

Date: May 7, 2010
To: NESCAUM
From: Connecticut Department of Public Utility Control

The Department of Public Utility Control (DPUC) provides the following comments regarding the draft assumptions contained in the **Economic Analysis of the Northeast/Mid-Atlantic Low Carbon Fuel Standard: Draft Data and Assumptions, Part I** written by NESCAUM.

1. Introduction

Natural gas is currently the preferred fuel source used to generate electricity. This is because of the environmental benefits of this fuel as opposed to other fuels such as oil or coal. Natural gas is currently used to generate 40% of New England's electricity. The Energy Information Administration expects the use of natural gas as a fuel source for electric generation to increase over the next decade. Additionally, Connecticut's Integrated Resource Plan for the Procurement of Energy Resources shows a significant preference regarding the future procurement of additional electricity from natural gas fired generation assets.

2. Comments Related to the NESCAUM Draft Assumptions

The draft assumptions do not include the fact that natural gas is currently used to generate 40% of New England's electricity. Currently, gas fired power generators purchase their fuel on an interruptible basis. Power generators do not have firm commitments on the interstate pipelines for their deliveries of gas. Therefore, the generators' ability to purchase and move gas to their power plants is limited. During peak periods, the interstate pipeline capacity is restricted. Consequently, the generators are at risk for being unable to obtain gas supply during peak consumption periods. Further, the delivery price of the gas delivered to the power generators would increase significantly because of the increase in demand and their limited ability to ship gas during peak periods.

During the summer, gas fired generation facilities' ability to ship gas on the interstate pipelines can be restricted because of an over-all dependence on natural gas as a fuel source. During the spring and fall, it would be restricted because of required pipeline maintenance which decreases the flow of gas during that period. Any of these events can significantly increase the price and affect the reliability of using natural gas as a fuel source for generating electricity.

Gas fired generation facilities are about 40% to 60% efficient depending on the type of unit installed at the facility. Therefore, the generation process results in an opposite effect of 60% to 40% energy loss. The electric distribution system has line losses that result from transporting the electricity from the generator to the end user. The total energy losses between the generation and distribution lines can be as high as 66% or 2/3 of the original volumes of energy. As a result, for every 3 Btus of natural

gas injected into the generation facility, 2 Btus were lost and only 1 Btu was effectively used by the time it reaches the end user in the form of electricity.

NESCAUM's Baseline Fuel Prices include the assumption that electricity prices for New England decrease from about \$45 MMBtu or about \$.15 KWH in 2009 to about \$35 MMBtu or about \$.11KWH by 2025. The DPUC believes that natural gas is the marginal cost of fuel used to calculate electricity prices. Further, the NESCAUM assumptions indicated that natural gas is anticipated to remain constant and or increase in price between 2009 and 2025. The draft does not account for how the cost of electricity would decrease by 2025 when the base gas fuel prices remain constant or increase.

Regarding electric vehicles, the assumptions for the 11 participating states assume the following: an Electric Vehicle minimum penetration rate of 6% for 1.5 million battery electric vehicles (BEVs) with an annual consumption of 12,000 Giga Watt Hours (GWH) and a maximum of 35% market share associated with 8.5 million Plug-in Hybrid Electric Vehicles (PHEV) with an annual consumption of 30,000 GWH. However, it is unclear the exact number of these vehicles that are anticipated to be in New England and specifically Connecticut. Regardless, it is obvious that the consumption of natural gas in Connecticut and New England would increase significantly between 2012 and 2022. Both of the above cited vehicles recharge their internal batteries with electricity delivered from the electric grid. The draft assumptions do not include the potential effects on natural gas supply, including the potential increased gas prices and reliability associated with delivering gas to electric generators on a non-firm basis. NESCAUM's draft did not account for the energy losses associated with the generation of electricity in its assumptions related to BEVs and PHEVs.