

Chapter 9

Energy

This chapter discusses the regulatory framework for energy regulation from a multi-level perspective, including the effects of liberalisation in the electricity and natural gas sectors. This involves a discussion of the price dynamics, as well as production, distribution, imports and new investments. The specific case of investments in natural gas facilities is addressed. The chapter also discusses the regulation of quality in the energy sector. It presents the regional energy plans from a multi-level perspective. Finally it discusses the role of local public service companies in the energy markets.

Introduction

Since 2000, Italy has undertaken a liberalisation process in the energy sector. EU energy packages and internal legislation (mainly Legislative Decrees 79/99 and 164/00) have fostered the opening of parts of the electric energy and natural gas sectors to competition (production, transmission, retailing for electric energy, imports,¹ distribution and retailing for natural gas). This has also induced competition “for” the market, subject to non-discriminatory practices only for those parts of the energy sector where a natural monopoly persists (local transmission and distribution).

Apart from these EU-wide trends, the Italian 2001 constitutional reform also played a major role in assessing the structure and performance of the energy sector, transferring very relevant powers to regions and local institutions. Energy was inserted in the list of policy areas with concurrent legislative powers for the State and regions. However, the regulatory structure has assigned legislative and control powers to different levels of government on grounds that are relevant to investment decisions in the energy sector. In particular, the environmental regulation that directly affects the authorisation procedure for most energy investments and planning by local governments has been left to the central government (Legislative Decree 152/2006).

In addition to these EU-wide competition driven changes and the domestic institutional reforms, the energy sector is also affected by environmental concerns for sustainable development. Both European legislation (mainly the European Energy Plan) and internal environmental legislation have played a major role here, by assessing the regulatory framework through which central and local governments encourage the deployment of new and renewable sources. These legislations define the level of commitment to national targets related to energy efficiency and saving, “green” energy production, and consumption.

The sharing of responsibility for regulatory powers across levels of government, and sectors that intersect the energy field² have resulted into the exercise of veto power by local authorities against energy infrastructures as well as a significant level of litigation between the State and Regions. This has also been accompanied by a lack of co-ordination between levels of government which as a consequence, has reduced the achievement of shared goals in the national interest. However, the liberalisation process has also been partially successful in branches of the energy industrial sector that were first opened to competition and where regulation played an active role. Extra rents and costs to former energy sector monopolists have been reduced, allowing ENI, ENEL and former “municipalised” companies, to expand and compete in bigger and active markets (“Municipalised” companies operate as part of municipal operations – see chapters on energy and local transport).

However, liberalisation has not been coupled with a full privatisation.³ Major players in energy markets, namely, the former monopolists and “municipalised” companies, are still publicly-owned. Either the State, directly through the Ministry of Economy (or indirectly through a publicly-owned bank, the CDP – *Cassa Depositi e Prestiti*), local municipalities or other

public bodies own the majority shares (or the controlling share) of these companies. As a result, in each segment of the electricity sector, the State owns 32% of the equity stakes and 30% of each segment of the gas sector when taking into account firms listed on the Stock Exchange, for which it is possible to have information on the participation quotas. This has implications for the regulatory structure and the regulating entities of the Italian energy sector.

A first challenge may be that in an economic context where fiscal pressure is already set at a high level with significant public expenditure, energy companies may be seen by local governments (at all levels) as “backstop” financing entities. Although this is not unique to Italy, this may result into pressures to tie the regulatory structure in favour of incumbents rather than fostering the entry of new companies and increasing efficiency of the system as a whole. Similarly, the process of opening to competition might be perceived as sufficient, and that all positive consequences have already been exploited. This would imply that fully opening parts of the energy chain that have not yet been completely open or where liberalisation has not effectively started are no longer required (for instance, in natural gas distribution or in the dispatching market for electric energy).

A second challenge faced by the regulatory structure of the energy sector refers to difficulties, in a liberalised framework, at setting targets, some for environmental needs, that may differ from the energy market ones, and which could nonetheless be perceived as important or compulsory from a broader point of view. This is the case for the national environmental targets set for energy policies at European level (see Box 9.1), as well as fulfilling the need for national security through a geographical differentiation of energy inputs. In these cases, policies can operate in a liberalised market setting proper incentives (or penalties), trying to steer markets, but results are not necessarily measured, and might not be cost-effective. Therefore, achieving policy coherence in a context of multiple objectives is a difficult process.

Box 9.1. Action Plan and the Italian energy environmental targets

The European Action Plan, adopted by the European Parliament and becoming effective, aims at promoting the use of renewable energy sources, reducing greenhouse gases (GHG) emissions and final energy consumption. It sets legal binding targets at an EU level, by 2020, equal to a 20% cut of GHG, a 20% share of final consumption from Renewable Energy (RE), of which 10% from RE fuels in the transport sector. The process involves an allocation of the burden of GHG reduction and RE share. For Italy, a 13% cut for non-Emission Trading sectors is foreseen with a proposed share of RE that amounts to 17% of total consumption in 2020 (in 2005 it was 5.2%).

The problem in implementing such targets is more acute due to the structure of the regulatory framework and in particular, the different levels of government that impact on markets linked by the energy chains. This may induce issues of co-ordination, litigation, delays, and inefficiency. The following section tackles these issues, focusing on the challenges of the multi-level government framework for electric energy and natural gas markets in Italy.

This chapter provides a brief description of the effects of liberalisation in the electricity and in the natural gas sectors, reviewing the actual structure of energy infrastructures and performance of energy markets. Market liberalisation often has implications for the quality level of the services provided, in terms of reliability. In order to

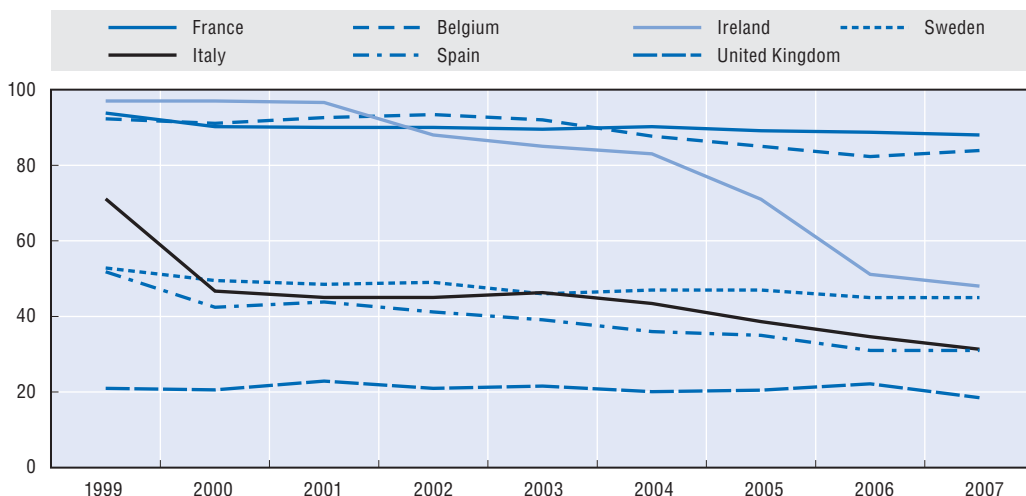
avoid such a risk, the regulation of quality plays a major role in liberalised markets. This will be addressed in a specific section. The chapter analyses the multi-level layered structure of decision making about electric energy and natural gas, focusing on the role of Italian regions. From the standpoint of energy companies, former “municipalised” companies have played a crucial active role in the transition from the former monopolised markets to the liberalised ones. Some of these companies have succeeded in growing and changing from local public entities to global players. This will be analysed further below in a section on the role of local public service companies in the energy market.

The effect of liberalisation in the electricity sector

After the introduction of the reform, the Italian electricity sector can be described as one in which the regulatory framework assures full and open competition from a European perspective. A high degree of (potential) competition is indeed granted both at the upstream and downstream levels: legal separation was introduced in the low-voltage distribution networks and an independent system operator (TERNA) was created, and owns the national grid.⁴ Full and open competition was also introduced on the demand side.⁵ Electricity is traded in a power exchange market (IPEX), which is publicly owned and managed. A public body (*Acquirente Unico*), which also acts as a provider of last resort, is active in the market as an aggregate collector of groups of consumers’ demand (see below).

At the upstream level (electricity generation), concentration has declined sharply since the beginning of liberalisation, partly due to divestiture of generating companies (GENCOs) by ENEL, the former legal monopolist. As a result, in 2007, the market share of ENEL was close to one-third of the total, with a reduction of roughly 40 percentage points of the share maintained in 1999 (Figure 9.1).

Figure 9.1. **Gross electric production, market share of major producer; selected countries**



Source: Eurostat.

With the exception of Ireland, where the main generation company decreased its market share from 97% in 1999 to 51.1% in 2006, no other country experienced such a rapid contraction of the dominant player. In Italy, the share of the dominant player fell from 71.1% in 1999 to 34.6% in 2006.⁶ However, notwithstanding the fact that direct competitors

have increased their market share during the same period, ENEL's dominant position still persists. The second company in the market, Edison, had a market share of 13.5% in 2007, from 7.3% in 2000, but remained only equivalent to a third of the dominant player. Together A2A, Edison and Edipower,⁷ have a market share that is slightly above 20% (AEEG, 2008). In 2006, the degree of concentration in electricity generation, measured by the Herfindahl-Hirschman Index (HHI), was still high but the value was intermediate between competitive markets such as the UK and Sweden and other markets which have not yet opened up to competition such as France and Belgium (European Commission, 2008).

Electricity transmission is owned and managed by TERNA, which is also responsible for the development of the existing national grid. Investments in new national transmission lines are made in agreement with regions: 49 requests for building new transmission lines have been reported since the inception of liberalisation (Table 9.1).

Table 9.1. **Requests for authorisation for new transmission lines above 150 kV**

| Region | Number of requests | Requests withdrawn | Number of requests under EIA | Number of requests decreed | Average time for decrees (months) | % of requests built | Average building time (months) |
|----------------|--------------------|--------------------|------------------------------|----------------------------|-----------------------------------|---------------------|--------------------------------|
| Piedmont | 8 | | | 3 | 13 | | |
| Aosta Valley | 1 | | | 1 | 11 | | |
| Lombardy | 9 | | 1 | 6 | 17 | 16% | 6 |
| Trentino AA | 3 | 1 | | 2 | 10 | 50% | 12 |
| Veneto | 5 | | 1 | 1 | 7 | | |
| Friuli VG | 3 | | 1 | | | | |
| Emilia Romagna | 1 | | | 1 | 13 | 100% | 14 |
| Tuscany | 2 | | | 1 | 8 | 100% | 12 |
| Marche | 2 | | | | | | |
| Umbria | 1 | | | 1 | 8 | | |
| Lazio | 2 | | | 2 | 17 | | |
| Abruzzo | 2 | 1 | | | | | |
| Campania | 3 | 1 | 1 | | | | |
| Apulia | 2 | | | | | | |
| Basilicata | 1 | | | | | | |
| Calabria | 2 | | 1 | | | | |
| Sicily | 1 | | 1 | | | | |
| Sardinia | 1 | | 1 | | | | |

Source: Elaboration from MISE data.

Since then, only 18 requests were authorised and 4 were fully built and operational by the end of 2008. The requests that have not been withdrawn are waiting for the environmental impact assessment to take place. The average waiting time for the requests that have been examined is 12 months. Even if the law prescribes that the procedure should end within 180 days from request, the environmental impact assessment exceeds the compulsory time limit, resulting into significant delays. This situation is not unique to Italy, as environmental issues may halt or slow down investment in energy capacity. Similar issues arise in Australia. In Japan, in order to streamline the process in the energy sector, Strategic Environmental Assessment was waived for power construction.

Price dynamics

Electricity is traded in an organised market (IPEX) that is articulated in a day-ahead market, an adjustment market and a dispatching one. At present, demand is active in the day-ahead market and in the adjustment one; yet traders can also operate through

bilateral contracts, which amount to roughly 33% of the total demand (AEEG, 2007). At present, only TERNA can operate in the Dispatching Market (MSD, *Mercato dei Servizi di Dispacciamento*), from the demand side. Therefore, TERNA acquires the necessary power to balance the grid from power plants active in the MSD following a merit order criterion, even though the final structure of dispatching foresees the active participation of the whole demand to MSD. For this reason, a compensating mechanism to balance the day-ahead market with the dispatching one is still active since the switch to a full and open participation of demand to all IPEX markets has not yet been achieved.

Electricity prices are among the highest in Europe, for households and industrial companies.⁸ Prices with and without taxes for households and industrial consumers are always higher in Italy than in the average EU15 countries. Without taxes they are the highest for households and small industrial consumers (Ia), the second highest for other industrial consumers (industries with a consumption profile from Ib to Ig).

Table 9.2. Electricity prices for Households and industrial consumers. Italy and average EU15

| | | Italy | EU15 |
|---|------------|-------|-------|
| Households – Dc (ac: 3.5MWh) | No taxes | 0.163 | 0.123 |
| | With taxes | 0.234 | 0.157 |
| Industry – Ia (ac: 30 MWh; md: 30 kW; al: 1 000 h) | No taxes | 0.123 | 0.120 |
| | With taxes | 0.182 | 0.157 |
| Industry – Ib (ac: 50 MWh; md: 50 kW; al: 1 000 h) | No taxes | 0.137 | 0.122 |
| | With taxes | 0.199 | 0.158 |
| Industry – Ic (ac: 160 MWh; md: 100 kW; al: 1 600 h) | No taxes | 0.121 | 0.105 |
| | With taxes | 0.170 | 0.134 |
| Industry – Id (ac: 1.25 GWh; md: 500 kW; al: 2 500 h) | No taxes | 0.114 | 0.090 |
| | With taxes | 0.162 | 0.117 |
| Industry – Ie (ac: 2 GWh; md: 500 kW; al: 4 000 h) | No taxes | 0.111 | 0.083 |
| | With taxes | 0.156 | 0.107 |
| Industry – If (ac: 10 GWh; md: 2500 kW; al: 4 000 h) | No taxes | 0.106 | 0.079 |
| | With taxes | 0.140 | 0.100 |
| Industry – Ig (ac: 24 GWh; md: 4 000 kW; al: 6 000 h) | No taxes | 0.100 | 0.072 |
| | With taxes | 0.128 | 0.091 |

ac = annual consumption.

md = maximum demand.

al = annual load.

prices: euro/kwh.

Source: Authors' elaboration based on Eurostat data referring to 2007.

Wholesale energy prices differ across “price zones”, i.e. main geographical areas (Centre North, Centre South, North, South, Sicily, Sardinia). While producers are paid the zonal price, the demand side of the market pays a single national price regardless of the zone where the withdrawals take place. This price is called *Prezzo Unico Nazionale* (PUN) and is calculated as the average of zonal prices, weighed on zonal consumption. Table 9.3 compares area and nation-wide prices. The constraints of the interconnection and transmission grid in Italy imply that a significant difference exists for prices across zones.

In addition, according to AEEG, challenges to competition exist in each of the main zones (Table 9.4). Sufficient competitive pressures tend to exist only in one main zone, the North, as measured by the HHI. Other zones tend to show higher levels of concentration with higher levels in the HHI index. In Sicily and Sardinia this is compounded by the limited interconnection with continental Italy.⁹ Table 9.4 presents figures of HHI in each macro zone for energy offered and sold at the day-ahead market.

Table 9.3. **Zonal and National prices (PUN), 2007**

| | Prices | |
|--------------|--------|------------|
| | Mean | Volatility |
| North | 62.2 | 16.84 |
| Centre north | 67.76 | 17.97 |
| Centre south | 68.77 | 18.55 |
| South | 68.75 | 18.54 |
| Calabria | 68.98 | 19.17 |
| Sicily | 80.26 | 25.49 |
| Sardinia | 65.91 | 26.84 |
| PUN* | 70.99 | 11.2 |

*Single National Price (Prezzo Unico Nazionale), weighted average of zonal prices.

Source: GME.

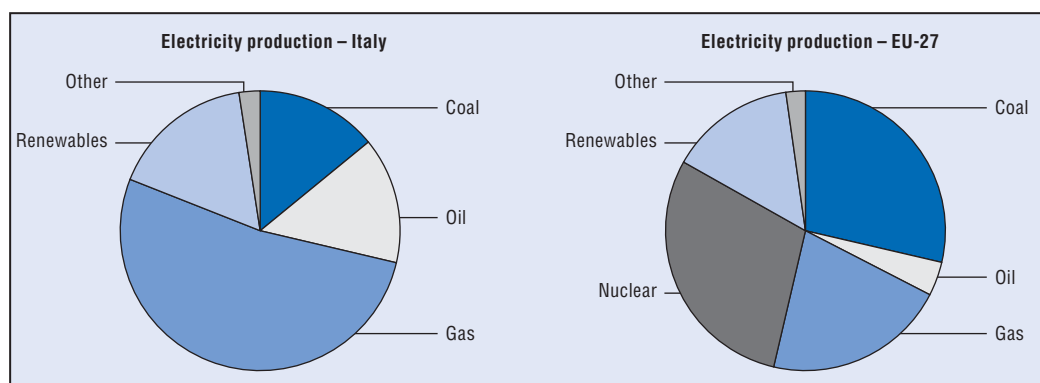
Table 9.4. **HHI index in each macro zone, 2007**

| | Offers | Sales |
|---------------------|--------|-------|
| Macro zone north | 2 104 | 1 369 |
| Macro zone south | 3 615 | 2 091 |
| Macro zone Sicily | 2 718 | 3 668 |
| Macro zone Sardinia | 3 164 | 3 207 |

Source: GME.

Production, imports and new investments

The structure of electricity generation partially explains the price difference with Europe. Figure 9.2 represents the share of electricity production in Italy and in EU27.

Figure 9.2. **Electricity production in Italy and in the EU27**

Source: Elaboration from TERNA.

In Italy, 81% of total electricity production derives from conventional thermal power plants, composed of 52% of plants powered with natural gas, 15% with conventional oil and 14% with coal; 16% derives from renewable, mostly hydro power. The share of wind and geothermal energy is 3%. Photovoltaic production remains symbolic.¹⁰ European figures show a much higher percentage for nuclear (29.5%), coal (28.6%); a reduced use of natural gas for power production (21%) and oil plays a minimal role (4%). Moreover, in Italy the base load is mostly due to imports (49.3 TWh, that equals 14% of total internal consumption).

At present, 66 conventional thermal plants over 300 MW are in operation, excluding self-production. Another 121 plants are in operation with a size comprised between 50 and 300 MW (self-production is excluded). New investments are scheduled which will increase market contestability and affect electricity prices. Table 9.5 provides information about new thermal generation plants proposed since 2002 for plants that are over 300 MW thermal and for which the authorisation procedure is currently under way.¹¹ The new plants to be authorised are presented by owner, location (region and town), fuel type and capacity (MW electrical). In cases of changes in an existing power plant, information on its previous technical characteristics is provided. According to the projects submitted, 5 520 MWe unit plants will go out of service (30% gas burning, 70% oil burning), while a new capacity is proposed to be built up to 27 200 MWe (76% fuelled by gas, 20% by coal, 4% by other fuel types). From a geographical point of view, 50% of the proposed capacity should be located in the north, 17% in the centre, 33% in the south of Italy.

Table 9.5. New proposed plants (gross capacity)

| Region | MWe in | Fuel type in | MWe out | Fuel type out |
|-----------------------|--------|--------------------|---------|---------------|
| Piedmont | 2 150 | Gas | | |
| Lombardy | 36 | Veg. oil | -107 | Oil |
| | 3 970 | Gas | -426 | Gas |
| | | | -107 | Oil |
| Friuli Venezia Giulia | 800 | Gas | -640 | Oil |
| Veneto | 1 980 | Coal | -2 640 | Oil |
| | 2 330 | Gas | | |
| Emilia Romagna | 1 790 | Gas | | |
| Liguria | 460 | Coal | | |
| Marche | 950 | Gas | | |
| Umbria | 800 | Gas | | |
| Abruzzo | 980 | Gas | | |
| Molise | 1 180 | Gas | | |
| Lazio | 800 | Gas | | |
| Campania | 800 | Gas | | |
| Calabria | 1 950 | Gas | | |
| | 2 640 | Coal | -1280 | Gas |
| Basilicata | 1 550 | Gas | | |
| Puglia | 600 | Steel industry gas | | |
| | 660 | Gas | | |
| Sardinia | 450 | Coal | -320 | Oil |

Source: Elaboration from MISE, 2007.

Table 9.6 provides detailed information on new conventional thermal generation plants with a capacity above 300 MW thermal, authorised since 2002 and currently under construction. In cases of repowering or changes in existing power plants, previous technical information (capacity and fuel) is provided. In the next three years, 3 250 MWe unit plants fuelled by oil will be turned off and 8 180 MWe will go on-line, with coal accounting for approximately 24% and gas for the remainder. The new capacity will be split almost proportionally over northern, central and southern Italian regions. The new authorised capacity should go on-line by 2010, while almost 50% of it is expected to be available with the 2008 authorisations.

As a consequence of the new flow of investments, natural gas is going to become the marginal technology for most of the year. According to Fontini and Paloscia (2008), this might induce, *ceteris paribus*, up to a 17% reduction in pre/tax electricity costs (net of any

Table 9.6. **Authorised plants under construction**

| Region | MWe in | Fuel type in | MWe out | Fuel type out |
|----------------|--------|--------------|---------|---------------|
| Piedmont | 380 | Gas | -130 | Oil |
| | 800 | Gas | | |
| Lombardy | 430 | Gas | -330 | Oil |
| | | | -120 | Gas |
| Emilia Romagna | 800 | Gas | | |
| Abruzzo | 800 | Gas | | |
| Lazio | 1 980 | Coal | -2 640 | Oil |
| Campania | 400 | Gas | -412 | Oil |
| Calabria | 800 | Gas | | |
| | 800 | Gas | | |
| Apulia | 750 | Gas | | |
| Sicily | 240 | Gas | | |

Source: MISE, 2007.

international fluctuation of natural gas prices and excluding possible changes in transportation, dispatching and other costs).

Distribution

The distribution of electricity is a natural monopoly. The liberalisation process has allowed newcomers to enter the market when acquiring the status of electricity distributor (in some cases part of the network from the incumbent). The Ministry of Economic Development has released the concession for the distribution of electric energy to 76 companies (mostly publicly-owned) that supply 214 municipalities. Table 9.7 describes the distribution of new concessions per region.

Table 9.7. **New electricity distributors per region**

| Region | Number of distributors |
|----------------|------------------------|
| Piedmont | 11 |
| Aosta Valley | 3 |
| Lombardy | 13 |
| Trentino AA | 0 |
| Veneto | 2 |
| Friuli VG | 5 |
| Emilia Romagna | 3 |
| Tuscany | 1 |
| Marche | 7 |
| Umbria | 1 |
| Lazio | 3 |
| Abruzzo | 5 |
| Campania | 5 |
| Apulia | 2 |
| Basilicata | 0 |
| Liguria | 1 |
| Calabria | 0 |
| Sicily | 10 |
| Sardinia | 4 |

Source: Elaboration from MISE data.

ENEL Distribuzione supplies all remaining municipalities. Legislative Decree 79/99 allowed only one concession per municipality for electricity distribution. Local utilities were

granted the opportunity to purchase from the ENEL distribution networks falling in their respective municipalities. This was particularly relevant for major cities (Rome, Milan, Turin) where the former local public service company that held part of the network, acquired the remainder. All concessions were renewed by thirty years (at present they are set to expire on 31 December 2030). In terms of quantity distributed, ENEL Distribuzione holds the largest share of the market (Table 9.8). The first five distributors in terms of volume (counting AEM and ASM as a single company after merging into A2A) have more than 500 000 clients, while 52 distributors have less than 1 000, and 10 have less than 100 users.

Table 9.8. **Electric energy distribution, per distributor**

| | GWh | Market share |
|--------------------------|---------|--------------|
| ENEL | 254 671 | 86.4 |
| Electrabel/Acea | 10 616 | 3.6 |
| Aem Milano ¹ | 7 526 | 2.6 |
| Asm Brescia ¹ | 4 506 | 1.5 |
| Iride | 3 412 | 1.2 |
| Trentino Servizi | 2 263 | 0.8 |
| Hera | 2 237 | 0.8 |
| Agsm Verona | 1 928 | 0.7 |
| Others | 7 764 | 2.4 |
| Total | 294 923 | 100 |

1. From 2008, merged together in A2A.

Source: AEEG, 2007.

Retail market

The retail market was fully liberalised in July 2007. In one year, almost 1.5 million households changed supplier, with a switch rate equal to 6%, a percentage much higher than the one experienced for gas in the corresponding period after the full opening of the retail market. For domestic clients and companies connected in low voltage, with less than 50 employees and EUR 10 million in revenue, the law (Legislative Decree 79/99) stated that if they did not want to switch to the free market, they should rely on the energy traded by Acquirente Unico (so called “*maggior tutela*”). In 2007, energy traded by AU covered 32% of total demand.

The effect of liberalisation in the natural gas sector

The structure of regulation for natural gas has clearly moved towards market liberalisation: upstream and downstream markets are fully opened to competition; the transmission company is unbundled from the major sectoral player (ENI); a temporal window has been established where all concessions for natural gas distribution have to be elicited through public tenders. However, the technical characteristics of the natural gas industry and the economic profile of the sector both slowed the opening process. For the former, the physical structure of the import infrastructure and the characteristics of the contractual agreements among national and foreign parties played a relevant role. For the latter, the existence of a strong incumbent (ENI) active at all levels of the production chain of the sector (perceived as a “national champion” in the industrial policy) generated relevant endogenous barriers to entry (ACGM 2005).

Concerning the upstream market, competition is limited by the existing structure of the import facilities. At present, four major pipelines connect Italy to exporting countries

(plus one exchange point with Slovenia at Gorizia, Friuli): TAG at Tarvisio (Friuli, NG from Russia); Transitgas at Passo Gries (Piedmont, natural gas from North Sea); TRANSMED at Mazara del Vallo (Sicily, natural gas from Algeria); Greenstream at Gela (Sicily, NG from Lybia). Four projects of expansion of the interconnection grid are underway. Two of them should be completed by 2012: ITGI in Puglia, for an estimated capacity of 8 800 million m³ per year; GALSI, connecting Algeria with Sardinia (which, at present has no natural gas network) and Tuscany, with an estimated capacity of 8-10 000 million m³. The two other interconnections: Trans Adriatic in Puglia, with an estimated capacity of either 8-20 000 million m³ or 5-12 000 million m³ according to the selected branch, is under intergovernmental agreement for a feasibility study. InterconnectTyrol, in Trentino Alto Adige, has an estimated capacity of 1 300 million m³ and is now under the feasibility study.

Legislative Decree 164/00 sets market-share ceilings. It took effect beginning of 2002 and will last until 2010. Therefore, starting in 2002 no operator was allowed to introduce more than 75% of total consumed gas in the national grid. That limit was expected to decrease every year by 2% up to 61%. Antitrust limits have not been renewed so far for post-2010. ENI still holds a dominant position in imports, which account for 87% of total consumption.¹² From 2002, its share of total imports decreased from slightly above 70% to 64% in 2007. The second operator, ENEL Trade, imported slightly less than 13% of natural gas, and the third operator (Edison), 8%. In total, there have been 21 importers active in the market, yet for limited quantities (AEEG, 2008).

Investments in natural gas facilities

Investments in LNG facilities require a specific analysis. At present, only one active LNG re-gasifiers terminal (Panigaglia, Liguria) exists. It is owned by ENI (Box 9.3). There are 13 requests for authorisation to install new re-gasification terminals (Table 9.9). Even if the authorisation process for most of them has formally ended, no terminal has yet started to be operational. All 13 LNG terminals proposed so far have been brought to court by local administrations or NGOs. Only one (Porto Levante) is physically being installed and is scheduled to become active by end 2009. By end 2008, the Tuscany offshore terminal was under construction.

In general, even if LNG terminals have low environmental impacts (compared with other energy infrastructures), their perception from local communities, the administrative burdens and the effectively unclear time schedule of the procedure have implied a high investment risk: the Ministry of Economic Development estimates that authorisations for any kind of energy infrastructure require between 1 to 3 years even if according to current legislation most of them should be either authorised or rejected within 180 days.

Natural gas transportation and storage are not subject so far to a full proprietary unbundling. Eight companies hold national or regional transportation grids. Snam Rete Gas, which belongs to ENI,¹³ is by far the largest, owning 8 548 km out of 8 668 km of the national grid, (the difference belongs to Società Gasdotti Italia) and a total of 31 081 km out of 32 930 km of the national and regional transportation networks. There have been nine requests for authorisation to build pipelines for the transportation of natural gas, for a total of 1 002.4 km. Seven of them, presented in 2004-05, are waiting for the environmental impact assessment. Two of them are newer, and were presented in 2007. EIA procedure is ongoing.

ENI owns Stoccaggi Gas Italia (STOGIT), the dominant storage operator that owns 8 out of 10 storage running facilities, with a total capacity of 13 840 million m³ out of 14 230. Edison Stoccaggi Italia owns the remaining two. Ten requests for concessions of new

Table 9.9. Investment in LNG re-gasifiers.

| Project | Proponent | Capacity | Due | Situation |
|-----------------------------|--|----------------------------|------|--|
| Porto Levante offshore (RO) | Terminale GNL Adriatico (Edison 10%, Exxon Mobil 45%, Qatar Terminal Limited 45%) | 8 | 2009 | Authorisation released in 2004. Terminal built 60% (in Spain). Authorisation for the pipeline connecting it to existing grid issued. |
| Brindisi | Brindisi LNG (100% British Gas Italia) | 8 | n.d. | Authorisation released in 2005, suspended in 2007. Court appealed by municipality. |
| Toscana offshore (LI) | OLT Offshore LNG Terminal (Endesa Italia – Amga – Asa 51%, OLT Energy Toscana 49%) | 3.75 | 2009 | Authorisation released in 2006. Terminal under construction. Courts appealed by municipalities. |
| Rosignano (LI) | Edison – BP – Solway | 8 | n.d. | Nulla-osta released. Waiting for EIA. |
| Gioia Tauro (RC) | LNG MedGas Terminal (49% CrossGas, 25.5% Sorgeni, 25.5% Iride) | 12 | 2012 | Nulla-osta released under constraints. EIA completed. Authorisation ongoing. |
| Taranto | Gas Natural Internacional | 8 | n.d. | EIA procedure ongoing. Agreement with Snam Rete Gas to build pipeline once authorisation is granted. |
| Zaule (TS) | Gas Natural Internacional | 8 | n.d. | Waiting for EIA. Agreement with Snam Rete Gas to build pipeline once authorisation is granted. |
| Trieste offshore (TS) | Endesa Italia | 8 | n.d. | The region seems available to authorise one plant only in the region. |
| Porto Empedocle (AG) | Nuove Energie (ENEL 99%) | 8 | 2010 | Project modified to fulfil Port Regulation Plan. EIA completed. Authorisation ongoing. |
| Rada di Augusta (SR) | ERG Power&Gas – Shell Energy Italia | Phase 1: 8; phase 2: 12 | n.d. | EIA completed. Authorisation ongoing. |
| Ravenna (RA) | Atlas Ing. (Gruppo Belleli) | 8 | n.d. | New off-shore plan to be examined by MISE. |
| Senigallia (AN) | Gaz de France | 5 | n.d. | New off-shore plan to be examined by MISE. |
| Civitavecchia | Gavio | 8 | n.d. | New off-shore plan to be examined by MISE. |
| Portovenere (SP) | GNL Italia (ENI 100%) | 4.5 | 2014 | Proposed increase of existing Pangaglia LNG capacity up to 8 Gm3. EIA started in 2007. Local municipality is against. |

Source: AEEG, Annual Report, 2008.

storage facilities are waiting to be authorised. Four of them are in Emilia Romagna, three in Basilicata, two in Lombardy, one in Molise. Two requests (Alfonsine in Emilia Romagna and Bordolano in Lombardy) are waiting for the result of the environmental impact assessment. They will add up to 2 900 million m³. The three others (Bagnacavallo in Emilia Romagna; Montenero di Bisacce in Molise and Cornegliano Laudense in Lombardy), which amount to a total of 2 220 million cubic metres, have passed the environmental impact assessment and are now waiting for the finalisation of the authorisation process. Of these, only one is expected to become active in 2012.

According to AGCM, the dominant role played by former monopolists in import, transportation and storage facilities, coupled with the contractual structure of natural gas imports (long-term contracts with *take or pay* clauses), the rigidity of natural gas supply and the existence of a segmented demand, has contributed to constrain effective competition in the internal natural gas market and to hinder the creation of new infrastructures that might relax the constraints.

Distribution and competition for the market

Legislative Decree 164/00 has forced the natural gas distribution sector to move towards competition for the market, and has made it compulsory to use tender processes for selecting the distributor. This aims both at increasing efficiency and at guaranteeing a minimum level of service quality. The law specifies the relationship between the company

that provides the service, the local community and the authority, whose role is to protect consumers and promote competition. Local communities play a political role, namely, command and control over the service, through a contract (“*contratto di servizio*”) that defines, *inter alia*, the duration of the contract (within the time limit set by the law, namely, twelve years), the economic terms of the service (royalties, payments and similar), investment needs (maintenance and network development), the characteristics of the service (costs for users, specific local needs, etc.), its quality and the local community’s inspection power. The structure of regulation could in principle generate potential conflicts of competence. To reduce those and effectively promote competition, providing a common basic normative structure for all distributors, the law prescribes that the central government adopts, under the proposal of the authority, a general common sample for the service contract for all concessions (“*contratto di servizio tipo*”). Such a contract should specify the minimum level of requirements for all contracts, while local communities can add additional stringent requirements to the terms specified by the sample service contract and identify specific needs to be fulfilled by the operating company. However, even if the draft of the sample service contract has been released by the authority (Del. 55/04), it has not yet been approved, because the operators have appealed this decision to the Administrative Court (see paragraph below Table 9.10).

The aim to promote competition to guarantee a stable regulatory framework has been hampered by three main elements of uncertainty:

- The prorogation of deadlines set by Legislative Decree 164/00 for the tenders.
- The existence of unclear choices for the proprietary setting of the networks.
- The unclear regulatory framework and frequent appeals to the Court.

The first element refers to the deadline set by Legislative Decree 164/00 for the local municipality to award the concession through tender. The law stipulates that concessions can last at the most twelve years. Originally, all concessions (except those that were already set by tender before 2000) were to be awarded by tenders within end 2005. An exception of one to two years could be granted for big concessions or under particular circumstances. Interpretation of the rules (Legislative Decree 164/00 and subsequent Law. 239/2004, so called “*Marzano*” that postponed deadlines) has been unclear and has given rise to several court interpretations (mainly, by the Council of State Cons. Stat. sez. V 3 815, 19/7/2005; Cons. Stat. sez. VI 6 187, 7/11/2005); all the discipline has been partially overruled by subsequent rules (L. D. 273/2005 and L. 51/2006) that have further delayed the deadline for tenders. The deadline was set end 2007; it could have been postponed for two years, plus one provided that a specific and proved public interest existed. Finally, Law 222/2007 further extended the 2007 deadline by 2 years.¹⁴

Law 222/2007 also stipulates that the Ministries of Economic Development and of Regional Affairs must define the minimum territorial scale for tenders for distribution, and identify the optimal scale on the basis of efficiency and cost reduction. The aim is to reduce inefficiency due to concession fragmentation and to exploit economies of scale and scope, respectively in distribution and in tenders. Moreover, ministries also have to specify the proper tools to generate appropriate incentives across municipalities. The discipline of the tenders has also been affected by the structure of regulation of local public services. Article 23-bis of Law 133/2008, which applies also to natural gas, implies that the tender of a concession of natural gas service ceases to be the compulsory tool to provide the service.

However, application of the law is still delayed due to the lack of decrees necessary to implement it.

Another source of uncertainty stems from the regulation of the proprietary status of the distribution network. Law 164/2000 stipulates that at the end of each concession the distribution network is at “full disposal” of the municipality. However, it does not specify if it is in terms of ownership or if it just prescribes management unbundling, *i.e.*, a structure in which a private company owns the network, the management belongs to the local community that awards it through a public tender to the best offer, which need not necessarily coincide with the incumbent owner. At present, the majority of the distribution network still belongs to the distribution company. Table 9.10 describes the distribution of network ownership per region.

Table 9.10. **Ownership of NG distribution networks per region**

| Region | Km | % of ownership | |
|-----------------------|-----------|-------------------|-------------------|
| | | Dist. company | Municipality |
| Aosta Valley | 357.5 | 99 | 0.6 |
| Piedmont | 22 479.9 | 89.6 | 2 |
| Liguria | 6 047 | 99.9 | 0.1 |
| Lombardy | 44 613.2 | 74.2 | 14.4 |
| Trentino Alto Adige | 4 109.1 | 90.5 | 6.5 |
| Veneto | 28 415.4 | 81.1 | 12.1 |
| Friuli Venezia Giulia | 6 365.1 | 74.2 | 25.5 |
| Emilia Romagna | 28 504.6 | 68.4 | 10 |
| Tuscany | 14 838.9 | 76.8 | 9 |
| Lazio | 13 963.9 | 98.3 | 1.7 |
| Marche | 8 448.9 | 45.5 | 26.3 |
| Umbria | 4 902 | 62.5 | 37.4 |
| Abruzzo | 8 553.6 | 78.9 | 21.1 |
| Molise | 2 033.3 | 85.2 | 14.5 |
| Campania | 10 451.4 | 85.6 | 12.1 |
| Apulia | 10 935.5 | 91.4 | 8.3 |
| Basilicata | 2 272.2 | 76.6 | 22.7 |
| Calabria | 5 291.5 | 90.1 | 9.9 |
| Sicily | 10 848.2 | 96.9 | 3.1 |
| Sardinia | | – | – |
| Not active | 361 | – | – |
| Tot. Italy | 233 792.4 | 80.1 ¹ | 11.3 ¹ |

1. The % of ownership does not add up to 100 because of the existence of other proprietary forms.

Source: Elaboration from AEEG data, 2007.

Remuneration for existing and new investments has given rise to several court appeals.¹⁵ The draft of the sample contract (“*contratto di servizio tipo*”) defined by the AEEG (Del. 55/04) was brought to the Court by the operators for the section that implies a permanent proprietary structure of the grid in favour of the municipality (that might own it directly or through a specific company). The judgment is still under process. Municipalities were also legally charged for introducing in the tenders a clause that prescribed no re-payment for the investments that were undertaken during the concession and not amortised (“no residual value” clause). From an economic point of view, such a condition reduces market contestability since it advantages the incumbent operator, when the incumbent is the owner of the grid. Moreover it advantages big firms that hold several concessions and that may average out the burden of the investment not amortised across

concessions. Moreover, it might undermine the economic structure of distribution companies since the tariff only allows recovery of the amortised parts of the investments that have a residual life after the end of the concession. The court¹⁶ established that a tender that threatened participants and imposed such a risk would be illegitimate. However, the problem of the proprietary setting for distribution networks is still present: the high investment costs, the unclear regulatory framework for proprietary structure and the vast litigation on this aspect increase uncertainty and reduce the possibility of generating efficiency through market competition.

Law 481/95, which created the Authority for Electric Energy and Natural Gas, specifies that the Authority sets the tariff for natural gas distribution. Every five years (the so-called “tariff period”), the tariff is revised according to a procedure that involves all interested parties. This law also stipulates that the Authority has to follow a “price cap” approach for the definition of the tariff. Consequently, during the first tariff period, the Authority (Del. AEEG 237/00) identified a target on the revenues for distribution (so called “*Vincolo sul Ricavo da Distribuzione*”, VRD) that encompasses operating and maintenance costs. The VRD was calculated parametrically and updated every year on the basis of the inflation (plus the increase in the number of consumers) and the targeted increase in efficiency. This decision was appealed in Court.¹⁷ The section preventing those companies that hold a certified budget for the distribution, from reporting it in the invested capital was considered illegitimate. Therefore, an individual method was created, separate from the parametric method,¹⁸ for those companies. This principle follows the “cost-plus” approach (firms can recover in their tariffs the costs incurred for the distribution activity). During the second tariff period, subsequent decisions by the Authority reduced the differences between the two types of tariffs. Under the new individual method (Del. 171/05) companies can recover capital and operating costs. However, if operating costs exceed a particular target, to have them included in the tariff, the company must prove that this is due to external reasons. Moreover, operating costs and technical amortisation are subject to a compulsory efficiency target.¹⁹ In the parametric method, a “normal” tariff has been set²⁰ and allows firms to parametrically recover the operating costs while tailoring capital costs into the capital invested by the company the previous year.

The AEEG choices on tariff methodology gave rise to court cases related to several aspects of both methods, and in particular on the efficiency parameter. Uncertainty has increased for distribution companies. The problem is worsened by the different time scales of the authorisation for the distribution of natural gas (twelve years)²¹ and the time horizon for tariffs, which implies that firms cannot anticipate *ex ante* their revenues when participating to the tender. Furthermore, each VRD is tailored to a proper “tariff zone” (“*ambito tariffario*”) which is defined as the set of communities linked to the same distribution network. This generates a variety of tariffs and makes it difficult to calculate. The Authority has announced a different tariff strategy for the next tariff period (AEEG, consultation document 20/08): it aims at reducing the tariff zones to six from the current 2 080, and targets in the future a single tariff for natural gas distribution. Moreover, it aims to further simplify the structure of the tariff and promote competition through regulation stability and reduced litigations.

Few tenders for the distribution of natural gas have occurred so far, for the reasons discussed above. According to AEEG, at the end of 2007 there were 275 tenders. Most of them refer to small municipalities (Giacomelli, 2008).²² Table 9.11 presents data on the types of concessions aggregated by region. The largest category belongs to distributors

Table 9.11. **Concessions for natural gas distribution per region: Selection process**

| | Competitive selection (before Law 164/00) | Direct attribution | Tenders (164/00) | Other |
|-----------------------|--|--------------------|------------------|-------|
| Aosta Valley | 24 | 0 | 0 | 0 |
| Piedmont | 205 | 748 | 11 | 11 |
| Liguria | 12 | 137 | 0 | 3 |
| Lombardy | 206 | 1 114 | 106 | 41 |
| Trentino Alto Adige | 0 | 180 | 1 | 4 |
| Veneto | 114 | 407 | 13 | 46 |
| Friuli Venezia Giulia | 66 | 95 | 2 | 5 |
| Emilia Romagna | 43 | 295 | 5 | 6 |
| Tuscany | 12 | 192 | 4 | 40 |
| Lazio | 46 | 246 | 7 | 2 |
| Marche | 60 | 172 | 8 | 6 |
| Umbria | 6 | 81 | 1 | 1 |
| Abruzzo | 44 | 160 | 25 | 2 |
| Molise | 43 | 67 | 17 | 0 |
| Campania | 60 | 216 | 41 | 3 |
| Apulia | 98 | 131 | 1 | 5 |
| Basilicata | 28 | 81 | 7 | 0 |
| Calabria | 69 | 169 | 21 | 2 |
| Sicily | 79 | 198 | 5 | 19 |
| ITALY | 1 215 | 4 689 | 275 | 196 |

Source: Elaboration from AEEG, *Relazione Annuale*, 2008.

(public or private) that directly received the concession from the municipality, with no competitive selection process. The second category refers to concessions which went through a competitive selection process among different suppliers before Law 164/2000, and not necessarily through a tender. The “standard” tool for a competitive selection of distributors identified by the law – namely the tender, groups a small set of municipalities (third category). The fourth residual category groups cases where the distributor serves some clients but does not hold a concession (it serves clients located in the same network but outside the municipality for which the distributor holds the concession) or cases for which there is no data available on the concession.

In tenders, two main groups of parameters can be identified: the economic offer, generally expressed in terms of percentage of VRD that the winner returns to the municipality, and the technical offer that refers to investments, interconnections, management and similar items (plus other aspects that are related to the specific needs of local municipalities). The economic parameter has been the most relevant.²³ Several tenders have been awarded to participants that made high bids on the economic parameter, and have been appealed to court for this reason. A bid that is too high is source of potential inefficiency, since it implies the risk of a winner’s predatory behaviour on the existing network (a “hit and run” behaviour). The court shares the same reservation. TAR Lombardy,²⁴ (Judgment 165/2006 and 205/2005) established on the basis of the AEEG opinion a parametric ceiling to the highest bid, beyond which the bid has to be considered anomalous. It calculated that a normal offer should not be higher than 35-40% of the VRD, since the remaining component of the tariff covers management costs for the distribution service component (“costo di gestione dell’attività di distribuzione”, CGD) and capital costs (that usually range between 15 and 20% of VRD). Bids on the economic component can be higher, since participants can accept a low rate of return or try to reduce operating costs.

However, bids that are too far from the upper limit should be considered suspicious, since they do not allow the firm to cover its operating costs. The existence of possible risk for safety and quality standards has induced the Parliament to intervene: Law 222/2007 establishes that, on the basis of a proposal made by AEEG, the Ministry of Economic Development and of Regional Affairs have to identify the criteria to evaluate offers in tenders, taking into account quality and safety standards and investment plans. This should simplify the procedure for tender to take place, and reduce the risk of a court's appeal by losing participants. However, at present, such a regulation does not exist.

The regulation of quality in the energy sector

Quality is regulated by the Authority of Electric Energy and Gas, which sets the rules for energy service provision and quality to consumers. The former are set to minimise the cost of service as well as to effectively guarantee competition in energy markets by standardising services, guaranteeing access and avoiding that quality differentiation, for reasons external to independent operators, impede competition. Rules on quality for consumers aim to protect clients with low market power on the demand side (mainly households and small consumers) from possible negative effects linked to market liberalisation, and guarantee a minimum quality standard across all types of users.

For electric energy transmission, the Authority specified technical characteristics to access the transmission grid through a net code ("*codice di rete*"), adopted by TERNA. This code establishes benchmarks for expected quality levels of electricity transmission. In 2006, less than a minute was due to transmission failures out of an average interruption rate per client equivalent to one hour per year (net of interruptions and any other "relevant incidents"²⁵ independent from the transmitting companies). However, it should be underlined that the benchmarks and the effective levels attained, which depend on the specification of the boundary between independent relevant accidents and other alignment failures, have changed over time. In 2008, an incentive and fee system was introduced, but it is not yet enforced, since the data provided by TERNA on the historical level of services (necessary to calculate the trend which is the reference to establish fees and incentives) has still to be verified by the Authority.

The quality of electricity distribution has been improving since the introduction of quality regulation by the Authority. The average total amount of interruptions for low voltage clients (which include both transmission and distribution interruptions, net of relevant accidents and safety interruptions) was reduced from over three hours in 2000 to less than one in 2007 (AEEG, 2008). However, the quality of electricity distribution is not homogeneously distributed across regions. Moreover, even if the average duration of interruptions is decreasing in Italy, the regional gap between the north and south does not seem to be closing. In 1998, the average interruptions for low voltage clients (served by ENEL Distribuzione or distributors serving more than 5 000 clients) amounted to 163 minutes. In the north, it was 45% lower than the national average and 58% higher in the south; in central Italy it was equivalent to the national average. In 2007, the average decreased by more than 70%. The deviation from the mean, however, is still as high as it was nine years ago: -41% in the north, +62% in the south, while the value for the centre is still equivalent to the national average.²⁶

The Authority also regulates the commercial quality of energy-related services (distribution, measuring and trade). Clients are entitled to receive automatic

reimbursements if the services related to electricity distribution are not fulfilled within the limits set by the Authority (and periodically updated). The analysis of the data provided by the Authority shows no significant improvement of the quality for consumers over the year. This might be related to the adoption of a regulatory setting that does not represent an effective incentive scheme, since it does not relate the penalty at the level of each single service failure. For this reason, in 2009, the Authority introduced a new system of incentives that relates penalties for distributors to the effective delay incurred.

In the natural gas sector, quality is measured by AEEG, aiming at reducing risks for final users and guaranteeing the standardisation of the service provided. Also for natural gas, the Authority measures consumer quality, and implements a technical regulation. The latter refers to the physical inspection that operators (active in transportation and distribution) undertake to prevent damages to the network, and to respond to first-aid calls. Roughly half of low and middle pressure networks were inspected in 2007. The first-aid calls have increased over time (from 2002), but the average response time has slightly decreased. This signals an increase in *ex post* quality of the gas distribution service, as well as an increasing stress on the existing distribution network which worsened the *ex ante* quality level (*i.e.*, quality of the physical equipment). This might be related to the problem of competitive network management induced by the competition on the market, coupled with the lack of a standardised regulation for service contracts (see section on Distribution and competition for the market).

Consumer quality refers to the compliance of minimum standard levels for the service (timing for new connections, measurement services, works on the distribution grid, etc.). In 2007, data show a 25% increase in compensation payments for non-compliance to standards compared with the previous year. Interpretation of the data is twofold: it does not necessarily imply a worsening of the quality for services provided. On the contrary, it might indicate a quicker management of automatic reimbursements from the operators.

A general problem of data interpretation on the quality of service refers to information availability. Indeed, data belong to operators, which are then transmitted to the Authority. The Authority can inspect the data; however, no information on misalignments of effective and communicated data is available.

Levels of government and Regional Energy Plans²⁷

After the constitutional reform of 2001, energy has become a field for concurrent competence between the State and regions (Box 5.1, Chapter 5). More precisely, “production transportation and national distribution” are under concurrent legislation: regions have legislative powers except for the determination of fundamental principles which are defined by State legislation. However, the situation is made very complex as the regulation that applies to energy is not the only relevant piece of regulation for the energy sector. Other sectoral regulations have an impact on the energy sector, specifying the distribution of competences across levels of governments in fields relevant to energy, such as environmental regulation, safety norms, urban and rural planning, as well as incentives on industrial and agricultural developments that impact choices in energy investments. Table 9.12 describes the distribution of competences about authorisations across territorial levels of governments as well as electric energy and natural gas chain levels.

Table 9.12. **Distribution of competences about authorisations across government levels and energy sectors**

| | | Level of government | | | |
|------------------------|---|--|-------------------------------------|-----------|----------------|
| | | National | Regional | Provinces | Municipalities |
| Electric Energy | <i>Production</i> | | | | |
| | <i>Conventional power plants</i> | > 300 MW thermal: single authorisation by MISE, including accessory infrastructures | <= 300 MW Thermal (#) | | |
| | <i>Renewable energies</i> | Off-shore wind power plants | All other RES (*) | (*) | (+) |
| | <i>Transmission</i> | Single authorisation released by MISE together with MATTM | | | |
| | <i>Distribution</i> | | Regional distribution networks (\$) | (\$) | |
| | <i>Interconnections</i> | Single authorisation released by MISE together with MATTM, for boundary interconnecting lines with tension >= 150 kV | | | |
| Natural gas | <i>Imports (including LNG facilities)</i> | MISE together with MATTM and in agreement with the region (\$) | | | |
| | <i>Storage</i> | MISE | | | |
| | <i>Transport</i> | MISE together with MATTM | | | |
| | <i>Distribution</i> | | Regional distribution networks | (£) | (£) |
| | <i>Trading</i> | MISE together with MATTM | | | |

(#) Regions can transfer to provinces the authorisation process for all plants or plants up to a certain size.

(*) Regions can transfer to provinces the single authorisation procedure.

(\$) Some regions have transferred to provinces competences on grids with tension < = 150 kV.

(£) Only regional competence for special statutes region.

(+) Renewable energy plants whose power is below the limits set in A (below) can be authorised by municipalities with a simplified procedure (*silenzio-assenso*) if they are not set in protected areas. Regions can raise these limits.

(£) Municipalities and other local territorial entities (mountain communities, networks of municipalities) have competences for tenders for concession of natural gas distribution. Proposal to group concessions to an "optimal size" (*ambito ottimale*), is generally equivalent with the province boundary.

Table A. **Limits for simplified authorisation of renewable energy plants**

| | |
|-------------------------|--------|
| Wind | 60 kW |
| Photov. | 20 kW |
| Hydro | 100 kW |
| Biomasses | 200 kW |
| Waste to gas and biogas | 250 kW |

Source: Our elaboration.

A crucial role in the energy sector regulatory framework is played by the Ministry of Economic Development (*Ministero dello Sviluppo Economico*, MISE) and by the Authority for Electric Energy and Gas (AEEG). The former defines the national targets of the energy policy. Operating in a liberalised framework, it co-operates in the definition of the normative framework and exerts the control power by checking the correspondences between national interests and the trends of the liberalised markets. The Sectoral Energy Authority (AEEG), on the contrary, implements the targets defined at the national level by specifying the regulatory rules that allow markets to exploit competition properties without discriminating across consumers (Box 9.2 presents a more precise description of the

competences of AEEG in the energy field). In general terms, its aim, set by the law, is to create the proper regulatory framework to allow the electric energy and natural gas sectors to provide a reliable and universally accessible service to all consumers while at the same time maximising technical and allocative efficiency.

Box 9.2. **The authority of electric energy and natural gas**

Created under Law 481/1995 to regulate and control the electric energy and gas sectors. Its role is to ensure that markets provide effective nationwide services to consumers, with a satisfactory quality level, defining tariffs, promoting environmental protection and an efficient use of resources. It comprises five members (one President and four members of the board. In April 2008 only two of them were appointed), elected by the Parliament under a qualified majority, and in charge for 7 years. Members cannot be removed and are not re-eligible. They are supported by a permanent staff. In April 2008 the Authority had 134 staffs.

The Competition Authority (AGCM) plays also an important role in the energy sector, operating in agreement with the AEEG. Over time, it has taken several relevant decisions that have had an impact in these sectors. Two recent important cases are reported in Box 9.3.

Box 9.3. **Two important cases managed by AGCM in the energy sector**

Case A371, management and usage of re-gasification capacity

On 16 November 2005, the Italian Competition Authority decided to launch an investigation on the grounds of an alleged abuse of dominant position, into the activities of ENI and GNL Italia, which was a subsidiary of ENI by way of Snam Rete Gas. This case was in relation to conduct observed in the re-gasification of liquefied natural gas. The Authority's decision was based on a notification by the AEEG, which pointed out anomalies in the management and use of the continuous-cycle of re-gasification of liquefied natural gas at the terminal in Panigaglia (SP). The Competition Authority considered that ENI and GNL Italia may have adopted a strategy aimed at blocking third-party competitors of ENI's from supplying liquefied natural gas to the national market. The Panigaglia re-gasification terminal, managed by GNL Italia, was in fact the only facility through which it was possible to import liquefied natural gas into Italy. Given this infrastructure bottleneck, it seemed that during 2002-03 and 2003-04, ENI may have secured re-gasification capacity in excess of its own requirements, to the point of taking over the entire continuous-cycle capacity of the Panigaglia terminal. In fact, the continuous-cycle capacity provided to ENI by GNL Italia was greater than the one used by ENI or that ENI had planned to use. Furthermore, in 2003-04, GNL Italia seemed, to have adopted discriminatory behaviour in favour of ENI, refusing access by third-party operators to the continuous-cycle re-gasification terminal. In August 2003, the entire continuous-cycle re-gasification capacity of the terminal was assigned to ENI, even though its forecasted use was much less. In the Authority's view, the conduct of ENI and GNL Italia seemed to have prevented the supply of natural gas by independent operators, to the wholesale natural gas market. The procedure for presentation of undertakings, introduced by the Bersani Law, stipulates that companies being investigated for possible anti-competitive conduct may present undertakings which would eliminate the anti-competitive behaviour under investigation. Should the Authority assess that these commitments are suitable for the purpose, it will make them obligatory and close the proceeding without ascertaining misdemeanour. If the commitments are not adhered to, the Authority may levy a fine of up to 10% of turnover. The Authority accepted and made binding

Box 9.3. Two important cases managed by AGCM in the energy sector (cont.)

the commitments by Eni, thereby closing the Authority's investigation into the potential abuse of a dominant position regarding the Panigaglia re-gasification plant. ENI initially offered a commitment to sell 1.5 billion m³ of natural gas during one year to interested third parties, with a possible increase up to 2 billion m³ depending on the average price if the sale was conducted by auction. Following the results of a market test and based on the opinion of the Energy Authority, Eni modified its original commitments, doubling the quantity of gas to be sold (4 billion m³), and extending the time period to two years at reduced sales prices. In the Authority's view, Eni's revised commitments satisfied any anti-competitive concerns as the commitments would allow Eni's competitors to ensure their gas supplies during the interim period before the planned upgrades to pipelines for imported natural gas.

Case A366, anti-competitive conduct on the power exchange

On 6 April 2005, the Authority opened an investigation into possible abuse by ENEL of a dominant position, based on conduct inherent in the company's strategies for supplying the wholesale electricity market. On 17 October 2006, in the light of the new procedures introduced in Article 14 ter of Law 248 of 4 August 2006, ENEL and ENEL Produzione had presented commitments which were published by the Authority in order to assess the reaction by the market. ENEL had initially offered to sell 700 MW of virtual capacity in each of the two years under consideration. Subsequently, following the outcome of the public consultation carried out by the Authority and the observations expressed by AEEG, ENEL changed its commitments, undertaking to divest itself of 1 000 MW in 2007 and proposing to sell virtual capacity of 700 MW in 2008, subject to an assessment of its pivotal market role. It also reduced the supplier price for virtual capacity by around EUR 3 per MW/h as compared with the prices in the originally proposed commitments. The contract prices will be made public when the sale procedure begins. The closure of the investigation into ENEL and ENEL Produzione with the acceptance of the commitments which have now been made binding is the first application by the Italian Competition Authority of Article 14 ter, whereby it is possible to present measures to eliminate the anti-competitive behaviour under investigation. The Authority, where it deems these measures suitable for the purpose, may render them obligatory for the companies involved and close the proceeding without ascertaining a misdemeanour. According to the commitments, in 2007 ENEL, through its subsidiary ENEL Produzione, had to sell 1 000 MW of virtual capacity, equivalent to approximately 3% of the national demand for electricity, on conditions which are in line with those prevailing on the Electricity Exchange. The Italian Competition Authority, at its meeting on 20 December 2006, accepted and made the commitments presented by the company compulsory. These commitments were more wide-ranging than those originally proposed. In 2008, ENEL undertook to sell 700 MW, subject to an assessment of its ability to exercise unilateral power in determining market prices (its so-called "pivotal role"), based on the structural nature of supply and demand. The divestment was supposed to take place in the southern price zone using financial instruments in the form of two-way differential contracts. Under these contracts, ENEL had to pay the other contracting party a positive financial compensation when the price in the southern zone was higher than the contract price, whereas ENEL would receive the price differential from the other party in the case where the price in the southern zone was lower than the contract price. In the Authority's view, the quantities involved in the commitments were such as to reduce significantly ENEL's pivotal role in the markets in question, thus satisfying the anti-competitive concerns which gave rise to the investigation.

Source: www.agcm.it.

The distinction of the boundaries of competence, established by the constitutional reform, has given rise to interpretation difficulties, addressed in Law 239/04. The law distributed competences across levels of government, specified the fundamental principles and joint targets that regions share with the State. The general principle, followed by the law and confirmed by the Constitutional Court, established that each region should determine the authorisation criteria taking into account its own need to balance energy consumption and production. Almost all Italian regions have a net deficit in electric energy. Table 9.13 reports data on net surplus or deficit in 2007.

Table 9.13. Net deficit or surplus of electric energy production compared with regional demand, 2007

| | Production for consumption (GWh) | Electric energy requested (GWh) | Surplus or deficit of production |
|-----------------------|----------------------------------|---------------------------------|----------------------------------|
| Piedmont | 19 496 | 28 730.5 | -9 234.5 |
| Aosta Valley | 2 735.2 | 1 182.7 | 1 552.4 |
| Lombardy | 51 970 | 70 511.9 | -18 541.9 |
| Trentino Alto Adige | 7 430.9 | 6 711.1 | 719.8 |
| Veneto | 17 779.3 | 32 655.4 | -14 876.1 |
| Friuli Venezia Giulia | 11 410.1 | 10 697.8 | 712.3 |
| Liguria | 11 621.8 | 6 866.9 | 4 754.9 |
| Emilia Romagna | 25 593.9 | 29 389.4 | -3 795.5 |
| Tuscany | 19 311.7 | 22 138.3 | -2 826.6 |
| Umbria | 5 075.9 | 6 473.6 | -1 397.7 |
| Marche | 3 791.4 | 8 341.1 | -4 549.7 |
| Lazio | 16 490.3 | 25 242.1 | -8 751.8 |
| Abruzzi | 4 076.1 | 7 213.4 | -3 137.3 |
| Molise | 5 376.1 | 1 604.4 | 3 771.7 |
| Campania | 7 476 | 18 666.9 | -11 190.9 |
| Apulia | 37 007.1 | 19 603.8 | 17 403.3 |
| Basilicata | 1 537.8 | 3 162.7 | -1 624.9 |
| Calabria | 8 920.2 | 6 281.4 | 2 638.8 |
| Sicily | 23 278.7 | 21 857.6 | 1 421.1 |
| Sardinia | 13 267 | 12 597.2 | 669.8 |
| ITALIA | 293 645.5 | 339 928.2 | -46 282.8 |

Source: Elaboration from TERNA, 2007.

The data show that the highest energy surplus belongs to Apulia. Other southern regions (Calabria, Sicily, Sardinia) and northern regions with a high share of production derived from hydropower (Trentino Alto Adige, Friuli, Aosta Valley, Liguria) have a positive surplus of production. On the opposite side, the more industrialised regions are net consumers of electric energy.

Law 239/04 attributed to the State the tasks of energy programming and addressing security of supply, as well as competence about the single authorisation process for the building and management of electric grids. Such a law was appealed by Tuscany; but the appeal was rejected; however the court established that the State has to consult explicitly with the regions on the topics regulated by the law, taking into account in an effective way their position through the procedure.

The State maintains the regulatory power on environmental policies that have a significant impact on the energy sector. This is the case, for instance, for the incentive policies for investments in renewable sources that derive from the European policy on renewables. The previously cited Budget Law 244/2007 has updated the existing regulations in this field. For energy efficiency and promotion of renewable energy sources it has i) set

rules about energy saving certification; ii) established a compulsory photovoltaic production in new buildings; iii) simplified the authorisation process for renewables sources; iv) set the prohibition of sale of electric apparel with an energy efficiency class lower than A (from 2010); v) updated the green certificates scheme.

Piedmont has appealed to the constitutional court against Law 244/2007 for the part that attributes to the State power of regulation about authorisation of energy production from renewable sources; the appeal has not been discussed yet.

Law 244/2007 has also addressed the problem of convergence of regional targets on renewables and efficiency. It prescribed that the Ministry of Economic Development establish within 90 days from the approval date of the law the distribution across regions and autonomous provinces of the minimum compulsory increase of electric energy production from renewables to reach the national target of 25% of internal gross consumption within year 2012. The regions, within the subsequent 90 days, update (or must adopt) their Energy Plans in agreement with the shared burden, and are subjects to control by the Ministry every two year. Regions must involve provinces and municipalities in reaching the targets, and set Agreement Plans (*"accordi di programma"*) with the central government to promote the industrial development of renewable energy and energy efficiency fields. At present, the distribution of the minimum required burden across regions has not been undertaken, since the deadline set by the law to the Ministry has not been respected.

Almost all Italian regions (and autonomous provinces) have defined their Energy Regional Plans (Table 9.14). Some regional Plans have been adopted before the constitutional reform that has devolved competences to regions, and some even before the liberalisation reforms. In Piedmont, the Energy Plan has not been updated yet. Meanwhile, the region has adopted an agreement with local municipalities to monitor the needs and the gaps between the effective energy structure and the planed one. Several provinces (AL,

Table 9.14. **Regional energy plans**

| Region/autonomous province | Situation |
|----------------------------|--|
| Aosta Valley | Approved in 2003 |
| Piedmont | Approved in 2004 |
| Lombardy | Approved in 2003 |
| P. A. Trento | Approved in 2003 |
| P. A. Bolzano | Approved in 1997 |
| Veneto | Approved in 2005 |
| Friuli-Venezia Giulia | Approved in 2007 |
| Liguria | Approved in 2003 |
| Emilia Romagna | Approved in 2002. Updated in 2007 |
| Tuscany | Approved in 2000. Update in progress |
| Umbria | Approved in 2004 |
| Marche | Approved in 2005 |
| Lazio | Approved in 2001 |
| Abruzzo | Not yet adopted |
| Molise | Approved in 2006 |
| Campania | Not yet adopted |
| Apulia | Adopted in 2007 |
| Basilicata | Approved in 2001. New plan released in 2009, currently under approval. |
| Calabria | Approved in 2005 |
| Sicily | Draft release |
| Sardinia | Approved in 2003. Update in progress |

Source: Elaboration from ENEA.

BI, CN, NO, TO, VB) and municipalities have adopted provincial and municipal plans. Lombardy, after approving the Plan in 2003, adopted an Energy Action Plan in 2007, aimed at improving the energy balance according to the principle of Law 239/04, encouraging plant efficiency and the diffusion of renewables.

In Veneto, the Plan will have to be updated to include the changes in the production due to the conversion of the Porto Tolle power plant. The region will approve new power plants only once the conversion of the Porto Tolle power plant from oil to coal will have occurred, and only if it will be proved that the expected increase in demand will more than compensate the increase in supply. In Tuscany the old Plan is currently being updated; it will be tailored to 2020, and it includes criteria for the localisation of wind power plants. Some provinces in Tuscany (SI, PI, LI, LU), have adopted a provincial energy plan, as well as several municipalities. The State has appealed the Constitutional Court against Tuscany, charging Regional Law 39/2005, which attributed power to the region for the authorisation to distribute natural gas. Regione Molise adopted the Plan in 2006; it is not being updated. The plan has been cited in the Court since it prescribed that authorisation was to be released only after the adoption of proper regional guidelines for investments. The Court has accepted the appeal. Sicily has not adopted a Regional Plan yet, and its definition is still in progress.

The role of local public service companies in the energy market

The liberalisation process has stimulated the growth of municipalised companies that at the time of liberalisation already owned parts of the electric and/or gas distribution networks and/or production plants and that (in some cases) were also active in the provision of other local public services (transportation, waste and environmental management, water cycle). The development of local public service companies had already been favoured by their transformation from local municipalised companies, into private companies (yet with a large or majority share owned by public bodies) (Chapter 8). This allowed them to enter the financial market and start a merger and growth process, which enabled them to exploit economies of scale. Being active in the upstream and downstream energy sectors they took advantage of market opportunities that were released by former monopolists (mainly in the electricity sector). They also exploited their vertical integration in the energy market. Moreover, their intersectoral structure allowed them to exploit economies of scale in the energy and related fields, such as the waste-to-energy cycle and tele-heating systems. Several former municipalised companies increased their capacity in the energy field: the largest in terms of value of production²⁸ are A2A, Iride, HERA, ACEA, ENIA, Acegas-APS, Ascopiave. Table 9.15 provides general information on these operators. They are all not only active in energy markets but in other local public services (waste management, environmental services, etc.). Some also operate in transportation services through subsidiary companies.

The case of A2A is praiseworthy (Table 9.16). It was created early 2008 as a merger of former municipalised companies in Milan (AEM) and Brescia (ASM), with companies active in environmental management services (AMSA, urban waste management, Milan, and Ecodeco, urban and special waste management in some provinces of Lombardy and Piedmont). A2A holds a 60% share of Edison (and through it, a share of Edipower). It is the biggest company among ex-municipalised companies, and one of the major players on the Italian energy market: it is the second largest in the electricity production sector for installed capacity, the second largest for the supply of electric energy; the third for natural gas distribution; the first Italian provider of tele-heating, and the biggest provider of

environmental management services (the second for waste management, the first for waste-to-energy provision). The majority of the company's share is still owned by the two main municipalities (27.5% Milan; 27.52% Brescia; other public and private investors hold smaller shares; the floating amounts to 33%). It is managed under a dual system: each municipality appoints the board of the surveillance and management council, respectively, where the head of the former boards of AEM and ASM are sitting.

Table 9.15. **Energy local public utilities: Data summary**

| | Province ² | Number of employees ³ | Value of production ⁴ | Main sector ⁵ | Share of revenues from main sector |
|------------------|-----------------------|----------------------------------|----------------------------------|--------------------------|------------------------------------|
| A2A ¹ | MI-BS | 8 500 | 5 175 | El. En. | – |
| Iride | TO | 3 004 | 2 530 | El. En. | 61% |
| Hera | BO | 6 194 | 2 365 | NG | 43% |
| Acea | RM | 5 792 | 2 187 | El. En. | 62% |
| Enia | PR | 1 901 | 1 226 | NG | 49% |
| Acegas-APS | TS-PD | 1 390 | 443 | NG/El.En. | 25% (NG) 23% (El.En.) |
| Ascopiave | TV | 300 | 318 | NG | 92% |

Only local public municipalities whose main activity is either electricity or natural gas.

1. Merger of AEM and ASM
2. Legal base or main provinces of activities
3. All data refer to 2006 except: A2A = 2008; Acegas-APS: 2007
4. Million euros. All data refer to 2006 except: A2A = pro-forma restated, 2008; Acegas-APS: 2007
5. Calculated as a percentage of revenues.

Source: Elaboration from Bianco et al., 2008.

Table 9.16. **A2A data**

| Date of creation | 1/1/2008, as a merger of AEM and ASM, acquiring AMSA and Ecodco | |
|-----------------------------|---|------------------------|
| Stock value | 7.6 | Billion euros |
| Revenues | 5.175 | Billion euros |
| Gross margin | 1.013 | Billion euros |
| Cash flow | 521 | Billion euros |
| Personnel | 8.500 | |
| Electric capacity Installed | 3.400 | MW (end 2007) |
| | 6.100 | MW (end of 2012) |
| NG distributed | 5 | Billion m ³ |
| Heat sold | 1.5 | Million MWh (2007) |
| | 3.1 | Million MWh (end 2012) |

Source: Elaboration from A2A data.

Conclusions

The current analysis shows that the liberalisation of energy markets has been a story of (partial) success in Italy. It has allowed new players to enter the markets and to provide better and more reliable services to consumers. However, more detailed analysis reveals that the range of the positive impact of the markets' opening differs across sectors and levels of the energy chain for several reasons.

The regulatory framework of the energy sectors has favoured the move towards a market-based approach, distinguishing between planning and controlling. The independent regulating Authority, AEEG, represents a crucial component and focuses on the whole sector rather than levels of activities in specific subsets. It has a unique set of competences and specialised human capital. The success of the implementation of an independent regulating authority in this sector is witnessed by the proposal of extending such a regulatory structure to other sectors, creating a national Authority for transport and

perhaps for other local public services as well or attributing to AEEG also competences in these sectors (Chapter 8).

However, other factors have limited the benefits that could be expected from liberalisation. The implementation of the constitutional reform has overlapped on the regulatory framework defined at the beginning of the liberalisation process. As a result, there is a split of competences across government levels that were previously attributed to the central government for planning, targeting, and authorising. Moreover, the multi-level government framework that has been defined differs across economic policies, in particular for environmental and energy policies that affect energy sectors. This may result in several regulatory inefficiencies. The first are the delays in authorisation processes and a proved inefficiency of deadlines in procedures, set by laws but that are not effective in guaranteeing a fixed time for the administrative procedures and putting them to an end. The second is the risk of litigation between the central and regional government on competence sharing and long delays due to agreement on procedures between government levels. The third is related to the difficulties of coupling levels of analysis about the optimal sharing of the national targets across local governments. There is also a risk linked to the appeals to the Administrative Court against the authorisation issued.

The existence of strong incumbent market players plays an important role as these incumbents are facing a large number of local small aggressive players. Both groups are mostly publicly-owned by different levels of government. Competition has emerged more actively in the sub-parts where the rules were stringent enough and have been effectively implemented, such as for electricity generation. This has produced positive results for both past incumbent and small players. However, the public ownership of most players active in energy markets may result into potential conflicts of interest between governing bodies and the expected outcomes of market competition. Given the fact that most players are local public utilities, the sharing of competences across levels of governments has had implications for the efficiency of the regulatory framework. This may result in difficulties in the adoption of tenders for the concession of the distribution of natural gas, with corresponding litigation. This makes the general task of defining a stable regulatory framework that could effectively be accepted all stakeholders, more difficult.

Market targets also need to be considered in the light of policy objectives. The figures provided in the chapter in terms of investments in electricity generation, requests of authorisation for LNG facilities, revenues for local communities from tenders for the attribution of natural gas distribution concessions, show that energy markets have had positive results. They succeeded in generating technical efficiency, selecting marginal technologies, directing investments where there is higher equity return and extracting the most of monopolistic extra rent in the competition for the market. However, these market outcomes may not necessarily coincide with allocative efficiency of energy markets, when other environmental externalities, intergenerational optimality, and social targets are taken into account. Co-ordination mechanisms may not yet be fully effective in guiding markets towards energy sources diversification, greenhouse gases reduction and contributing to reducing regional disparities. These are certainly huge challenges faced by many countries. The challenge is made more difficult for Italy as the country has extremely limited resources of energy in order to reduce its dependence on foreign imported supplies.

The authorities are fully aware of the challenge and have taken action to address it. Energy is a core issue for the competitiveness of the Italian economy. The government has launched a debate on the possibility of adopting a national policy towards nuclear energy. Nuclear energy has been used by some neighbouring countries, such as France, which were facing similar challenges being deprived of natural energy resources. In addition, in the context of the climate change discussion, nuclear energy has received increased attention all around the globe, in OECD countries and beyond. As a result, the authorities have announced a proposal to build four III generation nuclear power plants, relying on the EPR technology in most likelihood. This could produce up to an estimated 15% of Italian gross energy consumption.

The authorities estimate a time-to-market ranging between eight and ten years including site scoping and authorising. The investment is aimed at reducing dependence from fossil fuels, reducing GHG emissions, increasing geographical diversification of energy sources and stimulating research and investments in nuclear technologies. In terms of fossil fuels, the flows of investments in gas-fired power plants already imply a reduction of the share of oil in total production, which reduced GHG emissions. Investments in LNG facilities allow for greater geographical diversification of (gas) imports. The issue of nuclear is subject to complex analytical considerations. Nuclear may help to reduce reliance on imports from electric energy produced abroad through congested interconnection lines. However, the adding up of new capacity and their market impact will depend on several factors, including the location along transmission lines. The specific regulatory and institutional structure may impose specific constraints, with time delays for investment facilities, in the light of veto power exerted by local communities. As a result, the time for site scoping and authorising may have to be revised upwards.

Other issues may also arise falling beyond the scope of this chapter, such as competence sharing from a constitutional sense between regions and the national level, to assess where the deficit of electricity generation warrants investment in nuclear energy. It may also require a strengthening of energy planning mechanisms. This may open some constitutional issues that again cannot be addressed as part of this chapter. The other implication is again in terms of delays for authorisation. The impacts in terms of competition on the market will also have to be assessed.

Policy options

The chapter has analysed the challenges faced by the energy sector from a multi-level regulatory governance perspective. Tackling those challenges properly can help speed up the diffusion across the sectors of the benefits of the liberalisation process. The chapter offers a number of recommendations for the Italian national authorities which could help to clarify and strengthen the regulatory framework.

Adopt a regulatory structure that reduces risks and investment costs

The investment costs in energy facilities are implicitly increased by the high investment risk, which depends also on the structure of the regulatory framework. Two reasons account for this:

- Procedures for investment authorisations in the energy sector are such that there is currently a lack of fixed and firm deadlines for authorisations in Italy. Authorisations that have already been awarded can be revoked. Moreover, the complexity of procedures and the level of litigation imply that court enforcement is difficult and costly. This issue is not

unique to the energy sector, but has a disproportionate impact on much needed investment in that sector. This gives rise to several inefficiencies, such as preemption moves by firms, excessive requests, higher time-to-market investments, higher discount rates.

- Competences are shared across levels of government. This is particularly true for investments in renewable energy sources for which there is no clear definition of the distribution of competences across levels of government since it refers both to environmental and energy targets. This implies a risk of unclear sharing of competences between regions and the national level, with a risk related to the clarity and certainty of the regulatory framework.

In order to reduce risks, co-ordination mechanisms should:

- *Set energy-environment trade-offs* and outline clear priorities and times of adoption.
- *Strengthen decision processes* affecting the adoption of norms that intersect regional and central government levels. This reduces *ex post* litigation and clarifies the sharing of competences.
- *Include sunset clauses* that help reduce risk by specifying *ex ante*, with certainty, the timetable of the procedures, avoiding overcrowding of requests and pre-emption.

Speed up the adoption of required regulation and norms

Several norms establish compulsory deadlines, which are not respected. Updates or release of regulations that are needed are not always fulfilled. This is the case for the Regional Energy Plans that have not been adopted by all regions or that need to be updated. Similarly, deadlines set by Law 244/2007 for national and regional governments have not been respected. The criteria to evaluate offers in tenders for concession of the distribution service of natural gas, as established by Law 222/2007, have not been released. Respecting the deadlines can speed up the liberalisation process and help clarify the regulatory framework. This could be done by:

- *Setting compelling deadlines* for the adoption of regulation both at national and regional levels, with penalties for non compliance.
- *Guaranteeing certainty for the timing of processes*, attributing to the responsible bodies an economic liability with an incentives system and punishments if deadlines are anticipated or not respected.
- *Encouraging co-ordination with projects on network investments in other sectors (for instance broadband communications market) in order to share excavation and digging costs in urban areas.*
- *Inducing or expanding virtual yardstick competition among local authorities and players.* National and local regulators can often only rely on observations coming from the firms they regulate. Introducing a national system of yardstick competition would enrich the regulator's ability to set efficient rules. In the natural gas distribution market, at least a portion of the firms' compensations depends on the performance of other similar firms.

Adopt market-based regulation in all parts of the energy sectors

Properly regulated markets can contribute to reach targets set at political level. In order to do so, markets should be reinforced at sectoral level by completing market liberalisation in all parts of the energy chain:

- *Avoiding impeding the liberalisation process* for the markets that have not yet been completely opened.

- *Strengthening proprietary separation* of the natural gas transmission company from ENI, to avoid negative competition effects in other parts of the gas network.
- *Setting clear guidelines to simplify the adoption of tender procedures at the local level and clarify burdens and duties for private companies.*

Moreover, a market-based approach can be adopted to increase efficiency in the sharing of competences across regions and between regions and the State, by:

- *Removing the uniform electric energy balancing requirement* and allowing southern regions to profit from their lower opportunity costs in investments in renewables. From an economic point of view the uniform distribution of electric energy balance is not efficient, since opportunity costs of investments are not equally distributed across regions but depend on population density, economic density, geographical characteristics, network structures. Introducing a compensation scheme could allow southern regions to take advantage of their surplus of potential renewable energy sources. (In fact, southern regions are in a more favourable position in relation to renewables than the central and northern ones, mainly due to the combined effect of photovoltaic and wind power).

Enhance technological and geographical diversification of energy inputs and imports

Italy is a specific country with significant geographical variation in terms of patterns of supply and demand, local transport grid capacity, and connection with alternative inputs and exports. Diversification of energy inputs should be organised accordingly and coupled with massive investments by the national grid to fully capture the advantages due to local variations. Investments in LNG facilities are one of the best examples to allow greater geographical diversification of imports but their location need to be clearly coupled with credible short-term investment in transmission capacity. A similar argument applies to alternative energy sources as well as to policies aimed at starting investments in nuclear power energy in Italy. The complementary nature between investments in input/import facilities and investments in network transmission is fundamental. A national plan pointing out complementary investments in facilities and transmission might be appropriate to reduce *ex post* co-ordination costs and to allow the country to take full advantage of the corresponding opportunities.

Reduce conflicts of interest

The presence of significant public ownership, either at national or local levels, both in the electricity and the gas sectors may result into potential conflicts of interest. Governing bodies, setting rules and regulating the market, may not be fully neutral in relation to the expected outcomes of market competition, with potential implications for entry and long-term investments by competitors. A clearer definition of incumbents' duties and/or a pressure towards privatisation may help reduce it, avoiding inefficient outcomes. Another option would be to shield the management of core assets by national or local authorities into specific separate branches, distinct from those with a regulatory power.

Notes

1. Import is considered a free activity if gas is produced in EU countries while it is subject to authorisation by the Ministry of Economic Development if it comes from non-EU countries.
2. See section on *Levels of government and Regional Energy Plans*.

3. Even if full privatisation is not the only desirable goals, as in some segments that are natural monopolies such as distribution, complete privatisation without adequate regulation could worsen the situation of consumers.
4. Legislative Decree 79/99 established the independent management of transmission and dispatching functions, giving to GRTN the role of ISO. TERN (a subsidiary of ENEL) held the transmission lines. In 2005, the merger of TERN and GRTN took place. No electricity market player was allowed to hold more than 5% in the new company. ENEL was allowed to retain a quota up to 20% but with voting rights limited to 5%.
5. From 1 of July 2007 all limits to consumers for choosing producers have been removed.
6. Eurostat, data from 1999 to 2006.
7. Which are linked by cross-shareholdings – see the section on *The role of Local Public Services companies in the energy market*.
8. It is the highest for EU15, for households with an average consumption of 3 500 KWh, but with and without taxes (Eurostat).
9. See a description of the Antitrust Authority investigation on the abuse of dominant position by ENEL in the competition chapter.
10. Elaborated from Terna, 2007.
11. For these plants the authorisation is released by the Ministry of Economic Development. See the section on *Levels of government and Regional Energy Plans*.
12. Long-term contracts, recently renewed with Russia until 2035, would allow ENI to maintain a dominant position in the market in the foreseeable future. The contract, signed between ENI and Gazprom, signed in December 2006, established that in exchange for the renewal of gas supply to ENI until 2035, Gazprom can enter the Italian retail market selling directly up to 3 billion m³ per year.
13. At the end of 2007, ENI held a stake of 50.3% in Snam Rete Gas, publicly listed on the Milan stock exchange.
14. The deadline does not apply to Sicily, since it is a Special Statute Region (*“Regione a Statuto Speciale”*). Regional Law 86/2003 set the end of year 2015 as the deadline for tenders to take place.
15. See TAR Lombardia 3 794/05; TAR Lombardia 3688/05; TAR Abruzzo 753/04; TAR Lombardia 183/06.
16. TAR Lombardia 3 793/05.
17. TAR Lombardia 6694/01, 6695/01, 6698/01.
18. Del. AEEG 87/03.
19. That was originally set at 5%, but it has been charged in the Court, and replaced by a decreasing parameter of up to 4.4%.
20. Del. 170/04 and subsequent modifications.
21. The Decree 164/00 set 12 years as the upper limit for concessions to expire. In principle, a municipality could set a concession for a shorter time, and make it coincide with the tariff period. However, such an hypothesis is purely theoretical. It has been pointed out that the twelve years limit appears to be too short compared with the average amortising time of the investments. Indeed, almost all concession that have been tendered have been granted for twelve years.
22. Giacomelli’s data refer to a subset of tenders (155) of the set of tenders described in Table 11.
23. ANIGAS.
24. TAR Lombardy is the administrative court competent for tenders that take place in Lombardy, such as those that gave rise to AEEG opinions reported in the text. Moreover, it is also AEEG’s appeal court based in Milan.
25. *“Incidenti rilevanti”*.
26. Elaborated from AEEG data.
27. This paragraph describes the general distribution of competences across the Italian level of government and analyses in more detail a set of Italian regions, namely: Piedmont, Lombardy, Veneto, Molise and Sicily. The information on these regions stems also from a questionnaire prepared by OECD and submitted to the above mentioned Regions. The analysis does not aim to

provide a complete description for the energy regulatory framework but to describe in detail some cases.

28. Data refer to companies whose main revenues stem from the electric energy and/or natural gas sectors only. Data was updated by the author following Bianco, M., Mele, D. and Sestito P. (2008), "Le grandi imprese Italiane dei servizi pubblici locali: vincoli, opportunità e strategie di crescita, Questioni di Economia e Finanza", *Occasional Papers*, No. 21, Banca d'Italia.

Bibliography

AEEG (2008), "Relazione annuale sullo stato dei servizi e sull'attività svolta", Luglio, Roma. www.autorita.energia.it/relaz_ann/relaz_annuale.htm.

AGCM – AEEG (2005), *Indagine Conoscitiva sullo stato della liberalizzazione dei settori dell'energia elettrica e del gas naturale (IC22)*, Autorità Garante della Concorrenza e del Mercato, Autorità per l'Energia Elettrica e il Gas, Roma.

AGCM, Case A371, "Management and Usage of Re-gasification Capacity"; Case A366, "Anti-competitive Conduct on the Power Exchange", available at: www.agcm.it/.

D'Angelo, E., P. Catoni, A. Colangelo, L. Coralli, A. Mori (2007), "Situazione ed Indirizzi Energetico-Ambientali Regionali", ENEA. <http://enerweb.casaccia.enea.it/enearegioni/UserFiles/OSSERVATORIO/Sito/osservatorio.htm>.

ANIGAS (2006), *Analisi Schede Censimento Gare*, Anigas, January, Milan.

Bianco, M., D. Mele and P. Sestito (2008), "Le grandi imprese Italiane dei servizi pubblici locali: vincoli, opportunità e strategie di crescita, Questioni di Economia e Finanza", *Occasional Papers*, No. 21, Banca d'Italia, ENEA.

CEER (2008), "4th Benchmarking report on Quality of electricity Supply", C08-EQS-24-04, Council of European Energy Regulators ASBL, December, Brussels.

Commission of the European Communities (2008), "Climate Action – Energy for a Changing world", January, Brussels, http://ec.europa.eu/energy/strategies/2008/2008_01_climate_change_en.htm.

Commission of the European Communities (2008), "Second Strategic Energy Review – Securing our Energy Future", November, Brussels, http://ec.europa.eu/energy/strategies/2008/2008_11_ser2_en.htm.

Commission of the European Communities (2007), Inquiry pursuant to Article 17 of Regulation (EC), No. 1/2003, into the European gas and electricity sectors, COM(2006) 851 final and SEC(2006)172, January, Brussels.

European Commission (2009), Directorate-General for Energy and Transport (DG TREN), *EU Energy in Figures*.

Eurostat (2009), *Energy, Transport and Environment Indicators*, 2008 edition, Eurostat Pocketbooks, Luxembourg.

EU Commission (2008), Benchmarking Report on "Progress in Creating the Internal Gas and Electricity Market".

Fontini, F. and L. Paloscia (2008), "The impact of the new investments in combined cycle gas turbine power plants on the Italian electricity price", *Energy Policy*, No. 35, pp. 4 671-4 676.

Giacomelli, S. (2008), "La distribuzione di gas naturale in Italia: l'attuazione della riforma e i suoi effetti, Questioni di Economia e Finanza", *Occasional Papers*, No. 21, Banca d'Italia.

GME (2007), *Relazione Annuale*, Gestore del Mercato Elettrico Spa, Roma.

IEA (2008), *World Energy Outlook*, OECD/IEA, Paris.

TERNA (2009), Dossier, "Il sistema elettrico italiano", March, Rome.

Data and websites:

A2A: www.a2a.eu/gruppo/cms/a2a/en/.

AEEG: www.autorita.energia.it.

AGCM: www.agcm.it/.

AU – Acquirente Unico: www.acquirenteunico.it/.

DG TREN: http://ec.europa.eu/dgs/energy_transport/index_en.htm.

EEA: <http://eea.europa.eu>.

ENEA – Italian National Agency for New Technologies, Energy and the Environment: www.enea.it/com/ingl/default.htm.

Eurostat: <http://ec.europa.eu/eurostat>.

GME – Gestore Mercato Elettrico: www.merctoelettrico.org.

GSE – Gestore Servizi Elettrici: www.gse.it/Pagine/default.aspx.

IEA: www.iea.org/Textbase/stats/index.asp.

ISTAT – Italian National Statistical Institute: www.istat.it.

TERNA: www.terna.it.

MISE: www.sviluppoeconomico.gov.it/.



From:
OECD Reviews of Regulatory Reform: Italy 2009
Better Regulation to Strengthen Market Dynamics

Access the complete publication at:
<https://doi.org/10.1787/9789264067264-en>

Please cite this chapter as:

OECD (2009), "Energy", in *OECD Reviews of Regulatory Reform: Italy 2009: Better Regulation to Strengthen Market Dynamics*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264067264-9-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.