

Nuclear Subsidies – how the market is rigged in favour of dangerous nuclear electricity

- Nowhere in the world have new nuclear stations been financed within a liberalised electricity market. Plans by the UK Government to promote the construction of new reactors without public subsidy will be keenly watched around the world. Many believe that subsidy-free nuclear power is impossible, and will be watching to see where how the UK rigs the market or hides its subsidies.
- Many believe the UK industry will need guarantees on electricity and carbon prices, and even the industry says it needs limited liability on waste and decommissioning costs.
- Existing hidden subsidies to the nuclear industry in the UK and elsewhere include limited liability to nuclear operators in the case of accident, and at least part provision of security at nuclear sites and whilst waste is in transit.
- The financing of Europe's only reactor currently under construction, Finland's fifth reactor, which is supposedly private, is riddled with covert state subsidies.
- The failure of the nuclear industry to establish properly managed funds for waste and decommissioning is going to leave taxpayers around the globe saddled with huge liabilities.
- The UK taxpayer has been left with large and uncertain liabilities of up to £5.3bn for failed nuclear operator British Energy.
- Other UK civil nuclear liabilities expected to be funded by the public purse amount to £70bn.
- France's nuclear liabilities amount to around Eur 71bn, but EdF currently plans to fund only about half of this by 2010.
- The idea that an industry which has already received over \$1 trillion in public subsidy, but singularly failed to deliver, should be resuscitated is clearly absurd,

A very British gamble.

The eyes of the world will be on the United Kingdom over the next few years. After a six-month energy review the UK Government has sanctioned a massive and contentious private investment in a new generation of nuclear reactors, but has stressed there will be no public subsidies. (1) Serious doubts remain over whether private investors will take the risk and invest in new reactors without further guarantees or rigging of the market.

New reactors have not been financed within a liberalised electricity market anywhere in the world. (2) Since the Chernobyl disaster in 1986, the nuclear industry worldwide has been virtually dormant, however the UK is not alone in discussing new reactors. But other countries – even those that are the very embodiment of the free market – expect to provide subsidies or guarantee prices. So the whole nuclear industry will be keenly watching the outcome in the UK. In the unlikely event that new reactors could be funded in the highly liberalised UK energy market, then there would be no problem in the more regulated parts of Europe or the US. (3)

The US has plans for 20 new plants and Washington wants them built as soon as possible. The Energy Policy Act in 2005 included \$13.7 billion in subsidies, to cover insurance for construction delays, loan guarantees for construction costs and operating subsidies.(4) This is enough to fund the entire capital cost of six reactors. (5)

In Europe, a not-for-profit consortium of Finland's biggest energy users is building a new reactor at Olkiluoto. That operation will benefit from long-term supply contracts, with the electricity generated sold at cost price. This financial help will be crucial. (6)

The UK Government now believes nuclear will be as competitive as gas and will be able to compete successfully without US-style tax breaks and loans or the guaranteed supply contracts that exist in Finland. Seismic changes in energy markets, including large increases in oil and gas prices, they argue, as well as geopolitical uncertainty, have combined to make nuclear a more attractive option. (7)

Of course there are no guarantees that the private sector will be a willing partner. Sizeable up-front investment costs and the need for state hand-outs to help with decommissioning and waste management in the past make nuclear look unattractive compared with gas-fired stations. Whether the nuclear industry will be able to finance new reactors in the UK is open to serious question. The Association of Electricity Producers said if they were going to invest they needed action not "*frothy*" words. (8) Many believe government guarantees will be required before any private investors will put money into the industry. (9) The UK Government seems blithely to assume that the market will somehow provide. (10)

The opposition Liberal-Democrat Party says a nuclear revival can only be made to work using vast taxpayer subsidies or a rigged market. "*The real question ... is where will Blair hide his nuclear subsidy?*" (11) Their analysis suggests that if consumers were forced to pay a 'nuclear tax' on electricity bills, it could amount to £170 a year. (12)

Questions remain over electricity prices, carbon prices and waste costs

There may be just too much uncertainty for investors. There really is no knowing whether a nuclear power plant will prove to be economically viable. There are just too many variables, and vast periods of time over which the variables will change. (13) Some kind of certainty for investors either on electricity prices or on the cost to nuclear's competitors for making carbon emissions over 15 years or more will probably be required according to many analysts. (14)

But the biggest question mark for investors will be over waste. Nowhere in the world is there a final solution to the problem of what to do with high level waste. The ultimate liabilities for potential investors in new reactors will be far from certain. Burying waste deep underground could cost as much as £10bn, according to the UK's Committee on Radioactive Waste Management. Nuclear companies have expressed doubt over whether they could shoulder full waste and decommissioning costs. No one knows what the full decommissioning costs will be - waste disposal options are still being discussed and research has not begun into the costs, according to engineering firm AMEC. It says the private sector needs a limited liability guarantee, and would support a scheme, which required only limited contributions to decommissioning costs for new plants. (15)

Several nuclear utilities, including British Energy, have claimed they can build nuclear stations without subsidy. (16) *The Independent* newspaper called this "*an almost laughably optimistic claim - the sort of triumph of hope over experience which has long been the hallmark of this extraordinarily costly form of power generation*". It goes on to say that recent studies, which have purported to show favourable cost for nuclear electricity would never pass muster with financial experts. The industry's intention is to get a clear-cut commitment to nuclear out of ministers first. Costs can be debated later. In other words, British taxpayers will only find out the true costs of nuclear electricity after the reactors have been ordered. (17)

The UK Government says it will introduce a fast track planning regime to speed up the time it takes to get permission to build new reactors and it foresees a tougher carbon emissions

regime in Europe beyond 2012, raising the price that is levied on carbon emissions from nuclear power's competitors. Sidelining public concerns about the need for new reactors and reactor safety by curtailing the process of public scrutiny is, in itself, a non-monetary method of subsidising the nuclear industry. (18) Whether this will be enough to stimulate new reactor construction in the UK without further rigging of the market remains to be seen.

Hidden subsidies

Despite the claims by the UK nuclear industry that it will be able to build new reactors without public subsidies, there are several existing subsidies which go unmentioned. These include:-

- (1) Limited liability for nuclear operators in the case of an accident;
- (2) The costs of the pre-construction safety analysis are covered by the Nuclear Installations Inspectorate;
- (3) The Office of Civil Nuclear Security pays towards security of nuclear facilities and materials in transit;
- (4) The Government pays the costs of the UK's membership of the EU nuclear agency, Euratom; and the International Atomic Energy Agency — both of which do promotional and safety work for nuclear power;
- (5) The UK Government is paying for research into so-called "Generation 4" reactor designs. (19)

Finland

Europe's only nuclear construction project is Olkiluoto 3 in Finland. The financing of this reactor is riddled with covert state subsidies. The consortium that ordered it, Teollisuuden Voima Oy (TVO), has given it a 30-year guaranteed contract. TVO includes a state-controlled power generation company and Helsinki council. The Finnish state will make good any shortfall in decommissioning costs and will take on responsibility for nuclear waste after 60 years.

The plant's French state-controlled suppliers received massive export guarantees from the French government and the project benefited from German and Swedish state support. A bank 50% owned by the state of Bavaria financed the deal at a cheap rate of interest (2.6%). (20)

A consortium of French reactor builder Areva and Siemens are carrying out the construction of Olkiluoto 3. Areva has now admitted that the project has fallen eighteen months behind schedule. The reactor opening will be delayed until early 2011. (21) There have been quality control problems with the concrete base slab (22) and problems with qualifying pressure vessel welds and delays in detailed engineering design. (23)

The European Renewable Energies Federation (EREF) has lodged a formal complaint with the European Commission asking it to investigate whether the Finnish reactor violates state aid regulations. EREF alleges that illegal state aids, through low-cost bank loans and export credit guarantees, have been given to the TVO and Areva and Siemens. EREF says these "structured energy distortions" by state authorities "undermine any level playing field" and are unfair to any other electricity suppliers. The European Commission (EC) confirmed that it would investigate the complaint. (24)

Segregated Decommissioning Funds

The failure of the nuclear industry around the globe to establish properly managed segregated decommissioning funds to pay for the costs of managing waste and decommissioning reactors at the end of their life is costing taxpayers and consumers millions, distorting competition,

and damaging the internal electricity market. These post-closure liabilities usually end up being paid by the State, because it would be irresponsible to leave waste unmanaged.

In the run-up to the establishment of the internal electricity market in June 2003, the European Commission emphasised the importance of nuclear operators making appropriate financial arrangements to fund the decommissioning of facilities at the end of their life and manage nuclear waste. (25) But the Commission itself has failed to assess the adequacy of decommissioning funds across Europe, failed to control unfair public subsidy to the nuclear industry, and allowed gross distortions in the energy market to continue. So, although the industry often claims that state funding of post-closure liabilities should not be necessary in future, taxpayers are likely to continue being saddled with the bill.

The European Commission recently adopted a recommendation which attempts to ensure adequate funds are established for nuclear decommissioning and waste management. While a segregated fund is the preferred option for all nuclear installations, the Commission is particularly keen to see these established for new nuclear facilities. (26) Greenpeace described the move as a 'useful step forward', but added that binding rules on decommissioning funds are urgently needed, to protect taxpayers across Europe from potentially massive bills for managing nuclear waste and redundant reactors. (27)

British Energy bailed out

One State subsidy, approved by the European Commission was the UK Government's decision to bailout the private nuclear power generator, British Energy (BE), which became virtually bankrupt in 2002. Under the restructuring plan drawn up to save the company, the government agreed to indemnify the company against any shortfall in the nuclear liabilities fund which meets its clean up costs. In return BE contributes 65% of its net cash flow to the fund. (28) This has left the taxpayer facing "a large and uncertain liability", according to the UK's National Audit Office (NAO). (29) BE's liabilities, all taxpayer subsidised, have risen to £5.1bn, an increase of more than 30%, since 2003. The amount the taxpayer has to pay will depend on the company's future financial performance. NAO says this uncertainty "places a significant risk in the hands of the taxpayer."

Nuclear Decommissioning Authority

The European Commission has also approved the transfer of assets and liabilities from British Nuclear Fuels Limited (BNFL) to the Nuclear Decommissioning Authority (NDA). Despite the fact that the NDA will continue to operate commercial facilities, such as the UK's remaining first generation Magnox stations, as well as the Sellafield reprocessing facility. Because there is no legal requirement for new nuclear reactors to establish a segregated decommissioning fund there is a fear this decision will set a precedent for the new nuclear plants. (30)

The UK taxpayer now has a bill for decommissioning which has risen from £56bn to around £70bn and could rise even higher. (31) However, this figure excludes decommissioning British Energy's seven nuclear power stations, and dealing with the Ministry of Defence's nuclear sites and the long-term storage of the waste. Adding those all in would bring the total cost to around £160bn. (32)

Implications beyond Britain

The European Commission's recent investigations have implications far beyond Britain, particularly in France. Electricite de France (EdF) - the world's single largest nuclear generator, is still 87.3% owned by the French state. The company was criticized by France's

Court of Accounts, which oversees the finances of public bodies and state-owned enterprises, in January 2005 because the debt-laden company had only what it termed an "embryo" of the money needed for decommissioning and waste management after the closure of its nuclear facilities - heavy spending abroad on acquisitions in recent years has squandered funds. (33) The European Commission has especially criticized the use of decommissioning funds established in France and Germany to buy up competitors, thus skewing competition. (34)

Since 2005 EDF has established a "transparent" decommissioning and waste management fund. The fund now has more than Eur 25-billion, and is expected to rise to Eur 35-billion by 2010, which it claims is "100% of the provisions we need" to cover decommissioning operations that are not expected to begin until 2035.

The French State still owns 79% of Areva – the company supplying the Finnish reactor, which also operates the French reprocessing plant at La Hague. Having unnecessarily given large contracts to Areva over past years to reprocess its spent fuel, EdF has accumulated over 80 tons of plutonium, and vast quantities of nuclear waste at the reprocessing plant at La Hague. So it is now confronted with huge liabilities, but insufficient funds to cover them.

The Court of Accounts estimated France's nuclear liabilities at Eur 71-billion, with Eur 48-billion of that belonging to EdF. There are also huge uncertainties attached to these liabilities. For example, the cost of a potential deep disposal facility for nuclear waste could be between 40% and 230% higher than allowed for by EdF, according to radioactive waste management agency Andra. (35). It appears, therefore, that EdF currently plans to fund only around half of France's nuclear liabilities.

Why shouldn't nuclear be subsidised?

Worldwide, according to the World Council on Renewable Energy, nuclear energy has already received gigantic subsidies and privileges:-

" Before 1973, OECD governments spent over \$150 billion (adjusted to current costs) in researching and developing nuclear energy, and practically nothing on renewable energy. Between 1974 and 1992, \$168 billion was spent on nuclear energy and only \$22 billion on renewables. The European Union's extravagant nuclear promotion efforts are not even included in this calculation. French statistics are still being kept secret. The total state support amounts to at least a trillion dollars, with mammoth assistance provided to market creation and to incentives for non-OECD countries, above all the former Soviet block. Only \$50 billion has been spent on renewable energy". (36)

Nuclear power is a failed technology which has failed to deliver. It has squandered unparalleled, unstinting support from taxpayers around the globe leaving them with burdens that may last for millennia. The idea that such an industry should be resuscitated with or without even more public subsidy is absurd. (37)

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