

# **International Research Center of Advanced Energy Systems for Sustainability**

Research Platform for a Low Carbon Society



**Tokyo Institute of Technology**

# Solutions toward a Low Carbon Society

## Director's Message

Institute Professor

**Takao Kashiwagi**



Solutions Research Laboratory, Tokyo Institute of Technology (Tokyo Tech), founded the International Research Center of Advanced Energy Systems for Sustainability (AES Center) in September 2009 as a ten-year organization for conducting solutions research aimed at achieving a low carbon society.

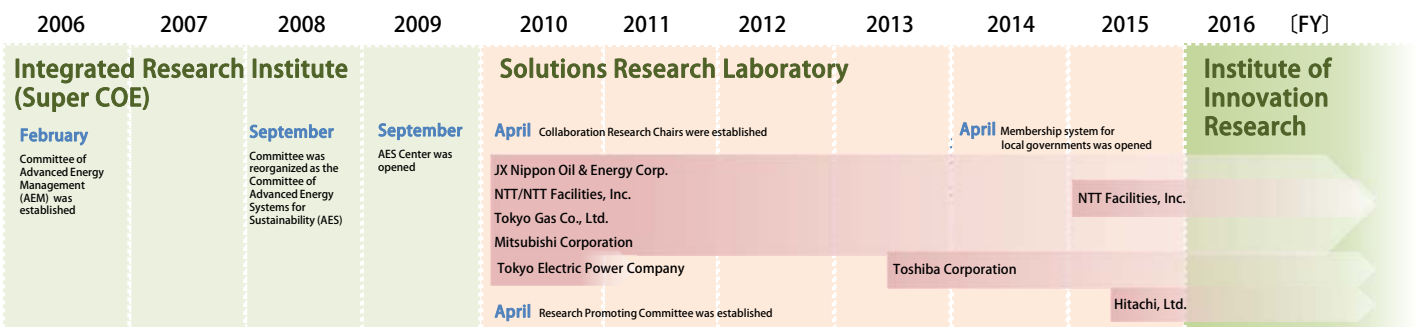
AES Center undertakes the creation of Advanced Energy Systems for Sustainability (AES) in which a large amount of renewables and innovative technologies are deployed in the existing power network, contributing to the mitigation of global warming and stable energy utilization. The Great East Japan Earthquake followed by the nuclear plant accidents in March, 2011, have made a huge impact on the Japan's energy systems. Therefore, it is imperative to develop and demonstrate key technologies as well as system applications, and propose a grand design and policy plan.

AES Center offers an Innovation Platform in which industries, governments, consumers, NPOs and other organizations can take part, addressing societal needs, driving AES projects and providing solutions to issues necessary for achieving a low carbon society. We focus not only on the academic research, but also the solutions to solve the problems faced by society and industry.

## Missions

- ① Build a collaboration platform among industry, government and academia for open innovation
- ② Promote solution research on energy systems to achieve a low carbon society
- ③ Create and promote projects for Advanced Energy Systems
- ④ Identify the Grand Design for a low carbon society and formulate roadmap/policy proposals to achieve it
- ⑤ Develop human resources with both project management and research skills

## History of AES Center

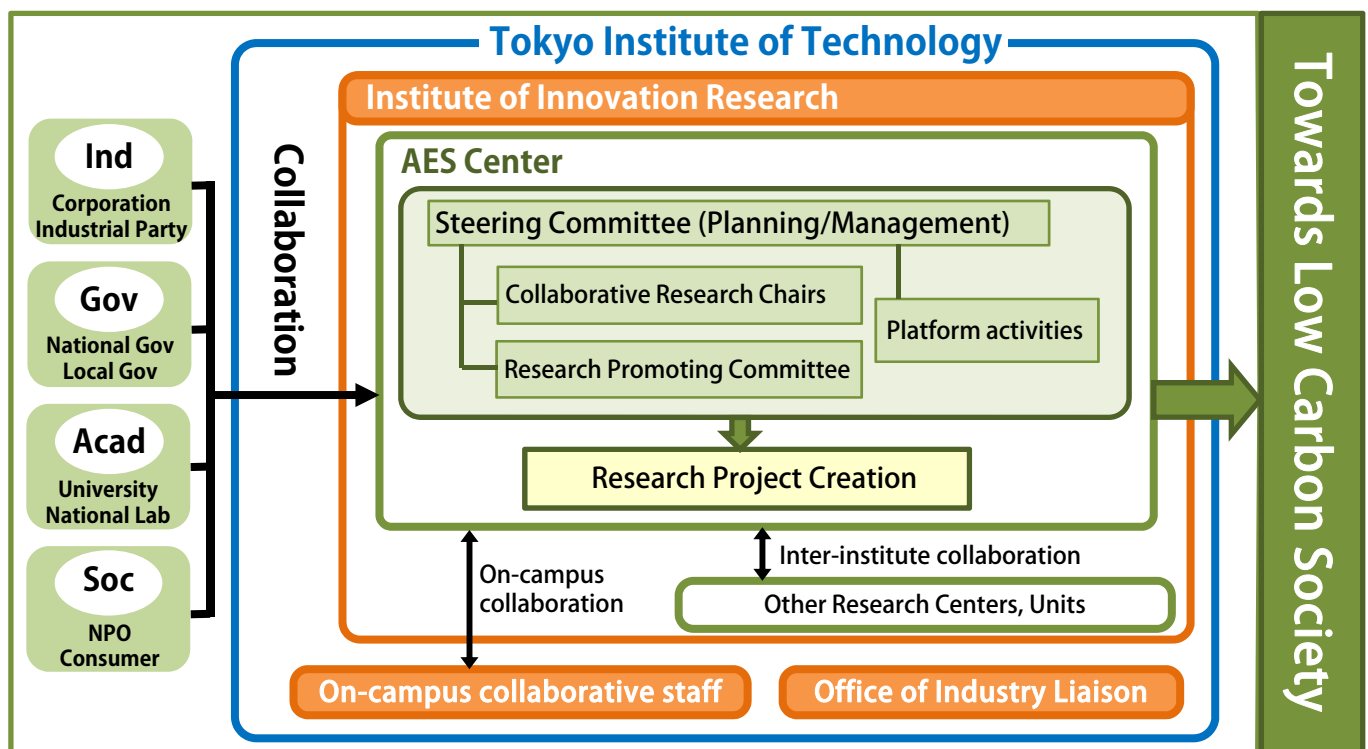


# International Research Center of Advanced Energy Systems for Sustainability

## Organization

AES Center was founded in September 2009, and started full-scale operations in April 2010. It functions as one of the core facilities of the Solutions Research Laboratory, through which Tokyo Tech intends to promote its cooperative research activities with extramural organizations with the aim of solving social and/or industrial problems anticipated in the near future.

AES Center comprises a membership-based “Research Promoting Committee” and jointly-managed “Collaborative Research Chairs”. All of the activities are managed by “Steering Committee” (chaired by Prof. Takao Kashiwagi).



## AES Center Activities

To realize an open innovation, we also promote an inter-institute collaboration with other research centers and chairs under Institute of Innovation Research, on-campus collaboration with other research staff, and off-campus collaboration with industries, governments, and academics to create research and demonstration projects.

## Participation and its Advantages

- 1 Members of the AES Research Promoting Committee must have concluded a Sponsored Research Agreement with Tokyo Tech. Furthermore, local governments can join as observer. Members have access to information on the latest activities of Tokyo Tech researchers in the environment/energy field and ongoing projects being conducted by AES Center, and may also participate in ongoing AES research projects as well as projects creation, including academia-industry collaborative projects supported by public funds.
- 2 Collaboration Research Chairs are created based on Collaborative Research Agreements concluded between corporations and Tokyo Tech. A corporation that has concluded such an agreement can set up a unit bearing its name where collaborative research projects are managed by its researchers jointly with Tokyo Tech researchers. Such corporations automatically gain membership to the AES Research Promoting Committee.

## AES Center Organization

### Director

#### Institute Professor

Takao Kashiwagi

### Vice Director

#### Professor

Isao Satoh

### Collaborative Staff

#### Institute Professor

Ken Okazaki

#### Professors

Jun-ichi Imura

Mika Goto

Takayuki Komatsu

Teruoki Tago

Kazuyoshi Hanaoka

Tetsuo Yai

Ichiro Yamanaka

#### Associate Professors

Masaki Okamoto

Koji Tokimatsu

Shinya Hanaoka

Daisuke Fukuda

#### Researcher

Soichi Nishikiori

### Project-based Staff

#### Professors

Hiroshi Asano

Kazumichi Araki

Shinichi Inage

Takuya Oda\*

Toshinobu Kanaya

Takashi Koyari

Takahisa Shodai

Masaaki Shirai\*

Akinari Takeda

Kiyohisa Terai

Hidetoshi Nakagami

Hitoshi Mazaki

Takaya Matsumoto

Atushi Morihara

Kenji Yokoyama

#### Associate Professor

Muhammad Aziz

#### Assistant Professors

Osamu Kunitomo

Takashi Mitani

#### Researchers

Atsuki Uetsuji

Reiko Masui

Yukimitsu Yamada

#### Specialist

Tetsuji Tomita

#### Research Coordinators

Yoshiyuki Uchino\*

Mina Koganemaru

Yoshitaka Yokoyama

### Technical Staff

Takafumi Maekawa

Yoko Watanabe

### Office Assistant

Miyako Uchida

Fujiko Kurosawa

Chieko Kodama

(\*Director's assistant)

## Collaborative Research Chairs

NTT Facilities, Inc.

JX Nippon Oil & Energy Corporation

Tokyo Gas Co., Ltd.

Toshiba Corporation

Hitachi, Ltd.

Mitsubishi Corporation

## Research Promoting Committee

IHI Corporation

Iwate Corporation

Eko Instruments Co., Ltd.

Osaka Gas Co., Ltd.

Automotive Energy Supply Corporation

Obayashi Corporation

Kajima Corporation

Kawasaki Heavy Industries, Ltd.

Kyowa Exeo Corporation

Keiyo Gas Co., Ltd.

Kobe Steel, Ltd.

COMSYS Create Corporation

Saibu Gas Co., Ltd.

Sanki Engineering Co., Ltd.

GS Yuasa Corporation

JFE Engineering Corporation

Shizuoka Gas Co., Ltd.

Shimizu Corporation

Sumitomo Electric Industries, Ltd.

Taisei Corporation

Daiwa House Industry Co., Ltd.

Takenaka Corporation

Chubu Gas Co., Ltd.

Tess Engineering Co., Ltd.

Tokyu Construction Co., Ltd.

Tokyo Gas Engineering Solutions Corp.

Tokyu Corporation

Toshiba Mitsubishi-Electric Industrial Systems Corporation

Toho Gas Co., Ltd.

Tomoe Shokai Co., Ltd.

Nikken Sekkei, Ltd.

Japan Environment Systems Co., Ltd.

Nihon Sekkei, Inc.

Nihon Dengi Co., Ltd.

Biomass Energy Corporation

Hibiya Engineering, Ltd.

Hiroshima Gas Co., Ltd.

Hokkaido Gas Co., Ltd.

Honda Motor Co., Ltd.

Maeda Corporation

Miura Co., Ltd.

Mitsubishi Electric Corporation

Mirait Corporation

Meidensha Corporation

Yazaki Corporation

Yokogawa Solution Service Corp.

Yokogawa Electric Corporation

## Local Governments

Hachimantai City, Iwate Prefecture

Kumejima Town, Okinawa Prefecture

Nakanajo Town, Gunma Prefecture

Shizuoka Prefecture

Hamamatsu City, Shizuoka Prefecture

Fuji City, Shizuoka Prefecture

Urayasu City, Chiba Prefecture

Tottori City, Tottori Prefecture

Nagasaki Prefecture

Tsushima City, Nagasaki Prefecture

Hyogo Prefecture

Awaji City, Hyogo Prefecture

Ishikari City, Hokkaido

Minamiise Town, Mie Prefecture

Yamanashi Prefecture

## Collaborative Corporation

TEPCO Energy Partner Inc.

(As Oct. 2016)

International Research Center of  
Advanced Energy Systems for Sustainability (AES Center)  
Institute of Innovative Research, Tokyo Institute of Technology  
2-12-1 Ookayama, Meguro-ku, Tokyo 152-8550, Japan (Post i6-25)  
Tel: 03-5734-3429 e-mail: aescenter@ssr.titech.ac.jp  
Website : <http://aes.ssr.titech.ac.jp/>  
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