



WORLD FORUM ON
ENERGY REGULATION V

**STRIKING A BALANCE
IN THE MIDST OF CHANGE**

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Québec City, Québec (Canada)

ICER report on Renewable Energy and Distributed Generation

International Case Studies on Technical and Economic Considerations

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Presented by:

Yvonne Fredriksson

Director General, Swedish Energy Markets Inspectorate

Co-Chair, CEER International Strategy Group

Chair, ICER Virtual Working Group on Climate Change



AGENDA

- ICER Working Group on Climate Change
- Context: integration of Renewable Energy (RE) into electricity systems
- Scope, themes and case studies in the report
- Major findings

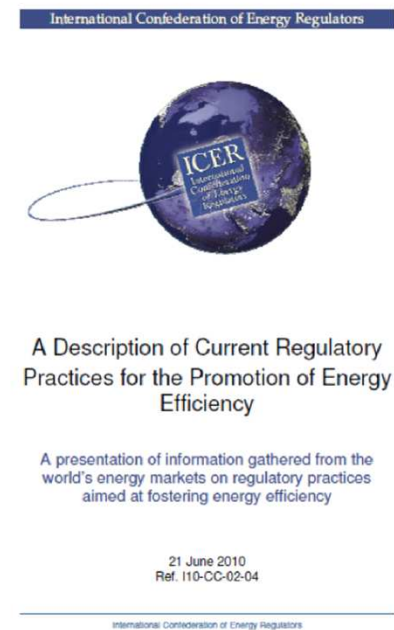


ICER WORKING GROUP ON CLIMATE CHANGE - 1

- Virtual Working Group on the role of Energy Regulators in responding to climate change
- First report:
“Description of Current Regulatory Practices for the Promotion of Energy Efficiency”, presented on the occasion of the 2010 G8 summit at Muskoka



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ICER WORKING GROUP ON CLIMATE CHANGE - 2

- Second report:
“Renewable Energy and Distributed Generation”
- The aim was to describe different approaches in order to meet development of renewables
- Input from a wide spectrum of case studies from different parts of the world and hence different regulatory environments



RE AND DG REPORT DRAFTERS

<i>AFUR</i>	<i>African Forum for Utility Regulation</i>
<i>AEMC</i>	<i>Australian Energy Market Commission</i>
<i>ARIAE</i>	<i>Iberoamerican Association of Energy Regulatory Agencies</i>
<i>CAMPUT</i>	<i>Canada's Energy and Utility Regulators</i>
<i>CEER</i>	<i>Council of European Energy Regulators</i>
<i>MEDREG</i>	<i>Association of the Mediterranean Regulators for Electricity and Gas</i>
<i>NARUC</i>	<i>National Association of Regulatory Utility Commissioners (US)</i>
<i>RAP</i>	<i>Regulatory Assistance Project</i>

INTEGRATION OF RE AND DG INTO ELECTRICITY SYSTEMS - 1

- Renewable energy behaves very differently from conventional generation
- Related industries and markets need to adapt their structures and practices in order to fully integrate and enable these new types of energy

INTEGRATION OF RE AND DG INTO ELECTRICITY SYSTEMS - 2

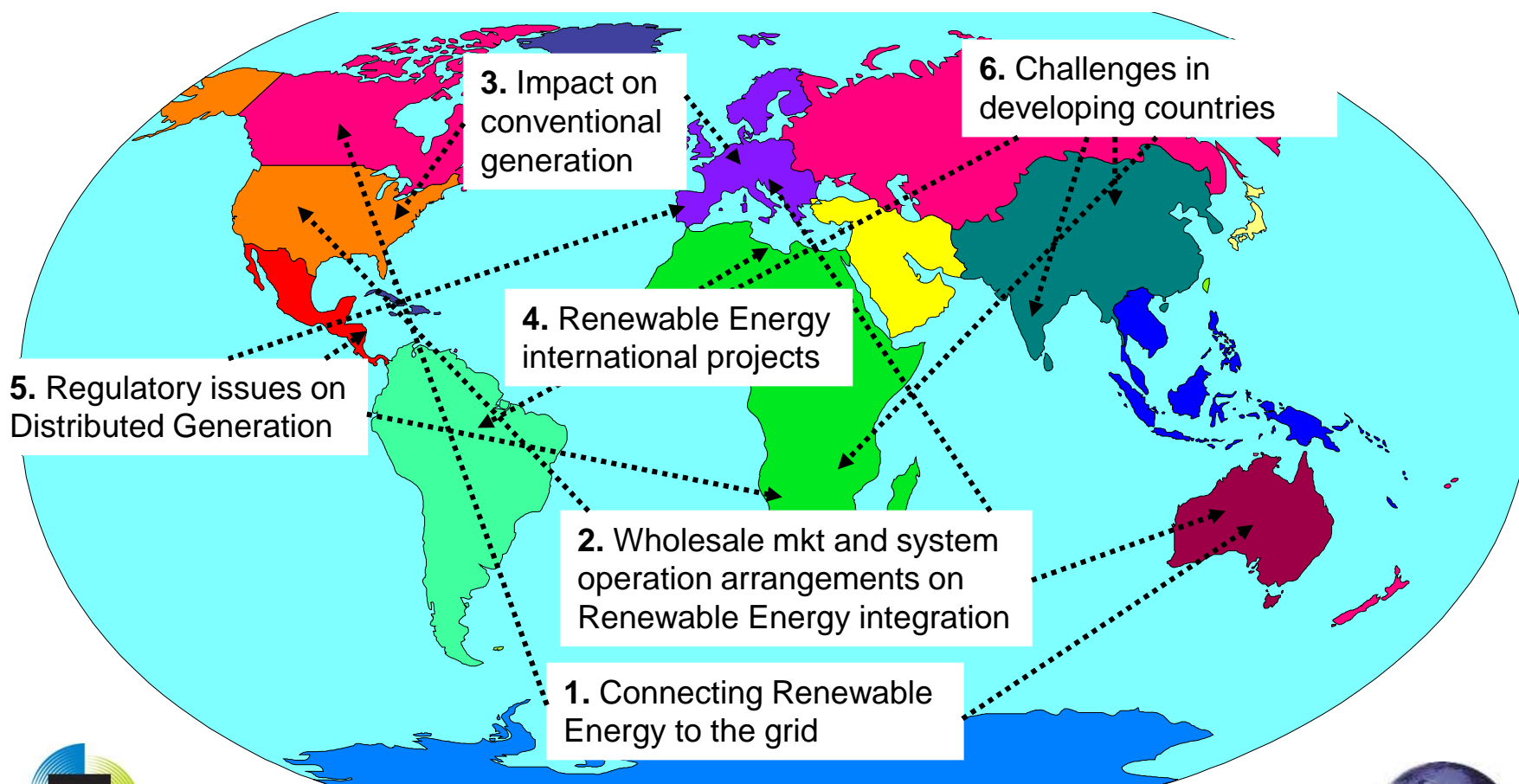
- The report assesses international approaches to developing renewable and distributed energy generation, with the aim of revealing:
 - the technical and economic challenges facing new renewable projects
 - the successes and limitations of certain approaches



STRUCTURE OF THE REPORT: SCOPE

- Regulatory challenges to promoting RE:
 - Connecting (remote) renewable energy to the grid
 - Impact of wholesale markets and system operation arrangements on renewable energy generation
 - Impact of renewable energy generation on conventional generation
 - International RE projects
- Specific challenges related to the promotion of distributed generation
- Specific challenges faced by developing and emerging economies

STRUCTURE OF THE REPORT: 6 BROAD THEMES & 16 CASE STUDIES



MAJOR FINDINGS

- Scale of the challenge but potential solutions and effective ways of overcoming obstacles
- Areas of mutual interest and ways in which countries can work together to improve their own RE generation strategies
- Need for increased cooperation both between companies and industries and internationally

MAJOR FINDINGS - EXAMPLES

- Intermittent RE begins to impact security and management of the power system resulting in increased operational costs in both developed and developing countries for different reasons
- Hence regulators are faced with similar challenges: to what extent should they require RE generators to bear imbalance risks and to be equipped with devices enhancing their control capabilities?

MAJOR FINDINGS - EXAMPLES

- Electricity markets can help accommodate integration of growing levels of RE generation into the power system
- Creation of supra-national markets or cross-border projects covering an area of strong RE potential requires to adjust market design rules and to enhance international cooperation (*like the single European electricity market and the Mediterranean Solar Plan*)

MAJOR FINDINGS - EXAMPLES

- Energy regulators have to rethink traditional models and tools (e.g. cost allocation procedures, business models, planning criteria, ...):
 - to support large-scale deployment of RE generation
 - to connect renewable resources located in remote areas
 - to connect small-scale distributed generation

Thank you for your
attention!



The ICER report is on
our [website](http://www.icer-regulators.net)



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