# International Collaboration in Ocean Energy

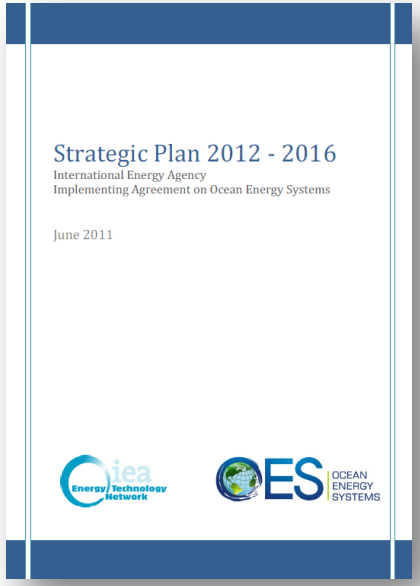
**Dr. John Huckerby**
Chairman of Executive Committee of Ocean Energy Systems

OES Annex IV Webinar
3 April 2012

# Who is OES?

## The Ocean Energy Systems Implementing Agreement (OES):

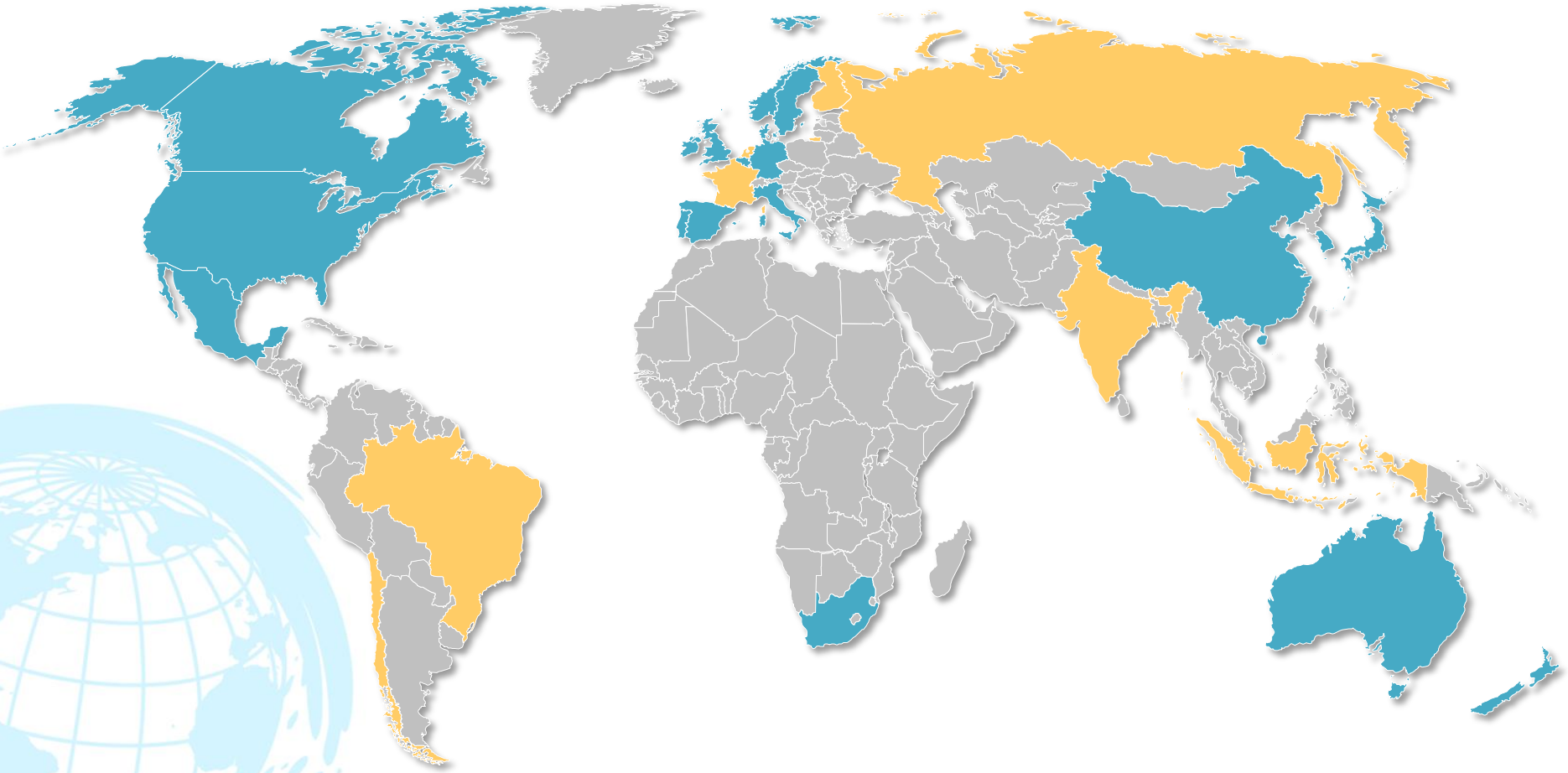
- Intergovernmental collaboration between countries
- Operating under a framework established by the International Energy Agency (IEA) in Paris
- OES was founded by three countries in 2001 and has grown to its present 19 country governments
- 3rd 5-year mandate approved by IEA on 28 February 2012




### 2012 – 2016 VISION

As the **Authoritative International Voice on Ocean Energy** we collaborate internationally to accelerate the viability, uptake and acceptance of ocean energy systems in an environmentally acceptable way

# Members and Observers



**Member countries**

**Countries invited to join**

# OES Governments' Representation

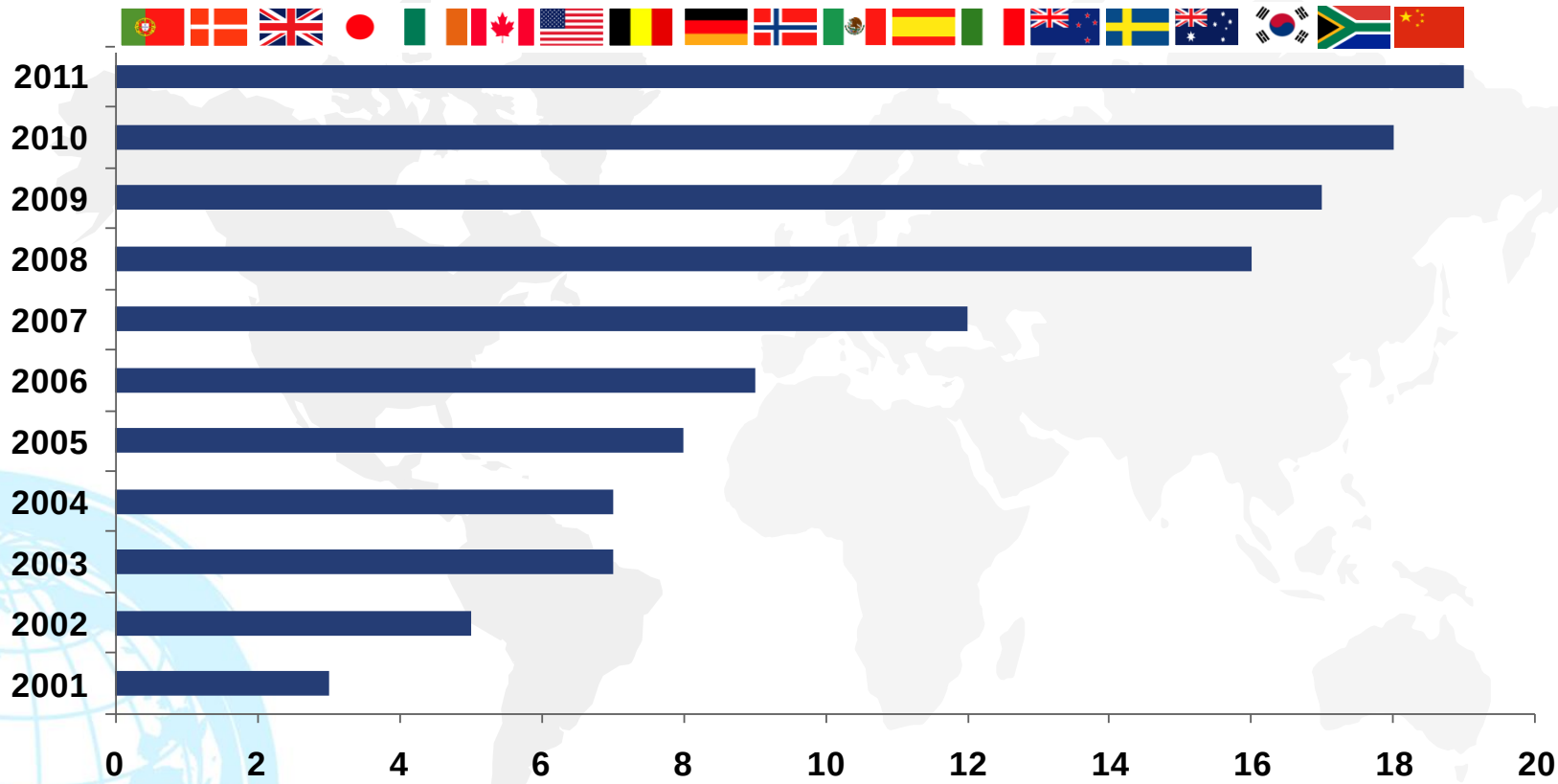
## 19 Members with a wide range of Contracting Party roles and interests:

| | |
|---|---|
| Government departments | USA, UK |
| Government resource agencies | Canada, Korea, China |
| National energy agencies | Sweden, Ireland, South Africa, Denmark |
| Universities | Japan, Belgium, Mexico |
| Research organizations | Spain, Portugal, Germany |
| Device/project developers | Australia, Norway, Italy |
| Industry associations | New Zealand |

## Key Strengths:

- Diverse membership
- Collaborative efforts between countries
- Pooled capital, resources and effort
- Transfer of experience and knowledge

# Membership Growth




## Currently in process:

- European Commission, France, Indonesia
- Chile, Brazil, Nigeria, India, Netherlands, Finland

# Role of OES

**Connect** organizations and individuals working in the ocean energy sector to accelerate development and enhance economic and environmental outcomes.

**Educate** people globally on the nature of ocean energy systems, the current status on development and deployment, and the beneficial impacts of such systems, improve skills and enhance research.

**Inspire** governments, agencies, corporate and individuals to become involved with the development and deployment of ocean energy systems.

**Facilitate** education, research, development and deployment of ocean energy systems in a manner that is beneficial for the environment and provides an economic return for those involved.

# Work Programme

## Annexes

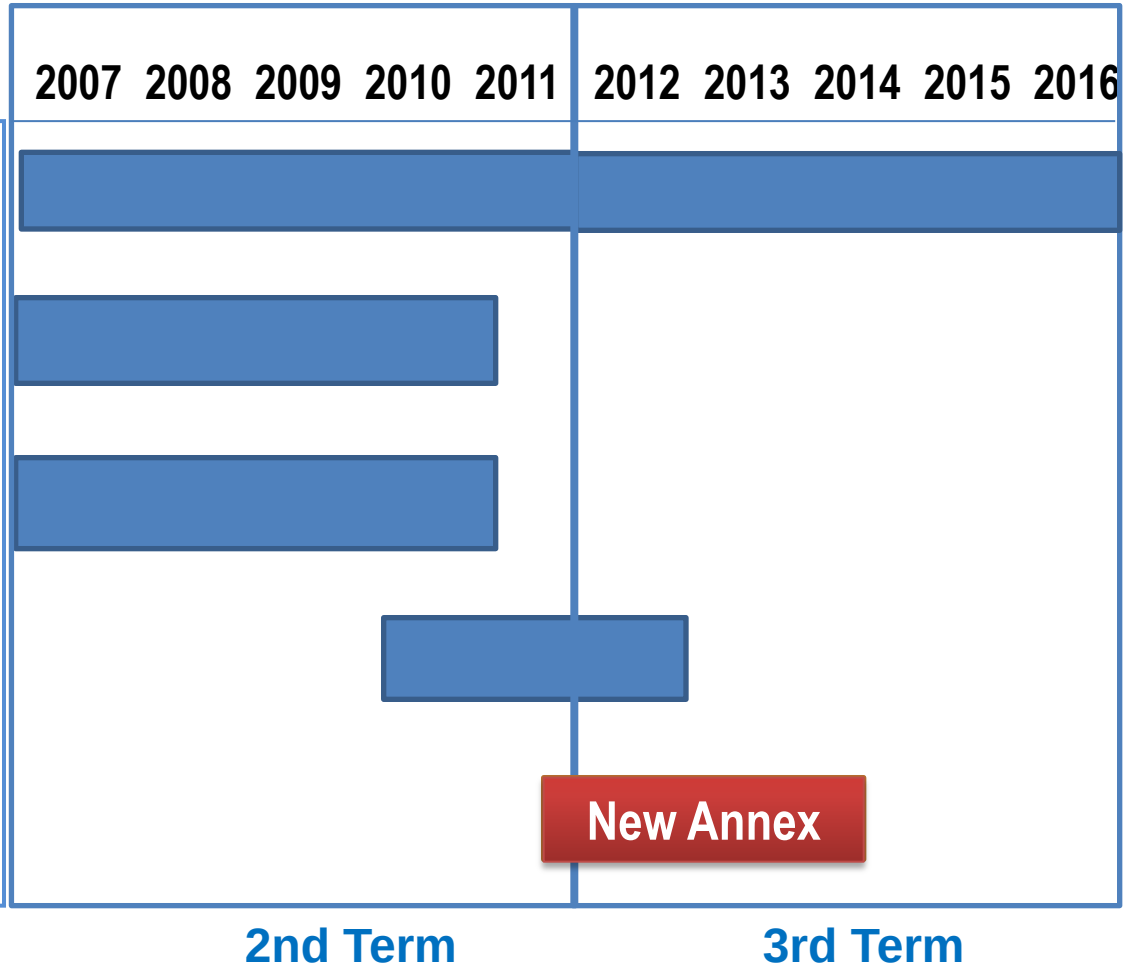
I **Dissemination**
Leader: WavEC, Portugal

II **Guidelines for Testing**
Leader: Ramboll, Denmark

III **Grid Integration**
Leader: Powertech Labs, Canada

IV **Environmental Effects**
Leader: DoE, USA

V **Device Performance**
Leader: DoE, USA




**Strategic Planning has led to several other Annex proposals – under development**

# Annex I - Dissemination

## OES Annual Report: Single, detailed, authoritative reference source


- **Country Reports:**
  Ocean Energy Policy
  Research & Development
  Technology Demonstration

- **Special Themes:**

  2011 Annual Report
  *Marine spatial planning & ocean energy*

  2010 Annual Report
  *Key facilitators of ocean energy*

  2009 Annual Report
  *Technical and non-technical barriers to ocean energy*

  2008 Annual Report
  *Present status of ocean energy*

# Annex I - Dissemination

## OES Bulletin: 6-monthly update on international activities & OES research activities

NEWSLETTER

As the authoritative international voice on ocean energy we collaborate internationally to accelerate the viability, uptake and acceptance of ocean energy systems in an environmentally acceptable manner.

OCTOBER 2011

**Introduction**

The Implementing Agreement on Ocean Energy Systems (OES) of the International Energy Agency (IEA) will complete its second five-year mandate on 28 February 2012. Thus a request for a new 5-year term was submitted to the IEA Committee on Energy Research and Technology (CERT) during 2011. The Strategic Plan for OES for 2012-2017 has been developed according to the founding objectives of the IEA and the need for a globally accepted Vision for Ocean Energy.
The OES brochure on the "International Vision for Ocean Energy" published in September 2011, sets out the opportunities, benefits and policies for ocean energy and barriers to the uptake of ocean energy surrounding the Vision, and being influenced by the organisational values of OES.
**Task I – Information Collation and Dissemination** is the central task of the OES work programme on the technical, economic, environmental and social aspects of ocean energy systems. During 2011, a Communications Plan for the OES has been prepared and as a result a new website will soon be launched. As part of the new strategy, OES branding has been updated with a focus on increasing awareness and understanding of the public in general.

**This bulletin highlights recent achievements and prospects in 15 member countries of the Implementing Agreement on Ocean Energy Systems (OES).**

**Republic of Korea**

Keyyong Hong, Korea Ocean Research and Development Institute (KORDI)

Sihwa Tidal Power Plant of 254MW was inaugurated in July 2011. The construction of this plant was initiated in December 2004. It consists of 10 turbines of 25.4 MW rated power, with annual forecast generation capacity of 552.7 GWh. The project cost was US$462.5 million. In Korea three other tidal power plants are being considered: Ganghwa (838.2 MW), Incheon (1440 MW) and Garorim (520 MW).
A 500 kW oscillating water column (OWC) pilot plant will be installed in intermediate waters on Jeju Island, in 2012. It is formed by two air chambers, equipped with the impulse turbine (see picture below). This project, managed by KORDI, is funded by the government with a total budget of US$ 24 million (R&D: US$ 8.5 million; pilot plant: US$ 15.5 million).

Sihwa Tidal Power Plant (254MW) inaugurated in July 2011, Korea

**Japan**

Yasuyuki Ikegami, Institute of Ocean Energy, Saga University (IOES)

The New Energy and Industrial Technology Development Organization (NEDO) has concluded a study on the ocean renewable energy potential in the country. The available ocean energy resources have been mapped (wave, OTEC, current, tidal current and tidal range power) and favourable places for the development of ocean energy projects have been identified.

Wave Energy Centre, Av. Manuel da Maia, nº36-r/c dto, 1100 Lisbon, Portugal
For more information about the OES please visit the website www.iea-oceans.org

- **R & D:**
  - Funding
  - Awards
  - Progress
- **Policy Developments:**
  - Feed-in Tariffs
  - Portfolio standards
- **Device Deployments:**
  - Wave and tidal energy technologies
  - Test centres
- **OES Activities**
  - Annex progress
  - Activity reviews

# International Vision for Ocean Energy

## Motivation

- OES is the only international intergovernmental organization
- Contribution of ocean energy remains unclear
- Available ocean energy resources are not well understood
- Timing of technological maturity is uncertain

## Opportunity

- OES members include most active countries in terms of R & D, policy implementation and device deployments
- Representatives can access national figures and databases
- OES has publishing/broadcasting role

## Audience

- Governments, policy makers, regulators and planners
- Industry participants, supply chain and general public

By 2030 ocean energy will have generated 160,000 direct jobs and savings of 5.2 billion tonnes of $CO_2$

# International Vision for Ocean Energy


An International Vision for Ocean Energy

SOCIETAL GOAL

By 2030 ocean energy will have created 160,000 direct jobs and saved 5.2 billion tonnes of $CO_2$ emissions.

- **20-page full-colour brochure**
- **Facts and figures as well as scenarios to 2050**
- **All forms of ocean energy in proportion to their present status**
- **Updated costs figures and 'iconic figures'**
- **People, water and energy nexus**

**Phase II (2012): Market Development**

- **Simple, contestable scenarios for market growth**
- **MARKAL modelling with IEA Modelling Group in Paris**

# Annex I - Dissemination

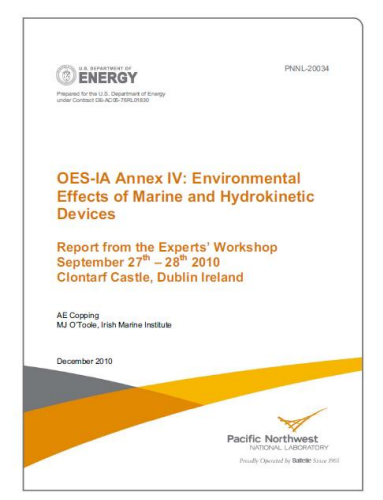

**Central information collation and dissemination Annex on the technical, economic, environmental and social aspects of ocean energy systems.**

**Contribution to the definition of future priorities for the Implementing Agreement as a whole.**

- Review and Analysis of Ocean Energy Systems Development and Supporting Policies | **2006**
- Ocean Energy Glossary | **2007**
- Wave Data Catalogue for Resource Assessment | **2007**
- Ocean Energy: Global Technology Development Status | **2009**

# Annex IV – Environmental Effects

## Assessment of Environmental Effects and Monitoring Efforts for Ocean Wave, Tidal, and Current Energy Systems




### Objectives:

- Expand knowledge of environmental effects and monitoring methods
- Increase accessibility of information
- Make available proven mitigation strategies
- Foster efficient and timely government oversight and public acceptance

**Mechanism for information sharing: Publicly accessible database**

# OES Executive Committee

**If you have been, thank you for listening!**

**www.ocean-energy-systems.org**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