ORIGINAL

CSC DOCKET NO.192B

CPV TOWANTIC, LLC MOTION TO REOPEN AND MODIFY THE JUNE 23, 1999 CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED BASED ON CHANGED CONDITIONS PURSUANT TO CONNECTICUT GENERAL STATUTES §4-181A(B) FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A 785 MW DUAL-FUEL COMBINED CYCLE ELECTRIC GENERATING FACILITY LOCATED NORTH OF THE PROKOP ROAD AND TOWANTIC HILL ROAD INTERSECTION IN THE TOWN OF OXFORD, CONNECTICUT.

IN NEW BRITAIN, CONNECTICUT

PROCEEDING PENDING BEFORE THE CONNECTICUT SITING COUNCIL

APRIL 27, 2015

POST-HEARING BRIEF

OF

THE TOWN OF MIDDLEBURY, CONNECTICUT (INTERVENOR)

AND

RAYMOND PIETRORAZIO (INTERVENOR)

I. INTRODUCTION

This matter is presently pending before the Connecticut Siting Council ("Council") regarding CPV Towantic, LLC's ("CPV" or the "applicant") Petition to Reopen and Modify, based on changed conditions, the Council Decision ("Decision")

of June 23, 1999, Docket 192. The Decision consists collectively of the Findings of Fact, Opinion, Decision and Order, and Certificate of Environmental Compatibility and Public Need (the "Certificate") authorizing the construction, operation, and maintenance of a net nameplate 512 megawatts ("MW") dual-fuel combined cycle electric generating facility (the "facility").

It is our observation and opinion, having attended all the public hearings, that all interveners to Docket 192B have, within the constraints of the time frames allotted, done their best to convey to the Council their various documented arguments and concerns. While facing threats to their health, lifestyle and other concerns of peril, they have maintained a civil and orderly conduct throughout the hearings process, which has aided the Council with its administrative responsibilities.

The Town of Middlebury and I, Raymond Pietrorazio, as separate intervenors, jointly and respectfully request the Council to deny the above CPV Petition, as explained more in detail below.

II. ARGUMENT

THE CONNECTICUT SITING COUNCIL SHOULD DENY APPLICANT'S PETITION OF NOVEMBER 3, 2014, TO REOPEN AND MODIFY THE JUNE 23, 1999 DECISION IN DOCKET 192 DUE TO THE FOLLOWING CHANGED CONDITIONS:

i. Thermal Exhaust Plumes Hazardous Effects On Aviation Safety And Airport Incompatibility

The single airstrip of the Waterbury-Oxford Airport (OXC) is approximately 1/2 mile west of the site. The site is located directly under the left downwind leg of the air traffic landing pattern of the airport. The hearing received significant testimony and exhibits that the site is inappropriately and erroneously sited due to increased risk to aviation from the adverse effects of thermal exhaust plumes on aviation safety. CPV's own submissions and testimony are further affirmation of the risk to aviation safety and diminished airport efficiency from the potential adverse affects of the facility's thermal exhaust plumes. We believe it worthy to note that the in-depth discussions by both the Council and the applicant did not exist in Docket 192. This most likely is due to the new information found in the latest

FAA reports and documents we have submitted to the Council as exhibits.

We do not believe the United States government provided taxpayer dollars to conduct five (5) studies in the past nine years on a red-herring, as elicited by Council member Dr. Michael Klemens (Hearing Transcript at 1/29/15-Page 184).

The FAA also has issued follow up documents (see following) and new inclusions to the Federal Aviation Regulations Aeronautical Information Manual, Section 5, Potential Flight Hazards, page 7-5-15, warning about the dangers of flying in the vicinity of Exhaust Plumes.

Councilman Ashton asked a good deal of questions regarding the plumes that would emanate from the two stacks of the facility and airport obstructions. At least several had to do with figurative heights, distances, and flight patterns. He talked about other plants and airport locations as if they were representative of the CPV site, which they are not. Chairman Stein at one point grasped this "lumping in" of other airports and plant sitings, and expressed his disagreement with that type of procedure, making it clear he highly

respects the discussion of the facility's affects to flight safety with respect to the Waterbury-Oxford Airport.

Throughout his questioning of CPV witnesses, it seemed Councilman Ashton placed greater credence on the witnesses replies than on the FAA reports. The replies do not accurately reflect the values and worst-case conditions discussed in the reports.

We wish to note that the SAIC Report was the first choice of the FAA-AOSC Committee to study the exhaust plumes effects on aviation. We do not necessarily regard the Mitre Report as the last word insofar as accuracy or correctness, or being of higher value than the SAIC Report.

Throughout hearing testimony and cross-examination, CPV placed its reliance on the Mitre Corp. Report (Pietrorazio Exhibit, 1/14/15, bullet #2) (Mitre Report) conducted for the Federal Aviation Administration (FAA) to validate the earlier SAIC Report (Pietrorazio Exhibit, 1/14/15, bullet #1) (SAIC Report), also conducted for the FAA. CPV particularly relied upon the Mitre Report model finding that the turbulent effect of the exhaust plumes did not reach causing upset to aircraft. It was succinctly pointed out by interveners that that the

Navion aircraft Mitre Report used in its model is a much heavier aircraft than most light recreational aircraft, and therefore less affected by plume turbulence. CPV witness Ms. Gresock testified "Clearly the lighter aircraft have more vulnerabilities to turbulence, in general, in the atmosphere" (Hearing Transcript at 2/24/15, page 592).

It was also testified to that the Cessna 172 is the most popular general aviation aircraft, along with the Piper Archer (Hearing Transcript at 2/24/15, pages 647 & 648) and is significantly lighter than the Navion used in the Mitre Report. The much more popular Cessna 172 aircraft was appropriately used in the SAIC Report for light aircraft study, (SAIC Report, pg. 48). Further, the Mitre Report and the SAIC Report used exhaust plume rise modeled from the 512 MW smaller plant, which was the plant in question at the time. The new CPV larger plant would emit greater plume mass and higher plume rise when operating at higher input ratings. Both the SAIC Report and the Mitre Report indicate that higher plume rise would have greater adverse affect to aircraft.

According to testimony by CPV (Hearing Transcript dated 2/10/15, pages 381 &382) witness Fred Sellars, increased plume mass and plume temperature, and higher exit velocities, will

produce higher plume rise; which would adversely affect aviation according to the FAA reports.

The FAA Position Paper, Safety Concerns of Exhaust Plumes, dated July 8, 2014 (Pietrorazio Exhibit 1/14/15, bullet #4) clearly states "However, the FAA determined that thermal exhaust plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight and therefore are incompatible." (emphasis added)

Further, the FAA Memorandum dated Jan. 21, 2015, submitted to the Council by Connecticut Senator Joan Hartley on March 24, 2015, specifically states,

> "However, the FAA has determined that thermal exhaust plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight (particularly takeoff, landing and within the pattern) and therefore are incompatible with airport operations".

Quote from the Mitre Report, 9 Conclusions, page 9-1, as endorsed by the FAA, states:

> "It was found that while a vast majority of environmental conditions create hazards for

aircraft under about 600 feet above the stack, there were a few cases where the hazardous region extends to much higher above the stack. During these weather conditions, *it is recommended that procedures are adjusted or the landing runway is changed if need be to avoid this hazardous airspace*". [emphasis added]

"While it is unlikely that an aircraft will reach upset criteria, *there is a definite risk of light aircraft experiencing severe turbulence within the TLS as they fly above an exhaust plume emitted from a power plant or other industrial facility in certain weather conditions*". [emphasis added]

It should be noted that, according to the Reports, these weather conditions are when there are mild wind conditions and good flying weather.

There can be no doubt that the issue of thermal exhaust plumes in the vicinity of airports directly impacts aviation safety, and must be carefully considered and evaluated by airport owners, sponsors and airport planners, as recommended

by the FAA in both the above Position Paper and the Memorandum.

ii. Ambiguity of the Petition by the Applicant

CPV purports that the modifications it seeks are "necessary and appropriate to address fundamental changes in the electric and natural gas markets, advances in combustion turbine technology, and the issuance of more stringent environmental requirements since 1999" (CPV Exhibit 1, page 1, Introduction)

Electric and natural gas markets are in a continual state of flux, and are affected by war, politics, and a host of other factors, so why must the Council, at this particular juncture, give primacy to an ever-fluctuating medium?

The advance in combustion turbine technology, in this case, may possibly account for an additional 4-5% efficiency over the previous technology, which, if so, is an important advance; but hardly deserving the definitive adjectives used by CPV throughout the hearings, and as CPV's Braith Kelly testified to the State of Connecticut Congressional Energy and

Technology Committee a few weeks ago, when speaking in support of the facility, stating "the vast improvement in efficiency". One of the most referred to Exhibits throughout the hearings was CPV Exhibit 1.

This document makes many claims about the new GE 7HA.01 combustion turbines chosen for the facility, particularly in sections 2.1 through 2.1.7, pages 5 through 9, without any mention of actual load-testing to prove those claims.

CPV's witness Mr. Bazinet testified that the GE 7HA.01 combustion turbine has not been load-tested to date (Hearing Transcript at 3/24/15, page 228).

CPV would also have us believe that the recent issuances of more stringent environmental requirements since 1999 require that the Council approve its Petition. The CT DEEP, in its latest BACT update for the previous 512 MW plant, granted approval for the air emissions permit, which is valid for five (5) years, so there is no need for modification as purported by CPV. (Hearing Transcript at 1/29/15, page 335, Mr. Seller witness, "The facility has a valid air quality permit right now for the 512 megawatt facility").

Yet another quite ambiguous factor cited by CPV is the professed retirement of existing generators, which is touted as one of the most impending factors for the "need" of the facility. Here too those retirement dates cannot nearly be projected accurately enough to prove that other forms of electric generation will or will not be available at that time.

iii. Negative Aspects of Dual-Fuel Capability

One of the key issues that dominated the hearings was the importance of dual-fuel capability and in-depth discussion of the lack of an abundant water supply for the project. Even on the part of CPV, there was considerable testimony of the uncertainty of so many issues about water supply, such as whether Heritage Water Company would have additional water beyond 218,000 gal/day when burning fuel oil.

No specific management plan exists for how HVWC will provide water, particularly excess water, which the facility will definitely need. CPV witness Mr. Bazinet promised Mr. DeJong, of the Pomperaug River Watershed Coalition, that if the Council deemed it appropriate, it would provide a draft water management plan to the Council for its review.

"Yes, absolutely" was his reply. (Hearing Transcript at 2/10/15, page 411)

Interrogatories CT DEEP-1, 1/28/15, Q-2) Response by witness Mr.Bazinet, "Towantic has had extensive discussions with HVWC regarding water supply".

The Council might ask why such "extensive discussions" were necessary, if there are no problems with water supply for this facility.

Obviously, the CT DEEP has very significant concerns over the inability of the facility, as presented, to operate reliably to the grid during periods of gas curtailment due to water supply shortage and constraints on the natural gas supply during cold weather. The entire Interrogatories CT DEEP-1, Q-1-8, by cover letter to the Council of January 28, 2015, concerned this key issue, from questions about water supply, fuel oil supply, hours of operation, plans of operation, feasibility of increasing on-site water storage, limitations, increasing ULSD on-site supplies, to questions about securing firm gas contracts instead of interruptible gas contracts.

It is apparent CPV itself is quite unsure about an adequate water supply for this new, larger facility, and where it will come from. In reply to Dr. Bell's question "you would go to some other source?", Mr. Bazinet replied, "We could truck water in. That would obviously be a little more tedious, but we could truck water in, correct." (Hearing Transcript at 2/10/15, page 430).

Yet, on March 24, 2015, CPV Attorney Small stated "the applicant has clearly stated that they're not going to be trucking water into this facility". (Hearing Transcript at 3/24/15, page 232)

iv. Air Pollution and Deposition of Pollutants

Many questions were asked regarding the two 150 ft high stacks, with respect to the their ability, as "tall stacks" to properly exit the stack gases with sufficient velocity to inject the plume far enough above the stack outlet to gain adequate dispersion. The facility size at 785 MW has increased by 153 % over the previous 512 MW facility. The stacks however have not changed in height (because they cannot, due to aviation concerns, so they remain at 150 ft. In order to be

able to exit the increased combusted gases, the stack diameters have been increased from 18.5' dia. To 22'dia. This change will not allow sufficient exit velocity when the facility is operating at low inputs. This was reiterated by CPV Atty. Small when he asked Mr. Pietrorazio in speaking about the stacks, "you felt they were too low, correct?" My reply, "Correct". (Hearing Transcript at 3/12/15, page 258.) Our position of the downwash that would take place was not only because of the increase in diameter, but because the stacks were reduced in height originally in 1999, when the optimum height was optimally modeled at 160 ft. high, which was lowered to 150 ft high due to aviation concerns, which CPV witness Mr. Sellars testified to. (Hearing Transcript 2/10/15, page 386)

I was restricted by the Chairman from asking any further questions referring to Docket 192. This was quite injurious because I was attempting to unequivacably prove that, "optimum stack height" is a determination reached by mathematical modeling, not by taking into account other factors than dispersal, as Mr. Sellars attempted to state. This is a very salient issue to proper stack design for good dispersion, and the record of these hearings illustrates that without doubt.

CPV Atty. Small then tried to infer that I had not provided a document requested by the Council about a reduction of a 160 ft stack height by 20 ft, and how that reduction in height would cause a deposition rate more than double. In fact, I had submitted the document as requested. Atty Small stated they would look at it. Atty. Small's mistake is quite understandable, but the interesting part is that the subject was never raised by him again; possibly because the document stated exactly what I testified to. The document further reinforces our position that the larger diameter stacks, without additional height, will not serve properly at lower input ratings. Mr. Sellars testified, "If you have a downwash situation, the concentrations would be greater, yes." (Hearing Transcript at 2/10/15, page 389). As stated in the hearings, we believe the plumes, when the facility is operating at low inputs, will spill out of the stacks and start immediately down to the ground, causing fumigation as mentioned by CPV witness Mr. Sellars.(Hearing Transcript at 2/10/15, page 390) This would have the effect of severe pollution of the nearby considerable wetlands, and have toxic affect on everything in its path. Also as testified to by Mr. Sellars, the deposition of pollutants in the wetlands would be cumulative. (Hearing Transcript at 2/10/15, page 391). The Comment and spreadsheet

provided by Dr. Bruce Egan, which is entered into the record, also supports this position.

There is a cure for such a situation, and it is mechanical means for increasing exit velocity. However, in this case, it would make the aviation issue even worse. A significantly larger plume mass would be forcibly ejected from the stacks, having a much greater detrimental effect on flight in the area, with more dangerous eddies within the plume.

v. Applicant's Insufficient Assent to the Connecticut Integrated Resource Plan.

We found this document to be a cherry-picked document alluding only to the various sentencing that tends to support CPV's application. CPV made no reference to renewable energy sources, which section makes up 33 pages of the actual Plan; yet CPV testified that it's analysis is representative of the entire Plan. (Hearing Transcript at 3/26/15, pages 194 & 195). We find the Analysis a useless document which has no value to the Connecticut Siting Council.

III. CONCLUSION AND RECOMMENDATIONS

The Town of Middlebury and Raymond Pietrorazio jointly find that the CPV Petition should be denied as detailed above, for the following reasons:

i. **Thermal Exhaust Plumes Hazardous Effects On Aviation Safety And Airport Incompatibility;**

ii. **Ambiguity of the Petition by the Applicant;**

iii. **Negative Aspects of Dual-Fuel Capability;**

iv. **Air Pollution and Deposition of Pollutants;**

v. **Applicant's Insufficient Assent to the Connecticut Integrated Resource Plan.**

We do not find where the State of Connecticut would benefit by such a large industrial facility being located in a pristine area of the state, where it can and would cause severe degradation to human life, damage to wetlands, aviation endangerment and reduction of airport efficiency of operation. With the power largely going out of state, as testified to by the applicant, it brings into question public need for our state, and is the environmental damage this base-load power plant will bring to the area a good trade?

We believe the area could support a peaker plant of 150 MW, which would have far less impact on the potable water supply, far less air emissions, and would have less impact on airport operations. It also would better suit the electrical infrastructure in the area. Such a peaker plant would be much more reliable to the grid because it would be much easier to keep in operation when there is gas curtailment.

Respectfully Submitted,

The Town of Middlebury, Connecticut
Intervenor
By: Edward B. St.John
Its: 1st Selectman

and,

Raymond Pietrorazio
Intervenor

CERTIFICATION

I, Raymond Pietrorazio, hereby certify that a copy of filing, Docket 192B, Post Hearing Brief, Town of Middlebury and Raymond Pietrorazio, has been sent on April 24, 2015, to all parties and intervenors listed on the Connecticut Siting Council's Service List; and has filed by hand delivery with the Connecticut Siting Council, an original and fifteen copies.

Raymond Pietrorazio

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