



GEODE Position Paper

The Key Role of Distribution System Operators in the New European Energy Efficiency Strategy

Groupement Européen des entreprises et Organismes de Distribution d' Energie
General Delegation: PR ADVOCATS Paris, 205- 08008 Barcelona - Spain - Tel. (34) 93 414 22 77- Fax (34) 93
209 53 07- e-mail: geode@retemail.es

1.	Glossary of Terms	3
2.	Executive Summary.....	4
3.	Rethinking the Role of Distribution System Operators in the Light of Challenges posed by Climate Change	8
3.1	Key requirements.....	8
3.2	Independent Consultancy - Raising Public Awareness - Information	12
3.3	Local Energy Efficiency Action Plans	13
4.	The Distribution System Operators' Energy Efficiency Measures for the Electricity Network	14
4.1	Smart Grids.....	15
4.2	Smart Metering	16
5.	Efficiency Measures by Distribution System Operators for Gas Grids	18
5.1	Biogas.....	18
6.	The Provision of Heat Energy by Distribution System Operators	21
6.1	Introduction	21
6.2	District Heating and Co-generation.....	22
6.3	Example of Energy Services – Indoor Thermal Comfort	23
7.	International Partnerships.....	24

1. Glossary of Terms

Energy Efficiency	ratio between an output of performance, service, goods or energy, and an input of energy
Distribution System Operator (DSO)	legal entity responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system of electricity or natural gas in a given area and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for the distribution of electricity or natural gas or district heating; additional to this definition, also used in Directive 2006/32/EC, DSO in the understanding of this paper also comprises the district heating operator
Local Energy Utility	energy business company that operates at a local / regional level, supplying energy
G-Mobility	transportation using gas as power fuel

2. Executive Summary

GEODE, founded in 1991, comprises a large number of independent gas and electricity distribution companies operating in Europe. The association represents more than 600 companies in 10 countries, private and public owned companies. GEODE's members serve a population of over 100 million inhabitants. It is our association's aim to maintain and strengthen the existence of a pluralistic energy sector.

With this paper, GEODE wishes to make some suggestions and provide an impetus for the Commission's work to establish a new European Energy Efficiency Action Plan.

- **Rethinking the Role of Distribution System Operators in the Light of Challenges posed by Climate Change**
 - **Key Requirements**

GEODE believes that energy efficiency will be a cornerstone of Europe's climate protection and energy policy.

In GEODE's opinion, against a background of continuously increasing energy prices and a world-wide increase in energy demand, security of supply and the competitiveness of the Member States at international level can only be ensured by considerably improving their energy efficiency.

Accordingly, GEODE would welcome the introduction of legally binding energy efficiency targets at Member State level and believes that this will lead to a higher political and social awareness of energy efficiency.

GEODE shares the Commission's opinion that enhancement of energy efficiency at every level of the value chain will, in time contribute to a reduction of CO₂ emissions, strengthen security of supply and counteract the dependence of the EU on energy imports.

Considering the challenges Europe faces in terms of energy and environmental issues, it is essential to rethink the role of DSOs.

GEODE calls for the relevant framework conditions under European law to be revised to enable and support the promotion of energy efficiency by the DSOs and other local energy utilities.

GEODE believes the regulatory framework must be adjusted and potential barriers e.g. arising from the unbundling requirements for efficiency services activities eliminated.

Local DSOs can build a platform for the creation of a competitive level playing field for energy efficiency.

- **Independent Consultancy - Raising Public Awareness - Information**

GEODE believes that reliable, easily understood information should underpin the provision of energy efficiency services.

The information DSOs are able to provide to their clients is reliable because they are neutral market participants. A new, high-quality database is required to enable the evaluation of energy efficiency measures.

From GEODE's point of view, the DSO will be the right market partner to collect and process the new data. Accordingly, DSOs should be formally assigned this new role on a secure legal basis.

Both European and national legislators must establish a legal framework to ensure that DSOs which offer advice to their clients on energy efficiency issues can recover their costs.

GEODE believes that a huge energy saving potential could be set free if many private end-users, after taking advice from their local DSO, adapt their energy consumption behaviour.

GEODE contends that the market for energy efficiency consultancies should be fully competitive, where the local energy utilities can participate on an equal basis.

- **Local Energy Efficiency Action Plans (LEEAPs)**

GEODE would like the Commission to support local towns and cities to establish local Energy Efficiency Action Plans (LEEAPs).

GEODE suggests placing a legal obligation on Member States to ensure that each city adopts a LEEAP.

GEODE supports the Covenant of Mayors Programme and its achievements in raising public awareness of issues related to energy efficiency and climate protection.

GEODE supports the Smart Cities Initiative launched by the Commission and suggests that this programme should be extended.

- **Distribution System Operators' Energy Efficiency Measures for the Electricity Network**

- **Smart Grids**

GEODE is convinced that the feed in of a large quantity of electricity from renewable energy sources will require a new kind of grid: active rather than passive, with decentralised feed-in and suitable for bi-directional use (demand-side management).

GEODE emphasises that this necessary restructuring of the grid will require substantial investments which the DSOs cannot finance for unaided. It is therefore vital that regulatory mechanisms and incentives needed to support and guarantee these investments are speedily established. DSOs must be given incentives to pursue innovative and smart solutions.

GEODE believes standardisation is especially important to achieve the necessary interoperability between smart grid devices and systems.

GEODE contends that the EU should provide financial incentives to DSOs for the research and development of smart grids as key market participant.

- **Smart Meters**

GEODE believes that the extended use of smart meters will enhance EU policy goals for energy efficiency and security of supply whilst encouraging innovation in the provision of energy services.

GEODE contends that the DSO is usually the most appropriate market player to be made responsible for and to manage smart meter infrastructure.

GEODE underlines that the installation of smart metering systems represents a significant investment for DSOs. DSOs must be given financial allowances in order to recover the costs of investing in smart metering infrastructure.

GEODE also agrees it is important to give the end-consumer a better understanding of their energy use, time of usage and through increased awareness become more efficient in their energy consumption.

- **Efficiency Measures by Distribution System Operators for Gas Grids**

- **Biogas**

GEODE recognises the large potential of producing biogas, a high-quality biofuel, from waste sources. This represents a major saving of primary energy consumption.

GEODE believes that biogas should be taken into consideration in the continued work of the Energy Efficiency Action Plan by the Commission. It is necessary to include the use of biogas in the next package of efficiency measures.

GEODE recommends that the EU should provide for a harmonised legal framework concerning the Europe-wide marketability of biogas (proof of origin and certificates)

GEODE considers that a legal framework for the injection of biogas into natural gas grids should be created at the European level

GEODE considers that financial subsidies or incentives should be provided in order to promote these promising technologies.

In GEODE's opinion, the use of biogas can be included within other programmes such as the "Smart Cities Initiative", the "European Building Initiative" and the "Energy saving in the utility sector" programme.

GEODE urges the EU to undertake greater efforts to increase the deployment of gas or biogas as a vehicle fuel.

- **The Provision of Heat Energy by Distribution System Operators (esp. District Heating and Co-Generation)**

GEODE believes that the production, distribution and consumption of heat are the key issues in the field of energy efficiency.

In GEODE's opinion, it is essential to make the best use of heat produced by industry and electricity production, which would otherwise be wasted.

GEODE contends that the EU should make every effort to support district heating systems as a key element of energy efficient heat distribution and consumption.

GEODE strongly urges the Commission to initiate changes to the emission trading rules which currently apply to cogeneration plants or to take other measures in order to ensure their competitiveness.

GEODE recommends support for cogeneration plants and finance for research programmes on district cooling.

- **International Partnerships**

GEODE advocates expanding international partnerships to develop energy efficiency initiatives.

GEODE believes that this should happen on an intergovernmental level. In addition, international partnerships and cooperation also need to be established involving both market players and others responsible for meeting energy efficiency targets.

3. Rethinking the Role of Distribution System Operators in the Light of Challenges posed by Climate Change

3.1 Key requirements

From GEODE's point of view, energy efficiency will be a cornerstone of future European climate protection and energy policy.

In GEODE's opinion, against a background of continuously increasing energy prices and a world-wide increase in energy demand, security of supply and the competitiveness of the Member States at international level can only be ensured by considerably improving levels of energy efficiency.

Accordingly, GEODE would welcome the introduction of legally binding energy efficiency targets at Member State level and believes that this will lead to higher political and social awareness of energy efficiency as a topic.

GEODE agrees with the Commission that the enhancement of energy efficiency at every level of the value chain will in the medium term contribute to a reduction of CO₂ emissions, strengthen security of supply and counteract the dependence of the EU on energy imports.

Considering the challenges of future European energy and environment issues, it becomes essential to rethink the role of DSOs.

GEODE therefore calls for the relevant framework conditions under European Law to be revised to enable and support the promotion of energy efficiency by the DSOs and local energy supply companies.

GEODE considers that the regulatory framework within which DSOs operate must be adjusted and possible barriers e.g. arising from the unbundling requirements for energy efficiency services eliminated.

Local DSOs can build a platform for the creation of a competitive level playing field for energy efficiency.

With this paper, GEODE wishes to make suggestions and provide impetus for the continued work of the Commission in establishing a new European Energy Efficiency Action Plan.

aa) The Importance of Improving Energy Efficiency

Climate protection is the most important challenge of the day. This is the background to the European 20-20-20 goals. In this context, energy efficiency can be a highly effective instrument in reducing carbon dioxide emissions. GEODE sees energy efficiency as well-positioned to do this, before 100% carbon free energy generation and consumption becomes a reality.

The shortage of resources across the world and high levels of energy demand will almost inevitably lead to an increase in energy prices in the longer term. GEODE believes that energy efficiency will therefore also play a key role in keeping down the energy costs of market participants and end-users.

GEODE would therefore welcome the introduction of legally binding energy efficiency targets. These binding targets should be set at Member State level, in line with the other targets in the 20-20-20 packages. These Member State targets should then be brought closer to the end users and markets by the means of National Energy Efficiency Action Plans.

Since the 20 % energy efficiency target is not easily translated into absolute consumption levels, and since energy savings are difficult to measure, it is undesirable to place legally binding targets on market participants or end users. Should binding targets be put on end users or market participants, significant amounts of administrative support will be required to make the system credible. Furthermore, complex market instruments will be needed in order to maintain some flexibility and leave room for innovation.

GEODE is well aware of the fact that consumers will probably only noticeably change their behaviour with regard to energy efficiency if there are substantial increases in energy prices. This could in turn lead to some undesirable side effects in terms of EU competitiveness and the impact on vulnerable customers.

Accordingly, the anticipated increase in energy costs must be accompanied by initiatives designed to help consumers and market participants take action. These initiatives could include targeted investment support, the regulation of building standards, energy services, and public awareness campaigns.

bb) The DSO as the key actor

GEODE is convinced DSOs will play a crucial role in the implementation and coordination of new energy efficiency initiatives. Firstly, the paper describes the role of the DSOs and, then, set out the important characteristics of the electricity, gas and heat networks operators in the context of a European energy efficiency strategy.

GEODE believes that DSOs are excellently positioned as the first point of contact with consumers to support the implementation of ambitious energy efficiency targets. There are both local and also regional aspects to consider. The relationship DSOs already have established with the consumer allows them to play a key role in providing energy efficiency measures.

GEODE believes that the special market position held by the DSOs makes these companies particularly suitable when it comes to implementing and evaluating energy efficiency measures.

1. Energy efficiency services are geared towards sustainability and they are generally associated with long payback periods. In this context, market partners are needed that are characterised by a degree of reliability. DSOs have a high level of reliability since they, are in constant with the consumer. Furthermore, DSOs have local infrastructure which ensures direct personal contact.
2. DSOs are objective market partners. In general, DSOs do not depend on an increased competitive energy sales. Consequently the dilemma of the conflict of goals between high sales figures on the one hand and energy saving in order to attain efficiency targets on the other hand, which could impede some energy suppliers from helping their customers to increase their energy efficiency, is substantially reduced.
3. DSOs have the installed metering technology to verify, evaluate and supervise the success of efficiency measures.

4. Energy efficiency is closely linked to common public interests of critical importance such as climate protection, the security of supply and the conservation of resources. , Energy efficiency should not therefore be completely left to market forces. DSOs activities are regulated. Thus, with these market partners, there is the possibility to supervise the activity and, to some extent, even to control it.

GEODE wants to highlight the following activities for DSOs in the field of energy efficiency:

- **Implementation of smart grids and smart meters**
- **Consultancy for end-users (e.g. originating a Competence Centre)**
- **Data management**
- **Management of Local Energy Efficiency Action Plans in close cooperation with the local municipalities**
- **Contact point for national authorities with monitoring / regulation responsibilities**

DSOs should be the first point of contact in the field of energy efficiency. GEODE therefore requests that relevant framework conditions under European Law are revised to enable and support the promotion of energy efficiency initiatives by DSOs. Regulations must be adjusted and the potential barriers e.g. arising from the unbundling requirements for the activities of efficiency services eliminated. GEODE draws attention to the fact that some adjustments are necessary, particularly regarding the grid fee regulation of DSOs, so that they are able to fulfil their functions as energy efficiency service providers.

When carrying out all these activities, DSOs are effectively the leading market player for the establishment of a level playing field for energy efficiency. This energy efficiency market will be competitive and therefore open to various kinds of enterprises. The local energy utilities can also develop new business projects aimed at reducing energy consumption.

In this paper, energy efficiency measures for each type of energy distribution (electricity, gas and heat) will be discussed. Firstly those energy efficiency issues with direct relevance for all DSOs and local energy suppliers are described (3.2. and 3.3). As a second step, the paper takes into account the specific energy efficiency issues for DSOs for the electricity grid (4.), the gas grid (5) and the provision of heat energy (6.).

3.2 Independent Consultancy - Raising Public Awareness - Information

GEODE strongly believes that reliable and easily understood information is the right basis for energy efficiency.

GEODE considers that the information the DSOs can provide to their clients is reliable since they are neutral market participants. For future tasks arising in the field of energy efficiency, a new, high-quality database will be required to enable the evaluation of energy efficiency measures.

From GEODE's point of view, the DSO is the right market partner to collect and process these new data. Accordingly, DSOs need to be assigned for this role on a secure legal basis.

The European and national legislators must establish an adequate legal framework so that the DSOs who offer consultancy advice to their clients on energy efficiency issues can recover their costs.

GEODE considers that a huge energy saving potential could be unleashed if private end-users took advice from the DSOs and adapted their energy consumption behaviour.

GEODE contends that the market for energy efficiency consultancy should be competitive, where the local energy companies can equally participate.

Informing customers about their options for an efficient use of energy is essential in order to sensitise consumers to questions concerning energy consumption and thus influence their consumption behaviour. Even if the energy saving effects relating to single private households appear to be relatively small, taken altogether they can still lead to great energy savings.

While there is already a consultancy market in energy efficiency improvement measures for commercial and industrial customers, no such market exists as yet for private households. The "small" saving potential from the domestic households' point of view do not make such cost intensive consultancy services look appealing. Experience has shown that information which has to be paid for is hardly ever requested by domestic consumers. This "basic service" of energy efficiency consulting, which is nevertheless significant with a view to the overall saving potential from all households, should therefore be provided by the DSOs and this should be free of charge. However, when providing information for free, the costs that result for the DSO will need to be socialised. This means that these costs have to be passed on in grid fees or alternatively, special funds that compensate the DSO for these consultations could be established.

The DSO has contact with all the customers in its distribution area and specially trained staff needed for energy efficiency consultation. The DSO is a neutral market participant and thus can act as an independent consultant.

There is a variety of information on energy efficiency, from short information on the annual energy bill (e.g. actual vs. last year's demand) to on-site visits, or a consultation in a customer care centre.

3.3 Local Energy Efficiency Action Plans

GEODE would like the Commission to support municipalities to establish local Energy Efficiency Action Plans (LEEAPs).

GEODE suggests placing a legal obligation on Member States to ensure that each city adopt LEEAPs.

GEODE supports the Covenant of Mayors Programme and its achievements in raising awareness of issues related to energy efficiency and climate protection.

GEODE supports the Smart Cities Initiative launched by the Commission and suggests that this programme should be extended.

The concept of Energy Efficiency Action Plans on EU and Member States level is to tailor and assemble a package of measures to achieve energy efficiency targets. GEODE suggests that a similar package of measures is also needed at the local level, where energy efficiency measures and programmes apply and where the end-users are located.

Some local municipalities have already established local energy strategies for their cities and villages in close cooperation with local utilities and/or the DSO and local energy supplier. GEODE suggests that these strategies should focus especially on energy efficiency. The cities, from GEODE's point of view, profit from the synergies that result from a close cooperation between the local energy company and the municipal authorities.

Local Energy Efficiency Action Plans:

- **could be instruments of placing energy efficiency on the local political agenda**
- **advocate the local awareness of energy efficiency matters**
- **provide protection for projects and investments**
- **could encourage a "competition of ideas"**

In GEODE'S opinion, Member States should be obliged to stipulate the establishment of a LEEAP for every city. In this context, placing any limitations e.g. on the number of inhabitants, would not only be arbitrary but also counterproductive. It would not be right to think that only big cities could or should coordinate their energy efficiency measures and programmes by means of a LEEAP. The potential of small towns should be considered; based on their small distances and clear, manageable structures, a LEEAP could be easily established and implemented.

In addition, GEODE supports the European promotion of excellently performing cities under the Smart Cities Initiative. These model projects could provide examples for other local communities. This would give the EU a stronger competitive position in the energy efficiency issue. Moreover, GEODE considers that the existing Smart Cities concept should be extended to include a larger number of cities and regions in the EU to benefit from this very important program; currently only a few top performing cities or regions per Member State could benefit from, if selected as a Smart City. GEODE also thinks that the DSOs in the cities should be given a major role in the project management, design, development and implementation of the Smart Cities' concept.

4. The Distribution System Operators' Energy Efficiency Measures for the Electricity Network

Energy efficiency and energy savings constitute the main drivers for the implementation of smart grids and smart meters. The energy mix will change in the near future and will include much more renewable generation e.g. wind, solar, biomass with increasing amounts of distributed and micro-generation in order to meet EU targets for 2020. This presents fundamental challenges regarding the planning, design and operation of the electricity networks. Smart grids will contribute to enabling new ways of actively managing energy use across the networks, helping the system to deal with the intermittent character of significant amounts of new renewable energy generation. Smart grids will also allow exported energy to be measured, and so support the development of micro-generation in homes. GEODE will next spell out the key requirements for this grid innovation. Please also note the GEODE position paper on smart metering and smart grids from 2009, where this topic is addressed in more detail.

We would like to highlight why smart meters are one of the vital underlying elements in the development of smart grids and a key tool for smart grids. Their simultaneous development will be essential in the overall deployment of smart grids. It has to be taken into consideration that smart meter functionalities contribute to the operation of the grid, the deployment and understanding of electrical vehicles and distributed generation.

4.1 Smart Grids

GEODE is convinced that the feed in of a large quantity of electricity from renewable energy sources will require a new kind of grid: active rather than passive, with decentralised feed-in and suitable for bi-directional use (demand-side management).

GEODE emphasises that this necessary restructuring of the grid will require substantial investments which the DSOs cannot finance for unaided. It is therefore vital that regulatory mechanisms and incentives needed to support and guarantee these investments are speedily established. DSOs must be given incentives to pursue innovative and smart solutions.

GEODE believes standardisation is especially important to achieve the necessary interoperability between smart grid devices and systems.

GEODE contends that the EU should provide financial incentives to DSOs for the research and development of smart grids as key market participant.

These days, many utilities have initiated strategic plans for the modernisation of their power delivery and distribution capacities. Smart grids consists of both the electricity network and its components and also communication infrastructure- it refers to a future grid that is essential to efficiently reach the EU Energy and Climate Change targets for 2020. The power grid will become a platform for new energy services to be provided to customers, offering them added value.

Local distributors have a key role to play in providing these services, with responsibility for the deployment of smart grids, while electricity consumers and producers are the ultimate beneficiaries of its deployment. This new grid infrastructure will facilitate consumers' active and effective participation in the market. Smart grids will enable many consumers to exploit real-time electricity pricing, taking control over their energy use and therefore their bills. Consumers will also benefit from more reliable and efficient networks.

At the heart of smart grids are smart meters with their communications infrastructure, since they support the market with the information needed by its stakeholders. The integration of today's SCADA systems with smart metering systems could be one of the logical steps towards smart grids. If the DSO is not responsible for the roll out of smart meters, as is the case in the UK and Germany, this integration becomes more difficult. For the DSO, installation and access to information is crucial for an efficient smart grid. The smart grid will increase the value for the customers and make it possible for them to interact with the grid based in the information made available to them.

Smart grids require huge investments. It is therefore vital that regulatory mechanisms and incentives to support and guarantee these investments are quickly established. Network companies have to be given incentives to pursue innovative and smart solutions. Clarity about cost recovery is essential. Thus sufficient incentives should be provided by regulators for DSOs to guarantee the investments needed in the electricity grid.

At the same time a lot of research and development work has to be done, where market actors like DSOs can engage. Tariffs and permitted DSOs' revenues are normally set by incentive-based regulations. Their main objective is to increase the efficiency of the DSOs and to lower tariffs for customers. To sum up, the DSOs in Europe are under considerable pressure to keep their costs low – there is virtually no room for research and development expenditure and no incentive to do it. As DSOs are regulated, it is very important that national regulators make R&D accessible to medium and small sized DSOs by providing the necessary financial mechanisms, accepting costs in R&D as grid costs being part of grid tariffs. This would give DSOs the opportunity to demonstrate a stronger commitment to R&D and to be part of the creation of the electricity networks of the future – the Smart Grids.

GEODE believes standardisation is especially important in order to achieve the interoperability of smart grid devices and systems.

According to GEODE there are still many issues that need to be addressed to ensure that the transfer of information from the current grid system to an intelligent one is carried out by the network operators, DSOs and TSOs. GEODE would like the European Commission to do more work on these issues.

4.2 Smart Metering

GEODE believes that the extended use of smart meters will enhance EU policy goals for energy efficiency and security of supply whilst encouraging innovation in the provision of energy services.

GEODE contends that the DSO is usually the most appropriate market player to be made responsible for and to manage smart meter infrastructure.

GEODE underlines that the installation of smart metering systems represents a significant investment for DSOs. DSOs must be given financial allowances in order to recover the costs of investing in smart metering infrastructure.

GEODE also agrees it is important to give the end-consumer a better understanding of their energy use, time of usage and through increased awareness become more efficient in their energy consumption.

The goal of increased energy efficiency is the main driver for the implementation of smart meters in Europe. Better informed customers will use less energy.

The Energy Services Directive (Directive 2006/32/EC) has significantly accelerated the introduction of smart meters into Europe by stipulating that private households should be informed about their energy consumption on a more regular basis and that utility invoicing should provide more detailed and regular information.

The new Electricity Directive 2009/72/EC envisages the installation of smart meters for at least 80% of customers by 2020, subject to a cost-benefit assessment on long-term costs and benefits to the market and the individual consumer on which form of intelligent metering is economically reasonable and cost-effective, and which timeframe is feasible for their distribution. The cost-benefit assessment is an option for all Member States but must be completed by 3rd September 2012. Some Member States have already started or even finished their assessments, while others are still considering. Although there is no specific target date for the implementation of smart meters in the new Gas Directive 2009/73/EC, it is desirable that smart meters for gas should be implemented within a reasonable period of time.

Smart metering provides households with accurate information on how much energy was consumed, when it was consumed and at what tariff. Detailed consumption data will help consumers to better understand how they use energy and will empower them to reduce and adjust their consumption and to make informed decisions on energy-efficiency measures, such as heating, lighting and appliance upgrades, in particular when metering is accompanied by informative billing. In the end, this will lead to more efficient consumption patterns.

GEODE believes that the DSO is the most suitable market player to be made responsible for and to manage smart metering infrastructure. This is the solution that GEODE recommends as it promotes stability in the metering process; since the meter is a logical end point of the electrical grid and managing a smart metering infrastructure has a lot in common with managing the grid. The network operator is the only market participant that will always be connected to the customers.

In order to reap many of the benefits of smart metering, especially increased knowledge of quality of delivery, more information on low voltage network, reducing peaks in power demand and better information for investment planning, DSOs need to be made responsible for metering, in case they are not already responsible. Since the benefits of smart meters are shared along the value chain, including the end customer, the costs have to be shared out as well. An understanding of the costs by legislators is crucial, and there is a danger that the regulations will not allow the responsible parties recover their costs. It is vital that at the

European level a minimum set of functionalities is specified in order that all customers are provided with the same service.

5. Efficiency Measures by Distribution System Operators for Gas Grids

In most European countries, using gas for the generation of power is common because of its versatility. In this context, GEODE wishes to remind the Commission, that the expansion of the gas distribution networks should be a priority when sketching a future scenario for an efficient energy supply in Europe.

GEODE would like to pay particular attention to the use of biogas for an efficient energy provision and address the numerous advantages that biogas offers – not only in comparison to conventional but also to other forms of renewable energy. The term biogas simply refers to methane gas from organic sources that can be generated by either anaerobic digestion or gasification.

Furthermore GEODE illustrates why the EU should do more to promote gas/biogas as an efficient fuel in the transport sector.

5.1 Biogas

GEODE believes that biogas should be taken into consideration in the continued work of the Energy Efficiency Action Plan by the Commission. It is necessary to include the use of biogas in the next package of efficiency measures.

GEODE recommends that the EU should provide for a harmonised legal framework concerning the Europe-wide marketability of biogas (proof of origin and certificates)

GEODE considers that a legal framework for the injection of biogas into natural gas grids should be created at the European level

GEODE considers that financial subsidies or incentives should be provided in order to promote these promising technologies.

In GEODE's opinion, the use of biogas can be included within other programmes such as the "Smart Cities Initiative", the "European Building Initiative" and the "Energy saving in the utility sector" programme.

GEODE urges the EU to undertake greater efforts to increase the deployment of gas or biogas as a fuel.

GEODE believes that the use of biogas for an efficient power generation and energy provision should be taken into consideration when establishing a new European Energy Efficiency Action Plan.

One major advantage is the outstanding Life-Cycle-Analysis performance of biogas. The combustion of biogas which is chemically identical to natural gas only sets free that amount of CO₂ that has been stored in the feedstock during cultivation. Hence, power generation from biogas is CO₂-neutral and can lead to a measurable and significant reduction of GHG emissions if conventional methods for energy generation are replaced. (Furthermore, due to the latest technologies it can be ensured that there is hardly any methane slip during the generation process).

The biodegradable fraction of all kinds of products that derive from plant or animal matter can be used for anaerobic digestion or gasification. Feed-materials can come from agriculture (including vegetal and animal substances such as energy crops, sewage sludge or animal manure), forestry, fisheries and aquaculture. Another potentially significant source would be the biodegradable fraction of industrial and municipal waste.

In the EU, each member state can easily provide a large quantity of such feedstock. Anaerobically digested waste currently is an under-used resource in many European regions. As an indicative figure, it is estimated that there is waste enough produced by 1 million people to produce 1 TWh of biogas, which would represent approx. 10 % of the fuel needed for road transport per million inhabitants.

The most efficient deployment of biogas from GEODE's point of view is the upgrading of the gas to biomethane and its injection into the natural gas grids. The gas is fed in where it has been generated and can be withdrawn at a location close to a heat sink or a filling station for vehicles. This is extremely beneficial as the existing natural gas grid infrastructure (mostly distribution networks) can be utilised. Deploying the withdrawn gas in a CHP-plant offers a high energy efficiency potential.

From GEODE's point of view, local energy companies can work in close cooperation with DSOs be perfect partners for the realisation of local biogas-projects since they can easily provide the technical knowledge and their services to enable the access of the biogas generation plant to the gas grid and the operation of the gas network. Furthermore, the local energy company can operate heat distribution networks. A multitude of local municipalities could be supplied by the DSO with electricity as well as heat from biogas.

In order to be able to trade biogas Europe-wide, GEODE recommends the creation of a harmonised legal framework concerning the injection of such gas into the natural gas grids. Furthermore, it will be essential to create a system to prove the "greenness" of the gas.

GEODE believes that a mechanism on the proof of origin or certificates should be established on the community level.

If the upgrading of biogas and its injection into the grid is not required, the on-site utilization of the raw biogas can also be very favourable in terms of efficiency – especially in the vast rural regions of the EU. GEODE would welcome the active promotion of this alternative efficient deployment of biogas e.g. via a support scheme for farmers who combust biogas generated from their own agricultural waste and who use the heat produced to heat their barns.

By contrast with other renewable energy sources such as wind and solar energy, biogas can be base loaded and can thus contribute to the security of supply from renewable energies. Generating biogas is technically complex; however small and large scale plants are already emerging. GEODE considers that financial subsidies or incentives should be provided in order to promote these promising technologies.

Biogas ...

- **has a very strong LCA performance**
- **can be produced from a wide range of sources including organic waste**
- **can reduce GHG-emissions dramatically**
- **offers a great versatility of deployment for an efficient energy provision**
- **can be injected into and distributed in already-existing natural gas grids**

For all the reasons listed above, GEODE would support the inclusion of biogas as part of measures in the next European Energy Efficiency Action Plan. In GEODE's opinion the use of biogas can also easily be included in other existing measures such as the "Smart Cities Initiative", the "European Building Initiative" or the "Energy saving in the utility sector". The EU should increase the deployment of biogas by providing financial subsidies to promote the development of biogas technologies or other incentives.

In the opinion of GEODE, gas as an alternative fuel to petrol or diesel should be more heavily promoted at the European level. When you consider, that technologies for gas-driven cars are far more advanced than for electric cars, the efficiency-advantages must not be wasted. In order to expand the G-Mobility, there is no need to create a new gas distribution infrastructure but the gas filling stations can easily be supplied by the DSO via the existing natural gas grids. GEODE considers the public transport area to be of high potential when it comes to implementing G-Mobility in local communities. This should be promoted at the European level.

Furthermore, GEODE would like to point out that biogas should be included within the promoted fuels, especially since its environmental performance (LCA) is equal or superior to those for the majority of the liquid renewable fuels, and fares considerably better than conventional fuels. Biogas produces no sulphur emissions, no particulate matter, low nitrogen oxide emissions and typically reduces carbon dioxide emissions by at least 80 % when using waste water treatment sludge, or farming residues. Biogas production from manure actually results in a negative CO₂ balance, since methane leakage is avoided. GEODE considers that the use of biogas as a biofuel could be easily implemented within the European legal framework.

6. The Provision of Heat Energy by Distribution System Operators

6.1 Introduction

From GEODE's point of view, DSOs are best able to comprehensively fulfil the tasks of providing and supplying heat energy on a local level.

It is necessary to point out the essential differences between a heat distribution system and a gas or electricity grid system. Due to the technological restrictions, there is no possibility of a large-scale heat energy market: heat energy that is transported by means of hot water is not transportable over a long distance. The heat energy needs to be used close to where the heat is generated. Considering this technological aspect, heat distribution systems can only be installed at the local level. It is therefore essential that the entire value chain from heat generation to transport and supply remain the responsibility of a single entity.

For an effective energy efficiency strategy in the heating market, well-developed heating networks are required, which can collect the different heat sources from a municipal area and deliver the heat to the end consumer. The control and management of the heat streams by the heating network operator, especially from those heat sources which already exist, but until now have been unused or inefficiently used, is fundamental for an efficient heat supply. Accordingly the development and expansion of heating networks has a central role to play. Since heating networks compete with gas networks, this approach would also ease this conflict and allow the implementation of an efficient network infrastructure, with the gas and heating network operations coming from the same source.

6.2 District Heating and Co-generation

GEODE believes that the production, distribution and consumption of heat are the key issues in the field of energy efficiency.

In GEODE's opinion, it is crucial to use heat from industry and electricity production, which would otherwise be wasted.

GEODE contends that the EU should make every effort to support district heating systems as a key factor for energy efficient heat distribution and consumption.

GEODE strongly urges the Commission to initiate changes to the current emission trading rules applying to cogeneration plants or to take other measures in order to ensure their competitiveness.

GEODE recommends support for cogeneration plants as well as for research programmes on district cooling.

Heat and Energy Efficiency

The energy efficient generation and consumption of heat is vital if we are to develop a low carbon society. The main heat sources today are industrial processes, waste incineration processes and CHP plants. One important goal should be making better use of waste heat.

The role of district heating grids

Heat distribution systems are essential infrastructure to connect consumers and producers of heat, to enable the best possible use of local heat sources, whether it is waste heat, renewable heat or heat generated from combined heat and power production. District heating systems perform the same role for heat as electricity grids do for electricity, but they are fewer in number.

Heat distribution systems are vital for the use of waste heat from industrial processes, heat from waste incineration plants, as well as heat from large and medium scale CHP.

Heat distribution systems have been in operation for more than 100 years. In recent years, however, heating has increasingly been based on oil or gas combustion plants. These plants however are very inefficient compared to the heat supply from district or local heating networks, especially generated by cogeneration plants. There is still considerable unexploited potential for heat supply in Europe. Wherever district heating systems have been extended or newly built during the past two decades, this has been promoted by local companies, mainly municipal utilities, who have aimed at creating "future" oriented infrastructure which can make use of a flexible choice of heat sources.

New and remaining obstacles to the increased use of CHP

With the Cogeneration Directive 2004/8/EC a legal framework is already provided for the promotion of cogeneration plants. This framework must definitely be retained and, if necessary, expanded.

From 2013, cogeneration plants subject to emissions trading must acquire emission allowances for the heat generation at a percentage that is going to increase over the years. As regards the heat supply, these cogeneration plants compete with the heat generation plants that are not subject to emissions trading. Accordingly, to ensure the competitiveness of cogeneration plants from January 1, 2013, we strongly recommend that this unequal treatment is ended, either by adjusting the current emission trading rules which apply to cogeneration plants, or by taking other measures.

6.3 Example of Energy Services – Indoor Thermal Comfort

GEODE is of the opinion that unbundling obligations can obstruct the concept of a single provider of energy services.

In order to reach the energy saving targets set by the EU and the Member States, the DSOs will have to be free to develop new kinds of energy services. GEODE would like to point out that the EU should not prevent or restrict the development of new business activities for DSOs.

One example of a potentially interesting service for industrial clients is outlined below.

Indoor climate contracts:

One challenge when promoting energy efficiency is to place savings incentives where a high degree of technical competence is required. One example of exploiting the situation where neither the owner nor the user of a building has sufficient skills, is an Indoor Climate Contract scheme. With such a contract, with a highly skilled staff taking responsibility for delivering, not energy, but indoor thermal comfort at a predetermined temperature level and at a fixed price per month. This means that the incentive to save energy is shifted from the consumer to the supplier. In other cases, the owners or users are actively involved in the operation of buildings. Then the energy services that facilitate this, such as reporting, are in demand.

When establishing a new energy efficiency strategy for Europe, the Commission should, from GEODE's point of view, take into consideration that the market position for DSOs concerning the development of these new areas of practice, should not be restricted by an unduly narrow legal framework.

7. International Partnerships

GEODE advocates expanding international partnerships for the implementation of energy efficiency initiatives.

GEODE believes that this should not only happen at an inter-governmental level. International partnerships and cooperation should also be established at the level of market players and those responsible for meeting energy efficiency targets.

Energy efficiency is a global topic. Accordingly, GEODE welcomes proposals to expand international partnerships for the implementation of energy efficiency.

This, however, should not only happen at an inter-governmental level. International partnerships and cooperation should also be established at the level of market players and those responsible for meeting energy efficiency targets. Energy efficiency is initially a technical topic; practical experience is very important.

Thus a bottom-up approach should be followed in which the market participants can exchange views.

Being an established organisation of the European independent energy distributors, GEODE offers to act as platform, forum, mediator and coordinator for model projects. In this context, already existing structures can be utilised.

Furthermore, GEODE recommends the establishment of virtual platforms and forums to enable the exchange of experiences. (Presentation of model projects, experience reports etc...).