

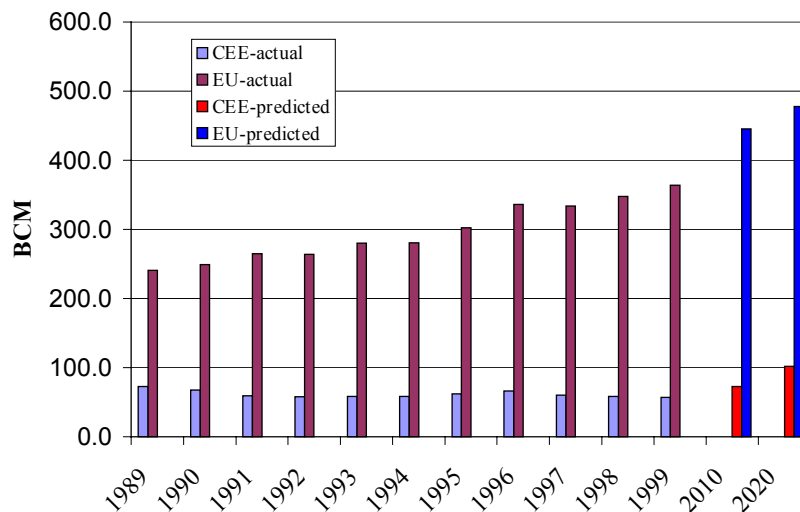
Contribution to the debate on the Green Paper
Towards a European strategy for the security of energy supply

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1. Can the European Union accept an increase in its dependence on external energy sources without compromising its security of supply and European competitiveness? For which sources of energy would it be appropriate, if this were the case, to foresee a framework policy for imports? In this context, is it appropriate to favour an economic approach: energy cost; or geopolitical approach: risk of disruption?

It is widely expected that Member States' and accession countries' use of natural gas will increase significantly in the coming years. The installed capacity in the EU is predicted to increase ten-fold from a 1995 level of 35 GW installed by 2020. This increase will occur both as a result of an increase in demand within the Union and gas being used as a replacement when the older, nuclear and coal, power plants are closed. The graph below shows the historical development of gas consumption in both the CEE and the EU.

Gas Use in CEE and EU



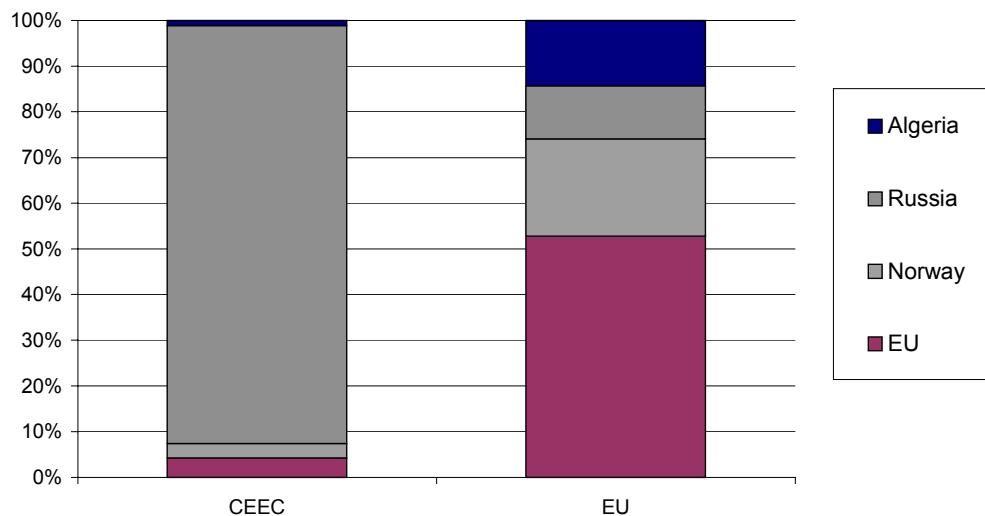
Source: European Commission and BP Statistical Review 2000

Of interest to note is the huge variation between consumption levels in the two regions, with the CEE currently using only one seventh the amount of the EU, despite having 25% of the total European population. Within the CEE, use of natural gas will increase nearly three fold over the next two decades while, in the EU, the increase is predicted to rise to less than a quarter of this. Within the power sector, natural gas use is expected to increase from 77 Mtoe in the EU in 1995 to 186 Mtoe in 2020, while in the CEE, over the same time period, the increase will be from 8.5 Mtoe to 47.2 Mtoe. Once again, there is a much greater rate of increase within the CEE, with, on average, an annual increase of 7.1% compared to 5.0% in the EU.

Gas Sources

Unless there is a rapid, and highly unlikely turnaround in the production rate of gas in Accession countries, the enlargement of the European Union will lead to an increase in import dependency for the Union as a whole. Currently, within the EU, around 40% of gas is imported, while in CEE the level of import is around 70%, 92% of which comes from Russia. Regardless of enlargement, the level of gas imported into the EU is expected to rise to 67.3% by 2020, a total import of around 320 Bcm per year. By the same time, gas use in CEE is expected to have reached around 100 Bcm per year, of which imports will account for at least 80%.

Comparison of Gas Sources of the EU and CEE Regions

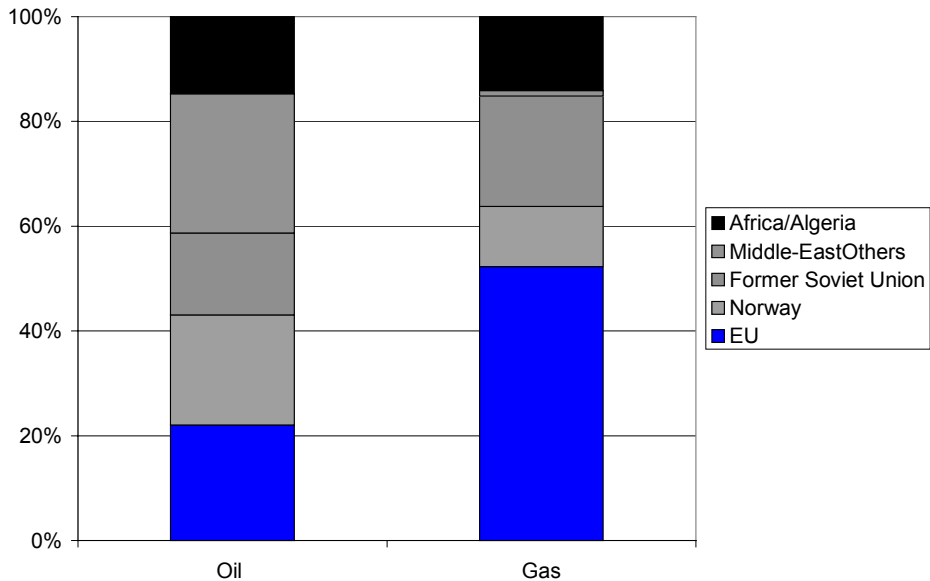


Source: BP Statistical Review 2000

Comparisons of Security of Supply

Although the percentage of total gas used that has to be imported is increasing, it is interesting to look more broadly to see if this will cause problems from a security of supply perspective. One useful comparison involves the EU's current dependency on oil. The graph below reveals the differences between oil and gas and shows that oil has five significant supply sources, while gas only has four. However, in current percentage terms, 60% of current requirements come from the EU or Norway while in the oil sector it is only 40%.

Comparison Of Sources of Oil and Gas - 1999



Source: BP Statistical Review 2000

Russia is expected to remain the largest external supplier of gas to the EU. Gazprom –the Russian Government’s gas company - has become a serious continental operator with equity in the UK-Belgium Interconnector, and holdings in a range of gas companies in Eastern Europe and the Baltic States. The company has also concluded a series of strategic, commercial alliances with major gas players such as Gazunie, Eni, Ruhrgas and Shell, thus constituting a radical reorientation of policy for the company. Exports to the European market have made Gazprom a highly profitable concern, earning the equivalent of \$8 billion from gas sales during 1998, when the company sold 120.5 Bcm of natural gas to 19 European countries. 1999 evidenced a further increase with deliveries of 126.8 Bcm during the year.

The Russian government retains a 38% stake in Gazprom, and the government appoints five of the company’s nine directors. Gazprom's chief executive, Rem Vyakhirev is noted for his aggressive management style. In summer 2000, Russian President Vladimir Putin showed his keen interest in the destiny of Gazprom with the appointment of two of his closest allies to the company's board. Deputy head of the Kremlin administration, Dmitri Medvedev, has taken the place of former Prime Minister, Victor Chernomyrdin, while the current Economics Minister, German Gref became a director.

One important commercial consideration arises from Ruhrgas's 4% stake in Gazprom, acquired in 1998. This, combined with the dependency of Gazprom on European revenue, indicates that the flow of Russian gas is likely to continue, as Europe is too important a customer to undermine. The interdependency of the EU and Russia was underlined in October 2000 with the announcement by the Commission of the so called Prodi Plan, which would see significant increasing in energy imported from Russia, which is though to include an 100 Mtoe increase in gas import as well as an increase in electricity and oil importation.¹

¹ EU to Import More Energy from Russia, October 2nd 2000 XINHUA

Action Needed

- 1) The burning of natural gas results in lower Co₂ emission per kWh than other fossil fuels. It thus has a role in a transition to a sustainable energy future. However, it is still a greenhouse gas and must be used sparingly. The current review of the liberalisation of the gas and electricity markets needs to be reviewed in light of their environmental impact.
- 2) Further analysis must be made into the environmental consequences of increased transport of liquid natural gas, one mechanism for increasing the diversity of gas sources.

7. The development of some renewable energy sources calls for major efforts in terms of research and technological development, investment aid and operational aid. Should co-financing of this aid include a contribution from sectors which received substantial initial development aid and which are now highly profitable (gas, oil, nuclear)?

Renewable Energy

Along with energy efficiency renewable energy offers the only technologies that will simultaneously reduce dependency on imported energy and emit no net Co2. In a number of areas the Green Paper notes the importance of renewable energy.

“With regard to supply, priority must be given to the fight against global warming. The development of new and renewable energies (including biofuels) is the key to change”².

“Only technology-intensive renewable sources can help mitigate the present trend towards increasing energy dependency”³.

However, the Green Paper only calls for Member States to give a *“firm commitment”⁴* to achieve the *“realistic”* objectives of the White Paper. If, as the Green Paper, points out, renewables are so fundamental for the future energy supply of the Union, then the targets must be mandatory. The Energy Council at their meeting on the 5th December 2000 also adopted this position, when instead of calling for legally binding targets, the Council requires only *“reference values of Member States national indicative targets”*. By failing to make the targets legally binding the Directive shows the disregard for the importance of renewables within the Commission and some Member States. The 2000 Directive endorses and further refines the objectives of the Council in its Resolution of 8 June 1998 on renewable energy sources⁵ and calls for Member States to achieve specific targets for the implementation and use of renewable energy by 2010. By which time it is expected that the EU will produce around 12% of its energy and 22% of its electricity from renewable energy sources. How this is achieved is listed in the table below

	RES-Electricity TWh 1997	RES-Electricity % 1997	RES-Electricity % 2010
Austria	39,05	70,0	78.1
Belgium	0,86	1,1	6.0
Denmark	3,21	8,7	29.0
Finland	19,03	24,7	31.5
France	66,00	15,0	21.0
Germany	24,91	4,5	12.5
Greece	3,94	8,6	20.1
Ireland	0,84	3,6	13.2
Italy	46,46	16,0	25.0
Luxembourg	0,14	2,1	5.7
Netherlands	3,45	3,5	9.0
Portugal	14,30	38,5	39.0

² Green Paper, page 5

³ Green Paper, page 22

⁴ Green Paper page 49

⁵ OJ C 198, 24.6.1998, p. 1.

Spain	37,15	19,9	29.4
Sweden	72,03	49,1	60.0
United Kingdom	7,04	1,7	10.0
European Union	338,41	13,9%	22%

In addition the Green Paper states that “*Only financial measures (aids, tax deductions and financial support) would buttress such an ambitious aim*”. However, while it is clear that financial measures are important other issues must also be address to assist the wide-spread introduction of renewables, including priority access to the grid for renewables and mandatory targets for utilities to sell electricity from renewables.

It is clear that some renewable energy technologies are technical and economically viable in comparison to conventional sources, in particular in the EU wind power is exceeding expectations with over 10 GW of installed capacity in the EU, a five-fold increase in five years. The full potential of renewables is now beginning to be realized, Shell Renewables, recently suggested that up to 50% of the World’s energy needs could be met by renewable energy within fifty years. While the Commission funded TERES II study published in 1997 estimated that renewables could by 2020 contribute 29% to the EU’s energy, reducing energy imports by 19% over 1993 levels⁶. Global studies show that renewable energy could provide many times the current total energy use – the theoretical potential from solar energy is nine thousand times current global consumption.

Within the EU there clearly huge potential solar energy resources, one estimate suggests that there is between 25-914 Exajoules of potential solar energy, which is compared to the total energy consumption in the EU of around 60 Exajoules per year⁷. However, to date solar energy is not economically viable for most grid connection applications in Europe.

Other technologies, notably wind power are already competing with conventional sources and are meeting or exceeding generation targets. By the end of 2000 the installed capacity for wind power was over 10 000 MW. The European Wind Energy Association believe that due to its rapid introduction the targets of 40 GW installed capacity by 2010, as outlined in the 1997 White Paper on renewable energy should be revised upwards to 60GW. Similarly a new target of 150 GW should be set for 2020⁸.

One area that is just starting to develop very fast is offshore wind. Wind potential in the North Sea was recently assessed to be nearly 2 000 TWh or three times the combined electricity consumption of Belgium, Denmark, German, Netherlands and UK)⁹.

Biomass is another technology that has the potential to produce cost effective renewable energy on the short term. However, to date this has not occurred and the 1997 White paper targets are not currently envisaged to be achieved. Despite this, recent research suggests that energy from Biomass can play a significant role in reducing Co2 emissions and reducing energy imports. If a concerted effort is made in a

⁶ Energy For the Future, Meeting the Challenge, TERES II 1997

⁷ World Energy Assessment and the Challenge of Sustainability, page 163

⁸ Wind Energy Targets Increased by 50%, European Wind Energy Association Press Release, 11th October 2000

⁹ German Wind Power Institute, cited in European Union Energy Policy Options for 2020, Huges Berlin, European Information Service, December 2000, page 10

number of field analysis suggest that it would be economically feasible to save around 400 million tonnes of CO₂ per year by 2030 by using energy from biomass. This relates to around 9% of 1990 emissions¹⁰.

The Green Paper notes that Euro 165 billion will be needed between 1997-2010 to enable the EU to meet its White Paper targets.¹¹ Interestingly, the International Energy Agency anticipate that energy efficiency measures over the same period would enable up to Euro 160 billion to be saved, by not building new power stations¹².

As renewable energies become more established and widespread so the expected cost of the electricity they generate is and is expected to fall. The table below shows both the current and predicted cost of global renewables.

Current Status of World Renewable Energy Technology¹³

Technology	Current Cost c/kwh	Potential Future Cost c/kWh
Biomass –Electricity	5-15	4-10
Wind Energy	5-13	3-10
Solar PV	25-125	5-25
Solar Thermal Electricity	12-18	4-10
Hydro Electricity – Large	2-8	2-8
Hydro Electricity – Small	4-10	3-10
Geothermal – Electricity	2-10	2-8
Tidal	8-15	8-15
Marine Currents	8-15	5-7

While renewable energy technologies do not currently have the installed capacity of either nuclear power or fossil fuels within the EU, they are rapidly becoming economic in comparison to nuclear power. The graph below, which is taken from the EU Sponsored Atlas study, shows that since 1980 for a whole range of renewable energy technologies prices for the electricity generated have fallen dramatically and that further falls are expected¹⁴. For each energy technology the Atlas program have reviewed the price of electricity generated since 1985 until the present day. Then based on this and other external conditions made predictions for the potential prices in 2010. These conclusions concur with other research that shows that renewable energy is already competitive with existing conventional energy sources. Analysis

¹⁰ Biomass for Greenhouse Gas Emission Reduction, Task 9: Optimal emission reduction strategies for Western Europe, D.J. Geilen, A.J.M.Bos, M.A.P.C.de Feber, T. Terlagh, ECN –C—00-001, March 2000.

¹¹ Green Paper, page 48.

¹² Rational Planning Techniques: Save Money by Energy Saving. Environment friendly energy services to the benefit of the Consumer and Industry. The European Commission Com (95)369

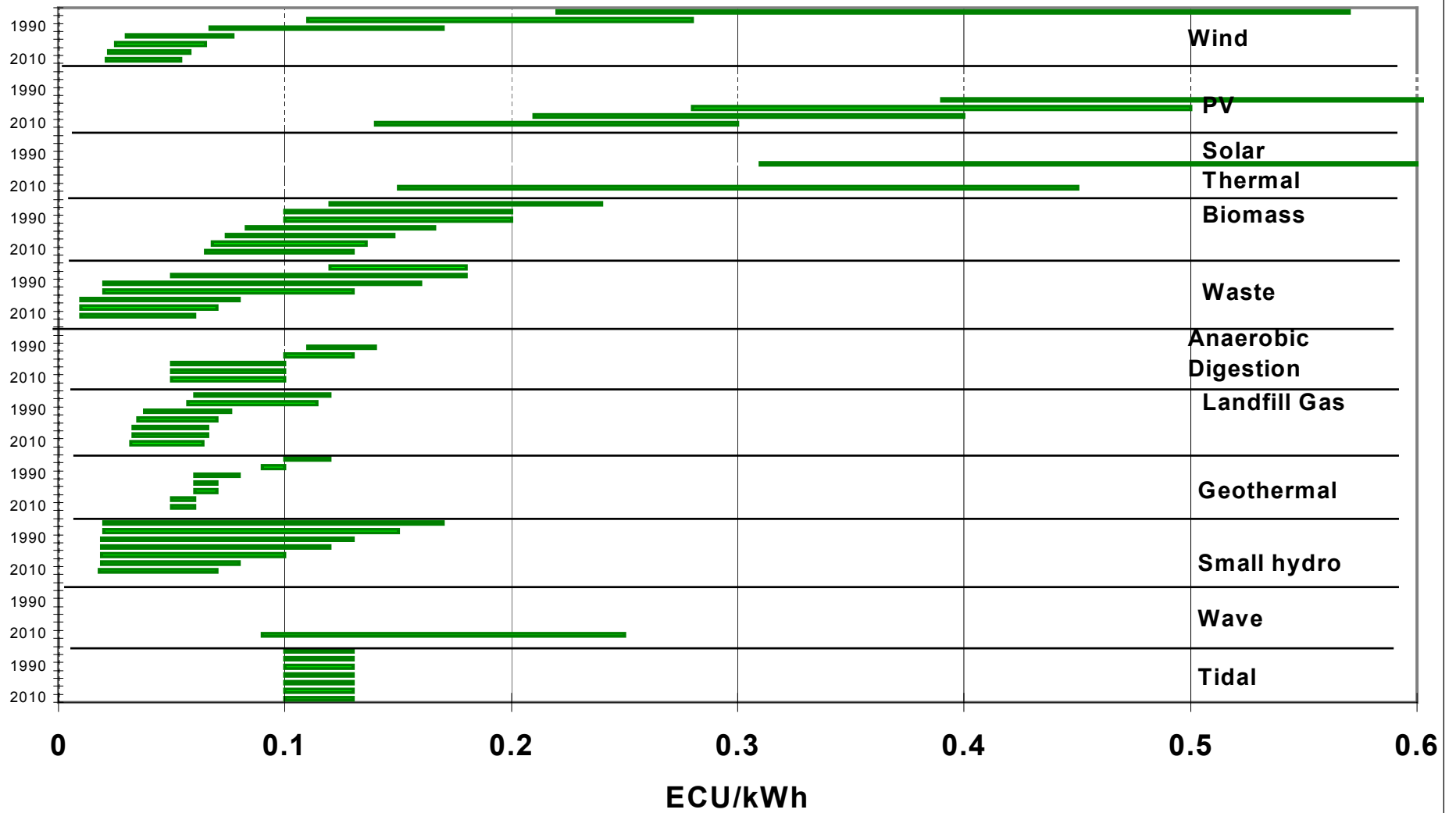
¹³ World Energy Assessments Energy and the Challenge of Sustainability, table 7.25, page 266

¹⁴ Energy Technology, The Next Steps: Renewables, Heat and Power, Oil and Gas, Industry, Buildings, Transport, Summary Findings from the Atlas Project. Published by DGXVII, December 1997

undertaken in 1999 by David Milborrow showed that under favourable wind conditions wind power is likely to cost €0.08/kWh, with nuclear power costing between €0.07-9/kWh¹⁵. It is likely that with further reductions in the subsidies to the conventional electricity industries renewable energies will become the fuel of choice in Europe.

¹⁵ Fair World Price Comparisons, David Milborrow, Windpower Monthly, February 1999.

Renewable Energy technologies electricity production costs (grid supplied)



Action Needed

*“Only technology-intensive renewable sources can help mitigate the present trend towards increasing energy dependency”.*¹⁶

Member States go further than the requirements of the Directive and pledge to make targets legally binding. The European Parliament should stand by its original demand for binding targets. Specific action should be taken to ensure that energy from Biomass is encouraged across the European Union. The final report from the Parliament on this issue noted a number of important points, including the following: -

Welcomes the Commission Green Paper "Towards a European strategy for the security of energy supply" as a basis for a discussion; regrets missing scenarios for demand side, renewables and co-generation and urges Commission to develop before next year's Barcelona summit comprehensive scenarios; considers that this analysis should have a more detailed bottom-up approach taking better account also of the existing scenario work done in the different EU countries;

In the light of this will the Commission develop these scenarios as urged by the Parliament?

Furthermore will the Commission develop targets for renewable energy for 2020 as requested in amendment 15 ?

15. Reaffirms its strong support for RES and agrees with the Commission's conclusion that the use of biomass for energy supply can be significantly improved; calls on Member States to redouble efforts to achieve a 12% share of total energy consumption and 22.1% of electricity from RES by 2010 and welcomes the adoption of the Directive on electricity from RES; asks the Commission to develop before 2005 a 2020 EU target for RES and asks for better R&D policies and a more flexible interpretation of competition rules while a technology is being developed;

The Parliament further called for the establishment of a Treaty to promote and research renewable energy – article 53 below. How will the Commission proceed with this request?

53. Calls on the Commission to draw up a treaty for promoting, researching and expanding renewable energies that will recognise that there is unlimited need for this, in so far as we also want to safeguard sustainable energy supply for the period after the expected exhaustion of fossil energy sources;

Co-Generation

The increased use of combined heat and power (CHP) is an essential element of the reform package necessary to meet environmental commitments and decrease dependency on imported energy. CHP significantly increases the efficiency at which the fuel is utilised. In a modern CHP plant efficiency levels of 85-90% can be achieved, compared to 30-40% in conventional power stations and 55% in combined cycle power plants. Therefore increases in efficiency can result in significant reductions in fuel use and a halving of Co2 emissions.¹⁷ In 1997 the Commission approved a strategy to promote CHP across the EU. One of the main objectives was to see a “*doubling of the current*

¹⁶ Green Paper, page 22

¹⁷ What is Cogeneration. Cogen Europe web site, accessed January 2001 –www.cogen.com

share of CHP from 9% to 18% of the total gross electricity generation of the Community produced by CHP by the year 2010¹⁸”. The Commission claimed that “The environmental benefits would be significant. A rough estimate indicates that if a doubling of CHP share were achieved, considered as replacement of existing electricity and heat production plants, could reduce CO2 emissions by 150 Mt. per year or approx. 4% of the total EU CO2 emissions in 2010.”

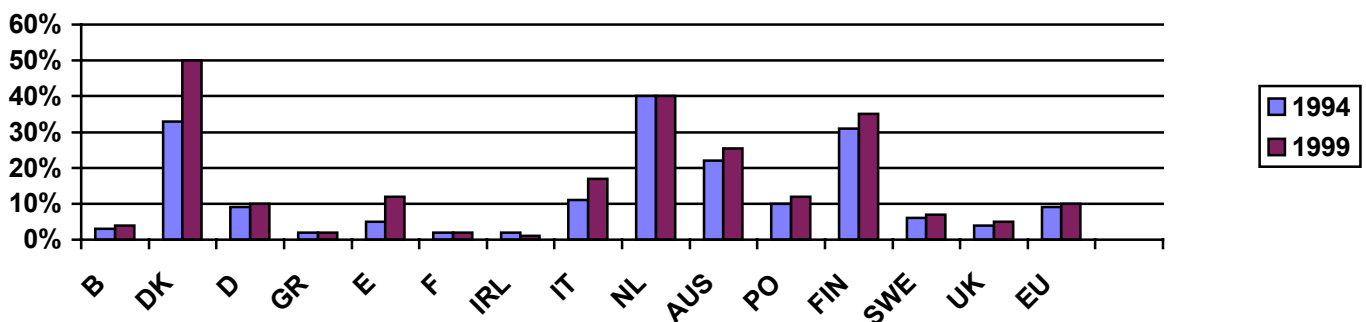
The document further states that “CHP is an environmentally friendly concept of energy production having the potential to contribute significantly and cost effectively to the security of supply and competitiveness policy aims of the Community.”¹⁹

Despite these clear statements the Green Paper only makes one significant reference to the importance of CHP:

“Meeting the Community-wide target of doubling the use of co-generation of 18% of EU electricity production is expected to lead to additional avoided CHP emissions of over 65 Mt CO2/year by 2010. The potential for co-generation is, however, much greater and with the right framework in the liberalised market it has been estimated that CHP could triple by 2010 leading to an additional reduction of CO2 of around 65 Mt per year²⁰”.

In addition to contradicting the findings of the 1997 strategy paper that focused on the Co2 saving potential of meeting an 18% level of cogeneration by 2010, the Green Paper fails to address the problems currently experienced by CHP. The graphs below show both the current status of CHP production in Member States and how the current rate of introduction of CHP will fail to meet the 18% target.

Status of EU Member States CHP Power Plants in 1994 and 1999

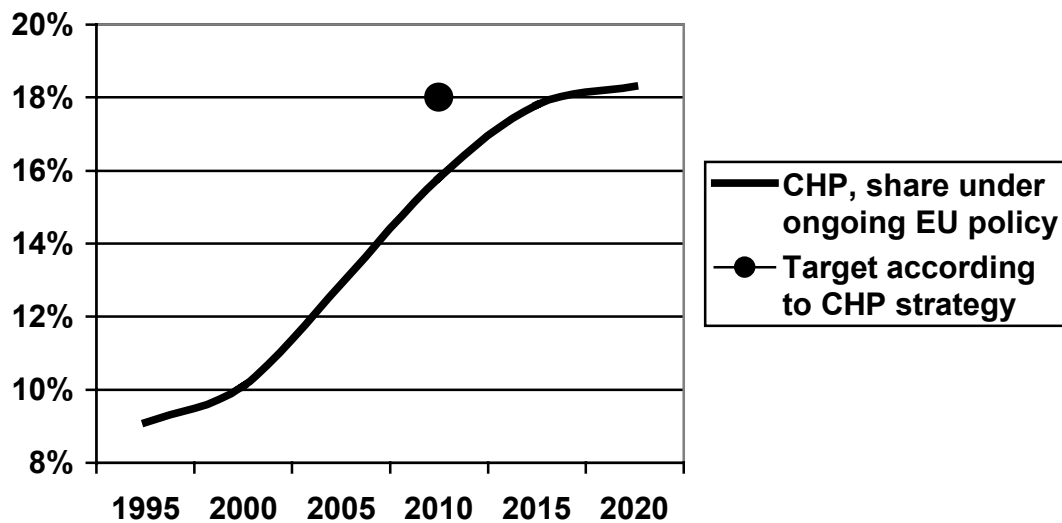


¹⁸ Communication From The Commission To The Council And The European Parliament A Community Strategy To Promote Combined Heat And Power (CHP) And To Dismantle Barriers To Its Development 15.10.97 COM(97) 514 final. Section 4.1

¹⁹ Com (97) 514 final. Section 4.2

²⁰ Green Paper, page 69

Prospects for CHP in the EU



Source: European Commission 1999²¹

Action Needed.

1. The Development of a Directive on Combined Heat and Power that puts forward legally binding targets for Member States, at minimum the 18% target by 2010.
2. Emissions regulations should take into account the higher efficiencies of cogeneration systems.

²¹ Pedro Miguel de Sampaio Nunes Director of Conventional Energies, DG Energy and Transport Heinrich Böll Foundation Conference Sustainability and the Future of the European Electricity Policy, 11 October 2000,

11. Seeing that nuclear energy is one of the elements in the debate on tackling climate change and energy autonomy, how can the Community find a solution to the problem of nuclear waste, reinforcing nuclear safety and developing research into reactors of the future, in particular fusion technology ?

Nuclear power is on the decline in Europe. 2001 was the first year since the founding of the EU or its predecessors that there are no reactors under construction. In Member States seven countries, Austria, Denmark, Greece, Ireland, Italy, Luxembourg and Portugal do not have nuclear power. In Belgium, Germany, Netherlands, Spain and Sweden political agreements have been reached to limit the life of the existing reactors. In the UK, a closure schedule has been drawn up for over half of the country's reactors, while in France the lack of future construction plans halt any long term future for the industry and the industry appears to be abandoning its attempts to develop the next generation of reactors, the European Pressurized water Reactors (EPR). Only in Finland does the industry show any even slim possibility of activity, where proposals may be represented to the Parliament for the construction of a new reactor in 200. However, this proposal has been rejected by a previous Parliament and thus its success is far from certain.

Despite this senior officials from DG TREN have declared that one of the purposes of the Green Paper is to "re-launch the debate on nuclear power²²", citing a lack of debate within the EU as justification. The early draft of the Green Paper reflected this and included statements like "*It has to be said that the part played by nuclear energy in reducing Co2 emissions is played down by the politicians responsible and by public opinion who are clearly not sufficiently aware that without nuclear energy the European Union cannot meet its commitments*²³". The initial draft was prepared by DG TREN, whose Commissioner, Vice-President Loyola de Palacio is an ardent supporter of nuclear power. On numerous occasions she has made clear her desire to see nuclear power revived within the EU, including: -

*"giving up the nuclear option would make it impossible to achieve the objectives of combating climate change"*²⁴

*Policy measures will focus on, amongst other things, "maintaining the contribution of secure nuclear energy at a high level"*²⁵.

However, this is not the majority view of the Commission but rather the minority and consequently the strongly pro-nuclear language was removed from the published version. However, this did not stop DG TREN from continuing to promote nuclear power within the framework of the security of supply debate. The *Financial Times* ran an editorial, apparently following a briefing from DG TREN, which claimed the Green Paper stated "*unless the commitment of most EU member States of freezing or phasing out nuclear power is reversed, the EU has no chance of meeting its greenhouse gas reductions targets under the Kyoto Protocol*"²⁶. The Green Paper did not claim this, but rather as Commissioner Margot Wallström stated in a letter to the *Financial Times*, '*the Commission's*

²² Pedro Miguel de Sampaio Nunes Director of Conventional Energies, DG Energy and Transport, Heinrich Böll Foundation Conference Sustainability and the Future of the European Electricity Policy, 11 October 2000

²³ 31st October Draft Green Paper, page 20

²⁴ Future European Energy Policy and Security of Supply, Mrs Loyola de Palacio, Vice President of the European Commission, Coaltrans Conference Madrid, 23rd October 2000

²⁵ Future Challenges facing European Energy Policy, Mrs Loyola de Palacio, Vice President of the European Commission, International Symposium organised by the Konrad Adenauer Foundation, Brussels 19th October 2000.

²⁶ EU's Energy Dependence, *Financial Times*, 30th November 2000

*Green Paper..does not support this conclusion. In fact says that "the present [nuclear] phase-outs do not affect the Community's ability to fulfil Kyoto objectives by 2012"*²⁷

However, the position taken by Mrs de Palacio or the draft Green Paper does not reflect that of Member States or of other members of the Commission. During the COP6 negotiations the EU Member States adopted a common position on nuclear power which stated: -

*"Annex 1 Parties declare that they will refrain from using nuclear facilities and new large hydro-power plants for generating certified emissions reductions under the CDM and JI"*²⁸

COP 6 Part 2

At the Bonn meeting in late July an agreement was reached to explicitly exclude nuclear power from both the CDM and JI mechanisms.

Article 6 (JI)

2. To recognise that Parties included in Annex I [ie industrialised countries with emissions reduction targets] are to refrain from using emission reduction units [carbon credits] generated from nuclear facilities to meet their commitments under Article 3.1

Article 12 (CDM)

2. To recognise that Parties included in Annex I are to refrain from using certified emission reductions [carbon credits] generated from nuclear facilities to meet their commitments under Article 3.1"

This language was passed due to the strong desire from the European and G77 representatives to see nuclear power excluded. The main countries opposing the language were the Japanese and Canadian. The nuclear lobby was furious and made its position clear: -

"The political exclusion of nuclear electricity undermines the environmental integrity of this international effort to address global warming". (John Ritch, World Nuclear Association)

Nuclear Energy Institute response to language: *"We are frankly astonished...."*

Foratom: *"... it is regrettable that, for purely political reasons, delegates agreed to two clauses that exclude nuclear power projects from two of the flexible mechanisms under the Kyoto Protocol - the CDM and JI."*

Other Commissioners have adopted similar positions, EU Environment Commissioner Margot Wallström stated to the European Parliament in November 2000 that it 'is not envisaged' to include nuclear power in any future emissions trading scheme²⁹.

It is very clear that the position of DG TREN and the draft Green Paper did not reflect that of the Commission as a whole or of Member States. Within the review of the Green paper undertaken by Commission the majority of the more extreme pro-nuclear language –as quoted above – was removed. The Green Paper now states on climate change that *"The present phase-outs [of nuclear power] do not affect the Community's ability to fulfil Kyoto objectives from 2012"*³⁰. In addition,

²⁷ Nuclear Phase-out and EU's Kyoto targets, Letter to the Financial Times, Margot Wallström, 5th December 2000.

²⁸ EU Amendments to Paper Distributed by Chairman Pronk, 12:15 AM 25th November 2000

²⁹ EU Commissioner Rules Nuclear Out of Emissions Trading, NucNet November 1st 2000

³⁰ Green Paper, page 86

the revision of the draft significantly reduces the amount of Co2 saved by the EU's nuclear power stations, from 800 Mt of Co2³¹ to 312Mt³².

However, it is clear that the pro-nuclear bias of the original draft remains in a number of areas. In one passage the Commission calls for EU Member States to continue promote the export of technology to allow the reprocessing of spent nuclear fuel.

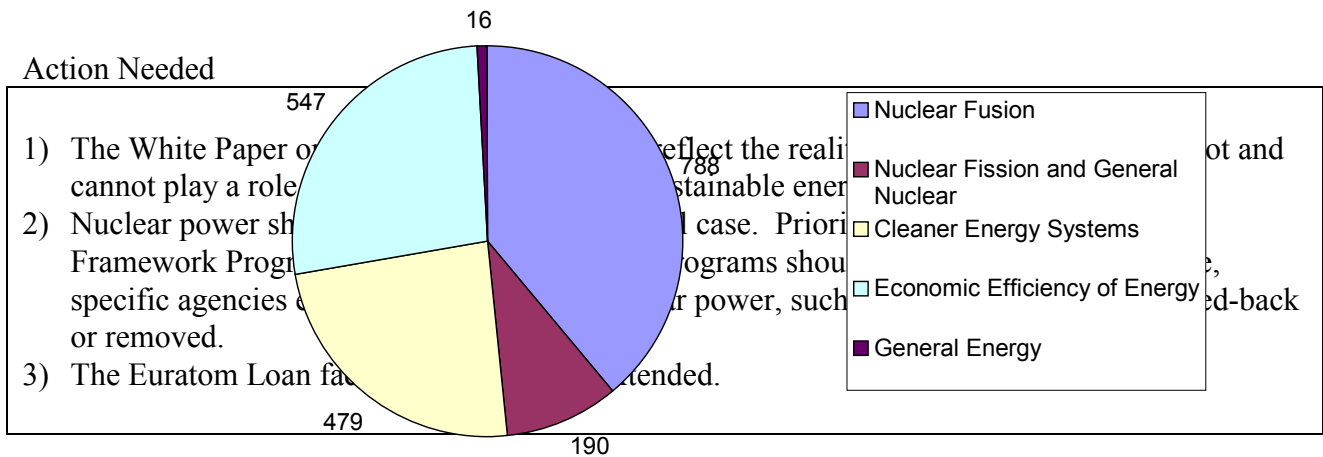
“The Union must maintain its leading-edge technological capabilities, know-how and potential for exporting to third countries, notably with respect to supply of equipment, enrichment, manufacturing and reprocessing of spent fuel, and waste management³³.”

Given the clear trend within the EU to abandon reprocessing, it is inappropriate to encourage its development in other parts of the world.

Nuclear Fusion

The final Green Paper continues to express support for expanded research into nuclear fusion to enable it to “become a reality”³⁴. Within the European Union budgets fusion has already received significant funding, in the fourth framework program it received ECU 846 million, the largest share (35%) of any energy program. In the fifth program the budget was Euro 788 million. The Scientific and Technical Committee for Euratom recently called for an increase in the Euratom budget as a whole for the sixth framework program and specifically to allow construction of the next stage of the fusion program³⁵. Yet despite receiving considerable levels of funding fusion seems not closer to commercial realisation than thirty years ago.

5th Framework Program: Energy Budgets - MEURO



³¹ Draft Green Paper, page 21 – note there is a mistranslation in the English version, which states 8 000 mt per year

³² Green Paper, page 33

³³ Green Paper, page 86

³⁴ Green Paper, page 34

³⁵ Strategic Issues Related to 6th Euratom Framework Programme (2002-2006), EUR 19150 EN

11. Should energy saving in buildings (40% of energy consumption), whether public or private, new or under renovation, be promoted through incentives such as tax breaks, or are regulatory measures required along the lines of those adopted for major industrial installations?

Energy Efficiency was recently referred to by a senior member of DG TREN as the “*priority of priorities*”. Vice President de Palacio has stated that “*supply-side measures will be inadequate unless at the same time a genuine demand-side policy is embarked upon*”³⁶. Within the Green Paper there are a number of references to the importance of energy efficiency, including: -

“*This policy of demand management is all the more necessary in that it is **the only way of meeting the challenge of climate change***”.³⁷

“*Nonetheless, **the European Union will only reduce its external energy dependency through determined policy of demand management***”.³⁸

“*If the EU cannot reverse current energy consumption trends – energy and transport use, especially in urban areas, it will have to resign itself to massive dependency on imports for its energy supplies and will have trouble meeting its commitments under the Kyoto Protocol.*”³⁹”

In the light of these statements it is remarkable that so much of the paper addresses supply concerns rather than demand issues. The paper needs to address the fact that the development of a secure energy supply is not the key issue, but rather the important question is how can energy services be ensured. This would enable energy efficiency and demand side management to be viewed with equal weight to supply options. Furthermore, the Green paper readily admits that current initiatives to increase energy efficiency have failed to meet their objectives, but the paper fails to make adequate recommendations as to have to improve the situation.

The failure of the Green Paper to give sufficient weight to energy efficiency is unfortunately not unique amongst European Commission documentation and thinking. In 1996 and 1999 the Commission published reports each of which contained scenario analysis, forecasting the paths possible for the development of energy use in the EU through until 2020^{40,41}. Neither of these scenario based reports seriously reviewed the potential for energy efficiency. In the 1996 report the most significant reduction in energy use over the Conventional Wisdom (CW) scenario (business as usual scenario) is only 5.6% by 2020 – note the CW envisages an increase in energy use of around 1.4% per year between 195-2020. In the 1999 report a more limited scenario analysis is put forward, however, once again only limited energy reductions are envisaged. With the most ambiguous scenario for energy savings only envisaging a 6% reduction by 2020⁴².

However, the Green Paper does note that 40% of the EU’s current energy consumption could be saved based on present day technical knowledge. No other technology can bring such benefits to

³⁶ Future European Energy Policy and Security of Supply, Mrs Loyola de Palacio, Vice President of the European Commission, Coaltrans Conference Madrid, 23rd October 2000

³⁷ Green Paper, page 54

³⁸ Green Paper, page 54

³⁹ Green Paper, page 85

⁴⁰ European Energy to 2020 A scenario Approach, Special Issue, Spring 1996, European Commission, ISBN 92-827-5226-7

⁴¹ European Union Energy Outlook to 2020, Special Issue, November 1999, European Commission, ISBN 92-828-7533-4

⁴² Energy Efficiency and the Co2 Emissions from Energy Systems, Bernard Laponche, International Consulting on Energy, November 2000, Paris.

the consumer, economy and environment. While the 40% savings potential does relate only to the technical potential on the short term impressive economic potentials can also be achieved. The table below summarises from a range of studies the economic potential –i.e. that which the at current or expected prices for energy any investment would be adequately compensated for by the improved economic efficiency due to the savings- energy efficiency in the EU.

Economic Energy Efficiency Potential in Western Europe, 2010 and 2020⁴³					
<i>Sector and technological area</i>	<i>Economic Potential</i>		<i>Sector and technological area</i>	<i>Economic Potential</i>	
	2010	2020		2010	2020
Industry			Commercial, public and agriculture		
Iron and steel, coke ovens	9-15	13-20	Commercial buildings	10-20	30
Construction materials	5-10	8-15	Electricity	10-25	20-37
Glass Production	10-15	15-25	Heat		15-25
Refineries	5-8	7-10	Public buildings		30-40
Basic organic chemicals	5-10	-	Agriculture and forestry		15-20
Pulp and Paper		50	Horticulture		20-30
Investment and consumer	10-20	15-25	Decentralised cogeneration		20-30
Food	10-15		Office equipment		40-50
Cogeneration in industry		10-20	Transport		
Residential			Cars	25	
Existing buildings			Door-to-door integration	4	
Boilers and burners	15-20	20-25	Modal split of freight transport		3
Building envelopes	8-12	10-20	Trains and railways		20
New buildings		20-30	Aircraft, logistics	15-20	25-30
Electric appliances	20-30	35-45			

Energy savings offer a win-win situation, whereby industry and consumers benefit because they have lower energy bills- including the investment costs- and this will reduce the impact on the environment and reduce dependency on imported energy. However, these energy saving potentials have not been translated even into the indicative targets of the Commission’s Energy Efficiency Action Plan from April 2000, which estimated that by 2010 only 100 Mtoe of energy per year can be saved⁴⁴. This would, according the PRIMES base-case scenario equates these savings to only around 6% of energy consumption.

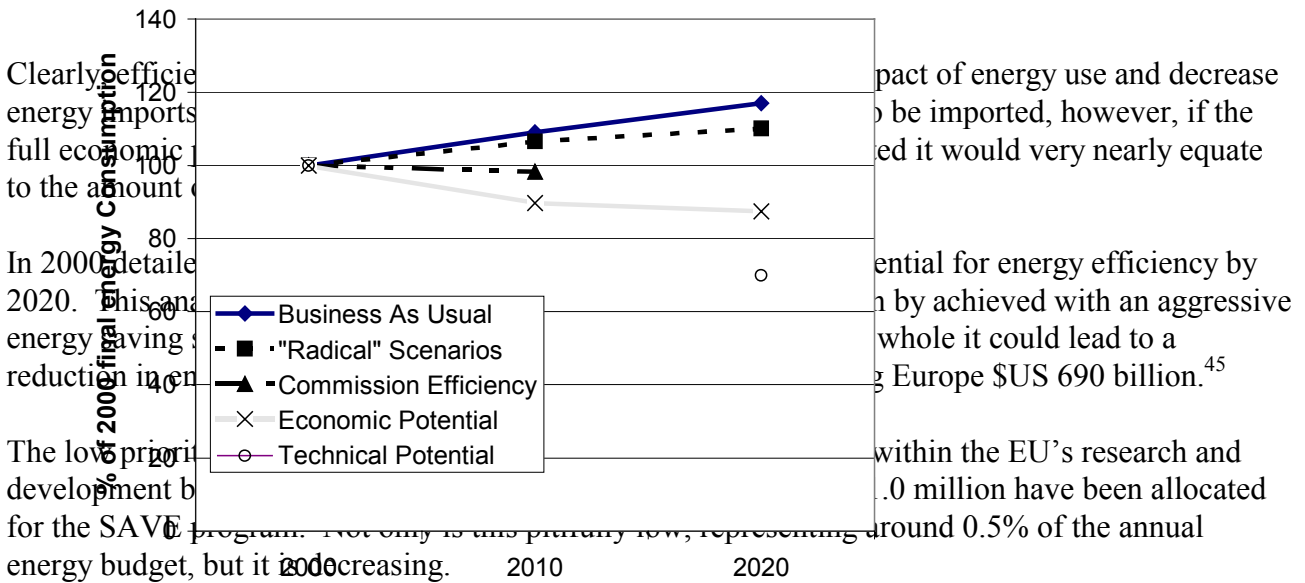
The graph below shows the differences between the scenarios put forward by the Commission and the economic and technical potential for efficiency.

⁴³ World Energy Assessment Energy and Challenge of Sustainability, chapter 8, energy End-Use Efficiency, page 186, table 8.4

⁴⁴ Green Paper, page 69

The impact of the implementation of programs to meet the economic and technical potential of energy efficiency can be demonstrated by comparing these "saved" energies with the predicted energy used by different sources. This is demonstrated in the graph below.

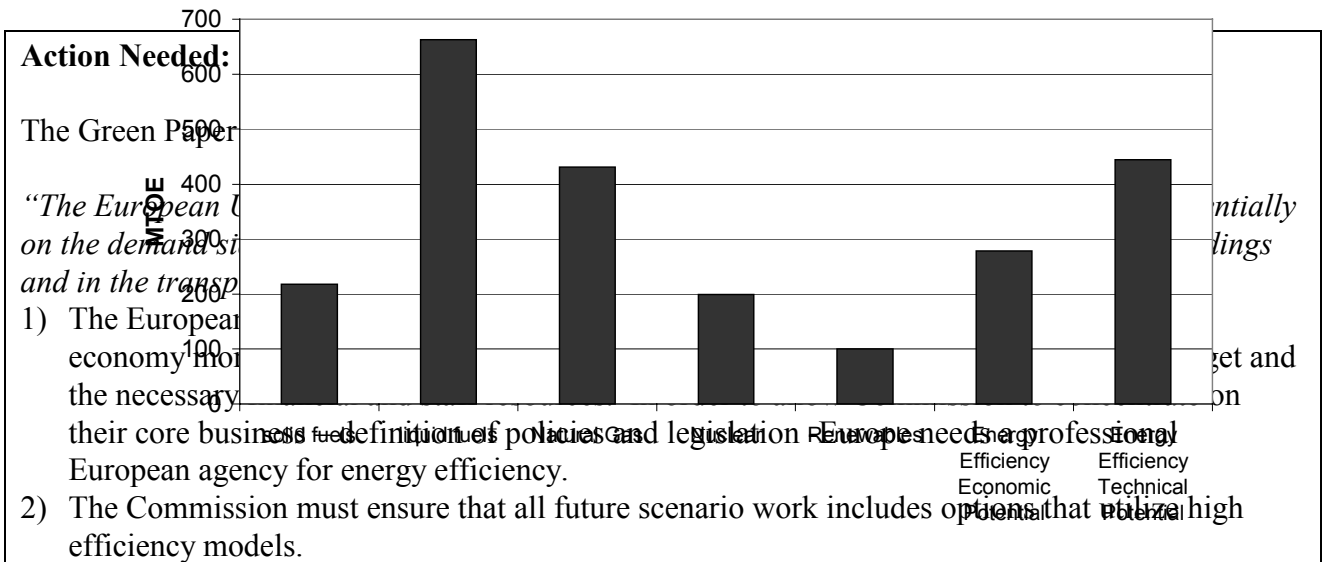
Commission's Efficiency Scenarios Vs Potentials



The failure to take full advantage of the potential for energy efficiency is not only seen in the European Commission. Some Member States are not even implementing the current energy efficiency regulations, as the Green Paper states:

"Moreover, eight Member States have either failed to implement parts of the [SAVE] Directive or failed to report results. As a consequence, infringement procedures were initiated in October 2000."

Expected Contribution of Energy Sources by 2020 Vs Efficiency Potential



⁴⁵ Scenarios of energy futures and the potential energy efficiency, Comparison and transposition of France and the European Union, Bernard Laponche, International Consulting on Energy, January 2001

⁴⁶ Green Paper, page 68

⁴⁷ Green Paper, page 11

- 3) Firm action needs to be taken against Member States that have failed to fully implement the existing European energy efficiency legislation.
 - 4) As can be seen the amendment 19 below, the European Parliament has asked the Commission to launch “a strategy to make Europe the most energy efficient economy in the world”, what immediate steps will the Commission take to develop this strategy?
19. *Agrees with the Commission conclusion that the first priority for action should be in the field of demand management measures to improve efficiency of energy use and reduce consumption through conservation; calls on the Commission to submit specific proposals and measures in the demand area as soon as possible, such as a directive on the "stand-by mode" or improving efficiency in domestic appliances; regrets the delay in bringing forward proposals for the transport sector and in the field of cogeneration, energy services and demand side management; asks the Commission to launch a strategy to make Europe the most energy-efficient economy in the world (Energy Intelligent Europe); notes that no other energy option offers such potential for economic and environmental improvements as energy efficiency; calls for urgent action in all areas given that the Commission notes that 18% of energy can be saved with currently available technology and at no extra costs; considers that demand side should also play a leading role in EU energy international collaboration both with central and eastern Europe, Russia and Ukraine, but also with developing countries using also the new flexible instruments of the Kyoto protocol;*