



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

January 14, 2014

SECRETARY

The Honorable Edward J. Markey  
United States Senate  
Washington, D.C. 20510

Dear Senator Markey:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter of December 18, 2013, to Chairman Allison Macfarlane in which you recommended that the NRC make no decision on the June 1, 2010, application made by NextEra Energy Seabrook for a twenty year renewed operating license for the Seabrook plant until the concrete degradation the plant is experiencing is fully tested, understood and remedied by way of an amendment to NextEra's current operating license. More specifically, you asked that the Commission affirm that no decision on the license renewal application for the Seabrook operating license be made until an analysis of tests with respect to the phenomenon of alkali silica reaction (ASR) being performed by the University of Texas is completed and peer review of the results is done. You further requested that NextEra seek and obtain a license amendment that would incorporate measures that would result in the monitoring of the progression of any ASR and predict the remaining service life of the plant before and after any repair.

Due to the fact that the license renewal application for the Seabrook Unit 1 plant is a subject of a current adjudication before an Atomic Safety and Licensing Board, I must advise that under agency regulations, the Commission has an appellate role in proceedings commenced before its Atomic Safety and Licensing Boards. Because of that role, I trust that you will understand that the Commissioners must remain impartial during the pendency of a case, whether it is before a Licensing Board or on appeal to the Commission. However, I am referring your concerns to the attention of the NRC staff.

A copy of your letter and this response, as well as any response of the NRC staff, when issued, will be served on the participants in the *Seabrook* license renewal proceeding.

Sincerely,

A handwritten signature in black ink, appearing to read "Annette Vietti-Cook".

Annette Vietti-Cook  
Secretary of the Commission

Identical letter sent to:

The Honorable Edward J. Markey  
United States Senate  
Washington, D.C. 20510

The Honorable Elizabeth Warren  
United States Senate  
Washington, D.C. 20510

The Honorable John Tierney  
United States House of Representatives  
Washington, D.C. 20515

The Honorable James P. McGovern  
United States House of Representatives  
Washington, D.C. 20515

The Honorable Stephen F. Lynch  
United States House of Representatives  
Washington, D.C. 20515

The Honorable William R. Keating  
United States House of Representatives  
Washington, D.C. 20515

The Honorable Niki Tsongas  
United States House of Representatives  
Washington, D.C. 20515

The Honorable Joseph P. Kennedy III  
United States House of Representatives  
Washington, D.C. 20515



**Congress of the United States**  
Washington, DC 20510

December 18, 2013

The Honorable Allison Macfarlane  
Chairman  
Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Dear Chairman Macfarlane:

We write to strongly recommend that the Nuclear Regulatory Commission (NRC) make no decision on the June 1, 2010 request<sup>1</sup> made by NextEra Energy Seabrook, the licensee for the Seabrook nuclear power plant, for a twenty year operating license that would begin in 2030 and end in 2050, until the concrete degradation Seabrook is experiencing is fully tested, well understood, and remedied by way of an amendment to NextEra's current operating license.

In 2009, cracking in the concrete of some of the safety-related structures at the Seabrook nuclear power plant was found, a phenomenon later determined to be alkali silica reaction (ASR) caused when groundwater seeped below the plant. This was the first time that ASR was ever documented in a U.S. nuclear reactor. Although testing and monitoring of the problem has been undertaken since then, it seems unlikely that the tests or models currently being utilized can be applied to Seabrook in a manner that would enable the licensee to predict any future impacts of ASR.

In fact, it appears that *no* tests or models currently exist that could enable the licensee to make such a prediction. A Summer, 2013 report<sup>2</sup> prepared by the National Institute of Standards and Technology and the American National Standards Institute entitled "Codes and Standards for the Repair of Nuclear Power Plant Concrete Structures: Recommendations for Future Development" uses the example of ASR at Seabrook to conclude that research in the area has been done, "but it has not reached a level that would allow the repair and prediction of service life. A combination of measurement techniques and models is necessary to be able to monitor the progression of any ASR and to predict the remaining service life before and after any repair. Protocols for the selection of repair materials and monitoring also need to be developed."

It is also our understanding that some of the ASR testing currently underway at the University of Texas (UT) for NextEra has yielded some disturbing and unexpected results. While NextEra has decided it would track cracking on the surface of concrete structures<sup>3</sup> as its means

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<sup>1</sup> <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/seabrook.html>

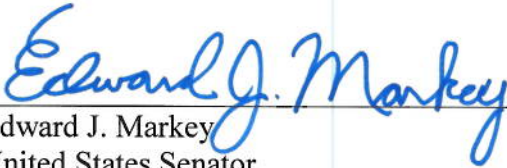
<sup>2</sup> <http://publicaa.ansi.org/sites/apdl/Documents/Meetings%20and%20Events/NESCC/NESCC-13-084-Codes-and-Standards-for-the-Repair-of-Nuclear-Power-Plant.pdf>

<sup>3</sup> See for example page 14 of <http://pbadupws.nrc.gov/docs/ML1315/ML13151A328.pdf>

for tracking the progression of ASR, the tests performed by UT on the sort of steel-reinforced structures that exist at Seabrook showed that even when evidence of surface cracking is not present, severe ASR and structural damage on the interior of the structures that would not have been predicted using NextEra's proxy method still was found to exist.

If the aging-related safety concerns associated with nuclear power plants were fully understood and addressed, that could be one of several factors accounted for when considering whether to allow the Seabrook nuclear power plant to operate until the year 2050. But that is clearly not the case when it comes to ASR, and as such it is simply not possible to conclude that the reactor can be safely operated between the years 2030-50. Consequently, we ask that you affirm that you will make no decision on the request by NextEra to extend its operating license at least until a) the University of Texas completes its analysis, obtains an independent peer review thereof, and submits both the analysis and peer review to the Commission, and b) NextEra seeks and obtains a license amendment to its existing operating license demonstrating that it will incorporate mitigation measures as well as in-situ measurement, techniques and models that are shown to be able to monitor the progression of any ASR and to predict the remaining service life before and after any repair.

Sincerely,



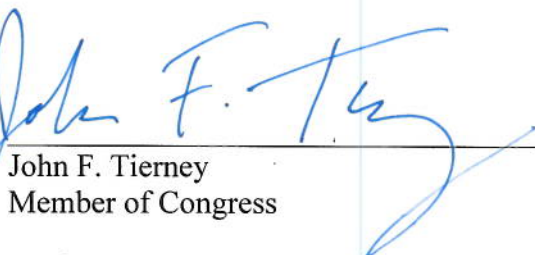
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Edward J. Markey  
United States Senator




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Elizabeth Warren  
United States Senator



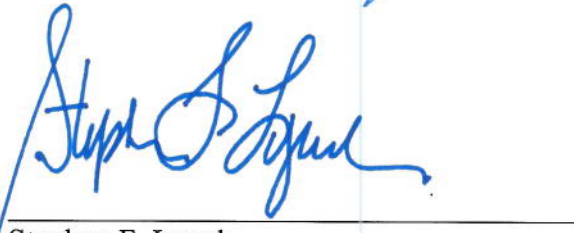
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John F. Tierney  
Member of Congress



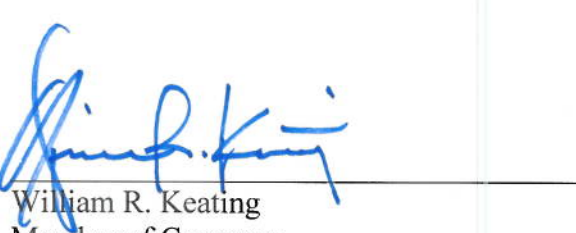
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James P. McGovern  
Member of Congress



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Stephen F. Lynch  
Member of Congress



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William R. Keating  
Member of Congress



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Niki Tsongas  
Member of Congress



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Joseph P. Kennedy III  
Member of Congress

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
 )  
NEXTERA ENERGY SEABROOK, LLC ) DOCKET NO. 50-443-LR  
(Seabrook Station, Unit 1) )  
 )  
(License Renewal) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **LETTER FROM THE SECRETARY TO SENATOR EDWARD J. MARKEY, ET AL., IN RESPONSE TO DECEMBER 18, 2013, LETTER** have been served upon the following persons by the Electronic Information Exchange.

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**NEXTERA ENERGY SEABROOK, LLC (Seabrook Station Unit 1) – Docket No. 50-443-LR  
LETTER FROM THE SECRETARY TO SENATOR EDWARD J. MARKEY, ET AL., IN RESPONSE  
TO DECEMBER 18, 2013, LETTER**

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[Original signed by Clara Sola]  
Office of the Secretary of the Commission

Dated at Rockville, Maryland,  
this 22<sup>nd</sup> day of January 2014