TOWN OF
Seabrook, New Hampshire
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Remarks by Aboul Khan to NRC
February 13, 2019

Good evening Ladies and Gentlemen,

My name is Aboul Khan, and I represent the Seabrook Board of Selectmen in my capacity as a Selectmen, as well as representing Seabrook and Hampton Falls as a State Representative. Selectwoman Theresa Kyle is with us today, and our Board Chair Ella Brown is out of town on vacation. I come before you today to speak in favor of the NRC granting a license amendment to Seabrook Station, as well as asking favorable consideration of the twenty- year license extension sought by Seabrook Station.

As a representative of the host community I can assure you that we strongly support the safe operation of Seabrook Station. Like many people we were concerned about the issue of concrete degradation, or ASR, and eager to understand how that issue would impact the safe operation of Seabrook Station. We very much appreciate the comprehensive approach to this issue taken by the N.R.C. and NextEra, who have worked jointly since 2010 to study the ramifications of ASR on the plant. The work done on this issue has been extensive, with the results showing that Seabrook Station can be operated safely, as it has been for many years. I am not a scientist, but I am satisfied that the long years of work on ASR, culminating in the letter issued by the Advisory Committee on Reactor Safeguards, should lead to the license amendment sought by NextEra.

I would also like to express our strong support for the license extension of twenty years sought by NextEra. This process began with a presentation to the Seabrook Board of Selectmen back in the 2010 time-frame, with constant communication between NextEra and the Town of Seabrook, and the Town Manager since then. Our support for this extension comes principally, but not exclusively, for the same reason we support the license amendment. We believe Seabrook Station can be operated safely for the entirety of the extension period. It is our strong belief that nuclear power has a vital role to play in the U.S. energy market, with carbon free generation helping us to meet important climate goals. Seabrook Station has achieved a great safety record due to superior management, as well as a willingness to make the necessary investments to operate the plant safely, and profitably. They have also been a terrific corporate citizen, partnering with the Town of Seabrook on a host of issues that the Town considers to be important. In light of the outstanding record compiled by Seabrook Station over the years we, the Seabrook Board of Selectmen, fully endorse and support the twenty year license extension sought by NextEra, and I thank you for hearing me today.

"Save the Seacoast from Nuclear Disaster"

- Does the facility produce nuclear power? (Yes/No)
- Does the facility store nuclear waste? (Yes/No)
- Can nuclear reactor and nuclear waste if not properly stored or properly maintained contaminated the air, water and soil? (Yes/No)
- Is the facility located on a hight risk of sea level rising and or a potential of flood? (Yes/No)
- Will a concrete crack compromise the safety of the facility?
- Can a catastrophe like a flood or lost of power compromise the facility? (Yes/No)
- Is true that nuclear reactors would likely melt down without electricity to cool them? (Yes/No)
- Can be guarantee that nuclear waste will be safely removed and disposal from a compromised facility and not damage the environment? (Yes/No)
- Have the nuclear power plant being work together with the peoples to inform the danger and to support the community? (Yes/No)
- Have you provide readiness and awareness plan to the seacoast and surrounding community for a nuclear disaster if a EMP attack or flood occur? (Yes/No)
- Are the facility responsible to support the affected areas zone by having ready food, water, transportation and shelter in place for all and everyone that may and or will be affected "if" something happen? (Yes/No)

A new military study warns that an electromagnetic pulse weapon attack such as those developed by North Korea, Russia, and Iran could essentially challenge the United States and displace millions. (True/False)

While it is focused on the devastating impact an EMP hit would have on the military, it appears to support a congressional warning that up to 90 percent of the population on the East Coast would die in a year of an attack that would dismantle or interfere with electricity, transportation, food processing, and healthcare. (True/False)

We the people and the environment are the priority no the lobbyist. Stop nuclear power now before is too late.

#SeacoastOnline #WHEB #WMUR #NECN #NHPR #NRC #JoeDonoghue #GovChrisSununu #SenJeanneShaheen #SenMassieHassan #WatchDog #C10Foundation #RobertaPevear

http://www.nhcrhc.org/wp-content/uploads/2016-CRHC-final-report.pdf

https://media.defense.gov/2018/Nov/28/2002067172/-1/-1/0/LP_0002_DEMAIO_ELECTROMAGNETIC_DEFENSE_TASK_FORCE.PDF

Daniel Duarte danielduarte555@gmail.com
978/726-9624

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

In the Matter of NextEra Energy Seabrook, LLC (Seabrook Station, Unit 1)	)	Docket No. 50-443

DECLARATION OF VICTOR E. SAOUMA, Ph.D

Under penalty of perjury, Victor E. Saouma declares as follows:

My name is Victor E. Saouma. I am Professor of Civil Engineering at the University of Colorado in Boulder. I am also the Managing Partner of X-Elastica. A copy of my Curriculum Vitae is attached to my declaration as **Exhibit 1**.

1. I am Professeur des Universités in France, and have been a visiting Professor at the Swiss Federal Institute of Technology (Lausanne), January-June 1990; 1997-1998, and Sept. Dec. 2011. I was also a visiting Professor, (typically 1 summer month): at the Universite de Toulouse (2009), Politecnico de Catalunya, (2007, 2010); Ecole Normale supérieure de Cachan, (1992, 1994, 2007)' I was an invited Professor for two years (2003-2004) at the Politecnico di Milano (CY: 2003-2004).

2. I am qualified by training and experience in the fields of Alkali Silica Reaction, Fracture Mechanics, nonlinear finite element analysis, probabilistic based safety assessment, seismic analysis, chloride diffusion experimental mechanics and structural testing.

3. I have received three graduate degrees in Civil Engineering: a Ph.D. from Cornell University in 1980, an M.E. from Cornell University in 1977, and a B.E. from the American University of Beirut in 1977.

4. I am a leading international expert in the field of Alkali-Aggregate Reaction (AAR). I have developed what is probably the most widely referenced and copied model for AAR (in Abaqus, Vector3, Grizzly/Moose at the Idaho National Laboratory) as well as in China, Switzerland, and Canada. My research has encompassed material and structural testing, theoretical and computational models, numerical simulations of dams, and nuclear reactors. I published a book on Numerical Modeling of AAR; and I have published over 30 papers on AAR, chloride diffusion, Seismic Analysis and Stochastic Analyses. I have also published a total of about 100 articles on AAR in peer-reviewed journals.

5. In addition, I have published on the related subjects of fracture mechanics, risk based assessment of bridges and dams, chloride diffusion, fracture mechanics, experimental dynamics (including editing a book on the subject). Recently, I greatly contributed to the redaction of an EPRI report on the numerical modeling of NCVS.

6. My experimental work includes large scale testing of concrete for fracture properties (for EPRI), dynamic centrifuge testing of dam models (in Japan), real time hybrid simulation (a complex form for dynamic structural testing), ASR expansion, and the impact of ASR on shear strength, and ASR expansion under varying conditions (for the U.S. Nuclear Regulatory Commission (NRC)).

7. I am the Former Director and Principal Investigator of the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES), NSF Center on Fast Hybrid Test at the University of Colorado, Boulder; 2006-2009.

8. I have served as President of FraMCoS (Fracture Mechanics of Concrete) a scientific organization focusing on the fracture and cracking of concrete.

9. I am currently the Chair of RILEM's RILEM TC 259-ISR Prognosis of deterioration and loss of serviceability in structures affected by alkali-silica reactions. This committee seeks to expand our knowledge in the prognosis of structures affected by ASR, and to develop benchmark problem to validate numerical codes that assess ASR.

10. I have also served as a member of the Materials Aging and Degradation (MAaD) External Review Committee (ORNL, Light Water Reactor Sustainability R&D Program); a member of the Expanded Proactive Materials Degradation Analysis Expert Panel (PMDA) for concrete in nuclear reactors; and Reviewer of the French research program MACENA (associated with VeRCoRs).

11. I have conducted research on ASR for: the Swiss Dam Safety office, the Tokyo Electric Power Service Company, Oak Ridge National Laboratory, the NRC, and presently (2018-2021) for the Bureau of Reclamation.

12. I also spent four years conducting research for the Electric Power Research Institute on the applicability of fracture mechanics to concrete dams; and nine years conducting research for the Tokyo Electric Power Service Company on the seismic response of dams (numerical and experimental).

13. In 2014 and 2017, the NRC awarded me a $703,000 contract to provide support for "Experimental and Numerical Investigation of Alkali Silica Reaction in Nuclear Reactors." The initial grant award is attached to my declaration as **Exhibit 2**. As stated at page 4 of the grant award, the impetus for my proposed research stemmed from "the apparent challenge confronting the NRC in assessing safety issues pertaining to the Seabrook nuclear power plant which suffers from Alkali Silica Reaction (ASR), and in particular NRC request that the licensee determines the long term safety of the plant within the framework of ML121250588 (2012)." In December 2017, I submitted a four-volume report on my research:
    a. Vol. 1-A: Design of an AAR Prone Concrete Mix for Large Scale Testing (93 pages)
    b. Vol. 1-B: AAR Expansion; Effect of Reinforcement, Specimen Type, and Temperature (123 pages)

c. Vol. 1-C: Effect of AAR on Shear Strength of Panels (90 pages)
d. Vol. 2: Diagnosis & Prognosis of AAR in Existing Structures (210 pages)[1]
e. Vol. 3-a: Risk Based Assessment of the Effect of AAR on Shear Walls Strength (25 pages)
f. Vol. 3-b: Probabilistic Based Nonlinear Seismic Analysis of Nuclear Containment Vessel Structures with AAR (216 pages)
g. Final Summary Report (23 pages)

I also made a presentation to the NRC near completion of my project.

14. The Final Summary Report is attached to my declaration as **Exhibit 3**. For the record, I have not received a response to my report from the NRC.

15. I have been retained by the C-10 Research and Education Foundation (C-10) to evaluate work done by NextEra, NextEra's consultants, and the NRC technical staff regarding the presence of ASR in concrete at the Seabrook nuclear power plant; and the effect of ASR on the integrity of the concrete, including the containment. In the course of my review, I evaluated both public and proprietary documents regarding NextEra's investigations. I also applied the insights of my work under the NRC contract described above in par. 13.

16. My report, entitled Concerns Regarding the Structural Evaluation of Seabrook Nuclear Power Plant (Feb. 12, 209), reflects my professional opinion of NextEra's work. To summarize, in my expert opinion, the manner in which NextEra's consultants have analyzed the impact of ASR on Seabrook is seriously deficient. The experimental program relates poorly to the subsequent analysis, and sufficient attention has not been given to the unique and complex nature of ASR in terms of the concrete mix. The subsequent methodology for the *Analysis of Seismic Category I Structures with Concrete Affected by Alkali-Silica Reaction* is very simplistic and contains numerous significant omissions (ASR modeling and seismic analysis among others). Therefore, based on my expertise and the published state of the art of ASR and safety assessment, I conclude that the quality of the presented results is not sufficiently reliable to support their stated purpose of confirming regulatory compliance.

17. I am designating my report as **Exhibit 4** to my declaration. However, because my report contains unredacted proprietary information, it is not a public document. Therefore, I have attached, as **Exhibit 4a** to this public declaration, the Introduction and Executive Summary. I plan to prepare and publicly submit a redacted version of my report in the near future.

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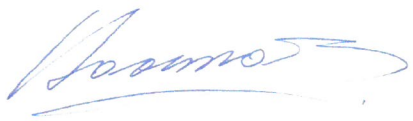
[1] Preparation of Vol. 2, Diagnosis & Prognosis of AAR in Existing Structures, is still in progress. Pending completion, its content is confidential.

18. I have authorized C-10 to present my declaration and report to the NRC Commissioners in support of a petition that requests appropriate remedial action regarding the question of whether the presence of ASR in the Seabrook containment and other components has resulted in noncompliance by NextEra with NRC safety regulations and the Atomic Energy Act.

The statements of fact in this declaration and in my report are true and correct to the best of my knowledge, and the opinions stated therein are based on my best professional judgment.

Executed in Accord with 10 CFR 2.304(d) by:



Dated: February 12, 2019

Victor E. Saouma

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713

April 12, 2016

Mr. Jonathan Sherwood
Councilor, District 6
Amesbury City Hall
62 Friend Street
Amesbury, MA 01913

Dear Mr. Sherwood:

I am responding to your letter, dated January 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16075A024[1]), to the U.S. Nuclear Regulatory Commission (NRC) Chairman Stephen G. Burns regarding the Seabrook Station, Unit 1 (Seabrook).

Your letter requested the NRC withdraw the operating license for Seabrook for three main reasons: (1) concrete degradation in the plant foundation and safety-related concrete structures that places the plant at risk of a nuclear incident, (2) concerns about the NRC's ability to conduct adequate oversight of alkali-silica reaction (ASR) and other issues, and (3) the perceived inability to conduct a safe, timely evacuation of the residents in the area in the event of an incident leading to a radiological release at Seabrook. Additionally, you asked that the NRC convene the annual assessment meeting for Seabrook in Massachusetts this year.

Regarding your first and second concerns as stated above, I would like to provide you a summary of NRC staff activities regarding the oversight of Seabrook and the license renewal application review as it relates to the ASR issue, and reassure you of our diligence and capabilities in ensuring that Seabrook meets our safety requirements. We are aware of the concerns of local citizens and representatives with regard to the ASR issue. As a result, we have had numerous discussions and briefings with a number of State and Congressional officials from New Hampshire and Massachusetts, as well as with members of the public, over the past few years. A comprehensive list of our actions and correspondence is posted on the NRC website at: http://www.nrc.gov/reactors/operating/ops-experience/concrete-degradation.html.

The NRC continues to carefully and deliberately monitor, assess, and inspect the actions of NextEra Energy Seabrook, LLC (NextEra), the plant operator, to resolve the ASR issue. When technical issues were identified in the current condition of concrete structures, our inspectors raised those concerns to NextEra and documented their findings in our publicly available inspection reports. Our inspections and reviews of NextEra's engineering evaluations have determined that there are no immediate safety concerns, and that ASR-affected structures at Seabrook remain capable of performing their intended safety functions, as documented in the references at the website link above.

[1] Designation in parentheses refers to an Agency-wide Documents Access and Management System (ADAMS) accession number. Unless otherwise noted, documents referenced in this letter are publicly available via the NRC's website www.nrc.gov using the accession number in ADAMS.

The NRC continues to perform inspections approximately every six months to review NextEra's activities to address the long-term effect of ASR on Seabrook's concrete structures. We are applying substantial and, in our view, sufficient expertise to verify that NextEra is appropriately addressing ASR. Any concerns identified will be subject to NRC enforcement as appropriate. The inspections are completed by NRC specialists with expertise in structural analyses and requirements. The six-month inspection interval is reasonable for protection of public health and safety given the very slow progression of ASR.

As part of our license renewal review process and our oversight of Seabrook's operations under its current license, the NRC will ensure that the Seabrook structures monitoring program properly assesses the condition of structures affected by ASR to ensure they will continue to perform as intended. NextEra's methods and/or monitoring techniques include a combination of periodic examinations and crack measurement and trending of structures affected by ASR, limited core samples of key concrete structures, through-wall expansion measurements using strain gauges, finite element analysis techniques, and monitoring of components that pass between ASR-affected structures. These efforts are directed toward ensuring that there is reasonable assurance of safety for continued operations and that aging effects of ASR on safety-related concrete structures at Seabrook will be adequately managed such that they remain capable of performing their intended functions and able to withstand a variety of structural loads, including seismic response, for the license period, including a period of extended operation if the license is renewed.

The NRC expects NextEra to complete its evaluations and to provide to the NRC an acceptable resolution for various ASR non-conforming conditions. NextEra conducted large-scale testing at the University of Texas at Austin, Ferguson Structural Engineering Laboratory, to quantify the effect of different levels of ASR on the long-term structural performance of ASR-affected reinforced concrete structures that do not have through-wall reinforcement, similar to the configuration of the majority of the affected walls in safety-related structures at Seabrook. NRC inspectors visited the testing site several times to verify that appropriate quality assurance test standards are being implemented, and to assess whether the results would impact our conclusions regarding current plant safety. Should NextEra elect to resolve the ASR nonconforming conditions using results from their large-scale testing, the results and the testing methodology and method(s) of evaluation used will be subject to NRC review, pursuant to applicable regulatory processes including Title 10 of the *Code of Federal Regulations* (10 CFR), Sections 50.59 and/or 50.90. NextEra will need to clearly establish that the results of its large-scale test program are representative of actual conditions at Seabrook.

The NRC staff's review of Seabrook's license renewal application is continuing, and no regulatory decision has been made. The original safety review schedule has been revised several times to allow a thorough review of the applicant's proposed plant-specific ASR monitoring program. The current review schedule and the most recent change letter dated March 31, 2016, can be found on the NRC website at:
http://www.nrc.gov/reactors/operating/licensing/renewal/applications/seabrook.html

Regarding your third concern noted at the beginning of this letter: In the area of radiological emergency preparedness and response, the NRC works in partnership with the Federal Emergency Management Agency (FEMA) to ensure the onsite and offsite emergency plans applicable to NRC licensees are adequate. The oversight of onsite radiological emergency preparedness falls within the NRC's purview, while the offsite oversight responsibility rests with FEMA. The NRC must rely on FEMA to make findings and determinations as to whether offsite emergency plans are adequate and if there is reasonable assurance they can be implemented,

including the means for the timely evacuation of the public, for protecting the public health and safety.

As you are aware, the Commonwealth of Massachusetts has the overall authority for making protective action decisions (sheltering, evacuation, etc.) for ensuring the safety of their public living in Massachusetts, should a radiological event occur. The State's radiological emergency plan for implementing those decisions was developed by the Massachusetts Emergency Management Agency (MEMA) and determined to be adequate by FEMA. Additionally, FEMA evaluates the implementation of the State's radiological emergency plan during emergency exercises conducted on a biennial basis to ensure continued reasonable assurance. The most recent FEMA emergency exercise report for Seabrook, covering the 2014 exercise, is available to the public in ADAMS Accession No. ML15034A368. The most recent FEMA-evaluated exercise just occurred the week of April 4, 2016; a report on that exercise will be publicly available in the future.

To date, the NRC has not received any concerns from FEMA regarding the State's capability to implement their plan, including their capability to evacuate the general public in a timely and safe manner. However, we have forwarded your letter to Mr. John Giarrusso, our contact in MEMA, and Mr. Steve Colman, our contact in FEMA, to make them aware of your concerns. You may contact Mr. Giarrusso at (508) 820-2040 and Mr. Colman at (617) 832-4731 for further information regarding the State's evacuation plan.

The NRC issues reports on performance for each nuclear power plant twice a year: a mid-cycle assessment report that covers the 12 months ending at the mid-point of the year, and an annual assessment covering the calendar year. As you are aware, following the release of the annual assessment letters each March, the NRC meets with the public to discuss our assessment of plant performance and other issues of interest. Seabrook was in Column 1 of the NRC's oversight action matrix for all of 2015. Column 1, referred to as "Licensee Response", signifies that a plant is operating satisfactorily, such that only the NRC's baseline level of inspection is warranted.

For plants, such as Seabrook, that have been in Column 1 during the entire assessment period, our process allows several options for the type of outreach effort to be conducted near the site. Open houses and community outreach events are typically held for plants in this category. They are designed to provide local officials and residents who live near the plant an opportunity to have one-on-one conversations with the NRC staff.

When identifying a location to hold annual assessment meetings, the agency considers a number of factors, including the type of meeting, expected number of attendees, availability of facilities that can accommodate the meeting, and ease of access to the facility for all interested individuals. The NRC normally selects meeting facilities that are located near the plant so those individuals most affected by plant operation can easily attend. Such a central location also avoids putting an excessive burden on any member of the public, whatever direction they may live from the plant. For these reasons, Seabrook annual assessment meetings have typically been held in Hampton, New Hampshire. Its centralized location and proximity to major roadways has provided effective access for residents from all the communities surrounding Seabrook to attend prior annual assessment meetings and should not present an impediment to any interested Amesbury citizens attending the meeting. The NRC staff tentatively plans to hold the 2016 meeting at the same location.

The NRC continues to conclude, based on extensive inspection and oversight, that Seabrook is operating safely and does not pose undue risk to public health and safety, The NRC does not have a current safety or legal basis to modify, revoke, or suspend the operating license for Seabrook. Please note that 10 CFR Section 2.206, describes the NRC's public petition process, which provides a means for anyone to raise safety concerns in a petition to the NRC to take an enforcement action related to NRC licensees. Additional information on the 2.206 petition process is available on the NRC website at http://www.nrc.gov/about-nrc/regulatory/enforcement/petition.html. Although your letter did not cite 10 CFR 2.206, it did request an enforcement action (i.e., shutdown Seabrook by withdrawing its license). As such, please contact Doug Tifft of my staff at (610) 337-6918 or Doug.Tifft@nrc.gov if you would like your letter processed pursuant to 10 CFR 2.206, or if you have any further concerns on this matter.

Sincerely,

(/RA Original Signed By Michael L. Scott for)

Daniel H. Dorman
Regional Administrator

cc: John Giarrusso
Steve Colman

My name is Meredith Angwin. I am a chemist who has worked in many aspects of the power industry. I performed and supervised research on reducing pollution from gas turbines, coal power plants and geothermal plants, as well as reducing corrosion in gas pipelines, hydropower penstocks, and nuclear plants. I was one of the first women project managers hired at the Electric Power Research Institute, and I am the inventor on several patents.

I urge you to keep our air clean by extending the license of the Seabrook Station. It produces clean power, and if it were to close, it would be replaced by gas-fired plants. This is what happened in Vermont, where I live. Some renewables were built, but Vermont Yankee's output, kWh for kWh, was mainly replaced by gas-fired generation. The amount of carbon dioxide emitted by the New England grid went up 3%. Seabrook is twice as large as Vermont Yankee.

There are two problems with gas-fired power. One problem is carbon dioxide formation. The other major problem is the formation of an acid gas, NOx, which is the precursor to photochemical smog and directly forms acid rain. It is impossible to prevent NOx formation in a high-temperature combustor (such as a gas turbine) and it cannot be entirely cleaned up. I have two patents in NOx prevention, but they are only partially successful. NOx is an intractable problem.

Please keep Seabrook operating and keep the air clean of NOx. Nuclear opponents are fond of saying what "might" happen. We "might" build lots of renewables. We "might" have some problem at Seabrook.

I am here to say what "will" happen if the plant closes. We will have more gas-fired systems operating. We will have an increase of 5-6% in the amount of carbon dioxide released by our electric grid. We will have a similar increase in NOx pollution, though the number is harder to quantify. Without Seabrook, we will have dirtier air, which leads to more acid rain and more cases of asthma.

Keep New Hampshire air clean by extending Seabrook's operating license.

Thank you.

Meredith Angwin
majngwin@earthlink.net
68 Passumpsic Avenue, Wilder, Vt 05088
802-291-9172

NRC Hearing on the License Extension of Seabrook Nuclear Power Plant

1. Testimonial by Hermann Bautzmann

1.1 Habautzmann@gmail.com
1.2 13 February 2019

My name is Hermann Bautzmann. I served on two nuclear powered submarines in the US Navy and am a retired Chief Engineer for Raytheon residing in Portsmouth, New Hampshire. As a citizen of planet Earth I am very concerned about the threat climate change poses to our children and grandchildren. If we New Englanders are serious about addressing this issue we would be extremely foolish to close one of New England's largest supplier of clean energy and 80% of New Hampshire's clean energy. Seabrook nuclear plant provides 57 percent of New Hampshire electrical power capacity. New England needs to extend Seabrook's NRC license. What we need to avoid is a repeat of 2015 when New England's emissions rose by 3 percent due to the premature closure of Vermont Yankee nuclear plant whose electrical capacity was quickly replaced with natural gas. This is exactly what will happen to an even greater extent if Seabrook's 1.2 GW of clean energy is lost. Fossil fuel plants, not renewables, will be Seabrook's replacement. I cannot ignore this fact, which has been repeated globally in every instance a nuclear plant has been shut down.

We do not have the luxury of cherry picking which clean energy solution we want to employ. We need to use all available technologies to avoid disaster. Let us all agree that the enemy is fossil fuel usage. I hope to see New England use clean proven nuclear energy from Seabrook Station and let's continue its safe operation to 2050 and beyond. Let's not make the same mistake of shutting down nuclear in favor of fossil fuels which caused climate change in the first place. Thank You.

2. Testimonial by Brian Campbell

2.1 briancam2470@gmail.com
2.2 13 February 2019

Thank you, Brian Campbell, US NAVY VET, and Ecomodernist, BSEE who Studied Utility and Renewable Energy @ UML. In 1991 as an Engineering student, I toured Seabrook Nuclear on a UML Bus trip. Before working for Utility, Lithium Battery Storage manufacturer A123Systems, I did not fully appreciate the benefits of Nuclear Power compared to Renewables with Battery Storage. At A123Systems WE built and tested 53' Trailers filled with 900,000 battery cells, with a capacity of ½ MW* Hr., meaning it would take 2500 Trailers @ $1.5 Million dollars each to store ½ hour of Seabrook's Reliable 24/7 Power. Grid Reliability is very important in my current position at Hitachi Cable Manchester, NH. Our Cable Business runs 24/7 and we schedule many different cable Processors on different Machines. We lose money and customers if Power outages interfere with production schedules. NASA Scientist, James Hansen, the Father of Climate Change Awareness, who set the Climate goal of 350 ppm of CO2 in the

Atmosphere, Believes Nuclear Power is the best Safe, Low Carbon, POWER to Mitigate Climate Change.

I am not a Concrete expert but reading NRC, "Advisory Committee on Reactor Safeguards ML18348B117" appropriately addresses, monitoring plans, evaluation and management of Alkali Silica Reaction (ASR) at Seabrook Station. The Public has no valid reason to fear, Seabrook's, continued safe operation to 2050 and beyond, with the excellent maintenance and operation record of this plant.

Boston Globe Editorial "Retiring more nuclear plants could hurt Mass. climate goals" 2018-06-03 by David L. Ryan/Globe Staff, a newspaper known for many anti-nuclear power editorials. Ryan suggests the Massachusetts new clean energy standard, which currently applies to operating electrical generators built after 2010, be back dated to 1990, the year that Seabrook opened. That would allow the plant to make money by selling those credits.

Proposed, Invenergy's Clear River Energy Center, in Northern Rhode Island, is the Gas, replacement for premature closing, (2019), of Pilgrim Nuclear Plant providing reliable 583 MW average,. Massachusetts Taxpayer funded, C-10, who advocates for the closure of Seabrook Station, ignores that gas, not renewables, would be Seabrook's replacement. Remember the 2018 Merrimack Valley gas explosions? Are more gas power plants, pipelines and emissions, the safest way to power New England? This is what C-10 and other Anti-nuclear groups are really advocating.

If, reducing emissions, with the Safest, most cost effective Technology, is important, then, New England needs to extend Seabrook's NRC License, keeping 57% of New Hampshire Electrical Power, reliably flowing, and build more Nuclear Generation.
Thank you Brian Campbell, briancam2470@gmail.com

3. Testimonial by Meredith Angwin

3.1 mjangwin@earthlink.net
3.2 13 February 2019

My name is Meredith Angwin. I am a chemist who has worked in many aspects of the power industry. I performed or supervised research on reducing pollution from gas turbines, coal power plants and geothermal plants, and reducing corrosion in gas pipelines, hydropower penstocks, and nuclear plants. I was one of the first women project managers hired at the Electric Power Research Institute, and I am inventor on several patents.

I am here to urge you to extend the license of the Seabrook Station. It produces clean power, and if it were to close, it would be replaced by gas-fired plants. That

NRC Hearing on the License Extension of Seabrook Nuclear Power Plant is what happened in Vermont, where I live. Some renewables were built, but gas-fired plants replaced Vermont Yankee output, kWh for kWh. The amount of carbon dioxide emitted by the New England grid went up 3%. Seabrook is twice as large as Vermont Yankee.

There are two problems with gas-fired power. Of course, one problem is carbon dioxide formation. The other problem is the formation of an acid gas, NOx, which is the precursor to photochemical smog and directly forms acid rain. It is impossible to prevent NOx formation in a high-temperature combustor (such as a gas turbine) and it cannot be totally cleaned up. I have two patents in NOx prevention, but they are only partially successful. NOx is an intractable problem.

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Keep New Hampshire air clean by extending Seabrook's operating license.

Thank you. Meredith Angwin, majngwin@earthlink.net, 68 Passumpsic Avenue, Wilder, Vt 05088>>>>>>>>>>>>>>>>*Not all those who wander are lost*

4. Testimonial by Phil Weyenberg

4.1 pweyenberg@icloud.com
4.2 13 February 2019

Hello, my name is Phil Weyenberg, and I am a retired painting contractor from South Portland, Maine.

I used to be anti-nuclear and was an active member of the Green Party. I was very concerned about climate change and did a deep study into alternatives to fossil fuels. What I found is that nuclear has zero carbon emissions, but what was really surprising is that statistics show nuclear is one of the safest forms of energy. And it is dependable — it runs all day every day — and needs only a small amount of fuel every year and a half. Nuclear should be a big part of the world getting to zero carbon emissions.

The Seabrook power plant is an incredible machine and the largest single source of energy in New England. On a small footprint, it provides 650 high-paying jobs and half a billion dollars to the local economy. For New England, it is a huge source of clean electricity. History shows that if a nuclear plant is closed, like Vermont Yankee, it is replaced with more dirty natural gas.

NRC Hearing on the License Extension of Seabrook Nuclear Power Plant I ask that Seabrook be granted an extension to keep this clean electricity source locally and for all of New England. Philip Weyenberg-47 Parrott Street-South Portland ME 04106-phone: (207) 956-7751-email: pweyenberg@icloud.com

5. LETTER: Extending Seabrook plant's license is right move

https://www.newburyportnews.com/opinion/letters_to_the_editor/letter-extending-seabrook-plant-s-license-is-right-move/article_d6f8edf0-1f77-5822-b3f9-0e2c101fcc37.html Jan 25, 2019

The public has no valid reason to fear Seabrook Station's continued safe operation to 2050 and beyond with the excellent maintenance and operation record of this plant.

What the public should fear is the increased emissions (estimated 2 million tons) to substitute for lost electrical generation with the premature closing of the NRC-licensed Pilgrim nuclear power plant in June 2019.

ISO New England reported for 2015 that emissions rose in New England by 3 percent due to the premature closure of Vermont Yankee nuclear plant in December 2014, whose electrical capacity was quickly replaced with natural gas electric generation. The news concerning the "Vermont Yankee effect" comes as all six New England states scramble to meet aggressive emissions-reduction goals set by their state legislators and policymakers.

According to a Boston Globe editorial, "Retiring more nuclear plants could hurt Mass. climate goals" (June 3, 2018), a newspaper known for many anti-nuclear power editorials. The editorial suggests the Massachusetts new clean energy standard, which applies to operating electrical generators built after 2010, be backdated to 1990, the year that Seabrook opened. That would allow the plant to make money by selling those credits.

The Danish company MHI Vestas plans to install 84 wind turbines, at 9.5 megawatts each, in an array that will populate a 650-square-kilometer expanse and generate some 800 MW peak unreliable power, at a claimed 45 percent capacity. So, 55 percent of the time it will need fossil fuel backup, with a life of 20 years. Pilgrim Station reliably produces about 14 percent of the electricity generated in Massachusetts at capacity.

Massachusetts taxpayer-funded, anti-nuclear power organization C-10, whose mission statement states it advocates for the safety of Seabrook Station, ignores that gas, not renewable, will be Seabrook's replacement and ignores the 2018 Merrimack Valley gas explosions.

Pilgrim nuclear plant's replacement is being built in northern Rhode Island, which is the Invenergy's proposed Clear River Energy Center. Is more gas power plants, pipelines and emissions the safest way to power New England? This is what C-10 and other anti-nuclear groups are really advocating.

Seabrook nuclear plant provides 57 percent of New Hampshire electrical power capacity. If New England truly cares about reducing emissions, with the safest, most cost-effective technology, than New England needs to extend Seabrook's NRC license and build more nuclear generation. Brian Campbell

From: gaypearson <gaypearson@aol.com>
To: gaypearson <gaypearson@aol.com>
Subject: Fwd: Final draft of testimony
Date: Wed, Feb 13, 2019 3:16 pm

Gay Pearson(registered in NH with my legal name "Grace")
130 Farm Lane Seabrook

I am a member of C-10.org

Before and when I moved(the end of May 2018) into just the house I was looking for (thanks to my realtor Pat Skibbee), I did not concern myself with being so close to the plant,
given that my top priority was being within walking distance to water for swimming and boating.

But soon after I settled in, every time I walked to the launch(which was at least once a day) I paid attention to the plant, listening and looking for venting, wondering what was being emitted, and how often, and if there were any adverse impacts to the water at the launch area.

Most important, I am of course very concerned about the ongoing accelerated concrete cracking , but don't have sufficient engineering background to understand all the qualitative and quantitative complexities.
However I have read enough of C-10.org's contentions to realize the sense of urgency for in-Situ testing of concrete as being the only way to completely learn of its integrity .

In addition to the C-10's existing continuous radiation monitoring system,
and because of my 12 years air quality dispersion modelling experience at NJ DEP, I am particularly interested in and concerned about the possible use of radiation models for predicting maximum ground level impacts for beta and gamma radiation under the different atmospheric conditions or lapse rates, each of which is associated with a different plume behavior.
I find 5 of these models online, each with their advantages and limitations.
If EPA Region I has access to any of them, NHDEP should as well.

I'm particularly concerned about predicted ground level impacts during inversion conditions and calms, both of which reflect poor dispersion.

Having read on C-10.org about fish kills from the resulting heated ocean water used to cool the reactor core, I want to know why there is no cooling tower, without which can encourage the wrong species to enter the effluent tubes and other species to migrate to cooler water, possibly disrupting the marine ecobalance.

During my 12 years employment at NJDEP in the Bureau of Air Quality Evaluation, we occasionally reviewed computer modelling results for cooling towers.
The one for which I still have the impact analysis was Oyster Creek in Forked River NJ, which was retired Sept 18, 2018, almost 10 years ahead of schedule due to NJ's revised water rules that required new cooling towers, at a prohibitive cost.
The plant had been operating commercially since Dec.1, '69.

Atmospheric cooling of water can be achieved either with wet or dry cooling methods, each with its pros and cons for plume visibility and ice formation from droplet deposition.
Plume abatement was most effective using a hybrid wet/dry cooling system, such that when the resultant mixture left the tower, it was not saturated with water vapour, as would be the case with wet cooling only.

Finally, permit renewal for the Seabrook plant should Not be considered until the full range of petrographic testing for
concrete is completed and deemed to be safe for all.

Business and Industry Association
New Hampshire's Statewide Chamber of Commerce

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February 13, 2019

Nuclear Regulatory Commission
c/o William Burton and Justin Poole

Dear Mr. Burton and Mr. Poole,

The Businesses and Industry Association (BIA) of New Hampshire submits these written comments for the February 13th public comment session and meeting regarding the Seabrook Station and its license renewal application.

BIA serves as New Hampshire's statewide chamber of commerce and leading business advocate. The BIA represents more than 400 enterprises in a variety of industries. Member firms employ 93,000 people throughout the state, which represents one in seven private workforce jobs, and contribute $4.5 billion annually to the state's economy.

As you may be aware, New Hampshire struggles with high energy prices. On average, New Hampshire electricity rates are 50-60% higher than the national average, year-round. An ISO New England study, released early last year, indicated that reliability in the area is a growing concern. In 19 of 23 scenarios, the study concluded that there is a possibility of rolling blackouts by the winter of 2024/2025.

Given the results of this study, it is clear that New Hampshire needs reliable and affordable sources of energy. Having provided reliable, low-cost energy to New England for decades, Seabrook Station is consistently recognized as one of the top plants in the nation. It generates clean energy around-the-clock to more than 1.4 million homes and businesses, all while reducing carbon emissions by about 4 million tons per year. The plant's license renewal is an integral part of energy sustainability for the future of New Hampshire.

Further, Seabrook Station has a vast economic impact that is critical to New Hampshire and beyond. According to an analysis conducted by the Nuclear Energy Institute, the economic investment of Seabrook has a "ripple" effect across nearly every sector of the economy. The plant's continued operation stimulates hundreds of millions of dollars of economic growth locally, and over one billion dollars across the United States. Additionally, Seabrook Station's employs about 500 full-time workers and the Station's operations and secondary effects account for nearly 2,000 jobs in the state. License renewal will ensure that Seabrook Station will continue to offer top quality jobs to men and women right here in New Hampshire.

For these reasons, the BIA would like to express its support of Seabrook Station's license renewal.

NRC Hearing on the License Extension of Seabrook Nuclear Power Plant

Testimonial by Phil Weyenberg
pweyenberg@icloud.com
13 February 2019

Hello, my name is Phil Weyenberg and I am a retired painting contractor from South Portland, Maine.

I used to be anti-nuclear and was an active member of the Green Party. I was very concerned about climate change and did a deep study into alternatives to fossil fuels. What I found is that nuclear has zero carbon emissions, but what was really surprising is that statistics show nuclear is one of the safest forms of energy. And it is dependable — it runs all day every day — and needs only a small amount of fuel every year and a half. Nuclear should be a big part of the world getting to zero carbon emissions.

The Seabrook power plant is an incredible machine and the largest single source of energy in New England. On a small footprint, it provides 650 high-paying jobs and half a billion dollars to the local economy. For New England, it is a huge source of clean electricity. History shows that if a nuclear plant is closed, like Vermont Yankee, it is replaced with dirty natural gas.

I support the license extension for Seabrook in order to maintain this clean electricity source working for the local community and all of New England.

Contact Information
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