

WORKING PAPER

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in a leading national industrial group*

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*The transformation of Milan's city energy enterprise
in a leading national industrial group*

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Abstract

Traditionally, in the city of Milan, energy services were supplied by the AEM, the in-house energy enterprise that was established in 1910. While being part of Milan' city administration, the AEM was an example of efficient management and dynamic entrepreneurship in the public sector. Since the beginning of the 1990s, as in other large cities of Northern Italy, changes in the regulatory framework for the provision of local public services, along with opening to competition of the energy sectors, favoured the involvement of private capital in the AEM that went through an accelerated process of corporatization and ultimately privatization. Presently, the AEM, now part of the A2A Group, the largest Italian multi-utility, operates in different network industries, including energy, water and waste. By looking at the A2A case history, this paper seeks to understand to what extent the original objectives of privatisation and liberalisation of local public services and energy markets have been achieved. It explores the underlying reasons of the public ownership and how this materializes in the enterprise's business choices and how this conflicts with commercial interests.

Keywords: Local public services, public enterprise, privatization, energy, liberalization

Introduction, research context and rationale

Traditionally, in Northern Italy, electricity and gas services were supplied by municipal enterprises. Changes in the regulatory framework for the provision of local public services, along with opening to competition of the energy sectors, favoured the involvement of private capital in these companies and led to an accelerated process of corporatization and ultimately privatization.

The opening of the energy markets was seen as a necessary step to offer users better services at a lower price, as liberalization was expected to eliminate subsidies and monopoly rents. The reformed markets' structure resulted from different combinations of competitive and administrative mechanisms. These arrangements aimed at setting minimum standards for the quality of the service delivered and at ensuring universal access to the service, while introducing some degree of competition in specific segments of each industry (Glachant, 2002). The removal of entry barriers in the competitive segments of the two industries opened up several opportunities for the former municipal energy companies that consolidated their position along the energy value chain while expanding in other network services.

The most dynamic once public enterprises modified their ownership, governance structure and business models. In these companies the restructuring process followed a similar path. Structural separation was first achieved by establishing joint-stock companies as independent legal entity governed by private law. The largest municipal energy enterprises were then listed and partially privatized while being kept under public control because of their public service mission (Bognetti, Robotti, 2007). In parallel, these enterprises engaged in sectorial and geographical diversification to tap into scale economies that arose from by putting together network services. Finally, most of these enterprises engaged in different forms of inter-municipal cooperation that ended up into broader industrial projects and the establishment of multi-utility groups with a larger geographical base and a diversified ownership structure (Grossi, 2007).

As a result of these transformations, in the largest cities of northern and central Italy, the provision of network services, including energy, water and environmental services, is currently provided by a restricted number of semi privatized multi-utility enterprises, such as A2A (Milan and Brescia), IREN (Genoa and Turin), HERA (Bologna and Modena) and ACEA (Rome), along with the two former national monopolists, the ENI and ENEL Group and number of new private operators.

In the city of Milan, prior to liberalization of the 1990s, energy services were supplied by the AEM, the in-house energy enterprise that was established in 1910. While being part of Milan' city administration, the AEM was an example of efficient management and dynamic entrepreneurship in the public sector. Following the removal of legislative constraints and the gradual opening to

competition of network industries, the AEM undertook an impressive process of business growth, where vertical and horizontal restructuring were pursued as a way to adapt to changing regulatory environments and increased competition. At the same time the enterprise was partially privatised and listed. As a way to strengthen the AEM's market position in Italy and in Europe, the A2A Group was established in 2008 out of the merger between the AEM Milan and the ASM Brescia, another former municipal utility of Lombardy region.

Presently, the A2A Group is the largest Italian multi-utility that operates in different network industries, including energy, water and waste. In spite of having being partially privatized, the A2A remains under public control and ended up having a hybrid ownership structure that resulted in various conflict between public and commercial interests. The current corporate governance structure and arrangements protect the public ownership, but do not insulate the enterprise's management from political interferences that often clash with competitive market rules. Despite being publicly owned and controlled the A2A cannot any more define its public mission, but it rather pursue the general public interest within a less transparent framework that is based upon the influence the mayors of the cities of Milan and Brescia exert on the company.

By looking at the A2A case history, this paper seeks to understand to what extent the original objectives of privatisation and liberalisation of local public services and energy markets have been achieved. It explores the underlying reasons of the public ownership and how this materializes in the enterprise's business choices and conflicts with commercial interests. The study also looks at the sustainability of this hybrid model that pushed the enterprise towards riskier industrial operations and an increased exposure to the international financial markets, while keeping the commitment to providing quality public services in the local jurisdictions in which it has traditionally operated.

This study draws on an extensive review of the A2A recent and past corporate documents and of the relevant literature concerning various liberalization issues of energy services in Europe and of local public services in Italy. Interviews with the enterprise and municipal representatives were also organized to bring into the study the perspective of the key stakeholders. A press review of articles concerning the A2A and other similar utilities was also performed to report about important events that affect the enterprise's performance and behavior in terms of its relationship with the public owner, Milan's citizens and the market.

The paper is organized as follows. Sections 1 and 2 briefly present the A2A from its origins to its current structures. Section 2 and 3 addresses issues related to the A2A public mission and corporate governance arrangements. Section 4 describes the enterprise's economic and financial performance following the structural separation from Milan city's administration. Section 5 and 6 focus on systemic changes in the Italian energy market, including regulatory and pricing issues, to identify the relations between the A2A and the market environment in which it operates. Section 7 concludes.

1. The largest Italian multi-utility enterprise

The AEM has been for over a century the electricity company of Milan's municipality. Today, the AEM's legacy has been taken over by the A2A Group, the Italian largest multi-utility company established in 2008 out of the merger between Milan's energy (AEM) and waste (AMSA) companies with the multi-utility of city of Brescia (ASM). Both the AEM and the ASM are two former public local enterprises, supplying energy services, with a history stretching back more than 100 years and strong local roots.

The A2A is a listed joint stock company and its controlling shareholders are the Municipality of Milan and of Brescia, while other minority shares are in the hands of the municipality of Varese and Bergamo, two other important cities of Lombardy's region.

The A2A Group is mainly present in the following sectors: i) production, sale and distribution of electricity, ii) sale and distribution of gas, iii) production, distribution and sale of heat through district heating networks, iv) management of waste, and v) management of integrated water cycle (Figure 1).

Figure 1 - A2A's sectors of activity

Energy	Environment	Heat and services	Networks	Other services and corporate
Thermoelectric and hydroelectric plants	Collection and street sweeping	Cogeneration plants	Electricity networks	Other services
Energy management	Treatment	District heating networks	Gas networks	Corporate services
Sale of electricity and gas	Disposal and energy recovery	Sales of heat and other services	Integrated water cycle	

Source: A2A Interim report on operations 2013.

The current A2A Group's structure is rather complex and resulted from a twenty year long process of acquisitions, mergers, divestures and restructuring operations. As long as the enterprise grew in new sectors, the company's structure had to adapt to integrate new businesses and comply with changing regulations. Presently, thirty-two enterprises constitute the A2A Group. Fourteen operate in the energy business, four in the environmental services, two in the district heating business, eight in the network services and four provide various corporate services (Chart 1). The energy business, and especially power generation, has remained the A2A's core business in spite of various attempts to diversify in other network industries.

Chart 1 – A2A Group’s structure (2012)

Energy			Environment	Heat & Services	Network Services		Corporate Services
51% Delmi	100% A2A Trading	100% A2A Energia	100% Amsa	100% A2A Calore & Servizi	100% A2A Reti Elettriche	100% A2A Reti Gas	100% Selene
70% Edipower	70% A2A Alfa	100% Aspem Energia	100% Ecodeco	60% Proaris	100% A2a Ciclo Idrico	100% A2A servizi dist.	100% A2A Logistica
20% Edipower	50% Premium Gas	33.33% Lumenergia	99.99% Aprica		90% Aspem	91.60% Retragas	21.94% ACSM-AGAM
	70% Plurigas	43.70% EPCG	100% Partenope			74.50% Camuna Energia	7.91% Dolomiti Energia
	100% Abruzzoenergia	39.49% Rudnik Ugljia ad Plievija				49.15% ASVT	
	50% Ergosud						
	50% Metamer						

Source: A2A Report on Operations 2012.

Amongst the Italian once public utility enterprises, the A2A Group is the largest multi-utility company in terms of revenues and market capitalization (Table 1). However, the A2A Group can be considered a medium size energy company as compared to the largest European energy enterprises, such as ENEL (Italy), RWE (Germany) or EDF (France). As an example, the ENEL group, the second electric company in Europe in terms of installed capacity, in 2011 reached revenue of 79,514 million euros that is by far higher than the sum of the revenues of the four largest Italian multi-utilities.

Table 1 – Comparing the A2A’s key figures with those of other Italian local multi-utilities (2011)

<i>Indicators</i>	<i>A2A</i>	<i>HERA</i> ²	<i>ACEA</i> ³	<i>IREN</i> ⁴
Market capitalization (million €)	2,274	1,349	1,041	552
Revenues (million €)	6,198	4,105	3,464	3,254
Gross operating income (million €)	942	644	655	591
Net operating income (million €)	301	334	222	308
Profit (million €)	(420)	104	86	(107.9)
Employees (units)	11,886	6,484	5,114	4,655

² Municipality of Bologna and other cities of Emilia Romagna.

³ Municipality of Rome.

⁴ Municipality of Turin, Genoa and Reggio Emilia.

Electricity portfolio (GWh)	48,843	9,996	16,539	13,816
Gas portfolio (million mc)	5,567	3,321	96	3,108
Heat sold (GWht)	2,874	499.3	n.a	2,572
Water distributed (million mc)	69	254	774	181
Waste treated (tons)	2,626	5,107	579	1,017

Sources: author's elaboration from A2A, HERA, ACEA and IREN web sites and Annual Reports.

The A2A's customer base is rooted in the Lombardy region, where the A2A sells 85% and 92% of its volume of electricity and gas respectively. However, the enterprise pursued a geographical market diversification strategy that resulted in asset investments in other Italian and European regions.

2. The history of a successful public enterprise

2.1. A public response to a private monopoly in the electricity sector

The official foundation of the AEM took place in 1910, following a referendum which saw nearly 91% of favorable votes of Milan's citizens for establishing a municipal electric company. In terms of material and financial assets, it was the largest Italian municipal company.

At that time, the city of Milan was laying the foundation to become the most relevant Italian industrial and financial center. Provision of reliable and low-cost source of horse power was perceived by the local administrators as a major impediment toward the industrial development of the city. Electricity was supplied by the Edison, a local Italian private company that succeeded in establishing a dominant position in both power generation and electricity distribution. This allowed the company to benefit from a substantial rent that came from charging users with prices that were above the national average.

The electricity produced by Edison's pioneering investment in power generation was promptly absorbed by the development of the city's tramway lines, and by the increased electrification of the city's productive activities. The municipality of Milan was Edison's major client, so that the City's Council was looking for alternatives to purchasing electricity from Edison. The opportunity came in 1903, when the State passed a new law⁵ concerning the provision of local public services through municipal companies.

⁵ The Giolitti law of 1903 shaped the provision of local public services in Italy for almost a century and set a number of legal and operational constraints that accompanied the development of these municipal companies. For instance, municipal companies couldn't be established as independent legal entities, were ruled as public administration bodies, and couldn't operate outside the city boundaries. In addition, the administrative procedure for

Given the urgent need to break Edison's monopoly, Milan's City Council undertook the acquisition of hydraulic power sites in the nearby Alpine valleys of Valtellina, and the in-house building of a thermoelectric (Piazzale Trento) and a hydroelectric (Grosotto) power generation plants. The official foundation of the AEM took place some years later, when the complex bureaucratic process foreseen by the Giolitti Law was completed.

In less than two years, electricity prices decreased of about 35%-50% and in 1910 the lightening prices were the lowest amongst Italian cities. However, given that at that time the municipality's generation facilities were less efficient than those of Edison because of their less favorable location, the municipality soon came to sign agreements with its competitor on tariffs and allocation of users' connection. The agreement also included a subsidised tariff for housing projects and small shops.

The first fifteen years of the AEM operations were rather difficult. First, the outbreak of the First World War temporarily interrupted the company's growth. Secondly, the rise to power of Fascism in the early 1920s created a hostile political environment for municipal companies. An attempt to divest the AEM and the newly established municipal transportation company (ATM) was deemed so unpopular that the fascist regime had to review its position and opportunistically proceeded to use the AEM as a tool to build political consensus.

In the aftermath of World War I, the Italian electricity system was characterized by vertically integrated and regionally-based private monopolies, the so-called Edison system. Seven private companies had a regional dominant position⁶, whereas municipal electricity companies were established in the largest cities to cope with an increasing demand for industrial and domestic use. Between 1917 and 1931, Milan's population grew at an average annual rate of 3%, while medium and large size industrial companies prospered in the mechanical, chemical and steel sectors. The AEM's electricity generation capacity was undersized as compared to the city's needs and urged the company to expand further, given that all new capacity would have been absorbed by the market. Investments were geared towards increasing the AEM's hydroelectric generation capacity up to 211 MW.

Investments were self-financed through the use of unusually high annual depreciation charges that allowed the AEM to keep its earning that would have had otherwise been transferred almost entirely to the city of Milan. In parallel with financing its investments, the AEM was also providing a stable stream of revenues to Milan's municipality in the form of interest rates on the enterprise's endowment capital. Specifically, between 1915 and 1940 the recorded annual

creating a municipal company was long and difficult and had to be finalised through a municipal consultation.

⁶ These were: Edison (Lombardy), SME (Naples), SADE (Venice), SIP (Piedmont), Centrale (Tuscany), UNES (Central Italy), and SES (Sardinia), SGES (Sicily).

return of the AEM was in the range of 5-7%, while from 1925 to 1940, the AEM's endowment capital grew almost six times in nominal value, increasing thus the revenues provided to Milan's municipality.

2.2. *Backing Milan's economic miracle*

The AEM growth continued in the immediate post-war reconstruction. During the years of the Italian economic miracle, Milan became the most important national industrial hub and the city population grew considerably. These two factors led to a continuous increase in electricity consumption for domestic and industrial uses that the AEM met through the implementation of three four-year plans aiming at doubling its electricity generation capacity. Between 1951 and a 1962 the AEM's sales grew up to an impressive 121%. The highest share of the AEM's revenue finally came from private users and this allowed the company to sell electricity for public uses at production cost.

In the same years, at the national level, the Italian parliament was elaborating a project for nationalizing the electricity sector. The proposal was underpinned by several arguments, including the strategic relevance of electricity supply, and the need to better pursue the collective interest, to reduce regional unbalances and overcome the existing fragmentation of the regional networks, and to limit the high rents and lobbying power of the private electricity companies. In 1962, a national law established the ENEL, the national public monopolist for the generation and provision of electric services.

The nationalization achieved the development of a national electricity production and transmission system and the universalization of the service. It also shifted the electricity generation technology in favour of fuel-based power generation. The nationalisation had a heavy impact on municipal companies that were left with the option to operate as concessionaire with no autonomy for setting tariffs.

In 1964 Milan's City Council unanimously established to keep the AEM concession from ENEL. As a matter of fact, the licensing agreement was more profitable for the city's administration given that ENEL would have provided a 12 billion liras compensation for 10 years, whereas in 1964 the AEM was already providing 8 billion liras of annual revenue to the municipality. In addition, the electricity supplied by the AEM to the municipality allowed the city to save up to 1.5 billion liras each year. The behavior of the ENEL was initially hostile and the two companies had to come to an agreement to allocate the distribution of electricity in the different districts of the city.

The oil shocks of the 1970s had a negative impact on the AEM's balance sheets. In 1975, for the first time, the AEM had to use its reserve fund to meet its payment obligations with the city of Milan. Despite the AEM was less exposed to the oil shock because of the predominance of hydro-based energy sources, the introduction of a national compensation for thermal-generated electricity reduced its revenues as compared to other producers. In addition, the cost of

labour rose quickly, as a result of national automatic wage adjustments, whereas increases of public services' tariffs were blocked to control inflationary pressures. At the same time, electricity demand in Milan was increasing at lower rates, as a result of a gradual decrease in the urban population and the resettlement of most industrial activities outside the city boundaries.

At the beginning of the 1980s many municipal companies, including the AEM, undertook a diversification strategy in other network industries and became multi-utility companies. The AEM was transformed in Milan's energy company by taking over the municipal gas services from the Edison and by initiating experimental investments in district heating. Investments were geared towards laying down an extensive network of natural gas pipelines in the city of Milan, where, in 1981, nearly 97% of house heating came from the burning of more pollutant petroleum products.

In this decade, the company's profitability was satisfactory. The financial contributions to the municipality of Milan grew from 37 billion liras in 1981 to 200 billion liras in 1989. The gross operating margin of the electricity business grew from 29.32% in 1985 to 32-33% in the following years, while the gross operating margin of the gas business was nearly 26%.

2.3. Seizing the opportunities of reformed local public service provision and liberalized energy markets

In the 1990s the combined effect of a reform in the provision of local public services and the progressive liberalization of the electricity and natural gas markets, spurred an unprecedented process of growth and transformation of the largest municipal companies in northern Italy. In two decades the AEM significantly modified its business model, ownership and corporate governance structure and the relationship with Milan's municipality and its citizens.

Amongst the many legislative changes that occurred in this period⁷, two played a key role for the municipal energy companies. First, the national law 142 of 1990 transferred the model of state-owned enterprises to local public services by allowing the establishment of special companies as separate legal entity. The law aimed at opening local market services to competition, separating managerial and control functions, and improving the cost and quality of services. In addition, it opened new growth opportunities for municipal companies by removing the restriction to operate within the city boundaries.

Secondly, following a number of European Directives⁸ that aimed at creating an integrated European market for energy services, the electricity and natural gas markets were gradually open to competition, while the national public

⁷ For more details see the chapter on Regulation.

⁸ These were: for the internal electricity market: Directive 96/92/CE of 1996, Directive 03/54/CE of 2003, and Directive 2009/72/EC of 2009; for the internal market in natural gas: Directive 98/30/EC of 1998, Directive 2003/55/EC of 2003, and Directive 2009/73/EC of 2009.

monopolist, ENEL and ENI, were partially privatized. Despite the two national incumbents maintained a dominant position, a number of new operators entered in previously protected market segments. Taking advantage of their dominant positions in the local markets of the largest and wealthiest cities of northern Italy, most municipal companies, including the AEM, quickly expanded their business activities beyond their traditional geographical jurisdiction.

In 1996 the AEM transformed in a joint stock company that was a necessary step towards privatization of the enterprise that was formally achieved in 1998 through the enterprise's listing in Milan's stock exchange. In 1999, following the transposition of the EU energy Directives, the AEM restructured into an industrial group with operative companies in each sector of activity. At the beginning of the liberalization, the expansion of the AEM business followed a path similar to other European energy utilities (Testarmata, 2009). In particular, the AEM's strategy aimed at vertical integration along the electricity value chain, horizontal investments in adjacent utility industries, including telecommunication, and geographical market diversification. At the same time the AEM started expanding its operations in the promising sectors of district heating and environmental services that will be reinforced in the following years (see appendix 1).

The AEM strengthened its leading position in Lombardy region through the acquisition of stakes in other local utilities and private companies. In parallel, it undertook a large industrial investment in thermal-based generation facilities by purchasing a quota of the largest power plants divested by the ENEL group that led to the establishment of Edipower. Internationalization was pursued through technological partnerships with other European energy companies and participation in several international bids for the provision of local public services.

Overall, these years were marked by an impressive growth of the company's generation capacity, investments, sales and turnover. The AEM's electricity generation capacity increased from 3,086 GWh in 1997 up to a maximum of 36,293 GWh in 2007. Between 1997 and 2008, the AEM more than tripled its net profits, increased by nine times the invested capital, by five times its equity, and by twelve times its revenues, while employees decreased from 2,959 to 2,503 units. At the same time, Milan municipality collected annual dividends in the range of 38 and 75 million euros (see appendix 2).

Following a series of mergers and acquisitions in European and Italian utilities (The Economist, Nov. 30th 2006), the AEM also intended to consolidate its market position in Italy and launched a merger project with ASM, Brescia's municipality multi-utility company that led to the establishment of the A2A Group in 2008.

The challenges posed by the global financial crisis in 2008 and the persisting national economic downturn, along with structural problems of the Italian energy markets, abruptly interrupted this period of accelerated growth. In 2011,

for the first time in its history, the A2A registered high losses up to 420 million euros. These were due, amongst other factors, to extraordinary events, such as the write-down of assets and investments related to the reorganization of the shareholdings in Edison and Edipower⁹ and the losses registered by the Montenegrin subsidiary EPCG¹⁰.

At the end, the rapid expansion in the domestic market, along with the integration with new companies, had a cost that could not be compensated in the context of a falling national demand for gas and electricity. The recent deterioration of the enterprise's capitalization and debt structure, together with a reduced profitability, have induced the A2A management to put in place a more cautious corporate strategy that is based on further consolidation in core business areas and deleveraging. An example of this new business orientation, that is also common to other European energy utilities, such as ENEL or RWE, is provided by the divestiture of all assets in the telecommunication sector.

3. Towards a large number of loosely defined public missions

3.1. *The A2A public missions: the enterprise's perspective*

When it was established over a century ago, the AEM had a clear public goal which consisted of providing the municipality of Milan with a low-cost and reliable source of horse power. In 1910, *Corriere della Sera*, a national newspaper, wrote "Special attention was devoted to the design of low electricity tariffs for small retailers, private customers and of subsidized flat rate for social housing. By doing this the AEM achieved the main objective of the municipalisation program that consisted of lowering the price of electricity". Electricity supplied by the AEM was used for the lightening of streets and municipal buildings, but was also instrumental to the development of the municipal transportation system that was based on tramways and metro lines.

Till the AEM was part of the city's public administration its public mandate was determined by the local politics and oriented towards anticipating the development needs of a growing city with expanding industrial activities. As a result, its original public mission was added with various mandates over the years for the purpose of providing an efficient public response to specific city' needs. For instances, in the 1970s malcontents over the functioning of the municipal traffic lightening system led the AEM to take up this new

⁹ In 2005, together with the EDF Group, the AEM gained control over Edison Spa, the old private rival that shared with the AEM the control over Milan's electricity market. In 2012, following a controversial reorganization that lasted almost a year, Electricité de France has acquired sole control of Edison. The selling of the A2A shareholding in Edison was followed by a consolidation of the A2A position in Edipower and a loss of 627 million euros.

¹⁰ In 2009 the A2A Group decided to participate in an international bid for acquiring control over Montenegro state-owned electric company (EPCG). This operation pursued two business objectives: to acquire new capacity from renewable sources in view of the planned interconnection between Italy and Montenegro with a 1000 MW undersea cable, and to spot new business areas in energy and environmental services in these markets.

responsibility. In the 1980s the AEM changed its statute to include gas services and became Milan's Energy Enterprise (Azienda Energetica Milano) and was subsequently assigned with the important mandate of developing Milan's gas distribution network. In spite of these changes, the public missions of the AEM remained limited to the provision of energy services and oriented towards producing well-defined and tangible outputs.

Although it was not formally stated, another non negligible contribution of the AEM to Milan's municipality was its ability to generate profits out of the sale of electricity to private clients and its capacity to cross-subsidize other less profitable municipal services, including Milan's public transportation services.

When structural separation from the city's public administration was pursued at the beginning of the 1990s, the AEM's public mission was subject to radical change. A separation between a formal and a multitude of informal public missions emerged. While the formal enterprise's mission is established in the A2A's corporate documents and has to fulfill the interests of both its public and private owners, the A2A public mission is related to the public nature of the services provided and the relationship between the enterprise and the local jurisdictions in which the company has its historical roots.

When in 1996 the AEM was transformed in a public joint-stock enterprise, the AEM's chairman recalls that this was "an enormous change (...) because from that moment the link between politics and industrial activity was less strong" (AEM President Zuccoli's speech at the opening of the new Canale Viola, 2004). The creation of a joint-stock company represented the end of "a municipal phase" and made it necessary "to begin (...) developing outside the city's walls, moving in the direction of the open sea of the markets" (letter to the AEM's shareholders, 1996).

Since the enterprise's listing in 1998, following the example of private corporates' communication strategies, the AEM's formal mission became simply that of "creating value for its shareholders" (A2A web site). This statement oversimplified the enterprise's mission towards achieving financial targets, but it also spelt out clearly that profit generation had to be a relevant objective both for the private and the public owners. More specific corporate objectives were geared towards seizing the opportunities of liberalised energy markets and becoming an industrial group of national relevance (letter to the AEM's shareholders, 1999). As the AEM increased its electricity production capacity by purchasing generation plants on the national scale, the enterprise became more interested into national and international energy market developments expressing the willingness to become an important national player (letter to the AEM's shareholders 2004 and 2005). The enterprise's management set increasing growth targets, which were based on the assumption that in liberalized energy markets only a limited number of large players would have survived to competition (the AEM Group's Report on Operations 2005).

These strategic objectives were successfully achieved, given that at the end of this expansionary phase of the business cycle the AEM was an established national industrial group. Interestingly, despite the AEM's growth has been driven by investments outside its traditional regional jurisdiction, the corporate documents still attach great importance to the local roots of the enterprise and to the peculiar relationships between the AEM, Milan's administration and citizens, and the mountain communities of the alpine valleys of Valtellina, where the AEM first developed its hydroelectric generation facilities. By contrast, there are no references to the original public mission of the enterprise that was based on controlling the price of electricity in the city of Milan (Pavese, 2011).

It was on the basis of this growth path that in 2007 the AEM approached the merger with the ASM, Brescia's former public multi-utility company. The main industrial goals of the merger were set out as follows: i) expand sufficiently to be able to compete with other national and international competitors; ii) strengthen integration both upstream and downstream in the value chain of its activities; iii) exploit opportunities deriving from economies of scale; and iv) strengthen the local roots of the new company (the A2A web site).

From the private investor's perspective, the merger was expected to provide higher returns for the A2A's shareholders by "exploiting the advantages and benefits that derive from reaching an adequate size in order to successfully compete in the local public services' markets that are undergoing rapid deregulation" (letter to the A2A's shareholders, 2009) and was also considered instrumental to "establish A2A not only as one of the leaders in the Italian energy market but also seeks to play a leading role in Europe" (letter to the AEM's shareholders, 2007).

As for the AEM, the A2A's corporate documents follow a business rhetoric that does not explicitly address the issue of the public functions of the enterprise and overemphasises the profit goals. The A2A's Articles of Association do not include any reference to the company's public mission.

The A2A's annual reports attach great importance to the local roots of the newly established enterprise that, according to its management, would have been reinforced by the merger. Given the ownership structure of the A2A, the annual letters to its shareholders are full of references to the advantages of the local public ownership and to the existence of a privileged relationship with the local administrations that would guarantee that the interests of the local communities are pursued¹¹.

¹¹ Examples of this commitment are the following statements: "in these Municipalities, the heart of Lombardy, the A2A, having made major acquisitions and purchased new shareholdings in local utility companies, works closely with local authorities for the development of projects that can guarantee a higher quality of life in these cities" (letter to the A2A's shareholders, 2007) or "the presence of the Municipalities in the A2A shareholding

As the A2A keeps expanding beyond the regional boundaries, a number of new public missions of national relevance emerged. These were not conceptualised or formalised, but are rather documented by the enterprise's actions. Within this context, can be explained the 2007 acquisition of a significant shareholding in EPCC, the Montenegrin state energy company. "It is primarily an economic operation of national interest in which the A2A is participating together with Terna (...), creating, as per the intention of the two Governments, an energy bridge between Italy and Montenegro" (letter to the A2A's shareholders, 2007). Another business operation in Southern Italy was also pursued as a public national interest as the A2A President wrote "taking responsibility for the management of the Acerra waste-to-energy plant, we have been able to provide the Italian Government with concrete support in order to resolve the rubbish problem in Campania" (letter to the A2A's shareholders, 2007).

In spite of the business rhetoric of the official documentation, an analysis of the operations of the A2A reveals how the enterprise interprets and carries out its public mission, providing thus tangible benefits to the local communities. This is well documented in the A2A's Annual Sustainability Reports that provide detailed information about a number of projects that promote energy efficiency, reduction of pollution and better network infrastructures. In this respect, it is worth mentioning the A2A's commitment to further developing district heating projects for the city of Milan, Brescia and Bergamo that are expected to contribute to lowering households' costs for heating and to reduce emissions of air pollutants. Other relevant environmental targets refer to improving the energy efficiency of municipal and public buildings and to increasing the separate collection of waste.

3.2. The A2A public missions: the municipality's perspective

The public mandate of the enterprises controlled by Milan's City Council is defined by a specific department (Settore Enti Partecipate). However, this does not apply to the listed enterprises. Supply of local public services is regulated through service contracts (Contratto di Servizio) that set a number of quantitative and qualitative targets to be satisfied by the tenderer. These contracts define the public functions of specific public services, but are not enterprise specific and cannot thus be associated to the public mission of an enterprise.

Beyond the service contract, there are no other public documents that formally set the public goals of the A2A. This does not mean that the public owner ignores the public functions of the A2A, but it is rather a consequence of the legal status of the enterprise. Because the enterprise is listed and has to compete in open markets it cannot have public missions that would dislike

composition are an additional protection for the interests of the communities in the areas served by the A2A" (letter to the A2A's shareholders, 2009).

private investors. However, although it is not formalized, the public owner exercises its property rights through specific and contextualized interventions that are intended to preserve the public interest. For instance, this emerged prominently when in 2012 the mayor of Milan repeated its commitment to safeguard jobs of waste collector workers in the city of Milan and undertook to establish a dialogue with the A2A's management and trade unions.

An analysis of the minutes of Milan's Council meetings between 2007 and May 2013, reveals the existence of diversified political interests with regard to the A2A's activities and the lack of a clear political orientation. At the time of the establishment of the A2A, at least three dominant public missions were noticed. Specifically:

a) maintaining the public investment in the utility sectors during the troubled phase linked to the deregulation process "defending against the aggressive policies of competitors and creating new professional and technological development opportunities" (Deliberazioni del Consiglio Comunale 45/07);

b) the production of "growing economic resources for the city of Milan" (Deliberazioni del Consiglio Comunale 44/07) through the "increase of dividends which can be used in the development policies of the Municipality" (Deliberazioni del Consiglio Comunale 45/07);

c) maximising network services, for example "developing and implementing – also thanks to the availability of greater financial resources – innovative energy diversification projects in the area of the Municipality of Milan, such as the extension of the network and district heating services" (Deliberazioni del Consiglio Comunale 45/07).

In spite of so many different approaches towards the A2A, it is clear that the enterprise is considered a strategic asset for the public owner, both in terms of its capacity to generate profits that support other local services and investments, but also for its ability to operate in strategic sectors and to provide the city of Milan and Brescia with high quality infrastructure and innovative environmental technologies.

As compared to the past, when affordability of electricity supply for Milan's citizens was a key issue, social themes, such as energy poverty, appear to be less prominent in the local political debate. It is rather perceived that the (semi) private nature of the enterprise doesn't allow for the explicit set of social targets that could come at the expense of profits. In line with private corporate practices, social objectives are pursued by charitable and corporate and social responsibility initiatives. To this end, the A2A Group supports through sponsorships cultural and social initiatives, especially in the territories in which it operates.

3.3. Open issues in the A2A's public mission

An understanding of the A2A's public mandate requires to investigate underneath the surface of the corporate's rhetoric that strives to strike a balance

between private and public interests. Generally, this study highlights an atrophy of the public debate about the public mission assigned to the A2A, and a structural weakness in clearly delineating what should be the enterprise's priorities with respect to its public owners.

As the enterprise grew, diversified its business areas and modified its ownership and governance structure, its public missions become more complex and multi-faceted. Whereas profitability is firmly established as the overarching enterprise's goal, a number of social and environmental targets that affect the quality of living of citizens are also included in the enterprise's mission.

A number of contradictions are due to the public nature of the service supplied and the private corporate form adopted by the enterprise. For instance, there is an intrinsic contradiction between promoting energy saving practices and making profits out of gas and electricity sales. As a publicly controlled enterprise, the A2A cannot disregard environmental and social issues that are relevant for its customers and ultimate owners. However, these targets have to be pursued with a private corporate approach that prioritizes profits.

The current ownership structure of the A2A also poses some challenges in terms of the assigned public mission, given the asymmetry between the two public owners. In 2012 the two municipalities prepared provisional accounts with respectively 8.4 billion (Milan) and 476 million (Brescia) euros of revenues. This large difference resulted in a different approach towards the A2A's dividend policy. While for the municipality of Brescia the A2A's dividends are essential to finalize the municipal budget, the municipality of Milan is less dependent on these transfers. This has resulted in a permanent debate about the amount of annual dividends that the A2A has to distribute, regardless of the enterprise's performance (Scarpa, 2012).

Although it can be generally concluded that the A2A remains loyal to its customer base in spite of the diversified geographical nature of its business, the enterprise's growth beyond the regional jurisdiction also proved to affect the enterprise's public mission. As a consequence, local public debates arise whenever there is the perception that national interests are pursued at the expense of the local interests. It also appears that the role of the City Council is marginalized when decisions of national interests have to be taken.

4. Keeping public control through corporate governance arrangements

4.1. *From public to mixed ownership*

For nearly a century the AEM has been a municipal company entirely owned by Milan's municipality. Functional separation was not enough to ensure that there was not confusion between the powers and autonomy of the AEM with respect to the city's political orientations. Income generating companies, such as the AEM, were often forced to contribute to the municipal budget beyond their statutory obligations. Political interferences were reported to be pervasive, especially with respect to the enterprise's recruitment and investment policies.

Furthermore, the complex system of administrative and formal controls posed several limits to the company's operations and was deemed unfit to support the enterprise's growth in the energy market.

In the early Nineties, new public management principles (Pollitt, 1990; Stewart and Walsh, 1992) were gradually introduced in the Italian context. These principles were oriented towards improving efficiency and effectiveness of public interventions, improving relationships with citizens, ensure financial sustainability of public services, adopting business-oriented practices and reducing political interferences. The means for achieving these objectives were identified in deregulation, privatization, decentralization and a shift from a bureaucratic model based on norms to a managerial model based on performance. A number of important judicial scandals, related to episodes of pervasive corruption and mismanagement of public funds, also urged to separate politics from business administration.

The national reform of local public services at the beginning of the 1990s, allowed for a structural separation of municipal companies from administrative bodies and triggered a process of corporatization of local utilities (see Galanti and Moro, 2013). Partial privatization was also pursued to allow access to international capital markets and attract private investors. The municipality of Milan initially held a 51% majority share that was subsequently lowered below the absolute majority. However, public control was ring fenced by shareholder's agreements that limited individual shareholding with a 5% ceiling and constrained the voting rights of minority shareholders below the 5% threshold.

The merger with ASM Brescia brought about another substantial change in the enterprise's ownership structure. As laid down in the A2A's Articles of Association, the fundamental principles concerning the ownership structure and control of A2A are based on a number of principles that guarantee public control and a perfect balance of power. In particular, these include: i) an equal distribution of shares between the two municipalities (approximately 27.5%), ii) limitations on ownership of shares with voting rights, iii) the same roles and identical powers for the two municipalities, and iv) a public majority constraint.

The AEM and the A2A have never had a strong industrial shareholder, but the floating has been rather distributed amongst institutional investors including Italian and foreign banks. At the end of 2011, retail investors had about 17.6% of the share capital. Interestingly, nearly 57% of small shareholders are from Lombardy region where the enterprise has its historical roots.

4.2. From a traditional to a two-tier corporate governance model

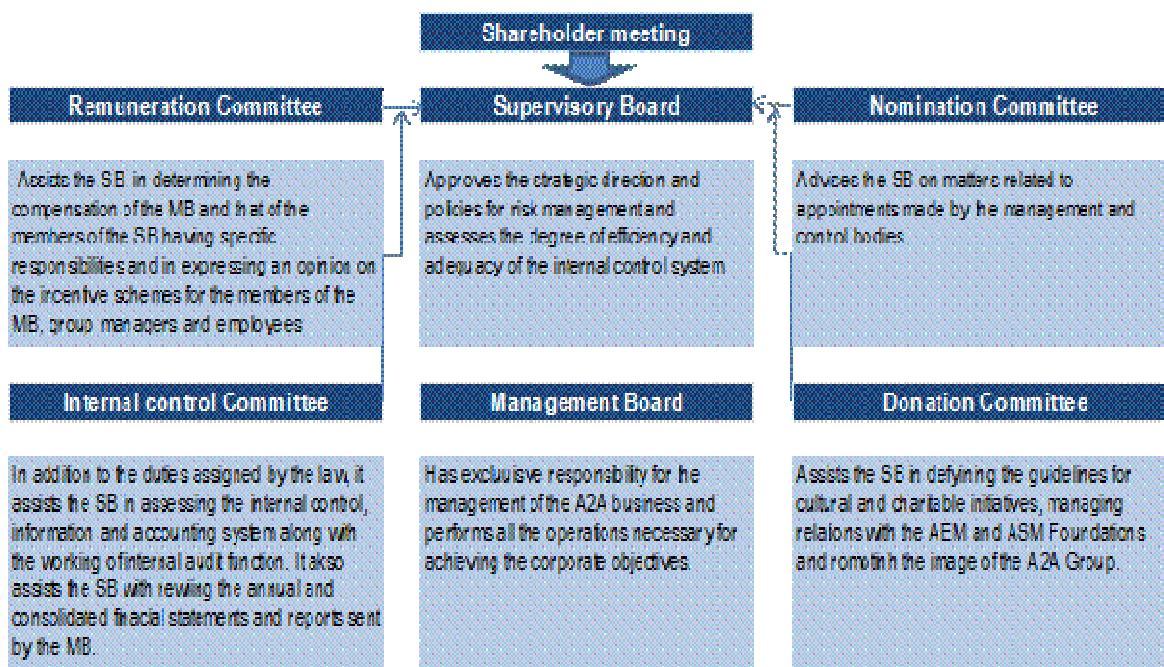
At the time the AEM became an independent municipal enterprise, it adopted a traditional corporate governance model which is based on three entities, including the Shareholders Meeting, the Board of Directors and the Board of Statutory Auditors. Following the establishment of the A2A, a change in the corporate governance structure was needed. The merger raised important

political issues related to the choice of the governance arrangements, the renewal of the management positions and the loss of the historical local roots for the respective enterprises.

Unlike other Italian multi-utilities that were established through integration of different local utilities, the A2A decided on a dual board structure. This governance structure originated in Germany and is characterized by the interposition of a body (the supervisory board) between the shareholders' meeting and the management board. Diffusion of this model has taken place in Italy thanks to an increased number of corporate mergers, both in the private and public sector, given that the dual system allows a better integration between different enterprises' cultures (Oriolo, 2008). In publicly controlled enterprises, the use of the dual model is justified by the need to separate the political and the managerial sphere by creating a filter between the public ownership and the leadership of the enterprise (Mele, 2009).

In the current corporate governance structure (Figure 2), the Supervisory Board is composed of 15 members, including a chairman and a vice-chairman, who are appointed by the shareholder's meeting on the basis of a voting list.

Figure 2 – The A2A governance structure



Source: Author's elaboration from A2A's 2011 Sustainability Report.

Twelve out of fifteen members are appointed by the two majority public shareholders. The right to appoint the offices of the chairman and vice-chairman is attributed in rotation to the municipality of Milan and Brescia. Members of the Supervisory Board must meet the requirements of honesty and professionalism, as well as the requirements of independence. At least two

members of the Supervisory Board must be chosen from statutory auditors. The lists presented must be made available to the public according to the procedures for listed companies and must provide full information regarding the personal and professional characteristics of the candidates.

Unlike the German dual board model, within the Italian legislative context the supervisory board carries out many other important duties besides general supervisory activities. In particular, upon the Management Board's proposal, the Supervisory Board defines the general planning and strategic guidelines of the enterprise. In relation to this, it approves the A2A multi-year strategic, industrial and financial plans and the A2A strategic transactions¹².

The Management Board is composed of eight members, including a chairman and a vice-chairman. Four members are appointed by the municipality of Milan and Brescia, out of lists prepared by the Supervisory Board. As for the chairmanship of the Supervisory Board a mechanism of alternation of the power of appointment between Milan and Brescia is foreseen. The Management Board appoints up to two managing directors in charge of financial and technical functions respectively. One more time, this mechanism ensures the perfect balance of power between the two public majority shareholders.

4.3. How the public owner controls the A2A

The four main ways in which the Municipality of Milan controls the A2A are the following: i) the appointment of representatives in the shareholders' meeting, ii) the control activities of the department of the municipal shareholdings (Settore Enti Partecipate), iii) the service contracts, and iv) the control activities of the City's Council.

The Municipality of Milan's primary source of influence over the enterprise materialises into its right to appoint representatives in the shareholders' meeting and, through them, to appoint representatives on the A2A's Supervisory Board and Management Board. By appointing top managers, the mayor indirectly exerts its influence over the enterprise. This form of control mainly takes place at the informal level, in the trusting relationship between the mayor and the appointee, given that neither the representatives in the shareholders' meeting nor the A2A's top-managers receive any formal mandate in terms of pursuing specific strategic goals. According to Milan's Municipality's Statute (art. 57), appointments in municipally controlled enterprises have to be assessed by a committee of experts that control compliance with formal requirements. The Committee is appointed by the Local Council by a majority of three fifths of its members. Candidacies can be submitted by local councilors, professional association, local universities, trade unions, registered local or national associations and a group of at least one hundred citizens. It is also stated that at

¹² These include capital transactions, investments and companies' operations exceeding the value of 100 million euro, establishment of joint ventures, allocation of profits and dividend policies.

least 25% of the directors of corporation, special companies, and institutions, organizations owned or controlled by the municipality have to be chosen from candidates proposed by civil society.

A second form of control is exercised through Milan's public administration and its Settore Enti Partecipate, which is assigned a variety of objectives with reference to the enterprises in which the municipality holds a stake. Despite its highly complex assignments, which spread over more than one hundred shareholdings, the Settore Enti Partecipate only employs fourteen staff. With reference to the A2A, the department's activities are limited to providing technical documentation for the representatives of the mayor for their participation in the annual shareholders' meeting.

A third control tool is the service contract that regulates the procurement arrangements between the enterprise and the Municipality. The design of the service contract gives Milan's municipality an instrument for determining and regulating the supply of the service. Because of the size of the city, the local authority has significant negotiating power when establishing the details of the service. As for the relevance of this control instrument for the A2A, it has to be noted that it is limited to activities related to the provision of local public services, whereas energy production, where the enterprise has its core business, is not included.

A fourth and final instrument of control is represented by the activities of the Local Council and its thematic committees. However, from this study it appears that this body is oriented towards debating issues that attract media attention and that might have a political impact on the short-term, while the A2A strategic plans are not questioned before being implemented.

Citizens have also their instruments to control the performance of the A2A. These include the service charter for service delivery that establishes homogeneous quality standards. Although citizens can vote with their consumption choices, by selecting a different provider of energy services, they do not have this alternative for other protected services, such as waste collection and disposal. Local political elections appear to be the ultimate instrument to express citizens' satisfaction for the services they receive. However, electoral outcomes are influenced by a number of heterogeneous factors that are hardly entirely attributable to the performance of the A2A, especially considering that other important public services such as water management and local transportation are provided by different enterprises.

4.4. *Unresolved issues*

Although the dual governance structure is used to further separate ownership from management, this model, along with ring-fenced public control, has introduced a number of inefficiencies in the A2A corporate governance functioning. First, separation is weakened given that the Supervisor Board has

some strategic direction functions and minority shareholders are underrepresented in this body.

Secondly, independency of the Supervisory Board remains questionable. Although formal selection requirements are met, political affiliation still plays an important role. Despite the mechanism in place in Milan's municipality can be generally considered a national good practice (IRS, 2009), it is still based on political designation given the prominent role of local councilors in submitting a candidacy and considering that the three fifth majority reflects the balance of power in the Local Council. For instance, recent episodes showed that changes in the composition of the A2A governance bodies followed changes in local political majorities along a spoil system logic.

Thirdly, in spite of recent talks about a possible change of the existing governance system, the two municipalities seem unwilling to redress the inefficiencies generated by the duplication of roles and powers. As a matter of fact, the existing model seems to be the best configuration to ensure a perfect balance of power between Milan and Brescia municipalities, also in view of a possible merger with other similar utility enterprises¹³.

Fourthly, formal control mechanisms in place in Milan's municipality are weak and undersized with respect to the number of enterprises in which the city has a shareholding. The role of control and strategic guidance of the Local Council is also reduced as compared to the past, whereas more powers are attributed to the city's major. Within this context, accountability of the A2A managers and public officers is sometimes hard to disentangle. The chain of transmission of public mandates and decisions of public interest is based upon informal and personal relations between the mayor and the representatives of the municipality in the shareholders' meeting. This also creates a fertile ground for opportunistic behaviours in local politicians where unpopular decisions, that include layoff of employees or incinerators' site location, can be passed on to the corporate level, whereas local politics can benefit from the business success of the enterprise.

Finally, external controls based upon market mechanisms and regulatory institutions have brought about some progress as compared to past practices. This includes an increased quantity and quality of information available for the general public on the once public utilities' operations and performance. However, these mechanisms have several limitations with reference to the corporate governance structure and arrangements that are ruled by the Italian Civil Code and enterprises statute.

¹³ The media reported several times about possible mergers with IREN or HERA. This process is supported by the government as a way to establish a stronger energy company following the model of the German RWE.

5. A mixed economic performance

5.1. *Beefing up Milan's city budget*

Prior to becoming a joint stock company, the AEM was undoubtedly the cash cow enterprise of the city of Milan and did not require transfers from the city's administration. Time series of the enterprise's revenue show that the AEM was profitable and capable to self-finance its investments. The enterprise had a low level of indebtedness, which was constrained by legal requirements, and adequate cash reserves that were invested in Italian treasury bonds.

Previous reports and economic data show that the process of corporatization and restructuring was already in place in the period before the enterprise went public. An evidence of this trend can be found in the enterprise's profitability and productivity data. In particular, the ratio value added to turnover increased from 52.92% in 1990 to 53.91% in 1995. In the same period the Ebitda to turnover raised from 23.19% to 28.85% and the ratio net income to total assets increased from 1.85% to 2.73%¹⁴.

Following the enterprise's listing, the economic and financial strategy of the AEM adapted to the new competitive context. Dividends were used to remunerate the public and private shareholders, investments were supported through capital markets financing, turnover and profits increased at stunning rates as a result of several acquisitions and business expansion. At the same time, at the end of the expansion phase of the business cycle, the enterprise's indebtedness grew and reached critical levels whereas profitability gradually decreased. As a result, the A2A is currently prioritizing debt reduction and business rationalization, whereas future investments are expected to focus in the waste and district heating business areas, in view of an unfavorable evolution of the macroeconomic scenario for the electricity and gas markets (Kepler Cheuvreux, May 2013).

5.2. *Profits, losses and debt structure: two sides of the same coin*

For the purpose of assessing the A2A's performance, we use the most common ratio applied in financial and economic analysis. Given that the enterprise changed several times the perimeter of consolidation of its balance sheets, as a result of major mergers and acquisitions, the use of ratios reduces problems of data comparability of nominal values across time. Information and data for the following analysis are from the company's consolidated annual reports, the Amadeus Bureau Van Dijk databank, and Datastream.

Profitability is measured by the Return on Equity ratio (ROE), defined as net income divided by total equity. This analysis highlights a stable fall in A2A's profitability after 2007. The ratio shows a progressive drop from 10.04% in 2007 to -25% in 2011. The strong decrease in 2011 is mainly due to a

¹⁴ A similar trend was also observed in other Italian public enterprises prior to privatization (see Florio, 2000).

deterioration in the operating margin caused by lower returns from sales of electricity, to capital losses from the sale to EdF of 50% of Transalpina, and to impairment charges in Edipower and EPCG. The unexpected negative performance of 2011, was reversed the following year when profits bounced back to 260 million euros. Before the decline, the ROE was fairly stable around 10%, with a positive peak in 2003 (+21.79%) due to a positive effect on net income of extraordinary events, i.e. capital gains from the sale of the stake in Fastweb SpA.

In order to further investigate such a negative trend we break down the ROE into various factors influencing the company's performance, according to practices widely discussed in the literature. To highlight the contribution of the different management areas to the company's profitability we use the Miller-Modigliani equation¹⁵. Two main trends emerge from this analysis: a reduction in the operating profitability and the growing level of financial debt. The analysis also highlights the volatility of non-recurring items, such as mergers and acquisitions, disposals of business units.

As for the operating performance, there has been a drop in the ROI ratio from 6.27% in 2008 to 2.64% in 2011. This drop in the profitability of the company's operations is due to macroeconomic and firm-level factors. In one hand, the economic downturn brought about a slowdown in industrial dynamics and reduced demand for electricity and gas consumption, on the other hand, some investments delivered unexpected low performance (e.g. EPCG in Montenegro).

We further investigate the operating performance by calculating the Return on Sales ratio (ROS), defined as Earning before interests and taxes divided by turnover. The A2A's ROS confirms the above mentioned trend: the percentage of sales revenue still available after covering all operational costs has strongly decreased due to increasing competition and shrinking margins, especially from the sales of electricity, one of the main business of the company.

The financial structure of the enterprise has significantly changed over time. Particularly, there has been a strong increase over time in the level of leverage that can be measured by the debt to equity ratio. From the A2A listing in 1998, the leverage has risen from 44.60% to 211.93% in 2011, with a peak in 2005 when the level of debt was almost three times the level of capital. Similarly, other Italian once public utilities saw a worsening of their debt exposure as

¹⁵ $ROE = [(ROI - I/D) * D/E + ROI] * NI/GI$.

The operating performance is measured by the Return on Investments ratio (ROI), defined as earnings before interests and taxes divided by total assets. ROI is a synthetic indicator of the effectiveness and efficiency with which the company handles its operations. The contribution of the financial area is measured by two indicators: the interest burden, defined as interests divided by debt (I/D), and the debt ratio, defined as debt divided by equity (D/E). The contribution of the non-current area is given by the ratio of net income (NI) and earnings before tax and extraordinary items (GI).

compared to their capital. From 2004 to 2010, the leverage of ACEA and HERA increased up to approximately 300% and 150% respectively (IFEL, 2012).

The A2A's debt began to grow significantly in 2002. It consists mostly of medium and long-term debt aimed to finance the acquisition and development of new investments. In particular, in 2005 the growth in leverage is due to the acquisition of control of Edison and the resulting debt consolidation of the group, while in 2009 the increase in debt is mainly attributable to the acquisition of the Montenegrin company EPCG. Over time, the non-current to current liabilities ratio has grown, while the liquidity ratio, measured by current assets divided by current liabilities, highlights mounting imbalances as current liabilities start to become far superior to current assets.

The problem of excessive exposure to debt has become a serious issue also in other regulated network industries. In the UK, a 2004 survey by the Department of Trade and Industry (DTI) has shown a considerable increase of the debt by the British utilities operating in the telecommunications, energy and water sectors. Similarly, in Italy, a Court of Auditors' evaluation study about the processes of privatization of public enterprises showed that the evolution of the debt of Italian utilities is critical. Specifically, it appears that in the case of some regulated utilities the level of debt could have been intentionally increased to strengthen enterprises' negotiating power vis-à-vis the regulator, that might have granted tariff increases in order to contain the risk of insolvency (Corte dei Conti, 2010).

At the same time, the company faced increased average cost of debt that reaches the highest levels in 2010 and 2011, 4.83% and 3.29% respectively. This is a consequence of the financial crisis that started in 2008 and that made financing of Italian companies more costly, but is also due to a downgrade of the A2A's credit ratings. The revision of the company's rating was mainly driven by its electricity generation activities that expose the A2A to instability of margins in the electricity industry.

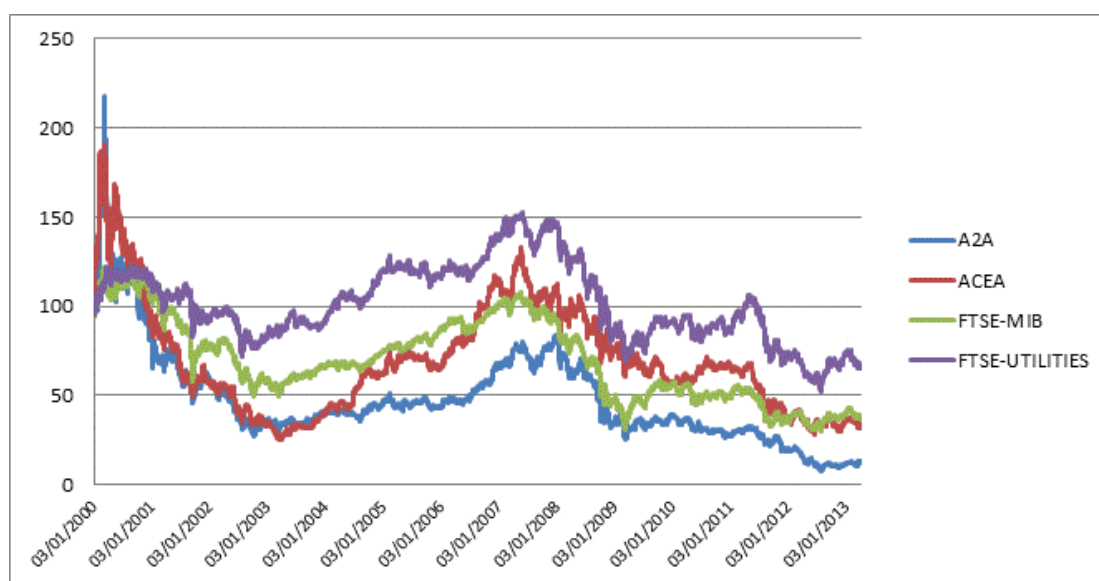
5.3. *Subject to market scrutiny*

The Italian Court of Auditors (Corte dei Conti 2010), reckons that privatization of utility enterprises has brought a substantial increase in the Italian stock exchange capitalization. In particular, these shares worked as a substitute of more traditional investments in Italian Treasury Bonds and the initial public offering were generally successful. Given that control of some of these enterprises remained in public hand, investors perceived a lower level of risk as compared to other fully private enterprises. Public ownership was also seen as a guarantee for getting a generous annual dividend, because of the severe budget constraints of public finances.

We analyse the share price of the A2A and compare it with a benchmark company, Acea, a multi-utility operating in central Italy, the utility market index measured by the Italian FTSE Utilities and the market index measured by the

FTSE-MIB. Share prices are daily observations from January 2000 to March 2013 and, for easy of comparison, each series is normalized and set equal to 100 on January 3, 2000 (Figure 3). Visual inspection of the plot reveals, as expected, that the two share price series tend to move together over time and to follow the market trends. Although the trend is similar, the performance of the A2A is below the sector level, the market level and the competitor for almost all the time considered.

Figure 3 - Stock price trends (2000-2013)



As the stock's prices of other listed utilities, the A2A's stock performance shows a high volatility. In 2003, all listed utilities in Milan's Stock Exchange, with the exception of HERA, were below their initial public offering (IPO) price, and in the case of ACEA and AEM Torino their values almost halved. In 2006 this negative trend was reversed and utilities' stock prices went above their IPO levels. One more time, the financial crisis in 2008 pushed down stock prices of utilities below their IPO levels.

While in 2003 the A2A stock prices were 23% below their IPO levels, in 2007 they were nearly 60% above the same values and dropped again significantly in 2008. However, as compared to the utility market index (FTSE IT Utility) the drop was steeper for the A2A. Specifically, the share price of the A2A lost 87% of its value between January 2000 and March 2013, while for ACEA and the market index the reduction was far less, respectively 65% and 64%. Noticeably, for the utility sector index, the reduction was much smaller, less than 34%. It appears that the A2A's stock prices are greatly exposed to stock market fluctuations as compared to other peers.

Generally, dividend pay-out ratios from utility enterprises have been higher than the market average, reflecting the lower risk of operating in protected markets. The dividend policy of the Italian former public utilities has been influenced by the critical conditions of the local public finances. Many articles

in the Italian local media report how these revenues have become necessary even to keep running essential local services. From 2008 to 2011, the city of Brescia financed up to 36% of its current annual expenditures from the dividends paid by the A2A.

From 2002 to 2008 the dividend grew at an average annual rate of 11%. In 2011 the enterprise distributed its dividends in spite of a negative economic performance and the dividend pay-out ratio remained above 95% between 2009 and 2010¹⁶. In the A2A's Business Plan 2013-2015 there is a reference to an average dividend pay-out of 60%¹⁷. While a more cautious use of the enterprise's earnings is appreciated by the market, it remains an open question whether such targets are compatible with the financial needs of the two public owners, especially the municipality of Brescia.

6. Coping with a changing regulatory environment

6.1. *Halfway on liberalizing local public service provision*

The current regulatory framework for the provision of local public services is the result of gradual and fragmented reforms, rather than the outcome of a well-defined strategy for liberalizing these services. The process went through a number of reforms of the reform that created a climate of regulatory uncertainty and allowed municipalities to choose amongst various options (Bognetti, 2007). The general principles for licensing supply of public services of industrial interests were set in the financial law of 2002 that established public tendering as the standard arrangement. While the legislator showed a marked preference for the systematic use of public tenders, a number of sector-specific exemptions to compulsory public tendering increased the discretionary powers of municipality, limited competition and the participation of the private sector¹⁸.

Norms for the assignment of local public service supply were combined with norms concerning the ownership structure of the licensee. In 1990, the 'Regulation of the local authorities' law allowed joint stock mixed enterprises to provide local public services. The initial constraint on the public majority of the enterprise was removed two years later, whereas subsequent laws simplified the process for the transformation of the former municipal companies into joint-stock companies. These rules favored the establishment of institutionalized public-private partnerships that materialized through the creation of mixed enterprises. These enterprises have several advantages for municipalities given

¹⁶ Similar circumstances were faced by the IREN Group, the multi-utility controlled by the city of Turin, Genoa and Reggio Emilia.

¹⁷ The negative prospects of the electricity generation business in the EU market are already pushing energy enterprises to more cautious dividend policies. For instance, the German utility RWE announced that for the next years it will have a dividend pay-out between 40% and 50%.

¹⁸ As an example, recent legislative development allows municipalities to adopt the in-house modalities whenever the local authority deems that competitive tendering is not useful or efficacy (Bortolotti, 2011).

that they can avoid or limit competition at home, while having the opportunity to compete in other geographical areas (Bognetti, 2007).

Overall, empirical evidence shows that the effects of these reforms have been so far mixed with respect to the intended objective of the policy reformers (e.g. reduce customers' prices or renovate an ageing infrastructure). As a matter of fact, the mechanism of license allocation through public bids has not resulted in fierce competitive pressures. A limited number of enterprises apply to tender calls which are often awarded to the local incumbent company. This is probably due to a series of elements including the duration of the license contract, which is of 30 years in the case of electricity distribution at the local level, or the design of tender requirements that favors the incumbents (Asquer, 2011). In addition to this, there is an evident conflict of interests for the local authorities that, while launching a call for the supply of a local public service, also participates in the tender procedures with their own or controlled enterprises. Obviously, this is a relevant issue for the A2A that is currently providing energy and environmental services to the city of Milan and Brescia.

6.2. Operating in increasingly competitive energy markets

Before liberalization of energy services took place, the two industries of natural gas and electricity had a similar market structure. They were organized in vertically integrated state monopolies, whereas municipal companies had small market shares and were bound to operate locally, especially in the distribution and retail segments.

At the national level, changes of the institutional and operational frameworks of the two industries were inspired by the British privatization experience and driven by the European Commission's plan for establishing a European market for electricity and natural gas. Specifically, a number of EU directives set the general rules and principles for reforming national markets. These were: i) the unbundling of potentially competitive segments of the industry upstream and downstream of the network infrastructure, ii) the regulation of the access to the transportation facilities, iii) the organization of a wholesale market, iv) and the gradual access of retail customers to wholesale markets through the notion of eligible customers (Florio, 2013).

Besides compliance with EU requirements, reforms in the two sectors were also driven by two national constraints related to an insufficient national generation capacity (electricity) and to public finance concerns. Privatization was given priority and anticipated the liberalization of the two industries. Liberalization of the power sectors started when the two main power state-owned operators ENEL and ENI were partially privatized and the sectors fell under of the jurisdiction of the AEEG. The conflict between a heavily indebted state, and a state that set itself the goal of establishing a competitive national energy market, became soon apparent and influenced the arrangements and

modalities that were used to restructure the gas and electricity sectors (Lanza, 2006).

The reduction of the market power of the incumbents was pursued through diversified measures, including divestiture of assets and setting of market quotas in the new competitive market segments. Wholesale markets were developed in both industries and the retail segment was gradually open to competition allowing small end-users the free choice of the service provider.

The establishment of an independent national regulatory agency was necessary to coordinate previously integrated markets and create a level playing field for new entrants. The AEEG (Regulatory Authority for Electricity and Gas) was established as an independent agency. However, governmental decisions have sometimes reduced the autonomy of the AEEG, especially in terms of tariff setting (Lanza, 2006)¹⁹.

A number of new private operators entered the market, whereas the most dynamic energy municipal companies increased their market shares in the competitive market segments. Although the electricity and gas sectors formally ended up with a mixed ownership structure, they are actually dominated by publicly controlled enterprises, including the government-controlled ENI and ENEL Groups and a large number of municipally-controlled companies²⁰. As in other continental Europe countries, the state has regained control over the gas and electricity sectors following an initial preference towards privatization (Ranci, 2010).

6.2.1. Current issues for the A2A's operations in the electricity sector

Since the creation of ENEL in 1962, the Italian electricity market was characterized by a vertically integrated public monopoly where ENEL kept an absolute dominant position in all market's segments. ENEL's generation capacity covered 73% of the national production, whereas municipal companies had a meagre 4% quota. Transmission was 100% in the hand of ENEL, while distribution was left to local municipal companies, that owned 7% of the national distribution network (Zorzoli, 2007).

Since the beginning of the liberalization process, ENEL's share in national generation capacity has been constantly decreasing. Nevertheless, in 2012 ENEL was still the largest electricity producer (25.4%), followed by the ENI Group (9.5%) and Edison (7.2%). The Herfindahl Hirschman Index (HHI), which measures market concentration, further decreases from 1,240 in 2009 to 884 in 2012 thanks to the contribution of several middle-size producers (AEEG, 2013).

¹⁹ In September 2002 the Government decreed to block the price dynamics decided by the Authority, also deciding that the Government had the right to set principles that the Authority had to follow in deciding future price adjustments (Polo, 2002).

²⁰ Similarly, in other EU countries, the liberalization of the energy markets was finally characterized by a high degree of public ownership (Del Bo, Florio, 2012).

The A2A timely sized the opportunities opened by the electricity sector's liberalization by substantially increasing its generation capacity and boosting its sales of electricity (Annex 2). In 2001 the A2A's share in the national production was about 1.7%, while it reached 3.2% in 2012 plus an additional 3.9% supplied by the Edipower Group now controlled by the A2A. (AEEG data).

The current A2A's power generation mix is well-balanced. It consists of 41% natural gas, 37% renewable sources (hydroelectric, waste to energy, biomasses), 15% coal, 6% non-renewable fraction of waste, and 1% oil products, (A2A, 2012 Sustainability Report). It resulted from a combination of firm-specific specialization pattern (e.g. hydroelectricity for the AEM Milan and waste to energy for the ASM Brescia), and adaptation to regulatory and legislative changes.

Whereas some of the problems experienced at the beginning of the liberalization of the electricity market²¹ were fixed, new issues arose in connection to the rapid changes in the international and domestic energy markets and expose the A2A to a moderately high regulatory risk.

At the outset of the liberalization, from the supply side, the national electricity sector was characterized by the prevalence of aged thermal-based power plants, insufficient generating capacity and the risks of electricity shortage. At present, thanks to the entrance of new operators in power generation, including an increasing share of renewable energy producers, and the re-powering and conversion to gas of the existing power plants, the domestic production can meet the internal demand. This intensive investment program led to considerable improvement in the average efficiency of the national thermoelectric power plants, which is currently one of the highest in the European Union (IEFE, 2010). From the demand side, the effects of the current and prolonged economic downturn have reduced electricity consumption. According to the 2012 AEEG's annual report, energy consumption in 2011 was back to the 1999 levels, while approximately 10% of families were late in their payment of energy bills.

The security and quality of the national supply is nowadays undermined by congestion in some part of the network and insufficient power grid development. The lack of coordination between the development of additional generation capacity and the electricity transport infrastructure, which in the past was ensured by a vertically integrated enterprise, has not found yet a structured solution. Some inefficiency have been also introduced by incentivized forms of electricity production, the energy trading (ETS) and the green certificate systems that artificially increased the production costs of more efficient thermoelectric plants. For instance, these distortions materialize in the inefficient use of co-

²¹ These include the excessive weight of the dominant operator and the incomplete development of the markets for the dispatching and ancillary services.

generation plants where priority is given to electricity rather than heating production.

According to the 2012 AEEG's annual report, structural changes in the electricity industry have made the current framework of rules unsuitable to meet the future developments. Unresolved issues include the need to increase responsibility of renewable energy producers in programming their access to the grid, the need to revise the current dispatching rules, and the need to keep environmental charges and the related incentives at sustainable levels. Within this context, and in the absence of a national energy strategy, the regulatory risk for electricity producers is considered high. In addition to this, investment decisions are deemed to be greatly influenced by public choices, especially in relation to the need to pursue environmental targets in terms of carbon emission as stated in international commitments (IEFE, 2010).

The A2A reckons that structural changes in the energy markets, and especially the issue of environmental obligations could be either the source of competitive advantages or disadvantages for the enterprise. For instance, changes in the remuneration mechanisms for renewable sources of energy is likely to impact the enterprise's profitability, given that the A2A is the largest Italian contributor to the CIP6 incentivized source of energy with a 26% share of the market. In the same line, the A2A's investment in the national electricity producer of Montenegro was justified by the need to increase the enterprise's power generation capacity from renewable resources in view of a revision of the domestic hydroelectric license systems.

6.2.2. Current issues for the A2A's operations in the gas sector

In the European national markets, including Italy, liberalization of the natural gas industry has progressed more slowly as compared to the electricity industry (Florio, 2013). This is due to the structural differences of the two sectors. First of all, in most EU markets gas availability depends from imports from distant countries, including Algeria, Russia and Norway. Secondly, the gas sector is characterized by scale economy both in the network and in the production component. Thirdly, whereas in the electricity industry technological progresses have allowed to generate electricity with lower investments, development of gas fields, gas extraction and preparation for long-term distance transport still require substantial investments. Finally, unlike electricity that is produced and consumed in real time, gas storage is possible and countries generally have organized storage facilities (e.g. in depleted gas fields) to ensure the security of supplies.

In spite of these differences, liberalization of the gas sector was based on the same principles applied in the electricity market. At the date of the reform the gas market was dominated by the ENI group in all its segments. Yet, in 2010, the AEEG reported that the situation in the natural gas market remained unsatisfactory, given that the supply chain was still dominated by the ENI Group.

In particular, 92% of the import infrastructure capacity was still in the hands of the ENI Group which accounted for about 65% of supply once its sales abroad for the domestic market were included. The slow development of alternative import infrastructure has hampered new operators from entering the market given the difficulties to arrange imports without ENI's permission. As a result, the amount of gas available to operators other than ENI has remained low. The ownership unbundling model for the SNAM group was implemented with severe delay in 2012 in compliance with the recent EU Third Energy Package and is expected to provide the Italian natural gas market with a neutral transport and storage operator along the Terna model in the electricity industry.

Other weaknesses of the Italian natural gas market include the excessive fragmentation of the gas distribution system, that still relies on more than 200 operators, many of which are of very small dimension, and unjustified delays in storage, transport and re-gasification infrastructure investments. The vast majority of Italy's gas imports originates in non-EU countries, (Algeria, Russia and Libya) and arrives through pipelines, whereas the Rovigo LNG terminal just meets a residual part of the domestic demand. In the winter season the national system of gas supply is exposed to several weaknesses that can undermine the security of supply in severe meteorological conditions. Under this scenario the AEEG recognizes that other operators have not been enabled to act as effective competitors of the ENI Group.

In 2010, only three groups (ENI, Edison and ENEL) hold a market share greater than 5% of the total gas supplied with a cumulative quota of 73.4% of the total. Of the ten gas storage facilities currently active in Italy, eight are run by the ENI Group and two by Edison, which is now part of the French EdF Group. The gas transport sector is dominated by SNAM Rete Gas that owns 31,680 km of the 33,768 km of the domestic infrastructure. The volume of gas sold on the wholesale and retail market is gradually becoming less concentrated with five operators, including the A2A Group, having a share above 5%. In particular the respective market shares in 2010 were Eni (23.1%), Edison (10.2%), Enel (9.0%), GdF Suez (7.1%) and A2A (6.4%) (AEEG, 2011).

In spite of these constraints, the A2A increased its operations in the natural gas market and become a relevant national player in the market segments open to competition. More precisely, between 1997 and 2011 the volume of gas distributed almost doubled, while the volume of gas sales more than tripled. To address the supply constraints, in 2008 the A2A signed an agreement with Gazprom (Russia) and Iride, another large multi-utility of northern Italy, to establish a joint venture (Premiumgas) for supplying the natural gas retail market with a volume of 900 million cubic meters per year. In 2012, the A2A's Trading company was among the top ten operators in terms of gas sold to the wholesale market with a 3% share, while the ENI, the dominant operator, hold 13.2% of the market. Premiumgas had a 1.2% share of the national imports in front a 44.6% and 19.2% shares of the ENI and Edison groups.

For historical reasons, natural gas distribution is the market segment where well-established multi-utility of northern Italy have more significant market shares albeit following Snam (former ENI group) and F2I Reti Italia (ENEL group). In particular, Hera in 2012 held 6.5% of the national distribution network, and the A2A and the Iren groups had an equal 5.9% market share.

Nevertheless, despite regionally-based multi-utilities have increased their market shares, only industrial groups with an offer that covers the entire domestic market, managed to have significant market shares especially for imports and wholesale market activities. The ownership unbundling of Snam rete gas from the ENI group is expected to further competition goals, in terms of reduced market concentration, whereas price changes for final users are linked to other factors, including re-negotiation of the existing take-or-pay contracts, increased fiscal burden and availability of new natural gas import infrastructure.

7. Energy prices for end users in (semi)competitive markets

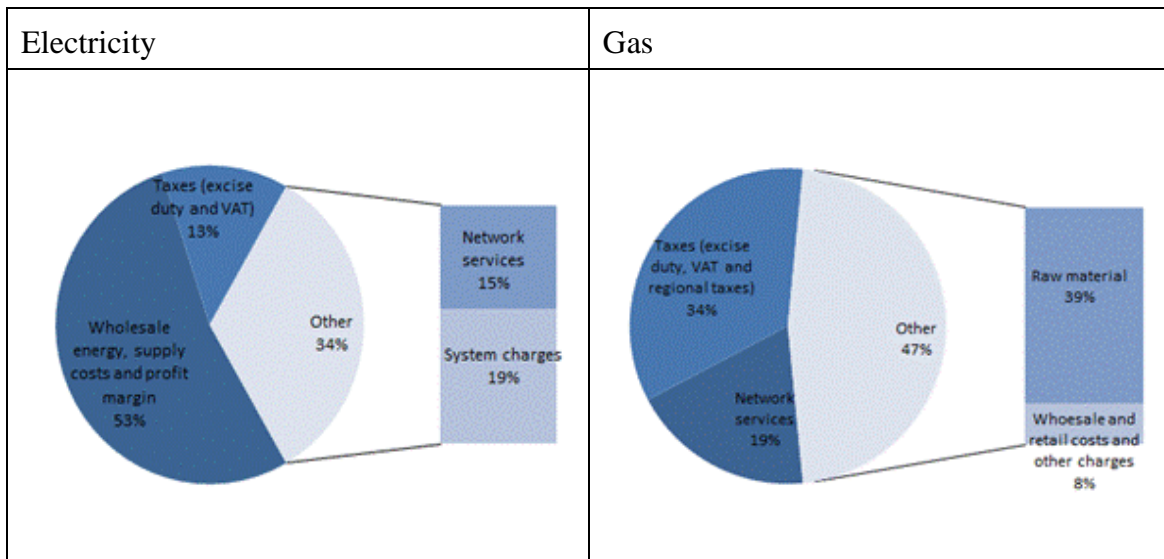
7.1. Changes in the administered tariff since liberalization of gas and electricity industries began

Changes in the regulatory environment of the gas and electricity markets have also modified past tariff systems and had a remarkable effect on the energy bills of end-users that are now free to choose their electricity and gas supplier (section 7.2) or to keep an administered tariff defined by the AEEG (section 7.1).

The electricity tariff system operating before the reform introduced by the AEEG was based on administered tariffs determined by ministerial decree and included a very high number of tariff categories. The gradual opening up of the electricity market required the adoption of a new system for electricity price setting that allows reflecting the costs of the service and limits the potential for price discrimination. Activities regulated in the franchised supply market include: i) the electricity sold by generators to the single buyer, ii) the electricity sold by the single buyer to distributors, iii) transport of electricity to distributors by the transmission system operator, iv) rent and maintenance of the national grid provided for operators by the grid owners, and v) distribution and sales to franchised customers. In the current system, transmission and distribution are being regulated by price caps while the cost of other energy policy costs is explicitly funded by users. Similarly, tariffs for natural gas were revised to adequate cost coverage and improve price transparency.

The main component of the energy bills paid by consumers are as follows (Figure 4): i) tariffs, fixed by the AEEG for services provided by technical monopolies (e.g. transport and distribution) and system charges that are determined by governmental decisions; ii) energy supply, with wholesale and retail market prices competitively determined; and iii) taxes, that are established by law.

Figure 4 - Component of the energy bills paid by small consumers in the protected market (2013)



Source: author's elaboration from the AEEG web site.

In 2012, electricity prices for the Italian consumers were below the EU average for the first two classes of consumption (i.e. annual consumption up to 2,500 kWh), both net and gross of taxes and charges, while were higher for the remaining classes of consumption. Particularly, for the first-class of consumption (below 1,000 kWh/year) prices, net of taxes were 12% and 8% lower excluding and including taxes. For the second category of domestic consumers (1,000-2,500 kWh/year), where most Italian families are, the pre-tax price was still lower than the EU average, whereas, once, taxes were included the Italian price is approximately 6% above the EU average. For others categories of domestic consumers, electricity prices are higher in Italy, especially when taxes are included. For industrial consumers, the price of electricity is well-above the EU average in all categories of consumption. For instance, for the class of consumption between 500 and 2,000 MW, prices are 37% and 47% above the EU average net and gross of taxes respectively.

Similarly, the prices of natural gas for domestic consumers in 2012 were higher than the EU average in all categories of consumption. As for the price of electricity, the incidence of taxes is higher than in other EU countries and contributes to inflate the price paid by final consumers. Unlike electricity, prices for industrial users are more aligned with the EU average in spite of the high fiscal wedge.

It appears that the Italian energy bills are heavily burdened by system charges²² and taxes. Moreover, the mechanism currently in place for extracting

²² In particular, the electricity price is burdened by an increasing number of charges including: incentives for renewable and assimilated sources, by far the largest component; promotion of energy efficiency; charges for the safety of nuclear power and territorial compensation;

system charges takes the form of an administrative levy that is further burdened by the VAT applied in the final bill.

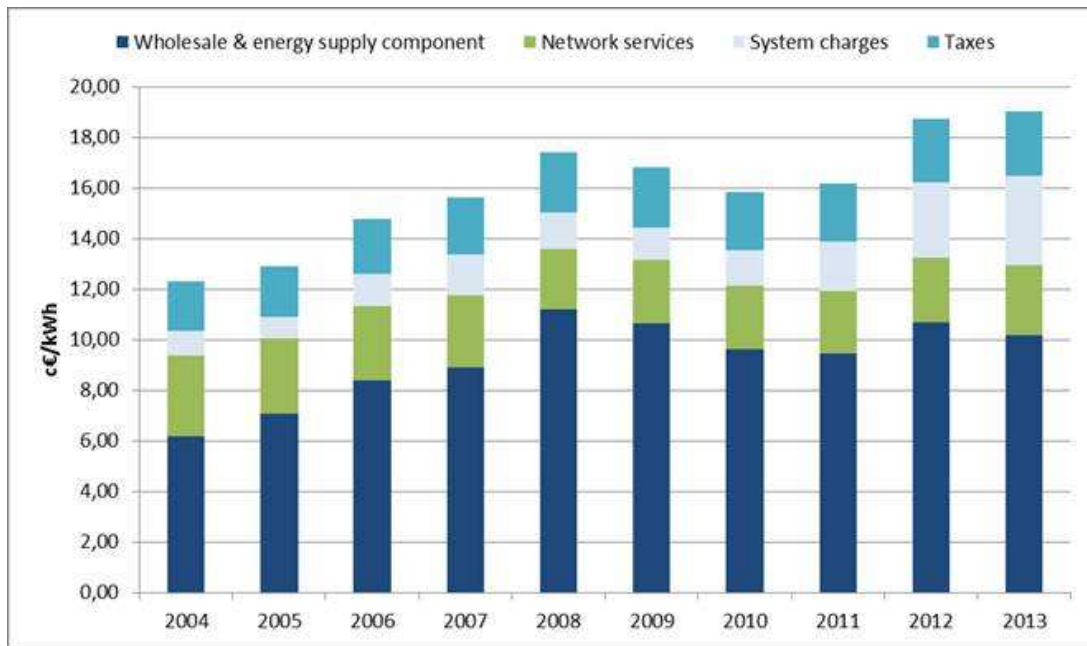
The AEEG reported that the existing system presents problems of distributional equity given that the taxes applied are not proportional to personal income, but rather determined by consumption levels. To mitigate the regressive structure of energy bills, in 2009 the Italian government introduced an electricity and gas bonus that allows low-income families, large families, and sick people who use electro-medical equipment to obtain a discount on their energy bills. The scheme is administered by municipalities and its costs are passed on to other final energy users as system charges.

The AEEG considers that these costs, along with other charges and taxes, should be better transferred, in full or in part, to the more equitable general taxation system. Besides distributive issues, the AEEG noted that the existing high fiscal wedge also holds back the competitiveness of the national energy system.

Since 2004, the electricity bill for the domestic consumer increased by nearly 35%, that is above the inflation rate (Figure 5). The system charges component registered the highest increase (72%), followed by the wholesale and energy supply services (39%) and taxes (23%). Differently, network service prices decreased by approximately 15%. This is due to a combination of factors, including the low level of past tariffs for some categories of users, the incidence of the generous schemes incentivizing production from renewable source, the increased international prices of hydrocarbons and a non-optimal use of the domestic “generation fleet”. In particular, stronger output from Italy’s rapidly expanding renewables sector has crowded out a large share of the more efficient gas-fired generation plants. The decline in natural gas’ consumption for electricity generation almost doubled from 2011 (6.1%) to 2012 (11%) (AEEG, 2013). A similar problem has emerged in Germany, where rising prices of electricity, that are linked to the country’s energy policy in favour of renewables, is bringing about a number of distributional issues (Der Spiegel, 4 September 2013). This issue is also currently debated in the UK where higher prices are deemed necessary to respond to security of supply and environmental concerns, but would be detrimental in terms of affordability (Del Bo, Florio, 2012).

special tariff schemes for the company Ferrovie dello Stato (national railway company); compensation for small electricity producers; research support; coverage of electricity bonus for poor households.

Figure 5 - Electricity price trend for a domestic consumer (less than 2,700 KWh per year) in the protected market

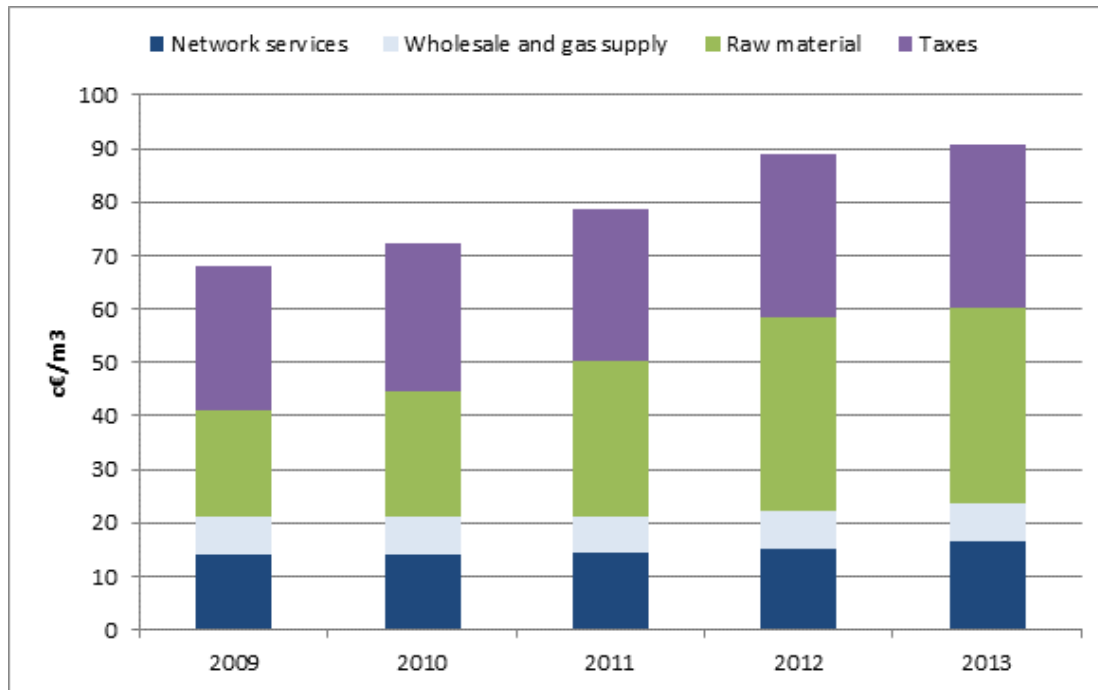


Source: author's elaboration of the AEEG's trimestral data.

As for electricity prices in the free market, a preliminary investigation conducted by the AEEG in 2011 reveals that unit prices are higher than the regulated tariff in a variety of cases. The low switching rate have sometimes resulted in aggressive marketing campaigns that occasionally reached fraudulent behaviors from retailers that induced clients to sign contracts under unclear or false information. These episodes are reported to be counterproductive for the consolidation of the retail market, given that they undermine consumer's confidence in new energy sellers and favor the established brands.

In the natural gas sector, a similar price pattern has occurred (Figure 6). The natural gas bill for domestic consumers increased by 25% since 2009, and by a further 24% between 2004 and 2009. The largest increase has been for the price of natural gas (45%) and taxes (12%). Italy has a high underlying gas price that is exposed to oil's price fluctuations. The need to ensure the security of supply has led to a rather rigid market structure that is based on large import infrastructure and take-or-pay contracts that generally have worse price conditions as compared to the European spot markets. The Italian take or pay clauses shows a significant price difference with respect to other EU countries, that is due to conditions negotiated before the beginning of the liberalization process (CDP, 2013).

Figure 6 - Natural gas price trend for a domestic consumer (household with a centralized heating system and annual consumption of 1,400 m3) in the protected market



Source: author's elaboration of the AEEG's trimestral data.

Italy is also more exposed to unrest in the Middle East being the largest EU importer of piped gas from Algeria and Libya. A progressive diversification of sources of supply, along with an increase of the volume traded in the wholesale market, is seen as a necessary step towards market convergence with other EU countries and increased competitiveness. For these reasons, since many years, the AEEG has urged the beginning of relevant investment in LNG infrastructures that would accelerate decoupling from the oil price, allow other energy companies to purchase significant volume of natural gas without ENI support, and make available other lower cost source of natural gas²³.

7.2. The A2A electricity supply in the free market

Since the retail markets for electricity and natural gas were liberalized, a number of providers have entered these market segments. Yet, switching rates remain low. National data provided by the AEEG show that in 2011 only 13% of households were supplied with natural gas at market conditions. The same figure is 18% for the electricity consumption. The A2A's retail market data also confirm this trend, given that the vast majority of the A2A customers, both for the gas (94.6%) and the electricity (88.6%) services, are still subject to the regulated tariffs.

²³ As an example in 2012 the US gas had a price one fifth lower than the European border price.

From the enterprises' perspective, competition in the retail market required the elaboration of a pricing and marketing strategy that aims at consolidating and increasing market shares. Generally, the electricity retailers' commercial strategies have focused on promoting two types of offers: a flat rate and a one or two year freezing of the unit price of electricity. Flat monthly rate are particularly convenient for suppliers, given that users have a limited control on the quantity of energy purchased and that energy's consumption is subject to seasonal fluctuations. To provide incentives for clients to switch their providers, suppliers offer discounted tariffs for the first year that are subsequently subject to market price conditions. Generally, these commercial offers have better conditions than the regulated tariffs, but future price differences are unpredictable.

The low switching rate observed is due to the overly complexity of the different price options. Although energy companies have been committed to designing clearer and more transparent bills, comparison remains difficult, as there is no common standard to be applied. The Italian regulator has made available on its web site a relatively easy to use tool for comparing the offers of different providers in the energy market. Nevertheless, comparing the offers of different suppliers, and understanding whether such packages are more convenient than the regulated tariffs, remains a difficult exercise. The alternatives offered depend on too many variables including the possibility to lock the energy bill at a flat price for one or two years, the availability of gas and electricity services under the same provider, the class of consumption and the home category, the home location, the existence of multi-tier tariffs, and the availability of discounts for first time buyers or for buyers that activate their contract through the Internet.

As an example of the barriers that users face when comparing different supply offers, we use the price comparator tool developed by the AEEG. We consider the case of electricity consumption of a standard domestic consumer, typically a family of four people (less than 2,700 KWh per year) living in Milan's city center. The consumer faces a variety of contract and supplier alternatives. Electricity can be purchased from private groups, such as Edison or Greenetwork, the former public monopolists, ENI and ENEL, or past municipal enterprises, including the A2A, ACEA and IREN.

For this type of user, the A2A offers two possible options: a "web contract" (Prezzo Sicuro Web+) and a "green contract" (Prezzo Sicuro Verde). The former is based on a fixed price scheme for one-year that is estimated to provide up to 35 euros of savings compared to the regulated tariff. However, the magnitude of the saving depends on the user's consumption pattern, given that the A2A's supply offer is not based on a two-part tariff as in the case of the regulated tariff. The offer is also coupled with another scheme based on accumulation of bonus (Programma Chiara2a) that offers up to 100 euros in shopping vouchers. The green option is based on a two year fixed price scheme and the guarantee that

the energy used is produced through renewables. This is somehow misleading, as retailers do not have control on the source of electricity that is supplied in real-time to consumers unless the generation facility is directly connected to the end user. Under this supply contract the estimated annual electricity bill is slightly higher than in the protected market, but, as in the previous scheme, the difference depends on the consumers' daily consumption pattern.

If the A2A's electricity supply offers are relatively easy to understand and compare, other operators have a much complex and diversified commercial strategy. As an example, the ENEL, the largest Italian operator, has structured, for the same class of consumer, four categories of consumption, from small to extra-large, to which different flat monthly rate apply. A similar scheme is also used by two other large retailers, the ENI Group and Edison. Similar varieties of commercial offers, and the same assessment problems, are observed in the natural gas retail market, and especially when the gas and the electricity supply are bundled together.

The analysis of the various electricity suppliers' offers reveals that there is no relevant difference between private and semi-private operators. Private operators tend to offer larger discounts for first-time buyers, as they have to capture consumers' loyalty from the established local brands. As other private or semi-private operators, the A2A does not apply subsidized energy tariffs for poor households²⁴ and there is no evidence of its past public mission in terms of offering Milan's citizens and public services a low cost source of electricity.

Conclusion

During the 1990s and 2000s various reforms of network industries have been made in Italy for introducing competition and participation of private investors in local public service supply. As in other European countries, the reformers' effort run more or less in parallel in three directions: i) liberalization of markets, ii) changes in the regulatory systems, and iii) privatization of the incumbent national or local monopolists (Joskow, 1996). These radical changes of network industries were deemed necessary to improve service delivery, achieve higher efficiency and increase the amount of investments for new or renovated infrastructures. They also responded to the need to create an integrated market for network services within the European Union.

In Italy, the combined effect of reformed local public service provision and liberalization of network industries, led to the establishment of large multi-utility enterprises with a mixed ownership structure. This process brought about many changes at the firm and market level, but the outcomes, in terms of improved efficiency and profitability, reduced tariffs for consumers and limited political interferences are mixed (Asquer, 2011).

²⁴ Electricity and gas bonus are structured at the national level and administered by Italian municipalities.

This study, which is focused on the evolution of the A2A from 1990s to 2012, shows that the key objectives of privatizing the enterprise, including increased managerial autonomy and efficiency and reinforced capital structure, haven't been achieved. More importantly, the hybrid nature of the enterprise has brought about a number of contradictions that undermine the long-term sustainability of the A2A.

The existing corporate governance's arrangements, that are set to establish a dominant public ownership and control over the enterprise, seem to disguise past forms of direct public interventions into the local economy, but are unable to express a clear public mandate in terms of increased welfare outcomes for Milan's and Brescia's citizens. The public owner, that in the past was able to set a model of successful entrepreneurship for delivering energy services within the public administration, is jeopardizing the enterprise's businesses in several ways.

In the context of increasingly constrained local finances, the need to contribute to the municipal budgets of the cities of Milan and Brescia has come to the detriment of the financial strength of the company. A further sell of the A2A shares, that would however keep unchanged the dominant position of the public shareholders, is currently debated by the two city's mayors as a mean to temporarily relieve local budget constraints. It seems that decisions about changing A2A's shareholding structure are determined by current financial needs rather than being based on a long-term industrial vision.

The establishment of the A2A generated too large costs for integrating the two enterprises of Milan and Brescia, especially because these are mainly justified by parochial interests. The current corporate governance arrangements, that are based on a perfect balance of powers between the two public owners, are unsuitable for running a private business in a fast changing environment and proved to be unappreciated by the market.

Political affiliation, that was supposed to be substantially reduced in the privatized enterprise, still plays a determinant role in appointing and dismissing the enterprise's managers. At the same time, Municipal Councils seems to have reduced their capacity to control the enterprise, whereas the role of mayors has become more prominent. This has led to a loss of transparency and accountability, along with a poor capacity to elaborate a consensual vision about the advantages of the public ownership and the public mission of the enterprise.

The current financial situation of the A2A reached an unsustainable level and forced the enterprise to re-focus on its core business and undertake a deleveraging strategy. Such a high level of debt is the result of substantial investments for expanding in new business areas and increasing outputs, even when industrial considerations would have pointed to a more prudent investment strategy. While the national macroeconomic scenario for energy consumption remains negative, the enterprise devises expanding in the more protected

markets of waste services and district heating, where the public owner has a higher degree of autonomy for tariff setting.

Finally, the national politics has also played a key role in delineating the current scenario. The limitation of the existing ownership and governance arrangements of the Italian local multi-utilities are well-known. Current talks about creating a larger industrial group by aggregating the largest multi-utility of Northern Italy, including the A2A, are based on a reduced power of the local public shareholders that could be replaced by private investors or by the Italian government through the Cassa Depositi e Prestiti²⁵. Clearly, this would move again the electricity and gas markets towards a more concentrated structure where the supposed gains from increased competition, that have not materialized yet for the end-users, would be further uncertain.

²⁵ See Luca Pagni in *La Repubblica* of 28th May 2012 or Del Barba Massimiliano in *Corriere Delle Sera* of 18th Spetember 2013.

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Appendix

Appendix 1 - Timeline of A2A major events

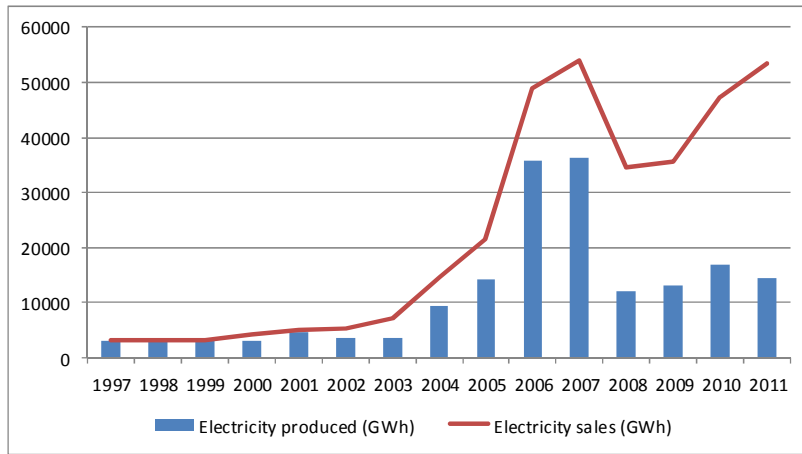
Year	Description
1905	The first thermoelectric generation plant built in house by the municipality of Milan starts operating in Piazzale Trento (Milan)
1907	Milan municipality starts building the first hydroelectric power plant in the Alpine valleys of Valtellina (Grosotto 13,500 KW)
1910	Following a public consultation, Milan municipality establishes the Milan Electric Company (AEM)
1915-18	First World War
1922	Fascism takes power and is initially hostile to municipal companies, including the AEM. However, any attempt to privatize the AEM proves to be highly unpopular and is soon dropped out
1931	Milan municipality municipalises the city's transport system which is based on tramways. Since then, the AEM provided the city's transportation system with low cost electricity
1940-45	Second World War
1950	Following the incentives provided under the Post War Reconstruction Plan, AEM undertakes important investments in thermoelectric plants (Tavazzano and Cassano D'Adda)
1962	Following the nationalization of the Italian electric market, the AEM kept its concession for distributing electricity in the city of Milan
1982	By taking over gas services from Edison, the AEM became Milan Energy Company and undertakes important investments for conversion of natural gas in building heating systems.
1990	National reform of local public services (law no. 142) which allows municipality to set up independently managed municipal company operating under private law. The law paved the way to private shareholdings in municipal enterprises.
1993	Milan Municipal Council approved the privatization plan of AEM
1996	AEM is transformed in a joint stock company.
1998	Listing on Milan stock exchange with a float capital of 49%
1999	Following the Bersani decree that transposes EU directive 96/92/EC into national legislation, AEM is restructured as an industrial group with operative companies in each sector of activity and became a multi-service company.
2000	Following the example of other electric utilities, AEM diversifies its business areas in the telecommunication sector (Metroweb)

2002	The Edipower consortium (AEM 13,4%) purchases Eurogen, the largest Gen.Co from ENEL. AEM also becomes the sole distributors of electricity in the city of Milan and Rozzano after having taken over ENEL's distribution network
2004	The city of Milan sells part of its majority stake and went below the 51% ownership
2005	Together with the French group EdF, AEM acquires control of Edison Spa. AEM also took over 30% of Ecodeco an industrial group operating on the waste to energy sector
2007	In view of the merge with ASM Brescia, AEM merges with AMSA (Azienda Milanese Servizi Ambientali). By purchasing the remaining 70% of Ecodeco, AEM becomes the second largest national operator for waste collection and treatment and waste to energy.
2008	Merger with ASM Brescia and establishment of A2A The Municipality of Milan and Brescia have a majority of share capital (54,9%) equally distributed between the two municipalities. A2A becomes the largest Italian local utility in terms of turnover, gross profits and capitalization
2011	Preliminary agreement with EdF, Delmi, Edison and Iren for ownership restructuring of Edison and Edipower
2012	At the end of a turbulent financial affair, EdF took over from Delmi a 50% stake in Transalpina that holds 61,3% of Edison. As a result Edison is fully controlled by EdF. In return, Delmi took over Edison (50%) and Alpiq (20%) shares in Edipower. As a consequence, Edipower is fully owned by a consortia of local utilities: Delmi (70%), A2a (20%) and Iren (10%). There are speculation about a possible merge between A2A and Iren.

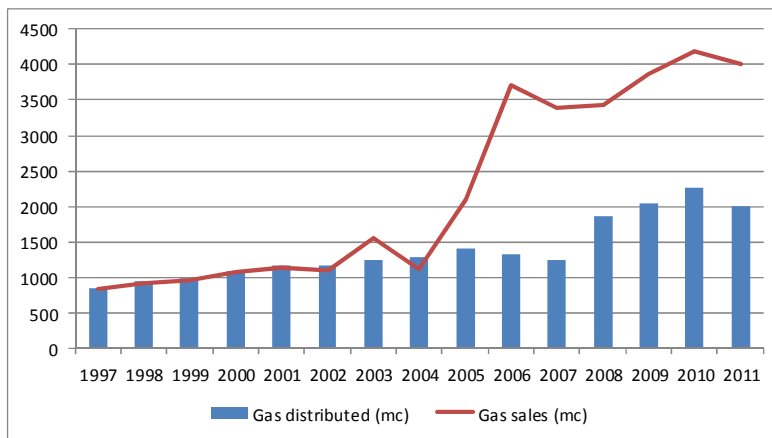
Source: author's elaboration from the A2A reports.

Appendix 2 - Statistical data about AEM/A2A development 1997 to 2011

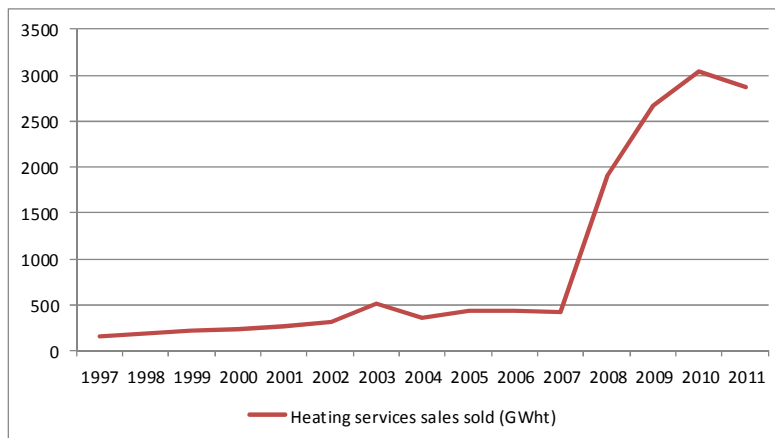
AEM and A2A, electricity produced and electricity sales



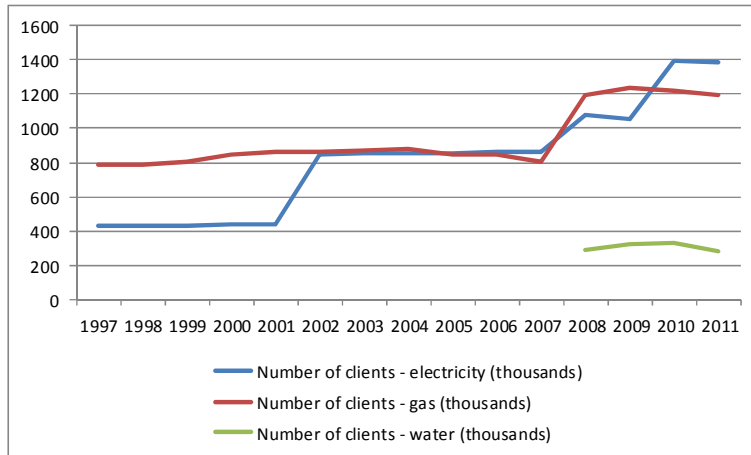
AEM and A2A, gas distributed and gas sales



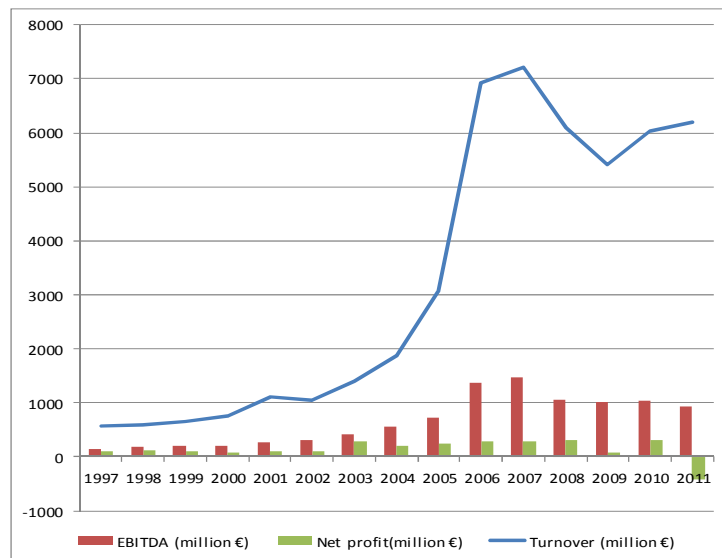
AEM and A2A, heating services sales



AEM and A2A, number of clients by business lines



AEM and A2A economic performance from 1997 to 2011



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