

Speeding Deployment of Renewable Energy Technologies

An interview with

Hans Jørgen Koch, Executive Committee Chair, IEA Implementing Agreement on Renewable Energy Technology Deployment (RETD)¹

Renewable energy sources have a crucial role to play in de-carbonising power generation and they have important potential for the heating and transport sectors. Many actors are involved in the process of bringing renewables-sourced energy to the end user. The IEA Implementing Agreement on Renewable Energy Technology Deployment ([RETD](#)) provides a forum to bring together the latest thinking on strategies that can help governments and industry accelerate deployment of renewable energy solutions in the drive to clean up the world's energy systems.

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The IEA Renewable Energy Technology Deployment programme is a relatively recent addition to the portfolio of IEA international collaborations. Could you explain briefly what prompted its creation and what specific tasks RETD has set for itself?

Hans Jørgen Koch

The need to get the development of the global energy system onto a different track - notably by substantially increasing the share of renewables in energy supply - has been on the international agenda since the world summit in Johannesburg in 2002. Driving this has been the need to ensure security of energy supply, independence from imported energy from a few, often unstable regions, while reducing vulnerability to terrorism and cutting greenhouse gas emissions.

The creation of the RETD programme was announced in the International Action Programme issuing from the Bonn International Conference for Renewable Energies in 2004. RETD's purpose is to supplement the many IEA renewable energy



Hans Jørgen Koch,
Executive Committee Chair, RETD

¹ The IEA Implementing Agreement on Renewable Energy Technology Deployment is one of 41 international energy technology R&D programmes within the [IEA's collaborative framework](#).

Implementing Agreements within the IEA framework with an initiative focusing on how to bridge the gap - we call it the "Valley of Death" - between R&D and deployment of renewable energy technologies. Five countries signed the commitment in Bonn; today nine countries are committed to this important task of international co-operation on renewable energy technology deployment. Activities cover a number of aspects of the deployment drive. A major focus is establishing and increasing awareness of the true costs and benefits of renewables to society. RETD also addresses questions like the range of applications for renewable energy technologies, measures to streamline procedures for project approval and spatial planning, infrastructure issues, market rules and regulations and financing aspects.

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Can you enlarge a little on the major families of barriers to greater deployment of renewable energy technologies, how they interact and how they can be addressed?

Hans Jørgen Koch

One of the RETD's first actions was to make a synthesis of various studies on Barriers, Challenges and Opportunities, which was discussed at a stakeholder workshop in Brussels in 2006. The main conclusions were that:

- *There is no level playing field.*
- *Incentives are insufficient.*
- *Financing is unreasonably costly.*
- *Energy markets are in general not prepared for renewables.*
- *Permits for renewable energy plants can be lengthy and difficult to get.*
- *Import tariffs and technical barriers impede trade in renewables.*
- *For some technologies, standards are lacking.*
- *There is insufficient awareness of the opportunities renewable energy represents.*

That said, I would like to emphasise that I do not, in general, regard renewable energy technologies as "infant technologies", as they are often defined, but rather as a great opportunity, which is not exploited to the full because views on the potential of renewable energy technologies are not always objective.

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Not all renewables technologies are at the same stage of maturity. Some need much more research, development and demonstration. How can governments and industry work together to attract investment, foster innovation and pave the way to a larger share for renewables technologies in the market?

Hans Jørgen Koch

Opportunities for joint efforts to ensure a larger role for renewables obviously vary, depending on the technology's stage of maturity and on the energy market situation.

As a point of departure, it is essential that governments make the necessary budget appropriations for R&D on renewable energy technologies. However, this funding must be supplemented by industry R&D financing, either through agreements with energy producers or through requirements for co-financing in publicly financed R&D projects. The Danish publicly funded R&D programmes, for example, require 50%-70% of co-financing of this sort.

To establish better functioning markets for renewables is another important element in paving the way. This can be promoted through various means. Examples are: agreements between governments and producers; fixed tariffs or - in a market-based system - tariffs that vary according to the (spot) market price; establishment of a green-certificates market system; or a Public Service Obligation that supports environmentally friendly technologies. Another important element involves agreements with system operators in establishing the necessary grid net and connections to renewable energy plants.

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What issues will the RETD address to promote deployment of biofuels for transport?

Hans Jørgen Koch

RETD has a project in the pipeline on Best Use of Biomass and this is being developed in co-ordination with the IEA Bioenergy, a sister IEA Implementing Agreement collaboration. The RETD will focus on playing a cross-cutting role here in relation to analysis of environmental, social or price issues and consequences associated with increasing demand for biomass for food, energy and transport.

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Mature solar, biomass and geothermal technologies have a large potential for space and water heating or cooling in buildings. What needs to be done to increase their deployment?

Hans Jørgen Koch

One of the initiatives that the RETD started up in 2006 is Renewable Energy Technologies in Heating and Cooling markets. Part of the project is to analyse the potential of different renewable energy technologies - including solar, biomass and geothermal - and the policy measures and economic incentives used in a number of selected countries. The purpose is to identify good practice and make recommendations for policy measures. Our findings have just been published, together with the IEA Secretariat's own work on heating and cooling, in a joint publication.

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With increasingly wide regional electricity markets, what needs to be done to ensure that the grids and market structures can easily integrate renewables-sourced electricity, particularly when variable sources like wind are involved? How can the RETD programme work with the IEA Secretariat on these questions?

Hans Jørgen Koch

The issues here are also being addressed by an RETD activity, which has just now started up under the title Variable Electricity Production in Innovative Markets. The project will look into market design and conditions for deployment of variable renewable energy sources like wind power in the nine RETD countries. Its findings will form the basis for presenting good examples and recommendations on market design that can handle a significant share of variable energy sources. The project has been elaborated in close co-operation with the IEA Implementing Agreement on Electricity Networks Analysis, Research and Development (ENARD) and will be co-ordinated with the work of the IEA for the G8. The project's results are due to be published in the spring of 2008.

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Production of renewables technology is growing rapidly in fast-expanding non-OECD economies. India has a large presence in the market for wind power technology. China has a very active solar cells and modules industry. Can we expect that lower technology costs will foster greater take-up of these technologies elsewhere in the world?

Hans Jørgen Koch

Introduction of renewable energy technologies in huge markets such as those in India and China will obviously bring the technologies further along the learning curve and is thus likely to increase competitiveness. But experience has shown that the market alone cannot ensure technology deployment. Focused national policies and measures, and a framework that can manage variable energy sources such as solar and wind power are needed, among others.

IEA Implementing Agreement on Renewable Energy Technology Deployment (RET^D)

The RETD was established in September 2005 with a mandate to gather and disseminate information to government policy makers and private-sector stakeholders on the most cost-effective methodologies for deploying renewables technologies.

Participating countries are: Canada, Denmark, France, Germany, Ireland, Italy, Netherlands, Norway and the United Kingdom.

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How can countries work together to expand the markets for renewables?

Hans Jørgen Koch

The RETD initiative is a very good example of how countries across the world with different market systems and natural endowments can profit from co-operation and exchange of experience. I can only recommend that more countries and energy companies join the RETD.

Other forms of collaboration are regional co-operation or co-operation between neighbour countries. The Nordic countries, for instance, co-operate closely on energy issues, including renewable energy. Sweden, Finland, Norway and Denmark have a common Nordic electricity

market, designed in a way that facilitates a very big share of input using different kinds of renewable energy technology that supplement each other in accordance with the current supply and demand situation. An example is the combination of hydropower and wind power, where Denmark can get surplus hydropower energy from Norway and Sweden in situations where wind sources are sparse and, vice versa, can export wind power when it exceeds the local demand.

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In your view, what are the three keys for more effective deployment of renewables?

Hans Jørgen Koch

First, getting the prices right in relation to a situation today where other technologies such as nuclear - but also in some cases coal, oil and gas - are in reality heavily subsidised, either directly or indirectly, since the "real cost to society" is not reflected. I refer here to the damage and costs, for example, that fossil fuels can incur to health, buildings or forests. Another example is the value to society that renewable energy sources offer in terms of security of supply and local employment creation.

Second, joint public and private partnerships in ensuring renewable energy research and development, demonstration and deployment, as well as fair market access, including long-term infrastructure planning and flexibility, that allow new technologies to enter the market.

Third, international co-operation - both across regions and within regions - to ensure fair trade of energy services, exchange of experience in use of policies and economic incentives, along with more technology transfer, not least to the developing countries. Also, development of dynamic world energy scenarios representing fair and unbiased analysis of future prospects for renewable energy technologies.

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Thank you, Hans Jørgen Koch, for sharing your thoughts with us.

Hans Jørgen Koch

*It was my pleasure. More information about RETD can be found on our web site:
www.iea-retd.org.*