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The following discussion paper has been drafted for Renewable Energy Foundation by one of the foundation's advisors, Mr Colin Gibson, a former Power Networks Director of National Grid.

AN ALTERNATIVE TO NATIONALIZATION OR PRIVATIZATION OF THE ELECTRICITY SUPPLY INDUSTRY IN GREAT BRITAIN

1. Introduction

1.1 A recent poll (*The Times*, 02.12.14¹) has shown that a majority of people in GB would prefer a return to a nationalized Electricity Supply Industry. This paper offers, for the Generation and Transmission sectors, an alternative to either staying as a fully privatized industry or a return to a nationalized one.

1.2 There are a number of weaknesses in the present arrangements.

- There is no body responsible for ensuring Security of Supply
- NETA and BETTA did not recognise 'power capacity' as a separate commodity, and although the recent capacity auction for 2018 is a step forward, it does not provide an overall optimisation.
- There could be a conflict of interest in the different roles of National Grid

1.3 The arrangement suggested in the current study endeavours to retain competition in as many as possible of the functions involved and to reduce the number of functions requiring 'price regulation'. It introduces a central planning body to make effective long-term decisions in areas where the current energy market has failed to deliver a secure and economic supply.

1.4 The current arrangement of a single market in **energy** will not deliver an optimal solution relying as it does on that market to deliver the optimum plant mix at the optimum time. This is because there are two commodities involved – energy [MWh], (the basis on which to the customer is billed), and power capacity [MW] to meet instantaneous demand, particularly at times of peak demand. Since these two commodities are to be delivered from the same items of capital plant - generation units – there is a need to find a plant mix that will satisfy both requirements at minimal cost. This paper offers a method of achieving an overall optimum solution.

¹ <http://www.thetimes.co.uk/tto/news/politics/article4284493.ece>. Poll details appear in Appendix 1.

2. Long-term Planning

2.1 In order to provide effective and optimal planning and delivery of the total GB system, it is proposed that a Standing Commission reporting to Parliament be set up with the following duties.

- It would propose a Standard of Security of Supply to be endorsed by Parliament. The Standard would be equivalent to that for other developed industrial countries and that used in GB prior to privatisation.
- It would commission study work on a total system cost basis to find the optimum ongoing plant mix to minimise cost and meet the Standard of Security of Supply. The costs would include all generation, transmission, losses, and system costs such as back-up for intermittent generation. The study work should be on a probabilistic basis to accommodate the range of input values over the long period of the studies.
- It would address the issue of long-term plant mix in order to have acceptable security for prime sources of energy.
- It would address other limitations such as CO₂ emissions.

2.2 It would put out tenders for generation plant to meet the optimal ongoing plant mix. The tenders would be for a capital cost part that would be for power capacity to be delivered at times of system peak demands (triads?); and a revenue cost part for the delivery of energy including hot, cold and warm starts, run up heat rates, amongst other matters. The tenders would be assessed on a total system cost model using discounted costs.

3. Operating the System

3.1 The Commission would place contracts for the most attractive tenders. The System Operator (SO) would schedule and dispatch generating plant on the basis of the contracts using methodology similar to that formerly used in the POOL to achieve minimum cost. 'Grandfathering' would be required for existing generators. The generators would be compensated on the basis of the revenue part of their tender to the Commission which would be embedded in a long-term contract with suitable escalation clauses for fuel, salaries and other works costs.

3.2 The methodology used would take account of the costs of response and reserve plant, losses, and all system costs to control voltage and frequency. These would be delivered under ancillary services contracts between the SO and the individual generators.

3.3 The delivery of power capacity at the times of peak demand would be contractual and payments made on the basis of the capital cost part of the tender. If the contracted generator did not have sufficient capacity available to meet its contract it would have an

obligation to purchase and supply to meet its contract. (This is the same as the CfDs in the POOL). Failing this, there would be compensation to be paid by the generator on the basis of Value of Lost Load specified in the contract.

4. Organizational Changes

4.1 Other than setting up the Commission, the main organizational change suggested would be within National Grid. National Grid carries out several functions for the GB ESI.

- The **System Design** function delivers plans for the extension, modification and replacement of plant on the basis of requests to connect new generation, load increases, and replacement of time expired plant in line with the Standard of Security of the Transmission System. But does NG really have Design Authority given that the Regulator decides whether a 'need' case exists? There is a potential conflict of interest here also since NG as the plant owner receives a return on its Regulatory Asset Base and thus has an interest in expanding it.
- NG has a responsibility for **Asset Management** of the transmission plant with regard to its specification, condition, maintenance routines etc.
- NG is also **System Operator** for GB.
- NG maintains the plant to the standard required by Asset Management, and project manages new construction work and is also the **Transmission Plant Owner**.

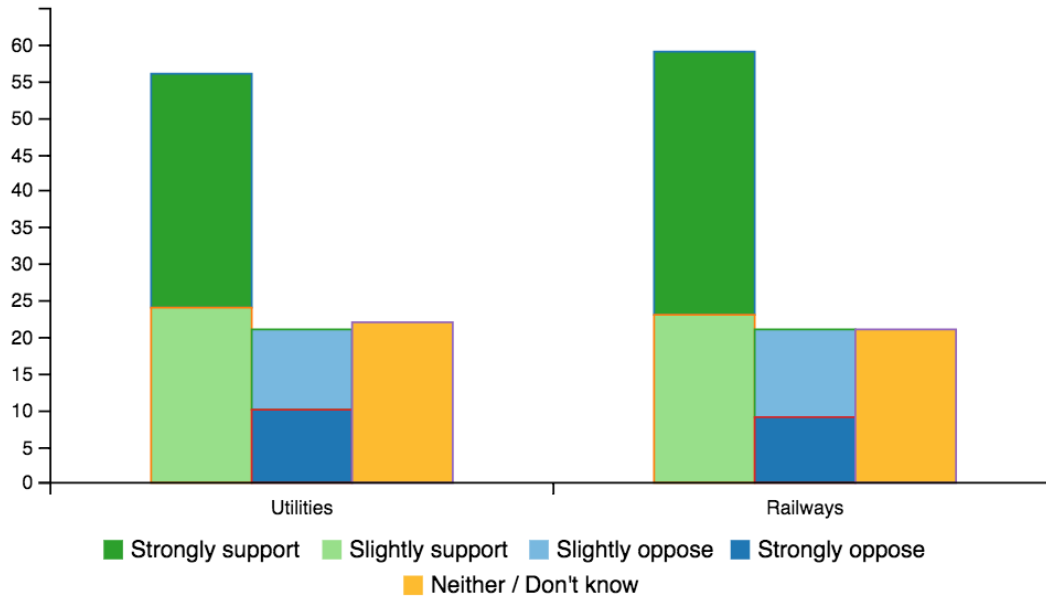
4.2 Some of these functions may sit more effectively with the Commission which would be structured as a 'not for profit' organization. In particular, the functions of System Design, Asset Management, and System Operation are together accountable for the security of the transmission system and should be kept together under one corporate body. They have a very small requirement for capital assets (mainly for SO) and could easily sit as a wholly owned subsidiary of the Commission itself. This removes the possibility of a conflict of interest between System Design and Transmission Ownership.

4.3 Transmission Ownership (TO) could then be open to competition for any new project since this is essentially a banking function – infrastructure companies tender to finance a project for new plant Existing transmission plant could be 'grandfathered' with National Grid and receive the Regulator's Rate of Return. The TO could be made accountable for the maintenance of the plant to the standard required by the Asset Manager. The Transmission Ownership, by far the largest of the financial items within the Transmission function, is thus removed from 'price regulation' and opened to competition.

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Appendix 1: Poll by YouGov for *The Times* 01.12.14)

<http://www.thetimes.co.uk/redbox/topic/yougov-polling-for-red-box/voters-back-state-ownership-of-gas-electricity-and-railways>



Voters back state ownership of gas, electricity and railways

Some will find it surprising just how firmly the British public holds to pre-Blairite Labour positions, at least in the abstract. As we saw last week, the nation believes in greater redistribution of wealth.

YouGov also asked (exclusively for Red Box) about renationalisation: by 56 per cent to 21 per cent the nation supports nationalisation of utilities such as gas and electricity. By 59 per cent to 21 per cent it supports public ownership of the railways. And by 46 per cent to 29 per cent, it believes the NHS would be improved by reducing the scope of private sector involvement.

Support for nationalisation of utilities was particularly marked among Labour and Ukip – 70 per cent of Labour voters said they were in favour, as were 64 per cent of Ukip voters. Unsurprisingly Tory voters were significantly less likely to back public ownership of such services, with 45 per cent in favour, and 38 per cent against. Tory voters were also much less likely than those other parties to support the renationalisation of the railways.

YouGov polled 2,067 UK adults and the results were weighted.