

International Energy Agency Implementing Agreement For Hydropower Technologies & Programmes

# Overview of the IEA Hydropower Implementing Agreement (IEA Hydro)

Niels M. Nielsen/Torodd Jensen

Workshop Finland June 2014



## **IEA Implementing Agreements**

- Since 1974, the IEA has provided a structure for international co-operation in energy technology R&D
- The Implementing Agreements (IA) of the IEA are the vehicles of co-operation between countries and organisations focusing on particular energy sources
- Research projects are conducted by working groups of the Implementing Agreements called Annexes
- Work is conducted in phases of up to 5 years



## Membership of IEA Hydropower

#### Who can join?

- all OECD & non-OECD countries
- Governmental Agencies
- International Organisations
- Companies

★ All Participants must join at least one Annex



# Member & Participating Countries

#### **Member Countries**



Brazil – Ministry of Mines and Energy



Finland – TEKES (Finnish Funding Agency for Technology & Innovation) & Kemijoki Oy



Japan – New Energy Foundation (NEF), Agency for Natural Resources & Energy (METI)



Norway – Norwegian Water Resources & Energy Directorate (NVE)



US – US Department of Energy, Oak Ridge National Laboratory (ORNL)



# Member & Participating Countries

#### **Member Countries**



France, EDF



Australia, Hydro Tasmania

#### Other participating countries







Cooperation with:

IHA, WWC,



## **IEA Hydropower Vision & Mission**

#### Vision

Through the facilitation of worldwide recognition of hydropower as a well-established and socially desirable energy technology, advance the development of new hydropower and the modernisation of existing hydropower

#### Mission

To encourage through awareness, knowledge, and support the sustainable use of water resources for the development and management of hydropower



### **Organisational Structure**





# New & Ongoing Annexes - Phase 4 (2010-2014)

#### IEA Hydro Annexes:

•*Annex X Wind Hydro Integration* was recently completed with a report prepared and issued by the Wind IA.

•*Annex II Small Scale Hydropower*, led by Canada has continued from Phase 1.

•*Annex IX Hydropower Services*, led by Norway was initiated during Phase 4

•Annex XI Renewal and Upgrading of Hydropower Plants, led by Japan was initiated during Phase 4



# New & Ongoing Annexes - Phase 4 (2010-2014)

#### IEA Hydro Annexes:

•Annex XII, Hydropower and the Environment, has continued from Phase 3. Task 1, led by Brazil has the focus on GHG emissions from freshwater reservoirs. Task 2, led by Finland, has issued an update of the Recommendations from Annex III

●*Annex XIII on Hydropower and Fish*, has just commenced with an initial meeting in August 2013(Laos PDR) and a second meeting in December 2013 (Norway)



# For more information....

## Please visit ...

### www.ieahydro.org





### Why Norway joins the work

•Act and regulations on watercourses development changes and are influenced by the international society. The EU water – and renewable directives are examples.

•*Climate change introduce new challenges to hydropower in operation* 

•*Press on technology, environment and economy. Risk for technology degradation to meet new economic demand* 

 Need to discuss R&D programmes in Norway in a wider international perspective



### Why Norway joins the work

•Act and regulations on watercourses development changes and are influenced by the international society. The EU water – and renewable directives are examples.

•*Climate change introduce new challenges to hydropower in operation* 

•*Press on technology, environment and economy. Risk for technology degradation to meet new economic demand* 

• Need to discuss R&D programmes in Norway in a wider international perspective

# CEDREN – R&D Environmental Friendly Energy

- 9 large research projects 2009-2017
- 7 Norwegian research partners + many international
- 13 Industry partners and 2 management partners
- Budget: 36 MEuro (6 MEuro in 2013) financed by the Research Council and the Energy industry
- Passed mid-term evaluation with very good marks







### Hydropower technology







Environmenta I impacts of hydropower





Environmental impacts of wind power and power transmisson







How to reconcile energy and environment policy?









# Thank you



