

**TOSHIBA**

**PROPRIETARY**

**Toshiba Energy Systems & Solutions Corporation**

72-34 Horikawa-cho, Saiwai-ku Kawasaki-shi, Kanagawa, 212-8585, Japan

No. TOS-CR-FPG-2020-0005

September 30, 2020

NRC Project Number: PROJ0729

Document Control Desk  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852-2738

99902036

Reference: NRC Letter Dated September 23, 2020: REVISED FINAL SAFETY EVALUATION FOR TOSHIBA "LICENSING TOPICAL REPORT FOR TOSHIBA NRW [NONREWRITABLE]-FPGA [FIELD PROGRAMMABLE GATE ARRAY]-BASED INSTRUMENTATION AND CONTROL SYSTEM FOR SAFETY-RELATED APPLICATION," UTLA 0020P, REVISION 2 (CAC NO. ME9861; EPID L-2012-TOP-0003)

**Subject: Transmittal of the Accepted Version of the Topical Report**

The purpose of this letter is to submit the accepted version (A-version), both proprietary and nonproprietary, of the Topical Report referenced above.

This letter submits the following document that contains proprietary information of Toshiba Energy Systems & Solutions Corporation. An affidavit setting forth the basis on which the information identified as proprietary may be withheld from public disclosure is provided in Enclosure 1. Accordingly, it is requested that Enclosure 2, which is the proprietary version of the document, be withheld from public disclosure in conformance with the requirements of 10 CFR Section 2.390, as amended, of the Commission's regulations. Enclosures 3 provides the non-proprietary version. If this letter becomes separated from the proprietary material it is no longer proprietary.

- (1) UTLR-0020P-A, Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application

The document has the following PARTs:

**PART A:** Safety Evaluation of Toshiba Corporation Topical Report Nonrewritable-Field Programmable Gate Array-Based Instrumentation and Control Systems for Safety-Related Application, including:

- (A1) NRC Transmittal Letter dated September 23, 2020  
(A2) Safety Evaluation Report, August 2020 (Final SE)

**PART B:** Request for Additional Information (RAI) and NRC Letter Concerning Document Quality Supporting Topical Report, including:

- (B1) NRC Transmittal Letter dated July 6, 2015 and RAI Questions  
(B2) NRC Transmittal Letter dated March 9, 2016 and RAI Questions  
(B3) NRC Transmittal Letter dated August 16, 2017 and RAI Questions  
(B4) NRC Letter Concerning Document Quality Supporting Topical Report dated December 20, 2017  
(B5) NRC Fourth RAI Questions dated June 10, 2019

*Proprietary-Withhold from public disclosure pursuant to 10 CFR 2.390.  
Upon removing Enclosure (2), this document can be made public.*

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PART C: Responses to RAIs and NRC Letters, including:

- (C1) Toshiba Response to NRC RAI Letter (B1)
- (C2) Toshiba Response to NRC Second RAI Letter (B2)
- (C3) Toshiba Response to NRC Third RAI Letter (B3)
- (C4) Toshiba Response to the NRC Letter (B4)
- (C5) Replacement of Table IV-4-2 included in LTR Part IV and Toshiba response to RAI3 revised (Toshiba Letter TOS-CR-FPG-2019-0001 dated February 8, 2019)
- (C6) Toshiba Response to NRC Fourth RAI (B5)

PART D: Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application,

- (D1) UTLR-0020P Acronym and Reference Part Rev.4
- (D2) UTLR-0020P Part I Rev.2
- (D3) UTLR-0020P Part II Rev.4
- (D4) UTLR-0020P Part III Rev.3
- (D5) UTLR-0020P Part IV Rev.4
- (D6) UTLR-0020P Part V Rev.2
- (D7) UTLR-0020P Part VI Rev.1
- (D8) Table of RAI Questions and LTR Changes

Note that (D1) and (D5) were revised to newer revisions from the latest revisions referenced in the Final SE dated August 2020 (A2), based on the reasons described in No.25 and No.12 of Table of RAI Questions and LTR Changes (D8).

If the NRC has any requests and/or questions, please contact with Jim Powers at 704-724-9065 or by electronic mail at [Jim.Powers@toshiba.com](mailto:Jim.Powers@toshiba.com).

Sincerely,



Hideo Namihira  
Senior Manager  
Electrical System Design & Engineering Dept.  
Power Systems Division  
Toshiba Energy Systems & Solutions Corporation

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Enclosures:

- (1) 10 C.F.R. § 2.390 Supporting Affidavit
- (2) UTLR-0020P-A, Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application (Proprietary version)
- (3) UTLR-0020NP-A, Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application (Nonproprietary version)

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Enclosure 1

Letter No. TOS-CR-FPG-2020-0005  
Affidavit for Withholding Confidential and Proprietary Information from Public Disclosure  
under 10 CFR § 2.390

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

AFFIDAVIT

I, Hideo Namihira, hereby affirm and state that I am the Senior Manager, Electrical System Design & Engineering Department, Power Systems Division, Toshiba Energy Systems & Solutions Corporation (Toshiba ESS Corporation), and I have been authorized to execute this affidavit on behalf of Toshiba ESS Corporation to file with the Nuclear Regulatory Commission the following application for withholding Toshiba ESS Corporation's confidential and proprietary information from public disclosure; that I am familiar with the content thereof; and that the matters set forth therein are true and correct to the best of my knowledge and belief.

In accordance with 10 CFR § 2.390(b)(ii), I hereby state, depose, and apply as follows on behalf of Toshiba ESS Corporation:

- (A) Toshiba ESS Corporation seeks to withhold from public disclosure the documents entitled and identified as "Proprietary" therein:
  - UTLR-0020P-A, Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application (Proprietary)
- (B) The Confidential Information is owned by Toshiba ESS Corporation. In my position as the Senior Manager, Electrical System Design & Engineering Department, Power Systems Division, Toshiba ESS Corporation, I have been specifically delegated the function of reviewing the Confidential Information and have been authorized to apply for its withholding on behalf of Toshiba ESS Corporation.
- (C) This document provides Toshiba's lifecycle process and qualification activities for developing and qualifying Non-Rewritable (NRW) Field Programmable Gate Array (FPGA) Based Safety I&C systems to the Nuclear Regulatory Commission. The Confidential Information which is entirely confidential and proprietary to Toshiba ESS Corporation is identified as "Proprietary" in the document.
- (D) Consistent with the provisions of 10 CFR § 2.390(a)(4), the basis for proposing that the Confidential Information be withheld is that it constitutes Toshiba ESS Corporation's trade secrets and confidential and proprietary commercial information.
- (E) Public disclosure of the Confidential Information is likely to cause substantial harm to Toshiba ESS Corporation's competitive position by (1) disclosing confidential and proprietary commercial information about the design, manufacture and operation of the FPGA based I&C platform for nuclear power reactors to other parties whose commercial interests may be adverse to those of Toshiba ESS Corporation, and (2) giving such parties access to and use of such information at little or no cost, in contrast to the significant costs incurred by Toshiba ESS Corporation to develop such information.

Toshiba ESS Corporation has a rational basis for determining the types of information customarily held in confidence by it, and utilizes a system to determine when and whether to hold certain types of information in confidence.

The basis for claiming the information so designated as proprietary is as follows:

- (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Toshiba ESS Corporation's competitors without license from Toshiba ESS Corporation constitutes a competitive economic advantage over other companies.
- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Toshiba ESS Corporation, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Toshiba ESS Corporation or customer funded development plans and programs of potential commercial value to Toshiba ESS Corporation.
- (f) It contains patentable ideas, for which patent protection may be desirable.
- (g) It contains security information that could reasonably be expected to be useful to a potential adversary.
- (h) It contains privacy act and personally identifiable information.

There are sound policy reasons behind the Toshiba ESS Corporation system which include the following:

- (a) The use of such information by Toshiba ESS Corporation gives Toshiba ESS Corporation a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Toshiba ESS Corporation competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Toshiba ESS Corporation ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Toshiba ESS Corporation at a competitive disadvantage by reducing his expenditure of resources at our expense.
- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Toshiba ESS Corporation of a competitive advantage.

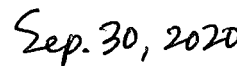
- (e) Unrestricted disclosure would jeopardize the position of prominence of Toshiba ESS Corporation in the world market, and thereby give a market advantage to the competition of those countries.
- (f) The Toshiba ESS Corporation capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (g) SECY-04-0191 states that security information should be withheld from public disclosure.
- (h) Personally identifiable information is required to be protected from public disclosure by 10 CFR § 2.390.

Further, on behalf of Toshiba ESS Corporation, I affirm that:

- (i) The Confidential Information is confidential and proprietary information of Toshiba ESS Corporation.
- (ii) The Confidential Information is information of a type customarily held in confidence by Toshiba ESS Corporation, and there is a rational basis for doing so given the sensitive and valuable nature of the Confidential Information as discussed above in paragraphs (D) and (E).
- (iii) The Confidential Information is being transmitted to the NRC in confidence.
- (iv) The Confidential Information is not available in public sources.
- (v) Public disclosure of the Confidential Document is likely to cause substantial harm to the competitive position of Toshiba ESS Corporation, taking into account the value of the Confidential Information to Toshiba ESS Corporation, the amount of money and effort expended by Toshiba ESS Corporation in developing the Confidential Information, and the ease or difficulty with which the Confidential Information could be properly acquired or duplicated by others.



Hideo Namihira  
Senior Manager  
Electrical System Design & Engineering Dept.  
Power Systems Division  
Toshiba Energy Systems & Solutions Corporation



Date