National Grid Fail to adequately account for escalating wasteful costs

In the light of likely wasteful transmission losses between Hinkley and Seabank National Grid needs to provide an analytical justification for its bald assertion that a connection via the Bristol Channel would be too expensive for the consumer.

The Company (National Grid) rejection of all alternatives may prove to be very short sighted. Rather than regarding these options as a nuisance to be endured during the corridor consultation the Company have the opportunity to adopt one of them as a shrewd investment for the medium to long term.

When the Hinkley C power station is finished consumers will be underwriting transmission losses on the Company's proposed power line well in excess of £120M in any decade. As the Company is quoting £2M per mile for 37 miles for its overland route this shows that lifetime costs to consumers have not been considered.

Despite the enormous costs of this wastage the Company have dismissed, without recorded analysis, the possible use of a modern technology that is known to have lower transmission losses. HVDC (high voltage direct current) converts the normal ac (alternating current) supply to dc, which is then transmitted and converted back to ac at the destination. These systems are economic on longer routes not only because the cables are cheaper but also because dc transmission does not suffer from a form of leakage that afflicts ac transmission.

If the HVDC technology were used for the overland route then the pylons would be cheaper and smaller. Consequently the power line would have less impact than those proposed in the Company 's consultation. This would probably be cheaper than an undersea HVDC option because it may be possible to use the existing pylons.

Although the estimate of £120M per decade sounds enormous it isn't large enough to justify the use of HVDC on purely economic grounds. However, in real terms, it is known to be a substantial underestimate for a number reasons which together could tip the cost justification towards HVDC. That is why, to establish the credibility of its decision, the Company needs to issue its analysis of lifetime costs.

First, the estimate is based on British Energy's results for the 6 months to September 2008. However, as the cost of energy is forecast to continue rising significantly the consumer can be expected to be underwriting progressively larger amounts.

Second, because technology costs are falling the replacement costs of the HVDC converter stations will fall reducing the long-term costs.

Third, nuclear power stations are normally operated at the highest power with daily & seasonal variations in demand being taken up by non-nuclear stations. Consequently the current in the Hinkley to Seabank connection will be relatively high. It appears that the calculations that the Company uses for transmission loss do not correctly represent the power loss at high currents. Because of the characteristic dependence of transmission loss on current this error is likely to be a substantial underestimate.

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