

# Technology Collaboration Program on High Temperature Superconductivity

## HTS APPLICATIONS MAY INFLUENCE INTERNATIONAL STANDARDIZATION ACTIVITY

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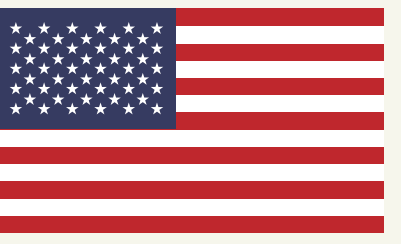
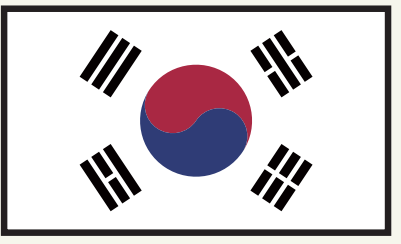
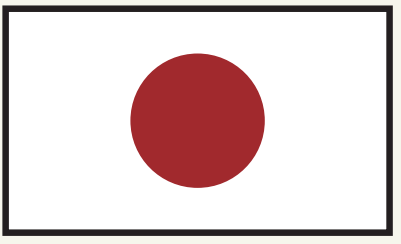
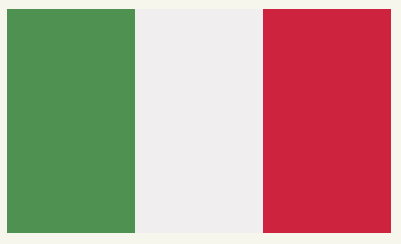
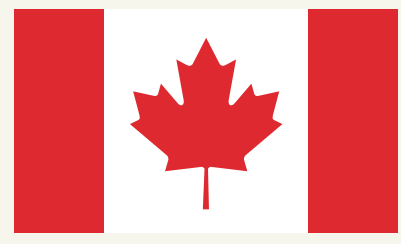


### BACKGROUND AND MOTIVATION

#### IEA-HTS-TCP<sup>1</sup>

Dissemination of HTS technology and industry → accelerating HTS industrialization

**Members include**  
• 9 contracting partners  
• 2 sponsors

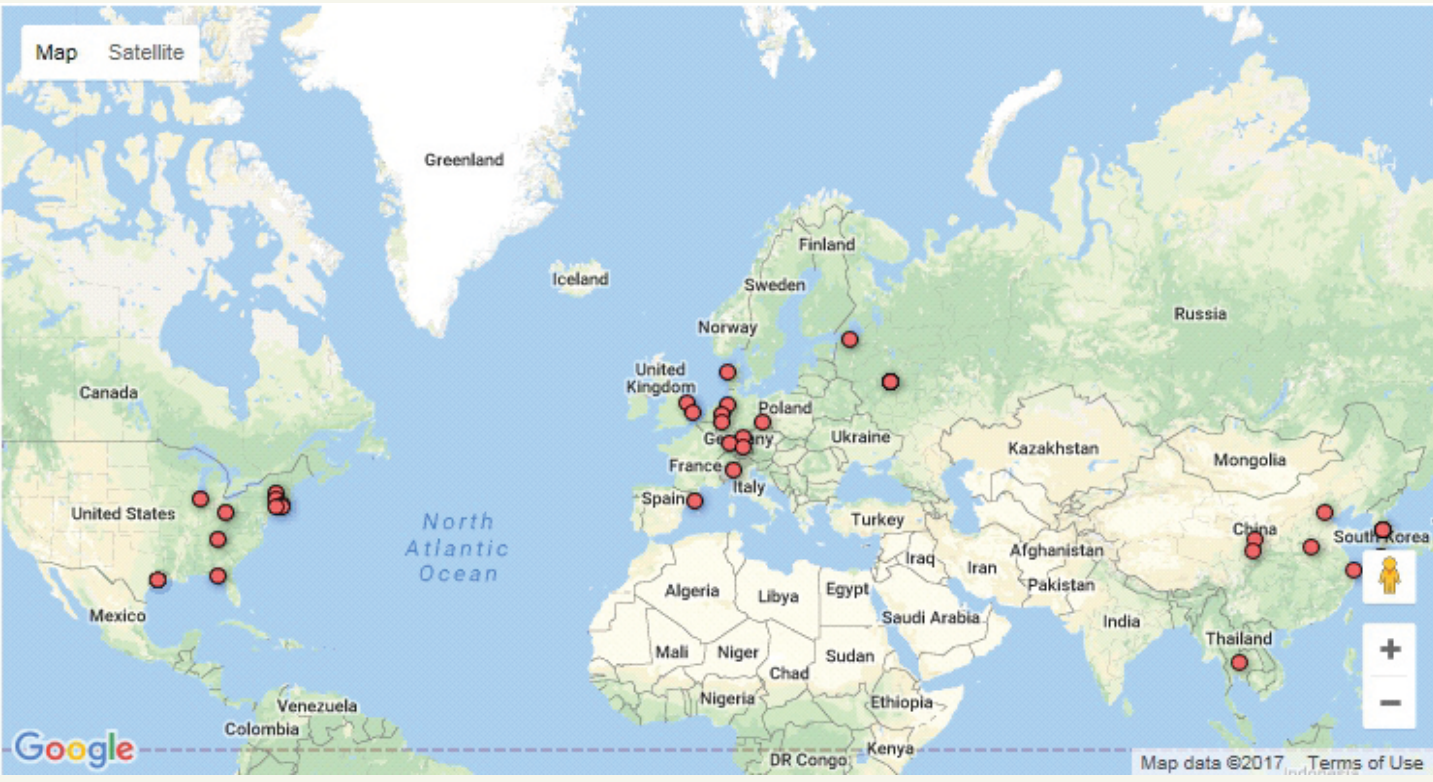


**Mission:** To evaluate the status and assess the prospects for future use of HTS by the electric power sector within the developed and developing world and to disseminate these results to decision makers in government, the private sector, and the R&D community.

The HTS TCP conducts outreach directed toward four groups of stakeholders: Electric utilities, governments, the professional engineering community, and the RD&D community. These four groups are sources of expertise that can inform the evaluations and assessments performed under the TCP.

### HTS-TCP ACTIVITY<sup>1</sup>

#### World Project at a Glance

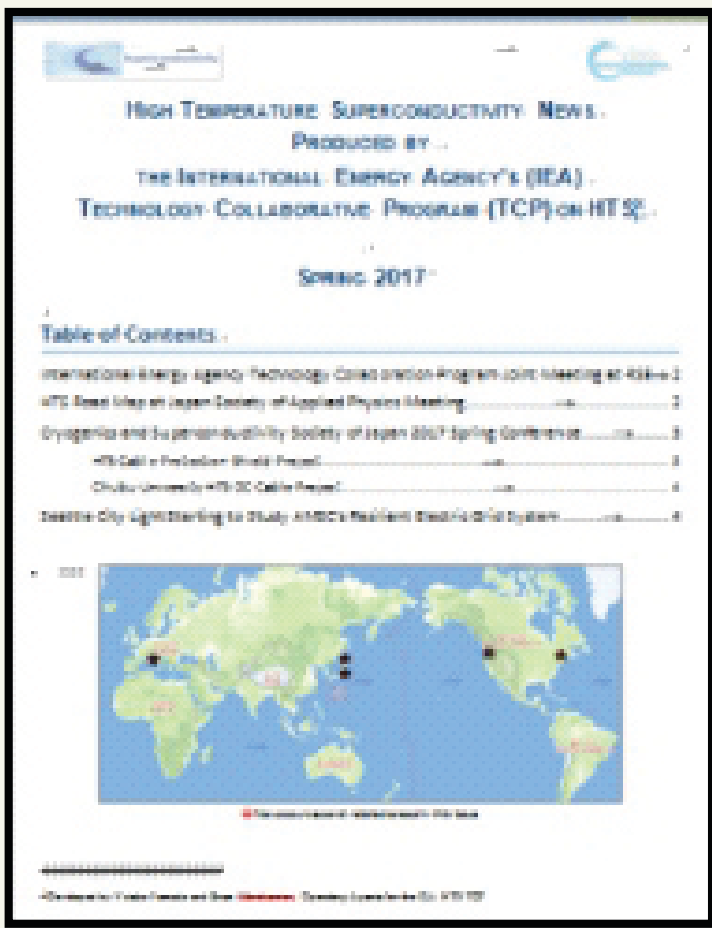


This interactive and continually-updated map on the HTS TCP website bookmarks ongoing projects and provides a platform where users can get information about each project simply selecting the desired project.

#### HTS News Journal

Seasonally published at website:  
[www.ieahts.org](http://www.ieahts.org).

Hot news and trends in electric power and energy applications of HTS, including HTS wire and cooling system.



2017 Summer Issue

#### ExCo (Executive Committee) Meeting

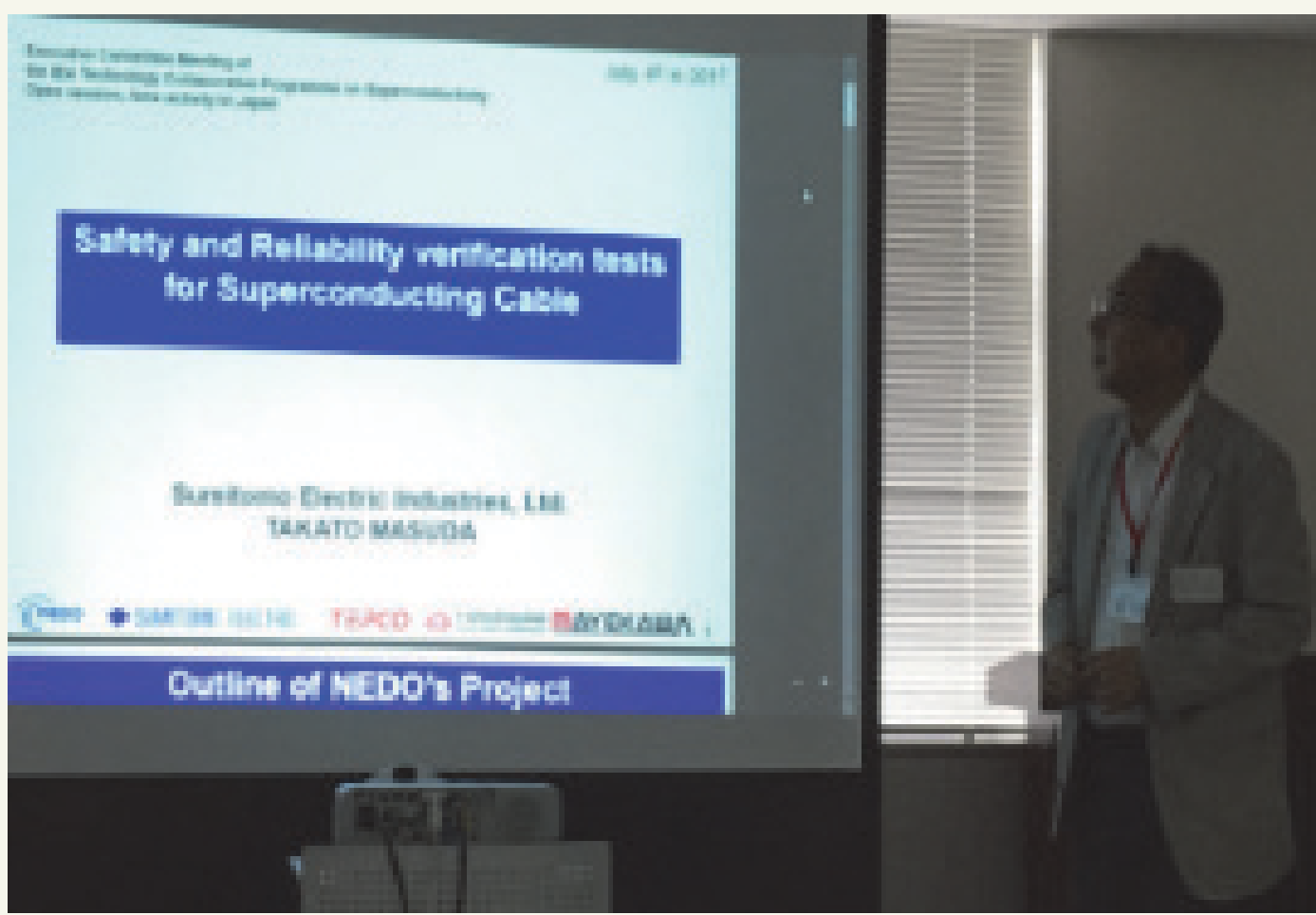
Held 2-3 times a year in major cities or at conferences

Discussions include:

- Host country's topics and discussions
- Member country's HTS activity



Exco in Milan, Italy: Jan. 2017



Exco in Kawasaki, Japan: July, 2017

(Above) The ExCo discussed HTS cable commercialization and what is needed from now on with HTS industry experts in host and member countries.

(Left) Discussion about IEA-TCP cooperation to solve global and common energy issues.

### STANDARDIZATION STATUS<sup>2-6</sup>

The main standardization committee on Superconductivity: IEC TC 90

Established in 1989  
People Involved: 97 from 24 countries  
Number of Working Groups (WG): 14

Product Standards  
IEC 61788-14: 2010  
IEC 61788-20: 2014



Superconductivity - Part 14: Superconducting power devices - General requirements for characteristic tests of **current leads** designed for powering superconducting devices

Superconductivity - Part 20: Superconducting wires - **Categories of practical superconducting wires** - General characteristics and guidance

Many Standards developed, but only few concerned with products!

TERMINOLOGY  
TEST  
METHODS  
PRODUCT  
STANDARD

### EFFORT AND COOPERATION FOR STANDARDIZATION<sup>2-6</sup>



TC 90<sup>4, 5</sup>  
«Superconductivity»

WG D1.64<sup>2</sup>

“Electrical insulation systems at cryogenic temperatures”

**SCOPE:** Fundamentals and applications on electrical insulation techniques for superconducting power apparatus and other applications to be operated at cryogenic temperatures.

Start: 2016  
Final report: 2019

Exco meeting supports and accelerates

The project team of the IEC TC 20 (Electric Cables) is preparing the draft document of IEC 63075 Ed.1<sup>6</sup> “High temperature superconducting power cables and their accessories for rated voltages from 6 kV”

WG D1.69<sup>3</sup>

“Guidelines for test techniques of High Temperature Superconducting systems”

**SCOPE:** To study the existing HTS power installations and compile the relevant data that will assist the power industry to test HTS technology used in the transmission and distribution grid.

Start: 1<sup>st</sup> Quarter 2017  
Final report: 2020



### CONCLUSION AND OUTLOOK

The information exchange within the HTS TCP is often the starting point to develop real standards influencing the present and future power systems design. The IEA-HTS-TCP supports and accelerates this standardization through regular Executive Committee meetings and public relations and outreach.

#### REFERENCES

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2. N. Hayakawa, "ToR Working Group CIGRE D1.64", Dec.2015.  
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5. "Strategic Business Plan – TC90", January 26, 2016, Available: <http://www.iec.ch/public/miscfiles/sbp/90.pdf>  
6. [http://www.iec.ch/dyn/www/?p=103:14:17067462617761:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:19461,25](http://www.iec.ch/dyn/www/?p=103:14:17067462617761:::FSP_ORG_ID,FSP_LANG_ID:19461,25)