

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

IN RE: Application of
Invenergy Thermal Development LLC's
Proposal for Clear River Energy Center

Docket No. SB 2015-06

PRE-FILED DIRECT TESTIMONY

OF

J. TIMMONS ROBERTS

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1 **Q. Please state your name and provide your office address.**

2 A. My name is J. Timmons Roberts. My office address is 85 Waterman Street, Brown
3 University, Providence, Rhode Island, 02912.

4 **Q. Please state your position at Brown University.**

5 A. I hold an endowed chair as the Ittleson Professor of Environmental Studies and Sociology.

6 Professional Background and Qualifications

7 **Q. Do you have a curriculum vitae?**

8 A. Yes. I provide a current C.V. at Appendix A of this testimony.

9 **Q. Please state any research and teaching areas in which you specialize that are relevant to**
10 **this testimony.**

11 A. Two of the research and teaching areas in which I specialize are climate change policy, and
12 the relationship between climate change and development.

13 **Q. Please tell us your educational background.**

14 A. In 1983, I received a Bachelor of Arts degree in biology with Highest Honors from Kenyon
15 College, and I was elected to Phi Beta Kappa. In 1989, I received a Masters degree in sociology
16 from Johns Hopkins University. In 1992, a received a Ph.D. from Johns Hopkins.

17 **Q. Have you held any other professional appointments that are relevant to your present**
18 **testimony?**

19 A. Yes. From 1999 to 2001, I was the Director of Environmental Studies at Tulane University
20 in New Orleans, Louisiana. From 2001 to 2008, I was the Director of the Program in
21 Environmental Science and Policy at the College of William and Mary, in Williamsburg,

1 Virginia. I was a James Martin 21st Century Professor at Oxford University in the United
2 Kingdom during the 2006-2007 academic year. From 2009 to 2012, I was the Director of the
3 Center for Environmental Studies at Brown University, in Providence, Rhode Island. During
4 that same period, I was a full Professor of Environmental Studies and Sociology at Brown. I was
5 named to the endowed chair of Ittleson Professor in 2009, and have held that chair continuously
6 since then.

7 Since 2012, I have been a Non-Resident Senior Fellow at the Brookings Institution. The
8 Brookings Institution is a nonprofit and non-partisan public policy organization based in
9 Washington, D.C., the mission of which is to conduct high-quality, independent research and
10 provide innovative, practical policy recommendations. Brookings is consistently ranked as the
11 most influential, most quoted and most trusted think tank in the world. Part of my sabbatical in
12 2012 was funded by Brookings but since then I have not received any funding from or through
13 the Brookings Institution.

14 I am also a Member of Climate Strategies. Climate Strategies is a not-for-profit,
15 independent, scholarly organization based in London, England, that provides independent policy
16 and economic research input on international climate policy. Climate Strategies works with an
17 international network of experts to provide analysis for international decision-makers in the
18 fields of climate change and energy policy. Climate Strategies is supported by entities including
19 national governments, businesses and foundations. Membership in Climate Strategies is by
20 invitation only, and is limited to scholars who have made significant contributions in fields of

1 climate change and energy policy. I have not received any funding myself from or through
2 Climate Strategies.

3 **Q. Are you the author or principal co-author of any scholarly books, published by peer-**
4 **reviewed academic presses, on topics relevant to your present testimony?**

5 A. Yes. I am one of three co-authors of *Power in a Warming World: The New Geopolitics of*
6 *Climate Change*, published by MIT Press, Cambridge, Massachusetts, in 2015. I am one of two
7 co-authors of *A Fragmented Continent: Latin America and the Politics of Climate Change*,
8 which was also published by MIT Press, Cambridge, Massachusetts, in 2015. I am one of two
9 co-authors of *A Climate of Injustice: Global Inequality, North-South Politics, and Climate*
10 *Policy*, published by MIT Press in 2007. Further information on my published books and
11 monographs, including anthologies which I edited, dating back to 2000, appears in my C.V., on
12 page 2.

13 **Q. Are you the author or principal co-author of any book chapters of books published by**
14 **peer-reviewed academic presses, on topics relevant to your present testimony?**

15 A. Yes. In 2015, I was a co-author of two separate chapters in a book entitled *Climate Change*
16 *and Society: Sociological Perspectives*, published by Oxford University Press. One of these two
17 chapters was entitled “Adaptation to Climate Change.” The other was “Climate Justice and
18 Inequality.” These two chapters were both invited and peer-reviewed.

19 Also in 2015, I was a co-author of a chapter in a book entitled *Research Handbook on*
20 *Climate Governance*, published by Edward Elgar Publishing, a leading international academic

1 publishing house with offices in the United States and United Kingdom. The chapter that I was
2 co-author of was entitled "Geopolitics." The chapter was invited, but not peer-reviewed.

3 In 2008, I was the author of a chapter entitled "Climate Change: Why the Old
4 Approaches Aren't Working," which was an invited chapter in a book entitled *Twenty Lectures*
5 *in Environmental Sociology*, published by Oxford University Press.

6 I am also the author of many other book chapters on topics pertaining to climate change
7 and other topics, as reflected in my C.V., at pages 2 through 4.

8 **Q. Are you the author or principal co-author of any peer-reviewed articles that have**
9 **appeared in scholarly publications on topics relevant to your present testimony?**

10 A. Yes, but these titles are too numerous to name here. My scholarly articles on topics directly
11 related to my testimony here have been published in many peer-reviewed academic journals
12 including the following: *Science*; *Nature*; *Climate Change*; *Climate Policy*; *Global*
13 *Environmental Politics*; *Wiley Interdisciplinary Reviews –WIREs-Climate Change*; *Climate and*
14 *Development*; *Philosophical Transactions of the Academy of the Royal Society*; *the Proceedings*
15 *of the National Academies of Science (PNAS)*; *Ecological Economics*; *Cambridge Review of*
16 *International Affairs*; and *Society and Natural Resources*. The complete list of my 59 published
17 articles in peer-reviewed academic and professional journals appears in my C.V., at pages 4
18 through 7.

19 An interested reader will also note that many (though by no means all) of the additional
20 scores of articles, white papers, and policy briefings I have prepared and published in non-peer-

1 reviewed journals address topics related to my present testimony. These titles are on my C.V.,
2 on pages 7 through 9.

3 **Q. Do you have other experience or qualifications relevant to this testimony?**

4 A. Yes. I have led teams of students in a series of engaged climate policy research projects, at
5 the local, state, national, and international levels. At the local and state levels, my students and I
6 have reviewed and provided suggested updates and revisions to the Central Falls and the State of
7 Rhode Island's Hazard Mitigation Plans, required by the Federal Emergency Management
8 Agency for the receipt of disaster assistance. In both cases students under my guidance assisted
9 by providing suggestions on how climate change impacts could be included in planning for
10 future disasters, and avoiding costs. A student team has just presented results to the City of
11 Providence on how to include "green infrastructure" to address flooding and heat island risks on
12 the city's West End.

13 I have led students in my Climate and Development Lab in collaborative work with
14 partners around the world to research and present policy reports on financing adaptation to
15 climate change; some of these reports have been cited in the U.N. climate negotiations in Doha
16 in 2013, and Paris, France, in December of 2015. I have co-authored many policy briefings,
17 including ones that propose fair allocations of the remaining "global carbon budget" among the
18 world's nations, and a fair sharing of the effort to reduce our impacts on the climate by reducing
19 our emissions. That work was published by the Brookings Institution and the scientific journal
20 *Nature Climate Change*. 2013 Grasso, Marco and J. Timmons Roberts. "A compromise to break

1 the climate impasse.” *Nature: Climate Change*. Vol. 4:543-549. July. Published online 8 June.
2 Doi:10.1038/nclimate2259

3 And I have worked with teams of students on researching climate impacts in Rhode
4 Island, producing a report in 2010 entitled “Vulnerability to Climate Change in Rhode Island and
5 its Options for Adaptation Action.” That year, we worked with state Senators and
6 Representatives to introduce the “Climate Risk Reduction Act of 2010,” which created the
7 Rhode Island Climate Change Commission. That 28-member commission, appointed by the
8 Governor, Speaker of the House, and President of the Senate, functioned for several years,
9 releasing a major report in November 2012. Later groups of students under my supervision
10 worked with University of Rhode Island on an informational webpage on preparing for climate
11 change in the state. Individual students have also conducted further work under my guidance.

12 **Q. What was your role at the December 2015 United National Climate Change Conference**
13 **(Conference of the Parties 21, or COP-21) in Paris, France?**

14 A. As a central part of the work of my Climate and Development Lab, I have brought groups of
15 Brown University students to the annual negotiations of the United Nations Framework
16 Convention on Climate Change since 2010. The mission of the lab is to inform a more just and
17 effective climate policy. Fifteen students traveled to Paris with me and conducted research on the
18 process. They also provided research support to a number of organizations, including the Climate
19 Vulnerable Forum (comprising three dozen of the world’s most vulnerable nations), the Least
20 Developed Countries group (the 48 poorest countries), the Small Island Developing States, the
21 Union of Concerned Scientists, the World Wildlife Fund, and other national and civil society

1 organizations. We released the report described above on climate finance with a global network
2 called AdaptationWatch, and my students and I published numerous blogs and op-ed articles
3 about the negotiations.

4 **Q. Are you familiar with the Resilient Rhode Island Act, which is a Rhode Island statute**
5 **that is codified at Chapter 6.2 of Title 42 of the Rhode Island General Laws?**

6 A. Yes, I am.

7 **Q. Please tell us what your role was in the drafting of the bill that became the Resilient**
8 **Rhode Island Act.**

9 A. During 2014, I provided faculty guidance to four teams of student interns at Brown who did
10 work on the bill that eventually became the Resilient Rhode Island Act. The first group
11 researched and drafted the initial legislation, together with legislators and outside consultants.
12 The second and third groups worked on edits and revisions to the bill, and developed proposed
13 language. These groups were working at the time the bill was under consideration by the
14 General Assembly. The version that passed the General Assembly, however, was developed by
15 the Senate Policy Office with direction from the Senate leadership; this was an entirely new and
16 different piece of legislation upon which we offered several suggested revisions, most of which
17 were adopted. I am pleased to say that the bill passed unanimously in the state Senate, and the
18 vote in in the House was nearly unanimous. The Governor signed it into law on August 1st,
19 2014. A fourth group of students, which I also supervised, assisted in putting the new statute
20 into operation; this included providing information and assistance to state agencies to help them
21 to understand how the law might be acted upon in the short and medium terms.

1 **Q. Were you also involved in supporting the Act, including providing General Assembly**
2 **testimony, on behalf of the Resilient Rhode Island Act?**

3 A. Yes. I spoke as a citizen in favor of the bill that became the Resilient Rhode Island Act in
4 testimony in the relevant committees in both the Senate and the House. In my testimony, I spoke
5 about the value to the state in beginning planning for the impacts that are increasing with rising
6 global temperatures, rising sea levels along Rhode Island's coast and in Narragansett Bay, and in
7 preparing for increasingly strong storms, heat waves, and droughts. I also spoke about the
8 benefits of reducing our greenhouse gas emissions, and the need to be part of the rapid reduction
9 in the waste of energy and the switch to new renewable energy sources.

10 **Q. On whose behalf are you testifying in this proceeding?**

11 A. I am testifying on behalf of the Conservation Law Foundation (CLF).

12 **Q. What is the purpose of your testimony?**

13 A. The purpose of my testimony is to consider the implications of Invenergy's proposal to build
14 a new 900-megawatt (MW) fossil-fueled-fired combined-cycle electricity generating facility in
15 Burrillville, Rhode Island in two specific contexts. The first of these two contexts is the just-
16 mentioned Resilient Rhode Island Act, a statute enacted by the Rhode Island General Assembly
17 in 2014 that sets out carbon-emission-reduction targets for the state. The second of the two
18 contexts in which I consider the proposed Invenergy plant is the potentially devastating
19 consequences that construction of this carbon-emitting plant could have on world climate, and
20 national and world action on climate change. As I demonstrate in my testimony, I believe that
21 these two contexts are related to each other.

1 In the application materials that Invenergy filed with this Energy Facility Siting Board
2 (EFSB) on October 29, 2015, Invenergy refers to its proposed facility as the Clear River Energy
3 Center, or “CREC.” However, in my testimony, I refer to it as the “Invenergy Proposal” or the
4 “Invenergy plant.”

5 **Q. Have you ever testified before the Rhode Island Public Utilities Commission or the**
6 **Rhode Island EFSB before?**

7 A. No, I have not.

8 **Q. How is your testimony organized?**

9 A. My testimony proceeds in two parts.

10 In the first part, I discuss the Invenergy Proposal in the context of the Resilient Rhode
11 Island Act. Specifically, I show that if this plant is built and operates, it will be impossible for
12 Rhode Island to meet the carbon-emission-reduction goals stated in the statute. In this section of
13 my testimony, I also examine some of the specific claims or statements that Invenergy made in
14 its application materials filed with the EFSB.

15 In the second part of my testimony, I discuss the implications of the Invenergy proposal
16 in the broader context of climate change. In this discussion, I situate what happens here in
17 Rhode Island in a national and global context.

18 A. Resilient Rhode Island Act

19 **Q. Does the Resilient Rhode Island Act contain any carbon-emission-reduction goals?**

20 A. Yes, it does. In fact, I believe that the carbon-emission-reduction goals contained in Section
21 2 of the statute are a key, central provision of the law. The reason I say that the carbon-

1 emission-reduction goals are such an important part of the law is that the Resilient Rhode Island
2 Act is designed to address the problem of climate change, and carbon emissions from human
3 activity are the most important factor contributing to climate change.

4 **Q. What are the carbon-emission-reduction goals contained in the Resilient Rhode Island**
5 **Act?**

6 A. The carbon-emission-reduction goals in the Resilient Rhode Island Act appear in Section 2(a)
7 of the law. The goals are to reduce Rhode Island's greenhouse gas emissions to 10% below 1990
8 levels by the year 2020; to reduce greenhouse gas emissions to 45% below 1990 levels by the
9 year 2035; and to reduce greenhouse gas emissions to 80% below 1990 levels by 2050.

10 The explicit, repeated reference to "1990 levels" is significant, because carbon-emission
11 levels today are significantly above 1990 levels. The State Energy Plan recently adopted suggests
12 that these emissions may be over ten percent higher than in 1990, since Rhode Island is now
13 producing more electricity for the New England electrical grid. Therefore, achieving the goals
14 set forth in the law is a more ambitious challenge than it would be to achieve the same
15 percentage reductions from today's levels.

16 **Q. How were the carbon-emission-reduction goals in the Resilient Rhode Island Act**
17 **arrived at?**

18 A. Reduction of worldwide carbon emissions by 80% below 1990 levels by 2050 is widely seen
19 by scientists as being absolutely necessary in order to avoid the worst effects of climate change.
20 The most commonly cited report in this regard was the 2007 Fourth Assessment Report of the
21 Intergovernmental Panel on Climate Change (IPCC), which stated that emissions from developed

1 nations need to drop by 80-95% below 1990 levels by 2050 for the rise in global mean
2 temperatures to remain below two degrees Celsius. Staying below two degrees Celsius of
3 warming was the level believed by scientists to be required in order to avoid the worst impacts of
4 climate change, and to avoid tipping the global climate system into unpredictable destabilization.
5 Recent research and the recent Paris negotiations suggest that much more dramatic carbon
6 emissions reductions need to be made, so we can stay below 1.5 degrees of warming, which will
7 still have devastating impacts on a number of regions, including coastal areas like Rhode Island
8 and especially the poor low-lying and drought-prone areas of the world.

9 The interim goals for 2020 and 2035 were included in the Resilient Rhode Island Act as a
10 recognition and acknowledgement of the fact that the profound societal and systemic economic
11 changes that will be necessary to reduce carbon-emission levels by 80% by 2050 cannot and will
12 not happen overnight. In order to reach our 2050 goal of an 80% reduction, it is absolutely
13 essential to start making significant reductions now. That is why the Resilient Rhode Island Act
14 calls for a 10% reduction below 1990 levels by 2020, and a 45% reduction below 1990 levels by
15 2035.

16 **Q. So is it correct to say that these interim goals are a crucially important part of the**
17 **Resilient Rhode Island Act?**

18 A. Yes. These interim goals are a crucially important part of the statute for the reason I say
19 above: profound change cannot and will not occur overnight. This approach – of setting short-,
20 medium-, and long-term goals – is one that is widely used by climate scientists, political leaders,
21 and others who are addressing the problem of climate change.

1 For example, this is the approach to climate change adopted by the Conference of New
2 England Governors and Eastern Canadian Premiers (NEG/ECP). This is the non-partisan
3 association that includes the governors of all six New England states as well as the Premiers of
4 five eastern Canadian Provinces (New Brunswick, Newfoundland & Labrador, Nova Scotia,
5 Prince Edward Island, and Quebec). In August 2001, the NEG/ECP adopted what it called a
6 “Climate Change Action Plan.” I provide a copy of that plan at Appendix B. That Action Plan
7 (at page 7) called for greenhouse gas emission reductions of 75-85% as a long-term goal; it also
8 called for a series of mid-term or interim reductions, including 10% by 2020, to be followed by
9 additional, iterative goals in five-year increments. I should note that the 2001 Action Plan
10 acknowledges (as I do in this testimony) that these goals may need to be modified from time to
11 time “as the understanding of climate science advances.” (Page 6.) The understanding of
12 climate science has indeed advanced since 2001, and it suggests that temperatures are rising and
13 impacts occurring more quickly than previously predicted. Therefore, more action is needed
14 than was previously believed.

15 Since 2001, the NEG/ECP have renewed their commitment to reducing carbon emissions
16 several times, and have clarified their interim targets. They did this most recently on August 31,
17 2015 at their meeting in St. John’s, Newfoundland & Labrador. At that time, the NEG/ECP
18 adopted an interim goal for 2030 of “at least 35% - 45% below 1990 levels.”

19 **Q. How ambitious are the carbon-emission-reduction goals contained in the Resilient**
20 **Rhode Island Act?**

1 A. The goals are ambitious, yet they are achievable, as shown in the new State Energy Plan.
2 That Plan includes a scenario where emissions reductions on these levels are possible while
3 maintaining affordable and reliable energy supply for Rhode Island.

4 However based on reviewing the scientific evidence I believe now that the targets in the
5 Resilient Rhode Island Act were almost certainly not ambitious enough to meet the emerging
6 consensus that we need to stay as close to 1.5 degrees Celsius of warming as possible, the level
7 which was agreed to by the world's nations in Paris. The targets just agreed to in Paris aimed "to
8 strengthen the global response to the threat of climate change...by...[h]olding the increase in the
9 global average temperature to well below 2° C above pre-industrial levels and to pursue efforts
10 to limit the temperature increase to 1.5° C above pre-industrial levels, recognizing that this
11 would significantly reduce the risks and impacts of climate change." That is why it is absolutely
12 crucial that we start working toward the goals immediately. The longer we wait the harder – and
13 more expensive – it will be to achieve the ambitious goals in the law, goals which are more than
14 required by the emerging science estimating climate impacts here and abroad.

15 In fact, even if we start immediately, meeting the carbon-emission-reduction goals in the
16 law will be very challenging. The longer we wait, the harder it will be. The sooner we act, the
17 more we can improve our economic efficiency and reduce the risk of volatile fossil fuel prices
18 and the burden of outdated fossil fuel infrastructure. Acting sooner also creates many more jobs
19 in Rhode Island, since fossil fuels are all imported to the state, while installing renewable energy
20 infrastructure and doing the important work of reducing energy waste in the state will create
21 thousands of jobs. In fact, they are already.

1 **Q. Do you have an opinion about the effect that building a new 900-megawatt combined-**
2 **cycle gas-fired electricity-generating plant in Rhode Island would have on the state's ability**
3 **to achieve the carbon-emission-reduction goals set forth in the Resilient Rhode Island Act?**

4 A. Yes.

5 **Q. What is your opinion?**

6 A. My opinion is very simple, and it can be stated in a single sentence: I believe that building a
7 new 900-megawatt combined-cycle gas-fired electricity-generating plant in Rhode Island would
8 make it impossible for the state to achieve the carbon-emission-reduction goals as set forth in the
9 Resilient Rhode Island Act.

10 The Invenergy proposal calls for the plant to be up and running in mid-2019. [Invenergy
11 Cover Letter to EFSB, 10/28/15, page 4.] As I explain below, this would make it impossible for
12 Rhode Island to meet its 2020 goal of reducing carbon emissions by 10% below 1990 levels.

13 The Invenergy Proposal does not say exactly how long Invenergy believes its proposed plant
14 would be operational, but on page 123 Invenergy suggests a life expectancy of at least 20, and
15 perhaps as much as 40, years. If we use the 20-year figure, then it would also be impossible for
16 Rhode Island to meet its carbon-emission-reduction goals for 2035. And if we use the 40-year
17 figure that Invenergy lists, then it would also be impossible for the state to meet its carbon-
18 emission-reduction goal for 2050.

19 **Q. What do you base your opinion on?**

20 A. I base my opinion on several things.

1 First, the 900-megawatt combined-cycle gas-fired electricity-generating plant will be a
2 “baseload” facility, as described in Invenergy Application page 122, ¶ 5. The plant will be
3 emitting about 900 lbs. of carbon per MWh, which is higher than the current average on our New
4 England electricity grid, which is about 730 lbs carbon per MWh. The rate of emissions from
5 natural gas is lower than from coal or fuel oil combustion, and the wholesale shift of New
6 England away from coal- and oil-fired power plants has improved our emissions levels
7 substantially. Natural gas *has been* an important bridge fuel in this regard. The reason I say that
8 natural gas *has been* a bridge fuel is that we have now crossed that bridge (away from coal- and
9 oil-fired thermal electricity generation). We are now building a *second bridge* that includes
10 renewable energy for an increasing proportion of our electricity on the New England grid. Thus,
11 building a new, long-lived, fossil-fuel fired power plant now would be going the wrong way
12 back across that bridge, back toward higher emissions.

13 Second, achieving the Resilient Rhode Island Act’s carbon-emission-reduction targets will
14 require a major drive to energy efficiency and a very fast shift away from fossil fuels and toward
15 renewable energy sources and electricity storage. Given the long life of generating plants and the
16 \$700 million cost [Invenergy Application, page 20], Rhode Island will be locked into a fossil-
17 fuel future if this plant were built, just as the world is shifting rapidly away from fossil fuels.
18 The plant will have to be used, or there will be huge stranded costs for the firm and the state. No
19 policy-maker would be responsible if they assumed that a company would be willing to invest
20 \$700 million dollars for a power plant they intend to turn off in just a few years.

1 Third, the Invenergy facility will include two 1,000,000 gallon above-ground fuel oil storage
2 tanks. [Invenergy Application, page 13, Section 3.5.3] The plant is to be dual-fuel, capable of
3 burning gas or low-sulphur diesel oil. Diesel is significantly worse than natural gas in terms of
4 its impact on climate change per unit of electricity generated. The recent gains in emissions
5 reductions in that Rhode Island has made were made largely by switching away from diesel fuel
6 oil to natural gas. Thus, building this plant now, with its large oil-burning capacity, would be a
7 further bridge in the wrong direction and at the wrong time.

8 There are conflicting numbers in Invenergy's own documents on how often the plant might
9 switch over to this much dirtier fuel. The Invenergy Proposal mentions 5 days a year –
10 [Invenergy Application, page 51, ¶ 3]. And it mentions 60 days a year. [Invenergy Application,
11 page 34, ¶ 7.] Meanwhile, Invenergy's DEM Air permit [Appendix C, page 1] mentions that it
12 could be run 30 days a year. If the Invenergy plant were to burn oil for either 30 or 60 days a
13 year, its emissions of carbon, ozone precursors, and other air pollutants would be significantly
14 higher than if it burned only gas. Further, these days are likely to be during heat waves in the
15 summer, when air quality is worst and burning dirty fossil fuels compounds ground level smog
16 and ozone problems, causing significant public health problems, including increased emergency
17 room admissions for individuals suffering from cardiovascular disease and asthma.

18 **Q. Are there additional reasons that you would cite in support of your opinion that**
19 **granting the permit for this fossil-fuel plant would make it impossible for Rhode Island to**
20 **meet its carbon-emission-reduction goals under the Resilient Rhode Island Act?**

21 A. Yes. I have two more reasons supporting my opinion.

1 First, building and installing substantial new fossil-fuel-generation capacity now is to
2 take the narrowest and most short-term approach to resolving the long-term policy issue of how
3 to meet our state's and region's energy service needs. Solar and wind power are rapidly reaching
4 "grid parity" in many places around the world. By "grid parity," I mean that renewable energy
5 generation capacity is rapidly becoming as affordable to install as fossil-fuel generating capacity.
6 The trend in price of these renewable energy sources is steadily and substantially downward.
7 Considering the predictability of the price of wind and solar energy (the energy is free, once the
8 equipment is put in place and maintained), installing them is now a prudent investment.
9 Conversely, having a surplus of natural gas-fired electricity here in the state will decrease the
10 incentive to make the competing long-term investments that will be needed for new renewables
11 like wind, solar, geothermal, tidal, and wave energy.

12 For this reason, I would encourage the Invenergy group to make a \$700 million
13 investment in Rhode Island for renewable energy. I note that in its January 12, 2016 presentation
14 to the EFSB, Invenergy stated that, while 37% of the generation capacity it has built over the
15 past decade is fossil fuel generation (natural gas), 63% is renewable. Invenergy told the EFSB
16 that it had built eight wind projects in 2015, totaling 1,100 MW; and that it had built 726 MW of
17 wind projects in 2014, including two each in Colorado, Quebec, and New York, and one each in
18 Nebraska, Texas, and Poland. Investing in clean renewable energy would help lower the state's
19 carbon emissions and *would create five to 10 times as many jobs*, including permanent jobs, as
20 the proposed fossil-fuel plant would. For this reason, supporting the proposed natural gas plant
21 is actually the position that would badly hinder the ability of Rhode Island to create numerous,

1 stable, good-paying, skilled and non-skilled jobs in the state. This plant will drive a very narrow
2 type of development and lock in our dependence upon imported fossil fuels, hindering much
3 broader-based development that will create much greater and longer-lasting economic
4 development.

5 Second, the natural gas that will be burned in the Invenergy facility will largely come
6 from Marcellus Shale fields in Pennsylvania, extracted through the process of hydraulic
7 fracturing, or “fracking.” This process involves the injection of toxic liquids deep into the Earth
8 at extremely high pressures, to break layers of shale and force out natural gas. This process has a
9 series of risks, including endangering local groundwater, creating earthquakes in places they
10 have not been felt in recent history, and most importantly for this case, fracking has been
11 associated with high levels of leakage of methane. Methane is a greenhouse gas of extremely
12 high potency, from 20 to 100 times more effective at warming the Earth than is carbon dioxide.
13 Especially in the short term, methane could send temperatures up quickly. Natural gas
14 infrastructure, including drilling and pipeline tubes, joints and compressors, tend to leak. Rhode
15 Island lacks a firm estimate of the methane leakage impact of our natural gas infrastructure and
16 of the electricity we consume. Including methane leakage in estimates of emissions, especially
17 with greater consumption of natural gas in the state, will make it impossible for Rhode Island to
18 meet its targets under the Resilient Rhode Island Act.

19 **Q. I would like to direct your attention to a portion of the Invenergy Application. Section**
20 **6.0 of the Invenergy Application is entitled “Assessment of Environmental Impacts.” Sub-**
21 **Section 6.1 is entitled “Air.” The last sentence in the first paragraph of this Sub-Section 6.1**

1 says: “The expected decreases in greenhouse gas emissions [from the Invenergy plant] will
2 help Rhode Island . . . to achieve compliance with . . . greenhouse gas emission reduction
3 goals and initiatives.” [Invenergy Application, page 29.] Do you agree with that
4 statement?

5 A. No, I do not.

6 **Q. Why not?**

7 A. There are different ways – that is, entirely different methodologies – that one can use for
8 calculating carbon emissions.

9 One way of measuring carbon emissions – and emission reductions – is on a state-by-
10 state basis. This is what the Rhode Island General Assembly chose to do when it enacted the
11 Resilient Rhode Island Act. The respective state legislatures of our neighboring states of
12 Massachusetts and Connecticut made exactly the same choice – to measure statewide emissions
13 – when those legislatures enacted Global Warming Solutions Acts in those two states.

14 A completely different way of measuring carbon emissions – and carbon reductions – is
15 by taking a different geographical area (that is, not just a single state). In theory, one could
16 choose any geographical area – for example, the six New England states, or the nine states that
17 are now in the Regional Greenhouse Gas Initiative, or the 48 contiguous United States, or all 50
18 United States, or just those states east of the Mississippi River.

19 You will note that the Invenergy Proposal consistently calculates the carbon emissions of
20 its plant in the context of aggregating emissions from seven states that Invenergy chose: the six
21 New England states and New York combined. For example, on that same page 29 of the

1 Invenergy Proposal, there is a chart, called Table 5.2-1, that purports to show the Invenergy
2 plant's impact on total carbon emissions in the ISO-NE – NYISO footprint. ISO-NE is the
3 Independent System Operator-New England that runs the electricity grid for the six New
4 England states; NYISO is the New York Independent System Operator that runs the electricity
5 grid for New York. There is text at the bottom of page 28 of the Invenergy Proposal that
6 corresponds to the chart on page 29; this text makes the claim that Invenergy's proposed plant
7 will reduce overall carbon emissions distributed over the combined seven state area of New York
8 and New England.

9 I want to be clear about what I am and am not saying here. I am *not* saying that the
10 methodology that Invenergy chose to use is wrong in every case. What I *am* saying is that the
11 methodology that Invenergy chose to use for calculating carbon emissions is different from the
12 methodology that the Rhode Island General Assembly enshrined in law and in public policy
13 when it enacted the Resilient Rhode Island Act.

14 The Resilient Rhode Island Act sets clear carbon-emission-reduction goals *for the state of*
15 *Rhode Island*. As a matter of democratic principles, this is what the members of the *Rhode*
16 *Island* General Assembly were elected to do: set public policy for the state of Rhode Island.
17 Those carbon-emission-reduction goals in the statute (10% by 2020, 45% by 2035, 80% by
18 2050) pertain to Rhode Island, not to any other hypothetical geographical configuration (like
19 seven states combined, or states east of the Mississippi). The seven-state geographical area that
20 Invenergy cites has no single governmental structure (such as a legislature or governor). This
21 seven-state area does not make up the member states in the Regional Greenhouse Gas Initiative

1 (RGGI), which is now comprised of nine states. This seven-state area is not the control area of
2 any ISO, but is controlled by two different ISOs. Invenenergy says that there is a “high degree of
3 interconnectivity” [Invenenergy October 28, 2015 Letter to EFSB, page 3] between New England
4 and New York; but New England also has a high degree of interconnectivity with other areas,
5 including the Hydro-Quebec Interconnection; and Invenenergy provides no evidence that more
6 electricity flows from New York to New England in the course of a year than flows from New
7 England to New York.

8 It seems to me that Invenenergy may have cherry-picked this specific seven-state area in
9 order to make its point about carbon emissions. However, the geographical area that I am
10 discussing in my testimony is the state of Rhode Island. And, as I said in the preceding
11 paragraph, the Rhode Island General Assembly has set carbon-emission-reduction goals for
12 Rhode Island.

13 **Q. Are you saying that the Table 5.2-1, on page 29 of the Invenenergy Proposal, is factually**
14 **incorrect in its claim of reduced carbon emissions in the ISO-NE/NYISO footprint if this**
15 **plant is built?**

16 A. No, I am not. I performed no analysis on the overall effect on carbon emissions for that
17 seven-state area if the Invenenergy plant is or is not built. Thus, I express no opinion about the
18 accuracy, or lack of accuracy, in that chart.

19 The specific question I was responding to above was whether Invenenergy’s claim is
20 correct that building this fossil-fuel plant in Burrillville “will help Rhode Island . . . to achieve
21 compliance with . . . greenhouse gas emission reduction goals and initiatives.” My answer to

1 that question is a resounding and unequivocal no. To date, Rhode Island’s clearest statement
2 about its “greenhouse gas emission reduction goals and initiatives” is the Resilient Rhode Island
3 Act.

4 It is my testimony, and my opinion, that building a new 900 MW fossil-fuel-fired
5 generator in Rhode Island will make it impossible for Rhode Island to meet its short-, medium-,
6 and long-term emission-reduction goals set by the Resilient Rhode Island Act.

7 **Q. Are the carbon-emission-reduction goals in the Resilient Rhode Island Act mandatory?**

8 A. No, they are not.

9 **Q. Do you know whether any permit or license has ever been denied in Rhode Island
10 because the application was inconsistent with the Resilient Rhode Island Act?**

11 A. Not to the best of my knowledge.

12 **Q. Nevertheless, you are asking the EFSB to deny Invenergy a license for its plant. Why?**

13 A. You can look at this in both a narrow way and in a broader context.

14 First, in a narrow – Rhode Island centric – sense, the Resilient Rhode Island Act is a law
15 enacted by the General Assembly. The law does not only *reflect* the public policy of the state; it
16 *is* the public policy of the state. The law was passed by the House (nearly unanimously) and the
17 Senate (unanimously), and signed by the Governor. And, as I explained above, building this
18 plant would make it impossible for Rhode Island to meet the carbon-emission-reduction goals set
19 forth in the statute.

20 In addition, I believe that the Resilient Rhode Island Act is not merely *a* law; it is a very
21 important law, because it addresses the climate change emergency that directly affects every

1 human being on Earth and will also affect the ability of future generations to live on this planet,
2 the only inhabitable one we know of.

3 That is, the emission-reduction goals in the Resilient Rhode Island Act may be
4 aspirational, but they are also very, very important. They are sound public policy, representing a
5 managed glide path to a transition in our energy systems away from fossil fuels, avoiding the
6 disruption of a drastic shift.

7 And, in Section 8 of the law, the General Assembly carefully, deliberately empowered
8 boards, agencies and commissions like the EFSB to apply the law as the public policy of the
9 state.

10 In short, the carbon-emission-reduction goals in the Resilient Rhode Island Act are the
11 public policy of the state; they address a crucially important subject, climate change; and the
12 General Assembly specifically empowered the EFSB to consider carbon and climate. In this
13 Docket, the way that the EFSB can apply the Resilient Rhode Island Act is to deny Invenergy its
14 requested permit to build a new 900-MW fossil-fuel-fired power plant in Burrillville that might
15 continue emitting dangerous carbon pollution into the atmosphere for 40 years. The gases it
16 emits will be in the atmosphere for hundreds of years to come.

17 I urge the EFSB to do that. The Resilient Rhode Island Act is a clear mandate for the
18 EFSB to act to meet these goals, and given that mandate the EFSB should play its role as a key
19 agent in the state's public policy system.

20 Second, the broader context is also important. What I saw at the United Nations Climate
21 Change Conference in Paris was 195 nations coming together to adopt what the White House

1 called “the most ambitious climate change agreement in history.” That agreement is based on
2 individual countries setting individual targets – that is, goals – for carbon-emission reductions.
3 You could say that, in this way, the Paris Agreement is “like” the Resilient Rhode Island Act in
4 the sense that both the Act and the Paris Agreement are based on goals. Neither the Act nor the
5 Agreement is legally enforceable in the sense that you could sue someone to enforce the
6 emission-reduction goals that are in the Act or in the Agreement.

7 But this fact does not make them less important. Adherence to the emission-reduction
8 goals set in the Paris Agreement is crucially important to addressing climate change at the global
9 level. Adherence to the emission-reduction goals set in the Resilient Rhode Island Act is
10 crucially important to addressing climate change at the state level, and in the United States. And
11 Rhode Island is in many ways the logical state to lead the U.S. in being a global leader in moving
12 away from fossil fuels. This is true because Rhode Island has 400 miles of vulnerable ocean and
13 bay coastline at risk as sea levels rise. It is true because Rhode Island produces zero fossil fuels,
14 and therefore every dollar we spend on fossil fuels is a dollar that bleeds out of the state’s
15 economy. And it is true because Rhode Island is already one of the five most energy efficient
16 states in the U.S. Having spoken with corporate leaders and experts from around the world, I am
17 convinced that being a leader on climate change and energy efficiency also will bring national
18 and international attention *and investment* to our state. Global renewable energy firms, for
19 example, are looking for beachheads in America to pilot their products and services. Major
20 corporations are looking for places that will make it easy for them to be among the greenest
21 workplaces in the world, and where their Millennial workers will be eager to live.

1 The Paris Agreement reflected the shared recognition of 195 countries that, if climate
2 change is to be successfully addressed, it will take the combined efforts of all countries, states,
3 cities, and individuals. I am proud that Rhode Island public policy is in agreement with that
4 principle. Now it is up to the EFSB to put the public policy of Rhode Island into effect by
5 denying Invenegy a permit to build a new fossil-fuel plant in Burrillville.

6 B. The Invenegy Proposal In the Global Context

7 **Q. This brings us to what you described earlier as situating the implications of the local,**
8 **Rhode Island Invenegy Proposal within the broader context of the global of climate**
9 **change. As a preliminary matter, what do you see as some of the major effects of climate**
10 **change?**

11 A. The global consequences of climate change may well be truly catastrophic. There are a
12 number of key ways that climate change is increasingly likely to disrupt the systems our society
13 depends upon for our survival and improvement of our lot by social development. In the name of
14 brevity I'll focus on four: sea level rise, extreme weather events, drought, and disease.

15 I will start by discussing sea level rise.

16 I am recently back from a visit with students to Bangladesh, where I spoke at a
17 conference and we were taken on a tour of coastal cities and villages. There have always been
18 floods in Bangladesh, but things are now changing there: the land is barely above sea level, and
19 as the oceans rise, drinking-water wells and rice fields are being ruined by the intrusion of salt
20 water. We met villagers whose homes and latrines had to be raised in the face of worsening
21 floods, and slum-dwellers in cities whose home villages were no longer habitable and fields no

1 longer farmable after hurricanes ruined them. A recent major study in the journal *Nature Climate*
2 *Change* predicts that with different warming scenarios the number of people who will experience
3 flooding in this century will increase four to 25 fold because of climate change. The number
4 rises from 15-40 million people with 2 degrees Celsius of warming above pre-industrial
5 temperatures, to 50-100 million if temperatures rise 4 degrees Celsius. This study demonstrates
6 a large increase in flood frequency in Southeast Asia, Peninsular India, eastern Africa and the
7 northern half of the Andes. Hirabayashi, et al., “Global Flood Risk Under Climate Change,” 3
8 *Nature Climate Change* 816-821 (2013). I attach that article at Appendix C.

9 Another study of low-elevation coastal zone residences stated that “The number of people
10 at risk from coastal flooding could reach between 268 million and 286 million in 2030,
11 globally...and...[b]y 2060, up to 411 million people could be affected by extreme flooding
12 events.” Neumann, et al., “Future Coastal Population Growth and Exposure to Sea-Level Rise
13 and Coastal Flooding – A Global Assessment,” PLOS-One (March 11, 2015). I attach that
14 article at Appendix D.

15 Rhode Island is at high risk due to our 400 miles of coastline in a small state. The
16 Graduate School of Oceanography Seagrant program at the University of Rhode Island reports
17 that the Newport tide gauge has registered an 8.7 inch rise in sea level from 1930 to 2012, and
18 rate of rise is increasing. They describe the potential impact of increasingly strong coastal storms
19 on top of rising sea levels: “An estimated 2,700 housing units are within an elevation of one
20 meter (3.3 feet) above sea level in Rhode Island. Residential and business properties in low-
21 lying areas will likely be inundated permanently or during more frequent extreme high tides.

1 Ten at-risk coastal wastewater treatment facilities will need to be evaluated to determine risk,
2 and options to reduce damage and disruption to service; other sectors with critical coastal
3 infrastructure such as port facilities and energy and gas networks will also need to evaluate
4 potential impacts . . .” See *Sea Level Rise in Rhode Island*, at 4. I attach that article at
5 Appendix E. Because warming water expands and the Antarctic and Greenland ice sheets are
6 melting faster than predicted, state agencies and national experts are warning that sea level rise
7 may occur far more rapidly than expected.

8 **Q. The next category you mentioned was extreme weather events. Do you want to discuss**
9 **that?**

10 A. Yes. With climate change, extreme weather events, including hurricanes and lethal
11 heatwaves, will become more frequent and intense.

12 The most recent IPCC Assessment Report states that “many of the impacts of climate
13 change are likely to manifest themselves through extreme weather.” IPCC Assessment Report
14 V, Ch. 10, p. 914 ([link](#)). The report discusses research by the U.S. Climate Change Science
15 Program, which concluded that: (1) it is very likely that anthropogenic greenhouse-gas emissions
16 have increased sea surface temperatures in parts of the world where hurricanes form, and (2)
17 these increased temperatures have a strong statistical relationship with increased hurricane
18 activity. *Id.* at 913 (citing Knutson, T. R., et al., “Tropical cyclones and climate change,” 3
19 *Nature Geosci.* 157–163 (2010)). Indeed, the paper discussed in the report (Knutson 2010)
20 concludes that, as a result of climate change, hurricanes will become more intense over the
21 course of the next century – that is to say, hurricanes’ maximum wind speeds and rainfall rates

1 will increase. Knutson, T. R., et al., “Tropical cyclones and climate change,” 3 *Nature Geosci.*
2 157–163 (2010) ([link](#)). And more recent research by Knutson and colleagues projects that these
3 more-intense hurricanes (specifically, Category 4 and 5 hurricanes) will appear 87% more often.
4 Knutson, T.R., et al., “Dynamical downscaling projections of twenty-first-century Atlantic
5 hurricane activity: CMIP3 and CMIP5 model-based scenarios,” 26 *J. Climate* 6591-6617 (2013)
6 ([link](#)). It is quite simple and commonsensical: warmer waters and air hold more moisture and
7 energy. Hurricanes, thunderstorms and even blizzards essentially become supercharged.

8 The IPCC report also reviews a wide body of research and concludes that “increasing
9 numbers of studies are finding that the probability of occurrence of events associated with
10 extremely high temperatures has increased substantially due to the large-scale warming since the
11 mid-20th century.” IPCC Assessment Report V, Ch. 10, p. 916. In other words, according to the
12 IPCC, “it is likely that human influence has substantially increased the probability of occurrence
13 of heat waves in some locations.” *Id.* A recent article in the journal *Nature Climate Change* puts
14 it more bluntly: “In 2003, Europe suffered its hottest summer by far for at least 500 years,” and
15 research shows that “the risk of a heatwave of the magnitude of the 2003 European event has at
16 least doubled but probably quadrupled (best estimate) as a result of human influence on climate.”
17 Coumou, D., et al., “A decade of weather extremes,” 2 *Nat. Climate Change* 491-96 (2012)
18 (citing Stott, P. A., et al., “Human contribution to the European heatwave of 2003,” 432 *Nature*
19 610–614 (2004)) ([link](#)). Public-health research has concluded that the 2003 European heat wave
20 killed 70,000 people. Robine, J. M., et al., “Death toll exceeded 70,000 in Europe during the
21 summer of 2003,” 331 *Comptes Rendus Biologies* 171–178 (2008). One needn’t look across the

1 ocean: the 1995 heat wave in Chicago killed thousands of residents, especially elderly people
2 afraid to or unable to open their windows. See Eric Kleinenberg, *Heat Wave: A Social Autopsy*
3 *of a Disaster* (University of Chicago Press, 2003).

4 **Q. Next, you mentioned droughts. What do you want to say about that?**

5 A. Droughts will become more frequent and severe, creating wildfires and water shortages in the
6 U.S. and abroad. Agriculture could be disrupted, which is especially worrisome since billions of
7 the world's population live on rain-fed crops without any systems for irrigation.

8 A 2008 paper by Justin Sheffield and Eric Wood in the journal *Climate Dynamics*
9 reviewed previous work suggesting “that the interior of the northern hemisphere continents will
10 become drier over the next century, especially in the summer” based on data relating to
11 temperature, precipitation rates, and soil moisture. Sheffield, J., and E. F. Wood, “Projected
12 changes in drought occurrence under future global warming from multi-model, multi-scenario,
13 IPCC AR4 simulations,” 31 *Climate Dynamics* 79–105 (2008) ([link](#)). They noted that eastern
14 North America is considered a “climate change ‘hot-spot.’” *Id.* And their summary of this
15 previous work is unequivocal: “The consensus from these and other studies into the hydrologic
16 impacts of future warming and the synthesis conclusions of the past two IPCC reports point
17 towards a greater risk of drought during the twenty-first century.” *Id.* And that review of past
18 findings was just the lead-up to their own work, which found that there will likely be “decreases
19 in soil moisture at global scales for the future scenarios with a corresponding doubling of the
20 spatial extent of severe soil moisture deficits and frequency of short-term (D4–6) droughts from
21 the mid-twentieth century to the end of the twenty-first.” Other research demonstrates a strong

1 link between drought conditions and increased wildfires, especially in forested areas. *See, e.g.*,
2 Westerling, A.L., and B. P. Bryant, "Climate change and wildfire in California," 87 *Climatic*
3 *Change* 231-249 (2006) ([link](#)).

4 The research relating droughts to agricultural disruptions is unequivocal. A 2010 paper
5 by Jemma Gornall and colleagues reviewed research discussing the effects of climate change on
6 agriculture. Gornall, J., et al., "Implications of climate change for agricultural productivity in the
7 early twenty-first century," 365 *Proceedings of the Royal Society B* 2973-89 (2010) ([link](#)). They
8 stated that "historically, many of the largest falls in crop productivity have been attributed to
9 anomalously low precipitation events," and added that "even small changes in mean annual
10 rainfall can impact on productivity." *Id.* (internal citations removed). They also noted some
11 specific examples: for example, the 2003 European heat wave resulted in drought conditions that
12 reduced crop yields 36% in Italy's Po valley. *Id.* (citing Ciaï, P., et al., "Europe-wide reduction
13 in primary productivity caused by the heat and drought in 2003," 437 *Nature* 529-533 (2005)).
14 And they discussed research estimating that, accounting for expected climate-related increases in
15 drought, "drought related yield reductions would increase by more than 50 per cent by 2050 for
16 the major crops." *Id.* (citing Li, Y. P., et al., "Climate change and drought: a risk assessment of
17 crop-yield impacts," 39 *Clim. Res.* 31-46 (2009)).

18 **Q. Finally, you mentioned disease. What do you want to say about that?**

19 A. Several major diseases are spread by specific species of mosquitoes, including malaria,
20 dengue fever, West Nile and now the very worrisome Zika virus. In the past, these diseases have
21 been largely confined to tropical areas. But as the earth's climate warms, the geographical range

1 of these animal vectors expands, and so do the geographical range of areas where these
2 infections can likely occur. The Centers for Disease Control have recently reported for the first
3 time likely cases of dengue fever caused by mosquito bites that occurred in southern parts of the
4 United States. Chikungunya used to be limited to tropical Africa; now indigenous cases are
5 being reported in Western Europe.

6 Other diseases, such as cholera and diarrheal disease (this latter one of the world's largest
7 killers of infants and children) will become more widespread as climate conditions change for
8 the warmer.

9 In sum, the World Health Organization estimates that "Between 2030 and 2050, climate
10 change is expected to cause approximately 250,000 additional deaths per year, from
11 malnutrition, malaria, diarrhea and heat stress."

12 **Q. That is quite a list of catastrophic consequences. How would you sum all this up?**

13 A. The moral point here is clear: leaving people to suffer and die when we could have prevented
14 their suffering is reprehensible; it is wrong. From purely selfish perspectives, the disruption of
15 the global economy by disasters and wars will hurt our national and our state economy, and
16 worsen our lives here. We have seen the disruption a million refugees have created in Europe.
17 With climate change, there are estimates that over 30 million people could be displaced by sea
18 level rise alone. This is a humanitarian crisis that will overtax all systems we can imagine to
19 address their needs.

20 **Q. Is it your testimony that the outcome of this EFSB Docket could be significant in the**
21 **global picture in terms of preventing or averting some of these consequences?**

1 A. Yes, I am saying that.

2 **Q. What is the basis for your opinion?**

3 A. In order for the world to reduce carbon emissions as drastically and as quickly as we must, it
4 is necessary to quickly reduce, and eventually eliminate, our reliance on fossil fuels, and instead
5 switch to renewable energy. The Invenergy Proposal comes to the EFSB at an important time,
6 because scientists are now very clear on what changes must be made if we are to prevent the
7 worst effects of climate change. We – all of us – can and must do the right thing, even if it is not
8 politically easy to do so.

9 I am a sociologist, so the finding that people look around to see what others are doing
10 before deciding how to act themselves makes perfect sense to me. The only way to change
11 behaviors and make a transition like this one is with each individual action, which will in turn
12 cause another. And another. And so on. The “butterfly effect” -- that very small causes can have
13 very large effects -- may sound cheesy, but in the case of social change, it is absolutely a fact:
14 people need examples to point to of courageous action, and it inspires them to take actions they
15 never would have. That is, in order to effect the necessary large transition from an entrenched
16 fossil fuel economy to a whole new technology and way of organizing our energy supply system,
17 the only hope may be to start out making smaller, individual changes locally.

18 On the one hand, accepting the status quo and building a huge new fossil fuel plant will
19 create cynicism and delay innumerable actions by others. On the other hand, switching now to
20 renewable energy will be important in and of itself, but will also have cascading positive

1 consequences of job creation and more stable energy costs, allowing Rhode Island to be an
2 example to other states and countries making decisions on energy deployment.

3 In order to help us make the right choice here, we should ask ourselves the following
4 question: What would the world be like if everyone followed our decision and followed our
5 example? Like the Paris Agreement, our own Resilient Rhode Island Act only inspires change if
6 nations, states, and cities take bold and constructive action; in this case, that would mean denying
7 a permit for a huge, new fossil-fuel plant that will have the inevitable consequence of locking
8 Rhode Island into a fossil-fuel future for at least two to four decades to come. The world simply
9 won't be changed without examples, people who showed that another way forward is possible,
10 that rejecting a fossil fuel power plant and boldly stepping to efficiency and renewable energy is
11 possible and beneficial, economically and socially.

12 My now-13-year-old daughter, a 7th grader at Lincoln School in Providence, said to me
13 when she was 12, "Daddy, I wish I were old so I didn't have to worry about climate change." I
14 am here today because we have to do every single thing in our power to stop this terrible
15 destabilization of the very systems that sustain our society and make life worth living. I told my
16 daughter that we *are* going to solve this problem, because we *must*.

17 At the recent climate conference in Paris a slogan for "Solutions Day" was "We Can. We
18 Must. We Will." I love living and working in Rhode Island because one person can make a
19 difference here, and because we are a community, an innovative, brave and tolerant group from
20 our founding days. This facility decision is where we can, we must, and we will begin to be the
21 change we need to happen to solve this incredibly tough problem. We lost 15 years of action on

1 climate change in bickering and avoidance of the reality of this issue: there really cannot be any
2 further delay.

3 **Q. Are there other aspects of the context outside of Rhode Island that you want to discuss?**

4 A. Yes. Despite recent actions of the Obama Administration (such as enacting the E.P.A.'s
5 Clean Power Plan) the United States Congress has – at least so far – failed completely to enact
6 comprehensive, effective, mandatory legislation addressing climate change. Similarly, Congress
7 has not passed any major legislation aimed at curbing carbon emissions. In this context of a lack
8 of meaningful action from the *federal* legislature, actions taken by *state* legislatures become all
9 the more important. For example, I discussed earlier the fact that our neighboring states of
10 Massachusetts and Connecticut have enacted so-called “Global Warming Solutions Acts,”
11 (GWSAs) which contain mandatory, economy-wide carbon-emission-reduction provisions.
12 California has done that also. Rhode Island’s Resilient Rhode Island Act is less strong than
13 those Acts, but the Rhode Island law is still an important step in the right direction, but only *if it*
14 *is enforced by Rhode Island agencies and commissions.*

15 That is why I urge the Rhode Island EFSB to deny Invenergy a permit to build a new
16 900-MW fossil fuel plant in Rhode Island.

17 Conclusion

18 **Q. Does this conclude your testimony?**

19 A. Yes.