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# Regulatory performance analysis case study: Britain's electricity industry

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**Abstract**

The success or failure of the privatisation and liberalisation of electricity supply industries has more often been judged in terms of process than of outcomes. In this paper, in contrast, this performance is assessed in terms of the performance of its associated system of regulatory governance. Taking the UK's electricity supply industry between 1989 and 2000 as case study, initially, a vertical cross-section of the regulation system gives a finding matrix for the various stakeholders involved and identifying winners and losers from the standpoint of funding flows. Next, a horizontal cross-section provides the environmental, distributive, allocative, dynamic and productive efficiencies grid for this system. The survey shows that the performance of the British ESI regulation system produced benefits, although not for all stakeholders and not as fairly as possible. The chosen path did not seem sustainable and failed to respect intergenerational transfers as a way of fostering sustainability and equity. It was unable to underpin simultaneous improvements in efficiencies over time, while redistributing industry's funding flows among the players in a regressive manner.
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## 1. Introduction

### 1.1. Overview prior to the reform of the British electricity supply industry

Prior to 1989, the British electricity supply industry (ESI) was a public monopoly consisting of (1) the Central Electricity Generating Board (CEGB), which supplied more than 95% of total bulk electricity and owned almost all 78 generator plants and all transmission assets, (2) 12 independent *Area Boards*, each in charge of distributing electricity within their geographical concessions, and (3) the *Electricity Council*, which was the energy advisor to the government, in charge of controlling general levels of this industry's taxes and finances.

Through the *National Grid Control*, the CEGB was entrusted with centralised operations (merit order) through which each power generation unit was dispatched by lowest operating cost until all demands were met.

Under Mrs. Thatcher, the Conservative Party criticised the general structure and public monopoly status of the ESI, remarking that: (1) this structure was rigid, bureaucratic, inefficient and hard to reorganise due to political clout, (2) there were few and inadequate tools available for enforcing sanctions able to avoid requests for new funding and tariff increases, (3) supplies were at risk because of strike threats and fuel crises (Newbery, 1994).

These criticisms became louder, in parallel to discussions about the role of the State in the ESI. In June 1982, the Right Honourable Nigel Lawson MP, Secretary of State for Energy, stressed that the government role is to define a framework ensuring that the market can command the energy sector with minimal distortion and energy can be produced and consumed in an efficient way (Department of Energy, 1982, p. 3–7).

According to the facts, Britain's ESI reform set up a new industrial organisation in 1989, altering its ownership structure, trade agreements, and industry institutions.

### 1.2. Unbundling and privatisation

The CEGB was separated into three generation utilities (National Power, PowerGen and Nuclear Electric) and one transmission utility—the National

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Grid Company (NGC), with the distribution grid allocated on a regional basis to each of the 12 Regional Electricity Companies (RECs), defined by the earlier *Area Boards* (for more see Armstrong et al., 1994; Newbery, 1994).

*National Power* was assigned 46% of all generation capacity in England and Wales, while *PowerGen* received around 28% (both privatised on March 1991). Almost 17% consisted of nuclear power (transferred to *Nuclear Electric*, remaining public until 1996), just 1% was generation by independent producers (IP), and the remainder consisted of other sources, including imports from France and Scotland.

The RECs were privatised in December 1990, before the generation utilities. In addition to the distribution business (still a regulated natural monopoly) the supply segment (marketing) was set up and gradually deregulated. The RECs agreed to supply each franchising area until 1998, while holding the monopoly over consumption of under 100 KWh. From 1998 onwards, all consumers were free to choose their suppliers, while the RECs had more flexibility for purchasing electricity from existing plants, including imports form France and Scotland, or building their own facilities as independent producers.

Under this agreement, any plant had the obligation to generate. The aim of the reforms was to prune away as many barriers as possible that were slowing entry to the generation business, with no types of intervention established (HC, 1988).

### 1.3. Pool mechanism

The transmission business was kept as a regulated natural monopoly, although private. Third party access was settled (actually, it was established unsuccessfully in 1983) together with the *common carriage system* guaranteeing the same tariffs for grid owners and non-grid owners.

The transmission assets were initially transferred to the RECs through the NGC, which inherited centralised dispatch and transmission grid operations (which remained unchanged). The belief that the RECs would have the incentive of searching for lower-cost generation sources and thus foster competition in the generation business was discredited. In 1995 the Regulator (*Office of Electricity Supply*) forced the RECs to sell their shares in the transmission business, when this segment was separated from the distribution area (Midttun and Thomas, 1998).

The commercial relations among the power generation utilities, NGC and the RECs were enforced by contracts under the *Electricity Pool of England and Wales* (the *Pool*). The Pool set up a trading agreement in order to form the *clearing price*—calculated by balancing all traded power from generators and suppliers (and free consumers). As the *Market Operator*, the NGC was in charge of both the operations and management of the *Pool*.

### 1.4. New regulatory framework

The *Office of Electricity Supply (Offer)* was created as an autonomous, independent regulatory body headed by the Director General of Electricity Supply (DGES). The aim of the Department of Trade and Industry (DTI) while setting up the Offer was to avoid political intervention in regulation management, promoting a competitive market and protecting consumers while competition was not yet consolidated or where the natural monopoly was still valid (in the transmission and distribution businesses) (HC, 1996, Section 11).

A new governance structure came together with the Offer. The Monopolies and Mergers Commission (MMC) functioned as an arbitrage tribunal for settling disputes between Regulators and utilities; through its Committees, the House of Commons (HC) oversaw the accountability of the Regulator; and the Consumer Committees were responsible for dealing with consumer claims.

Following these changes, criticisms of reform performance ushered in important (re)arrangements during the 1990s.

### 1.5. Review of the electricity trade agreement, vertical re-integration and diversification

The market power of the generators (PowerGen & National Power) in the *Pool* forced the Regulator to intervene, as explained by Green (1996) and Newbery (1997). The Regulator itself (see Offer, 1998) admitted that complex *Pool* mechanisms allowed the market power and justified: (1) poor price signalling and inadequate performance as a *shadow market* (Midttun and Thomas, 1998, p. 191), (2) the lack of players and participation during the first 5 years (Midttun and Thomas, 1998, p. 191), (3) the lack of transparency for operations (Offer, 1998, p. 13), and the (4) excessive information required (Offer, 1998, p. 13).

The strategy of multi-plant generators with massive market shares (Green, 1991), the contracts for difference) (CfD) mechanism blocking entrance (Green, 1998, p. 6), the weakness of market settlement allowing manipulation by *Capacity Payment* (Exelby and Lucas, 1993), the tactics of collusion to 'run' transmission capacity restrictions (Green, 1996, p. 11), the flexibility of the market for combined cycle gas turbines (CCGT) plants that could run on both electricity and gas (Offer, 1998, p. 19, 21), the fact that most of the CCGTs were jointly owned with the RECs (vertical re-integration) or the major generators (Green, 1996), and finally, the inertia of the *Pool* governance, which proved unable to

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