

Examples of Real PUC Dockets with Air Quality Implications

Merrimack Station NOx Controls (New Hampshire)

1. What was the case?

Public Service Company of New Hampshire (PSNH), Installation of Selective Catalytic Reduction (New Hampshire Public Utilities Commission, Docket #DR 95-068, Order #22,674; July 30, 1997)

In 1995, PSNH installed a Selective Non-Catalytic Reduction (SNCR) system at Merrimack Station Unit 1 (MK1) and a Selective Catalytic Reduction (SCR) system at Merrimack Station Unit 2 MK2) to comply with the Clean Air Act and state administrative rules. SNCR and SCR both reduce NOx emissions. SNCR can result in a significant reduction or "derate" in output. SCR, while more expensive to install, causes no such derate, and positioned PSNH to possibly meet even more aggressive NOx reduction requirements to follow in 1999. PSNH sought to recover the full costs of both installations. The New Hampshire Public Utilities Commission (PUC) denied PSNH's request for full recovery of SCR because it might not meet the 1999 requirements and if so, would not be "used and useful" after that point.

2. What were the air quality ramifications?

SNCR was well-established technology before 1995, but SCR – particularly on coal-fired cyclone boilers – was unprecedented. PSNH's good faith effort to apply new technology to aggressively reduce NOx emissions was thus being penalized by the PUC. The resulting example of "no good deed goes unpunished" could have had: (a) a direct effect by causing PSNH to seek only minimally acceptable NOx reductions; and (b) a chilling effect on the adoption of innovative air pollution control strategies and technologies by utilities in NH and elsewhere.

3. How did the air regulator influence the outcome?

The PUC viewed the NH Department of Environmental Services' (DES) NOx reduction rules as ambiguous and interpreted them as allowing PSNH to creatively dispatch MK2 using hypothetical SNCR technology. In a subsequent letter and testimony, however, the DES Director of Air Resources indicated how these rules were actually implemented and enforced. The Director testified that creative dispatch of MK2 would not be permitted because of the need to insure that both daily and annual NOx emission limits were not exceeded.

4. What was the outcome?

The PUC reversed its decision and allowed PSNH to recover all appropriate costs for the installation and operation of SCR on MK2. "Given [DES'] interpretation and PSNH's actions in reliance on that interpretation and the impacts on the company and ratepayers, we defer

to [DES]. We reach this conclusion not only out of comity, but in light of the interests [DES] sought to protect through this rule as set forth in the testimony of the Director.”

Kleen Energy NGCC Power Plant (Connecticut)

1. What was the case?

Review of Energy Independence Act Capacity Contracts (Connecticut Department of Public Utility Control, Docket #[07-04-24](#). Note: this site is very difficult to navigate.)

This case involved many issues, including an RFP for the siting of a new natural gas power plant. The full plant history is available online at this [link](#). The DPUC RFP was based upon legislation passed in 2005 that directed the DPUC to take steps to reduce federally mandated congestion charges (FMCC) in Southwest Connecticut. The FMCC related to the extra costs imposed by resources running out of economic merit order to maintain reliability.

2. What were the air quality ramifications?

Generation resources (EGU) that ran out of economic order also had high NO_x and PM emissions. The EGU also tended to operate during periods which coincided with those that also had high concentrations of ozone and fine particles. And, since many of the EGU were old (>40 years old), their ability to quickly respond to peak load conditions meant that fuel was being burned even when the EGU were not synchronized with the electricity grid. So, extra emissions occurred, even though no MWh of energy were being produced.

3. How did the air regulator influence the outcome?

The CT DEP participated informally in DPUC technical workshops (information gathering sessions) and formally in the DPUC docket. The DEP described CT's ozone and fine particle pollution challenges, explained the environmental impacts of the existing EGU being used to meet peak load, and described how, since CT was required to continue to reduce precursors to ozone and fine particle emissions, that the DEP expected to soon require additional emissions controls to be installed on all EGU across the state. These controls would impose further costs on the operators of existing EGU, and increase the hourly electricity prices. DEP also explained their permitting process including the need for new major sources of air pollution to obtain offsets prior to receiving approval to construct a new facility. The DEP representative was sworn in, provided testimony and also cross-examined witnesses on their representation of air quality facts and requirements.

4. What was the outcome?

The DPUC selected four projects to provide capacity and reduce congestion charges: one large CCGT, two distributed generators and one EE project (5 MW). The DEP was satisfied with the decision, since construction of a new natural gas plant would have likely mothballed or substantially curtailed operation of a nearby classic vintage oil plant. However, the CCGT approved by DPUC was the Kleen Energy plant in Middletown, CT which exploded February 7, 2010, killing six and injuring about 50. Since the initial DPUC approval, transmission lines have been upgraded in Connecticut. These have been effective

at helping to maintain reliability, and the older plants previously relied upon for capacity and peak energy have operated at a much reduced schedule, if at all.

Energy Conservation Management Board (Connecticut)

1. What was the case?

This example refers to the ongoing involvement of a CT DEP representative on the state's energy efficiency board, the Energy Conservation Management Board (ECMB).

2. What were the air quality ramifications?

In the late 1990s, Southwest Connecticut (SW CT) relied upon several older oil fired EGU and an unknown number of smaller engines (mostly <1 MW, so these were not dispatched) to keep the lights on, and to avoid brownouts (which can be disruptive and costly to manufacturing plants). When used, emissions from these EGU and engines are high (up to 25 pounds of NO_x per MWh). Annual emissions from each EGU or engine may be low, less than ten tons per year, but the emissions occur during a short period of time (measured in days) and often coincide with days that also have elevated concentrations of ozone or fine particulate. SW CT is a non-attainment area for both of these pollutants. Many cities in SW CT have sensitive populations, and the asthma rates are among the highest in the US.

At the time, electric load growth in SW CT was about 4% per year, which was 2-3 times that of the state-wide load growth (1-1.5%). An EGU-only solution to maintain system reliability would have further increased emissions and burden to public health.

3. How did the air regulator influence the outcome?

Energy efficiency programs can both encourage a positive (i.e. help to relieve congestion and reduce customer bills) and avoid a negative (i.e. in this case, continued or increased use of generation that had high emissions). As a member of the ECMB, the DEP representative worked with other Board members to design programs to focus on SW CT, across all customer classes. At one point, about 60% of the ECMB funds were being targeted on this geographic area. The DEP rep was involved during the entire process, reviewed and commented upon plans developed by the utilities. Once the utility plan was satisfactory to the Board, it was submitted to the DPUC for their approval and order.

The ECMB also worked with ISO New England (ISO-NE) to encourage the RTO to consider solutions other than those solely based on new generation.

4. What was the outcome?

The ECMB effort was one of several concurrent projects in which the DEP participated. EE funds were re-aligned to reflect actual state demographics. Discussions with ISO-NE also resulted in the RTO including requirements that resources participating in demand response programs had to satisfy environmental permitting requirements in order to be qualified. While this should be a matter of fact and expected (from an air regulatory perspective), it is important that the RTO also recognized it, and included it.

The engagement by DEP and the ECMB continued and deepened, as the Board's later programs included large scale industrial and commercial EE, and maximum achievable potential studies. DEP and the DPUC also engaged informally on rulemaking and policy. In 2011, the CT legislature enacted a bill that combines the two agencies.

Use of Distributed Generation to Relieve Congestion (Connecticut)

1. What was the case?

This case involved informal and formal processes at the CT DPUC and, in parallel, a regional process in New England that was convened by ISO-NE.

In 2005, the CT general assembly passed the Energy Independence Act (Special Act 05-01 <http://www.cga.ct.gov/2005/act/Pa/2005PA-00001-R00HB-07501SS1-PA.htm>). Among its many provisions was one that directed the DPUC to open a docket and initiate a proceeding to relieve congestion. (The Kleen Energy case discussed as another example is one outgrowth of this DPUC investigation). This case was different from the Kleen Energy and the ECMB cases. Here, the DPUC was conducting an open inquiry to elicit ideas and criteria by which the Department could develop a RFP to procure capacity to improve reliability, and reduce costs to consumers.

In 2004, ISO-NE convened a workgroup to address the ISO's concerns about natural gas supplies, the effect of gaps in supply on grid reliability, and how several GW of natural gas fired generation became unavailable during a cold snap. http://www.iso-ne.com/pubs/whtpprs/iso_ne_paper.pdf

2. What were the air quality ramifications?

The need for nimble generating resources close to load centers would conflict with air quality requirements (as referenced in both the ECMB and Kleen Energy cases). Air regulators favored constructing new natural gas plants. The DPUC and ISO-NE expressed concerns about solutions that would increase the state's and region's reliance on that fuel. The year previous to the DPUC inquiry, a prolonged cold event (several days with temperatures reaching -10 F at night), resulted in big spikes in natural gas prices and resource deficits as gas supplies were shifted from industrial to residential use, and the owners of some gas plants realized they could increase profits by selling the gas to other customers rather than combusting it in a generator. In turn, this natural gas spike and supply event prompted an investigation by ISO-NE ("cold snap" workgroup). The workgroup recommended that regional generation be constructed so that both natural gas and oil could be combusted in the same units, to avoid a recurrence of this experience.

3. How did the air regulator influence the outcome?

Both the DPUC investigation and the concurrent ISO-NE workgroup initially put air regulators in the middle. "Air regulators definition of BACT means that only new natural gas plants can be built", was one common statement at the start. Or, "if we didn't have all these gas plants, we'd have no reliability problems."

The CT DEP worked with the DPUC (and other DEPs worked with ISO-NE) to educate their energy regulator colleagues about air quality, and planning requirements for states whose

air quality is unhealthy. CT adopted a permit by rule regulation for small EGU which did not run often (but which were prohibited from participating in and being paid to operate under a demand response program). CT adopted another rule that established output-based emissions standards for small EGU (sized lower than major source thresholds), but which either wanted to run more hours in a year, or wished to be paid for participating in a demand response program. Other states in NE also amended existing or adopted new regulations to address small sources.

The DPUC conducted a series of informal workshops on distributed generation. The DEP participated in these, submitted background information. As the DPUC process moved from informal to formal, the DEP submitted testimony. DEP recommended that the DPUC adopt criteria by which to rank various resources that were projected to be needed. One of these criteria was that the DPUC give preference to resources that were clean and that any new capacity should include both supply and demand side resources.

4. What was the outcome?

The DPUC developed criteria by which to rank resources. The criteria included one preference point for clean resources (which also included demand side resources). The DEP had recommended greater weight for environmental factors, but was in the end, comfortable with the DPUC process. This was the first time in anyone's memory that the DPUC had expressly included an environmental factor in what was otherwise a strict energy-related docket.

The DEP did believe that some of the information the DPUC used to make their decision was suspect. A report prepared for the DPUC by an outside consultant claimed that the DPUC distributed generation program would reduce GHG emissions by 1 million tons and NOx emissions by tens of thousands of tons. DEP was unable to verify how these data were calculated. The DPUC report was confidential and the DEP does not sign non-disclosure agreements.

Wind on the Water (Wisconsin)

1. What was the case?

Investigation to Assess Wisconsin's Potential for the Development of Wind Energy Resources in Lake Michigan and Lake Superior (Public Service Commission of Wisconsin, Docket #[5-EI-144](#))

This was a "generic" investigation by the WI PSC to consider legal, technological, economic, and environmental issues associated with offshore development of wind power in the Wisconsin portions of Lake Michigan and Lake Superior. This docket was initiated by the PSC; it was not associated with any specific case or proposal for an actual wind farm. It was an informal proceeding, not a contested case. Every aspect of the docket was conducted in public by a multi-stakeholder study group, but there were no interveners or parties to the case, no formal testimony or adjudicated hearings, etc.

2. What were the air quality ramifications?

This docket was initiated by the PSC in response to a recommendation of the Governor's Task Force on Global Warming. The Task Force felt that Wisconsin's potential to develop onshore wind power was limited by siting constraints, while the potential for offshore development had not been previously considered. The investigation considered how offshore wind power could contribute to greenhouse gas reductions recommended by the Task Force, but also considered potential air pollution issues and other environmental issues associated with construction and operation of an offshore wind farm. Because there was no actual proposal for a wind farm, the air quality impacts were entirely hypothetical.

3. How did the air regulator influence the outcome?

The PSC established four workgroups considering legal, technological, economic, and environmental issues. A program manager from the Department of Natural Resources volunteered to chair the team considering environmental issues, with support from other DNR staff as well as other stakeholders. A retired DNR attorney similarly led the legal issues team. They were deeply involved in drafting those portions of the study group's report and were instrumental in raising (and documenting) numerous issues that were beyond the expertise of the PSC and Commission staff.

4. What was the outcome?

The study group's report was reviewed, modified and ultimately approved by the PSC and sent to the Governor and Legislature for their consideration. The report identified several barriers to offshore wind development in Wisconsin that result from state laws and can only be remedied by state legislation. No such legislation has, to date, been introduced and thus no offshore wind farms have been proposed. However, the report is still viewed by the PSC, utilities and other stakeholders as a blueprint of sorts for what will be necessary if/when a developer wants to build offshore.