Green Power Generation

Industry Connections Activity Initiation Document (ICAID)

Version: 1.1, 10 June 2014

Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE-SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Chengwei Dai
Email Address: daichengwei@china-cdt.com
Phone: 0086-10-66586874
Employer: China Datang Corporation
Affiliation: China Datang Corporation

2. Type of Activity

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity-Based

3. Purpose

3.1. Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Electricity is an essential material basis for modern human survival and development. In 2009, the global production of electricity was 20,053TWh. Sources of electricity were fossil fuels 67%, renewable energy 16% (mainly hydroelectric, wind, solar and biomass), and nuclear power 13%, and other sources were 3%.Coal is the second source of primary energy in the world after oil, and the first source of electricity generation. It currently provides 40% of the world's electricity needs.

China became the world's largest electricity consumer, passing the United States in 2011. In 2013, the China national power generation capacity reaches 1.247 billion kilowatts. Most of the electricity in China is produced from fossil fuels. In particular, about 79% of annual electricity was produced with coal between 2004-2010.

One major problem caused by coal-fired power generation in China is air pollution. Studies identify coal-fired power plants as the largest contributor to outdoor air pollution in the Beijing-Tianjin-Hebei region. The air pollution crisis in key regions of China has triggered public concern and government actions. The government has published a series of environmental protection policies in recent years, such as "the 12th Five-Year Development Plan on Environmental Protection Standards" published in February 2013.

The main goal of Green Power Generation Industry Connections Program is to organize enterprises, universities and research institutions to overcome major issues, such as clean energy technology, tackling air-pollutions, to carry out technical cooperation, solve core technology of the industry development, and discuss the potential technical standards related to Green Power Generation.

3.2. Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

So far, IEEE in power field has not established this kind of Industry Connections Program. The related well-known existing industry associations are:

1. MIT Industry Liaison Program (ILP): established in 1948 and dedicated to creating and strengthening mutually beneficial relationships between MIT and corporations worldwide. There are over 200 of the world's leading company partners with the Industrial Liaison Program to advance research agendas at MIT.
2. Global Sustainable Electricity Partnership: established in 2011. Members include American Electric power, Duke Energy, EDF, Enel, State Grid and etc. The mission is to play an active role in addressing global electricity issues and to promote sustainable development worldwide

ILP's research includes energy, chemical engineering, computer science, artificial intelligence and so on ,which are MIT's leading research fields; the Electricity Partnership tries to develop and implement concrete renewable energy projects and solutions on the ground, as well as lead human capacity-building workshops and dialogues, improving the standards of living of thousands of people without pursuing any commercial goal.
Differing from MIT ILP and Global Sustainable Electricity Partnership, Green Power Generation will mainly focus on two fields:

- Clean energy:
  (1)Solving the technical problems arising from operation and maintenance of super-critical and ultra-supercritical coal-fired units, which can largely improve the energy efficiency of power plants;
  (2)Renewable technologies exploration, especially large-scale wind farm's resource assessment, prediction, construction, maintenance and operation, and so on.
- Pollution control: research effectiveness of control technologies for sulfur dioxide (SO2), nitrogen oxides (NOx), particulate matter (PM), and so-called hazardous air pollutants (HAPs) emitting from coal-fired power plants.

These issues are public and industry concern's hot topics, and have important influence to our society's future development.

3.3. Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

There is NO previously published material.

3.4. Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

China—the world's largest emitter of carbon-dioxide—expects power demand to grow by 5% annually and plans to more than double its power generation capacity by 2030 to meet this relentless demand though a mix of fossil fuel- and renewable energy-powered plants. It means China may add 1,583 gigawatts of capacity and attract $294 billion in renewable investment by 2030 even though the coal will still account for more than 50% of power generation.

While the environment might appreciate the rise in renewable, the specter of coal still haunts the atmosphere. It is generally estimated that China may invest an additional $340 billion in energy-saving and emissions-reducing projects.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 05/2016

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the IEEE-SA Standards Board. Should an extension be required, please notify the ICCom Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents, proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

- Conferences in clean energy and related technologies
- Standards proposal in power generation, environment protection
- Workshops in power generation technologies

White Papers related to the above

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICCom.

~~None foreseen at present~~

Participants and sponsorships will host and fund the workshops.

7. Management and Procedures

7.1. IEEE Sponsoring Committee

Indicate whether an IEEE sponsoring committee of some form (e.g., an IEEE Standards Sponsor) has agreed to oversee this activity and its procedures.

Has an IEEE sponsoring committee agreed to oversee this activity?: No

If yes, indicate the sponsoring committee's name and its chair's contact information, and skip the remaining parts of this section (skip 7.2 and 7.3, below).

Sponsoring Committee Name: Committee Name
Chair's Name: Full Name
Chair's Email Address: who@where
Chair's Phone: Number, including country code

Additional sponsoring committee information, if any.

7.2. Activity Management

If no IEEE sponsoring committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

This activity will be managed by an Executive Committee consisting of a Chair, Vice Chair, and Secretary, as specified in the baseline Industry Connections Activity Policies and Procedures.

7.3. Procedures

If no IEEE sponsoring committee has been identified in 7.1 above, indicate what documented procedures will be used to guide the initial operations of this activity (e.g., the baseline *Industry Connections Activity Policies and Procedures*).

The baseline Industry Connections Activity Policies and Procedures will be used

8. Participants

8.1. Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

Manufacturers, Power Plant Developers and Operators, local governments, research institute and independent consulting firms who serve the power industry.

8.2. Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

We expect that there will about 10 electrical companies or universities to participate the program

8.3. Initial Participants

Provide a list of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity	Primary Contact	Additional Representatives
China Datang Corporation	Chengwei Dai Email:Daichengwei@china-cdt.com Phone Number:0086-10-66586874	
Standardization Management Center of China Electrical	Yongdong Liu Email: liuyongdong@cec.org.cn	

Council	Phone Number:0086-13701131309	
Tsinghua University	Junhua Li Email: lijunhua@tsinghua.edu.cn Phone Number:0086-13911895290	
North China Electric Power University	Changqin Dong Email: cqdong1@163.com Phone Number:0086-13911857726	

Use the following table for an individual-based activity:

Individual	**Contact Information**	**Employer**	**Affiliation**
Name	Email Address Phone Number	Entity Name	Entity Name