Testimony for Energy Facility Siting Board Public Hearing

September 21, 2016

My name is Eugenia Marks. I reside at 11 Methyl Street, Providence, RI. I hold a masters degree in environmental studies from Brown University and served to 35 years with one of RI's leading environmental non-profits, the last 25 years as policy director.

As staff representative for the intervening organization in the Ocean State Power docket, I am familiar with the permitting and the Energy Facility Board Siting process.

I would like to speak to sections of the Energy Facility Siting Act, Rhode Island General Law Chapter 42-98. Section 1 reads in part:

...that the evaluation of proposals must recognize and consider the need for these facilities in relation to the overall impact of the facilities upon public health and safety, the environment and the economy of the state;....

Section 42-98-2 (3) reads:

(3) The energy shall be produced at the least possible cost to the consumer consistent with the objective of ensuring that the construction, operation, and decommissioning of the facility shall produce the fewest possible adverse effects on the quality of the state's environment; most particularly, its land and its wildlife and resources, the health and safety of its citizens, the purity of its air and water, its aquatic and marine life, and its esthetic and recreational value to the public;....

Climate change warming results , as you know, from the cumulated burning of carbon compound such as natural gas, petroleum products, or coal or from methane, nitrous oxides, and fluorocarbons escaping from a variety of sources, including natural gas production and transmission. Methane is said to have a warming potential of more than 20 times that of carbon dioxide, based on short term 20 year calculation and 80 times more based on 100 year timescale. The proposed Invenergy plant before the Energy Facility Siting Board will burn natural gas with an option to burn oil. The developer claims that carbon dioxide emissions in the region will be reduced, but that assertion is based on assumptions about retirement of current coal- and oil-burning generators. It is also based on assumptions about least cost procurement and the relative prices of oil, natural gas, and coal in future markets. If the price of natural gas increases in the future due to costs to protect the environment from escaping methane, then oil and gas plants may well continue to operate. The opponents' claim that methane is leaking as natural gas is fracked, released incidental to oil production, or transported has not been adequately considered nor factored into the carbon-polluting potential of the proposed plant.

Related to the directives quoted above from the Energy Facility Siting Act, I would like you as Energy Facility Siting Board to consider the report *Explaining Ocean Warming: Causes, Scale, Effects & Consequences,* published September 5, 2016, by the International Union for Conservation of Nature

(ICUN), a global forum of government agencies and non-governmental agencies, holding conferences and issuing research papers since 1948.

As you know, oceans cover about three quarters of the earth and are therefore of paramount importance to the functioning of the terrestrial areas as well as to the direct impact to marine and estuarine (bay) waters. Ocean warming means that both marine and associated aquatic habitats will change, attracting or causing to flourish species that can withstand warmer temperatures . These warming changes will cause a cascading effect on the web of life in our bays and offshore waters.

Of local interest in this ICUN report is the increase of jellyfish (comb jellies/ ctenophores) in the waters of Narragansett Bay over the past 20 or so years (p. 214). Comb jellies/ ctenophores compete with fish larvae for small floating food (plankton), and an explosion in ctenophores caused a collapse of the fishing industry in the Black Sea in the 1980s (C. E. Mills, University of Washington). Researchers from the University of Rhode Island -Graduate School of Oceanography have documented warmer Narragansett Bay waters, particularly in the winter and noted that these warmer conditions will be conducive to increased ctenophore production. In addition URI researchers find that increased ctenophore population can lead to oxygen depletion, particularly in coves of Narragansett Bay (B. K. Sullivan, et al. *Science Direct,* Elsevier publications).

Warming of the Bay over the last 25 years has been well documented and has resulted in alteration of its species composition, favoring those that are more typical of warmer waters to the south of RI. One example is that the warming has increased the time period favorable to one of the most abundant jellyfish species in the Bay, ctenophores. These are predators on many other Bay species, for example larvae of shellfish and the species upon which larval fish depend for food. The jellyfish are now active earlier in spring, reducing the predator-free window that used to exist, before the Bay warmed, for plankton prey, the food supply for floating larval stage of lobsters, shellfish, and finfish. Shifts at every step in the plankton food web have been documented due to the increased presence of ctenophores, especially following warmer winters. At times and in some places the increase seasonal span and greater abundance could even result in reduced oxygen levels in the water, a problem for all species present. The unpredictable changes in the species composition and food webs in the Bay due to warming put fisheries and those who depend on them at greater risk.

I ask that you the Energy Facility Siting Board consider the carbon compounds, including related methane emissions, that will come from burning natural gas at the proposed Invenergy plant. These compounds exist now, but the increased demand for natural gas will increase the potential for groundwater and additional air pollution from fracking to obtain natural gas. This proposed plant will contribute to the atmosphere earth-warming carbon dioxide and other compounds for 20 -25 years, the stated life of the proposed plant. Current EPA rules for new power plants and carbon dioxide issued in August 2015 may not apply to this application due to timing of initiation, and I do not believe there are methane emissions standards for power plants. While the EFSB members have only a choice to approve or deny the proposal for this plant, the larger policy question is whether the state should support through permitting another electric generation source that contributes an uncertain load to climate

change warming when increasing solar, wind, hydro, and other non-fossil sources are currently adequately available and currently being developed within that 20 – 25 year window.

You have heard testimony on the impacts of global warming/ climate change to increased mortality from heat effects, to increased morbidity /illness, and to agriculture/ food production. Any incremental increases of this proposed plant to atmospheric carbon add to the problem. A decision to permit this plant without comprehensive analysis of unknown methane contribution is a decision to risk economies, health, and food production for the next 20 years. Exacerbating the climate change warming problem burdens our future.

I submit that increased demand for natural gas will increase risks of methane release affecting atmospheric warming globally including Rhode Island (and potentially affect someone else's drinking water) and that the risks have not been adequately characterized when methane is omitted from the calculations. Will the risk including methane be too high and not out-weigh by short term jobs or the sale of electricity benefiting an out-of-state business? The uncertainty seems very high without including methane-emission analysis to the public interests of health, environment, and economy of Rhode Island and protecting those interests, as required by Rhode Island General Law 42-98-2. This combined with information that our state's energy needs can be supplied with current and developing sources, lead me to believe that the current application should be denied.