

# Opening Remark

## Big Challenge for ICT Energy

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**Ex-Officio and Thermal Management Chair INTELEC**

**On behalf of**

**KEIICHI HIROSE, Ph.D.**

***INTELEC President (IEEE PELS TC7 Chair)***

**The Seminar, Thermal Management of Electronic Systems**

**ÅF, Grafiska vägen 2, 401 51 Göteborg**

**November 27, 2018**

# About IEEE



- Institute of Electrical and Electronics Engineers
- IEEE is the world's largest association of technical professionals with more than 420,000 members in over 160 countries around the world.
- IEEE is the trusted “voice” for engineering, computing, and technology information around the globe.

## IEEE SOCIAL MEDIA IN 2016

  
**9,000,000+**  
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 NEARLY **2,000,000**  
 PEOPLE ENGAGING WITH IEEE  
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 **180,000+**  
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 **80,000+**  
 FOLLOWERS

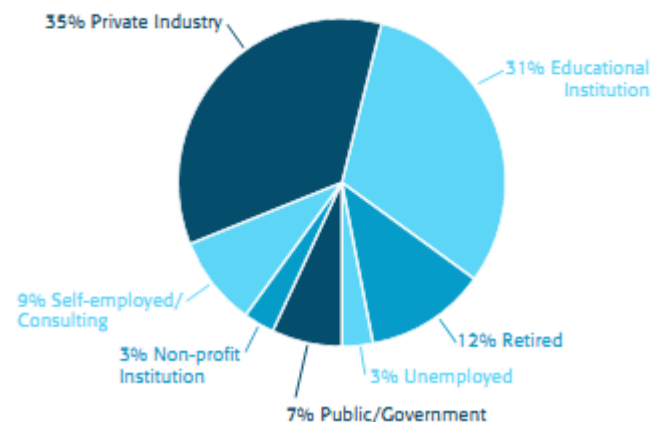
 **100,000+**  
 FOLLOWERS

  
**117,000**  
 STUDENT MEMBERS

## TOP 5 COUNTRIES FOR STUDENT MEMBERSHIP



## MEMBER WORKFORCE



Source: IEEE 2016 ANNUAL REPORT

# What is the INTELEC®, TC7?

INTELEC® is the IEEE trademark of the

## International (Tele) Communications Energy Conference

It is a world-wide annual congress which began in 1978.

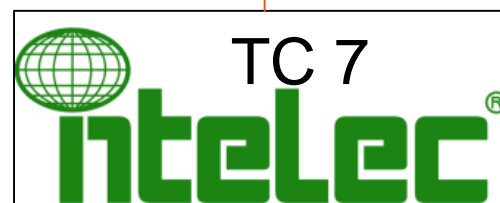
INTELEC has been sponsored by PELS since 1991.



39 Societies  
(The PELS was  
founded in 1988.)

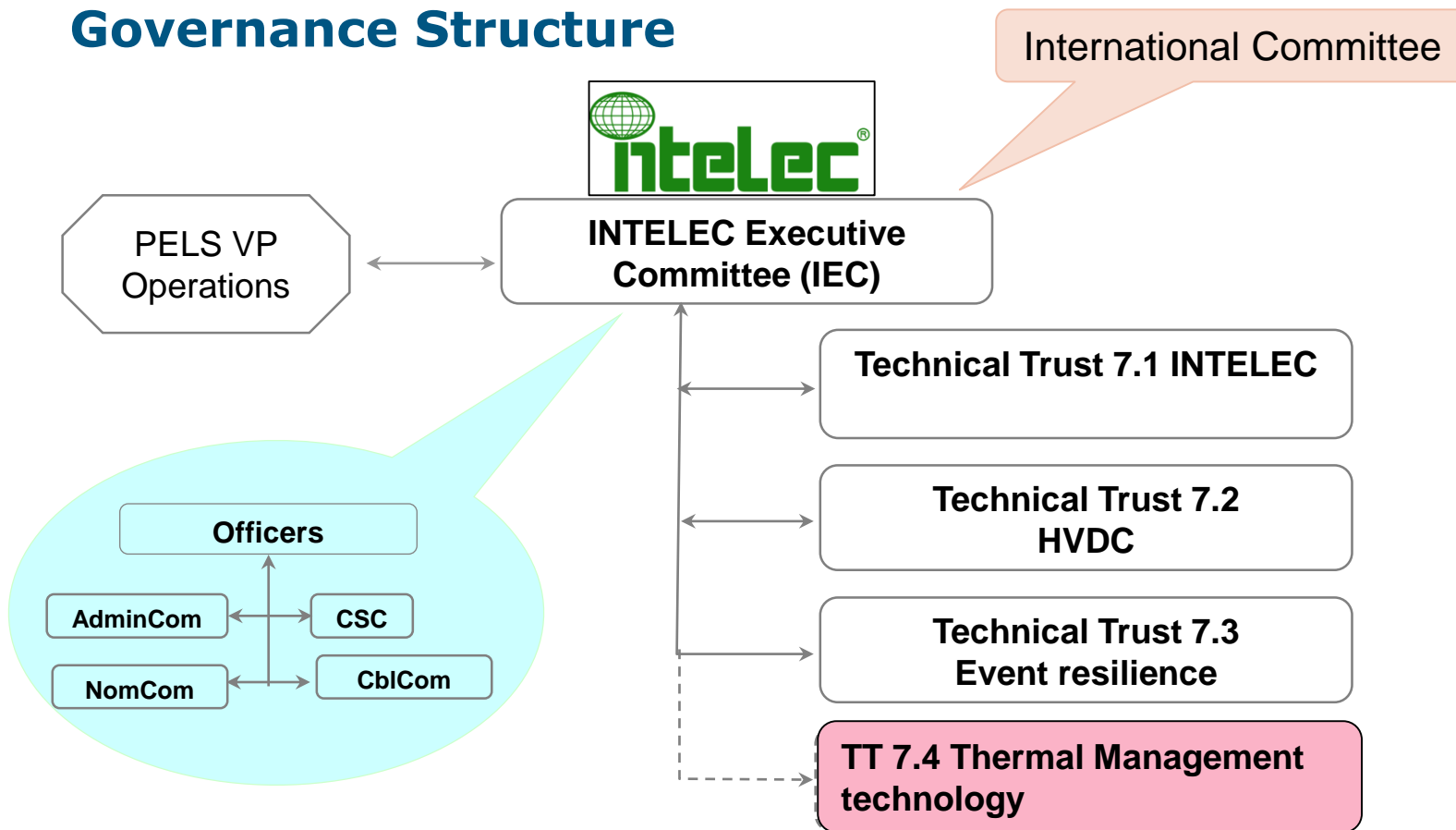


- IEEE Power Electronics Society, Technical Committees
- TC 1: Power & Control Core Technologies
  - TC 2: Power Conversion Systems And Components
  - TC 3: Motor Drives and Actuators
  - TC 4: Vehicle and Transportation Systems
  - TC 5: Sustainable Energy Systems
  - TC 6: High Performance and Emerging Technologies
  - **TC 7: Communication Energy Systems (INTELEC)**



# TC 7: Communications Energy Systems

## Governance Structure



# INTELEC World-wide Venues

1978 Washington, DC, USA

1979 Washington, DC, USA

1981 London, UK

1982 Washington, DC, USA

1983 Tokyo, Japan

1984 New Orleans, USA

1985 Munich, Germany

1986 Toronto, Canada

1987 Stockholm, Sweden



1988 San Diego, USA

1989 Florence, Italy

1990 Orlando, USA

1991 Kyoto, Japan

1992 Washington, DC, USA

1993 Paris, France

1994 Vancouver, Canada

1995 The Hague, Netherlands

1996 Boston, USA

1997 Melbourne, Australia

1998 San Francisco, USA

1999 Copenhagen, Denmark

2000 Phoenix, USA

2001 Edinburgh, UK

2002 Montreal, Canada

2003 Yokohama, Japan

2004 Chicago, Illinois, USA

2005 Berlin, Germany

2006 Providence, RI, USA

2007 Rome, Italy

2008 San Diego, USA

2009 Incheon, South Korea

2010 Orlando, USA

2011 Amsterdam, Netherlands

2012 Scottsdale, USA

2013 Hamburg, Germany

2014 Vancouver, Canada

2015 Osaka, Japan

2016 Austin, USA

2017 Gold coast, Australia

2018 Turin, Italy

2019 Singapore

2020 Malmö, Sweden



**NA**  
**20**

**USA 16**  
**Canada 4**

**Europe**  
**13**

**Germany 3**  
**Italy 3**  
**UK 2**  
**Netherlands 2**  
**France 1**  
**Sweden 1**  
**Denmark 1**

**APAC**  
**7**

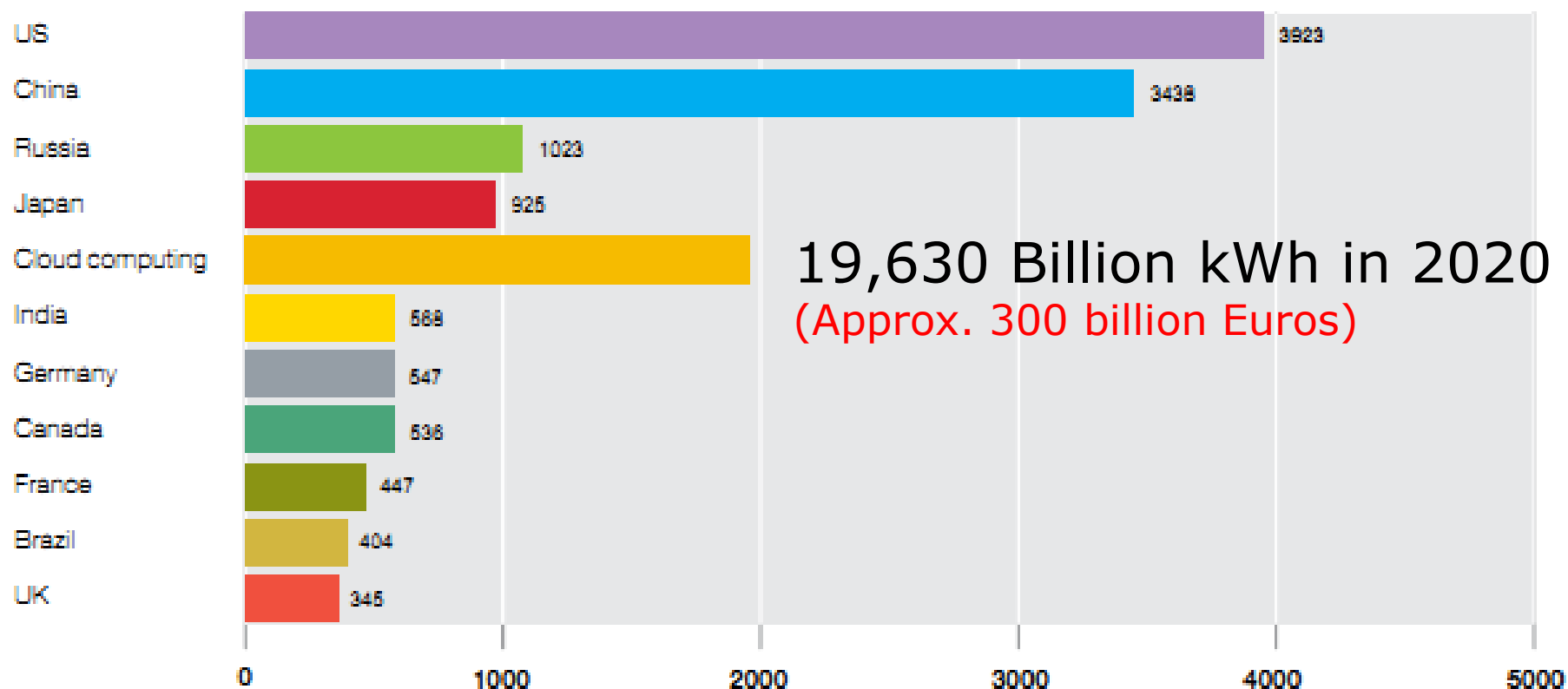
**Japan 4**  
**Australia 2**  
**South Korea 1**

# Electricity Consumption by ICT Services

## Motivation 1: Energy saving and cost cut

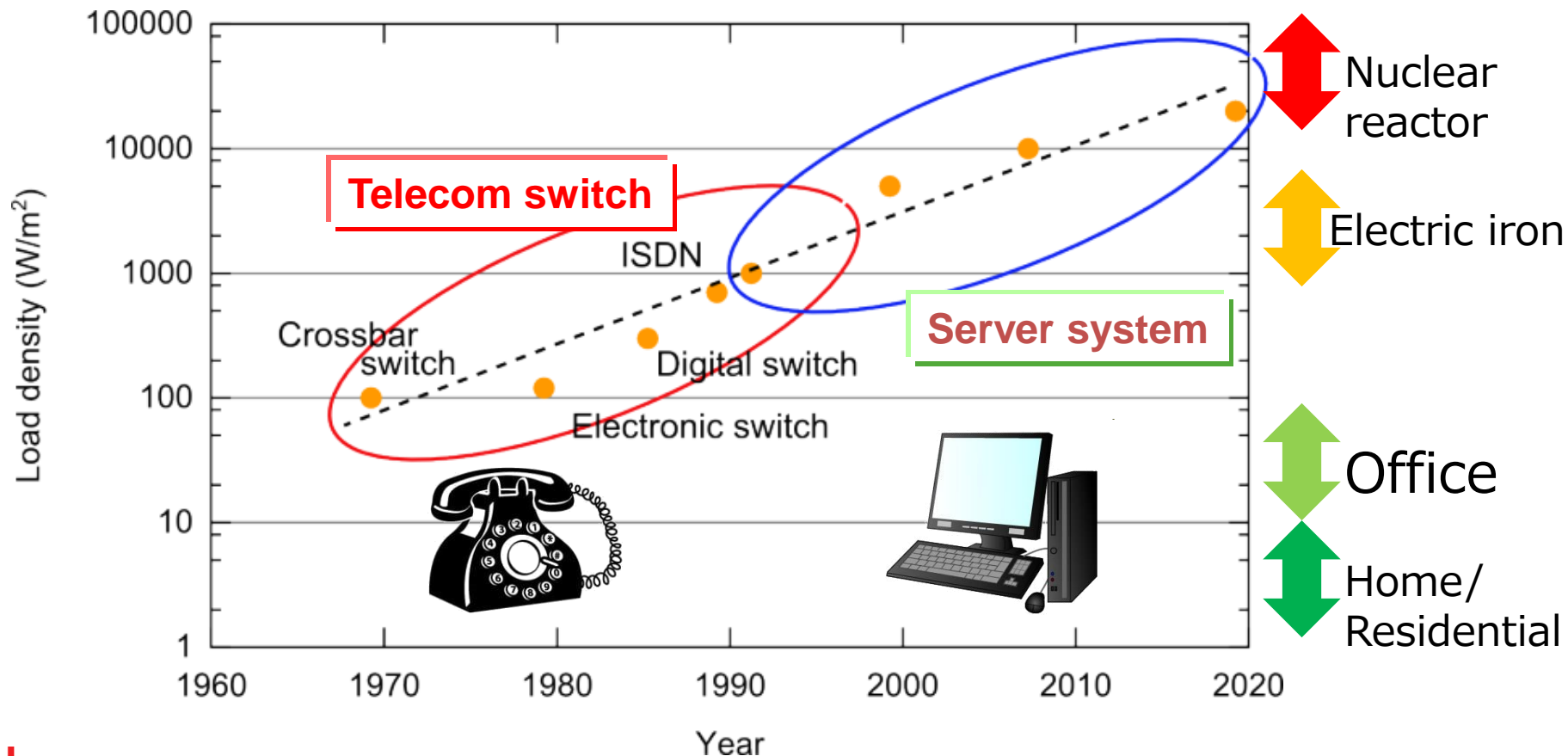
2007 electricity consumption. Billion kWh

Source: SMART 2020: Enabling the low carbon economy in the information age



# Increasing Load Power Density for ICT services

## Motivation 2: Requirement for High power density loads



# Last Year's Seminar TMoES

- ÅF in Stockholm
- Around 140 attendees



2018



2017



Industrial partners  
from 7 to 16

# TC on Communications Energy Systems

***The 41<sup>st</sup> INTELEC 2019***

**13-17 October, 2019**

**Resorts World Sentosa, Singapore**





<http://www.intelec2019.org>



RESORTS WORLD SENTOSA | SINGAPORE

13 – 17 OCTOBER

41<sup>st</sup> International Communications Energy Conference

# 42<sup>nd</sup> Intelec, 2020 in Malmö Sweden



## INTELEC 2020

Malmömässan, Malmö, Sweden

27<sup>th</sup> Sep. – 1<sup>st</sup> Oct.

*Organizers and Sponsors:*



*Supported by:*



# We Can Do it!

**INTELEC** is one of the best communities to discuss the whole ICT energy issues world-wide. On other word, our community plays very important role to address these hot issues.

**INTELEC** would strongly support the thermal management area as a new technical trust (T.T 7.4).

Your contributions are essential for the **PELS** and **INTELEC** as well as ICT industry.

***Let's get Experience and Knowledge together!***

# Coordinating Team



Hans Bjarnehed  
Specialized Technical Services, ÅF



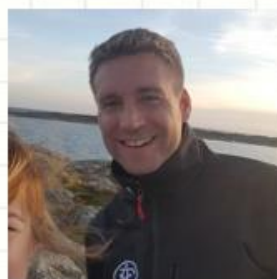
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