

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

<b>In the Matter Of The Application Of</b>	)	<b>Case No. 09-1877-EL-REN</b>
<b>Duke Energy Ohio, Miami Fort</b>	)	
<b>Generating Station Units 7 &amp; 8 for</b>	)	
<b>Certification as an Eligible Ohio</b>	)	
<b>Renewable Energy Resource</b>	)	
<b>Generating Facility.</b>	)	

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**COMMENTS BY BUCKEYE FOREST COUNCIL, THE SIERRA CLUB OF OHIO,  
AND THE OHIO ENVIRONMENTAL COUNCIL**

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**I. INTRODUCTION.**

Buckeye Forest Council (“BFC”), the Sierra Club of Ohio (“Sierra Club”), and the Ohio Environmental Council (“OEC”) submit the following Comments to the Public Utilities Commission of Ohio (“PUCO” or “the Commission”) on the above-captioned Application by Duke Energy Ohio (“Duke Energy” or “Company”) for certification of its Miami Fort Generating Station Units 7 & 8 as an eligible renewable energy resource generating facility using solid biomass. Commission approval of Duke Energy’s Application would allow the Company to use the energy generated at the facility to meet a portion of the Company’s renewable energy benchmarks required by R.C. 4928.64(B)(2) and to bank and sell renewable energy credits (“RECs”) based on the energy produced.

On December 1, 2009, Duke Energy filed the present Application to receive renewable certification for the Miami Fort Generating Station Units 7 & 8. OEC filed its Motion to Intervene with Memorandum in Support on December 14, 2009; BFC submitted its Motion to Intervene with Memorandum in Support on June 18, 2010; and Sierra Club submitted its Motion to Intervene with Memorandum in Support on September 21, 2010. None of the Motions to

Intervene have been opposed.

## **II. BURDEN OF PROOF.**

There is no doubt that Duke Energy bears the burden of proof in this Application. Duke Energy seeks to have its Miami Fort facility certified as an eligible renewable energy resource facility, allowing the company to use the energy generated to meet its lawful renewable benchmark obligations and to bank and sell RECs. Consequently, the Company must demonstrate that its Application satisfies the criteria outlined in R.C. 4928.64 and R.C. 4928.01(A)35, and in the Administrative Code §§ 4901:1-40-01 through 4901:1-40-09 for renewable generation. As described in the following sections, to meet this burden, Duke Energy must demonstrate that its facility will generate renewable energy from forest resource biomass in a sustainable fashion. The Commission has repeatedly held that, “the use of forest resources as biomass energy is conditioned upon sustainable forest management operations.”<sup>1</sup> Accordingly, it is critically important that the Commission carefully consider the sustainability of the project. Certification should be denied if sustainability cannot be demonstrated.

## **III. THE MIAMI FORT APPLICATION SHOULD BE DENIED ON SUSTAINABILITY GROUNDS.**

### **A. Duke Energy’s Application Fails To Satisfy The “Renewable Energy Resource” Requirement of R.C. 4928.64(A)(1) And R.C. 4928.01(A)(35) Because Duke Has Not Even Attempted to Demonstrate That The Forest Resources It Seeks To Use Qualify As Biomass Derived From Sustainable Forest Management Operations.**

The Commission has held several times that, “the use of forest resources as biomass energy

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<sup>1</sup> *In the Matter of the Application of R.E. Burger Units 4 & 5 for Certification as an Eligible Ohio Renewable Energy Resource Generating Facility*, Case No. 09-1940-EL-REN, Finding and Order at 5 (Aug. 11, 2010); *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations, and Review of Chapters 4901:5-1, 4901:5-3, 4901:5-5, 4901:5-7 of the Ohio Administrative Code, Pursuant to Amended Substitute Senate Bill 221*, Case No. 08-888- EL-ORD, Opinion and Order at 26 (April 15, 2009). See also. *In the Matter of the Application of Bay Shore Unit 1 for Certification as an Eligible Ohio Renewable Energy Resources Generating Facility*, Case No. 09-1042-EL-REN, Entry on Rehearing (June 16, 2010) at 4,5.

is conditioned upon sustainable forest management operations.”<sup>2</sup> Consequently, forest resources must be obtained from sustainable forest management operations in order to qualify as “biomass” under O.A.C. 4901:1-40-01(E) and, therefore, as “renewable energy resources” under R.C. 4928.64(A)(1) and R.C. 4928.01(A)(35). The present Application states that Duke Energy intends to combust “raw wood chips” and “wood pellets” – presumably forest resources – as fuel.<sup>3</sup> The Company should therefore furnish the Commission with proof that any forest resources it uses as fuel are sourced from sustainable forest management operations. Absent a showing that all forest resources used are, and will be, sourced from sustainable forest management operations, neither the PUCO nor the public will have any real assurance that applicants using forest resources actually use those resources as qualifying biomass.<sup>4</sup>

Duke Energy *has not even attempted* to meet this burden of proof in the present proceeding. There is absolutely no mention of sustainability or of sustainable forest management operations in the Application or supporting materials. Nor does the Application contain any mention of the sources or source-locations of the woody biomass fuels that the company intends to use. Duke Energy has thus failed to satisfy its burden of demonstrating that the forest resources it seeks to use are the result of sustainable forest management operations. Duke has therefore failed to show that the forest resources in question actually qualify as biomass under O.A.C. 4901:1-40-01(E) and as renewable energy resources under R.C. 4928.64(A)(1) and R.C.

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<sup>2</sup> Id.

<sup>3</sup> Application at G.1.

<sup>4</sup> Moreover, the Commission may well find proof of “sustainable forest management operations” indispensable in its annual R.C. 4928.64(C)(1) renewable benchmark compliance review:

The commission annually shall review an electric distribution utility’s or electric services company’s compliance with the most recent applicable benchmark under division (B)(2) of this section and, in the course of that review, shall identify any undercompliance or noncompliance of the utility or company that it determines is weather-related, related to equipment or resource shortages for advanced energy or renewable energy resources as applicable, or is otherwise outside the utility’s or company’s control.

R.C. 4928.64(C)(1).

4928.01(A)(35). The application should therefore be denied.

**B. Forest Resources Cannot Be Sustainably Sourced From Within Ohio On The Scale Miami Fort And Other Solid Biomass Applicants Seek to Use Them.**

Duke specifies that the Miami Fort facility has a nameplate capacity of 1,020 MW.<sup>5</sup> In addition, the Application states that biomass will be co-fired with coal at a rate of 1 – 10% of heat supplied.<sup>6</sup> The Application therefore seeks certification for up to 102 MW of biomass-to-energy generation. According to the U.S. Dept. of Agriculture Forest Service and the Forest Products Laboratory, approximately 1.5 green tons<sup>7</sup> of wood per-hour are needed to consistently maintain the generation of 1MW of electricity.<sup>8</sup> Therefore, each megawatt at 75% capacity factor requires approximately 9,855 green tons of wood annually.<sup>9</sup> Thus, the Miami Fort facility would require 1,005,210 green tons of wood annually to maintain the 75% capacity factor and 10% wood fuel fraction contemplated in the Miami Fort Application.<sup>10</sup>

Any harvest above annual growth will eventually clearcut the entire state, and would therefore clearly be unsustainable. In 2007, the U.S. Forest Service estimated Ohio's "Annual net growth of live trees" as 465,380,000 ft<sup>3</sup>, which equates to approximately 8,362,296 tons.<sup>11</sup>

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<sup>5</sup> Application at I.

<sup>6</sup> Application at G1.

<sup>7</sup> "Green" refers to wood with a 45% moisture content.

<sup>8</sup> Bergman, Richard, et al: *Primer on Wood Biomass for Energy*, produced by the U.S. Department of Agriculture Forest Service and the Forest Products Laboratory, page 1 (January 2008); [http://www.fpl.fs.fed.us/documnts/tmu/biomass\\_energy/primer\\_on\\_wood\\_biomass\\_for\\_energy.pdf](http://www.fpl.fs.fed.us/documnts/tmu/biomass_energy/primer_on_wood_biomass_for_energy.pdf).

<sup>9</sup> 1MW = 1.5 green tons (x) 24 hours (x) 365days (x) 75% = 9,855 green tons per MW.

<sup>10</sup> 9,855 green tons x 102 MW = 1,005,210 green tons of fuel.

<sup>11</sup> See Widmann, R.H.; McCaskill, G.M.; McWilliams, W.; Balser, D. 2010. Ohio's forest resources, 2007. Res. Note NRS-62. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station, at page 1; available at: [http://www.nrs.fs.fed.us/pubs/rn/rn\\_nrs62.pdf](http://www.nrs.fs.fed.us/pubs/rn/rn_nrs62.pdf) (providing figures in cubic feet). "Annual net growth of live trees" consists of gross growth minus mortality, but does not include annual removal figures. See Id. at 4.

In 2007 an estimated 465,380,000 cubic ft of wood growth occurred in Ohio's forests. Id. A conversion to tons is required for comparison. There are 2.3 tons in one stacked cord of wood. US forest Service Directive – *Timber Management, R2 SUPPLEMENT 2400-96-2*, page 7 of 7 (Effective Date December 16, 1996); <http://www.fs.fed.us/im/directives/field/r2/fsm/2400/2430-2431.doc>. One cord is equivalent to 128 cubic feet. Id. Therefore the 465,380,000 cubic feet of estimated Ohio annual net forest growth amounts to approximately 8,362,297 tons. Calculation: 465,380,000 feet<sup>3</sup> (/) 128 feet<sup>3</sup> per cord = 3,635,781.25 cords of wood, (x) 2.3 tons per cord = 8,362,296.88 tons annual net growth in 2007.

“Annual harvest removals of live trees” in Ohio for 2007 were estimated to be 197,123,000 ft<sup>3</sup>, which equates to 3,542,054 tons, or 42% of Ohio’s annual net growth of live trees.<sup>12</sup> When 2007 harvest removals in tons are subtracted from 2007 net growth figures in tons, only 4,820,242 tons of 2007 net growth remain “unharvested.”<sup>13</sup> The potential fuel demand of the Miami Fort facility at 1,005,210 tons of green wood therefore equals 21% of 2007 Ohio net forest growth net of 2007 harvest removals.<sup>14</sup> Miami Fort could therefore potentially require a full fifth of the non-harvested growth of Ohio’s forestlands. Moreover, this application is just one of several utility-scale solid biomass applications that have been approved by the Commission or are pending before it.

Including Miami Fort, there are at least 2,442 MW’s worth of solid biomass currently either certified or pending PUCO certification.<sup>15</sup> This figure takes into account the maximum percentages of biomass co-firing requested for certification in the relevant Applications. If each certified and pending MW were operated at 75% capacity factor, and therefore at an estimated 9,855 green tons per MW,<sup>16</sup> 24,065,910 green tons of woody biomass would be required on an annual basis. This figure amounts to 499% of Ohio’s net estimated 2007 forest growth net of

<sup>12</sup> Id. The 197,123,000 cubic feet of annual harvest removals in Ohio in 2007 amount to approximately 3,542,054 tons. Calculation: 197,123,000 ft<sup>3</sup> (/) 128 ft<sup>3</sup> per cord = 1,540,023 cords of wood, (x) 2.3 tons per cord = 3,542,054, tons of wood harvested in 2007. In addition, 3,542,054 tons harvested (/) 8,362,296 tons net growth = .42 or 42% of 2007 net forest growth harvested in 2007.

<sup>13</sup> “Annual net growth of live trees” consists of gross growth minus mortality, but does not include annual removal figures. See Id. at 4.

<sup>14</sup> 1,005,210 tons potential Miami Fort demand (/) 4,820,242 tons 2007 net growth net of 2007 harvest removals = .2085 or 21%.

<sup>15</sup> See Zimmer, 09-1878-EL-REN, 1-10% of heat supplied, 1,300MW nameplate capacity, (Application at G.10., I.); Miami Fort, 09-1877-EL-REN, 1-10% of heat supplied, 1,020 nameplate capacity, (Application at G.10., I.); Beckjord, 09-1023-EL-REN, 1-100% of heat supplied, 1,125MW nameplate capacity, (Application at G.10., I.); Killen, 09-0891-EL-REN, up to 10% of heat supplied, 600MW nameplate capacity, (Application at G.10., I.); Burger, 09-1940-EL-REN, 51-100% of heat supplied, 312MW nameplate capacity, (Application at G.10., I.); Bay Shore Unit 1, 09-1042-EL-REN, 0-25% of heat supplied, 136MW nameplate capacity (Application at G.10., I.); Conesville Unit 3, 09-1860-EL-REN, up to 100% of heat supplied, 165MW nameplate capacity, (Application at G.10., I.); Muskingum River, 10-0911-EL-REN, up to ~15% heat supplied, 1,425MW nameplate capacity, (Application at G.10.a., I.); Picway, 10-387-EL-REN, 5-100% of heat supplied, 100MW nameplate capacity, (Application at G.10., I.); South Point, 09-1043-EL-REN, 100% of heat supplied, 200MW nameplate capacity, (Application at G.10., I.).

<sup>16</sup> See Notes 8 & 9, supra.

2007 harvest removals – a number that would, were it sustained, eventually result in the clearcutting of all Ohio’s forestlands.<sup>17</sup>

**IV. IN THE ALTERNATIVE, IF GRANTED, CERTIFICATION SHOULD BE LIMITED TO A MAXIMUM OF 10% BIOMASS HEAT INPUT; MIAMI FORT SHOULD NOTIFY THE COMMISSION AND PARTIES OF ANY USE OF BIOMASS THAT EXCEEDS 10% OF HEAT SUPPLIED.**

The Commission has not yet specified explicitly whether or not certification is limited to the percentage of biomass heat input requested in applicants’ filings. Including the Miami Fort facility, there are five pending and/or approved solid biomass REN applications before the PUCO that request certification for less than 100% biomass heat input.<sup>18</sup> The combined MW of these facilities, adjusted for the maximum percentages of biomass heat input specified in the applications, amounts to 540 MW.<sup>19</sup> In the absence of the percentage limitations specified in these applications, the five facilities would instead total a staggering 4,481 MW of nameplate capacity certified (or seeking certification) for biomass incineration.<sup>20</sup>

Thus, if certification is not limited to the biomass heat input percentages indicated in applicants’ filings, all utility-scale facilities certified and pending solid biomass certification before the Commission would equal a combined total of 6,383 MW.<sup>21</sup> At a hypothetical 75% capacity factor, 62,904,465 green tons of woody biomass would be required on an annual basis to fuel 6,383 MW of generation.<sup>22</sup> This figure would amount to an astounding 1,305% of Ohio’s

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<sup>17</sup> 24,065,910 tons fuel required (/) 4,820,242 tons 2007 net growth net of 2007 harvest removals = 4.99 or 499% of Ohio’s 2007 net forest growth.

<sup>18</sup> See Zimmer, 09-1878-EL-REN, 1-10% of heat supplied, 1,300MW nameplate capacity, (Application at G.10., I.); Miami Fort, 09-1877-EL-REN, 1-10% of heat supplied, 1,020 nameplate capacity, (Application at G.10., I.); Killen, 09-0891-EL-REN, up to 10% of heat supplied, 600MW nameplate capacity, (Application at G.10., I.); Bay Shore Unit 1, 09-1042-EL-REN, 0-25% of heat supplied, 136MW nameplate capacity (Application at G.10., I.); Muskingum River, 10-0911-EL-REN, up to ~15% heat supplied, 1,425MW nameplate capacity, (Application at G.10.a., I.).

<sup>19</sup> See Id.

<sup>20</sup> See Id.

<sup>21</sup> See cases cited in note 16, supra.

<sup>22</sup> 1MW = 1.5 green tons (x) 24 hours (x) 365days (x) 75% = 9,855 green tons per MW. 6,383 MW (x) 9,855 green tons per MW = 62,904,465 green tons of woody biomass.

2007 net annual forest growth net of 2007 harvest removals, and would clearly be unsustainable.<sup>23</sup>

The Miami Fort Application requests certification for up to 10% biomass generation in two, 510 MW nameplate capacity units.<sup>24</sup> As outlined above, BFC, Sierra Club, and OEC oppose certification of the Miami Fort Generating Station. Should the Commission grant Miami Fort certification, however, certification should be explicitly limited to a maximum of 10% biomass, as specified in the Application.

In addition, should certification be granted, Duke Energy will be required to notify the commission of any substantive changes in the facility's use of fuel. The Commission has held in its findings and orders granting certification that certified facilities must notify the Commission within 30 days "in the event of any substantive changes in the facility's operational characteristics or proposed fuel source, or if the results of any test burns demonstrate that co-firing biomass fuel is not feasible[.]"<sup>25</sup> Consequently, BFC, Sierra Club, and OEC respectfully request that should certification be granted for Miami Fort, the Commission's Finding and Order explicitly limit certification for biomass generation to a maximum of 10% of heat supplied. Any additional biomass heat input would constitute "substantive changes in the facility's operational characteristics or proposed fuel source," requiring notice to the Commission. In addition, BFC, Sierra Club, and OEC respectfully request that any such notification be made to all interveners

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<sup>23</sup> 62,904,465 tons fuel required (/) 4,820,242 tons 2007 net growth net of 2007 harvest removals = 13.05 or 1,305% of Ohio's 2007 net forest growth net of 2007 harvest removals.

<sup>24</sup> Application at G1.

<sup>25</sup> See, e.g., *In the Matter of the Application of Bay Shore Unit 1 for Certification as an Eligible Ohio Renewable Energy Resources Generating Facility*, Case No. 09-1042-EL-REN, Finding and Order at 10, page 4 (April 28, 2010); *In the Matter of the Application of R.E. Burger Units 4 & 5 for Certification as an Eligible Ohio Renewable Energy Resource Generating Facility*, Case No. 09-1940-EL-REN, Finding and Order at 25, page 11 (Aug. 11, 2010).

parties and appear on the public docket for this matter, PUCO Case. No. 09-1877-EL-REN.<sup>26</sup>

#### IV. CONCLUSION

It is reasonable and necessary for the Commission to require an applicant intending to use forest resources as biomass to demonstrate that those resources will be obtained from “sustainable forest management operations” and therefore actually qualify as biomass and renewable energy resources under the Ohio Revised and Administrative Codes. Duke Energy’s Application does not contain any mention of sustainability or renewability. Duke has therefore not demonstrated that its Miami Fort facility will utilize qualifying renewable biomass. Consequently, Buckeye Forest Council, the Sierra Club of Ohio, and the Ohio Environmental Council respectfully request that the PUCO deny certification of Duke Energy Ohio’s Miami Fort Generating Station Units 7 & 8.

In the alternative, should certification be granted, BFC, Sierra Club, and OEC request that certification be limited to a maximum of 10% heat input from biomass – as indicated in the Application – and that Duke provide notification to the Commission and to intervened parties of any biomass heat input in excess of 10%.

Respectfully Submitted,

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<sup>26</sup> The undersigned parties would appreciate clarification regarding the Commission’s “substantive changes” notice requirement if publication on the public docket is not what the Commission is contemplating.



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## **CERTIFICATE OF SERVICE**

I hereby certify that a true copy of the foregoing has been served upon the following parties by first class or electronic mail this 13<sup>th</sup> day of October, 2010.

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