

Introduction to System Resiliency and Flexibility

An event organized under the auspices of the
IEA Experts' Group on R&D Priority Setting and Evaluation (EGRD)
13-14 May 2019

Hosted by the Austrian Ministry for Transport, Innovation and Technology
Vienna, Austria

Dr. Birte Holst Jørgensen, Acting Chair of EGRD

EGRD an informal advisory body

- Since 1993, the EGRD examines analytical approaches to energy technologies, policies, and R&D, more specifically promotes dialogue and information exchange on methodologies and approaches related to:
 - **Energy technology assessment**
 - **Energy R&D priority-setting**
 - **Assessing benefits from R&D activities**
- The results and recommendations support the Committee on Energy Research and Technology (CERT), feed into IEA analysis, and enable a broad perspective of energy technology issues.





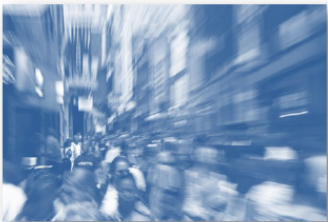


Semi annual expert workshops

IEA Experts' Group on R&D
Priority-Setting and Evaluation

Summary Report

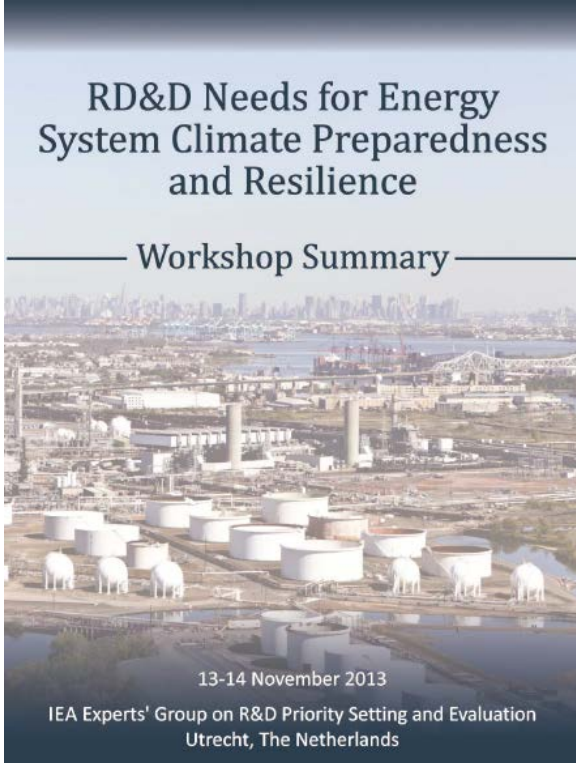
**The Transition to a
Low-Carbon Economy:
Socio-Economic
Considerations**

24-25 May 2011
Baden, Austria

RD&D Needs for Energy
System Climate Preparedness
and Resilience

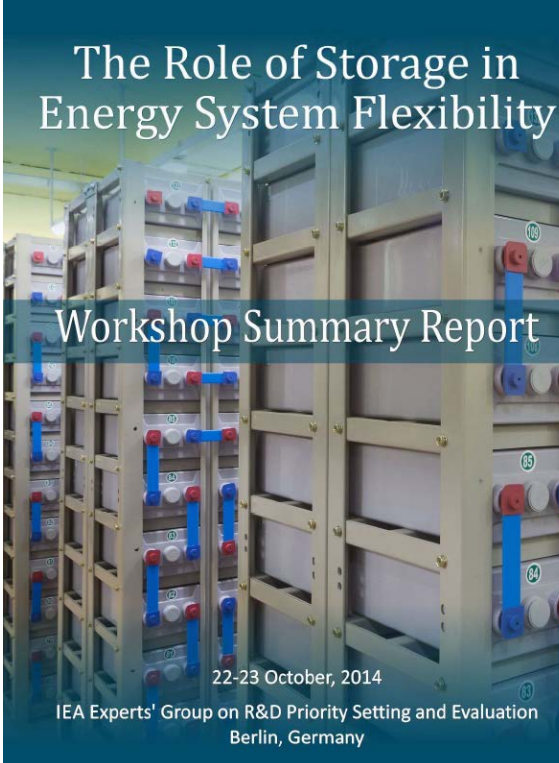
— Workshop Summary —




13-14 November 2013
IEA Experts' Group on R&D Priority Setting and Evaluation
Utrecht, The Netherlands

The Role of Storage in
Energy System Flexibility

Workshop Summary Report




22-23 October, 2014
IEA Experts' Group on R&D Priority Setting and Evaluation
Berlin, Germany



ADDRESSING THE ENERGY-WATER NEXUS
THROUGH R&D PLANNING AND POLICIES

SUMMARY REPORT



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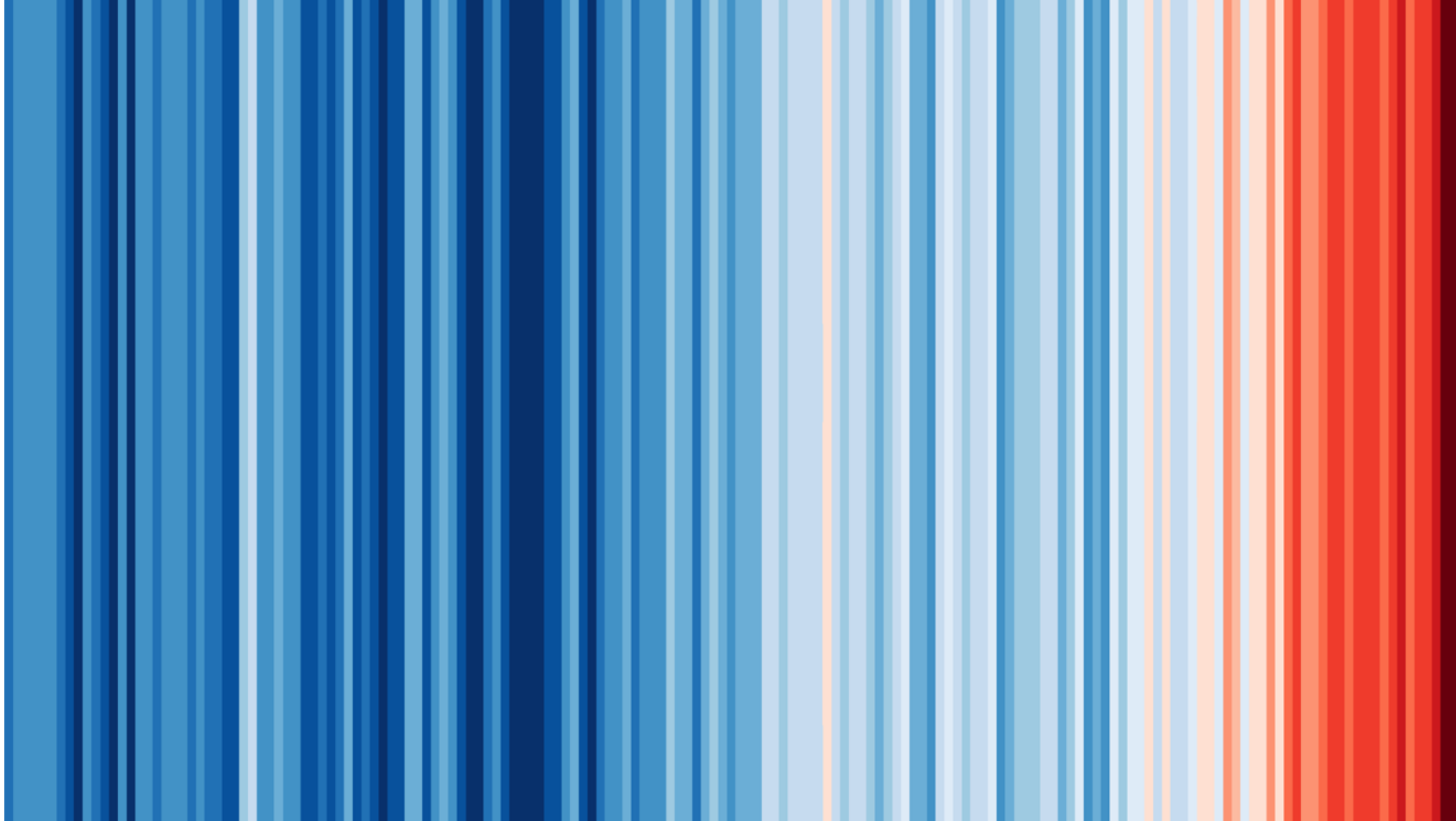
28-29 May 2018
Brussels, Belgium

Summary reports available at:

<http://www.iea.org/about/structure/cert/egr/>

<http://www.ieadsm.org/egr/>

Annual global temperature change from 1850-2017



Ed Hawkins, National Centre for Atmospheric Science (NCAS), University of Reading
The colour scale represents the change in global temperatures covering 1.35° C

Extreme events



Japan, NBC News



Copenhagen, 2013, Photo: Bax Lindhardt/Scanpix,

Vulnerability of the power system



Extremes of resilience



IEA, oil reserves



Oceanix/BIG-Bjarke Ingels Group

Accelerating the clean energy system



Source: McKinsey, Accelerating the energy transition: cost or opportunity? A thought starter for the Netherlands, 2016. <https://www.mckinsey.com/featured-insights/europe/accelerating-the-energy-transition-cost-or-opportunity>

Focus of the workshop

- What will the future energy system look like? What are the key challenges and main risks for the energy system with high shares of renewables?
- New technologies and business models: where are we heading?
- Best practises: what have we learned so far?
- What are the resilient transformation paths for the future?
- What are the main factors to be considered regarding R&D policies and decision-making?

Programme

- **Monday 13 May**
 - Introduction
 - Session 1: Flexibility in sustainable energy systems
 - Session 2: Practical experiences with building flexibility into systems
 - Lab tour: Aspen Smart City Research
- **Tuesday 14 May**
 - Session 3: Challenges, obstacles and risks on the way to a resilient system
 - Session 4: Flexible and resilient energy systems: towards R&D policies and decision-making
 - Final discussion and wrap-up

If one person dreams alone... It is only a dream. When many people dream together... It is the beginning of a new reality.

Friedensreich Hundertwasser

