Pipes and Wires

Report by
the National Audit Office

TP 5 - Distribution Networks
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OUTLINE
Pipes and wires networks
(Electricity, Gas, Water and Telecommunication)

• The Regulated Industries
• A Need for Regulation
• The RPI-X process
• The Benefits of Regulation
• Possible Risks
• Future Steps
The Regulated Industries

- These networks are an essential part of the economic infrastructure of the U.K.
  - The average household spends £22.85 a week
  - 1.3% GDP (Electricity industry, 1999), 0.4% GDP (Gas industry, 1999)

- The network industries rely on large networks and require significant investments in physical infrastructures
  - Telecommunications: 740 local exchanges and 70 main exchanges, 34.5 million fixed lines in the U.K.
  - Electricity: around 465,000 circuit km of underground cable
  - Water and sewerage: 635,000 kilometres of mains and sewers

- Each of these industries was privatised as a monopoly, or with monopoly elements
  - British Telecommunications, British Gas, Water companies vertically integrated suppliers
  - Electricity industry Generation: competitive market. Transmission: national monopoly, Distribution and supply: regional monopolies

A Need for Regulation

- Creation of independent economic regulators
  - The Office of Telecommunications (OFTEL)
  - The Office of Water Services (OFWAT)
  - The Office of Gas and Electricity (OFGEM)

- Objectives of regulation
  - Balancing the interests of consumers and investors
  - Balancing between the interests of today’s consumers and the interests of consumers in future generations
  - Ensuring that all reasonable demands for services are met

- Important differences in regulated industries
  - Variable number of companies subject to price cap regulation
  - The nature of the customer for network services varies between industries
  - The industries have had different investment requirements since privatisation
The RPI-X Regulation

- **RPI:**
  the Retail Price Index ⇔ the prevailing rate of inflation

- **The process** (Regulators set price controls for five years)

  1. Decide what outputs the company should deliver
  2. Estimate the efficient costs of output delivery
  3. Estimate a fair return for investors
  4. Set the price control limit by choosing X
  5. Ensure that the determination allows companies to finance their activities

The Benefits

from the point of view of Industries and Regulators

- **Strong incentives to increase efficiency**
  While prices are fixed during the control period, the costs of delivering the outputs are not.
  ⇔ If companies incur lower costs than assumed by the regulator, they can earn greater returns than the regulator assumed.

- **Solving the problem of asymmetric information between regulated company and regulator**
  The regulators can know the potential for the company to find future efficiency savings.

- **“Rolling” retention mechanism**
  Companies keep savings for a set of period, regardless of when the efficiencies arise.
The benefits
From the customer’s point of view

• **Immediate price cuts**
  Requiring immediate price cuts, such that the company’s rate of return is reduced to the cost of capital immediately (Sometimes this requires a one-off adjustment to the level of prices)

• **Phased price reductions**
  Making phased price reductions through a “glidepath” mechanism, such that the rate of return is reduced to the cost of capital by the end of the price control period.

• **A high level of quality**
  Requiring companies to deliver a high level of quality for the same level of prices

• **A combination of these methods**
  e.g. an immediate price cut passing a proportion of past efficiency gains back to customers, accompanied with further phased reductions in prices over time

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**Risks (1)**

• **Impacts on long term investments**
  *The regulated industries rely on long-lived assets, which require long-term maintenance and renewal programs*

  – Possible distorted incentives to undertake investments
    • The RPI-X process favours short term decisions which might defer investments
    • Incentives to achieve efficiency are weaker in capital costs than in operating costs
    • Some companies may be willing to substitute capital costs for operating costs

  – The Regulator’s decisions might be based on inappropriate information
    • The regulator has insufficient knowledge of the assets condition
    • It is difficult to assess the future necessary expenditures, due to the complexity of the regulated networks
    • There are risks for the regulator to get too much involved in the company’s investment strategy
Risks (2)

- **Impact on the attractiveness for investors**
  - There is first an uncertainty associated with the evaluation of a reasonable rate of return for equities (currently CAPM based)
  - And also an uncertainty associated with the future strategy of the regulator

- **Costs of the process**
  - A large amount of information is required by the regulator, prior to price reviews
  - These costs might even increase to gain in accuracy
  - There are concerns about the efficient use of this information by regulators

- **The RPI-X regulation might no longer be necessary**
  - Some believe the efficiency savings promoted by the price-cap regulation have already reached their optimum

Future Steps (1)

- **Distorted incentives to bias the planning of efficiency savings shall be eliminated by**
  - Ensuring that companies can benefit from efficiency savings whenever these are made
  - Promoting an optimal balance between capital and operating expenditures

- **Clear guidance on developments in networks shall be provided by the regulators**

- **Networks companies shall be encouraged to develop risk management models to assess the condition of assets**
  - The regulated companies are best placed to evaluate the necessary investments
  - This approach places the responsibility with the company
  - The regulator must in exchange make sure that the relevant investments incurred by the companies are taken into account in price reviews
Future Steps (2)

- The regulators must seek to reduce the uncertainty perceived by companies and investors
  - by increasing the accuracy in the evaluation of the cost of capital, consistently among the different regulators
  - by improving the transparency and predictability of the process, especially regarding the regulator’s assumptions and models

- The regulators shall improve the efficiency in the collection and analysis of information
  - By gathering information well in advance to give more time for analysis
  - By clearly defining the needs to eliminate unnecessary information
  - The completed price reviews must be analysed to identify which components in the regulation process do not justify their costs

Conclusion

- The monopoly characteristics of these industries make the regulator’s intervention necessary
- The regulator aim is to mimic the effect of competition by setting the prices
- To achieve this goal, the regulator however needs to artificially evaluate the costs of the industries
- There is therefore always a possible gap between the regulator’s action and the situation in a competitive market