230 N.C. App 252, 749 S.E.2d 293, 296 (2013). Further, the relevant statutes do not state that energy produced from only the waste heat recovery component of a CHP system that uses nonrenewable energy resources is an energy efficiency measure. Nor do the relevant statutes state that a waste heat recovery component, standing alone and apart from a prime mover and a generator, shall constitute an entire CHP system. Instead, the relevant statutes refer to a "system," clearly meaning all the components of the system, including not only the waste heat recovery component but also the prime mover and generator components. This reading of the statute supports the argument that the entire topping cycle CHP system meets the definition of energy efficiency measure.

NCSEA posits that Duke's (and possibly the Public Staff's) current understanding(s) may be the result of a strict reading of a three-word phrase in the Commission's definition of "energy efficiency measure" in Commission Rule R8-67(a)(3). Commission Rule R8-67 contains the following administrative definition of "energy efficiency measure," in relevant part:

> "Energy efficiency measure" . . . includes energy produced from a combined heat and power system that uses nonrenewable resources to the extent the system: (i) Uses waste heat to produce electricity or useful, measureable thermal or mechanical energy at a retail electric customer's facility; and (ii) Results in less energy used to perform the same function or provide the same level of service at a retail electric customer's facility. Commission Rule R8-67(a)(3).

NCSEA states that the "to the extent" phrase included in the Commission's definition was merely intended to introduce the Commission's restatement of the two legislative prerequisites for a new CHP system to qualify as an energy efficiency measure and was intended to be read as "so long as."

In the event the Commission intended the "to the extent" phrase to limit an electric utility's ability to recognize more than the heat recovery component of a new topping cycle CHP system as an "energy efficiency measure," NCSEA contends that the Commission exceeded its delegated authority by effectively re-writing a clear and unambiguous statute to include a limitation that does not exist in the statute. See, e.g., State ex rel. Commissioner of Ins. v. Integon Life Ins. Co., 28 N.C. App. 7, 11, 220 S.E.2d 409, 412 (1975) ("An administrative agency has no power to promulgate rules and regulations which alter or add to the law it was set up to administer or which have the effect of substantive law."); see also, In re Town of Smithfield, 230 N.C. App. 252, 749 S.E.2d 293, 296 (2013) (Where a party's interpretation would "giv[e] to the statutory phraseology a distorted meaning at complete variance with the language used[,]" a court is "powerless to construe away [or create a] limitation just because [the court] feel[s] that the legislative purpose behind the requirement can be more fully achieved in its absence [or presence]."). In such an event, NCSEA urges the Commission to revisit, pursuant to G.S. 62-31 and 62-80, and revise its earlier ruling promulgating the administrative definition.

Lastly, NCSEA argues that recognizing topping cycle CHP as an energy efficiency measure will accomplish several goals, such as to further enable the use of low-cost natural gas to advance the systemic efficiency of the electric suppliers' grids, confirm that electric suppliers have a powerful tool for use in attracting opt-out eligible customers to opt in, and further enable such systems to be strategically deployed to enhance the reliability and resiliency of the grid.

INITIAL COMMENTS OF THE PARTIES

NCSEA

On August 24, 2015, NCSEA filed initial comments addressing the jurisdictional question posed by the Chairman in the Order Requesting Comments dated August 13, 2015. NCSEA argued that although NCSEA contends that a justiciable controversy exists under the Declaratory Judgment Act, the Commission does have jurisdiction under its quasi-legislative authority.

Joint Comments of DEC and DEP

As to the jurisdictional issue, Duke finds it reasonable for the Commission to rule on this question. Duke disagrees with NCSEA's position on what components of a CHP system should qualify as energy efficiency and requests that the Commission find that a topping cycle CHP system may be found to constitute an energy efficiency measure under G.S. 62-133.9 or Commission Rule R8-67 only to the extent that it uses waste heat to produce electricity or useful, measurable thermal or mechanical energy. If the Commission agrees with NCSEA’s interpretation of the statute, Duke requests that the Commission institute certain requirements to prevent gaming of the system.

Duke opines that the proper reading of G.S. 62-133.9 is that CHP systems eligible as energy efficiency measures are only those that use waste heat to generate electricity. Specifically, pursuant to G.S. 62-133.8(a), a "combined heat and power system" is defined as "a system that uses waste heat to produce electricity or useful, measurable, thermal or mechanical energy at a retail electric customer's facility." Section 62-133.9, which governs the cost recovery for demand-side management and energy efficiency measures, expressly states in subsection (a) that "[t]he definitions set out in G.S. 62-133.8 apply to this section." Thus, the combined heat and power system definition contained in G.S. 62-133.8 is controlling. Section 62-133.8(a) defines "energy efficiency measure" as follows:

> (4) "Energy efficiency measure" means an equipment, physical, or program change implemented after January 1, 2007, that results in less energy used to perform the same function. "Energy efficiency measure" includes, but is not limited to, energy produced from a combined heat and power system that uses nonrenewable energy resources. "Energy efficiency measure" does not include demand-side management.

Further, Commission Rule R8-68, which governs approval of energy efficiency incentive programs, states that all terms used in that rule shall be defined as they are in Rule R8-67(a). Pursuant to Commission Rule R8-67(a)(3), an "energy efficiency measure" is more particularly defined as follows:

> (3) "Energy efficiency measure" means an equipment, physical, or program change that when implemented results in less use of energy to perform the same function or provide the same level of service. "Energy efficiency measure" does not include demand-side management. It includes energy produced from a combined heat and power system that uses nonrenewable resources to the extent the system:
>
> (i) Uses waste heat to produce electricity or useful, measurable thermal or mechanical energy at a retail electric customer's facility; and
>
> (ii) Results in less energy used to perform the same function or provide the same level of service at a retail electric customer's facility.

Commission Rule R8-67(a)(3).

Duke argues that topping cycle CHP systems do not use waste heat to produce electricity. As a result, based on that reading, Duke contends that the electricity from the primary component of a topping cycle CHP system is not an "energy efficiency measure" to be included in Duke's respective non-residential energy efficiency incentive programs. Therefore, Duke requests that the Commission find that topping cycle CHP systems do not qualify as energy efficiency measures under G.S. 62-133.8(a)(4), except to the extent that they use waste heat to produce electricity or useful, measurable thermal or mechanical energy.

Duke argues that if the Commission determines that topping cycle CHP systems qualify as energy efficiency measures under G.S. 62-133.8(a)(4), then Duke recommends that the Commission prevent "gaming of the system" by implementing language similar to the FERC's revised rules on cogeneration. Specifically, if all of the net energy from topping cycle CHP systems is allowed to qualify as energy efficiency, these systems should meet the following requirements:

> (1) the standard efficiency of a topping cycle CHP system must be greater than 60 percent to ensure that the system is developed in the optimum manner. This would help prevent customers from installing a system that is extremely inefficient and being able to claim that it nevertheless is an energy efficiency measure and eligible for an incentive under a utility program; and
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> (2) the system must be sized to not exceed the site's electric load.

Public Staff

The Public Staff states that it has no comment on whether NCSEA's petition is more appropriately considered a request for declaratory judgment or an advisory opinion. The Public Staff opines that the petition can be addressed through a rulemaking proceeding and states that it would be in the public interest for the Commission to rule on NCSEA's request as it would end some regulatory uncertainty.

The Public Staff explains that "topping cycle CHP consists of burning fuel first to generate electricity (the primary component), and then using the thermal energy left after that process for other useful purposes (the secondary component)." Based upon how topping cycle CHP works, the Public Staff opines that in a topping cycle CHP system, only the electricity or useful measurable thermal or mechanical energy produced from waste heat, the secondary component of the system, should be eligible for consideration as energy efficiency.

The Public Staff indicates that this position is consistent with the Commission's October 29, 2013 Order in the Nonresidential Smart Saver docket, Docket No. E-7, Sub 1032, in which the Commission held:

> Electric generation, from either non-renewable or renewable sources, is not considered an energy efficiency measure and therefore does not qualify for payments; however, bottoming-cycle Combined Heat and Power ("CHP") systems or the waste heat recovery components of topping-cycle CHP may be eligible for payments.

The Public Staff further states that the statutory language is ambiguous as to what components of a topping cycle CHP system might qualify as energy efficiency. Two possible interpretations of the statutory language exist, either as allowing all energy from a topping cycle CHP system to qualify as energy efficiency even if less than one percent comes from waste heat, or as allowing only the electricity (or measurable useful

mechanical or thermal energy) produced by the waste heat to qualify as energy efficiency. The Public Staff supports the latter interpretation that only allows electricity or measurable useful energy from the waste heat component of a topping cycle CHP to qualify for energy efficiency. The Public Staff states the burning of nonrenewable fuel in the primary component of a topping cycle CHP at a utility customer's site merely displaces the burning of fuel at a utility generating station. There is no efficiency gain in that primary component of topping cycle CHP. However, use of the waste heat from the secondary component to produce additional electricity or useful measurable energy is an efficiency gain: no additional fuel is burned to obtain the additional power from the secondary component of a CHP system. Therefore, it is the secondary (waste heat) component – and only that component – that meets the definition of energy efficiency in G.S. 62-133.8(a)(4): "less energy used to perform the same function." Lastly, the Public Staff states that if the Commission adopts NCSEA's interpretation, then the Commission should impose as minimum requirements that such topping cycle CHP systems must be greater than 60 percent efficient and must be sized not to exceed the site's electric load, as requested by Duke.

REPLY COMMENTS

On October 14, 2015, NCSEA filed reply comments. NCSEA argues that even though the electric utilities and the Public Staff have two very different interpretations of the statutory language at issue, both selectively disregard key phrases within the statutory language. NCSEA's construction, on the other hand, takes all of the statutory language into account and, thus, yields no "surplusage" of language. NCSEA argues that the electric utilities and the Public Staff both appear to concede that NCSEA's construction of the statute can be operationalized through rules similar to the federal rules already in place to reduce or eliminate the threat of "gaming."

NCSEA first responds to Duke's comments. NCSEA states that Duke's argument boils down to the following two statements excerpted from their comments:

> The Company's reading of G.S. 62-133.9 is that combined heat and power systems use waste heat to generate electricity. Specifically, pursuant to G.S. 62-133.8(a), a "combined heat and power system" is defined as "a system that uses waste heat to produce electricity or useful, measurable, thermal or mechanical energy at a retail electric customer's facility."
>
> Topping cycle CHP systems do not use waste heat to produce electricity. As a result, based on that reading, DEC and DEP do not consider the electricity from the primary component of topping cycle CHP systems as an "energy efficiency measure" to be included in their respective non-residential energy efficiency incentive programs.

NCSEA states that Duke's argument is flawed in that G.S. 62-133.8(a)(1) provides that "[c]ombined heat and power system means a system that uses waste heat to produce electricity <u>or useful, measurable thermal or mechanical energy</u> at a retail electric

customer's facility." (Emphasis added.) NCSEA argues that Duke's argument ignores the phrase "or useful, measurable thermal or mechanical energy."

NCSEA's construction of the statutory definition recognizes the disjunctive "or" and does not create surplusage. In other words, NCSEA asserts the statute should be construed to state, in effect: A CHP system is "a system that uses waste heat [somewhere in its configuration] to produce electricity ... at a retail electric customer's facility" or "a system that uses waste heat [somewhere in its configuration] to produce ... useful, measurable thermal or mechanical energy at a retail electric customer's facility." NCSEA concludes that because topping cycle CHP systems are unquestionably configured to use waste heat to produce useful, measurable thermal or mechanical energy, there should be no question that topping cycle CHP systems can qualify as energy efficiency measures.

NCSEA next responds to the Public Staff's comments. NCSEA argues that the Public Staff takes a different tack from Duke, asserting that the statute should be construed to require a component approach. Specifically, the Public Staff asserts that "only the electricity or useful measurable thermal or mechanical energy produced from waste heat - the secondary component of the system - should be eligible for consideration as EE[.]" The Public Staff argues, at least in part, that the Commission should implement such an approach because the statute is "ambiguous." NCSEA disagrees that the statute is ambiguous. NCSEA argues that the statute is clear and uses the word "system," not "component." NCSEA states that FERC, the Internal Revenue Code and the North Carolina Revenue Code all use the word "system" in the CHP context as opposed to the Public Staff's component approach.

NCSEA states that in support of its interpretation of the statute, the Public Staff asserts that "[t]he burning of nonrenewable fuel in the primary component of a topping cycle CHP at a utility customer's site merely displaces the burning of fuel at a utility generating station. There is no efficiency gain in that primary component of topping cycle CHP." NCSEA argues that the Public Staff appears to be assuming that a large commercial or industrial customer interested in replacing two separate heat and power generators with a topping cycle CHP system will replace the existing power generator with a primary component that is of equal efficiency. NCSEA believes this is a poor assumption given technological advancements. A large commercial or industrial customer considering replacing older, less efficient, separate generators of heat and power most likely will seek out a more efficient primary component at the same time that it is investigating combining its heat and power generation into one system. Installation of a primary component that uses less energy to perform the same function unquestionably yields an efficiency gain, aside and apart from any waste heat efficiencies achieved. On this point, NCSEA would have the Commission note that, in their recently filed IRP updates, DEC and DEP acknowledge that replacement of two separate heat and power generators with a single CHP system can yield such efficiencies: "CHP incorporating a CT and heat recovery steam generator (HRSG) is more efficient than the conventional method of producing usable heat and power separately via a gas package boiler."

NCSEA disagrees with the Public Staff's assertion that "the Commission has already ruled once that only the secondary waste heat component of topping cycle CHP - and not energy from the primary component - qualifies as EE." NCSEA argues that the Commission's October 29, 2013 order merely ratified the parties' stipulated settlement agreement in the case. The stipulated settlement contained DEC's agreement to "clarify that its ... Non-Residential Smart-Saver Custom Program and Non-Residential Smart-Saver® Custom Energy Assessments Program do not exclude bottoming-cycling CHP or the waste heat recovery components of topping-cycle CHP" and, at the same time, DEC's agreement to continue discussing the extent to which topping cycle CHP qualifies as an energy efficiency measure regardless of the settled eligibility parameters of the two programs.

NCSEA states that if the Commission agrees with the Public Staff's component approach, the Commission will violate the rules of statutory construction by creating surplusage (i.e., reading operative language out of the statute). NCSEA clarifies that G.S. 62-133.8 provides, in relevant part, that "'Energy efficiency measure' includes, but is not limited to, energy produced from a combined heat and power system that uses nonrenewable energy resources." If the General Assembly intended only the secondary waste heat component of topping cycle CHP to qualify as an energy efficiency measure, it would have been unnecessary to include this sentence because the fuel choice for the primary component (and whether it is renewable or not) would have been irrelevant. NCSEA's proffered construction does not make surplusage of this sentence. Under NCSEA's proposed construction, this sentence sends a clear message that, within the context of Senate Bill 3, replacement of existing, older, less efficient, separate generators of heat and power with a single more efficient CHP system, even a system whose primary component is fueled by a fossil fuel, for example, natural gas can constitute an energy efficiency measure so long as the other statutory requirements (e.g., customer-sited and using less to perform the same) are met and so long as the system meets whatever FERC-like "Efficiency standard" and "Fundamental Use" test the Commission chooses to put in place under its express rulemaking authority to avoid gaming.

DISCUSSION AND CONCLUSIONS

None of the parties disagree that the Commission has jurisdiction under its rulemaking authority to issue a ruling in this matter. The Commission finds it has jurisdiction in this matter pursuant to its rulemaking authority.

As to NCSEA's request, the Commission has reviewed the submissions of the parties and is not persuaded by NCSEA's arguments. The Commission agrees with Duke and the Public Staff that only the electricity or useful measurable thermal or mechanical energy produced from waste heat from a topping cycle CHP should be considered an energy efficiency measure pursuant to the statute. The statutory definition of combined heat and power system is clear that the electricity or useful measurable thermal or mechanical energy must be produced from waste heat. G.S. 133.8(a)(1).

NCSEA argues that if the Commission reads the statute to not include the electricity not created by waste heat in a topping cycle CHP system, the Commission is violating the rules of statutory construction by creating surplusage. NCSEA argues that its interpretation of the statute does not create surplusage in the definition of energy efficiency measure. Pursuant to the statutory definition, energy efficiency measure "includes, but is not limited to, energy produced from a combined heat and power system that uses no renewable energy resources." G.S. 133.8(a)(4). NCSEA argues that if the General Assembly intended only energy derived from the waste heat of a topping cycle CHP system to qualify as an energy efficiency measure, this sentence would have been unnecessary and surplusage. The Commission disagrees. Statutory provisions must be read "in para materia." State ex rel. Hunt v. North Carolina Reinsurance Facility, 302 N.C. 274, 288, 275 S.E.2d 399, 405 (1981). The Commission, in reading the statute as a whole, finds that this sentence in the definition of energy efficiency measure was inserted to clarify that energy from a CHP being used as an energy efficiency measure does not need to use waste heat derived from a renewable energy resource, as opposed to language in other portions of the statute that discuss waste heat from a renewable energy resource. For example, the definition of a renewable energy resource includes waste heat derived from a renewable energy resource and used to produce electricity or useful, measurable thermal energy at a retail electric customer's facility. G.S. 133.8(a)(8). Further, under G.S. 133.8(b)(2)(b), an electric public utility may meet its renewable energy and energy efficiency standards (REPS) by using a renewable energy resource to generate power other than electric power from waste heat derived from the combustion of fossil fuel. The language within the definition of energy efficiency measure is clarifying that the waste heat from a CHP system does not need to derive from a renewable energy resource for the electricity or useful measurable thermal or mechanical energy produced from it to qualify as an energy efficiency measure. Therefore, under the Commission's interpretation of the statute regarding topping cycle CHP systems, the sentence in the definition of energy efficiency measure is not surplusage.

The definition of CHP system is clear that for purposes of Senate Bill 3, and for purposes of being deemed an energy efficiency measure, the electricity or useful, measurable thermal or mechanical energy must be produced from waste heat. In a bottoming cycle CHP, the waste heat from an industrial process is used to create electricity and potentially thermal energy. In a topping cycle CHP system, the electricity is not produced from waste heat, but rather is produced from a resource like natural gas, which also produces waste heat that is used to produce thermal or mechanical energy. It is only the secondary thermal or mechanical energy that is produced from the waste heat that qualifies as an energy efficiency measure under the statute.

NCSEA argues that if the Commission solely relies upon the language of Commission Rule R8-67(a)(3), then the Commission has erred in adding requirements to the statute and creating a limit that does not exist in the statute. The Commission's decision in this matter relies on its interpretation of the statute, thus making responding to this argument unnecessary. However, the Commission will note that it is NCSEA, not the Commission, which seems to be adding words to the statute to fit its interpretation of it. In its reply comments, NCSEA states that the statute should be construed to state a

CHP system is a system that uses waste heat somewhere in its configuration to produce electricity. The words “somewhere in its configuration” is not language within the statute.

IT IS, THEREFORE, ORDERED as follows:

1. That a topping cycle CHP system does not constitute an energy efficiency measure under G.S. 62-133.8(a)(4), except to the extent that the secondary component, the waste heat component is used and meets the definition of energy efficiency measure in G.S. 62-133.8(a)(4); and

2. That the Commission has jurisdiction under its rulemaking authority to determine and clarify this issue.

ISSUED BY ORDER OF THE COMMISSION.

This the ___6th___ day of June, 2016.

NORTH CAROLINA UTILITIES COMMISSION

Paige J. Morris

Paige J. Morris, Deputy Clerk