

ENERGY PRICE REGULATION
EXAMPLES RELEVANT FOR LITHUANIA

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1 INTRODUCTION AND SUMMARY

This report describes energy price regulation practices in selected European countries. It has been prepared in order to provide the newly established State Control Commission of Prices for Energy Resources and of Energy Activities (SCC) in Lithuania with examples of how price regulation is undertaken in practice. In particular, the report focuses on the structure and activities of the relevant regulatory bodies in each of the countries surveyed and the criteria followed when setting prices.

The SCC has the responsibility of establishing principles for determining energy prices in Lithuania and establishing the rules to be followed in calculating price structures. It is currently charged with checking and approving prices, for confirmation by the Government of Lithuania. However, the viability of establishing the SCC as an independent body with complete jurisdiction over prices is being assessed. The equivalent regulatory agencies in the majority of the countries surveyed in the report also have advisory roles, although in several countries similar moves towards independence are underway.

1.1 Countries Surveyed

The countries selected for this study were chosen to provide a broad cross-section of different approaches to price regulation in the energy sector, whilst ensuring relevance to the Lithuanian situation.

We describe regulatory practice in **Denmark** and **Spain**, both EU countries, in detail. In Denmark, end-user energy prices are regulated by independent bodies, who follow clearly defined rules in determining the prices allowed. The Spanish model, in contrast, is one where the regulatory body acts only in an advisory capacity, recommending prices to the appropriate Minister who makes the final decision.

The report also contains more concise overviews of energy price regulation in **five Central and Eastern European countries**. Arrangements in the Czech Republic, Hungary and Poland are of particular interest, since these three countries are generally agreed to be the furthest advanced with energy sector reform in the region. Estonia and Latvia have been included as they are Lithuania's Baltic neighbours and there is considerable interconnection of energy networks between them and Lithuania.

Table 1 summarises key features of energy price regulation in the countries surveyed.

1.2 Independence of Regulatory Body

Denmark is the only one of the seven countries to have truly independent energy regulatory bodies with the power to determine prices. However, in Hungary, the Hungarian Energy Agency, which currently only has an advisory role on prices, will determine prices from 1997. Under new legislation in Latvia, it is envisaged that the Energy Regulation Board there will set prices independently, once operational. Poland is currently

enacting legislation establishing a new regulatory agency, although the level of discretion with which it will operate on pricing and other issues is as yet unclear

In contrast to the countries above, the Comision del Sistema Electrico Nacional in Spain has a purely advisory role, as does the regulatory body in Estonia. The Czech Republic has no regulatory body for energy independent of Government

1.3 Principles Followed in Price Regulation

The majority of the countries reviewed in this report regulate energy prices in relation to costs. However, there is considerable variation in what costs are included and how. The variation is greatest on capital costs and profits.

In Denmark, prices for electricity and district heat are regulated to cover "necessary" costs. In general the utilities are not permitted to make a profit, although the few companies that are privately owned are allowed a specified return on operating capital. In Spain and Hungary an explicit allowance for profits in addition to costs is made when setting prices.

The countries are also distinguished by the extent to which the principles followed in regulating prices are made transparent. In Denmark, the legislation, and subsequent Price Committee policy, clearly sets out the costs that can legitimately be included in determining prices. In contrast, the principles adopted in the Czech Republic are not defined at all in the legislation.

The extent to which price regulation maintains efficiency incentives is important. The "benchmarking" system in Spain sets prices in relation to "standard costs". As a result, companies are allowed to keep any difference between these standard costs and their actual costs. This provides an incentive for the companies to make efficiency improvements.

1.4 Composition of Regulatory Body

The regulatory bodies surveyed in the various countries are typically composed of technical experts, consumer representatives and representatives of the industries. However, the weight accorded to each can vary, of the nine members of the Price Commission in Estonia, only the three energy experts are entitled to vote.

Table 1 overleaf summarises the results discussed above. Table 2 provides a summary of electricity prices in the countries surveyed, for which we can obtain recent and comparable data.

Table 1 Key Features of Energy Price Regulation

	Regulatory Body	Independence from Government	Basis on which prices set
Denmark	Electricity Price Committee Gas and Heat Price Committee	Independent, apart from prices for gas supply above 300,000m ³	Electricity, District Heating Prices set to cover costs with no allowance for profit, except in a minority cases Gas parity with oil prices
Spain	Electricity CSEN Gas ministerial control	Advisory body, recommends prices to Minister for Industry	Prices set to meet "standard costs" (benchmarks), which incorporate a rate of return
Czech Republic	Ministerial control	None	No clear basis
Estonia	Electricity Price commission Gas, District Heat ministerial control	Advisory body, recommends prices to Minister for Economy	Aiming to align prices with costs
Hungary	Hungarian Energy Agency (MEH)	Advisory role to 1997 Independent thereafter	Prices will cover reasonable costs, including a reasonable profit
Latvia	Current ministerial control Future Energy Regulation Board	Energy Regulation Board will be independent	Prices will cover cost, including profit
Poland	Gas, Electricity new law will establish Energy Regulatory Authority (ERA) District Heating state representatives at county level	Level of discretion unclear at present	Cost based but with considerable uncertainty on treatment of capital costs

Table 2 Electricity Prices 1995 (Excluding Taxes), US cents per kWh

	Industrial	Household
Denmark	6 9	20 9
Spain ¹	8 0	17 4
Czech Republic ¹	5 6	2 7
Hungary	4 5	5 8
Latvia ¹	3 5	2 7
Lithuania ²	4 5	3 4
Poland	4 0	6 2
OECD Europe ¹	7 5	14 2

Notes ¹ 1994 price

² approximate current price

Various sources

2 DENMARK

2.1 Energy Sector Structure

Denmark's energy resources include oil and gas. However, the oil price hike in the 1970s led to a strong shift towards the use of coal, which now accounts for over 90% of existing power production in Denmark and is largely imported. Gas is, however, increasing in importance, following the government's decision in 1979 to develop the natural gas sector.

Denmark is a major developer of decentralised and renewable energy technologies, such as Combined Heat and Power plants (CHP), biofuel and wind turbines. About 3% of total electricity demand is currently provided by windmills. There is no nuclear power in Denmark.

2.1.1 Electricity Industry Structure

The 'Great Belt' - a body of water dividing the East and the West of Denmark - also partitions the country into two separate electricity supply areas. Both the East and the West of Denmark have separate high voltage transmission networks. There is currently no interconnection between the two, although a 500-600kV link is expected to become operational in 1997.

The Danish electricity industry is characterised by a high degree of consumer and municipal ownership. In general:

- municipalities and consumer co-operatives own the distribution companies,
- the distribution companies own the generating companies,
- the generating companies are grouped into partnership agreements in each region, i.e. Elsam or Elkraft.

In the West of Denmark, there are 6 generating companies, which together form the Elsam partnership. Elsam owns the transmission network in the West, operates the Pool in that area and is responsible for various co-ordination issues, including the import and export of electricity, fuel procurement and planning. The Western grid is interconnected with Norway, Sweden and Germany and there is a significant level of transit trade from north to south.

In the East of Denmark there are just two main generators, who jointly own Elkraft. Elkraft, as the grid operator, performs similar functions for the Eastern network as Elsam does for the West. The network in the East is connected with Germany.

There are around 100 distribution companies in Denmark. The majority of these are co-operatives or are owned by municipalities. There are a very few companies who are privately owned.

Danish legislation does not grant monopoly status for the existing generation, transmission and distribution companies. Theoretically, the markets remain open to new entrants, providing they comply with the appropriate licence requirements. In practice, Denmark is divided into non-overlapping regional supply areas with monopoly franchises. Suppliers are obliged to serve the customers in their local market.

2.1.2 Gas Industry Structure

All of Denmark's gas supplies are from Danish fields. The gas is produced by a privately owned company, Dansk Undergrunds Consortium, which is a joint venture between AP Moller, Shell and Texaco. Around 40% of gas production is exported, half to Germany and half to Sweden.

The natural gas sector in Denmark is characterised by a state-owned monopoly, Dansk Naturgas (Dangas). Dangas is a subsidiary of the publicly-owned Dansk Olie og Naturgas. The 1972 Natural Gas Supply Act grants monopoly status to Dangas for the import, transportation and storage of gas in Denmark until 2012. Dangas does not have a monopoly over distribution. In 1994 Dangas' import monopoly was rescinded, after it was found by the EC to be in violation of the Treaty of Rome.

Dangas is the sole purchaser of domestically produced gas. Gas forms around 10% of Denmark's total primary energy supplies. Close to one quarter is used for electricity and heat production.

Dangas is the sole supplier of gas to the Danish market. Dangas owns and operates a centrally despatched transmission system, including offshore pipeline and storage facilities.

Dangas is also responsible for distribution to very large end-users, such as power stations and several local authorities. However, there are also five regional gas companies who are responsible for distribution to smaller end-users in their local areas. These distribution companies are municipally-owned and have *de facto* territorial monopolies. The companies own and manage the network for high pressure distribution in their region as well as the local distribution network. All buy their gas from Dangas. The regional gas companies are represented by an association called Komgas.

2.1.3 District Heat Organisation

Denmark has a significant district heating sector, of which a growing percentage is produced as a result of cogeneration with electricity from Combined Heat and Power (CHP) stations. In 1972 the share of CHP in district heating was 29%. By 1990 this had risen to 55%. In 1990 CHP accounted for 38% of electricity generation.

Part of this increase is as a result of government initiatives since 1986 to encourage small scale CHP enterprises. In particular, specific targets for development of the heat-supply networks were set as part of the Danish Government's Energy 2000 Plan, announced in 1990. Of those district heating plants which are not linked to electricity production, a small number are fired by the burning of waste. The remainder use natural gas or biomass (primarily straw and wood chips) as fuel.

The district heat transmission grids are owned by municipalities, and deliver the hot water both directly to large consumers, and to distributors. There are about 400 local distribution companies, the majority of which are owned either by consumer co-operatives or by municipalities.

2.2 Regulatory Framework

2.2.1 Coverage

The Danish Government has an active energy policy based on considerable regulatory powers. The original objective of regulation was to ensure the security of energy supplies, following the oil price hikes in the early 1970s. More recent legislation has been driven primarily by environmental issues.

Energy policy regulation, including planning and licensing, is the responsibility of the Ministry of Energy and the Environment¹. Energy policy and strategy is implemented by the Danish Energy Agency (Energistyrelsen), which was established in 1976 as the executive body of the Ministry.

In the electricity sector, licences are required for electricity plants greater than 25 MW and for transmission and distribution systems designed for voltages of above 100 kV. Pure electricity distribution companies do not require a licence. The Minister for Energy is responsible for the granting of licences. In practice, the main conditions for licence approval are that the plant must be a CHP plant, and that it must be situated with regard to the largest CHP potential. There is currently no regulation regarding third party access to the transmission grids, although new legislation has been drawn up to address this issue (see 3.5 below).

Electricity prices are regulated by the Electricity Price Committee (Elprisudvalget) following cost-related criteria set out in the Electricity Act. Competition issues, such as grid access, are referred to the Competition Council.

The natural gas market is a statutory monopoly. Distribution companies have an effective regional monopoly. Gas prices for activities below 300,000 m³ are regulated by the Gas and Heat Price Committee (Gas- og Varmeprisudvalget). Above this level, prices are directly set in relation to national guidelines agreed between Komgas and Dangas and approved by the Minister for Energy.

¹ Under the 1976 Act, the relevant Ministry was the Ministry of Commerce. In 1979 a separate Ministry of Energy was established. In 1994 the scope was enlarged to include the environment.

The prices which may be charged by District Heat companies are regulated by the Gas and Heat Price Committee, following cost principles set out in the Heat Supply Act

2 2 2 Primary Legislation

2 2 2 1 *Electricity Sector*

The regulation of the electricity sector in Denmark was established by the Electricity Supply Act 1976. The Act established the Electricity Price Committee (Sections 10 & 11) and laid down the principles of price regulation (Section 9(1)).

Under Section 13 of the Act, the Minister has the power to order electricity companies to construct and operate their facilities in certain ways, including the specification of the type of energy to be used.

2 2 2 2 *Gas Sector*

The Natural Gas Supply Act 1972 grants monopoly status to Dargas for the import, transportation and storage of gas in Denmark until 2012.

The Heat Supply Act 1979, sets out the principles of price regulation for the gas sector (Article 20). The Act grants the Minister specific powers regarding price determination (Article 31) and establishes the Gas and Heat Price committee. Under Article 29 the Minister may also require a gas distribution company to extend the natural gas network.

The regional gas distribution companies are regulated under the Municipality Act 1993.

2 2 2 3 *District Heat*

The Heat Supply Act 1979, also establishes the principles of price regulation for the district heat sector.

2 2 3 The Regulatory Bodies

2 2 3 1 *The Electricity Price Committee*

Under the 1976 Act, the Electricity Price Committee was comprised of a chairman and nine members. The 1994 Act increased the number of members to eleven. In addition there is an independent observer from the Danish Energy Association.

Members of the Committee are appointed by the Minister for Energy. In order to ensure some independence, the chairman and five of the members must be independent of both electricity supply and municipal interests. Instead they are chosen to represent legal and engineering skills and consumer interests. The chairman is an economist and, together with the legal and technical experts, is directly appointed. The three members representing consumers are each nominated by different associations.

The six remaining members represent the industry. One is appointed on the recommendation of the National Association of Municipalities, another is proposed by the two largest municipalities in Denmark (to represent the District Heating sector), a third is nominated by the Danish Association of District Heating Utilities, and the remainder are appointed at the suggestion of the Association of Danish Electric Utilities (Danske Elværkeres Forening)

2 2 3 2 *The Gas and Heat Price Committee*

The Gas and Heat Price Committee consists of a chairman and 13 members. Several of the members, including the chairman, also sit on the Energy Price Committee. Again, there is an independent observer from the Danish Energy Association.

All the members of the committee are appointed by the Minister of Energy. The chairman of the Committee is an economist. Seven of the members are independent of industry or municipality interests; one is a lawyer, one an engineer and five represent consumer interests and are nominated by various organisations.

Six of the members represent the utility interests and are nominated (separately) by the regional gas distributors, Dansk Olie og Naturgas, the National Association of Municipalities, the two largest municipalities in Denmark, the Danish Association of District Heating Utilities, and the Association of Danish Electric Utilities.

2 2 3 3 *Common Secretariat*

The two pricing committees have a common secretariat located in the Competition Council, which is under the Ministry of Industry. The committees each meet five or six times a year, to discuss matters of general interest and decide on cases which raise issues of principle. The majority of the work is done by the secretariat, in accordance with the committees' guidelines. The secretariat has fifteen members.

2 3 **Price Regulation**

2 3 1 **Secondary Legislation**

2 3 1 1 *Electricity*

The standards for electricity pricing laid out in the 1976 Act are not very precise. They have been developed further through the promulgation of additional regulations.

Ministerial Order No 108 of 23 March 1977 provides more explicit guidelines for permitted depreciation, allocations to re-investment funds and interest on capital.

Ministerial Order No 25 of 15 December 1977 relates to electrical utility accounting and budgeting.

Regulation Order No 604 of 15 July 1993, exempts private producers below 25 MW from price regulation, except where they supply directly to customers

The Integrated Resource Planning (IRP) Act 1994 replaced the original 1976 Electricity Supply Act. The aim of the legislation has been refocused to reflect environmental concerns and places resource planning requirements on the electricity utilities. The Act allows for costs incurred as part of the IRP programme to be included in the prices charged to consumers.

In 1995 the cost-related pricing principle was amended to allow the utilities to earn a profit on "extraordinary rationalisation" and invest it in related commercial activities². The maximum capital reserves that can be accumulated is fixed by the Electricity Price Committee.

2.3.1.2 Gas

The Heat Supply Act 1979 requires the prices and conditions for the supply of gas for activities above 300,000 m³ to be set with regard to national guidelines. The current guidelines were decided between Komgas and Dangas, and approved by the Minister, in an agreement of 4 June 1987 and are due to last until 2015.

2.3.1.3 District Heat

The Heat Supply Act was revised in 1990 to grant additional duties and powers to the Minister with regard to promoting the development of CHP. The Act requires all municipalities to prepare plans to promote CHP schemes. The Act was further amended in 1994. Price regulation of heat has not been affected by these amendments.

2.3.2 Relationship with Government on Pricing Issues

The price committees are intended to be independent of the political system. The Minister of Energy cannot influence their decisions. The committees are not required to report to the government on their activities.

Gas prices for activities above 300,000 m³ are agreed directly with the Minister for Energy.

² The EC raised an initial objection to the proposed amendment on the basis that it might constitute illegal state aid under Article 92 of the EC Treaty. However, in April 1995 it decided that the Treaty did not apply.

2 3 3 Institutional Arrangements for Price Regulation

2 3 3 1 *Electricity*

2 3 3 1 1 Principles Followed

In relation to price regulation, Section 9(1) of the 1976 Electricity Act stipulates that prices for the supply of electricity may include "necessary expenses for fuel, wages and other operational costs, administration and sales costs, operational depreciations and interest paid on loan-capital"

In principle, therefore, there is a requirement for the electricity utilities to be non-profit making, with prices being regulated to cover costs. We note in Section 2 3 5 below how this principle has been amended in the case of "extraordinary rationalisations"

Prices charged by licensed undertakings may also include "allocations to re-investment funds and interest paid on contribution capital", provided that the Price Committee allows such costs to be included in the price formulation (Section 9(1))

There are two exceptions to the general provisions of Section 9. Electricity suppliers that are also involved in the delivery of CHP should allocate costs to these products according to "reasonable and business-like economic principles" (Section 9(3)). Second, the provisions of Section 9 do not apply to the electricity suppliers that only deliver electricity at tensions below 500 volts (Section 9(4)).

The Committee also has a duty to ensure that price discrimination does not occur.

2 3 3 1 2 Decision Making Procedures and Powers

All prices charged for electricity must be reported to the Price Committee and made public in a register. The electricity companies are free to establish their own pricing structure.

The Electricity Price Committee may question certain tariffs and request changes where it finds the prices are unreasonable or in violation of the provisions of Section 9 of the Act.

Electricity Price Committee decisions are taken on a simple majority. If negotiations with the electricity company fail, the Committee has the power to issue an order to the effect that prices or conditions must be changed (Section 10(4)).

2 3 3 2 *Gas*

2 3 3 2 1 Principles Followed

The regulation of natural gas prices differs from the regulation of district heat and electricity prices.

Up to a yearly consumption of 300,000 m³, prices and conditions are regulated by the Heat and Gas Price Committee. The price which can be charged to domestic consumers is explicitly set down in the 1979 Heat Supply Act (Article 20). Specifically, prices may not exceed the average price of gasoil calculated on a three months period, including fuel tax. This is known as the gasoil parity condition.

The result of the parity condition is that prices are set to maximise revenue for the gas companies as far as possible without making gas more expensive to consumers than oil. The Danish government has set tariffs in this way to try and recover the costs of the Danish gas policy and programme.

Prices and conditions for a yearly consumption of natural gas in excess of 300,000 m³ are not in the jurisdiction of the Heat and Gas Price Committee, but are determined by the 1987 agreement between Komgas and Dangas. A manual of prices and agreements provides further guidelines for these sales. This agreement also determines the purchase price paid by the regional distribution companies for the gas supplied by Dangas.

2 3 3 2 2 Decision Making Procedures and Powers

Prices, rating principles and other conditions for the supply of gas to consumers under 300,000 m³ have to be reported to the Gas and Heat Price Committee in order to be valid (Article 21, Heat Supply Act). The Committee has a mandate to ensure that prices and conditions are not unreasonable or in conflict with other provisions of the Heat Supply Act. The committee has the power to request changes where necessary. Committee decisions are taken on a majority.

In the 300,000 m³ and above market, in the event of a disagreement between the parties, the Minister has the power to impose the guidelines to be followed.

2 3 3 3 District Heat

2 3 3 3 1 Principles Followed

The principles followed in the regulation of district heat and CHP prices are similar to those for electricity. Prices are only allowed to be set with reference to the necessary costs of producing and distributing district heat, including a reasonably low rent on the invested capital. Plants cannot make a profit.

The Price Committee has stated that the CHP heat price must not exceed the price of using the same fuel in an ordinary boiler.

2 3 3 3 2 Decision Making Procedures and Powers

The heat price and tariff structure has to be announced to the Gas and Heat Price Committee who approves both the structure of prices and the average price level. Only prices relating to the lowest level of consumption are published.

The Price Committee may question certain tariff structures and request changes. Committee decisions are taken on a simple majority. If negotiations with the heating companies fail, the Committee has the power to order prices or conditions to be changed.

2 3 3 4 *Appeal Arrangements*

The decisions made by the Price Committees can be brought to the Competition Appeal Tribunal. This tribunal is independent of either of the price committees and of the political system. It has three members: a barrister of the Supreme Court, a professor in legal matters, and a professor in economics. The decisions of the tribunal can be further appealed through the legal system.

2 3 3 5 *Funding*

The funding for both Price Committees and the Secretariat comes from the state budget, via the Ministry of Business and Industry. This Ministry allocates money to the Competition Council, where the funds are divided between various bodies, including the Price Committees, in accordance with yearly priority discussions. A very small amount of the budget for the secretariat is paid directly by the electricity industry, to fund the regulation of activities in areas other than the core business.

2 3 4 Price Regulation Procedures

2 3 4 1 *Electricity*

2 3 4 1 1 Rules Followed

The Committee does not approve prices in advance. It is the companies themselves that calculate prices and tariffs in first place and they are free to do this with a considerable degree of discretion. An increasing number of companies use time-of-day tariffs, in accordance with guidelines issued by the Danish Electric Utilities Association. All production, distribution and transmission companies have to notify prices and conditions to the Electricity Price Committee before they can come into force.

Such notifications are open to the public, and consist of prices, budgets, accounts, different kinds of delivery conditions, articles and regulations. The notification of prices and, to a lesser extent, accounts and budgets are standardised.

After the new price has been notified, if the committee feels it is too high they can request that the supplier provide information about the calculation method. The companies are obliged by law to supply the Committee with whatever information it requires.

The basic rule followed by the committee in deciding on the permitted level of electricity prices is that only the necessary costs of producing and distributing electricity may be included in the calculation of prices.

Allowed costs relate to fuel, wages, other operational costs and administration. Interest on capital is included, as are costs incurred under IRP programmes. Specific allocations for depreciation and reinvestment have been laid out by law. The depreciation rule limits the allowed period for depreciation to between 5 and 20 years. In addition, companies are allowed to raise up to 75% of the cost of future investments through their pricing policy, with a ceiling of 25% in any one year.

The word "necessary" limits the costs that are permitted to those that an efficient company would require. Companies therefore have an incentive against being inefficient.

Calculations are based on expected costs for the coming year. At the end of the year a review is made on the basis of actual income and expenditure. Any surplus or deficit is transferred to the following year for inclusion in the new tariffs.

2 3 4 1 2 Allowance for Profit

Since prices are only allowed to cover costs, the regulatory rule implies that there is a break-even obligation on the electricity companies. The utilities are therefore not allowed to make a pure profit from the production, transmission or sale of electricity, although they do have to cover their costs of acquiring capital.

The few companies that are privately owned, are allowed a return on shareholders' invested capital. This profit has to be approved by the price committee, which, in deciding the appropriate profit level, evaluates the risk faced, profits in other sectors, possibilities for saving for future investments, inflation, and the profits of putting money into non-risk investments. The largest private electricity company in Denmark (NESA) is currently allowed an 11% return on equity.

2 3 4 1 3 Consumer Complaints

At any time, consumers can make complaints about electricity prices and delivery conditions. The secretariat is obliged to review these complaints seriously and to seek information from the companies in order to reach a decision consistent with both law and with established practice. Their decision has to be announced to both the complaining consumer and to the company. If the complaint raises new principles, it is the Price Committee itself who settles the dispute.

2 3 4 2 Gas

The legislation closely defines the procedures adopted for price regulation in the gas sector. Domestic prices are set on the gasoil parity. Prices are adjusted every month and have to be notified to the Price Committee.

Industrial consumers in the below 300,000 m³ market sub-divided into three classes: district heating, power stations and industrial. Separate tariffs apply to each. The tariffs are variously related to the price of heavy fuel oil and gas oil, with several discount options, including interruptible supply and conversion discounts.

2 3 4 3 *District Heat*

As we have already noted, the procedures adopted for price regulation in the district heating sector are very similar to those in the electricity sector

As with electricity, the companies have considerable discretion in setting the price structure, needing only to ensure that total costs are divided among consumers in a reasonable and fair way. In practice, there is a very wide range of tariffs set

Normally the fixed charge to household consumers is 20-30% of the total charge. The Price Committee has decided that the fixed charge may be less than the fixed costs involved, but should never exceed them

2 3 5 **Future Directions**

2 3 5 1 *Allowance for Profit*

There has been a recent revision to the legislation in the electricity sector to enable utilities to earn a reasonable level of profit on "extraordinary rationalisation" and to invest it in related activities. The Electricity Price Committee determines the permitted level of profit, and the total level of capital reserves the companies will be allowed to accumulate. To date only a few companies have been permitted to earn a profit on this basis, on activities relating to mergers and joint accounting arrangements

2 3 5 2 *Third Party Access*

We noted above that there is currently no regulation regarding third party access to the transmission grids in Denmark. Draft legislation containing proposals for third party access was released in March this year. The proposed legislation does not *compel* the grid operators to provide access to third parties, but states that Elsam and Elkraft "must not abuse their position". The Electricity Price committee is to decide in the case of a dispute

The price that the grid controllers will be allowed to charge for access to their networks includes a contribution to the implementation costs of the government's environment-friendly energy policy, together with the costs incurred by Elsam and Elkraft in guaranteeing supply to consumers and maintaining reserve coal stocks in Denmark for local electricity production

3 SPAIN

3.1 Energy Sector Structure

Spain is one of the European countries with limited indigenous energy resources. Its major energy reserves are comprised of high cost coal and lignite, while oil, gas, and hydroelectric resources are limited. The country is thus heavily dependent on energy imports, a factor contributing to higher-than-average (in Europe) energy prices. Subsidies to the coal sector, and a nuclear power plant moratorium that left Spain with billions of dollars worth of partially built nuclear capacity, also contribute to relatively high energy prices.

Spain's economic integration with the rest of Europe is the other defining characteristic of its energy sector. The Spanish have pursued policies in the natural gas and electric sectors which attempt to both open the sector up to foreign direct investment while at the same time enhancing the ability of Spanish companies to compete within Spain and, importantly, outside of Spain as well, both in Europe and in the rest of the world (especially Latin America). The result has been a liberalisation of the Spanish energy market coincident with a pronounced concentration of the major energy companies. Where there were dozens of companies only 20 years ago, today the energy sector is dominated by only three players—Repsol, the Endesa Group, and Iberdrola. These three firms account for around 75% of the primary energy consumed in the Spanish economy.

3.1.1 Electricity Industry Structure

Spain's electricity supply industry has become increasingly concentrated in recent years. All transmission assets are now operated by Red Electrica de Espana (REE), which was one of the first examples of an independent system operator (ISO) in the world. REE was formed in 1985 and owns almost all of the high voltage transmission lines in Spain. Shareholders include Endesa and other electric utilities, as well as state holding company Teneo, with no one shareholder allowed to hold more than 30% of the equity.

Two distribution/generation companies dominate the sector—state-controlled Endesa Group, and privately owned Iberdrola. Endesa (Empresa Nacional de Electricidad) was historically a state-owned, coal-fired generating company. As the largest state-controlled entity in the sector, Endesa became the vehicle in which to group most of the other state owned assets in the electricity sector, other than the transmission assets which went to REE.

Two other distribution/generation utilities, representing less than 20% of the sector, also operate in the sector.

Aside from these four distribution/generation entities and REE, there are numerous municipal distributors and rural electric co-operatives at the distribution level, and an increasing number of self-generators, many of which are able to sell excess power into the grid at favourable rates.

Distribution-Generation			
Companies	Market Share	Generation (%)	Distribution (%)
Endesa Group		50	41
Iberdrola		27	40
Union Fenosa		13	15
Hidro Cantabrico		5	4
Self Generation		5	n/a

Teneo (formerly INI), is the state holding company for electricity sector assets, owning about two-thirds of the Endesa Group and 1% of REE

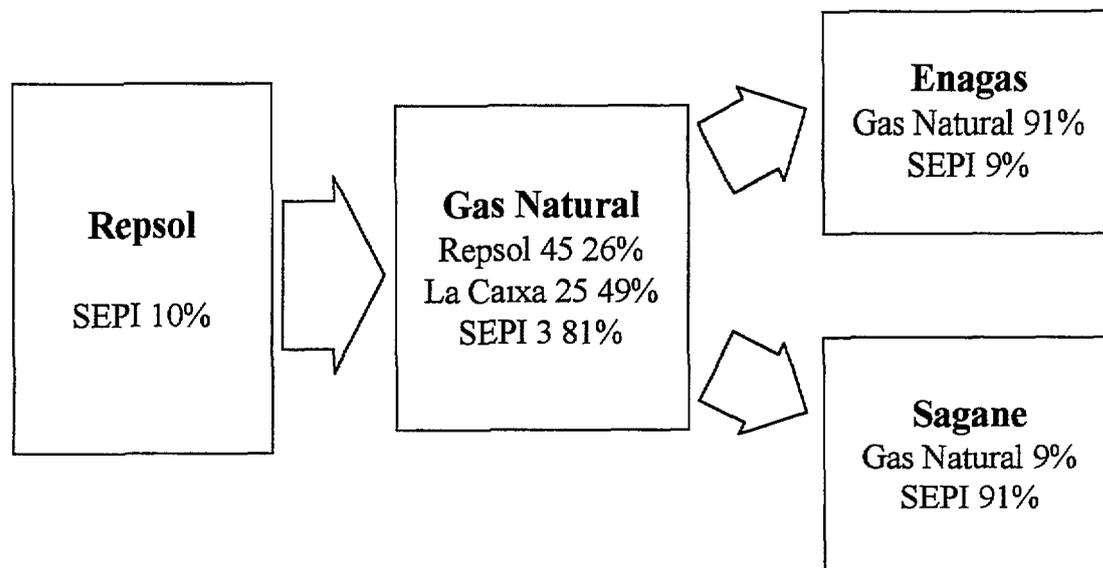
As a result of the 1994 Electricity Law (LOSEN), an element of competition has been introduced into the Spanish electricity supply industry. However, it is not clear how intense competition will become over time. Essentially, the law attempts to create parallel structures—a public (or “integrated”) system on the one hand, and a private (or “independent”) system on the other. The companies listed in the table above make up the integrated system. Over time, it is envisioned that other companies—which could be separately organised subsidiaries of the above companies—could build power plants and sell power in the independent sector. In that case, the market would be large industrial customers or possibly the distribution arms of the companies in the integrated system. These independent power plants would be outside the tariff system (the MLE) which is explained below in Section 3.4.3.

In addition to the integrated and independent system, there is a category of generator within the integrated system called the “special regime”. These are generators of less than 100 MW that are able to sell into the integrated system at government-determined rates. Many of these special regime generators are self-generators who sell excess power into the grid. Others are small hydro facilities and wind-powered plants. This was a very profitable business during the 1980s when the government was trying to encourage special regime generators, and offered high rates. Special regime tariff rates have come down of late, however.

312 Gas Industry Structure

The Spanish gas sector is dominated by Repsol, which controls the major oil and gas assets, including Gas Natural and Enagas

Ownership in the Spanish Gas Sector



Company	Activities	Market Structure
Repsol	<ul style="list-style-type: none"> Oil and gas exploration and production Oil refining and marketing Chemicals 	Competitive
Gas Natural	Natural gas marketing and distribution	Monopoly, some inter-fuel competition
Enagas	Natural gas importing and transmission	Monopoly
Sagane	Temporary majority ownership of GME	N/A

Technically, competition at the transmission and import level is allowed in the gas sector, but currently only Enagas has a concession to import gas and to use and operate the evolving national gas grid. The policy approach here is in a state of flux – more competition will probably be allowed explicitly in the relatively near future, to conform to EU directives, but Enagas has so much gas under contract at this time that any competitor could find it very difficult to break into the market in the foreseeable future.

Coincident with a huge increase in natural gas imports that is continuing, almost all of Spain's distribution companies were grouped together in Gas Natural in 1990, which at that time was state-controlled by virtue of the state's direct interest and the shareholding of state-controlled Repsol. By 1996, however, the direct state holding in Gas Natural had fallen to 35% and to 10% in Repsol. In 1994 Gas Natural took over Enagas, the entity responsible for natural gas transmission and imports.

All of these entities had previously been state-controlled, with the state's ownership stake held by a state holding company called Sepi. This share has fallen dramatically, except for the large temporary stake in Sagane, the entity created to develop the Gazoducte Maghreb-Europe (GME) pipeline from Algeria to Spain via Morocco. Sagane (Enagas spelled backwards) was formed to remove the development risk of this project from Enagas, as well as to allow Enagas to be absorbed by the largely private Gas Natural. Once the GME is completed, Gas Natural will absorb the GME into Enagas and Sagane will disappear.

3.2 Gas Regulatory Framework

For the purposes of this report, regulation of the Spanish natural gas sector is of lesser interest than that of the electricity industry, for two reasons. First, regulation follows the more familiar lines of ministerial control—there is no institution at the national level with separate regulatory responsibilities—and second, pricing conforms to European norms, with gas prices indexed against competing oil product prices. This pricing mechanism reflects the need in Spain, as in other import dependent countries, to offer gas on competitive terms so that a market for the imports evolves. A 1985 Gas Protocol and 1987 Gas Law lay out the general regulatory framework, which requires distributors to have concessions to have the right to sell gas, and obtain authorisations to build or upgrade facilities.

3.3 Electricity Regulatory Framework

3.3.1 Coverage

Regulation covers all parts of the electricity industry.

- Generation—licenses are required for all activities although the authorisations are different for the normal regime, the special regime, and the independent system.
- Transmission—a license is required. Curiously, the license does not grant a monopoly to the licensee, and technically at least, it is possible for companies other than REE to build and own transmission lines. It appears, however, that it would be difficult to secure an authorisation to build a competing line.
- Distribution—a license is required. As with the transmission license, these licenses do not grant the licensee an exclusive franchise.

- System Planning—through the mechanism of the PENs (national energy plans) the Ministry of Industry has secured a significant voice in all planning issues. The PENs are prepared by the Ministry of Industry and ratified by the Council of Ministers. While the PENs do not require the utilities to build any specific plant, the utilities know that a request for an authorisation to build something for which the latest PEN identifies a need, will in general be favourably received.
- Technical Integration—operation of the national grid is accorded to REE, while CSEN oversees the settlement system. CSEN also has approval authority over technical codes.
- Import-Export—authorisations are required but again the legal and regulatory framework allows for multiple importers and exporters, in accordance with EU directives. In practice, only REE is authorised to engage in this market, and requests for import or export permits from other parties could challenge policy makers.
- Access—Rules regarding access are vague, but LOSEN, the Electricity Law, regulates a variety of types of access: 1) access of independent generators to their customers, 2) access for transit services as described in the EU transit Directive, and 3) other cases as may be necessary. Because of the vagueness of some of the transit provisions there is great scope for the Commission to interpret these provisions very broadly—or very restrictively.

3.3.2 Primary Legislation

Spain's 1978 Constitution established it as a constitutional monarchy, with the key division of powers between the central government and 17 autonomous regions.

There are two key pieces of electricity sector legislation:

- The *Marco Legal Estable* (MLE), or "Stable Legal Framework," the 1987 tariff law which established a cost recovery system for companies in the electricity supply industry.
- The 1994 Electricity Law, or LOSEN (*Ley de Ordenación del Sistema Eléctrico Nacional*), which was intended to increase competition and transparency within the general framework of the MLE.

These laws clearly assert central jurisdiction over the electricity sector, establish a pricing framework, and allocate sector management duties between the Ministry of Industry and the *Comisión del Sistema Eléctrico Nacional* (CSEN), the regulatory commission established by LOSEN.

LOSEN's central objective was to increase competition and transparency in the industry, by requiring either complete or accounting separation of functional activities, and by requiring competitive bidding for all new generation capacity. It also allows for the evolution of the "independent" system, although this has not yet come into being.

3.3.3 The Regulatory Body

The Ministry of Industry has the primary price setting authority and is the architect of the *Plan Energetico Nacional* (PEN), or National Energy Plan, used to establish a policy framework for the energy sector. Prior to the creation of CSEN, the Ministry worked closely with UNESA, the electricity industry association, on preparing the PENS. CSEN will largely replace UNESA in that advisory capacity, and provide technical analysis of expansion needs from its own resources. UNESA, meanwhile, has taken on an advocacy role and has emerged as a vehicle for co-ordinating industry action on various matters, including lobbying and appeals. However, individual utilities are also evaluating their regulatory strategies and lobby the Ministry and CSEN separately on many important matters—especially competition, pricing, and the generation mix.

CSEN also advises the Ministry of Industry on prices and oversees the payment and settlement system between the distribution, transmission, and generation entities. It has little real power over pricing.

CSEN is comprised of seven commissioners, including a Chairman, who are appointed by the government for five year terms and can only be removed in instances of gross misconduct or incapacity. However, due to the highly political nature of the appointment process, there may, in practice, be other ways to remove commissioners—principally by offering commissioners jobs elsewhere in the government, as may now happen with the formation of a new government in Madrid. CSEN expenses are paid for partially from an electricity surcharge and partially from the government budget.

CSEN is not designed to be a representative body, but in practice the appointment of commissioners has covered important political, sectoral, and regional bases. For example, there are commissioners drawn from, respectively, the Basque region, Catalonia, and the labour unions. One result is that only two commissioners on the current board have any real expertise in the power sector. The personnel target for CSEN is a staff of about 200, but the Commission is still building up staffing levels and is currently far below the target.

The split of functions between the Ministry and CSEN is as follows

Ministry of Industry	CSEN
<ul style="list-style-type: none"> • Investment planning • Pricing • Investment authorisation • Imposition of sanctions • Rules and regulations for the regulatory regime • Handling of appeals 	<ul style="list-style-type: none"> • Administer payment and settlement system among utilities • Rules and regulations for the regulatory regime • Inspection of facilities • Advice to Ministry on various matters • Oversight of procedures for new production and transmission facilities • Quality of service • Approve technical rules for the Grid • Arbitrate third-party access issues

The role of CSEN in competitive bidding has not been fully established. CSEN will play an important part in the bid evaluation criteria, and in selecting the winning projects. But the Ministry, through the PEN mechanism, will play the key role in determining the need for power. Relations between these two bodies and the players in the industry could be a potential source of conflict in the future.

3.4 Price Regulation

3.4.1 Secondary Legislation

The MLE/LOSEN framework requires all participants in the industry to be licensed to perform specific functions. The MLE guarantees the companies recovery of their standard costs.

3.4.2 Relationship with Government on Pricing Issues

The Ministry of Industry sets prices and is accountable to the Spanish legislature. CSEN has an obligation to recommend prices to the Ministry, but has no authority to set prices itself.

There are no formal requirements for CSEN advice to be made public. However, the current chairman of CSEN has used various media to make CSEN positions on various matters clear to the public. Under this chairman, it is clear that CSEN is a very vocal and independent organisation, not prone to echoing the opinion of either the industry or the ministry. However, there have been no open, major disagreements between the Ministry and CSEN. Furthermore, where there have been disagreements, the Ministry view has prevailed though not without considerable negotiation among the Ministry, CSEN, and the utilities.

Spain's federal structure, with its attendant need to achieve consensus among the regions on key issues, contributes to national policies to keep electricity and natural gas prices uniform across the whole country

3.4.3 Institutional Arrangements for Price Regulation

Prices are set by the Ministry of Industry on the recommendation of CSEN, and published in the form of a tariff. In the integrated system this tariff schedule is public information and there are no contracts. The tariff schedule is reviewed annually, and—along with oversight of the settlement system—constitutes the major duty of CSEN. UNESA has been used as a vehicle for appeals under this system.

Under the MLE, the goal of price regulation was to stabilise the electricity sector, which had been adversely affected by a combination of fuel price volatility, inflation, and the nuclear moratorium which threatened to leave the industry with losses of billions of dollars (Five nuclear units were affected by the moratorium and remain unfinished). The MLE is designed to cover a given company's "standard costs"

These costs are estimated on a highly disaggregated basis, i.e., each major component in the chain of supply is considered, including generation, transmission, distribution, and operational costs as well as fuel costs and the cost of demand side management programs. The revenue requirement for the entire system is the sum of all these measures of "standard cost," plus an amount for recovery of lost nuclear investment. Coal subsidies are accounted for in the fuel cost for the coal-fired generators.

The objective of CSEN in its pricing recommendations is to 1) review the standard cost measures, and 2) design a tariff structure that will allow those costs to be fully recovered, based upon expected demand for the upcoming year. In general, the MLE has proven to be relatively easy to administer compared to the chaotic, fractious system that it replaced, but it is not clear how well it will function as competition increases in the industry.

Because standard costs are developed for categories of equipment—for example, there will be a standard cost for each type of generating plant—the MLE framework has been referred to as a "benchmarking" system.

It is not clear exactly what rate-of-return on assets is used in the standard cost approach. However, the companies know that if they are able to control their actual costs, they will be able to make additional profits, all of which they will be able to keep. Some or all of these savings may then be incorporated into the annual standard cost revision. In this regard, the MLE framework also resembles a price cap system, given the strong incentives for cost cutting.

It is interesting to note that average electricity prices in Spain have decreased steadily, though not dramatically, throughout the 1990s, but—at over 11 cents per kWh in 1994—remain high by any measure.

All revenues are collected at the distribution level and then distributed upwards to the transmission and generation companies according to their aggregate standard costs. Because tariffs are uniform but cost structures vary among the distribution-generation companies, this means in effect that the more profitable companies pay out under the system, while the less profitable obtain a cross-subsidy. CSEN ensures that these transfers take place as they should.

There are several important aspects of this system and the tariff structure that has resulted. First, there are strong incentives under the MLE for firms to cut costs, although the frequent (i.e. annual) price reviews may blunt some of the incentive. Second, while the approach does not consider directly marginal system costs, the tariff structure that has resulted (with variations by voltage, load, interruptibility, and time of consumption) does in general distribute costs among customer classes fairly equitably. In particular, large industrial consumers receive attractive rates reflecting their steady, baseload demand. Third, Spain's policy objectives appear to have been served. Endesa and Iberdrola have been solidified as companies and have both been able to compete successfully outside of the Spanish market. Meanwhile, Spain's coal industry has been preserved, and its manufacturers have not been priced out of producing in Spain.

It is difficult to assess the effectiveness of decision-making under the new system, because it has not been in place very long. In particular, CSEN's role is still emerging, as it builds up its technical staff and as the powers of its commissioners – and especially of its Chairman – become more clear. What is apparent so far is that there are some differences that have emerged among the various stakeholders of the industry, and that these are likely to sharpen over time as competitive pressures increase. Among the generators, for example, hydroelectric producers have complained that the Spanish pricing system seriously undervalues hydro resources during peak demand periods.

3.4.4 Future Directions

The big question facing the Spanish electricity industry is the future of competition. It is not clear how independent generators will be treated as far as issues such as the coal subsidies and the nuclear moratorium, costs that are now shared by all electricity consumers. Will the Ministry spread these costs to independent generators as well? The answer may well determine whether this independent system actually comes into existence.

The coal subsidies also anger hydro plant owners, who feel they are not getting compensated for the full economic value of their hydro production. The current system may also complicate the ability of Enagas to move large quantities of natural gas into the power generation market, which it will need to do given its imminent contractual obligations (the GME will begin deliveries later this year or early next). But with coal and nuclear plants dispatched on a must-run basis and overall growth in electricity consumption relatively slow, it is not clear that demand for gas in the power sector will be strong unless significant fuel switching is enforced by the Government.

4 CZECH REPUBLIC

4.1 Energy Sector Structure

4.1.1 Electricity Industry Structure

Czech Power Company (CEZ) undertakes transmission and dominates generation. It is a joint stock company founded by the National Property Fund in May 1992. It is the sole importer and exporter of electricity, by virtue of its control of the high-voltage transmission lines. A minority (just over 30%) of the shares in CEZ are privately owned, held by both domestic and foreign investors. However, it remains a predominantly state-owned company in which private shareholders effectively play only a minor role. A number of district heat enterprises, formerly part of CEZ, have been separated from it and set up as independent companies. CEZ produces about 75-80% of the Czech Republic's electricity requirements.

There are eight independent distribution companies. These were established as joint stock companies in January 1994. The distribution companies are already partly privatised, with about 15% of each sold in the voucher for shares mass privatisation programme. It is planned that a 20% stake in the companies will be offered for sale to strategic investors, possibly during 1996 or early 1997. 34% has been allocated to the municipal governments in which the distribution companies operate. The remainder will go to the National Property Fund, although some shares may be allocated for mass privatisation and some for the restitution fund. It is possible that a further part of the companies will be sold to strategic investors at a later stage.

Each of the eight electricity distribution companies buys electricity from CEZ at a different price. The different prices are set to roughly compensate distribution companies for differences arising from disparities in the proportions of industry and household consumers served. These wholesale prices have more than one part.

A possible future development is that the transmission grid may be separated from the rest of CEZ, though this is far from certain at present. Further privatisation of CEZ is not foreseen in the immediate future.

4.1.2 Gas Industry Structure

There is one integrated transmission and supply company, Transgas. Transgas is wholly state owned. Transgas is responsible for the cross-border transit of gas through the Czech Republic as well as the high-pressure transmission network which supplies gas to the separate distribution companies. Transgas also owns most of the storage facilities in the Czech Republic. Government policy is to retain state ownership of Transgas.

Since 1 January 1994, there have been eight independent regional distribution joint stock companies. The privatisation plans for the gas distribution companies parallel those for the electricity distribution companies. Transgas sells to each of the eight distribution companies at a different tariff.

4.1.3 District Heat Organisation

Splitting the district heat companies from the vertical structure of CEZ was the first step in the restructuring and privatisation process. Most district heat companies are now predominantly privately owned, although municipal governments have large ownership stakes. To illustrate the privatisation of the heat companies, the ownership structure of the Prague Heating Company is as follows, a German energy company (Gesa) owns about 19%, foreign institutional investors own about 40%, the city of Prague owns 25%, and the rest belongs to small investors.

4.2 Regulatory Framework

4.2.1 Coverage

The Ministry of Finance and the Ministry of Industry and Trade are the two bodies responsible for the regulation of the energy sector. A small preliminary Energy Regulatory Department was established within the Ministry of Industry and Trade in February 1993.

The State Energy Inspectorate has a role in monitoring and enforcing the conditions in the new Energy Law which is described below.

4.2.2 Primary Legislation

A new Energy Law came into force in January 1995³. This will be followed in due course by a decree on regulation, which has not yet been issued. The Law makes the following provisions:

- Regulation will be performed by the Ministry of Industry and Trade.
- The Law sets up a licensing regime for the energy sector, to be undertaken by the Ministry of Industry and Trade.
- Final approval of prices remains with the Ministry of Finance, although the Ministry of Industry and Trade has a role in advising the Ministry of Finance on the appropriate level of tariffs.
- The role of the State Energy Inspectorate was redefined, it is now responsible for monitoring the behaviour of licensed enterprises and enforcing compliance with the law.

³ Act on Conditions for Business and the Performance of State Administration in Energy Sectors and on the State Energy Inspectorate, 2 November 1994.

4.2.3 The Regulatory Body

There is no regulatory body independent of Government Ministries. Under Article 11 of the Energy Law, the Ministry of Industry and Trade is responsible for regulation, although it is the Ministry of Finance which has the final authority on prices. The Ministry of Industry and Trade is responsible for licensing energy activities (Article 3).

The State Energy Inspectorate is responsible for monitoring and enforcing the conditions set out in the Energy Law, rather than being responsible for regulatory tasks such as setting prices or quality standards. The State Energy Inspectorate is subordinate to the Ministry of Industry and Trade. The Minister of Industry and Trade is responsible for appointing the executive director of the State Energy Inspectorate, and has the right to dismiss him.

4.3 Price Regulation

Under the new Energy Law the Ministry of Industry and Trade submits proposals for price changes to the Ministry of Finance which has the final say on prices, using powers from the Prices Law 1991. The basis on which prices will be set is not made clear in the new law, and it seems unlikely that the future decree on regulation will make this clear.

At present much of the analysis involved in setting prices is carried out at the Ministry of Finance and not the Ministry of Industry and Trade. This may change over time, as the Regulatory Department within the Ministry of Industry and Trade becomes larger and more experienced.

The pricing arrangements vary slightly sector by sector. For electricity, the Ministry of Finance sets state wide maximum prices for different classes of end user. The prices at which CEZ sells to electricity distribution companies is theoretically free of regulation. The distribution companies negotiate with CEZ as one body through their association. However, because the distribution companies and CEZ have difficulty in reaching agreement on the appropriate price, the Ministry of Industry and Trade has tended to intervene and set the average price to be paid by the distribution companies. Once the average price has been agreed, the distribution companies decide amongst themselves what price each individual distribution company is going to pay. This is done on the basis of the need for investment and the cost of serving the different geographical areas. As a result, although end-user prices are uniform across the country, the price at which CEZ sells bulk power to the distribution companies is different for each of them. This provides the finance for the areas with more industrial consumers to cross-subsidise those with more household consumers.

For the gas industry, the Ministry of Finance sets the different prices at which each of the gas distribution companies buys from Transgas. The Ministry of Finance also controls eight sets of regional maximum prices for industrial and commercial users, and one state-wide residential tariff. Until recently the gas supply tariffs were one-part, but they are now being changed to be two-part tariffs.

For district heat the prices which heating plants and distributors set to building owners are set individually for each district heating network, again by the Ministry of Finance. A single, state-wide final residential price is set by the Ministry of Finance.

5 ESTONIA

5.1 Energy Sector Structure

5.1.1 Electricity Industry Structure

The Estonia electricity supply industry consists of one company, Eesti Energia, which has a monopoly of importation, generation, transmission and distribution. Domestically produced oil shale is used to generate 95% of the electricity in Estonia. The amount of oil shale used may decrease in the future as cleaner fuels increase in importance. Estonia exports electricity to Latvia and Russia.

Eesti Energia is still a state owned enterprise, although it is planned to corporatise it in the near future through a government decree, but with the state retaining a 100% shareholding. Eesti Energia is organised so that a head office co-ordinates the activities of the operational divisions. In some ways these operational divisions operate as subsidiaries, having independent budgets and objectives. Once Eesti Energia is established as a company, these operational divisions will be established as subsidiary companies in a holding company structure. Under the holding company structure, there will be a separate transmission company and a number of separate generation companies and distribution companies. The holding company would initially hold all the shares in the subsidiary electricity companies.

The next stage in the restructuring and privatisation programme would be to allow private investors to obtain shares in the subsidiary companies. This privatisation could be a full or partial privatisation. The transmission company would remain in state ownership.

According to recent press reports, a US company, NRG Energy, has signed a non-binding Memorandum of Understanding with the Estonian government to gain joint ownership in three state-owned Eesti Energia plants, once they have been established as separate subsidiaries. Two of the plants are the Balti and Eesti power stations, which are by far the two most important plants in Estonia, constituting approximately 90% of Estonia's electricity generating capacity.

5.1.2 Gas Industry Structure

Eesti Gaas controls importation, transmission and distribution of gas in Estonia. Eesti Gaas has been partially privatised, through sales to strategic investors. Gazprom owns 31% of Eesti Gaas, and Ruhrgas of Germany acquired a 15% stake in April 1995. The other main shareholders are the state with about 40% and the Baltic Republic Fund with 8%. The state is permitted by a parliamentary decree to reduce the state's share in Eesti Gaas to 10%, and it is quite possible that there will be further privatisation in the near future. Gazprom and Ruhrgas have both expressed an interest in obtaining a larger share of Eesti Gaas. Gaz de France and Italgas have also expressed an interest.

Gas is used primarily for generating heat in municipal and industrial plants, and not in final consumption by the industrial or residential sectors.

5.1.3 District Heat Organisation

Eesti Energia generates about 35% of the district heat produced in Estonia, and distributes heat in a number of the larger cities. The district heat distribution activities of Eesti Energia are set up as subsidiaries, operating at arm's length from the head office of Eesti Energia. A separate enterprise, Estonia Municipal Heating Networks, runs the district heat networks in the smaller networks.

5.2 Regulatory Framework

5.2.1 Coverage

The Ministry for Economy is responsible for the energy sector. There are plans to establish an energy regulatory framework to protect investors and consumers. A new Energy Law has been discussed.

A Price Commission has been established for oil shale and electricity. However, this Price Commission only makes recommendations to the Ministry of Economy, it does not have the final authority over price controls. The Price Commission does not deal with gas or district heat.

5.2.2 The Regulatory Body

In 1994 a Price Commission was created by statute by the Minister of Economy to evaluate oil shale and electricity prices.

The Price Commission is composed of nine members: three energy experts, three consumer representatives, and three producer representatives. Only the three energy experts are voting members. At present, the three energy experts are made up of an academic professor from the Institute of Cybernetics, who is chairman of the Price Commission, a representative from the Institute for Economy at the Estonian Academy of Sciences, and a representative from the Ministry of Finance. The non-voting members are free to express dissenting views in an annex to the Commission's recommendation.

The Commission is designed so that the members have expertise in carrying out a detailed economic appraisal of the Eesti Energia's costs.

5.3 Price Regulation

The Ministry of Economy is responsible for the energy sector, and it has the most important role in setting energy prices. It makes recommendations to the Council of Ministers, who decide on the final price changes. The Price Commission plays no part in controlling district heat or gas prices.

For electricity, the procedure is as follows. Eesti Energia submits an application for a price increase to the Ministry of Economy for approval. The Ministry of Economy considers Eesti Energia recommendation and discusses it with the Eesti Energia. They agree (a) an average price and (b) tariff structures. In practice, the residential tariff tends to be fixed at a level agreed with the government, and the other prices are calculated around that.

Once the Ministry and Eesti Energia have reached agreement, the Ministry submits the proposals to the Price Commission. The Commission then has two months in which to make a recommendation. During these two months, the Commission has further discussions with Eesti Energia, and with the government. By the end of two months, the Commission must make a recommendation to the Minister.

However, the Minister is not bound by the Commission's recommendations, and may submit its own recommendation to the Council of Ministers. This recommendation would contain both an average price and the price structure. A change in prices is issued in the form of a government decree.

The Price Commission has made recommendations for price increases based on the need to align prices with real costs, and to allow for inflation. This has caused some tension with the Ministry and government who are opposed to large price increases.

An equivalent procedure is followed for oil shale. The large majority of oil shale produced is used to generate electricity. Other oil shale consumers include plants processing oil products from oil shale and the cement industry.

A recent announcement in Estonia said that the regulatory regime would be changed. A new Estonian power industry regulatory agency would be established. Under this new structure the Estonian government would authorise the price formula, but the regulatory agency would agree the price changes.

6 HUNGARY

6.1 Energy Sector Structure

6.1.1 Electricity Industry Structure

At the end of 1991, the Hungarian vertically integrated electricity industry was broken up into two tiers. The top tier consists of the joint-stock company Magyar Villamos Muevek (MVM). MVM operates as a holding company for the group and owns and operates the high voltage transmission grid and the national dispatch centre.

The lower tier includes eight generating companies grouped by region and by fuel type and six regional distribution companies. Most of the power stations also supply heat to district heating systems.

MVM's dispatch centre contracts for power with generators and imports electricity. By buying power from the cheapest plant, the dispatch centre can create competition in generation, although at present this only seems to be happening to a limited extent.

In November 1994, the government announced a new policy for privatisation of the electricity industry. This is partly due to the need for new investment in generation, transmission control and distribution. The privatisation policy was revised in July 1995, and the present position is that the government will

- sell minority stakes in the distribution companies, with the possibility for investors to increase their share to 50% plus one share by the end of 1997. Once these initial sales have been completed, 25% of the shares of the distributors will be given to the local municipalities which they serve. After 1997, the municipalities will be allowed to sell their shares in the distribution companies.
- sell between 34% and 49% of the generators (with the exception of the Paks nuclear generator), with the possibility for investors to increase their share after 1997.
- merge the transmission company and Paks nuclear plant with MVM and selling 24%. This company will then remain as a majority state owned company.

In 1995, minority stakes (typically of 49%) in the six distribution companies and a number of the generator companies were privatised. Companies buying the stakes included Electricité de France and RWE of Germany.

After some of the tenders for the generating companies were seen as too low, the government changed its strategy again and is now offering majority shares in some of the remaining generator companies. For example, a 74% stake in Budapest Eromu (250 MW) is being offered and an 81% stake in Tisza Eromu (1,100 MW). Restrictions were imposed on the number of plants any one company could bid for, so to ensure that the generation business could become fully competitive. MVM has not yet been privatised.

6.1.2 Gas Industry Structure

MOL is the sole producer of gas in Hungary. However, this position is not a statutory monopoly and, in 1994, four international oil companies were awarded exploration and production concessions.

GOV, a subsidiary of MOL, operates all high-pressure pipelines. GOV is one of 13 separate business units within MOL. MOL also owns and operates all gas storage facilities in Hungary, which are in depleted gas fields. MOL is now beginning to separate and spin off some of the business units.

Mineralimpex is the main importer of gas, though no longer has a statutory monopoly. MOL has started to import gas in competition to Mineralimpex.

Distribution was separated from transmission in 1991, and is carried out by five regional companies owned mainly by the state and by one company, Budapest Gas Works, owned by the municipality. MOL supplies part of industrial and power sector demand from high-pressure transmission lines (34%). Third party access is allowed for licensed gas suppliers, at least to the extent that MOL has free capacity.

Until November 1993 MOL was 100% owned by the state through the State Asset Holding Company Av Rt, which is charged with preparing the company for partial privatisation. MOL has already been partially privatised, with around 5% of the shares owned by the private sector.

The government's policy had been to maintain long term strategic shareholdings in MOL and the distribution companies. However, this policy has been modified and in 1995 the 50% plus one share of each of the gas distribution companies were sold to foreign gas companies, such as Gaz de France and Ruhrgas.

40% of the remaining shares will be given to the local government in the area of operation. However, the local governments will be free to sell their shares, and some of them are understood to have held discussions with foreign gas companies which could allow them to build-up majority stakes.

19% of the MOL was privatised in an international stock market flotation at the end of 1995. About 5-6% was also offered to employees of MOL on preferential terms. The state's plans as stated last year were to retain a blocking minority share of 25% plus one share in MOL, and to sell the remaining 50% to institutional investors and foreign oil companies.

6.1.3 District Heat Organisation

Hungary has about 75-80 heating companies. They buy their heat from electricity generating companies and local factories, or generate heat from their own plants. The district heat companies are owned by the municipalities in which they operate.

6.2 Regulatory Framework

6.2.1 Coverage

Within the government, the Ministry of Industry and Trade has primary responsibility for the energy policy. This includes the final approval of gas and electricity prices until 1997.

The Hungarian Energy Office (MEH) is responsible for implementing policy in specific areas. This includes licensing gas and electricity supply. The purpose of creating MEH was to improve the transparency of price regulation and licensing. MEH's most important function will be to advise on prices, and after 1997 it will take over responsibility for approving price changes.

6.2.2 Primary Legislation

A new Gas Law and then a new Electricity Law were passed in 1994⁴. The Gas Law established MEH, and the subsequent Electricity Law dealt with the role of the MEH in the electricity industry. There have been various decrees issued under these laws detailing the system of regulation.

6.2.3 The Regulatory Body

The Minister of Industry and Trade still has some control over the MEH. The government approves the MEH's organisation, and its rules and operation, and the Head Director and directors are appointed by the Minister. It is not clear from the Laws on what grounds the directors can be dismissed from their office. MEH reports to the Minister of Industry and Trade, and once a year informs Parliament of its activities.

MEH's budget is included as part of the Ministry of Industry's budget, and has to be approved by the Government.

6.3 Price Regulation

The new Gas and Electricity Laws have different arrangements for setting prices before and after 1 January 1997.

Up to 1997, MEH acts as an advisory body to the Minister of Industry and Trade, with the Minister actually setting prices. MEH puts forward recommendations for prices, after consultation with various consumer groups and supplier representatives and pressure groups. The Laws say that by 1997 all price categories must be adjusted to reasonable costs, including a reasonable profit.

⁴ Act XLI of 1994 on Gas Supply and Act XLVIII of 1994 on the Production, Transport and Supply of Electric Energy

After 1 January 1997, MEH will set the prices itself in such a way that prices recover the costs of efficient operation and investment. In the Electricity Law, the exact wording is that the price "shall include the recovery of reasonable investments and the costs of the licence holders operating efficiently, as well as the profit necessary for ongoing operation."

On heat, MEH regulates the price at which MVM sells heat to the district heat companies, but the end user prices remain regulated by the municipalities.

7 LATVIA

7.1 Energy Sector Structure

7.1.1 Electricity Industry Structure

The state-owned company Latvenergo is responsible for importation, generation, transmission and distribution. Latvenergo is also responsible for generating about 50% of the district heat consumed in Latvia.

About three-quarters of Latvia's small generating capacity is from hydro plants. There are substantial imports of electricity from Estonia. The level of imports in any year varies considerably, depending on the amount of electricity generated from the hydro plants, which depend on rain-fall and snow-melt. Latvia also has a roughly balanced electricity trade with Lithuania, in order to optimise system operation.

The possible privatisation of Latvenergo is currently being discussed. A working group within the Ministry is considering whether to privatise the whole company or whether to privatise only parts of it.

7.1.2 Gas Industry Structure

Latvijas Gaze has a monopoly over gas transportation, importation and distribution. Latvijas Gaze is currently a 100% state owned company. However, it is planned that 16.25% will be sold to Gazprom, and another 16.25% to a Western gas company. Latvijas Gaze imports Russian gas via pipelines through Belarus and Lithuania.

7.1.3 District Heat Organisation

Latvenergo runs all the CHP plants and many of the heat only plants in Latvia.

7.2 Regulatory Framework

7.2.1 Coverage

The Ministry of Economy is responsible for energy policy making. A non-governmental body called the Latvian Energy Agency was established in March 1994 to advise the Ministry of Economy.

Recently, new legislation has provided for an Energy Regulation Board. Although the Board is not yet operational, it has been given the following responsibilities under the new legislation:

- licensing energy supply enterprises,
- developing tariff methodologies and approving energy price tariffs, and
- developing regulation on energy production and supply

7 2 2 Primary Legislation

The Law on Entrepreneurship Activities in Energy Industries was passed in September 1995. This Law provides for the establishment of the Energy Regulation Board as a state institution. The Law describes the power and duties of the Board. Much of the secondary legislation which is provided for in this Law has yet to be issued.

7 2 3 The Regulatory Body

Under Article 3 of the Law, the Energy Regulation Board will be established by the Council of Ministers. The Chair of the Board shall submit the staff list of the Board to the Council of Ministers for approval, the staff may not be more than 11 people. On the Board, there must be representatives from relevant state institutions, from energy supply companies, and consumer representatives.

The regulations and structure of the Board have to be approved by the Council of Ministers. The Board's Statutes had still not been approved by March 1996. The Board's budget is from the country's central budget, and has to be approved by the Council of Ministers.

The Board will deal with the whole energy sector, including district heat, electricity, oil and oil products, natural gas and LPG.

Energy enterprises require licences, except for small operations (for example, production from power plants with installed capacity less than 1 MW are exempt). These licences will be issued by the Board. These licences can then be modified by the Board in the way which will be specified in the Board's regulations, which have not yet been drafted. For energy production, transmission, distribution and storing enterprises, these licences must not be less than 20 years in length. For the sale of energy, the licences must be for at least 5 years.

The Board is also responsible for approving construction and extension of energy facilities.

7 3 Price Regulation

Under the new Law, the Energy Regulation Board has the authority to set prices for the energy sector.

The licences shall include conditions relating to how tariffs are to be set. Article 17 of the Law stipulates that these licence conditions must allow for various categories of cost to be recovered. As well as various operating expenses, these include depreciation and profit. However, the Law does not specify on what basis the level of profit will be set.

The licensed enterprise would submit their application for a tariff rise to the Board, and the Board would then approve the tariff if it considers the increase appropriate.

8 POLAND

8.1 Energy Sector Structure

8.1.1 Electricity Industry Structure

Reform of the electricity industry began in August 1990. Its structure was changed again at the end of 1993. The new structure is as follows:

- 34 independent power generating companies, including about 14 combined heat and power plants (or groups of them),
- a separate Polish Grid Company (which has three pumped storage stations), and
- 33 distribution companies

The companies are mostly state owned, with the shares held by the state Treasury. A few have private ownership, or are in the process of moving towards private ownership.⁵

At present the Polish Grid Company (PSE) buys all electricity from the generators and then sells it to distributors and large customers who are connected directly to the transmission grid. Transmission charges are levied separately to payments for energy flows. There is currently no third party access by which distributors can buy electricity from generators and transport the electricity via PSE's network.

PSE is developing proposals to introduce a short-term wholesale market for electricity. In the longer term, the objective is to have full wholesale competition and third party access.

A new draft Energy Law is currently going through Parliament in Poland. The latest draft of the Law would allow competition in generation and third party access to the transmission network. The law also allows for private ownership of power stations.

8.1.2 Gas Industry Structure

The Polish oil and gas company, Polskie Górnictwo Naftowe i Gazownictwo (PGNiG) is a vertically integrated company with an effective monopoly on all gas activities. It is responsible for production, importation, transmission, storage and distribution.

In March 1993 the Anti Monopoly Office issued a legally binding decision ordering the division of PGNiG with a view to creating conditions for the development of competition in gas supply. As a result of this, PGNiG has had to separate some of its activities from the main enterprise. Seven non-gas businesses have been separated from PGNiG, these comprise businesses which were peripheral to PGNiG's main activities.

⁵ The Leg combined heat and power plant near Krakow is expected to become the first Polish plant in which the share owned by foreign investors exceeds 51%. A World Bank loan is expected to finance 80% of the cost of renovating the plant.

There have been various proposals for further restructuring of PGNiG in the future. The Anti-Monopoly Office would like to break PGNiG into independent distribution, transmission and production companies, but this is unlikely to happen for the foreseeable future.

The plans now approved by the Cabinet involve commercialising PGNiG in the near future, followed by incorporation in September 1996. The next stage will involve separating out ancillary activities into separate companies, which may then be partly privatised. At a later stage it is likely that the remainder of PGNiG will be divided into two main divisions, one dealing with exploration and production, and the other dealing with transmission and distribution. It is currently not clear how independently these two divisions will operate. At a later stage distribution companies may be separated from the transmission and distribution part of PGNiG. The privatisation of some of the components of PGNiG may also be a possibility in the longer term.

8.1.3 District Heat Organisation

About half of district heat supplied in Poland is from CHP plants which are predominantly owned by companies involved mainly in power production. The district heat enterprises, which are responsible for the distribution of heat, own some small heat-only plants.

8.2 Regulatory Framework

8.2.1 Coverage

The energy regulatory regime in Poland is currently being changed. A new Energy Law has been prepared and approved by the Government but not yet by the Polish Parliament. This new law will establish a new regulatory regime, in which a new Energy Regulatory Authority will be responsible for energy sector regulation.

The Ministry of Industry and Trade has the main responsibility for energy policy. Other Ministries are also involved with specific aspects of policy. The Ministry of Physical Planning and Construction shares responsibility with the Ministry of Industry and Trade for district heating and energy distribution. The Ministry for Environmental Protection shares responsibility for environmental issues. The Ministry of Privatisation works as a consulting body for the privatisation and reorganisation of the State owned enterprises and for the setting up of State treasury companies. It also now has the responsibility for restructuring the gas industry.

End user prices are controlled by the Ministry of Finance. The Ministry of Industry and Trade is responsible for "internal" prices, between electricity generators, PSE (the transmission company) and the distribution companies.

8 2 2 Primary Legislation

The Draft Energy Law covers all industries in the energy sector (electricity, heat, gas and - to a very limited extent- downstream oil and coal) It covers production, transport, distribution, use, conservation and some energy related environmental protection, except the exploitation of natural resources and nuclear energy (Poland has no nuclear power stations)

The Draft Energy Law of 8 August 1995 gives the Ministry of Industry and Trade responsibility for energy policy The exception to this is the heat sector which, under the law, falls to the Ministry for Physical Planning and Construction The two Ministries are due to be merged by end-1996

The Ministry of Industry and Trade, liaising with the Ministry for Physical Planning and Construction, will prepare energy policy guidelines designed to give a long-term forecast of energy sector development (Articles 15 to 17) These guidelines will, among other things, determine investment and pricing policy

Article 23 of the law establishes the Energy Regulatory Authority (ERA) to regulate the electricity and gas industries The Voivods⁶ would be responsible for regulating the heat industry (Article 27) ERA and the Voivods would be responsible for issuing licences, agreeing sectoral plans and for approving tariffs

Electricity and gas enterprises are required to prepare detailed development plans for their sectors and agree these with ERA (Article 18) Communes are made responsible for planning heat supply in their regions The Communes are, in the current draft, required to submit these plans to the Voivods who must check them for conformity with state energy policy guidelines and laws The Voivods have responsibility for co-ordinating heat supply plans within their Voivodship

8 2 3 The Regulatory Body

Under Article 23 of the Draft Law, the President of ERA is appointed and removed by the President of the Council of Ministers The current draft of the law does not specify in what circumstances the President of ERA could be dismissed, hence it would seem that there may be no restrictions on the President removing the President of ERA The internal organisation of ERA will be determined by an ordinance

ERA's budget will be determined by the Council of Ministers, and voted by Parliament

8 3 Price Regulation

End-user prices for electricity, gas and district heat are currently the responsibility of the Ministry of Finance

⁶ Voivods are the representatives of the state at Voivodship (county) level

Under the new draft Energy Law, control of the price setting procedure will change. Ordinances will be issued by the relevant Ministry which describe the terms of formulation of tariffs (see Article 48 of the Draft Law). For electricity and gas, this will be the Ministry of Industry and Trade, and for heat will be the Ministry of Physical Planning and Construction. The law requires the two Ministries to consult the relevant Regulators and the Ministry of Finance in setting these ordinances.

Electricity and gas companies will propose prices and a tariff structure to ERA, which would then have to give its approval before the changes came into effect (Article 49). It is not clear at present how much discretion ERA will have in the tariff setting process. It will depend crucially on the ordinances issued by the relevant Ministries.

Heat tariffs will be submitted to the Voivod for approval (Article 50).

The new Draft Law gives the Ministry of Finance a veto on price changes for a period of 24 months from entry into force of the Energy Law.