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Europe's energy future and the EU's second Strategic Energy Review

A changed scenario

Rapid and far-reaching changes to energy policy are needed to address the challenges facing Europe's energy sector, whether climate change or energy security.

The EU is committed to limiting the increase in global mean temperature to less than two degrees above pre-industrial levels, in order to reduce the likelihood of the most serious impacts of climate change. According to the UN IPCC's fourth assessment report, in order to have a 50% chance of achieving this, industrialised countries must reduce their domestic greenhouse gas emissions 25-40% by 2020, based on 1990 levels, and at least 80% by 2050. To this end, the EU has committed to reducing its emissions at least 30% by 2020, following the conclusion of an international climate deal. Meeting this challenge requires a major shift in our energy choices.

At the same time, Europe will have to grapple with the imminent peak in liquid and gaseous fossil fuel. Europe relies on fossil fuels for about 85% of its energy. The International Energy Agency (IEA) forecasts that by 2030 global energy demand will be 45% higher than today, yet oil and gas reserves are set to plateau and peak: already the oil and gas reserves in North America and Western Europe are declining.

While there are disagreements over when global production of oil will start to decline it is important to consider that this *will* occur and, once it does, prices will rise significantly. The last twelve months have demonstrated the extent of price volatility and this was solely the result of market tightening and speculation. Analysis suggests a smooth transition away from liquid fossil fuels would take around two decades therefore the process needs to start without delay

The changing situation has been recognised by the IEA, in its latest World Energy Outlook (WEO), which predicts that the global oil price will be in the order of $200 per barrel in 2030. This has huge implications for the whole energy sector, especially for transport, but this is not recognised by the draft communication of EU Commission.

In denial

Despite the clear evidence of an urgent need to start the transition away from fossil fuels, there are calls for scaling back EU energy and climate policy as a result of the global financial context. However, as many economic commentators have pointed out, the current financial situation and proposals for greater public intervention should be seen as an important opportunity to speed up the necessary introduction of more sustainable policies and measures.

Investing in the expansion of energy efficiency and energy from domestic renewable sources will help counteract the economic damage due to increased volatility in the price and availably of energy. The advantages of such measures have been highlighted by the United Nations, with the publication of a Global Green New Deal, and the incoming US president, who has called for strategic investment of $150 billion in green technologies over 10 years to create 5 million jobs.

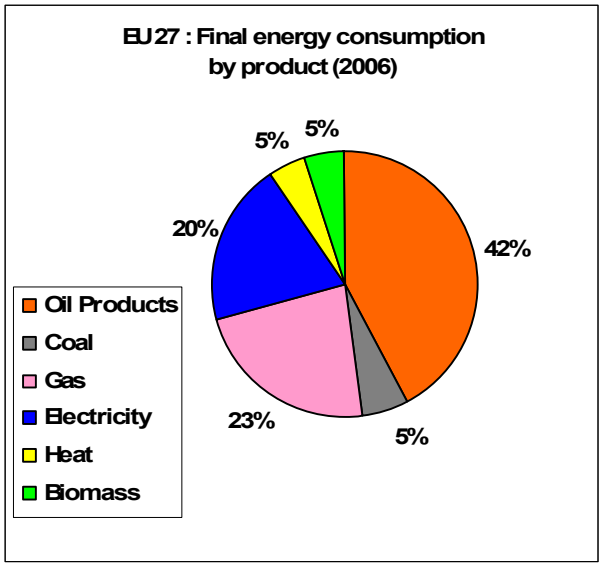
Europe already has a head-start in these areas, following the successful growth of renewable energy in some Member States. According to the UNEP over the last eight years 200,000 jobs have been created in the renewable energy sector in Germany alone, bringing the total employment to around 250,000, while another 60,000 are expected to be created by 2010. In Spain, nearly 188,000 jobs have been directly and indirectly created by the renewables sector.

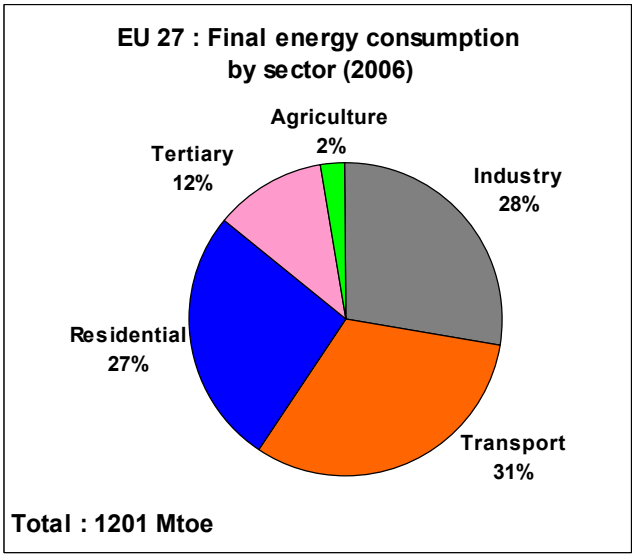
Analysis by the European Commission, the IEA and others shows the crucial role that energy efficiency and renewable energy does and will play in meeting climate change and security of supply objectives. Scenarios undertaken by the Commission show that the targets for energy efficiency and renewable energy would, if achieved, ensure the EU can easily achieve its greenhouse gas reduction target for 2020, even allowing for a reduction in the use of nuclear power, in line with national plans.

Crucially, the economic cost of these targets, at an oil price of only €70 per barrel in 2020 would only be 1% of the current energy bill. It is clear that at the higher, and more likely, energy prices there would be an overall net saving to the EU.

Understanding EU Energy

For the strategic energy review to be effective the EU's sources of energy must be clearly understood. The graphics below show both the energy use of different sectors in the final energy consumed in the EU and the contribution of different energy sources.





The importance of oil to the overall mix, providing 40% of the EU's final energy consumption, together with the fact that transport is the largest sector should be

crucial factors in defining energy policy. However, this is not reflected in the Commission's strategic energy review.

The relatively small share of the EU's final energy consumption accounted for by electricity, just 20%, is important to note. Within this, nuclear power, which provides around 30% of the EU's electricity, therefore provides a mere 6-7% of the final energy consumed in the EU.

Dissecting the review

Energy Efficiency

Energy saving and efficiency is the cheapest and most effective way to tackle our energy challenges, and this has been repeatedly acknowledged by the European Commission. However, this has not been reflected in community or Member State actions, and is not reflected in the strategic review.

Energy efficiency is not underlined as the main priority for energy security in the context of the review. It is only dealt with in the fifth chapter of the review and there are no new proposals to bring energy efficiency policy measures greater visibility. There are also no proposals for the financing of energy efficiency measures.

Alarmingly, the EU target to improve energy efficiency 20% by 2020 is ignored in the scenario presented by the Commission (Annex 1 of the review only notes that 12% reduction of demand is expected compared to business as usual - see the following note on Annexe 1). Failure to achieve this key EU policy will make the other targets of the Climate and Energy package - greenhouse gas reductions and renewable energy targets - almost impossible to meet. In order to prevent this, **the energy efficiency target must be made binding**, in line with the other targets.

The energy efficiency actions outlined in the review are necessary but the proposed targets need to be strengthened. In particular **urgent attention must be given to improving the efficiency of the existing building stock, as well as introducing stricter standards for future buildings**. The introduction of an EU-wide requirement for new buildings to be zero energy – as is the case in the UK from 2016 – should be a priority.

It is important that action is taken across all sectors that consume energy. Changes to tighten the standards relating to electric goods – in the eco-design directive – and the energy efficiency labelling directive are welcome and are overdue measures. However, the two sectors which use the most energy - transport and industry - are not addressed by the action plan.

Comprehensive legislation on the energy efficiency of machinery and equipment for manufacturers, similar to the Japanese Top Runner Programme, would help address the industry sector. The programme sets mandatory energy efficiency targets for manufacturers of machinery and equipment. By continually reviewing and updating minimum standards, manufacturers are made fully accountable and encouraged to voluntarily progress towards even higher efficiency standards.

There is also a need to stimulate greater efficiency in the transport sector. There has been a proposal by the European Commission to make up to €40 billion in support available to the car industry. These funds must be used to transform the sector to improve the energy efficiency of their products, as well as fuel and model shifts. Failure to do so would be a waste of taxpayers' funds. The EU must also resist the

pressure to delay the introduction of measures to reduce the emissions standards from new cars, as the technology is available and the reductions are needed now.

While the EU has established European Industrial Initiatives in six energy-related areas, none of these address demand side energy efficiency. A series of similar initiatives must be established for demand related issues that focus on the different sectors, i.e. households, industry and transport.

'Indigenous' Energy

The section of the review dealing with indigenous energy reserves is misleading. Much of the attention is given to energy sources that rely on imported fuel, like coal and uranium, which are necessarily not indigenous. 40% of coal used in the EU is imported. 17 Member States rely on imports for at least three-quarters of their solid fuel. Nearly 100% percent of the uranium used in the generation of nuclear power is imported.

The only truly indigenous energy source is renewable energy. The EU action plan on renewable energy states that in 2010 the Commission will table a communication on 'Overcoming barriers to renewable energy in the EU'. Given the importance of renewable energy and the speed at which their introduction must be achieved this communication should be bought forward to 2009.

The Commission must press ahead with the planning and implementation of new infrastructure measures that will link larger renewable energy resources, such as those found in the North Sea, the Mediterranean and North Africa. These should, in turn, be linked with the large Scandinavian hydro storage power plants and with the consumption centers of continental Europe.

More than 50 years after Euratom was created, Europe's energy challenges and needs have fundamentally changed. To address these challenges a European Community for Renewables (ERENE) is needed to promote research and further grid development for a better integration of renewable energy. Additional measures to support the development of renewable energy internationally, such as a new agency – IRENE – must be fully supported by the European Commission and Member States.

Over the coming decades around 400 GW, or 50%, of the existing installed electricity capacity, is expected to be retired. Much of this will be nuclear and coal power stations. How these are replaced is crucial to the EU's future climate and energy policies, yet this is not discussed in the draft review, which is a major oversight.

The proposal for a ceiling on the CO2 emissions from new power plants is an important tool for capping emissions and gives a strong signal for investors - this proposal was approved by the European Parliament environment committee. Setting ceilings in the range of 350-500 g CO2/kWh would provide much needed stimulation to the development of much more efficient gas-fired combined heat and power plants, which has been overlooked both in the draft review and in general EU binding legislation.

The potential for carbon capture and storage is being used to justify the proposals for new coal fired power stations in Europe. The construction of coal-fired power stations should be prohibited. Even if it proves to be economically, technically and environmentally viable, CCS technology will not be commercially ready in the short-term. However, until commercial scale demonstrations have been successful there are too many uncertainties to assume with confidence that it will available. As a result, policies should be made on the assumption of CCS.

The draft review states that it is up to each Member State to choose whether or not to invest in nuclear power. However, this is misleading, as it ignores the fact that nuclear energy benefits from EU investment rules and funding sources, notably the fact that there is a separate framework programme for research in nuclear energy, which has more funds than other energy sources combined. The lack of community wide rules to include the environmental costs of nuclear power in its price - i.e. third party insurance, radioactive waste and decommissioning costs - is also a form of financial support.

2050 Roadmap

The review proposes that a group will be established to prepare a road map towards a 2050 energy policy. This measure is welcomed, but given the transformative nature of the changes required, this process must be transparent and not dominated by the incumbent energy providers and generators. It must also set binding medium-term targets and review mechanisms.

Conclusion

The majority of the draft communication addresses more traditional concepts of security of supply - how to increase the diversity of energy supplies through the establishment of pipes, grids and storage rules along with new wider political measures. Such measures are important but increasing the diversity of fossil fuel suppliers can, at best, only be a short-term strategy. It puts the achievement of longer term climate and energy goals at risk, in particular the movement towards a zero emissions energy sector by 2050. To prevent this, clear priorities must be put forward including:

- A clear commitment to propose a binding energy efficiency target of at least 20% by 2020 and a new initiative to make energy efficiency measures more visible and better financed

- A proposal to prioritise the construction of infrastructure that supports the development of large scale renewable energy, such as offshore wind, to ensure the renewables target is met

- Measures to transform the transport sector to move away from our dependency on oil

- A diversification of EU gas supplies, while concentrating gas consumption away from building sector to higher efficiency uses like combined heat/cooling and power production

- Detailed plans to roll out a programme of investment in green technologies that genuinely puts the establishment of sustainable jobs at the heart of the package

Comments on Annex 1 - main scenarios for 2020

The only data available to underpin the "second strategic energy review" are the data provided in Annex 1 of the document.

EU-27 Mtoe	2005	Baseline Projection, oil price $100/bbl	New Energy Policy projection, oil price $100/bbl	Comments	EU Scenario consistent with the 20% Energy Efficiency target in 2020[1]
Primary Energy Demand	1811	1903	1672 (-12%)	Current EU policy was set out in the March 2007 European Council - a commitment to achieve a 20% improvement in energy efficiency by 2020. The details of this policy have been flagged out in the 2006 EU energy efficiency action plan (COM (2006) 105 final) and notably the table 1 of the energy efficiency action plan which indicates a saving of 360 MTOE compared to business as usual. However in the new document the reduction is only a 12 % reduction and not a 20% reduction of the baseline as stated in the document itself. A 20% reduction would bring energy demand down to 1520 MTOE and would thus be in line with the potential reduction (360 MTOE) indicated in the existing EU energy efficiency action plan.	1520 (- 20%)
Oil	666	648	567	Oil is - at least for IEA (see WEO 2008 from November 12th 2008) - a bigger energy security threat than gas. This important fact seems to be completely ignored in the review which wants to achieve little more than a 15% reduction in oil use by 2020. This reduction in oil consumption is clearly insufficient to reduce the EU's high oil dependency. We	500

[1] Based on the March 2007 Council Conclusions

				propose to use fully the potential from the EU 2006 Efficiency Action Plan and 10% share of renewables in transport from the renewables Directive. This would mean a consumption of around 500 MTOE.	
Gas	445	443	345	Whereas the core text of the energy security paper advocates billions of euro of new investment in new gas pipeline infrastructure (North Stream, South Stream, Nabucco, LNG), figures for gas volumes decrease by 25% (table 1). This assumes either that gas use in the EU will decrease dramatically and that the EU will not need an enormous investment in new gas infrastructure or that gas consumption is largely underestimated in the Commission figures. A gas consumption of around 395 MTOE seems more likely than the figure indicated by EU Commission. However within this 395 MTOE we expect a major shift in use: whereas today 50% of EU gas is used in EU building sector, gas volumes in this area are expected to decrease as a consequence of efficiency measures.	395
Renewables	123	221	274	With 274 MTOE the figure in Annex 1 for renewables seems to correspond to former EU Commission studies	274
Solids	320	340	253	The figures for nuclear (233 MTOE) and for coal (253 MTOE) as provided in Annex 1 are much higher than expected. This becomes obvious when we apply "common sense" figures, which take the agreed 20% increase in energy efficiency (demand 1520 MTOE and oil 500 MTOE), a moderate scenario for gas (stabilising gas	185 (solids)
Nuclear	257	249	233		145 (nuclear)

				at today levels at 395 MTOE) while keeping renewables at the same level than Commission (274 MTOE). If we consider these figures 351 MTOE are left for coal and nuclear. If we respect the relative shares which Commission has outlined for coal and nuclear, than we are left with 185 MTOE for coal and 145 MTOE for nuclear. These latter figures are much closer to the reality in 2020 than the "manipulated" figures from Commission. The Commission's scenario fails to point to the reality that coal (- 50%) and nuclear (-50%) will strongly decline, even if only the already agreed policies on renewables and energy efficiency are realised and if the focus rightly moves from gas as being EU's greatest energy security threat to EU's real problem, its (transport) oil dependency.	

Conclusion:

The figures presented by EU Commission to underpin its political figures are at best incoherent and at worst flawed. Such important policies as energy security cannot be built on such questionable figures. The Commission must publish its parameters for its scenario and ask the Council and EP to come up with transparent and credible scenario research before March 2009 when EU heads of state and government are to decide on EU energy security policy.