

Regulatory Reform in the Czech Republic

Regulatory Reform in Electricity, Gas, Road,
and Rail Freight



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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Publié en français sous le titre :

LA RÉFORME DE LA RÉGLEMENTATION DANS LES SECTEURS DE L'ÉLECTRICITÉ,
DU GAZ ET DES TRANSPORTS DE MARCHANDISES PAR LA ROUTE ET LE RAIL

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FOREWORD

Regulatory reform has emerged as an important policy area in OECD and non-OECD countries. For regulatory reforms to be beneficial, the regulatory regimes need to be transparent, coherent, and comprehensive, spanning from establishing the appropriate institutional framework to liberalising network industries, advocating and enforcing competition policy and law and opening external and internal markets to trade and investment.

This report on *Regulatory Reform in Electricity, Gas, Road, and Rail Freight* analyses the institutional set-up and use of policy instruments in the Czech Republic. It also includes the country-specific policy recommendations developed by the OECD during the review process.

The report was prepared for *The OECD Review of Regulatory Reform in the Czech Republic* published in 2001. The Review is one of a series of country reports carried out under the OECD's Regulatory Reform Programme, in response to the 1997 mandate by OECD Ministers.

Since then, the OECD has assessed regulatory policies in 16 member countries as part of its Regulatory Reform programme. The Programme aims at assisting governments to improve regulatory quality — that is, to reform regulations to foster competition, innovation, economic growth and important social objectives. It assesses country's progresses relative to the principles endorsed by member countries in the 1997 *OECD Report on Regulatory Reform*.

The country reviews follow a multi-disciplinary approach and focus on the government's capacity to manage regulatory reform, on competition policy and enforcement, on market openness, specific sectors such as telecommunications, and on the domestic macro-economic context.

This report was prepared by David Parker, of the OECD's Division for Competition Law and Policy. It benefited from extensive comments provided by colleagues throughout the OECD Secretariat, as well as close consultations with a wide range of government officials, parliamentarians, business and trade union representatives, consumer groups, and academic experts in the Czech Republic. The report was peer-reviewed by the 30 member countries of the OECD. It is published under the authority of the OECD Secretary-General.

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The Czech Republic has endured a period of profound economic change since the collapse of the Soviet block. The broad and deep changes to the legal structure and institutional frameworks necessary to make the transition to a market economy are described in Chapters 1, 2 and 3. This chapter focuses on changes and prospects for the future in four energy and transportation sectors. These sectors are important in final consumption expenditure, and as inputs to other sectors, with impacts on overall economic competitiveness.

Reforms in electricity and gas, and road and rail freight have been substantial. When the Czech Republic was created in 1993, the state was involved in production directly, with public utilities organised in a monopolistic way. Price regulation was not based on a policy that would be sustainable in a market based economy — prices were kept low for social purposes. For utilities and state bodies that did not receive enough sales revenue to cover costs, general government revenues covered shortfalls. These soft budget constraints and monopolies removed all incentives for efficiency, and hence resulted in low levels of efficiency.

Substantial progress has been made over the past decade. Many state bodies in these sectors have been transformed into joint stock companies and have been assigned commercial objectives. They have been separated from government by having separate management and objectives, and in many cases have been partially or fully privatised. The regulatory environment has been partly liberalised, new institutions are being created, and some competition has emerged.

Road transport is now effectively a competitive market dominated by private sector participants, with prices liberalised. Transport policy to liberalise the road freight sector can be regarded as highly successful. For the time being, however, the industry is in a crisis caused by the macroeconomic downturn from 1997 which has reduced demand, by cost increases due to the rise in oil prices; and by highly restrictive market access to the EU. The authorities have wisely resisted intervening in the industry to limit supply. The solutions to the road freight industries' problems lie in general economic recovery and better market access to the EU. The latter will result from Czech accession to the EU, but the authorities should continue to pursue liberalisation of access in the interim.

Reforms in electricity, gas and rail transport, on the other hand, are incomplete. The state is still involved significantly in these sectors, electricity and gas tariff rebalancing is incomplete (rail freight tariffs were deregulated after 1993), and improvements are needed in the regulatory framework to build market confidence by improving clarity and transparency in the regulatory process.

Important progress has been made in recent months in energy sector reforms. In particular, the Energy Act came into force in January 2001, which establishes a framework for competition and market liberalisation in accordance with the relevant EU directives. Another important step forward is the creation under the Energy Act of an independent regulator. Also, the privatisation process has been restarted after earlier delays. The privatisation approach chosen by the government in electricity contains positive and negative elements for competition. On the positive side, ownership of the transmission system will ultimately be separated from the dominant generator — this will help to ensure that access to transmission is not distorted as the market liberalises and is to be welcomed. On the negative side, the privatisation approach announced by the Government in late 2000 involved the sale of the dominant electricity generator, bundled together with the states' interests in regional distribution companies, to a single purchaser (or consortium). This would create a dominant group of commonly-owned firms in the generation and distribution sectors that, collectively, are vertically integrated. This is a step backwards from the present situation as it is likely to extinguish independent behaviour by the distribution companies *vis a vis* the dominant generator. This privatisation approach would miss a clear opportunity to create a "best practice" pro-competitive industry structure that would drive improved sector performance, as it has in other liberalising countries. Such a "best practice" structure could have been achieved simply and

relatively rapidly by the separate privatisation of the already legally separated firms in the distribution sector. The privatisation approach announced by the Government will reduce the benefits of reform in terms of a more efficient energy sector. This will damage the economic welfare of the Czechs compared with what was possible. In the gas sector, the modalities of the privatisation approach are to be decided, but discussions are focussing on a bundled privatisation of the states' interests in transmission and distribution companies.

The Government based its decision on the privatisation of the electricity and gas sector on four criteria: competitiveness and stability of the industry; liberalisation of the market in line with EU rules; optimal pricing for final consumers; maximising sales revenue; and minimising social impact. A variety of policy trade-offs are implicit in these criteria. For example, maximisation of sales revenue in privatisation is a valid objective, but its dynamic costs in the medium and long terms, including higher energy prices, could easily outweigh the benefits to the government of higher privatisation revenues. And, minimising social impacts and the stability of the industry might be contrary to economic growth and consumer welfare. It is a matter for the Government to strike these balances. However, from most perspectives, the privatisation of vertically integrated dominant firms in the gas and electricity sector is unnecessary to achieve the objectives specified by the government, since stable markets in other countries work effectively with a higher degree of vertical separation than will result from the Czech privatisation approach. It would be best if a more pro-competitive model were quickly adopted for the privatisation.

If the privatisation proceeds as announced, a very effective and stringent regulatory regime will be necessary to prevent market abuses. The government will have to ensure the effectiveness of its regulatory arrangements because the negative competition consequences of privatisation of vertically integrated firms that have significant market power are hard to correct. Regulatory solutions to market dominance of vertically integrated firms are almost always less effective and more costly than anticipated. It is too early to assess whether the new Energy Regulatory Office established under the new Energy Act will have adequate resources and powers to achieve its mission of protecting consumer interests. The role of the Office for the Protection of Economic Competition will be important as well to limit abuse of market power by the dominant firms.

In reform of the national rail sector, the Czech Republic lags behind other CEEC countries, even though private rail operators were permitted access to track from 1994. An Act before the Parliament is designed to address the outstanding issues needed to bring Czech law into conformity with the EU framework. Irrespective of this needed reform, rail is likely to continue to drain the public purse as it does in other European countries. Competition can help address the problems in this sector, but will not be enough by itself. Improved governance, more commercial orientation, and further improvements to the regulatory framework have roles in improving the performance of Czech Railways.

1. INTRODUCTION TO THE ENERGY SECTOR

The Czech economy is relatively energy intensive, using 2.3 times as much energy per unit of GDP as the EU average. This reflects the historical influence of the central planning period, when emphasis was placed on heavy industry. Consequently, the efficiency of the energy sector is more than usually important for the overall economic competitiveness of the Czech economy compared with other countries. The degree of energy intensity is falling due to conservation efforts and economic restructuring which is evident in the growing importance of the service sector (see Chapter 1).

A description of the overall energy sector and associated policy issues is set out in the IEA Review of the Energy Policies of the Czech Republic (see IEA 2001) which provides important context for the analysis in this chapter which focuses on electricity and gas sector regulation issues.

The Czech electricity sector has moved considerably in the direction of market orientation. In particular, there has been significant structural reorganisation and partial privatisation, and there is some degree of competition in electricity generation. Nevertheless, the dominant companies in the electricity sector are predominantly state-owned and state appointees dominate their supervisory boards. Important but minority shares of the regional electricity distribution companies are owned by municipalities in their service areas, with typically one minority “strategic investor” which is a foreign energy company. Municipalities have, in some cases, sold their voting rights to the strategic investor since central government prohibited the outright sale of their share-holdings. The structure of the gas sector has some similarities, though privatisation has proceeded less far, particularly in gas transmission that remains wholly government owned.

There were also regulatory restrictions on competition, which gave rise to distortions and structural problems. Important progress has been made to remove or mitigate these obstacles. As from 1 January 2001 the new Energy Act came into operation which implements the relevant EU directive and progressively opens the market to competition. Market opening will begin in January 2002 (estimated 30% open) and from January 2003 the market will be opened in accordance with the EU directive timetable, reaching an estimated 50% open in 2005. From 2006, the market will be fully liberalised. This offers a good opportunity to push forward with pro-competitive solutions to the remaining problems. It is encouraging that the Czech Republic has begun to prepare for accession to the EU in the market for electricity. The new Energy Act also implements a parallel reform framework for the gas sector, with less rapid and less substantial market opening in accordance with the EU directive.

The major issues addressed in this chapter which bear on competition issues are:

- While the rate of market opening accords with the EU directive for gas and exceeds the EU directive for electricity, it is slow compared with OECD standards of good practice, since more rapid market opening is being pursued by many countries.
- The consequences of the government privatisation decisions announced in October and November 2000 that the further privatisation of the dominant electricity (CEZ a.s.) and gas (Transgas) companies would involve the simultaneous sale of the state’s majority interests in six of the regional electricity and gas companies to a single foreign investor for each of the gas and electricity sector.¹ An exception to vertical integration will be that the electricity transmission system operator (CEPS a.s.) will be different and strictly separate from the new owner of CEZ a.s. within one year of the privatisation of CEZ a.s.
- The need for careful assessment to be made of whether the evolving regulatory structure (particularly the legal framework and the resources and powers of the regulator) is adequate to deal with the difficult competition issues that will arise in the substantially vertically integrated structure of the electricity and gas industries.

2 THE ELECTRICITY SECTOR IN THE CZECH REPUBLIC

2.1. Description of the Czech electricity sector

The Czech electricity sector has been substantially restructured from a vertically integrated single entity. This process began in 1990 when the eight regional distribution-supply companies were separated from the integrated state enterprise CEZ a.s. (Česke Energetické Zavody a.s.) and became separate “state enterprises”. Legally separate entities now exist in generation, transmission and distribution/marketing sectors. There has been partial some privatisation but government ownership still dominates all sectors.

Prices are regulated, both at the level where generators sell to the regional electricity companies and at the level where the regional electricity companies sell to final consumers. Imports are relatively small and are predominately undertaken by the dominant generator through the transmission company (CEPS a.s.). Some competition exists at the generation level, with a small independent power producer (IPP) sector and some combined heat and electricity plants (36% of demand in 2000).

Box 1. Czech electricity sector at a glance 1999

Capacity: Total 15 216 MW: of which steam 10 642 MW, hydro 2 153 MW, nuclear 1 760 MW, CCGT 573 MW, SCGT 87 MW, alternative 1 MW.

Net Generation: Total 59.5 TWh: of which thermal 42.6 TWh (72%), nuclear 12.5 TWh (21%), hydro 2.3 TWh (3.8%), and CCGT+SCGT 2.1 TWh (3.5%).

Imports-exports: Imports 2.4 TWh, exports 5.7 TWh, net exports 3.3 TWh.

Note: CCGT = Combined cycle gas turbine, SCGT = Simple cycle gas turbine.

Generation

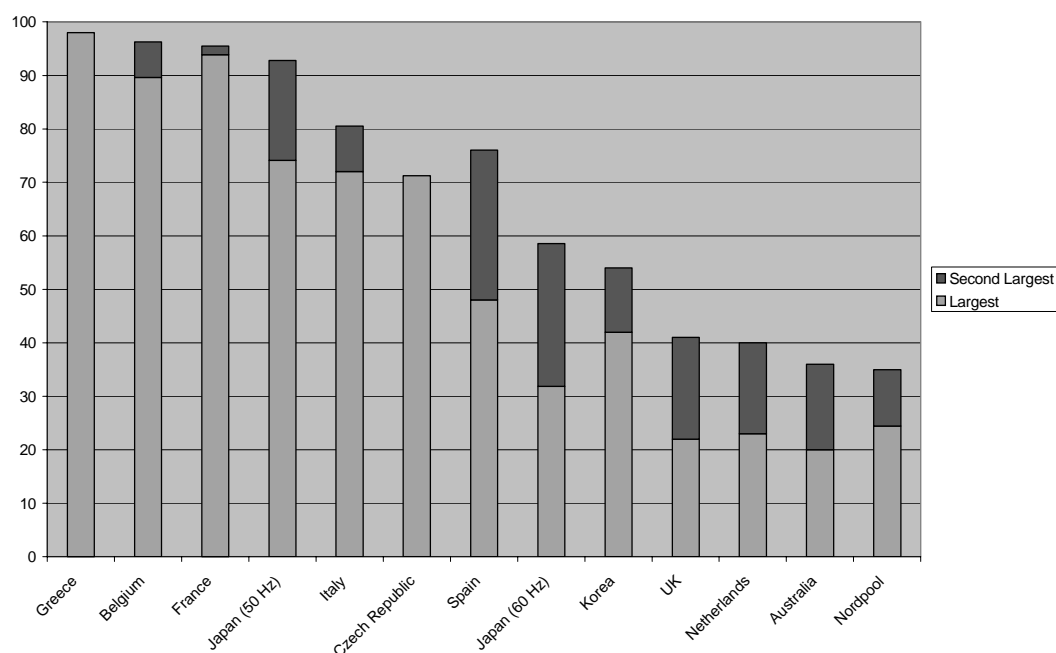
Today, the largest company in the Czech electricity sector is CEZ a.s., which owns most of domestic electricity generation and, through its wholly owned subsidiary (CEPS a.s.), the high-voltage transmission system. CEZ a.s. had 9 266 employees and annual sales of CZK 53.54bn (US\$1.30bn) in 1999. CEZ a.s. is 67% owned by the National Property Fund (NPF). The balance of the shares was sold during the first and second waves of voucher privatisation in 1992 and 1994. These shares are now owned by portfolio investors. A supervisory board governs CEZ a.s. Its twelve members consist of representatives of: Ministry of Finance (1), Ministry of Industry and Trade (2), National Property Fund (3), Parliament (3), Trade Unions (3). The supervisory board appoints the Board of Directors and can veto some of its decisions, such as organisational and financial changes and sale of capacity. Minority owners — the largest of which has a 6.3% interest - have no representation on the Supervisory Board. The government has not accommodated their requests for representation.

Generation is highly concentrated, and transmission, necessary for substantial import of electricity, is under common ownership with the dominant generator CEZ a.s. Nevertheless, CEZ's share of domestic generation dropped over the past few years. In 2000, it had dropped to 64% compared with 71.2% in 1999 and 75% in 1996. This slide is due primarily to industrial companies generating more electricity for their own use, and regional electricity companies making efforts to find alternative sources of supply, including from IPPs, investment in CHP, and imports. Electricity produced from CHP is more than 18% of the total. Notwithstanding the growth in the market share of other suppliers, the Czech generation market remains among the countries with the highest concentration in electricity generation, as seen in Figure 1. Some of the competition problems caused by high levels of concentration are illustrated in Box 2.

IPPs generally sell power to the regional distribution companies for a margin under the CEZ a.s. regulated price. IPPs have also complained that in the 1999 separation of CEZ a.s. and CEPS a.s., cost allocations were shifted away from generation and into transmission. The consequence has been to artificially reduce the CEZ a.s. charge for energy — against which the IPPs must compete — and to artificially increase the cost of transmission and system services.

Some industrial companies produce electricity and heat for their own use and sell the excess. Imports are relatively small and are predominately undertaken by the dominant generator-transmission company. With very few exceptions, consumers buy electricity from the regional electricity companies. These companies procure electricity predominantly from CEZ a.s. (around 90% of requirements), but also buy small amounts from CHPs and IPPs in their regions and foreign generators, or generate small amounts themselves. There is little scope for IPPs to sell beyond their regional areas because of lack of access to the transmission grid.

Figure 1. One and two firm concentration levels for selected countries or regions



Box 2. Competition in electricity generation in the United Kingdom and Spain

Both the United Kingdom and Spain had electricity sectors with structures more conducive to competition than the Czech Republic will have after the divestitures, and in both countries there was evidence that market prices were well above competitive prices. The United Kingdom had three and Spain had two large electricity generators. In the United Kingdom, for some time the main generators were not vertically integrated, but in Spain they were integrated into distribution-supply, and partly owned the transmission grid.

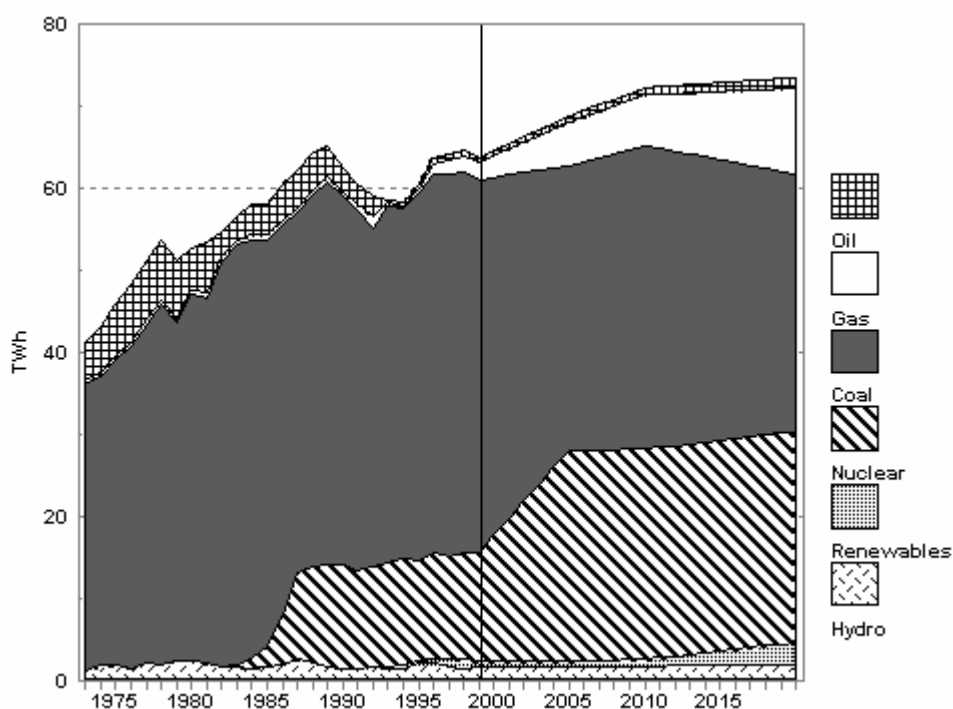
In the United Kingdom, the Office of Electricity Regulation found that the two dominant non-nuclear firms had significantly increased prices and reduced output during the 1997/8 winter. Other competitors expanded output within the limits of their capacity. During that period, the two firms set the system marginal price 70% of the time. The Director-General concluded that the most effective way to increase competition in the short term was to transfer more of the two dominant firms' capacity to competitors (Office of Electricity Regulation 1998, pp. 8-9).

In the Spanish market, the two largest firms owned 76% of production and, in 1998, provided the marginal capacity 59% and 24% of the time, respectively. Several analyses have been performed for or by the CNSE, the former independent energy advisory body. One, which took into account competition from imports, suggested that either company, acting on its own, could raise prices. Another suggested that such behaviour could lead to an average price 39% above marginal costs. A more recent study of actual Spanish market operation identified market power problems. A study of the Spanish market in 1998 reached similar conclusions. Two reports released by the CNSE in July 1999 identify specific instances in 1998 where the two companies offered very high prices to the spot market for generators located in areas of high consumption and low generation.

CEZ a.s. also owns two nuclear power plants, Dukovany, in operation since 1985, and Temelin, of which the first unit (1 000MW) is undergoing operational tests and is expected to generate electricity in the middle of 2001 and the second unit (1000MW) in Autumn 2002. There is substantial excess generation capacity in the Czech Republic, including because of the substantial drop in demand during the adjustment phase following the restructuring of the Czech economy. With the added output of the Temelin plant, CEZ a.s. is expected to become a major electricity exporter. However, a substantive part of the Temelin capacity will be accounted for by the shutdown of older coal fired plant as illustrated in figure 2. Once both units of the Temelin nuclear plant come on line, a large part of CEZ's generating capacity will be nuclear. It is most economic to operate nuclear generation as base-load, that is, continuously. Hence, the balance of CEZ's capacity and imports would be used to match changes in demand for electricity.

Those coal-fired power plants that will remain in use on a long-term basis were de-sulphured and de-nitrified by the end of 1998 and their operation currently meets the emission limits in the Clean Air Act. With the marked reduction of emissions, the adverse environmental impact of electricity generation has been significantly reduced. The Government expects electricity generation to rely on nuclear energy; the exhaustion of the remaining reserves of coal; the use of gas in co-generating units; on the current level of hydro-power and on greater use of renewable resources (Figure 2). No new large power generating units using domestic coal are planned.

Figure 2. Electricity generation by fuel, 1973-2020



Sources: *Energy Balances of OECD Countries*, IEA/OECD (2000), Paris, and country submission.

At this stage there are no large thermal power stations that are powered by gas. Some combined heat and power plants are gas fired. In all, gas accounts for only a small but growing proportion of primary energy inputs to the electricity sector and this growth trend is expected to continue — see Figure 2. Part of the explanation for this growth trend is the existing mix of generation capacity in the Czech Republic. Even though there is an overall excess capacity, that capacity is heavily orientated towards plant — nuclear and coal — that is better suited to base load generation. Gas fired plant, including CCGT, is more suitable for fast start/stop peak load generation and additional capacity of this type would be assist in system

balancing, in addition to the present use of variations in the timing of import and export transmissions. In a liberalised market it could be expected that price signals would tend to promote flows of investment into such peak load capacity. It is, therefore, important for the greater optimisation of the electricity generation mix over time that reforms in the gas sector proceed so as to reduce distortions in energy choice. The same point holds more generally in respect the use of gas and electricity in final consumption and in the use of gas in the CHP sector. It is, therefore, important and to be welcomed that part of the first step in planned liberalisation of the gas market in 2005 includes the potential for gas fired electricity generators to access competitive supplies of gas.

Table 1. **Generation mix and ownership**

Power Station	Unit (MW)	Num. of Units	CEZ (MW)	IPPs (MW)	Total (MW)
Nuclear	440	4	1 760	0	1 760
Steam			6 517	4 124	10 642
CCGT				573	573
SCGT	-	-	0	87	87
Hydro		-	1 872	281	2 153
Alternatives		-	1	0	1
Total			10 151	5 065	15 216

Transmission

In 1999, the Czech Electricity Transmission System (CEPS a.s.) was separated from CEZ a.s. and set up as a 100% subsidiary of CEZ a.s. The transmission grid has 400 kV, 220 kV and in the region of power plants, a short distance of 110 kV lines, relevant substations and a central dispatch centre. CEPS a.s. decides upon access to the transmission grid, and only a small amount of generation capacity owned by a company other than CEZ a.s. is connected directly to the high-voltage transmission system. (Sokolovská Uhelná, a.s. and some large IPPs are the only connected generators). Hence, IPPs still have relatively little option but to sell electricity to the local distribution company where they are located. As from January 2002 the new Energy Act provides a right of non-discriminatory interconnection to the transmission grid at regulated access tariffs to generators with an installed capacity over 10 MW. As from January 2003 all generators will have this right. It remains to be seen how these new rights will be implemented in practice and whether the new regulatory regime will be able to end all forms of discrimination against IPPs.

Total transmission capacity in the Czech Republic is large, with a 40% redundancy. Moreover, import/export capacity is relatively high at around 1/3 of domestic generation capacity. As part of the CENTREL system (Czech Republic, Slovakia, Poland, Hungary), the electricity system of the Czech Republic is synchronously connected to the UCTE West European system. The Czech Republic is affected by loop flows (externalities caused by other users of the electricity grid), mostly involving Polish generators and German users. One result is that a line over which the Czech Republic could export to Germany is constrained, so the Czech Republic cannot increase its exports from 2000 levels. While in principle there is 2100 MW installed capacity to Germany, only 600 MW is available for trading.

To accommodate increased power exports, transmission capacity to neighbouring countries will have to be strengthened. Competition would be promoted if the interconnection capacity allocation mechanism and electricity contracts were compatible. If long term contracts are a cheaper way to buy electricity than spot purchases, then secondary trading in interconnection capacity and in long term contracts are logical developments, since this allows the two necessary elements for the delivery of foreign generated electricity. Similarly, international trade is facilitated if the mechanisms for allocating what is, essentially, the same interconnection capacity on the two sides of the borders are compatible. A Europe-wide protocol on international transmission could induce more economically efficient use of the existing capacity, as well as induce investments that reduce European system costs.

Distribution

There are eight regional distribution-supply companies. These companies own the 110kV, 35kV, 22kV and 0.4kV networks in their service areas, the corresponding dispatch centres, and some combined heat and power plants connected to the 110kV system in their regions. The regional electricity companies supply all consumers, with very few exceptions. The eight distribution and retailing companies have regional monopolies in the following areas — North, West, East, South and Central Bohemia, Prague and North and South Moravia. These areas are effectively equivalent to the regional gas supply companies. However, the electricity distribution companies are not to any significant degree involved in the gas supply businesses (or vice versa) although there is some commonality of ownership through foreign investors in both sectors. The regional electricity companies are owned by a combination of the NPF (46-58% depending on the company), municipalities in the region, and usually one strategic investor, a foreign electricity company.

The regional distribution companies are highly dependent upon CEZ a.s. to supply electricity — between 72 and 96% dependence. CEZ a.s. selling prices are regulated. Nevertheless there is evidence of CEZ a.s. having and being able to exercise market power under the regulated price ceilings by charging higher prices to those distribution companies that have fewer alternative supply choices. For example, STE (Central Bohemia RDC) and CEZ a.s. signed a ten-year contract for the supply of electricity in 1996, with STE attributing its ability to negotiate extra supplies of electricity under better conditions to competition between its own ECKG plant and CEZ a.s. (see STE Annual Report 1999).

In response to CEZs market power, the regional distribution companies are actively seeking alternate supply sources, including by means of imports and investment, in self-generating capacity or joint venture CHP plants. This is notable, particularly given the overall degree of excess generation capacity in the Czech republic, as it illustrates potential inefficiency and socially wasteful investment due to effective lack of competition in the generation market. In addition to seeking additional domestic supplies, the distribution companies have also co-operated to form an electricity import company, První energetická a.s. It is apparent from these developments that the regional distribution companies are attempting to behave independently from CEZ a.s. The RDCs are the major customers of the IPP sector.

Non-payment of electricity bills has been a significant issue for the distribution-supply companies. Many of the non-payers are state-owned, such as Vitkovice, which is itself majority owned by the National Property Fund. Severomoravska energetika (SME), was owed more than 800 million CZK and cut supplies to the steelworks by half in March 2000, after not having been paid for eleven months.

2.2. *Price comparison with other countries*

Czech prices for electricity are relatively low by international standards (Figure 3 and Tables 2 and 3). The maximum wholesale prices of electricity, that is, sales by the electricity producer to the distribution companies, and the maximum retail price, that is, sales by the distribution companies to end-customers, were regulated by the Ministry of Finance. (This regulatory function passed to the new Energy Regulatory Office from 1 January 2001.) Households pay relatively low electricity prices compared with industrial customers — in 1998 household prices were less than industrial prices compared with the typical situation in other countries where household prices are commonly around twice the industrial price, reflecting the smaller unit value of the typical household transaction. The same imbalance applies in the gas sector. This distorts the tariff structure and is being addressed through a rebalancing proposal announced by the Government.

The main goal of price regulation is, by the end of 2002, to gradually adjust distorted prices of electricity and gas so that the price of supply corresponds to the cost of supply, taking into account customers' consumption pattern. This would remove cross subsidies in accord with EU regulations. At the same time, a more detailed categorisation of customers would be implemented. A more detailed tariff system for large industrial consumption is valid from 1 January 2000 and for small business and households will be valid from 1 July 2001. The new structure is intended to be cost reflective, to allow flexibility in the contractual relationships between electricity companies and customers, and to provide incentives to electricity companies for efficiency improvement. Cost-reflectivity requires the phasing out of the existing special arrangements according to which some tariffs differ significantly from the cost of service.

Figure 3. Electricity prices in IEA Countries, 1999, Industry sector

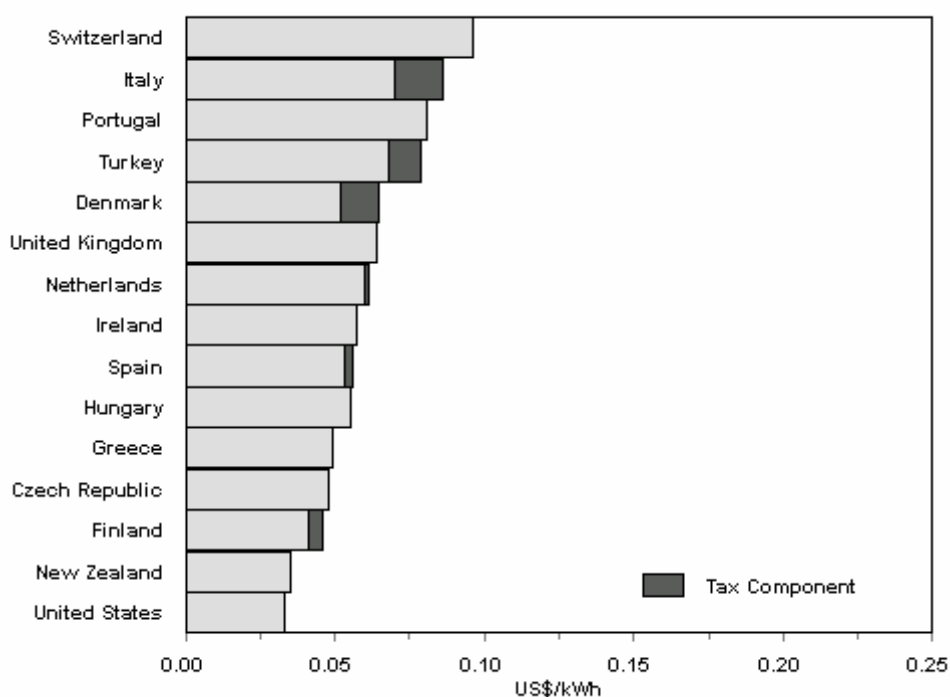
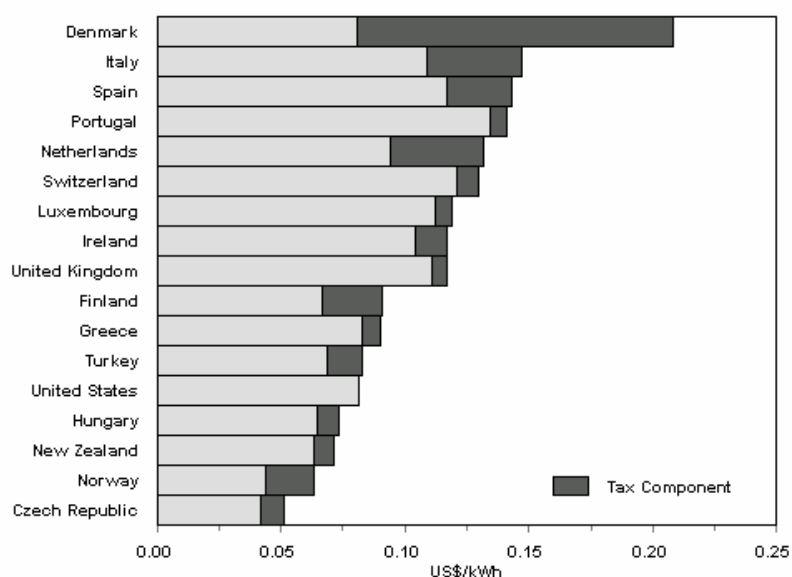


Figure 4. Electricity prices in IEA Countries, 1999, Household sector



Note: Ex-tax price for the United States.
 Source: *Energy Prices and Taxes*, IEA/OECD Paris, 2000.

Table 2. Annual average electricity prices (1998)

	Industry (\$US/kWh)	Households (\$US/kWh)	Households (\$US/kWh) PPP Basis
Czech Republic	0.0517	0.0496	0.1177
OECD Europe	0.0657	0.1296	0.1289
United Kingdom and Netherlands (Avg.)	0.0624	0.1244	0.1172

Note: Prices for industry exclude VAT while household prices are inclusive of VAT.
 Source: IEA Energy Prices and Taxes Quarterly Statistics QII 2000, Part II, D, Tables 19 and 20, and Part II, F, Table 20.

Table 3. Price developments

(in CZK/MWh)

	1994	1995	1996	1997	1998
Average	1 582	1 583	1 587	1 641	1 798
Large industrial users	1 800	1 773	1 759	1 749	1 741
Small customers-business	2 388	2 286	2 280	2 286	2 488
Small customers-households	883	954	1 018	1 174	1 470

Source: www.pre.cz on 1 November 2000.

Tariff bands, where the tariff structure is insufficiently cost-reflective, create inefficiencies. This is because the bands group together customers with dissimilar usage patterns and consequently there are different costs of supply. Even when the customers within a tariff band collectively pay their collective costs of supply, so that there is no net subsidy or surplus to the group, there are cross-subsidies within the group. Where effective competition develops, those customers who fund the cross-subsidies will switch to other suppliers, rendering the arrangement unsustainable. Hence, a sustainable tariff structure requires tariffs to follow more closely the actual cost of supply. The movement to align tariffs more closely with

costs, and the application of price caps, should move the sector closer to economic efficiency objectives. Cost reflectivity is also a necessary step for sustainable regulated tariffs when a regulated market operates in parallel with a liberalised market.

One perspective on the consequences of the distortions in electricity and gas tariffs can be gauged by looking at the relative price of energy in the form of gas and electricity. For example, if the price of energy in the form of gas used to generate electricity is compared with the price of energy in the form of electricity used by households, this provides a very broad indication of the margin faced by new gas fired peak-load generation capacity. This generation margin varies from time to time, but as a broad example it was in the range of 3 to 3.6 in the first half of 2000 in the Czech Republic, while the comparable figures for the US and UK were in the range of 6 ½ and 9 ¾. (Margins in gas importing countries for earlier years where data is available are comparable with those in the US and UK.) This example is suggestive that the tariff distortions in gas and electricity are likely to work against the optimisation of the generation mix towards relatively more peak load capacity. (See IEA, *Energy Prices and Taxes*, Part II,B for data. All calculations are tax exclusive.)

Energy Regulation Administration and the Ministry of Trade and Industry used depreciated historical cost as a basis for pricing proposals to the Ministry of Finance and allows a specified return on equity to determine profits from sales. Asset revaluation, preferably related to replacement value, will have to be done soon because the historic cost of assets procured before liberalisation is much lower than present replacement costs. This revaluation will result in an increase in transmission charges for domestic customers. Once the tariff rebalancing has shifted tariffs to a broadly cost reflective basis, it would be desirable for the ERO, as the new price regulator, to use more modern price regulation methodologies, including incentive based regulation such as price caps.

2.3. Policy objectives of the Czech Republic and EU electricity policy

The general energy policy and objectives of the Czech Republic is set out in the document “Energy Policy” issued by the Ministry of Trade and Industry (MIT 2000) and include:

- Environmental protection while respecting the principles of sustainable development;
- Ensuring security of energy supply;
- Supporting the competitiveness of the economy.

In the electricity sector, the objectives set out in the “Energy Policy” document issued by the Ministry of Industry and Trade are to achieve stability in the power sector and to create conditions for the Czech Republic to join the European Union, through:

- Rectification of the level and structure of energy tariffs, including adjustment of the depreciation rates and bases in the power sector;
- Effective privatisation of state interest in the key energy sector companies while maintaining a reasonable state influence on the management of energy sources and infrastructure, using ownership rights and legislation;
- Determination of a clear regulatory framework for the individual branches of the energy sector, including the definition of, and providing a legislative basis for, any obligations that may be imposed on businesses in the energy sector as measures taken in the public and general economic interest (*e.g.* to secure reliability and security of power supply, non-discriminatory delivery conditions, product and service quality standards, exploitation of renewable resources, environmental protection, etc.);

- Provision of conditions for the rise of competition in energy production and supply, with a gradual opening of the possibility for individual groups of customers to choose their energy supplier, taking into account the development in the EU and the candidate countries and respecting the state and development of the balance of trade of the country;
- Creation of a well-functioning, non-discriminatory, transparent and motivating system of support to power saving, effective use of renewable energy sources, and co-generation of electricity and heat.

2.4. Regulatory institutions and policies

Regulatory institutions. Major changes to Czech regulatory institutions were made in January 2001 by the new Czech Energy Act. Previously, the sector was regulated by the Ministry of Finance and the Ministry of Industry and Trade (MIT), which had primary responsibility for energy policy under the 1994 Energy Act. The MIT included the Energy Regulation Administration (ERA), created in January 1998 and which reported directly to the Minister. However, the Ministry of Finance exercised tariff regulation powers under its general function to regulate prices. Compliance of regulated bodies under the Energy Act was administered by the State Energy Inspectorate (SEI), subordinate to MIT. The SEI carried out control functions and assessed penalties on an undertaking if it failed to take action on a report. The Office for the Protection of Competition applies the competition law.

The new Czech Energy Act has been operational from January 2001. The new Energy Act is the main legislative means for implementing the government's substantive reform objectives for the electricity sector, based on the introduction of further competition into the sector by means of reforms that implement relevant EU directive. Under the new Act:

- The Ministry of Industry and Trade retains responsibility for energy policy, compliance with international agreements and participation in international organisations, and for issuing construction approvals for new generation of 30MW or more and transmission facilities.
- The newly independent regulator, the Energy Regulatory Office (ERO), takes over most regulatory functions from the Ministry of Industry and Trade and ERA for the energy sector (including electricity, gas and heat production) and price regulation functions from the Ministry of Finance.
- A Chair appointed by the Government heads the ERO. The Chair can only be removed for incapacity or misbehaviour. The Chair decides appeals and makes decisions in the second instance against decisions in the first instance made by the regulator.
- The ERO grants and revokes licences for business activities, including electricity generation, transmission, distribution and trading based on criteria relating to integrity, financial and professional competence and technical capacity.
- Licence holders must keep separate revenue and cost accounts and balance sheets for each licensed activity. The law does not require ownership, legal or operational separation, only accounting separation. This is consistent with the EU framework. Licencees must submit profit and loss and balance sheet information to the regulator.

- The ERO regulates prices and quality, connection conditions, trading rules and delineates territories. Regulatory decisions must be published. This replaces the previous functions of the Ministry of Finance to regulate prices. The ERO will have information-gathering powers and decide price regulation procedures and methodology (including rules for cost allocation, return on capital, asset valuation and depreciation).
- The ERO can discuss cases of failure to conclude agreements on third parties' access.
- The ERO can express opinions in respect of draft operation codes and rules for transmission and distribution systems and market trading. These rules will be issues in a decree prepared by MIT
- The State Energy Inspection Office continues as the inspection body to supervise activities in the energy sectors.

Liberalisation of consumers. Under the Energy Act, consumers will be liberalised according to the following schedule:

- On 1 January 2002, on the demand side, end users with an annual consumption, in one place of demand, including generation for their own needs, higher than 40 GWh will be eligible customers. On the supply side, the right to access to the transmission system and distribution systems will be given to the holders of a licence for electricity generation with installed capacity exceeding 10 MW. (Estimated opening is over 30% of the market).
- On 1 January 2003, on the demand side, end users with an annual consumption, in one place of demand, including generation for their own needs, higher than 9 GWh will be eligible customers. On the supply side, the right to access to the transmission system and distribution systems will be given to all holders of a licence for electricity generation. (Estimated opening is over 40% of the market).
- On 1 January 2005, end users with more than 100 MWh annual consumption consuming electricity from low-voltage networks. (Estimated opening is over 50% of the market).
- Starting from 1 January 2006, all end users shall be eligible customers (100% market opening).

There appears to be no mechanism provided for the market-opening schedule for the electricity market set out in the legislation to be accelerated by decree. The liberalisation is scheduled to commence after the tariff rebalancing to cost reflective levels in 2002. The final degree of market opening goes beyond that mandated in the EU directive but is slower than the actual market opening adopted by many (but not all) EU countries.

Access and Interconnection. Under the new framework, a licensed generator is entitled to be connected to the grid if it has concluded a supply contract with a customer and a transmission and/or distribution contract and if it has been asked by the respective transmission or distribution system operator to supply electricity (this is the control dispatch function). Generators have to provide contract information for dispatch purposes. The transmission system operator must operate the technical control dispatch.

Under the new Act, the transmission operator and distribution system operators must provide equal conditions for agreed access at regulated maximum prices to all eligible customers and licensed generators² that meet the system operation and development rules contained in the Transmission System and Distribution Systems Code (to be issued subsequently by Decree). The transmission system operator or

distribution system operators can deny interconnection in the case of lack of transmission capacity or threat to the reliable operation of the system. The transmission operator can restrict or suspend transport in situations of danger or emergency, and for repairs — but seemingly not on the basis of contracts for interruptible supply in the case of congestion. The transmission system operator must provide transmission services on the basis of contracts concluded and is responsible for providing ancillary services including voltage, frequency and power balance. The transmission system operator is also responsible for control dispatch or system balancing and distribution operators are responsible for subsidiary system balancing within their distribution networks. In effect therefore, the owner of the transmission system and distribution systems are also mandated to operate their systems — the law does not provide for the possibility of an independent system operator (ISO) to run the network. However, the government resolution that provides for the privatisation of CEZ a.s and CEPS a.s. requires the separation of ownership of the transmission system operator within one year from the privatisation of CEZ a.s. The details of system operation/control dispatch will be issued in a subsequent decree.

The transmission system operator must not discriminate on access terms between customers. The transmission system operator may not be the direct holder of an electricity trading or generating licence. Hence, in this case the law requires more than accounting separation between these activities and requires legal separation. However, the law apparently does not rule out common ownership of different entities holding these licences, *i.e.* the law does not mandate ownership separation.

The transmission system operator may limit imports on the basis of the Regulator's decision, the basis of which is described below. From 2001, CEPS a.s. will play the role of Transmission System Operator (TSO). The change of the status of the transmission network operator is envisaged to be carried out with the privatisation of CEZ a.s.

The framework for distribution system operators is equivalent in terms of connection and pricing and control dispatch for their systems. Note however, that a distribution system operator may not be the holder of an electricity transmission licence. Again, this appears to require legal separation but not ownership separation. The Regulator may decide on the joint holding of a distribution licence, an electricity distribution and an electricity trading licence. The distribution operator may select the electricity supplier for protected customers and must supply protected customers.

An eligible customer has the right to purchase electricity within the Czech republic from licensed generators and traders, but note, not from distribution licence holders unless they are also holding a generation or trading licence. Presumably that means that a distribution licence holder will also have to be a trader to sell electricity. This ensures that there will be accounting separation between these functions. Also, eligible customers and traders have the right to buy electricity from other countries, if they are not restricted by import restriction.

An electricity market operator shall prepare electricity balances based on contract information between market players for the use of transmission system and distribution system operators (for dispatch purposes). The market operator shall also operate any short-term market, gathering offers and demands and determining prices and notifying participants of the outcome of the resulting balancing for contract purposes. The market operator will also assess actual and contract supplies to determine settlement among market participants and to prepare longer-term balance reports for the information of the market. The market operator can require participants to provide relevant information so as to perform its duties. The rules for market operation have yet to be settled and will be issued by Decree.

The Ministry of Industry and Trade may limit electricity imports on the grounds of safety, to prevent abuse of an exclusive position in the market, particularly to the detriment of protected customers (non-eligible) and if the obligations and duties imposed on electricity generators and eligible customers in the country of export are not comparable with the rights and obligations of electricity generators and

eligible customers in the Czech Republic (a reciprocity requirement). Until Jan 2005, imports can also be restricted in the case of lack of electricity balance in the Czech Republic, lack of balance in system services and danger that the use of primary resources in the Czech Republic may be affected.

Stranded costs. The Czech Republic does not expect large stranded costs as a result of regulatory reform. In a program completed in late 1998, more than 47 billion CZK was invested into desulphurisation technology, FBC boilers and denitrification to meet EU environmental standards. This investment was necessary to enable the further operation of main power stations (those with units over 50 MW of installed capacity) in the Czech electricity system. If some of these units were closed, this investment or its relevant part would become stranded. If cheap electricity were to be imported, again these costs might become stranded. However, the legal framework established under the Act provides for import restructuring if required.

Application of competition law. The competition law applies to the sector and is enforced by the Office for the Protection of Economic Competition. To the extent that a electricity business is operating in compliance with the Energy Act, its actions are not a breach of the Competition Act and the Office does not proceed beyond the boundary of the Energy Act. In cases of possible violation of the Competition Act, the Office co-operates with the SEI or the MIT. The Office has defined the electricity market on a geographic basis as the area supplied by each regional distribution company. The Office has not yet dealt with any merger proposals in the distribution sector. Under proposed privatisation plans for CEZ a.s. and the RDCs, significant merger issues seem unlikely to arise, except perhaps at the generation level, because the privatisation will effectively merge the distribution sector. It is pertinent to assessing the competition consequences of the proposed privatisation to ask the hypothetical question of whether the Office would permit a merger of all of the RDCs if they were owned separately by different investors.

2.5. *Remaining competition issues in the Czech electricity sector*

It is too early at this stage to assess the likely success of the new regulatory arrangements because much of the detail remains to be filled in by decree. Consequently the following discussion focuses on the major structural issues and possible regulatory challenges.

Box 3. **Framework for assessing competition issues in the Czech electricity industry**

The following framework is the basis for assessing competition issues in the Czech electricity industry. It starts from the premises that where competition is possible, it is not necessary or desirable to regulate market behaviour except for safety, environmental, and consumer issues; where competition is not possible, regulation should attempt to bring about market outcomes (including through price regulation of natural monopolies); and, if regulation is necessary to address market failure, considerable care is needed to avoid regulatory failure (which may produce worse consequences than market failure). The following questions are posed:

1. Which components of the industry can sustain competition and which cannot?
 - Is it possible to achieve additional or improved competition in supply in the generation stage?
 - Could competition be improved by allowing retail competition between the distribution companies or through new retail entrants?
2. What are the mechanisms for introducing effective competition in those components that can sustain competition and reduce the extent of necessary regulation?
 - Would minimum compliance with the EU electricity directive achieve this result or should the Czech government go further or faster?
3. What is the best means to ensure efficient price and quality regulation of the non-competitive components, particularly transmission?
 - What regulatory institutions and powers should be established?
 - What kinds of incentive regulation can be established?

An important question is the definition of the relevant market in which competition issues should be assessed. The major issues under the privatisation approach announced by the Government include significant concentration in generation capacity and significant vertical ownership integration between the dominant generator and the distribution/retail supply sector. The first of these issues might not be problematic if the market is a Europe-wide integrated market — as the Czech sector would account for only around 2% of European generation. On the other hand, if the relevant market is the Czech Republic or even sub-national regions, then the competition concerns are significant. It is thought more appropriate to consider these issues from the perspective of a Czech domestic market for several reasons. First, electricity prices are relatively low in the Czech Republic and it is expected that it will be a substantial net exporter. Moreover, electricity prices (excluding tax) vary quite significantly across the EU, suggesting that an EU market is not yet highly integrated.³ Consequently, the ability of imports to act as a competitive constraint may be limited for the present. As EU integration proceeds and as prices rise in the Czech Republic as a result, it would be more reasonable to consider Czech generation and the wholesale market as part of a broader European market, but this will take a number of years. Second, barriers to domestic entry in distribution and supply are likely to remain high under the Government's approach. Most of this sector is likely to be vertically integrated in ownership with the dominant generator, so competition will rely on *de novo* entry by traders, which will rely on regulated access to transmission and distribution services to be effective. Such markets are more localised than wholesale ones. It is unreasonable to suppose that the liberalisation of this market would change the relevant market to an international one, except perhaps with respect to the very largest customers. Consequently, the focus in the following analysis is on the Czech domestic market.

Privatisation. The Government plans further privatisation of the electricity sector. There have been earlier proposals for further privatisation, which appear to reflect internal differences about the best way to proceed. Most recently, the Ministry of Industry and Trade announced in October 2000 that privatisation would proceed in 2001 with the state selling all but 3% of its 67% interest in CEZ a.s.,⁴ together with the state's controlling interests in the distribution companies, to a single purchaser (or consortium). Consequently, the single purchaser will hold a vertically integrated industry, controlling most generation (64% of demand in 2000) and majority shares in 6 of 8 distribution regions. This purchaser could theoretically also hold or acquire shares in the two remaining distribution regions.

Prospects for competition that benefits consumers are undermined by this privatisation approach. With this structure, the only hope for competitive outcomes will rest with the regulator and new entrants. It is necessary to ask whether accounting separation (and not ownership separation) and the plans to privatise CEZ a.s. intact and integrated with the distribution companies is the best policy approach to maximise economic growth and consumer welfare in the Czech Republic.

The vertical integration of CEZ a.s. so that it participates, either directly or indirectly through majority-owned subsidiaries, in both potentially competitive activities and monopoly activities gives the company incentives to discriminate against new entrants or existing competitors. A clear example of this is likely to be discrimination against IPPs. Presently, IPPs sell power to RDCs in competition with CEZ a.s. and the RDCs have been able to exercise some independence from CEZ a.s. in seeking alternative sources of power. If CEZ a.s. and the RDCs have a common private owner, the independent behaviour of the RDCs with respect to CEZ a.s. is likely to cease.⁵ A common owner of CEZ a.s. and the RDCs would be willing to purchase electricity from IPPs only if the IPP price was less than the marginal cost of generation by CEZ a.s. Consequently, the range of new potential customers for the IPPs could shrink significantly to include only eligible customers under the liberalisation schedule.⁶

Other forms of discrimination can be subtle, such how capacity is allocated and the timing of provision of information. Attempts can be made by independent regulation to control discriminatory behaviour. However, regulation can be intrusive and costly, for the regulator and the firm, and is usually

not very effective. Structural solutions, on the other hand, which are easily and relatively quickly available in the Czech Republic, introduce effective competition by separating the ownership of the firms in competitive activities from the ownership of the firms in natural monopoly activities. While monopoly activities need to be independently regulated to prevent abusive pricing, the regulator no longer has the difficult task of detecting and preventing discrimination.

Sales. Sales and marketing of electricity is a potentially competitive activity. Under the Czech framework, new entrants can undertake this activity by being licensed as a trader that can purchase and sell electricity to other eligible customers in the electricity market, *i.e.* not protected customers. Such marketing traders will require access to CEPS a.s. transmission facilities and to distribution facilities as well. There are no alternative facilities, and in most circumstances new entrants would find it uneconomic to by-pass the existing transmission or distribution system and build their own facilities. Under the new Energy Act, access to transmission and distribution is to be regulated by the ERO and there is an obligation on transmission and distribution operators to provide access at regulated prices.

Where there is an access dispute, the vertically integrated company gains at the expense of the non-integrated rival because the rival remains discriminated against until the dispute is resolved. Delays can render market entry unprofitable. Quick resolution is a positive attribute of a regulatory system. Far better than *ex post* access following referral, investigation, decision, and enforcement is clear *ex ante* access regulation that complies with the competition law, and quick dispute resolution — particularly during the early stages of liberalisation. Thus, the fact that the Czech legislation obliges access to transmission and distribution at ERO regulated tariffs is a positive feature of the framework.

However, the economic structure that that would result from the privatisation of CEZ a.s. together with the RDCs subsidiaries will make much more difficult the task facing the Czech regulator in ensuring access. While the new Energy Act implements the required degree of accounting separation set out in the EU electricity directive, the EU electricity directive does not prevent countries from adopting more stringent structural solutions. There is a growing body of evidence (see OECD 2000) that ownership separation is likely to lead to more competitive outcomes and reduce the regulatory load necessary to make market outcomes approximate competitive solutions. The lower the regulatory load, the lower is the risk of regulatory failure, and the less serious will be the cost of regulatory failure.

Another issue is that, under the proposed integrated privatisation, there will be a strong commonality of ownership between the RDCs. This substantially reduces the prospects of retail competition developing quickly. Absent the ownership commonality, it could have been expected that the RDCs would have competed by entering each others' regional markets. However, it will not be in the interests of a common controlling shareholder for such competition to arise — their interest is in maintaining the maximum degree of market power. Thus, new competition in the retail sector would have to come from *de novo* entry by electricity traders deciding to set up retailing business. The loss of the opportunity to foster competition in retailing is especially unfortunate because in this sector there would otherwise be good prospects for competition to develop quickly. As noted, experience in many countries suggests that ownership separation is a better pro-competitive approach — the Czech proposals fall short of this best practice. This argues strongly for the separate privatisation of the RDCs. Since the earlier restructuring of the electricity sector has already established the RDCs as separate identities, it should be relatively simple to privatise them separately. In this sense, the privatisation approach announced by the government is a missed opportunity. Foreign investors — mainly energy companies - that have acquired stakes in distribution companies but who are not successful in any privatisation bid will be left with minority interests in companies that will be controlled probably by one of their competitors. Given the rather unfortunate experiences of many foreign investors with minority interests in Czech companies, due to problems with the corporate governance framework (see Chapter 1), this may have adverse consequences for the willingness of foreign investors to commit capital to the Czech Republic.

Whatever, structure emerges in the retail sector it will be important that the authorities pay due attention to the consumer protection problems that have arisen in some newly competitive markets. In particular it will be necessary to take heed of churning problems in the retail market (where entrants inappropriately induce customers to change suppliers) and provide strong degree of consumer protection against poor corporate behaviour or sloppy service.

Generation Competition. There is already some competition at the generation level of the market. However, as noted above, one of the particularly unfortunate aspects of the effective reintegration of the governments interests in the industry under the privatisation proposal is that it will put a “squeeze” on the IPPs and effectively reinforce the dominance of CEZ a.s. in the generation sector. Hence, *not* selling CEZ a.s. and the RDCs in an integrated state would be an important step in preserving a competitive environment in the generation sector.

An further alternative to foster competition would involve a horizontal unbundling of CEZ a.s. generating capacity into several competing firms — this option has been used in other countries and has been previously advocated in the Czech Republic — see SEVEN (1999). The generation capacity of CEZ a.s. is not large by the standards of some larger international utilities, but this does not necessarily mean that splitting CEZ a.s. generation into a number of competing units would result in firms that are below minimum efficient scale. It would require a detailed cost study of CEZ a.s. generation to make sound recommendations on the feasible number of competitive firms that could result from such a separation. Such a study is beyond the scope of this paper, but it would be desirable for the Czech authorities to carry out such a study to be in a position to make sounder policy decisions. It is likely that such an approach would be much more attractive to other existing participants in the industry, and to the IPPs in particular. The concern of the IPPs is not of excess competition but abuse of dominant position by CEZ a.s., and a conflict of interest in regulatory arrangements. Introduction of real competition in this sector is the best means to minimise the price shock for consumers, *i.e.* savings from competition in generation will be able to partly offset the removal of cross subsidies that is occurring through tariff rebalancing (Box 4).

CEZ a.s. has been losing market share to the IPPs, essentially because its prices are higher. Hence, while CEZ a.s. has market power, its degree of power has been falling. Its power may fall further as European markets integrate. Hence, while horizontal separation of CEZ a.s. might be seen as desirable, it may be less important over a longer timeframe than the issue of vertical integration, emphasised above. For the present, CEZ a.s.’s market power raises issues for the design of the wholesale market under liberalisation. It is plausible that CEZ a.s. will have market power in that market as the marginal generator — thus setting the system marginal price — for a significant period. When the authorities settle the rules for market operation, they should seriously consider the consequences of this market power on market operation. Conceptually, abuse of such market power can be addressed under the general competition law. It is a question whether reliance on competition law will be adequate (in effectiveness and timeliness to deter abuse) or whether some form of regulation is also required. Such asymmetric regulation would apply only to CEZ a.s. and could be imposed under a licence condition, as occurs in a number of other countries. Examples include a ban on entering into exclusive supply contracts, or restrictions on withdrawal of certain generation capacity from the market. It is not possible within the scope of this report to fully assess this issue, and a period of operation of the market may be required to reach a balanced judgement. However, it is a matter which the authorities should keep under close review.

Box 4. Effects of competition in electricity

Significant time series on efficiency and prices after the introduction of competition are only available for the United Kingdom. Since 1990, productivity has skyrocketed (as output rose by 8% from 1988 to 1995, employment was reduced by 50%), and prices have plummeted. In real terms, over the 1990-1997 period, household (“domestic”) prices decreased by 20%, and prices to other consumers fell 19 to 27% (Littlechild, 1998, cited in IEA, 2000). In 1998, in real terms, the standard domestic tariff in England and Wales was 26% lower, and for industrial customers the price was 23 to 32% lower than in 1990 (Office of Electricity Generation, 1998, p. 58). Only shorter time series are available for other reforming countries. For example, 1997 prices in the Australian state of Victoria fell to less than half their 1995 level, reflecting the introduction of competition, privatisation and excess capacity. However, prices in Norway and New Zealand, where the sector remains state owned and there is a high reliance on hydropower — thus subjecting the system to cost variations due to hydrological variations — did not fall with the introduction of competition (IEA 2000).

Vertical integration between CEZ a.s. and CEPS a.s. The government resolution which requires the ownership separation of CEZ a.s. and CEPS a.s. within one year of the privatisation of CEZ a.s. goes well beyond the EU requirement for accounting separation as a basis for a regulatory solution to the problem of discrimination by integrated generator/transmission companies. Ownership separation removes the incentive on the transmission system operator to discriminate and lowers the regulatory load. Hence, the government resolution is to be strongly welcomed.

Generally, the greater is the degree of separation between the various levels of the industry, the more likely it is that the regulator will be able to gather the information necessary to complete its task. In particular, if there is ownership separation between the transmission and distribution sectors the less likely it will be that different levels of the industry will be able to collude in information provisions with the intent of defeating the Regulator. This is a further argument for not privatising CEZ a.s. and the RDCs together.

Independent regulation. IPPs have complained to the Government about a conflict of interest that the government has in being both the seller of CEZ/CEPS and the regulator. The IPPs were concerned that proposed regulatory decisions concerning transmission prices and system service prices could shift value from the IPPs to CEZ a.s. System service prices are already at the upper end of a range of international prices and it was proposed to increase these substantially further. This would have the effect of increasing the transmission component of electricity sold to distribution companies. The combined CEZ/CEPS could thus lower the price of energy it sells to distribution companies and make the same profit by raising transmission prices, *i.e.* extra profits in CEPS a.s. would offset lower profits in CEZ a.s. This would drive down the price that IPPs can get for delivered energy when selling to distribution companies. IPPs complained that energy prices will fall below cost and they will become unprofitable. Hence the IPPs would not be able to match the lower prices for energy charged by CEZ a.s. CEZ a.s. would gain market share using a proportion of their spare capacity and the spare capacity of IPPs would rise. The value of CEZ a.s. would rise and that of the IPPs would fall (Hale, 2000 and IPPs, 2000). In any event a compromise solution was implemented in the ERO’s decision in 2001.

It is difficult to assess the true extent of this problem, since asset values used by the former ERA as a basis for pricing recommendations are likely to be downwardly biased compared with estimates based on replacement cost. It seems likely that asset revaluation by the new ERO based on some concept of replacement cost could see transmission prices increase moderately. Nevertheless, to the extent that the IPPs have valid complaints or perceive a conflict, it illustrates the problems inherent for non-governmental market participants of not having impartial and independent regulation, including through channels of appeal. This situation has been remedied to an extent under the new Energy Act which establishes the ERO as an independent body. In addition, under the new Energy Act, the IPPs have a channel of appeal to the Chairman of the ERO, and subsequently to the courts. The more general issue of the independence of the ERO from government is taken up in the following section.

2.6. *An independent, expert, and accountable regulator*

Changing the structure of a network-based industry such as electricity from monopoly to competitive markets requires a sophisticated regulatory structure. A fundamental element of reform is the establishment of a regulator, independent of the industry and of day-to-day political pressures, but sufficiently endowed with technical resources, transparent procedures, and requirements for accountability to the public, industry, and government. The new environment will increase the responsibilities of the regulator, particularly to ensure non-discriminatory access and economically rational pricing for system services. Of course, regulators must be fully accountable to policy and democratic political institutions for their performance against transparent performance criteria.

Many OECD countries have independent regulators, while others rely on the competition authority to regulate the energy sector. Specific arrangements differ in each country, but the main features of independent regulation are: complete independence from the regulated companies, functional separation from policy-making and industry promotion functions, a degree of organisational autonomy, and well defined obligations for transparency (*e.g.*, publishing decisions) and accountability (*e.g.*, appealable decisions, public scrutiny of expenditures). In order to have fair and reasonably predictable decisions, the regulator must have analytical expertise and not rely on the expertise of the regulated utilities. Further, the objectives of the regulator must be clearly stated, more specifically than, for example, “the public interest” and progress towards these objectives should be monitored. Finally, the powers of the regulator should be clearly stated. The combination of transparencies — of objectives, powers, processes, decisions, and information — gives the public clear performance criteria to evaluate the extent to which the regulator is fulfilling its role.

Independent regulation will help build the confidence of participants and potential investors in the Czech energy sector that regulatory decisions will be fair, non-discriminatory, reasonably predictable and not subject to day-to-day political pressures. Over time, the regulatory decisions made in this way can help build the credibility and legitimacy of the regulatory regime, encourage investment, and help reforms to progress. It is difficult at this stage to assess the likely effectiveness, strengths and weaknesses of the ERO because a substantial part of the legal framework remains to be put in place by decree, including details of market operation and the specific role of regulation. There seem to be several positive and negative aspects:

- The ERO will undertake the role of regulator of both gas and electricity sectors. The creation of a single energy regulator in the Czech Republic is a positive step compared with creating separate gas and electricity regulators. As in the Czech Republic, some OECD countries are moving away from the “old” model of having one specialist regulator per industry toward combining regulators. This is because there may be economies of scope in regulating access to network industries and the pool of competent staff to perform the complex duties required is limited. An expert in gas access issues will have many of the skills necessary to deal with electricity access issues. Also, as markets mature, industries and products are converging. The degree of substitutability between products in different markets may increase, making distinctions between industries more difficult. Having multiple regulators in this context is increasingly inefficient. Thirdly, multiple regulators are more likely to build institutional rigidities into regulatory regimes that hinder rather than promote innovation and competition. Having fewer regulators with broader responsibilities is likely to reduce rigidities. Some countries have responded to these concerns by doing away with sectoral access and price regulators entirely and vesting these roles in their competition authorities. The Czech authorities would be advised to review the structure of their regulators after a period of, say, five years to determine whether a further combination of their independent regulators is advisable.

- The Energy Act sets out an appeal process from first instance decisions of the regulator. This involves an appeal to the Chairperson of the ERO, who reassesses the decision based on recommendation of a commission appointed by the Chairperson. It is desirable to have an efficient appeal structure to increase accountability and reduce the risk of regulatory failure. However, the structure set up in the Energy Act may not be credible, because market participants may be concerned whether appealing to the Chair of the ERO is truly an independent review of the first decision. In addition to the appeal to the Chairman, a general administrative law appeal to the Courts will also lie against the ERO's decisions. This represents an additional layer of appeal compared with the prior arrangements when pricing decisions were made by the Ministry of Finance — such decisions were “final”. While the extra layer of appeal is welcome in certain respects there are reasons to doubt whether an appeal to the Court is an effective means of appeal. Firstly, regulatory issues are normally involve complex data matters and relatively advanced theoretical considerations for which the Courts may not be ideally suited. Secondly, court appeal processes are often time consuming and expensive. A number of other countries have therefore established special administrative appeal tribunals with relevant expertise to deal with appeals from regulatory bodies in an expeditious manner. This should be given serious consideration by the Czech authorities.
- The general points made in the background report to Chapter 2 regarding the difficulties of recruiting and retaining suitable staff in key public sector entities applies to the ERO. The staff of the ERO will be dealing continuously with counterparts in energy companies in the private sector who are probably much better remunerated and likely to have superior resources for consultants and participation in the regulatory process. This is a common problem for regulators in many countries. The solutions proposed in the background report to Chapter 2 should be applied to the ERO to ensure that its staff skills match its responsibilities.
- The ERO will initially remain part of the budget envelope of the MIT and hence is potentially subject to influence from the Ministry. It is a positive step, however, that the ERO's independence is protected in the Energy Law. The ERO has significant powers to gather information from licensees. It does not appear, however, that the ERO can impose special licence conditions on licensees. Rather, these requirements are to be laid down in the Energy Law and subsequent subordinate regulations, including the Transmission System and Distribution System Code which will deal with the details of access connection and operation and Rules dealing with dispatch and market operation. The ERO can express its opinion on these subordinate regulations but they remain under the responsibility of the Ministry for Industry and Trade. Careful attention is needed to the formulation of these regulations to ensure that the ERO has adequate powers to perform the difficult regulatory task it would face due to ownership integration of the dominant generator with most of the distribution companies. ERO effectiveness is a matter that will need to be kept under review, including whether more regulatory flexibility is needed, such as perhaps vesting additional powers to make regulations in the hands of the ERO or through the imposition of asymmetric licence conditions.
- In the UK, recent further reforms have seen a shift away from the “single regulator model” where a single person holds decision making power towards regulators constituted by a board of persons. This is seen as reducing the likelihood of regulatory capture and also, simply, allows more senior level resources to be directed at difficult regulatory tasks. This is a model that the Czech authorities might consider at a later stage.

2.7. *The consequences of privatising a vertically integrated utilities*

Among other objectives, the Czech government apparently desires to maximise the revenues from selling its gas and electricity assets by the enhanced vertical and horizontal bundling of the industry and sale of a strongly entrenched dominant firms, albeit constrained by regulatory control. There is apparently perceived to be a policy conflict here between maximising sales revenues and the degree of competition in the resulting industry structure. There is certainly a policy trade-off involved, but the view that the goal of fostering competition should be subordinated to maximising sales revenue is misguided (although apparently common).

There are indeed grounds for predicting that a vertically and horizontally integrated dominant firm will command a higher market value than will the sale of an unbundled structure, to the extent that the dominant firm is able to earn monopoly rents by charging higher prices and to the extent that a private sector owner is prepared to pay a premium for those rents. However, it is unlikely for several reasons that the government will get “value for money” from such a deal.

First, the regulator’s job is to reduce the degree of monopoly profit. To the extent that the regulator is expected to perform that job (the degree of credibility of the regulator), the expected degree of profit is reduced and consequently, the sales premium is reduced. Moreover, after the sale is complete the government’s incentive is to ensure the best regulatory performance and this introduces a time inconsistency and hence policy or regulatory uncertainty.

- Second, any regulatory uncertainty will reduce the certainty attached to any expected monopoly rents and increase the discount rate applied to those expected rents and consequently further reduce the premium.
- Third, private agents bidding for the project are likely to face higher funding costs than the government and consequently have a higher discount rate than the government. Hence, private sector agents are likely to value the rent stream at a lower capitalised value than it is worth to the government.
- Fourth, an equivalent outcome on final prices could be achieved by privatising an unbundled structure and imposing a special excise tax on electricity or gas. This would yield more revenue in net present value terms for the government than privatising a monopoly because there would be no uncertainty and the government would have a lower discount rate. It can also be questioned whether the implicit tax imposed on electricity by privatising the monopoly is the least distortive way of raising tax revenue.

A dynamic perspective should also be taken on this question. There is good evidence that an important precursor to strong economic growth over an extended period on the supply side of the economy is an economic framework that fosters competition across a broad front. Moreover, it is evident that economies that are able to achieve such dynamic growth are in the best position to achieve strong fiscal performance. *Consequently, while privatisation of monopolies might improve the fiscal performance of a government in a static sense to the extent that rents are capitalised in the sale price (subject to the points above suggesting that this is inherently poor policy), it is also likely to reduce the growth potential of the economy and hence its revenue generating potential.* Not only will the competitiveness of all industries which use gas and electricity as an important input be reduced and their profits and tax payments lowered to the extent that their final selling prices are constrained on world markets, but growth prospects will be reduced as well. It is not difficult to conceive of circumstances where the privatisation of an intact dominant firm may be counter-productive to a government’s fiscal objectives beyond the very short term.

2.8. *Conclusions and policy options for the Czech electricity sector*

This chapter mainly focuses on the structure of generation, transmission, distribution of electricity. It focuses also on the issue of common ownership and the consequential weight that is placed on the regulator to achieve outcomes which approximate competition, and upon some issues of the regulatory framework that is being put in place.

It is difficult at this stage to assess the effectiveness of the regulatory framework because the Energy Act is framework legislation with much implementation detail left to subordinate regulation and decrees. The new Energy Act in operation from 1 January 2001 implements the EU Directive on electricity, and consequently establishes an independent regulator to set prices and regulate access and provides for progressive market opening at specified future dates. There are several concerns about the potential for competition given the likely structure of the industry. These concerns focus on the large market share of CEZ a.s. in generation and, in particular, the enhanced vertical reintegration with regional distribution companies as a result of the privatisation planned for 2001 announced by the Ministry of Industry and Trade. Moreover, the new Energy Act only requires accounting separation between different functional levels of the industry (generation, transmission, and distribution) which will make the regulator's task more difficult than would have been the case with organisational or ownership separation. While this is in compliance with the EU directive, it will complicate the regulatory task insofar as distribution access charges are concerned and make the entry of specialist electricity retailers more difficult than necessary. However, it is encouraging that the government has resolved to require ownership separation of CEPS a.s. from CEZ a.s.

In sum, the new Energy Act implements the EU directives and opens the market in compliance with the schedule in the EU directive. However, it provides for a relatively slow rate of market opening compared with that actually implemented in many EU countries. Also, the privatisation decision misses the opportunity — which would have been relatively simple and rapid — to move to a world-class competitive environment that would benefit the competitiveness of the Czech economy. The objectives of maximising the sales proceeds for the privatisation of the electricity assets and of maintaining a Czech “presence” in the European electricity sector may have led the authorities to decide on less competitive outcomes than are possible. Had the objective been to maximise the contribution of the energy sector to the dynamic growth of the Czech economy, other options would have been chosen.

Against this background, the following recommendations are made:

- (i) **Privatisation:** Privatisation of the state's interests in the Regional Distribution Companies in conjunction with privatisation of CEZ a.s. should be reconsidered. The privatisation process should be quickly re-oriented so that the already separate RDCs are privatised to different purchasers to enhance the potential competition in retail/marketing. It will also be important that the divestiture of CEPS a.s. from CEZ a.s. proceeds as announced by the government.
 - The reintegrated privatisation proposed by the authorities will extinguish the emerging independent behaviour of the RDCs and place existing IPPs in the difficult position of having what is now a major client (the RDC) owned by a competitor (CEZ a.s.). It misses an opportunity to build on pre-existing structural separation in the industry.
 - Any higher privatisation revenue will be more than offset by higher costs and less dynamic economic growth. A horizontally and vertically separated industry structure will deliver the best competition outcomes and reduce the regulatory load on the ERO.

- (ii) **Market opening:** The authorities should accelerate and extend market opening to a broader range of customers.
 - The planned degree of opening more than meets the EU directives but is slow compared with opening by most EU countries.
- (iii) **Tariffs:** Complete planned tariff rebalancing without delay and ensure that asset valuation used as a basis for initial access tariffs in transmission and distribution are based on replacement cost. Prepare for a transition to incentive-based regulations.
 - Current tariffs incorporate distortions that will not be sustainable in a competitive market. The ERO should announce how it plans to address these distortions, so as to enhance regulatory transparency. The ERO should pre-commit to a scheduled and phased introduction of incentive-based regulatory techniques.
 - Tariff rebalancing must also be completed in the gas sector to remove distortions, including with respect to the possible increased use of gas in electricity generation.
- (iv) **Generation competition:** The authorities should consider the creation of several competing generating companies from the existing generation assets of CEZ a.s.
 - Generation is an inherently competitive activity and CEZ a.s. will be able to substantially continue its dominant behaviour if not horizontally/vertically separated.
- (v) **ERO Powers:** The authorities will need to keep under close review whether the ERO has sufficient powers and resources to gather information, implement decisions and make regulations to fulfil its objectives. Possibilities might include additional power to make regulations in place of the Ministry for Industry and Trade, or to issue licences subject to economic performance conditions, and to change the ERO to a structure constituted by a board rather than a single regulator.
 - The degree of vertical integration in the industry complicates the regulatory task faced by the ERO and makes the effectiveness of regulation critical to the successful operation of the market.
- (vi) **Market Trading Rules and Asymmetric Regulation of CEZ a.s.:** In settling these rules, the authorities should give close attention to the consequences for market operation of CEZ's market power in generation and should consider whether competition law alone will be adequate to address the potential problems or whether some form of a priori asymmetric regulation of CEZ a.s. is necessary.
 - The market power of CEZ a.s. may allow it to abuse the wholesale market but this will depend on the specifics of market design. The authorities will need to keep this under review.
- (vii) **ERO Appeals Structure:** The authorities should consider establishing a specialist appeals tribunal that would have the expertise to deal with the complex issues involved in regulatory issues without the delays inherent in court processes.
 - The current means of appeal to the Chairman of the ERO, against decisions of the ERO, is likely to prove problematic and should be revisited.

- (viii) **Other Institutional issues:** The authorities should review the structure and functions of the ERO within, say, five years to assess if it would be desirable to further consolidate access and price regulation functions for a wider range of industries within a single body.
- As markets mature the efficient level of regulatory intervention can change and industry boundaries can also shift, pointing to a realignment of the institutional structure of the regulatory bodies.

3. THE GAS SECTOR IN THE CZECH REPUBLIC

The natural gas industry comprises several distinct “stages of production”, differing in the nature of their regulation and the scope for competition. It is possible to distinguish five stages of production, from the point of extraction (the “well-head”) to the point of consumption (the “burner-tip”). Details of this classification and a brief description of some of the competition issues that can arise is given in Box 5.

Box 5. The structure of the natural gas sector

The functional classification of the gas sector is as follows:

- (a) Production involving extraction and processing of gas or re-gasification facilities for LNG form.
- (b) Transmission — the high-pressure transportation of gas to high-volume customers such as distribution companies, large industrial customers and power stations.
- (c) Distribution — the low-pressure distribution of gas to small and medium-volume gas customers.
- (d) Storage — the smoothing of the flow of gas through the transportation network by pumping gas into holding facilities at off-peak times, and withdrawing the gas at peak times.
- (e) Retailing and Marketing — the provision of services of contracting with production, transmission and distribution companies on behalf of gas customers and associated billing and metering services.

Competition between gas producers is feasible depending upon the physical distribution of gas reserves and pipeline systems.

Gas transmission pipelines exhibit sizeable economies of scale, but competition between pipelines may be feasible in some cases depending on the magnitude and geography of demand for gas flows. Pipeline competition has developed in some fully liberalised markets.

Local gas distribution exhibits economies of density, like many other network industries — once the costs of installing a gas main on a street have been “sunk”, the marginal cost of connecting another house or building to the gas main is very low compared with the cost of network replication. Because of these economies of density, local gas distribution is, generally speaking, a natural monopoly, and infrastructure competition would not normally be expected to be feasible.

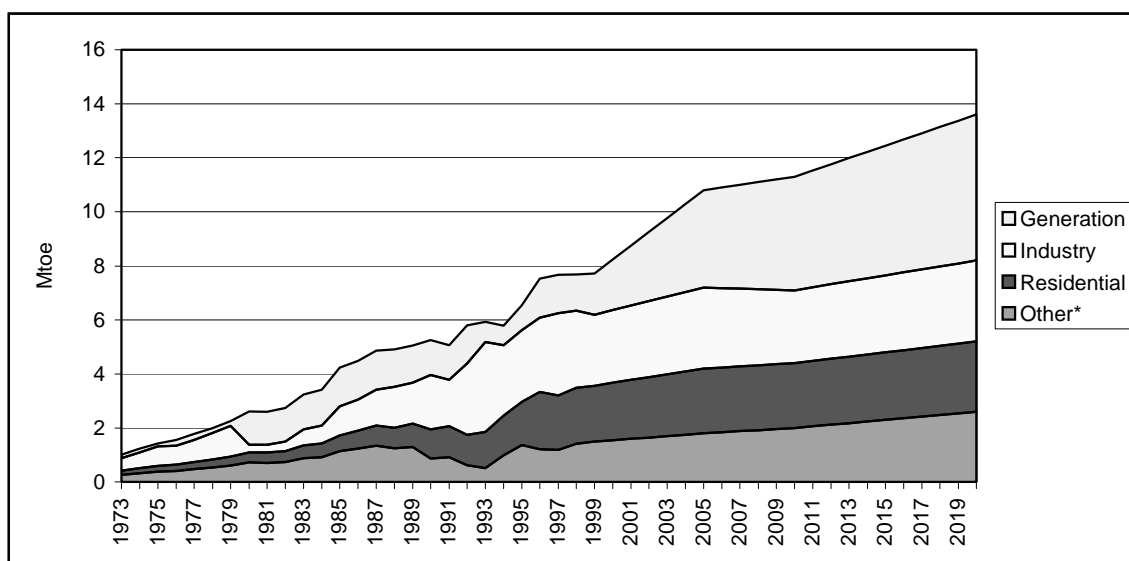
Distribution companies are often also involved in retailing and marketing. Where markets are not liberalised, there are commonly regional monopolies in marketing that are co-extensive with the distributors’ physical distribution pipe network. However, in liberalised markets, new entrants can provide gas sales to customers connected to a distribution network by means of access arrangements to the distribution company’s pipes.

Demand for gas is highly variable. Demand at peak times can be several times higher than at off-peak times. Gas storage facilities smooth the flow of gas through the network, which are filled at off-peak times and drawn down at peak times. Gas is stored in different types of facilities, such as depleted gas reservoirs and disused mines. Although access to certain key facilities (such as depleted gas reservoirs) can be limited, the economies of scale in gas storage are small. As a result, there remains scope for effective competition in gas storage services, with the possible exception of regions with low population density.

3.1. Description of the Czech gas sector

In 2000, natural gas accounted for around 20% of primary energy consumption in the Czech Republic. This share effectively doubled over the past decade in response to environmental emissions regulations which favour clean fuels and a subsidy program to support household connections to gas supplies. Domestic demand for gas grew relatively rapidly up until the economic downturn in 1998. However, demand was basically flat in 1998 and rose only 0.5% in 1999 (IEA 2000).

Figure 5. Natural gas consumption, 1973-2020



* Includes commercial, public service and agricultural sectors.

Sources: *Energy Balances of OECD Countries*, IEA/OECD Paris, 2000 and country submission.

Production: Virtually all gas used in the Czech Republic is imported, and domestic production does not offer any effective competition to imports. Natural gas is imported to the Czech Republic by Transgas via pipeline from Russia (through the Slovak Republic and Ukraine) and, to a smaller extent, from Norway (through Germany). Russian gas accounts for approximately 80% of supply and Norwegian gas around 20%. This represents a diversification of supply compared with the central planning period. Since pipeline interconnections exist through Germany into the interconnected European pipeline grid, there is a range of other possible import sources. Access to other gas suppliers further east is also physically possible through the Slovak-Ukraine-Russian system, but is subject to control by Russian gas interests. Diversification opportunities beyond Norway have not yet been taken up by the Czech authorities and, in any event, would be of varying economic potential given the cost of gas haulage from these sources.

Transgas presently has a monopoly on gas imports. Its import contracts include take-or-pay clauses that commit for deliveries from Norway of 3 bcm until 2017 and from Russia of 9 bcm until 2013 (with 10 year option) respectively. Take-or-pay clauses guarantee producers minimum revenue levels in hard currency, independently of the gas volumes actually delivered. Under the contracts, prices are indexed on international oil product prices with a lag. The contracts include flexibility of renegotiation of the contractual conditions at fixed terms of 3 years. According to the Czech authorities, present demand in the Czech Republic is just covered by the take-or-pay contracts. The existence of take-or-pay contracts raises an issue for the manner of future liberalisation, discussed below.

Transmission: A state owned company (Transgas) owns and operates the transmission system. Domestic demand for gas represents around 20% of the total transmission system capacity, which also carries significant quantities of Russian gas into the EU (around 10% of EU supplies). Six end users connect directly to the transmission system, but take less than 0.1% of total consumption. Transgas is structured as a state administration authority which is 100% government owned. Activities are overseen by supervisory board, headed by the Deputy Minister of Industry and Trade and representative(s) of the National Property Fund.

Storage: Underground storage facilities in the Czech Republic are, with one exception, solely operated by Transgas together with leased facilities located in Germany and Slovak republic. Collectively, these can store 30% of annual consumption. There is one other operator in storage. SPP Bohemia, a.s. commissioned a storage facility in 1999 with a maximum capacity of 295 mcm and a daily capacity of 3.6 mcm in South Moravia. This represents around 10% of total storage capacity (domestic and leased in other countries) and total daily unloading capacity.

Distribution/Sales: Consumers buy gas from the regional distribution companies (RDCs), which in turn buy gas from Transgas. The RDCs carry out gas distribution through low-pressure networks and also carry out retailing activities — the RDCs have regional monopolies for these purposes. There is not a significant degree of integration between the gas industry and the electricity and other network industries in the Czech Republic.⁷ The RDCs are North Moravian Gas, South Moravian Gas, North Bohemian Gas, East Bohemian Gas, South Bohemian Gas, West Bohemian Gas, Central Bohemian Gas, and Prague Gas — each have a monopoly in their respective region and carry out both distribution and retail activities. RDCs have been partly privatised but, with two exceptions, are still majority government-owned through the National Property Fund and Transgas. Minority shareholders are foreign, mostly gas companies. In the case of Prague Gas and South Bohemian Gas the government does not hold a majority interest but retains an effective controlling interest.

At present, the degree of separation between transmission and distribution goes beyond the minimum required by the EU gas directive, as the distribution companies are legally separate entities. However, as the distribution companies (except Prague Gas and South Bohemia Gas) remain majority government owned through the National Property Fund and Transgas, and as concerns exist with respect to corporate governance issues, it is difficult to be confident that the objectives of vertical separation have been achieved. Further privatisation is planned in 2001 and substantial liberalisation could result from the market opening scheduled in the Energy Act and the implementation of the EU gas directive. However, the structure that would emerge on the basis of the Government's privatisation plans is likely to perpetuate a significant degree of vertical integration in terms of ownership control. This raises serious competition concerns.

3.2. *Price comparison with other countries*

Prices in the Czech Republic for industrial users were slightly higher than the average for OECD Europe in 1998 and 1999 but have fallen below that average from the beginning of 2000. Countries with domestic production and liberalised markets have lower prices. These comparisons indicate the savings that can be achieved by effective reform in the Czech Republic (Table 4 and Figure 6). However, it is notable that prices for households in the Czech Republic were, in 1998, only around 10% above that for large volume industrial users. This contrasted with the general pattern in other countries where households pay two or three times the industrial price, reflecting the smaller unit value of the typical household transaction.⁸ This small price differential reflected a large cross-subsidy from the industrial to household sector.

While gas seems “cheap” for households in the Czech Republic compared with prices paid by households in other countries (using market exchange rates as a basis for comparison), this is not true when prices are measured on a purchasing power parity basis. Gas is not especially cheap in the Czech Republic viewed against the generally low level of prices in the country, which in turn generally reflect lower labour costs. This imposes a constraint on the speed at which prices can be re-balanced.

Table 4. **Annual average natural gas prices (1998)**

	Industry (\$US/10 ⁷ kcal)	Households (\$US/10 ⁷ kcal)	Households (\$US/10 ⁷ kcal) PPP Basis
Czech Republic	159.8	177.3	421.1
OECD Europe	143.9	430.2	446.8
United Kingdom and Netherlands (Avg.)	115.9	343.9	324.4

Note: Prices for industry exclude VAT while household prices are inclusive of VAT. Prices are on a gross calorific basis.

Source: IEA *Energy Prices and Taxes Quarterly Statistics QII 2000*, Part II, D, Tables 13 and 15, and Part II, F, Table 15.

A transition to cost-reflective tariffs is partially complete and full re-balancing had been planned for 2002. Consumer prices increased by 15% in January 2000 and 24% in January 2001. The increased price of oil since 1999 has substantially increased the required rise in household tariffs to achieve re-balancing. This will be a challenge for the new Energy Regulatory Office. A gradual re-balancing of is appropriate to avoid as far as possible “price shocks” to final consumers which might erode the sustainability of reforms. It is important to complete price re-balancing, particularly because the distorted differential between household and industry tariffs distorts household technology choices for domestic heating. Due to such price distortions, district heating enterprises which use gas as a heat source in combined heat and power (CHP) plants are at a competitive disadvantage even if competitive in terms of technical and resource efficiency.

Tariffs presently do not include a distance component. Such “postage stamp” tariff structures may be efficient when the cost of differentiating customers by distance is high — the Czech authorities note in this context that networks are interconnected and gas flows in more than one direction. It is likely, however, as the industry is liberalised and as transport services become unbundled from energy charges, that the absence of distance charges will not be sustainable.

Figure 6. Gas prices in IEA countries, 1999

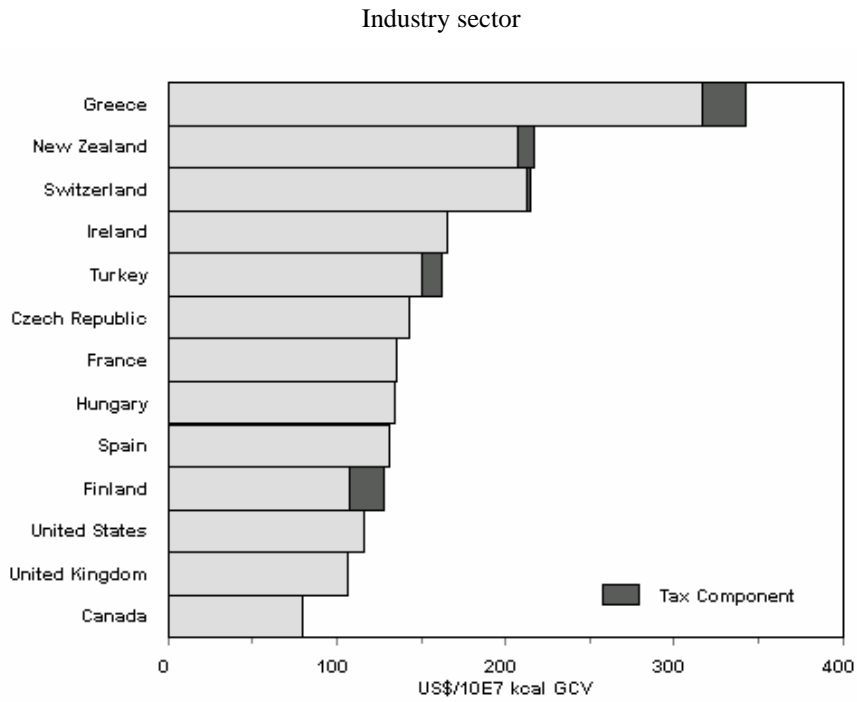
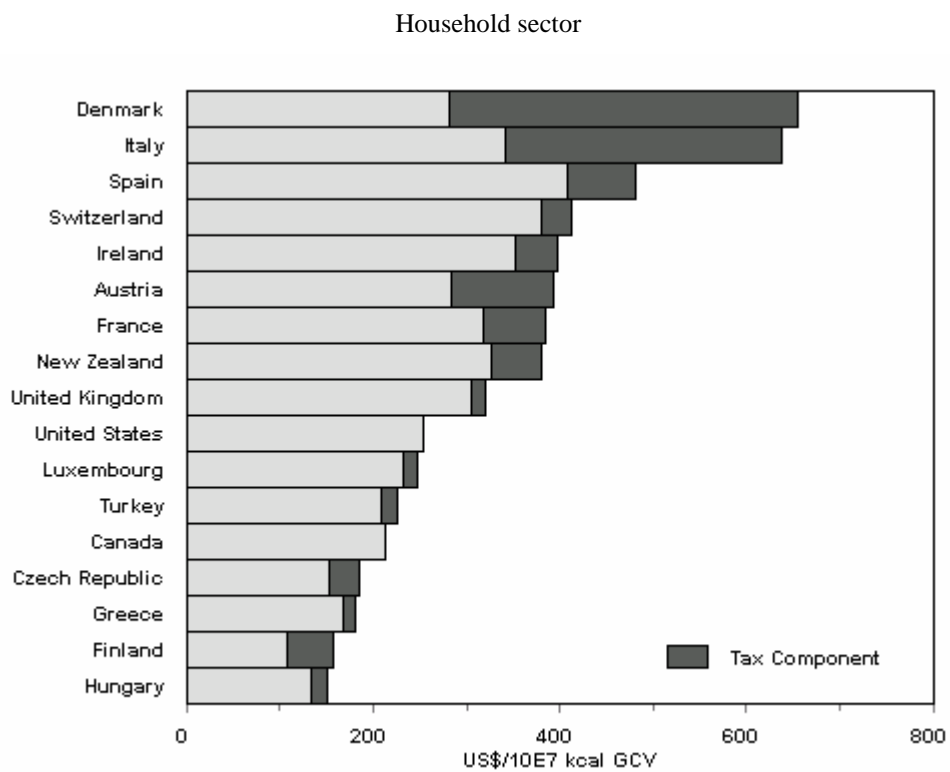


Figure 7. Gas prices in IEA countries, 1999



Source: *Energy Prices and Taxes*, IEA/OECD Paris, 2000.

3.3. *Policy objectives of the Czech Republic and regulatory institutions*

The objectives of Czech energy policy and the role of the relevant institutions was set out in the section dealing with electricity. Regulatory arrangements and institutions are substantively identical in the gas sector, with the following differences:

- Market opening is in conformance with the EU gas directive, and is therefore slower and less complete than in most EU countries and also compared with the electricity sector. The opening schedule is as follows:
 - 1 January 2005: A minimum of 28% of total gas consumption is open. Eligible customers that will be able to select their gas supplier include gas fired thermal electricity generators, large customers with prior year gas volume of 15 mcm (or other amount by Decree) and gas distributors who supply sufficient volumes of gas to their eligible customers.
 - 10 August 2008: A minimum of 33% open based on a minimum volume level of 5 mcm.
 - No further market opening is specified in the Act but a subsequent decree could provide for more rapid and complete opening.
- Access to gas transmission will be by negotiated access and not regulated access. However, the general commercial framework for negotiations must be formulated by the transmission system operator and approved by the ERO. Access to the distribution system will be by regulated access, i.e. where the ERO approves terms and conditions of access. Transmission system operators must maintain separate accounts for their transmission and other activities. The same accounting separation is required of distribution system operators. The standard of accounting separation shall be set out in a subsequent decree.
- Storage of gas is not subject to any regulated or negotiated access framework. Storage services are provided simply on a contractual basis, but there is no mechanism within the Act to compel the making of a contract. Accordingly, competition law may have a role in this respect if refusal to contract by a storage provider were to amount to an abuse of dominance.
- Transmission system operators and distributions system operators can deny access under a “take-or- pay” exception, where access would or might cause “major economic and financial difficulty” with the take-or pay-obligations of the transmission or distribution system operator. The take-or-pay exemption is permitted under the EU framework and is intended to protect incumbents from exposure to significant stranded costs as the result of the introduction of competition. The transmission operator can restrict or suspend transport in situations of danger or emergency, and for repairs — but seemingly not on the basis of contracts for interruptible supply in the case of congestion
- The main system balancing and dispatch function will be handled not by the transmission system operator but by a new institution called the “main Gas Dispatching Centre” which shall be established as a separate legal entity by major market participants. Dispatching functions carried out by transmission and distribution system operators will co-operate with the main Gas Dispatching Centre. The details of this framework will be issued in a subsequent decree.

The opening in the gas sector is slower and to a smaller degree than in the case of electricity — it is equivalent to that required under the EU gas directive, but the legislation does make provision for the opening to be accelerated by decree. Most EU countries have liberalised faster in the gas sector than the minimum required and it would be desirable for the Czech authorities to accelerate the opening by decree. An example of the prospective disjunction between market opening in the gas and electricity sectors is that from 2002 gas fired generators will be able to sell electricity in the liberalised market to eligible customers, but it will not be until 2005 that such generators' fuel purchases will be liberalised.

Application of competition law. The competition law applies to the sector and is enforced by the Office for the Protection of Economic Competition. To the extent that a gas business is operating in compliance with the Energy Act, its actions are not a breach of the Competition Act and the Office does not proceed beyond the boundary of the Energy Act. In cases of possible violation of the Competition Act, the Office co-operates with the SEI or the MIT. The Office has defined the market on a geographic basis as the area supplied by each regional distribution company. The Office has been active in two cases of abuse of dominance: one where a RDC required a new customer entering into gas supply contracts to guarantee the debts of a former customer, and the other involved RDCs requiring new customers to cover the costs of meters. The latter was also in violation of the Energy Act. The Office has not dealt with any merger proposals in the distribution sector.

3.4. Remaining competition issues in the Czech gas sector

The Czech government is committed to continuing privatisation. As is the case in the electricity sector, current plans are to privatise the state's interest in Transgas and the distribution companies together. The vertical re-integration of Transgas so that it is active, either directly or indirectly through majority owned or controlled subsidiaries, in both potentially competitive activities and monopoly activities, raises serious competition concerns. In particular, it gives the company incentives to discriminate against new entrants once the market is liberalised. Discrimination can be subtle, such as how capacity is allocated and the timing of provision of information. Attempts can be made to control discriminating behaviour by independent regulation. However, such regulation can be intrusive and costly, both for the regulator and the firm, and not very effective. Competitive structural solutions, on the other hand, introduce effective competition in activities where this is possible, by separating the ownership of the firms in competitive activities from the ownership of the firms in natural monopoly activities. While monopoly activities still need to be independently regulated to prevent abusive pricing, the regulator no longer has the difficult task of detecting and preventing discrimination. The following discussion considers the structure and regulation of the potentially competitive and non-competitive elements of the gas sectors.

Storage. Storage is a potentially competitive activity. Access to storage, at efficient and non-discriminatory prices and terms, is key to the ability of newly entering companies to provide effective competition in gas supply against Transgas or its subsidiaries — storage is necessary to balance short term variations between supply and demand. In the Czech gas sector, storage is achieved in specially constructed underground facilities with a wide geographical dispersion. Hence, there would be no substantive loss of economies of scale if these facilities were to have different owners. Transgas owns almost all the gas storage in the Czech Republic and no divestiture of storage assets is planned in the privatisation process. Hence, this activity will remain a virtual monopoly unless there is new entry or Transgas decides to sell some of these assets. To introduce competition in storage, both divestiture and lower entry barriers are required. To ensure non-discriminatory access to storage until that service becomes competitive, Transgas should be required to grant access to storage, and the conditions under which Transgas can refuse to make storage available should be clear and non-discriminatory.

The new Energy Act requires a separate licence for storage activities but only accounting separation from other activities. Moreover, the Act does not appear to mandate the provision of storage services for authorised customers or to regulate prices. Storage services are to be provided on the basis of signed contracts but there is no provision which is equivalent to the obligation to provide transmission and distribution services to authorised customers. If Transgas is privatised intact, the absence of an obligation to provide storage services to authorised customers appears to be a clear fault in the proposed regulatory structure: it would allow Transgas to refuse to provide storage services to new entrants in the distribution market who compete against Transgas subsidiaries. This would significantly disadvantage potential new entrants. Transgas should be required to divest sufficient storage capacity to create a competitive market. In the interim, an obligation to provide storage services should be imposed on Transgas as a monopoly storage provider. Failing these solutions, the only means to address the issue of access to storage might be through the competition law, if that were to develop and take on the jurisprudence developed in other jurisdictions to incorporate and “essential facilities doctrine” within the law dealing with abuse of dominance. This approach is likely to be problematic — in terms of timing and outcome — compared with divestiture or negotiated/regulated access solutions.

Sales. Sales and marketing of gas is also a potentially competitive activity. Under the Czech framework, new entrants can undertake this activity by being licensed as a gas trader that can purchase and sell gas to other participants of the gas market, except protected customers. Such marketing traders will require access to Transgas transmission facilities, both in the Czech Republic and “before the border” and to distribution facilities as well. There are no alternative facilities, and competitors would generally find it uneconomic to build their own. Under the new Energy Act, access to transmission is to be negotiated and access to distribution is to be regulated by the ERO.

Where there is an access dispute, the vertically integrated company gains at the expense of the non-integrated rival because the rival remains discriminated against until the dispute is resolved. Delays can render market entry unprofitable. Quick resolution is a positive attribute of a regulatory system. Far better than *ex post* access following referral, investigation, decision, and enforcement is clear *ex ante* access regulation that complies with the competition law, and quick dispute resolution — particularly during the early stages of liberalisation. Thus, the fact that the Czech legislation obliges access to distribution at ERO regulated tariffs is a positive feature of the framework. However, access to transmission by negotiation could be more problematic. It is not possible at this stage to reach a conclusion on this point as it will depend upon the features of the “framework conditions” for negotiated access that must be formulated by Transgas and approved by the ERO.

Another issue is that, under the proposed integrated privatisation, there will be a strong commonality of ownership between the RDCs. This substantially reduces the prospects of retail competition developing. Absent the ownership commonality, it could have been expected that the RDCs would have competed by entering each others’ regional markets. However, it will not be in the interests of a common controlling shareholder for such competition to arise — their interest will be in maintaining the maximum degree of market power. Thus, new competition in the sector would have to come from *de novo* entry by gas traders deciding to set up retailing business. Such *de novo* entry clearly faces higher barriers to entry than do retailers already operating in the sector because of a lack of functioning business systems, presence in the market, skilled personnel etc. The loss of the opportunity to foster competition in retailing is especially unfortunate because it is only in the retailing sector that there are otherwise good prospects for competition to develop. This argues strongly for the separate privatisation of the RDCs. This would also have the positive spin-off of reducing the difficulty of the regulatory task due to commonality of vertical ownership between transmission and distribution, discussed below.

Transmission and imports. With the proposed privatisation of Transgas reintegrated with the regional distribution companies, the pre-conditions for competition to emerge in the supply of gas do not look propitious. The Czech Energy Act would permit Transgas to deny negotiated access to eligible customers if this would cause serious financial difficulties because of take or pay obligations. Hence, even though Transgas' legal monopoly on gas imports (provided in MIT Decree No 318 of 1996) will terminate when the Czech Republic joins the EU, the potential for actual competing imports by other agents may be limited for a significant period. To elaborate:

- Transgas is effectively in control of available capacity in both gas supply and transportation. Given the extent of the take or pay obligations it is unlikely to be willing to see gas sold within the Czech Republic that is not imported under its take or pay contracts and it will have the ability to deny access to achieve this result.
- Therefore, it seems unlikely that markets for gas energy and gas transport would evolve separately for the foreseeable future — this form of market stratification and commodification of gas energy is a hallmark of highly liberalised markets. Rather, it seems likely that Transgas will continue to operate selling a bundled product of gas and transport, and that consequential efficiencies from energy and transport trade will not be realised. This is the model that is embedded in the EU gas directive (which permits take-or-pay derogations) and the new Czech Energy Act. In effect, while imports will be free from restrictions, the ability to deny access can form an effective barrier to imports other than by Transgas under its take or pay contracts. In essence, Czech companies are free to buy as much gas as they like from other countries but would be unable to get it transported to a site in the Czech Republic. This will stifle domestic competition and imports.
- Consequently, improvements in the performance of the gas sector will rely substantially on the regulation of final gas prices — the Regulator will have to strive to achieve prices that might have been delivered in a competitive market while the structure of the market is likely to remain fundamentally uncompetitive.

Take-or-pay contracts have often been seen as a barrier to the introduction of competition since new competitive supply options may undercut the terms of take-or-pay contracts, leading to large losses for the incumbent (OECD 2000). Concerns of this type have also been cited as a possible rationale for the authorities to privatise Transgas in a vertically integrated state - although as described above, this is not necessary given the degree of protection that is embedded in the new Energy Act which would permit Transgas to deny access under the take-or-pay exception. It would, however, be possible to design into the system a more pro-competitive orientation in the domestic market without renegeing on take or pay obligations. In general:

- The degree of restriction on competition in the domestic gas energy market as a result of the take-or-pay obligations should be limited as much as possible. At the minimum, the ERO should pay careful attention to abuses of the right to deny access — it should be monitored extremely carefully by the regulator on an ongoing basis to prevent Transgas from effectively foreclosing competition in downstream markets. The ERO appears to have the necessary powers and objectives to achieve this.
- A more substantive structural approach to this problem could involve a degree of separation of Transgas' importing and transmission activities that goes beyond accounting separation as required under the new Energy Act. Under this approach an operationally separate Transmission Division of Transgas would have no right to deny interconnection to traders or eligible customers that had purchased gas from an operationally separate Import Division.

This could help to stratify the energy and transportation markets and help render the domestic energy market “competition ready” for the time when take-or-pay obligations no longer operated as a constraint.

In the privatisation of Transgas, careful attention should be paid to the competition consequences that would arise if the purchaser were also involved in up or downstream sectors of the industry. Issues might arise for example if Statoil of Norway or Gazprom of Russia as the two present gas suppliers were to acquire Transgas, because over the longer term this could work against the Czech desire to diversify import sources. The views of the Office for the Protection of Competition should be sought about the competition consequences of privatisation to particular bidders during the privatisation process.

Separation of transmission and distribution: Distribution is generally regarded as a natural monopoly and transmission is likely to be a monopoly as well. Nevertheless, there are strong reasons to require separation of these activities. The traditional argument is that separation of some form is necessary to enable a regulator to gather the needed information to prevent a transmission company from discriminating against a downstream distribution company that is competing against another distribution company that is owned by the transmission company. The new Czech law requires only accounting separation, consistent with the EU framework. Assuming that the distribution companies remain as separate companies there will also be legal separation between transmission and distribution. As noted above, however, there is growing evidence that superior economic performance is likely to be achieved if there is actual ownership separation because this removes incentives to discriminate and lowers the regulatory load. The lower the regulatory load, the lower is the risk of regulatory failure, and the less serious will be the cost of regulatory failure. Consequently, this is a further argument that vertical separation of the Czech gas industry should be preserved by not privatising the government’s interests to a single buyer.

Regulatory Issues: These issues — including the powers of the regulator and its institutional structure - were elaborated in the section dealing with electricity and apply equivalently in the gas sector.

3.5. *Conclusions and policy options for the Czech gas sector*

The Czech Republic has greatly revised the regulation of the gas sector, with a new Energy Act that came into force on 1 January 2001 that is designed to implement the EU Directive on natural gas, including a specified market opening equal to that required in the EU directive. Consequently, market opening will be somewhat slower than the liberalisations underway in most other EU countries, unless this is accelerated by decree. The new Act also establishes a new Energy Regulatory Office that will be independent of the policy function of the Ministry of Industry and Trade. The regulator will be assigned the primary regulatory responsibility for the gas sector, and will regulate access conditions to transmission, distribution and storage. Non-discriminatory access to essential facilities is one of the important elements that is needed for competition to develop in this sector.

It is difficult at this stage to assess the effectiveness of the regulatory framework because the Energy Act is framework legislation with much implementation detail left to subordinate regulation and decrees. Moreover, the new Energy Act only requires accounting separation between different functional levels of the industry (transmission, storage and distribution) which will make the regulator’s task more difficult than would have been the case with organisational or ownership separation. While this is in compliance with the EU gas directive, it will complicate the regulatory task insofar as access charges are concerned and make the entry of specialist gas retailers more difficult than necessary.

In some structural respects, the reforms are insufficiently bold. A monopoly in transmission will remain but a bolder reform could have contemplated restructuring Transgas to promote possible competition in this sector. The proposed privatisation of Transgas together with majority owned distribution subsidiaries implies an enhanced vertical integration that will impose heavy costs on the Czech Republic beyond the benefits of higher sales revenues. Gas storage, too, could also be a competitive activity in the Czech Republic, but the development of effective competition requires divestiture, and easing of entry requirements. Retention of a vertically integrated structure retains the incentives to discriminate in providing access to essential facilities to new entrants. Common ownership linkages also reduce incentives for existing distribution companies to enter each others' markets, which would otherwise be the major source of new competition.

In sum, as was the case in electricity, the new framework implemented in the Energy Act together with the proposed re-integration and privatisation of the states interests in the sector misses the opportunity to move to a world-class competitive environment that would benefit the competitiveness of the Czech economy.

Against that background, the government should consider the following recommendations:

- (i) **Privatisation:** The privatisation of state's interests in the Regional Distribution Companies in conjunction with the privatisation of Transgas should be reconsidered. The privatisation process should be quickly re-oriented so that the already separate RDCs should be privatised to different purchasers so as to enhance the potential competition in retail/marketing.
 - The reintegrated privatisation proposed by the authorities is misguided: it misses an opportunity to build on pre-existing structural separation in the industry and makes the task faced by the regulator more difficult.
 - Any higher privatisation revenue will be more than offset by higher costs and less dynamic economic growth. A horizontally and vertically separated industry structure will deliver the best competition outcomes and reduce the regulatory load on the ERO.
- (ii) **Upstream integration:** The authorities should avoid privatising Transgas to upstream gas interests. The views of the Competition Office should be sought on the competition consequences of privatisation to particular purchasers.
- (iii) **Market opening:** The authorities should accelerate and extend market opening by decree to a broader range of customers.
 - The planned degree of opening accords with European law but is slow compared with the pace of opening actually adopted in other countries. Pre-announced faster opening would enhance competition and reduce regulatory uncertainty and boost likely privatisation sales revenues for any given level of competition.
- (iv) **Storage:** Transgas should be required to divest sufficient storage capacity to permit a competitive market in storage services. At minimum, as a monopoly service, Transgas should have a clear legal obligation to provide access to storage to authorised customers at regulated prices.

- Storage is a potentially competitive activity, and ensuring the structural conditions necessary for competition could lower the regulatory burden. Failing this, it will be necessary to oblige Transgas to provide access to storage, otherwise it would be in a position to substantially foreclose the market to downstream entrants. The new Energy Act does not impose the necessary obligation.
- (v) **Take-or-pay contracts:** The mechanism to insulate Transgas from financial risks (stranded costs) arising from its take-or-pay contracts should be implemented in a way that is least distortive of competition in the domestic gas market. The ERO should carefully monitor the use by Transgas of the take-or-pay exception for denying access to authorised customers to ensure that its use is justified. A further step could involve functional and management separation within Transgas to foster stratification of the gas supply and transmission markets in line with developments in liberalised markets.
- Transgas' large take-or-pay obligations could act as a significant barrier to emergence of competition unless there is a careful policy response. Transgas could be encouraged to on-sell gas into the EU to absorb its take-or-pay obligations and thus provide more scope for competition to emerge in the Czech market.
- (vi) **Tariffs:** Complete planned tariff rebalancing without delay and ensure that asset valuation used as a basis for initial access tariffs in transmission and distribution are based on replacement cost. Prepare for a transition to incentive-based regulations.
- Current tariffs incorporate distortions that will not be sustainable in a competitive market. The ERO should announce how it plans to address these distortions, so as to enhance regulatory transparency. The ERO should pre-commit to a scheduled and phased introduction of incentive-based regulatory techniques.
- (vii) **Institutional issues:** The issues raised in the electricity section concerning the powers and institutional structure of the ERO apply equally in the gas sector.

4. INTRODUCTION TO THE TRANSPORT SECTOR

The location of the Czech Republic between Germany, Poland, Austria and the Slovak Republic places it at an important crossroad for land transport, particularly in the context of the prospective economic development of Central and Eastern Europe. The geographic layout of the domestic population means that internal transport needs overlap closely with international corridors. Medium-term infrastructure planning at the European level incorporates the Czech transport network into the Trans European transport Network (TEN) through auto-route interconnections (mainly through Germany) and a range of road and rail corridor upgrades within the Czech Republic.

The existing railway network is very extensive, with rail line density (km per square km) slightly more than double the EU average. This reflects transport policy priorities in the central planning period, but a substantial part of this network is now un-economic. In contrast, the major road network, at expressway or motor way standard, is relatively undeveloped. Substantial investment is planned in the road sector to complete the motorway network and in the rail sector to modernise and electrify the rail corridors that overlap with the TEN corridors. The government aims to complete several corridor modernisations by 2005 — Berlin, Nuremberg, Vienna, Bratislava, Warsaw — Eurocity and Intercity connection. Over 10 years, the government hopes to complete motorway interconnections consistent with the TEN plans.

The structure of the Czech economy, still relatively heavily oriented toward goods production, is relatively transport intensive. However, demand for transport services fell precipitously in the early part of the transition period and today remains substantially below the level prevailing at the start of the 1990s.

Government policy includes a general preference for rail transport over road transport, due to environmental impacts and congestion concerns. The desire to favour rail should be no barrier to road liberalisation — and indeed it has not been in the Czech Republic. The likelihood is that as the Czech economy develops further, the demand for transport services provided by trucks will increase at a faster rate than train freight. Both road and rail should be properly charged for their use of the infrastructure and their environmental effects, in a way that does not distort the competition between the two sectors.

In the road sector, preference is now being given to maintenance over construction of new roads to overcome a long-term neglect of maintenance and accelerated wear caused by overloaded trucks prior to the state having in place an adequate regulatory framework and physical infrastructure to enforce technical weight restrictions. This is appropriate, but there would also be major economic benefits from major road corridor upgrades, though they will have to compete for funds within tight fiscal constraints.

5. THE ROAD FREIGHT SECTOR IN THE CZECH REPUBLIC

The road freight industry consists of transport by road of goods between economic enterprises and between enterprises and consumers. There are various dimensions to the road freight industry, including: domestic *vs* international; long haul *vs* short haul; full truckload *vs* less than full truck load; dangerous/special goods *vs* ordinary goods; and self provided or "own account" transport *vs* for hire services. The industry merges at its boundary with postal, parcel and express mail services and also with rail and other transport modes in multi-modal or combined transport. The road sector also competes with rail transport, particularly over longer distances for heavy loads.

The natural economic conditions and/or regulatory framework for these different road segments differ to some degree, but for the most part the road freight industry is inherently competitive and, consequently, does not require significant regulatory intervention to induce competition. There are, however, important technical aspects of regulation covering safety and environment issues. It is beyond the scope of this chapter to address these important and necessary aspects of the regulatory regime, including controls on vehicle size, weight, emission controls, driving time, driver licensing and special treatment of dangerous goods. The focus is primarily on economic regulation as it affects competition — that is upon regulation of entry, exit, prices, services, ownership and on economic instruments such as taxes, fees and subsidies — including the competition effects of technical regulations where these are important. Many competition issues in the Czech road freight sector arise in an international context because of severe limitations on market access in EU countries. Therefore, the accession of the Czech Republic to the EU, which internally has a liberalised road transport market, offers the prospect for substantial change in the Czech road transport market if Czech hauliers are granted the same legal opportunities as existing EU ones. Any transition periods imposed on Czech registered operators for access to the EU market would have adverse consequences for the Czech road freight sector.

5.1. *Description of the Czech road freight sector*

International experience demonstrates that the full truckload segment of the road freight market can be a competitive market with relatively little regulatory intervention because it typically has only small economies of size and scope, and entry and exit costs are relatively low. Volumes of freight are large relative to efficient or permitted truck size, timeliness is generally not critical and the full loading of the

truck excludes other scope economies. This sector is generally focussed on business to business delivery. Consequently, in the absence of entry restrictions, this industry is generally characterised by a large number of relatively small firms and market outcomes tend to be competitive. Liberalisation in many countries has lowered freight rates, which, because they are more efficiently aligned with costs, improve productivity, reduce costs, and improve the quality of service and responsiveness to customer demands (OECD, 2000).

Economies of scale and scope are more important in the time sensitive or less than full load sector (such as express parcel services). This sector has a larger consumer delivery element and consequently timeliness is often a larger factor and flows from one point to another may not be large relative to the minimum efficient vehicle scale. Consequently, this sector exhibits scope or route economies associated with the pooling of goods destined for the same or other conveniently located destinations. In many countries this market has tended to become more concentrated over time, but this does not rule out effective competition, especially when sustained through vigorous enforcement of competition law. International experience does not suggest the need for industry-specific regulation to induce competition in this sector (OECD, 2000).

The experience in the internal Czech road freight market is consistent with international trends. Since liberalisation, substantial entry has occurred at all levels in the industry (Table 5). The industry is dominated by small firms, with an average number of employees per firm of 6.2 in 1996. This structure is broadly comparable with neighbouring countries, but the level of productivity is substantially lower (Table 6).

The collapse of the central European economies, and the consequent reorientation of trade sources and destinations, resulted in a fall of over 40% in freight carried by all land modes (ECMT 1998). Everywhere, road haulage has increased its relative share of total land transport, particularly at the expense of the railway sector. To a considerable degree, this reflects the liberalisation of road transport and the consequential dynamism of the sector which has seen the relative and absolute price of road transport decline and the quality of services improve.

The experience in the Czech economy seems to have been consistent with these developments. There are statistical difficulties assessing trends in the Czech Republic over a longer period because good transport data for the Czech Republic exist only since 1994 (due to a change of methodology and the split of Czechoslovakia in 1993). Nevertheless, the Czech authorities estimate that since 1990, rail volumes have fallen by around 60%, while road volumes have increased by around 120%. These figures imply that in 1990 rail carried around 20% more freight than road, but in 1999 road carried 2.5 times the freight of rail (Table 7).

Data on road freight prices are not collected systematically in the Czech Republic but the degree of competition is very high. Prices are believed to have fallen substantially compared to the general price level since liberalisation and companies have not been able to raise the prevailing market rates over the past year to cover substantially increased costs due to higher oil prices. A study by Opletal-Ryba (1996) of the impact of privatisation and liberalisation in the Czech Republic found that it led to an increase in output, productivity and efficiency.

Table 5. Number of road freight transport companies in Czech Republic

Size (by number of employees)	Number of companies	
	1994	1999
1-5	28 554	33 855
6-9	2 126	2 730
10-19	1 021	1 090
20-49	473	508
50+	116	125

Source: Ministry of Transport and Communications, Czech Republic Transport Yearbook 1999.

Table 6. Number of employees and productivity, 1996

	Employees per company	Tonne km per employee (000)
Czech Republic	6.2	0.15
Poland	3.4 ¹	0.30
Austria	7.8	0.45
Germany	4.3	
European Union	3.9	0.68

1. 1994.

Source: Boylaud, 2000.

Table 7. Development of goods transport in the Czech Republic

(in thousand million tonne-kilometres)

	Rail			Road (Haulage on national territory by domestic registered vehicles, national and international)		
	Total	National	International	Total	National	International
	1990 (est)	40			33	
1993	24.14			25.26		
1994	22.82	10.99	11.83	23.56	12.15	11.42
1995	22.63	10.33	12.29	31.27	14.70	16.57
1996	22.34	10.49	11.85	30.05	14.10	15.92
1997	21.01	9.80	11.21	40.64	17.05	23.59
1998	18.71	8.19	10.51	33.91	17.93	15.98
1999	16.71	7.12	9.60	36.96	16.93	20.03

Source: Czech Ministry of Transport and Communications-Transport Year Book and Regulation and Competition issues in Road Transport (Czech Republic Contribution), OECD (2000b).

Transit rail haulage accounts for around 15% of total international haulage - this share has been growing. Germany and Austria are by far the most important ultimate destinations and sources of exports and imports, measured on a weight basis. Once the Czech Republic joins the EU, closer economic integration and less restrictive regulation (especially less severe supply restrictions on transport) should cause international freight to increase substantially.

International transport accounts for a relatively large share of the total transport services supplied by the Czech industry - in 1996, the international share was 53% measured on a tone km basis. This compares with an EU average of 19%. Austria was also high at 59% though Germany was low at 15% (Boylaud, 2000). The completion of infrastructure networks is thus critical for smooth adjustment.

5.2. *Regulatory institutions and policies*

The Ministry of Transport and Communications is responsible for the regulation of the industry, including the preparation and implementation of legal regulations and international agreements.

In what became the Czech Republic, the process of liberalisation in the road freight transport started in 1991 when regulation of prices was abolished. Today, prices are established on a contractual basis, and no price control is exercised by industry associations. Privatisation of the sector commenced in 1991— the so-called 1st round of privatisation. There remains residual government participation in the road freight sector, but this is not significant.⁹ Under Act no. 455/1991 Coll. (*Zivnostensky zakon*) the conditions for establishing enterprises (including road freight enterprises) were set. An enterprise is regarded as having Czech origin and thus has access to the Czech market if it is registered in the Czech Republic — there are no checks on the level of shares owned by foreigners.

Accession of the Czech Republic to the EU commits the Czech Republic to approximate its law with the Community law, which in the transport sector involves competition, technical standards and social regulation. The Act on Road Transport, which entered into force in 2000 adapted Czech provisions on access to the profession to EU law. Consequently, there is now uniform regulation between Czech and the EU on this matter. A licence to provide road haulage services requires applicants to demonstrate technical competence, financial capacity in the case of vehicles over 3.5 tonnes total weight and enjoy a “good reputation”. Those who transport on their own account, are not subject to any licence requirement. Own account transport amounts to around one third of total road freight (CR Transport Year Book, 1999).

There are no numerical limits on the number of licences issued in total or to any individual carrier. The authorities do not attempt to match demand and supply in the industry in making licensing decisions. However, in response to a perceived oversupply in the industry, the authorities have tightened the requirement to demonstrate financial competence. The required level of financial capacity was increased in July 2000 to the level specified by the EU, *i.e.* a minimum level of 9 000 Euro for the first truck and 5 000 Euro for additional trucks.¹⁰ Such tightening of entry conditions is not an uncommon trend in CEEC states following the explosion of entry and excess capacity problems in a number of countries. The issue of entry restrictions and related issues of competition effects of technical regulation are discussed in the evaluation below.

The granting of the licence is an administrative procedure, subject to a variety of deadlines for completion. If the deadline is exceeded, the license is not deemed granted, but the applicant can ask for financial compensation if there is any loss because of delays. Carriers already operating in the market cannot interfere with the licensing procedure. Licences are not limited geographically in terms of services or routes that can be used or in the length of time the licence is valid. A licence cannot be transferred freely to another entity. Given their ease of availability and the absence of excess returns in the industry they have no effective market value, suggesting the absence of any scarcity value or capitalisation of rent accruing in the industry.

The competition law applies without any limitations or exceptions to this sector. The Office for the protection of Economic Competition has not adopted any decision in the road haulage sector, either in terms of horizontal arrangements or abuse of dominant position, *e.g.* in the form of predatory pricing.

The road freight market within the EU is highly liberalised. Effectively, it is a single market, with the only entrance requirement being a national licence from an EU country which permits unrestricted international and domestic carriage irrespective of the country of origin of the carrier within the EU (Box 6)

Box 6. European Union price and entry regulation in road freight services

A basic objective of the EC Treaty was to liberalise the market for transport services to establish a Single Market within the EU. This has been largely achieved.

Price regulation of rates for the international carriage of goods by road between Member states ceased in 1989 (Council Regulation 4058/89). Prior to this, there was a system of bracketed rates originally intended to protect the railways, but subsequently aimed at preventing "excessive competition" in the trucking sector. This system broke down as a result of non-observance by carriers and shippers. Price regulation of domestic traffic by member states was not directly affected by the deregulation of international pricing, but most EU countries have abandoned domestic price regulation of road haulage.

The first major reform of access to road freight transport markets at the EU level was limited to international markets. That is, it was limited to services in which a vehicle is loaded in one Member and unloaded in another. Under Council Regulation 881/92 of 26 March 1992, any carrier registered in a Member state could provide bilateral or cross trade services on a for-hire basis if it had a "Community Authorisation" for international service. These authorisations were not restricted by quota. Own-account international transport did not require a community authorisation, but own-account operators cannot carry traffic for reward, including on back-hauls (European Commission 1999, p. 33).

The next major reform (Council Regulation 3118/93 of 25 October 1993) gradually liberalised national or "cabotage" markets, that is, where a vehicle operated by a non-resident carrier is loaded and unloaded in the same Member state. Over the period to July 1998, this reform progressively expanded a permit system for trucks to obtain a Community Cabotage Authorisation to perform cabotage services in another Member state. These authorisations were valid for only one or two months and were subject to an increasing quota. Since 1 July 1998, the system of cabotage authorisations was abolished and any truck authorised to perform international transport services under regulation 881/92, *i.e.* holding a Community Authorisation, may perform cabotage services in any Member state. In practice however, cabotage penetration has been small (see ECMT (1998) p.10).

Council Regulation 3118/93 introduced an anomaly. Whereas truckers who carried goods between two points in the Member state where they were registered were subject to that state's rules, truckers who performed the same service but were registered in a different state were subject to Community rules. However, given the general liberalisation of the market there would appear to be limited scope for countries to impose more restrictive conditions on their own carriers than on foreign carriers.

The liberalisation of access has also led to efforts to standardise regulation in the social, technical and taxation areas so as to level the playing field between EU members.

Important regulations in this sector relate to driver safety. Council Regulation 3820/85 of 20 December 1985 establishes driving time maxima and rest time minima. Council Directive 88/599/EEC specifies how regulators should check that these standards are indeed met, specifying road-side checks and inspection visits to the offices of the transport companies.

A later directive (Council Directive 96/26/EC) harmonised entry standards for granting a Community Authorisation. An Authorisation can only be denied on the grounds of a lack of a good repute (measured by criminal convictions against social and technical transport regulations), financial standing (the undertaking must have minimum specified capital and reserves) and professional competence (the manager of the undertaking must pass an examination or have requisite practical experience). Authorisation is required only for vehicles in excess of 3.5 tonnes. There is variation in the financial capacity that must be demonstrated in different countries — there is a harmonised minimum level from 17 March 1998 of 9000ECU for the first truck and 5000 for other vehicles.

Considerable effort and some progress has been made by the EU to simplify and harmonise taxes and charges on trucks to equalise competitive conditions (ECMT (1998) and ECMT (2000a)). However, non-neutralities remain, notwithstanding ECMT recommendations regarding standardisation. It is proposed to shift the structure of taxation to more emphasis on territorially-based taxes and charges (including tolls and distance charges) so that the place of registration is used to a lesser degree as the taxing point. A set of EU rules exist on “dumping” *i.e.* selling below cost. However, the procedures are so complex that it is almost impossible to prove that prices do not cover costs (ECMT, 1998 p 28).

In contrast to the Czech domestic market and the EU market, the regulatory framework applying to international freight between the EU and the Czech Republic remains, with most of the EU countries, highly restrictive. Entry is regulated by a web of bilateral and multilateral agreements between countries that restrict quantity and capacity in various ways. Bilateral agreements between the respective countries govern both the number and distribution of permits to engage in the trade. There is also a limited number of multilateral permits under a system set up under the auspices of the ECMT (see Box 7). International trade between the Czech Republic and Poland and the Slovak Republic is similarly regulated by bilateral agreement but it is very liberal, permitting open access of firms from either country to international trade. However, the domestic markets of Czech, Poland and Slovak Republic remain protected under these agreements because cabotage by firms from other countries is not allowed.

The bilateral agreements and limited scope of the ECMT licence system means that the freight markets among the CEEC and EU are fragmented, with consequent inefficiencies. Regulatory arrangements prohibit cabotage and, in the absence of multiple licences, third country haulage is restricted — this reduces the range of possibilities for back-haul and intermediate loads. For example, it is prohibited for Czech trucks to haul from Czech to France under a bilateral French licence without also having a licence from Germany — the same applies in respect of any back haul load. This illustrates that an important “missing element” in the patchwork of regulation established by the bilateral agreements is a generalised transit agreement. Efforts to implement such an agreement began with a mandate given to the European Commission by the European Council in 1997 to take this matter forward, but no substantive outcome has been achieved. Even if such a generalised transit agreement were established, restrictions would remain. For example, under a transit agreement it would be legal for a Czech/France load to transit Germany without a German permit, but it would not be legal for a back haul load to be taken from France to Germany and a second back haul load from Germany to the Czech Republic (even if the Czech truck also had a German/Czech bilateral licence).

The Czech Republic exchanges more than 60 different kinds of permits with European and Asian states, the total number of which varies by negotiation. In 2000, the Czech Republic had about 375 000 single permits to distribute to market participants. The basic quota of ECMT permits for the Czech Republic is 141 permits. There are quite restrictive limits on the number of permits with individual EU countries — for example there are only 10 000 single journey permits for France per year (or around 30 per day) and truck using these permits also need a German permit.

Due to the demand for permits exceeding the supply, permits are distributed to international road operators through computer software that allocates permits anonymously. The allocated number of permits for individual operators depends on the number of permits available and on the demand of all operators and past allocations and use. Permits are not tradable. The Czech authorities are concerned about the limited number of permits available to the industry — as an approximate indication, if the total licence

numbers were spread evenly over the industry, they would allow each truck engaged in international haulage (which is only a fraction of all trucks engaged in the sector) to make only 10 international trips per year.

Apart from fragmentation of the market, the major concern of this anti-competitive regulation is the numerical limits on entry and consequential restrictions on trade. There has been increased fraud in ECMT licensing in recent years which reflects a scarcity value related to insufficient legal supply. It is important to note that own account transport is *not* exempt from permit requirements under the bilateral agreements that the Czech Republic has with EU countries, with the exception of the Netherlands, UK, Germany, Belgium, Luxembourg and Ireland. In parallel with this, the Czech Republic has taken a reservation against the liberalisation of own account international freight transport under ECMT instruments. The Czech Republic is seeking in its bilateral negotiations to exclude own account transport from permit requirements, which would result in a minor liberalisation. Beyond this, the Czech republic has proposed complete liberalisation of this market in its accession negotiations with the EU, but has received little positive reaction from most EU countries.¹¹

The accession of the Czech Republic to the EU will underpin a liberalisation of the international freight market between the EU and Czech Republic, as long as EU countries do not insist on substantive derogations from liberalisation in the accession negotiations. The Czech authorities have indicated that they will not be asking for any derogation in the field of road transport in the negotiations but obviously cannot rule out the possibility that some of the EU states will do so. Based on past developments it could perhaps be expected that some countries will seek to restrict “cabotage” — which would be unfortunate. The Czech authorities have also indicated that they expect “certain regulations as concerns transit through Austria”. In view of the economy-wide costs of derogations, any transitional periods relating to these possible derogations should be as short as possible.

In the interim, it would be desirable for Czech authorities to continue to strive toward early liberalisation of this market by pursuing less restrictive bilateral agreements with EU countries — a key step would be a less restrictive agreement with Germany. The Czech authorities should also pursue agreement with Poland and the Slovak Republic to mutually abolish the restrictions on cabotage which are residual protections for their respective domestic markets. This could be seen as preparatory to EU accession by these countries which would necessitate liberalised cabotage with the Czech Republic.

Box 7. ECMT agreements on trucking

No principle in international law guarantees foreign transport operators freedom of transport in national territories. Such rights must be established by specific agreement. This has long been a difficult area.

In Europe, the first liberalisation of for hire international transport was achieved in 1974 by the European Conference of Ministers of Transport (ECMT) through the creation of a system of multilateral licences for non-cabotage haulage between Member states. The ECMT includes 40 Member states. Its main function is to further mutual co-ordination of transport policy in Europe by means of making agreed recommendations to member states.

ECMT licences are either for an annual period or for 30 days (the short term licences are not valid on Austrian territory). A quota system allocates licences between countries according to their relative importance in terms of GDP and road freight traffic. Only 10 970 annual licences existed in 1998 (ECMT (1998) page 4.) As at 1 January 1997, the Czech Republic had 340 annual licences of which a maximum of 64 were valid in Austria, 55 in Italy and 141 valid in Greece (ECMT (1997).

This system applies only to vehicles with a payload of 3.5 tonnes and an all-up weight of 6 tonnes — below these limits haulage is not limited (neither an ECMT or bilateral licensee is required depending on the bilateral agreement) between ECMT Member states (except Austria, Finland and Italy). Own account transport is also liberalised, with the exception of Austria, Belarus, Czech Republic, Estonia, Finland, France, Hungary, Italy, Lithuania, Poland, Portugal, the Russian Federation and Turkey which have not liberalised this type of transport. There are a number of other more specific liberalised categories (ECMT 2001).

In 1998, ECMT Ministers agreed to implement reorientation of the multilateral licensing system to promote less environmentally damaging and safer transport. From 1 January 1999, traditional licences could be progressively exchanged for two “green” or four “greener and safe” from 50 to 100% of the basic quota. It was expected that the exchange process would take several years (ECMT, 1998c).

The ECMT multilateral authorisations apply to only a small fraction of international trade between the EU and other countries and outside of the EU. Most such trade is covered by bilateral agreements. These agreements are not uniform but the ECMT recommended in 1997 a standard or model agreement

The model agreement, which is optional, aims to harmonise bilateral agreements within EU law to reduce fragmentation in EU-CEEC road freight markets. Its main advantage of conforming with the model agreement is promoting common standards and definitions which would have a positive effect on competitive neutrality between the various markets covered by the existing patchwork of bilateral agreements.

The model agreement largely incorporates the provisions of the regime applying to ECMT licences. This in effect provides a framework for countries to bilaterally licence additional trade on ECMT terms, thus making the licences subject to the relevant international and national framework of social and other regulation (ECMT, 1997b). In respect of road freight, the model agreement envisages a permit system with the following features:

- Covers transport between and transit through the contracting parties, as well as transport from a contracting party to a third state so long as the journey includes the country of registration of the vehicle (in the later case presumably a permit is required for transport into the third state as well).
- Cabotage is only permitted with the special authorisation of the host country.
- Exempts vehicles with a maximum payload of less than 3.5 tonnes and an all-up weight of 6 tonnes.
- Exempts own account transport.
- Exempts road legs of combined transport, where the road leg is less than 150 km or the closest freight loading terminal is used, and the rail or sea leg represents the major part of the journey
- In the case of neighbouring countries, exempts transport between adjacent border zones of a depth of 25 km provided the destination and departure are less than 100 km apart.
- Transport of perishable goods is subject to a quota free permit system, and there are a number of other more specific liberalised categories.
- An agreed number of permits are exchanged between the contracting parties each year and are issued to resident transport operators by a competent authority.
- Permits are not transferable.
- Trucks registered in one contracting country cannot be taxed in the other country in respect of the ownership, registration and use of the vehicle. However, road use fees are not excluded.
- The Agreement is jointly enforced by the contracting parties, with provision for mutual assistance and a joint committee to administer the operational terms of the agreement.

Frontier controls still operate between the EU and the Czech Republic, while for the most part these have been abolished for border crossings within the EU. Consequently, transit operations through the Czech Republic or originating or terminating within the Czech Republic involve border customs arrangements. The Czech Republic is a contracting party to the most important international conventions¹² which govern these matters and seek to facilitate processes to reduce waiting times at border crossings for international trade. These conventions and national customs legislation govern the operation of customs offices. Check point procedures focus on traffic originating or terminating in the Czech Republic, traffic carrying sensitive and high risk goods and on a random basis for other traffic. Since 1993, international road freight traffic has nearly doubled and initially this led to long waiting times for customs procedures at border check points.

Czech authorities have put considerable effort into simplification and facilitation of border crossing procedures and collect data on weighting times in excess of 5 hours. The most effective measure for reduction of weighting times was the opening of the motorway crossing at Rozvadov/Waidhaus (connecting Prague-Nuremberg) in December 1997. Since this opening, extreme weighting times on all crossings towards Western and Southern Germany has become rare. This compares with the previous position of typical waiting times of 12-24 hours on all major Western German crossings after Sunday closures. The situation on the Eastern part of the German border has not changed significantly and longer waiting times remain quite common (see Table 8). Further success in this area requires close co-operation with competent authorities at national level and also at international level, particularly with the neighbouring countries. The Czech authorities are encouraged to further pursue their efforts in this area preparatory to the accession to the EU.

Table 8. **Comparison of traffic volumes and waiting times at borders (2000)**

Country	traffic	Share of queues exceeding 5 hours
Germany	47.38%	43.83%
D/West	32.53%	1.11%
D/East	14.85%	42.72%
Poland	12.99%	53.20%
Slovakia	25.29%	2.97%
Austria	14.34%	*

* Due to blockade of Czech-Austrian border during 2nd half of 2000, the data are not fully comparable.

5.3. *Competitive neutrality and “excessive competition”*

Notwithstanding the strong performance of the road freight sector in the medium term, the Czech authorities have described the industry as presently being in a state of “crisis”. This results from a combination of factors:

- Substantial excess supply, partly due to the economic downturn and the fall in freight volumes in 1998, which has only partly recovered. Second, severe restraints on international business (particularly compared with the domestic market) limits opportunities for the industry to adjust by shifting supply to export markets. With these constraints, Czech authorities suggest an over-capacity of 1/3.
- Significant cost increases as a result of the increase in international oil prices in 2000. Given the degree of competition, trucking firms have not been able to fully pass on cost increases to customers.

If over capacity persists, it could become an issue in EU accession negotiations and may serve to reduce the degree or slow the pace at which EU countries are willing to allow full entry of Czech trucks into their domestic markets. This would be unfortunate and is similar in some respects to the concerns about “competitive neutrality” - or concerns about the playing field *not* being level — that slowed liberalisation of the road freight market within the EU. Actual or perceived distortions to “competitive neutrality” between different countries can arise due to differences in the strictness of technical regulation. An example is the slow opening in the 1990’s of EU country domestic markets to foreign EU country trucks due to fear of massive market losses to advantaged foreign firms. Hesitant steps to liberalise cabotage in Europe were underpinned by fall-back measures in case there was “disastrous” loss of market share — in fact, these fall back measures were never implemented because cabotage penetration has

always been minimal. Similarly, concerns about so-called “social dumping” from lower wages in some countries, including the Czech Republic, have been a barrier to liberalisation between the EU and the accession countries. Some would see this particular issue as a simple case of comparative advantage.

The range of issues here is very wide and includes differences and inconsistent application of technical regulation in different states, complexity of the law which makes compliance difficult, and taxes and charges. A threshold policy question is “Does more competition mean less technical compliance?” This is a subject of debate among transport policy makers. One barrier to robust analysis in this area is a lack of data on the extent of non-compliance.

- At the level of principle, it is clear that if industry participants are earning at least a normal rate of return on invested capital, incentives to engage in non-compliance (extra profits) exist irrespective of the degree of competition. Artificially restricting competition by raising entry barriers is not an effective substitute for appropriate enforcement of technical regulation.
- If, on the other hand, market participants are making losses due to excess supply in the market, incentives to non-comply may increase in a non-linear fashion with their losses. The appropriate remedy in this case is to address the reasons for excess supply, *which might include lax enforcement of technical regulation* or exit problems, among other things. Clearly, if the economy is growing robustly or if foreign markets are not closed, this is likely to be less difficult to deal with.
- The best response to this issue is to step up compliance efforts in respect of the social and technical regulation. A second best remedy would be to artificially raise entry barriers beyond that justified by technical and cost reflective infrastructure charges. For example, if trucks routinely exceed speed limits because of pressures to increase profits, the best and lowest-cost response is to enforce speed limits more effectively. The argument that reducing competition by raising entry barriers will increase profitability is true, but it is dubious that it will reduce the economic incentive to speed if the probability of detection and size of penalty for speeding is unaltered, and the costs can be very high. The argument becomes slightly less clear as regulations become harder to enforce. When regulations are very hard to enforce, it may seem more appealing to seek solutions by reducing competition. However, it is poor regulatory practice to introduce regulations that cannot be practically enforced — hence there is a clear benefit in having regulations designed to address their objectives in the most efficient way possible.

The Czech Republic has made significant efforts to improve its technical regulation by aligning its law with the EU law. It has also made significant efforts to improve the enforcement of technical regulation. One example is the program to install additional truck weighing stations to detect overloaded foreign trucks. Similarly, the Czech Republic has made progress in aligning taxes and charges within the range applying in the EU.

5.4. *Conclusions and policy options for the Czech road freight sector*

In European countries, there was a long-standing tradition for much of the 20th century of regulatory intervention in the road haulage industry to limit the competitive threat of road haulage to state-run railways. These interventions both limited entry and restricted quantity or limited the services that could be provided by road haulage (ECMT, 1998). In post-war years, the regulatory emphasis gradually shifted away from limiting the competitive environment for road freight towards co-ordination of transport modes, though the effect remained to limit the development of road haulage. It was not until the late 1980s and early 1990s that liberalisation progressed relatively rapidly in the EU.

In central and eastern European economies, protection of the railways remained a primary transport policy objective for a longer period, reflecting the much tighter control of state planning and the public ownership of road freight enterprises. State enterprises were in a monopoly position in international transport and trade was greatly constrained by a system of bilateral agreements. Foreign firms were prohibited from the market. From this inauspicious point, liberalisation in what became the Czech Republic was very rapid.

Domestic regulation of the trucking sector was liberalised early in the transition process in 1991 and is now effectively equivalent with that prevailing in the EU in terms of entry, safety and environmental standards. There are no numerical restrictions on entry and prices are not controlled. The domestic industry is highly competitive, with many small-scale private operators and a minimal government presence.

The Czech experience with liberalisation of the road freight sector has been similar to that in other countries and successful. It has resulted in lower prices, improved quality of service and more flexibility (OECD, 2000). As the economy develops further, and becomes less orientated toward heavy industry and less energy intensive, the trucking sector will continue to grow in relative importance in the supply of transport services. As the trucking sector grows, the benefits to the Czech economy from the liberalisation of the trucking sector are likely to increase.

The experience of the industry since liberalisation has not been without difficulty. The recent problem of over-capacity and low profitability is due more to shocks from outside of the industry — the 1998 recession, increase in oil prices and the limited opening of most foreign markets — than to faults with the liberalisation process. Artificially raising entry barriers to the industry would be an inappropriate and costly response to this situation. It is appropriate that the authorities have done no more than increase the level of financial capacity required to enter the industry up to the EU specified minimum.

The EU accession and consequential market opening to road transport will be a watershed event for the industry, given the existing highly restrictive limits on international permits which are regulated mainly by bilateral agreements. Substantive derogations from the now highly liberalised EU road freight regulatory framework in its application to the Czech Republic after its accession would be costly to both the Czech Republic and to Europe. The Czech Republic should continue to seek liberalisation of international trade mutually with EU and CEEC countries. In this context, the following recommendations are made:

(1) **Liberalisation:** Prior to EU accession, the Czech authorities should:

- Seek to increase the number of bilateral permits and reform of the bilateral framework mutually in several dimensions.
- Seek to increase the number of ECMT permits.
- Seek harmonisation of bilateral agreements with EU countries in the direction of the ECMT Model agreement.
- Participate in mutual processes to agree a multilateral transit agreement with the EU.
- Specifically in the context of the above points, remove restrictions on liberalisation of own account transport from ECMT and bilateral agreements, mutually with EU countries and most importantly with geographically close trading partners.
- Remove cabotage restrictions within bilateral agreements with other CEEC countries.

(ii) **EU Derogations:** In the context of EU accession negotiations, the Czech authorities should:

- Limit to the greatest extent possible protectionist derogations from the freedoms that would otherwise accrue in respect of transport from the accession to the EU, either by the Czech republic, by EU countries or by other accession countries against the Czech Republic.
- Strive to make any transitional periods in any such derogations as short as possible.

(iii) **Technical Regulation:** In support of the general environment for market opening, the Czech authorities should work to ensure that:

- Czech technical regulation and the tax and infrastructure charge framework applying to the Czech road freight industry is comparable with the range applying in EU countries and is seen to be adequately enforced.

6. THE RAIL FREIGHT SECTOR IN THE CZECH REPUBLIC

6.1. *Description of the rail sector*

Czech Railways (CD) is a state organisation 100% owned by the Czech Government. CD is responsible for rail services in the Czech Republic, using and managing the railway infrastructure that is directly owned by the state. Beside CD, 17 private licensed operators exist but only 4 of them operate regular services.

The sector consists of two main parts, infrastructure and transport services. Transport services can be further divided into passenger and freight, and passenger can be divided between local and long-distance. This chapter is concerned only with the freight sector and its infrastructure issues. Rail and road compete for transport freight. Compared with the road sector, rail in the Czech Republic has only been partly liberalised and is undergoing substantial and difficult structural adjustment. The rail sector has continued to lose market share to road freight, which reflects continuing structural change in the economy and the increasingly competitive nature of the road sector.

In the Czech Republic, as elsewhere, rail has a comparative advantage in the transport of bulk commodities — coal, iron ore, construction materials and forestry products — where its price advantage outweighs reliability and speed in buyers' choice among modes. These commodities are the main lines of business of CD, although heavy manufactures are also important.

Rail has difficulty competing in non-bulk markets involving multiple delivery points. Czech Railways has been losing share progressively, down to less than 30% of total road and rail freight tonne-kilometres in 1999, compared with more than 50% in 1990 (Table 9). CD does not price discriminate to try to meet the competition from road. This loss of market share by rail is a common trend in Europe, but the Czech Republic still has a higher share of freight carried by rail than the average in the EU, where the share of rail in the total freight market fell from 32.7% in 1970 to 14.5% in 1997. Total rail freight in 1999 in the Czech Republic was down 11% from 1998.

The Czech Government, in common with other governments, has a number of concerns about this trend given its implications for increased road congestion and the environmental costs of transport (MTC, 2000). Multi-modal transport, where both road and rail are used, is one way to reverse this trend, and although it is not yet a significant mode of travel in the Czech Republic, the government wishes to promote it as part of an integrated transport policy. Similarly, options for water transport are limited in a land locked country with relatively few inland navigable water routes.

Other major transport policy objectives include improving the rail sector's efficiency, reducing the public contribution to the sector and promoting a shift from road to rail. One step involved is the substantial restructuring of CD under the transformation law to shift it from a state enterprise with close ties to the Government to a more autonomous business entity, although it would remain 100% state owned for the time being. This will include formal separation of infrastructure and operations elements of the rail sector and resolution of long standing problems with asset ownership and debt liabilities if the Transformation Act is passed.

CD is a large employer — around 90 000 staff in 1998. Employment fell significantly during restructuring and rationalisation, from a level of around 105 000 staff in 1994. Freight operations of CD are profitable (profits of CZK 1.6 billion in 1998) but this result is distorted by significant under-valuation of assets at socialist-era prices, which can be as little as 10% of replacement costs (ECMT, 2000t). Overall, CD has substantial excess capacity (in infrastructure and personnel) and consequentially low productivity. CD incurs large losses, a substantial part of which results from public service obligations to provide passenger transport between major population centres and especially in regional areas at regulated prices that do not recover costs. These public service obligations are not directly compensated by the state, but the consequential losses have been effectively met from the state budget in the form of loans with state guarantee to CD. Accumulated losses since 1993 amounted to around CZK 30 billion in 2000. Annual losses in recent years have averaged slightly less than ¼ of a% of GDP.

CD has been investing heavily, mostly in corridor enhancements that are of most benefit to passenger services due to consequential speed enhancements. This is necessary to better integrate the Czech rail system with the rest of Europe. Given limited funds, the freight business suffers from considerable under investment and its 60% of its rolling stock is substandard or obsolete (ECMT, 2000t). The rail network in the Czech Republic is very extensive, with a much higher rail density than the European average. This is a historical legacy.

6.2. *The structure of the railway sector*

Railway infrastructure for tracks, terminals, stations, signalling systems, etc is highly capital intensive and most of these costs are sunk. Moreover, there are considerable economies of scale and density. For example, double track has approximately 4 times the two-way train capacity of a single track, yet construction costs are less than double, including because the land corridor does not have to be twice as wide. Train operations also exhibit economies of scale — longer, heavier trains have a lower per freight unit cost — but these economies are less than at the infrastructure level. And there are scope economies between track operation and train operation, again not as significant as the scale economies in track infrastructure.

Traditionally, these underlying economic conditions were seen as justifying natural monopoly and significant government intervention, including ownership and operation of rail systems. But government entities involved in rail transport have traditionally been highly inefficient because of their monopoly position and absence of competitive threats and governance problems. Indeed, in earlier decades government policy was often orientated toward limiting competitive threats from the road freight sector.

However, policy views have shifted over the past decades to the point where it is now the general consensus that:

- Competition from outside and within the rail sector can bring substantial efficiency benefits and should be fostered where possible.

- The natural monopoly element of the industry is limited to the provision of track infrastructure and it is possible to have competition “above the rails” in train operation.
- This requires separation between the infrastructure and operation elements of the business, and consequentially some loss of economies of scope and increased contracting costs, but the efficiency benefits from competition should outweigh these losses.
- Market competition in operations will sort out the most efficient “above rails” structure so that economies of scale in operation need not be lost.
- To permit competition in rail operation requires regulation to manage access to track and a more commercial orientation of train operators, which in turn requires that governance arrangements and PSO requirements need to be put on a more commercial footing.
- Careful regulation is also necessary to ensure that rail infrastructure companies have appropriate incentives to properly maintain track. Poor and or wasteful maintenance is also a problem in systems under state ownership and operation which have a variety of implicit or “internalised” regulatory arrangements. But, in the case of private participation the regulatory role must be made transparent and should meet all of the standard features of quality regulation.

Over the last ten years, European and Czech law have moved in these directions.

6.3. *Regulatory institutions and policies*

CD is both regulated by and, through the exercise of ownership rights, governed by the state. The regulatory framework implemented by the Czech Republic is influenced by European rules. CD is a state organisation under the supervision of the Ministry for Transport and Communications. The national government appoints and can remove the Board. The Chairman of the Board represents the government.

The Ministry approves CD’s investment plans and sets public service obligations. The Ministry of Finance regulates prices for passenger transport (based on proposals by the Ministry of Transport and Communications and in consultation with CD), but freight rates are not regulated. The sector is also subject to the competition law enforced by the Office for the Protection of Competition.

The Czech Republic has moved to introduce competition in rail transport, and some private entry has occurred — mostly on dedicated short haul high weight routes. The Railway Authority (Drazni Urad), an independent government office, regulates access - acting as a “gate keeper” to ensure safety by licensing operators and drivers and giving technical approval to rolling stock — but it is the Ministry of Finance which sets maximum track access charges. The 1994 Railways Act requires that CD provide access to track, but not to rolling stock, terminals or other equipment. Hence, CD is able to forestall some entry but it cannot prevent entry by operators who have all the necessary equipment — *e.g.* a coal mining company shifting coal to a power station using its own rolling stock, locomotives and terminals. CD is concerned about entrants “cherry picking” its most profitable businesses, with consequent implications for the financial “viability” of the remainder of the business. This is a common occurrence when sectors are opened to competition while the incumbent is still required to cross subsidise loss-making markets to fulfil public service obligations.

The following tables set out the framework of law applying in the Czech Republic to CD and track access and the relevant EU framework to which the Czech government is committed as part of the accession process. This report does not assess whether existing or prospective legal framework in the Czech Republic satisfy EU requirements. It can be noted, however, that, broadly, access arrangements are

in place — indeed the Czech Republic provides wider access than required in the EU framework by allowing any licensed operator, not just international groupings and combined mode transport. Similarly, the basic frameworks for operator licensing, access allocation and dispute settlement are in place and independent from the train operators, though it would be fair to say that, due to the degree of over capacity in the track system, this framework has not been severely tested. At this stage, access planning is apparently done co-operatively between CD and entrants.

Table 9. Czech rules on CD and track access, and EU rail access/competition directives

Czech Railways Act 1993 (9/1993) (Amended by 212/1993)	<ul style="list-style-type: none"> Established legal entity of CD as a state organisation and specifies basic line of business as carriage of passengers and goods by nation wide track infrastructure. Set up accounting and governance framework.
Act 526/1990	<ul style="list-style-type: none"> Price regulation function exercised by Ministry of Finance, for passengers and track access — published in Prices Gazette.
Track Infrastructure Act 1994 (266/1994)	<ul style="list-style-type: none"> Restructured CD to provide basis of open access. From 1 January 1996 CD separated into two divisions: Railway Routes (infrastructure) and Business Operations (separate departments for freight, passengers and rolling stock.) Funds cannot be transferred between divisions other than for services provided. Established Railway Authority (Drazni Urad) as independent government office to regulate access. Grants licences (professional competence), concessions to operate specific track section subject to available capacity. Since January 1995, requires CD to provide access to licensed operators (by Railway Authority) and allocate capacity. Provides for appeal to Authority by operators on capacity issues.
MTC Decree 101/1995	<ul style="list-style-type: none"> Since January 1995, stipulates standards and verification of health and professional qualifications for track and train operators.
MTC Decree 173/1995	<ul style="list-style-type: none"> Since January 1995, establishes traffic regulations, mechanisms to resolve capacity congestion.
Czech Railways Act 1994 (1999 Amendment) (Public service obligations)	<ul style="list-style-type: none"> Defines the mechanism for compensation to meet CD's public service obligations (PSO) as from 2000, consistent with EU requirements.
CD Transformation Act (Draft under hearing by Parliament.)	<ul style="list-style-type: none"> Creates new stock company <i>Czech Railways a.s</i> to take over function of Business Operations 100% owned by the state. New state organisation <i>Czech Railways s.o.</i> to own infrastructure. Settles ownership and transfer of non- track property, rights and commitments as between the joint stock company and the state organisation. Sets governance framework of <i>Czech Railways a.s.</i> and relationship to Ministry of Transport and Communications. Specifies management role of <i>Czech Railways a.s.</i>

European Union
<ul style="list-style-type: none"> • Regulation 91/1893/EEC concerning the obligations inherent in the concept of public service in transport PSOs must be provided for in contracts. Urban, sub-urban and regional services may be excluded from this requirement but their accounts must be separated from non-PSO activities.
<p>Directive 91/440/EEC on the Development of the Communities Railways</p> <p>Governments must:</p> <ul style="list-style-type: none"> • Afford railway operators independence to behave commercially. • Ensure infrastructure and operations have separate accounts (compulsory) and managed separately (optional). • Prevent aid given to infrastructure passing to operations and vice versa. • Establish rules for payment for infrastructure use based on non-discrimination. • Grant rights of access for international groupings to run international freight and passenger services. • Grant track access to international combined transport operations. • Ensure PSOs and related contracts are made according to commercial principles. • Ensure sound financing structures for public railway undertakings. • Reduce indebtedness to levels that do not impede sound financial management. • Provide State Aid to reduce debts only in accordance with EEC Treaty. <p>⇒ ECMT assesses that statutes significantly limit commercial freedoms, not full separation of infrastructure and operations, but scope of access is wider than mandated since open to all operators.</p>
<p>Directive 95/18/EC on licensing of Railway Undertakings</p> <p>Requires that:</p> <ul style="list-style-type: none"> • Operators obtain an operating licence (conditions, covering financial capacity, professional qualifications and insurance), a safety certificate, and path allocations • Statutes designate licensing authorities
<p>Directive 95/19/EC on allocation of railway infrastructure capacity and the charging of infrastructure fees</p> <p>Governments must, in general:</p> <ul style="list-style-type: none"> • Ensure non-discriminatory access for international consortia and combined transport operators as defined in 91/440/EEC • Ensure optimum use of infrastructure. • Ensure no discrimination in charging for the use of infrastructure. • In particular (within 2 years of 27 June 1995): <ul style="list-style-type: none"> • Define an infrastructure manager. • Ensure infrastructure manager accounts balance income (including PSO payments) and expenditures. • Lay down rules for determining infrastructure fees based on type of service, time tabling and infrastructure wear. • Publish procedures for allocation of capacity • Define an allocation body • Explain reasons for refusal to allocate capacity. • Appoint an independent body for appeals.

Sources: ECMT (1998*t*), ECMT (2000*t*) and draft Law on Transformation of CD, ECMT (1999*t*).

A difficulty for the development of competition in the rail sector is continued vertical integration between monopolistic and potentially competitive activities. This vertical integration provides incentives to discriminate against companies that are not vertically integrated. The EU framework addresses this issue by requiring at least accounting separation between track and train operators. However, having separate companies under common ownership is often not sufficient to prevent discrimination. In theory a better structural remedy is to restrict the businesses that the owner of the monopoly activities can engage in to exclude markets where the control over monopolies can impede the development of competition. In practice however, such separation needs to be balanced against the loss of economies of scope and contracting costs that arise from separation. These balancing factors appear to be more important in the rail sector than in other network industries.

Where infrastructure is owned separately from operations, it is essential to provide adequate contractual and regulatory incentives to ensure that investment is at an optimum level. This has proven to be a difficult regulatory issue in Britain following restructuring and privatisation of the railways and may prove to be the most difficult issue to resolve in this sector. [ECMT 2000]. Critical to success is transparency and clarity in service standards that are to be mandated by the regulatory authorities and to ensure that the behavioural incentives facing private operators are made compatible with mandated standards. In any event privatisation of Czech Railways is unlikely to be contemplated for the foreseeable future so this matter is not pursued here.

The proposed law on the transformation of CD has been clearly directed at addressing concerns about the degree of separation between infrastructure and operations that has been expressed by the ECMT. The proposed law details the creation of legally separate entities, settling property ownership between the state and business organisations and setting out a new governance framework. At this stage it remains to be seen whether the Act will pass through Parliament and the assessment that will be made of it by the European Commission.

Infrastructure Pricing. Access prices to rail infrastructure set by the Ministry of Finance account for a combined cost per train km and cost per gross tonne-km, *i.e.* prices are set according to short run operating costs. Consequently, access fees are low and do not reflect full maintenance costs. Prices were expected to increase by 25% during 2000 to include part of the investment costs, but it has not happened. Regulated access prices do not cover ancillary services which must be negotiated by contract — these include, premise rent, fuel, water, washing etc.

Presently, CD does not pay the maximum access charge. Without a highly detailed cost study, it is impossible to conclude whether this reflects an appropriate volume discount (since CD is the major customer of the network and thus its average contracting cost per unit of access will be low), or whether it represents a cross subsidy from the Railway Routes (infrastructure) division to the Business Operations division. This issue is not of critical importance at this stage with competition developing largely from entrants with dedicated facilities on short haul runs. However, if competition is to flourish it may become an issue for more general entry. If the price paid by CD is lower than would be justified because of its higher volume, this could amount to a discriminatory tariff or cross subsidy to CD. It will be important that the regulatory structure in place is capable of dealing with any disputes in this area. This includes having properly cost reflective regulated tariffs as a basis for entry.

Under the law being considered to transform CD access pricing powers will stay with the Ministry of Finance, unlike for the other network sectors where pricing decisions are being shifted to specific regulators.

Regulatory institutions. Several potentially conflicting objectives coincide in the governance, ownership, and regulation of CD, including:

- The desire for CD to become more efficient and reduce the drain on the public purse.
- The use of CD to provide public services, especially passenger transport.
- The government is the regulator of the competition environment and the owner of CD which must compete in that environment against new entrants.

These conflicts are by no means unique to the Czech Republic and, as elsewhere, the solutions are the same in principle. In a potentially competitive environment, opaque regulatory relationships — especially between the owner, the regulator and the operator — can discourage entry and investment in the sector.

It may therefore be preferable to shift the price regulatory power away from the Ministry of Finance to the Railway Authority. It is presently located in the MOF as a residual function from the time of central planning when the Prices Offices regulated the prices of a wide range of goods and services. It is not apparent at the level of policy principle why price regulation should shift to the new Energy Regulation Office but not to the railway regulator. This proposed change would require introduction of new legislation.

The decision about how to design and where to locate the regulator depends on a number of factors. How important is stable regulation to rail and, more broadly, the transport sector? To what degree does government take into account the effect of regulatory decisions on the value of state companies? Are independent authorities more or less subject to capture? Also there is the issue of industry convergence and economies of scope in regulation — in particular, there is a substantial degree of commonality between rail access issues and access issues which arise in other network sectors. This issue was raised in the context of the scope of the role of the new Energy Regulation Office

Entry regulations. Most of the entrants to rail freight in the Czech Republic (totalling 35 in 1998) were former customers of CD with dedicated terminal facilities that were previously served by dedicated CD lines. These entrants now operate through access to CD lines. By 1998, these entrants moved 11% of the total rail freight tonnage, though, reflecting the relatively short haul character of the traffic, the share of tonne-kms is much lower. Comparable figures for 1997 were 8% of tonnes and 1% of tonne-kms. These entrants are now offering services to third parties and average haulage distances have been increasing. Entrants are purely domestic — there has been no international entry. International services are operated by CD within the UIC framework. Presently the CD network has an excess capacity of train paths so entrants have not had to deal with capacity restrictions as a barrier to access.

While there has been competitive entry into the Czech rail industry, it has been highly targeted to the most profitable opportunities. It has not yet introduced general competition in the range of services provided by CD. This is hardly surprising, given the overall loss making character of CD's business, including the freight sector if capital costs were properly accounted for, and the fact that entry barriers into trucking as a competing mode of transport are very low. A report prepared on rail reform for the ECMT Conference of Ministers in 2000 ended with the gloomy conclusion:

“The conclusion overall is that, even in the OECD’s best performing rail systems, rates of return are insufficient to guarantee sufficient investment in the industry to provide for growth or even stability in the long term” (ECMT, 2000t, p 136).

This implies that i) there will be a need for substantial and ongoing subsidies to rail by governments to pay for community service obligations, including in the Czech Republic; and ii) inevitably, entry into rail will be focussed on a subset of services that are potentially profitable. The two points are linked. If governments permit entry, and they are committed to do so, then the subsidy needed to maintain desired community service obligations cannot be sourced from cross subsidies from within the rail company, that is, from monopoly profits in some activities. It is these monopoly profits and consequent high prices that attract entry in the first place and entry will continue to compete the profits away until only normal returns are being earned. At that stage, the customers being served by the now competitive element will have recaptured the surplus previously accruing to the monopoly.

The government can shift this balance if it wishes, by imposing a tax embedded in the access price and using the tax revenue to (partly) fund the community service obligation.¹³ It might be thought that such a tax will discourage entry and defeat the purpose of the liberalisation. In the limit, if a tax was imposed equivalent to the whole of the potential monopoly profit which formally accrued to the government enterprise there would be no entry at all and no benefit from competition — all that would

have been achieved is to change the accounting method by which the government received the monopoly profit. Hence, if entry is to occur the government must leave some potential profit to attract entry and be ultimately captured by customers. Competitive entry will improve the economic performance of the sector in question because monopolies are almost always internally inefficient. Moreover, embedding taxes into access charges is inherently complicated. It would be preferable simply to end the cross subsidies by a direct method. In particular PSOs should be explicitly set out and paid for in a contract with the Ministry of Transport. Beyond these it would be a matter for the commercial decision of CD whether or not to provide the services. Clearly, the scope of CD's services is of interest to a broad range of the public and also to the newly created regional authorities. Decisions about the scope of PSO's to be specified to CD need to be made as part of a consultative process.

In essence, what can be hoped for by introducing competition into the rail sector are much needed improvements in efficiency in the potentially competitive and potentially profitable parts of the sector. Improving efficiency in the non-competitive parts is essentially a challenge for governance and management within a government business enterprise context.

Access to the infrastructure. Non-discriminatory, efficient access to infrastructure is required for development of competition. Various types of infrastructure are important for freight transport. These include the tracks and signalling, the freight terminals where freight is transferred between truck and rail, and the locomotives and rolling stock themselves. Similarly, access to locomotives and rolling stock (for which the secondary market is undeveloped in the EU) and depots for maintenance are required to operate trains. The present Czech and EU legal framework gives open access only to track. Consequently, entry of new train operators is not easy, evidenced by the fact that new freight entrants in the Czech Republic already owned all of the required infrastructure to operate trains and required access only to the track (although some passenger transport operators use rolling stock rented from CD).

To promote entry by competitors, a secondary market for rolling stock could reduce the amount of irrecoverable (sunk) costs because it allows an exiting company to recover some of its equipment cost by selling it. The spread between purchase price and selling price of equipment is the sunk cost of that investment. For a market to significantly reduce the amount of sunk costs, the market needs a significant number of buyers and sellers. Where there are few buyers, the selling price can be expected to be low relative to the purchase price. As the number of buyers and sellers increases, the buy-sell spread shrinks, the sunk cost shrinks and entry is made easier. This would help competition and a positive feedback would occur — the more competition there is, the more participants would be in the secondary market and consequently the lower the entry barriers. Czech authorities should not discourage the emergence of such a market and participation of potential Czech entrants. Since CD has excess capacity, supply should not be constrained and Czech Railways a.s. should be discouraged from hoarding rolling stock as a means of forestalling entry. The authorities might also consider whether there are any operational barriers to the import of compatible rolling stock, which would presumably have to traverse track to enter the Czech republic. The operation of access arrangements and, particularly, safety certification of rolling stock located outside of the Czech Republic may need to be considered.

Increasing efficiency in CD and protecting competitive neutrality. By many measures, CD is inefficient. A 1999 Phare study on "Improvement of Competitiveness of Rail Transport in the CEECs" found that CD performed poorly with a ranking generally in the bottom half of the CEEC countries on a range of partial labour and capital productivity measures. Measures of the gross tonne kilometer per employee of CD are a little over half the EU average. Although difficult steps to improve efficiency have already been taken, further measures are required. The number of staff has fallen substantially from around 105 000 in 1994 to 90 000 in 1998, while the level of freight has also fallen by around a third over this period. Authorities expect that the number of employees will fall further to perhaps 45 000 by around 2005, which will be the staff of the operation part after the split of CD. The consequent social adjustments are significant and the authorities have sought to ameliorate these through separation packages focussed on retirements. The authorities hope to use EBRD credits to help fund further adjustment programs.

A recent OECD roundtable (OECD 1998) concluded that a soft budget constraint in railways represents the major obstacle in many countries to improving railway performance. Until now, the Czech state budget has effectively funded the losses of CD that have resulted from keeping open unprofitable lines and failure to make full payments due under PSOs. From 2001, PSO will be defined to give CD some choice in the level of service that it provides. It is expected that CD will reduce its services in some areas, but that this will not have dramatic effects on service levels available to the population because of alternative transport options provided by local bus transport companies. In this event, the government will no longer have a legal liability to make up for losses incurred in these services — the budget constraint is being hardened - and the government hopes that CD will adjust its behaviour to become more efficient. Nevertheless, the government will still need to fully compensate CD for PSOs.

Entry into potentially competitive markets now supplied monopolistically by CD would not necessarily induce CD to become more efficient if it is able to simply lower its prices and cross-subsidise from non-contestable activities or from state transfers. Hence, if there are not constraints on inefficiencies in the non-contestable parts of CD's activities, this could stifle competition in the potentially contestable parts. Long term pricing below a company's marginal cost is economically inefficient and doing so, or credibly committing to do so, discourages entry by more efficient competitors.

The prohibition on transfers from infrastructure operators to train operators, other than for services rendered, is an important safeguard, but it alone is not sufficient to deal with the problem. The application of competition law, particularly prohibitions on abuse of market dominance by predatory pricing are also potential limitations on CD from engaging in anti-competitive behaviour. However, it can perhaps be doubted whether action by the Office for the Protection of Competition would be feasible in these circumstances. First, CD is a public enterprise and, while public enterprises are subject to the competition law in the Czech Republic, experience in many countries suggests that enforcement against public enterprises is often more difficult than action against a private body. Also, there would be formidable difficulties in proving that CD is pricing below marginal cost. Present book values are highly distorted (though this problem may be partly addressed by the transformation of CD into Czech Railways a.s) and accounting systems are inadequate to generate good cost information for particular services.

For this reason, some countries have adopted specific regulatory solutions to deal with what are perceived to be problems of “competitive neutrality” when public sector entities engage in business activities which are actually or potentially in competition with private businesses. In Australia, a private business can lodge a complaint with the Competitive Neutrality Complaints Office if the business believes that a federal public sector competitor is breaching competitive neutrality requirements. The subject of the complaint, among other things, might be that the public entity is pricing inconsistently with the public entity earning a required rate of return on its *business* activities, *i.e.* consistently below cost. The Competitive Neutrality Complaints Office can investigate the complaint, including by requiring the public entity to provide information. If the complaint is found to be valid and if the public entity does not agree to change its behaviour, the Competitive Neutrality Complaints Office can make a report to the Treasurer and relevant minister which must then be responded to publicly. The system is designed to provide early solutions but with significant deterrents if the public entity chooses not to co-operate with the investigation (Productivity Commission (2000) and National Competition Council (1997)).

The Australian system sets up a complaint system that can apply to any government business enterprise or company owned by the government. It is designed to address the type of problem that could arise in the Czech rail system as additional competitors enter the market and CD attempts to defend itself by predatory type pricing which might be difficult to deal with under general competition law. The Czech authorities should consider vesting an independent body with a role to address this issue. The Railway Authority would be a possible candidate as an institution that could have its role expanded. If, as suggested above, the Railway authority was also to take over price regulation for passenger services and access pricing, it would have an excellent information base for protecting competitive neutrality in the sector.

Privatisation also reduces concerns about predatory behaviour by public entities that give rise to concerns about competitive neutrality. Nevertheless privatisation of CD is not on the government's agenda for the foreseeable future. In the absence of structural change, much can nevertheless be done to increase the efficiency within the rail sector. Greater use of competitive tendering is one possibility. For example, a large part of the infrastructure cost is maintenance. Much of maintenance can be made subject to tender. Provided the tendering is transparent and competitive, the winning contract bid should approach the minimum cost to perform the maintenance. As long as the infrastructure company has a review mechanism in place to ensure that the maintenance was performed to appropriate safety standards, the contract can be put out for tender.

In the context of the debate about the proposed transformation of CD, authorities have suggested that maintenance of infrastructure might eventually be provided under competitive tendering. It has been suggested that for the next five years Czech Railways a.s. would undertake the maintenance task. A five year transition before competitive tendering appears to be a reasonable proposition to allow adjustment of staffing. However, there should be a commitment to competitive tendering for maintenance at a pre announced future date. This will give Czech Railways a.s. a strong incentive to search for efficiencies in this activity so as to be ready for competition in 5 years. If there is no pre-commitment to competitive tendering the incentive on Czech Railways a.s. may be perverse. Specifically, Czech Railways a.s. may have an incentive to remain inefficient so as to increase the redundancy costs and political cost to the government of shifting to competitive tendering at some future date, and so reduce the likelihood that the Government would take this decision.

6.4. *Conclusions and policy options for the Czech railway sector*

The government of the Czech Republic has made significant efforts to reform the rail sector. Much of the regulatory framework is now aligned with EU requirements, importantly that concerning access. Competition in some particular freight sectors has begun with private entry under the existing regulatory framework. While Czech railways (CD) has been significantly rationalised since 1993, when there were almost as many rail employees in the Czech Republic as in France, it remains an unsustainable drain on the public budget. If services are to be preserved, further increases in efficiency will be required to move the rail sector onto a "sustainable" basis. The major regulatory challenge, however, involves passage of the Act on the Transformation of CD, which would substantially alter the structure of the present incumbent and is designed to address remaining concerns about separation of infrastructure and operations and the commercial orientation of operations. The regulatory structure involving licensing of new operators puts considerable emphasis on competence and safety issues — appropriately so as competition, in whatever form, should not compromise safety.

The Czech legal framework is undergoing further change to bring it into conformance with EU rules applicable to this sector, with an act on the transformation of CD now being considered by Parliament. Notwithstanding political resistance, the government is pressing on with reform proposals. Should these falter, EU ISPA funds (€40-85 million, of which around half should be invested in rail infrastructure) could be at risk. Beyond the short term, significant EU structural funds are linked to final accession of the Czech Republic to the EU, of which commitments to further reform in the rail sector are a part and are subject to the progress on negotiations on the so-called railway package within the EU.

The reforms implemented and those now proposed are significant and positive steps. Implementation should not be delayed. Further steps in the same direction would enhance the potential for beneficial competition in the sector. Competition should not be seen as a threat to CD's viability — the real threat is inefficiency in CD in terms of cost, quality, speed and timeliness.

Competition can act as a spur to greater efficiency by CD, which will be necessary if ongoing budget subsidies to CD are to be kept to a reasonable level. The government is not contemplating competitive tendering methods to deliver PSOs, so the scope of competition in the sector is likely to remain limited to profitable freight markets for the foreseeable future. Consequently, competition alone will not solve efficiency problems in CD. A major ongoing challenge for the government will be to continue to improve public sector management frameworks and techniques that will give incentives for CD to realise efficiencies in its unprofitable businesses activities.

CD and its successor under the Transformation Act will have to markedly increase efficiency and performance (cost, quality and timeliness) in the short and long terms to meet the government's objectives of efficiency, reducing the public contributions, and shifting freight back from road to rail. Competition from the liberalised road sector is strong and ongoing structural change and adjustment in the economy away from coal to gas and to less heavy industry is more likely to boost demand for transport services from the trucking sector than the rail sector.

Independent regulatory institutions would allow more consistent regulatory environment for investment, and would allow regulation of access to infrastructure and of train paths to be clearly independent of commercial interests. The former would allow CD and other market entrants to make efficient investments, and the latter reassures potential entrants of the levelness of the playing field and promotes competition where it is feasible.

Greater use of competitive tendering would promote efficiency and provide a route for entry by new companies.

Separate owners of infrastructure and rail transport services would help eliminate the incentives of the company to discriminate in favour of its own company, thus making easier the task of the regulator. But the value of such vertical separation must be balanced against the value of vertical integration, such as co-ordination and investments that depend on corresponding investments by the other part of CD, as well as, in the case of some rail services, the possibility that competition would not develop.

Against that background the following policy recommendations are made:

- (i) **Efficiency Improvement:** The authorities should continue to pursue internal efficiency reforms within CD and implement new governance arrangements that promote a commercial orientation, including in the performance of PSOs
 - CD will have to become more efficient if it is to be able to meet competition from new rail entrants and from the road sector.
- (ii) **Tariffs:** Ensure that access tariffs are cost reflective and based on appropriately re-valued assets.
 - In the absence of cost reflective tariffs the likelihood of inefficient new entry is increased.
- (iii) **Public Service Obligations:** Ensure that CD is paid full compensation for PSOs specified in a contract with the Government.
 - It is desirable to end cross subsidies PSOs from freight business within CD, otherwise CD will be at a competitive disadvantage in the freight sector.

- (iv) **Entry Barriers:** CD should be discouraged from hoarding rolling stock that complies with safety and technical standards and which is surplus to its requirements.
 - This will reduce entry barriers for new entrants. The Government could use its governance capacities as owner of CD to achieve this aim.
- (v) **Railway Authority Functions:** Consider enhancing the role of the Railway Authority to incorporate additional regulatory functions, including regulation of access prices.
 - It is not clear why this role is being retained in the Ministry of Finance. If this transfer is made there should be appropriate appeal mechanisms put in place, perhaps in the form of a specialist appeal tribunal.
- (vi) **Competitive Neutrality:** It may be appropriate to enhance competition safeguards by vesting the Railway Authority with a “competitive neutrality complaints” role that would address inappropriate cross subsidisation of potentially competitive activities within CD.
 - This mechanism would be more readily used than an action for abuse of dominance under the competition law.
- (vii) **Other Institutional Issues:** In conjunction with the recommended review of the functions of the ERO in five years, consider incorporating rail access functions in a multi-industry network regulator.
- (viii) **Competitive Tendering:** The authorities should pre-commit to competitive tendering for rail track maintenance after a reasonable adjustment period for CD, say five years, following the structural separation mandated in the Law on the Transformation of CD.
 - Pre-committing to such a measure is necessary to ensure that CD adjusts to the prospect of competition in infrastructure maintenance.

NOTES

1. According to the announcements, the state will retain about 3% of CEZ. The precise proportion of Transgas that will be sold and the state's residual interest is yet to be determined.
2. An exception to this non-discrimination requirement is that transmission/distribution operators will be obliged to purchase electricity from generators that is produced by renewable sources or is associated with heat production by co-generation units.
3. Indeed, the small degree of EU integration is one of the reasons behind proposals in 2001 to increase the degree of liberalisation mandated in the EU directive.
4. The 3% residual interest to be held by the Government will allow it to call a company general meeting of shareholders under the company law framework.
5. While this might reduce over investment in generation as mentioned in paragraph 28 it would do so by augmenting the market power of CEZ a.s. which brings other challenges.
6. If an IPP has a CHP it will benefit from a degree of protection due to the mandated purchase requirement imposed on distribution companies to purchase CHP power. But arguable, this mandatory purchase requirement itself introduces another distortion (see IEA, 2001).
7. There are no dedicated gas-fired power stations, although some combined heat and power generators use gas either as a primary or supplementary fuel – this accounts for a little over 3% of domestic gas consumption. There is some commonality of ownership of regional gas and electricity distribution companies. The RDCs are not significantly involved in other activities.
8. These ratios are also affected to some extent by VAT, which is included in household prices but not industrial prices. Nevertheless, to the extent that VAT is similar across countries the comparison remains valid.
9. There are still 2 state enterprises engaged in road freight business. There are intentions/plans to transform these into joint stock companies to be subsequently privatised. There are 4 enterprises dealing with road freight transport, in which municipalities have between 34 - 50% of shares - they are regular partners in the business.
10. The rationale for the financial capacity requirement is not entirely clear - other than in respect of alignment with EU regulation. One justification is to ensure that an enterprise sufficient operating cash, including to maintain its vehicles in good condition. However, requiring the demonstration of financial capacity only at the time of establishment of a business, and not on an ongoing sense, is not entirely fit for this purposes. There are other more suited methods to ensure that vehicles continue to meet safety standards. Moreover, satisfying a cash condition on entry is no guarantee of ongoing solvency.
11. The UK, Switzerland and Luxembourg have agreed to complete bilateral liberalisation. However, in the absence of a general EU transit agreement or bilateral liberalisation from transit countries (particularly Germany and Austria, liberalisation with the UK, Switzerland and Luxembourg would be of no consequence.
12. The Czech Republic, as a contracting party of: Customs Convention on International Transport of Goods under the Cover of TIR Carnets (Geneva, 1975); Convention on the Harmonization of Frontier Controls of Goods (Geneva, 1982); Convention on a Common Transit Procedure (Interlaken, 1987) and Convention on the Simplification of Formalities in Trade in Goods (Interlaken, 1987).
13. The issue of the general undesirability of hypothecated taxes is not taken up at this point.

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