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EL-EFF REGION

WP 3: Regional action plan

prepared by: ARENE IDF

1. Introduction.

The Ile-de-France region has chosen to tackle electricity consumption through the elaboration of an action plan providing targets and concrete measures to address this issue. This action plan has been initiated as part of the European project EL-EFF region to tackle electricity consumption. The Ile-de-France region had the opportunity to be involved and was represented by ARENE, the regional energy agency. It is in the frame of this very project that the agency has the chance to mobilise stakeholders around the issue leading to the construction of the following regional electricity action plan.

Electricity consumption has experienced a tremendous increase since the 1970s with a multiplication by more than two of the consumption. Issues related to electricity consumption are diverse. There are of course environmental issues because it is responsible for green house gases emissions and nuclear waste production, but also consequences in terms of new production capacities and new high voltage lines being built. Another related issue is the security of supply and the depletion of resources, and consequently the rising cost of electricity and its consequences in terms of economic activity. The impact of the rising cost of electricity has also social consequences for the population, especially those using electricity for heating. If this is true for the whole country it is all the more important in the Ile-de-France region that hosts nearly 20% of the French population and realises 30% of GDP.

Not only has the electricity consumption increase greatly in the past but it is also expected to keep on rising in the future, so that new production capacities are planned.

This led the region to take action to tackle the subject for a more electricity efficient region. The plan has been elaborated in coherence with existing policies. It relies partly on French objectives voted as part of the "Grenelle de l'environnement" process, which are a national declination of the European targets. The regional action plan brainstorming on electricity should be integrated into the regional policy on energy and environment as part of the eco-region statement.

The will of the region was to have a shared view on the issues and therefore carried out workshops with stakeholders. Such cooperation is also essential to build a relevant and realistic plan.

2. Welcome in Ile-de-France

The Ile-de-France region hosts the French capital Paris. It is the most populated region of the country concentrating around 20% of the national population on only 2% of the national territory. It is also the richest region with almost 30% of the French GDP being created here. The active population mainly work in the service sector at 80%, some 18% work in the declining industry and the remaining (3%) in the agriculture. Ile-de-France is also the first national tourist destination with more than 60 million overnight stays annually.



JG Jules/Aerial/Iaurif

Some key figures about Ile-de-France:

- * 12672 km²
- * 11.264 million inhabitants
- * 1 281 municipalities and 8 counties
- * 80% of the land is agricultural or natural space
- * 2500 hotels and 140 000 beds
- * 602 700 businesses
- * 17 universities and 600 000 students

3. Electricity consumption in Ile-de-France

3.1. Current situation and trend

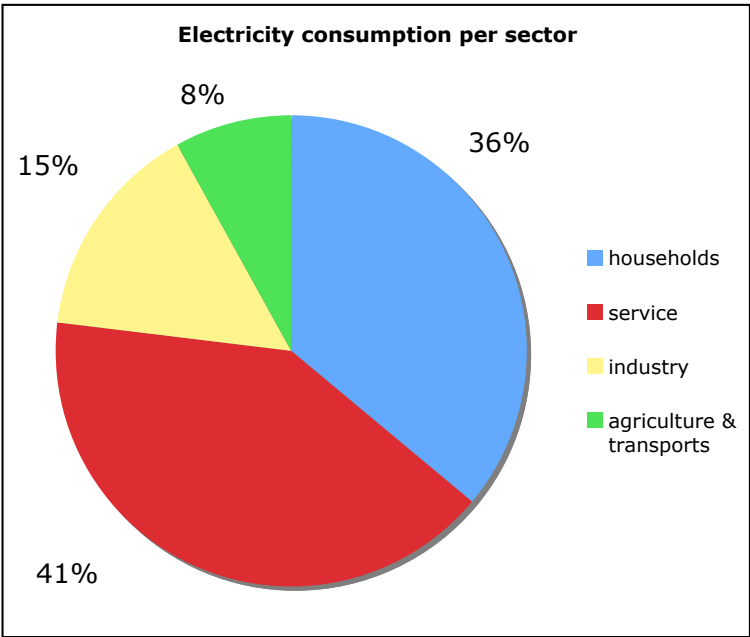
3.1.1 Consumption figures in the region

The electricity consumption in the region reached 69.2 TWh in 2006, nearly 15% of the overall national consumption. This represents 25% of the final regional energy consumption i.e 4800 ktep.

The annual Ile-de-France consumption for the period 2000–2006 is summarised in the table below. It underlines a constant increase of the electricity consumption.

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Mean annual growth rate |
|--------------------------------|------|------|------|------|------|------|------|-------------------------|
| Electricity consumption in TWh | 62.1 | 64.0 | 63.9 | 65.5 | 66.8 | 67.9 | 69.2 | 1.8% |

This graphic shows the distribution of the electricity consumption. The service sector is the most electricity consuming with 41% of the total regional consumption. It is followed by the households sector with 36%. Even though the declining industry still represents a 15% share. At last come agriculture and transports with 8%. These distribution figures are coherent with the economic context of the region.



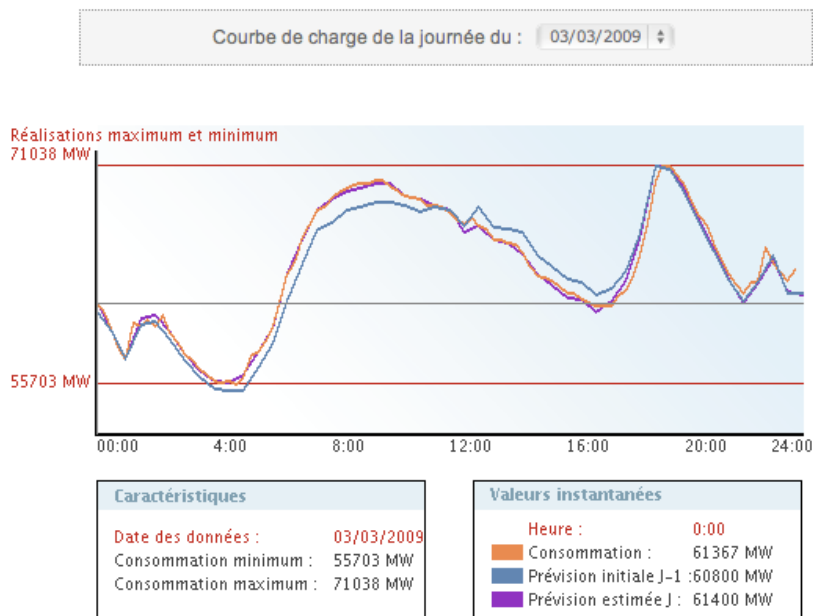
80% of Ile-de-France inhabitants work in the service sector, which explains its 41% share in the balance.

The region imports 96% of its electricity consumption from other regions. Indeed only 1400 GWh are produced within the region. CHP plants are responsible for 21% of the electricity production. There were 4 thermal power plants in use in 2006: 1 using oil (Porcheville, Yvelines), 2 using gas (Genevilliers, Hauts-de-Seine and Arrighi, Vitry-sur-Seine, Val-de-Marne) and 1 using coal (Vitry-sur-Seine, Val-de-Marne). These power plants essentially answer peak demand.

3.1.2 Electricity consumption and related issues

The French electricity sector is very specific, especially because of the weight of nuclear energy with great implication in terms of electricity use and green house gases emissions.

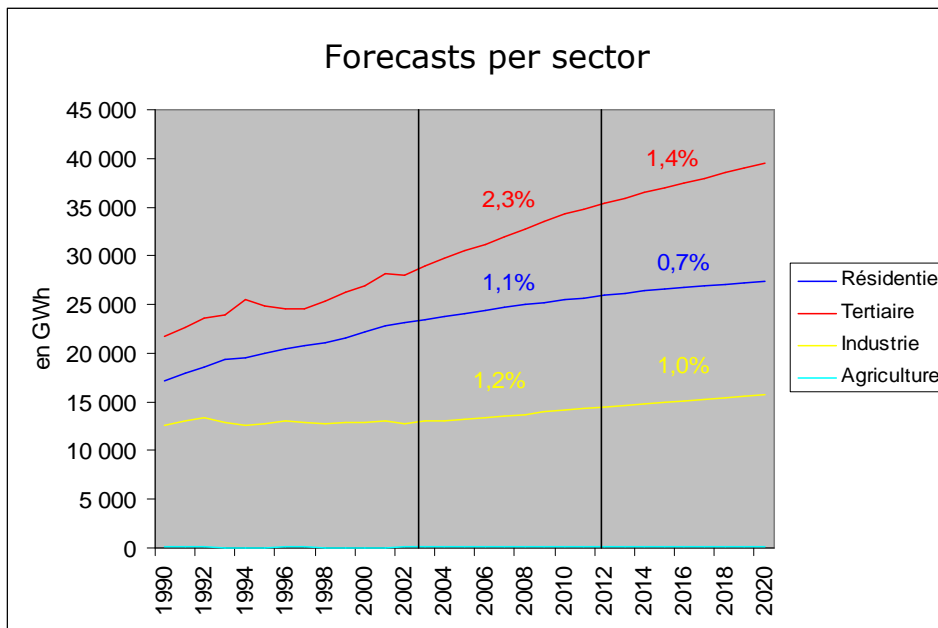
The French electricity mix is composed of nearly 77% of nuclear production. For the rest: some 12% comes from hydro dams; 11% from classic thermal power plant and less than 1% comes from renewable energy sources (other than hydro). As nuclear electricity production is carbon free, it means that the emissions ratio related to electricity consumption is very low compared to any other country in Europe. The mean ratio in France is 70 gCO₂/kWh to be compared with 340 gCO₂/kWh on the European level. Still nuclear electricity leads to the production of nuclear waste. One MWh is responsible for the production of 0,05 kg of short-life waste and 0,01 kg of long-life waste. The nuclear waste is a real environmental issue as they are actually no real system of treatment. The use of nuclear energy also raises issues in term of sourcing security because of resources depletion –there are at the moment only 70 years of reserves left- and because this vital resource is imported. Still the development of nuclear power in France after the oil shock of the 1970s has led to a specificity in Europe: a great level of electric heating. This very peculiar use of electricity for heating is used at peak time making necessary the use of classic thermal power plants using coal or oil that are very polluting. With regards to the plan it means that peak demand will be a specific target of the actions. The load curve below shows the typical daily consumption in France and its peak.



Load curve . RTE data

3.2 Forecast

The regional transmission system operator, RTE, realises forecasts on electricity consumption. The results of their prospective study anticipate a continuous increase for the years to come until 2020. They detailed the distribution of this forecasted increase between the different sectors. All sectors are expected to experience a rise. However the greatest one should happen in the service sector, which translates the economic trend of a more services orientated economy. The consequences of this study are that new capacities are being built within and outside the region to strengthen the grid for peak demand. In Ile-de-France 2 new oil power plants should be built by 2010 for a total power of 925 MW therefore increasing by nearly 30% the capacity of the region. Nevertheless the increasing consumption in the region also contribute to the building of new power plants outside the region like the nuclear power station (EPR) in Flamanville in Normandy region or an oil power plant in Picardie. All these new plants will imply more imports and the establishment of new high voltage lines in the landscape.



4. A committed territory

4.1. The national legal frame and the Grenelle laws

New laws are being discussed and voted currently under the "**Grenelle de l'environnement**" process following discussion that involved all stakeholders of the environmental field. There are 2 phases in the process:

- Grenelle 1 that defines the goals and fields of action
- Grenelle 2 that sets the necessary tools and budget to reach the goals defined in Grenelle 1 including new obligations and financial incentives.

Grenelle 1 adopted in October 2008 sets the following goals:

- Reduction of the energy consumption by 12% by 2012 and by at least 38% by 2020.
- Reach a share of at least 23% of renewable energies in the production mix by 2020, especially through thermal substitution thanks to biomass, solar thermal, geothermics...
- Divide by 4 its emissions by 2050 compared to 1990 with a mean decrease of 3% per year.

To reach this goal the law provides other objectives such as:

- Reduce the consumption of existing building by 38% by 2020 through a renovation programme of 400,000 housings per year including the renovation of all social housing.
- Enforce "low consumption" label requirements (i.e 50 kWh/m².year in primary energy) for existing buildings renovation and new buildings by 2012 and "positive energy" requirements for new built by 2022.
- Climate-Energy plans will be made compulsory for cities of more than 100 000 inhabitants.
- Gradually forbids inefficient energy intensive products like incandescent light bulbs from 2010 as required in the European frame.

Laws related to the toolbox of Grenelle 2 are now about to be discussed and voted in the Chambers. Still some have already been voted such as the "zero rate eco-loan" for renovation works and new funds have been created to promote the creation renewable energies based heating systems like the "Fonds chaleur".

Therefore the NEEAP document provided by France in July 2007 does not include these new ambitious goals and refers to the previous energy law of 2005. As underlined by the Wuppertal Institute, which is part of the energy efficiency watch committee this plan does not provide specific figures or goals concerning electricity consumption reduction. It is always

included within energy efficiency goals, letting the choice of action between electricity and other energy sources. However it has to be underlines that measures concerning new obligations in terms of thermal consumption of course concern the electricity sector as electric heating is very much spread in France. Research programs concerning innovative and efficient equipments or appliances also have a great role to play in electricity efficiency issues as they will define tomorrow's market and the available solutions.

4.2. Regional policy

The **regional authorities** first set a sustainable energy policy in 2001. Since then they have set up a regional energy plan for 2006-2010. They also created two frames to have scope of action that are: the "eco-region" commitment and the "energy climate plan" of the region that has been set up in 2008.

The regional energy plan includes targets for renewable energies as well as for energy efficiency with supportive measures, in particular subsidies to support stakeholders on the regional territory. These subsidies are created in partnership with the regional branch of Ademe, the national energy agency, which provides complementary subsidies on the projects. One of the main targets is thermal substitution through production from renewable energies. Therefore the region has set up the following goals:

- 35,000 m² of solar thermal panels to be installed each year.
- The development of geothermal energy for collective and individual heating. This statement was amended in 2007 with the vote of new subsidies for geothermal heating networks including subsidies for drillings, extension and creation of heating networks.
- 300,000 tons per year of wood consumed for collective heating and heating networks.
- Implement CHP on waste incinerators and valorise biogas from waste.
- To promote the installation of PV panels.

These goals, except for PV solar, have repercussion on the regional electricity efficiency goals as they can potentially address the electric heating issue.

Regarding energy efficiency, in which can be included electricity efficiency. The region provides subsidies for energy audits and diagnosis. The subsidies can reach 40% of the total cost. To realise the audit, the region in partnership with the regional branch of Ademe realised a technical specifications document. The region also finances consecutive works of renovation. It also provides financial support for communication campaigns regarding the promotion of energy efficiency.

As energy efficiency obligation has been enforced in 2006, the region proposes help to local authorities in order to realise projects in the frame of this “white certificates” schemes and therefore receive financial support from the obliged energy suppliers. The region also promotes the implementation of 20 local energy agencies –there are only three at the moment. The region joined the Effinergie group that promote the construction of low energy consumption buildings and the renovation of elder ones to turn them into energy efficient buildings. In that context the region launched a call for proposals for the creation of low consumption buildings and “eco-neighbourhoods”.

In the frame of the State-Region contract 2007-2013; the Region committed to spend 72 million euros on energy with a participation of the State of 25 million.

The Region has now spent most of its grant budget and is planning a new frame to reallocate subsidies. This is a great opportunity to have electricity efficiency goals clearly taken into account at each stage.

5 Stakeholders in the region

5.1 Who are they?

The following table lists the main stakeholders of the region according to their activity, role and competency.

| | |
|---|--|
| Electricity suppliers | POWEO Direct Energie EDF GDF Suez Enercoop (French co-operative of green electricity) |
| Main administrative and institutional bodies | Conseil regional d’Île-de-France RTE Founded in 2000, RTE is the French electricity transmission system operator (STO) responsible for maintenance and development |
| French Energy Regulation Commission | CRE Commission de Régulation de l’Energie |
| Distributors: extract the electricity for delivery to | ERD EDF Réseau Distribution = EDF distribution network SICAE |

| | |
|---|--|
| customers connected to their grids | <p>Agricultural enterprises of electricity created at the beginning of 20th century – There are 3 SICAE in the region IDF.</p> <ul style="list-style-type: none"> -SICAE des Cantons de la Ferté-Alais et limitrophes -SICAE de la Vallée du Sausseron -SICAE Ely <p>There are 2 other local distribution companies in the region that are “régies” (buy and sell electricity)</p> <ul style="list-style-type: none"> -Coopérative d'électricité de Villiers-sur-Marne -Régie Communale de Distribution d'Electricité et d'Eau de Mitry-Mory - R.C.E.M |
| Syndicates of electrification (groups of local authorities that have subcontracted the distribution of electricity) | <p>SIPPEREC Syndicat intercommunal de la périphérie de Paris pour l'électricité et les réseaux de communication</p> <p>SIGEIF (syndicat intercommunal pour le gaz et l'électricité en IDF) 176 cities</p> <p>FDSER (federation départementale des syndicats d'électrification de Seine et Marne)</p> <p>...</p> |
| Professional associations | <p>GIMELEC French industry association for electrical equipment, instrumentation and control systems</p> <p>SERCE French professional association of electrical engineering companies</p> <p>FFIE (represented by CSEEE in the region)</p> <p>French electrical contractors association</p> |
| R&D | <p>EDF R&D</p> <p>CEA (Commissariat à l'énergie atomique)</p> |
| Consumer organisations | <p>CLCV (consommation, logement et cadre de vie)</p> <p>CNL (confederation nationale du logement)</p> <p>ARC (Association Régionale des Copropriétés)</p> |
| Green certificates | <p>OSBERV'ER (French institute for green certificates)</p> <p>GREEN ACCESS (French producers of green electricity sending green certificates)</p> |
| Promotion, communication, information | <p>ADEME,</p> <p>ARENE,</p> <p>EIE (energy efficiency information points)</p> |

5.2 Involving stakeholders

Stakeholders have been surveyed as part of the work of situation analysis. This work provided information on what are these important actors view and what is their action in term of electricity efficiency. The survey encompassed 3 main topics: the Ile-de-France electricity market, the liberalization of the market and electricity demand side management.

The survey shows that stakeholders have a convergent view on the electricity market. Even though they hardly know the consumption levels, they are aware that it is on a rising trend and they expect this trend to continue on the long run. They also expect prices to keep on rising because of the liberalisation of the energy market and the rise of oil and gas prices.

The survey also shows that even though the electricity consumption is on a rising trend, the demand for electricity demand side services remain quite low especially in the household sector. Communication and information are obviously still needed.

Stakeholders do carry out some actions on efficient use of electricity but there is hardly any coordination between them or between their actions and the regional goals set up by the administration. The scale, anchorage and coordination of these existing measures would be a first step towards a rational use of electricity scheduled action. But more actions could be set as most stakeholders showed interest regarding the subject, and more over proved to have been thinking about it seriously. Therefore the basis for the building of a committee to think on the regional action plan is prepared.

The members of the stakeholders committee taking part in the regional action plan workshops are: the regional Council, the ADEME, EDF, Poweo, Sipperec, RTE, ARC, CESR and ARENE. Two workshops took place in March and April and more are planned. The Wuppertal Institute participated to the first one and provided an analysis on the European frame and the French NEEAP. The next one will take place in June.

5.3 Field of action of stakeholders

As part of the survey, stakeholders were asked about what they held as the most relevant tool for increasing electricity efficiency in the region.

The most praised action is the dissemination of best practices, then come information campaigns and training. Financial incentives only arrive in fourth position. Mandatory goals were not put forward.

Stakeholders are not equally involved in electricity efficiency programmes and their actions are diverse. Some aim at raising awareness and informing through the production of leaflets, the organisation of forums or the setting of education to energy sessions for children. Others offer financial support like the purchase of low consumption light bulbs to be

given for free to public in difficulty. Subsidies have also been created for the introduction of efficient public lighting with electronic ballast and tension modulators. The offer for consumption audits or diagnosis has grown a lot and now addresses every sector from individuals to energy-intensive industries. Other measures comprised the creation of a poll of electricity buyers or the creation of a commission on highly efficient buildings. Here is a list of all their actions:

- electricity consumption management software for cities (SIPPEREC)
- grouping commands (SIPPEREC)
- subsidies for efficient public lighting (SIPPEREC)
- financing the purchase of low consumption light bulbs for public in difficulty (SIPPEREC)
- communication with a leaflet on energy savings (SIPPEREC with ARENE)
- forum with presentation of RES (RCCEM)
- Education to the environment, sustainable development and energy savings to schoolchildren (RCEM with Environment House)
- Commission HPE/HQE (CSEEE)
- Monitoring (RTE with ADEME)
- Diagnosis for individuals and cities (EDF)
- Energy audits of industrial process of the "electricity intensive" consumers of the industry (EDF).
- Training for social workers (SIPPEREC with ADEME)

6 Costs, Benefits & main barriers of electricity efficiency

6.1 Costs & Benefits

6.1.1 Costs

The costs of electricity efficiency can vary from one sector to another. The whole understanding of the issue and the solutions to tackle it can differ because of potential financial action levers.

The investment that can be necessary to realize electricity savings can appear to be too high to individuals. On the opposite public bodies and companies are more likely to realize major investments as they can borrow money as part of their activity. It has to be noted that some actors are also committed to reduce their consumption because of the law, in particular in the industry and energy sector.

However tremendous savings can be made for free or almost. they are about changing behavior like switching off lights, switching off the stand-bys or installing low consumption light bulbs. This aspect of free measures should be underlined and put forward through communication campaigns.

6.1.2 Benefits

The benefits of electricity efficiency measures can differ from sectors. It can lead to:

- financial savings because of a lower consumption and even the renegotiation of the supply contract
- better competitiveness because a company has reduced its costs of production
- better competitiveness because the company provides innovative solutions to tackle electricity consumption
- better comfort: thermal, visual... due to the change a better behaviour and/or use of better technology
- lowering of green house gases emissions.
- Better brand image of companies or local authorities because of their action
- Lowering the importation and dependency towards other sources of production

6.2 *Main barriers to be addressed*

As part of the survey mentioned above, stakeholders were asked about what they thought to be the main barriers to the development of electricity efficiency. Three categories of variables impacting demand and supply were put forward to explain the limitation of electricity efficiency in the region: financial aspect, qualification and training, and political commitment. These complementary aspects are all under critics.

To begin with, the lack of commitment would explain the reason for a relatively low demand from actors to be provided with electricity efficient equipments and services. Behind the lack of commitment is the lack of information, which has for consequence a poor understanding of the issue. Consumers, whether they are households or companies do not assess properly the potential financial savings they can realise and their environmental benefits.

The lack of qualified human resources and new savoir-faire is underlined to explain the scarcity of supply of specialised services in the field of electricity efficiency. This reflects a problem of adaptation of training whether initial or continuous. This issue reaches all level of qualification.

Finally the financial side of projects is put forward. The investment costs as well as the return on equity often represent a barrier. The high investment cost represents a barrier especially for households, which for it is often complicated to get a consequent amount of money at once. Regarding the public sector, as their action is very much linked to the political mandate of the mayor, short-term analysis is often privileged putting aside financially viable actions because the return on equity is considered as too high. Still on the financial aspect, electricity suppliers

remain energy sellers and complain that they are asked to cut their sale (under the "White Certificates" law for instance).

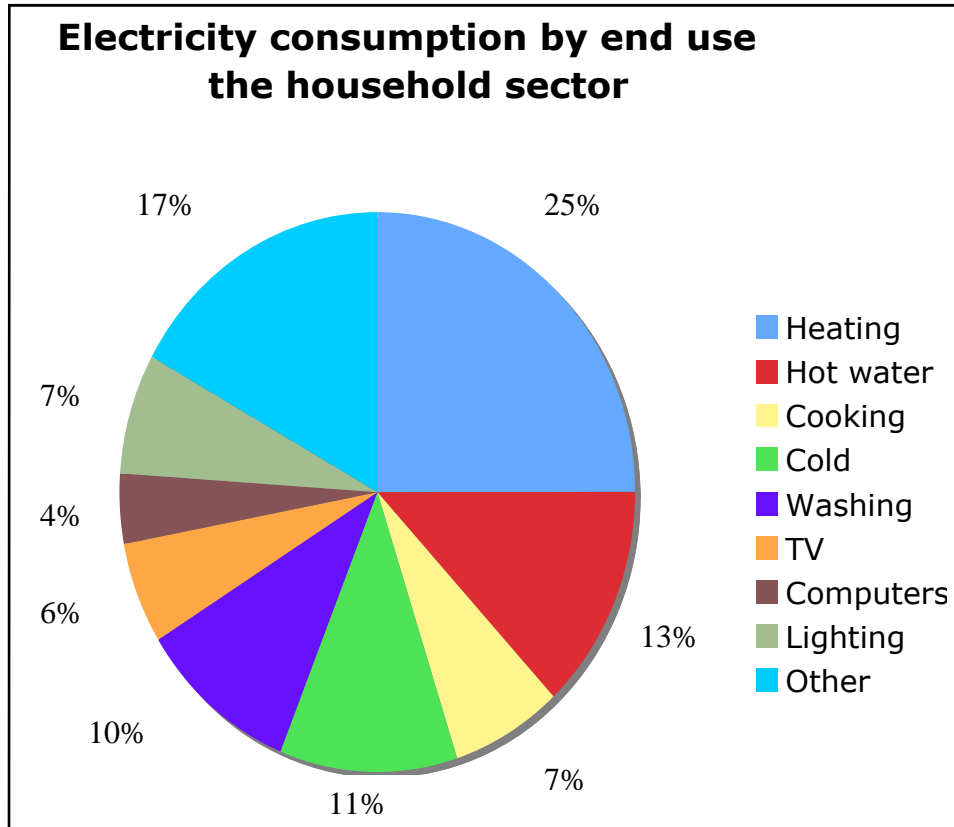
These intertwined causes need to be addressed as part of the regional action plan.

7 Focus on sectors

With respect to the analysis of consumption presented earlier, there will be three sectors that the plan focus on: the public sector, the residential sector and the service sector.

7.1 The household sector

With 24,9 TWh consumed in 2006 and a share of 36%, the household sector is the second consuming sector in the region. As part of the El-Eff project a study focusing on this sector has provided a good picture of the detailed consumption of households in Ile-de-France presented in the graphic below.



Reducing electricity consumption of households is going to become all the more important as with the new building regulations enforced since 25

years (i.e 30% of the stock), spending for appliances and lighting is more important than heating. In those built since 2000 it is even twice as much. With the new laws that should be enforced requiring a maximum consumption of 50 kWh/m².annum it could be 6 times more. The gain due to the replacement of cold appliances by efficient ones is estimated at 1,5 TWh per annum.

It is estimated that 1,36 millions dwellings are heated with electricity i.e 29% of the building stock. Electric heating system are particularly developed in housings built at the end of the 1970s and in old ones (<1915) that have been equipped with convectors when renovated. The graph below shows the repartition of between collective and individual housing for the different heating energies.

Repartition of housing by energy
used for heating

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Another problem is rising concerning summer comfort. Analysis shows that one of the main reason for overheating proves to be internal gains of buildings i.e consumption due to appliances. Instead of consuming more through cooling to refresh the building, reducing electricity consumption would be the most economical solution.

Lighting is still an issue even with the transposition of the directive on low consumption light bulbs. The law could help saving nearly 1 TWh per annum.

Stand-by losses are also an important target. Even though the related power is low, the consumption is continuous leading to significant annual consumption. As an illustration, measures have shown that all stand-by losses could reach a consumption of 11 TWh in the country i.e the annual production of two nuclear reactors. The suppression of stand-by consumption is estimated at 1,2 TWh per annum.

Building services auxiliaries like pumps of individual heating system are another issues as they keep on working even though the burner has stopped. It could save 24 GWh per annum.

A very important aspect of the households sector in Ile-de-France is that most of the stock is made of flats, which means significant consumption due to common parts like lighting, elevators, fluid pumps, parking. Owners sharing the cost on maintenance of those equipments can take action to reduce this consumption and related charges. The estimated savings reach 34 GWh per annum.

Still households are hardly aware of that situation and do not take action.

A first step in the plan would be therefore to raise awareness of households on their consumption levels and to tackle them. This work has already started in the frame of the EL-EFF project with the realisation of a brochure and panel as well as an internet calculation tool that shows savings that could be realised. Other tools have been discussed as part of stakeholders' workshops to build up the plan. The main tools put forward are: smart metering, communication campaigns and tariffs to cope with carbon intensive peak demand. Behavioural awareness could lead to tremendous savings and efficient appliances and equipments should be promoted. Tracking waste, promoting and financing electricity orientated audits in flats would also help achieving the potential, as well as financing consecutive investments for improvement and renovation. One measure could be to include electricity in the technical specifications document of the region and the Ademe that is mandatory to use when benefiting from subsidies. In that frame specific methodology is a tool to be developed. The measures proposed concerning households are detailed in the table at the end of the document.

7.2 The service sector

With 28,4 TWh consumed in 2006 and a share of 41%, the service sector is the most consuming sector in the region. 585 000 companies are concerned. And offices represent a third of all the consumption, then comes the shops. A great proportion of the consumption of this sector is specific electricity i.e electricity consumption that cannot be substituted. It means mainly electronic devices (like computers and printers), lighting but also building services auxiliaries like pumps, fan and food refrigeration for shops.

Cooling is also gaining an important part, especially since the heatwave of 2004. A study carried out by Enertech in Provence-Alpes-Côte d'Azur (i.e French Riviera) shows that 40% of cooling load is due to internal gains such as lighting and electronic devices. To compare with Ile-de-France where the cooling load due to sunshine is lower the internal gains part could be even higher.

Common parts issues underlined in the household sector are also relevant for the service sector in particular offices when a group of companies share a flat. Experiences of presence detector in parkings have allowed a reduction of 87% of consumption.

As a large part of electricity consumption in the service sector is due to electronic devices, the stand-by related consumption has consequently largely increased. Here as well building services auxiliaries like pumps or fans usually over consumed.

As part of the El-Eff project, a study was carried out on social residences. It provides us with a good knowledge on the repartition of electricity consumption and potential solutions shown below.

Repartition of electricity consumptions by use in
social residences in Ile-de-france

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Measures discussed as part of the stakeholders workshops are: smart metering, specific audits on tertiary sub-sectors as this very sector is extremely heterogeneous. Specific methodology for electricity audits should be developed, financed as well as consecutive works for improvement including centralised technical management as part of smart building technologies.

7.3 Focus on the public sector

Public sector like municipalities are the core of ARENE's public and target. Actions in the public sector are all the more important, as exemplarity is one of the best communication media for the public.

Therefore some tools have already been developed that could now be used for electricity efficiency.

For instance the agency has been producing since its birth 4 pages leaflets on specific topics to present best practices in the field of energy efficiency or renewable energies use. Movies are also produced to raise awareness.

New ones could be produced specifically on electricity efficiency towards the service sector. The newsletter is a great tool as well because it can help keeping presenting best practices in larger scale, by being more flexible than the leaflets. Site visits are also very appreciated as they allow a very concrete illustration of recommendations. People can see and ask questions directly with respect to their own concerns. All these are tools of communication and raising awareness so that the public sector commits to electricity efficiency and take action. There can be 2 types of action on electricity efficiency from the public sector: they can act on their own patrimony but moreover they can include it as part of their local political plan like A21 or energy climate action plan.

Regarding concrete pilot actions, the ARENE plans to accompany some local municipalities towards efficient public lighting. One aspect of the action could be the use of white certificates as a financial leverage. This action would have to be built with electricity supplier like EDF As inefficient electric heating is well spread in France, a measure would also concern the substitution from electric heating to more efficient type of heating system including district heating or renewable energy sources.

Another concern is public purchase: how can municipalities integrate electricity efficiency in their purchase contract for equipments.

Encourage the public sector to realize energy audits with special focus on electricity on their patrimony as it has been done in Paris city hall. An important aspect of these audits is that they would not only concern the optimization or change of equipments but they should also include training sessions of workers/users. This would of course help to get the most savings out of efficient items but workers should bring this knowledge for use back home when they become households. This way, not would they commit and act towards sustainability but they would also prove exemplar. This proved exemplarity will be a great tool for them when carrying awareness campaign on electricity efficiency towards their citizens or companies. Indeed this leads to the second aspect for the actions the public sector can carry out. Not only can they work on their own patrimony but they can also work on their territory with the actors whether they are citizens or companies. Workshops and working sessions would be the occasion to remind them about those levers of action.

Measures towards the public sector are presented in the table at the end of the document.

8 Frame of action

8.1 Targets for electricity efficiency

To define targets for the regional electricity efficiency plan, we propose a transposition of the goals defined in the Grenelle i.e a 12% goal of energy consumption reduction by 2012 and a goal of 38% by 2020. The transposition can be made by comparing national and regional electricity consumptions. The Ile-de-France region consumes approximately 15% of the national consumption or 69,2 TWh in 2006. This would mean a reduction of 8 TWh by 2012 and an additional 18 TWh by 2020.

In addition we propose that a special focus is put on peak demand as it is most green house gases intensive.

The work has started in 2009. However, discussions with the Regional Council and the ADEME, which are the 2 main actors of the regional energy policy have already started as they will be ultimately the financers of the measures proposed. As presented previously in the document the energy regional policy and its funding are voted in the frame of a deliberation. The regional energy department is now elaborating the next deliberation proposal that is a great opportunity to impulse and integrate electricity efficiency measures.

8.2 Time frame and monitoring

The political time-frame is in concordance with the one proposed as part of the transposition of Grenelle objectives as the next deliberation is voted for the 2009-2013 period. This means that funding will be ensured until that date. In 2012 new negotiations will take place for the vote of new funding for the next period 2013-2017. This would be a time of assessment and reorientation of the action plan and measures according the results reached until then.

To be able to assess the efficiency of the action plan and measures proposed and implemented, different possibilities depending on actions and stakeholders are available. Stakeholders' networks will provide the opportunity to follow the implementation of the plan and consecutive actions carried out by target groups. Indeed some stakeholders will be requested to be involved in the future, whether as advisers and experts or in the submission for subsidies process. The comparison with the regional energy balance figures and the forecasts of the system operator will also provide an estimation of actions impact. It has to be noted that the monitoring of projects results is necessary and should be either de

underlined as an important part of the project or even made mandatory as a condition for receiving financial support when possible.

Annex

WP 3: Regional Action Plans "List of measures" Region: Ile-de-France

Sector: Private Households

| No | Measure | Main actor(s) | Description of the measure | Targeted / expected impact | Year(s) of implementation (estimate) | Funding body | Estimated costs |
|----|--|---|---|--|--------------------------------------|----------------------|-----------------|
| 0 | Awareness campaign on stand-by | ARENE | Campaign on stand-by: internet tool, media cooperation, brochure, direct mailing, competition | 1 % of the households participate, 200 kWh/a per household saved | 2010 and 2011 | Regional gov | 200,000 € |
| 1 | Awareness campaign on electricity efficiency | ARENE/ADEME/SIPPER EC | Brochure, organization or participation to local fairs disseminated via municipalities, energy syndicates and energy info points. | 3 million inhabitants | 2009 | ARENE/ADEME/SIPPEREC | 50,000 |
| 2 | Audit tools | ADEME / Regional council/ Electricity suppliers | development of specific simplified audit tools | 1000 audits per year | 2009 - 2010 | Regional council | 200,000 |
| 3 | Short movies for raising | ARENE | Movies on multimedia and cooking presented on the partners website, | 50,000 | 2009 | ARENE | 30,000 |

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| | awareness | | fairs and web media like dailymotion | | | | |
| 4 | Promotion of district heating | ARENE/ADEME/ VIA SEVA | Information to provide incentive towards | Connection to the local heating network | 2009-2011 | ARENE/ADEME/ VIA SEVA | 10,000 |
| 5 | Low consumption light bulbs promotion | ADEME/ARENE/Social housing promoters/EDF | Purchase and distribution of LCB to public in difficulty suffering from high energy bills (fuel poverty) | 500,000 | 2009-2010 | Social housing promoters /ADEME/ EDF | 1,000,000 |
| 6 | Smart metering | ADEME/ Electricity suppliers/ Regional council/ARENE/ ARC | Develop and smart metering technologies | 10000 | 2009-2010 | ADEME/ Electricity suppliers/ Regional council | 150,000 |

Sector: Public Bodies (region, municipalities etc.)

| No | Measure | Main actor(s) | Description of the measure | Targeted / expected impact | Year of implementation (estimate) | Funding body | Estimated costs |
|----|---------------------------------|--|--|---|-----------------------------------|--------------|-----------------|
| 1 | Communication on good practices | ARENE, municipalities, departments, region | Site visits, working breakfasts and e-newsletter for elected people and technical services | 40 people for the visit, 2 working breakfasts, 2 issues of the e-newsletter to begin with | 2009-2010 | ARENE | 30,000 |

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| 2 | Short movies | ARENE, municipalities | Videos on public lighting and lighting in buildings | | 2008-2009 | ARENE | 30,000 |
| 3 | Efficient public lighting through white certificate | ARENE, municipalities and EDF | Using white certificates as a financial leverage for efficient public lighting implementation | 1 pilot experimentation, -15% on the consumption | 2009-2010 | Municipalities, EDF | Will depend on the size of the pilot city |
| 4 | Promotion of district heating | ARENE/ADEME/ VIA SEVA | Promotion of district heating for the substitution of electric heating through means of information: brochures, visits | Connection to district heating, extension of networks | 2009-2011 | ARENE/ADEME/ VIA | 40,000 |
| 5 | Raising awareness at school | Regional council, ARENE | Implementation of energy audits focused on electricity and organization of energy weeks | 5% of the electricity consumption per annum | 2010-2015 | Regional council | 80,000 / annum |
| 6 | Smart metering | ADEME/ Electricity suppliers | Implementation of meters to provide relevant information on electricity consumption | Cities over 30,000 inhabitants | 2010-2015 | Electricity suppliers/ ADEME / Regional Council/ Sipperec | 2,000,000 |
| 7 | Electricity orientated audit | ADEME/ Sipperec/ Electricity suppliers | Realization of electricity orientated audits | All cities | 2010-2013 | ADEME/ Regional Council/ Electricity suppliers/ Sipperec | 1,000,000 |
| 8 | Intelligent buildings | ADEME/ Electricity | Implementation of centralized technical management system | 200 buildings | 2010-2013 | ADEME/ Regional | 100,000 |

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| | | suppliers/ Sipperec | | | | council/ Electricity suppliers | |
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Sector: Service sector

| No | Measure | Main actor(s) | Description of the measure | Targeted / expected impact | Year of implementation (estimate) | Funding body | Estimated costs |
|----|--|---|--|---|-----------------------------------|---------------|-----------------|
| 1 | Energy charter with wholesalers | Wholesalers/ ARENE/ADE ME | Set up an energy charter on white and brown | Increase their market share and take off the market the less efficient appliances | 2010 | ADEME | 5,000 |
| 2 | Working groups on innovative financial instruments | Banks, financial companies, ARENE | Brainstorming workshops to carry out proposals to the regional council | | | ARENE | 8,000 |
| 3 | Audits for SME-SMI | SME-SMI, ARENE, Chamber of commerce and industry, local energy | Energy audit focused on electricity in SME, SMI | 20 per annum | 2009-2012 | CCI, ARENE | A lot |

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| | | agencies | | | | | |
| 4 | Smart metering | ADEME/ Electricity suppliers | Implementation of meters to provide relevant information on electricity consumption | 100 buildings | 2010-2015 | Electricity suppliers/ ADEME / Regional Council | 150,000 |
| 8 | Intelligent buildings | ADEME/ Electricity suppliers/ Sipperec | Implementation of centralized technical management system | 200 buildings | 2010-2013 | Electricity suppliers/ ADEME/ Regional council | 100,000 |

Sector: all, transversal action

| No | Measure | Main actor(s) | Description of the measure | Targeted / expected impact | Year of implementation (estimate) | Funding body | Estimated costs |
|----|---------------------------------|---------------|--|---|-----------------------------------|--------------|-----------------|
| 1 | Regional network of stakeholder | stakeholders | Creation of a network that could impulse the political decision and that would exchange information on what they are doing or planning too do for more complementarities and coherence | A reactive network to work on the issue | 2009 | ARENE | 10,000 |