



Summary Report on the YGN New-Build Debate, 08/02/2011.

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This report gives a summary of the discussions observed at the YGN New-Build Debate 2011 that took place in Birchwood Park in Warrington this February. The event was an open forum style with thoughtful questions asked by young engineers from a large variety of companies in the nuclear field. There was a very good attendance (around 100), with some light entertainment provided in the form of a raffle at the end of the evening.

On the panel were: Chairing, Alan Ruiz, Halcrow Group Ltd and vice chair of the Young Generation Network; Kevin Allers, GDA Program Director from the Health & Safety Executive; Adrian Bull, Director with Westinghouse and Leon Flexman, Director of Communications at Horizon Nuclear Power. Some of the key issues that they discussed:

- The GDA process (administered by the HSE) has been designed to reduce the need for regulator interaction during the build process by assessing a generic safety case for each reactor design pre-build. The program is running to schedule for 2 reactor designs, the EPR by Areva and AP1000 by Westinghouse. Full interim reports are due in June and will give final actions required of these vendors for safety case compliance. GDA must be completed before construction of the nuclear island can begin.
- The Westinghouse AP1000 has less than half the mechanical components (valves, pumps etc) of a conventional PWR design and comes in a modular form that de-risks schedule slip by allowing construction work to be done in parallel. It has had 10 orders, 4 in China which are currently under construction and on-schedule and 6 in the USA which are due to commence construction 'soon'. The Chinese units are due to come online between 2012 and 2015.
- Westinghouse will focus on selling the AP1000 design to Horizon nuclear power for deployment in the UK on Wylfa and Oldbury sites. NuGen (the third NNB operator with a site secured in Cumbria) are also said to be interested although they are also considering other reactor designs.
- Westinghouse is an American company with headquarters in Pittsburgh. 30% of its workforce are based in Europe. In the UK, they run the Springfields nuclear fuel facility on a 150 year lease from the NDA.
- Horizon Nuclear Power was formed in January 2009 as a joint venture between E-on and RWE. Together the companies operate 20 reactors, with 3 owned in partnership. It is a standalone UK company with offices in Gloucester, aiming to have 6GW of installed capacity by 2025.
- £15bn investment will be made by Horizon into construction of new reactors on 2 Magnox sites - Wylfa and Oldbury. Wylfa will be the lead site, with a planning application to be made in 2012, construction beginning in 2014 and commissioning targeted for 2020. EDF aim to apply for planning permission (for Hinkley Point B) this year, with a view to construction in 2013 and commissioning in 2018. Horizon has still not made a decision between the AP1000 and EPR. Either way, they will be likely to partner with the reactor vendor on a 'turn-key' contract basis, meaning that they will have only one major partner (i.e. Westinghouse or Areva). This is different to the EDF model.
- Objections to NNB projects locally tend to be around large infrastructure works and associated disruption rather than fears over nuclear power (most sites have had a nuclear presence for decades).
- The EPR had some major challenges with C&I during the GDA process, these are now resolved. The Westinghouse design has ongoing issues with civil works. It must be noted that the Generic Design Assessment does not take into account site conditions and operator decisions that can affect the safety case.



- It is absolutely essential for these projects to go ahead that nuclear energy is included in the electricity market reform. This does not mean a subsidy is required, but that the playing field between nuclear and other 'low-carbon' technologies be made more 'level'. All panel members were confident that nuclear would form part of the reform. It will not be possible to hit carbon reduction targets and maintain security of supply without nuclear new-build.
- Other designs that may enter GDA at a later date are the GE-Hitachi ESBWR and a Mitsubishi design. These vendors have chosen to follow a path of pre-approval and consultation in their home countries before applying for GDA in the UK however. The GDA process is likely to wind-down after EPR/AP1000 qualification as this '2nd tranche' of designs are some way off.
- GDA qualification does consider final decommissioning and reactors must show that they have built-in ability to be decommissioned safely from the outset.
- Whilst there are certain issues on which the three competing NNB operators (EDF, Horizon and NuGen) must co-operate, for example regulatory frameworks and decommissioning issues, they have somewhat divergent wishes. Whilst the audience felt that benefits could be gained from collaboration between operators, it seems unlikely that this will occur in-practice due to fierce competition.

The event was another well organised YGN event.