

# TERRESTRIAL ENERGY USA

99902076

July 8, 2021

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

TEUSA Letter: L210708

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

Terrestrial Energy USA (TEUSA) is submitting the subject white paper for review and NRC feedback on its applicability for use in subsequent licensing applications. The white paper presents an updated 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). The updates to this white paper were made in response to feedback provided by the NRC as part of the attachment to the joint CNSC/NRC letter provided to Terrestrial Energy Inc. (TEI) and TEUSA on April 27, 2021.

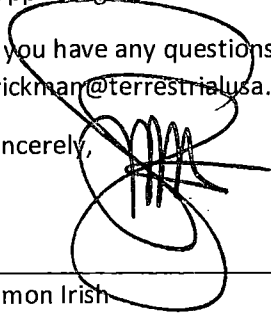
TEUSA requests that the NRC review the white paper and referenced documents, and approve the following:

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.

Portions of the enclosed white paper are proprietary, and TEUSA requests that it be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390. Enclosure 1 provides the proprietary version of the white paper and Enclosure 2 provides the non-proprietary white paper. An affidavit supporting the withholding request is provided in Enclosure 3.

If you have any questions or need any additional information, please contact Robin Rickman by email at rrickman@terrestrialusa.com or by phone at 646-687-8212 ext. 531.

Sincerely,

  
\_\_\_\_\_  
Simon Irish  
CEO, Terrestrial Energy USA

D120  
NRA

Enclosure 1: Postulated Initiating Events for IMSR® – Proprietary

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

Enclosure 3: Affidavit

**Cc:**

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

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

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

William Smith, SVP Engineering, Terrestrial Energy Inc.

Robert Ion, Licensing Director, Terrestrial Energy Inc.

Victor Snell, Safety & Licensing Senior Advisor, Terrestrial Energy Inc.

# TERRESTRIAL ENERGY USA

## AFFIDAVIT

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

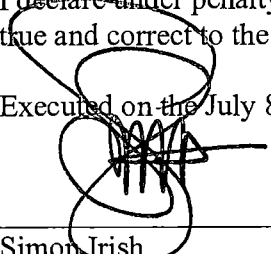
- (1) I am the Chief Executive Officer of Terrestrial Energy USA ("TEUSA") and have reviewed the information described in paragraph (2) which is sought to be withheld, and I am the authorizing official for TEUSA to apply for its withholding.
- (2) The information sought to be withheld, in its entirety, is contained in Enclosure 1 of Letter L210708, "*Postulated Initiating Events for IMSR® REV1.*"
- (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<sup>®</sup>) 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<sup>®</sup> 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 July 8<sup>th</sup>, 2021

  
\_\_\_\_\_  
Simon Irish  
Chief Executive Officer  
Terrestrial Energy USA, Inc.