

## An IEA *OPEN Energy Technology Bulletin*<sup>1</sup> Interview

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### Roadmaps to a Global Energy Revolution

An interview with Tom Kerr

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Government policy makers and corporate decision takers call increasingly for roadmaps tracing the technology routes to a cleaner, more secure energy future. What can these energy technology roadmaps tell us? And how exactly can they help guide government policies and leverage financing to bring about the energy revolution that has now become so urgent? The *OPEN Bulletin* put some questions to Tom Kerr, a Senior Analyst at the IEA Secretariat, about the new energy [Technology Roadmaps](#) he and his team are now publishing.



Tom Kerr  
Senior Analyst, IEA

**IEA *OPEN Bulletin*.** In a nutshell, how can these energy Technology Roadmaps contribute to shaping government policies and corporate strategies for a more sustainable energy sector? And what is the time-span?

**Tom Kerr**

When we published the most recent [Energy Technology Perspectives \(ETP\)](#)<sup>2</sup> study in 2008, the general consensus was that the report provided much-needed detail as to the mix of different technologies required to achieve our climate change goals by 2050. However, while policy makers and industry found the report very informative, the main questions we heard were "What should we do next to facilitate the major energy technology transitions you are calling for? And what should be our priorities for the near term?"

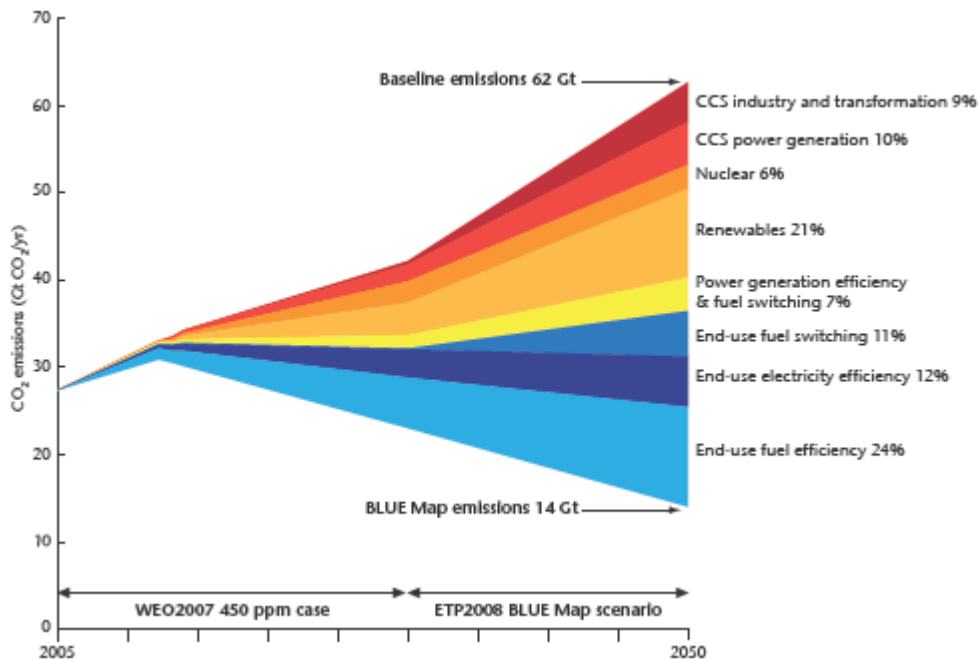
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<sup>1</sup> The IEA [OPEN Energy Technology Bulletin](#) is a free, web-based periodical newsletter published by the International Energy Agency (IEA). Views expressed in *OPEN Bulletin* interviews do not necessarily reflect the views or policies of the IEA or of all its individual member countries.

<sup>2</sup> The next IEA *Energy Technology Perspectives* publication is due out in 2010 – see the [ETP web page](#).

It is easier to understand why these questions arose if you look at the chart showing the respective sources of targeted CO<sub>2</sub> emissions reductions in the *ETP* Blue Map scenario. There is no doubt that a real global energy technology revolution is needed.

### IEA Energy Technology Perspectives Blue Map Scenario Emissions Reductions



Source: *Energy Technology Perspectives: Scenarios & Strategies to 2050* (IEA, 2008)

The IEA roadmaps are designed to answer the questions that readers of the *ETP* study raised. These roadmaps look in greater depth at specific technologies and they map a growth pathway for each, from today's levels of technology usage to the levels we need to have reached by 2050. The projections address the technological advances, but also the financing, legal/regulatory and public acceptance challenges that all technologies face.

Our objective is to provide a blueprint that can help make the big jump from political awareness to the concrete action that can ensure that investment decisions do not lock the world's economies into long years of inefficient, high-emissions technology.

**IEA OPEN Bulletin.** Not everybody has the same perspective on the potential of this or that technology. Who provides the information feeding into these roadmaps? How is it gathered?

**Tom Kerr**

All of these IEA roadmaps take the *ETP* BLUE Map scenario as their starting point. This scenario shows that rapid implementation of unprecedented, far-reaching new policies in the energy sector can halve today's levels of CO<sub>2</sub> emissions by mid-century.

So, for a given technology, we take the model's Blue Map level of penetration by 2050 and set about creating the path to achieve that target.

To ensure that our projections for each technology bring together the widest available expertise, we typically host one or more small workshop consultations with experts from the IEA Secretariat and from its Energy Technology Network, including the IEA Implementing Agreement collaborative R&D programmes and the IEA Working Parties specialising in different families of energy technology. Outside experts from both public and private sectors also take part in these workshops, which aim to scope the roadmap and identify areas in need of further research or analysis.

We then open the study to a larger group of stakeholders to provide a broad range of perspectives, particularly from the emerging economies where we expect much of the clean energy technology investment to take place. In order to fine tune the roadmaps, we also draw heavily on national roadmaps that already exist.

**IEA OPEN Bulletin. How do you factor in possible technology breakthroughs?**

**Tom Kerr**

The roadmaps identify current technology performance levels in terms of costs, efficiency or effectiveness. They then set up the performance milestones that we need to get past if the technology is to achieve its potential. Inevitably, most technologies will need to achieve some form of breakthrough in the later decades from 2030-2050. Those breakthroughs will not always happen without catalysts and will often require pro-active policy approaches. So, to come up with a clearer vision of what needs to happen to achieve the required performance levels - and what levels of technology performance potential we can work with - we consult with our Network experts in each technology domain, including the CERT<sup>3</sup> Experts Group on Science for Energy, which looks at links between basic science and applied energy (see <http://www.iea.org/about/egse.asp> for more information).

**IEA OPEN Bulletin. In terms of economy, climate and natural endowments, countries all have different profiles. How do the IEA energy technology roadmaps provide for this?**

**Tom Kerr**

The roadmaps are designed to provide a broad, global view of the international collaborative effort that is needed to turn into reality what is today simply a vision of a technology's potential. While they are not designed to provide a detailed national analysis, IEA's roadmaps definitely take the *ETP* analysis a huge step forward, providing a more detailed regional (and sometimes national) view on the possible growth path for technology adoption.

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<sup>3</sup> IEA Committee on Energy Research and Technology ([CERT](#))

In addition, we are making a concerted effort to discuss and address specific capacity-building and market needs for developing countries, recognising these nations' differing levels of technology and policy development and the consequent need for a special focus if they are to expand their use of cleaner, more efficient technologies.

**IEA *OPEN Bulletin*.** The IEA's first series of [roadmaps](#) covers: carbon capture and storage; wind energy; electric/plug-in hybrid vehicles; efficient cement-industry processes and solar concentrating power. What do you have store for the next set of roadmaps? And when will they be published?

**Tom Kerr**

The next set of roadmaps is already in the pipeline. Topics include: advanced vehicle efficiency; biofuels; concentrating solar power; energy-efficient and low-carbon buildings; nuclear energy and smart grids. Our aim is to start publishing the next roadmaps individually in early 2010 and to have them all published and downloadable from our website by September 2010.