

The Congress of Local and Regional Authorities



15th PLENARY SESSION
CG(15)13REP
23 April 2008

Public local and regional action: for a new energy culture

Oleksandr Luk'ianchenko, Ukraine (L, EPP/CD)
Mariacristina Spinosa, Italy (R, SOC)

Explanatory Memorandum
Committee on Sustainable Development

Summary :

Energy issues are again high on the agenda for two main reasons: climate change and the need for a secure supply of energy at affordable prices. The industrialised countries need to reduce massively their energy intensity and make greater use of renewable energy sources.

Multilateral agreements and European and national decisions will not in themselves create the technical conditions for the substantial changes required to rise to these challenges. Over 75% of the energy is consumed in towns and cities for housing, travel, work, entertainment, etc. A fundamental shift is impossible without a strong commitment from local and regional authorities, which, being close to the public and economic operators, can act as a catalyst for change.

Local and regional authorities must, accordingly, play a major role in setting energy policies geared largely to energy efficiency, energy savings, improved energy output and renewable energy.

A sustainable local energy policy has a major beneficial impact on local development, economic activities, employment, the local and global environment, quality of life and the attractiveness of towns and cities. Furthermore, it does much to alleviate the precarious energy supply situation of inhabitants experiencing hardship.

R: Chamber of Regions / L: Chamber of Local Authorities
ILDG: Independent and Liberal Democrat Group of the Congress
EPP/CD: Group European People's Party – Christian Democrats of the Congress
SOC: Socialist Group of the Congress
NR: Member not belonging to a Political Group of the Congress



CONTENTS

Introduction
Energy is also a local and regional issue. 3

1. Energy, life and economic activities..... 3

2. Medium and long-term prospects and the challenges for local and regional authorities 5

3. Changing our relationship with energy and improving regions’ energy performance 6

4. Local and regional authorities and the new energy players 7

Conclusion
Local and regional authorities must become key players in the new energy culture. 10

Appendix 1: Energy intensity (Energy consumed/GDP) 11

Appendix 2: Two scenarios for world energy consumption up to 2050..... 11

The Congress Secretariat would like to thank Mr Gérard Magnin, Executive Director of *Énergie-Cités*, France, for his help in the drafting of this report.

Introduction

Energy is also a local and regional issue.

Energy issue is once again a priority issue on the political agendas of international institutions for two major reasons: global warming and the security of energy supplies. These are both highly political insofar as they impact on certain geopolitical questions, the significance of which increases as emerging countries become more developed: potential or actual conflicts between countries in order to secure energy supplies, the “energy weapon” as a means of pressure on certain countries, unequal distribution of climatic risks. Europe, whether the former 15-strong Union, the new member states – in particular those from central and eastern Europe – the western Balkans or certain countries in the former Soviet Union, is at the heart of this problem and has to endure its consequences in practice, sometimes with great pain.

States, the large energy companies and the international institutions sometimes wonder how exactly local and regional authorities can influence such major questions, when what is at stake would appear to go far beyond their own capacity for action. Such is not at all the case. While the consequences of energy problems are global, a large part of the solution lies in a complete energy paradigm shift, in which the way we use energy – and not only the way we produce or transport it – will increasingly remain at the heart of our concerns. This is because, setting aside energy consumption in the industrial sector – and here there has been a constant fall representing between 20 and 30% in all European countries – and in part air transport, everything impacting on energy consumption for housing, the workplace, business, entertainment and travel takes place in areas for which the organisational responsibility falls to local and regional authorities. Around 40% of energy is consumed in buildings and 30% on transport. This accounts for almost three quarters of all consumption, and for a similar proportion of greenhouse gas emissions.

While multilateral agreements and European and national decisions are essential as frameworks to assist all the players and levels of government, including the local and regional tiers, they are not enough in themselves to create the functional conditions for change that are needed in view of the issues at stake. In Europe, it is primarily the local authorities which, seeking to inculcate a new energy culture, have come up with initiatives for change, occasionally encouraged by national governments. It will be thanks to them – and beyond them, citizens and players at local level – that we will be able to reverse the course of events. Because the energy issue is a social issue much more than a technical one.

1. Energy, life and economic activities

Energy is not a commodity like any other.

Like water, air, raw materials and food, energy is essential for life. It impacts on all human and economic activities. This confers great power on those who control the resources, especially in the case of fossil and fissile resources: the quantities made available, the prices that have to be paid and delivery conditions are by and large in the hands of the producing countries and companies exploiting these resources. Ensuring secure supplies and the economic competitiveness of consuming countries is therefore central to energy policies. But this is not the whole story. The transformation and use of energy have a considerable impact on the environment: local polluting emissions, CO₂ emissions affecting the planet's climate, radioactive waste, the risk of major accidents. Which is why the protection of the environment, alongside security and competitiveness, is one of the three pillars of the energy policy of the European Union and European countries in general. Given the increase in the phenomenon of energy poverty, which prevents the poorest from being supplied with energy at an acceptable price, perhaps a fourth dimension should be added, namely social equity, to guarantee all European citizens access to energy to meet their essential needs. Energy policies could in this way find themselves in harmony with the principles of sustainable development: economic development, environmental and social equity. This is not how things stand today.

Historically, energy resources gave the impetus for the development of particular regions.

The first settlements grew around places where there were natural energy resources – where there were watercourses, wind, forests, sunshine. Energy was used sparingly. When a forest had been exploited as much as it could, people simply moved ... to near another forest. As a result of the industrial revolution, the exploitation of coal and the emergence of the first local electricity networks, populations and activities grew up close to watercourses and mines. A mining region was a wealthy region. Up to that time – and there are still traces of this today in certain places in Europe – the development of particular regions was closely linked to local resources, which led to those regions having a strong sense of responsibility vis-à-vis their vital relationship with energy. Later, with the emerging importance of oil, electricity connected to vast networks and then gas – all of which are easily transportable forms of energy – these regions and their activities were released from their reliance on local resources, and as a result there was massive population movements. This “liberation” contributed greatly to strong economic development in what we know as the industrialised world.

At the same time, this “liberation” brought with it negative consequences and led to new forms of dependence, the effects of which are still felt today:

- These areas have lost their sense of responsibility vis-à-vis energy: the places where energy is produced and consumed are now so far removed that they may be unaware of each other's existence. We are forced to buy energy at prices over which we now have no control; we have built houses in one place, shops in another and businesses yet somewhere else, and we use energy to get from one to the other every day.
- Regions stopped using energy economically (as is the case in all economics of scarcity) since their energy consumption no longer had any adverse effect on their local resources, and in certain countries higher energy production was an aim in itself, an indicator of progress, regardless of the use made of it.
- While these areas have gradually become more concerned about the local consequences on the environment and on health of misuse of energy (air pollution) they have generally paid no attention to the global environmental consequences of their consumption, neither regarding preservation of resources nor waste control. This has exacerbated the greenhouse effect, all the consequences of which we will have to pay.
- Abundant and cheap energy has led us to create regions designed independently of their immediate environment and resources: there has been systematic recourse to external energy supplies, reflecting a vision of progress in which civilisation is measured by the degree to which human settlements are no longer reliant on their natural surroundings.

The rise in energy prices and the increasing scarcity of resources show the extent to which we have become almost addicted to energy.

The arrival of new emerging countries marks an end to irresponsible energy consumption.

Up to the end of the 20th century, the so-called “industrialised” countries alone (mainly the OECD and former USSR countries), i.e. one quarter of the world's population, consumed three quarters of the world's energy. In this context of consumption limited to just one part of the globe, the impact of our energy consumption and production patterns have been significant: global warming, tension over resources leading to conflicts over energy supplies, higher prices and major oil and nuclear accidents.

Now that the world quite legitimately aspires to a more comfortable way of life, there is a fear that all the drawbacks of our system will expand exponentially. What was not “sustainable” with the developed quarter of the globe will be even less so with three quarters and, it is to be hoped, the whole of the planet during this century, since it would be scandalous to leave part of humanity by the wayside. The countries in transition in eastern Europe are bearing the brunt of this situation: high energy intensity¹, rising world energy prices and limited income for families and local institutions, geopolitical pressure, etc., all compound the problem of often impaired infrastructure – including heating, public transport and housing.

¹ Energy intensity measures the relationship between energy consumed in a country and that country's GDP. The lower the ratio, the more the country is energy efficient. Among Council of Europe countries, the differential may vary from 1 to 2, 3 or even 4, depending on the method of calculation (See Appendix 1)

It is inconceivable that such a situation should last, but there is a danger that it will if we cannot change the way we are developing and our relationship with energy. The western model, which for so long has fascinated the rest of the world, can now be seen for what it is: non-sustainable and non-transposable to the rest of the planet if the foundations on which it is based are not re-examined, while still maintaining a good standard of living. Accordingly, the wish on the part of the European countries in transition to adopt the criteria which previously contributed to the progress of the countries of Western Europe must be rethought. It would be extremely unfortunate if, once they were supposed to have reached the goal, these countries saw that the goal of the more advanced countries had changed. Because it is indeed changing.

2. Medium and long-term prospects and the challenges for local and regional authorities

The goal of “Factor 4” by 2050 must be taken seriously².

According to the IPCC³/GIEC⁴, the world’s greenhouse gas emissions must be halved by 2050 in order to limit to 2°C the rise in the planet’s temperature during the 21st century. Given that the “industrialised” countries contribute much more per capita to the greenhouse effect than the other countries, we have to divide our emissions by 4 by 2050, or at least halve our energy consumption and make significantly more use of renewable energy. To this end, the European Union decided in 2007 to set the following objectives for 2020: a 20% cut in CO₂ emissions; a 20% reduction in energy consumption; renewable energy to account for 20% of energy consumption. These must become everyone’s objectives – whether or not our countries have signed up to the Kyoto Protocol, which, moreover, is just a first step – for a number of reasons that are not related exclusively to climate change: economic development, energy security and independence, social equity, reduction of geopolitical tension, pollution at local level, creation of new types of employment, balanced development of regions, etc.

In each individual area, the local authorities should (once again) learn to measure the energy consumed, the potential for savings, the proportion derived from renewable and recycled energy and CO₂ emissions. Local and regional energy accounting should be part and parcel of any policy designed to re-empower local and regional authorities in the field of energy supplies. This is the focus of the European Commission’s INTERREG IVC operational programme, the new energy paradigm being considered, alongside adaptation to climate change, as one of the four major challenges for regions⁵.

A new form of competition between countries – and regions – has begun.

A town, city or region will be all the more attractive if it is able to provide its inhabitants with a recognised quality of life. Among quality of life criteria, particular importance will be placed on the ability to live with a reasonable amount of energy derived as far as possible from renewable resources. Just as a business would be unable to survive in a market economy if it wasted energy, a town, city or region will never be attractive if its housing is poorly insulated, if its residents are unable to heat themselves appropriately, if people have to travel further and further to satisfy their day-to-day needs, if individual journeys have to be made mainly by car, if foodstuffs come primarily from the other side of the world, ignoring local produce, and if the local authorities use energy extravagantly, encourage unbridled urban sprawl, make no effort to help citizens consume more intelligently, do not encourage the development of economic activities designed to consume less energy and use more renewable energy, do not provide pedestrian routes and cycle tracks, pleasant and efficient public transport, parks for relaxation close to home, and local shops and services. European cities are now competing on these matters. A new “energy culture” is emerging and those who ignore it will be

² See Appendix 2

³ Intergovernmental Panel on Climate Change

⁴ The IPCC in French is GIEC – Groupement Intergouvernemental d’Experts sur l’évolution du Climat

⁵ “Challenge 3: Towards a new energy paradigm. A major challenge for European regions in the coming decades will be to successfully implement the change of energy paradigm. For more than one century, the availability of oil and, more recently, of natural gas, has made possible the considerable expansion of industrial countries. World resources of oil and natural gas are progressively being depleted in a context where the expansion of large emerging economies is creating a strong growth in demand. As resources become more and more scarce, their price is likely to considerably increase. Changing the European energy paradigm can only be achieved in a long-term perspective with considerable efforts and investments. Territorial impacts are likely to be very significant. These have to be anticipated in the context of spatial development policies in order to avoid conflicts and insufficient productivity. The main objectives of spatial development policies in facilitating the change of energy paradigm are aiming in particular to increase the energy efficiency of existing systems, and to favour the development and optimise the use of renewable energy sources”. (extract from the INTERREG 4C Operational programme) – www.interreg4c.net

marginalised. However, there are still many in this latter category and current trends are far from showing a major shift in this direction.

3. Changing our relationship with energy and improving regions' energy performance

The 3rd industrial (or post-industrial) revolution is one of intelligence and information and will change our relationship with energy.

The most advanced countries are those able to use these sciences and, unlike the past, generally not those which have their own energy resources and, fascinated by their energy income, believe they are exempt from having to invest in other economic sectors. Our only course of action, as consuming countries (regardless of whether or not we are producers) is to reduce the level of our consumption and to focus on our ability to use local resources: sun, wind, biogas, biomass, geothermal power and energy recycling. Energy can be saved by using it more intelligently.

Denmark has decided that with effect from 2015, no new building should require energy for heating. France is about to go down a similar route. For quite some time, Germany has been constructing "passive" buildings which use 6 to 7 times less energy than stipulated in current regulations with an additional investment cost of only 5 to 10% and subsequently ridiculously low heating costs (around €10 per month for an apartment). Other buildings produce more energy than they consume, their roofs comprising solar panels and photovoltaic arrays in place of tiles. It is possible to reduce energy consumption in existing buildings by a factor of 3 to 4. We already have the material, equipment and technology; men and women are also smart enough to see it makes sense. So why do we continue to focus on energy supply when our day-to-day needs can be satisfied very comfortably without using that energy or using only a minimal amount? Nobody requires energy as an end goal, we just have needs to be satisfied that require energy. So our roadmap for the future is to be able to satisfy our needs with due regard for comfort and economic competition, while at the same time consuming as little as possible.

Investing in getting energy demand under control is a clear bonus for citizens.

Up to now, "Investing in energy" has implied building a new power station or pipeline, or extending an electricity network. It means producing more MegaWatts, selling more to consumers who will have to pay more for a service that is almost or exactly the same. "Investing in energy" should also mean, increasingly, producing NegaWatts, i.e. energy savings. Insulating a block of flats means providing greater comfort for residents, reducing the amount of money they spend on energy and giving local firms a job. One Euro invested in additional energy production will cost the consumer money. But the same Euro invested in energy savings will cut the consumer's energy bill. This new way of looking at the energy issue is the way for the future.

Similarly, if we use locally available renewable resources, the money spent on energy remains within the region, can be used to boost the local economy and fosters employment. Conversely, if we turn to external energy resources, then we are harming the local economy and considerable sums of money are thereby transferred far away from the consumption area. This does not mean that we should stop building new production facilities, in order to modernise outdated ones, or that we will be totally autonomous as regards energy, but we desperately need to change mentalities: we need to look at energy in terms of the services it can provide to the end users and local stakeholders rather than in terms of increasing the producers' revenue.

There are numerous obstacles along the way, of a variety of types, including:

- an under-estimation of the absolute need for change if we want to avoid serious crises and conflicts, and ultimately the need one day to be forced to take urgent – and necessarily unpopular – decisions;
- the impression that environmental objectives are at odds with economic objectives, whereas in reality they strengthen each other;
- the difficulty in accepting that added comfort may be not only compatible but also sometimes possible with lower energy consumption, particularly in countries where there have been energy restrictions;

- the illusion that technology alone can find solutions without any need for a change in our behaviour or the way in which we take decisions;
- the influence of traditional energy players who are not too bothered about how energy is being used and are more concerned about energy production and sales;
- financial interests which invariably place greater emphasis on short-term gains than on long-term balanced development, and see energy as a commercial commodity like any other;
- the force of habit which prevents us from seeing the future as anything different from a continuation of the past, which in some countries has been shaped by the availability of low-cost energy;
- the difficulty in envisaging a common vision, across a whole generation perhaps, of what could be our future energy system and our form of urban, peri-urban and regional organisation;
- the centralisation of decision-making systems which claim they can sort everything out from above without involving local authorities, citizens and all market players, ie those who each day take the decisions affecting energy consumption. It has been shown that decentralised countries have given rise to a plethora of local initiatives. There is no other explanation for the fact that Austria holds the European record for the number of solar energy installations per inhabitant even though the country does not have a reputation for being one of the sunniest.

The energy performance of regions and local authorities must be improved.

The energy performance of regions and local authorities must be improved significantly in all European countries, and even more so in the countries in transition. While industry and part of the private services sector are exposed to competition and therefore are obliged to improve their economic performance in general and their energy performance in particular, failing which they will disappear, the same is not true for the public services, housing and transport sectors, for which there is no real stimulation from competition and which therefore have to find their own motivation for improvement in the energy field, as in others.

As the current situation has a number of negative consequences (economic disadvantages, futile energy consumption and expense, energy poverty for many citizens, damage to the local and global environment, greater risks, etc.), it is the prospect of lasting improvement in the residents' standard of living and quality of life that will be the main catalyst for improving energy performance. Rather than being in opposition, as is often thought, these considerations share much in common. The highest standards of living in Europe are to be found in the countries with the greatest energy efficiency. An exhibition, sponsored by a European initiative "IMAGINE the energy future of our cities", gives a series of innovative examples⁶.

4. Local and regional authorities and the new energy players

The energy players will be changing and local and regional authorities will be shouldering more and more responsibility.

It can be seen how the new energy paradigm we are embarking upon interacts with the type of development and society we would like to see come about. Former mindsets are no longer able to help us understand our present – and even less so our future – energy landscape. We need to develop new approaches, adapted to the challenges of our time. To date, the key energy players have been more on the centralised supply side (gas, oil, coal, electricity companies). They themselves symbolised energy. Close to – where not indeed part of – government decision-making bodies, they were and still are far removed from our towns and regions.

From now on, the energy players will be more on the demand side (where people have a need for heating, lighting, entertainment, travel, produce) and decentralised supply (where it is possible to use the natural resources of our environment, recycled energy or efficient systems such as high-output cogeneration plants and district heating). Not only will they be closer to our towns and regions, they will actually be in our towns and regions. They will be the town planners, architects, heating

⁶ <http://www.imagineyouenergyfuture.eu/spip.php?article15>

specialists, builders, joiners, tilers, civil servants, foresters, teachers, road or transport specialists, professionals. And of course a large part of these new responsibilities will fall to local and regional institutions. It is invariably in a given local area that energy will be consumed to satisfy the needs of day-to-day, family and working life. Consuming the least possible amount to satisfy the maximum number of needs must become the objective of each local authority, which is simultaneously:

- an energy consumer,
- responsible for urban planning and investment,
- an energy producer and supplier,
- responsible for showing the way to the population and local players.

Local and regional authorities as energy consumers

Local and regional authorities consume electricity for the buildings they own and manage (administrative buildings, schools, cultural, sports and health facilities, housing), public lighting, water treatment and supply, sewage and waste processing and their fleets of vehicles. They must offer the best service and the best quality of life to their citizens by minimising their own consumption and therefore their energy expenditure. The municipality has to pay for this energy expenditure brought about by its own consumption. Accordingly, they have a vested interest in the economies to be made. They should set an example in their energy management, have energy efficiency teams, inform the public about their energy performance. The many local authorities that have gone down this route have often cut their consumption by half if not more.

Local authorities are responsible for town planning and mobility and transport policies; they invest and make plans.

When taking major decisions on giving a face-lift to a particular neighbourhood or to the whole town, on urban expansion or on the organisation of regional transport, and when taking countless day-to-day decisions such as building permits, choices have to be made. These will have an impact on the future energy consumption of residents and the various economic agents. Most towns are as yet far from incorporating an energy dimension into their town-planning decisions: energy, land use plans and regional development plans are generally totally partitioned, except perhaps in the case of district heating. This results in uncontrolled urban sprawl which wastes land (non-renewable resources) and makes residents dependent on their cars in order to travel.

However, a growing number of local and regional authorities are adapting their approach and are paying increased attention to the energy impact of their decisions. For example, there is no point in going to the trouble of building housing with very low energy consumption (or indeed zero energy consumption) if where they are sited means that the people living there have to travel 50 km each day to get to work and in so doing spend more on petrol than they would in heating a poorly insulated building. Or if, because there are no local services, shops or schools at hand, people are obliged to use their cars to go anywhere. It is essential to make proper provision for mobility and transport, and local authorities must make it possible for people to be able to get about on foot, by bicycle or public transport safely and comfortably. Cities such as Freiburg im Breisgau in Germany have made a firm commitment to such an approach.

Local and regional authorities produce and supply energy themselves or by means of public-private partnerships.

Whether it is the production and supply of heating (and sometimes cooling), gas or electricity, local and regional authorities, in order to achieve the above energy objectives, have a responsibility to improve the efficiency of their systems (for example by rehabilitating heating networks, opting for high-output cogeneration plants, both small and medium-sized), encourage the efficient use of the energy it supplies and place an emphasis on local resources: renewable energy (including biomass, geothermal power, biogas, solar power, hydroelectricity, wind power), energy derived from urban waste or the recycling of heat from industrial processes. Växjö in Sweden decided in 1996 to use zero fossil fuel by 2010 and it is close to achieving this; as too is the small Austrian town of Güssing.

Local and regional authorities inform citizens and local players and encourage them to make energy savings and use renewable forms of energy.

Because they are close to the grass roots, they have a prime responsibility to make the energy issue a subject which is everybody's business and not just that of energy specialists: by everybody we mean households, residents, housing bodies, shops, banks, trade and business, schools and universities, administrative authorities, health facilities, industry, service and transport companies, associations (housing, environment, transport, neighbourhood associations, etc), unions and professional associations, and of course national and regional energy agencies, energy companies etc. Local authorities have a responsibility to ensure that the action taken by all these players, who have different motivations, converge on the objectives of energy efficiency, renewable energy and limitation of greenhouse gases. Heidelberg in Germany has managed to rally hundreds of local players to its policy in a local forum for intelligent energy. Numerous regions have encouraged local action by various means (depending on their capabilities) including financial incentives.

Local and regional authorities must organise themselves better internally to improve their capacity for action.

They need:

- politicians assigned to sustainable energy,
- specialist units to deal with energy efficiency issues in local and regional administrative authorities, working closely and in a cross-sectoral way with other departments,
- specialist units to implement within their area a sustainable energy policy, for example in the form of local energy agencies, in order to get to know and understand the energy situation as a whole, to frame an energy policy integrated into all areas of local life, which seeks to achieve the aforementioned objectives, to involve local players (businesses, banks, universities, design institutes, consultants, NGOs etc) and citizens.

It is only in this way that they will be able to define objectives, and draw up, implement, monitor and assess action plans.

Local and regional authorities must be better organised amongst themselves via networks for exchanging experiences.

On their own, they do not have the information, knowledge, expertise and sufficient influence to help bring about a reversal in energy trends. This is why, in most countries, local authorities have made an effort to become better organised, within generalist associations of authorities or by setting up networks of towns and cities specialising in local sustainable energy policies. On the initiative of the European network "Énergie-Cités"⁷, a number of such networks have recently been set up in several east European countries: Bulgaria, Poland, Slovakia, Romania, Hungary, and Ukraine. Examples of what these new networks are doing are: running joint projects, exchanging best practice, reflecting together, training each other and drawing on the experience of towns and cities that have made progress in this field. For example, hundreds of towns and cities have taken part in the European campaign "Display"⁸ to encourage local authorities to display publicly the energy and environmental performances of their municipal buildings, and in European mobility week⁹.

They also seek to influence national policies to bring about greater recognition for the role of local and regional authorities, to have legislative frameworks and incentives to encourage them in the fields of town planning, construction, rehabilitation of buildings, heating infrastructure and transport, to have funding, by means of appropriate mechanisms, tax instruments, etc and to foster autonomy in decision-making enabling them to take initiatives and run experimental schemes. Constructive co-operation between regions is vital, which is why there are specialist international networks, such as Climate Alliance (climate)¹⁰, ICLEI (sustainable development)¹¹ and Énergie-Cités (sustainable energy) and "energy" working groups within generalist associations of local and regional authorities, such as Eurocities and the Council of European Municipalities and Regions.

⁷ www.energie-cites.eu

⁸ www.display-campaign.org

⁹ www.mobilityweek-europe.org

¹⁰ www.klimabuendnis.org

¹¹ www.iclei-europe.org

Conclusion

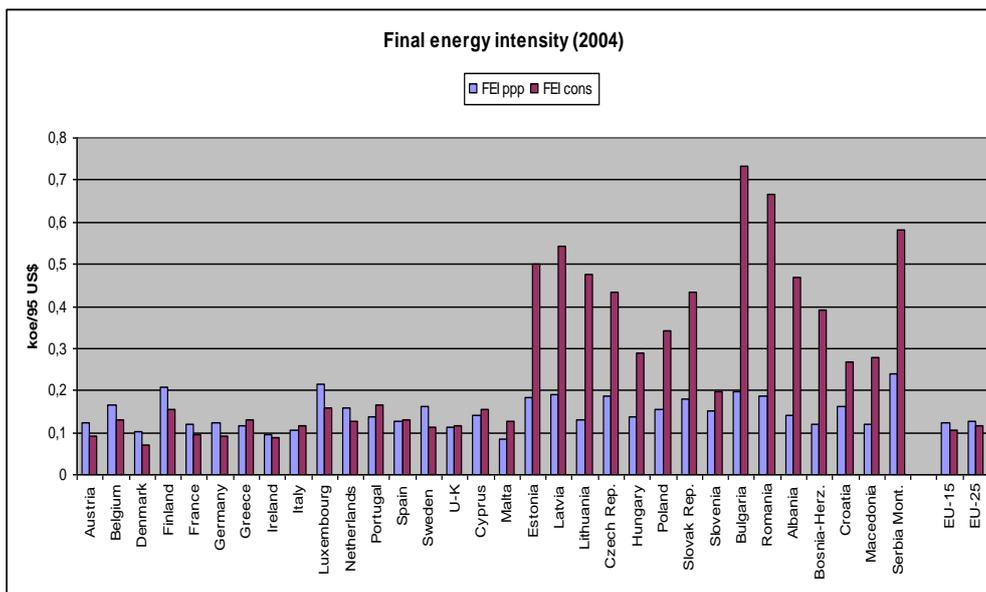
Local and regional authorities must become key players in the new energy culture.

Territorial authorities have a major influence on local development, economic activities, employment, the local and global environment, quality of life, the attractiveness of towns and cities and alleviating the energy poverty of residents experiencing hardship. They can also influence national and European policies, by being able to show in practice that there are possible alternative ways. For all these reasons, local and regional authorities must take a leadership role in an energy policy primarily geared to implementing the measures that are in their power to take – above all, energy savings which are the least costly to implement and for which there is considerable scope (over 50% of current consumption) in buildings, transport and town planning, and then using local renewable energy resources, improving energy output by means of the combined generation of electricity and heat. They should equip themselves appropriately to envisage their energy future; develop a shared vision of the future for their areas; frame and implement an energy policy that is integrated in all fields of local life; measure the progress made, for example, by means of energy management certification – numerous towns and cities (particularly in Switzerland, Germany and France) are already going down this road¹². They should undertake voluntarily, as the European Commission has just suggested to mayors, to achieve and surpass the European Union's¹³ energy objectives. This will entail changes in individual and community behaviour, including of course that of local, regional and national decision-makers who must set an example. It is in this way that it will be possible to make a real change and make the "new energy culture" a practical reality.

¹² www.european-energy-award.org/

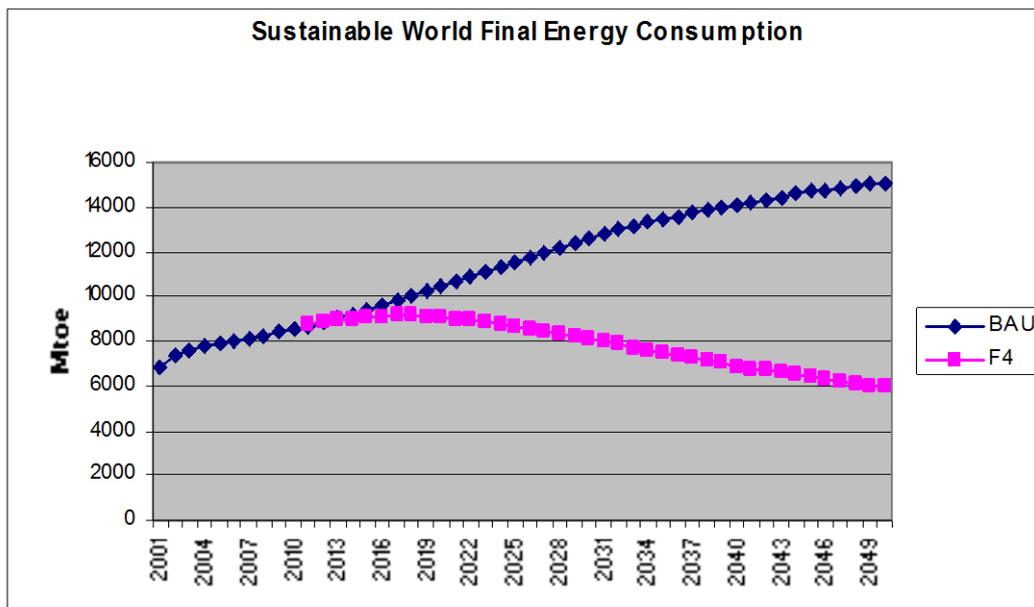
¹³ http://ec.europa.eu/energy/climate_actions/mayors/doc/mayors_covenants_en.pdf

Appendix 1: Energy intensity (Energy consumed/GDP)
(PPP: purchasing power parity)



Explanation: Depending on the calculation method used, the difference in energy intensity between countries ranges from 1 to 2 or 3.

Appendix 2: Two scenarios for world energy consumption up to 2050



Explanation: Following the BAU – business as usual – curve, world energy consumption could more than double during the first half of the 21st century. According to the Director of the IEA himself such a scenario is “impossible”. The second scenario is compatible with limiting the rise in global temperature to 2°C this century. This would mean dividing by four the volume of greenhouse gas emissions in the industrialised countries. This is the “Factor 4” scenario.

Sources:

Bernard Laponche for *Énergie-Cités*, based on figures from the International Energy Agency and the IPCC.