

Introduction to the APEC Smart Grid Initiative (ASGI)

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2011 APEC Workshop on
Addressing Challenges in AMI Deployment and
Smart Grid in APEC Region
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Instructions from Energy Ministers at EMM-9

- ▶ The Fukui Declaration from the Ninth Energy Ministers Meeting (EMM-9), June 2010, states that “**smart grid technologies**, including advanced battery technologies for highly-efficient and cost-effective energy storage, can help to integrate intermittent renewable power sources and building control systems that let businesses and consumers use energy more efficiently, and they can also help to enhance the reliability of electricity supply, extend the useful life of power system components, and reduce system operating costs.”
- ▶ EMM-9 instructed EWG “to start an **APEC Smart Grid Initiative (ASGI)** to evaluate the potential of smart grids to support the integration of intermittent renewable energies and energy management approaches in buildings and industry.”



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Suggested Elements of the Smart Grid Initiative

- ▶ Element 1 – Survey of Smart Grid Status and Potential
- ▶ Element 2 – Smart Grid Road Map
- ▶ Element 3 – Smart Grid Test Beds
- ▶ Element 4 – Development of Smart Grid Interoperability Standards



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Phase 1 – Survey of Smart Grid Status and Potential

- ▶ A recently completed report “Using Smart Grids to Enhance Use of Energy-Efficiency and Renewable-Energy Technologies” (EWG 01/2009S), evaluated the potential of smart grid technologies in APEC economies to enhance the use of renewable energy and energy efficient buildings, appliances and equipment
- ▶ A related project, “Addressing Grid-interconnection Issues to Maximize the Utilization of New and Renewable Energy Resources” (EWG 02/2009) was led by Japan and completed in late 2010

<http://www.egnret.ewg.apec.org>



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Possible Timeline: Element 1 – Survey of Smart Grid Status and Potential

- ▶ Ongoing projects were completed in late 2010 and early 2011
- ▶ Interested economies may consider a follow-up project on best practices for 2011 or 2012



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Element 2 – Smart Grid Road Map

- ▶ Organize workshops to elaborate a road map for advancing smart grid technologies in APEC
- ▶ Due to the wide range of electric grids in place, APEC members can work together to learn from others and develop suggested procedures that will be useful in developing economy specific road maps
- ▶ The road map process would be developed in coordination with the International Smart Grid Action Network (ISGAN)



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Possible Timeline: Element 2 – Smart Grid Road Map

- ▶ APEC project concept note or self-funded project proposal to be prepared for endorsement at EWG-42 in late 2011
- ▶ Economies that wish to contribute ideas to the road map identify themselves at EWG-42
- ▶ Road map should be ready in 2012



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Two projects related to different aspects of road mapping are being implemented in 2011

- ▶ “Addressing Challenges of AMI Deployment in APEC” which is to be implemented August 24-25, 2011 by Chinese Taipei alongside EGNRET-37
- ▶ “APEC Workshop on Energy and Green Transport Benefits of Electric Vehicles” which is being implemented jointly China and Hong Kong, China on October 24-25, 2011



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Element 3 – Smart Grid Test Beds

- ▶ Establish a network of test beds to provide operational data on emerging smart grid technologies
- ▶ Economies may also wish to offer smart grid test beds for use by grid operators, electric power suppliers, and manufacturers of energy efficient building systems and equipment
- ▶ APEC test beds would become part of a Smart Grid International Research Facility Network (SIRFN) to be coordinated by the International Smart Grid Action Network (ISGAN)



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Possible Timeline: Smart Grid Test Beds

- ▶ Initial test beds made available by Korea and the United States in 2011
- ▶ Further test beds made available by other APEC economies in 2012 and 2013
- ▶ Interested parties make use of the smart grid test bed network through 2020 or beyond



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Element 4 – Smart Grid Interoperability Standards

- ▶ Discuss interoperability standards for Smart Grid technologies under the APEC Regulatory Cooperation Advancement Mechanism on Trade-Related Standards and Technical Regulations (ARCAM) in 2011
- ▶ Based on the discussions, consider follow-up steps to develop interoperability standards across the APEC region and globally through ISGAN



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Possible Timeline: Phase 4 – Smart Grid Interoperability Standards

- ▶ Highlight smart grids in ARCAM in 2011
- ▶ Follow up pursuant to ARCAM recommendations



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Thank you for your attention!
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Dr. Cary Boyd is a Senior International Research Advisor with the Energy and Environment Directorate of Pacific Northwest National Laboratory. He has managed and participated in a wide range of projects associated with the development and implementation of energy and environmental technologies for the US Department of Energy. Project areas have included the development of analytical models of energy systems, the analysis and development of US national energy policy, and international energy and environmental analysis with an emphasis on the linkage between energy choices and climate change and concentrating on the countries of South East Asia.

For the past fifteen years he has also been supporting the US Department of Energy in implementing its Asia Pacific Economic Cooperation (APEC) program in the areas of energy efficiency and renewable energy. He is the past Chair of the APEC Expert Group on New and Renewable Energy Technologies and is currently serving as the US delegate to both the APEC Expert Group on New and Renewable Energy Technologies and the APEC Expert Group on Energy Efficiency and Conservation and on the Executive Committee of the APEC Biofuels Task Force. Dr. Boyd's work includes over 50 professional publications.

Dr. Boyd received his Ph.D. from Carnegie Mellon University in Engineering and Public Policy and has Bachelors and Masters degrees in Mechanical Engineering.