

Welcome

IEA TCPs Joint Workshop

Energy Efficiency in Future Electricity Systems: The Invisible Fuel



Tuesday 31st January 2017, Milano
RSE – Via Rubattino 54 – 20134
Milano - Italy

IEA TCPs Joint Workshop at RSE

The TCPs

HTS

The HTS TCP aims to analyze superconductivity technology, monitor developments in industry standards, and assess the benefits and existing barriers to deployment. It brings together utilities, funding agencies, manufacturers, laboratories and trade organizations to enable significant improvements in the generation, transmission, distribution and use of electric power. A recent roadmap was developed by the TCP for the widespread integration of high-temperature superconductors into the electricity supply network and highlights. Website: <http://www.ieahts.org>

ISGAN

ISGAN is the International Energy Agency (IEA) Technology Collaboration Programme on Smart Grids, and an initiative of the Clean Energy Ministerial. ISGAN facilitates dynamic knowledge sharing, technical assistance, and project coordination, where appropriate. ISGAN participants report periodically on progress and projects to the Ministers of the Clean Energy Ministerial, in addition to satisfying all IEA Implementing Agreement reporting requirements. The ISGAN TCP aims to advance policy, technology and related standards for smart grids by raising awareness of their benefits, developing tools for implementation, and co-ordinating joint projects. The annual ISGAN TCP Award of Excellence has become a global mark for outstanding projects and best practices on smart grids development and deployment.

Website: <http://www.iea-isgan.org>

DSM

The DSM TCP focuses on strategies for modifying the demand of energy from end-users using technological solutions, regulatory or financial incentives, and other means of encouraging behavioral change. By reducing or shifting demand according to a power system's needs, investment in power generation and grid capacity can be deferred or avoided, with benefits in both fast-growing economies where much power infrastructure is yet to be built, and in established systems where ageing infrastructure needs to be replaced. Website: <http://www.ieadsm.org>

4E

The 4E TCP supports sound policy development in the field of energy efficiency end-use equipment by providing a forum for governments and other stakeholders to understand effective approaches to policy making. A comparison of results from 110 LED testing laboratories around the world has helped to improve the reliability of data for lighting products. Website: <http://www.iea-4E.org>

Traveling and lodging

A block of rooms have been reserved in the following hotels – please refer to the reservation code: ISGAN

- HOTEL GAMMA: Via Carlo Valvassori Peroni, 85, 20133 Milano – Phone: +39 02 26413152 Web Site: <http://hotelgammamilano.it/en/hotel/>
- HOTEL LOMBARDIA: Viale Lombardia, 74/76 - 20131 Milano Phone: +39 02 2824849 Web Site: <http://hotellombardia.com/>
- HOTEL NOVOTEL LINATE AEROPORTO: Via Mecenate, 121 Milano – Phone: +39 02 507261 Web Site: <http://www.novotel.com/it/booking/hotels-list.shtml>
- HOTEL CAVOUR: Via Fatebenefratelli, 21 20121 Milano – Phone +39 02 620001 Web Site: <http://www.hotelcavour.it/en/>

HOW TO REACH THE VENUE

From CENTRAL Railway Station: take Green Line Underground (direction GESSATE or COLOGNO M.). Stop at LAMBRATE FS (Railway Station) - about 10 minutes.

- Bus 39 (best before 9.00 am) to Rubattino/Redeciesio from "Bottini" square
- Bus 924 (all times) Terminus behind Lambrate railway station (use the Railway underpass in Lambrate FS station)

On both buses get off at stop "Rubattino n. 54" - Tangenziale Est

From Linate Airport: Taxi 10 min (max 25€)

From Malpensa Airport: Taxi 50 min (around 85€) or better:

- Train to Cadorna station and then the Green Line metro direction COLOGNO M. or GESSATE and get off at Lambrate Station
- Shuttle bus to Central Station, take the Green Line metro direction COLOGNO M. or GESSATE and get off at Lambrate Station

Interested to participate?

Please contact:

Marilena.martinelli@rse-web.it or

francesca.delarderel@rse-web.it



IEA TCPs Joint Workshop

Energy Efficiency in Future Electricity Systems: The Invisible Fuel

**Tuesday 31st January 2017, Milano
RSE – Via Rubattino 54 – 20134**

**Milano - Italy
10h00 - 18h00**

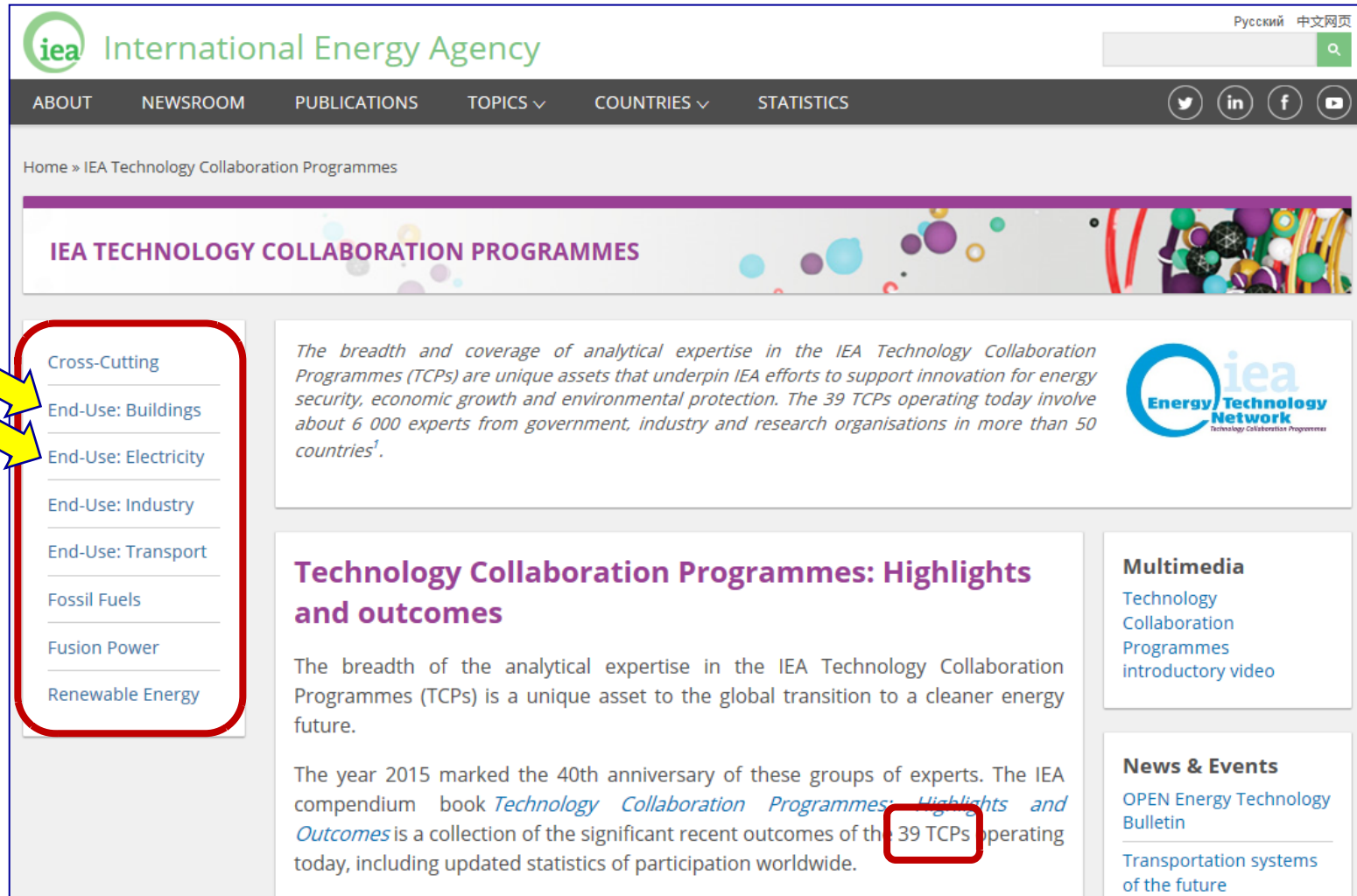


Joint TCPs Workshop

TUESDAY January 31st 2017

9.30 – 10.00	Registration
10.00 – 10.15	Introduction - G. Maas - Chair EUWP
	<i>Introduction to the TCPs:</i>
	• HTS: L. Martini - Chair
10.15 – 11.00	• ISGAN: M. de Nigris - Chair
	• DSM: R. Kool - Chair
	• 4E: R. Brueniger - Delegate
11.00 – 11.15	Coffee break
	<i>System aspects and regulation:</i>
Session 1	• K. Widegren (ISGAN): <i>The power grid as an enabler for an efficient utilization of renewable resources</i>
11.15-12.45	• R. Conklin (SEAD): <i>Resources and Opportunities through the SEAD Initiative</i>
	• S. Gross (DSM): <i>Helping Behavior Changers for more effective market uptake of DSM energy services</i>
	Discussion
	<i>Capacity building and outcomes:</i>
Session 2	• H. Nilsson (DSM): <i>University</i>
12.45 - 13.15	• J.P. Chaves (ISGAN): <i>Academy of smart grids</i>
	• M. Noe (HTS): <i>ESAS and progress in HTS device development in Europe</i>
	Discussion
13.15 - 14.15	Lunch break
	<i>Technological development and standards:</i>
Session 3:	• B. Marchionini (HTS): <i>The HTS Roadmap 2015 - 2030</i>
14.15 - 15.45	• R. Brueniger (4E): <i>Energy Efficiency in 4E: Standards and Roadmaps</i>
	• R. Conklin (ISGAN): <i>Smart Grid testing work under ISGAN's SIRFN</i>
	Discussion
15.45 - 16.00	Tea break
	<i>Collaboration and call for action</i>
16.00 - 17.30	<i>Round table on possible joint activities and annexes among the 4 TCPs, outreach towards CEM — CEM8 round tables & future campaigns</i>
18.00	End of workshop

About the IEA Technology Collaboration Programmes



International Energy Agency

ABOUT NEWSROOM PUBLICATIONS TOPICS COUNTRIES STATISTICS

Home » IEA Technology Collaboration Programmes

IEA TECHNOLOGY COLLABORATION PROGRAMMES

- Cross-Cutting
- End-Use: Buildings
- End-Use: Electricity
- End-Use: Industry
- End-Use: Transport
- Fossil Fuels
- Fusion Power
- Renewable Energy

The breadth and coverage of analytical expertise in the IEA Technology Collaboration Programmes (TCPs) are unique assets that underpin IEA efforts to support innovation for energy security, economic growth and environmental protection. The 39 TCPs operating today involve about 6 000 experts from government, industry and research organisations in more than 50 countries¹.

Technology Collaboration Programmes: Highlights and outcomes

The breadth of the analytical expertise in the IEA Technology Collaboration Programmes (TCPs) is a unique asset to the global transition to a cleaner energy future.

The year 2015 marked the 40th anniversary of these groups of experts. The IEA compendium book *Technology Collaboration Programmes: Highlights and Outcomes* is a collection of the significant recent outcomes of the 39 TCPs operating today, including updated statistics of participation worldwide.

Multimedia
Technology Collaboration Programmes introductory video

News & Events
OPEN Energy Technology Bulletin
Transportation systems of the future

About the IEA Technology Collaboration Programmes

Cross-Cutting

End-Use: Buildings

- » Buildings and Communities (EBC TCP)
- » District Heating and Cooling (DHC TCP)
- » Energy Efficient End-Use Equipment (4E TCP)
- » Energy Storage (ECES TCP)
- » Heat Pumping Technologies (HPT TCP)

End-Use: Electricity

- » Demand-Side Management (DSM TCP)
- » High-Temperature Superconductivity (HTS TCP)
- » Smart Grids (ISGAN TCP)

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IEA Technology Collaboration Program on **High-Temperature Superconductivity** (IEA HTS TCP)

Luciano Martini
Chairman

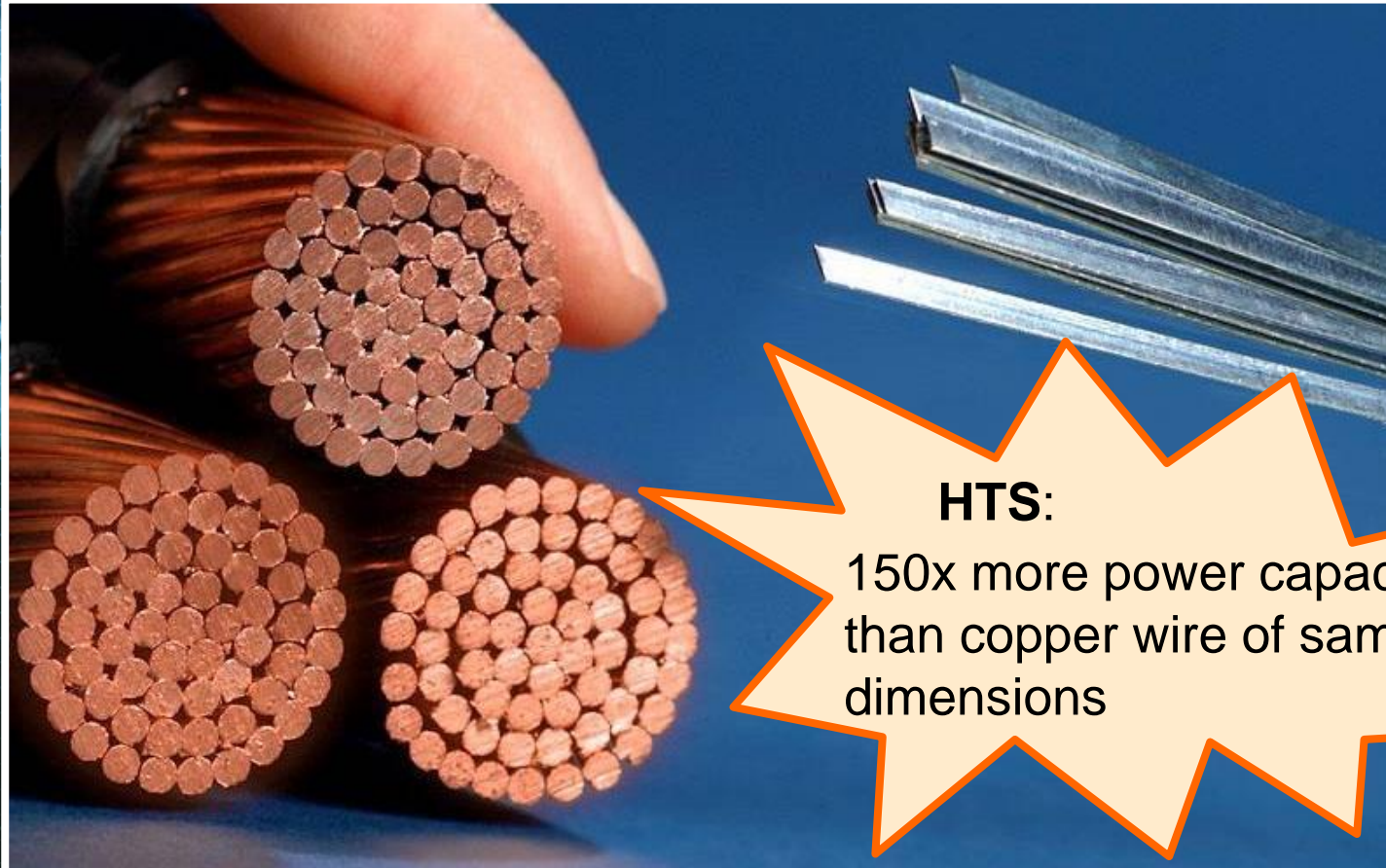
**IEA TCPs Joint
Workshop**

**31 January 2017
Milano, Italy**

www.ieahts.org



CONVENTIONAL versus SUPERCONDUCTING



HTS:

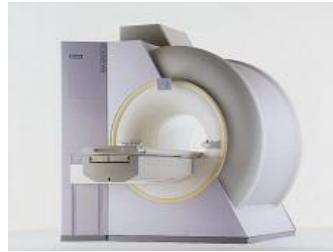
150x more power capacity
than copper wire of same
dimensions

Superconductivity: Large scale Applications

Present Market

~ 5 b\$/year

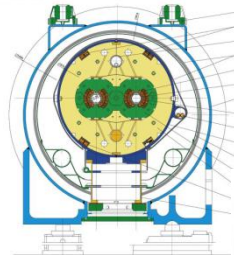
**MRI Systems
(Magnetic
Resonance Imaging)**



**NMR Systems
(Nuclear Magnetic
Resonance)**

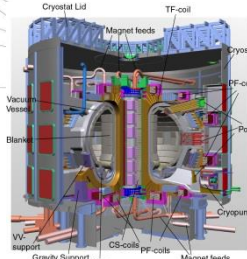


**Magnets for Particle
Accelerators and
Detectors**



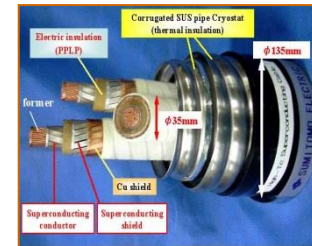
Magnets for ITER

High Field Magnets

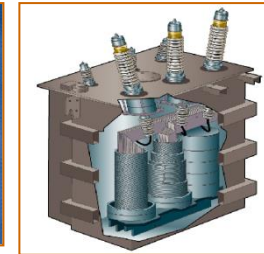


Future Market

HTS Components and devices



Cables

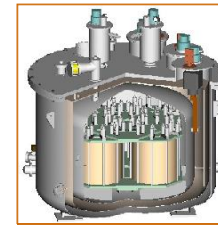


Transformers

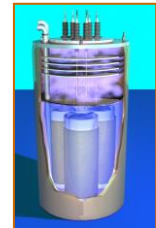


**Motors
Generators**

New Devices



**SMES
Superconducting
Magnetic Energy
Storage**

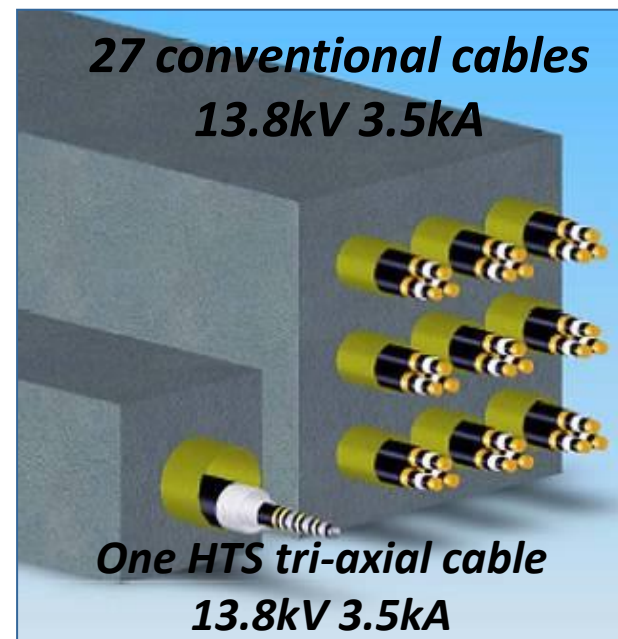


**SFCL
Superconducting
Fault Current
Limiter**

Why HTS for the Electric Grid?

- HTS is the most efficient electricity carrier, reducing energy losses and carbon emissions
- HTS based devices such as cables, fault current limiters (FCLs), transformers and energy storage devices are intrinsically smart, can limit overcurrents, and provide grid resilience
- HTS cables can provide up to 10 times higher capacity than conventional cables and carry transmission power at distribution voltages
- HTS cables have reduced right-of-way requirements and can be readily permitted in dense urban areas
- HTS FCLs improve system reliability when renewables and distributed generation are added to the grid

**Which Role can play Superconductivity
in the Power Sector ?**



About the IEA HTS Technology Collaboration Program

- Brings together government and funding Agencies representatives, researchers, equipment manufacturers and utility end-users to address common interests.
- Participants sponsor studies, workshops, exchange information, introduce their research facilities to other participants and guide the assessments.
- Participants also ask experts from their countries to provide input and to peer-review draft reports.
- Strategic documents, minutes of meetings, and workshop presentations are published on the website.

Contracting Party Information

Canada

Julian Cave Ph.D
Hydro Quebec, Institut de recherche



Finland

Prof. Risto Mikkonen
Tampere University of Technology
Dr. Antti Stenvall
Tampere University of Technology



Germany

Tabea Arndt, Ph.D
Siemens AG
Prof. Dr. Mathias Noe
ITP Karlsruhe Institute of Technology



Israel

Prof. Guy Deutscher
Tel Aviv University
Dr. Yoel Cohen
Ministry of National Infrastructures



Italy

Dr. Luciano Martini - Chairman
Executive Committee
RSE S.p.A
Dr. Michele de Nigris
RSE S.p.A



Japan

Mr. Susumu Kinoshita
NEDO
Prof. Hiroyuki Ohsaki - Vice-Chairman
University of Tokyo



Korea

Mr. Si-Dol Hwang
Korea Electric Power Research Institute
Prof. Gye-Won Hong
Korea Polytechnic University



Switzerland

Dr. Bertrand Dutoit
Ecole Polytechnique Fédérale de Lausanne
Mr. Roland Brüniger
Swiss Federal Office of Energy



United States

Ms. Debbie Haught
U.S. Department of Energy
Dr. Dominic Lee
Oak Ridge National Lab



Sponsor Contact Information

Dr. Klaus Schlenga
Bruker HTS GmbH
Dr. Giovanni Grasso
Columbus Superconductor

Operating Agent Information

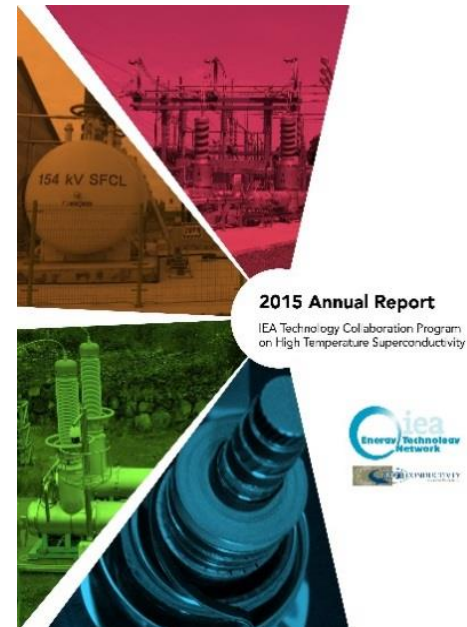
Brian Marchionini
Energetics Incorporated (USA)

Yutaka Yamada
Neo Japanese Green Energy Laboratory (Japan)

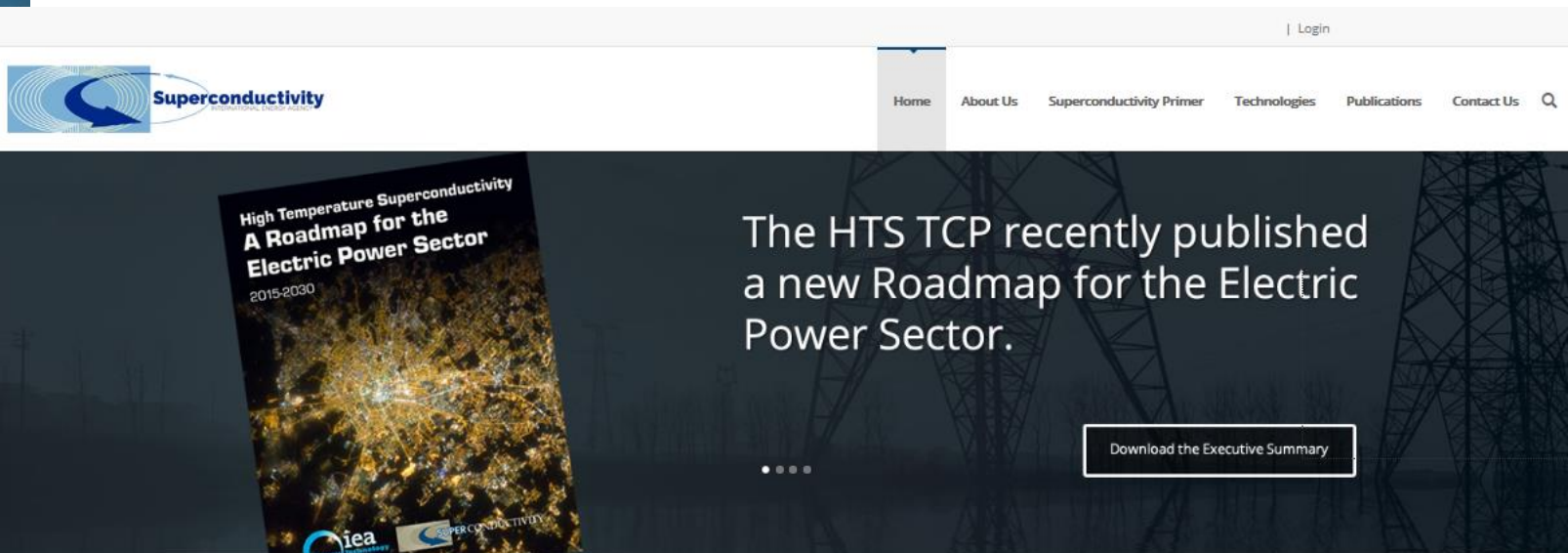
IEA Technology Collaboration Program on HTS: Main Activities



- Technical communications and outreach (e.g. Annual Report and HTS Applications Roadmap)
- Share policy and technical information among TCP participants
- Develop website content with technical and policy information
- Stay current with HTS interest groups and IEA activities
- Organize technical Workshops
- Support in promoting TCP visibility
- Coordination with other IEA groups such as ISGAN



For more information please visit: www.ieahts.org



WHAT'S NEW

- Collaboration with other IEA TCPs
- HTS Roadmap Summary
- Learn how the HTS TCP is fostering the young generation of scientists
- Interested in Membership?

Events

- 30 Jan – 1 Feb, HTS TCP ExCo Meeting
- We are organizing a special session at the Applied Superconductivity Conference
- IEEE CSC Events Calendar

Links

- Related HTS websites

SUPERCONDUCTIVITY

Superconductivity is a phenomenon that causes certain materials, at low temperatures, to lose all resistance to the flow of electricity. The lack of resistance enables a range of innovative technology applications. Devices based on superconductivity have been available in certain niche markets for decades. In particular, superconducting magnets are used in many applications requiring powerful electromagnets, such as in magnetic resonance imaging (MRI) machines.

[Learn More](#)

PROJECTS

HTS based projects have been energized across the world to demonstrate their applicability in modernizing the electric grid.

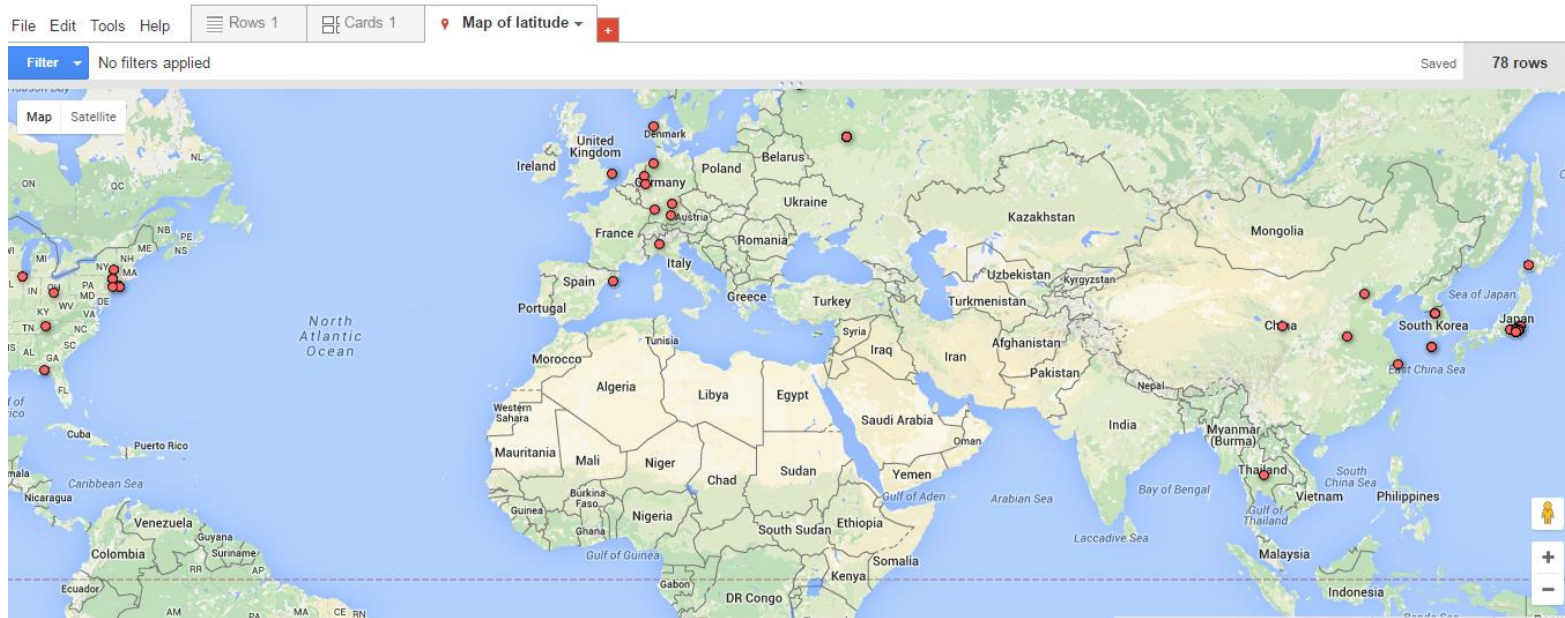
[Learn More](#)

FOR MORE INFORMATION

World Projects at a Glance

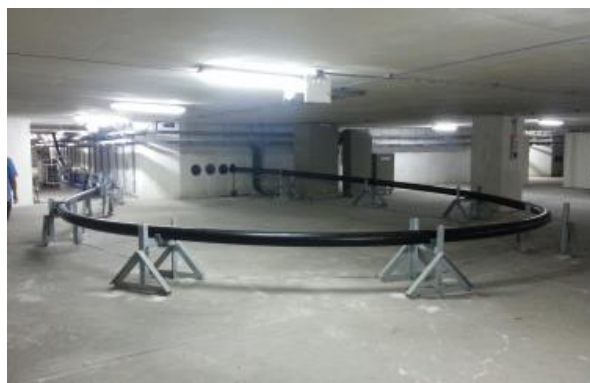
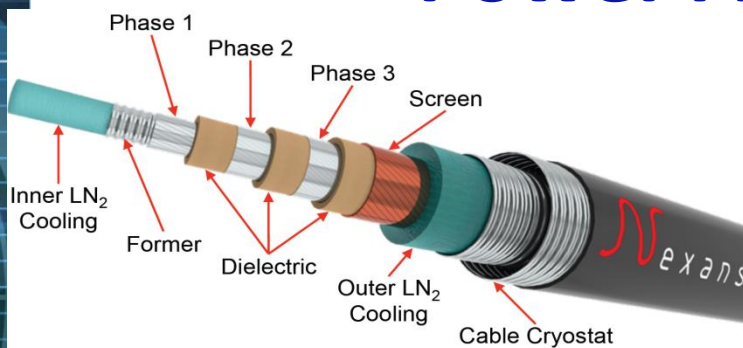
Technical monitoring of HTS projects:

- Covers EU, US, Korea, Japan, China, Russia
- Focus is on electric power projects
- Updated periodically



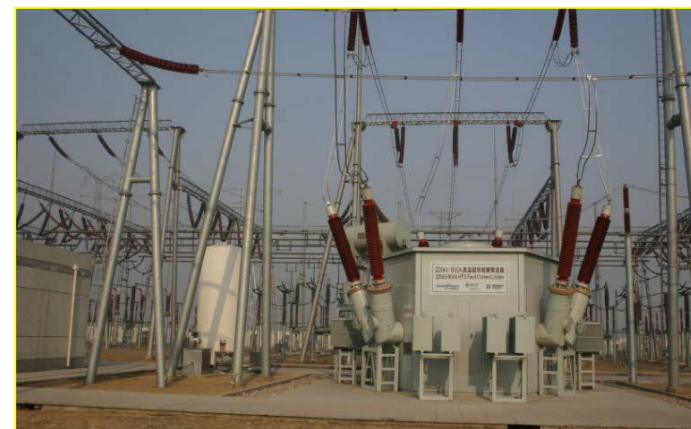
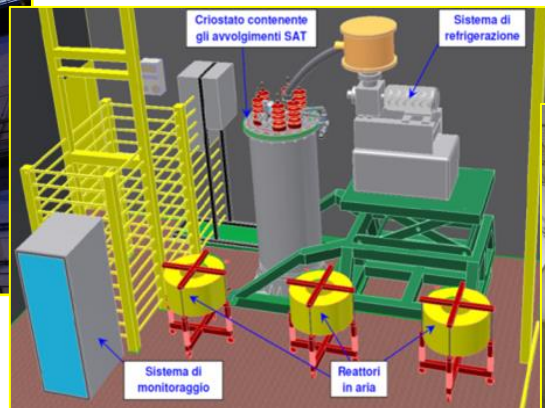
The Role of Superconductivity for Power Applications

HTS Cables



The Role of Superconductivity for Power Applications

SFCL



An abstract background with a dark blue gradient. It features several white rectangular outlines of varying sizes, some of which are partially filled with a lighter blue color. There are also numerous small, bright white and light blue circular bokeh effects scattered throughout the composition. The overall aesthetic is modern and digital.

