September 13, 2012

CSC WIND REGULATIONS – Adoption of Regulations pursuant to Public Act 11-245, An Act Requiring the Adoption of Regulations for the Siting of Wind Projects, Sections 16-50j-2a, 16-50j-18 and 16-50j-92 to 16-50j-96, inclusive, of the Regulations of Connecticut State Agencies.

SUMMARY OF PROCEEDING AND WRITTEN COMMENTS

Section I provides the summary of this regulation-making proceeding. Section II provides a statement of the principal reasons in support of the Connecticut Siting Council's (Council) intended action to adopt the regulations. Section III provides a statement of the principal considerations in opposition to the Council's intended action to adopt the regulations as described in written and oral comments on the proposed regulations and the Council's reasons for acceptance or rejection of such considerations.

I. SUMMARY OF THE REGULATION-MAKING PROCEEDING

During a regular meeting held on September 22, 2011, the Council voted to approve designating Mr. Brian Golembiewski as the liaison for consultation with the Department of Energy and Environmental Protection (DEEP) as required by Public Act 11-245 (codified at C.G.S. §16-50kk), designating Mr. Larry Levesque as the liaison for consultation with the Public Utilities Regulatory Authority (PURA), as required by Public Act 11-245, and voted to approve holding a Wind Regulations Public Forum on October 13, 2011. A press release was issued on September 26, 2011. Written comments for the Public Forum were received from Representative Mary Fritz, Senator Kevin Witkos, Northeast Utilities (NU), John Johanneman, Joyce Hemingson, Stella Somers, Renewable Energy New England (RENEW), Dr. David Lawrence and Jeannie Lemelin, Susan Murray, Kathleen Wilson, Dr. Roy and Andrea Hitt, and Bernard Adams. Eight individuals spoke at the Public Forum: Prospect Mayor Bob Chatfield, Tim Abbott, Stella Somers, Joyce Hemingson, Susan Wagner, Tim Reilly, Paul Corey and Tom Swank. All of the Public Forum proceeding materials, including a transcript, are part of the regulations-making record.

During a regular meeting held on April 12, 2012, the Council voted to approve publication of notice in the Connecticut Law Journal of its intention, pursuant to Public Act 11-245, to adopt regulations for the siting of wind projects, Sections 16-50j-2a, 16-50j-18, and 16-50j-92 to 16-50j-96, inclusive, of the Regulations of Connecticut State Agencies. A copy of the Council's notice of intent to adopt the regulations was electronically mailed to the Council's regular meeting agenda service list on April 12, 2012. Also, a copy of the notice of intent to adopt regulations, proposed regulations, small business impact statement, agency fiscal estimates and Regulatory Flexibility Analysis were posted on the Council's website on April 12, 2012. On May 1, 2012, the notice of intent to adopt regulations was published in the Connecticut Law Journal.

The Council received a total of 41 requests for a public hearing: 25 residents of Prospect submitted individual requests and 16 residents of Colebrook submitted individual requests. During a regular meeting held on June 21, 2012, the Council voted to approve a public hearing date of July 24, 2012 and provided notice of the public hearing on June 22, 2012. Notice of the public hearing was also published in the Hartford Courant and other newspapers of general circulation on or about June 26, 2012. The Council held the public hearing on July 24, 2012 and granted interested persons an opportunity to present oral argument pursuant to the Uniform Administrative Procedure Act (UAPA), C.G.S. §4-168(a)(7).

Prior to the public hearing, the Council received 15 written comments concerning the proposed regulations. The comments were submitted by: Adam Cohen of Pioneer Green Energy, LLC (Pioneer); Francis Pullaro of RENEW; Joaquina Borges King of NU; Commander of the Department of the Navy, Navy Region Mid-Atlantic (Navy); FairwindCT, Inc., Michael and Stella Somers, and Susan Wagner (Fairwind)[1]; Lee D. Hoffman, Esq. of Pullman and Comley, LL; Linda Raciborski (Raciborski); Paul J. Corey of BNE Energy, Inc. (BNE); Bernard Adams (Adams); Town of Groton Planning Division (Groton); the Colebrook Land Conservancy (Colebrook Conservancy); Jane Benoit; the Berkshire-Litchfield Environmental Council (BLEC); Jean Thompson; and Dr. David Lawrence (Lawrence).

During the public hearing, the Council heard oral argument concerning the proposed regulations from 19 interested persons. Oral argument was presented by: Prospect Mayor Bob Chatfield (Chatfield); Elizabeth Gara of the Connecticut Council of Small Towns (COST); Terry Yachtis; Helen Plante (Plante); Cassandra van Dyne; John LaMontagne (LaMontagne); Calvin Goodwin (Goodwin); Joyce Hemingson (Hemingson); Ellery Sinclair of the Berkshire Litchfield Environmental Council (BLEC); Susan Wagner (Wagner); Lloyd Garrison; Stella Somers; Paul Corey; Representative Vickie Nardello (Nardello); Richard Sargeant (Sargeant); Nelson Algarin (Algarin); Jeff Stauffer (Stauffer); John Hurley (Hurley) and Tim Reilly (Reilly).

After the public hearing, the Council received 7 written comments concerning the proposed regulations. The comments were submitted by: Kristin Mow; Regis Dognin (Dognin); Fairwind; Roger Smith of Clean Water Action; Martin Mador of the Sierra Club; William Dornbos of Environment Northeast; and Robin Dziedzic-Hirtle.

Pursuant to C.G.S. §4-168(a)(8), the Council fully considered all oral and written submissions concerning the proposed wind regulations and made revisions to the proposed regulations to incorporate some of the suggestions made by the interested persons.

II. STATEMENT OF PRINCIPAL REASONS IN SUPPORT OF THE COUNCIL'S INTENT TO ADOPT REGULATIONS

The principal reasons in support of the Council's intent to adopt regulations for the siting of wind projects are to comply with Public Act 11-245 and to carry out the provisions of the Public Utility Environmental Standards Act (PUESA), C.G.S. §16-50g, *et seq.*, and policies and practices of the Council

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[1] FairwindCT, Inc. is a domestic, non-stock corporation registered with the Secretary of the State of Connecticut consisting of the following principals: Joyce Hemingson, President; Stella Somers, Secretary; Susan Wagner, Treasurer, *See* Secretary of the State of Connecticut, Commercial Recording Division, Business ID #1023185, FairwindCT, Inc., *available at* http://www.concord-sots.ct.gov/CONCORD/online?sn=PublicInquiry&eid=9740; FairwindCT, Inc., Michael and Stella Somers, and Susan Wagner participated as a grouped party pursuant to C.G.S. §16-50n in the Council's administrative proceedings on the three petitions for wind-powered electric generating facilities in the Towns of Prospect and Colebrook filed by BNE in late 2010. *See* Connecticut Siting Council, Petition No. 980, *available at* http://www.ct.gov/csc/cwp/view.asp?a=2397&q=468692; Connecticut Siting Council, Petition No. 983, *available at* http://www.ct.gov/csc/cwp/view.asp?a=2397&q=469520; and Connecticut Siting Council, Petition No. 984, *available at* http://www.ct.gov/csc/cwp/view.asp?a=2397&q=469902; At present, Fairwind is the plaintiff in administrative appeals to the Superior Court of the Council decisions to approve the two wind-powered electric generating facilities in Colebrook. *See* Docket No. HHB-CV11-6011389-S, *available at* http://civilinquiry.jud.ct.gov/CaseDetail/PublicCaseDetail.aspx?DocketNo=HHBCV116011389S and Docket No. HHB-CV11-6011470-S, *available at* http://civilinquiry.jud.ct.gov/CaseDetail/PublicCaseDetail.aspx?DocketNo=HHBCV116011470S; *See* also *infra* note 2 and note 43.

in connection therewith. The proposed wind regulations are intended to prescribe and establish reasonable regulations and standards as necessary and in the public interest with respect to the siting of wind turbines.

III. STATEMENT OF PRINCIPAL CONSIDERATIONS IN OPPOSITION TO THE PROPOSED REGULATIONS AS URGED IN WRITTEN COMMENTS AND THE COUNCIL'S REASONS FOR REJECTING SUCH CONSIDERATIONS

The principal considerations in opposition to the proposed regulations as urged in written comments and oral argument presented at the hearing, and the Council's reasons for rejecting such considerations are as follows:

1. **Section 16-50j-2a. Definitions**

   a. **Section 16-50j-2a (12):** Fairwind and Nardello argue that the Council's proposed definition of "fuel" in Section 16-50j-2a (12) is an *ultra vires* action to change a statutory definition through a regulation-making procedure and that the Council seeks to expand the definition of "fuel" to expand its jurisdiction.[2] Fairwind further argues that the proposed definition of "fuel," which cites directly to the definition of "fuel" under C.G.S. §16a-17, would expand the Council's jurisdiction over "any other resource yielding energy," such as solar panels, hydroelectric dams, tidal and all other sources.

   The Council has exclusive jurisdiction over the siting of electric generating facilities, among other types of energy and telecommunications facilities, pursuant to C.G.S. §16-50i. The definition of "facility" under Subdivision (3) of Subsection (a) states, in pertinent part, "Facility means… any electric generating or storage facility using any ***fuel***… but not including… a facility (i) owned or operated by a private power producer as defined in section 16-243b, (ii) which is a qualifying small power production facility… under the Public Utility Regulatory Policies Act of 1978… or a facility determined by the Council to be primarily for a producer's own use, and (iii) which has, in the case of a facility utilizing ***renewable energy sources***, a generating capacity of one megawatt of electricity or less…" (Emphasis added). It is apparent from the plain language of the statute that the Council has jurisdiction over electric generating facilities utilizing ***renewable energy sources*** with a generating capacity of more than one megawatt, including, but not limited to, electric generating facilities utilizing ***renewable energy sources*** such as wind, solar, hydroelectric dams and tidal, which are defined under C.G.S. §16-1 and under Section 16-50j-2a (26) of the Regulations of Connecticut State Agencies.[3] The PUESA, does not define "fuel," however, another statutory

[2] Fairwind's principal argument in the administrative appeals is that the Council did not have subject matter jurisdiction to grant the petitions for declaratory rulings for BNE's proposed wind turbines on the basis that wind turbines are not "facilities" because wind turbines do not use any "fuel," See *infra* note 1; Connecticut Siting Council, Rules of Practice, Legislative Regulation Review Committee No. 2012-012A, August 28, 2012, *available at* http://www.cga.ct.gov/aspx/CGARegulations/CGARegulations.aspx?Yr=2012&Reg=2012-012&Amd=A (the definition of "fuel" was the subject of regulations revisions submitted to the Legislative Regulations Review Committee on March 29, 2012, which was pending at the time of the proposed wind regulations, but was approved by the Committee on August 28, 2012.)

[3] Conn. Gen. Stat. §16-1 (26) (2012) ("Class I renewable energy source means (A) energy derived from solar power, **wind power**, a fuel cell, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts…") (Emphasis added); R.C.S.A. §16-50j-2a (26) (2012) ("Renewable energy sources include, but are not limited to, solar photovoltaic, solar thermal, **wind**, ocean thermal,

section in Title 16a of the Connecticut General Statutes, entitled, "Planning and Energy Policy," defines "fuel" in C.G.S. §16a-17, and the Council's proposed regulatory definition of "fuel" cites directly to that definition. Therefore, the Council rejects this argument.

b. **Section 16-50j-2a (19):** Fairwind and Nardello argue that the definition of "modification" in Section 16-50j-2a (19) lacks clarity and recommends that the Council define "modification" as "any physical change or change in the method of operation that would result in an increase in the maximum capacity or output of any equipment above the capacity or output originally approved by the Council."

The definition of "modification" in Section 16-50j-2a (19) of the Council's existing regulations applies to all facilities subject to the Council's exclusive jurisdiction under C.G.S. §16-50i. Furthermore, the term "modification" is defined under C.G.S. §16-50i (d) as "a significant change or alteration in the general physical characteristics of a facility." Application of Fairwind's recommended language to a facility other than an electric generating facility would be nonsensical. For example, telecommunications towers do not have electric generating capacity or output. The purpose of the definition of "modification" in the regulations, which already includes a reference to physical, operational and capacity changes to a facility, is to inform owners and operators of jurisdictional facilities, including, but not limited to, electric generating facilities, that any proposed modification to the general physical characteristics of an approved facility must be submitted to the Council for review and approval. Therefore, the Council rejects this argument.

2. **Section 16-50j-12. Filing Requirements**

The Navy recommends the Council add a new Subsection (e) under existing Section 16-50j-12 of the Council's regulations entitled, "Department of Defense (DOD) Notification" on the basis that wind turbines can potentially interfere with DOD air, sea, communications, radar or training missions.

Section 16-50j-12 is not proposed to be amended in this regulation-making proceeding as that existing section, particularly Subsection (d), "State Agency Notification," of the Council's regulations applies to all jurisdictional facilities. However, the Navy is concerned with wind turbines specifically. Therefore, the Council added a new Subsection to the proposed wind regulations requiring notification to and consultation with the DOD, the Federal Aviation Administration (FAA)[4], the State Historic Preservation Office (SHPO)[5], and owners and operators of telecommunications infrastructure[6] under **Section 16-50j-94**, of the proposed wind regulations as follows:

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wave or tidal, geothermal, landfill gas, hydropower or biomass.") (Emphasis added); The Council also has jurisdiction over electric generating facilities utilizing renewable energy sources with a generating capacity of **less than one megawatt** if the proposed facility fails to meet all of the criteria in clauses (i) to (iii), inclusive, of Conn. Gen. Stat. §16-50i (a)(3) (Emphasis added); See discussion *infra* Section III.5.

[4] RENEW indicates the FAA regulates the color and marking of wind turbines or any structure over 200 feet above ground level for purposes of aviation safety under Paragraphs 131(f) and 133 of the FAA Advisory Circular, "*Obstruction Marking and Lighting*," *available at* http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/7445; See discussion *infra* Section III.7.c. relating to mitigation measures to minimize visual impact.

[5] RENEW and Fairwind recommend consultation with the SHPO. See discussion *infra* Section III.7.d.

[6] See discussion *infra* Section III.6. relating to Telecommunications Infrastructure Impact Analysis.

Section 16-50j-94. Additional Information Required

(a) Notification. In addition to the notification requirements under Subsection (d) of Section 16-50j-12 of the Regulations of Connecticut State Agencies, as applicable, each application for a certificate or petition for a declaratory ruling for a wind turbine facility shall be accompanied by proof of service of a copy of the application or petition for a declaratory ruling on the following entities:

(1) Department of Defense. The applicant or petitioner shall notify and consult with the Executive Director of the Department of Defense Siting Clearinghouse and the Department of Defense Regional Environmental Coordinator at Commander, Navy Region Mid-Atlantic. Any comments and recommendations received from the Department of Defense shall be submitted to the Council.

(2) Federal Aviation Administration. The applicant or petitioner shall notify and consult with the Federal Aviation Administration. Any comments and recommendations received from the Federal Aviation Administration shall be submitted to the Council.

(3) State Historic Preservation Office. The applicant or petitioner shall notify and consult with the State Historic Preservation Office, or its successor agency. Any comments and recommendations received from the State Historic Preservation Office, or its successor agency, shall be submitted to the Council.

(4) Telecommunications Infrastructure Owners and Operators. The applicant or petitioner shall notify and consult with public and private owners and operators of telecommunications infrastructure within a two-mile radius[7] of the proposed site and any alternative sites for wind turbine facilities. Any comments or recommendations received from the owners and operators of telecommunications infrastructure shall be submitted to the Council.

3. <u>Section 16-50j-18. Grant of Hearing</u>

For purposes of clarity and reducing litigation, Fairwind recommends the Council change the first sentence of this section to read as follows, "A hearing *must* be held…," rather than, "A hearing *shall* be held…" as this proposed amended section currently reads.

The Legislative Commissioners' Office Manual for Drafting Regulations (LCO Manual) states, "in keeping with the Regulation Review Committee's directive to agencies regarding mandates, use "shall" when the agency seeks to impose a mandate and does not confer any discretion in

[7] Black & Veatch Corporation, "*Interference of Wind Turbines with Wide Area Communications*," prepared for the Massachusetts Technology Collaborative, June 25, 2006, *available at* http://www.masstech.org/Project%20Deliverables/Comm_Wind/Eastham/Eastham_Cell_Tower_Analysis.pdf (A ratio of the scattered signal to the received signal is used to determine the full effect of this form of interference. These ratios correspond to an estimated minimum separation between the tower and the turbines of 325 feet.); Vogt, et al., "*New Criteria for Evaluating Wind Turbine Impacts on NEXRAD Weather Radars*," 2011, *available at* http://www.roc.noaa.gov/wsr88d/Publicdocs/WINDPOWER2011_Final.pdf (A No-Build zone is a fixed 3 km [1.86 mile] radius circle centered on the radar.)

carrying out the action so directed. **Never use "must".**"[8] Furthermore, the LCO Manual states, "Use "will" to denote something that will happen in the future, *not* to denote a requirement." Pursuant to Public Act 11-245, a public hearing is required to be held for any proposed wind turbine project. Therefore, the Council rejects this recommendation.

4. **Section 16-50j-39a. Completeness Review**

Fairwind and Nardello recommend the Council revise this section to specifically include a reference to the additional information items enumerated in proposed regulation Section 16-50j-94 on the basis that the filing requirements for a petition for a declaratory ruling under Section 16-50j-39 to which Section 16-50j-39a refers are too vague, do not give the petitioner notice as to what is required for completeness and do not inform intervening parties of when they can object to a petition as not being complete.

Section 16-50j-39a is not proposed to be amended in this regulation-making proceeding as that existing section of the Council's regulations applies to petitions for declaratory rulings for all jurisdictional facilities. The Council has the authority and jurisdiction to deem an application or petition that is submitted to the Council for review as complete. Section 16-50j-39a refers to Section 16-50j-39, which includes the minimum requirements for filing a petition for a declaratory ruling consistent with the UAPA. Additional information to be provided for a complete petition for a declaratory ruling for a wind turbine facility is specifically described in proposed Section 16-50j-94, which states, in pertinent part, "... in addition to the information required to be submitted to the Council as part of a petition for a declaratory ruling for a proposed wind turbine facility in accordance with Sections 16-50j-38 to 16-50j-40, inclusive, of the Regulations of Connecticut State Agencies, the ... petition shall also include, but not be limited to, the following..." If a petitioner is seeking a declaratory ruling for a wind turbine facility, the petitioner would necessarily consult the wind turbine facility-specific regulations, which include Section 16-50j-94. However, if a petitioner is seeking a declaratory ruling for another type of jurisdictional facility, reference to Section 16-50j-94 would be inapplicable. Intervening parties may object to an application or petition as incomplete in a request for party or intervenor status and/or during a public hearing when they have legal standing to object. Therefore, the Council rejects this recommendation.

5. **Section 16-50j-93. Petition for a Declaratory Ruling**

Nardello recommends that the Council distinguish between large industrial turbines and smaller wind turbines, and argues that projects with a generating capacity of one megawatt or less are not under the Council's jurisdiction. Nardello also recommends that any wind turbine project with a generating capacity over one megawatt should be subject to an application process rather than a declaratory ruling. Groton argues that waivers of any of the requirements in the proposed wind regulations should elevate a declaratory ruling to a full certificate.

Pursuant to C.G.S. §16-50i (a)(3), the Council has exclusive jurisdiction over "any electric generating... facility using any fuel... but not including... a facility (i) owned or operated by a

[8] State of Connecticut, Legislative Commissioners' Office, Manual for Drafting Regulations at page 44, *available at* http://www.cga.ct.gov/lco/PDFs/RegsDraftingManual.pdf.

private power producer as defined in section 16-243b, (ii) which is a qualifying small power production facility… under the Public Utility Regulatory Policies Act of 1978… or a facility determined by the Council to be primarily for a producer's own use, and (iii) which has, in the case of a facility utilizing renewable energy sources, a generating capacity of one megawatt of electricity or less…" According to the plain language of the statute, the Council has jurisdiction over wind turbine facilities that have a generating capacity of one megawatt or less **if the proposed facility fails to meet any of the enumerated criteria in clauses (i) to (iii), inclusive, of C.G.S. §16-50i (a)(3).** If a wind turbine facility meets all of the enumerated criteria in clauses (i) to (iii), inclusive, the facility is exempt from Council jurisdiction. For example, in 2010, Phoenix Press installed a 100 kilowatt, 156-foot tall wind turbine at their facility in New Haven that generates the electricity necessary for the company's printing operations. The wind turbine at Phoenix Press was exempt from Council jurisdiction because Phoenix Press is a private power producer, the facility is for Phoenix Press's own use **and** the wind turbine has a generating capacity of less than one megawatt. In order to be exempt from Council jurisdiction, proposed facilities with a generating capacity of one megawatt or less utilizing renewable energy sources, such as wind, must meet **all** of the enumerated criteria under clauses (i) to (iii), inclusive, of C.G.S. §16-50i (a)(3). Therefore, the Council rejects the argument that all wind turbine projects with a generating capacity of one megawatt or less are not under the Council's jurisdiction.

Pursuant to C.G.S. §16-50k (a), "… **the Council shall**, in the exercise of its jurisdiction over the siting of generating facilities, **approve by declaratory ruling**, … (B) the construction or location of any… grid-side distributed resources project or facility **with a capacity of not more than sixty-five megawatts**, as long as such project meets air and water quality standards of the Department of Environmental Protection…" (Emphasis added). According to the plain language of the statute, there is no explicit exception for wind turbine facilities. The LCO Manual states, "In general, the principle of separation of powers holds that under our federal and state constitutions, the legislative branch enacts laws and the executive branch executes or carries out laws. Pursuant to this principle, an administrative agency does not have the authority to enact law."[9] If the Council were to revise the wind regulations to require that all proposed wind turbine facilities be subject to the application for a certificate process, which is the subject of proposed Section 16-50j-92, rather than by a petition for a declaratory ruling in accordance with C.G.S. §16-50k (a), the regulations would conflict with the statute and the Council would exceed its statutory authority. The adoption of regulations requires specific statutory authority. The Council cannot impose a requirement or authorize individuals to do something that goes beyond the scope of the underlying statutory scheme. Therefore, the Council rejects these recommendations.

However, in response to the consideration in opposition to this section, the Council revised Section 16-50j-93, consistent with C.G.S. §16-50i (a)(3) and C.G.S. §16-50k (a), with new language underlined, as follows:

Section 16-50j-93. Petition for a Declaratory Ruling.
Pursuant to Subsection (a) of Section 16-50k of the Connecticut General Statutes, any person seeking to construct, operate and maintain a customer-side distributed resources wind turbine facility or a grid-side distributed resources wind turbine facility with a capacity of not more than 65 megawatts or a wind turbine facility with a capacity of less than one megawatt provided the facility fails to meet the criteria for exemption under Section 16-50i (a)(3) of the Connecticut General Statutes, shall file a petition for a declaratory ruling. The petition for a declaratory ruling shall be filed with the Council in accordance with the filing requirements of Sections 16-50j-38 to

[9] *Id.* at 5.

16-50j-40, inclusive, of the Regulations of Connecticut State Agencies. The petition for a declaratory ruling filed with the Council shall also include, but not be limited to, additional information required to be submitted to the Council as part of the petition under Section [16-50j-96] 16-50j-94 of the Regulations of Connecticut State Agencies. A motion for protective order may be filed with the Council for any information that may qualify as proprietary or critical energy infrastructure information pursuant to Subsection (d) of Section 16-50j-22a of the Regulations of Connecticut State Agencies.

6. **Section 16-50j-94. Additional Information Required. Telecommunications Impact Analysis**

NU recommends that the Council revise its proposed wind regulations to include a requirement that applications and petitions for proposed wind turbine facilities include a study regarding the possibility of interference with public service company communications equipment. Fairwind, Nardello and Groton also recommend the Council require a telecommunications impact analysis be provided.

Rather than limit a requirement for a telecommunications impact study to public service companies as suggested by NU, which would not include telecommunications towers owned and operated by private cellular service providers or public emergency responders, and rather than require a full telecommunications infrastructure impact analysis within an unspecified radius of the proposed wind turbine facility that the owners and operators of such telecommunications infrastructure may deem inapplicable to or unnecessary for their facilities, the Council added a requirement under proposed Section 16-50j-94 that public and private owners and operators of telecommunications infrastructure be notified of the proposed wind turbine facility, and that any comments or recommendations received from these entities be submitted to the Council.[10] If the owners and operators of telecommunications infrastructure request a telecommunications infrastructure impact analysis be conducted, the applicant or petitioner shall submit said analysis to the owners and operators of telecommunications infrastructure and to the Council. Therefore, the Council rejects the recommendation that a full telecommunications impact analysis be conducted specifically for public service company communications equipment as recommended by NU, and for all telecommunications infrastructure within an unspecified radius of the proposed wind turbine facility as recommended by Fairwind, Nardello and Groton, on the basis that a full analysis may be deemed inapplicable and/or unnecessary by the owners and operators of such telecommunications infrastructure.[11]

However, pursuant to proposed Section 16-50j-94 as described in Section III.2. *infra*, the Council shall require applicants and petitioners to notify and consult with public and private owners and operators of telecommunications infrastructure, including, but not limited to, public service

[10] See discussion *infra* Section III.2.; See *infra* note 6 and note 7.

[11] Center for Climate Change Law, Columbia Law School, "*Model Municipal Wind Siting Ordinance,*" January 2012, *available at* http://www.law.columbia.edu/centers/climatechange/resources/municipal/wind-ordinance ("An application for a special use permit for Small and Large Wind energy facilities shall include: …a copy of written notification to… microwave communications link operators…"); *Commercial Wind Energy Facility & Wind Access Model Ordinance*, Town of Barton, Wisconsin, January 2002, *available at* http://www.planningchautauqua.com/pdf/PlanningResources/ZoningTools/Wisconsin%20Wind%20Ordinance%20Model.pdf ("An application that includes any wind turbine which is located within two miles of any microwave communications link shall be accompanied by a copy of written notification to the operator of the link."); A requirement for a telecommunications impact analysis was not contemplated by Public Act 11-245, however, other states require notification to telecommunications facility owners and operators, and the Council has exclusive jurisdiction over telecommunications infrastructure under the PUESA. See Conn. Gen. Stat. §16-50i (a)(6).

companies, and to submit any comments or recommendations, including requests for a full telecommunications infrastructure impact analysis, to the Council.

7. **Section 16-50j-94 (b). Visual Impact Evaluation Report**

   a. **Subdivision (1) Subparagraph (C):** Groton indicates it is unclear how water resources relate to visual impacts. Pioneer recommends the Council require applicants and petitioners to provide a separate seasonal view-shed analysis for each of the four seasons on the basis that reference in this Subparagraph to "year-round and seasonal visibility" is vague and difficult to interpret. Nardello argues that the visual impact evaluation report should be expanded to include a radius of one to eight miles to insure that visual impact is considered both at a distance and close to affected properties, and recommends consideration be given as to whether the wind turbine will be placed on a ridge line or in a valley area. Fairwind argues that the requirements under this Subparagraph can be manipulated to greatly minimize the impact of taller structures and recommends that a visual impact evaluation report should be specifically prepared for any site of natural or historic significance.

   A separate view-shed analysis for each of the four seasons would be burdensome and time-consuming. It is longstanding Council practice for all jurisdictional facilities to request view-shed study area maps with a five-mile radius depicting areas, including, but not limited to, water resources with recreational uses such as fishing and boating, within the study area radius that would experience seasonal and year-round visibility of proposed projects. These view-shed study area maps differ from photo-simulations of potential visibility that the Council requires. Indeed, because the view-shed study area maps identify areas of most visibility under "leaf-on" and "leaf-off" conditions, they provide the basis for choosing locations where photo-simulations should be made. Based on the results of identified areas of seasonal and year-round visibility from the view-shed study area maps, individual photo-simulations in "leaf-on" and "leaf-off" conditions, where possible, are provided from those areas identified as having the most visibility. Contrary to Fairwind's and Nardello's arguments, a view-shed study area map with any radius would necessarily include the visual impact of wind turbines on properties located at a distance and at closer ranges.[12] Furthermore, with regard to Nardello's recommendation, the Council necessarily considers the location, such as sites proposed on ridge lines and in valley areas, and the potential visual impact, among other considerations, of any proposed facility as part of its statutory charge under the PUESA. Therefore, the Council rejects these recommendations.

   Fairwind also recommends that a visual impact evaluation report should be specifically prepared for any site of natural or historic significance. However, Subparagraph (C) specifically requires that the view-shed analysis depict "historic sites, historic districts, state

[12] 30 V.S.A. §248 (b)(5) (2012) ("The public service board shall find that a facility will not have an undue adverse effect on esthetics, historic sites, air and water purity, the natural environment and the public health and safety."); VT. Code R. 30-000-056 §5.403(b)(3) ("The petition must include a view-shed analysis of esthetic impacts for a ten-mile radius from the proposed project site."); *In Re Amended Petition of UPC Vermont Wind, LLC,* 969 A.2d 144 (Vt. 2009) ("The Board made numerous additional findings that support its conclusion regarding aesthetic impact of the project. It found, for example, that there would be limited views of the project from most of the major public roads in the area. It also found that in those places where the project would be visible from the road the visibility would be intermittent and limited due to vegetative screening along the roads and the speed of the vehicles.")

and locally designated scenic roads, recreational areas, open space and conservation areas, schools, trails, forests, parks, and water resources." Furthermore, as indicated in Section III.2. *infra*, applicants and petitioners are required to notify and consult with the SHPO and to submit any comments and recommendations from SHPO, which may include, in the discretion of the SHPO, a visual impact evaluation report for a particular natural or historic site. Therefore, the Council rejects this recommendation.

b. **Subdivision (1) Subparagraph (D):** Pioneer recommends the Council specify the number of photo-simulations to be produced and require the applicant or petitioner to determine the locations only after communication with township officials. Fairwind recommends requiring applicants and petitioners to provide photo-simulations at radii of 1 through 8 miles approximately 20 degrees from one another around the circumference of each circle, resulting in 144 photo-simulations. RENEW recommends the Council set a limit on the quantity of photo-simulations and criteria for selecting the viewpoints.

Randomly selecting what the Council deems to be a sufficient number of photo-simulations for any and all proposed wind turbine projects would be arbitrary. Similarly, requiring 144 photo-simulations 20 degrees from one another around the circumference of a circle would be burdensome and time-consuming. Each proposed project presents unique circumstances. For this reason, the Council does not request a specific number of photo-simulations for any jurisdictional facility. Pursuant to C.G.S. §16-50*l*, applicants are required to consult with the host municipality for at least 60 days prior to submitting an application for an electric generating facility with the Council.[13] During the municipal consultation period, the host municipality may recommend the applicant or petitioner provide photo-simulations from specific locations. Also, under C.G.S. §16-50n, host municipalities have an absolute right to become a party to a Council proceeding, and even if they do not avail themselves of this opportunity, the Council routinely accepts oral and written comments from municipalities and their boards and commissions into the evidentiary record. Furthermore, if the Council or a party or intervenor to a proceeding determines that a photo-simulation from a particular location would be helpful for review and evaluation of the proposed project, the Council or a party or intervenor may, and often does, request an applicant or petitioner to submit additional photo-simulations from specific locations, which may include areas on private property that are inaccessible to the applicant or petitioner without committing trespass. As indicated in the comments submitted by RENEW, "representative viewpoints are used in the industry and cover areas of the highest scenic value and other sensitive areas. Private property is generally not accessible to those conducting inventories of views and resources." Under Subparagraph (C) of Section 16-50j-94, applicants and petitioners are required to depict sensitive receptors in the view-shed analyses.[14] Typically, if sensitive receptors are anticipated to have a view of the proposed facility, photo-simulations are provided for those sensitive receptors. Therefore, the Council rejects these recommendations.

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[13] Although there is no statutory requirement for a municipal consultation period for petitions for declaratory rulings, petitioners often engage in municipal consultations to develop a relationship with the host communities. BNE consulted with the Towns of Prospect and Colebrook that included local approval for the installation of the meteorological towers at the site properties, informational filings, legally-noticed public informational meetings, and public access to information via BNE's website prior to filing their petitions with the Council. See Connecticut Siting Council, Petition No. 980, Petition No. 983, and Petition No. 984, *supra* note 1.

[14] "The view-shed analyses shall depict… historic sites, historic districts, state and locally designated roads, recreational areas, open space and conservation areas, schools, trails, forests, parks and water resources."

c. **Subdivision (1) Subparagraph (E):** Pioneer recommends that utility-scale wind facilities be excluded from this Subparagraph on the basis that none of the enumerated mitigation measures should be considered effective means of minimizing the visual impact of a utility-scale wind project. Groton indicates it is unclear how facilities are to be screened by vegetation and/or landscaping and recommends the Council address lighting impacts. RENEW recommends the visual impact evaluation report not require identification of paint color mitigation measures for structures regulated by the FAA.

Subparagraph (E) requires "identification of any potential mitigation measures to minimize visual impact, ***including, but not limited to***, paint color of the facility, vegetative screening and landscaping." (Emphasis added). Although Pioneer claims none of the enumerated mitigation measures should be considered effective means of minimizing visual impact of a utility-scale wind project and Groton indicates it is unclear how facilities are to be screened by vegetation and landscaping, wind turbine facility developers may consider the enumerated mitigation measures as effective or may have additional suggestions to minimize visual impact based on the location of a particular project. The burden is on the wind turbine facility developer to prove in the Visual Impact Evaluation Report that any of the enumerated mitigation measures or any additional mitigation measures would be effective. In a report prepared for the Minnesota Public Utility Commission entitled, "Wind Energy and Wind Park Siting and Zoning Best Practices and Guidance for States," the National Association of Regulatory Utility Commissioners (NARUC) recommends the following requirements relative to aesthetics: neutral paint color, minimal signage, minimum night-time lighting necessary to achieve FAA compliance, realistic visual impact assessments accessible to the public, and management of visual impact through setbacks and exclusions from critical competing land uses.[15] With regard to RENEW's recommendation, and with regard to Groton's recommendation to address lighting impacts, under Section III.2. *infra*, the Council added Subsection (a) to proposed Section 16-50j-94 that requires notification to and consultation with the FAA, among other entities, and requires that any comments or recommendations from these entities be submitted to the Council. If the FAA indicates a specific paint color or lighting scheme shall be used for the wind turbines for purposes of aviation safety, neither the Council nor the wind turbine facility developer would have the discretion to choose a different paint color or lighting scheme for the facility. Therefore, the Council rejects these recommendations.

d. **Subdivision (2):** RENEW recommends the developer consult with the SHPO prior to selecting representative receptors rather than merely submit the evaluation report to the SHPO upon completion. Fairwind argues that the SHPO review should not be in the Visual Impact section on the basis that SHPO would consider more than just visual impact when evaluating a proposed wind turbine project for impact on a historic property. Fairwind recommends the regulation be revised to require submission to SHPO of a map that includes all historic districts and properties on or eligible for inclusion on the National Register of Historic Places. Fairwind further recommends a requirement "that any decision by the SHPO that a project will have an adverse effect should be treated as final and not subject to additional review by the Council."

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[15] National Association of Regulatory Utility Commissioners, "*Wind Energy and Wind Park Siting and Zoning Best Practices and Guidance for States*," January 2012, *available at* http://www.naruc.org/Publications/FINAL%20FINAL%20NRRI_Wind_Siting_Jan12-03.pdf.

In response to RENEW's recommendation, as discussed in Section III.2. and Section III.6. *infra*, the Council added Subsection (a) to proposed Section 16-50j-94 to require notification to and consultation with the SHPO, among other entities, and requires that any comments or recommendations from the SHPO, including a request for an evaluation report, be submitted to the Council. Therefore, Subdivision (2) has been deleted, revised and relocated to the new Subsection (a) of Section 16-50j-94 entitled, "Notification."

With regard to Fairwind's argument, under new Subsection (a) of proposed Section 16-50j-94, the SHPO, in its discretion, may require the applicant or petitioner to submit a map and photo-simulations and may submit any other comments and recommendations to the Council relative to SHPO's evaluation of a proposed wind turbine facility for impact on a historic property. Under C.G.S. §16-50j (h), "Prior to commencing any hearing pursuant to section 16-50m, the Council shall consult with and solicit comments from (1) the Department of Energy and Environmental Protection, the Department of Public Health, the Council on Environmental Quality, the Department of Agriculture, the Public Utilities Regulatory Authority, the Office of Policy and Management, the Department of Economic and Community Development and the Department of Transportation… Copies of such comments shall be made available to all parties prior to commencement of the hearing… All such written comments shall be made part of the record…"[16] The SHPO is not included in C.G.S. §16-50j (h), however, it is longstanding Council policy to request applicants and petitioners to consult with the SHPO. Connecticut case law holds that consultation with and solicitation of comments from the state agencies enumerated under C.G.S. §16-50j (h) is advisory and there is nothing in the statute that requires the Council to abide by the comments of other state agencies submitted pursuant to the statute.[17] Therefore, the Council rejects this argument.

With regard to Fairwind's recommendation that applicants and petitioners be required to submit to SHPO a map that includes all historic districts and properties on or eligible for inclusion on the National Register of Historic Places, under Subparagraph (C) of Subdivision (1) of Subsection (b) of Section 16-50j-94, applicants and petitioners are required to depict historic sites and historic districts, whether or not they are on or eligible for inclusion on the National Register of Historic Places, in the view-shed analyses. As stated above, although SHPO is not included in C.G.S. §16-50j (h) as a state agency with which the Council is statutorily-required to consult with and solicit comments from, it is longstanding Council policy to request applicants and petitioners to consult with the SHPO. The extent of SHPO's evaluation of a proposed facility, including requests for materials such as maps, is within the discretion of the SHPO. Therefore, the Council rejects this recommendation.

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[16] Pursuant to Public Act 11-101, C.G.S. §16-50j (h) was amended to add subdivision (2), which reads, "in a hearing pursuant to section 16-50m, for a facility described in subdivision (3) of subsection (a) of section 16-50i [electric generating facilities], the Department of Emergency Services and Public Protection, the Department of Public Works and the Labor Department." This subdivision was effective on July 8, 2011, which was after the decisions were rendered on the 3 petitions for wind turbine facilities proposed by BNE.

[17] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)("Thus, while the Council is obligated to consult with and to solicit comments from the department, nothing in the statute requires the Council to abide by the comments of the department. In fact, there can be no doubt that the department's written comments in this matter are not controlling on the council because General Statutes §16-50w specifically provides that "in the event of conflict between the provisions of this chapter and any provisions of general statutes, as amended, or any special act, this chapter shall take precedence."); *Town of Preston v. Connecticut Siting Council,* 20 Conn. App. 474 (Conn. App. 1990); *City of Torrington v. Connecticut Siting Council,* 1991 Conn. Super. LEXIS 2084 (Conn. Super. 1991).

With regard to Fairwind's recommendation that the Council treat SHPO's determination of adverse effect as final and not subject to additional review by the Council, this would violate the Council's authority and exclusive jurisdiction under the PUESA. As discussed above, the SHPO is not a state agency with which the Council is statutorily-required to consult with or solicit comments from, and even if the SHPO were a state agency that the Council is obligated to consult with and solicit comments from, the state Supreme Court determined that C.G.S. §16-50w specifically provides that "in the event of any conflict between the provisions of this chapter and any provisions of general statutes, as amended, or any special act, this chapter shall take precedence." The adoption of regulations requires specific statutory authority. The Council cannot impose a requirement or authorize individuals to do something that goes beyond the scope of the underlying statutory scheme. Therefore, the Council rejects this recommendation.

8. Section 16-50j-94(c). Noise Evaluation Report

RENEW recommends noise recordings be made from inhabited dwellings and not on property lines. Groton recommends the noise evaluation report include generator noise and low frequency noise. The Colebrook Conservancy recommends the Council require infrasound studies. Pioneer suggests that noise measurements should be made from residences within a certain distance, indicates that wind turbines cannot emit at a high enough level for infrasound, that this type of report is not a standard requirement across the industry, and indicates the phrase "nearest receptors" is vague. Nardello recommends noise receptors, infrasonic noise and ultrasonic noise be defined, and that a turbine maintenance plan be included in the noise evaluation report. Fairwind argues the requirements for the report are unnecessary, that there is no statutory or regulatory authority for using receptor locations that are not on the property lines, that a turbine maintenance plan be submitted with the report, that the report contain discussion of turbine configurations, noise impacts on pasture animals and wild animals, and comparisons with other wind turbine sites in the United States.

The DEEP has exclusive jurisdiction and authority over noise control pursuant to Chapter 442 of the Connecticut General Statutes and the Regulations for the Control of Noise, R.C.S.A. §22a-69-1, *et seq.* promulgated pursuant to Chapter 442. C.G.S. §22a-72 states, "State agencies shall, to the fullest extent consistent with their authorities under state law administered by them, carry out the programs within their control in such a manner as to further the policy stated under section 22a-67." The Noise Control Regulations define "noise zones" by land use category, which is identified by a class designation. For example, a Class A noise zone is defined as "residential areas where human beings sleep or areas where serenity and tranquility are essential to the intended use of the land."[18] Noise zone standards are defined by the class of the emitter to the class of the receptor.[19] For example, a Class C emitter (land use category for utilities), to a Class A receptor (residential areas where humans sleep), may emit night-time noise levels that do not exceed 51 dBA. Measurements are to be taken "at about one foot beyond the boundary of the

[18] R.C.S.A. §22a-69-2.3 ("**Class A noise zone.** Lands designated as Class A shall generally be residential areas where human beings sleep or areas where serenity and tranquility are essential to the intended use of the land.")

[19] R.C.S.A. §22a-69-3.5 ("**Noise zone standards.** No person in a Class C Noise Zone shall emit noise exceeding the levels stated herein and applicable to adjacent noise zones:

	Receptor A/Day	**Receptor** A/Night
Class C **Emitter** to	61 dBA	51 dBA") (Emphasis added.)

Emitter Noise Zone within the Receptor's Noise Zone."[20] The regulations specifically refer to "emitters" and "**receptors**," as well as to the requirement that noise level measurements be taken at property lines. (Emphasis added). There is a concern regarding trespass on private property for noise level measurements to be taken at inhabited dwellings. However, if a property owner requests noise level measurements to be taken at their inhabited dwelling, the Council, in its discretion, may request the applicant or petitioner to conduct an analysis. Therefore, the Council rejects the recommendations to require noise level measurements to be taken at inhabited dwellings.

Pioneer indicates that wind turbines cannot emit at a high enough level for infrasound. The Colebrook Conservancy recommends the Council require infrasound studies. Groton recommends the Noise Evaluation Report include generator noise and low frequency noise, which includes infrasound. Nardello recommends infrasonic and ultrasonic noise should be defined. Infrasonic sound, ultrasonic sound, impulsive noise and prominent discrete tones, as well as noise from generators, which are exempt if a result of, or relating to, an emergency, are defined in Section 22a-69-1.2 of the Noise Control Regulations and allowable noise levels associated with infrasonic sound, ultrasonic sound, impulsive noise and prominent discrete tones are addressed in Section 22a-69-3 of the Noise Control Regulations.[21] The burden is on the applicant or petitioner to prove in the Noise Evaluation Report that the wind turbines cannot emit at a high enough level for infrasound. Therefore, the Council rejects these recommendations.

Pioneer also indicates that a noise evaluation report is not a standard requirement across the industry. However, all model ordinances place some limit on noise from commercial-scale wind facilities.[22] Some states specify that noise level measurements conform to American Wind Energy

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[20] R.C.S.A. §22a-69-4 ("Measurements taken to determine compliance with Section 3 shall be taken at about one foot beyond the boundary of the Emitter Noise Zone within the Receptor's Noise Zone.")

[21] R.C.S.A. §22a-69-1.2 (**"Acoustic terminology and definitions.** ...(k) **impulse noise** means noise of short duration (generally less than one second), especially of high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition... (l) **infrasonic sound** means sound pressure variations having frequencies below the audible range for humans, generally below 20 Hz; subaudible... (r) **prominent discrete tone** means the presence of acoustic energy concentrated in a narrow frequency range... (y) **ultrasonic sound** means sound pressure variations having frequencies above the audible sound spectrum for humans, generally higher than 20,000 Hz; superaudible."); R.C.S.A. §22a-69-3 (**"Sec. 22a-69-3.2 Impulse noise.** No person shall cause or allow the emission of impulse noise in excess of 80 dB peak sound pressure level during the nighttime to any Class A Noise Zone; **Sec. 22a-69-3.3 Prominent discrete tones.** "Continuous noise measured beyond the boundary of the Noise Zone of the noise emitter in any other Noise Zone which possesses one or more audible discrete tones shall be considered excessive noise when a level of 5 dBA below the levels specified in Section 3 of these Regulations is exceeded; **Sec. 22a-69-3.4 Infrasonic and ultrasonic.** No person shall emit beyond his/her property infrasonic or ultrasonic sound in excess of 100 dB at any time.")

[22] ENVIRONMENTAL LAW INSTITUTE, "*State Enabling Legislation for Commercial-Scale Wind Power Siting and the Local Government Role,*" May 2011, *available at* http://www.elistore.org/reports_detail.asp?ID=11410; Columbia Law School, "*Model Municipal Wind Siting Ordinance,*" *supra* note 11 (Study or report on Noise shall include a description and map of the project's noise-producing features and the noise-sensitive environment); Town of Barton, Wisconsin, "*Commercial Wind Energy Facility & Wind Access Model Ordinance,*" *supra* note 11 ("Compliance with Noise Regulations Required; Noise Study Required"); American Wind Energy Association, "*Wind Energy Siting Handbook,*" February 2008, *available at* http://www.awea.org/sitinghandbook/downloads/awea_siting_handbook_feb2008.pdf ("Approvals for a wind farm usually require acceptance by local officials of the sound levels from turbines at certain receptors."); National Wind Coordinating Committee, "*Permitting of Wind Energy Facilities,*" August 2002, *available at* http://www.nationalwind.org/assets/publications/permitting2002.pdf ("Strategies employed by some agencies in

Association (AWEA) standards.[23] Other states simply incorporate generally applicable noise standards, or apply statewide noise regulations. Where statewide noise regulations apply, any state permitting process will offer a forum for enforcing the noise standards. Therefore, the Council rejects this argument.

Contrary to Fairwind's argument that the Noise Evaluation Report is unnecessary, Public Act 11-245 specifically requires the Council to adopt regulations concerning the siting of wind turbines relative to noise. The Noise Evaluation Report is necessary to establish that noise levels produced by the proposed wind turbine facility comply with the allowable noise levels prescribed in the Noise Control Regulations. It is longstanding Council policy to require applicants and petitioners of any jurisdictional facility to submit a noise evaluation report that demonstrates compliance with the Noise Control Regulations. Additionally, contrary to Fairwind's argument that there is no statutory or regulatory authority for using any receptor locations that are not on the property lines, the Noise Control Regulations allow for variances from one or more of the provisions of the regulations under R.C.S.A. §22a-69-7.1.[24] If the Commissioner of DEEP approves a variance or a partial variance at a particular location, the Council may request the applicant or petitioner to measure the noise levels at that location. Therefore, the Council rejects these arguments.

As for the other four Fairwind arguments, first, the appropriate stage of the siting process for the submission of a turbine maintenance plan to be required is as part of the Development and Management Plan (D&M Plan) under proposed Section 16-50j-96 and under existing Sections 16-50j-60 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies, as discussed under Section III.13. and Section III.18., *infra.* Second, the Noise Evaluation Report requires "a detailed description of the potential noise levels that would be generated by the ***proposed wind turbines and any alternative wind turbines at the proposed site and any alternative sites,***" which necessarily includes a discussion of turbine configurations and distances between turbines, as well as turbulence and noise aspects of the configuration. (Emphasis added). Third, the Noise Control Regulations do not regulate noise impacts on pasture animals or wild animals; however, the DEEP and the Department of Agriculture may submit comments on these subjects pursuant to C.G.S. §16-50j (h), previously discussed under Section III.7.d., *infra.* Fourth, a requirement for a discussion and comparison with other wind turbine sites in the United States would be overly burdensome, as well as irrelevant to the evaluation of noise impacts at a particular wind turbine site in accordance with Connecticut's Noise Control Regulations. Therefore, the Council rejects these arguments.

9. **Section 16-50j-94 (d). Ice Drop and Ice Throw Evaluation Report**

Fairwind and Nardello recommend that there be a requirement for applicants to report the amount of time "icing conditions" can be expected during the year, that turbines should not be installed in Connecticut unless the manufacturer's full technical documentation for the proposed turbines is

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addressing potential noise concerns have included predicting and measuring noise levels, establishing noise standards, requiring noise setbacks, establishing zoning restrictions and making turbine modifications.")

[23] MODEL ORDINANCE FOR WIND ENERGY FACILITIES IN PA. §11A, Pennsylvania Department of Environmental Protection, 2006, *available at* http://www.depweb.state.pa.us/portal/server.pt/community/wind/10408 ("Methods for measuring and reporting acoustic emissions from Wind Turbines and the Wind Energy Facility shall be equal to or exceed the minimum standards for precision described in AWEA Standard 2.1…").

[24] R.C.S.A. §22a-69-7.1 ("**Variances.** No variance shall be approved unless the applicant presents adequate proof to the Commissioner's satisfaction that: (i) Noise levels occurring during the period of the variance will not constitute a danger to public health; and (ii) Compliance with the Regulations would impose an arbitrary or unreasonable hardship upon the applicant without equal or greater benefits to the public."); See also ENVIRONMENTAL LAW INSTITUTE, *supra* note 22 ("Some model ordinances provide for the waiver of noise requirements.")

made publicly available, and that the report should include a study of all ice drop and ice throw events known worldwide to have occurred at any wind turbine site over a five year period preceding the submission of the application or petition.

The amount of time "icing conditions" can be expected during the year at a proposed wind turbine facility site is necessarily part of the ice drop and ice throw assessment methodology. This methodology is applied to project sites by considering the proposed turbine type, the terrain of the site and surrounding area, and assumptions for human presence in the surrounding area.[25] Based on the established methodology employed by experts in the industry, an ice drop and ice throw analysis can be completed independent of reliance on and availability of a manufacturer's technical documentation. The overall approach to assessment methodology includes, but is not limited to, the following: (1) Determine the periods when ice accretion on structures might occur based on historical climatic observations; (2) Within those periods, determine when the wind-speed conditions are within the operational range of the wind turbines.[26] The data is recorded using sensors that are mounted on a meteorological tower located at a proposed site. Based on the assessment methodology and the data collected from the assessment, recommended specifications for turbine and ice control systems are developed, such as the installation of ice monitoring devices and an emergency shutdown mechanism.[27] As part of its final decision on any wind turbine facility, the Council may order the employment of the recommended specifications for turbine and ice control systems. A requirement to provide a study of ice drop and ice throw events industry-wide over the five years preceding the submission of a petition or application would be overbroad, burdensome, and not specifically related nor applicable to the ice drop and ice throw potential at a particular proposed project site. Therefore, the Council rejects these recommendations.

10. <u>Section 16-50j-94. Blade Drop and Blade Throw Evaluation Report</u>

Fairwind and Nardello recommend that a blade-monitoring plan be submitted outlining how the applicant intends to make regular inspections and maintain the condition of the blades, that an application should be rejected if manufacturer's safety recommendations aren't made publicly available, and that the report should include a study of blade drop and blade throw events over a five-year period preceding the submission of the petition or application. On the other hand, RENEW recommends that the sub-sections on site-specific evaluation procedures to address blade throw and blade drop should be removed and that the Council should simply require adherence to the turbine manufacturer's general safety recommendations.

As with the evaluation of ice drop and ice throw, the blade drop and blade throw assessment methodology is applied to project sites by considering the proposed turbine type, the terrain of the site and surrounding area, assumptions for human presence in the surrounding area, rotor rotational speed and wind speed.[28] A blade drop and blade throw analysis can be completed independent of reliance on and availability of a manufacturer's technical documentation using the

[25] Connecticut Siting Council, Petition No. 983 and Petition No. 984, *supra* note 1 (GL Garrad Hassan, "Ice Throw Risk Assessment, Colebrook North and Colebrook South," March 14, 2011; C. Morgan, et al, "Wind energy production in Cold Climates (WECO)," ETSU Contractor Report W/11/00452/REP, UK DTI, 1999).
[26] *Id.*
[27] *Id.*
[28] Larwood, Scott, "*Permitting Setbacks for Wind Turbines in California and the Blade Throw Hazard,*" June 2005, *available at* http://newgenerationdri.capecodcommission.org/ng480.pdf

established methodology employed by experts in the industry. Based on the blade drop and blade throw assessment methodology and the mechanical loads data collected from the assessment, recommended specifications for turbine blade maintenance and control are developed, such as the installation of blade monitoring devices and an emergency shutdown mechanism.[29] As part of its final decision on any wind turbine facility, the Council may order the employment of the recommended specifications for turbine blade maintenance and control. Requiring a study of blade drop and blade throw events over the five years preceding the submission of a petition or application would be overbroad, burdensome, and not specifically related nor applicable to the blade drop and blade throw potential at a particular proposed project site. As to RENEW's recommendation, Public Act 11-245 specifically requires the Council to adopt regulations concerning the siting of wind turbines relative to blade shear.[30] Therefore, the Council rejects these recommendations.

11. Section 16-50j-94(f). Shadow Flicker Evaluation Report

RENEW recommends the measuring requirements on shadow flicker be changed from a radius around the turbine of one mile to one-half mile, as the effects of shadow flicker diminish rapidly with distance and should be minimal beyond one-half mile. Groton argues it is unclear what is intended as to mitigation and how this would be accomplished. Fairwind argues that a one-mile shadow flicker radius is insufficient. Fairwind recommends the analysis should not be limited to each off-site occupied structure, but should include all residential properties in their entirety, as well as roads, road intersections, and school bus stops within 2 miles of the wind turbines. Fairwind further recommends that the operator of the shadow flicker software should be identified by name with a summary of the operator's education, experience and training in use of the software; the operator should also be sworn as a witness and subject to cross-examination at the public hearing.

The use of commercial software, such as WindPRO, is widely-accepted in the wind industry and is designed specifically for the planning and evaluation of wind power projects.[31] WindPRO contains a module entitled, "SHADOW," which calculates the duration of time that shadow flicker could occur at receptor locations within a default distance of 2,000 meters (1.24 miles).[32] SHADOW creates a graphic depicting the locations of a study area where shadow flicker is expected to occur. It assumes that at distances greater than 2,000 meters from wind turbines, shadow flicker rarely occurs and its intensity is faint enough not to be a distraction to human activities.[33] As with the Visual Impact Evaluation Report described in Section III.7. *infra*, the Shadow Flicker Evaluation Report requires submission of a study area map with a one-mile radius, inclusive of locations at closer ranges and roads.[34] Also, as described in that section, wind turbine facility developers may consider the enumerated shadow flicker mitigation measures as effective or may have additional suggestions to minimize shadow flicker impact based on the

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[29] *Id.*

[30] The Council interpreted the term "blade shear" broadly to include blade drop and blade throw.

[31] Wind Turbine Health Impact Study: Report of Independent Panel Prepared for Massachusetts Department of Environmental Protection and Massachusetts Department of Public Health, January 2012, *available at* http://www.mass.gov/dep/energy/wind/turbine_impact_study.pdf

[32] *Id.*

[33] *Id.*

[34] Pursuant to C.G.S. §16-50j (h), the Council is required to consult with and solicit comments from other state agencies, including, but not limited to, the Department of Transportation.

location of a particular project. The burden is on the wind turbine facility developer to prove in the Shadow Flicker Evaluation Report that any of the enumerated mitigation measures or any additional mitigation measures would be effective. Furthermore, the term "off-site occupied structure" necessarily includes all residential properties located within the shadow flicker study area radius of the proposed site. With regard to the qualifications of the shadow flicker software operator, the Council requires the author of any report be present, sworn as a witness and available for cross examination at a public hearing.

Given the considerations in opposition to this proposed regulation, the Council revised Subdivision (2) of Subsection (f) of Section 16-50j-94 to require a 1.25 mile shadow flicker study area radius, with deleted language bracketed and new language underlined, as follows:

(2) Calculations from each proposed wind turbine and any alternative wind turbines at the proposed site and any alternative sites to each off-site occupied structure location within a [one mile] one-and-a-quarter mile radius, including, but not limited to, the following:

(A) distance in feet;
(B) shadow length and intensity;
(C) shadow flicker frequency;
(D) specific times shadow flicker is predicted to occur; and
(E) duration of shadow flicker measured in total annual hours.

12. Section 16-50j-94(g). Natural Resource Evaluation Report

Pioneer recommends the term "potential" be replaced by the term "estimated" on the basis that wildlife studies performed for utility-scale wind projects identify estimates of bird and bat fatalities. RENEW recommends the removal of the requirement for a pre-construction determination of bird and bat fatalities and recommends, in the alternative, following the standards and guidelines of the U.S. Fish and Wildlife Service (USFWS). BLEC recommends the USFWS guidelines be strictly followed. The Colebrook Conservancy recommends the Council require applicants and petitioners to provide scientific analysis of what the broader ecological and environmental effects of a siting decision might be. Groton recommends inclusion of actual construction impacts of the facility in the wetland studies. Fairwind and Nardello recommend more specific requirements such as a map with locations of vernal pools, a discussion of wetland impacts, a raptor and bat takings analysis, impacts on off-site wetlands, on-site wildlife studies, a wintering raptor study, and acquisition of a raptor taking permit from the USFWS. Fairwind further recommends that the DEEP requirements referenced in Subparagraph (D) of Subdivision (1) of this Section be specifically outlined.

With regard to the recommendation by Pioneer relative to bird and bat fatalities, the Council has made the recommended change from the term "potential" to the term "estimated" in Subparagraphs (A) and (B) in Subdivision (2) of Subsection (g) with deleted language bracketed and new language underlined, as follows:

(2) Calculations based on the studies submitted in accordance with this Subsection for the proposed site and any alternative sites that include, but are not limited to:

(A) [potential] estimated number of bird fatalities;
(B) [potential] estimated number of bat fatalities;

With regard to the recommendation by RENEW to remove the requirement for a pre-construction determination of bird and bat fatalities, the Council rejects the recommendation. Consideration of the potential impact of wind turbines on wildlife is a primary factor in making a determination that a proposed site is or is not feasible.[35] Pre-construction analysis of potential impacts to wildlife is standard in the wind industry. With regard to the recommendation by BLEC that the USFWS guidelines should be strictly followed, the Council rejects the recommendation. The USFWS Land-Based Wind Energy Guidelines are voluntary.[36]

With regard to the recommendations by Fairwind and Nardello to include more specific requirements, the recommendation by Groton to include actual construction impacts of the facility in the wetland studies, and the recommendation by the Colebrook Conservancy to include scientific analysis of the broader ecological and environmental effects, the Council rejects the recommendations. The Council's charge under PUESA requires the Council to determine the nature of the probable environmental impact of any jurisdictional facility, including, but not limited to, any conflict with policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity and fish, aquaculture and wildlife. Wetland studies, such as the requirement for a wetland study under this Subsection, necessarily include a map with locations of vernal pools, a discussion of wetland impacts and a discussion of any impacts to off-site wetlands, including impacts to on-site and off-site wetland species. Bird and bat studies, such as the requirement for bird and bat studies under this Subsection, as well as requirements for calculations based on those studies under Subdivision (2), necessarily include an analysis of the estimated number of bird and bat fatalities. Furthermore, bird studies necessarily include raptors, among other avian species. Terrestrial wildlife studies, including calculations based on those studies of temporary and permanent habitat impacts, are also required under this Subsection. Finally, acquisition of a raptor taking permit from the USFWS is within the exclusive jurisdiction and authority of the USFWS, not the Council.

With regard to Fairwind's statement that DEEP standards and guidelines for environmental protection specific to wind turbine siting do not exist, thus establishing a need for such standards and guidelines to be specifically outlined: applicants and petitioners proposing to construct any jurisdictional facility necessarily consult with the DEEP Natural Resources Division prior to submitting an application or petition with the Council. The Natural Resources Division, after evaluating the occurrence of species and their habitat at a proposed project site, often recommends standards and guidelines, in writing, for mitigation of wildlife impacts, including, but not limited to, prohibitions against construction activities during breeding seasons of particular species and the utilization of specific mitigation measures, such as requiring on-site sweeps prior to construction activities, oversight by an environmental inspector, and erosion and siltation control mechanisms.[37] Furthermore, pursuant to C.G.S. §16-50j (h), the Council is required to consult with and solicit comments from the DEEP prior to commencing a public hearing. The DEEP often submits additional comments to the Council recommending standards and guidelines to be employed at a particular project site to mitigate any adverse impacts of construction to wildlife and their habitats. Therefore, the Council rejects the recommendation that the Council specifically outline the DEEP standards and guidelines, as the employment of these

[35] American Wind Energy Association, "Wind Energy Siting Handbook," *supra* note 22.
[36] U.S. Fish and Wildlife Service, "Land-Based Wind Energy Guidelines," March 2012, *available at* http://www.fws.gov/windenergy/docs/WEG_final.pdf.
[37] Connecticut Siting Council, Petition No. 980, Petition No. 983 and Petition No. 984, *supra* note 1.

standards and guidelines are site-specific and within the exclusive jurisdiction and authority of the DEEP.

13. Section 16-50j-94(h). Decommissioning Plan

Fairwind and Nardello recommend this section should be expanded to include a Commissioning Plan, a Host Town Impact Analysis, a bond for decommissioning, a discussion of all state and town roads that need redesign, and changes to electric infrastructure. Fairwind also argues that deferring discussions to the Development and Management Plan deprives the host town of an opportunity to cross-examine, provide testimony and otherwise help refine plans to make modifications to the town infrastructure. Adams and COST recommend the inclusion of a Commissioning Plan, Host Town Impact Analysis and decommissioning bond. Groton also recommends a decommissioning bond be required. Chatfield and COST recommend a stipulated means of enforcement and payment for decommissioning and site restoration.

Public Act 11-245 specifically requires the Council to adopt a regulation for the wind turbine facility developer to decommission the facility at the end of its useful life, which is the subject of this proposed Subsection. A Commissioning Plan, however, is synonymous with a Development and Management Plan (D&M Plan), which is the subject of proposed Section 16-50j-96 and which shall be prepared in accordance with D&M Plan requirements for energy facilities under existing Sections 16-50j-60 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies. These D&M Plan sections of the regulations apply to all jurisdictional energy facilities. At the time an application or petition is pending, final site plans cannot be submitted as the Council may, in its final decision on any jurisdictional project, modify the proposed location or configuration of the facility and associated equipment.[38] Details of and changes to electric infrastructure are specifically addressed in the requirements for a D&M Plan under Sections 16-50j-60 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies. Therefore, the Council rejects the recommendation to expand the proposed Decommissioning Plan section with a requirement for a Commissioning Plan and a discussion of changes to electric infrastructure.

The Council is an administrative agency of specific and limited jurisdiction. It is well settled in case law that administrative agencies cannot confer jurisdiction and authority upon themselves. The Council's statutory charge under the PUESA is to balance the public need for a facility with the need to protect the environment and the ecology of the state. Although Fairwind and Adams' recommendations are vague and unclear as to the contents for a Host Town Impact Analysis, the Council necessarily evaluates the environmental and ecological impacts of a proposed facility on the host municipality as part of its statutory charge. As the basis for its evaluation, the Council

[38] Conn. Gen. Stat. §16-50p (2012) ("...the Council shall render a decision upon the record granting the application as filed or upon such terms, conditions, limitations or modifications of the construction or operation of the facility as the Council may deem appropriate."); *See also Mountain Communities for Responsible Energy v. Public Service Commission of Virginia, et al,* 665 S.E. 2d 315 (W.Va. 2008) ("There is simply certain information that cannot be supplied until after the proceeding."); *In Re Amended Petition of UPC Vermont Wind, LLC, supra* note 12 ("The Board fulfilled its statutory mandate, finding that the project, with conditions, satisfied the applicable statutory requirements. The intervenor will have additional opportunities to comment on the post-judgment materials, and there is nothing in the record that would preclude the Board from holding additional hearings should it find them necessary."); *In Re Application of Buckeye Wind, LLC,* 966 N.E. 2d 869 (Ohio 2012) ("Simply because certain matters are left for further review and possible public comment does not mean that they have been improperly delegated to staff. Any material modification to the certificate is subject to hearing in the same manner as on the application.")

uses evidence submitted into the record during the proceeding by the applicant or petitioner and other proceeding participants, including, but not limited to, the host municipality. Any impacts beyond environmental and ecological impacts, such as impacts on property values and town road improvements, are outside the jurisdiction and authority of the Council. However, impacts to the host town are appropriately addressed by the host town, and analysis of such impacts is a subject for discussion between the host town and the applicant or petitioner during the statutorily-required municipal consultation process referenced in Section III.7.b. *infra.* Any concerns or recommendations discussed during the municipal consultation process are submitted into the evidentiary record by the applicant, petitioner and the host town. Therefore, the Council rejects the recommendation to expand the proposed Decommissioning Plan section with a requirement for a Host Town Impact Analysis.

The Council's specific and limited jurisdiction extends over a proposed facility site and access roads *only*. The Council does not have any jurisdiction or authority over state and town roads nor does the Council have any jurisdiction or authority to order a bond for decommissioning. The Council's jurisdiction and authority is strictly to balance the need for a facility with the need to protect the environment and the ecology of the state. Requiring a bond for decommissioning and a discussion of all state and town roads that need redesign would be an *ultra vires* action by the Council. However, as stated above, based on the evidence submitted into the record during a proceeding held on an application or petition for any jurisdictional facility by the applicant or petitioner, and other participants, including, but not limited to, the host municipality, the Council necessarily evaluates the environmental and ecological impacts of a proposed facility on the host municipality as part of its statutory charge. Furthermore, the subject of a decommissioning bond may be discussed with the host municipality during the statutorily-required municipal consultation process referenced in Section III.7.b. *infra,* and presented as part of the Decommissioning Plan that is required to be filed under this section. Therefore, the Council rejects the recommendations to expand the proposed Decommissioning Plan section with requirements for a bond for decommissioning and a discussion of all state and town roads that need redesign.

Fairwind's argument that deferring discussions of the above-referenced matters to the D&M Plan deprives the host town of an opportunity to cross-examine, provide testimony and to refine plans to make modifications to the town infrastructure is misplaced for several reasons. First, it is misplaced because Council consideration and approval of a D&M Plan is not a contested case proceeding under the UAPA.[39] Second, it is misplaced because the Council does not have jurisdiction or authority over town infrastructure as discussed above. Third, it is misplaced because the Council routinely orders the applicant or petitioner to submit a copy of the D&M plan to all of the proceeding participants, including, but not limited to, the host municipality.[40] Any comments or recommendations received by the Council from any of the participants of the

[39] *Nobs v. CSC*, 2000 Conn. Super. LEXIS 1156 (2000) (The D&M Plan is not part of the contested case proceeding.); *Middlebury v. CSC*, 2002 Conn. Super. LEXIS 610 (2002) (D&M plan cannot provide a substitute for matters not addressed during application process and process by regulation is to assist significantly in balancing the need for public utility services at lowest reasonable cost with need to protect environment.); *Westport v. CSC,* 47 Conn. Supp. 382 (2001) (Council Chairman describes D&M plan as nuts and bolts of project as approved by the Council.)

[40] R.C.S.A. §16-50j-61(d) ("Notice. A copy, or notice of the filing, of the D&M plan, or a copy, or notice of the filing of any changes to the D&M plan, or any section thereof, shall be provided to the service list and the property owner of record, if applicable, at the same time the plan, or any section thereof, or at the same time any changes to the D&M plan, or any section thereof, is submitted to the Council."); See *infra* note 38.

proceeding that are within the jurisdiction and authority of the Council are fully considered by the Council when evaluating a D&M Plan filing. Therefore, the Council rejects this argument.

14. Section 16-50j-95. Considerations for Decision.

The Colebrook Conservancy argues that the regulations should contain definite standards for wind energy in Connecticut. Fairwind and Nardello argue that this section should include a clear list of what needs to be included in order for an application to be considered technically sufficient. As examples, Fairwind suggests that it should be made clear that bat and bird studies must be completed before the application or petition is considered by the Council and that incomplete surveys and plans cannot be relied on by the Council to determine impacts on water quality, therefore an application or petition relying on such surveys and plans is not technically sufficient. Fairwind further argues that C.G.S. §16-50p should apply to decisions on petitions for declaratory rulings and that Connecticut's Renewable Energy Policy under C.G.S. §16a-35k should not apply to petition proceedings at all.

Technical sufficiency of an application or a petition is specifically addressed in proposed Section 16-50j-94, "Additional Information Required," which includes citations to other sections of the Council's existing regulations that clearly prescribe what is required for an application and a petition for a jurisdictional facility to be deemed complete and "technically sufficient."[41] The requirements for submission of bat and bird studies and for submission of surveys and plans relative to water quality are specifically addressed in proposed Section 16-50j-94 under Subsection (g). This proposed section, entitled, "Considerations for Decision" is intended to provide standards required for wind energy in Connecticut and to provide notice to applicants and petitioners of the relevant factors that the Council shall consider to render a final decision on an application or petition for a wind turbine facility. This proposed section is consistent with applicable requirements of the UAPA and the PUESA.[42] Therefore, the Council rejects these arguments.

With regard to the applicability of C.G.S. §16-50p to petitions for declaratory rulings, this issue has been raised in the administrative appeals referenced in footnote 1 *infra*, and a decision by the Superior Court on this issue is expected to be rendered in the near future.[43] With regard to

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[41] R.C.S.A. §§16-50j-38 to 16-50j-40, inclusive; R.C.S.A. §16-50j-59; R.C.S.A. §§16-50*l*-1 to 16-50*l*-5, inclusive.

[42] See R.C.S.A. §22a-116-B-7, Hazardous Waste Management Facilities Siting. ("Considerations for decision. In making its decision to grant or deny a certificate, the council shall, consistent with applicable requirements of Sections 4-166 to 4-185, inclusive, of the Connecticut General Statutes, consider among other relevant facts and circumstances, the following factors...")

[43] See Docket Nos. HHB-CV11-6011389-S and HHB-CV11-6011470-S, *supra* note 1; Conn. Gen. Stat. §16-50k(a) ("Notwithstanding the provisions of this chapter or title 16a, **the Council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling**... (B) the construction or location of ... any customer-side distributed resources project or facility or grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Environmental Protection...") (Emphasis added); C.G.S. §16-50p(a)(3) ("... **The Council shall not grant a certificate**, either as proposed or as modified by the Council, unless it shall find and determine: ...(B) The nature of the probable environmental impact of the facility alone or cumulatively with other existing facilities, including a specification of every significant adverse effect, including, but not limited to, electromagnetic fields that, whether alone or cumulatively with other effects on, and **conflict with the policies of the state** concerning, the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity and fish, aquaculture and wildlife...") (Emphasis added).

Connecticut's Renewable Energy Policy under C.G.S. §16a-35k, the statute does not discriminate between applications and petitions. The statute states, in pertinent part, "… The General Assembly further declares that it is the continuing responsibility of the state to use all means consistent with other essential considerations of state policy to improve and coordinate the plans, functions, programs and resources of the state to attain the objectives stated herein without harm to the environment, risk to health or safety or other undesirable or unintended consequences, …and ***to enhance the utilization of renewable resources*** so that the availability of nonrenewable resources can be extended to future generations…" (Emphasis added.) As discussed in Section III.1.a. *infra*, wind is defined as a Class I renewable energy source under C.G.S. §16-1.

Considering the Superior Court will ultimately decide the issue as to the applicability of C.G.S. §16-50p to petitions for declaratory rulings and despite the obvious applicability of the state's Renewable Energy Policy to the Council's consideration of proposals for wind turbine facilities, the Council revised Section 16-50j-95, with deleted language bracketed and new language underlined, as follows:

Sec. 16-50j-95. Considerations for Decision. [The Council shall render a decision on an application for a certificate or a petition for declaratory ruling for a proposed wind turbine facility in accordance with Sections 16-50g, 16-50k, 16-50p and 16a-35k of the Connecticut General Statutes, as amended.] In making its decision to grant or deny an application for a certificate or to issue or not to issue a petition for a declaratory ruling, the Council shall, consistent with the Uniform Administrative Procedure Act, Chapter 54 of the Connecticut General Statutes, and the Public Utility Environmental Standards Act, Chapter 277a of the Connecticut General Statutes, consider, among other relevant facts and circumstances, [but shall not be limited to consideration of,] the following [requirements] factors:…

15. Section 16-50j-95 (a). Setback Distances

Fairwind recommends that all setback distances recognized by the local planning and zoning ordinances should be honored, unless there is a finding by the Council that there should be an increase in setback distances in the interest of public safety. COST recommends towns have a greater role in approving or rejecting wind turbine applications. Fairwind and Nardello argue that setback distances between the turbines should be required. Nardello and Groton argue that the Council should list all the criteria on which a waiver was granted and that the setback reductions proposed should be included in all notices. Raciborski and Stauffer argue that setback distances from the property lines of 1.1 times the height of the turbines puts homes too close to noise from the turbines and that the waiver requirements should not be allowed. The Colebrook Land Conservancy argues that the proposed setbacks are inappropriate and would have the same effect as taking without compensation. Wagner argues that a minimum setback of 1.25 miles is required to provide safety to those who live nearby. BLEC recommends the setback distance be increased to 1.24 miles. Fairwind, Chatfield, COST, Plante, LaMontagne, Goodwin, Sargeant, Algarin, Hurley, Reilly, Dognin and Adams argue that a setback of 1.1 times the wind turbine height from the property line is completely inadequate.

Pursuant to C.G.S. §16-50x, the Council has exclusive jurisdiction over the siting of wind turbine facilities. The Council is also required under that section to give consideration to other state laws and municipal regulations as it shall deem appropriate. It should be noted that not every local planning and zoning commission in the state of Connecticut has ordinances for wind turbine setback distances. However, as part of the application or petition and as a result of the municipal

consultation described in Section III.7.b. *infra,* bulk-filed exhibits, including, but not limited to, the zoning regulations and plan of conservation and development of the host municipality, are required to be filed with the Council. Also, as discussed in Section III.7.b. *infra,* under C.G.S. §16-50*l*, applicants are required to consult with the host municipality for at least 60 days prior to submitting an application for an electric generating facility with the Council, and under C.G.S. §16-50n, host municipalities have an absolute right to become a party to a Council proceeding, and even if they do not avail themselves of this opportunity, the Council routinely accepts oral and written comments from municipalities and their boards and commissions into the evidentiary record. Therefore, the Council rejects the arguments that local planning and zoning ordinances should be honored and that towns be granted a greater role in approving or rejecting wind turbine applications.

Contrary to Fairwind and Nardello's arguments that setbacks between the turbines should be required, according to the Environmental Law Institute, most model ordinances do not regulate the distance between turbines in the same project.[44] The determination relative to distance between turbines is ordinarily made by the turbine manufacturer to ensure that facilities are designed and sited in a manner that ensures efficient use of the wind resources, long-term energy production and reliability. As part of its charge under the PUESA, the Council is required to find and determine a "public benefit" for any jurisdictional electric generating facility, which is defined as existing under C.G.S. §16-50p "if such a facility is necessary for the reliability of the electric power supply of the state or for the development of a competitive market for electricity." The distance between turbines is specifically related to reliability. Information related to reliability for all jurisdictional energy facilities is already required to be submitted to the Council. Existing Section 16-50j-59 of the Regulations of Connecticut State Agencies requires applicants and petitioners of electric generating facilities to submit to the Council "a statement of the benefit expected from a proposed facility and associated equipment with as much specific information as practicable." Therefore, the Council rejects these arguments.

Contrary to Raciborski and Stauffer's arguments that setback waivers should not be allowed and Colebrook Conservancy's argument that the proposed setbacks would have the same effect as taking without compensation, under certain circumstances, including, but not limited to, good cause, several states allow for the setback requirements to be waived by the permitting authority or by adjacent property owners, and such waivers have been upheld by courts.[45] A good cause determination involves a multi-factor analysis of all relevant considerations, including health, safety, and legislative policy goals of encouraging public participation, increasing the use of wind energy and siting in an orderly manner compatible with environmental preservation, sustainable development and the efficient use of resources.[46] Allowance for a waiver of the setback requirements upon a showing of good cause certainly does not amount to a taking without compensation; there would be no physical occupation of any abutting property nor would an

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[44] ENVIRONMENTAL LAW INSTITUTE, *supra* note 22.

[45] *In the Matter of the Application of AWA Goodhue Wind, LLC,* 2012 LEXIS 580 (Minn. App. 2012) ("The Minnesota Public Utility Commission based its determination that there is good cause to disregard the 10 rotor diameter setback on the basis that the setback is unnecessary to protect human health, safety and quality of life; the setback may preclude the entire project; and the setback could severely hinder the implementation of state renewable energy policies."); Columbia Law School, "*Model Municipal Wind Siting Ordinance*," *supra* note 11 ("Setbacks may be waived if there is written consent from the affected property owners."); OHIO REV. CODE ANN. §4906.20(B)(2) (2012); OHIO ADMIN. CODE 4906-17-08(C)(1)(c) (2011) ("Minimum setbacks may be waived in the event that all owners of property adjacent to the turbine agree to such waiver or for good cause shown.")

[46] *In the Matter of the Application of AWA Goodhue Wind, LLC, supra* note 45.

abutting property owner be deprived of any economically viable use of their land. About half of the statewide model ordinances have provisions for waiver of setback requirements.[47] Of particular note is the Pennsylvania model ordinance, which allows for a waiver when literal enforcement of setback requirements may exact undue hardship because of peculiar conditions pertaining to the land in question, and provided that a waiver will not be contrary to the public interest.[48] A recent Minnesota Court of Appeals decision found that imposition of a 10-rotor diameter setback requirement would essentially prevent all wind energy projects if applied throughout the state and would thereby drive up the cost of power and hinder the implementation of state renewable energy policies.[49] In addition to finding a public benefit for a proposed electric generating facility, part of the Council's charge under the PUESA is to evaluate any conflict with the policies of the state. It is upon this premise that the Council proposes the waiver of the minimum setback requirements in Subdivision (2) of this Subsection. Therefore, the Council rejects the argument that waiver of setback distances should not be allowed and the argument that the proposed setbacks would have the same effect as taking without compensation.

Contrary to Nardello's and Groton's arguments that the Council should list all the criteria on which a waiver was granted and that the setback reductions proposed should be included in all notices, the terms and conditions of a waiver may not be fully developed or even contemplated at the time the Council publishes notice of a public hearing for a proposed wind turbine facility under C.G.S. §16-50m. For waivers by agreement between a property owner of record and the wind turbine facility developer under Subparagraph (A) of Subdivision (2) of this Section, the Council does not have jurisdiction to negotiate or enforce agreements between private parties. However, C.G.S. §16-50o requires the submission into the record the full text of the terms of any agreement entered into by the applicant or petitioner and any third party in connection with the construction and operation of a facility. For waivers by a good cause determination under Subparagraph (B) of Subdivision (2) of this Section, based on the evidence submitted into the record by the applicant, petitioner and other proceeding participants, the Council may grant a waiver, and the criteria on which the waiver was granted and the resulting setback reductions would be fully addressed, and if approved, adopted in the Council's final decision.

Given the considerations in opposition to this proposed regulation, the Council added a new Subsection (j) to **Section 16-50j-94** as follows:

(j) Waivers.

(1) Agreements. Pursuant to Section 16-50o of the Connecticut General Statutes, the applicant or petitioner shall submit any agreements entered into with any abutting property owner to waive any of the requirements under Section 16-50j-95.

(2) Requests. The applicant or petitioner shall submit to the Council any request for a waiver of any of the requirements under Section 16-50j-95 at the time an application or petition is filed with the Council. If the Council finds good cause for a waiver of any of the requirements under Section 16-50j-95 of the Regulations of Connecticut State Agencies during a public

[47] ENVIRONMENTAL LAW INSTITUTE, *supra* note 22.

[48] MODEL ORDINANCE FOR WIND ENERGY FACILITIES IN PA. §8, *supra* note 23 ("The municipality may grant a partial waiver of such standards where it has determined that literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question and provided that such waiver will not be contrary to the public interest.")

[49] *In the Matter of the Application of AWA Goodhue Wind, LLC, supra* note 45.

hearing, the applicant or petitioner shall provide notice by certified mail to the abutting property owner of record that includes, but is not limited to, the following:

(A) notice of the requirements under Section 16-50j-95 of the Regulations of Connecticut State Agencies;

(B) notice of the criteria considered for a good cause determination to waive the requirements under Section 16-50j-95 of the Regulations of Connecticut State Agencies;

(C) notice of the wind turbine manufacturer's recommended setback distances; and

(D) notice that the abutting property owner of record is granted a 30-day period of time from the date notice by certified mail is sent to an abutting property owner of record to provide written comments on the proposed waiver of the requirements under Section 16-50j-95 of the Regulations of Connecticut State Agencies to the Council or to file a request for party or intervenor status with the Council pursuant to Sections 16-50j-13 to 16-50j-17, inclusive, of the Regulations of Connecticut State Agencies.

With regard to the "1.1 times the wind turbine height from all property lines" setback requirement in the proposed regulation, this standard is used in Illinois[50], Ohio[51], South Dakota[52], Wisconsin[53], Wyoming,[54] and Pennsylvania.[55] According to the Environmental Law Institute, "Setbacks greater than 1.1 maximum turbine height are generally not needed unless they are to address specific considerations relating to impacts on identified residents, public facilities, or resources."[56] It is upon this premise that the Council proposes the setback distance of "1.1 times the wind turbine height from all property lines," unless the wind turbine manufacturer's recommended setback distances are greater, or unless there are specific considerations relating to identified impacts on residents, public facilities, or resources. In the event that the manufacturer's recommended setback distance is greater, the applicant or petitioner would be required to comply with that setback distance. Furthermore, in its discretion under the PUESA and in its evaluation

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[50] 55 ILL. COMP. STAT. 5/5-12020 (2012); 65 ILL. COMP. STAT. 5/11-13-26 (2012) ("These laws prohibit counties or municipalities from adopting setbacks from property lines of greater than 1.1 times the turbine height for wind energy systems used "exclusively by an end user" but no such limitation is imposed on local regulation of commercial wind facilities.")

[51] OHIO REV. CODE ANN. §4906.20(B)(2) (2012); OHIO ADMIN. CODE 4906-17-08(C)(1)(c) (2011) (Requirement that rules prescribe minimum setbacks of 1.1 times the total turbine height from the property lines.)

[52] S.D. CODIFIED LAWS §43-13-24 (2012) ("Each wind turbine tower of a large wind energy system shall be set back at least five hundred feet or 1.1 times the height of the tower, whichever distance is greater, from any surrounding property line. However, if the owner of the wind turbine tower has a written agreement with an adjacent land owner allowing the placement of the tower closer to the property line, the tower may be placed closer to the property line shared with that adjacent land owner.")

[53] WIS. ADMIN. CODE PSC §128.13(1) (2012) ("A municipality or county may not require a wind tower setback more than 1.1 times the maximum blade tip height from a nonparticipating property line, a participating residence, or a public road right-of-way.")

[54] WYO. STAT. §18-5-504 (2012) ("No board of county commissioners shall issue a permit for a wind energy facility if that facility would locate the base of any tower at a distance of less than 110% of the maximum height of the tower from any property line contiguous or adjacent to the facility, unless waived in writing by the owner of every property which would be located closer than the minimum distance.")

[55] MODEL ORDINANCE FOR WIND ENERGY FACILITIES IN PA §7, *supra* note 23 ("All wind turbines shall be set back from the nearest property line a distance of 1.1 times the turbine height.")

[56] ENVIRONMENTAL LAW INSTITUTE, *supra* note 22 (referencing that Ohio and Wyoming law, as well as the model ordinances in Pennsylvania, Illinois and Utah, require a setback equal to 110% of the height of the tower from property lines.); See also Connecticut Siting Council Petition No. 983, *supra* note 1 (Finding of Fact ¶77: Setbacks mandated or advised by 18 states are a multiple of total turbine height (tower plus blade length) with the multiple most commonly used varying from 1.1 to 1.5).

of the required reports under proposed Section 16-50j-94, the Council may require a greater setback distance for any proposed wind turbine site based on the evidence submitted into the record by the applicant, petitioner and any proceeding participant, including, but not limited to, evidence relative to ice drop and ice throw, blade drop and blade throw, visibility, noise and natural resources.

Given the considerations in opposition to this proposed regulation, the Council revised Subsection (a) of Section 16-50j-95, with deleted language bracketed and new language underlined, as follows:

(a) Setback Distances.

(1) Requirements. Any application for a certificate for a proposed wind turbine facility and any petition for a declaratory ruling for a proposed wind turbine facility shall include setback distances from each of the proposed wind turbine locations and any alternative wind turbine locations of not less than [1.1] 1.5 times the wind turbine height from all property lines at the proposed site and any alternative sites or shall comply with the wind turbine manufacturer's recommended setback distances, whichever is greater. A copy of the wind turbine manufacturer's recommended setback distances shall be included in the application or petition[, if available]. In its discretion, the Council may require greater setback distances based on the results of any evaluation report submitted under Section [16-50j-96] 16-50j-94 of the Regulations of Connecticut State Agencies.

(2) Waiver of requirements. The minimum required setback distances for each of the proposed wind turbine locations and any alternative wind turbine locations at the proposed site and any alternative sites may be waived:

(A) by submission to the Council of a written agreement between the applicant or petitioner and abutting property owners of record stating that consent is granted to allow reduced setback distances, but in no case shall the setback distance from the proposed wind turbines and any alternative wind turbines be [closer than 1.1 times the wind turbine height from any occupied residential building] less than the manufacturer's recommended setback distances; or

(B) by a vote of the Council to waive the minimum required setback distances upon a showing of good cause, which includes, but is not limited to, consideration of:

(i) land uses and land use restrictions on abutting parcels;
(ii) public health and safety;
(iii) public benefit and reliability;
(iv) environmental impacts;
(v) policies of the state; and
(vi) wind turbine design and technology.

16. Section 16-50j-95(b). Noise.

Raciborski argues that the allowable noise levels are outdated and too high compared to other states, and that the waiver requirements should not be allowed. BLEC argues that the Council should not grant itself the power to waive noise levels at its discretion and recommends the Council require noise monitoring after wind sites are approved. Adams argues that the noise allowed is more than in other states or countries with industrial wind turbines. COST argues the provisions relative to noise levels of wind turbines do not adequately protect residents from levels that may affect their quality of life and health. Lawrence argues the Noise Control Regulations

are outdated and the maximum level of infrasound and low frequency noise should not exceed 35 dBA at residences. Nardello argues that the minimum setback from residential property lines should be at least one-half mile to reduce the possible impact of noise levels on residents, that wind turbine operators should be required to meet any existing local noise standards and that the Council should not be allowed to grant waivers. Fairwind recommends the short-term noise excursions and the allowable noise levels in the Noise Control Regulations be disallowed. Fairwind further recommends a two-mile or a 10 times the turbine height setback from residences and no operating during times of violation of the noise regulation standards.

The DEEP has exclusive jurisdiction and authority over noise control pursuant to Chapter 442 of the Connecticut General Statutes and the Regulations for the Control of Noise, R.C.S.A. §22a-69-1, *et seq.* promulgated pursuant to that Chapter. C.G.S. §22a-72 states, "State agencies shall, to the fullest extent consistent with their authorities under state law administered by them, carry out the programs within their control in such a manner as to further the policy stated under section 22a-67." The DEEP Commissioner may develop, adopt, maintain and enforce a state-wide program of noise regulation, which is requisite to protect the public health, safety and welfare, may be applicable throughout the state and regulations shall be adopted that provide for the granting of individual variances from the provisions of the chapter. The proposed regulation cites specifically to the Noise Control Regulations and specifically requires applicants and petitioners to comply with those regulations, including, but not limited to, the designation of wind turbines as Class C industrial noise emitters, that noise level measurements are to be taken at the property lines and that any variance or partial variance is required to be approved by the DEEP Commissioner under R.C.S.A. §22a-69-7.1 of the Noise Control Regulations. Several states provide for the waiver of noise requirements, for instance, North Carolina[57], Wisconsin[58], and Pennsylvania.[59] Finally, the DEEP may recommend, and the Council may order as part of its final decision, the developer of the wind facility to conduct post-construction noise monitoring studies if the application or petition is approved.[60] Therefore, the Council rejects the arguments that local noise standards should be met and that waiver of noise levels should not be allowed.

The Maine noise level referenced by Adams is calculated 500 feet from a residence. The Vermont noise level referenced by Adams is calculated in a bedroom. The 35 dBA maximum level of

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[57] MODEL WIND ORDINANCE FOR WIND ENERGY FACILITIES IN N.C. §8.B (N.C. Wind Working Group 2008), *available at* http://energy.appstate.edu/sites/energy.appstate.edu/files/NCModelWindOrd_July2008.pdf ("Noise provisions may be waived if the following conditions are met: property owners sign a waiver of their rights; the written waiver notifies property owners of the applicable noise limits, how the wind energy facility is not in compliance and state that consent is granted to waive the requirements; and the waiver is signed by the applicant, the landowner and is recorded in the land records where the property is located.")

[58] WIS. ADMIN. CODE PSC §128.15 (2012) ("Upon request by an owner of a wind energy system, a property owner may relieve the wind energy system owner of the shadow flicker requirements by written contract with the wind energy system owner. The waiver is an encumbrance on real property and runs with the land until the wind energy system is decommissioned and shall be recorded on the land records.")

[59] MODEL ORDINANCE FOR WIND ENERGY FACILITIES IN PA, *supra* note 23 ("The municipality may grant a partial waiver of such standards where it has determined that literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question and provided that such waiver will not be contrary to the public interest.")

[60] Connecticut Siting Council, Petition No. 983 and Petition No. 984, *supra* note 1 ("Establishment of a post-construction noise monitoring protocol describing locations, frequency and methods to be employed for a post-construction noise study. Upon review of the subsequent noise study, the Council, in consultation with the DEP, will evaluate and determine if any mitigation measures should be employed, including turbine operations management, to ensure the project complies with DEP noise regulations.")

infrasound and low frequency noise recommended by Lawrence is "at each residence." The World Health Organization (WHO) guidelines for noise levels referenced by Fairwind in support of the two-mile noise setback distance are calculated at the residential receptor. [61] The DEEP Noise Control Regulations require noise level calculations at the property lines. Furthermore, the WHO recommended night-time sound pressure level of 40 dB is averaged over one year and does not specifically refer to wind turbine noise, which responds to both seasonal and diurnal variations and should be considered over a shorter average than one year.[62] Additionally, the WHO recommended night-time noise exposure is for sources of *continuous* noise rather than for *intermittent* noise such as that which is generated by a wind turbine. An independent expert panel commissioned by the Massachusetts Departments of Environmental Protection and Public Health, which found no evidence for a set of health effects from exposure to wind turbines, recommends night-time sound pressure levels for residential areas of between 37-39 dBA that are measured at 10 meters above ground, outside of a residential receptor.[63] According to the Environmental Law Institute, wind turbine noise standards should ordinarily be set using statewide standards and methods.[64] Furthermore, according to the Renewable Energy Research Laboratory, "Community noise standards are important to ensure livable communities. Wind turbines must be held to comply with these regulations. Wind turbines need not be held to additional levels of regulations."[65] The statewide noise standards and methods are prescribed in the Connecticut Noise Control Regulations. Therefore, the Council rejects these recommendations.

By disallowing short-term noise excursions, reducing the allowable noise levels, setting a two-mile or a 10 times the turbine height noise setback from residences as recommended by Fairwind, or by setting a one-half mile setback from residences as recommended by Nardello, the Council would be conferring upon itself the power to set noise control regulations. This is beyond the authority of the Council. The adoption of regulations requires specific statutory authority. The Council cannot impose a requirement that goes beyond the scope of the underlying statutory scheme. Furthermore, the NARUC recommended approach for noise concerns relative to wind turbines is to regulate sound, not the setback distance.[66] As discussed in Section III.15. *infra,* if a proposed facility fails to meet the noise control standards, the Council may require a greater setback distance. Fairwind also recommends no operating during times of violation of the noise regulation standards. However, the Council also does not have the authority to approve a facility that would violate the Noise Control Regulations absent the submission of a variance that is approved and granted to the applicant or petitioner by the Commissioner of the DEEP.

Given the considerations in opposition to this proposed regulation, the Council revised Subsection (b) of Section 16-50j-95, with deleted language bracketed, as follows:

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[61] World Health Organization Guidelines for Community Noise, Chapter 4, "Guideline Values" Table 4.1 (referencing "outdoor living area," "dwelling, indoors," "inside bedrooms," and "outside bedrooms."); Wind Turbine Health Impact Study *supra* note 31, citing the WHO Report on Night Noise Guidelines for Europe, 2009 ("Thresholds are for levels inside the house near the sleeper which will be much lower than what is experienced outside the house.")

[62] Wind Turbine Health Impact Study *supra* note 31.

[63] *Id.*

[64] ENVIRONMENTAL LAW INSTITUTE, *supra* note 22.

[65] Anthony L. Rogers, Ph.D., James F. Manwell, Ph.D., Sally Wright, M.S., PE, "*Wind Turbine Acoustic Noise*": A white paper prepared by the Renewable Energy Research Laboratory, Department of Mechanical and Industrial Engineering, University of Massachusetts at Amherst, Amherst, MA 01003, January 2006, *available at* http://www.umass.edu/windenergy/.

[66] National Association of Regulatory Utility Commissioners, "*Wind Energy and Wind Park Siting and Zoning Best Practices and Guidance for States*," *supra* note 15 ("Do not regulate setback distance; regulate sound.")

(b) Noise.

(1) Requirements. Noise levels generated by the operation of each of the proposed wind turbines and any alternative wind turbines at the proposed site and any alternative sites shall comply with the Department of Energy and Environmental Protection Noise Control Regulations under Sections 22a-69-1 to 22a-69-7, inclusive, of the Regulations of Connecticut State Agencies. [as amended. In accordance with the Noise Control Regulations, the proposed site and any alternative sites shall be categorized as Class C industrial emitters and noise level measurements shall be taken at the property lines. A copy of any variance or partial variance from the provisions of the Noise Control Regulations granted by the Department of Energy and Environmental Protection under Section 22a-69-7.1 of the Regulations of Connecticut State Agencies, as amended, shall be submitted to the Council with the application or petition.]

[**(2) Waiver of Requirements.** The required maximum noise levels generated by the operation of each of the proposed wind turbines and any alternative wind turbines at the proposed site and any alternative sites may be waived:

(A) by submission to the Council of a written agreement between the applicant or petitioner and property owner stating that consent is granted to allow excess day-time or night-time noise levels, or both, but in no case shall noise levels be greater than day-time levels of 61 dBA from the proposed wind turbines and any alternative wind turbines of the proposed site and any alternative sites at any occupied residential receptor and in no case greater than night-time levels of 51 dBA from the proposed wind turbines and any alternative wind turbines of the proposed site and any alternative sites at any occupied residential receptor; or

(B) by a vote of the Council to waive the noise level requirements upon a showing of good cause, which includes, but is not limited to, abutting parcels with non-buildable configurations, abutting parcels with intervening topographical barriers and abutting parcels subject to development restrictions.]

17. <u>Section 16-50j-95(c). Shadow Flicker</u>.

Fairwind argues that there is no scientific or social justification for the 30 total annual hour rule and recommends that no shadow flicker should be allowed to fall on roads during rush hour or school bus operations. Nardello, BLEC and COST recommend that shadow flicker requirements be more stringent and narrowly tailored. Raciborski argues that the waiver requirements for shadow flicker should not be allowed.

The source of the scientific and social justification for the 30 total annual hour limitation on shadow flicker in this proposed regulation is a study that was conducted in Germany on potential annoyance due to shadow flicker from wind turbines.[67] This study resulted in the guidance of 30 hours per year as acceptable limits for shadow flicker from wind turbines based on astronomical, clear sky calculations.[68] This is considered to be a field-tested best practice, is widely used in the

[67] Wind Turbine Health Impact Study, *supra* note 31, citing to Pohl, J., Faul, F., and Mausfeld, R., "Annoyance due to shadow flicker from wind turbines – laboratory pilot study and field study," (1999).
[68] *Id.*

wind industry and is recommended by the NARUC.[69] The 30 total annual hour rule is used in other states, for instance, North Carolina,[70] Wisconsin,[71] and Maine.[72] Based on the shadow flicker studies conducted by Vanasse Hangen Brustlin for BNE and external studies submitted by Fairwind during the administrative hearings held on the Colebrook wind projects, the Connecticut Department of Transportation concluded that "the evidence is not detrimental as to the effect of shadow flicker to the motorist."[73] Therefore, the Council rejects the argument that there is no justification for the 30 total annual hour rule, rejects the recommendations that shadow flicker requirements be more stringent and narrowly tailored, and rejects the recommendation that shadow flicker not be allowed to fall on roads during rush hour or school bus operations.

Wind turbines produce shadow flicker at certain times, locations and under specific conditions. Shadow flicker is only present at distances of less than .87 miles.[74] Several factors influence the magnitude and likelihood of shadow flicker, including geographic location, distance, time of day, intensity of light, wind speed and direction, and presence of visual obstructions. According to studies conducted by Oregon and Massachusetts, shadow flicker may be considered an annoyance, but there is no evidence shadow flicker causes adverse health effects, nor evidence that shadow flicker causes traffic accidents.[75] Furthermore, in a recent decision rendered by the Minnesota Court of Appeals, the Court found substantial evidence in the administrative record that there is no reliable scientific research demonstrating that noise generated by wind turbines or shadow flicker cause adverse health conditions.[76] Several states, in addition to Minnesota, allow for waiver of shadow flicker limits, including New York[77], North Carolina[78], Pennsylvania[79],

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[69] *Id.*; National Association of Regulatory Utility Commissioners, "*Wind Energy and Wind Park Siting and Zoning Best Practices and Guidance for States*," *supra* note 15 ("Restrict shadow flicker to not more than 30 hours per year.")

[70] MODEL WIND ORDINANCE FOR WIND ENERGY FACILITIES IN N.C., *supra* note 57 ("Shadow flicker at any Occupied Building on a Non-Participating Landowner's property caused by a Large Wind Energy Facility located within 2,500 feet of the Occupied Building shall not exceed thirty (30) hours per year.")

[71] WIS. ADMIN. CODE PSC §128.15, *supra* note 58 ("An owner shall operate the wind energy system in a manner that does not cause more than 30 hours per year of shadow flicker at a nonparticipating residence or occupied community building.")

[72] ME. STATE PLANNING OFFICE MODEL WIND ENERGY FACILITY ORDINANCE §14.6 (2009) (current Maine DEP practice is to limit maximum possible annual Shadow Flicker to no more than 30 hours.)

[73] Connecticut Siting Council, Petition No. 984, *supra* note 1 (Connecticut Department of Transportation letter dated May 4, 2011 from Sohrab Afrazi, Transportation Principal Engineer to Nicholas Harding, Reid and Riege, P.C. (representing Fairwind), *available at* http://www.ct.gov/csc/lib/csc/pendingproceeds/petition_984/dot-shadflickcmts.pdf.)

[74] Wind Turbine Health Impact Study, *supra* note 31.

[75] *Id.*; Strategic Health Impact Assessment On Wind Energy Development in Oregon Prepared by Oregon Health Authority, Public Health Division, Office of Environmental Public Health, March 2012, *available at* http://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/Oregon%20Wind%20Energy%20HIA%20Public%20comment.pdf

[76] *In the Matter of the Application of AWA Goodhue Wind, LLC, supra* note 45.

[77] *Friedhaber, et al v. Town Board of Sheldon,* 851 N.Y.S.2d 58 (N.Y. App. Div. 2007)

[78] MODEL WIND ORDINANCE FOR WIND ENERGY FACILITIES IN N.C., *supra* note 57 ("Shadow flicker provisions may be waived if the following conditions are met: property owners sign a waiver of their rights; the written waiver notifies property owners of the applicable shadow flicker limits, how the wind energy facility is not in compliance and state that consent is granted to waive the requirements; and the waiver is signed by the applicant, the landowner and is recorded in the land records where the property is located.")

[79] MODEL ORDINANCE FOR WIND ENERGY FACILITIES IN PA, *supra* note 23 ("The governing body may take into consideration the support or opposition of adjacent property owners on granting waivers of noise and shadow flicker restrictions. The municipality may grant a partial waiver of such standards where it has determined that literal

Wisconsin[80], and Ohio[81]. The NARUC recommends allowing participating land owners to waive shadow flicker limits.[82] Therefore, the Council rejects the argument that waivers of shadow flicker limits should not be allowed.

However, given the considerations in opposition to this proposed regulation, the Council revised Subsection (c) of Section 16-56j-95, with deleted language bracketed and new language underlined, as follows:

(c) Shadow Flicker.

(1) Requirements. Shadow flicker shall not occur more than 30 total annual hours at any off-site occupied structure location from each of the proposed wind turbine locations and any alternative wind turbine locations at the proposed site and any alternative sites.

(2) Waiver of Requirements. The maximum total annual hours of shadow flicker generated by the operation of each of the proposed wind turbines and any alternative wind turbines at the proposed site and any alternative sites may be waived:

(A) by submission to the Council of a written agreement between the applicant or petitioner and property owners of record stating that consent is granted to allow excess total annual hours of shadow flicker; or

(B) by a vote of the Council to waive the total annual hours of shadow flicker requirements upon a showing of good cause, which includes, but is not limited to, [abutting parcels with non-buildable configurations, abutting parcels with intervening topographical barriers and abutting parcels subject to development restrictions.] consideration of:

(i) land uses and land use restrictions on abutting parcels;
(ii) public health and safety;
(iii) public benefit and reliability;
(iv) environmental impacts;
(v) policies of the state; and
(vi) wind turbine design and technology.

18. Section 16-50j-96. Requirement for a Development and Management Plan (D&M) Plan

Groton recommends required plan detail to include additional information, such as land use and zoning. Pioneer recommends the Council provide additional subject matter the Council would like any D&M Plans to cover and to define what is meant by "the final decision rendered by the Council." BLEC recommends the Council place a time limit on when wind facilities must be built

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enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question and provided that such waiver will not be contrary to the public interest.")

[80] WIS. ADMIN. CODE PSC §128.15, *supra* note 58 ("An owner of an affected nonparticipating residence or occupied community building may relieve the wind energy system owner of a requirement for shadow flicker limits by written contract with the wind energy system owner.")

[81] OHIO REV. CODE ANN. §4906.20(B)(2), *supra* note 51; OHIO ADMIN. CODE §4906-17-08(C)(1)(c), *supra* note 51 (Minimum setbacks may be waived in the event that all owners of property adjacent to the turbine agree to such waiver.)

[82] National Association of Regulatory Utility Commissioners, "*Wind Energy and Wind Park Siting and Zoning Best Practices and Guidance for States*," *supra* note 15 (Allow participating land owners to waive shadow flicker limits.)

after site approval, after which the approval is automatically rescinded. Fairwind recommends that a D&M Plan not be used, but if it is used, it should apply only to applications.

When an application or petition is filed with the Council, under existing Section 16-50j-59 of the Regulations of Connecticut State Agencies, specific geographic and land use information, including, but not limited to, the most recent U.S.G.S. topographic quadrangle map, plan and elevation drawings and terrain profiles, is required to be submitted. Additionally, as part of the application or petition and as a result of the municipal consultation described in Section III.7.b., *infra,* bulk-filed exhibits, including, but not limited to, the zoning regulations and plan of conservation and development of the host municipality, are required to be filed with the Council. Proposed Section 16-50j-96 states, "The full or partial D&M plan shall be prepared in accordance with the final decision rendered by the Council and in accordance with Sections 16-50j-60 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies." Those sections of the existing regulations specify the subject matter the Council requires to be submitted as part of D&M plans for all jurisdictional energy facilities. Also, Council decisions are governed by the UAPA. Under C.G.S. §4-166 of the UAPA, "final decision" is defined as the agency determination in a contested case, a declaratory ruling issued by the agency or an agency decision made after reconsideration. As part of a final decision, the Council routinely orders the completion of a full or partial D&M plan for any jurisdictional facility that represents the final site and construction plans for a project approved by the Council. It is a tool to ensure the facility is constructed and operated in a manner that is compliant with the Council's final decision. The Council's final decision may include a condition that an approved facility must be fully constructed within a certain time limit, which may be extended in the discretion of the Council upon written request from the owner or operator of the facility.[83] According to the Superior Court, a D&M plan is a regulatory process designed to assist significantly in the Council's statutory charge to balance the need for public utility services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state.[84] Although D&M Plans are expressly authorized for applications under C.G.S. §16-50p, the Council has also ordered D&M plans for facilities approved by declaratory ruling, and Council decisions to order D&M plans for facilities approved by declaratory ruling have not been challenged.[85] Therefore, the Council rejects these recommendations.

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[83] Connecticut Siting Council, Petition No. 983 and Petition No. 984, *supra* note 1 ("Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within four years of the effective date of this Decision and Order or within four years after all appeals of this Decision and Order have been resolved."); *Middlebury v. CSC*, 2007 WL 4106365 (Conn. Super. 2007) ("There is nothing in the statutes that provides for amendments due to the need to extend the deadline to complete a project. Nor is there anything that negates the ability of the Council to make a flexible deadline a "condition" of a certificate under §16-50p (a) rather than a matter for amendment. Indeed, because the Council apparently has the greater power to issue a certificate with no deadline at all, it surely has the lesser power to issue a certificate based on the condition that the applicant complete the project by a certain deadline "unless otherwise approved by the Council.")

[84] *Middlebury v. CSC*, 2002 Conn. Super. LEXIS 610 (Conn. Super. 2002).

[85] Connecticut Siting Council, Petition No. 983 and Petition No. 984, *supra* note 1; Connecticut Siting Council, Petition No. 784, *available at* http://www.ct.gov/csc/cwp/view.asp?a=2397&Q=320968&PM=1; Connecticut Siting Council, Petition No. 834, *available at* http://www.ct.gov/csc/lib/csc/pendingproceeds/petition_834/pe834-decisionpack.pdf.

19. **Recommended Additional Sections by Interested Persons:**

a. **National Natural Landmark, State and Local Parks, Scenic Highway and Other Protected Lands Impacts Report**

Fairwind and BLEC recommend the Council add a section requiring a report specifically for impacts to landmarks, parks, scenic roads and other protected lands with a survey radius of at least 10 miles from any turbine. Groton recommends a requirement for an archaeological study.

An impact report specifically for certain areas of environmental and ecological concern would be duplicative. The Council's charge under the PUESA requires the Council to evaluate potential impacts to all areas in the state of environmental and ecological concern in order to balance the public need for a facility with the need to protect the environment and ecology of the state. The areas identified by Fairwind, BLEC and Groton as necessitating a separate report are already covered in the proposed regulations that require submission of impact reports under proposed Section 16-50j-94, Subsections (a) to (g), inclusive. The required impact reports include visual impact evaluation, noise impact evaluation, ice drop and ice throw impact evaluation, blade drop and blade throw impact evaluation, shadow flicker impact evaluation and natural resource impact evaluation, each of which require a study area map with a sufficient radius to include the entire area of potential impact. Furthermore, existing Section 16-50j-59 requires applicants and petitioners proposing to construct, operate and maintain energy facilities to submit a description of the scenic, natural, historic and recreational characteristics of the proposed site and surrounding area and a statement in narrative form of the environmental effects of the proposed facility and associated equipment. Finally, consultation with the SHPO as discussed under Sections III.2. and III.7. *infra,* may result in a request from that state agency for an archaeological study, which would be submitted into the evidentiary record by the applicant or petitioner. Therefore, the Council rejects these recommendations.

b. **Telecommunication Impact Analysis**

Fairwind, Nardello and Groton recommend the Council require submission of a report on the impact on microwave and telecommunication infrastructure.

The Council has addressed this recommendation in Section III.2., *infra*, for notification to public and private owners and operators of telecommunications infrastructure within a two-mile radius of the proposed wind turbine facility site and any alternative wind turbine facility sites and in Section III.6., *infra*, for the submission of a Telecommunications Infrastructure Impact Analysis.

c. **Transmission Analysis**

Fairwind recommends the Council require an assessment of the transmission infrastructure needed to deliver the estimated wind production, including a map of wire

locations and a discussion of the cumulative effect on the transmission system. BLEC recommends the Council include requirements for mitigation of "dirty electricity."

Not all wind facilities interconnect with the *electric transmission system* in the state.[86] In fact, the two petitions approved by the Council in Colebrook will interconnect with the *electric distribution system*.[87] Large and small generator interconnections with the electric transmission system are subject to the exclusive authority of the regional Independent System Operator of New England (ISO-NE). ISO-NE is responsible for providing day-to-day reliable operation of New England's power generation and transmission system. New generators are required to file an interconnection request with ISO-NE, which conducts a system impact study that takes into account the regional network and the impact any new generation will have upon it.[88] Generator interconnections with the electric distribution system are subject to consultation, study and approval from the local electric distribution company.[89] As part of these interconnection studies, potential increased ground currents and abnormal energy couplings associated with "dirty electricity" are analyzed by ISO-NE or the electric distribution company servicing the particular area.[90] Despite the Council's lack of authority over new generators' interconnection with the electric transmission and distribution systems, existing Section 16-50j-59 of the Regulations of Connecticut State Agencies requires submission of "plan and elevation drawings showing the proposed facility and associated equipment…, the components and all structures on the site." Under Section 16-50j-2a (1), "Associated equipment" is defined as "any building, structure, fuel tank, backup generator, transformer, circuit breaker, disconnect switch, control house, cooling tower, pole, line, cable, conductor or emissions equipment that is a necessary component for the operation of an… electric generating… facility." The requirements under existing Section 16-50j-59 of the Regulations of Connecticut State Agencies encompass identification of the point of interconnection with the electric transmission or distribution system. Additionally, relative to cumulative effects on the electric transmission system, Section 16-50j-59 requires submission of "where relevant, a list of all energy facilities and associated equipment within a 5-mile radius of the proposed facility… which are owned or operated by a public service company or the state." Furthermore, Sections 16-50j-60 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies address requirements for D&M plans for energy facilities, which include, but are not limited to, plan drawings that depict "the probable location, type, and height of the proposed facility, energy components and associated equipment supporting the facility operation, including, but not limited to, each new transmission structure, position of guys, generalized description of foundations, trench grading plans, depth and width of trenches, trench back-filling plans, and the location of any utility or other structures to remain on the site or to be removed." Therefore, the Council rejects this recommendation.

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[86] The electric transmission system is the delivery of electricity through high voltage lines typically 69 kilovolts or greater. Electric transmission in the state is subject to the jurisdiction of the Council.

[87] The electric distribution system is the delivery of electricity through lower voltage lines typically 13-34 kilovolts. Electric distribution in the state is subject to the jurisdiction of the PURA.

[88] ISO-New England, "System Impact Study," *available at* http://www.iso-ne.com/search/perform.do

[89] Connecticut Light and Power and the United Illuminating Company are electric distribution companies in the state.

[90] ISO-New England, "System Impact Study," *supra* note 88.

d. Site Optimization Report

Fairwind and Nardello recommend the Council require a discussion of all impacts that can be expected from the project and why the proposed design is better than any of the alternatives. BLEC recommends the Council add a section to the proposed regulations that mandates critical wind turbine design distinctions in certain areas.

The information requested by Fairwind and Nardello to be included in such a report is a restatement of the Council's charge under the PUESA that results in the Council's final decision on any jurisdictional project proposal and is duplicative of the requirements under the proposed regulations. BLEC's recommendation is similarly duplicative, as well as prohibitive of the discretion granted to the Council under the PUESA to find and determine the most appropriate facility design for a particular site. In accordance with Public Act 11-245 and the PUESA, each section of the proposed regulations requires examination of the potential impacts that can be expected from the project and why the proposed design is better than any of the alternatives. Furthermore, existing Section 16-50j-59 of the Regulations of Connecticut State Agencies requires a statement containing justification for the site selected that includes a description of siting criteria and the narrowing process by which other possible sites were considered and eliminated. Therefore, the Council rejects these recommendations.

e. Cumulative Effects Report

Fairwind and Nardello recommend the Council require a discussion of the cumulative effects with all existing, pending and proposed petitions or certificates for additional wind turbines.

The Council cannot impose a requirement that goes beyond the scope of the underlying statutory scheme. Pursuant to C.G.S. §16-50p, the Council is required to consider "the nature of the probable environmental impact of the facility alone and cumulatively with ***other existing facilities***..." (Emphasis added). The Superior Court has held that this section requires the Council to examine the environmental effects alone and cumulatively of the facility seeking a certificate, not of other facilities seeking certificates.[91] Fairwind's recommended regulation, with the exception of Council consideration of the cumulative effects of a proposed facility with *other existing facilities*, would exceed the scope of authority conferred upon the Council by statute. The Council cannot consider the cumulative effects of proposed projects on other proposed projects. However, evidence that is admitted into the record by the Council in a prior hearing may be administratively noticed in the record of subsequent hearings held on other proposed projects.[92] For example, the pre-filed testimony of a witness that was verified by the author and admitted as an exhibit in the record for a pending proposed project may be administratively noticed

[91] *City of New Haven v. CSC*, 2002 Conn. Super. LEXIS 1176 (2002); *City of New Haven v. CSC*, 2002 Conn. Super. LEXIS 2753 (2002) (C.G.S. §16-50p(c)(2)(B) requires the Council to examine environmental effects alone or cumulatively of the facility seeking the certificate, not of other facilities seeking certificates. A different interpretation would lead to an unworkable result.)

[92] R.C.S.A. §16-50j-28 ("**Administrative Notice.** The Council may take administrative notice of facts in accordance with Section 4-178 of the Connecticut General Statutes, including prior decisions and orders of the Council and any exhibit admitted as evidence by the Council in a prior hearing of a contested case.")

in the record for a subsequently-filed proposed project. In Docket No. 427, the Council granted a request for administrative notice of the pre-filed testimony of a witness that was verified by the author and admitted into the record during the hearings held on Docket No. 412.[93] Additionally, as discussed in Section III.19.c., *infra,* existing Section 16-50j-59 of the Regulations of Connecticut State Agencies requires the submission, "where relevant, of a list of all energy facilities and associated equipment within a 5-mile radius of the proposed facility… which are owned or operated by a public service company or the state." Therefore, the Council rejects these recommendations.

f. Host Community Agreement

Adams and COST recommend the Council require a Host Community Agreement.

It is well settled in case law that administrative agencies cannot confer jurisdiction and authority upon themselves. The Council's jurisdiction and authority is strictly to balance the public need for a facility with the need to protect the environment and the ecology of the state. A requirement for a Host Community Agreement would exceed the scope of authority conferred upon the Council by statute. The Council has no jurisdiction or authority to create, negotiate, or enforce an agreement between private parties. The Council also has no jurisdiction to arbitrate disputes between private parties, except as specified under C.G.S. §16-50z relating to the condemnation of residential real property by a public service company for transmission of electric power consistent with the state energy policy, and under C.G.S. §16-50aa relating to the refusal of a telecommunications facility owner to permit another entity's proposed shared use of a telecommunications tower consistent with the state tower-sharing policy.[94] A Host Community Agreement is a subject for discussion during the statutorily-required municipal consultation process referenced in Section III.7.b. *infra.* In the event that a Host Community Agreement is reached during the consultation, the applicant or petitioner, or the host municipality, may submit the agreement into the evidentiary record pursuant to C.G.S. §16-50o for that project proposal. For example, during the proceedings held on a petition for a declaratory ruling for a wood biomass electric generating facility in Montville, the petitioner and the town had reached an agreement that was submitted into the record and supported by the Council in its final decision.[95] During the proceedings held on the BNE petitions for

[93] Connecticut Siting Council, Docket No. 427, *available at* http://www.ct.gov/csc/lib/csc/pendingproceeds/docket_427/427_continuation_memo.pdf.

[94] Conn. Gen. Stat. §16-50z (2012) (When a public service company intends to acquire residential real property by condemnation, and the owner of such property disputes the company's need to acquire such property, upon written request by the owner, the Council shall initiate a proceeding to determine if the proposed taking is necessary and consistent with the provisions of section 16a-35k.); Conn. Gen. Stat. §16-50aa (2012) (If an owner of a facility refuses permission for the proposed shared use, the requesting entity may bring the issue of the proposed shared use to the Council for a feasibility proceeding to determine whether the proposed shared use is technically, legally, environmentally and economically feasible and meets public safety concerns.)

[95] Connecticut Siting Council, Petition No. 907, *available at* http://www.ct.gov/csc/lib/csc/pendingproceeds/petition_907/pe907-20100226-dec_ruling.pdf ("The Council also notes that **MP met with town officials and the area neighborhood group** to discuss concerns regarding the volume of trucks passing through the Lathrop Road neighborhood. As a result of these discussions, **the town and MP reached a written agreement** regarding this issue with the main points being a financial contribution from MP to assist the town in installing sidewalks along a portion of Lathrop Road and that no fuel deliveries would occur during scheduled school bus operations. The Council finds the site suitable, given that the

declaratory rulings for wind-powered electric generating facilities in Colebrook, the Council *encouraged* the petitioner to reach an agreement with the Town of Colebrook. The final decision for each petition states: "The Petitioner shall attempt to reach a Host Community Agreement with the Town of Colebrook prior to the submission of the D&M Plan. Any agreement that is reached between the Petitioner and the Town shall be submitted to the Council."[96] However, the Council does not have the jurisdiction or authority to order, require or force private parties to enter into an agreement. Similarly, the Council does not have the jurisdiction or authority to enforce an agreement between private parties. These matters are properly submitted before the Superior Court. Therefore, the Council rejects these recommendations.

g. State Plan of Conservation and Development (C&D Plan) Standards

The Colebrook Conservancy and Fairwind (Joyce Hemingson) recommend the Council incorporate the standards of the State C&D Plan into the wind regulations and that any applications or petitions cannot be approved if inconsistent with the C&D Plan principles.

Under the PUESA, the legislature finds "that power generating plants… have had a significant impact on the environment and ecology of the state of Connecticut; and that continued operation and development of such power plants…, if not properly planned and controlled, could adversely affect the quality of the environment and the ecological, scenic, historic and recreational values of the state." Pursuant to its charge under the PUESA, the Council is required to determine the nature of the probable environmental impact of any jurisdictional facility, including, but not limited to any conflict with policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity and fish, aquaculture and wildlife. This analysis necessarily incorporates the standards of the State C&D Plan and the Council's routine administrative notice list for all jurisdictional facilities includes the State C&D Plan. Under C.G.S. §16-50j (h), prior to commencing a public hearing, the Council is required to consult with and solicit comments from the Office of Policy and Management (OPM), the Department of Economic and Community Development (DECD) and the Council on Environmental Quality (CEQ), among other state agencies. OPM is responsible for overall supervision of the process for adoption, amendment, revision and implementation of the C&D Plan.[97] Any comments or recommendations received from OPM on any proposed facility become part of the record for Council consideration. However, as discussed in Section III.7.d. *infra*, Connecticut case law holds that consultation with and solicitation of comments from the state agencies enumerated under C.G.S. §16-50j (h) is advisory and there is nothing in the statute that requires the Council to abide by the comments of other state agencies submitted pursuant to the statute.[98] Furthermore, with regard to the recommendation that any application or petition should not be approved if it is inconsistent with the principles of the C&D Plan, as also discussed in Section III.7.d.

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wood fuel unloading/receiving infrastructure has been relocated away from the residences on Lathrop Road to areas already developed adjacent to the station generator building. **The Council also supports the agreement reached between the town and MP** regarding truck deliveries to the plant.") (Emphasis added.)

[96] Connecticut Siting Council, Petition No. 983 and Petition No. 984, *supra* note 1.

[97] Conn. Gen. Stat. §16a-26 (2012).

[98] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007), *supra* note 17.

infra, C.G.S. §16-50w states, "in the event of any conflict between the provisions of this chapter and any provisions of general statutes, as amended, or any special act, this chapter shall take precedence." The adoption of regulations requires specific statutory authority. The Council cannot impose a requirement or authorize individuals to do something that goes beyond the scope of the underlying statutory scheme. Therefore, the Council rejects this recommendation.