

# IEA and OECD-NEA – rapid roads to nowhere?

A new report that aims to speed up the deployment of nuclear power could end up marginalising the technology. Instead of focusing on the 'real' issues, it includes a long list of actions needed to support a rapid expansion of nuclear power.

The International Energy Agency (IEA) and the OECD Nuclear Energy Agency (OECD-NEA) have recently released their Technology Roadmap Nuclear Energy. This is an update of an earlier 2010 edition and essentially provides a supplement to the IEA's annual World Energy Outlook, published last November, but taking the analysis through to 2050. In order to achieve climate targets, it puts forward a future energy mix scenario in which 930GWe of nuclear capacity provides 17% of electricity by 2050. This increase of nuclear power from today's 377GWe would, on its own, contribute 13% of the emissions reduction needed to limit global warming to 2°C.



By Steve Kidd

The report has been praised by the nuclear industry and its representative organisations as a positive endorsement of many of nuclear's attributes and promoted as a reasonable way for the energy world to move forward. This is, however, a dangerous view and the latest example of the major intergovernmental bodies succeeding in effectively marginalising nuclear. The industry should stand up more strongly and no longer be so grateful for picking up a few small crumbs from the rich man's table. It needs to push its case much more forcibly with these agencies.

The obvious clue to a big problem with the Roadmap comes from the fact that of all the technologies required to meet the climate target, only renewables are on track. Nuclear is falling well behind along with (not surprisingly) carbon capture and storage (CCS).

CCS has yet to be proven and become a viable commercial option to de-carbonise fossil fuel emissions, while nuclear is a mature technology and well-established as an important component of today's clean energy. Yet the two seem to be treated together as useful options for the future but without much confidence that they'll do their proper job. This leaves much of the burden on renewables to meet the need for lower carbon emissions (particularly solar): almost half of future electricity generation would come from variable renewables by 2050. This requires a substantial change within the energy system, which may or may not be realistic. But what is clear is that nuclear will essentially get marginalised.

If a little green man arrived on Earth from space and read the Nuclear Roadmap, he'd think the Earthlings mad if they picked nuclear to satisfy their power requirements. The report is a long list of things that need putting right if nuclear is to have any chance of expanding rapidly. Who would use a technology with so many (apparently) serious issues surrounding it? There are no fewer than 28 actions required of key stakeholders, ranging from R&D to safety, regulation, decommissioning and waste management. The report is clearly the product of a large group of government bureaucrats, none of whom have much idea of how business and markets really function. There is a particular degree of ignorance on how public

perception bears on the industry (and can be corrected). To quote one example, to suggest an action like "investments in environmentally sustainable [assumed uranium] mining are needed to address expected long-term demand" is patently ridiculous as there are no conceivable underlying problems with uranium supply going forward. Why not concentrate on the real issues?

An alternative view is that the Roadmap actually stands up very well as an anti-nuclear prayer-book. A very turgid one at that – our opponents would at least make it an interesting read! In essence, the authors are obsessed with challenges rather than opportunities and their analysis is dominated by the environmental (more narrowly the climate change) issue. An alternative view would argue that the biggest

challenges within the world power sector today have nothing to do with the environment. Hundreds of millions of people in the developing world don't even have access to regular power supply, while increasing numbers of people in the developed world are facing completely unwarranted tariff increases for their electricity (threatening more "energy poverty" and industrial competitiveness) as a consequence of today's foolish energy policies. Meanwhile nuclear power slides slowly downwards in major areas of the world.

The World Nuclear Association (WNA), the national associations, IEA, OECD-NEA and the rest can say "nuclear energy is an important part of the generation mix needed for a sustainable energy future" as often and for as long as they wish, but it simply isn't going to happen, unless they start addressing the real issues.

For those who are seriously interested in a prosperous nuclear future, the first stage is to get away from the climate change argument, as outlined earlier in January 2015 ('Is climate change the worst argument for nuclear?'). Whatever one's personal views on climate change, they are irrelevant to the advice that the nuclear industry should be given. This is based on the observation of what has happened since 1998, where nuclear has been sucked into the climate change debate and then (very cleverly in fact) marginalised in favour of inferior energy options. Exactly what the anti-nuclear forces have desired. Meanwhile, the industry foolishly takes comfort from a succession of essentially useless reports and the arrival of a number of turncoat former environmentalists to its side. The carbon avoidance argument is highlighted (indeed dominates) and the industry and its representative bodies do nothing to discourage this, while failing to push the right arguments.

A huge problem with the reports from bodies such as IEA and OECD-NEA is that they are always badly compromised by the anti-nuclear countries within their membership. The 2014 IEA World Energy Outlook spoiled its (often reasonable) extended coverage of nuclear matters by bringing up used fuel management and decommissioning as key issues. Neither have much relevance to new build, so why focus on them, if it's not to appease somebody?

The energy ministers of Austria, Denmark or Germany will be very happy with documents such as the Roadmap, as any reasonable neutral who reads it will steer well clear of nuclear. By allowing all the challenges to dominate, nuclear seems to become just too difficult to be workable and will stay precisely where it is today in Europe and North America – going nowhere.

Another tactic of the anti-nuclear forces is to push the discussion onto the need for future research. The industry doesn't help itself here by continuing to debate every conceivable type of future reactor design, most of which were (probably quite rightly) rejected in the 1950s as serious options, so are probably technically possible but not likely ever to be needed. The message to the nuclear industry is "Thanks for all the low cost, clean and reliable power that you're offered (and continue to provide) but unless you change fundamentally (with 28 necessary actions) you've got no chance."

The recent European Union (EU) document on the Energy Union was typical of this. Nuclear hardly gets a mention, apart from a suggestion that it is a prime research priority. Meanwhile the Chinese, Koreans and Russians are building lots of current-generation nuclear plants, to the great benefit of their people and their economies.

The starting point for these countries is that they are building power plants for the value and quality of the electricity they produce and not for things they don't do, i.e. emit carbon dioxide. This may be a secondary argument in favour, but isn't the key. Utility executives in the rest of the world will say the same thing: when they're asked about the future problems or threats to their businesses, the environment and climate change hardly figure. Their job is to discern what is happening out there that could either threaten the interests of their shareholders or benefit them, and their focus has to be on what any technology can reasonably achieve (and at what cost).

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As things stand at the moment, the renewable enthusiasts can always claim nuclear isn't needed because wind and solar avoid all the carbon emissions just as well, and without needing to solve all the supposed 28 issues. And particularly the (alleged) problems of waste and decommissioning, which seem to be unnecessarily bothering the IEA now.

Nuclear advocates need to adopt a more aggressive posture with respect to renewables. Standing aside and saying they can happily co-exist with nuclear is no longer an option. The initial problem with renewables is that their subsidies push up power prices, but once they start taking a substantial part of power demand, they start to have adverse influences on the other electricity generation modes. If they are given priority grid access, when the sun is shining and the wind is blowing, coal and nuclear plants have to start load-following, which may not be ideal for their economics (certainly not for nuclear). This is now happening in Germany, but has also become a factor in places such as Ontario, Canada. Once the full costs of renewable energy become reflected in tariffs and appreciated by customers, they will likely not be so enthusiastic about them. It will probably be the industrial power buyers who

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will complain loudest, as their viability can be threatened by higher prices, especially if their overseas competitors have cheap power.

The other area where renewable energy needs a firmer critique is on its poor record at abating overall carbon emissions. We have seen that the use of coal for power generation has risen again in Germany and the United Kingdom and the rise of intermittent renewables explains much of this. The premature closure of eight German nuclear stations was another important factor – but renewable energy curbs far fewer overall carbon emissions than is often claimed.

Curtailed carbon emissions in Europe can mostly be explained by de-industrialisation and the movement of industry to Asia. The carbon is emitted in a different region of the world, to nobody's great benefit. This is a major plank of Professor Dieter Helm's critique of carbon emissions policies in his book *The Carbon Crunch*. It should ideally be the consumption of carbon (bound up in manufactured products) that should be taxed, not the production. The practicalities of achieving this are very difficult, but it makes much more sense to aim in that direction.

If nuclear power is justified, it has to be because of the raw economics of its production and reliability and not because of some government mandate which could be changed at any time the politics changes. Eventually it will become accepted that (at least for developed countries with high-intensity electricity use) renewables produce electricity sporadically, and at very high input cost compared to just about every other form of electricity generation. They have no economic justification of their own unless a huge tax for carbon dioxide avoidance is put into the cost equation. The crucial issues confronting nuclear power are making the plants simpler, cheaper and more reliable to construct and operate. Avoiding carbon emissions doesn't turn on any lights, and it doesn't power any steel furnaces. Making electricity as efficiently as possible is the key requirement for power plant development and nuclear, done correctly, scores very high marks on this. ■

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