

MEELS

Municipalities and Energy Efficiency in a Liberalised System

Task IX of the International Energy Agency
Demand-Side Management Programme
*Promoting Energy Efficiency and Demand-Side
Management for global sustainable development
and for business opportunities*

Report 1

General Background to the Energy Sector in the
Participant countries and how it has been affected
by Liberalisation

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2 - Introduction

This report has been prepared for the MEELS project, a Task of the International Energy Agency's Demand Side Management Implementing Agreement. The Task's objective, put simply, is to examine the impact of the liberalisation of energy markets on local authorities and identify what action they can take to counter the harmful impacts and how they can make the best of the opportunities offered.

There are five countries participating in the Task, all from the European Union. These include one country which is liberalising as slowly as possible, France, two whose liberalisation was originally slow but whose liberalisation has since speeded up significantly, Spain and the Netherlands, and two whose markets are now fully liberalised, Austria and Sweden. Information has also been gathered from the United Kingdom, a pioneer of liberalisation whose markets demonstrate the logical implications of such policies.

The project is divided into five main phases. The first phase will look at the roles of municipalities and how they are affected by the impacts of liberalisation, and these two reports are the output of this phase. In the light of this the project will investigate good practice in responding to these impacts and will then discuss policy implications for local authorities and governments and prepare a guide to best practice for local authorities to encourage a sustainable energy policy promoting energy efficiency in the context of liberalisation.

This first report is intended to provide a rapid overview of the context in each country. It analyses the general context of the organisation of the energy industries in the participant countries, concentrating on those energies supplied by distribution networks (electricity, gas and heat) which are of most concern to local authorities. The organisation of these energy networks reflects in many ways the culture of the countries concerned. The decentralised approach of Austria is typical of a country built on the Germanic federal model and with a history of the city-state. The centralised approach in France is built on the powerful republican ideals deriving from the revolution where central government's role is seen as a leader of public provision. Liberalisation is seen there in the eyes of "public service" rather than freedom to choose. The Netherlands, a trading nation *par excellence*, is trying to build up its companies into large units that can compete and market successfully on the international stage. In Spain the situation is a political dog's dinner which results from the pragmatic way the country has adapted from a centralised Francist state to a decentralised democracy. The nation is very regionalised with strong autonomous communities. These have their own energy policies, but the main energy enterprises are large national structures and local authorities have almost no part in delivery.

The report is presented in largely tabular format. An initial summary is given of the approach in each of the participant countries. The key organisations involved at each administrative level are outlined and those bodies responsible for key activities in the energy sector which relevant to local authorities are identified with an appraisal of the situation prior to the advent of the liberalisation process and the current state of play (December 2001). The key liberalisation events and its impact on key actors is investigated. The tabular format gives more scope for comparison between countries. Information is presented in parallel so that each country's reaction to a particular issue can be compared with that of the other participants.

A second report looks in detail at the roles that municipalities fulfil in each country.

3 - Preparation of the reports

A consultant expert was appointed by each participant country and they have prepared the analysis using the analysis framework prepared by the operating agent. These conclusions, were then verified by municipalities within that country which are themselves having to deal with the challenges presented by liberalisation and the initial appraisal was discussed at a workshop held in Barcelona in September 2002. The individual contributions have been moderated by the Operating Agent who has then drawn these together to draw overall conclusions.

The most open market in Europe at present is that in the UK. The majority of the electricity traded in Europe in 2001 was traded in the UK and electricity and gas have become mass market items sold in supermarkets and by doorstep traders. British experience is bound to provide lessons for others who have not yet fully opened their markets like France or whose market has just opened but where a full consumer market has yet to develop in practice (e.g. Austria). To better inform ourselves on this issue, a workshop was held in December 2001 in Milton Keynes to discuss the experience of UK local authorities in responding to liberalisation and this was used to review the information on the British market included in the reports.

3.1 - Acknowledgements

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4 - General Background to the Energy Sector in the Participant and other countries

4.1 - General Situation in each country

Austria

The framework of the Austrian electricity market was originally based on the Second Act of Nationalisation of 1947. This law stated that electricity supply in Austria was a public service and that it had to be supplied by public utilities, except for generators with a capacity of less than 200 kW. The amendment of the Second Act of Nationalisation in 1987 provided a possibility for up to 49% privatisation.¹ The tradition of public ownership in Austria was very much decentralised with structures being organised more on a regional than a national scale.

One special characteristic regarding the situation in Austria is that between 70% - 80% of electricity generation comes from hydropower and nuclear power was rejected by the Austrian citizens in a referendum in 1978.

After the second world war, the electricity industry was divided into the following elements^{2,3}:

- 1 Verbundgesellschaft, the national electricity wholesale company. The main task of Verbundgesellschaft has been to balance production and demand in the high-voltage grid. Further, Verbundgesellschaft and its subsidiary companies were building and operating the main big hydropower plants
- The Verbundgesellschaft had a legal monopoly on electricity imports and exports. It had no franchised service area, its main customers were provincial utilities, the Austrian Railways and some large industrial plants
- 9 Regional Electricity Companies (RECs). These were regional monopolies with a supply obligation and franchised service areas. Most of them have had their own power plants
- 5 municipal utilities in the provincial capitals and around 200 small local and regional companies (some of them having their own small power plants).

The gas market is also organised on a regional level with nine regional distribution companies, mainly owned by the Land governments or being part of energy holdings. About 80% of gas is imported by the national company OMV-AG with remainder being produced within Austria mainly by OMV.

The opening of the energy markets took place in various stages from 1999 onwards and was accelerated by politics. Since October 2001 the electricity market is 100% liberalised and the gas market will follow in October 2002.

A big restructuring process has been taking place during the last few years in order to enable Austrian organisations to be competitive in liberalised markets. Several regional utilities formed the "Energie Allianz Austria", which now controls about two thirds of the Austrian market, a separate company was formed to run all the hydroelectric power plants and several mergers and investments, also from foreign countries took place. In particular the municipal utilities were taken over by their respective regional utilities or shares of the companies were sold off.

¹ <http://www.iea.org/pubs/reviews/files/austria/07-aus.htm>

² Vgl. Fras (1999), S. 30f

³ Vgl. Kämmerer (2000), S. 1

France

The organisation of the French energy sector is characterised by a tradition of centralisation. This is primarily the result of the nationalisation law of 1946. Since that date two nationalised companies, EDF and GDF, operate as a virtual state monopoly. As in many other countries this organisation of the electrical system makes its mark on the overall energy system. The centralised character of this organisation is further reinforced by nuclear power programme chosen by France which is based on a limited number (58) of generation sites accompanied by a transport network appropriate to the quantity of electricity to be transmitted. By contrast, decentralised production of energy has remained limited. In the main it is heat, hydroelectricity and very recently to a very limited extent, cogeneration in particular in industry.

In parallel to the policy followed on energy production, France has the benefit of an instrument for and policy concerning rational use of energy. This is ADEME, responsible for energy, waste, air pollution and noise issues. Policy on energy saving, very much to the fore in the 1980s, was then put on the back burner only to re-emerge in strength at the end of the 1990s.

Generally one can say that energy policy since the 1970s has been based on these two elements, nuclear energy and the rational use of energy.

However renewables are now given much more consideration especially in the context of the European Union Directive on the topic. This has given local authorities their first real official role in drafting energy policy and may augur well for the future. According to the recent Law relating to the sustainable development of the territory (LOADDT – Loi d'orientation et d'Aménagement durable du territoire), regional and local authorities are encouraged to investigate the potential in RES and CHP within their territory. Taking account of the current changes which are restructuring local authorities (agglomérations, pays, etc.), this measure is really an invitation for a larger involvement of local authorities in this field.

Spain

The energy sector in Spain, from the Civil War (1936-1939) until liberalisation (1998), was characterised by a great degree of centralisation, especially in the hydrocarbon sector, but also in the electric sector where private vertically integrated utilities co-existed with some public utilities.

In the public sector of the electricity market there was: ENDESA for the generation of electricity with local coal reserves, ENHER for large scale hydro in the Pyrenees and other small public utilities in the Balearic and Canary Islands and in a other few places. The 14 principal electric utilities were grouped into UNESA – Unidad Eléctrica (the electricity producers association) in which coexisted both public and private utilities. During the late seventies and eighties the private utilities involved with the construction of nuclear power plants had a big financial troubles. This fact forced the reorganisation of the electricity sector. The public company ENDESA played a crucial role in this context. So it acted to buy some other private companies, to become at the end a new private electricity company.

The gas sector was in private hands and has been acting as a de facto monopoly since the beginning. The gas sector was introduced into Catalonia by a pioneering private company (Catalana de Gas), mainly owned by Catalan investors. The central government forced a merger between Catalana de Gas and Gas Madrid to form a new private company, Gas Natural, which has been a main driver behind the introduction of natural gas into other regions of Spain.

When electricity liberalisation commenced in the European Union, Spain worked rapidly to transpose the European Directive 92/96/CE. At the end of 1997 the Law on the Electricity Sector was adopted and came into operation on January 1st 1998. The Hydrocarbon Law (1998) implemented the Gas European Directive 98/30/EC. The Spanish Government has since decided to shorten the periods for the implementation of the liberalisation of the electricity market. So full liberalisation of the electricity market will be a reality at the beginning of the year 2003.

By 1980 an Energy Conservation Law was enacted that established the legal bases to make possible the auto-generation of electricity. This Law and the corresponding decrees, opened the door to cogeneration and to renewable energy sources, which were completely integrated into the Law on the Electricity Sector (1997).

This Law devotes a complete chapter (chapter 2) to the so called special regime for electricity generation. Also the Law establishes the Special Regime Promotion Plan for Renewable Energy sources, and fixes at 12% the proportion of renewables in the primary energy demand for 2010.

The liberalisation of the Gas market is proceeding slowly. It was only at the end of October 2001 that the Spanish government distributed 25% of the total imports of gas from Algeria between 6 new companies (mainly electricity companies) entering the gas market.

Sweden

The liberalized electricity market in Sweden came into force on 1 January 1996. It is fully open for all producers and customers.

The old Electricity Act had been in force since 1902 and, in spite of various amendments over the years, its main outlines have remained virtually unaltered. During the second half of the 20th century the operations of the electricity distribution system used to be described as “the Swedish model”, where the state, the municipalities and private owners had one third each.

In the late forties there were some 3.500 distribution companies in Sweden. There are now circa 150 companies operating 270 network concession areas. That structural transformation seems to be continuing. Before the market reform there were some 150 municipal electricity network companies. Now there are just below 100. In the main the big power companies have been the buyers.

Five companies account for more than 90 % of domestic power production. Without a Nordic or North European electricity market, the domination of the five would make it hard to maintain competition.

Sweden’s energy system is changing. A referendum in 1980 settled that no more nuclear power plants would be built. The nuclear power soap opera has since been running from time to time. However, most people agree that Sweden’s energy system shall be based on renewable and preferably domestic energy sources with a minimum of harmful impacts on the environment.

The district heating systems are a crucial resource. Now they use close to 100 % RES. Upgraded bio fuels have superseded practically all use of fossil fuels in district heating production, even the use of oil as peak load.

All densely populated areas have some kind of district heating system and municipalities own most of the plants.

Municipalities have played an important role on the energy demand side since interest in energy conservation matters started in 1973/74. However, the objectives of the activities have changed over the years. The first oil crisis induced activities protecting the balance of trade and promoting a secure energy supply. Ten years later the environment came into focus. At the same time the discussion continued about how to interpret the outcome of the nuclear power referendum. Furthermore during the 80s Sweden had a considerable electricity surplus with accordingly low prices. The interest in energy policy faded. In recent years climate protection and green house gas questions have come into focus again. Energy production and efficient use of energy has again become an important issue.

The supply and demand of energy play a substantial role within the overall concept of Sustainable Development. As is often the case, local authorities are expected to play a vital role in this process. “Think globally, act locally!” has come to be a well known phrase in Sweden and all over the world.

The Netherlands

The situation in the Netherlands has been typified by a local organised energy supply system with a strong municipal involvement which has been following a process of amalgamation and concentration. The Netherlands has sub-divided the electricity and gas systems into four different horizontal levels: Production, transport (the high voltage grid or gas trunk mains), regional distribution (the medium voltage grid or regional gas mains), Distribution (the low voltage grid and local gas network).

Four national electricity producers: EPZ, EZH, EPON and UNA controlled the high voltage grid which were part owned by the regional authorities (the provinces). These companies were united in the SEP organisation (Co-operating Electricity Producing companies). Every two years an electricity plan had to be prepared in agreement with the national authority which outlined the amount of power to be produced and the planned input of fuel.

Individual companies owned the low tension grid networks - there was a conscious desire to avoid monopolistic distribution companies. However the financial arrangements meant that in practice they were *regional* monopolies with shares owned by local and regional authorities. These companies bought energy from the energy producing companies, and distributed and sold it to the small and medium customers. These distributors largely owned the low voltage grids. Prices and profits were regulated according to the Electricity Act. Only the largest purchasers had any choice of supplier by virtue of the fact that they were allowed to import energy.

The Netherlands is a large producer of gas and the Government has held fairly tight control of the resources because of the financial implications. The main producer was NAM, a consortium of Esso and Shell with smaller gas producers exploiting the smaller fields. All production was carried out in cooperation with EBN (Energy Management Netherlands) which is 100 % state owned. The gas price was linked to the oil price. Gasunie, which is 10 % state owned, took care of the supply to large users (industry) and the distribution companies and foreign sales. It also owned the extensive transport grid. Gasunie's profits exceeding a certain threshold were returned to the Dutch producers and then levied by the state. In other words: natural gas profits were of considerable importance to the national authority. The distribution companies, including the distribution grids, were mainly taken over by the electricity distributors forming amalgamated distribution companies.

The Netherlands has the highest level of cogeneration in the European Union with widespread district heating. The Not-More-Than-Otherwise-principle (*NMDA-principe*) has regulated the tariffs for district heating up until the present. Customers, who are either connected to gas *or* to heat, do not have to pay more for their heat than comparable users of gas. If the NMDA-principle were to be abandoned, heat consumers, who are not free to choose or change their connection to the infrastructure, would probably face a rise in prices.

Liberalisation is a hot potato in Netherlands politics, especially after the California disaster. The new minister of economic affairs (Mr. Heinsbroek) announced in Summer 2002 that he is willing to stop the privatisation of regional energy-supply companies until January 2004. His motives are that he finds the rules far too complicated and that he wants to give all citizens the assurance that, as he said, the light can be switched-on and the gas will flow at all times. He wants the rules to be simplified and on some matters tightened up. He will soon make proposals in that direction.

Until that time no new requests for privatisation will be dealt with (with only one exception, for Intergas, whose request was already being processed).

In a Transitional phase intermediate states of liberalisation have been introduced. Unbundling of network and commercial services has been introduced. SEP was dissolved and Tennet set up to manage the high voltage network. Distributors are licenced to deliver to captive, small and medium size, energy users until the market is fully liberalised and control over maximum prices is maintained. From 1st July 2001 all consumers have been free to buy green electricity from any supplier at the market price. Most local energy distributors have enlarged their companies or have been sold – at the time of writing there were 13 distribution companies in total. Of which three are large and others are small and local (mostly for gas). These are not allowed to own the low voltage grid and to regulate this there are 21 regional network companies left. In addition a large and increasing number of local authorities have sold their share in the energy companies. They are considered to

be an unsafe investment and now operate outside the administrative borders within which the municipality can be held (politically) responsible.

The green market has been opened earlier than the fossil market to promote renewables, a factor reinforced by the new Ecotax system and the system of green labels set up to oversee the system

The Netherlands is blessed with a strong and active national energy agency, Novem which is responsible for administering many Government initiatives (e.g. Climate Covenants). This had been converted into a separate semi-independent agency in the 1990s to enable it to compete for funds on the open market but is currently being reintegrated into the civil service structure.

The UK

The British energy sector was a leader both in centralisation in the 1940s and in liberalisation in the 1980s. Municipal and private electricity companies working on municipal concessions were nationalised in 1948 to form a central generating corporation with local distribution boards. Gas companies were organised into regional gas boards of the British Gas Corporation. The electricity industry had been structured around large power stations located on the main British coalfields – particularly in the East Midlands and in the 60s and 70s the construction of large nuclear power stations which now supply 20% of the demand. Hydroelectricity – primarily in the Scottish Highlands, has a negligible contribution. However there are three large pumped storage units constructed at this period. Gas was originally provided by local coal-fired plant, in some areas (e.g. North Wales) this was already distributed by a gas grid at this period. With the coming on stream of North Sea Gas in the 1970s, a gas transport network was constructed from one or two main landfalls.

The two industries were denationalised by the Thatcher Government in the 1980s. The management of a monopoly transport and distribution network is easier with gas, an energy carrier that can be stored, and this industry was one of the first to be denationalised in 1986. It was denationalised from one nationalised monopoly to one denationalised monopoly – at first the question of introducing competition was not even considered. By contrast, electricity was denationalised at the end of the Thatcher period and introducing competition presented many problems that had to be solved "from scratch". By this time the denationalisation policy was more controversial and the issue of introducing competition had become one of its justifications. A method had to be found from the start to denationalise electricity but to allow competitive "market" forces to do their work. The introduction of competition in the gas industry followed on from the introduction of competition in the more complicated electricity industry! Separate gas and electricity regulators were established.

The vertical integration in the electricity industry in England and Wales was broken and it was split into two competing generation companies, (with a third, Nuclear electric, denationalised later than the rest). A separate transport company (owned by a consortium of producers) and regional distribution companies were created out of the regional distribution boards. However the regulator felt that the system created did not generate sufficient competition and that the big players were controlling the market to their advantage, and so required the two major players to divest themselves of large elements of their production capacity, so that now the generation industry is split into 6 or more major players. In Scotland and Northern Ireland regionally based vertically integrated companies were created. The monolithic gas industry passed effectively unchanged into the private sector, but in 1996 the industry was split into two arms – British Gas involved in production and sales and Centrica/TRANSCO involved in distribution.

The period following denationalisation saw a "Dash for gas" in the electricity generation industry with multiple demands to construct new gas-fired combined cycle plant, even though there was at the time still a surplus of generating capacity. However, apart from some industrial units (industrial chp has increased rapidly in recent years), very little of this new capacity is linked to cogeneration. District heating is almost unknown in the UK, and some local systems have actually been removed and replaced with individual systems. The price of generating capacity rapidly fell and furthermore the new CCGT units constructed in the early 1990s were saddled with long term take or pay gas contracts in the context of falling gas prices rendering them rapidly uncompetitive and generating a crisis in the industry. The long term impact has been that there are few really large British companies on the international scene, competition at home having been

encouraged in part at the expense of discouraging the development of really large players competitive on the international scene.

The UK does not have a central energy agency – but has three organisations of importance. The Energy Technology Support Unit is a former government body, now privatised, providing advice on a semi commercial manner to government on energy efficiency and RES issues. The Energy Savings Trust is financed with a levy on the producers and consumers and provides support for programmes of energy efficiency advice. It has funded local energy advice centres in many local authorities via a franchising arrangement. Interest in energy advice has waxed and waned and municipal advice centres established in the 1970s in the wake of the oil crisis had disappeared by the mid 1980s only to reappear again in the 1990s in a new guise. In 2001 a new body, the Carbon Trust, was established to recycle some of the funds raised from the Climate Change Levy to renewable energy and energy efficiency projects.

Historically the Government has never prepared a comprehensive energy policy – energy policy has been a hotch-potch found in statements and policy documents prepared for different purposes. Recently a carbon levy (the Climate Change Levy) has been introduced and an Energy Efficiency Commitment on the basis of a flat rate per consumer, and these were designed to fund activity to help meet Kyoto targets and even more importantly, help the fuel poor. The current Government has now instigated an energy review as a basis for an integrated national policy and recently a green paper has been prepared for comment. It proposes significant increases in renewables and energy efficiency activity.

5 - Organisations involved in the Energy Sector

5.1 - Government Ministries involved

<p>Austria</p>	<p>Concerning the regulation the Federal Ministry for Economy and Labour is the supervisor of the activities of the two new regulatory authorities and can draw up general guidelines for the operation of that authority.</p> <p>The Elektrizitäts-Control LTD is a limited liability company and shall be non-profit making. It started operation in March 2001 and plans to build up a staff of 40 – 60 experts with legal, economical and technical experience. In exercising his supervisory function, the Minister for Economic Affairs and Labour may give reasoned instructions to Elektrizitäts-Control LTD.</p> <p>Elektrizitäts-Control LTD performs all functions assigned to the regulatory authority pursuant the Electricity Act.</p> <p>The Elektrizitäts-Control Commission is comprised by three members which are appointed by the Federal Government. Decisions of the Elektrizitäts-Control Commission require unanimity in order to be valid. Members of the Elektrizitäts-Control Commission are not bound by any instructions in discharging their practical functions.</p> <p>An Advisory Council for Electricity has been set up in the Federal Ministry of Economic Affairs and Labour and the regulatory authority, in particular on general and fundamental matters of electricity policy.</p> <p>The Federal Ministry of Economic Affairs and Labour (BMWA) is the main body responsible for energy matters on the federal level. Other ministries involved in energy policy matters include: Agriculture and Forestry, Environment and Water Management; Mobility, Innovation and Technology; and Finance. Energy policy – as all other policies – is formulated and implemented in close co-operation with the social partner organizations, i.e. organizations representing important groups of society (employers, employees, agriculture), and in dialogue with NGOs (non governmental organizations) and the public ⁴.</p>
<p>France</p>	<p>The Ministry of Economy and Finances (MINEFI) is in charge of energy. From an administrative point of view, there is an Energy and Raw Materials Directorate (DGEMP) which is divided in two operational divisions: the DIREM, for the supply side (petrol, gas, nuclear, etc.) and the DIDEME for energy efficiency, renewables, distribution and transmission grids, etc..</p> <p>The former Ministry of Planning and Environment (MATE) – now called Ministry of Ecology and sustainable development - has no responsibilities in the energy field but has co-ordinated the National Plan for Energy Efficiency launched on 6th December 2000.</p> <p>In general it is the Ministry of the Interior that is responsible for local authorities, in particular through its General Division for Local Authorities. (DGCL)</p>
<p>Spain</p>	<p>At present there is no separate Ministry or Department of Energy within the Spanish Government. A Directorate General for Energy Policy and Mines exists and is responsible to the Secretary of State for the Economy, Energy and Small and Medium Sized Enterprises within the Ministry of Economy.</p>

⁴ <http://www.un.org/esa/agenda21/nat linfo/countr/austria/natur.htm#energy>

	<p>Under the same Secretary of State there is an Institute for the Restructuring of the Coal Industry and the Regeneration of Coal Mining Areas. On the other side, other public organisations such as CIEMAT - the Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas and IDAE – Instituto para la Diversificación y Ahorro de Energía, are dependent on the Ministry of Science and Technology.</p> <p>The governments of some Autonomous Communities have Ministries of Energy. Generally autonomous communities have responsibility for energy policy and planning in their region.</p> <p>The Spanish Nation-State has exclusive competence on the legislation, arrangement and the granting of concessions relating to hydraulic resources and their use when the waters flow through more than one autonomous community. Also, over authorisation of power facilities when they affect a different autonomous community or the transport is outside the autonomous community territory (Numbers 22 and 25 of the 1st Section of Article 149 of Spanish Constitution).</p> <p>The Statutes governing the Catalonia Autonomic Region (= its constitution), says that the region has exclusive competence on hydraulic development when the waters only flow within the limits of the Catalonia region, on energy facilities (production, transport and distribution), when they do not have any impact on another autonomous community, and over geothermal energy.</p>
Sweden	<p>The Ministry of Industry, Employment and Communications has overall responsibility for energy policy and the energy market.</p> <p>The Ministry of the Environment is responsible for environmental issues, many of which concern the energy sector.</p> <p>The Ministry of Finance is in charge of overall national taxation, including energy and environmental taxes together with emissions trading, green certificates and other financial instruments which play a crucial role in a competitive energy market.</p>
The Netherlands	<p>The Ministry and Minister of Economic Affairs is responsible for energy issues. NOVEM is the national energy agency. For a number of year this had been a semi independent structure, but from 1st July 2002 it is being reintegrated as part of the Ministry.</p>
United Kingdom	<p>The Minister for Energy forms part of the Department of Environment, Food and Rural Affairs (DEFRA). General planning matters and housing, regeneration and transport are the responsibility of the Department of Transport, Local Government and the Regions. (DTLR). Energy advice to government is provided by the Energy Technology Support Unit (ETSU) and the Building Research Establishment (BRE) in the case of building investments.</p> <p>The Energy Directorate of DEFRA has different sections concerned with.</p>

5.2 - Relationship between local authorities and government ministries

Austria	The legislative organs in Austria are the federal state and the provinces. The federal government sets the framework, by laws and by policy papers. But it is especially the legislation on the provincial level (“Laender”) which has great impact on the local authorities (spatial planning, policy on subsidies, the constitution of the local authorities etc.). Most of these regulations must be followed by the local authorities.
France	<p>France is a unitary state. The state is represented in each region and Département by a Préfet who coordinates the decentralised government services in that area, i.e. represents the Government. Local authorities take their decisions with supervision <i>a priori</i> of Government, but only <i>a posteriori</i>, the Government supervising the legality of decisions.</p> <p>The French centralist tradition nevertheless gives Ministers significant power. Government services, at decentralised levels, provide for example a technical assistance service for local authorities which do not have adequate internal resources.</p>
Spain	<p>The Spanish Nation State is divided into Municipalities, Provinces and Autonomous Communities, having a certain degree of autonomy for the management of their own interests (Article 137 of the Spanish Constitution). Both the Spanish Nation State and the Autonomous Communities have Governments and Parliaments.</p> <p>A representative, nominated by the central government, directs the National administration in the Autonomous Community territory and coordinates, when necessary, the Nation-State administration with the Autonomous Community administration.</p> <p>The Spanish Constitution recognizes the municipalities as autonomous bodies with the right to organize their own affairs, but in coordination with Autonomous Communities and the central Nation State.</p> <p>The Spanish Ministry of Public Administrations, and the ministries in the Autonomous Governments in charge of local affairs have to be notified of all agreements made and actions taken by municipalities (in Catalonia it is the Department of Governance that is concerned). The Central Government or the Autonomous Community could oppose any municipal agreement or action.</p> <p>The National Commission of Local Administration, under the presidency of the Spanish Minister of Public Administrations, is a permanent body to facilitate the collaboration between the Spanish central administration and local administration.</p> <p>The Court of Justice controls the legality of municipal agreements and acts.</p> <p>If one agreement or act commits an outrage against the Spanish general interest, the Spanish Government Delegate into the Autonomous Community must ask to the Mayor for the agreement or act to be overruled and if the municipal government will not agree to this, the overruling the Spanish Government Delegate will suspend it.</p>
Sweden	<p>Sweden is governed at three different levels: the central, regional or county, and local levels.</p> <p>Central level</p> <p>The central public bodies include the Riksdag (Swedish Parliament), the Government and its ministries, and the central government agencies.</p> <p>The main functions of the Riksdag are to pass new laws, decide on matters relating to reforms, taxation and public finances and to comment on the Government’s foreign policy.</p> <p>The Government governs the nation and discharges a number of functions in its capacity as an authority. Among its many tasks, the Government draws up and submits legislative proposals to the Riksdag, implements decisions taken by the Riksdag, and allocates the funds appropriated by the Riksdag for expenditure on items in the budget.</p>

	<p>Practical administrative functions are performed by central government agencies (currently around 300). The government agencies operate independently of the central administration but report to one of the ten ministries.</p> <p><u>Regional level</u> Sweden is divided into 21 counties, each with a county administrative board. The county administrative boards represent the central government at the county level and are headed by a County Governor appointed by the Government. The boards are responsible for police matters, some social welfare issues and regional social planning.</p> <p><u>County level</u> Sweden is also divided into 23 county council districts. They handle matters that are too comprehensive and costly for individual municipalities. Their main area of responsibility is medical and health care. Responsibility for public transport systems may be shared with municipalities.</p> <p><u>Local level</u> Sweden is divided into 289 municipalities. All municipalities are obliged to provide certain basic services, including education, nursery care, care of the elderly in the home, social welfare services and environmental and health protection measures. They may also run other businesses, like energy companies, should they wish to.</p> <p>The municipalities have a strong position and standing as a public body. Local autonomy has deep historical roots in Sweden. The responsibility of Swedish citizens for common issues has evolved over the centuries, and the municipalities have been given considerable local responsibility, based on their right to levy taxes.</p> <p>Often, official reports submitted by an inquiry commission precede the Government's legislative proposals. When such reports are circulated for consideration, the opinion of the municipalities carries great weight. Municipalities also initiate changes to or declare their opinion on proposals for changing rules and regulations. A good example in this context is the Swedish Association of Local Authorities Energy Policy Action Programme 1991. Five years later, in 1996, the energy market reform came into force and all the points included in the programme were implemented.</p>
The Netherlands	<p>The Netherlands is a unitary state administered by three levels of government : national, provinces and municipalities. To face difficult matters which cross borders, these have operated on a regional scale in some cases . The Since 1998 the Dutch Government has levied an <i>ecotax</i> on energy use (see below under Tax background).</p>
United Kingdom	<p>The United Kingdom was a unitary state with a devolved government in Northern Ireland. There were intermediate sub-regional authorities (counties), districts (which have the function of municipalities), and neighbourhood councils at the village level, called parish councils in England and Community Councils in Scotland and Wales. As is typical of British traditions, this has been changed piecemeal and the system is now confusing and not at all uniform.</p> <p>In recent years a devolved Parliament has been established in Scotland with law making and tax raising powers and an assembly without such powers in Wales, both restructurings being associated with the abolition of intermediate level authorities (regions in Scotland, counties in Wales). In these areas the devolved governments have responsibility for local authorities. Similarly intermediate level authorities have been abolished in</p>

	<p>the main metropolitan areas, but a new metropolitan structure with a Mayor has recently been reintroduced in London. There is pressure to bring in similar arrangements to Wales or Scotland in the English regions (based on the recently established advisory regional assemblies), possibly coupled with the abolition of the intermediate county authorities.</p> <p>In England, the government is represented by regional government offices. Government offices may express an opinion on the legality of local authority actions.</p> <p>Government influences local authorities by policy documents – circulars, planning policy guidance, regional planning guidelines etc. While in principle these are only advisory and only the legislation is mandatory, in practice local authorities take notice.</p> <p>In the final analysis however the degree to which local authorities have to follow government advice and or the opinion of Government offices is decided by the courts.</p>
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5.3 - What is the chain of authorisation and how much independence to local authorities have - a certain context may be necessary as regards the control of local authority expenditure by reference e.g. to government controls on spending

Austria	<p>Austria is a federal republic with nine states "<i>Bundesländer</i>". The Federal Constitution allocates responsibilities either to the federal level (e.g. energy taxation, energy statistics, energy metering, energy supply emergency regulations) or to both federal level and the level of the states (e.g. electricity, gas, district heating, energy conservation, subsidies, prohibition of nuclear power)⁵.</p> <p>Local authorities don't have legislative power. The executive organ is the mayor: Elected members decide on policy and on spending.</p>
France	<p>A Regional Chamber of Accounts monitors the management of local authorities and affiliated bodies.</p> <p>The State does not set a framework for local authorities' expenditure but will take over management of the commune in case of insolvency. A large part of the resources of local authorities comes from Government: The <i>Dotation globale de fonctionnement</i> (General Grant for Operation - DGF) and the <i>Dotation globale d'investissement</i> (General Grant for Investment) to which are added grants for specific purposes. It is more the benchmarking imposed by the press on tax levels that provides self-regulation of spending.</p> <p>In addition the staff are subject to the status as Local Civil Servants which sets a framework for salaries.</p> <p>There is a clear distinction between elected members and the paid staff, but nevertheless the Board of a local authority has executive functions as head of service and individual sections of the service.</p>
Spain	<p>The Spanish Government fixes the general structure of the municipal budget, but local authorities have the autonomy to establish local taxes, in accordance with the Spanish legislation on local finances.</p> <p>The municipalities have the following incomes: local taxes and contributions from the Central and Autonomous Governments.</p> <p>There is a Spanish Court of Accounts which controls the budgets and the economic management of local authorities</p>
Sweden	<p>Based on the principle of local autonomy or self-governance the municipality decides on its own budget with no national restrictions. However, the</p>

⁵ <http://www.un.org/esa/agenda21/natinfo/countr/austria/natur.htm#energy>

	national government demands that each local budget should be balanced. At the same time municipalities have to be fully compensated if the Government decides upon new obligations. To some extent, the Government may also influence local spending by virtue of the national tax equalization system or State grants within certain fields of action.
The Netherlands	Municipalities make their own yearly budgets resulting from a political process within the framework of national law and regulations. Within that framework they have a certain room for ' <i>plaatselijke verordeningen</i> ' (Local regulations). The income is a fixed budget (based on a national formula) and some local taxes (no local tax on energy).
United Kingdom	<p>The District Auditor is a government structure which monitors the legality and correctness of local authority spending. The Government imposes strict limits on local authority spending and has imposed a uniform business rate (property tax) and strict limits on capital spending and borrowing. A major part of local authority spending comes from Government grants – both general (Rate Support Grant) and individual grants for specific purposes.</p> <p>Local authority staff is employed on standard salary scales negotiated centrally with the local authority union (Unison). There is a nationally agreed scale of allowances for elected members.</p> <p>Elected members are not local authority employees (indeed the combination of the two functions is not permitted) and there is a clear distinction between the elected members, who decide on policy, and the paid service who provide advice and guidance. The paid service can make recommendations but the elected members must make the ultimate decisions on spending and policy including energy supply contracts via delegated powers. Recently the organisation of local authorities has been subject to review and authorities have introduced '<i>Cabinet</i>' style government rather than a committee structure previously favoured. Some authorities may introduce an Executive Mayor.</p>

5.4 - National regulatory organisations, agencies and similar organisations

Austria	<p>The Elektrizitäts-Control LTD has been established in parallel to the Federal Ministry for Economy and Labour to act as the regulator (see also under government ministries involved).</p> <p>For the execution of EIWOG (the principal law for the liberalisation process), each of the nine provinces has its own "execution law" ("<i>Ausführungsgesetz</i>"). These laws partly adapt EIWOG, and in part they have some scope to choose additional regulations which are either optional regulations from EIWOG or they are new regulations which are in addition to it.</p> <p>EVA (Austrian Energy Agency); members of the EVA include most of the provinces, the Republic of Austria, several Ministries and several associations of the energy sector. Association of electricity utilities and association of the gas companies, which are interest groups and have no regulatory power.</p>
France	<p>The Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME) is a public body under the aegis of the Ministers of the Environment, Industry and Research. It has particular responsibility for policy on rational use of energy and the promotion of renewable energy. (+ waste, air quality and noise). ADEME is represented in each Region and works with Regional Councils in some common projects through '<i>Contrats de Plan</i>'. ADEME provides advice and incentives to all the categories of consumers and manages projects to promote RES at local level.</p> <p><i>The Conseil supérieur du gaz et de l'électricité</i> is composed of representatives of different organisations and people (Parliament, the national administration, local authorities, consumers, the energy industries and their employees). Its – consultative - role is focused on the production of advice on different proposals, decrees, etc of the Government on both an obligatory and a voluntary basis. It has also a role in the regulation of conflicts, but,</p>

	<p>according to the general consensus on energy mentioned elsewhere, it is very rarely asked to fulfil this function.</p> <p>The regulation of the electricity market is supervised by the Commission for Electricity Regulation (CRE) like in almost all other countries. Its power will be enlarged to cover gas activities once the gas directive has been put into effect in national legislation.</p>
Spain	<p>The Instituto para la Diversificación y Ahorro de la Energía (IDAE) is a public body established in 1984 under the former Ministry of Industry and Energy (1977-2000). This Ministry disappeared in 2000. Now it is dependent on the Ministry of Science and Technology (Secretary of State for Science and Technology Policy).</p> <p>The <i>Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas</i> (CIEMAT) was set up following the reorganisation of the former "Junta de Energía Nuclear (JEN)". It is now under the jurisdiction of the Ministry of Science and Secretary of State for Science and Technology Policy).</p> <p>The Law 54/1997 on the Electric Energy Sector established that regulation of the electricity market was the responsibility of the "Comision Nacional del Sistema Electrico", but after the Law 34/1998 on the Hydrocarbons Sector it is the "Comision Nacional de Energia (CNE)" that has become the public body that regulates the energy systems in Spain. The CNE has two advisory bodies: the 'Consejo Consultivo de la Electricidad' and the 'Consejo Consultivo de Hidrocarburos'.</p> <p>The gas market is also regulated by the 'Comision Nacional de Energia'.</p>
Sweden	<p>The Swedish Energy Agency has the duty to implement the Swedish Government's policy of creating a long-term ecologically and economically sustainable energy system for the country. The Agency also regulates the energy market's remaining natural monopolies: the electricity transport grid, the local distribution networks and the natural gas distribution network. www.stem.se</p> <p>The Swedish Competition Authority's objective is to promote effective competition in the public and private sectors to the benefit of consumers. Naturally this also includes the energy market. www.kkv.se</p> <p>The Swedish Environmental Protection Agency's main tasks are to co-ordinate and promote environmental work at both national and international levels. www.internat.naturvardsverket.se</p> <p>The National Board of Housing Building and Planning is the national authority for social planning, city and town development, building and housing. They publish Building Regulations (BBR) and manage State grants for energy conservation in buildings. www.boverket.se</p> <p>Svenska Kraftnät is a utility which owns and operates the national electricity grid, comprising the country's 400 and 220 kV power lines, as well as transformer stations, international interconnectors and IT systems. The duties include the responsibility for the electricity system being in short-term balance, known as system responsibility. The objectives are; offering a reliable, efficient and environmentally-adapted transmission of power on the grid, promoting an open and competitive Nordic electricity market, exercising system responsibility cost-effectively and working for a robust and flexible electricity supply during times of crisis and war. Svenska Kraftnät owns Nord Pool - the Nordic power exchange - together with its Norwegian counterpart Statnett. www.svk.se</p> <p>The Swedish National Electrical Safety Board is the authority that maintains and develops the high level of electrical safety that has been achieved in Sweden. www.elsak.se</p>

<p>The Netherlands</p>	<p>TenneT: TSO NMa : <i>Nederlandse Mededingings autoriteit</i> (supervising authority ensuring free competition) DTe : <i>Dienst uitvoering en Toezicht Elektriciteitswet</i>. This is the regulator for electricity., a "chamber" of NMa Novem: <i>Nederlandse Onderneming voor Energie en Milieu</i> (Dutch Company for Energy and Environment). Carries out a major part of the national energy efficiency programme including support for municipalities. Now this is being reincorporated as a direct part of the civil service. Senter gives out subsidies. EG-Liaison: part of Senter, stimulates Dutch participation in European energy programmes. Syntens: regionally organised and focused on SME. Advises about energy efficiency since the end of the year 2000.</p> <p>A new study is planned to look at how the supervision of companies can be tightened and the Minister wants energy-suppliers to give more information about what exactly they are doing. For companies not achieving targets, he has already proposed a zero-tolerance policy. This is a direct break with the policy of the former government, which fell in June 2002 and It proves how sensitive an issue liberalisation is and how difficult the outcome is to predict.</p>
<p>United Kingdom</p>	<p>There is a combined regulator of Gas and Electricity (OFGEM) to supervise the operation of these markets and OFWAT for water. The Energy Technology Support Unit, established in the buildings of the former Atomic Energy Research Establishment (AERE) at Harwell, provides advice to the Government on energy matters. Other agencies , e.g. the Building Research Establishment, Watford; Transport Research Laboratory, Crowthorne, offer advice on other issues. These were formerly directly managed by government but have been "privatised" and work on the basis of recurring contracts. Countryside and landscape issues which relate to energy are considered by the Countryside Agency in England, the Countryside Council for Wales in Wales and Scottish Natural Heritage in Scotland. Consumer issues are handled by the Electricity and Gas Consumers Council. Funding for energy efficiency programmes is passed from both Government and private industry via the Energy Saving Trust. In addition the Carbon Trust receives money from the Climate Change levy which is used to fund projects to reduce "greenhouse" emissions, especially those promoting renewables.</p>

5.5 - Nationalised Industries

Austria	Nationalised energy industries do not exist anymore. The monopolies were substituted by a combination of public and private ownership. From both the „Verbund“ (national electricity wholesale company) and the Regional Energy Companies at least 51% stayed in public ownership. In 1998 EDF (El�lectricit� de France) buys 25% + 1 share of STEWEAG, the Styrian Utility. In 2001 RWE (Rheinisch Westf�lisches Elektrizit�tswerk - Germany) buys 49% of KELAG, the Carinthian Utility.
France	EDF : Electricit� de France GDF : Gaz de France CDF : Charbonnages de France CEA : Commissariat � l'�nergie Atomique
Spain	Empresa Nacional de Electricidad S.A. - ENDESA: This was formerly the National Electricity Company, now completely privatized. Compa�a Arrendataria del Monopolio del Petroleo S.A. - CAMPSA: This was formerly the nationally owned monopoly company responsible for selling oil products, now completely privatised. Instituto Nacional de Hidrocarburos - INH: This was jointly owned by different nationalised oil companies (exploration and production: INIEPSA and HISPANOIL, refining: PETROLIBER AND ENPETROL, sales: CAMPSA and gas companies: ENAGAS and BUTANO).
Sweden	Vattenfall is an energy company completely owned by the State. Vattenfall generates and supplies power and provides energy solutions to customers across Europe and the Nordic region.
The Netherlands	None
United Kingdom	Formerly the British electricity system was operated by the nationalised "Central Electricity Generating Board" plus regional, nationally owned distribution boards. These were privatised in 1990. British Petroleum was 49% owned by the Government (giving effective control) but always operated as a private company. This share has now been sold off. The nationalised coal industry was sold off in the early 1990s as sales collapsed. The gas industry was operated by British Gas and was privatised in 1986: There are therefore no nationalised industries left now in the UK. All the main energy companies have been privatised.

5.6 - National Private Companies in the field (including district heating and energy service companies where relevant)

Austria	There are no nationwide fully Private Companies in the energy field in Austria.
France	<p>Vivendi (ex- Générale des Eaux, energy subsidiary: Dalkia, which is now also a subsidiary of EDF) Suez (ex-Lyonnaise des Eaux – Dumez, energy subsidiary: : Elyo) These two companies has been acting as energy service companies for many years and decades without using the term "ESCO"</p> <p>EDF has created an energy service company (Cogetherm) and GDF also (Cofatech), as subsidiaries and EDF has a joint venture, Citélum, specialised in public lighting. Synerg (TPF) is a subsidiary of the <i>Caisse des Dépôts</i> (financial institution), specialised in the public sector, but not very active.</p>
Spain	<p><u>Electricity</u> Endesa, Iberdrola, Union Fenosa, Hidrocanabrico, Viesgo and many other independent companies. Red Eléctrica de España S.A - operating the Spanish National Grid:</p> <p><u>Gas</u> Gas Natural</p>
Sweden	Fortum, Sydkraft, Graninge and Skelleftea Kraft constitute the largest private energy companies. Together with Vattenfall they account for more than 90% of the power generation in Sweden.
The Netherlands	<p>Four electricity power companies Mainly regional energy companies Gasunie Triodos Bank is a private bank offering special rates for green energy projects, especially renewables.</p>
United Kingdom	<p><u>Electricity</u> National Power, Powergen, British Energy, National Grid Company plus many other independents. A number of international companies have bought into regional distribution companies and are widening their interest (e.g. the ill-fated Enron, EDF).</p> <p><u>Gas</u> British Gas, Centrica and independents</p>

5.7 - National Local Authority Organisations in the energy field

Austria	There is no national local authority organisations specialising in energy. However, the Association of Austrian Cities (Österreichischer Städtebund) has a working group on energy, which meets twice a year. The “Climate Alliance”, which is a European wide organization, has around 100 member communities in Austria. In Styria there exists an association of local utilities.
France	FNCCR : Federation of local authorities granting concessions and régies ANROC : National Association of Régies AMORCE : Association of local authorities and professionals promoting district heating and reuse of waste. Energie-Cités : European association of local authorities also quite active among French authorities.
Spain	There is no local authority organisation in existence specialising in the energy field. But a network of municipalities in the Barcelona province (Xarxa de Ciutats i Pobles cap a la Sostenibilitat) was created in 1997 under the stimulus of the ‘Diputacio de Barcelona’ (province government), which has an energy service to provide support to municipalities. More recently, some other provincial Governments (‘Diputaciones Provinciales’), have created Energy Agencies under the SAVE Programme: <ul style="list-style-type: none"> - Agencia de Energía de la Diputación Provincial de Badajoz - Agencia de Energía de la Diputación Provincial de Granada - Agencia de Energía de la Diputación Provincial de Huelva - AGENER – Agencia Gestión Energética Provincia de Jaén - APET – Agencia Provincial de Energía de Toledo - RENERGY – Agencia de la Diputación de Valencia - Also some local energy agencies have been created under the SAVE Programme: - Barcelona: BarnaGEL – Barcelona Grup d’Energia Local - Cabildo Insular de La Palma: Agencia de Energía - Ecija: Agencia de Gestión Energética de Ecija - Maresme: Agencia Comarcal d’Energia - Pamplona: Agencia Energética de Pamplona - Pirineu: Agencia d’Energia del Pirineu - Ribera Alta: Agencia de la Energía de la Ribera Alta de Valencia - Sevilla: Agencia Local de la Energía de Sevilla - Tarragona: Tarraco Energia Local - Valladolid: AEMVA – Agencia Energética Municipal de Valladolid - Valle del Nalón: ENERNALON - Agencia Local de Energía del Valle del Nalón <p>There are some other local energy agencies created outside the SAVE Programme.</p>
Sweden	There are no National Local Authority Organisations specifically in the energy field.
The Netherlands	VNG: Vereniging Nederlandse Gemeenten (Association of Dutch municipalities), Inter Municipality Consultation (on voluntary base) Some Local Agencies (e.g.: Zoetermeer, Delft, Geleen, Amersfoort; Arnhem/Apeldoorn were closed).
United Kingdom	There are loose networks coordinated by the Energy Saving Trust funded organisations e.g. Sharefairs. There is a reliance on e-mail and discussion fora plus infrequent meetings.

5.8 - General Local Authority Organisations

Austria	Association of Austrian Cities and Towns (Städtebund) Association of Austrian Municipalities (Gemeindebund)
France	AMGVF : Association of Mayors of the large towns of France AMF : Association of French Mayors Neither very involved in energy matters.
Spain	AEMP: Asociación Española de Municipios y Provincias Not very involved in energy matters.
Sweden	The Swedish Association of Local Authorities (SALA) represents all 289 municipal authorities in Sweden. Its main aims are to: Support and develop the system of local self-government Defend local authorities' interests Promote co-operation between local authorities Assist local authorities through service and expert advice Energy and environment are examples of many issues dealt with by SALA. . www.svekom.se
The Netherlands	VNG: Vereniging Nederlandse Gemeenten (Association of Dutch municipalities)
United Kingdom	LGA: Local Government Association. This has unified all the former local government associations in one body. There are a number of buying consortia such as CBC, LASER, etc There are separate organisations in Wales and Scotland.

5.9 - Professional Associations or Institutes

Austria	There exist quite a few associations and institutes, dealing with energy issues, on the regional level or as part of universities. Especially in the field of renewable energies there are also nationwide associations like the association for renewable energies, Austria Solar, the biomass association etc.
France	AIVF : <i>Association des Ingénieurs des Villes de France</i> , which has a very dynamic energy group
Spain	Instituto de Ingenieros de España' which has an Energy Commission. "AEIC - Associació d'Enginyers Industrials de Catalunya" which has had an Energy Commission since 1979 which has organised an "Energy Forum of Barcelona" event seven times since that date.
Sweden	Swedenergy (Svensk Energi) is the trade and interest organization of electricity companies in Sweden (production, network and trading companies). www.svenskenergi.se The Swedish District Heating Association (Fjärrvärmeföreningen) is the trade and interest organization of district heating and CHP companies in Sweden. www.fjarrvarme.org The Swedish Gas Association (Svenska Gasföreningen) is the trade and interest organization of gas companies in Sweden. www.gasforeningen.se The Swedish BioEnergy Association (SVEBIO) is the common trade and interest organization of the stakeholders in the Swedish bioenergy market (companies, authorities, organisations and private persons). www.svebio.se The Swedish Association of Energy Advisers (Energirådgivarna) is the interest organization of people dealing with demand side energy efficiency and energy conservation activities. www.energiradgivarna.com
The Netherlands	KIVI: Koninklijk Instituut voor Ingenieurs RVOI: Consultant Organization TVVL: Association of Energy Management Ned. Ver. van Krachtwerktuigen.
United Kingdom	Relevant professional associations include the Institute of Energy (wide ranging, not simply local authority) , the Institution of Lighting Engineers (Public lighting – almost exclusively local authority), the Royal Town Planning Institute etc. Professional associations play a significant role in the UK.

5.10 - Other Associations

Austria	Several environmental action groups and associations in the field of environment and economic development.
France	CLER : Liaison Committee for Renewable Energy which is a federation of local and regional associations.
Spain	<ul style="list-style-type: none"> - "GCTPFNN – Grup de Científics i Tècnics per un Futur No Nuclear" (Scientists and Technicians for a Non Nuclear Future): created in the early eighties in Barcelona as a expert branch of the antinuclear movement in Catalonia. It has organised the Catalonian Conference for a Future Without Nuclear Power since 1987, and since 1995 this has been renamed as the Catalonian Conference for a Sustainable Energy Future Without Nuclear Power - EUROSOLAR España: founded in the year 2000 as the Spanish branch of Eurosolar – European Association for Renewable Energies. - ISES España: Spanish Branch of the International Solar Energy Society - Greenpeace España: organises campaigns around energy issues - ATECYR: Asociación Técnica Española de Climatización y Refrigeración - COGEN España : founded in 2001 as a Spanish branch on COGEN Europe
Sweden	Several consumer organizations may have a certain impact on the energy market. For instance, every year a group consisting of the largest housing organizations, thus representing the demand side, publishes statistics and figures on housing costs, including energy costs, for municipalities all over Sweden. The report is named the Nils Holgersson survey and it gets considerable attention in media when published. www.nilsholgersson.nu
The Netherlands	<p>SEP: Co-operating Electricity Producing Companies. Since Jan. 2001 they have been given the responsibility in the Dutch electricity administration office to conclude the SEP activities</p> <p><i>EnergieNed</i> : Trade organisation for distributing companies</p> <p>Interest groups like the <i>Consumentenbond</i> (Consumer's association).</p> <p>Trade organisations like the Horticultural Products Development Association for horticulture which are funded by Novem to promote energy efficiency.</p> <p>Action groups like Greenpeace⁶, WNF and Global Action Plan (formation of ecoteams).</p>
United Kingdom	<p>The Electricity Association is the trade association representing the Electricity Industry.</p> <p>ACE - The Association for the Conservation of Energy promotes energy efficiency and sustainable energy policy</p> <p>The Consumer's Association - has run a campaign to encourage people to switch to a better "deal" and complaining about improper selling tactics by energy companies.</p> <p>There are numerous other environmental action groups such as Greenpeace.</p>

⁶ These can even be players in the market, e.g. if they offer green electricity, like Greenpeace planned to do for a while.

6 - Regional Organisations

Austria	There are about 13 regional energy agencies (some of them owned by the municipalities), including several provincial energy saving organisations. In most of the nine provinces (Lander) there also exists an energy commissioner.
France	Regional energy agencies in 45 regions (Rhone-Alpes, PACA, Poitou-Charentes, Midi-Pyrénées) – members of a network : RARE. But a recent process affecting subsidiary bodies of regional authorities is on the way which will re-internalise the external staff in the regional administration. In addition, ADEME is represented in each region (see above).
Spain	There are some Regional Energy Agencies in the different Autonomous Communities: <ul style="list-style-type: none"> - Andalucía: SODEAN – Sociedad para el Desarrollo Energético de Andalucía S.A. - Asturias: ASTURENER – Ente Asturiano de la Energía - Castilla y León: EREN – Ente Regional de la Energía de Castilla y León. - Castilla – La Mancha: AGECAM – Agencia Gestión Energía Castilla – La Mancha - Catalunya: ICAEN – Institut Català d’Energia - Comunidad Autónoma de Madrid: Agencia Regional de Energía - Comunidad Autónoma de Murcia: Agencia Regional de Energía - Galicia: GESTENGA – Gestión Energética de Galicia S.A. - Galicia: INEGA – Instituto Energético de Galicia - Islas Baleares: Agencia Regional d’Energia de les Illes Balears - Islas Canarias: ITER – Instituto Tecnológico y de Energías Renovables S.A. - País Vasco: EVE – Ente Vasco de la Energía - Valencia: IMPIVA
Sweden	There are a few regional energy supply organisations, e.g. Dalakraft. On the demand side Sweden has a dozen Regional Energy Agencies.
The Netherlands	Only a few (mainly based on a co-operation between municipalities on environmental matters)
United Kingdom	There are a few regional agencies such as GLEEN.

7 - Taxes on energy

Austria	VAT is 20%, the normal rate. In addition there is an obligatory levy of 1.5 Cent per kWh for electricity and 4.4 Cents per m ³ for gas.																																																																																			
France	VAT is at 19.6%, the normal rate, apart from the fixed charges for gas and electricity for private households where it is reduced to 5.5%. District heating networks do not benefit from this reduction which creates a distortion of competition. The reason invoked is that European law does not cite heat. Nevertheless a complaint has been made by the Commission against the reduced rate because one product cannot be taxed at two different rates. A draft law designed to tax intermediate consumption of energy by businesses (General tax on polluting activities –TGAP) failed to get approved in 2001. There are no specific energy or CO ₂ taxes apart from oil duties.																																																																																			
Spain	VAT is charged on energy at the standard national rate of 16%. There is also a special tax of 4.864%, since January 1 st . 1998, on electricity but this is a pure tax, related not to the concept of Ecotax but to the coal Industry reconversion costs and to the stranded costs (STC).																																																																																			
Sweden	<p>There are the following Swedish taxes on energy and the environment:</p> <ul style="list-style-type: none"> - A specific energy tax - A CO₂ tax - An SO₂ tax - An NO_x tax - VAT <p>The tax amounts below are converted to Eurocents/kWh (1 EURO = 9,3 SEK and 1 EURO = 1 USD)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Industry</th> <th>Specific energy tax</th> <th>CO₂ tax</th> <th>SO₂ tax</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Coal (0,5% S)</td> <td>0</td> <td>0,67</td> <td>0,21</td> <td>0,88</td> </tr> <tr> <td>Heavy fuel oil (0,8% S)</td> <td>0</td> <td>0,58</td> <td>0,12</td> <td>0,70</td> </tr> <tr> <td>Gas oil (< 0,1% S)</td> <td>0</td> <td>0,59</td> <td></td> <td>0,59</td> </tr> <tr> <td>LPG</td> <td>0</td> <td>0,48</td> <td></td> <td>0,48</td> </tr> <tr> <td>Natural gas</td> <td>0</td> <td>0,40</td> <td></td> <td>0,40</td> </tr> <tr> <td>Electricity</td> <td>0</td> <td></td> <td></td> <td>0</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Others</th> <th>Specific energy tax</th> <th>CO₂ tax</th> <th>SO₂ tax</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Coal (0,5% S)</td> <td>0,43</td> <td>2,23</td> <td>0,21</td> <td>2,87</td> </tr> <tr> <td>Heavy fuel oil (0,8% S)</td> <td>0,77</td> <td>1,95</td> <td>0,12</td> <td>2,84</td> </tr> <tr> <td>Gas oil (< 0,1% S)</td> <td>0,77</td> <td>1,96</td> <td></td> <td>2,73</td> </tr> <tr> <td>LPG</td> <td>0,12</td> <td>1,59</td> <td></td> <td>1,71</td> </tr> <tr> <td>Natural gas</td> <td>0,23</td> <td>1,33</td> <td></td> <td>1,56</td> </tr> <tr> <td>Electricity</td> <td>2,03</td> <td></td> <td></td> <td>2,03</td> </tr> <tr> <td>Electricity North Sweden</td> <td>1,51</td> <td></td> <td></td> <td>1,87</td> </tr> <tr> <td>Electricity in DH plants</td> <td>1,87</td> <td></td> <td></td> <td>1,51</td> </tr> </tbody> </table>				Industry	Specific energy tax	CO ₂ tax	SO ₂ tax	Total	Coal (0,5% S)	0	0,67	0,21	0,88	Heavy fuel oil (0,8% S)	0	0,58	0,12	0,70	Gas oil (< 0,1% S)	0	0,59		0,59	LPG	0	0,48		0,48	Natural gas	0	0,40		0,40	Electricity	0			0	Others	Specific energy tax	CO ₂ tax	SO ₂ tax	Total	Coal (0,5% S)	0,43	2,23	0,21	2,87	Heavy fuel oil (0,8% S)	0,77	1,95	0,12	2,84	Gas oil (< 0,1% S)	0,77	1,96		2,73	LPG	0,12	1,59		1,71	Natural gas	0,23	1,33		1,56	Electricity	2,03			2,03	Electricity North Sweden	1,51			1,87	Electricity in DH plants	1,87			1,51
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	<p>Bio energy and other RES are free from a specific energy tax or CO₂ tax.</p> <p>The NO_x tax works within a closed system, i.e. all NO_x tax payments go to a fund, which is then redistributed among the payers according to their "useful" energy production (= after losses). Winners are those with a NO_x emission lower than average. Thus the others are losers.</p> <p>VAT is 25 %.</p> <p>In many people's opinion the taxation on thermal power, i.e. condensing power vs. CHP, is currently somewhat absurd. There are no taxes on condensing power generation (owing to imported thermal power as a competitive alternative). However, if the steam left after power generation is exploited as a useful heat source, for instance supplying a district heating system, the taxes above are levied on that heating part of the energy production. The rules will be changed next year in favour of CHP.</p>
The Netherlands	<p>VAT or taxes in general: the Dutch government wants to 'green' the tax system. It means more taxes would be raised for raw materials and products and less taxes for labour. The only visible action till now is the ecotax.</p> <p><i>REB</i>: Regulating Energy Tax (<i>Ecotax</i>). A levy on energy prices for private persons and medium users. This levy is mainly used to lower expenditure on wages. A smaller part will be used to replace the abandoned MAP-tax through the Energy premium arrangement Green electricity is exempt from the Ecotax.</p> <p>A levy has been placed on coal to discourage its use for electricity production.</p> <p>The Energy premium arrangement has been established to recycle 15% of the Ecotax to households. Private persons can receive a premium if they purchase energy efficient apparatus or implement energy saving measures.</p>
United Kingdom	<p>VAT – for many years energy was zero rated. Now it is taxed at the national standard rate of 17.5%</p> <p>A Climate Change levy was introduced in April 2001 at a rate of £0.0096/kg on oil products £0.0015/kWh on gas, £0.0043/kWh on electricity and £0.0117 on other "taxable products" including coal,. Renewable energy and part of CHP generation is exempt.</p> <p>Fuel duty is applied to motor fuel and has been raised faster than inflation in recent years as a deliberate disincentive. Following user protests, these increases have been halted.</p>

7.1 - Local Taxes on Energy

Austria	The "ELWOG execution laws" (" <i>Ausführungsgesetze</i> ") offer the possibility to levy a " <i>Benutzungsabgabe</i> ", a user tax for occupying public domain. The level of the " <i>Benutzungsabgabe</i> " varies by region. For Vienna it is e.g. 0,65 Cents per kWh. An obligatory levy is made for eco-energy and CHP which depends on the " <i>Ausführungsgesetze</i> " of the provinces. Whether it is levied and its level is therefore different in each of the provinces.???
France	There are local taxes on electricity. The income is not allocated to any particular use and goes into the general budget. The maximum rate allowed is 8% for communes and 4% for departments, i.e. 12% in total, a level generally levied.
Spain	There are no local taxes on energy
Sweden	None
The Netherlands	None
United Kingdom	There are no local taxes on energy

7.2 - Obligations

Austria	<p>There is an obligation to include a proportion of "new" renewable energy in the public supply.</p> <p>Definition: "New" renewable energy consists of electricity made out of biomass, wind power, landfill gas, biogas, PV, the renewable fraction of waste processed in incineration plants and small hydro power plants up to 10 MW (in contrast to larger hydro power plants, which, due to their long standing establishment, do not need specific support).</p> <p>The following targets will have to be met for the share of new renewable energy in the supply system and the associated elements of the regional grids:</p> <ul style="list-style-type: none"> - October 2001 at least 1% - October 2003 at least 2% - October 2005 at least 3% - October 2007 at least 4% <p>If the targets are not achieved the "owner" of the regional grid has to pay a fine (which is in turn added to the grid tariffs paid by the customers), which is then used to support renewable energy.</p> <p>For small scale hydro power (< 10 MW), a target of 8% of the delivered electricity must be met. This is handled by tradable certificates.</p> <p>For electricity from new renewable sources of energy and from CHP, fixed (and higher) prices are to be paid by the distribution companies to the producers. The level of these "feed in tariffs" depends again on the execution laws ("<i>Ausführungsgesetze</i>") in the Lander and therefore these tariffs vary from province to province.</p>
France	There are none apart from diverse regulations on energy. e.g. Consumers with a consumption of over 300TEP/year need advance approval before changing their energy source and have to make an energy audit periodically.
Spain	There are no obligations to notify changes of energy source.

Sweden	None today. Next year a quota based system of green electricity certificates will come in force.
The Netherlands	<p>The electricity suppliers signed a contract for 2010/2020 with an obligation to supply a certain amount of renewable energy (sun/wind and biomass). There are many provincial and local plans, concerning energy-saving and renewable energy</p> <p>At national level an agreement was prepared by NOVEM and signed in February 2002 to stimulate and support (financially) local energy saving plans on three levels ("active", "going in front" and "innovative"). The target groups are: Environmental planning; municipal buildings; housing (new built and existing); agriculture; business; transport; sustainable energy and international)</p> <p>Parties involved:</p> <ul style="list-style-type: none"> - VNG, (Association of Dutch Municipalities) - Provinces - The Ministries of Economic Affairs (EZ), Agriculture (LNV), Housing and spatial planning (VROM) and Transport (V&W).
United Kingdom	There are no obligations to notify changes of energy. Landlords must inspect gas installations for safety once a year, otherwise there are no requirements as to inspections of boilers. Investment in large new generating plant is subject to authorisation and the attitude to investment in new CCGT plant has changed cyclically. It is also necessary to obtain planning permission from the local authority for new generating plant and mineral workings (Ministry of Energy for large installations). Unlike other European countries, the zoning plan has not the force of law, and local authorities must make their own decision which has created real problems for renewable plant such as wind turbines. Offshore plant requires authorisation from the Crown Estates Commissioners. No local authority in any case has identified definitely agreed sites for new energy investment in their planning documents – this is far too contentious. These are comparable to gypsy sites, rubbish tips and mobile phone masts in their controversial nature.

7.3 - Voluntary levies etc.

Austria	Not applicable
France	None
Spain	There is a levy to cover permanent costs (extra-peninsular compensation, system operator, market operator, National Commission on Energy, stranded costs) and the costs of diversification and security of supply (nuclear moratorium, uranium basic stock, second part of nuclear fuel cycle, compensation for being able to interrupt supply, buying energy on the special regime). In the first year of liberalisation (1998) the levy was fixed at 6.207% or 9.663% depending if electricity user was in tariff or in the free market. The second year (1999) was fixed at 10,123% and 20,714%. These levies are charged to the tariff or to the toll.
Sweden	None
The Netherlands	None
United Kingdom	A voluntary levy was made to cover stranded costs of nuclear and renewables but this has declined to zero.

8 - Who is responsible for

8.1 - Electricity

8.1.1 - Production

In the early 1990s	Austria	In all 80% of electricity was generated by the 15 major utilities, i.e. the Verbundgesellschaft(which produced about 50% of total energy ⁷), the nine provincial utilities (BEWAG, EVN, ESTAG, Energie AG, KELAG, SAFE, TIWAG, VKW, Wienstrom) and five municipal utilities. The remaining 20% was generated by more than 200 small, local often private generation companies. Electricity production in Austria was based on approximately 70% hydro-electric and 30% thermal plants. In summer, Austria produced enough hydropower electricity to cover domestic demand. Environmentally driven substitution agreements between Verbundgesellschaft and the RECs, but also very low electricity prices in summer. ⁸
	France	Virtually all the production (95%) comes from EDF. (Other producers include the SNET which belongs to SNCF (French Railways), Compagnie Nationale de Rhone (CNR) which has been transformed into Energie-du Rhône, a joint venture with Electrabel, and independent producers including municipal enterprises. There was a provision giving certain preference to cogeneration during the period 1997-2000.
	Spain	The major part of the generation was carried out by the companies forming part of UNESA : Iberdrola, Endesa. Unión Eléctrica Fenosa, Cia. Sevillana de Electricidad, Fuerzas Eléctricas de Cataluña, E.N.Hidroeléctrica del Ribagorzana, Hidroeléctrica del Cantábrico, Electra de Viesgo, Hidroeléctrica de Cataluña, Unión Eléctrica de Canarias, Gas y Electricidad, Eléctricas Reunidas de Zaragoza, E.N.Eléctric a de Córdoba, Saltos del Guadiana. These companies had 91% of the Spanish capacity (92% Hydro, 84% thermal, 100% nuclear) and generated 88% of all Spanish electricity (89% hydro, 81% thermal, 100% nuclear). The remaining electricity was generated by small companies and, after 1982, by industrial cogeneration systems. In the years 1996 and 1997, 8.7 and 10% respectively of Spanish electricity was generated by facilities falling under the "special regime".
	Sweden	Seven large power companies accounted for 90 to 95 % of the electricity production. The market was a vertical monopoly, as the grid and networks (in the middle of the distribution chain) were and still are natural monopolies. Furthermore the production companies co-operated within a special co-ordination board with the object of optimising national electricity production.
	The Netherlands	Four main 4 electricity production companies: EPON, EPZ, EZH and UNA.
	United Kingdom	There were three main private companies in England formed from the privatisation of the former Central Electricity Generating Board – National Power, Powergen and Nuclear Electric. A number of private suppliers, including some municipal. had already started to enter the market.

⁷ Vgl. Vorbach (2000), S. 7

⁸ http://europe.eu.int/comm/energy/en/elec_single_market/implementation/implau.pdf

		Two vertically integrated companies existed in Scotland after liberalisation and one vertically integrated operator in Northern Ireland. Please note that Guernsey, Jersey and Isle of Man are not part of the UK and have their own arrangements
Currently	Austria	Currently: no noticeable change; except that everybody can in principle produce energy. The regional electricity distributors have now the obligation to buy electricity made out of renewables and energy made out of CHP; the prices of the energy made out of renewables and CHP differ between the nine austrian provinces because it is fixed by the Landeshauptmann of each province (head of the province). Secondly it's important to see that, because of the liberalisation and the break up of the monopolies, imports of cheap electricity are increasing.
	France	No noticeable change from a quantitative point of view. Nevertheless, as a result of the preference given to cogeneration, large units have been constructed and are under construction. These are owned by Dalkia (Vivendi), Elyo (Lyonnaise-Suez), Air Liquide, Cogetherm (a subsidiary of EDF) and GDF. (GDF becoming for the first time a co-producer of electricity at the 700MW plant at Usinor, Dunkerque). Enterprises which are considering generating using renewables and cogeneration are waiting for the decrees fixing the electricity purchase tariffs to be published.
	Spain	The major part of generation is carried out by companies associated in the UNESA group : Endesa, Iberdrola, Union Fenosa, Hidrocantabrico and Viesgo (ENEL). The remainder is a not so small number of small companies grouped into two associations : A.A.E.E. and A.P.P.A. Renewable Energy Sources, especially wind, have experienced a spectacular growth during the last few years, mainly following the Law on the Electric Sector which regulates the generation of electricity under the "Special Regime". In the year 2000, the special regime facilities generated 13.6% of all the Spanish electricity demand. The electricity sold to the grid by auto-producers has increased from 376 GWh/year (1990) to 24,182 GWh (1999). At the end of 2001 there are is huge amount of combined cycle power capacity in different stages of development (79 units totalling 31,860 MW), pushed by the UNESA companies but also by new players as Gas Natural, Repsol, BP Amoco, etc. During 1999, two new players, Electrabel and EDF, started selling electricity and one more, REN, buying and selling. Also in 1999, the Spanish Ministry of Industry and Energy authorised the operation of 5 new players : ONE, ATEL, TXU Europa, ENRON Gas and ENRON Energie but they didn't either buy or sell electricity.
	Sweden	The vertical monopolies are now abolished. The issue today is whether the electricity production market is tending to introduce horizontal monopolies. The five largest power companies (Vattenfall, Fortum, Sydkraft, Graninge and Skellefte Kraft) account for more than 90% of the domestic electricity production. Apprehensions have been expressed that such a small number of key players will not be "price-takers" in a competitive market. However, the electricity price determination takes place on Nord Pool, the Nordic Power Exchange, which embrace production and trading in Norway, Sweden, Finland, Denmark and even other parts of northern Europe as well. A recent official inquiry has concluded that so far there is no evidence to be found of attempts at manipulating the market.

	The Netherlands	Mainly foreign companies (take-overs + importation). The four Dutch electricity producers received payments from the national government to compensate for their "stranded" investments, for example a research plant for coal gasification and several co-generation plant, which they expected to be unable to recover in the liberalised market. This freed the government from long-term lawsuits. At present about 40% of electricity-production in the Netherlands comes from CHP-installations (compared with the E.U. average of 15%). Dutch policy designed to promote such technologies is based on the efficiency of the powerplant (the so-called Senter-efficiency, being at least 60% for existing plant and 65% for new plant). The Dutch CHP-industry is strongly against the CHP-directive proposed by Brussels which proposes to provide support for plant based on its electrical 50 MWe capacity rather than its efficiency. The latter is, in their opinion, a far better criterion.
	United Kingdom	The entry of small players in the market has been hindered by the regulatory framework effectively established by the main players but nevertheless a number of individual suppliers are involved – particularly for small cogeneration and wind power. Otherwise no major change, the liberalised framework already having been in place in the early 1990s

8.1.2 - Transport

In the early 1990s	Austria	All transport of electricity was carried out by the national company " <i>Verbundgesellschaft</i> ".
	France	All transport (RAG - Réseau d'Alimentation Générale) is carried out by EDF as part of a national concession. In 1998 the State transferred the ownership of the transport network to EDF.
	Spain	The totality of electricity transport was carried out by R.E.E. – red Eléctrica Española S.A., a company created in 1985 to operate the electric system and to manage the electricity transport network. Different electricity companies owned REE in the following proportions: Endesa: 64.8 %, Iberdrola: 27.3%, Union Fenosa: 6.5%, Hidrocantabrico 0.4%, SEPI - Sociedad Estatal de Participaciones Industriales: 1 % The transport and distribution losses of the Spanish electricity system (year 2000) were 16,970 GWh (7.9%)
	Sweden	Vattenfall was in charge of the national grid until it was transformed from a Civil Service body to a State-owned limited company. Thus Svenska Kraftnät was established and made responsible for the national grid.
	The Netherlands	The high voltage grid was in the hands of the four national electricity producers: EPZ, EZH, EPON and UNA. As the regional authorities (the provinces) had a share in these companies, they were in effect semi-public. The companies were united in the SEP organisation (Co-operating Electricity Producing companies) and had an agreement with the national authority. Every two years an electricity plan was prepared which outlined the amount of power to be produced and the planned input of fuel.
	United Kingdom	Originally part of the Central Electricity Generating Board under nationalisation, it was privatised into the National Grid Company which is owned by a consortium of the major producers..
Currently	Austria	A new company has been formed as a daughter company of Verbundgesellschaft, which is now responsible for supraregional and international transport.

	France	The Transmission of electricity is now the responsibility of RTE (Réseau de Transport d'Electricité) which is a separate – and independent – department of EDF.
	Spain	The totality of electricity transport is carried out by R.E.E. – Red Eléctrica de España S.A. The ownership of R.E.E. has now been restructured and shares have been sold off. The shares in the company are now held in the following proportions: Endesa: 10 %, Iberdrola: 10%, Union Fenosa: 10%, Hidrocanabrico 10%, SEPI - Sociedad Estatal de Participaciones Industriales: 28.5 %, Free Float: 31.5 %. R.E.E. has (year 2000) 19,014 km of high voltage lines: 14,659 km (400 kV), 4,280 km (220 kV), 75 km (110 kV or less) More than 12,000 km of high voltage lines (220 kV) are owned by the distribution companies (at least 75% of the total).
	Sweden	Svenska Kraftnät owns and operates the national grid, including system responsibility, i.e. keeping the electricity system in short-term balance.
	The Netherlands	TenneT – the Transitional System Operator, is 100 % state owned. Initially the national government planned to privatise the high voltage grid. However they increased their share to 100% for a couple of years at the request of Parliament which wished to ensure the secure transport and delivery of electricity via a high quality high voltage grid. The future goal remains privatisation. A supervising authority, Dienst Toezicht Elektriciteitswet (<i>DTe</i>), has been established for full liberalisation. This organisation will, in co-operation with the Nederlandse Mededingingsautoriteit (<i>NMa</i> , the supervising authority for free competition between enterprises), regulate the accessibility of the electricity grids, the transport rates and secure the provision of energy to the consumers. The supervising authority may force the owners of the grid to improve the quality and capacity of the grid. A series of codes have been drawn up to govern supply including one affecting the grid.
	United Kingdom	No change

8.1.3 - Distribution

In the early 1990s	Austria	Austria's grid is divided into many regional monopolies. The regional electricity distributors who are the „owner“ of the regional grid have the distribution monopoly.
	France	Nearly all the distribution is carried out by EDF apart from the 5% carried out by the Non Nationalised Distributors (DNN), which are local distribution companies. There are joint Distribution Centres for EDF and GDF which are responsible for distribution in the framework of the concession contracts with municipalities or groups of municipalities.
	Spain	In the main part, electricity distribution was carried out by companies that were members of UNESA : Iberdrola, Endesa, Unión Eléctrica Fenosa, Cia. Sevillana de Electricidad, Fuerzas Eléctricas de Cataluña, E.N.Hidroeléctrica del Ribagorzana, Hidroeléctrica del Cantábrico, Electra de Viesgo, Hidroeléctrica de Cataluña, Unión Eléctrica de Canarias, Gas y Electricidad, Eléctricas reunidas de Zaragoza, E.N.Eléctrica de Córdoba, Saltos del Guadiana. The remaining electricity distribution was carried out by small distributors, many of them still existing at the present day.

	Sweden	<p>Four different owner categories operated as local distributors: State-owned Vattenfall, municipalities, private owners and co-operatives. About 150 municipalities managed their own distribution.</p> <p>Several companies or co-ops have been sold during the 90s. About 50 municipal networks have changed hands. Some of the largest cities that used to have their own energy company and which were also major shareholders within the power industry have wound up their interests in the business. In most cases the big power companies are the buyers.</p>
	The Netherlands	<p>Individual companies owned the low tension grid networks - There was a conscious desire to avoid monopolistic distribution companies. There were individual monopoly companies organised on a regional basis which largely owned the low voltage grids. These companies bought energy from the electricity generating companies, distributed it and sold it on to the medium and small customers. Local and regional authorities were shareholders of most of the regional energy distributors.</p>
	United Kingdom	<p>Distribution in England and Wales is managed by regional distribution companies (effectively monopolies). Many have been purchased by foreign (particularly American) companies and there have been mergers. In Scotland and Northern Ireland the system is managed by vertically integrated companies managing production and distribution.</p>
Currently	Austria	<p>The distribution networks remain natural monopolies with fixed tariffs. Network access has to be guaranteed for new suppliers.</p>
	France	<p>No change.</p> <p>The function of Manager of the Distribution Network (GRD) is carried out by EDF and the DNN.</p> <p>However the law, in contrast to the Manager of the Transport Network (GRT), does not identify any difference between local transport and supply. The law should be seen in the context of limited eligibility and has not considered that low and medium voltage clients could be eligible.</p>
	Spain	<p>The major part of electricity distribution is carried out by companies that are members of UNESA : Endesa, Iberdrola, Union Fenosa, Hidrocanabrico, Viesgo (ENEL).</p> <p>The remainder of the electricity distribution is carried out by small distributors, grouped into two associations : ASEME and CIDE. ASEME includes 46 small distributors, with 550.000 supply contracts affecting 1.5 million people, and selling 2,400 GWh in 2001</p>
	Sweden	<p>The selling trend still remains but has slowed down a bit recent years.</p>
	The Netherlands	<p>Distributors have to request for a licence to deliver to captive energy users which will be valid until the market is liberalised for these users. The distributors are obliged to supply energy to users in their licensed area. Every year, the Minister of Economic Affairs establishes the maximum energy rates for small and medium consumers, but energy companies can propose lower prices.</p> <p>Following the introduction of unbundling, most local energy distributors have enlarged their companies or have been sold. At the time of writing there are 13 distributors in total in the Netherlands including three large regional energy distributors and a few small local energy distributors (mostly for gas). There are 21 network companies left.</p> <p>An increasing number of local authorities are selling their share in the energy companies since they are considered an unsafe investment. In addition the companies now operate outside the administrative borders within which the municipality can be held (politically) responsible.</p> <p>The law no longer permits distributors to own low voltage grids. In practice distributors simply create separate holdings for this purpose. Consequently grids are sold along with the distribution companies. Parliament expressed concern about this, especially in regard to those cases where the companies are sold into foreign hands and they wanted more secure supervision. The minister responsible and the companies themselves argued that the grid is too large a part of the capital to separate. If it were to be illegal to</p>

		sell grids as well as the distribution companies, Dutch companies would not be able to survive the changes in the European market. The compromise achieved in April 2001 is that the legal ownership will remain in the hands of local and regional authorities, but the economic ownership will be in the hands of the network companies. The codes referred to above concern the operation of and connections to the network and continuity of supply.
	United Kingdom	The situation is still in a state of flux , but seems to be consolidating. Some companies have now been resold to UK interests.

8.1.4 - Sales

In the early 1990s	Austria	Only the regional monopolies had the right to sell energy.
	France	All sales were carried out by EDF and those non nationalised distributors who have that right.
	Spain	The major part of sales were carried out by companies associated in the UNESA group: Iberdrola, Endesa, Unión Eléctrica Fenosa, Cia. Sevillana de Electricidad, Fuerzas Eléctricas de Cataluña, E.N.Hidroeléctrica del Ribagorzana, Hidroeléctrica del Cantábrico, Electra de Viesgo, Hidroeléctrica de Cataluña, Unión Eléctrica de Canarias, Gas y Electricidad, Eléctricas reunidas de Zaragoza, E.N.Eléctrica de Córdoba, Saltos del Guadiana.
	Sweden	The local electricity distributor had a sales monopoly within its concession area.
	The Netherlands	Previously sales were the responsibility of the regional electricity distribution companies. Prices and profits were regulated according to the Electricity
	United Kingdom	The regional distribution companies have a part of the market, and could sell successively to units using 1MW and then 100kW or more. Independent sales companies also operated and sold current – especially in collaboration with the Electricity suppliers. Electricity traded on the “pool”
Currently	Austria	Currently any person or organisation can sell energy
	France	No real change as yet however a market is in the course of development.
	Spain	The major part of sales were carried out by companies associated in the UNESA group: Endesa, Iberdrola, Union Fenosa, Hidrocantabrico, Viesgo (ENEL). The remaining sales are carried out by independent sales companies grouped into ACIE and new players entering the market: ENRON España Energía, Sempra Energy, etc In December 2000 there were 23,000 users buying electricity in the market through a commercial agent. This represented 35% of the total users eligible to choose their supplier at that date. They were consuming 50% of all the electricity consumption for which the consumers have the right to choose their supplier
	Sweden	The electricity sales market is free. However the homogeneity of the commodity (standard frequency and voltage) results in price being the main source of competition. Sales margins are tight. It takes a large number of customers to yield a profit. Maybe at the very most there is scope for ca 30 sales competitors to survive on the market.

	The Netherlands	The sales process has been regulated by a measurement and a tariff code. More and more private companies are entering into this field.
	United Kingdom	The Pool has been abandoned in favour of contractual arrangements. Much joint selling has started with other energy such as gas. The market for green electricity has developed – with one or two companies being developed to sell only green energy (Ecotricity, Juice). Metering is usually carried out by separate companies and is separately billed.

8.2 - GAS

8.2.1 - Production

In the early 1990s	Austria	Austria's total natural gas production amounted to 1.4 billion cubic metres in 1997. This is equivalent to about 19% of the total domestic gas supply. The bulk of this production came from OMV-AG (which also imports natural gas from Russia, Norway and Germany) and Rohöl-Aufsuchungs-AG
	France	The national resource – a gas field at Lacq (SW France) is now exhausted.
	Spain	The first gas fields discovered and exploited in Spain were at Sarralbo (Huesca) and Gaviota (Cantabrian Sea). Today they are exhausted and they are used as underground storage for gas. Enagas, a company owned by Gas Natural SDG
	Sweden	Local small-scale biogas production exists.
	The Netherlands	The government handed out the concessions for extraction. The main producer was NAM, which was a consortium of Esso and Shell while smaller gas producers (BP, Elf, Mobil) exploited the smaller fields. All production was carried out in cooperation with EBN (Energy Management Netherlands) which is 100 % state owned. Gasunie, which is 10 % state owned, took care of the supply to large users (industry) and the distribution companies and foreign sales. Gasunie's profits exceeding a certain threshold were returned to the Dutch producers and then levied by the state. In other words: natural gas profits were of considerable importance to the national authority. The gas price was linked to the oil price.
	United Kingdom	Imported via terminals in Norfolk and Holderness. Private operators in the North Sea (and on land) supply gas in competition The main, formerly nationalised operator, split in two in 1998 – British Gas and Centrica,.
Currently	Austria	No change
	France	The law applying the directive will only be voted on by Parliament during 2002. Nevertheless 20% of the gas market is potentially open since 10 th August 2000 as a direct result of the Directive. It is proposed to change the status of GDF into a publicly quoted share company which would open up its capital (oil companies, EDF etc?) The entry of GDF into the electricity production arena and the future financial alliances which can be envisaged are likely to turn the French energy system upside down.

	Spain	<p>The Spanish production of gas is located in Palancares and Marismas (Guadalquivir Valley) and Poseidon (Gulf of Cadiz). In 1999 production was 5,784 Toe (equivalent to 3.6% of total supply, that is 160.804 therms).</p> <p>During 1999 gas imports were 94.6% of total supply (53.8% gasoduct and 46.2% LNG). They mainly came from Algeria under a long term agreement between the Algerian Government and the Spanish society Gas Natural.</p> <p>The are two bodies:</p> <ul style="list-style-type: none"> - "<i>SEDIGAS – Sociedad para el Estudio y Desarrollo de la Industria del Gas</i>" (Society for the Study and Development of the Gas Industry) - "<i>AOGLP – Asociación Española de Operadores de Gases Licuados del Petróleo</i>" (Spanish Association of Operators of LPG) <p>The liberalisation of the Gas market is proceeding slowly. It was only at the end of October 2001 that 25% of the total imports of gas from Algeria were distributed by the Spanish government between 6 new companies (mainly electricity companies) entering the market: BP (25%), Iberdrola (25%), Union Fenosa (20%), Endesa (18%), Hidrocantabrico (10%) and Shell (2%).</p>
	Sweden	Local small-scale biogas production exists
	The Netherlands	<p>An extraction licence is granted by the Minister of Economic Affairs in accordance with the new Mining Act. In addition import of gas becomes an alternative.</p> <p>The liberalisation of the gas market provokes discussion due to the large role of Gasunie in the gas system. Gasunie will remain the owner of the transport grid and at the same time keep its role as a supplier and seller of gas, in contrast to the situation on the electricity market. In addition the State has no interest in importing gas and the development of alternative gas producers because of the high revenues provided by the previous situation.</p>
	United Kingdom	The market opened for all clients and suppliers in 1998. A number of competing suppliers entered the market and the share held by British Gas fell rapidly and then recovered some of the lost ground. At the same time gas companies started to sell electricity and electricity companies started to sell gas.

8.2.2 - Transport

In the early 1990s	Austria	<p>The nation-wide high pressure transport network is run by OMV.</p> <p>There are nine provincial companies (Landesgasversorgungsunternehmen: BEGAS AG, EVN-AG, KELAG, Oberösterreichische Ferngas AG, Salzburger AG, Steirische Ferngas AG, TIGAS-Erdgas Tirol GmbH, Vorarlberger Erdgas GmbH and the Wiengas GmbH) which distribute gas to end-users. These Landesgasversorgungsunternehmen are mainly owned by the provincial governments or multi-utility companies.</p> <p>At the end of 1997, the total length of the Austrian transport and distribution network was approximately 24.700 km.⁹</p>
	France	Nearly all transport is carried out by GDF with a small proportion carried out by Gaz Sud-Ouest (GSO) in South West France.
	Spain	Enagas was the owner of the major part of the gas networks.
	Sweden	South and west Sweden have had natural gas since 1985. Vattenfall and Sydkraft have been the main transport companies.

⁹ Vgl. Vorbach (2000), S. 29

	The Netherlands	Gasunie (10% Government stake) is owner of the extensive transport grid. The distribution companies, including the distribution grids, were mainly taken over by the electricity distributors in the same manner as described under electricity.
	United Kingdom	The main formerly nationalised operator split in two in 1998 – British Gas and Centrica.
Currently	Austria	No change up until now.
	France	The law applying the directive had still not been voted on by Parliament in Spring 2002. Nevertheless 20% of the gas market is potentially open since 10 th August 2000 as a direct result of the Directive. In 2002, both GDF and ToTalFinaElf bought the network of transport and distribution of gas.
	Spain	Foreign gas supply comes to Spain via international gas pipelines (Magreb and Lacq) and by liquefied natural gas (carried in ships). There are two gas pipeline connections with Portugal (Tui and Campo Mayor). There are three regasification plants: Barcelona (since 1969), Huelva (1988) and Cartagena (1989). There are two types of gas pipelines: primary (pressure > 60 bars) and secondary (pressure between 16 and 60 bars) The network of gas transport network was 9000km long in 1999 The companies owning the network are: Enagas S.A., Sociedad de Gas de Euskadi S.A, Repsol YPF, Gasoducto Al Andalus, Gasoducto de Extremadura, Bahía de Bizkaia S.L. Two companies transport gas by road: MOL and NAFTRANSA
	Sweden	Today the Swedish gas network supplies ca 30 municipalities in southern Sweden and stretches along the Swedish west coast from Trelleborg to Gothenburg. Last year Vattenfall sold its gas company share (51%). Vattenfall Naturgas AB has been replaced by Nova Naturgas AB, the owners of which are Ruhrgas, Statoil, DONG and Fortum.
	The Netherlands	Gasunie will remain the owner of the transport grid and at the same time keep its role as a supplier and seller of gas, <i>Negotiated</i> Third Party Access (nTPA) will apply and there will be no supervisory authority in contrast to the situation on the electricity market.. Other gas companies dispute the accessibility of the gas transport system. In addition the State has no interest in alternative gas transportation networks because of the high revenues provided by the previous situation. In contrast to the electricity system, there will be no supervising authority.
	United Kingdom	The market opened for all clients and suppliers in 1998. All transport is now supplied by TRANSCO

8.2.3 – Distribution

In the early 1990s	Austria	In addition to the nine Landesgasversorgungsunternehmen, there are also distribution companies owned by the municipal utilities.
	France	Nearly all the distribution is carried out by EDF apart from the 5% carried out by the Non Nationalised Distributors (DNN), which are local distribution companies. There are joint Distribution Centres for EDF and GDF which are responsible for distribution in the framework of the concession contracts with municipalities or groups of municipalities.

	Spain	All natural gas distribution was carried out by Gas Natural All LPG distribution was carried out by Butano
	Sweden	Private and municipal energy companies.
	The Netherlands	Mainly by regional distribution companies
	United Kingdom	The main, formerly nationalised operator split in two in 1998 – British Gas and Centrica.,
Currently	Austria	No change up till now. It is anticipated that several of the regional gas companies will form a joint Austrian gas company.
	France	The law applying the directive will only be voted on by Parliament during 2002. Nevertheless 20% of the gas market is potentially open since 10 th August 2000 as a direct result of the Directive. It is proposed to change the status of GDF into a publicly quoted share company which would open up its capital (oil companies, EDF etc?). National network was bought by GDF and TotalFinaElf in 2002.
	Spain	<u>Natural gas</u> The distribution network has two types of gas pipeline: those with a maximum pressure of 16 bars and those designed to carry gas to the final users. In 1999 the distribution network was 26,635 km long. The natural gas distribution companies are: ENDESA Gas S.A., Gas Aragón S.A. (*), Distribución y Comercialización de Gas de Extremadura S.A. (*), Distribuidora Regional de Gas S.A. (*). Gas Alicante S.A. (*), Meridional de Gas S.A. (*), Gas Natural S.D.G. S.A., Sociedad de Gas de Euzkadi S.A., Ayuntamiento de Astigarraga, Gas de Asturias S.A., BILBOGAS, Compañía Distribuidora de Gas de Bilbao S.A., Compañía Española de Gas S.A., Donostigas S.A., Gas de Andalucía S.A., Gas Castilla – La Mancha S.A., Gas Directo S.A., Gas Figueres S.A., Gas Galicia SDG S.A., Gas Hernani S.A., Gas Natural Cantabria SDG S.A., Gas Natural Castilla y León S.A., Gas Natural de Alava S.A., Gas Natural la Coruña S.A., Gas Natural Murcia SDG S.A, Gas Natural Extremadura S.A., Gas Navarra S.A., Gas Pasaia S.A., Gas Rioja S.A., Tolosa Gas S.A. <u>Liquified Petrol Gases – LPG</u> In 1999 LPG in containers represented 70% of all LPG consumption: 1.796 Mtons out of a total of 2.570 Mtons consumed. The remaining LPG was supplied in bulk, including that via LPG pipelines. The LPG distributors are: Repsol Butano S.A., Gesa Gas S.A., BP Oil España S.A., CALOGAS S.A., CEPSA ELF GAS S.A., Distribución y Comercialización de Gas de Extremadura S.A. (*), PETROGAL Española S.A., PRIMAGAZ Distribución S.A., SHELL GAS España, Gas Andalucía S.A., Gas Natural Castilla y León S.A., Gas Galicia SDG S.A., S.Coop.L.de Consumo Gas Barbastro, Comunidad de Propietarios Monte Berriaga, Extremadura 2000 de Gas, Iberpropano. The companies marked with (*) are owned by ENDESA Gas S.A. (ENDESA Group)
	Sweden	Private and municipal energy companies
	The Netherlands	The distribution companies, including the distribution grids, were mainly taken over by the electricity distributors in the same manner as described under electricity – with economic ownership in the distribution company and legal ownership vested in the local authority. New gas suppliers will have to negotiate the price and the conditions with the network manager before entering the gas grid. The

		unbundling is not as strict as with electricity and all in all, the future of the gas system seems less clear than the future of the electricity market
	United Kingdom	The market opened for all clients and suppliers in 1998 and a system of open access to the network was complete. The network is managed by British Gas – in fact the trading name of Centrica.

8.2.4 - Sales

In the early 1990s	Austria	Carried out by the provincial and local distribution companies
	France	All sales are carried out by GDF and the DNN which have that responsibility.
	Spain	All the natural gas and LPG sales were made by Gas Natural and Butano
	Sweden	Private and municipal energy companies.
	The Netherlands	Mainly by local distribution companies, with Gasunie to large users.
	United Kingdom	The market is already open with fierce competition for customers and many companies offering both gas and electricity.
Currently	Austria	The gas market has been open to consumers with an annual demand of more than 25 million m ³ since October 2001 and will open fully from October 2002. Companies from other European countries are already competing for the custom of large industrial customers
	France	The law applying the directive will only be voted on by Parliament during 2002. Nevertheless 20% of the gas market is potentially open since 10 th August 2000 as a direct result of the Directive. It is proposed to change the status of GDF into a publicly quoted share company which would open up its capital (oil companies, EDF etc?)
	Spain	There are the following natural gas sales companies: GAS NATURAL Comercializadora S.A., NATURGAS Comercializadora S.A., IBERDROLA Gas S.A., HIDROCANTABRICO Energía S.A., BP AMOCO Gas España S.A., Comercializadora Iberica de Gas S.A., ENDESA Energía S.A., SHELL España S.A., CEPESA Gas Comercializadora S.A., UNION FENOSA Gas Comercializadora S.A., ENRON España Energía, AQUILA ENERGY Comercializadora, Comercialización de Energía Natural S.A., Luis Dreyfus Electricidad y Gas S.L., SEMPRA ENERGY Europe España S.L., CARBOEX S.A., EDISON Gas España S.A., GAS DE FRANCE Comercializadora S.A., TOTALFINA ELF Gas & Power S.A.
	Sweden	Private and municipal energy companies.
	The Netherlands	Private companies are increasingly entering this field.
	United Kingdom	The number of energy suppliers is generally rationalising a bit. Otherwise no change. Centrica, the network company, has expanded by purchasing wholesaler traders in the American (Energy America) and Canadian (Direct Energy) markets and by trading in the telecommunications market. It has also expanded into insurance, car breakdown cover, driving schools etc

8.3 - District Heating

8.3.1 - Production, Distribution and Sales

In the early 1990s	Austria	The number of DH utilities mainly owned by municipalities is 40. In large towns DH is most often a part of an integrated energy utility. Gas was used for 50%, while the remaining heat is generated from waste heat, combustion of waste, oil and coal. ¹⁰ In 2000 about 464.000 apartments were heated by district heating in Austria, this equals 14,3% of all apartments in Austria. ¹¹ Heat is distributed by companies of different legal status. The focus of DH supply lies on Vienna, Graz, Linz, Salzburg, Klagenfurt, St.Pölten and Wels. ¹²
	France	About 400 district heating networks cover 6% of heating needs. Two large private companies have a major hold on the market by managing heat distribution networks on behalf of local authorities and more recently by their entry into the cogeneration business. Vivendi (ex- Générale des Eaux, energy subsidiary: Dalkia) which is looking for alliances with European scale electric companies without success and is ready to withdraw from the energy sector in order to concentrate on the water and telecommunications sectors. Suez (ex-Lyonnaise des Eaux – Dumez, energy subsidiary : Elyo) has taken control of Tractebel, and thereby Electrabel, which is the 4 th or 5 th electricity producer in Europe and which is ready to play a major role in the future in the electricity sector, including in France. These companies are only present in the electricity sector proper in France in the area of large scale industrial cogeneration and/or peak production (very limited).
	Spain	Only one small biomass district heating has been in operation since 1986 using wood wastes from local industry. This is located in the small town of Sant Pere de Torelló (Barcelona) and heated municipal services and 20 houses. In 1993 the system was equipped with a cogeneration system (1.8 MWe plus two boilers of 7,500 kg/h steam) and was extended to supply 100 houses.
	Sweden	The first district heating plants in Sweden were established 1948. Most Swedish cities and towns had district heating by the early 1990s. Many of the largest plants had CHP as well and district cooling also exists in some cities. The municipalities own and operate about 80% of the district heating systems.
	The Netherlands	Heat has been produced either by the electricity production companies in large centralised plant or by regional distributors with large local authority involvement. It has been distributed exclusively by the regional energy companies
	United Kingdom	District heating networks are very limited in Britain. Some are run by joint venture companies with a local authority stake. There is no liberalisation. They are generally vertically integrated.

¹⁰ www.fernwarne.cc/fer/fwtxt5.html

¹¹ www.fernwarne.cc/fer/fwtxt5.html

¹² <http://www.euroheat.org/austria.htm>

Currently	Austria	No significant change
	France	No significant change Nevertheless one senses a re-evaluation of district heating networks by different energy enterprises at the very time when they appear indispensable for developing local renewable energy sources (especially biomass). Private energy producers are actively trying to get into the electricity production market and seize every opportunity to be present in co-generation projects. They are waiting to find out on the one hand what are the conditions for purchase of the electricity produced and on the other hand what is the programme of energy investments. These must be adopted before the end of 2002. EDF has created a joint subsidiary with Dalkia so that Vivendi can abandon the energy field and centre on tele-communications. (Vivendi Universal).
	Spain	Some further projects have been developed since the first pilot project as follows : <ul style="list-style-type: none"> - Cuellar (Segovia), 9,000 inhabitants : two biomass (wood waste) boilers (4,500 and 600 Mcal/h) have been in operation since 1999 and these supply all the houses in the town - Allariz, a small town in Galicia has biomass district heating - - Molins de Rei (Barcelona) : a new district (695 apartments) has been supplied by a biomass boiler of 3.5 MWth since 2001
	Sweden	Today, oil has almost been phased out as a district heating fuel. Biomass fuel like pellets now forms a feasible alternative .
	The Netherlands	The municipal stake is often sold off . Otherwise no change.
	United Kingdom	The networks have expanded slowly with the emphasis on small extensions fuelled by small scale CHP units. Some incentives have been introduced via the exemption of "good quality" CHP from the Climate Change Levy

8.4 - Energy Services

In the early 1990s	Austria	Energy Services can be carried out by anybody, e.g. private agencies, energy supplying companies, private companies and provincial energy saving organisations.
	France	There is already a tradition in the private sector in providing energy services which have offered heating management contracts on a modular basis – the energy, routine maintenance, major repairs and for total guarantee, third party financing. There are also contracts "à intéressement" which give the manager an interest in any savings made. This may explain why third party financing by finance companies is less well developed in France. Only the Caisse des Dépôts et Consignations has been active through its subsidiary Synerg, and with limited results. Due to the "Principe de spécialité" which is the counterpart of monopoly, EDF and GDF have not been allowed to develop activities outside the energy field, except by means of subsidiaries (e.g. telecommunications). In comparison with other European companies, they are handicapped when wishing to provide fully integrated urban services.

	Spain	Since 1975 the National Energy Plans had the promotion of the rational use of energy as a goal. The Spanish energy agency IDAE and the regional energy agencies have been providing third party financing to energy efficiency projects.
	Sweden	The energy monopolies (formerly behaving more or less like an authority) had already launched the idea that they should handle their customers in a more service minded way. e.g. instead of just selling “electricity” or “kWh:s” they should offer their customers “products to satisfy their needs for light, power and heat”. Energy efficiency guidance and energy conservation advice were sometimes included in the service as well. After the end of the first period with State funded municipal energy advisors that terminated in the mid 1980s there were just a few professionals other than the commercial supply side people, that offered demand side energy advice.
	The Netherlands	Dutch law imposes no requirement that energy supply and energy services be carried out by separate bodies. This means that in practice the energy companies now can develop energy service activities. In the transitional phase they will only experience competition from new Esco's (Energy Service Companies) with respect to the eligible customers. In the future this competition will be extended to all customers.
	United Kingdom	Energy Service companies have existed and one or two have targeted services direct to local authorities – for instance Waltham Forest Energy Services – originally a local authority company which was "privatised" via a management buy-out.
Currently	Austria	§ 6 of EIWOG 2000 states that offering energy services in a cheap, efficient, customer and environmental friendly way has to be goal of the Utilities, they offer now energy services in order to be more attractive to their consumers.
	France	The nationalised companies are actively offering services to eligible consumers and are preparing for the progressive reduction of the thresholds of eligibility and thinking about services adapted to each type of client.
	Spain	Energy services are provided by IDAE and the regional energy agencies. Also some utilities are now offering energy services, mainly to large consumers.
	Sweden	Once again there is municipal energy advice on tap, partly funded by the State. About 280 of Sweden’s 289 municipalities offer that service. This year is the last of the five years that the funds were granted. Additional Government funds for the five years to come have just been approved and also the Regional Energy Agencies will also be partly financed from State funds. Generally there is close co-operation between the municipal energy advisors and the Regional Energy Agencies.
	The Netherlands	A more complicated matter concerns the service of energy meter reading. The Electricity Act opens the market for meters and meter services. Previously the energy company provided the meters and meter reading services. Now the customer is responsible. This means that the customer explicitly owns his own measurement data. Still, the network manager has access to this data as far as is needed for the execution of the network tasks. The customer can choose any company to deliver the meter, as long as it meets the technical requirements prescribed by the DTe. These requirements, called the <i>Measurement code</i> , include the meter itself, the transfer of measurement data ¹³ and the user profile ¹⁴ The Gas Act is less clear on this subject. It seems that gas meters are still the responsibility of the distribution grid manager , but DTe has noted that the Gas Act has to be amended regarding this matter. Another new . service is to the so-called <i>programme responsibility</i> .

¹³ This defines to which extent the energy use is being measured with intervals.

¹⁴ It is being considered too expansive to use continuous measurement for small users. Therefore user profiles are to be defined yearly by the network managers. These profiles will be fed with real measurement data.

		According to the system code every eligible customer is programme responsible. This means the customer must be able to predict its energy use per hour beforehand. In addition large consumers have to measure their energy use every 5 minutes. These data have to be delivered to TenneT, who sums this up every hour (in the future every 15 minutes). The difference between the programme and the measurements is called disbalance, for which TenneT sends bills to the Programme responsible customer ¹⁵ . The customer can give its programme responsibility to an Esco, against payment of course. It is expected that most customers will not be able to provide for the programmes themselves and that the energy supplier will in most cases take over this responsibility.
	United Kingdom	Many local authorities have become interested in promoting the establishment of their own arm's length energy service companies to work in their own buildings, in particular council owned housing. The major electricity companies in particular have been offering services of industrial cogeneration – often well out of their area (Hydro electric from North Scotland established a private cogen plant in Dover for instance)

8.5 - Awareness raising and incentives

In the early 1990s	Austria	Awareness raising and incentives for energy efficiency and renewables were mainly carried out through publicly funded programs, sometimes in co-operation with the utilities. Utilities usually provided advice on energy matters for their customers. Municipalities played an important role.
	France	<p>ADEME, the Agence de l'Environnement et de la Maîtrise de l'Energie – is in charge of policy designed to limit energy demand. It is represented in each region, providing information, expertise and finance under certain conditions. ADEME has concluded agreements with EDF primarily centred on DSM.</p> <p>Regional energy agencies exist in 6 regions and have their own network called RARE – Réseau des agences régionales de l'énergie et de l'environnement).</p> <p>One dozen local energy agencies also exist in which ADEME is actively involved.</p> <p>The Government has just decided to finance 500 posts in existing or new Energy Information Points and in which local authorities are expected to play a role.</p>
	Spain	<p>The National Energy Plan (1978-1987) established soft loans to implement energy efficiency measures. IDAE and the regional energy agencies played a leading role in the promotion of the rational use of energy and established some incentives (soft loans and third party financing) to save energy mainly in the industrial sector.</p> <p>Also in the early nineties IDAE established an Energy Optimisation Plan for municipalities with more than 50,000 inhabitants. The electric utilities were forced to invest in DSM.</p>
	Sweden	Energy efficiency or energy conservation matters had a low priority in the early 1990s.

¹⁵ As a result it will become important to predict the peak load, to shave the peaks and, in the case of gas use, to install cold and heat storage.

	<p>The Netherlands</p> <p>Until 2001 local energy distributors had an important role in promoting energy efficiency for several target groups. Local energy distributors were responsible for a number of bonus systems to improve energy efficiency.</p> <p>In the early nineties the energy distribution companies were subject to political pressure to play a role in the stimulation of energy efficiency. Before this could be settled by the national government in the Energy Distribution Act - which was in preparation -, the energy distributors presented their own plan. In a so-called <i>Milieuactieplan</i> (MAP), the environmental action plan, they defined energy saving targets for different target groups. They agreed with the Minister of Economic Affairs that a special MAP-tax on the energy prices for households should pay the costs of the actions needed to achieve the energy saving. The distribution companies have given extra attention to the possibilities of installing gas-fired co-generation plants, high efficiency heating plant for households, efficient lighting and efficient cooling equipment by means of the MAP process for almost ten years. The distributors also had an important role in public awareness raising concerning energy efficiency by means of these actions and the advertising used to promote them.</p> <p>This initiative of the energy distributors was possible because there was also an internal climate in which care for the environment played a role, but not the least because of the avenue chosen to pay the costs of the programme.</p> <p><u>Local authorities</u></p> <p>From 1988 to 1996 Novem, the Dutch Company for Energy and Environment associated with the Ministry of Economic Affairs, carried out the Municipal Energy saving Approach (GEA). This method required the local authority to prepare a policy plan for energy saving for different target groups and also to prepare a plan of execution. Novem provided subsidies with which the municipalities could finance the preparation of the plans. By 1995 almost five hundred municipalities had prepared an energy policy plan and one hundred and eighty of them had prepared a plan for implementation. The transition to actual implementation however, appeared to be an complicated and difficult affair.</p> <p>Local authorities judged the energy efficiency of existing houses, the CO₂ efficiency of the location of buildings and transport flows (i.e. spatial planning issues). They thereby often served as a promoter and facilitator for other intermediaries, such as social housing companies and building companies. However, the local authorities had limited powers (financial means or directive powers) to support the programmes and to promote and facilitate the carrying out of energy efficiency measurements by intermediaries and target groups. Because energy distributors had some financial resources to carry out actions, local distributors and authorities co-operated to carry out energy efficiency measurements. The MAP process finished in 2001 due to liberalisation and the co-operation might be abandoned as a result of the new commercial face of the energy companies. In the place of MAP a new programme called a Climate Covenant has been introduced which sets three target levels of achievement - "active", "going in front" and "innovative". This will be funded with a grant from government via Novem.</p> <p><u>National</u></p> <p>The national authority believed the Kyoto goals should be reached by a voluntary input of the different target groups. To persuade the target groups to carry out energy efficiency measurements, incentives such as bonus systems and fiscal advantages were developed. These incentives are being carried out at a national level.</p>
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Currently	United Kingdom	The regulators have set standards of performance (SOP) by which the electricity distribution companies should support energy efficiency and renewable energy in their regions. The companies themselves control the targets. A levy on electricity sales (now per customer) was channeled to the Energy Savings Trust which has financed local energy advice centres in local authorities.
	Austria	EIWOG (2000) has no specific impact on awareness raising and incentives. However, it can be noticed, that support for awareness raising projects and energy advice is decreasing due to the new competitive conditions
	France	There is no direct influence of the law applying liberalisation on awareness raising at present. Nevertheless one can note an increasing recourse to the market: ADEME has just created two funds with banking organisations designed to promote financial services and/or guarantee loans for energy efficiency investments. In addition, ADEME has noted in a publication relating to local energy agencies that: <i>"The law modernising the public electricity service adopted in February 2000 restricts itself to reminding the reader of their traditional responsibilities, doesn't in itself contribute to a strengthening of the role of local authorities as actors in the stage of energy policy. In this framework the French local energy agencies can play a major role as guarantors of information independent from the producers, suppliers and distributors, thus ensuring a better balance between the principles of supply and demand."</i>
	Spain	IDAE, and the regional and local energy agencies are playing a leading role in the promotion of the rational use of energy.
	Sweden	The target of Sustainable Development has now been established as a vital local policy commitment. Work on Local Environmental Objectives, Local Agenda 21, and Local Energy Efficiency are all good examples of municipal activities, within which opinion moulding, dissemination of knowledge and information etc. are substantial elements. The establishment of "Local Centres for Sustainable Development" has been suggested as an efficient means of reaching out with the overall message.
	The Netherlands	<u>Energy distribution companies</u> In view of the liberalisation most bonus systems of the energy distributor have been terminated. Now the national association of energy distributors (EnergieNed) considers improvement of energy efficiency to be primarily the task of the national and/or local authority. Energy distributors provide different services for improving energy efficiency, such as highly efficient heating systems. However, these services are adjusted to the demand of the customers. It is not clear yet if energy distributors will put much effort in selling these energy efficient products to small consumers in a liberalised system. They will probably give the most attention to larger customers. By offering them energy services like light or heat instead of electricity or gas, there could be an incentive to save energy. <u>Local and regional authorities</u> Local authorities have few executive obligations to reach the Kyoto goals. They themselves have some legal powers because they decide upon and grant environmental permits for SME (in the permit energy efficiency is a specific topic) and supervise building standards (including energy) for houses. Other actions in order to contribute to a reduction in greenhouse gasses are carried out voluntarily by gentlemen agreements and by information designed to promote energy efficiency for different target groups. Local authorities also serve as an example for improving energy efficiency in their own stock such as office buildings, public

		<p>buildings (library, school, sports centre), public lighting, traffic lights and water pumps.</p> <p>The local authorities are supposed to take over the role of promoter and stimulator of energy efficiency. However, they have no specific financial resources to improve the energy efficiency, whereas the energy distributors had budgets for their actions on energy saving (MAP-tax).</p> <p>This problem is partly solved by an agreement the national authority made this summer with the local and regional authorities concerning the policy actions to be taken to reach the Kyoto goals. This so-called <i>Climate covenant</i> will probably be signed in late 2001. The covenant includes some financial support for those local or regional authorities that sign up to commit themselves to a prescribed "ambition" level, Active, Fore-runner or Innovative. The climate covenant has a number of themes including general policy, municipal buildings and equipment, housing, business, agriculture transport, renewable energy and international action.</p> <p>The national government has increased the possibilities for obtaining financial support to invest in energy saving.</p> <p>Since 1998 the Dutch Government has levied an <i>ecotax</i> on energy use. The national authority commissions local energy distributors to carry out the new support systems for households (see under Tax background above).</p>
	United Kingdom	<p>A climate change levy was introduced in April 2001, applied to the non-domestic use of all electricity generated from fossil fuels, and to coal and gas but not to oil or road fuels. The Carbon Trust has been set up to redirect an element of this to the reduction of greenhouse emissions. The Energy Efficiency Commitment has been introduced as an annual levy per fuel and per customer (currently £3-50, £5-00 in Northern Ireland) and is directed to reduce emissions and reduce fuel poverty.</p>

9 - How are Energy Services Managed?

9.1 - Municipal Energy Utilities operating as part of the local authority itself (e.g. as an Electricity Department)

Austria	Local authorities usually do not take care of energy production, distribution or energy services directly (except for their own building stock). Some of them operate district heating networks.
France	There are 167 local authorities which manage their utility service as a municipal department or a separate enterprise forming part of the local authority – called a <i>régie</i>
Spain	There are no Spanish local authorities that have a municipal energy utility as part of local authority itself.
Sweden	None
The Netherlands	None However local authorities have the legal ownership of the distribution network.
United Kingdom	Prior to privatisation in 1948 many utilities were owned directly by local authorities and one, Hull telephone company, operated as a municipal department until after privatisation of the telephone industry. However local authorities may often run small local heating networks themselves as part of the relevant department (usually the Housing Department – local authorities have an important role as social housing managers).

9.2 - Municipal companies

Austria	Electricity and gas in the municipalities have been usually been provided by municipally owned utilities (in large and some medium cities) or the regional utility. Currently more and more municipalities are selling off their shares in municipal utilities.
France	Apart from the <i>Regies</i> referred to above, generally the district heating networks are managed:: <i>en affermage</i> : the local authority carries out the investment and commissions a private company to manage the service on its behalf. <i>by concession</i> : the private company carries out investment as part of a concession contract. There is no municipality which directly manages a district heating network apart from some very small wood-fired systems.
Spain	There are a many few municipal utilities established as municipal companies: Cadiz and Centelles (Barcelona). There are a group of forty municipalities that have the ownership of small hydroelectric facilities to generate electricity. There is a municipality, Camprodon (Girona, North Catalonia) that has a electric cooperative since 1935 to generate and distribute electricity.
Sweden	Today the energy companies operate subject to the same rules regardless of who is the owner. Therefore the local authority in most cases behaves merely like any major shareholder. Hopefully the municipality as well is performing as an active owner, i.e. in accordance with the corporate governance concept.

The Netherlands	As mentioned above the regional and local energy companies were originally owned by municipalities but more and more have sold off their shares so that currently few have an interest.
United Kingdom	Until 2000, British law, unlike most other European countries, greatly limited the extent to which a municipality can invest in a profit-making company (Hull telephone service was nevertheless converted into a public limited company in the mid-1990s and boomed in the telecommunications bubble). Therefore the municipalities have generally conceded the right to operate heat utilities to private companies in which they may or may not have a stake. In Southampton for instance the district heating utility is operated by a French company. However a recent change in the law has now made it possible to invest for the benefit of the inhabitants which may encourage more to invest in district heating.

9.3 - Municipal Energy Units (for energy efficiency in own stock)

Austria	In the bigger cities there usually exists a Municipal Energy Unit (sometimes as part of the environmental department or the buildings dep.) dealing with energy efficiency in their own stock. This can be a single person with this responsibility or a team of people.
France	The largest municipalities have an energy management team responsible for the municipal stock. Occasionally an energy "cell" assures the monitoring of all energy consumption in all fields of activity. More frequently there is a "building" person or a team, another public lighting team and a third related to fuel. " carburants". The management of their stock can be carried out by: <ul style="list-style-type: none"> - The municipal staff direct (minority situation) - By specialised companies (generally belonging to the Dalkia or Elyo groups). Sometimes by both in parallel in order to get each to try to emulate the other, to maintain skills in the local authority and to compare the two methods of management.
Spain	Until recently no local authority had a unit to deal with energy. But now a few groups of municipalities have appointed some technical staff devoted to energy. Some others have pushed forward local energy agencies. Also some " <i>Diputaciones Provinciales</i> " have created energy units or energy agencies.
Sweden	None. Several municipalities train their regular works and maintenance staff in energy efficiency matters. The continuous compilation, analysis and follow-up of reports on energy consumption in their own stock is today a standard procedure in many municipalities.
The Netherlands	An energy-coordinator is sometimes designated by municipalities on an informal basis. He/she is usually employed in the local authority's environment or building management department. Initial ideas are developing regarding a general purchasing operation and energy management operation to face up to the challenge of liberalisation,
United Kingdom	The main city authorities have an energy specialist in house. But even though British local authorities are the largest in Europe (average population c. 100 000 and smallest 26 000) this is still probably a minority. Some of the larger authorities have an energy team. However in most authorities energy purchasing and energy efficiency investments are considered separately (the latter generally within the departments concerned). In Leicester and Milton Keynes however, an integrated energy team with a budget has been established which weighs investment against purchase costs. Management of facilities is usually conferred on the authority's own direct works organisation after an open competitive tender. Occasionally it is contracted out.

10 - How Liberalisation has affected the general energy system in the participant countries

10.1. - General Attitude of the Country

<p>Austria</p>	<p>The Austrian electricity system has been a public based system of monopolies managed at regional level (the "Länder"), mirroring the Federal structure of Austrian government. Electricity supply in Austria was a public service and had to be supplied by public utilities, except for generators with a capacity of less than 200 kW. However since 1987 it has been possible to privatise up to 49% of the capital of energy utilities. The utilities have usually been vertically integrated companies which include the delivery of electricity, gas, heat and other public services. The European directive was the driving force for liberalisation in Austria. The Federal Government followed European legislation. Once liberalisation had started (and following a change of government) they moved rapidly to full market opening.</p> <p>A major restructuring process has been taking place during the last few years in order to enable Austrian organisations to be competitive in liberalised markets. Several regional utilities formed the "Energie Allianz Austria" which now controls about two thirds of the Austrian market. A separate company was formed to run all the hydroelectric power plants. Several mergers and takeovers took place, including some from abroad (Germany, France). In particular, the municipal utilities were partly or fully taken over by their respective regional utilities or shares in the companies were sold off. As far as the distribution companies are concerned However, a share of at least 50% of the must still remain in public hands.</p> <p>Currently there is some competition on the market, especially for larger industries. A few companies are competing for the household sector, but only a small share of customers have changed their supplier up to date (< 5%). The same is true for municipalities and other local authorities: They have usually stayed with their old supplier with which they have had strong links in the past. There also seems to be a fear of the impact of competition.</p> <p>Austria is a country where local, renewable energy sources (biomass, small hydropower, solar) traditionally are highly valued at local level. Provisions have been included in the new legislation on liberalisation in order to promote electricity generation from renewables and in particular suppliers are obliged to include a specified percentage of electricity from renewables.</p> <p>Energy services like energy performance contracting and third party financing have gained a significant importance during recent years and many of the utilities are now also active in this business segment. However utilities have reduced their involvement in other energy efficiency activities due to the competitive environment and it is the municipalities and other public authorities which have to take over these obligations.</p>
<p>France</p>	<p>France has not played a leading role in pushing for Europe to open its energy markets to competition, quite the contrary. This attitude has sometimes surprised France's European partners given the price advantage that France has in the electricity field. In fact, from an economic point of view the French market can only escape marginally from EDF and the other European markets appear as opportunities.</p>

	<p>Energy, and in particular electricity, is full of symbolism in France. The nationalisation of electricity and gas just after the Second World War was the result of a political and social consensus coming from the Resistance. Electricity and EDF are vectors of national economic and social progress as well as public service. The choice of nuclear energy in combination with the choice of obtaining nuclear weapons, strengthened the strategic character of the national supply. All this makes a coherent whole and anything that might seem to perturb this is rejected or accepted with distrust. This being the case, one must admit that, comparatively to other countries, the management of public enterprises of gas and electricity is generally healthy.</p> <p>This desire to resist the European movement and to guarantee the continuation of that which is often called "the French exception" is demonstrated by several facts: The Electricity Directive - has been implemented in legislation one year late, the Gas Directive will be even later; the degree of opening of the markets is the minimum imposed by the Directive, numerous decrees and "<i>arrêtés</i>" relating to the electricity law are not yet published which generally has delayed implementation of the law.</p> <p>However the situation is in the process of changing and those who at one time wanted to slow down liberalisation now wish to accelerate it. Furthermore, France supported those other European countries who asked for a speeding up of the process of liberalisation during the Council of Lisbon in May 2000. But nevertheless, the French Government remained the government the least willing to open its market to competition at the European Council in Barcelona (March 2002).</p>
Spain	<p>The energy sector in Spain, from the Civil War (1936-1939) until liberalisation (1998), was characterized by a great degree of centralisation, especially in the hydrocarbon sector, but also in the electric sector where private and public vertically integrated utilities co-existed. The gas sector was in private hands but acted as a de facto monopoly.</p> <p>When electricity liberalisation commenced in the European Union, Spain worked rapidly to transpose the European Directive 92/96/CE. At the end of 1997 the Law on the Electricity Sector was adopted and came into on January 1st 1998. The Hydrocarbon Law (1998) was the implementation of the Gas European Directive 98/30/EC.</p> <p>The Spanish Government has since decided to shorten the periods for the implementation of the liberalisation of the electricity market.</p> <p>By 1980 an Energy Conservation Law was enacted that established the legal bases to make possible the auto-generation of electricity. This Law and the corresponding decrees, opened the door to cogeneration and to renewable energy sources, which were completely integrated in the Law on the Electricity Sector (1997). This Law devotes a complete chapter (chapter 2) to the so called special regime for electricity generation. Also the Law establishes the Special Regime Promotion Plan for Renewable Energies, and fixes at 12% the proportion of renewables in the primary energy demand for 2010.</p>
Sweden	<p>A positive general attitude towards market solutions, economic instruments and pricing ("<i>the invisible hand</i>") became prevalent in the beginning of the 1990s as a way of ensuring an efficient allocation of resources. All monopolies that were not natural monopolies were now to be replaced by competitive companies. This ethos was also adopted in the energy sector. So, after half a decade of investigating, analysing and after one year's postponement of the proposed legislation, the new Electricity Market Act came into force on 1st January 1996.</p> <p>The former Electricity Act had been in force since 1902 and its main outlines had remained virtually unaltered. Electricity had been supplied from local monopolies. Municipalities have always played a substantial role. The market structure was often characterized as "The Swedish model"; where municipalities, private investors and the State accounted for about one third each of the distribution. However, the legislative conditions differed between the different categories of owner. All companies were obliged to set "reasonable" prices. Besides the municipal</p>

	<p>companies had further restrictions as they were subject to the principles of the Local Government Act; viz: the non-profit/true-cost principle, the equality principle and the localisation principle.</p> <p>The New Electricity Act explicitly exempts municipal companies from all three principles as far as competitive business is concerned. In other words, they are free to generate and trade/sell electric power on a purely commercial basis. As for the transmission network, a municipality is allowed to run that business outside its borders but in geographical connection to their own network area.</p> <p>The same rules concern district heating, including CHP, and gas distribution. Accordingly district heating is, from a legislative point of view, regarded as a competitive business. However, the question whether district heating should be regulated or not is constantly debated. Indeed there is only room for one distributor in the same district heating area. But the house owners still have their freedom to choose the heating system they prefer. In that sense the district heating alternative has to be commercially competitive. About 80 % of the Swedish district heating plants are run by municipal companies.</p> <p>The gas distribution network is so far limited to the southern parts of Sweden. At present, it is only natural gas companies, those using natural gas for electricity production and other customers using more than 25 million m³ of natural gas per year, who can change their supplier.</p> <p>Since 1977, local authorities are under the obligation, prescribed by law, to promote by means of municipal energy planning the efficient use of energy as well as to work for a reliable and adequate energy supply. This principal aim is still contained in the Act on Municipal Energy Planning. The most important amendment (1991) prescribes an environmental impact study as a supplement to the energy plan. On the competitive energy market of today, local authorities may focus on the environmental aspects, efficient use of energy and energy conservation in their own plant and buildings. Furthermore they may offer their inhabitants energy guidance – an activity often partly financed from national funds.</p> <p>To sum up, the general attitude indicates that a combination of administrative/legislative and economic instruments is preferred in practice. For example the environmental and energy taxes have been broadly accepted and have been of decisive importance for the use of RES. In the district heating sector, the use of fossil fuels is almost negligible today. As for CHP, a quota-based certificate system will be introduced next year to promote electricity production from RES. The general attitude to emissions trading is mainly positive. National and local environmental goals have been established etc.</p>
<p>The Netherlands</p>	<p>The Netherlands has promoted the restructuring of the Dutch energy industry in response to growing trends towards liberalisation and globalisation. The intention has been to integrate the Dutch energy players into a small number of structures or one structure able to act on a world stage. At the same time the electricity and gas industry structures have been reorganised into four different levels. Production, transport, Regional Distribution and local distribution. The market is being liberalised in stages, with full opening in 2004.</p> <p>There is general support for public supervision and stipulated market regulations:</p> <ul style="list-style-type: none"> - Within the boundaries of environmental preconditions - Electricity and gas grids with sufficient quality and capacity - Entrance to the grid for suppliers and customers at as low as possible a price - Transitional phase: all customers (not only the eligible ones) must profit from increased efficiency and lower - Good supervision arrangements for the implementation of the liberalisation legislation, the grid and setting of prices.

	<p>The four major electricity producers have been targets for takeovers. The relatively high cost of the fuel input in the Netherlands (and in particular the high proportion of gas) has resulted in increasing imports in recent years with the fear that stringent environmental conditions on fuel source and emissions may be foiled by the impact of imported "dirty" electricity (e.g. generated by brown coal).</p> <p>There has been a clear movement from relying on the energy industry itself in particular the distributors, to provide energy efficiency advice and services to expecting other services to be provided either by the market, or public authorities such as national and local government.</p> <p>The attitudes of the Dutch Government regarding gas have been less clear. Gas is a big revenue earner for the Dutch state. Gasunie will remain the sole owner of the grid, operating negotiated third party access and also will be supplier and seller of gas. There is no external authority. The Government is not keen to encourage gas import in competition with home producers in great contrast to the situation with electricity.</p> <p>The attitude with regard to energy efficiency and RES is that the goals set are to be implemented on a voluntary basis. Voluntarism fits into the general development of decreasing regulation by the national authority. The ecotax, gentlemen's agreements with large enterprises, benchmarking, premium systems, fiscal advantages, information and awareness raising are the incentives by which the goals should be achieved. In 2002 the results of the incentives will be examined. If the results are disappointing more legislation or other compulsory measures will probably be proposed.</p>
<p>United Kingdom</p>	<p>The United Kingdom was one of the pioneers of the liberalisation of energy markets. Like France the gas and electricity industries had been nationalised in the period of social readjustment after the Second World War when the need for a more equitable, fair society was in the forefront of the political process. In the Thatcher period this theory was stood on its head. Converting the nationalised industries to competition in the private sector was not initially an essential part of the programme under which Mrs. Thatcher came to power. The key word was privatisation and the gas industry, being relatively simple in structure, was one of the first to be privatised as a private monopoly. The idea at this stage was simply that business would run the monopoly better than the state.</p> <p>However in time the problems with private monopoly meant that the key political dogma became competition and the later privatisations split up the industries privatised to promote competition. In time the monopoly was also removed from those that had been privatised before this became a consideration. The timetable for this process was as follows:</p> <p>1986 Privatisation of British Gas as a monopoly</p> <p>1990 Competition introduced for large gas customers (including opening the network) Privatisation of Electricity Industry in England and Wales. Separation of generation into two major competitors. Competition for clients over 1MW. Pool established.</p> <p>1994 Competition for electricity customers over 100kW</p>

1996

Householder consumer choice programmes in the UK
Regulator makes two major generators divest capacity

1997

Division of British gas into two competing units: British Gas and Centrica.

1998

Retail competition introduced for all electricity customers
Retail competition introduced for all gas customers.

2001

New Electricity Trading Arrangements Introduced.

Unlike the French nationalised industries the British nationalised industries had tended to be starved of investment funding. They were viewed, in particular under the Thatcher Government, as an element of public spending which was their *bête noire*. By privatisation at one stroke public spending was reduced and the industries were given the investment freedom to borrow and invest on the open market. It was lucky for the UK government that privatisation and the introduction of competition occurred at a time when computing technology made real time management of electricity systems a possibility. However a belief in competition has pushed the opening of the markets and resulted in policies designed to prevent the reintroduction of effective vertical integration and the control of the market by one or two strong players.

10.2 - Laws introducing liberalisation and role of the Regulator and System Operator

<p>Austria</p>	<p>Austria implemented the electricity directive through a federal electricity law, the Elektrizitätswirtschafts- und –organisationsgesetz (“EIWOG”), published on 18 August 1998 (BGBl. I Nr.143/1998) and which entered into force on 19 February 1999. In addition to the general framework of federal law, several details necessary for the functioning of the new Austrian electricity market, are implemented via Laws passed by the 9 Länder as well via two Ministerial regulations (Verordnungen), one concerning the principles of transmission pricing and the other concerning the manner in which utilities will be compensated for stranded costs. The Länder laws focus primarily on the authorisation criteria for new power plants and on details of public service obligations and the promotion of renewable energy.</p> <p>The EIWOG 1999 provided for a gradual opening of the market between 19th February 1999 until February 2003. Only one year after entering into force, EIWOG 1999 was changed again into the EIWOG 2000 which has allowed all final consumers to choose their energy supplier from October 2001 onwards.</p> <p>An independent regulator, the Elektrizitäts-Control LTD, was founded under the provisions of EIWOG 2000 with the status of a limited liability, non profit making company. It started operation in March 2001. One of the most important tasks, among others, is the determination of the net tariffs for all distribution companies.</p> <p>Austria introduced the Gas Directive through a federal law, the Gaswirtschaftsgesetz (GWG), which also proposed gradual market opening. From October 2002 onwards all final consumers are to be allowed to choose their supplier.</p>
<p>France</p>	<p><u>Electricity</u></p> <p>The Law relating to the Modernisation and Development of the Public Service of Electricity was voted on 10th February 2000, i.e. one year after the limit set by the European Union. Its title, centred around public service, demonstrates the features that France wished to put to the forefront. The following points can be emphasised in general :</p> <ul style="list-style-type: none"> - The law must be implemented by 25 decrees (in progress) some of which affect essential elements of the law - The thresholds of eligibility were established at the minimum allowed (40 GWh) which affects about 400 consumers. In February 2001 the threshold was lowered to 16 GWh - Transport of electricity is the responsibility of an internal division of EDF which has become RTE – Electricity Transport Network. – without creating a separate legal structure - The uniform national tariff is written into the law as far as non-eligible clients are concerned - An independent Commission for Electricity Regulation (CRE) was finally created outside the Administration of the Energy Minister, although the opposite had been proposed at one point. <p>As a result from a legal point of view there has been limited change from the previous situation. However this must be seen as the start of a process which will transform the French energy system. Even if no-one actually says it, the political, technical, legal, trade union and economic players are absolutely aware of this fact.</p>

	<p>Gas</p> <p>The Bill to modernise the public natural gas service and to develop the gas enterprises which must implement the European Directive in French law, was adopted by the Council of Ministers on 17th May 2000 but in April 2002 it had still had not been adopted by Parliament (although the Directive required implementation by August 2000). Nevertheless 20% of the French market has been open to competition from this latter date.</p> <p>The Bill is established in a form analogous to the electricity law. Nevertheless a decision appears to have been taken to convert Gaz de France into a share company, which will have considerable symbolism. In particular the fact that the distribution staff of EDF and GDF are mixed will not go unnoticed.</p> <p>In 2002, GDF and ToTalFinaElf jointly bought the gas transport and distribution network.</p>
<p>Spain</p>	<p>Development of the special regime legal framework:</p> <p>Ley 82/1980 de Conservación de la Energía (Energy Conservation Law)</p> <ul style="list-style-type: none"> - RD 872/1982. Tramitación de expedientes - RD 907/1982. Condiciones técnicas del vertido de la electricidad y contrato con la empresa eléctrica - RD 1544/1982. Regulación de centrales hidroeléctricas de más de 5 MVA - OM de 7 de julio de 1982. Obtención de la condición de autogenerador eléctrico - OM de 5 de septiembre de 1985. Normas administrativas y técnicas para la conexión y funcionamiento de centrales de autogeneración eléctrica - Ley 40/1994 de ordenación del sistema eléctrico nacional – LOSEN (National Electricity System Arrangement Law) - RD 2366/94. Actualización de la normativa existente, caracterizando el régimen especial de producción eléctrica <p>European Directive 96/92/CE, introducing competition in electricity generation</p> <p>Basic legislation on the electricity sector:</p> <ul style="list-style-type: none"> - Ley 54/97 del Sector Eléctrico (Law on the Electric Sector) - Real Decreto-Ley 6/1999 de 16 de abril: urgent measures for liberalisation and the increasing of competition - Real Decreto-Ley 6/2000 de 23 de junio: urgent measures for intensification of competition in the goods and services markets <p>National Energy Commission</p> <ul style="list-style-type: none"> - Ley 34/1998, de 7 de octubre, del Sector Hidrocarburos - Real Decreto 1339/1999, de 31 de julio (rules of the National Energy Commission- modified by Real Decreto 3487/2000, de 29 de diciembre) <p>Electricity Market</p> <ul style="list-style-type: none"> - Real Decreto 2019/1997, de 26 de diciembre (organisation and regulation of the electricity market for production - Transport and Distribution - Real Decreto 2018/1997, de 26 de diciembre (rules of consumption measurement points and electricity transit) - RD 2818/98, que regula el Régimen Especial (Electricity Special Regime Regulation) - Real Decreto 2819/1998, de 23 de diciembre (regulation of electricity transport and distribution activities)

- Real Decreto 2810/1998, de 23 de diciembre (establishment of access tariffs to the grid)
- Real Decreto 1955/2000, de 1 de diciembre (regulation of electricity transport, distribution, commercialization and supply activities and authorisation procedures for electric facilities)

Gas

- European Directive 98/30/CE on common norms for the european natural gas market

Basic legislation on gas sector:

- Ley 34/1998, de 7 de octubre (arrangement of exploration, transport, distribution and commercial activities relating to liquid and gas hydrocarbons)
- Real Decreto-Ley 6/1999, de 16 de abril (urgent measures for liberalisation)
- Real Decreto-Ley 6/2000 de 23 de junio: urgent measures for intensification of competition in markets for goods and services
- Tolls and access canon
- Real Decreto 1914/1997 de 19 de diciembre (fixes the third party access conditions to natural gas reception, regasification, storage and transport facilities, and tolls and canons)

Roles of Regulator and System Operator

The National Energy Commission is the regulator given the responsibility of watching over: competition in energy systems (electricity and gas and liquid hydrocarbons markets), and the objectivity and transparency of the operation of these markets. It is a public body but is a separate legal entity. The functions of NEC are:

- a) proposal and information (participation by making proposals and supplying information in the process of preparation of general orders affecting energy markets, energy planning, tariffs, tolls and the returns from energy activities;
1. consultative body: in licensing energy facilities when this is the responsibility of the central administration, in advising autonomous communities when they exercise their responsibilities in the energy field, in mergers and takeovers, in advising public administration to start sanction proceedings)
- b) establishment of norms
- c) executive
- d) defending competition
- e) conflict resolution
- f) arbitrage body
- g) inspection

The NEC has a Board Council (President, 8 Councillors and a Secretary. They are independent professionals nominated by the central government. The NEC has two consultative bodies: the Electricity (maximum 36 members) and the Hydrocarbons (maximum 34 members) Consultative bodies. They have their own Permanent Commissions.

The electricity market is managed by two operators: a) the **market operator** ('**Operador del Mercado Eléctrico OMEL S.A.**') and b) the **system operator** ("**Red Eléctrica Española REE S.A.**"). OMEL is responsible for the market economic management and REE for the technical management.

<p>Sweden</p>	<p>The reformed electricity market came into force January 1, 1996. The distribution network was opened, in theory, to all customers. At first the requirement to install an hourly meter was one of the main factors preventing smaller consumers from entering the competitive market. Such a meter turned out to be too expensive to install. So the majority of electricity customers were still obliged to buy current from their old monopoly supplier, whose right/obligation to sell was granted as a regulated sell-concession. After that, within a short period of time, new rules were introduced which imposed a maximum price to be charged for the metering equipment (2 500 SEK). In that way it became possible for the owner of a small house with electric heating to be able to afford to enter the competitive market.</p> <p>Finally, in November 1997, all customers were given entry into the market. Now, customers taking supplies protected by less than 200 A fuses or with a power demand of less than 135 kW don't need to have hourly metering. They are charged according to their presumed pattern of consumption.</p> <p>A distribution network company is not allowed to run electricity generating/trading/selling in the same business (in one and the same legal entity). This means that electricity consumers must have agreements with two companies - the distributor and the seller of current. That has turned out to be rather difficult for many customers to fully understand. Complaints connected with consumers changing supplier and with difficulties in reading or understanding the bill have been legion.</p> <p>The Swedish Energy Agency is a regulator with responsibility to ensure that the grid is operated efficiently, that the grid tariffs that customers pay are reasonable and that, in other respects, the grid companies apply objective and non-discriminatory terms and conditions. New guidance for supervision has been proposed together with a new model for supervising the tariffs and prices – “the grid value model”. Hereby the Network Authority reviews the network company's revenues in the light of the objective conditions governing the company's ability to provide efficient network services. The assessment of the reasonableness of tariffs will no longer be based primarily on the network company's expenses.</p> <p>Svenska Kraftnät is a utility which owns and operates the national electricity grid, comprising the country's 400 and 220 kV power lines, as well as stations, international interconnectors and IT systems. Their duties include the responsibility for the electricity system being in short-term balance, known as system responsibility. The objectives are; offering a reliable, efficient and environmentally-adapted transmission of power on the grid, promoting an open and competitive Nordic electricity market, exercising the system responsibility cost-effectively and working for a robust and flexible electricity supply during times of crisis and war. Svenska Kraftnät owns Nord Pool - the Nordic power exchange - together with its Norwegian counterpart Statnett.</p>
<p>The Netherlands</p>	<p>Electricity Act 1998 (The original timetable was later accelerated as follows):</p> <ul style="list-style-type: none"> - July 1999, large consumers became eligible (>2MW) - January 2002, medium sized consumers became eligible (<2MW and >3*80 Ampere) - January 2004, (maybe 2003), small consumers such as small enterprises and households will become eligible <p>From the 1st July 2001 all consumers are free to buy green electricity from any supplier.</p>

	<p>Gas Act April 2000</p> <ul style="list-style-type: none"> - Passed 10 August 2000: large gas consumers (> 10 million m³ gas in a year) are eligible - From January 2002 medium sized consumers (> 170.000 m³) became eligible. - From January 2004, (maybe 2003) small consumers will become eligible <p>AmvB March 2001 Construction of the energy infrastructure for new development areas (electricity, gas and heat): Authorities have the choice to grant the construction of the new energy infrastructure according to a prescribed public procedure</p> <p>An electricity regulator called DTe (Dienst Toezicht Elektriciteitswet) has been established to regulate access to the market but there is no equivalent for gas. Dte has drafted codes to guide operating practices, including a Tariff Code, a Grid Code, a System Code and a Measurement Code.</p> <p>A separate system operator – Tennet, has been established which is 100% owned by the State.</p>
<p>United Kingdom</p>	<p><u>Electricity</u> Liberalisation started in the electricity industry following the laws promoting privatisation in 1990 and the market opened fully by 1998.</p> <p><u>Gas</u> Liberalisation started in the gas market in 1990 and the market was fully open by 1998.</p> <p>Separate electricity and gas regulators were established and these were combined in OFGEM in the late 1990s.</p>

10.3 - General characteristics of the liberalisation legislation in country – degree of opening of the market – role maintained for local authorities – protection of public service elements

<p>Austria</p>	<p>Initially a step by step opening of the market was planned between 1999 and 2003. Then the process was accelerated following the election of a new government and the electricity market is now fully open to all consumers since October 2001. It is only the energy part of the electricity bill which is subject to competition; the network tariffs are fixed and published and set by the regulator, E-Control.</p> <p>In addition, independent grid operators were established by the new ELWOG 2000 and clearing and settlement organisations, comparable to Scandinavian systems, were set up.</p> <p>To prevent cross subsidisation, separation of accounts and management unbundling is implemented, separate legal entities are not necessary. However legal unbundling between generation and transmission already exists for the national Verbundgesellschaft, i.e. the 8 special generation companies as well as other participants, e.g. in distribution, are all organized as separate legal subsidiaries. The 9 Landesgesellschaften operating at the regional level are mostly vertically integrated and are, thus, obliged to observe the principle of management unbundling for the operation of their transmission systems.</p>
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	<p>Network access is also generally open to independent power producers. Austria has opted for a system of regulated network access. This means, that Network access can be refused on the ground of lack of network capacity, reciprocity, and in cases where electricity production from renewable or CHP sources would be prevented and a selling of this electricity to third parties would then not be possible.</p> <p>Besides the Federal Government, the 9 Länder play an important role in implementing the liberalisation process. The role of local authorities has generally been maintained. They are still allowed to own their electricity company, although in practice they are disengaging in this sector. They are now also allowed to buy electricity on the open market (although they rarely do).</p> <p>The Austrian federal electricity law defines 6 explicit public service obligations (PSO) which are implemented and further defined in the 9 Länder laws:</p> <ol style="list-style-type: none"> (1) non discrimination and equal treatment of customers and system users; (2) obligation to connect and supply final customers at given tariffs and general conditions; (3) ensuring that legally imposed obligations on electricity undertakings in the public interest can be honoured; (4) priority for generation on the basis of renewable sources, waste and CHP. This may in some cases even justify refusal of access; (5) purchase of electricity only from generators which respect the environmental standards of the EU; (6) insofar as this is not in contradiction with international obligations, energy imports from third countries should be reduced. <p>Austria has opted for an authorisation system for new generation capacity, i.e. new power plants can be built anytime after fulfilling a set of criteria which has to respect Article 5 of the Directive and is laid down in the 9 Länder laws. Detailed criteria may therefore vary from Land to Land. Authorisation criteria may favourise renewable, waste or CHP based electricity production.</p> <p>The regional distributors (Landesgesellschaften and smaller distribution companies) have to ensure that by 2007 a share of 4% of electricity consumption is fed in from electricity generation using biomass/biogas, geothermal, wind and solar sources. The required share is increased from 1% in 2001 to 4% in 2007. In addition, 8% of electricity consumption must come from small hydropower plants. If the target is not reached, a fee has to be paid into a fund which will be used to support additional renewable plants.</p> <p>There are fixed feed-in tariffs for electricity generated from renewables which are higher than the general market price. These are stipulated by the complementary laws of the 9 Länder.</p> <p>The mandatory labelling of electricity was also introduced under ELWOG 2000. The allocation of electricity supplied to different sources must be defined on every electricity bill in a manner specified in the legislation.</p> <p>No similar regulation exists concerning energy efficiency.</p> <p>The <u>gas market</u> has been open to consumers with an annual demand of more than 25 million m³ since October 2001 and will fully be open from October 2002 onwards. There is free access to the system based on regulated access with published tariffs and unbundling of accounts.</p>
<p>France</p>	<p><u>Degree of opening of the market</u></p> <p>The thresholds of eligibility have been established on the minimum basis 40 GWh which affects about 400 consumers in 2000 and then quite rapidly descending to 16GWh. In November 2001, the Government, under pressure from EDF, had wished to accelerate the process and drop it to 9 GWh. But this would have required a change to the law in which the speed of opening the market had been defined. The same process is planned for gas but it may be that in the light of the experience with electricity the law will be more daring than initially planned.</p>

Role of local authorities

The role of local authorities has been maintained, especially as the bodies responsible for distribution, but maintaining the obligation to pass a long term distribution contract with EDF and GDF through national Terms of Reference (system of concession). The possibility for municipalities to own their electricity company (DNN – distributeurs non nationalisés) has been maintained.

Nevertheless, the municipality are not considered as eligible, even if their own consumption exceeds the level required, due to the fact that the location of consumption is dispersed (schools, administrative, sportive and cultural buildings, etc..). When municipalities own their local utility, these companies are only eligible for the consumption of their eligible clients. However, Public Transport Companies (under the control of municipalities) are now considered as eligible under the conditions of current thresholds.

A new possibility is open for municipalities to initiate DSM activities in the domestic sector under certain conditions (not yet implemented).

The law also envisages the possibility of supplying some municipal buildings or facilities from the municipality's own production (for example with CHP and/or renewables, or through the combustion of waste). But to date there has been no example in practice.

An annexe notes the most important elements of the law affecting local authorities.

Protection of the public service objectives

The protection of public service is at the heart of the law and even in its title. According to the law the public electricity service must provide:

- independence and security of provision
- air quality and the fight against the greenhouse effect
- the optimal management of national resources
- control of electricity demand
- competitiveness of economic activity, and the rational use of energy
- "social cohesion assuring the right of all to have electricity"
- a contribution to the fight against exclusion
- balanced development of land with respect for the environment
- Research and technological progress
- Defence and public security

Above all, the right of everyone to electricity as a product of first necessity is reaffirmed, which results in an obligation to supply electricity to those in great need. Finally it is stated that the public electricity service must be managed respecting principles of public service (equality, continuity, adaptability) as well as in the best conditions of security, quality, cost, price and social, economic and energy efficiency.

The public sector is reaffirmed as responsible for the organisation of the public service. Communes and intercommunal structures are confirmed in their role.

	<p>Among the most spectacular measures one should note the uniform national price which is henceforward written into the law for non-eligible clients.</p>
Spain	<p>The planned timetable for the opening of the electricity market was:</p> <ul style="list-style-type: none"> - from January 1998: electricity consumers > 15 GWh/year - from January 2000: electricity consumers > 9 GWh/year - from January 2002: electricity consumers > 5 GWh/year - from January 2002: electricity consumers > 1 GWh/year - from January 2007: all the electricity consumers <p>At the moment of the enforcement of the Law, there were 570 eligible consumers representing 28% of electricity consumption. Before the end of first year the Real Decreto 2820/1998 de 23 diciembre, accelerated the liberalisation process decreasing the limits for eligible consumers in the electricity market as follows:</p> <ul style="list-style-type: none"> - from 1st January 1999: electricity consumers > 5 GWh/year - from 1st April 1999: electricity consumers > 3 GWh/year - from 1st July 1999: electricity consumers > 2 GWh/year - from 1st October 1999: electricity consumers > 1 GWh/year <p>From 1st October 1999 there were 9,000 qualified consumers representing 45% of electricity consumption. According to Real Decreto 6/1999 de 16 de Abril, the government once more accelerated the liberalisation process: From 1st July 2000 all the high-voltage electricity users, independent of their level of consumption, became eligible consumers. At that point in time there were 65,000 eligible consumers, representing 55% of all electricity consumption. According to Real Decreto 6/2000 de 23 de Junio, the remaining electricity consumers will be able to choose their supplier from 1st January 2003.</p> <p>The local authorities do not play any special role in this process.</p>
Sweden	<p>The electricity market is now open to all customers. Municipal companies operate about 100 of Sweden's 270 electric network concession areas. A few municipal companies are actively trading electricity; in small groups of municipalities or more often in cooperation with some of the big power companies.</p> <p>Municipal companies own most of the district heating and CHP systems. Local authorities that still own or have interests in energy supply companies in most cases nowadays behave purely as commercially motivated shareholders. Local authorities are playing an important role on the demand side by promoting efficient use of energy. According to a recent government bill they may engage in following activities:</p> <ul style="list-style-type: none"> - Promoting high energy efficiency in public buildings and plants - Dissemination of information to and guidance on the efficient use of energy for citizens, small enterprises and public administrators - Control of new buildings

	<ul style="list-style-type: none"> - Energy certification of buildings - Energy efficiency with public procurement - Mapping and updating information on energy demand in buildings <p>Establishing Local Centres for Sustainable Development, including energy efficiency</p>
The Netherlands	<p><u>Degree of opening of the market</u> The electricity market was opened for clients consuming over 2MW in 1999 and extended to clients consuming over 3x80Amps in 2002. It is planned to open the market fully in 2004. The gas market was opened to clients consuming more than 10 million m3 in August 2000 and extended to those consuming more than 170 000 m3 in 2002. Small consumers will become eligible in 2004.</p> <p><u>Role of local authorities</u> The role of local authorities has changed significantly already. Formerly they had a direct economic interest in energy enterprises in the shareholdings that they held and sometimes more directly in local energy distributors. These holdings have largely been sold and their role has become more linked to the regulation, control and awareness raising in energy management issues. In this context, the local authority retains the “legal” ownership off the distribution network but not the economic ownership. What this means in practice is a moot point. They have retained a role in drafting “gentleman’s agreements” to reduce energy consumption with industrial sectors and in promoting climate covenants to reduce greenhouse gas emissions.</p> <p><u>Protection of the public service role of energy</u> This is a big issue, the "Dienst Toezicht" is checking that there are fair and competitive activities in the market. Big political discussions are going on for the protection of small consumers with a lot of hesitation regarding the sale of publicly owned distribution networks to private companies.</p>
United Kingdom	<p><u>Degree of opening of the market</u> Both markets are now totally open to competition.</p> <p><u>Role of local authorities</u> Local authorities are not direct players in the competitive market. They have no role in production, distribution or formal energy planning. They cannot grant concessions. Their sole role, pushed by Government, is that of providing energy advice. They had been able, when permitted by a special local act of parliament, to operate district heating but few have done so. Recently the limitations on local authorities carrying out trading activities have been relaxed and they can carry out such activities as are necessary for the good of the neighbourhood. This may incite more to operate more actively in the market. A separate act of parliament, the Home Energy Conservation Act, passed in 1995, obliges local authorities to plan for a 30% reduction in energy use in the residential sector (both public and private) but gives no new resources to meet that obligation.</p> <p><u>Protection of the public service role of energy</u> The protection of the public service role of the energy industry was really an afterthought secondary to the main objective of privatisation</p>

	<p>and the promotion of competition, so central to Thatcherite political thinking.</p> <p>However the introduction of a regulator had to take account of this. It was left to the regulator to resolve this problem in cooperation with the industry. Account was taken of the need to provide for the stranded costs of the large nuclear plant and future decommissioning costs (the first two stations at Berkeley and Trawsfynydd have already been de-commissioned) and at the same time, after lobbying by environmentalists, similar consideration was given to renewables. Funding was provided for renewables via a series of tenders, the Non Fossil Fuel Orders (NFFO) for new investment in renewable capacity which guaranteed a price for current for a given period of time.</p> <p>The distribution companies funded energy efficiency under their Standards of Performance programmes. They therefore keep a strong influence on which type of energy efficiency project was funded.</p> <p>The Government established initially a central body, the Energy Saving Trust, which dispenses Government and other money for energy efficiency activities in the form of grants – they run a programme supporting energy advice centres for example. More recently a new body, the Carbon Trust, has been set up to dispense money raised from the Climate Change Levy and other sources for projects reducing carbon emissions.</p>
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10.4 - Main vested interests having an influence on the legislation and how their attitudes are changing

<p>Austria</p>	<p>Initially the energy utilities tried to slow down the liberalisation process. However after the first steps of opening the market, their attitudes have changed to a more market oriented and positive approach. Now, after the full opening of the market, vested interests are mainly working to influence the regulator and – this has been important in Austria during the past 2 years – to strengthen their individual position through mergers and the selling and buying of other companies.</p> <p>Major industries and the chambers of commerce are still driving forces for market liberalisation while consumer organisations and trade unions have a greater tendency to point out the problems and have a more critical point of view.</p> <p>There is a fairly large green lobby promoting electricity generation using renewable energy sourc. These include environmental groups, local communities, energy agencies and also the farming sector.</p>
<p>France</p>	<p>There are very strong links between national energy companies and the administrative and political levels. During the whole process of the first directive, the common position of all the main players (including trade unions) had consisted of slowing down the process. Facing the new situation, the interests of the various bodies seem less convergent. EDF has been buying electricity companies all over Europe whilst the reciprocity is not allowed. Now, EDF is pushing towards an opening up of the electricity market acceptable by the other European companies and States.</p> <p>More or less discretely some private companies (Suez/Electrabel/Energie du Rhône/Elyo, or Air Liquide, or also Dalkia, subsidiary jointly owned by Vivendi and... EDF) are pushing towards a more open situation. But the political consensus is now the strongest force and local authorities are only active in such a lobby in proportion of their responsibility in the field of energy.</p> <p>Preparing themselves to a more open situation some LAs have launched a process aimed at the empowerment of municipalities in their role. For 4 years, Municipalities have taken the initiative to organise the "Assises Nationales de l'Energie" focused on LAs' issues in order</p>

	<p>to influence the law, for example in 2002 on the theme of distributed generation.</p> <p>Due to the national elections in 2002 (for both the Presidency and the Parliament), and despite the Council of Barcelona, no decisions have been made before the middle of the year. However, the different lobbies were continuing to argue..., the situation of public services in the UK, that of electricity in California and even the disinterest of Vivendi in environment, water and energy due to their focus on communication activities are making the lobby promoting a <i>status quo</i> much stronger; the lobby for a public service "<i>à la française</i>".</p>
Spain	<p>The main vested interests are the electricity and gas companies which have been forced to break up their vertical integration. They have been reorganised into different companies (generation, distribution, sales) but they remain part of the same group.</p> <p>Before liberalisation 14 electric companies had 95% of the power capacity and produced 88% of all electricity.</p> <p>After liberalisation only 4 big companies remained (Endesa, Iberdrola, Union Fenosa and Hidrocantabrico). Recently Endesa sold Viesgo to Enel. So now there are 5 players with many small power producers grouped into two associations: AAEE and APPA.</p>
Sweden	<p>The international competitiveness of Swedish trade and industry is often debated with regard to energy, environmental and green taxes. Substantial parts of Sweden's export industry are heavily dependent on a secure supply of energy at reasonable prices. Taxes and other economic instruments should to a certain degree be harmonized. Within EU important steps in that direction are expected; emission trade, green certificates, etc.</p> <p>Sweden has strong interest organizations/confederations within the energy supply industry. The sector's general attitude to competition, to the efficient use of energy and to an overall efficient resource allocation, including environmental values, is positive. However, some energy companies have had too high ambitions to make profits. For instance, the Swedish Energy Agency has in several cases ordered network companies to keep distribution tariffs at a more moderate level. Dramatic price rises have hit district heating customers in some cities – perhaps too large a price rise to be good for the business itself in the long run. Such episodes have intensified the debate on whether district heating should be regarded as a monopoly and hence put back under regulation.</p>
The Netherlands	<p>In many EU-countries the pace of liberalisation is higher than in the Netherlands. Therefore a national lobby exists to step up the domestic liberalisation process:</p> <ul style="list-style-type: none"> - Enterprises and consumers want to benefit from the advantages the free energy market is supposed to offer (freedom of choice, lower prices) - Energy companies are afraid that foreign competitors, especially German ones, will be better prepared once the Dutch market opens up completely <p>However:</p> <ul style="list-style-type: none"> - The Dutch energy companies seem to be adjusting fast to the new situation. There are problems separating the eligible and captive consumers. Already purchasing consortia are being established that are not in conformity the regulations for the transitional phase as prescribed in the Electricity act - Consumers whose consumption is only just beneath the division line between captive and eligible customers feel disadvantaged - The dates for the phased liberalisation of the market have already been brought forward.
United Kingdom	<p>The legislation is in place – vested interests are working more to influence the regulator to ensure that the condition he or she applies will not create too large a burden – the manner in which the industry had kept a strong influence in the use of money for public benefits</p>

	<p>purposes is a case in point. (The industry has to spend money to achieve a certain level of energy savings – but thus has an influence on the targets). There was a widespread outcry at the decision to reduce distribution charges from the industry but it was well received by the public. There is much more concern regarding – for instance how the industry will be able to meet the Government’s target of 10% of electricity from renewables without suitable incentives and the green lobby is working hard there.</p>
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10.5 - General impact of liberalisation on prices and incentives to save energy to date

Austria	<p>Major consumers and industry have benefited from lower energy bills (up to 30-40%). For households and smaller consumers the benefits were less, with an average price reduction of 5 – 15%.</p> <p>As mentioned, there are quite strong incentives for electricity generation using new renewable sources. There are no such incentives to increase energy efficiency.</p> <p>Before liberalisation, activities to save energy could be carried out in co-operation with the regional energy company or with the municipal utilities (“Stadtwerke”) in the larger cities. They were in public hands and a direct influence was possible. Following the introduction of competition and the selling off of shares in the companies there are now fewer opportunities and local authorities and other bodies have to take over these tasks.</p>
France	<p>EDF has recently (end of 2001) announced the intention to increase domestic tariffs by 5% this year after a several years of declining prices. This was justified by the need to counter the 3% levy suggested by the regulator to support renewable energy and public service objectives, a provision allowed for in the liberalisation law (the government has only accepted 1%). The real cause of this may be a matter of some debate, since the incomplete opening of the French market also presents the fear of cross subsidisation by captive consumers. In fact the very pro-active behaviour of EDF towards taking over electricity companies all over Europe seems an even more important explanation of EDF’s need to increase tariffs. Prices have fallen for eligible consumers and some of them have changed suppliers, but the impact is not very significant to date. However the unsuccessful proposals made to potential customers by EDF are very welcome in order to demonstrate a real opening of the French market to those abroad, whilst other countries, displaying a theoretical full opening, remain, in practice, almost totally closed...</p> <p>In fact when the process of opening the markets is a slow one, the initial beneficiaries are the only ones. Suppliers take the means to reduce the prices they offer out of their margins, and when small consumers become eligible, there is no margin left any more. Even worse, the small and medium consumers are then invited to pay more to finance the gifts to the big ones!</p> <p>There is no special action dedicated to save energy linked with the new context of liberalisation, However, the budget of ADEME has increased and some actions have been carried out in cooperation with private banking or financial services partners.</p>
Spain	<p>The goals of the Law on the Electric Sector are: to adapt the electricity supply to consumer needs, to rationalise, make efficient and optimise (supply and needs) and to run the electricity supply activities in a co-ordinated manner with objectivity, transparency and free competition. Electricity activities must respect freedom of initiative by business, must guarantee supply (to consumers, the quality of electricity, supply at least cost, and always taking into account environmental protection) and will be considered an essential service.</p> <p>The Law on the Electric Sector states that it will be possible to operate an energy policy based on the progressive liberalisation of the electricity market while achieving other objectives: an increase in energy efficiency, the reduction of electricity consumption and environmental protection.</p> <p>In practice the reality seems quite different from what the Law states: some regions of Spain experienced blackouts and power cuts in the pre-Christmas period in 2001. In the autonomous community of Catalonia, the Catalan Government imposed, for the first time, a big fine on an electric utility (ENDESA) for the blackouts.</p>

<p>Sweden</p>	<p>Electricity prices in the NordPool system are certainly volatile. But the daily, weekly and seasonal fluctuations are to a great extent anticipated. They primarily affect the action of dealers and traders. The average price is comparatively low in Sweden for the small final consumer and most people don't even bother to look to see if an electricity saving measure per se is definitely profitable, since the amount of cost reduction is too modest to motivate enough interest, knowledge, time and other transaction costs.</p> <p>Also calculations on energy conservation measures in buildings may result in positive present values over their economic lifetime, that often is 10 years or more. However, many private house owners demand a pay back time on investments that is no longer than 5 years.</p>
<p>The Netherlands</p>	<p>The general idea is: higher efficiency, lower prices and increasing taxes (ecotax) to stimulate energy saving and RES.</p> <p><u>Electricity</u> Those eligible to choose their supplier, about 650, pay lower energy prices than before and a large proportion have switched suppliers. It is expected that two-thirds of Dutch industry will have changed supplier by 2005. Grid tariffs have a significant impact.</p> <p>The regulated grid tariff or point tariff controlled by DTe is independent of distance. DTe establishes the maximum tariff, but grid managers are free to offer lower prices. This means that prices can vary by region. It consists of: Connection tariff: once-only contribution + regular contribution for e.g. a transformer + monthly contribution for maintenance of the connection. Transport tariff: depending on the voltage level of the connection.</p> <p><u>System services costs</u> Contribution for continuity of voltage and frequency.</p> <p>A specific price problem has been observed concerning green electricity in the transitional phase. Small producers are 'protected': the licensed energy supplier has to buy their green electricity and also they are exempt from Ecotax and receive a government subsidy of 0.016euro per kWh. However, the suppliers pay a low price for this electricity and bill high charges. The Minister of Economic Affairs has few powers against this, and it is hoped that the complete opening of the market will resolve this.</p> <p><u>Gas</u> The <i>CDS</i> (Commodity Services System) tariff operated by Gasunie: is dependent on distance¹⁶ and is approved of by the Minister of Economic Affairs This consists of 3 elements:</p> <ul style="list-style-type: none"> - Commodity = gas - Transport - Capacity services: right place, right time, right amount

¹⁶ 5 entry points have been appointed for 'other' gases

	<p>If other gas suppliers want to use the transport grid, the negotiations are based on the transport aspect of CDS. Capacity services can be added on request. Gasunie has imposed CDS without consulting third parties. Critics speak of dTPA: <i>dictated</i> Third Party Access.</p> <p>Under CDS gas use is measured every hour instead of the usual once a year. The natural gas price remains connected to the oil price and special tariffs (e.g. for CHP) are to be abandoned.</p> <p>Fifty of the largest, eligible, customers have switched suppliers. The distribution companies (who supply the smaller large customers) have long term contracts with Gasunie and have limited possibilities to lower prices, indeed in the short to medium term prices are expected to rise due to Ecotax.</p> <p>Combined heat and power (CHP) and district heating have been affected by the competitive market. Cheap imported energy has resulted in an overproduction of energy in the Nether-lands. The resale price of energy is therefore lower and CHP becomes unprofitable, squeezed between a rising gas price and reducing electricity price. The national government is exploring possible avenues for promoting CHP.</p> <p>New concepts by new players can have an unexpected energy saving impact. Re-loadable energy cards, a new product for supermarkets, proved to reduce the energy use.</p>
<p>United Kingdom</p>	<p>The impact of liberalisation was initially a fall in prices – except for the smallest consumers on pre-paid meters who generally paid more. When the market was only partially open , the prices for the captive market continued to rise and competition for the eligible market was fierce. Once the market was fully open prices fell sharply also for the domestic consumer. However the changes in fuel prices etc. have not allowed the price cuts to be maintained at the same level. In particular in the case of gas the market fluctuated significantly and one year the market bounced back with a price rise of about 30%. With the introduction of the new trading arrangements for electricity the wholesale prices have dropped 20-25% in five months.</p> <p>This introduction of instability in prices is a significant impact – particularly for the larger consumers where the actual fuel cost is more significant (for smaller consumers of course the distribution cost is a major element in the cost and this is relatively static).</p> <p>The distribution companies were making very large profits (a return on capital of 40% for the distribution business of the former company Hyder for example compared with 2% on sales and production). In 1999 the regulator instructed the distribution companies to reduce tariffs – and this caused their shares to plummet. Hyder for instance reduced from 800p per share to 180p, and was subsequently taken over.</p> <p>Public interest programmes run by the distribution companies (SOP) for saving energy have had a relatively small impact in the past. Grant aid is often in the form of support for generation projects in their field. At the same time programmes run by the Energy Savings Trust have included significant help for local authorities.</p> <p>The energy distribution companies have been given targets to reduce energy consumption and recently have been tending to channel their funding for this via local authorities which are seen as the cheapest way to deliver. Failure to deliver will result in fines and the targets are becoming significantly stricter.</p> <p>Concurrently the oil price has rose steeply due to world market changes. At the same time the British Government has decided to increase sharply the duty on motor fuel and this has caused strong protests from the motor lobby – especially transport companies (they have learnt something from French lorry drivers!). This has caused a halt to this policy.</p>

10.6 - General impact of liberalisation on behaviour of major energy players?

<p>Austria</p>	<p>The national government has been active in trying to form a large Austrian consortium of utilities to be competitive on the international markets.</p> <p>The authorities of the 9 Länder now have the task of defining and implementing regulations on public services and renewables. Local authorities will have an important role in promoting energy efficiency through awareness raising and implementing practical projects.</p> <p>Energy Utilities: Mergers, take-overs and selling of shares take place across national borders. Branding is an important issue and also the development of new business opportunities: contracting, waste management, water, international activities. There is less interest in energy efficiency and awareness rising (except where it is seen as useful as a means for retaining customers).</p>
<p>France</p>	<p>The National Government is applying the directives in a quite restrictive manner. Nevertheless it is preparing some political decisions like an opening of the capital of EDF and GDF to private partners,</p> <p>Despite the low level of opening, energy companies are preparing themselves to face the new context in different ways:</p> <ul style="list-style-type: none"> - relationships with clients (which are not considered as "users" in the same way anymore) - pro-active activities abroad - enlargement of the offer of goods and services i.e. not only "energy" but "services", through subsidiaries when necessary - restructuring their own organisation <p>The implementation of the unbundling between transmission and other activities is effective, as well as the independent regulator, the CRE - <i>Commission de Régulation de l'Electricité</i>. But the "mono-culture" on energy in France makes it difficult to achieve a balanced between the relevant energy bodies</p> <p>Consumers:</p> <p>eligible (number: xxxx): a new behaviour is in progress, even among public bodies</p> <p>non-eligible: nothing expected except from those which consume > 9GWh, which are on the "waiting list"</p> <p>Local authorities: information, publications, workshops and seminars are slowly preparing LAs to face the new context, essentially in their role of distributor. Nevertheless they consider themselves – as consumers – generally still outside the process, despite some efforts here and there (for instance a working group to prepare future calls for tenders in electricity or gas supply). Annually a national event is organised which is directed at municipalities and other LAs (les Assises Nationales de l'Energie), in 2002 this focused on distributed generation.</p>
<p>Spain</p>	<p>The National Government is accelerating the liberalisation process. The main objective is to decrease energy prices.</p> <p>Regional authorities are present on the Permanent Commission of the National Energy Commission's Electricity and Hydrocarbons Consultative Bodies</p> <p>Local authorities: don't play any role in the process, and this did not cause them to worry until last winter when there were power blackouts. In Catalonia some municipalities met on 21st February to adopt the so called 'Rubí Declaration', asking for undergrounding of electricity networks, a plan to promote local generation, etc.</p> <p>Electricity producers: Mergers and take-overs are taking place across national borders</p>

	<p>Electricity distributors : Electricity distributors have become subsidiary companies of electricity producers Gas distributors have become companies owned by electric utilities or by the former gas monopoly</p> <p>Consumers : Eligible consumers are increasingly purchasing abroad Non eligible consumers continue on regulated tariffs</p>
Sweden	<p>The national government and authorities are following up the reform on an ongoing basis. Amendments to the legislation are still made especially those designed to strengthen the customers' position.</p> <p>Supply side energy players have become commercial, regardless of who is owner of the energy company. The harder the competition the smaller the margins of profit. The companies try to increase their sales volumes and get higher market shares. Mergers tend to decrease competition etc. This is one of the risks that is currently being actively debated.</p> <p>The local authorities have an important influence on the demand side as a policy maker with influence on legislation, public opinion, housing, spatial planning etc.</p> <p>All big electricity customers and more than 40 % of the smallest consumers have made an active choice of supplier. Still many small customers have problems in fully understanding how the system works and how to read and grasp the electricity bill.</p>
The Netherlands	<p>National Government Its role changes from player to director. It is now playing an important role in awareness raising about energy efficiency</p> <p>Local and regional authorities The relation between these authorities and the distribution companies changes from left hand – right hand to businesslike. Instead of being the partner or even the shareholder of the old and well-known regional energy company, they increasingly have to profile themselves as buyers on a free market. In a liberalised system local authorities should play a more important role in public awareness raising.</p> <p>Electricity producers Mergers and take-overs are taking place across the national borders. Concluding the SEP.</p> <p>Electricity and gas distributors Mergers and take-overs Especially the top three companies are developing new services and incorporate new products (e.g. water, cable television) or related products (e.g. energy meters). Branding has become an important issue. Notably 'comfort' and 'green' seem to be important terms now. It is possible that in a completely liberalised market, energy prices will become a more important issue. Local distributors had played a major role in public awareness raising about energy efficiency. This role like other public service responsibilities, is being abandoned.</p>

	<p><u>Consumers</u> Large (eligible): increasing purchase abroad. Small and medium (not yet eligible): no change except the establishment of some purchasing consortia (see above under Main vested interests...)</p> <p>Some non-governmental organisations (for example Greenpeace) are playing an important role in public awareness raising and education about energy efficiency.</p>
<p>United Kingdom</p>	<p>Put in a nutshell, businesses behave like businesses, regulators behave more and more like independent regulators of the remaining monopoly elements of the industry and clients behave like clients. Local authorities have a potential role as local lobby for the public benefits of energy efficiency and renewables – but do not have the resources and do not profit from energy sales and so find it difficult to be able to raise funds.</p>

11 - Conclusions

The liberalisation of energy markets has had significant effects on the structure of the energy industries in the countries concerned. The market has been described accurately as a breaking up and reconstitution of the market players, but in the end the industry is reforming into a smaller number of larger players.

The role of municipalities is different between countries in Europe. This is primarily related to their involvement in energy supply. In those countries where district heating is widespread, this is usually implemented under municipal control – district heating is a local service par excellence. (In the former Soviet Union it tends to remain centralised – but this seems likely to change too in time). In those countries where there is little district heating there tends to be little municipal involvement in energy supply. The municipal companies dealing with district heating also tend to get involved in electricity and gas distribution. Thus there is broadly a zone of high municipal influence in energy supply in The Netherlands, Germany, Austria, Northern Italy and Scandinavia, and a zone of little municipal influence in the West and South.

This seems likely to change. With liberalisation the large energy companies are buying up distributors to get contact with their market. In The Netherlands municipalities have been encouraged to sell their shares in the municipal companies with the intention of developing three or four major market players, so that now there is very little municipal ownership of the energy sector at all there. In Germany municipal companies are merging or entering into joint ventures with the private sector. So the result will be a tendency towards uniformity in municipal roles in which the public service role is not confounded with the service provider and profit maker role. This can be viewed as good and bad at the same time. It is bad in that it distances the municipality from the real problems of providing a public service such as energy, and places it in a relatively reactionary role of regulator, aligned to the general public interests, rather than supplier aware of all the technical and practical constraints of real life.

It is good in that the municipality has to think about the service that people are getting in the round – taking account all the public policy issues and this is easier if one is not constrained by a direct interest in the income generated by energy services. It makes it easier to ensure value for money and the application of real political priorities.

11.1 - Decline of the small players

Municipalities have traditionally supported small local operators, and they risk being sidelined or bit by bit eliminated from the market. All the participant countries have been characterised by large national and/or international players who have tried to increase their hold on the market. In all the countries major players have been forging new alliances in a sector where size produces significant benefits. Even in those countries which have resisted imposed regulation (e.g. Germany), in practice public response has tended to require that one be introduced. In Germany regional gas regulators were being considered and it seems likely that in the end, regulated access will be introduced in place of the preferred negotiated access in order to maintain clarity of competition. The role of the local authority at local level is handicapped by the different legal positions of the local concession. In Britain the privatisation legislation accorded a territory to private companies. In France the legislation makes those local authorities that don't operate their own network themselves grant a concession over their own network to the national operator, and once granted, this concession cannot be relinquished.

In the UK, alone among the liberalised markets, action was taken in the late 90s to increase the number of generators. This has been successful in reducing prices and increasing competition, but has weakened UK utilities in the international market place, an effect which cannot have gone unnoticed in the corridors of power and which is unlikely to have been happily received. In other countries, in particular those that are protecting their home market from the competition that they wish to impose on others (e.g. France and Germany), reconcentration has been actively encouraged as a natural process of survival of the fittest. In

addition these large energy enterprises have gone on a buying spree abroad, so developing new large multinational companies.

Such a restructuring leaves municipalities by the wayside. But this is unfortunate since they still have an important role in other elements of the energy system and are likely to be the ones picking up the pieces left behind by the large players as unprofitable as the process gathers pace.

11.2 - The increasing importance of awareness raising

Local authorities have a significant role in energy awareness raising. If they are not doing any awareness raising among the small consumer, then it is likely that little, if any, is being done anywhere. Without local authority action, little impact will be made on this section of the market – those for whom the transaction cost of promoting energy efficiency action is the most prohibitive.

However the means of getting resources to municipalities to fulfil this function are, at best, not transparent. Levies on energy and the resources available for energy efficiency and renewables are separated (as is usually the case in taxation based systems). Therefore the incentives for action on energy efficiency are generally more likely to come from political action than trading. Thus there is a real risk that action on energy efficiency will become more centralised at a time when purchasing and price decisions are moving downstream.

Similarly it is apparent that there is an increasing trend to see local authorities as vital players in local regulation. There seems to be a change from local authorities being active players in the supply side to being local regulators and the creators of incentives. Direct involvement in practical projects is more limited, being primarily linked to action in their own stock and action in non-liberalised sectors such as heat distribution (although even here the Dutch experience suggests the withdrawal of municipalities from the sector).

The speed of liberalisation is different in different countries and so the impact on municipalities varies considerably too. British municipalities are faced with active and very competitive liberalisation and local authorities have been presented with stark choices, even without any municipal supply sector to lose. By contrast in France little has changed directly with a very limited opening of the market, but the pressure to resist liberalisation has however put a new emphasis on the public service role of the utility, perhaps somewhat forgotten in recent years. This has started to push new responsibilities down to the local level such as awareness raising via the "*guichets de l'énergie*" and energy planning via regional coordination plans. In the more organised Austrian system, the very recent complete opening is still making its impact felt, but there are suggestions of the separation of the utility business sector from the municipal public service role.

11.3 - Further opening of the market

The current proposals of the European Commission for opening energy markets originally implied an opening to all clients by 2005. Following French resistance, the proposal has been limited to enterprises but this would nevertheless include all municipalities. This will have profound implications for municipalities in their role of client, and they will be faced with the need to put all their consumption out to competitive tender according to normal public procurement rules. British experience suggests that this is quite a challenge.

Partial opening of the market to enterprises would also suggest that in the long term the market will necessarily open completely. It will be extremely difficult, whatever the regulatory framework, to prevent cross-subsidisation and the transfer of costs from the liberalised sector to the remaining monopoly elements. It is felt by many that this happened in the UK for instance. Rising costs for householders are then almost certain to produce pressure for full opening to the remaining captive clients to create a level playing field.

So the structure of the energy sector is having direct impacts on municipalities that can clearly be seen in the liberalising economies. These have very large implications for energy efficiency policy and it is vital that they are considered by the governments of those countries undergoing liberalisation.

12 - IEA Demand-Side Management Programme

The International Energy Agency (IEA) was established in 1974 as an autonomous agency within the framework of the Economic Cooperation and Development (OECD) to carry out a comprehensive programme of energy cooperation among its 25 Member countries and the Commission of the European Communities.

An important part of the Agency's programme involves collaboration in the research, development and demonstration of new energy technologies to reduce excessive reliance on imported oil, increase long-term energy security and reduce greenhouse gas emissions. The IEA's R&D activities are headed by the Committee on Energy Research and Technology (CERT) and supported by a small Secretariat staff, with its headquarters in Paris. In addition, three Working Parties are responsible for monitoring the various collaborative energy agreements, identifying new areas for cooperation and advising the CERT on policy matters.

Collaborative programmes in the various energy technology areas are conducted under Implementing Agreements, which are signed by contracting parties (government agencies or entities designated by them). There are currently 40 Implementing Agreements covering fossil fuel technologies, renewable energy technologies, efficient energy end-use technologies, nuclear fusion science and technology and energy technology information centres.

The Demand-Side Management Programme is a relatively recent collaboration. The 17 Member countries and the European Commission have been working since 1993 to clarify and promote opportunities for DSM.

Australia	France	Spain
Austria	Greece	Sweden
Belgium	Italy	United Kingdom
Canada	Japan	United States
Denmark	Korea	
European Commission	Netherlands	
Finland	Norway	

A total of 10 Tasks have been initiated, 4 of which have been completed. Each Task is managed by an Operating Agent from one of the participating countries. Overall control of the programme rests with an Executive Committee comprising one representative from each contracting party to the Implementing Agreement. In addition, a number of special ad hoc activities--conferences and workshops--have been organised. The Tasks of the IEA Demand-Side Management Programme, both current and completed, are as follows:

Tasks

Task I	International Database on Demand-Side Management
Task II	Communications Technologies for Demand-Side Management
Task III*	Cooperative Procurement of Innovative Technologies for Demand-Side Management
Task IV*	Development of Improved Methods for Integrating Demand-Side Management
Task V*	Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace
Task VI*	DSM and Energy Efficiency in Changing Electricity Business Environments
Task VII	International Collaboration on Market Transformation
Task VIII	Demand Side Bidding in a Competitive Electricity Market
Task IX	Municipalities and Energy Efficiency in a Liberalised System
Task X:	Performance Contracting

* completed Task

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