

# Submerged politics of UK nuclear power

## *Is Trident renewal influencing UK energy policy?*

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With Parliament now getting ready to vote on the ‘main gate’ decision on renewal of the Trident programme, 2016 is set to be a decisive year for the future of UK nuclear weapons capabilities. Political opposition has grown in Parliament, with both the Scottish National Party (SNP) and Labour leaderships now opposed to Trident renewal. At a lifetime cost variously estimated between £31 Billion<sup>1</sup> and over£100 billion<sup>2</sup>, the political and economic stakes are very high. Debate is becoming increasingly heated over the practicalities, costs, ethical and strategic implications. Many of these arguments are covered extensively elsewhere, and are not repeated here.<sup>2-6</sup>

Instead, this article looks at another possible implication of Trident renewal which has remained almost completely ‘under the radar’ of contemporary policy and academic debate. This concerns the recent history of the UK civil nuclear power industry, which also involves remarkably similar stories of delays, cost overruns, questions of necessity and performance, and critical comparisons with strategies in other countries and arguments for superior alternatives.<sup>7</sup>

The intensity of UK commitments to civil nuclear power is also looking increasingly anomalous on the world stage. The contrast with Germany is especially striking, with the UK hosting a massively less successful nuclear engineering and power industry and enjoying a renewable resource that is the envy of Europe.<sup>8</sup> Yet it is Germany (with a track record of prescience in past industrial policy decisions), that is undertaking a complete nuclear phase-out

by 2022, whilst the UK Government doggedly pursues a ‘nuclear renaissance’. In a current academic research project now nearing completion<sup>9</sup>, we are systematically exploring possible reasons for the UK’s internationally-anomalous commitment to nuclear energy. And this is where there emerges a seeming connection to Trident.

Of course, concerns over climate change and energy security certainly play a part in UK interest in nuclear power. But they do not explain why the UK should be so unusually intense in its nuclear enthusiasm. As in Germany, such reasons might speak even more strongly for alternative policies. In our research, we have (like others) examined in great detail, issues of energy economics, industrial policy, available resources, security of supply, political lobbies, the history of energy institutions, technological lock-in, and different aspects and qualities of democratic decision making.<sup>8</sup> Although the issues are highly complex and any full explanation must be multi-causal, it is difficult to avoid recognising that there emerges a further factor – one which is all the more important to address, because it has hitherto escaped virtually any attention whatsoever.

In short, these neglected questions concern the extent to which UK policy commitments to nuclear power reflect a deeper perceived imperative to maintain national capabilities to design, build, operate, staff, regulate and decommission nuclear propelled submarines. Without nuclear propulsion, submarines would not, in current military opinion, display the requisite endurance, stealth, speed and robustness to serve as credible platforms or guardians of strategic nuclear capabilities.<sup>10</sup> In influential quarters, capabilities to maintain naval nuclear propulsion is thus seen to constitute a serious bottleneck in the sustaining of crucial wider strategic military capabilities. And these are in turn of crucial importance to a particular UK identity as an ‘outsized power’ that ‘punches above its weight’.<sup>11</sup>

The challenge is that nuclear submarines are among the most complex and demanding of human artefacts. In a time of serious decline in UK manufacturing capacities, maintaining this capability places especially serious demands.<sup>12,13</sup> The security sensitivities preclude much of the kind of national outsourcing that is so routine in other industries. So, the ability of the UK to maintain a cherished elite identity on the world stage, rest on its ability to find as many alternative ways as possible to secure the national reservoirs of highly specialist expertise, education, training, skills, production and regulation necessary to sustain nuclear submarines. In order to achieve this, however, it is not essential that the UK take a lead in building civilian nuclear power reactors. All that is required is that crucial

parts of the submarine industry secure key places in civilian nuclear power supply chains.

If this is a factor in the peculiar intensity of UK government commitments to civil nuclear power, then what is most remarkable is that it remains entirely unacknowledged in any policy literature that we are aware of concerning the formal rationales for a UK ‘nuclear renaissance’. It would perhaps be in the nature of such a sensitive imperative, that the Government might be expected to be discrete about it. Yet we believe we have found strong circumstantial evidence, that this actually forms a crucial general pressure that has operated decisively at important critical junctures in UK nuclear policy making. It is this evidence that the rest of this article examines.

### **A military nuclear connection, in this day and age?**

It is for good reason that something of a taboo has arisen over the years around emphasising any kind of linkage between civilian and military-related nuclear issues. The topic is the object of much misleading casual comment. Albeit not perfect, strict safeguards have been in place for decades to prevent cross-overs in usage of fissile materials and ensure that civilian nuclear power does not compound risks of nuclear weapons proliferation.<sup>14</sup> Dedicated institutions like the International Atomic Energy Agency (IAEA) and Euratom work strongly to ensure the separation of civilian and military related nuclear matters and uphold the Nuclear Non-Proliferation Treaty.

Perhaps even more significantly, the reduction in strategic arsenals following the end of the Cold War means that key nuclear weapons materials such as plutonium are actually in surplus on the military side.<sup>15</sup> The situation is arguably a little more complex and obscure with regard to other specialist materials such as tritium<sup>16</sup>, but with many other possibilities in play, this also seems largely irrelevant to any pressure to maintain a large indigenous civil nuclear power industry. So, although the history of nuclear power in the UK (as elsewhere) is inextricably tied to ambitions around nuclear weapons<sup>17,18</sup> – and the connection remains relevant around horizontal proliferation – it is not credible to argue that nuclear weapons materials production might currently constitute a significant driver of UK civil nuclear policies.

But this is not a story concerning fissile materials. Nor is it about the design or manufacture of vital missile or warhead components, many of which are supplied by the United States.<sup>3,4</sup> Indeed the issue here is not about nuclear weapons at all, but about the ability to construct and operate

the submarine platforms on which their effective strategic performance is seen to depend. And – although also linked in many ways to US designs and supply chains – it is an ability to maintain minimal independent national capabilities to build and operate these nuclear-propelled Trident submarines (and associated attack boats) that remains the focus of an intense and rather anxious national debate on the military side.

Here, a long series of government reports, consultancy studies, select committee inquiries, lobby documents and dedicated new institutions all indicate, very strongly, the weight of priority attached to maintaining a threatened national capability. All that is missing, is any clear policy acknowledgement that it is this perceived imperative that is exerting an influence on the strength of commitment to maintaining a UK supply chain sustained by a civilian nuclear power programme. But we think we have found some illuminating tell-tale signs of such links.

### **The intensity of the UK's commitment to civilian nuclear power is puzzling**

Before turning to these, it is important to substantiate quite how distinctive are the current levels of UK Government support for nuclear power. With Energy Minister Amber Rudd recently stating that '*[i]nvesting in nuclear is what this Government is all about for the next twenty years*'<sup>19</sup>, the UK is the main governmental advocate on the world stage of a 'nuclear renaissance'. A few countries have larger envisaged programmes in absolute terms<sup>20</sup> (most also, incidentally, operators of nuclear submarines). But these nuclear programmes are much smaller in relative terms when compared with plans in the same countries to exploit low carbon renewable energy options. Globally, investments in renewable electricity generating capacity exceed even that for all fossil fuels put together, leaving nuclear far behind.<sup>21</sup>

Yet UK Government support for a 'nuclear renaissance' remains larger than (and in large part an *alternative* to) efforts to develop its own especially attractive national renewable resources.<sup>22</sup> And what is especially striking here, is how persistent these enthusiasms have remained for a 'nuclear renaissance', despite repeated serious set-backs. The detailed ways in which the UK will deliver on this emphatic commitment are amazingly volatile. Since 2006, a series of radically different designs have each been confidently identified before being abandoned, including designs from US-Japanese, Chinese and French-led consortia – and now, most recently, an as-yet entirely undeveloped US/UK concept for a new small modular reactor.<sup>23</sup>

Nor does past UK history in the nuclear sector offer any encouragement for such an optimistic attitude. Following a series of earlier policy disasters, recent further blows include the withdrawal of multiple earlier prospective reactor constructors<sup>24</sup>, massive over-runs in time and cost for similar planned reactors<sup>25</sup>, the impossibility of securing private finance<sup>26</sup>, the imposing of punishing terms by the current Chinese government financial backers<sup>27</sup>, the revelation of a catastrophic defect in a key reactor component<sup>28</sup>, and the presently-threatened bankruptcy or withdrawal of the only serious current contender for actually constructing the next UK nuclear plant.<sup>29</sup>

All this has occurred against the backdrop of ample evidence for the ready availability of more cost-effective zero-carbon resources for electricity generation in the UK. Under the same presently-envisaged contracts that are currently evidently viewed as insufficient by the prospective developers of the Hinkley Point C plant, EDF, British electricity consumers will be locked into funding this plant with guaranteed prices over 35 years that are almost three times the current wholesale price of electricity.<sup>30</sup>

The ‘strike price’ of £92.50/KWh agreed ‘behind closed doors’ with EDF is significantly higher than the government’s own figures for comparable contracts for renewable electricity.<sup>31</sup> And worldwide statistics show unequivocally that nuclear costs continue to rise, whilst global renewable energy costs are falling. National industrial, employment and investment opportunities presented by capital-intensive renewable energy infrastructures are at least equal to those offered by nuclear power. Operational challenges posed by particular renewable technologies such as wind, which are intermittent in their output, are not trivial. But these do not arise until system penetrations that are much greater than presently envisaged scales of development. And they are, anyhow, balanced by a series of countervailing qualities in distributed electricity technologies that are actually seen in countries such as Germany and Denmark as advantages when compared with inflexible centralised ‘base load’ nuclear power.<sup>32</sup>

Of course, much scope remains for argument on all sides. Energy issues are complex, uncertain and ambiguous. But it is not necessary to be an unqualified critic of nuclear power, to appreciate that it is extraordinarily difficult to reconcile the intensity of UK government commitments to nuclear power with the recent history of experience in this field, neither with established global trends, nor with the manifest cost-effectiveness and availability of low carbon alternatives. Against a backdrop of a stronger national nuclear industry and a weaker national renewable resource,

Germany presents an especially telling contrast. At the very least, it does seem that some other explanation is required for why the UK should remain so internationally distinctive in the intensity of its attachment to a ‘nuclear renaissance’.

### **The 2003 Energy White paper: an exception that proves the rule?**

In seeking to understand the causes of this evidently peculiar form of technological lock-in, it is illuminating to consider a brief period when the attachment was briefly broken. After a series of policy catastrophes driven by successive episodes of apparent UK Government credulity in the face of over-optimistic representations of nuclear interests<sup>33-35</sup>, the 1997 election saw all political parties, if reluctantly, accepting that nuclear power had become uncompetitive and unattractive compared with alternatives.<sup>36</sup> In the ensuing new enthusiasm for public participation in the early years of Tony Blair’s New Labour administration, an unprecedented move occurred when the Cabinet Office initiated an important review of energy policy that was not primarily written by Government civil servants but also included crucial inputs from independent energy experts.<sup>37</sup> Also relevant is that this arrived at its energy focus through a rather convoluted route that began as a review of resources, quickly evolving to include renewable resources, and then expanding to address other energy options more generally. In this way the energy issue was approached ‘under the radar’, by-passing the ‘usual suspects’ in established ministries concerned with nuclear strategies.

For whatever reason, the resulting report became the most detailed UK government analysis to date of the imperatives involved in undertaking a transition to low carbon energy systems. Following up on this, the Energy White Paper of 2003 concluded, in an exceptional historic moment, that nuclear power was not an attractive option – and that a shift towards a more decentralised energy system based around renewables and energy efficiency would be preferable.<sup>38</sup>

What followed was one of the most remarkable turnarounds in recent UK policy-making on any issue – offering some of the most compelling circumstantial evidence for the relevance of military submarine capabilities as a driver of civil nuclear policy. In an unprecedented short period after the publication of the 2003 Energy White Paper, Tony Blair announced in 2005 a completely new energy review. Without providing any substantive reason as to its necessity, this further energy review was undertaken by a small group of civil servants in the Cabinet Office. According to one nuclear proponent, Simon Taylor, this involved a select group that most civil

servants in the Cabinet Office did not even know existed, working ‘in secret’ specifically to re-examine the case for nuclear power.<sup>39</sup>

The resulting energy review was thus far shorter than the earlier process, entirely dependent on narrow government specialists, and largely conducted in secret. The consultation for this review was managed by AEA Technology (the former Atomic Energy Authority). Amidst widespread bewilderment and criticism of this superficial process was a finding by the Royal Courts of Justice that the new government consultation was actually ‘unlawful’ in its bias towards nuclear power.<sup>40</sup> Although by no means opposed to nuclear power, the House of Commons Trade and Industry Select Committee also concluded that the consultation was a ‘rubber stamping’ exercise to reverse the conclusions of the more rigorous, longer, and independent energy review of 2002-3 and construct an apparent ‘need’ for new nuclear build.<sup>41</sup> Tellingly, Tony Blair’s response to this formidable reaction was that it ‘would not affect policy at all’.<sup>42</sup> A second rapid consultation was staged, abandoned by non-governmental organisations as again being flawed<sup>43</sup>, and by 2008 a final new nuclear White Paper was released with exactly the same conclusions.<sup>44</sup>

With the rationale for this remarkable turnaround so manifestly determined in such authoritative ways as inadequate, what evidence might there be for alternative explanations? And it is here that our story turns to the apparent links with military submarine capabilities.

### **Submerged factors influencing UK energy policy?**

It was in exactly this ‘critical juncture’ between 2003 and 2006, that an unprecedented intensification can be seen in policy activities around UK ‘submarine nuclear capabilities’. Much of this discussion is internal to the military sector and addresses civil nuclear policy only incidentally. But the overall picture is very clear – it was at precisely the point when civil nuclear power fell out of official favour that anxieties arose in an unprecedented and abrupt fashion that a serious threat had arisen to the ability of the UK to maintain a national capability to build and operate nuclear submarines.

One significant element in this wider series of developments was an extremely energetic and well-targeted initiative by interests associated with the Barrow Shipyard where all UK submarines are constructed – formerly by Vickers and now by BAE Systems. Formed in March 2004, this well-funded group, Keep Our Future Afloat (KOFAC), involved trade unions, local councils, and county councils in concerted efforts to sustain the construction of nuclear powered submarines at the Barrow shipyard.<sup>45</sup>

Targeting politicians and party conferences, producing key reports and submitting evidence to both civilian energy policy reviews and defence reviews, the intense lobbying campaign came to be seen by parliamentarians as ‘one of the most effective’ that they had ever encountered.<sup>45</sup>

There emerged during this same ‘critical juncture’ defined by the unprecedented turnaround in civil nuclear energy policy a series of other remarkable indications of the political energy unleashed by concerns over submarine nuclear capabilities. It was in 2005 that the Ministry of Defence funded the RAND Corporation to conduct an in-depth three volume study of the ‘nuclear submarine industrial base’.<sup>46-48</sup> Concerns were explicitly discussed over whether the UK would have the key relevant skills to construct nuclear submarines.<sup>49</sup> There ensued a series of Select Committee inquiries into exactly this topic.<sup>10</sup> Evidence was heard from a wide range of interested parties, many of whom explicitly addressed the relevance to the maintaining of UK nuclear submarine capabilities of the parallel sustaining of a healthy civil nuclear industry.

Other reports on exactly this theme were also produced around this time by other bodies including the International Institute for Strategic Studies<sup>50</sup>, and the Royal United Services Institute.<sup>51</sup> The latter was led by a senior figure from inside BAE Systems who – among other interesting allusions to linkages between civil and military industries – referred to strategies in other cases under which particular military programmes can be ‘masked’ in other activities. It was on this basis that the founding moves were made behind major current policy initiatives with missions spanning both military and civilian sectors. The Cogent Programme<sup>52</sup>, Key Suppliers Forum<sup>53</sup> and Nuclear Institute<sup>54</sup>, for instance, all have explicit responsibilities to protect capabilities relevant to both military and civilian nuclear sectors.

Taken together – and despite the lack of explicit policy acknowledgements – the evidence seems clear. As observed by Oxford Economics in a detailed recent report for the UK Government on the UK nuclear supply chain:

‘The naval and civil reactor industries are often viewed as separate and to some extent unrelated from a government policy perspective. However, the timeline of the UK nuclear industry has clear interactions between the two, particularly from a supply chain development point of view.’<sup>55</sup>

So, important as it is, the debate over Trident may not be all that it seems. If this analysis is even partly correct, the stakes are even more

extensive than the momentous issues that at first meet the eye. Bound up with the grave ethical, strategic, economic and political concerns that bear directly on the renewal of nuclear weapons capabilities, are a series of further evident questions around deeper forms of lock-in to nuclear technologies more generally. That these questions remain largely undiscussed in UK policy debates over either Trident or nuclear power, arguably constitutes one of the gravest implications of all – one that threatens not just the outcomes of policy making in either of these particular areas, but the very processes of democracy itself.

## Notes

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