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**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE
EUROPEAN PARLIAMENT**

**ON THE DEVELOPMENT OF ENERGY POLICY FOR THE ENLARGED
EUROPEAN UNION, ITS NEIGHBOURS AND PARTNER COUNTRIES**

TABLE OF CONTENTS

1.	Introduction	4
1.1.	Creation of a European Internal Electricity and Gas Market	5
1.2.	Environment and Energy	5
1.3.	Security of supply and the development of new infrastructure	6
1.4.	Nuclear issues	6
1.5.	Focusing and integrating the European Research Area in the field of energy	7
2.	Co-operation Mechanisms	7
2.1.	The European Union-Russia Energy Dialogue	8
2.2.	The Euro-Mediterranean Energy Forum	9
2.3.	South-East Europe	10
3.	Areas of Heightened EU Interest	11
3.1.	The Northern Dimension	11
3.2.	Caspian Basin	12
3.3.	Co-operation with other important Partners	13
4.	Creating a wider European Integrated Electricity and Gas Market based on common rules and principles	13
4.1.	Progress in achieving the European Union's Internal Market	13
4.2.	Requirements for creating a wider market	14
4.2.1.	Level playing field	14
4.2.2.	Equivalent environmental and safety standards	14
4.3.	Making progress in creating a wider market	15
4.3.1.	Russia	15
4.3.2.	South-East Europe	16
4.3.3.	The Euro-Mediterranean Partnership	17
4.3.4.	Other important partners	17
5.	Infrastructure necessary for the creation of a fully integrated electricity market.	18
5.1.	EU-Russia	19
5.2.	South East Europe	21
5.3.	Euro-Mediterranean Partnership	21
6.	Harmonisation and Technical interoperability of electricity and gas networks	22

7.	Security of supply and the development of new gas and oil infrastructure	23
7.1.	Physical Security of Supply in Networks.....	23
7.1.1.	Pipeline Safety.....	23
7.1.2.	Geographic Certainty and Safety	24
7.2.	Strategic and Commercial Security of Supply	24
7.3.	Gas.....	24
7.3.1.	Russia	25
7.3.2.	Euro-Mediterranean	26
7.3.3.	South-East Europe.....	26
7.3.4.	Caspian Basin.....	26
7.3.5.	Other important partners	27
7.4.	Oil.....	27
7.4.1.	Russia	27
7.4.2.	The Mediterranean Region.....	28
7.4.3.	The Black Sea.....	28
7.5.	Investing into the modernisation of energy systems and energy saving	29
8.	Revision and restructuring of Community support mechanisms in the Energy Sector.....	29
9.	Conclusion and concrete actions	31
	Annexes	33
	Annex I – EU-Mediterranean proposed electricity projects.....	33
	Annex II –Proposed gas priority projects.....	35

1. INTRODUCTION

As President Prodi has outlined¹ and the Commission has set out in its Communication on a Wider Europe², the European Union has to act as a force for stability and sustainable development in the European continent. Extending the benefits of the Internal Market is part of that projection of stability to the ring of countries that surround the Union. This is a central role for the Union.

Neighbouring countries to the European Union of today and tomorrow play a vital role in the Union's energy policy. They supply a major part of the European Union's requirements of natural gas and, increasingly, oil; a role that will grow significantly in the future. They and our partners ensure the transit of primary energy to the EU. These countries will progressively become full, important and equal players in the European Union's internal gas and electricity markets.

This Communication is focused on energy relations of the enlarged European Union with its neighbours and most important geographical partners in this sector. Although inspired by the recent Communication on a Wider Europe, its geographical scope is slightly different as it includes also South-East Europe – as an example of what might be envisaged on the regulation of the markets – and the Caspian Basin where appropriate. These two areas are of particular importance for the completeness of the Internal Energy Market and for the security of energy supplies of the European Union.³

The objectives of the policy set out in this Communication are to:

- Enhance the security of energy supplies of the European continent,
- Strengthen the Internal Energy Market of the enlarged European Union,
- Support the modernisation of energy systems in our partner countries,
- And facilitate the realisation of major new energy infrastructure projects.

Together with the neighbouring countries and our partners, the European Union can face the challenges of growing external energy dependence, the need to address infrastructure issues on a regional level, to diversify sources of energy

¹ Romano Prodi President of the European Commission A Wider Europe - A Proximity Policy as the key to stability "Peace, Security and Stability; International Dialogue and the Role of the EU" Sixth ECSA-World Conference. Jean Monnet Project. Brussels, 5-6 December 2002

² Wider Europe - Neighbourhood: A New Framework for Relations with our Eastern and Southern Neighbours, Brussels, 11.3.2003 - COM(2003) 104 final

³ The Commission intends to put forward a further communication at the end of 2003 examining infrastructure issues with respect to accession countries. As such, the Commission does not address these issues taking as a base here of the enlarged European Union and the relations it will have with its neighbours and partners. In this later communication the issues of increasing the geographic scope of the European Research Area – in which energy strongly features – will be addressed.

geographically and technologically and to broaden the basis for energy trade in the European continent and its adjoining continents.

1.1. Creation of a European Internal Electricity and Gas Market

The structural reforms leading to the creation of an internal European Union electricity and gas market are being mirrored by developments in almost all neighbouring countries. As stated by the Commission in its Communication “Completing the Internal Market⁴”, in this context the objective should be the progressive creation of an integrated European internal market, not a market simply limited to European Union Member States. Providing that a level playing field exists, in terms of market opening, fair competition, environmental protection and safety, including nuclear safety, there are many good reasons for actively pursuing such developments. A wider European internal market, properly implemented, will lead to increased competition and lower prices, will permit increased environmental protection over a wider area, and will enhance security of supply throughout Europe. The Commission does not suggest the entire and wholesale exportation of all standards and regulatory frameworks pertinent to the energy sector. What we seek to do is to have substantively similar levels of market access and adoption of equivalent standards that directly affect the populations of the European Union (especially in the nuclear sector). In recent years, the Commission, has actively pursued this objective of widening the internal market with concrete results. This needs to be maintained and expanded. This Communication outlines a strategy for achieving this primary goal.

The achievement of the primary goal requires not only the adoption of some common rules and standards in the energy sector but also additional infrastructure as necessary. Without adequate levels of interconnection of electricity and gas networks of the different countries, a real competitive market, characterised by high levels of security of supply, cannot develop. In 2001, the Commission adopted a Communication on European Energy Infrastructure⁵ outlining a series of actions to ensure the construction of missing links and the reinforcement of congested ones necessary to ensure the effective development of the European Union internal market. This was endorsed by the European Union Heads of State and Government at Barcelona in 2002, and thereby they endorsed notably a target of a minimum electricity interconnection level between each European Union country and its neighbours of 10 % of domestic consumption. This Communication examines the measures necessary to extend this target and the infrastructure goals to neighbouring countries.

1.2. Environment and Energy

However, the Commission will need to develop policy for demand management and energy efficiency in its neighbours and partners. Such a step will be necessary in the long term to assure our energy security. Our common commitment to combating climate change and other energy-related

⁴ COM(2001)125, 13.3.2001

⁵ COM(2001)775, 20.12.2001

environmental problems also leads us to attaching a high priority to the modernisation of the energy systems in our neighbouring countries. Modernising investments, new energy generation, and renewables have to be combined with better metering, transport measures and energy pricing to provide the right incentives for energy efficiency, for which there exists a significant potential in our Neighbours and Partners.

1.3. Security of supply and the development of new infrastructure

As highlighted in the Commission's Green Paper on Security of Energy Supply, the European Union already imports almost two-thirds of its fossil fuel requirements (oil, gas and coal). These fuels represent 80 % of the European Union's energy consumption. On the basis of present trends, by 2020 this is expected to increase to 90 % of the European Union's oil consumption, and 70 % of gas consumption.

With respect to electricity, the volume of exchanges between the EU/Accession countries and neighbouring countries remains fairly small, with only some 6.4TWh exported and 13TWh imported in 2001. This compares with the possible 32TWh per year foreseen in a 1999 TACIS study should the Russian network be synchronously connected with the network operated by the Union for Co-ordination of Transmission of Electricity. With respect to links across the Mediterranean, it should be noted that a standard 600MW cable is capable of transporting roughly 4TWh of electricity per year.

With respect to **gas**, this gives rise to major challenges regarding security of supply. This expected increase will have to come from new gas developments, located geographically further away from the European Union, and often extracted in increasingly difficult conditions. To meet the future demand of an enlarged European Union, with import requirements expected to reach 400 bcm by 2020, investments totalling many billions of Euro will need to be made both in terms of exploration of new gas fields and, more importantly, new pipelines, in the coming few years. It is forecast that existing capacity of 330 bcm will need to be increased by nearly 200 bcm. In order for these investments to take place, it is vital to ensure that the European Union plays an active role to facilitate and encourage them. This Communication re-examines the Commission's role in this respect, proposing additional measures.

With respect to **oil**, the principal issue to be addressed concerns security of supply, and in particular maritime safety.

1.4. Nuclear issues

Nuclear electricity inevitably forms a major part of any energy policy of the European Union in its relations with neighbouring countries. The position of the European Commission with regard to policy within the European Union is set out below.

On 30 January 2003 the Commission adopted two proposals for Directives concerning on the one hand the definition of the basic obligations and general principle on the safety of nuclear installations and on the other hand the

management of spent nuclear fuel and of radioactive waste. Both proposals are based on Chapter 3 of the title II of the Euratom Treaty concerning health protection.

These issues and this approach form the basis of the Community's policy in this area with neighbouring countries. In this context the Commission considers that the principles included in these draft directives will be the basis for discussion with third countries and in particular with Russia.

In addition, it's important that the Council adopts as soon as possible the decision authorising the Commission to negotiate a Euratom agreement with the Russian Federation on trade in nuclear materials, as proposed by the Commission Communication in its Communication on Nuclear safety in Europe of 6.11.2002 (COM(2002) 605).

This internal position will form the basis of discussions with third countries on nuclear generated electricity trade as part of the requirements for creating a wider market (see below 4.2).

1.5. Focusing and integrating the European Research Area in the field of energy

The Sixth Research and Technological Development Framework Programme (FP6) (2002-2006) is open to the Acceding and Candidate Countries on the same conditions as those pertaining for the Member States.

Neighbouring countries are also strongly encouraged to participate in FP 6 activities: Scientific and technical agreements as well as ad-hoc partenariats in the framework of the co-operation or association agreements have been developed with Eastern, Northern and Southern border countries (Russia, Ukraine, Iceland, Liechtenstein, Norway, Switzerland and our 12 Mediterranean partners). An action plan for energy research is currently being implemented with Russia. It includes the organisation of expert meetings on priority areas and of information campaigns designed to promote Russian involvement in FP 6 activities. Similar mechanisms could be implemented with Mediterranean partners.

With more than two billions euro dedicated to energy (nuclear and non-nuclear), FP6 helps researchers, industries and universities from EU , Accession States and Neighbouring Countries, thereby contributing to establishing the European Research Area, in line with the Lisbon Strategy.

Within this framework, the Commission would like to see the use of funding for investigating the prospects for developing the hydrogen economy. This fuel has the potential to contribute to Europe's key policy objectives, namely security of energy supply and sustainable development. Hydrogen can also contribute to achieving other policy targets, such as air quality and industrial competitiveness.

2. CO-OPERATION MECHANISMS

In pursuing these objectives, the Community has in recent years established three important instruments, the European Union-Russia energy dialogue, the

Euro-Mediterranean Energy Forum, and the South-East Europe Regional Energy Market [SEE-REM].

2.1. The European Union-Russia Energy Dialogue

Russia is already the largest single energy partner of the European Union. In 2001, over 19% of total net European Union oil imports and over 40% of European Union gas imports came from Russia. Furthermore Russia was the largest supplier of uranium to the European Union and provided also a significant proportion of the uranium enrichment requirements. During the same year energy exports accounted, in value, for nearly 50% of total Russian exports to the European Union. For the European Union, it is important to maintain and enhance Russia's role as a supplier of gas and oil and to strengthen Russia as a secure and reliable supplier through technology transfers and investments to upgrade Russia's energy infrastructure. However, both the European Union and Russia have also recognised the importance of giving a new political impetus to this relationship by working together towards a strategic European Union-Russia energy partnership, given the importance of ensuring adequate energy supplies and appropriate prices for economic development across the whole of the European continent, and the long-term nature of investments in energy production and transport.

Therefore, recognising this mutual dependence in the energy sector, there was agreement at the October 2000 European Union-Russia Summit in Paris to institute an energy dialogue on a regular basis between the European Union and Russia to enable progress to be made in the definition and arrangements for an European Union-Russia Energy Partnership. As noted in the Joint Declaration⁶, "This will provide an opportunity to raise all the questions of common interest relating to the sector, including the introduction of co-operation on energy saving, rationalisation of production and transport infrastructures, European investment possibilities, and relations between producer and consumer countries".

Environmental concerns within Russia will continue to form an axis of debate and the Commission will continue to press for progress in this area. The role of the Kyoto Protocol in bringing down carbon dioxide emissions in Russia will continue to be addressed.

In the three years of its existence, the Energy Dialogue has assisted in developing trust and a better understanding of our policy objectives in the energy field, and significant progress has been made on a number of the issues identified, paving the way for a long term institutionalised partnership. These include:

⁶ Joint Declaration by the President of the European Council, Mr J. CHIRAC, with the assistance of the Secretary-General of the Council/High Representative for the Common Foreign and Security Policy of the EU, Mr J. SOLANA, by the President of the Commission of the European Communities, Mr R. PRODI, and by the President of the Russian Federation, Mr V.V. PUTIN. Paris, 30 October 2000. (Ref: Press Release 405 – Nr: 12779/00 <http://ue.eu.int/newsroom/>).

- The identification of energy infrastructure projects of common interest;
- A non-commercial risk guarantee fund;
- The central role of long term gas supply contracts in securing the conditions for the Internal Energy Market by facilitating investments;
- The legal framework in Russia;
- The trade in nuclear materials; and
- Clean coal projects.

In addition, it has been agreed to work on pilot energy efficiency programmes in the regions of Astrakhan, Archangelsk and Kaliningrad, and work is now underway with the Russian authorities to produce specifications for technical assistance projects to be financed under TACIS programme 2003. In addition, with the main provisions of Russia's "Energy Strategy until the year 2020" document projecting a 75% increase in coal production⁷ and for an increasing role for coal in electricity generation⁸, it is important to encourage the use of modern, efficient and cleaner coal combustion technologies. For this reason, and to order to promote the most efficient EU Clean Coal Technologies, Russia has been considered a priority in both the 2001 and 2002 call for proposals⁹ under the CARNOT programme¹⁰ related to the promotion of the clean and efficient use of solid fuels. Three projects are currently underway related to Russia. However, the combination of low energy prices in Russia and an undemanding Kyoto target for the first commitment period (2008-2012) means that energy efficiency and energy savings have not been given a high priority in the implementation of the overall Russian energy policy.

2.2. The Euro-Mediterranean Energy Forum

In the framework of the Barcelona Process, initiated in 1995 between the European Union and the 12 Mediterranean Partners¹¹, the Euro-Mediterranean Energy Forum was established in 1997. The purpose of the Forum covers both the objectives of reinforcing political dialogue between the Mediterranean

⁷ From a 258 million tonnes in 2000 to between 340 and 430 million tonnes in 2020.

⁸ The Strategy calls for coal-fired electricity generation to increase from 17% of total generation in 2000 to 29% by 2020, which could double coal consumption in the power sector.

⁹ Call for proposals for 2001.

Published in the Official Journal of the European Communities, C 270 of 25.9.2001, page 8.

Call for proposals for 2002.

Published in the Official Journal of the European Communities, C 64 of 13.3.2002, page 11.

¹⁰ Council Decision 1999/24/EC of 14.12.1998.

Published in the Official Journal of the European Communities, L 7 of 13.1.1999, page 28.

¹¹ The 12 Mediterranean Partners are: Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Palestinian Authority, Syria, Tunisia and Turkey. Libya did not accept the conditions and principles of the partnership and, together with Mauritania, has the status of observer.

Partners and, at the more technical level, promoting projects and measures of common interest.

A first Action Plan, covering the period 1998-2002 and approved during the Euro-Mediterranean Ministerial Conference held in Brussels in May 1998, set several priorities and initiatives. Among those, the creation from 2000 of three ad-hoc working groups, on the topics of Energy Policy, Interconnections and Economic Analysis, was foreseen.

The three main objectives around which the actions and priorities should focus in the energy sector are identified in the Action Plan 1998-2002 as the following:

- security of supply, through the development and diversification of energy sources and a close international co-operation;
- competitiveness of the energy industry, in view of the free-trade area planned by 2010 and through enhanced industrial production;
- protection of the environment, by securing safe and clean production, transport and use of energy, and by encouraging energy efficiency and renewables.

The final purpose of the three ad-hoc groups is to provide the necessary objective criteria to reach consensus on priority actions of common interest in the region. The so-called Trans-Euro-Mediterranean Networks, to ensure gas and electricity interconnections South-South and South-North in the region, have been identified as a clear priority .

2.3. South-East Europe

The Commission brought forward proposals for the creation of a regional electricity market in South East Europe (SEE) in March 2002. In time, a regional energy market is envisaged. By November 2002, a Memorandum of Understanding was signed at the Athens Ministerial by all the countries¹² with the Commission and the Stability Pact¹³ acting as sponsors. The Commission also agreed a common strategy paper with all international donors active on a regional basis¹⁴. The Athens Memorandum set up the following organs, collectively called the ‘Athens Process’:

¹² The present signatories are Albania, Bosnia and Herzegovina, Federal Republic of Yugoslavia, Bulgaria, FYR of Macedonia, Greece, Turkey, Croatia, Romania and Kosovo (signatory pursuant to UN Resolution 1244). Observers include Moldova, Slovenia, Austria, Hungary, and Italy. Sponsors are the European Commission and the Stability Pact.

¹³ The Stability Pact for South East Europe is an institution set up to create the political conditions for effective international assistance to the region by co-ordinating donors and presenting plans to the countries of the region; it is headed by Dr. Erhard Busek.

¹⁴ These donors are: the EIB, the EBRD, the World Bank, USA, Canada, Italy, Greece, Switzerland, the Czech Republic and Germany. Since then, the IEA has joined. The UK is associated through the work of the EBRD.

- A Ministerial meeting to give political guidance to the Athens Process, which meets at least once a year; and
- A Permanent High Level Group, that meets, so far, every quarter, and that takes executive decisions on work programmes and implementation strategies; the PHLG is where the key mechanisms operate, these being the peer-review mechanism and the benchmarking report.

In addition, the Athens Memorandum incorporated the ‘Athens Forum’ that replicates the Madrid and Florence Forums in the EU. The Athens Forum brings together market actors to discuss necessary reform. The Forum is composed of the Permanent High Level Group, the regulators group (the Council of European Energy Regulation has set up a sub-group for South-East Europe), the Transmission System Operators group (a sub-group of the European Transmission System Operators Association), Union for Co-ordination of Transmission of Electricity industry representatives on an *ad-hoc* basis, the Commission, and international donors to the region.

At the same time as presenting the electricity plan, the Commission announced that a similar gas plan would be presented in the future. The countries agreed to this approach at the Athens Ministerial in November 2002. The gas plan will be launched in mid-2003. It will be similar in organs to the Athens Process, with the aim of fusing the two processes by the end of 2003.

Such a political process to create an integrated regional market will require increased legal certainty and intensified energy relations between the countries themselves and then with the European Union as a whole. This would give a concrete basis to extend the benefits of the Internal Energy Market of the European Union. The Commission intends to sponsor the necessary work for this process.

3. AREAS OF HEIGHTENED EU INTEREST

3.1. The Northern Dimension

The Northern Dimension pays much importance to energy issues, principally from the points of view of security of supply, competitiveness and environmental protection. This is reflected in the first Northern Dimension Action Plan, covering the 2000-2003 period. In the context of the Northern Dimension, the Energy Ministers of the Baltic Sea Region and the European Commission decided at their October 1999 conference in Helsinki to create the Baltic Sea Region Energy Co-operation (BASREC) and a group of Senior Energy Officials was established to steer the activities, which include electricity and gas markets. The activities of BASREC have been most important for energy-related initiatives in the first Northern Dimension Action Plan, which also encouraged the closure of unsafe nuclear plants, the promotion of a nuclear safety culture, and the improvement of waste management.

Energy issues will play a prominent role also in the second Northern Dimension Action Plan (2004-2006), to be adopted this year. Moreover, the signature of the agreement on a *Multilateral Nuclear Environmental Programme in the Russian Federation* (MNEPR) and the implementation of nuclear projects financed by the Northern Dimension Environmental Partnership (NDEP) Support Fund will contribute to the improvement of nuclear safety in the Northern Dimension region, and particularly in Northwest Russia.

3.2. Caspian Basin

As highlighted in the Commission's Green Paper in the Security of Energy Supply, the European Union has a specific interest in the extensive oil and gas reserves of **the Caspian Basin** which will, in the future, contribute to security of supply in Europe. Caspian oil production, currently some 1.4 million barrels per day, could reach 4 million barrels per day by 2010. Natural gas production in 2001 was 65 bcm and could increase to 170 bcm per year by 2010. Kazakhstan is forecast to produce 70 million tonnes of oil¹⁵ and 34 bcm gas in 2006, while Azerbaijan is forecast to produce more than 8 bcm of natural gas by 2006. Iran is the second largest OPEC oil producer and holds the world's second largest gas reserves after Russia.

The key will be to facilitate the transportation of Caspian resources towards Europe, be it via transit through Russia or through other transport routes. Indeed, secure and safe export routes for Caspian oil and gas will be important for the EU's security of energy supply as well as crucial for the development (economic, but also social and political) of the Caspian region. In this context, the transportation of natural gas from the Caspian Basin through Iran and Turkey will also have to be considered.

Discussions on energy co-operation have started in the framework of the Partnership and Co-operation Agreements with Azerbaijan and with Kazakhstan, in addition to energy related technical assistance performed under TACIS. Apart from focusing on energy questions proper, these discussions deal with such issues as the countries business climates, with a view to optimise of the countries' economic development, as well as the already very considerable EU commercial interests in the Caspian Basin.

Investment in the Caspian Basin's mineral resources is still in a relatively early stage, in which investments are quickly increasing, the countries are developing their legislative framework for foreign investment and the various international players are developing and fine-tuning their strategies. Apart from already established players such as companies from the EU, the US and Russia it is noteworthy that recently China has markedly stepped up its efforts to benefit from Caspian resources in the future.

¹⁵

1.4 million bbl/d

3.3. Co-operation with other important Partners

The **Ukraine** is the most important transit country for Russian gas to Western Europe, with between 80% and 90% of Russian gas exports moving over Ukrainian territory. Ukraine's main transit network consists of around 14,000 km of pipelines with a theoretical output capacity of 170 bcm per year. With a capacity of 30 bcm, Ukraine has the second largest natural gas storage capacity in Europe after Russia.

A major challenge is the need to guarantee the overall performance, safety and security of the Ukrainian network. This is one of the main objectives of the enhanced EU-Ukraine energy co-operation since 2001. European Union relations to Ukraine in the hydrocarbon sector are drawn by two major objectives: the promotion of reforms in the sector and the improvement of safety and security of the network.

4. CREATING A WIDER EUROPEAN INTEGRATED ELECTRICITY AND GAS MARKET BASED ON COMMON RULES AND PRINCIPLES

4.1. Progress in achieving the European Union's Internal Market

The European Union is in the process of rapidly completing the internal electricity and gas markets. This will lead to increasingly competitive prices, high standards of public service, and the maintenance and increase of standards of security of supply. Recent developments in reaching this goal include the following:

- Adoption of a common position by the Council on the Commission's proposed revision of the Directives on the internal market for electricity and gas. The European Parliament has suggested amendments to the Common position. But at present the common position – if left unchanged - will lead to all non-households being free to purchase their gas and electricity from any company established within the European Union during 2004. All customers, including households, will be free to choose their supplier by 2007. The Directive will also require legal unbundling of transmission and distribution activities from generation and sales, and will introduce regulated third party access for transmission and distribution, and common standards of effective regulation. Finally, the revision provides measures to ensure high public service and environmental standards.
- Adoption of a common position by the Council of a Regulation on cross-border trade in electricity. The European Parliament has suggested amendments to the Common position. But at present it will provide common basic rules on electricity transmission tariff structures, as well as a robust mechanism for developing harmonised cross-border tariffication methodologies and congestion management mechanisms. This Regulation builds on progress already achieved in the European Electricity Regulation Forum ("The Florence Forum"),

which has now agreed the introduction of a cross-border electricity transmission tariffication mechanism that permits access to the European Union network for a tariff of only 0,5 €/Mwh. It is expected that under the Regulation it will be possible to entirely eliminate this tariff, so that the national transmission tariffs give the right to access to the entire European Union grid.

- Proposal by the Commission of a draft Directive concerning measures to safeguard security of natural gas supply. Once adopted, this Directive will ensure the maintenance of common high security of supply policies and standards regarding gas supply in each Member State, and establish appropriate mechanisms for dealing with potential problems in particular with respect to long-term gas supply contracts and any potential long-term disruption of gas supplies to the EU.
- Progressive implementation, by European Union gas transmission companies, of “Guidelines of Good Practice” regarding the operation of the gas transmission network under principles of non-discrimination and in a manner likely to ensure effective third party access to the gas transmission grid.

4.2. Requirements for creating a wider market

As mentioned above, there are strong reasons for extending the internal electricity and gas markets outside the borders of the EU. However, in order to do so, it is important that the following requirements are met:

4.2.1. Level playing field

Market access is an important concept underlying the internal electricity and gas market and thus the creation of a level playing field. Equal market access can only occur if all markets are open to fair competition to an equivalent extent. This does not necessarily require that all participants adopt identical rules in every respect. The manner in which markets are opened to mutual competition must be substantively equivalent. Notwithstanding this, wherever possible, standardised or common rules should be adopted, as this will increase the efficient functioning of the resulting wider internal market.¹⁶

4.2.2. Equivalent environmental and safety standards

High environmental standards accompany the creation of the internal energy market. The respect of high environmental and safety standards, including those with respect to nuclear safety, is a central part of the internal market. The Commission’s proposals opening markets to competition have systematically been accompanied by proposals to ensure high environmental standards in

¹⁶ For details of this policy see Commission Communication ‘Completing the internal energy market’ COM (2001) 125 final, point 2.9.1.

electricity production¹⁷. The respect of such standards is not only essential in environmental and safety terms, they also imply costs on electricity generators. An equivalent level of protection is therefore necessary to maintain a level playing field. Furthermore, the generation of electricity from environmentally unsustainable thermal plants or unsafe nuclear installations in countries neighbouring the European Union can potentially have direct health and environmental effects within the Community.

4.3. Making progress in creating a wider market

Within this framework, the Commission considers that, in line with the Commission's proximity policy, the inclusion of neighbouring countries to the European Union within the internal gas and electricity market should be actively pursued. The process of inclusion of such countries goes considerably beyond simple questions of open trade between the European Union and its neighbours under more general international trade obligations. It involves the active creation of a real integrated market, free of any barriers. To achieve this, the following measures have been taken, or are in preparation with neighbouring countries:

4.3.1. *Russia*

Given the enormous potential of the Russian electricity market, it is necessary to set a clear objective of Russia to play a major role in the Internal electricity market and, in parallel, for European Union electricity undertakings to play a major role on the Russian electricity market. However, the above-mentioned requirements for creating a fully integrated wider electricity market represent important challenges in this respect. It is therefore necessary to begin the process that will permit any such barriers to be overcome. The Commission and the Russian Government, together with RAO-UES, Eurelectric and the Union for Co-ordination of Transmission of Electricity¹⁸, have already opened in-depth discussions to identify clearly the action that is necessary by both parties to progressively reach equivalent levels of market opening, fair market access, environmental protection and safety standards. A first detailed discussion took place in Brussels on 25th March 2003. A second is scheduled for Moscow in May. By the end of 2003 it is intended to have established a clear factual picture of the actions necessary to proceed. In this context, expert discussions on the necessary nuclear safety levels, including those of the first generation reactors, need to be started as soon as possible.

¹⁷ Generation of electricity is subject to, amongst others, Large Combustion Plant Directive (2001/80/EC), Integrated Pollution Prevention and Control Directive (1996/61/EC), Directive on Renewable electricity (2001/77/EC). The European Commission has made a proposal for a directive on Combined Heat and Power (COM(2002)415). High nuclear safety standards are maintained through [the Euratom Treaty].

¹⁸ Developing contacts between the European and Russian electricity industries in the framework of the Energy Dialogue have already led to the signature of a Protocol in Warsaw on 20 March 2002 between the Commonwealth of Independent States Electric Power Council (CIS EPC) and the Union of the Electricity Industry (EURELECTRIC). This committed the signatories inter alia to encourage the active development of the dialogue between involved network associations in order to identify the best solutions and necessary measures to promote interconnection development.

The Commission therefore proposes to prepare, together with the representatives of the European Union and Russian electricity industry, a factual report of the situation in both the European Union and Russian electricity markets in 2004 within the framework of the EU-Russia energy dialogue. Following this, it is the intention of the Commission to examine the options for seeking a comprehensive agreement with Russia that would lead to a progressive interconnection and integration of the Russian electricity network with that in continental Europe. It is evident that a practical and realistic approach is needed to examine and deal with this challenging list of preconditions; an incentive-driven step by step approach that establishes commitments by all concerned with clear deadlines.

A long-term vision, established within the framework of a common EU-Russia economic area, would envisage a regulatory system for gas in Russia, which is not only compatible to that of the European Union, but based on the same principles and mechanisms. Any regulatory system would have to protect the specific needs of the Russian Federation. A common regulatory space, to accompany the common economic space, would tremendously increase business opportunities for all participants in the European and Russian gas market and lead to secure and efficient gas supplies in both markets. It is the Commission's intention to accelerate discussion of these issues, so that a common way forward can be designed for step-by-step market integration and balanced market interpenetration, as is the case with other external gas suppliers to the European Union.

4.3.2. South-East Europe

In November 2002, at the Ministerial Meeting of the Athens Forum process, the member countries of the South-East Europe electricity market signed a Memorandum of Understanding committing them to implement parallel rules to the Community provisions creating an internal electricity market in the area. The date set for the implementation of these rules is 2005. For example, the Memorandum, in addition to making provisions for market opening in terms of enabling customers to freely choose their supplier, provides for the following:

- to set up a regulator and a transmission system operator;
- to implement tariff reform plans;
- to implement all necessary technical standards, such as grid codes, accounting systems and information exchange for the operation of the grid;
- to implement effective third party access to infrastructure; and
- to adopt competition legislation comparable to that in the EU.

Work is now progressing in the context of the various meetings of the Athens process to turn these commitments into concrete action. This is taking place in close collaboration with international donors that are supporting this process, and the Stability Pact.

With respect to gas, as mentioned above, the Commission has already announced its intention to bring forward proposals to commence a parallel process to the Athens electricity process, based on the *acquis communautaire* but tailored to regional necessities, leading to a regional South-East Europe gas market and its integration into the European Union market. The countries of the region have in principle welcomed this, and the Commission during 2003 will table concrete proposals.

4.3.3. The Euro-Mediterranean Partnership

The final meeting of the Ad Hoc Energy Working Groups took place on 19th-20th February 2003, during which the creation of an open and competitive electricity and gas market was discussed. In particular, agreement was reached on the principle of promoting a regional electricity and gas market, with the objective of its progressive integration into the European Union internal market. The fourth EUROMED Energy Forum which was held in Brussels on April 2, 2003, confirmed this objective.

The Commission considers that for technical and geographic reasons, it would be appropriate to take a step-by-step process towards this goal. As a first step, a regional market, based on the rules governing the European Union internal market and the institutions of the South-East Europe market, should be set up regarding the Maghreb area, including Morocco, Algeria and Tunisia, and possibly Libya depending on its further involvement in the Barcelona Process. To this end, rapid progress should now be made towards an agreement and then signature of a Memorandum of Understanding by the countries concerned, providing – as with South-East Europe – concrete commitments to move progressively towards the adoption of the common rules and standards outlined above. The two forthcoming Euro-Mediterranean Conferences of Energy Ministers planned this year under the Greek and Italian Presidencies (Athens, 20-21 May 2003 and Rome, 1-2 December 2003) could provide a unique opportunity to discuss and sign such a Memorandum of Understanding.

On the basis of the results achieved, the process could then be extended to cover the other countries of the Barcelona process.

4.3.4. Other important partners

Building on progress achieved in integrating the European Union and Russian markets, it will be possible to commence work on integrating other neighbouring countries, notably Ukraine and Belarus in this process. Concrete steps have already been taken in electricity by supplying Bialystok (Poland) from Belarus and Zamosc (Poland) from Ukraine in radial operation and in synchronising the so-called Burshtyn island in Ukraine to the Union for Co-ordination of Transmission of Electricity network through Hungary and Slovakia. The planned creation of a management consortium for the Ukrainian gas transit system with participation of Ukrainian, Russian and EU companies should also contribute to better integrate this system with the internal gas market of the European Union.

Both Kazakhstan and Azerbaijan have expressed their interest in intensified energy co-operation in the framework of their Partnership and Co-operation Agreements with the European Union. Expert discussions are being conducted to define prospects and conditions for an increased participation of these countries in the European Union's internal gas market.

5. INFRASTRUCTURE NECESSARY FOR THE CREATION OF A FULLY INTEGRATED ELECTRICITY MARKET.

In order for the wider European electricity and gas market to function effectively it is not sufficient that common rules and standards apply; it is equally necessary that adequate infrastructure exists linking the Member countries. It is in this context that the Commission adopted in 2001 a Communication on European Energy Infrastructure¹⁹. A further Communication is envisaged by the Commission during 2003 on this issue, building on progress achieved following the 2001 Communication, and in particular addressing the position of Accession countries.

In the 2001 Communication, a number of measures were put forward, including a 10% interconnection target²⁰ (calculated as being 10% of a Member State's installed generation capacity) and the priority for Trans European Network Funding to certain projects identified as being as Priority Projects of Pan-European Interest. This Communication was welcomed by the Barcelona Council, which in particular endorsed the 10 % target. The Commission also proposed an increase in the existing 10% ceiling on contribution to the development stage of a project to 20% for Priority projects. This remains under discussion at the Council.

A similar approach that is cognisant of particular circumstances is required with respect to neighbouring countries if they are progressively to become fully integrated into the internal market. Given the objective of moving towards a truly European gas and electricity market, it is necessary to further integrate the neighbouring countries, together with the accession and candidate countries, fully into the framework of the Trans-European Networks mechanism. Many projects connecting the Community with neighbouring countries already qualify for Trans-European Network Funding. However, it is necessary, in the light of the speed with which the creation of a wider European electricity and gas market is being realised, to re-assess the projects presently qualifying. In addition, it is appropriate to re-examine the manner in which other Community support programmes are active in this area.

Given the current state of the projects that are necessary to make effective the wider internal energy market, the lists of projects that is included in Annexes I & II are indicative and purely for informational purposes: the estimated costs of undertaking these projects and the simple listing of these projects does not engage the Commission or the Union in this matter. In no way can this

¹⁹ COM(2001)775, 20.12.2001

²⁰ Commission Communication COM (2001) 775 final point 3.1

publication affect the work on the new financial perspectives being undertaken by the Commission.

Trans-European Network Funding and the other programmes referred to above is important not only for the financial contribution to projects necessary for the completion of European electricity market, but also in terms of a clear statement of Community recognition of the importance of the project in question. This recognition has been a significant factor when moving towards the concrete implementation of projects and their financing. Such support, however, cannot and should not endeavour to replace private funding of gas and electricity networks. The construction and maintenance of infrastructure remains the task of industry. However, Community programmes have played a vital role in the past by acting as a catalyst or support mechanism for projects of Community and wider interest. This role for the Community institutions remains important, and needs to be further focussed in the light of evolving energy objectives.

In addition, other Community support programmes, together with the Community's regional funds programme within EU Member States, will need to continue to play a major role, and will need to be more closely co-ordinated at the planning stage to meet the rapidly developing and changing needs regarding the support of infrastructure development in neighbouring countries. Energy links can often not be funded by only one programme as the link will cross the artificial borders imposed by funding programmes (for example in the Balkans, the Western Balkans and Eastern Balkans have different funding mechanisms applied to them).

At present the volumes of electricity exchanges between the EU/Accession countries and neighbouring countries remains rather small, in the year 2001 6,4TWh were exported and 13TWh were imported (excluding Norway, Switzerland and former Yugoslavian countries, production in the EU/Accession countries in 2001 was about 3000TWh). To illustrate the potential to increase the capacity, the high scenario in the TACIS study finalised in 1999 ended up to an exchange potential of 32TWh/year in case of synchronisation of the Union for Co-ordination of Transmission of Electricity and Russian networks. Regarding the links over Mediterranean, a standard 600MW undersea cable is capable of transporting roughly 4TWh of electricity per year.

Considerable work has already been undertaken in identifying the infrastructure projects meriting Community political and, if necessary and appropriate, financial support as indispensable to develop a wider European electricity and gas market providing effective levels of competition and security of supply. The following indicative list of projects will continue to evolve. As an example, it could be noted that the Commission is currently preparing the 2nd Northern Dimension Action Plan, which will include a number of energy-related projects

5.1. EU-Russia

At present, the Russian electricity grid is only connected to a minor extent to European Union countries, the sole direct connection being to Finland. Among the Accession countries, the Baltic states are in the same synchronous area as Russia and they are currently dependent on the Russian system for the operation

of the network. They are considering operating their electricity grids synchronously to the grids of Finland and Poland in the medium term. Thus, an increase of the interconnection between the continental European grid operated under the Union for Co-ordination of Transmission of Electricity system and Russia, to ensure that once issues regarding market access, environmental protection and nuclear safety are resolved, trade can take place freely, should be viewed as a priority.

The Russian electricity system is synchronously connected to that of the Newly Independent States, including Ukraine. Thus, effective connection with Russia, and agreement on the trade, environmental and safety related issues mentioned above, would provide a sound basis for pursuing a similar approach with Newly Independent States, and notably the Ukraine and Belarus.

Two options exist, non-synchronous connection, which permits a greater level of control over flows, and a synchronous connection. The latter type gives rise to a greater level of difficulty in terms of harmonisation of safety standards than the former. This is an important issue, because a clear pre-condition to full interconnection between the European Union electricity networks and those of the neighbouring countries is the determination that this would in no way compromise the safety and reliability of both networks and electricity systems. Synchronous connection has been strongly advocated by the Russian side, at technical and political levels. Whilst the Commission accepts that there are advantages to such an interconnection, it is clear that prior to any synchronous connection between the UCTE and RAO-UES systems, a number of technical issues need to be addressed as well as the relevant commercial ones.

At present, the Union for Co-ordination of Transmission of Electricity, the body responsible for co-ordinating and setting standards for the operation of the continental European grid, has been working on this issue in close collaboration with its counterparts in Russia and the Newly Independent States. A pre-feasibility study on the technical aspects of interconnecting the networks is currently underway and will be completed shortly. It is then the intention of the Commission to work together with the Union for Co-ordination of Transmission of Electricity and the non-nuclear Russian electricity company RAO UES to define, during 2003, the terms of reference for a full feasibility study to examine the technical aspects related to interconnecting the networks. This would include an examination of the prospects for trade in electricity, and the actual and potential bottlenecks in interconnection and the technical issues related to any incompatibility of the Russian electricity system with that of continental Europe.

Once the study is completed, it would then be possible to assess the prospects and the level of investment necessary, although evidently the funding of these investments should primarily be a matter for the private sector.

The Commission considers that it is important that rapid progress is now made to clarify the preferable option of interconnection. Interconnection, provided that it can be achieved on the basis of high safety and security levels, and that it is accompanied by clear agreement on substantively equivalent levels of market opening, environmental protection and nuclear safety, is in the clear interests of Russia and the European Union alike. Such a development would provide an

important additional source of competition for the internal market and, under right conditions, increase security of supply.

The Commission therefore believes that an interconnection project should be declared a Priority Project of European Interest, and that it might benefit from possible support funding under the Trans-European Network mechanism. Clearly as mentioned above the eventual construction of increased interconnector capacity between the UCTE and RAO UES systems will be subject to finding solutions to the commercial and environmental issues discussed above. In this context, a step-by-step approach could be envisaged where progress on the harmonisation of standards and practices of trade, environmental protection and nuclear safety are matched by an increasingly powerful interconnection (subject to point 4.2.)

5.2. South East Europe

In order to complete the reconnection of the electricity system of the countries of the region and these countries with the EU, a number of strategic interconnections have been identified in the context of the Athens Forum process. These are:

- the reconnection of the Ernestinovo and Mostar lines in Croatia / Serbia / Bosnia and Herzegovina;
- the completion of the Western North-South Connection through Elbasan in Albania;
- the strengthening of the Greece – Bulgaria links; and
- the strengthening of the Greece-Italy and the Greece-Turkey links (Ipiros – Puglia and Philippi-Hamidabad).

The Commission therefore believes that these interconnection projects should be declared a Priority Project of European Interest, and that it should benefit from possible support funding under the Trans-European Network Mechanism [TEN]. With respect to gas, the lines necessary for the completion of the regional gas market are presently under examination in the context of the proposed creation of the regional market itself. Any such lines necessary will be considered in the context of future revisions of the TEN guidelines.

5.3. Euro-Mediterranean Partnership

The Mediterranean Electricity ring will link all the countries of the Euro-Med process. This ring is not yet completed. This ring needs to be complemented and strengthened by direct links between a number of Med-Ring countries and the EU. It is important to make rapid progress on a number of links that will complete the ring, and a number of lines that will provide effective levels of connection between the ring and the EU. Regarding the latter, the following links are the most important, and have been identified in the Ad Hoc Energy Groups and the EUROMED Energy Forum:

- reinforcement of the capacity between Morocco and Spain;

- reinforcement of the capacity between Greece and Turkey;
- interconnection between Algeria and Spain; and
- interconnection between Italy and Tunisia.

The Mediterranean Electricity Ring should be viewed as Priority Projects of European Interest, and should be eligible for support under the TENs programme and MEDA, together with a number of projects necessary for the completion of the Mediterranean Ring set out in annex 1 to this Communication.

6. HARMONISATION AND TECHNICAL INTEROPERABILITY OF ELECTRICITY AND GAS NETWORKS

In order to create a fully functioning market it is also necessary to promote the development, where necessary, of common technical and commercial standards regarding electricity and gas networks, and common trading rules and systems. Within the European Union primarily the European Gas and Electricity Regulation Fora (The “Florence” and “Madrid” Fora have addressed these issues.

With respect to technical standards for electricity, input into the Florence Forum is provided by the Union for Co-ordination of Transmission of Electricity together with Nordel²¹ and other network associations, in close collaboration with the Commission, the Council of European Energy Regulation, the European Transmission System Operators Association and other relevant stakeholders. First drafts of guidelines in the form of a Union for Co-ordination of Transmission of Electricity operational handbook have been prepared and presented to the stakeholders. With respect to gas, this is now addressed by an entirely new industry grouping, “EAZEE-Gas”. This association is now beginning concrete work on standardisation issues.

Commercial issues have been dealt with in the Florence and Madrid Fora through informal agreement between the electricity/gas industries, the national regulatory authorities, Member States, consumer groups and the Commission. This has resulted, in particular, in an agreement on a cross-border tariffs mechanism for electricity, eliminating national import, export and transit tariffs in favour of a single EU-wide charge of 0,5 € Mw/h, an agreement on guidelines for congestion management in electricity, an agreement on Guidelines for Good Practice for the operation of the gas transmission networks.

With respect to electricity, the progress made in the Florence Forum has enabled a Regulation on cross-border trade on Electricity to be proposed, on which the Council has reached a common position. The Guidelines for Good Practice for gas are presently under revision.

It is important that, as neighbouring countries become progressively integrated into the internal electricity and gas markets, they fully participate in these

²¹

Nordel is an association for electricity co-operation in the Nordic countries.

mechanisms and implement the resultant agreements. The Accession countries already participated in the Fora in 2002, as well as representatives from Russia in the context of the EU-Russia energy dialogue. At present, careful attention will need to be given to ensuring that the South-East Europe Electricity market, the Euro-Med market, and other neighbouring countries, and in particular Russia, are kept fully informed of developments in the Madrid and Florence Fora and vice versa, and are given full opportunity to provide input into the process. As developments progress, and as these countries implement rules compatible with those governing the internal market, they should become – like the accession countries have now become – full participants in these Fora.

7. SECURITY OF SUPPLY AND THE DEVELOPMENT OF NEW GAS AND OIL INFRASTRUCTURE

In seeking to use networks for the transport of hydrocarbons, the Commission is aware of two elements of security of supply. The first is physical security of supply and the second is strategic and commercial. The first necessitates that we maintain safe and effective networks and the second that we have the necessary pipeline infrastructure to satisfy our domestic consumption needs.

7.1. Physical Security of Supply in Networks

7.1.1. Pipeline Safety

Pipelines are generally recognised as a safe way to transport dangerous substances in comparison with other modes of transport. A greater use of pipelines is developing within the European Union and European pipeline networks are growing rapidly. Historically, there has also been a good pipeline safety record within Member States, and most of the pipeline accidents have been outside the European Union.

However, it has been recognised that pipeline accidents have occurred in Europe and world-wide, which indicate their ‘major-accident hazard’ potential. Both, the Council and the European Parliament have expressed the view that pipelines should be included within the scope of Community legislation dealing with major-accident hazards. This is consistent with the so-called ‘precautionary principle’ on which Community environmental policy is based.

An analysis of existing legislation within the European Union²² has shown that there is a large variation in the degree to which Member States cover the control of major-accident hazards arising from pipelines. There are important gaps related to the types of substances covered, major-accident prevention policies and safety management systems, prevention of third-party damage, emergency planning, information to the public, land use planning, and, last but not least, reporting requirements for major pipeline accidents.

²² Regulatory benchmark for the control of major accident hazards involving pipelines, JRC (1999)

A review of such accidents involving oil, gas and other dangerous substances²³ has shown that the existence of legislation on the control of pipelines in other industrialised parts of the world, such as the United States, contributes to better knowledge about major accidents and their consequences. However, even with the limited information sources available for Europe, it could be demonstrated that major pipeline accidents have happened in the past and that there is a major-accident potential for the future, particularly taking into account the fact that European pipeline networks are growing rapidly and the existing networks are ageing.

The Commission considers that the most important elements to be introduced and harmonised at Community level are requirements relating to safety management systems, control of external interference, information to the public, emergency planning, systems of inspection and accident reporting.

7.1.2. Geographic Certainty and Safety

The Commission would like to see greater use of precise mapping techniques and monitoring programmes for hydrocarbon networks and also monitoring programmes for hydrocarbon shipments in general. The first of these would allow precise identification of where a problem may exist and the second would allow immediate redress of the situation. Details of these proposals will be made within the scope of the Galileo programme.

Galileo offers significant opportunities for enhancing the security and safety of networks, and of maritime transport of energy projects. Thus, in developing this project, close collaboration with the neighbouring countries and partners is necessary. In particular, it is important to involve these countries in the promotion of the use of Galileo in its future concrete use in the energy sector, notably regarding the construction and maintenance of gas and oil pipelines, high tension electricity lines, the monitoring of oil tankers and the management of natural resources. In this respect, the establishment of an EU-Russia Observation System is foreseen in the context of the EU-Russia Energy Dialogue. Such a system could also be established in the Mediterranean and South East Europe with a view to being networked into the European Observatory for oil and gas supply. A study on a similar project for the Caspian Basin is planned as well.

7.2. Strategic and Commercial Security of Supply

7.3. Gas

With respect to security of supply, the main issue for Europe concerns ensuring that appropriate market conditions, and where necessary incentives, exist to ensure the construction of new gas production capacity and pipelines to supply the increasing European gas requirements. As already mentioned, European

²³ EUR Report 18122 EN, Review of Transmission Pipeline Accidents involving Hazardous Substances, Papadakis, G.A. (1999), ISIS, Joint Research Centre EC, Ispra 1999

Union gas consumption is expected to increase considerably in coming decades, whereas internal European Union production will decline. The neighbouring countries to the European Union are, and will continue to be, its principal gas suppliers. As shown in table 1 annexed, the gas import requirements for 2020 will be around 400 bcm and it is forecast that the existing capacity of 330 bcm will need to be increased by nearly 200 bcm. In this respect, it is important to distinguish between electricity and gas imports into the European Union from neighbouring countries. Even after a real European electricity market is created, exchange of electricity with the neighbouring countries is most unlikely to exceed 5% of European Union consumption due to physical constraints such as losses of electricity when transported over long distance. With respect to gas, however, by 2020, imports into the European Union are expected to cover more than 60% of European Union demand.

The development of the new supply sources, and construction of the pipelines to bring it to the EU, will require the investment of many billions of Euro. To permit the financing of these investments, the Community must demonstrate its commitment to these projects. Such investments are often characterised by significant levels of commercial, and in some cases, political risk. The EU-Russian energy dialogue may provide an important mechanism in this respect, and could serve as a model for establishing an effective and responsive mechanism for addressing such issues.

The Union' support to such projects can be established in a number of different concrete ways, the most important of which is:

- participating in the financing of the projects notably through the European Investment Bank; and
- the participation, albeit to a limited extent, in the financing of the projects for catalytic purposes, through Community support programmes, including the Trans-European Networks (TEN). Such contribution is important not only for the financial contribution in question, which is limited compared to the overall cost of the project in question, but also because of the fact that the support underlines the Community's political backing to the project in question which makes it more easy for private financial support to be secured. However, as already mentioned above, such support cannot and should not endeavour to replace the private funding of gas and electricity networks. Community financial support plays the role of catalyst and facilitator through these programmes, not investor.

The following projects can be identified as being the most important that should attract Community political and possibly financial support through appropriate and tailored programmes in the coming years to meet the objectives of ensuring security of supply of adequate and diverse supplies of gas:

7.3.1. Russia

- The Northern Trans-European gas pipeline project (approximately 1,295 kilometres long, this would transport Russian gas from the

Russian coast north of St. Petersburg under the Baltic Sea to northern Germany and then onwards via the Netherlands to the United Kingdom. It would have a capacity of between 20 and 30 billion cubic metres a year, with the main future source of the gas for this pipeline foreseen to be the new Shtokman field, which lies some 650 kilometres north-east of Murmansk in the Barents Sea).

- A second Yamal-Europe gas pipeline network through Belarus and Poland to run parallel to the first. It would have a similar capacity²⁴;

7.3.2. *Euro-Mediterranean*

- Links between France and Spain to Algeria creating a second “Medgaz”;
- Links between Algeria to Italy and France through Sardinia and possibly Corsica;
- An EU - Arab gas link in five parts (Egypt-Jordan; Syria; Lebanon; Cyprus and Turkey), necessitating an agreement between the participating parties;
- Supply to the enlarged European Union and, in particular the Baltic region, of LNG from Egypt and Algeria;
- A Turkey-Greece-Italy interconnection drawing in the countries of South East Europe directly or indirectly, which would in time bring the resources of the Caspian region and Iran to the enlarged EU market and the Balkans; and
- Gas interconnector between Libya and Egypt to complete the Mediterranean ring.

7.3.3. *South-East Europe*

- Turkey - Bulgaria - Romania - Hungary - Austria gas pipeline;
- Greece, Former Yugoslav Republic of Macedonia, Serbia, Bosnia, Croatia and Slovenia gas pipeline

7.3.4. *Caspian Basin*

- Azerbaijan – Georgia – Turkey gas pipeline (see 10.4.2);
- Kazakhstan – Russia (- Ukraine) gas pipeline;
- Iran – Turkey gas pipeline

²⁴

In this context, Belarus an important transit country for Russian gas deliveries to Europe, with the country’s natural gas transportation monopoly Beltransgaz managing a total of more than 2000 kilometres of natural gas pipelines.

7.3.5. *Other important partners*

- Increase the overall performance, safety and security of the Ukrainian gas transit network.

7.4. **Oil**

The accidents of the Erika and the Prestige, and the significant environmental damage caused by the resulting oil spills, has highlighted the necessity for concerted action between the European Union and neighbouring countries to ensure the highest possible safety standards for the maritime transportation of oil.

Given the increasing density of the maritime traffic in the waters around the EU, it is of utmost importance to give a higher priority to considering, where economically and technically feasible, the alternative of transporting oil by pipelines. This is considerably safer and more environmentally friendly. A number of pipelines already link the European Union with Russia and it is important to ensure that not only are these fully utilised, but also that new pipeline infrastructure are considered instead of new maritime-based projects. Other pipelines could ensure that the resources from Saudi Arabia (transiting via Egypt), Iraq (via Turkey), the Caspian Basin, Algeria and Libya could reach the European Union market.

7.4.1. *Russia*

Russia is one of the world's major oil producers and the second most important exporter after Saudi Arabia. Of the 124.4 million tonnes of exports handled by the Russian monopoly pipeline operator Transneft in 2000, 70.5 million tonnes or 57% went through major marine terminals.

The oil terminal at Primorsk in the Gulf of Finland, which was opened in late 2001, is foreseen to have a capacity to export 30 million tonnes in 2003. With the area ice-bound for some six months of the year, being at the narrow end of the enclosed Baltic Sea and in an environmentally sensitive area, the repercussions of a possible oil spill underline the importance of ensuring close co-operation between the enlarged European Union and the Russian authorities to ensure the highest safety standards for the maritime transportation of oil.

With the significant oil and gas reserves in Russia's Arctic region, increasing consideration is being given to maritime transport along the western part of the North Sea Route which could provide an alternative route for exports from Russia direct to international markets. However, the particularly fragile and challenging environment highlights the necessity of ensuring very high safety and environmental standards, and an in-depth knowledge and understanding of the climatic conditions. In this context, the Commission is co-funding an important research and development project.²⁵

²⁵

ARCOP (Arctic Operational Platform). This three year project, launched in December 2002, is partly financed by the Commission under the Fifth Framework Programme for Research and

7.4.2. *The Mediterranean Region*

In 2001, the total maritime trade (imports and exports) in oil and oil products in the Mediterranean between the European Union and its twelve Mediterranean partners totalled some 63 million tonnes²⁶. However, if all the oil and oil products imported into the Euro-Mediterranean area are included, this total increases to 395 million tonnes, which is transported in some 800 tankers²⁷. This is particularly intensive traffic for an enclosed sea, which is environmentally highly fragile, with no point in the Mediterranean being more than 400 kilometres from the coast. With the surface waters taking a least 100 years to be exchanged, the repercussions of an Erika or Prestige type accident would be catastrophic.

7.4.3. *The Black Sea*

The maritime transportation of oil in the enclosed Black Sea has increased steadily with the opening up of the resources of the Caspian Sea basin following the break-up of the Soviet Union. New infrastructures linking the Caspian Sea to the Black Sea have been built, such as the pipeline linking the Tengiz oil field in Kazakhstan with the Russian terminal at Novorossiysk and the pipeline linking the Chiarg oilfield in Azerbaijan to Soupsa in Georgia. Transporting this oil across the Black Sea to the Roumanian port of Constanza or the Bulgarian port of Burgas or to the international markets through the Bosphorus has led to a major increase in the maritime traffic. Figures for 2002 indicate that a total of 122 million tonnes of oil passed in both directions through the Bosphorus in 7400 tankers. To this should be added the new oil terminal at Odessa in the Ukraine, which is part of a strategy to diversify energy supplies to permit oil from the Caspian to reach Central Europe and the Baltic. The Commission therefore believes it is important to prioritise co-operation with the neighbouring countries to enhance the safety and security of the maritime transportation of oil in the context of the recent Commission proposals in response to the Prestige accident. This could be done by:

- Upgrading and enhancing the whole Druzhba pipeline, in particular across northern Europe as an alternative to increasing maritime oil transportation in the Baltic Sea.
- Extending the Odessa-Brody pipeline²⁸ to Plock to link into either the Druzhba northern route or the existing line to the Polish Baltic Sea port of Gdansk.

Development, and involves a consortium of 21 organisations from Finland, Germany, the Netherlands, UK, Italy, Norway and Russia.

²⁶ EUROSTAT. Medstat programme.

²⁷ Study by BEICIP in the framework of the MEDA project "Support to the Ad-hoc groups of the Euro-Mediterranean Energy Forum".

²⁸ This pipeline was opened in August 2001 with an initial capacity of 180,000 barrels per day. This is eventually planned to increase to 560,000 barrels per day.

- Building a Constanta-Trieste pipeline, linking Romanian port of Constanta across to Trieste and supplying oil to the countries transited²⁹.
- Building a Burgas-Alexandroupolis pipeline, linking the Bulgarian Black Sea port of Burgas with the Greek Mediterranean port of Alexandroupolis. Construction of this pipeline would reduce the increasing pressure of maritime oil transport through the Bosphorus.

7.5. Investing into the modernisation of energy systems and energy saving

The efficiency of the energy systems of our partner countries addressed in this Communication could be improved significantly by investing into modern power generation and pipeline infrastructure as well as better energy metering and a reform of energy pricing.

Investments into energy saving more broadly would free up resources that could be exported in the interest of both our neighbouring countries and the EU. Therefore, co-operation in the fields of energy efficiency and energy saving should be given even higher priority than is presently the case under the EU-Russia Energy Dialogue and the Euro-Mediterranean Partnership.

This priority is also called for in the light of our shared commitment with our neighbouring countries to combat climate change. This includes for example creating favourable conditions for renewables in the context of creating a wider integrated electricity market ensuring the fair access of renewables to the grid as well as appropriate incentives for their development.

Specific instruments in the form of Joint Implementation and the Clean Development Mechanism are set up under the Kyoto Protocol that will support investments into modern energy infrastructure while reducing greenhouse gas emissions. Such an approach is on the point of implementation in South East Europe. One should recall too that the Commission has supported the concept of a “coalition of the willing” following the Johannesburg Summit.

8. REVISION AND RESTRUCTURING OF COMMUNITY SUPPORT MECHANISMS IN THE ENERGY SECTOR

In the light of the above, it would be required to undertake a revision of the Trans European Networks guidelines to update the list of projects qualifying for funding under this programme. This will also represent an opportunity to revise the guidelines to take account of the need to fully integrate accession countries into the internal electricity and gas markets as quickly as possible.

²⁹

A number of alternative routes are under consideration: a possible northern route could transit southern Hungary and Slovenia while a southern route could transit Serbia, the Croatian port of Omisalj and Slovenia to the Italian oil terminal at Trieste. From here, the pipeline would be linked to the Trans Alpine Pipeline which could then carry the oil further into markets in Austria, Germany and the Czech Republic.

In addition, it is appropriate to revise the types of support that can be envisaged by the TEN programme, which are presently limited to:

- co-financing of studies related to projects;
- subsidies of the interest on loans granted by the European Investment Bank or other public or private financial bodies;
- contributions towards fees for guarantees for loans from the European Investment Fund or other financial institutions;
- direct grants to investments in duly justified cases;
- risk-capital participation for investment funds or comparable financial undertakings.

The construction of new gas and oil pipelines to supply the Community's future needs will necessarily originate from, or will transit, areas where political risk insurance is a precondition for attracting finance. Such insurance can be expensive. The participation of the Community in such costs for projects clearly in the European Union's interest, can be a real catalyst and incentive to the development of these networks. It is therefore appropriate to revise the TEN guidelines to also permit participation in the costs of such insurance.

Finally, this Communication has highlighted the need for a coherent, focussed approach to Community support to infrastructure in the energy sector, and the importance of co-ordination between the TEN-E policy and programme, European Union assistance programmes, as well as infrastructure activities of international financial institutions such as the European Investment Bank [EIB] and the European Bank for Reconstruction and Development [EBRD].

The energy sector has played a substantial role in national and regional Community co-operation programmes. In its recent Communication on "Wider Europe: Neighbourhood" the European Commission has proposed that the Community should enhance its assistance and better tailor it to the needs arising from proximity, for example through a new 'neighbourhood instrument' currently under consideration. The Communication also notes the key role which international financial institutions will play, and refers to a possible extension of the external lending mandate of the European Investment Bank.

In this context, due attention needs to be paid to the investment climate, in particular the framework of regulation, legislation and the rule of law, in which EU companies operate. The European Commission will use the possibilities offered by the existing agreements with the partner countries to complement the measures described above by an intense political dialogue on these questions and will seek to make greater use of the Commission's Delegations as well as Member States' Embassies on the ground.

9. CONCLUSION AND CONCRETE ACTIONS

The growing importance of the neighbouring countries for the proper functioning of the European Union energy markets is evident. They are our major partners in terms of the supply of gas and, increasingly, oil. This role will continue to increase in the future. Given the objective of creating an area of shared prosperity and stability in and around Europe, and taking account of the European Union's energy needs in the future, and in particular its increasing dependency on imports from these countries, an active approach, in terms of ensuring real and effective dialogue and thus developing a real energy partnership, is becoming increasingly relevant and important. This communication has highlighted the following concrete areas of action that need to be addressed by the EU:

The progressive creation of a real European electricity and gas market, including potentially more than 35 countries with a population exceeding 600 million, should be a clear medium-term objective of the European Union. This market should be established on the basis of common standards regarding market opening, environmental protection and safety.

This European market will necessarily be established on a step-by-step basis. With accession, the market will already include 25 EU Members countries by 2005. The member countries of the South-East Europe electricity market have already formally committed themselves to adopting the Community *acquis* in this area for electricity, and discussions are progressing towards the adoption of similar commitments regarding gas.

Similarly, concrete discussions regarding the creation of an Euro-Med electricity and gas market are progressing, and, as a first stage, it is expected that the Maghreb countries can agree upon agreement on a clear timetable for the adoption of appropriate rules in 2003.

Regarding Russia, concrete discussions have now commenced to identify the issues that need to be addressed regarding substantive equivalence of market opening, environmental protection and safety. These now need to progress, together with feasibility studies on the interconnection between the Union for Co-ordination of Transmission of Electricity and NIS networks. The objective should be the conclusion of a formal agreement between the European Union and Russia on these issues, opening the way for fair and free trade in electricity. With respect to gas, Russia already plays a major role in the European Union gas market. The European Union-Russia energy dialogue has proven to be an important and effective tool in identifying and eliminating any difficulties arising in this respect.

Finally, the close involvement of neighbouring countries in developments regarding the technical harmonisation and interoperability of gas and electricity networks, addressed *inter alia* through the Florence and Madrid Regulatory Fora, will be pursued. This should progressively lead to the full participation of neighbouring countries in these Fora.

The construction of the new infrastructure necessary to permit such an enlarged European market to function effectively and to ensure the future supply of gas to the European Union requires close collaboration between the Community and supply countries, as well as those involved as transit regions. The commitment, in financial and political terms of the European Union to new development, reinforcing and diversifying Community gas supplies is vital in this respect. The Commission proposes the following concrete action:

- The revision of the Trans European Networks mechanism to allow for eligibility of projects identified in this Communication (without guaranteeing any award of funds and maintaining the principle that the private sector is the primary investment community).
- The idea within the context of the revision of the Trans-European Networks mechanisms to permit participation in the cost of coverage of political risk insurance.
- A mechanism for the better co-ordination of existing and new Community instruments for supporting the development of energy infrastructure inside and outside the enlarged European Union, and the creation of a new general and overall energy infrastructure financing instrument, which would work by building on existing funding mechanisms and by filling in gaps. The aim here is to ensure that any infrastructure that crosses multiple funding jurisdictions is not hampered by failures of co-ordination or a critical absence of funds.
- A greater use of Galileo for security, safety management and construction purposes.

The adoption of these measures, and a continued intensification of dialogue between the European Union and its neighbours and partners will permit the development of a real energy community in the wider European area. Such a development will promote shared prosperity, stability and sustainable development.

ANNEXES

Note:

Given the current state of the projects that are necessary to make effective the wider internal energy market, the lists of projects included in Annexes I & II are indicative and purely for informational purposes: the estimated costs of undertaking these projects and the simple listing of these projects does not engage the Commission or the Union in this matter. In no way can this publication affect the work on the new financial perspectives being undertaken by the Commission.

ANNEX I – EU-MEDITERRANEAN PROPOSED ELECTRICITY PROJECTS.

Electricity Projects to be declared Priority Projects of European Interest or Pan-European Interest (as applicable)

In order to ensure the full interconnection between the European Union and its neighbouring countries the following projects merit Community support³⁰:

1.1. Morocco - Spain

The project will reinforce the interconnection between the Moroccan power grid (Melloussa s/s) and the Spanish power grid (Puerto de la Cruz s/s) by a second AC link passing through the Strait of Gibraltar.

The project is in the engineering and design phase, the interconnection being expected to be in operation by 2005. The total cost of the project is estimated to be 120 M€. The Morocco investment amounts to 58 M€ (ONE 18,7%, BEI 38,7%, BAD 26,6% and AFD 16%).

1.2. Morocco - Algeria

The addition of a 400 kV line between Morocco (Bourdim s/s) and Algeria (Hassi Ameur) is foreseen for 2003 with reinforcement of the internal connections (from East to West) at 400 kV by 2005. This infrastructure will promote the market and commercial relations among these two countries and will permit transit of Algerian new production. Estimated cost 40 million €

1.3. Algeria – Tunisia

Tunisia is presently interconnected with Algeria through 4 lines (one at 225 kV, one at 150 kV and two at 90 kV). The fifth interconnection, which is under construction, is rated at 400 kV but will be temporally operated at 225 kV (by 2002). The link is rated for 1720 Amp. Internal reinforcements are foreseen in Algeria so as to arrive to the closure of the 400 kV ring from West to East. Estimated cost 13 million€

³⁰

See Annex X for further details of the projects in question.

1.4. Algeria – Spain

The study of a HVDC connection from Algeria (Terga s/s) to Spain (Litoral de Almeria s/s) through submarine cable (connection of about 200 km) is on a prefeasibility stage. Such a cable is particularly relevant as the construction of 2000 MW of new generation is planned in Algeria, 1200 MW of which for export. The cable is envisaged to have a capacity 500 kV with a first phase of 1000 MW to be commissioned by 2005 and a second phase to be commissioned by 2010. Estimated cost 700 million€

1.5. Algeria – Italy

The project of a potential interconnection link between Algeria (Skikda s/s) and Italy (Cagliari Sud s/s) is on a pre-feasibility stage. An agreement has been signed between the two countries for allowing the respective grid operators, GNERC and SONELGAZ to carry out a feasibility study. The cable is envisaged to have a capacity of 400-500 kV and could be in operation by 2010. Estimated cost 535 million €

1.6. Tunisia - Libya

The electric interconnection of Tunisia and Libya is beneficial for the electric power systems not only of the two countries directly involved, but also of other countries in the region, as it will allow for the transfer of electricity between Eastern and Western Mediterranean countries. A reinforcement of the existing interconnection is presently under study. Estimated cost 40 million €

1.7. Tunisia - Italy

This potential project for the interconnection of the Tunisian and the Italy electric grids would be rated for 400 or 500 kV and would be in operation by 2010. Estimated cost 500 million €

1.8. Libya - Egypt

The existing interconnection between the electric grids of Libya and Egypt needs to be significantly reinforced. The project is under study, considering a link of 162 km, which could be in operation by 2010 with an expected transfer capacity of 500 MW. Estimated cost 77 million €

1.9. Egypt – Jordan

The existing 400 kV interconnection between Egypt and Jordan through submarine cable, with a current transfer capability of 300 MW, needs to be reinforced, probably doubling the present interconnection capacity. The new link rated for 400 kV could be in operation by 2008. Estimated cost 110 million €

1.10. Jordan - Syria

A second stage of the Jordan - Syria interconnection is expected to be commissioned by 2010. The feasibility study was carried out in 1992 and updated in 1995 for the Egypt-Iran-Jordan-Syria-Turkey (EIJST) interconnection. The total cost of the project amounts to 1,8 MUS\$. estimated cost 33 million €

1.11. Lebanon – Syria

The two countries, already interconnected at the 230 kV level, will be linked with a double circuit 400 kV OHL. This new line, to be commissioned during 2003, will help in relieving the energy deficit of Lebanon. Estimated cost 11 million €.

1.12. Syria - Turkey

The connection between the Syrian and Turkish electric grids has been delayed since the end of 1997, with the completion of the Turkish part of an interconnector. When completed, the countries will be connected by a single 400 kV. The commissioning of the link requires the completion of the line in Syria. Estimated cost 50 million €

1.13. Turkey – Greece

The study on “Feasibility and Evaluation of the Electricity interconnection Greece - Turkey”, partially financed by TEN program has been completed. Based on the very promising results of this study, a Memorandum of Understanding was signed on 28th March 2002 in Ankara, for construction of Babaeski - Filippi 400 kV tie line between Greece and Turkey which is to be completed before the end of 2006. Estimated cost 54 million €.

ANNEX II –PROPOSED GAS PRIORITY PROJECTS

10.1 NG1 Gas pipelines from North Russia (Shtokman)

The Northern Trans-European gas pipeline project would transport Russian gas from the Russian coast north of St. Petersburg under the Baltic Sea to northern Germany and then onwards via the Netherlands to the United Kingdom. The stretch under the Baltic would be approximately 1,295 kilometres long and have a capacity of between 20 and 30 billion cubic metres a year. The main future source of the gas for this pipeline is foreseen to be the new Shtokman field, which lies some 650 kilometres north-east of Murmansk in the Barents Sea and which would require, in addition to the infrastructure to exploit the gas, the construction of a 555 kilometre pipeline to the Russian coast and a 1,359 kilometre pipeline overland down to the Baltic coast.

10.2 NG2 Gas pipelines from North Russia (Yamal)

The original Yamal pipeline project was designed to bring gas from the planned new fields on the Yamal peninsula in Northern Siberia to serve the Russian market and also, via Belarus and Poland, to the EU market. While the link to the Yamal fields is now unlikely over the medium term, the first of the two pipelines planned across Poland has now been constructed and is operational, although it is currently only carrying about 20 billion cubic metres, compared to its full capacity of over 30 Billion cubic metres. The second pipeline, to be laid parallel to the first and with a similar capacity, is the project of immediate interest and would give a total capacity for the two lines of 65.7 billion cubic metres.

10.3 NG3 Gas pipelines from Algeria



10.3.1 MEDGAZ pipeline: Algeria to Spain (NG3a)

Link :	Algeria to Spain		
Gas source:	Hassi R'mel field		
Capacity:	26 Million m3/d		
Average flow	8.0 Bcm		
Estimated cost offshore and onshore section	1.1 billion €		
Pipeline Route	Length Km	Diameter inches	Compress. s. MWatts
H R'Mel –Beni Saf	547 Onshore	48”	17
Beni Saf –Almeria	200 Offshore	24”	46

Project Status

- Agreement: September 2000, between SONATRACH and CEPSA (Spain)
- Letters of Intent: November 2002, each company to buy 1 Bcm (total 7 Bcm)



10.3.2 Algeria-Sardinia-Italy pipeline (NG3b)

Link :	Algeria to Italy		
Gas source:	Hassi R'mel field		
Capacity:	26 Million m3/d		
Average flow	8.0 Bcm		
Estimated cost pipeline and compression	2.0 billion €		
Pipeline Route	Length Km	Diameter inches	Compress. MWatts
H R'Mel –El Kala	640	48"	14
El Kala –Cagliari	310	24"	60
Cagliari –Olbia	300	42"	
Olbia –Casteglion	280	22"	49

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Project Status

- Agreement: Joint Venture signed December 2002, between SONATRACH, ENEL and WINTERSHALL
- Project in very preliminary phase

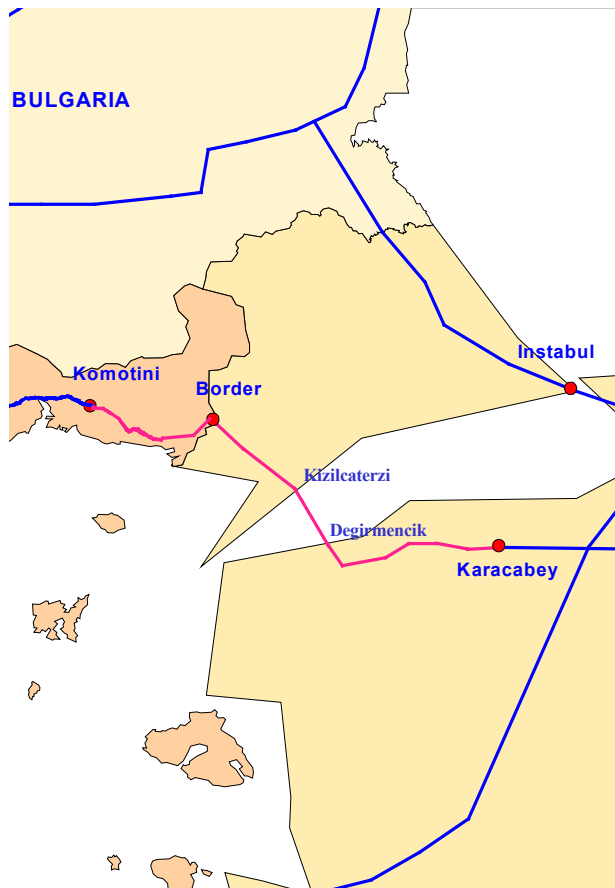


10.3.3 Sicily-Malta Gas Pipeline

Link :	Sicily to Malta		
Gas source:	Italian Network		
Capacity:	2.31 Million m3/d (0.84 Bcm)		
Average flow	0.6 Bcm		
Investment	87 Million US\$		
Pipeline:			
Pipeline Route	Length Km	Diameter inches	Compres s. MWatts
	136 -153 Offshore	16”	

Project Status

- MOU signed in January 2002 between ENEMALTA and ENI
- Feasibility study completed
- Power generation to represent 95% of expected gas consumption, with onshore lines to connect the Delimara and Marsa power plants



10.4 NG4 Gas pipelines from the Caspian Sea

10.4.1 Turkey-Greece Interconnector

Link :	Turkey -Greece		Project Status ○ Memorandum of cooperation submitted to EU January 30th 2001 ○ Desk study completed by DEPA /BOTAS August 7th 2001 ○ MOU by DEPA and BOTAS signed March 28th 2002 ○ Starting expected in 2005 with 0.5 Bcm.
Gas source:	Turkey (Russia, Iran, Azerb.)		
Capacity:			
Average flow	0.5 Bcm		
Estimated cost pipeline an compression	260 million €		
Pipeline Route	Length Km	Diameter inches	
Karacabey –Degirmencik	115	42”	
Degirmencik – Kizilcaterzi	17	42”	
Kizilcaterzi –Ipsala	68	42”	
Ipsala –Komotini	85	42”	



10.4.2 Baku-Tbilissi-Ezurum Pipeline

Link :	Azerbaijan to Turkey		
Gas source:	Shah Deniz field		
Capacity:	22 Bcm		
Average flow	7.6 Bcm committed		
Estimated Cost pipeline and compression	875 million €		
Pipeline Route	Length Km	Diameter inches	
Baku- Georgia border	455	48"	
Georgia border- Turkey	245	48"	
Turkish border –Erzurum	225	48"	
	925		

Project Status

- Gas Sales Purchase Agreement signed in March 2001 between BOTAS and SOCAR (State Oil Company of Azerbaijan)
- This Agreement was to start deliveries at 2 Bcm/year and reach a plateau of 7.6 Bcm (incl. 1 Bcm for Georgia), but delayed to 2006.
- The pipeline at Erzurum will be connected to the “Eastern Anatolya main line” going to Ankara.
- This project could be extended to import gas from Turkmenistan according to Agreement of October 29th 1998 related to “Trans-Caspian” project (SPA signed on May 21st 1999).



10.4.3 Pipeline Turkey-Greece-Italy. South Eastern European Gas Interconnection

Link :	Turkey to Italy through Greece	Pipeline (base 48"):
Gas source:	Azerbaijan, other	
Capacity:	22 Bcm	
Average flow	7.6 Bcm committed	
Estimated cost	6 billion€	

Pipeline Route	Length Km		Length Km
Baku –Tbilisi –Erzurum	1,062	Karacabey- Komotini	285
Erzurum –Ankara	857	Komotini -Karperi	217
Ankara –Karacabey	378	Karperi -Trikala	92
		Trikala -Stavrolimenas	280
		Stavrolimenas -Otranto	224
Sub-total	2,297	Total	3,398

Project Status

- Pre-feasibility study stage. The total project includes 4 sections:
 - BTE pipeline: from Baku to Erzurum
 - Turkish section: from Erzurum to Karacabey
 - Turkey –Greece Interconnector: from Karacabey to Komotini (ITG)
 - Greek section: from Komotini to Trikala
 - Greece -Italy Interconnector;; from Trikala to Otranto
- For the section Greece to Italy, MOU signed between DEPA and EDISON Gas to study interconnections of Greek and Italian networks (from Trikala).

10.4.4 Pipeline Turkey-Austria (through Bulgaria-Romania-Hungary).

It is the geographic location of Bulgaria, Romania and Hungary--between major producers of energy in Russia and the Caspian Sea region and major consumers of energy in Turkey and Europe--that gives South Eastern Europe its importance as a transit point for Russian and Caspian natural gas supplies.

Link :	Turkey to Austria through Bulgaria, Romania, Hungary		
Gas source:	Azerbaijan, other		
Capacity:	20 Bcm		
Estimated Cost	6 billion €		
Pipeline Route	Length Km		Length Km
Baku –Tbilisi –Erzurum	1,062	Istanbul –Austria border (Baumgarten)	1,330
Erzurum –Ankara	857		
Ankara –Istanbul	380		
Sub-total	2,300	Total	3,630

Project Status

- Pre-feasibility study stage
- Companies involved: OMV Erdgas (Austria), MOL (Hungary), Transgaz (Romania), Bulgagas (Bulgaria), BOTAS (Turkey).

10.4.5 Pipeline Greece-Austria (through Balkan countries).

Potential future routing of Eastern gas pipeline is along the axis Turkey-Greece-West Balkan ridge countries (FYROM, Albania, Yugoslavia, Bosnia/Herzegovina, Croatia, Slovenia) to Austria. DEPA, BOTAS and OMV have agreed to carry out a prefeasibility study which shall start in 2003. No estimated cost available yet

10.4.6 Gas supplies from Iran.

With almost unlimited natural gas production potential, Iran is looking to export large volumes of gas. Besides Turkey, potential customers for Iranian gas exports include: Greece, Italy, Balkans countries, Bulgaria and Ukraine. Exports could be either via pipeline or by LNG tanker, with possible LNG export terminals at Asaluyeh or Kish Island. Iran reportedly is developing three LNG plants. Liquefaction Plant Cost around 1.0 billion € an tanker's development around 350 million €. (for an average flow of 5 bcm)

Exports of Iranian natural gas to Turkey were at about 105 Bcf in 2002, rising to 350 Bcf per year by 2007.

Greece and Iran signed an agreement in March 2002 which calls for extending the natural gas pipeline from Iran to Turkey into Greece. The line would connect Ankara to Komotini in northern Greece. After that, gas could be transported to Europe via Bulgaria or via an undersea pipeline to Italy, where gas demand -- especially for electric power generation -- is expected to grow rapidly in coming years.

In December 1997, Turkmenistan launched the \$190-million Korpezhe-Kurt Kui pipeline to Iran. The 124-mile pipeline, which had an initial capacity of 141 Bcf, will have a peak

capacity of 282 Bcf of natural gas per year. In 2000, Iran imported 106 Bcf from Turkmenistan via the pipeline, with that figure increasing to 154 Bcf in 2001.

All those interconnections will allow in the near future imports of gas from the Caspian region to the enlarged European Union.

10.5.1 Interconnections from Iraq.

Iraq contains 110 trillion cubic feet (Tcf) of proven natural gas reserves, along with roughly 150 Tcf in probable reserves. Since most of Iraq's natural gas is associated with oil, progress on increasing the country's oil output will directly affect the gas sector as well.

Main sources of associated natural gas are the Kirkuk, Ain Zalah, Butma, and Bai Hassan oil fields in northern Iraq, as well as the North and South Rumaila and Zubair fields in the south.

Iraq's only non-associated natural gas production is from the al-Anfal field (200 Mmcfd of output) in northern Iraq. Al-Anfal production, which began in May 1990, is piped to the Jambur gas processing station near the Kirkuk field, located 20 miles away. Al-Anfal's gas resources are estimated at 4.5 Tcf, of which 1.8 Tcf is proven. In November 2001, a large non-associated natural gas field was discovered in the Akas region of western Iraq, near the border with Syria, and containing an estimated 2.1 Tcf of natural gas reserves.

Besides al-Anfal, Iraq has four large non-associated natural gas fields (Chemchamal, Jaria Pika, Khashm al Ahmar, Mansuriya) located in Kirkuk and Diyala provinces. In February 2000, Iraq's Oil Ministry named Agip and Gaz de France as leaders on a project to develop these fields, which have total recoverable reserves of more than 10 Tcf.

Currently, Iraq has a major natural gas pipeline with the capacity to supply around 240 MMcf/d to Baghdad from the West Qurna field. The 48-inch line was commissioned in November 1988, with phases II and III of the project never completed due to war and sanctions. The last two phases of the pipeline project were meant to supply Turkey. Iraq's Northern Gas System, which came online in 1983, was damaged during the Gulf War as well as by the Kurdish rebellion of March 1991.

10.6 NG6 - Gas supplies from Libya.

Potential exists for a large increase in Libyan gas exports to Europe.

A joint venture between Eni and NOC on the Western Libyan Gas Project (WLGP) aimed at developing and exporting large volumes of natural gas to Italy, is moving ahead. Overall, the WLGP calls for Libya to export 8 billion cubic meters (280 Bcf) per year of natural gas from a processing facility at Melitah to Italy and France over 24 years, beginning in 2004, via a 370-mile underwater pipeline (called "Green Stream") under the Mediterranean to southeastern Sicily and the Italian mainland.

To date, Italy's Edison Gas has committed to taking around half (140 Bcf) of this gas, and to use it mainly for power generation in Italy. Besides Edison, Italy's Energia Gas and Gaz de France have each committed to taking around 70 Bcf of Libyan gas. As part of the overall WLGP, Agip-ENI is set to develop huge Libyan gas reserves in offshore Block NC-41 in the Gulf of Gabes, as well as in the Wafa onshore gas (and oil) field on the Algerian border.

Feasibility studies have been completed on Wafa and NC-41, and gas is expected to begin flowing by mid-2004. The project also is expected to produce condensates estimated at around 70,000 bbl/d oil equivalent.

Agip-ENI also has promoted linking the reserves of both Egypt and Libya to Italy by pipeline. An agreement in principle to link Egypt and Libya's natural gas grids was reached in June 1997, following a visit to Libya.

Yet another proposal is to build a nearly 900-mile pipeline from North Africa to southern Europe. Such a pipeline could transport natural gas from Egypt, Libya, Tunisia and Algeria, via Morocco and into Spain (a pipeline between Morocco and Spain already exists). Also, Tunisia and Libya agreed in May 1997 to set up a joint venture which will build a natural gas pipeline from the Mellita area in Libya to the southern Tunisian city and industrial zone of Gabes. In late 1998, Tunisia and Libya signed an agreement for around 70 Bcf of gas per year to be delivered from Libyan gas fields to Cap Bon, Tunisia beginning in 2003.

No estimated cost available yet.

10.7 NG7 – East Mediterranean Gas Ring



10.7.1 Arab gas pipeline from Egypt (NG7b)

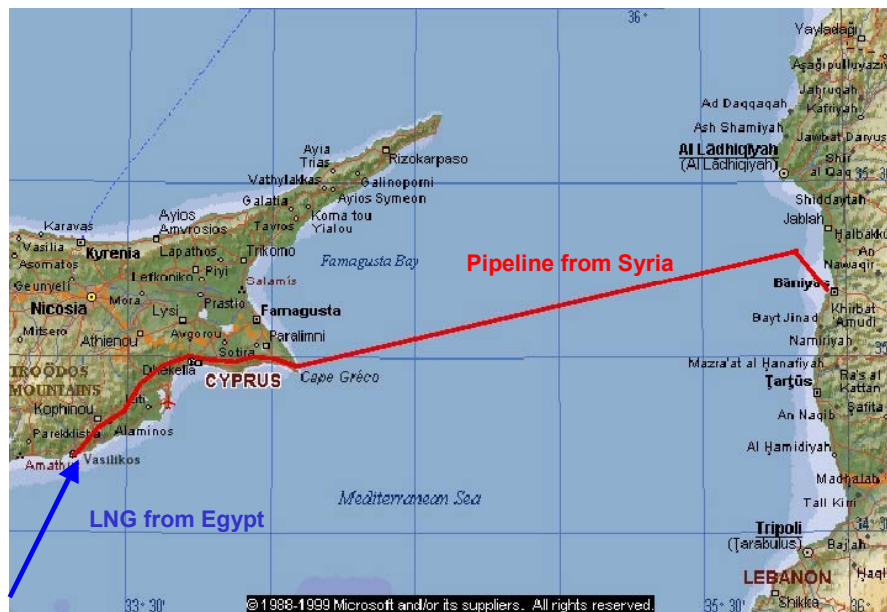
Project description

Link :	Egypt to Mashreq countries	
Gas source:	Egypt fields Nile Delta	
Capacity:	10 Bcm	
Phase 1	Egypt to Jordan	Port Said- El Arish -Aqaba
Phase 2	Jordan	Aqaba –Amman -Rehab
Phase 3	Jordan to Syria	El Rehab –Damascus -Homs
Phase 4	Syria to Lebanon	Damas -Zahrani
Phase 5	Syria to Cyprus	Banias -Cape Greco
Phase 6	Syria to Turkey	
Total estimated cost	1.6 billion €	
Pipeline Route	Length Km	Diameter inches
Phase 1	441	30"
Phase 2	370	30"
Phase 3	450	30"
Phase 4	195	30"
Phase 5	266	16"

Phase 6	380	
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Project Status

- Phase 1 completed:Port Said –El Arish line (Sinai line) completed in March 2000, El Arish Aqaba completed end 2003
- Phase 2 Aqaba –Amman –Rehab ready to start construction and completion expected by early 2005
- Agreement signed in August 2002 between Energy Ministers of Egypt, Jordan, Syria, and Lebanon to monitor phases 3 and 4 to Lebanon and Syria.



10.7.2 LNG import to Cyprus

Link	Egypt to Cyprus
Gas source:	Liquefaction plant Damietta
Destination	Cyprus Vasilikos terminal
Distance	300 miles
Import flow:	0.7 (2009) to 1.7 Bcm (2021)
Tanker size	135,000 m3
Pipeline terminal cost	+ 160 million €

Status

- Feasibility completed January 2003, decision of Government to proceed with the LNG option.
- Import expected to start only in 2009 with gas to be used only for power generation

Table 1: Gas balance: [A table indicating the volumes potentially available for export to the EU from the different regions could be useful, in parallel to the table on new capacity planned.]

2001 natural gas imports and import capacities			
pipeline imports from	in bcm	existing capacity	spare capacity
- Russia	108,5	180	71,5
- Algeria	29,8	39	9,2
- Norway	50,8	75	24,2
LNG imports	34,7	43	8,3
total	223,8	337	113,2

2020 import requirements and new capacity			
	import requirements	existing capacity in 2001	planned new capacity by 2020
EU 25	404	337	192

2020 New capacity planned	
	in bcm
Russia	30
- Baltic line (Northern European)	
- Yamal II	30
Norway	
- new UK line	24
Algeria	
- Medgaz	16
- expansion GME	5
- Galsi line	8
Caspian region*	
- Turkey-Greece-Balkan (Caspian basin + Iran)	10
Libya	
- Green Stream	30
LNG import terminals	39
total new capacity planned	192

* preliminary estimate

Table 2: Oil imports

Imports of Crude oil (1000t)															
Country of Origin	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S
France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	193	66	-	105	-	-	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	225	-	-	98	-	127	-	-	-	-	-	-	-	-	-
United Kingdom	47.581	6.107	-	15.323	-	1.829	11.347	322	343	-	10.783	-	479	1.048	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	9.454	-	-	1.050	-	-	1.226	-	-	-	1.462	-	-	2.188	2.397
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway*	108121*	8.135	2.937	20.969	-	420	19.371	2.862	2.927	-	10.782	-	799	1.804	9.143
Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ex USSR**	102686**	5.088	95	35.821	5.742	6.067	10.106	-	19.501	-	7.203	1.888	1.268	5.870	1.130
Romania	118	-	-	-	-	-	-	-	-	-	-	118	-	-	-
Algeria	19.095	142	-	3.958	-	1.571	4.266	-	2.765	-	4.666	520	319	-	-
Lybia	43.163	6	-	10.029	1.211	7.205	2.988	-	20.284	-	25	1.336	79	-	-
Egypt	3.525	-	-	29	-	137	67	-	2.868	-	-	-	292	-	-
Nigeria	25.721	238	-	3.013	-	8.676	5.260	-	1.752	-	1.387	1.390	3.637	-	252
Gabon	1.643	-	-	-	-	186	1.314	-	-	-	-	-	143	-	-
USA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	9.291	-	-	-	-	7.735	37	-	87	-	-	-	944	-	-
Venezuela	9.023	1.323	-	1.670	-	2.608	-	-	139	-	459	-	852	-	835
Equator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iraq	20.126	1.035	-	21	1.303	2.568	5.366	-	3.925	-	4.718	917	273	-	-
Iran	31.412	2.895	-	256	5.382	4.098	3.631	-	10.443	-	1.157	-	469	-	3.081
Saudi-Arabia	57.496	5.821	-	4.016	5.268	6.291	11.345	-	8.933	-	10.539	641	1.965	-	1.146
Kuwait	7.990	87	-	109	-	-	1.110	-	653	-	6.031	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	354	50	-	-	-	-	255	-	-	-	-	49	-	-	-
Oman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
World	549.477	31.941	3.042	105.171	18.906	56.792	86.242	3.353	82.829	-	60.810	7.940	12.617	10.951	19.891
INTRA-EU	60.709	6.656	-	16.639	-	1.956	12.573	491	343	-	12.280	-	563	3.247	4.277

* of which 11.7 million tonnes imported by pipeline at EU-15 level

** of which 24.7 million tonnes imported by pipeline at EU-15 level

Source : Eurostat

Table 3: Oil Refining Capacity

Oil Refining Capacity in the European Union

2001 - Million tonnes per year	Atmospheric Distillation	Vacuum Distillation	Reforming	Hydrocracking	Catalytic Cracking	Visbreaking and/or Thermal Cracking	Coking
Austria	10,3	3,5	1,4	-	1,4	1,0	-
Belgium	37,9	16,2	5,1	-	5,9	4,4	-
Denmark	9,2	1,6	1,7	0,3	-	3,6	-
Finland	12,5	5,8	2,2	1,1	3,0	2,0	-
France	98,5	42,2	12,1	0,9	19,7	8,7	-
Germany	112,9	45,3	17,0	8,0	17,8	11,9	5,9
Greece	20,4	4,6	2,4	2,2	3,9	2,9	-
Ireland	3,5	-	0,5	-	-	-	-
Italy	115,5	41,2	13,5	16,4	15,3	21,7	2,6
Netherlands	59,6	23,3	7,4	8,5	5,3	5,7	2,2
Portugal	14,4	4,3	2,2	0,4	1,7	1,4	-
Spain	65,7	21,6	7,8	-	8,6	8,5	2,3
Sweden	19,2	6,6	3,5	-	1,8	3,5	-
United Kingdom	88,8	40,2	12,9	2,1	24,6	5,5	3,9
European Union	668,4	256,2	89,6	39,8	108,8	80,7	16,9

Source: National Administrations

Table 4. Electricity production in the EU, in the accession and neighbouring countries in 2000

Country	Electricity Production/TWh (2000)
EU	2598
12 Accession countries	403,2
Turkey	119
Algeria	23,6
Belarus	24,7
Egypt	69,6
Israel	38,9
Jordan	6,9
Lebanon	8
Libya	19,4
Morocco	14,2
Moldova	3,3
Russia	835,6
Syrie	19,7
Ukraine	163,6

Table 5. Net exchange of electricity in 2001 between the EU/Accession countries and neighbouring countries (without Norway, Switzerland and former Yugoslavian countries)

Interconnector	TWh	Direction
Spain - Morocco	1,6	Exports
Poland/Slovakia/Hungary-Ukraine	2,5	Imports
Poland - Belarus	0,7	Imports
Finland - Russia	7,7	Imports
Estonia - Russia	1,7	Imports
Latvia - Russia	0,4	Imports
Lithuania - Belarus	1,8	Exports
Lithuania - Russia	3	Exports
Romania - Moldova	? ?	
Romania - Ukraine	? ?	