Smart Community Projects
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Secretariat of
Japan Smart Community Alliance (JSCA)
● Introduction (NEDO, JSCA and GSGF)
● About NEDO
  ・ NEDO’s Smart Community Demonstration Projects
  ・ NEDO’s Joint Crediting Mechanism (JMC) Demonstration Projects
● About JSCA
  ・ JSCA’s Activity (International, GSGF)
  ・ JSCA’s Activity (Standardization)
Introduction (Institutions)

Public Framework
- Ministry of Economy, Trade and Industry
- NEDO
- ISGAN

Private Framework
- Japan Smart Community Alliance (JSBC)
- Global Smart Grid Federation (GSGF)

Standardization Framework
- Smart Electric Power Alliance
- ISO
- IEC
Introduction (NEDO, JSCA and GSGF)

About NEDO
- NEDO’s Smart Community Demonstration Project
- NEDO’s Joint Crediting Mechanism (JCM) Demonstration Projects

About JSCA
- JSCA’s Activity (International, GSGF)
- JSCA’s Activity (Standardization)
About NEDO

Japan’s largest public R&D funding agency

Coordination with Policymaking Authorities

Combining Efforts of Industry and Academia

Promotion of national projects

- Autonomous and advanced project management
- Promotion of technology development based on a flexible and agile project management scheme

- Addressing Energy and Global Environmental Issues through International Collaborative Demonstration Projects
- Enhancement of Cutting-Edge Industrial Technologies

- Year Established: 1980
- Chairman: Mr. Kazuo Furukawa
- Employees: About 900
- Budget: US$ 1.5 Billion
Demonstration projects in the World

Speyer (Germany)  Nds (Germany)

Manchester (UK)

Lisbon (Portugal)

Malaga (Spain)

Lyon (France)

Panipat (India)

Putrajaya (Malaysia)

Java (Indonesia)

California (Battery) California (EV) (US)

Oshawa (Canada)

New Mexico (US)

Hawaii (US)
Framework

Cooperative relationships

Japan
- Memorandum of Understanding (MOU)
- Entrustment
- Private Companies

Partner Country
- Central/Local Government
- Instructions
- Implementation Document (ID)
- Private companies (Universities)
  (National Labs)
Demonstration Project in Indonesia I

Purpose

Establishment of “Smart and Ecological industrial park model”
1. High quality power supply without interruptions and voltage variation
2. Energy saving through the introduction of Demand Side Management System

Contribution to balance

“high growth rate of economic development” with “energy conservation”
Demonstration Project in Indonesia II

DAS : Distribution Automation System
DSM : Demand Side Management System
FEMS : Factory EMS
ICT : Information and Communication Technology
PLC : Programmable Logic Controller
UPS : Uninterruptible Power Supply

Normal Quality Power Line
High Quality Power Line
Communication Line
Principal System
Key Components
Demonstration Project in Indonesia III

[Diagram showing the flow of project partners and activities between Indonesia and Japan, involving MEMR, NEDO, PLN, Sumitomo Corporation, Fujie Electric, Mitsubishi Electric, and NTT Communications.]
Demonstration Project in Malaysia

<Participants>
NEDO, Toshiba Infrastructure Systems & Solutions Corporation, PUES Corporation, HASETEC Corporation, and Oriental Consultants Global Co., Ltd.,

<Contents>
• Large EV bus system driving 30 km with ten-minute charge

<aim>
• to realize a smart urban transportation system, and to deploy it across a wide area.
## JCM Demonstration Projects

<table>
<thead>
<tr>
<th>Country</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Energy Saving By Optimum Operation At Oil Refinery In Indonesia</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Utility Facility Operation Optimization Technology In Indonesia</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Application of Tribrid System to Base Transceiver Stations in Indonesia</td>
</tr>
<tr>
<td>Mongolia</td>
<td>The Demonstration and Verification Project for a High Efficiency and Low Loss Power Transmission and Distribution System in Mongolia</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Promotion of “Green Hospitals” by improving efficiency/environment in national hospitals in Vietnam</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Low Carbon Hotel-a New Energy Management System for Vietnam (V-BEMS) In Vietnam</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Energy Saving and Work Efficiency Improvement by Introducing a New Chip-on-Board LED System in Vietnam</td>
</tr>
<tr>
<td>Laos</td>
<td>Lao PDR Energy Efficient Datacenter (LEED)</td>
</tr>
</tbody>
</table>

- The Joint Crediting Mechanism (JCM) facilitates diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributes to sustainable development of developing countries.
- The JCM contributes to the ultimate objective of the UNFCCC (United Nations Framework Convention on Climate Change) by facilitating global actions for GHG emission reductions or removals, complementing the CDM (Clean Development Mechanism).

See more details: [http://www.nedo.go.jp/english/other_20161111.html](http://www.nedo.go.jp/english/other_20161111.html)
Introduction (NEDO, JSCA and GSGF)

About NEDO

- NEDO’s Smart Community Demonstration Project
- NEDO’s Joint Crediting Mechanism (JCM) Demonstration Projects

About JSCA

- JSCA’s Activity (International, GSGF)
- JSCA’s Activity (Standardization)
About JSCA

As of September 2017, Members 257 companies

Electric power, gas, automobile, information and communications, electric machinery, construction and trading industries as well as the public sector and academia

What is JSCA?

http://www.smart-japan.org/english

JSCA is public-private organization supported by government, Ministry of Economy, Trade and Industry (METI) and New Energy and Industrial Technology Development Organization (NEDO).

What is JSCA’s mission?

- JSCA’s mission is to aggressively promote business development into energy sector by utilizing our cutting-age technologies.
- And also JSCA contribute to the growth of industry and society all over the world.

Who are main members?

Chairman; Mitsubishi Electric Board; Hitachi, Itochu, Kansai Electric Power, NTT, Panasonic, Shimizu, Tokyo Gas, Toshiba, TOYOTA
Secretariat; NEDO
Global Smart Grid Federation  I

Purpose of Activities

• Facilitate the collaboration of national and international Smart Grid organizations to conduct and foster research in the application of Smart Grid technologies
• Support implementation of Smart Grid technologies by establishing itself as the global center of competency
• Foster international exchange of ideas and best practices on energy issues
• Facilitate dialogue and cooperation between the public and private sectors in countries around the world

http://www.globalsmartgridfederation.org/
Global Smart Grid Federation II
International Standardization WG

<Activities>

● Several Study Groups
  • Smart Grid Security
  • Smart Energy Architecture
  • Energy conversion between power and hydrogen etc.

● Participation for ISO TC268/SC1 as a member
  • Contribution for ISO TC268/SC1/WG1 PRF37153

● Dissemination Activities
  • Seminar, Workshop, Forum etc.
  • Collaboration with NEDO’s demonstration projects
Outline of ISO/TC 268/SC 1 (1/2)

Background

- A technical solution to the social issue is often referred to as "Smart". However, there was no definition agreed globally on at present.
- To make commonness and the indicated criterion to evaluate the smartness of the city infrastructure, ISO/TC 268/SC 1 is established.

Scope

- Standardization in the field of smart community infrastructures, including basic concepts to define and describe smartness of community infrastructures as scalable and integrable systems, harmonized metrics for benchmarking, usage of the metrics for application to the diverse types of communities, and specifications for measurement, reporting and verification, ensuring avoidance of overlaps and contradictions with ISO/TC 268 deliverables.
# Organizational chart

<table>
<thead>
<tr>
<th>Organization</th>
<th>Name</th>
<th>Published Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO/TC/268</td>
<td>Sustainable cities and communities</td>
<td>8 documents in total</td>
</tr>
<tr>
<td>SC1</td>
<td>Smart Community Infrastructures</td>
<td>The following 4 documents</td>
</tr>
<tr>
<td>SC 1/WG 3</td>
<td>Best practice guidelines for transportation</td>
<td>ISO 37154:2017</td>
</tr>
<tr>
<td>SC 1/WG 4</td>
<td>Data exchange and sharing for smart community infrastructures</td>
<td></td>
</tr>
<tr>
<td>SC 1/TG 1</td>
<td>Roadmap</td>
<td></td>
</tr>
<tr>
<td>SC 1/TG 2</td>
<td>Smart Community Infrastructure - Pilot Testing</td>
<td></td>
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</tbody>
</table>
Outline of ISO/PRF 37153 (1/2)

Scope

– The basis, requirements and guidance for a maturity model for the assessment of technical performance, process and interoperability of community infrastructure(s) as well as its contribution to the community, and guidance for future improvements.

– Applicable to:
  a) all types of community infrastructures, including but not limited to energy, water, transportation, waste and ICT;
  b) single types of community infrastructure and/or multiple types of community infrastructures; and
  c) all types of communities, regardless of geographical locations, size, economic structure, stage of economic development, and to all applicable stages of infrastructure life cycle (e.g. planning/design, construction, operation, decommission)
Outline of ISO/PRF 37153 (2/2)

Methodology

1. Preparation: How to make Achievement Criteria Table (ACT)
   
   **ACT**: a table populated with pre-defined requirements for characteristics to be achieved at the levels, which consists of sets of characteristics and their maturity levels derived from CIMM
   
   **CIMM**: maturity model applied to (a) community infrastructure(s), which provides common maturity level definitions to assess the community infrastructure(s)

2. Usage: How to assess and improve the target infrastructure(s) using ACT
Case Study of completed projects
http://www.nedo.go.jp/english/reports_20130222.html

- New Mexico (U.S.) Project
- Malaga (Spain) Project
- Hawaii (U.S.) Project
- Lyon (France) Project * coming soon

Media releases


- Lyon Smart City Project (2011-2017)
  http://www.nedo.go.jp/english/whatsnew_20111226_index.html

  http://www.nedo.go.jp/content/100788809.pdf

  http://www.nedo.go.jp/content/100788808.pdf

Website
For more details about JSCA and GSGF

Japan Smart Community Alliance

- Members

- Working Groups

Global Smart Grid Federation

Working Groups
http://www.globalsmartgridfederation.org/about-gsgf/working-groups/

- Microgrids Working Group
- Flexibility Working Group
- Cyber Security Working Group

Newsletter
http://www.globalsmartgridfederation.org/about-gsgf/newsletter/
Terima kasih

Thank you very much for your attention!