

TERRESTRIAL ENERGY USA

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October 22, 2020

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

TEUSA Letter: L201022

Subject: IMSR® Postulated Initiating Events White Paper Supporting CNSC/NRC Joint Review

Terrestrial Energy USA (TEUSA) is submitting the subject white paper for review and endorsement for use in subsequent licensing applications. The white paper presents an overview of the methodology used to develop the list of postulated initiating events, their grouping and their categorization into categories of anticipated operational occurrences (AOOs), design basis accidents (DBAs), and beyond design basis events (BDBEs). This white paper is also provided to support the recently established collaborative initiative between CNSC and the NRC on selected topics.

TEUSA requests that the NRC review the white paper and referenced documents, and approve the following:

1. The list of postulated initiating events, which was developed in a manner that identifies all reasonable potential events that could occur in the IMSR®.
2. The methodology used to develop the list of postulated initiating events.
3. The threshold used to establish the category of AOOs, which is consistent with NRC guidance.
4. The threshold used to establish the category of DBAs which is conservative with respect to NRC guidance.
5. The use of the list of postulated initiating events in future licensing applications. Such use would be subject to any revisions stemming from design modifications, changes to the methodology, or enhancements in maturity of the probabilistic safety assessment.

TEUSA will also request fee relief under 10 CFR 170.11 (a) (12) and (b) for review of this white paper and supporting material. In December 2019, the Nuclear Regulatory Commission (NRC) and the Canadian Nuclear Safety Commission (CNSC) approached Terrestrial Energy about a willingness to volunteer to participate in a first-of-a-kind joint technical review of an advanced, non-light water nuclear reactor technology. Terrestrial Energy volunteered to participate in this initiative and is excited to participate in this joint technical review as a pilot application. During the exploratory meetings, Terrestrial Energy expressed its views that participation in such a collaborative activity would meet the standards for regulatory fee relief and that it intended to pursue such relief.

Since the December meetings, Terrestrial Energy has been actively involved in establishing the administrative protocols necessary to undertake and share information about IMSR® technology while undergoing review by two regulators. Participation in this regulatory initiative will require TEUSA to significantly advance its timeline for information development (approximately one year) and to subsequently incur licensing fees on an unanticipated accelerated timeline compared to that which was previously outlined in its most recent Regulatory Engagement Plan.

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There are numerous precedents where the NRC granted fee relief for pilot applications that are in the public interest. For this particular request, there is substantial public interest for the following reasons:

- 1) The NRC and CNSC will reap substantial benefits from the development of the joint regulatory review framework and see regulatory efficiencies and improvements in regulatory guidance as a result of working collaboratively on the Terrestrial Energy materials.
- 2) The NRC and CNSC will learn lessons which will help future advanced reactor applicants make more complete submittals and thus require less agency resources to perform the regulatory reviews.
- 3) The industry as a whole will benefit as the regulatory efficiencies realized will be applied to the improvement of the advanced reactor regulatory guidance and review processes.
- 4) Finally, the joint review directly supports the recently signed Memorandum of Cooperation between the U.S. and Canada that will benefit both regulators through increased cooperation.

TEUSA is prepared to actively engage with the NRC on the provided materials once the administrative protocols for the joint reviews are finalized and when the NRC makes its decision with respect to TEUSA's request for regulatory fee relief.

Sincerely,



Simon Irish
CEO, Terrestrial Energy USA

Enclosure 1: Postulated Initiating Events for IMSR® – Proprietary

Enclosure 2: Postulated Initiating Events for IMSR® – non-Proprietary

Enclosure 3: Affidavit

Cc:

Ho Nieh, Director - Office of Nuclear Reactor Regulation (NRR)

Robert Taylor, Deputy Director for New Reactors - NRR

Mo Shams, Director - Division of Advanced Reactors and Non-Power Utilization Facilities (DANU)—Office of Nuclear Reactor Regulation (NRR)

Cherish Johnson, CFO - United States Nuclear Regulatory Commission (USNRC)

Ben Ficks, Deputy CFO - USNRC

Jawanza Gibbs, Lead - Office of the Chief Financial Officer (OCFO)

Benjamin Beasley, Branch Chief - Advanced Reactors Licensing Branch - DANU-NRR

Adrian Muniz, Project Manager - Advanced Reactor Licensing Branch – DANU-NRR

Enclosure 3 to TEUSA Letter L201022

Terrestrial Energy USA Affidavit and Request for Withholding from Public Disclosure
(10 CFR 2.390)

TERRESTRIAL ENERGY USA

AFFIDAVIT

I, **Simon Irish**, state as follows:

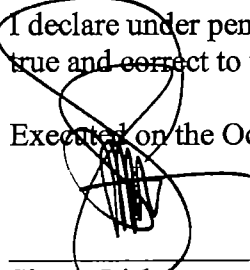
- (1) I am the Chief Executive Officer of Terrestrial Energy USA (“TEUSA”) and have reviewed the information described in paragraph (2) which is sought to be withheld, and I am the authorizing official for TEUSA to apply for its withholding.
- (2) The information sought to be withheld, in its entirety, is contained in Enclosure 1 of TEUSA Letter L201022, “Postulated Initiating Events for IMSR®.”
- (3) I am making this request for withholding, and executing this affidavit in support thereof, pursuant to the provisions of 10 CFR 2.390(b)(1).
- (4) In making this application for withholding of proprietary and commercially sensitive information of which it is the owner or licensee, TEUSA relies upon the exemption from disclosure set forth in the *Freedom of Information Act* (“FOIA”), 5 U.S.C. Sec. 552(b)(4), and the *Trade Secrets Act*, 18 U.S.C. Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for trade secrets (Exemption 4). The material for which exemption from disclosure is here sought also qualifies under the narrower definition of trade secret, within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, *Critical Mass Energy Project v. Nuclear Regulatory Commission*, 975 F.2d 871 (D.C. Cir. 1992), and *Public Citizen Health Research Group v. FDA*, 704 F.2d 1280 (D.C. Cir. 1983).
- (5) The information sought to be withheld is considered proprietary and/or commercially sensitive for the reasons set forth in paragraphs (4)b and (4)c shown below. Some examples of categories of information that fit into the definition of commercially sensitive information are:
 - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by TEUSA's competitors without license from TEUSA constitutes a competitive economic advantage over other companies;
 - b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
 - c. Information that reveals aspects of past, present, or future TEUSA development plans and programs, resulting in potential products to TEUSA;
 - d. Information that discloses trade secrets or potentially patentable subject matter, or both, for which it may be desirable to obtain patent protection.
- (6) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by TEUSA, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by TEUSA, not been disclosed publicly, and not been made available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions, or to proprietary or confidentiality agreements that provide for maintaining the information in confidence. The initial designation of this

information as proprietary and/or commercially sensitive, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in the following paragraphs 6 & 7.

- (7) Initial approval of proprietary and commercially sensitive treatment of a document is made by the manager of the originating component, who is the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or who is the person most likely to be subject to the terms under which it was licensed to TEUSA. Access to such documents within TEUSA is limited to a "need to know" basis.
- (8) The procedure for approval of external release of such a document typically requires review by a vice president for technical content, competitive effect, and determination of the accuracy of the proprietary and/or commercially sensitive designation. Disclosures outside TEUSA are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary or confidentiality agreements, or both.
- (9) The information identified in paragraph (2), above, is classified as proprietary and/or commercially sensitive because it contains detailed information regarding TEUSA's licensing plans and technical details about the Integral Molten Salt Reactor (IMSR[®]) which TEUSA is developing for US deployment.
- (10) Public disclosure of the information sought to be withheld is likely to cause substantial harm to TEUSA's competitive position and foreclose or reduce the availability of profitmaking opportunities. The information contains proprietary technical details of the IMSR[®] design and details regarding TEUSA's licensing strategy. The development of TEUSA's chosen licensing path comprises a substantial investment of time and money by TEUSA. The precise value of the expertise to use in devising this licensing path is difficult to quantify, but it clearly is substantial. TEUSA's competitive advantage will be lost if its competitors are able to use the results of the TEUSA's experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions. The value of this information to TEUSA would be lost if the information were disclosed to the public. Making such information available to competitors without them having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive TEUSA of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing its licensing strategy.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on the October 22, 2020



Simon Irish
Chief Executive Officer
Terrestrial Energy USA, Inc.