



Training session on the impact of distributed variable renewable energy on the distribution grid

June 6-7, 2018 | Opal Function Room, Crowne Plaza Galleria, Quezon City

Concept Note & Agenda

BACKGROUND

The entry of Distributed Generation (DG), especially variable renewable energy (vRE) systems, added significant complexity on the power system operations. Although some European countries already have shown that very high shares (80%) of DG in power system during certain times is technically feasible, still many aspects must be considered for a successful integration of DGs. Among the key aspects are: interconnection standards and grid codes, cooperation between DSO and TSO, adjustment of voltage control and integration into SCADA system as well as weather forecasting.

In order to help Philippine planners, regulators and distribution utilities adapt and prepare to the changes brought about by the entry of DG systems, Component 4 of the joint DOE-GIZ SupportCCC II project, in cooperation with the NREB committee on net-metering, is sponsoring a training orientation that will help increase the human capacity in the country in preparing for the entry of larger amounts of distributed generation systems.

OBJECTIVE

The objective of the training is to help the participants understand the impact of distributed generation systems, especially variable renewable energy, to the distribution grid. The participants will be presented with real life experiences from other countries including those with similar conditions like the Philippines. The training will focus on the key aspects, mentioned above, or the successful integration of distributed generation into the grid. Selected participants, especially from DOE, NEA, and MERALCO, will return on June 8 for more detailed discussions on selected topics. They are expected to be resource persons or trainers for the re-echo of the training to the electric cooperatives and distribution utilities.

The target participants of the training are planning, policy, and technical staff from the CCC, DOE, DMC, ERC, MERALCO, NEA, and members of the NREB Committee on Net-metering.

AGENDA

DAY 01 JUNE 6, 2018

PRELIMINARIES

08:15 – 09:00 **Registration**

09:00 – 09:15 **Welcome Remarks**

Michael Vemuri, Chief Advisor on RE, GIZ

Opening Remarks

Mylene Capongcol, Director, DOE-REMB

Overview of the Agenda

Ferdinand Larona, Senior Advisor on RE, GIZ

TRAINING

Thomas Ackermann, CEO, **energynautics**

09:15 – 10:15 **“Introduction of technical aspects of VRE integration at the distribution level”**

Brief overview of expected impacts of VRE distributed generation and respective lessons learned based on examples from Germany and/or other countries, including aspects such as impact on voltage control and solutions as well as discussion of possible penetration limits.

10:15 – 10:30 **Q&A**

10:30 – 10:45 **COFFEE BREAK**

10:45 – 11:45 **“Discussion of technical standards and regulatory aspects related to of VRE integration at the distribution level”**

Overview of relevant grid code and technical standards as well as regulatory aspects, in particular related to the economic impact of distributed generation on the financial setup of distribution companies.

11:45 – 12:00 **Q&A**

12:00 – 13:00 **LUNCH**

13:00 – 14:15 **“Distribution grid studies with VRE- Overview, methods and results”**

Discussion of distribution grid studies from India, Vietnam and Germany will be presented to demonstrate the impact of distributed VRE (mainly PV) on distribution grid operation and further discussion of possible penetration limits.

14:15 – 14:45 **Q&A**

14:45 – 15:00 **COFFEE BREAK**

15:00 – 16:00 **“German Solar PV rooftop installation process and metering infrastructure”**

The German PV rooftop installation process will be presented and discussed.

16:00 – 16:30 **Q&A**

DAY 02 JUNE 7, 2018

08:15 – 09:00 REGISTRATION

09:00 – 10:10 **“The role of grid codes and discussion of the German grid code certification scheme”**

Key grid code aspects, including power quality issues (Harmonics) will be discussed in more detail as well as the German grid code certification.

10:10 – 10:30 Q&A

10:30 – 10:45 COFFEE BREAK

10:45 – 11:45 **“ICT solution, smart grid and storage issues related to the integration of VRE into the distribution network”**

Brief overview of the relevant ICT, smart grid and storage aspects and experiences Europe (versus grid upgrades).

11:45 – 12:00 Q&A

12:00 – 13:00 LUNCH

13:00 – 14:15 **“Forecasting adoption of distributed generation- Economic and Regulatory Aspects”**

Based on case studies from Germany, India, Brazil and Australia, the possible development of VRE distributed generation is discussed. Special focus is given to the general cost development of renewables.

14:15 – 14:40 Q&A

14:40 – 15:00 COFFEE BREAK

15:00 – 16:00 WRAP UP & SYNTHESIS

16:00 – 16:30 FINAL Q&A

16:30 – 16:40 CLOSING

About the Trainor: Dr. Thomas Ackermann

- *Combined Degree in Mechanical Engineering & Business Administration / TU Berlin*
- *Master of Science in Physics / University of Otago (New Zealand)*
- *Ph.D. / Royal Institute of Technology, Stockholm (Sweden)*

*Thomas Ackermann Ph.D. is owner and CEO of **energynautics**. With over 16 years of world-wide experience, he is often asked to provide advice to government departments and electricity service providers on the matter of power system design and operation, as well as regulatory matters and grid code issues. He is active in the area of investigation and research into innovative energy solutions and dissemination of knowledge about the integration of renewable energies into existing systems around the world.*

About the project: "SupportCCC II"

*The Project "Support to the Philippines in shaping and implementing the international climate change regime (SupportCCC II)," funded under the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU), is a joint undertaking by GIZ, the Climate Change Commission (executing agency), the Department of Energy and other actors at national and local levels with the objective to strengthen the Climate Change Commission and other key actors in implementing and coordinating the national climate change regime as well as developing and operationalizing national contributions to the international climate change regime. The project builds on the previous BMU-IKI funded project 'Support to the Climate Change Commission in Implementing the National Climate Change Action Plan (SupportCCC)'. Key measures include work on (1) Implementation of the national climate change policy within the frame-work of the Philippine international climate change commitment, (2) Climate-proof land-use and development planning at local level, (3) Climate finance, **(4) Renewable energy and energy planning**, (5) Awareness raising, Knowledge management, networking/interfaces.*