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THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS

# **THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS**

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# THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS

## A. EXECUTIVE SUMMARY

The aim of this Commission Communication is to analyse the main elements to be considered regarding natural gas and electricity interconnections with third countries and the development of these networks on the scale of the European Continent, of the Mediterranean Basin and, where appropriate, of Central Asia and the Middle East.

Four main considerations emerge from the Commission analysis:

- (i) there is a good initial level of energy interconnection with third countries of Europe and of the Mediterranean Basin, but with some missing links, in particular with the Balkan and Baltic regions;
- (ii) identification of trans-European energy network projects of mutual interest is well advanced under the Community Guidelines for the TENs in the energy sector; 28 such projects, each one involving both Community and non-Community countries, have been identified so far;  
  
identification of energy network projects of regional interest in the third countries concerned has started; however, this is a longer-term cooperation process which the Community will continue to support, under the SYNERGY energy policy programme and the PHARE, TACIS and MEDA assistance programmes;
- (iii) the framework is in place for Community actions of a political nature for the implementation of trans-European and regional energy network projects in the third countries concerned (EC Treaty, TEN Guidelines, European Energy Charter, Association Agreements) and for the implementation of coherent energy policies in these countries (through the SYNERGY and the PHARE, TACIS and MEDA programmes);
- (iv) the Community financial intervention mechanisms are also in place for supporting i) the studies related to TEN mutual interest projects (aid from the TEN energy budget line), ii) the studies related to regional energy network projects in the third countries concerned (aid from the PHARE, TACIS and MEDA programmes) and iii) in specific cases, the investment related to the above projects in the third countries concerned (aid from PHARE and loans from the EIB).

As a general conclusion, the Commission commits itself to making use of the available guidelines, political and financial instruments, where needed, in order to support the development of trans-European and regional energy network projects in the third countries concerned and their interconnection with the networks of the Community. The interconnection of energy networks on a wider scale will effectively contribute to improving the security of energy supplies, economic and social cohesion and the functioning of the internal market; it will also serve the competitiveness, environmental protection, enlargement and external cooperation objectives of the Community.

## **B. SITUATION OF ENERGY INTERCONNECTIONS WITH THIRD COUNTRIES**

### **1. Importance of energy interconnections with third countries**

The pursuit of the integration of infrastructures for the transmission of electricity and natural gas within the Community is necessarily accompanied by the development of connections with third countries. These connections respond both to developments in economic trade and to the need to strengthen security of energy supply (diversification of sources and supply routes). Further considerations are the improvement of economic and social cohesion, leading to better prospects for political stability and peace, and the functioning of the internal market in an enlarged Community.

To a greater extent than in the transport and telecommunication sectors, the integration of the energy networks in the Community cannot be conceived of independently from the question of external interconnections.

The integration of natural gas networks in the Community cannot be conceived of independently from the question of external interconnections, since the principal reserves are outside the Community and have to be connected with the networks inside the Community.

External electricity interconnections allow greater economic efficiency and improved security of supply.

Although the focus of this Communication will be on those projects having a trans-European dimension and which are of mutual interest to the Community and the third countries concerned, reference will be made also to projects having a more regional dimension, being of interest to two or more among the third countries concerned.

In the matter of energy networks, the Commission constantly bears in mind the need to seek solutions which respect the environment, on the basis of the assessment of the environmental impact of the projects.

## 2. Situation of natural gas interconnections with third countries

- The security of supply issue

Development of natural gas networks is taking place against a background of increasing demand and market share for natural gas in virtually all EU Member States: for the EU as a whole, it is expected to grow from around 20% of today's energy balance to around 26% in 2010. At the same time, as indigenous EU gas production declines, so dependence on imports from third countries is likely to rise significantly from almost 40% today to around 60% by 2010, and possibly as high as 75% by 2020.

The October 1995 Commission Communication on "European Community Gas Supply and Prospects"<sup>1</sup> had, as objectives, the discussion of the future direction of the gas sector in the EC, and the examination of the issue of security of supply and what should be done at EC level to enhance it well into the next century. Among the Communication's conclusions was that both the interconnection of the EC gas systems and the establishing of connections with certain countries outside the EC would be crucial for the maintenance of security of supply for the EC. It was pointed out that some of the strategic interconnections were already identified as common interest projects under the Guidelines for the Trans-European Energy Networks<sup>2</sup>, and that the extension of the present list to include some of the "missing" pipeline links and storage projects identified in the Communication, including the needs of the most vulnerable Member States, would help to bolster EC security of supply. In its conclusions on the above Communication, the Energy Council meeting of 7 May 1996 confirmed that there is a need for further development and interconnection of gas networks inside the Community and outside with external suppliers and that this will require substantial investments.

- Current situation

The current situation of the natural gas interconnections of the Community with third countries appears as follows:

- (i) gas pipelines connecting the Russian gas resources to several Community Member States already transit via other C.I.S. countries (Ukraine, Belarus, Moldavia) and via several Central and Eastern European countries (Poland, Slovakia, Czech Republic, Romania, Bulgaria);

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<sup>1</sup> COM (95) 478 final of 18 October 1995.

<sup>2</sup> OJ EC N° L161 of 29.06.1996

- (ii) Algerian gas is delivered to Italy via Tunisia (through the Trans-Med pipeline) and to Spain and Portugal via Morocco (through the new Maghreb-Europe pipeline). Algerian gas is also transferred by ship to several LNG terminals located in Belgium, France, Italy and Spain;
- (iii) three submarine gas pipelines connect the Norwegian gasfields of the North Sea with the North-West of the European continent, and a fourth with the United Kingdom.

- Future challenges

For the Community and in the context of a widening external dependence, future development of gas networks should seek to maintain a high level of diversification of external gas supplies, from existing and possible new supplier countries, to improve flexibility of gas transfers within the Community and to increase underground storage. For the medium-term, investment plans of the gas companies would give priority to increasing gas imports from each one of the existing suppliers. For the longer term, however, the gas companies are also investigating the possibilities of new gas supplies (through pipelines or LNG facilities).

In this context, the emergence of Central Asia and the Caspian Basin as a new oil and gas producing region with significant export potential to the European market should be taken fully into consideration. Providing that technical/economic feasibility and environmental issues are respected, new East-West transmission networks might be developed between the Caspian Sea area and Europe.

The widening of the gas supply possibilities would be justified by EC's need to diversify its supplies and to create a climate of competition between present and potential future suppliers, among them the C.I.S. countries (Russia, Turkmenistan, Kazakhstan and Uzbekistan), those surrounding the European Community (Algeria, Norway and in the future possibly Iran) as well as other more distant (LNG) suppliers from the Middle East (Qatar), Western Africa (Nigeria) and Latin America.

For Central and Eastern European countries which generally depend on one external gas supplier (Russia), the challenges of the future development of gas networks are connected above all with the need to improve security of supply together with the search for diversification of supply. Typical projects in these countries would be interconnection with Western European countries, creation of underground storage capacity and participation in the new supply gas pipeline projects. As several of these countries are candidates for accession to the European Union, the security of their gas supply will become a Community issue when they join the E.U.

For those Mediterranean Basin third countries which have little or no gas production potential, the challenge will be to take part in regional gas transmission projects, in order to gain access to gas produced in neighbouring countries of the same region or in neighbouring regions.

### **3. Situation of electricity interconnections with third countries.**

- Current situation

As regards electricity networks, the CENTREL system (Poland, Czech Republic, Slovakia, Hungary) was connected synchronously to the UCPTE system at the end of 1995. The resulting interconnected network, known as TESIS (Trans European Synchronously Interconnected System) now covers most of mainland Europe, from Portugal to Poland and from the continental part of Denmark to Italy. Since October 1996, a portion of the Ukrainian network has been operating within TESIS, on a trial basis. Although Greece is a member of the UCPTE organisation, its connection with the UCPTE network has been interrupted since the beginning of the war in former Yugoslavia.

Switzerland is fully integrated into the UCPTE network, of which it is an active partner, with most exchanges between Germany, France and Italy taking place through her grid.

Slovenia has been connected to the UCPTE network since 1975, when it was still part of former Yugoslavia, and now as a member.

Norway is part of the NORDEL interconnected network, with the insular part of Denmark, Sweden and Finland. The NORDEL network is connected to the UCPTE network through six HV DC submarine cables (two between Norway and continental Denmark, two between Sweden and continental Denmark, one between Sweden and Germany and one between Denmark and Germany).

The NORDEL network is also connected to the Russian electricity network, through an HV AC/DC/AC conversion station located in the St Petersburg area, near the Finno-Russian border.

- Future challenges

The Balkan countries are not connected to the UCPTE network. Their connection is the subject of studies which would recommend the preparatory measures and steps needed, for each country concerned. There is however an interconnected system on a regional scale, which functions between Albania, Bulgaria, Greece and a part of the network of former Yugoslavia.

The Baltic States are not interconnected to the NORDEL or to the CENTREL/UCPTE systems. Their interconnection is the subject of ongoing studies in the context of the "Baltic ring electricity project".

Following the interconnection of the CENTREL system to the UCPTE network, the interconnections which previously existed with the countries of the CIS have been temporarily interrupted. Their use raises broader problems (how to interconnect and how far?) which need to be answered. Several studies are under way or are foreseen, covering the basic assumptions (synchronous connection or through DC lines and conversion stations) and the technical installations which will be necessary to allow exchanges of electricity between the countries of Western, Central and Balkan Europe on the one hand, and Eastern European countries on the other.

The Mediterranean countries are not connected to the UCPTE network but projects are in hand (Spain-Morocco) or anticipated (Greece-Turkey) which will result in establishing the first electricity links between the Community and the countries of the Western and Eastern parts of the Mediterranean Basin.

### **C. COMMUNITY ACTIONS FOR IDENTIFYING AND PROMOTING ENERGY NETWORK PROJECTS IN THIRD COUNTRIES**

#### **4. Identification of trans-European energy network projects of mutual interest**

- The TEN guidelines

The guidelines on trans-European networks (TEN) for the energy sector<sup>3</sup>, adopted in June 1996, establish priorities and lines of action for the Community and identify projects of common interest.

These priorities explicitly recognise the importance of the external dimension, and include, for electricity networks and for natural gas networks, respectively:

"the development of interconnections with the third countries in Europe and the Mediterranean region which contribute to improving the reliability and security of the Community's electricity networks or to supplying the Community with electricity" and

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<sup>3</sup> OJ EC No L 161 of 29.06.96.



"increasing the transmission (gas delivery pipelines), reception (LNG) and storage capacities needed to satisfy demand, and diversification of supply sources and routes for natural gas".

In accordance with these priorities, the list of projects of common interest identified by the guidelines already comprises a series of projects located partly on the territory of third countries. The current list of the guidelines contains, however, only the most mature projects. But other projects are already in preparation and the most advanced among these latter are now the subject of a new Commission proposal<sup>4</sup>, with a view to supplementing the current list. The extended list of current and new common interest projects represents an important stage in the exercise of identification of trans-European energy network projects.

- The TEN projects of mutual interest

This extended list contains, among other projects, twenty-eight projects which are at the same time of interest for the Community and for one or more third countries. TEN projects such as these, involving both Community and non-Community countries, will be referred to hereafter as **projects of mutual interest**.

A list of these mutual interest projects is annexed; it contains:

- (i) 11 electrical network projects of mutual interest, of which:
  - 2 interconnection projects for the Mediterranean area;
  - 4 interconnection projects for Mainland Europe;
  - 5 interconnection projects for Northern Europe, and
- (ii) 17 natural gas network projects of mutual interest, of which:
  - 2 pipeline projects on the Mediterranean axis;
  - 8 pipeline projects on the East European axis;
  - 2 pipeline projects on the North European axis;
  - 5 LNG reception terminals.

Twelve of these twenty-eight mutual interest projects involve one or more third country candidates for accession to the European Union. Six of these twenty-eight mutual interest projects involve a Member State of the European Economic Area.

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<sup>4</sup> COM (96) 390 final, of 24.07.96 and Council common position of 28.01.97.

## **5. Identification of energy network projects of regional interest**

Further to the identification of TEN projects of mutual interest, there is also a need to identify energy network projects of interest specific to the third countries concerned, referred to hereafter as **projects of regional interest**. Such identification requires a particular exercise of cooperation and of coordination among the third countries concerned and with the Community, for which the SYNERGY energy policy programme and the energy "sub-programmes" of the PHARE, TACIS and MEDA assistance programmes are and will be efficient instruments.

For the Central and Eastern European countries (including the Baltic States) and the C.I.S., the PHARE and TACIS programmes are contributing to the identification of energy network projects of regional interest, through studies such as the "Gas Interconnection Study" or the "Study of the Interface between the Extended West-European Power System and Its Eastern Neighbours".

The Commission has organised, among others, two major events under the SYNERGY programme: a conference in Budapest ("East-West Gas and Electricity Interconnections", October 1994) and a workshop in Bratislava (on "Trans-border co-operation in the Natural Gas Sector in Europe", April 1996) which have dealt with the subject of energy interconnections in the area.

It should be noted in particular that, following the Bratislava conference, an EU-CEEC Gas Experts Contact Group was set up which among other issues will deal with the Trans-European Networks for gas, including tasks such as the identification of interconnection requirements and priorities. This group had its first meeting in October 1996 in Brussels.

Moreover, the electricity undertakings of the countries around the Baltic Sea have initiated cooperation among themselves, in the framework of the "Baltic ring electricity project" studies.

The Commission has started a coordinated exercise in the case of the Balkan area by creating, within the Black Sea Regional Energy Centre (located in Sofia), a task force on "Balkan Interconnections", supported in the framework of the SYNERGY programme. The idea of such a task force was launched at the Thessaloniki conference on Balkan energy interconnections (October 1995). The task force held its inaugural meeting in September 1996 in Brussels and agreed to work on the basis of a one-year programme under which it will collect data and evaluate projects by the end of 1997, with a view to establishing priorities.

The Commission is supporting a coordinated approach, under the TACIS Inter-State Oil and Gas Pipeline Programme (INOGATE), to the development of regional and trans-European pipeline infrastructure in the CIS.

For the Mediterranean Basin countries, several conferences have laid down the basis for further cooperation on energy matters, including network projects. At the Trieste conference (June 1996) a special Energy Forum was instituted to structure energy cooperation, including on the subject of energy networks. Moreover, in 1995 the electricity companies from the countries of the Mediterranean Basin (from Community Member States and from third countries) formed the SYSTMED study group in order to collect data and evaluate projects with a view to interconnecting all the countries round the Mediterranean.

For those third countries which are candidates for accession to the European Union, most of the projects of regional interest that will be identified under this exercise would qualify for becoming TEN common interest projects, once accession is effective.

## **6. Other Community actions of a political nature**

Beyond its essential contribution to the identification of projects of mutual and regional interest, the Community will continue to encourage the interconnection of energy networks on the scale of the European continent by other actions of a political nature, aiming at protecting investment and establishing the right of transit, securing political support for individual mutual interest projects and implementing coherent energy policies.

- **Energy Charter Treaty**

Effective implementation of the Energy Charter Treaty (ECT) will contribute to securing energy investment in the signatory third countries and establishing the right of transit on networks across these countries.

Following the signing of the Energy Charter Treaty and the Energy Charter Protocol on energy efficiency and related environmental aspects on 17 December 1994, the process of ratification by the European Community and the Member States is ongoing. Ratification by at least 30 countries is necessary for the Treaty to enter into force; meanwhile, the Treaty will be applied by most of the contracting parties on a provisional basis.

Negotiations have started for defining the "rules of the game" for the pre-investment phase of projects.

Preliminary steps are also being taken by the Secretariat of the Charter, with Commission support, in order to have more third countries from the Mediterranean Basin signing the Charter as associated Members.

- Securing political support for trans-European mutual interest projects

The Treaty establishing the European Community (Article 129 (c) para 3) enables the Community to co-operate with third countries for the promotion of projects of common interest and to ensure the interoperability of networks. In this context, the guidelines for the trans-European energy networks (Art 6, para 7) provide that, "where parts of projects of common interest are situated within the territory of third countries, the Commission may, by agreement with the Member States concerned, put forward proposals (...) for the projects also to be recognised as of reciprocal interest by the third countries concerned, in order to facilitate their implementation". If a problem arose for one or other of the projects of mutual interest, the Commission could start this procedure without delay.

The question of interconnections, and more generally of energy infrastructures, appears among the topics of common interest identified in the Association, Partnership and Cooperation or Trade and Cooperation Agreements concluded with the majority of the third countries mentioned in this communication. These agreements can therefore serve, if necessary, as a legal basis for the development of specific initiatives.

- Implementation of coherent energy policies

The restructuring of the energy sectors and the progressive implementation of coherent energy policies by the third countries concerned, most of them experiencing low levels of energy efficiency in their economies and high levels of external dependency for their energy supplies, is also a factor contributing to the sound development of energy network projects. Indeed, energy policy measures (including their environmental and fiscal dimensions) promoting the rational use of all energy products should be adopted. Moreover, tariffs should progressively at least cover the cost of supplying energy products (source/border price plus transmission and distribution cost). In such a context, energy network companies operating in third countries concerned will be able to generate cash flow for paying running costs, maintenance work and a share of their investment programmes. However, progress towards more coherent energy policies will also depend on the pace at which the third countries concerned achieve the global restructuring of their economies.

The "Oil and Gas Pipeline Initiative", funded under the TACIS Inter-State Pipeline Programme (INOGATE), is worth mentioning in the same context, of the implementation of coherent energy policies in a group of countries where development of pipeline infrastructure remains a key issue.

## 7. Community actions of a financial nature

The European Community has already put in place a set of financial intervention mechanisms, through its programmes and financial institutions, which can be mobilised in favour of energy network projects in the third countries concerned. The aim is to create the required energy policy context and to support these projects financially at the stage of feasibility studies and, where appropriate, at the stage of capital investment, supplementing the operators' own funds.

- Supporting the implementation of coherent energy policies

The SYNERGY energy policy programme allows the Community to cooperate with third countries in the development of coherent energy policies, including those which favour the development of energy interconnections and networks. Among other actions, most of the conferences and workshops on East-West, Balkan and Mediterranean energy interconnections referred to in section 5 above, as well as the Balkan Task Force, have been financially supported under the SYNERGY programme.

The PHARE and TACIS programmes are also supporting actions favouring the restructuring of the energy sectors in the third countries concerned and the MEDA programme might do so in the future.

Comparable activities could be proposed in the framework of the "Lomé Convention", Article 107 which provides for the encouragement of cooperation between ACP countries in the energy sector, in particular for the extension of electricity networks between ACP countries, as well as for cooperation between these countries and adjacent countries benefiting from Community financial support (e.g. Algeria and Morocco).

- Financing studies for energy network projects

The specific financial resources assigned to the trans-European energy networks (the TEN-Energy budget line) can be mobilised for the co-financing of the feasibility and other studies relating to the projects of common interest identified by the guidelines for the trans-European energy networks. In the case of trans-European mutual interest projects, this possibility is also open for the study of the parts of these projects which are located on the territory of third countries; such a possibility has already been used by the Commission in its 1995 and 1996 decisions for financial support to studies for TEN projects.

In the case of energy network projects of regional interest, (co)financing of feasibility and other studies should call on resources from the available assistance programmes (PHARE, TACIS, MEDA). In fact a number of studies have already been financed by PHARE (e.g. the "Gas Interconnection Study" (1995) and the "Baltic Gas Study" (1996)) and TACIS. Such financing is expected to continue where required.

- Financing investment for energy network projects

In the Community, economically viable energy network projects do not encounter insurmountable problems of financing. They are generally profitable projects - energy companies are able to recover costs through tariffs - which can gather private financing in addition to the operators' own resources. In these circumstances, investment subsidies are limited to assistance for structural purposes (mainly by the European Regional Development Fund). When solicited, Community lending instruments (mainly the EIB) may also intervene to supplement the financing of some energy network projects. These are the "rules of the game" in the Community.

In line with the pre-accession strategy, similar conditions should prevail, progressively, and comparable financial instruments should gradually be made available for the financing of investments relating to energy network projects in the candidate third countries of Central and Eastern Europe and of the Mediterranean Basin. In fact, as agreed at the Copenhagen Summit (in June 1993) and confirmed since then, a proportion up to 25% of the total PHARE funding may be allocated in the form of aid to the financing of TEN projects, to the extent that these projects are given a high priority by the Community and the third country(ies) concerned. Trans-European mutual interest projects and the regional interest projects which would emerge from the concertation structures, as described in section 5 above, should be considered as good candidates for receiving such financial assistance for the investment, if needed.

The lending instruments (mainly the EIB) are also in place. They should be able to take into consideration, according to their intervention criteria and where appropriate acting in concert with other international financial bodies (for example the EBRD and the World Bank), investment projects for energy networks in the third countries concerned.

Loan guarantees from the European Investment Fund (EIF) could also be made available for such projects, provided they contribute to the pursuit of Community objectives, and only in the case of cross-border projects with adjacent countries.

An overview table of the above possibilities for Community financial intervention is annexed.

#### **D. Conclusions**

The above examination of the external dimension of the energy networks allows the following **considerations** to be stated:

- a) The current situation of energy interconnections between the Community and the third countries of Central and Eastern Europe and of the Mediterranean Basin shows a good level of interconnection, with the exception of electricity interconnections with the Mediterranean Basin and electricity and natural gas interconnections with the Balkan and the Baltic regions. Increased imports of natural gas and exchanges of electricity are anticipated in Europe and a series of energy network projects have been proposed.
- b) The identification of trans-European projects of mutual interest is well advanced : 28 such projects have been identified (see list in annex). Among these, several natural gas projects are under construction, some being very near to completion, and one major natural gas project (the Algeria - Morocco - Spain pipeline) having just been completed. Electricity networks projects are in general less advanced, most of them being at the studies or authorisations stages. For all these projects, information on progress is given in the annex.

Steps have been initiated by the Commission in order to put in place the collaborative structures which will lead to the identification of regional interest projects for the main regions/areas concerned in Central and Eastern Europe and in the Mediterranean Basin.

- c) The financing of feasibility and other studies relating to trans-European projects of mutual interest can be taken into consideration by the TEN-Energy programme to the extent the projects proposed to be studied have clear implications for the electricity and gas supply of the Community.

Studies relating to energy network projects of regional interest can call on the PHARE-TACIS-MEDA assistance programmes.

- d) As regards financing the investment of projects in the third countries concerned, the mobilisation of the operators' own resources and of other sources of private financing would be systematically sought. The Community will be able to intervene, where necessary, by specific assistance (as in the case of the PHARE programme), by loans (EIB) or loan guarantees (EIF) insofar as projects meet the criteria specific to these financial instruments or institutions and are also given high priority by the third countries concerned. Other financial institutions such as the EBRD and the World Bank may also contribute to such investment.

From its analysis of the external dimension of the energy networks, the Commission draws the five following **conclusions**:

- e) The Community should continue supporting the implementation of coherent energy policies in the third countries concerned (through the SYNERGY energy policy programme and the PHARE, TACIS and MEDA assistance programmes) which is an essential condition for the rational development of energy networks.
- f) Where required, the Commission will be ready to take all accompanying political initiatives within the appropriate framework (Energy Charter Treaty, EC Treaty, TEN Guidelines, Association and other Agreements) to establish a more favourable context for the realisation of energy network projects of mutual (trans-European) and regional interest in the third countries concerned.
- g) The Commission will continue to make use of the available Community programmes in order to support the development of energy network projects in the third countries concerned. In particular:



Co-financing of studies related to energy network projects may, where appropriate, be provided from the TEN budget line, in the case of trans-European mutual interest projects, and from the PHARE, TACIS and MEDA programmes in the case of regional interest projects.

Co-financing of investment related to energy network projects may, where appropriate, be provided in the form of aid for projects to be implemented in the third countries which are candidate for accession to the European Union (e.g. under the PHARE programme).

- h) Where appropriate and according to the rules specific to each instrument, the Commission would recommend the use of other Community financial instruments (EIB loans and EIF guarantees) in favour of energy network projects of mutual (trans-European) and regional interest to be implemented in the third countries concerned.
- i) The Commission invites the Authorities of the Member States and of the third countries concerned to collaborate closely and to mobilise in order to develop and interconnect energy networks on a wider scale, with the aim of improving security of energy supply, economic and social cohesion and the functioning of the internal market and contributing to the competitiveness, environmental protection, enlargement and external cooperation objectives of the Community.

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**THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS****I. LIST OF ELECTRICITY NETWORK PROJECTS OF MUTUAL INTEREST**

The development of electricity connections of the Community with third countries concerns three areas: the Mediterranean area, mainland Europe and Northern Europe.

<b>Mediterranean area</b>
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**d9 Greece-Turkey (\*)**: connections between the two countries through North-eastern Greece.

First section (in Greece): under construction.

**d13 Spain-Morocco (\*)**: connection by submarine cable between Southern Spain and the Moroccan network.

Under construction.

<b>Mainland Europe</b>
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**d2 Germany-Poland (\*\*)**: strengthening of connections between the two countries.

Feasibility studies.

**d5 Italy-Switzerland (\*)**: strengthening connections between Northern Italy and Switzerland.

First line: under construction.

Second line: authorisation procedures.

**d8 Greece-Balkan countries (\*\*)**: strengthening of connections between Greece and, respectively, Albania, Bulgaria and ex-Yugoslavia, including the restoration of the connection with the North of ex-Yugoslavia and the UCPTTE network.

Feasibility studies.

**d16 EU-Belarus-Russia-Ukraine (\*\*):**

development of connections and interface between the (extended) UCPTTE network and the networks of third countries in Eastern Europe, including the relocation of the HV DC conversion stations operating previously between Austria and Hungary, Austria and the Czech Republic and Germany and the Czech Republic.

Interface study and feasibility studies.

<b>Northern Europe</b>
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**d3 Germany-Norway (\*):** connection by submarine cable between Northern Germany (UCPTE) and Southern Norway (NORDEL).

Authorisation procedures.

**d10 United Kingdom-Norway (\*):**

connection by submarine cable between North-eastern/Eastern England and Southern Norway (NORDEL).

Feasibility studies.

**d11 Netherlands-Norway (\*):**

connection by submarine cable between North-eastern Netherlands (UCPTE) and Southern Norway (NORDEL).

Feasibility studies and seabed survey.

**d14 Baltic Ring: Germany-Poland-Russia-Estonia-Latvia-Lithuania-Sweden-Finland-Denmark-Belarus (\*):**

strengthening and developing connections between the networks of these countries by overhead lines and/or submarine cables.

Feasibility studies.

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(\*) Project of common interest identified by the Guidelines on TEN-Energy.

(\*\*) Project proposed by the Commission as being of common interest (see COM (96) 390).

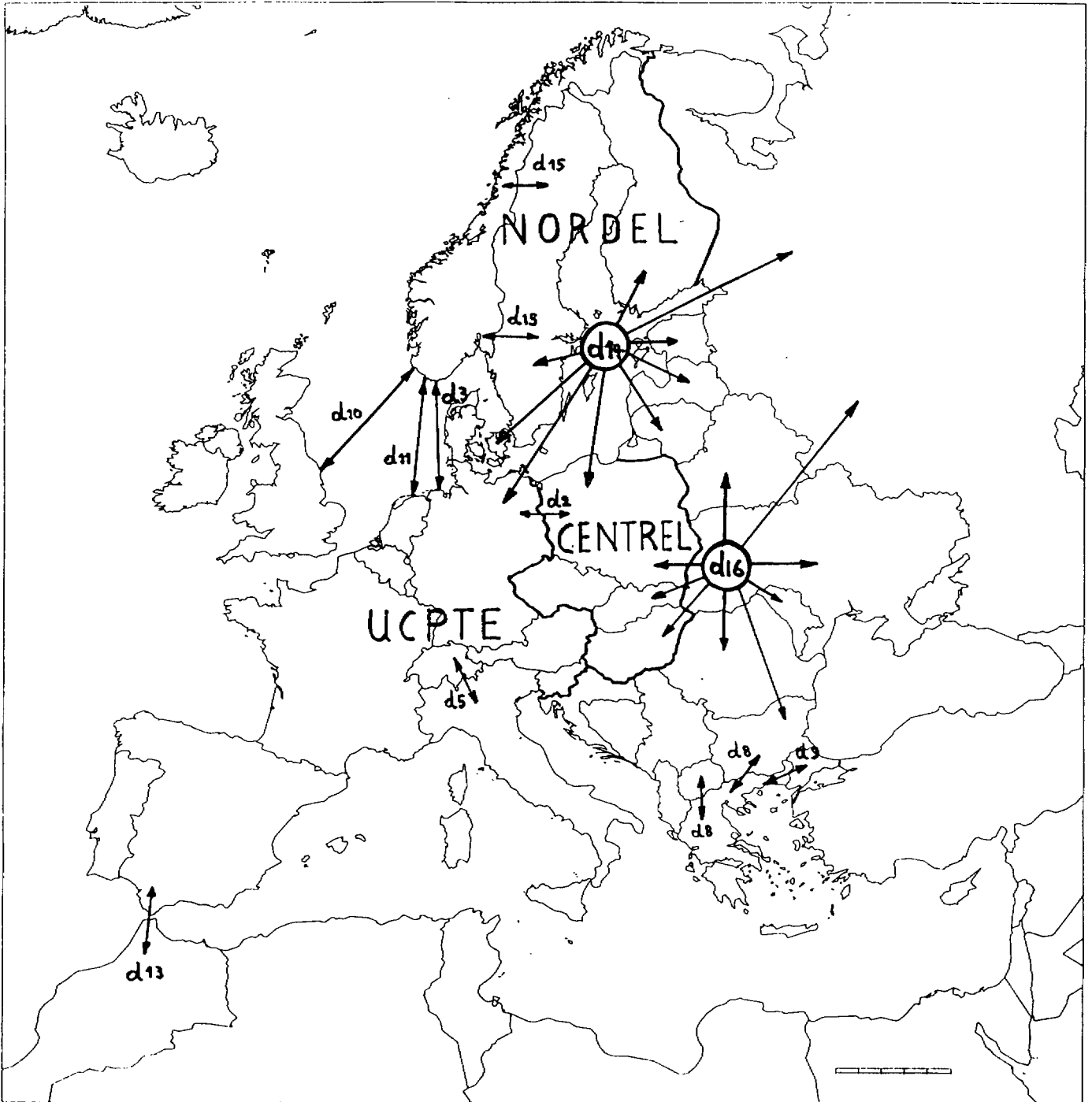
**d15 Sweden-Norway (\*\*):** strengthening of the connections between the two countries.

Feasibility studies and authorisation procedures.

(\*\*) Project proposed by the Commission as being of common interest (see COM (96) 390).

# THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS

## II. MAP OF ELECTRICITY NETWORK PROJECTS OF MUTUAL INTEREST



**THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS****I. LIST OF NATURAL GAS NETWORK PROJECTS OF MUTUAL INTEREST**

The development of natural gas pipeline connections of the Community with third countries is made along three axes (Mediterranean, East-European, North-European) which correspond to the three principal external production areas (Algeria, Russia, Norway) on which its supplies depend. The development of liquified natural gas (LNG) reception capacities is another way of linking the Community with external production areas.

<b>Mediterranean axis</b>
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**h4 Algeria-Spain-Portugal-France (\*):**

construction of new gas pipelines to allow Spain and Portugal initially, and subsequently France and other countries, to be supplied from Algeria via Morocco.

Algeria - Morocco - Spain (up to Cordoba) pipeline: in operation since November 1996.

Extensions to the North-East and the North-West: feasibility studies and authorisation procedures.

**h5 Algeria-Tunisia-Italy (\*):**

strengthening of the transport capacity of the trans-Mediterranean gas pipeline to Italy from Algerian resources.

First pipeline: in operation for several years.

Second pipeline: construction near completion.

<b>East-European Axis</b>
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**f9 Austria-Hungary (\*\*):** connection between the networks of the two countries.

First pipeline : in operation since 1996.

Second pipeline : feasibility studies.

- f10 Austria-Slovakia (\*\*):** connection of Austria to underground storage capacity in Slovakia.
- Construction near completion.
- f12 Greece-Albania (\*\*):** connection between the networks of the two countries.
- Feasibility studies.
- h6 Russia-Ukraine-UE (\*):** increasing transport capacity to the European Union from Russian resources via the main existing axis, through Ukraine, Slovakia and the Czech Republic.
- Pipeline system in operation for several years.  
Upgrading investment will be needed.
- h7 Russia-Belarus-Poland-EU (\*):** creation of a second transport axis from Russian resources to the European Union via Belarus and Poland.
- Eastern Germany - Western Poland section: in operation since 1996.  
Other sections: authorisation procedures and under construction.
- h11 Bulgaria-Greece (\*):** improvement of the gas transportation network in Bulgaria to ensure supplies from Russian resources to the new gas network in Greece.
- First phase: commissioned in 1996.
- h13 Germany-Czech Republic-Austria-Italy (\*\*):** construction of a system of connecting pipelines between the German, Czech, Austrian and Italian gas networks.
- First section in Western Austria: under construction.  
Second section (the main PENTA pipeline) in Central Austria: feasibility studies.

**h14 Russia-Ukraine-Slovakia-Hungary-Slovenia-Italy (\*\*):**

construction of a new gas pipeline, from Russian resources to Italy.

Feasibility studies.

**North-European axis**

**h1 Norway-France (\*\*):**

construction of a 4th gas pipeline from Norwegian resources (North Sea) to the Continent.

Under construction.

**h3 Norway-Denmark-Sweden-Finland-Russia-Baltic States (\*\*):**

creation and development of connections between the networks of these countries with a view to setting up an integrated gas network.

Feasibility studies.

**LNG reception terminals**

**e4 Spain (\*):**

- LNG of Huelva (extending existing terminal).

In operation since 1996.

- LNG of Cartagena (extending existing terminal)

Pre-feasibility studies.

- LNG in Galicia (new terminal).

Project postponed.

**e5(a) Portugal (\*\*):**

LNG on the Atlantic coast (new terminal).

Feasibility studies.

**e6 Greece (\*):**

LNG in Attica (new terminal).

Under construction.



**g3 France (\*):** LNG in Western France (extending existing terminal).

Pre-feasibility studies.

**g4 Italy (\*):** Construction of a new LNG terminal to allow diversification of supplies, in particular for electricity generation.

Authorisation procedures.

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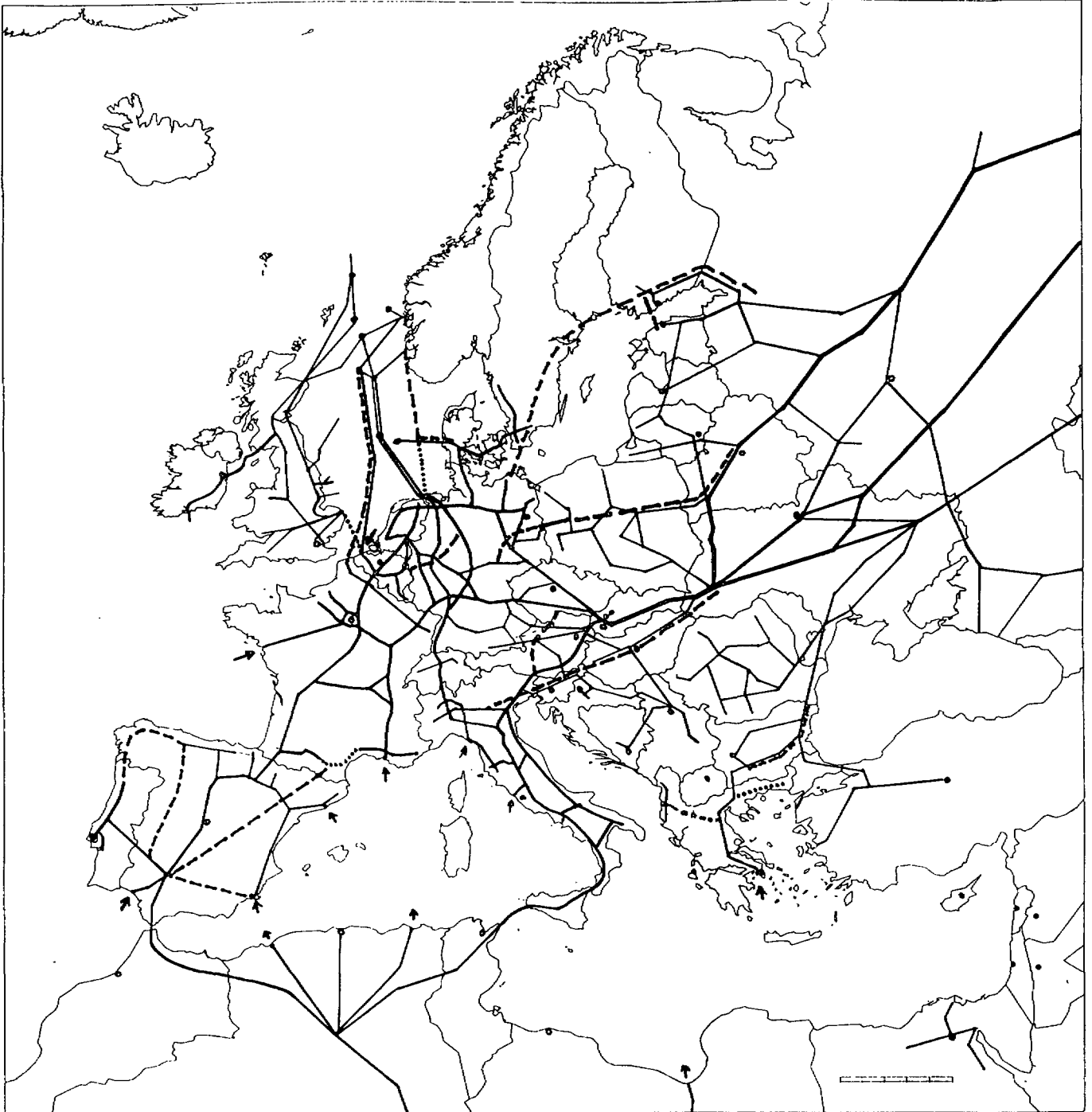
(\*) Project of common interest identified by the Guidelines on TEN-Energy

(\*\*) Project proposed by the Commission as being of common interest (see COM (96) 390).

# THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS

## II. MAP OF NATURAL GAS NETWORK PROJECTS OF MUTUAL INTEREST

- Existing networks.
- - - - - Trans-European projects of mutual interest.
- ..... Other trans-European projects.



**THE EXTERNAL DIMENSION OF TRANS-EUROPEAN ENERGY NETWORKS****OVERVIEW OF POSSIBLE COMMUNITY FINANCIAL INTERVENTIONS FOR PROMOTING ENERGY POLICIES AND ENERGY NETWORK PROJECTS IN THIRD COUNTRIES**

<b>ACTIONS</b> <b>THIRD COUNTRIES</b>	<b>NORWAY and SWITZERL.</b>	<b>CEEC (including Baltic States)</b>	<b>CIS</b>	<b>MED</b>
<b>Supporting the implementation of energy policies:</b> <ul style="list-style-type: none"> <li>• Community initiatives</li> <li>• Third country initiatives</li> </ul>	-	SYNERGY	SYNERGY	SYNERGY
	-	PHARE	TACIS	MEDA
<b>Co-financing of studies:</b> <ul style="list-style-type: none"> <li>• For TEN mutual interest projects</li> <li>• For regional interest network projects</li> </ul>	TEN	TEN	TEN	TEN
	-	PHARE	TACIS	MEDA
<b>Financing of investments:</b> <ul style="list-style-type: none"> <li>• Aid</li> <li>• Loans</li> <li>• Guarantees for loans to cross-border projects in adjacent countries.</li> </ul>	-	PHARE	-	-
	EIB	EIB	-	EIB
	EIF	EIF	EIF	EIF

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