THE CASE FOR ENERGY EFFICIENCY AND WHY THE EU MUST ACT **NOW**

EUROPEAN ALLIANCE TO
SAVE ENERGY
Creating an Energy-Efficient Europe

February 2012

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In 2008, faced with the challenges of global climate change, security of energy supply and the increasing scarcity of natural resources, the European Union (EU) committed to reduce greenhouse gas emissions by 20%[1], pledged to ensure that 20% of EU final energy consumption would come from renewable energy sources, and called for a reduction in energy use across Europe by 20%.

The targets for emissions and renewable energy sources were made legally binding; the EU is on track to achieve these targets. The commitment to save 20% of energy was not made legally binding and as a result, as it stands today, the EU is expected to achieve only 9% of its targets by 2020[2], not even 50% of its energy savings goal.

"Europe is expanding in renewables, even in these years when we also have economical challenges. We are making the transformation. So we are living proof that it makes a difference if you are actually committing in a more binding form and if you are setting targets."

Connie Hedegaard,
EU Commissioner for Climate Action, Sept 2011

WHY IS EUROPE BEHIND WITH ITS ENERGY SAVING TARGETS ?

The answer is largely because the energy saving target is not legally binding at a European level. Experience shows that legally binding targets orientate choices and require accountability from Member State governments. They serve as a hard benchmark for assessing progress in implementation, and in parallel they provide long-term regulatory certainty to drive public and private investments into the energy efficiency market.

WHAT HAS THIS MEANT FOR ENERGY EFFICIENCY IN EUROPE ?

Europe's largest and some of its smallest and fastest growing enterprises have the technology TODAY to deliver far more than a 20% energy efficiency target by 2020, but in the absence of legally binding targets for 2020 and no clear long term vision for an energy efficient economy in 2050, the EU's energy efficiency market has remained immature. The investment community has had no guarantees to invest, the many market barriers that can be so effectively removed with regulation are still firmly in place, and many of Europe's leading businesses and innovators are being stopped in their tracks. They should be winning the race.

WHY IS AN ENERGY EFFICIENCY MARKET IMPORTANT FOR THE EU ?

Europe is currently facing enormous challenges. We need to find cost-effective ways to improve our energy infrastructure, above all to pave the way to reduce our dependency on fossil fuels and on foreign imports[3]. In the absence of nuclear we need to find ways to reduce demand in some of the EU's largest Member States[4]. We need to sustain growth and jobs to face the financial crisis, and we need to improve Europe's efforts to reduce the effects of global climate change. In addition to changing the fuel mix and decarbonising our energy supply, a fully functioning energy efficiency market is a critically important part of the solution to address these challenges.

AN OPPORTUNITY: THE EU'S ENERGY EFFICIENCY DIRECTIVE[5]

Earlier in 2011, when faced with the evidence that the EU was behind on its targets, the Council (the EU's national Energy Ministers), the European Parliament (the EU's elected representatives) and the European Commission (the EU's executive), committed to take decisive action[6] on energy efficiency.

A new Energy Efficiency Directive was presented by the Commission in June 2011. This law is the EU's short-medium term compromise to binding targets - a vehicle to deliver binding and ambitious measures on energy efficiency to help put the EU back on track between now and 2013.

Unfortunately, in its present shape, the Directive has shortcomings and loopholes and does not reassure business or European consumers that energy efficiency is a priority worth investing in. The Directive does however have potential; if strengthened and not weakened through the institutional process, it has the ability to kick-start Europe's energy efficiency market and bring down the barriers that are currently hampering the uptake of existing energy efficient products and services across the EU's 27 member states. It is an opportunity to put the EU back on track.

ABOUT THIS PAPER

This white paper has been put together by the European Alliance to Save Energy (EU-ASE) to present some of the reasons why we believe Europe's legislators and decision makers need to invest in energy efficiency.

We believe that the EU should act on energy efficiency NOW because technologies need to make significant change happen already exist TODAY, because investing politically in energy efficiency is an opportunity for jobs and for sustainable growth and because finance (whilst an issue) is no longer an obstacle.

There are, we are sure, many more reasons for Europe's politicians to invest in energy efficiency, so we welcome additional contributions. Meantime, we hope you find this information useful to your work.

ABOUT THE EUROPEAN ALLIANCE TO SAVE ENERGY (EU-ASE)

The European Alliance to Save Energy (EU-ASE) was established at the United Nations Climate Change Conference in December 2010 in response to the urgent need for stronger action on energy efficiency in Europe. Our members are some of Europe's leading multinational companies, a prominent cross- party group of European politicians and energy efficiency campaigners from across Europe. EU-ASE members employ over 115.000 people across Europe and have operations in the 27 member states of the European Union.

We have come together as a united force to tell the story of energy efficiency and show EU law makers that energy efficiency works. We bring practical solutions to the table, we scrutinize policy and provide constructive advice on how to make it stronger and we partner with national campaigns and associations to make our cause heard. Our message is simple: create an energy efficient Europe now!

www.euase.eu

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ENERGY EFFICIENCY IS THE SAFEST WAY TO SECURE A SAFE ENERGY SUPPLY FOR THE EU

How can we guarantee a safe supply of energy for future generations ? The answer is largely by reducing our energy demand, and if we reduce our dependence on external energy sources, we reduce our exposure to the volatility of energy prices.

In 2007, our energy dependency meant that 400 billion euros of EU's wealth was exported mainly to oil and natural gas rich countries[7].

Through energy efficiency measures we have the potential to save energy and billions of euros. This can be channelled out of unnecessary investments in external supplies of energy and back into our economies.

…IT IS THE MOST COST-EFFECTIVE SOLUTION TO TACKLE CLIMATE CHANGE

Energy efficiency offers the largest, fastest and most cost-effective way for Europe to reach its climate targets and ensure that it is doing all it can to keep global average temperatures below a 2°C increase.

Reducing energy use is the backbone of any effective climate strategy.

Reaching the 20% EU energy savings target has the potential to **cut emissions by almost 800 million tons a year[8], around 1/5 of current emissions[9].**

…IT WILL FREE UP BILLIONS OF EUROS NEEDED TO IMPROVE OUR ENERGY INFRASTRUCTURE

Halving Europe's energy demand would free up billions of euros to reinvest back into Europe's energy infrastructure.

The EU will struggle to meet its goals on renewable energy, greenhouse gas emission reductions and security of supply without significant investment in cross-border interconnections and in integrating renewable energy into the network. A large part of these investments will have to come from government coffers at a time of budgetary pressure.

Through energy efficiency measures, using existing technologies, **the EU could free up a significant part of the 100 billion euros in public action[10] needed for investment in the grid the next 10 years.**

CASE IN POINT

Energy efficient lighting = 141 fewer power plants

In Europe, the direct savings that could be reaped through a deep implementation of lighting technologies could reach 28 billion euros per year.

These energy efficiency improvements could reduce the need for: 141 fewer power plants, roughly equivalent to the required investment of 300 billion euros.

Source: Philips Lighting

...IT SAVES MONEY, USING EXISTING TECHNOLOGIES

CASE IN POINT

Building Energy Management

Building energy management (BMS) is an effective way to reduce energy use in buildings. A range of technologies and systems (e.g. automation, metering and controls) ensure average payback times of 3 to 5 years at low investment volumes and with permanent impact on energy savings. The right combination of energy management technologies and systems usually bring 30% savings on capital expenditures (CAPEX) and operating expenses (OPEX), in particular in commercial buildings and industrial sites.

17% to 38% savings in Operating Expenses in Quirón Hospital in Madrid

Schneider Electric recently worked with Quirón Hospital in Madrid, Spain to provide intelligent and integrated infrastructure from a single point of control. As a result, the hotel has been able to reduce ongoing operating expenses through energy savings from 17% to 38%.

Source: www.schneider-electric.com

If you save energy, you save money. And this is possible using a range of existing technologies[11].

Buildings

Buildings currently account for 40% of the EU's total final energy consumption and 36% of CO_2 emissions[12].

By combining technologies and systems in existing buildings either through deep renovation or the optimization of energy performance[13] Europe could save 32%[14] of its total primary energy use[15] in existing buildings. This saving is equivalent to the combined total energy production of the European coal and nuclear energy sectors or a saving of 4 billion barrels of foreign oil per year[16]. At current prices [17] this is equal to 260 billion euros a year[18] or to the gross inland consumption of primary energy of countries such as the UK, Italy and Spain[19].

UK Carbon Emission Reduction Target (CERT) – delivering insulation to millions of homes

The CERT scheme was introduced in the UK in 2008 as one of the key policy instruments to support the UK's climate objectives under the Kyoto Protocol, in a manner that also supports the creation of jobs, reduces fuel poverty and the UK's dependence on foreign energy supplies. The scheme obliges energy companies to make annual energy savings through a number of measures, with insulation of roofs and cavity walls now being the measure of choice for the scheme. Currently this scheme is leading to over a million insulation measures a year and is expected to provide life time savings in the region of 293 million tonnes of carbon dioxide and support around 10 000 jobs. CERT, is showing that energy obligations can be a driver for massive improvements to the energy efficiency of existing buildings.

Source: www.knaufinsulation.com

Information and Communication Technologies (ICTs)

In Europe, **ICTs could deliver 272 $MtCO_2$ of emissions savings by 2020[20].**
This saving is equivalent to a saving of 310 million barrels of foreign oil per year. At current prices[21] **this is equal to 20 billion euro a year[22]** or to the gross inland consumption of primary energy of countries such as Greece and Ireland[23]

A range of accessible ICT solutions already exist to deliver these savings and more.

Data centers also hold enormous energy and money saving potential. Currently they account for a quarter or more of total IT costs for large enterprises and almost 2% of world electricity production. Yet huge inefficiencies exist; cooling IT gear typically consumes 50% of a data center's power use. By effectively managing the heat load through IT solutions companies, large and small, can minimizes the risk of downtime and manage their energy costs.

CASE IN POINT

PC power management

A whole range of off-the-shelf and bespoke PC power management solutions are now available that help businesses identify and reduce power consumption and costs from ICT equipment and software.

Germany - If every corporate PC and server in Germany had energy saving software installed on it, the German economy could save approximately 1.9 billion euros per year in energy costs and reduce carbon emissions by around 9.1 million metric tonnes of CO_2.

France - If every corporate PC and server in France were being efficiently power managed, the French economy could save approximately 725 million euros per year in energy costs and reduce carbon emissions by around one million metric tonnes of CO_2.

Source: www.1e.com

Smart grid technologies

Smart grid technologies can improve electricity reliability, quickly identify and self-heal problems in the network. They are also an effective way to manage demand and voltage, allow large consumers to manage their electricity consumption (through demand response) and allow for more effectively integrate renewable energy.

Demand Response (DR), which manages consumers' electricity consumption in response to supply conditions, is particularly crucial to unlock potential of energy efficiency as a supply-side resource. It has the potential to create synergies between networks, producers and customers that will assist in managing cost and reduce the environmental impact of power generation and consumption.

Smart grid technologies could save utilities billions in capital expenditure on peak demand infrastructure and alone could achieve 25-50% of the EU's 2020 energy savings targets, as well as pre-empting the need for the equivalent of 150 medium size thermal plants in EU-15[23].

Lighting

Some 19% of world electricity demand goes to lighting. Shifting to energy saving lamps in homes, in office buildings, commercial outlets and factories, and to LEDs for traffic lights would drop the lighting's share of total world electricity use from all sectors from 19% to 7%. This would save enough electricity to close 705 of the world's 2,800 coal-fired plants[25].

HUGE POTENTIAL FOR ENERGY SAVING			
AREA OF LIGHTING	ENERGY SAVING	CO_2 AND $ SAVINGS PER LIGHT-POINT PER YEAR	
Road lighting	57%	132 kg CO_2	€ 26
Shop lighting	80%	140 kg CO_2	€ 28
Office & Industrial Lighting	61%	93 kg CO_2	€ 19
Home lighting	80%	41 kg CO_2	€ 8
LEDs	80%	41 kg CO_2	€ 8

In Europe, the direct savings that could be reaped through a deep implementation of lighting technologies could reach **28 billion** euros per year. These energy efficiency improvements could reduce the need to invest: **141 power plants**, roughly equivalent to the required investment of **300 billion** euros[26].

CASE IN POINT

LEDs in street lighting

LEDs are expected to take more than 50% of the total North American and European lighting markets by 2015 and 80% by 2020. In the US almost 70% of traffic lights have been converted to LEDs. In Europe this figure is currently less than 20%.

NEW YORK CITY SAVES 6 MILLION DOLLARS FROM LEDS IN STREET LIGHTING

New York City has changed all its traffic lights to LEDs, cutting the annual bill for power and maintenance by 6 million dollars (around 4.1 million euros).

Source: http://apps1.eere.energy.gov/news

TILBURG SAVES 50% IN ENERGY COSTS FROM LEDS

In early 2011 a residential area in the city of Tilburg in the Netherlands was equipped so-called 'streetlights-on-demand', interactive, intelligent street lights that only produce bright light when people pass by and that dim automatically when nobody is around. The system saves the city 50% on energy costs compared to conventional lighting.

Source: Philips Lighting

Transport

The transportation sector accounts for 22% of global energy use[27] and 27% of global CO_2 emissions[28]. Shifting transport demand to more efficient modes has great energy efficiency potential.

As a mean of moving freight, for example, rail transport is as much as **ten times more energy-efficient per kilometer as road transport**[29] and maritime transportation, which accounts for 90% of cross-border world trade as measured by volume, uses only 7% of all the energy consumed by transport activities[30].

Electric vehicles also hold great potential for the future. As well as being more efficient, they could feedback electricity into the grid and in turn be a powerful lever to manage the grid.

CASE IN POINT

Germany invests in R&D in electric cars

The German government has committed an additional 1 billion euros in research and development aid for electric cars on top of its existing aid in the form of tax credits and dedicated parking spots to meet its goal of having one million electric cars on the road by 2020. That will put Germany in a neck-and-neck race with the United States to deploy as many electric cars as possible.

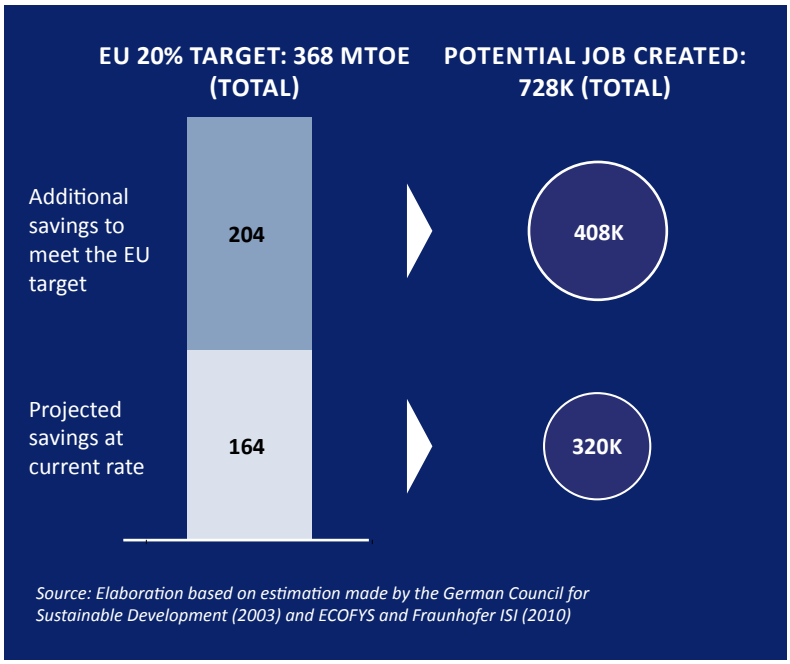
Germany is the leading European market for electric car with just over 1000 electric vehicles (EVs) sold to date, followed by France (953 electric cars), Norway (850 EVs), and the UK (599 EVs).

Source: JATO Dynamics

...IT CREATES JOBS

Across all sectors just over 1,000 full-time direct jobs could be created for each million ton of oil equivalent (Mtoe) saved as a result of energy efficiency measures and/or investments.

In real terms this means that if the EU reaches its energy saving target of 368 Mtoe by 2020[31], it could generate 728,000 direct, full time jobs.



Source: Elaboration based on estimation made by the German Council for Sustainable Development (2003) and ECOFYS and Fraunhofer ISI (2010)

CASE IN POINT

Green jobs in the US

In the US, the American Recovery and Reinvestment Act expenditures which have been dominated by efforts to improve energy efficiency in buildings and to promote low-carbon transportation are estimated to create about 367,000 jobs in direct employment, while indirect employment effects came to about one million.

www.bluegreenalliance.org

The costs of energy efficiency jobs in general are lower than those in most other sectors of the economy. In the US for example, green jobs average at of about 60,000 dollars each. These jobs are likely to last for years, generating private cost-savings and important public benefits.

http://thinkprogress.org

Jobs are local

Making Europe energy efficient will involve transforming the places that we live and work, and the ways we get around. Most of these jobs are impossible to offshore.

For example; insulating a building creates business for the local contractors and the companies hired to upgrade homes. These companies in turn have to purchase supplies and that creates business for retailers. These retailers need to restock their shelves, and that creates business for manufacturers. And almost all the insulation made for Europe is produced in Europe; insulation is a product that is rarely imported due to exceedingly high transport costs.

The construction industry estimates that the equivalent of up to 530,000 full time jobs would be created in Europe through an ambitious strategy to improve energy efficiency in buildings by 2020[32].

More jobs than fossil fuels or nuclear power

Compared with the jobs created by extraction, transformation and distribution of energy, energy-efficiency investments offer more and better employment—in part because money saved from reduced energy use can be spent in other sectors of the economy that are more labor-intensive than the energy industry.

Energy end-use efficiency investments create **three to four times the number of jobs** created by comparable energy supply investments, i.e. coal-fired and nuclear power plants[33].

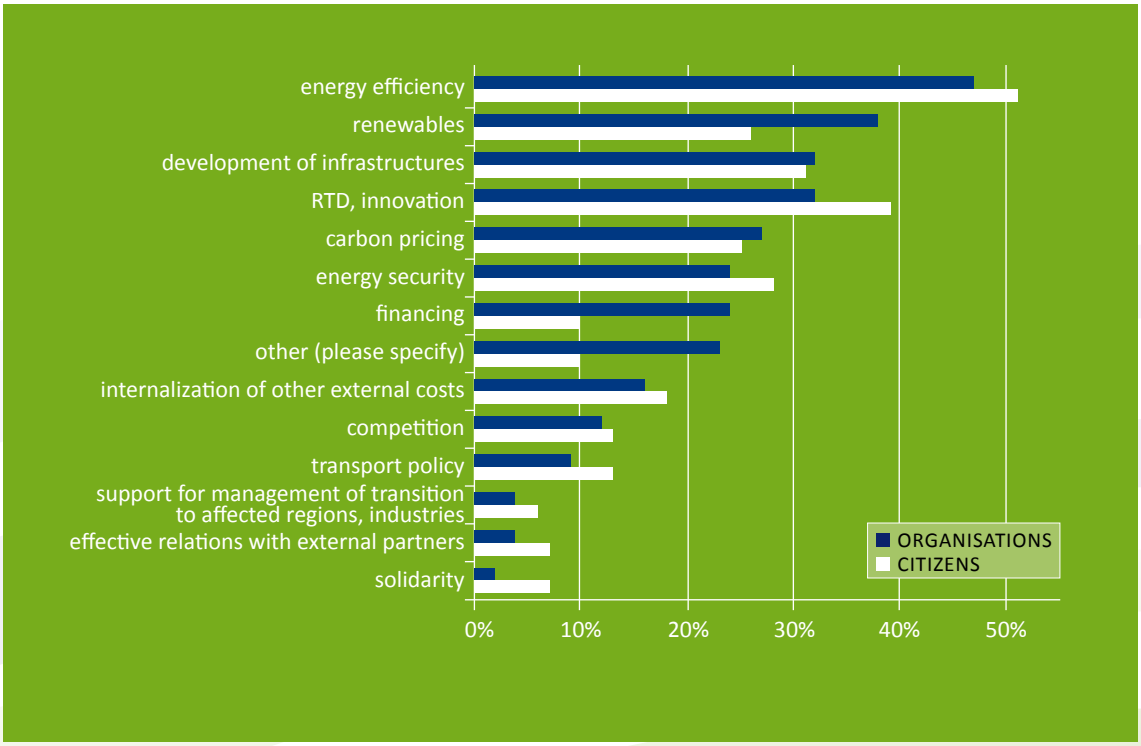
CASE IN POINT

Estimated job-years of direct employment created by investment of $1 million	
Energy efficiency	12–16 job-years
Coal-fired power plants	4.1 job-years
Nuclear power plants	4.5 job-years

...IT IS WHAT EUROPEANS WANT

Inertia and a constant underestimation of the potential are often to blame for a lack of progress on energy efficiency. However, energy efficiency is increasingly important to European citizens. And why wouldn't it be? Greater energy efficiency saves money and makes our homes, schools and working environments more comfortable and more productive places to live, study and work.

The graph shows that roughly half of respondents (47% of organisations and 51% of citizens) to a recent public consultation for the European Commission's Energy Roadmap 2050 considered that energy efficiency is one of the 3 most important aspects needing more development at EU level in a 2050 perspective.



…AND ALTHOUGH FINANCE CAN BE AN ISSUE, IT SHOULD NOT BE AN OBSTACLE

Difficulty in finding financial resources seems to be the one issue that consistently hampers the uptake of energy efficient technologies and solutions in Europe. And a lack of upfront capital, heighten by the economic crisis and cuts in public spending, is the main argument used by national, regional and local governments for not doing more to promote energy efficiency. But this obstacle can be overcome…

CASE IN POINT

What regulatory certainty has done for Renewables

Experience in the renewable sector has shown what certainty can do for a market. By early 2011, at least 118 countries (more than half the countries in the world) had some type of policy target or renewable support policy at the national level, up from 55 countries in early 2005.

This regulatory certainty spurred 162 billion dollars (over 120 billion euros) in new investments in sustainable energy in 2009, the second highest annual investment total ever (and four times that seen in 2004).

Source: UNEP - Global Trends in Sustainable Energy Investment 2010 and www.ren21.net

Regulatory certainty brings investment

The technology is there to build the infrastructure we need to move to an efficient energy system, both on the supply and demand side. However public funding is not enough; we also need also mobilize private capital.

The private sector is poised to invest in energy efficiency and provide the necessary capital to leverage public sector finance, but many investors are waiting in the side-lines. Why? Because without a European regulatory framework and a strong political mandate to give them long term stability and certainty they need, they are unwilling to take the risk or worse they are choosing to invest in other markets.

A broad range of financing mechanisms already exist

A number of financial mechanisms already exist to help unlock public and private sector investment. However there is still a lack of understanding around their functioning and full potential and this is holding back their deployment on the necessary scale. With the right public support and the regulatory structures in Europe, these schemes could flourish.

Energy Performance Contracting

One of the most interesting examples of these financing options is certainly Energy Performance Contracting (EPC). Under this "performance-based" form of purchasing, the monetary savings reaped from energy efficiency measures are used to cover part or all of the energy efficiency investment costs. The investment to cover the initial costs is usually provided by energy services companies (ESCOs) and NOT by the beneficiary of the energy efficiency measures (for example schools, hospitals, public buildings). ESCOs' are remunerated from the energy and money saved on bills.

CASE IN POINT

Siemens and the City of Berlin : Energy services for municipalities

Through Energy Performance Contracting, Siemens has worked with the City of Berlin since 1995 to implement a series of energy improvement measures for the city. Together Siemens and the city of Berlin have reduced CO_2 emissions by 25% per year (corresponding 16,200 tons of CO_2) and achieved annual energy cost savings of €2,848 million.

Source: www.siemens.com

Energy efficiency obligation schemes

Denmark, France, Italy, the UK and the region of Flanders have all introduced energy savings obligations, under which energy suppliers or distributors are required to achieve a given quantity of savings among energy end-users. These obligations vary widely in their design and scope but all have proven successful in directly helping customers to save energy and increasing the market for energy efficient products and services.

Energy efficiency obligation schemes have the potential to achieve a third of the energy savings needed to close the 20% energy savings gap by 2020. The schemes could save around €500 billion for primary energy imports[34] by 2020[35], that's 500 billion euros from public budgets that can be mobilized back into upfront investments in energy efficiency improvement measures and into modernizing Europe's energy infrastructures and in providing alternative solutions to nuclear.

CASE IN POINT

White certificates in Italy

Italy's White Certificate Scheme has been running since 2005. Since then the scheme has saved 7 billion KW/h each year, avoided 22.5 million tons of unnecessary carbon dioxide emissions and about 8.5 million tons of oil equivalent – this is equal to the annual production of a 800 MW power plant or the annual consumption of a city of 2 million inhabitants.

CONCLUSION

The next 12 months will be critical for the EU. As a Union we need to improve our energy infrastructure and become less dependent on foreign energy supplies, we must find alternatives to nuclear; all of this at a time when we need to sustain growth and jobs to face the financial crisis.

Energy efficiency is an important part of the solution to all of these problems, and in the absence of binding EU targets for saving energy; the Energy Efficiency Directive is the EU's vehicle to make this happen and start the process of putting in place a clear long term strategy for a European energy efficient economy in 2050.

With more worry about our economic and financial crisis to come and record energy bills facing consumers in the next 12 months, there has not been a better time to show political leadership on this issue.

We need to reduce the energy we use with what we already have, rather than investing recklessly on producing more.

We need to create an energy efficient Europe now.

Monica Frassoni

President of the European Alliance to Save Energy

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SOURCES

1 Compared to 1990 levels

2 The European Commission's new Energy Efficiency Plan (8 March 2011) finds that the reduction in energy consumption by 2020 will only be 164 Mtoe instead of the 368 Mtoe that the 20% target represents – about a 9% saving instead of 20%.

3 In 2007, our energy dependency meant that €332 billion of EU's wealth was exported mainly to oil and natural gas rich countries. Commission staff working document on the impact assessment accompanying document to the communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Energy Efficiency Plan 2011 {COM(2011) 109} final {SEC(2011) 278} final {SEC(2011) 279}final {SEC(2011) 280} final

4 To face the German and Italian NO to Nuclear

5 Proposal for a Directive on energy efficiency and repealing Directives 2004/8/EC and 2006/32/EC [COM(2011)370, 22/06/2011]

6 European Council - 4 February 2011 – Conclusions – I.8 (page 3)

7 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011SCO$_2$77:EN:HTML:NOT

8 COM(2008)0030,p. 8.

9 Greenhouse gas emissions in the EU-27 stood at 4 614.5 million tonnes of CO_2-equivalents in 2009 http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Climate_change_statistics

10 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/582&format=HTML&aged=0&language=en&guiLanguage=en

11 The savings potential data should be read bearing in mind that, figures referring to a specific area of savings potential (e.g. buildings) can sometimes include the aggregate savings of a number of technologies (e.g. lighting, insulation, BMS).

12 Energy efficiency in building http://ec.europa.eu/energy/efficiency/buildings/buildings_en.htm

13 Depending on building's needs

14 Renovate Europe campaign http://www.eurima.org/uploads/PressCorner/documents/Renovating%20Europe%202011%20Press%20Release.pdf

15 Through deep renovation

16 Share of total energy consumption by fuel in 2007, European Environment Agency, published on 15 April 2010 *http://www.eea.europa.eu/data-and-maps/figures/share-of-total-energy-consumption*

17 1.00 USD = 0.732653 EUR – 14 September 2011

18 Gross inland consumption of primary energy (2007)

19 http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=ten00086

20 250 Mt CO_2e for buildings, 15 Mt CO_2e for motors, and 17 Mt CO_2e for smart grids (Bio-Intelligence Service, 2008).

21 1.00 USD = 0.732653 EUR – 14 September 2011

22 Gross inland consumption of primary energy (2007) http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=ten00086

23 CAP-GEMINI Report: Demand Response: a decisive breakthrough for Europe http://www.capgemini.com/insights-and-resources/by-publication/demand_response_a_decisive_breakthrough_for_europe/

25 Estimates provided by Philips Lighting

26 Estimates provided by Philips Lighting

27 In Europe the transportation sector accounts for 33% of the final energy consumption (Eurostat 2010)

28 REDUCING TRANSPORT GREENHOUSE GAS EMISSIONS: Trends & Data 2010 – © OECD/ITF 2010

29 Interacademy Council http://www.interacademycouncil.net/CMS/Reports/11840/11914/11924.aspx

30 Transportation and Energy. Dr. Jean-Paul Rodrigue and Dr. Claude Comtois, Dept. of Global Studies & Geography, Hofstra University.

31 By 2020, the EU wants to cut energy consumption by 2%. In absolute terms – calculated in million tons of oil equivalent (Mtoe)– this are 368 Mtoe in 2020 compared to projected consumption in that year of 1842 Mtoe. This needs to be achieved by the EU as a whole.

32 EURIMA - www.eurima.org/do-the-maths

33 According to 2005 European Commission study, "Doing More with Less"

34 Felix Chr. Matthes, "Analyse und Einordnung der Minderungsverpflichtung nach Art. 6 des Vorschlags der Europäischen Kommission für eine Richtlinie zur Energieeffizienz", Öko-Institut e.V. - Institut für angewandte Ökologie, 13 September 2011

35 Figures calculated from European Commission impact assessment of the Directive - http://ec.europa.eu/energy/efficiency/eed/eed_en.htm

NOTES

Date of publication : February 2012
Credits : Business Solutions Europa

Layout : okidokidesign.net - Yesmine Lawton

ENERGY EFFICIENCY: EUROPE'S FIRST FUEL