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IEA ISGAN Annex I Global Smart Grid Inventory

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Für den Inhalt und die Schlussfolgerungen sind ausschliesslich die Autoren dieses Berichts verantwortlich.

Abstract

The ISGAN Annex 1 Program of Work, adopted October 2011, has three primary tasks. Task 1 entails development and population of a unified ISGAN framework for assessment of national-level motivating drivers and technology priorities for smart grids. Task 2 concerns development of the initial project inventory, including the establishment of criteria for inclusion of projects in the inventory, the formulation of harmonized data fields for submitted data, and the identification of an appropriate repository (or multiple repositories) for submitted data, as well as the collection and analysis of the initial data. Task 2 also includes the development of related data retrieval and analytical tools. Task 3 builds on Task 2 by adding a quantitative layer using key per performance indicators identified by ISGAN Annex 3 (Benefit-Cost Analyses and Toolkits).

Switzerland has been actively engaged in the setup of this Annex and in the preparatory work for ISGAN (and its predecessor ENARD). Switzerland intends to bring in its knowledge in the area of SmartGrids in general, but in particular the knowledge gained in the collection of European SmartGrids projects (Information knowledge base).

Projektziele

Die Schweiz hat von Anfang an aktiv am Aufbau des IEA Implementing Agreements ISGAN (International SmartGrids Action Network) mitgewirkt.

ISGAN was launched as the International Smart Grid Action Network at the first Clean Energy Ministerial (CEM), a meeting of energy and environment ministers and stakeholders from 23 countries and the European Union held in Washington, D.C on July 19 and 20, 2010. The CEM focuses on high-level attention and commitment to concrete steps—both policies and programs—that accelerate the global transition to clean energy. The Ministerial was an outgrowth of the agreement at the Major Economies Forum on Energy and Climate (MEF) in L'Aquila, Italy in July 2009, where countries agreed to collaborate on advancing clean energy technologies. 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. Membership in ISGAN is voluntary, and currently includes Australia, Austria, Belgium, Canada, China, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Mexico, Norway, the Netherlands, Russia, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Die Schweiz setzt sich durch Teilnahme an diesem Annex I der IEA „Global Smart Grid Inventory“ das Ziel, SmartGrids generell und Erfahrungen aus SmartGrids Projekten im speziellen international auszutauschen und gemeinsam voranzutreiben. Das BFE profitiert von intensivierten internationalen Beziehungen und der Zusammenarbeit mit den weiteren IEA Ländern.

Many participating ISGAN countries are already developing, demonstrating, testing, and deploying smart grid technologies and systems, drafting policies and implementing regulations to advance smart grids, assessing current and projected transmission and delivery infrastructure needs, evaluating demand-side practices, and measuring other aspects of smart grids. In addition, many bilateral and regional cooperative efforts have been launched featuring smart grid as a significant or principal focus. The objective of this activity is to identify countries' specific motivating drivers for pursuing smart grids, catalogue the wide range of smart grid activities underway, and collect and organize the wealth of experience being generated into a resource available first to ISGAN Participants and then a global audience.

Durchgeführte Arbeiten und erreichte Ergebnisse

Die durchgeführten Arbeiten wurden auf zwei Ebenen geführt. Einerseits erfolgte sie in der Teilnahme an Telefonkonferenzen, andererseits in der Form von Workshops.

Die Schweiz hat im Jahr 2013 aktiv an Telefonkonferenzen, Workshops teilgenommen, die im Rahmen des Annex I durchgeführt wurden (siehe Abschnitt Bewertung). Insbesondere wurden Aspekte von Schweizer Schlüsselprojekten im Gebiet SmartGrids eingebracht. Die IEA profitiert auch von der Sammlung europäischer Projekte im sog. SmartGrids-Monitor, welcher ebenfalls vom BFE mitfinanziert ist und welcher mehr als 500 europäische, Grids- und SmartGrids bezogenen Projektbeschreibungen beinhaltet. Der Leiter des Annex I (USA) wurde bei der Erfassung von Informationen rund um Schlüsselprojekte im Gebiet SmartGrids und der neu geschaffenen Informationsdatenbank IEA ISGAN strategisch und inhaltlich unterstützt.

Nationale Zusammenarbeit

National steht im Rahmen des Annex I vor allem der Kontakt mit Schweizer SmartGrids-Projekten im Vordergrund, welche im sog. SmartGrids Projekt-Inventory aufgeführt werden.

Internationale Zusammenarbeit

Die Arbeiten sind aufgrund des IEA-Charakters stark international ausgerichtet. Neben der Schweiz nehmen im Moment Australia, Austria, Belgium, Canada, China, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Mexico, Norway, the Netherlands, Russia, Spain, Sweden, Switzerland, the United Kingdom and the United States an den Aktivitäten teil.

Bewertung 2013 und Ausblick 2014

Die Ermittlung, Verifizierung und der Abgleich der Daten für den Annex I hat sich nach anfänglichen Schwierigkeiten gut entwickelt. Das Inventory beinhaltet:

- 97 Projekte
- 17 Länder
- **Fields:** UID, Unique Project ID
 - **Project overview:** Project name, Location(s) of the physical implementation, Start date of the project, Ending date of the project, Contact person (Name, phone, email address), Project website, Leading organization, Leading organization type, Other participants (Names, countries, and organization type), Project main application, Prevaling stage of development - R and D or Demonstration or Deployment or roll-out, Brief project description (Goals and main areas of innovation), Main project results and outcomes, Brief description of how results can be scaled up or replicated, Main obstacles or challenges and lessons learned, Future applications and third party market entries, Regulatory issues or recommendations related to the project
 - **Project financial information:** Total budget, Contributing organizations and share of contribution, Sources of project financing or funding, Describe the scenario for estimated costs and benefits, Availability of estimated costs, Availability of estimated benefits
 - **Focus area:** TRANSMISSION LEVEL-Grid architecture, TRANSMISSION LEVEL-Power technologies, TRANSMISSION LEVEL-Network management and control, TRANSMISSION LEVEL-Market simulation techniques, T and D INTERFACE-Coordination between T and D, DISTRIBUTION LEVEL-Smart customers, DISTRIBUTION LEVEL-Smart energy management, DISTRIBUTION LEVEL-Smart integration, DISTRIBUTION LEVEL-Smart distribution network
 - **Policy goals:** Sustainability and integration, Security and quality of supply, Energy efficiency and savings, Coordination and interconnection
 - **Consumer Engagement:** Which aspects of consumer engagement have been addressed, Target sector, What are the main motivational factors used to engage consumers, Number and details of consumers participating in demand response, Number and details of consumers with in-home display tools, Number and details of consumers with smart appliances, How do you rate the participation of the consumers involved, Describe consumer engagement strategy and findings, Main benefits of and obstacles to consumer engagement, Innovative business model proposed or used for engaging consumer, Regulatory aspects to facilitate consumer engagement
 - **Social impact:** UID, Unique Project ID, Has the project addressed the following social aspects, Issues hindering social acceptance addressed by the project,
 - **Privacy, Security, Interoperability:** UID, Unique Project ID, Has the risks to data processing by the system been assessed, Has the project addressed issues of interoperability?

During 2013, three teleconferences were held 07 May, 14 July, 15 October. Topics discussed and actions undertaken during 2013 were:

- Participating countries each selects two key SmartGrids projects
 - Uses: progress briefing by country representatives during the monthly Annex 1 teleconferences; and candidates for presentations by project performers during the Annex 1 webinars and the Annex 1 workshop
 - Web-site: <http://e2rg.com/events/isgan/> with username and password
 - There are monthly updates of the inventory.
- Annex 1 workshop and webinars. Goal: strengthen Annex 1 engagement with smart grid stakeholders globally. The conceptual process is to have a principal performer of each selected project to share the knowledge and work on baseline methodology, advances over baseline, best practices and lessons learned, and challenges remaining. The workshop should contribute to building a community of projects, will promote information exchange leading to collaboration among projects, and will accomplish interactive dialogs beyond what could be achieved via webinars.
- Webinars: Goal of having one speaker from a principal performer of a selected project present for 45 minutes, followed by a 15-min discussion moderated by a utility representative and a private-company (e.g., industry) representative. The presentation is about an in-depth discussion of the project. The webinars should be open to all, while engaging the Global Smart Grid Federation.
 - GSGF has agreed to reach out to its country members for a moderator for each webinar, as well as for participation in the webinars. The target audience for webinars includes performers and implementers of smart grid projects worldwide.
- Webinar: 10 and 11 July 2013 about “Transactive Control in the Pacific Northwest Smart Grid Demonstration Project” (An ISGAN inventory project of USA, presented by Dr. Ron Melton, Battelle (USA), moderator Rob Wilhite, DNV KEMA, also an officer for the GSGF. (1 hour presentation, Q/A session, via live chat, for 30 minutes).
 - The first webinar on Transactive Control (a US project) was deemed a success. The overall attendance of 130+ in two sessions exceeded the typical webinar attendance held by the Clean Energy Solutions Center. In addition, survey feedback was more positive than usual for those held by the CESC.
- Webinar: 29 Oct. 2013 see <https://cleanenergysolutions.org/training/isgan-reflexe>

The Clean Energy Solutions Center, in partnership with the International Smart Grid Action Network (ISGAN) and the Global Smart Grid Federation, hosted this webinar on the Response by Flexibility on Electricity (Reflexe) project. Reflexe is a Smart Grid research project led by Veolia Environnement and is a part of France’s “Investments for the Future” program. This webinar focussed on providing an overview of Reflexe and discussing the key findings from the project, which is aimed at implementing a Smart Grid pilot for three and a half years in France’s Provence-Alpes-Côte d’Azur region. The project is designed to test the viability of energy aggregation by managing sites that produce and consume electricity (tertiary, industry, renewable energy, etc.) to assess:

- Technical feasibility
- The most appropriate economic models and the associated benefits for various stakeholders
- The environmental benefits for individual sites and regions.

- Webinar: 05 Dec 2013 see <https://cleanenergysolutions.org/training/smart-grid-salzburg-model-region-programme>

Salzburg is known as a pioneer in the field of smart grid development at the European level. It was awarded the title “1st Smart Grids Model Region” of Austria by the Climate- and Energy Fund. The Model Region Programme is supported by an interdisciplinary team consisting of a utility provider (Salzburg AG), a property developer (Salzburg Wohnbau), a technology vendor (Siemens) and research institutes (AIT Austrian Institute of Technology GmbH, Vienna University of Technology, CURE and Fichtner).

The Clean Energy Solutions Center, in partnership with the International Smart Grid Action Network (ISGAN) and the Global Smart Grid Federation, hosted this training webinar on the Salzburg Model Region Programme. The webinar focussed on providing an overview of the Model Region Programme and discussing key findings from the Programme’s 12 projects, which include:

- The use of intelligent load management to reduce peak load and enhance energy efficiency in power grids
- Strategies and tools for reducing end-users to shift energy consumption times and reduce overall energy consumption
- Integrating electric vehicles intelligently into the energy system
- Distribution management and control
- Data exchange between smart grid actors and applications
- Integrating renewable generation using smart technologies.
- How to build on the information collected in Annex 1 (drivers / technologies / inventory) to turn into value/benefit realization;
 - National survey information on PV penetration and markets under the IEA PVPS as example.
 - Joint project involving combining smart grid test bed information with the inventory could further value realization from the inventory.
- How to quantify and capture the value from doing the webinars and/or workshops; closer coordination with other Annexes, especially Annexes 2 & 3;
- How to dynamically and interactively display Annex 1 information content (drivers, technologies, inventory) on the ISGAN website.
- Goal: Work on what other assessment metrics would be of value to ISGAN nations, as well as to further deliberate having the test bed information in the inventory or under SIRFIN.

Im Jahr 2014 werden weitere Webinare durchgeführt werden. Auch ist eine weitere Umfrage betreffend “Smart grid motivating drivers and technology priorities” geplant.

Referenzen

Siehe Web-Links im Bericht