U.S. Utilities & Solar And IEA-PVPS High Penetration PV Workplan

Utility Scale PV Variability Workshop

Cedar Rapids, Iowa

Oct. 7, 2009

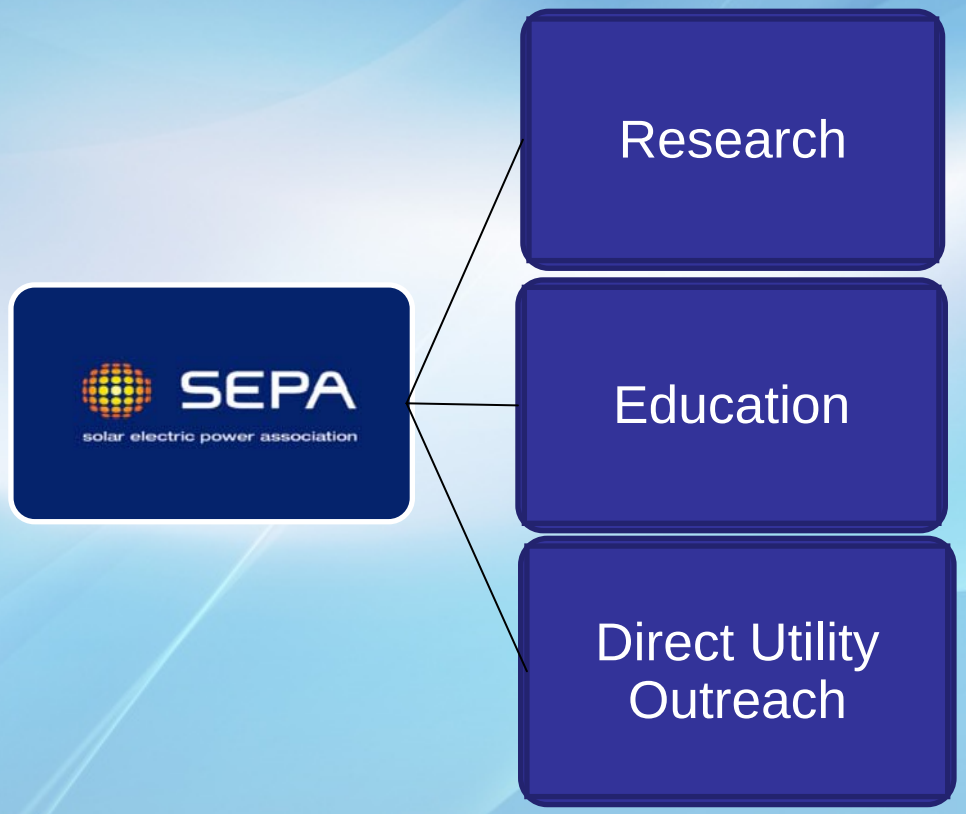
Christy Herig
Solar Electric Power Association

About SEPA

SEPA
solar electric power association

- Mission is to facilitate utility use & integration of solar electric power
- Non-profit membership organization
- Reliable source of unbiased information about solar technologies, policies, and programs
- Bridge between utility & solar industries

SEPA Program Areas



About SEPA

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Research Projects

- Solar Incentive Program Survey
- Solar Capacity Methodology Project
- Utility Metering and Interconnection Survey
- Decoupling White Paper
- Utility Solar Case Studies
- Utility Solar Year in Review
- Utility Business Models
- Utility Integration Tracking

Ongoing Activities

- One-on-One Utility Support
- Solar Power International Conference and Expo w/Utility and Regulator Travel Scholarships
- Utility Solar Conference
- Online Resource Library
- Monthly Phone Seminars
- Bi-Weekly Electronic Newsletter and Email Alerts
- Membership Directory
- Fact finding missions to Germany, Spain, and……

Utility "Charter"

Provide power that is

- Safe
- Reliable
- Affordable

And responsible for all planning

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Solar Industry

Utility Industry

IEA INTERNATIONAL ENERGY AGENCY

PHOTOVOLTAIC POWER SYSTEMS PROGRAMME

"High-Penetration of PV Systems in Electricity Grids" (working Title)

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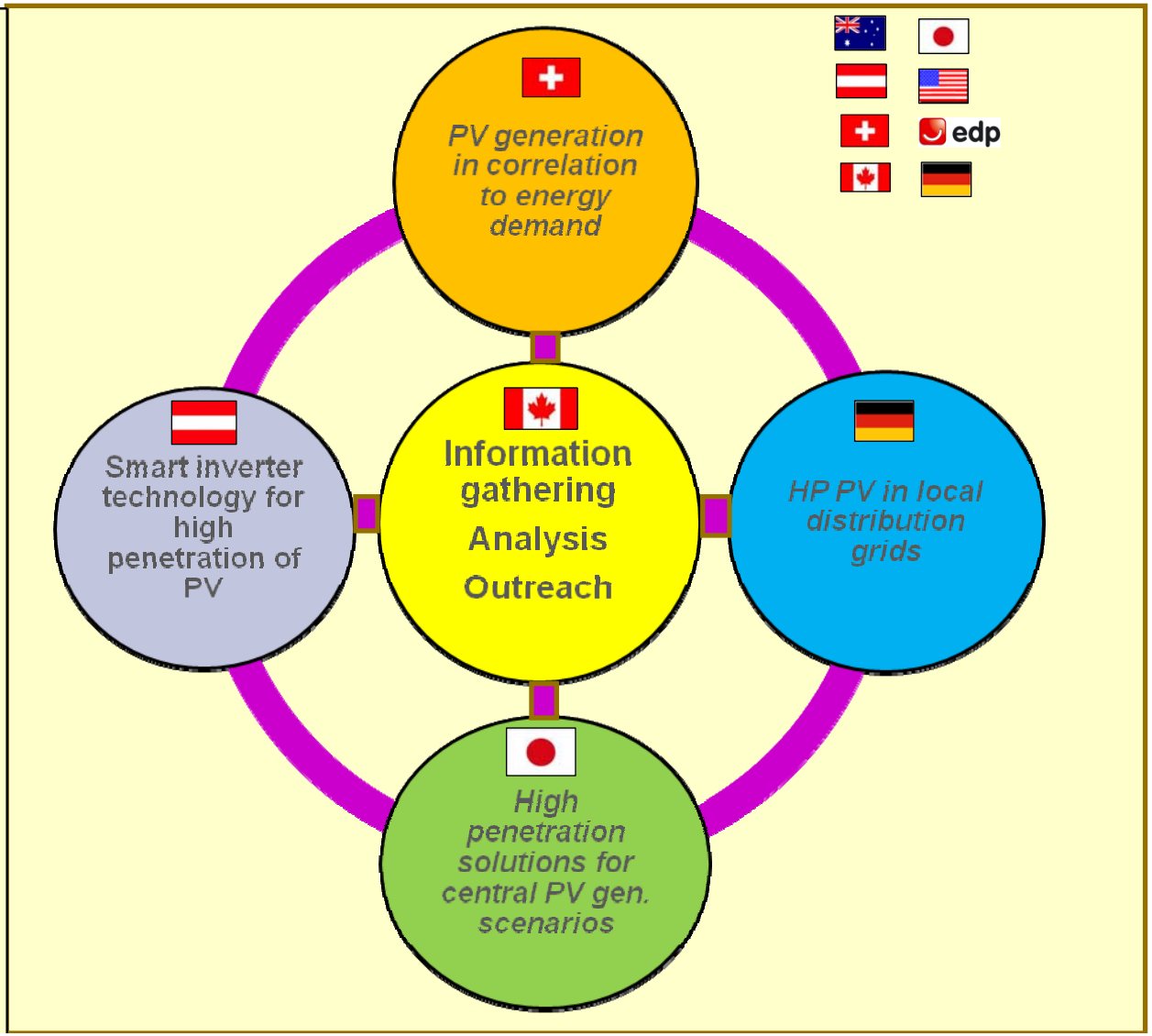
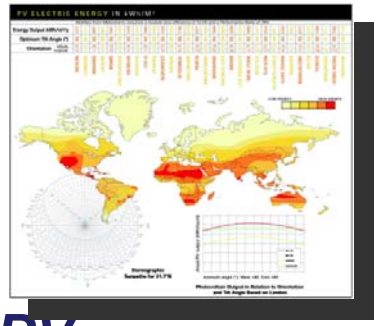
IEA PVPS Task 14

High-Penetration of PV Systems in Electricity Grids





Subtask 1

„How to characterise and react on the fluctuating PV characteristics“ and make it more valuable for the Power System“

- Characterisation of the fluctuating nature of PV
  - Data for further applications
- Definition of Requirements for Forecast prediction
- Definition for Energy Management Systems including storage solutions
- Case studies
- Target Group: Industry, Utilities, Researchers

Subtask 2

„Requirements for HP PV and Benefits of PV in the distribution system“

- „Ancillary Services, Impact on energy management on the grid, Benefits for the network. Reactive and active Power Balancing, Change from distribution to supply grids, …

- Target Group: DNO, (TSO), Regulators, System operators

Subtask 3

The electrical Power system with high Penetration PV

- Power system wide PV generation forecasting (> Subtask 1?), smoothing effects (Subtask 1),
- Power system operation and incentive generation to Distribution systems, Power system upgrade including PV

- Target Group: Utilities, Energy Planning, Energy Policy

Subtask 4

Requirements for Inverters at HP PV

- Smart inverter requirements for grid integration at HP Scenarios
- Technical capabilities and Solutions
- Remote Control and communication for Smart inverters

- Target group: Inverter Industry, DSO, Large System operators

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Yesterday: Historical Utility Solar Engagement


A1
B1
C1
C3
C4
B6
A6
W
S
N
E
*
© Phönix Sonnenstrom AG (presently: Phoenix Solar AG)

World
2008 ~ 7000 MW
Total ~ 12000 MW

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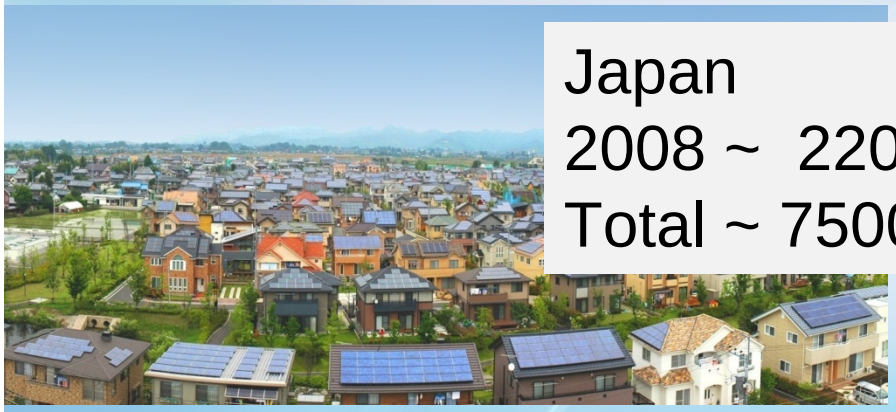
Germany
2008 ~1500 MW
Total ~ 5300 MW

Japan
2008 ~ 220 MW
Total ~ 7500 MW



Spain
2008 ~ 2500 MW
Total ~ 3100 MW

USA
2008 ~ 330 MW
Total ~ 800 MW

Thank you!

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