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The Potential of Regional Power Sector Integration

South East Europe (SEE) | Transmission & Trading Case Study

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Submitted to ESMAP by:

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Contents

Contents i

Abbreviations and acronyms iv

Preface vi

1 Executive summary 1

1.1 Motivations/objectives for trade 1

1.2 The trade solution being developed 2

1.3 Current status and future plans 2

2 Context for trade 4

2.1 Economic and political context 4

2.2 Supply options 8

2.3 Demand 10

2.4 Energy tariffs 11

3 History of scheme 14

3.1 Overview 14

3.2 Project concept, objectives, and development 16

3.2.1 Treaty objectives 16

3.2.2 Expected benefits 17

3.2.3 Quantified benefits and requirements 17

3.2.4 Approach taken and achievements to date 18

3.3 Feasibility studies 22

3.4 Assets built and planned resulting (directly and indirectly) from scheme itself 22

3.5 Interconnections and electricity trade 23

3.6 Environmental and social issues 24

4 Institutional arrangements 26

4.1	Governance	26
4.2	Role of national governments and regional institutions	27
4.3	Regulatory agencies	27
4.4	Role of outside agencies	28
5	Contractual, financial and pricing arrangements	29
5.1	Contracts	29
5.2	Ownership and finance	29
5.3	Pricing arrangements	30
6	Future plans	31
Bibliography		33
Referenced texts		33
Other texts		34
A1	Economics and demographic environment	35
A2	Electricity supply	35
A2.1	Current generation capacity	35
A2.2	Projected generation capacity	36
A2.3	Transmission	37
A3	Electricity demand	39
A4	Chronology of events and institutional developments	40
A5	Organisation of the Energy Community	41
A6	Scheme targets and potential	45
A7	Extracts from the MoU and the treaty	47
A7.1	Athens Memorandum of 2002	47
A7.2	Energy Treaty of 2005	53

Tables and Figures

Tables

Table 1 Main Characteristics of Energy Community Treaty Signatories 5

Table 2 Electricity Transfers in 2006 7

Table 3 Electricity Generation and Consumption, 2006 9

Table 4 Estimated Retail Tariffs in 2006 (US$ per MWh) 11

Table 5 Stage of Development of Power Markets 19

Table 6 GIS Projected Generation Fuel Mix and Impact on Carbon Emissions 25

Table 7 Characteristics of National Transmission Systems (1) 37

Table 8 Characteristics of National Transmission Systems (2) 38

Table 9 Chronology of Regional Power Integration in South East Europe 40

Figures

Figure 1 400 kV Power Map of the Region 4

Figure 2 Exportable Surplus (with 20% margin) 6

Figure 3 Estimated Cross-Border Transmission Capacities in 2007 (MW) 8

Figure 4 Projected Demand Growth, 2005-2020 10

Figure 5 Trends in Average Retail Prices 13

Figure 6 Retail Tariffs by End Use, 2007 13

Figure 7 Summary of Legislative Progress Presented to Athens Forum 20

Figure 8 Planned Interconnectors 24

Figure 9 Distribution of Larger Generating Stations 35

Figure 10 Projected Changes in Generating Capacity Stock by 2020 36

Figure 11 Projected Demand 39

Figure 12 Demand by Sector 39

Figure 13 Organizational Structure of the Energy Treaty Institutions and Fora 41

Abbreviations and acronyms

BiH	Bosnia and Herzegovina
CARDS	Community Assistance for Reconstruction, Development and Stabilization
CBT	Cross-Border Tariff
CEER	Council of European Energy Regulators
CHP	Combined Heat and Power
CIA	Central Intelligence Agency (USA)
CIDA	Canadian International Development Agency
CO_2	Carbon Dioxide
DSO	Distribution System Operator
EC	European Community
ECRB	Energy Community Regulatory Board
ECS	Regional Energy Community Secretariat
EIA	Energy Information Administration of the USA
ELEM	Elektrani na Makedonija (generating company)
EMS	Elektromreža Srbije (Serbian transmission system and market operator)
ENTSO-E	European Network of Transmission System Operators for Electricity
EPBiH	JP Elektroprivreda Sarajevo (Bosnia power utility)
EPCG	Electric power company of Montenegro
EPHZHB	Elektroprivreda Hrvatske Zajednice Herceg-Bosna (Bosnia power utility)
EPRS	Elektroprivreda of the Republic of Srpska (Bosnia power utility)
EPS	Elektro Privreda Srbije (Serbia power utility)
ESO	Electricity System Operator for the Republic of Bulgaria
ETSO	European Transmission System Operators
EU	European Union
EVN	Energie Versorgung Niederösterreich (Austrian and majority owner of distribution utility AD EVN [Macedonia])
GIS	South East Europe Generation Investment Study
GW	Gigawatt (unit of electrical power = 10^9 watts)
GWh	Gigawatt-hour (measure of electrical energy = 10^9 watt-hours)
HEP	Hrvatska Elektroprivreda (Croatia power utility)
HEP-OPS	HEP- Operator prijenosnog sustava (the Croatian transmission system operator)
IEA	International Energy Agency
ISO BiH	Independent System Operator in Bosnia and Herzegovina
KEK	Kosovo Energy Corporation (Kosovo power utility)
KESH	Korporata Energjitike Shqiptare (Albania Power Corporation)

km	Kilometer
Kostt	Kosovo Electricity Transmission, System and Market Operator
kV	Kilovolt (1,000 volts)
LPTAP	Kosovo Lignite power technical assistance
MEPSO	Macedonian Transmission System Operator
MVA	Megavolt Ampere
MW	Megawatt (unit of electrical power = 10^6 watts)
NATO	North Atlantic Treaty Organization
NEK	Natsionalna Elektricheska Kompania (Bulgaria power utility)
PHLG	Permanent High Level Group of the Energy Treaty
PwC	PriceWaterhouseCoopers (accountancy firm)
REBIS	Regional Balkans Infrastructure Study – Electricity
REM	Regional Electricity Market
SEE	South East Europe
SEEERF	South East Europe Electricity Regulation Forum of the Energy Treaty
SEETEC	South East European Electrical System Technical Support (Canadian-funded project)
SETSO	South East Europe Transmission System Operators
TSO	Transmission System Operator
UCTE	Union for the Co-ordination of Transmission of Electricity
UNMIK	United Nations Interim Administration for Kosovo

Preface

This case study is part of an Energy Sector Management Assistance Program (ESMAP) project on Regional Power System Integration (RPSI). The objective of the project is to facilitate and accelerate RPSI projects in developing countries around the world. The project will draw on international experience and theoretical analysis in this area to provide a framework to assess:

- the economic, financial and environmental benefits that can accrue to regional power trading;
- the institutional and regulatory arrangements needed to sustain and optimize regional projects; and
- the ways in which obstacles to integration have been successfully overcome.

The final output of the project will be an umbrella report, *Regional Power Sector Integration – Lessons from Global Case Studies and a Literature Review*. This review will summarize the 12 case studies and literature review undertaken and analyze common themes on barriers to RPSI and solutions to overcome them.

Economic Consulting Associates was contracted to execute the project. In doing so, we are working closely with ESMAP and World Bank staff, as well as government officials, utility, power pool, and regional economic community personnel, and others directly involved in implementing regional power schemes.

This and other 11 Case Studies are prepared as clear, factual presentations of the selected projects. The intent is to provide a direct, easily digestible description of each of the selected projects without imposing an analytic framework or making judgments about the degree of success. Such analysis will be undertaken at the global level, considering the entirety of experiences from the Case Studies, in the aforementioned umbrella report.

All 12 Case Studies follow a uniform structure to facilitate ease of comparison and reference from one Study to the next. Some sections are longer than others, depending on the specifics of the Study. Additionally, there is some cross-referencing within each Study.

1 Executive summary

Following the Second World War, the process of reconstruction in the region followed a very different path from that of Western Europe, including a destructive series of conflicts during the breakup of Yugoslavia. Therefore, the challenges of the Energy Community process in bringing the region into the energy policy orbit of the European Union are large.

Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia and the EU signed the treaty establishing the Energy Community in 2005.[1] This built on an earlier agreement aimed at establishing a regional electricity market: the Athens Memorandum.

1.1 Motivations/objectives for trade

There are clear economic benefits from increased electricity trade in the region:

- There are potentially substantial savings in investment through coordination of a regional least-cost investment plan. Investment requirements in the region are substantial both due to growing demand and due to a legacy of old and inefficient generation and transmission infrastructure in need of updating.
- Many of the countries in the region are small and can only reap economies of scale if power can be exported. This can be of particular importance for countries seeking to exploit lignite reserves.
- Power export offers a major source of revenue in some countries.
- There is the potential for enhanced security of supply and efficiencies in short-term dispatch for each country through development of short-term cross-border trading.

A detailed study[2] commissioned as part of the regional power integration process quantified the economic efficiencies to be expected from least-cost investment in generation and transmission as €3 billion savings in the period between 2005 and 2020.

However, possibly an equally big driver for economic integration of the regional power sector is political. There is a hope that integration of all economic sectors (of which power is a major element) into the EU sphere of influence will help advance and consolidate effective political coordination between participating countries. The potential for future EU

[1] Bulgaria and Romania have since become EU members; Kosovo is not universally recognized as an independent country— the signatory in 2005 was the United Nations Interim Administration Mission in Kosovo pursuant to the United Nations Security Council Resolution 1244.
[2] REBIS Generation Investment Study (the GIS study) undertaken under the EU CARDS framework: http://siteresources.worldbank.org/INTECAREGTOPPOWER/Home/20551044/Volume%201%20-%20Exec%20sum_final.pdf – also see Bibliography reference **Error! Reference source not found.**

membership is an important motivation for many of the countries in acceding to, and complying with, the Energy Treaty.[3]

1.2 The trade solution being developed

A main feature of the Athens Memorandum was the incorporation of the EU Acquis Communautaire into the national legislation of the signatories. This is confirmed in the treaty establishing the Energy Community. The Energy Community Treaty has established government-level institutions supplemented by regulatory and technical working groups.

Some important features of the process of regional power integration in the SEE region are:

- Evolution of competition in wholesale and retail supply fostered by a common regulatory framework with independent national regulators, functionally and financially unbundled transmission system operators (TSOs) and unbundling of integrated utilities
- Establishment of a regionally integrated network linked into the wider EU market, including common rules for generation, transmission and distribution
- Coordination of regional planning and facilitation of competitive investment.[4] However, the Energy Community Treaty does not, of itself, mandate any investments.

1.3 Current status and future plans

The achievements to date include:

- Establishment of operating institutions and working groups that can call on the practical support of electricity industry participants (usually through the industry organizations such as ETSO[5]) and which provide benchmarking and monitoring processes to measure progress against commitments under the Energy Community Treaty
- Re-synchronization of the transmission networks with the European UCTE network
- The cross-border transmission compensation mechanism (CBT) designed to share revenues from cross-border trade among the infrastructure providers applying EU principles designed to facilitate bulk energy trade across borders
- Development of independent regulation and TSOs in several countries and progress toward independent distribution network operators in some countries. It should be noted that where the dominant utilities in some countries remain

[3] This argument does not, of course, apply in the case of Romania and Bulgaria, which are now EU members; their motivation for continued involvement in the regional power market is essentially economic, which is also the case for Albania.
[4] Regional planning has now been integrated into an EU-wide 10-year network development plan to be developed under the supervision of ENTSO-E, the new pan-European system operator organization.
[5] ENTSO-E has taken over work formerly undertaken by ETSO.

government owned, the effective independence of both the regulator and the TSO can be quite limited.

The current stage of development has emphasized the harmonization of national market rules. Countries are following parallel paths, but each is adopting the EU Directives and establishing market rules that permit competition. The broader integration into a single market for wholesale trading has not been established, but mechanisms for simultaneous allocation of all cross-border transmission capacity in the region are currently at an experimental testing stage.

Future plans include:

- Completion of country obligations under the EU Directives in areas such as market opening, transparency and nondiscriminatory pricing
- Development of coordinated transmission development planning
- Development of competitive cross-border trading arrangements to replace the current situation in which bilateral deals between the incumbent integrated utilities predominate with little cross-border competitive access to consumers; it is thought likely that the establishment of cross-border markets in capacity and energy will require some development of a regional balancing capability
- Development of a day-ahead regional power exchange
- An integrated cross-border congestion management system to determine congestion costs and maximize cross-border transfers
- A new large lignite power plant in Kosovo that will be reliant on regional export markets for sales of much of its output.[6]

[6] By early 2010, the Kosovo lignite project had been scaled back significantly (from 1,000 to 2,000 MW to around 500 MW). As of March 2010, it is intended to serve local demand, but with options to develop more power for export at a later date

2 Context for trade

2.1 Economic and political context

The treaty establishing the Energy Community was signed between Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania, Serbia and Montenegro, and the United Nations Interim Administration for Kosovo (UNMIK) and the European Community in 2005. The treaty built on a previous memorandum of understanding (the Athens Memorandum). Since signing the treaty, Romania and Bulgaria have become members of the EU. However, for the purposes of this case study, the "scheme" for the establishment of a regional power pool will be defined geographically by the countries that signed the treaty establishing the Energy Community in 2005, and references to a scheme in this case study will cover processes established since the signing of the Athens Memorandum in 2002. The outline of the geographic boundary of the region and the main transmission infrastructure is given in Figure 1.

Figure 1 400 kV Power Map of the Region

Source: Stability Pact for South Eastern Europe: "Transport and Energy Infrastructure in South East Europe."

A major factor in the development of the scheme has been an attempt to reintegrate the former Yugoslav countries and rebuild their infrastructure following conflict during the

1990s. Integrating participating countries within the EU framework has been seen as a major process in the lessening of political tensions.

As growth has returned to the region, the need to develop more generation and transmission economically and efficiently has led to the Energy Community Treaty approach, which is to integrate the energy industries of the area into a cohesive system that can maximize investment opportunities. As part of this development, the full region has now been re-synchronized into the ENTSO-E Continental European Group network.[7] The main steps in this were the synchronization with Bulgaria and Romania in 2003.

Economic and demographic environment

As Table 1 indicates, the Energy Community Treaty signatories vary considerably in both size and wealth.

Table 1 Main Characteristics of Energy Community Treaty Signatories

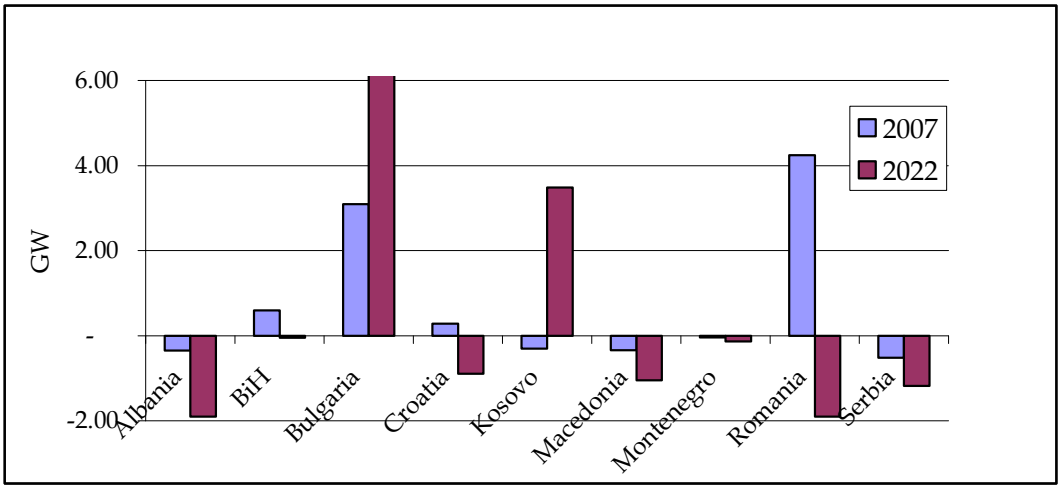
Country	Population (million)	GDP ($bn)	GDP Per Capita ($)	System Operator	Main Utilities
Albania	4.25	21.5	5,500	KESH	KESH
Bosnia and Herzegovina	3.98	19.4	4,848	ISO BiH	EPBiH EPHZHB ERS
Bulgaria	7.64	51.9	6,849	ESO	NEK
Croatia	4.45	63.9	14,4,14	HEP-OPS	HEP
Kosovo	2.10	4.2	2,024	KOSTT	KEK
Macedonia	2.06	7.7	3,750	MEPSO	ELEM EVN
Montenegro	0.68	3.6	3,735	AD Prenos	EPCG
Romania	22.25	213.9	9,953	Transelectrica	n.a.
Serbia	7.40	52.2	7,054	EMS	EPS
Total	**54.81**	**438.3**	**7,997**		

Figure 2 summarizes projected surpluses and deficits of electricity in each country by 2020.[8] In line with the key finding of the GIS we can see the importance of major investments at specific locations to exploit the best local resources. The current picture is of the main

[7] At the time of the re-integration, this was the UCTE synchronized area
[8] The GIS on which this is based is now out of date, but these forecasts from 2004 are illustrative of the economics motivating regional integration in the early part of this process.

surpluses being Bulgaria and Romania. However, rapid demand growth in some countries recovering from the post-Soviet production falls and from the effects of regional wars will be coupled with generation development in specific regions supported by local resources (especially lignite in Kosovo) or access to gas. This will lead to a changing pattern of surpluses and deficits that is only sustainable if there is regional trade and investment in transmission. Many of the countries in the region (perhaps especially Kosovo) are too small to absorb the extra electricity generated from any major new power stations.

Figure 2 Exportable Surplus (with 20% margin)



Source: GIS, ECA projections

In the political sphere, the main driver at the national level has tended to be access to the EU market.[9] In the case of Bulgaria and Romania, as EU members, there is obviously a legal requirement to comply with the EU Directives, but for all countries in the region, access to foreign investment has been an important factor leading to integration via the same principles as are laid down in the EU Directives. This is overlaid by an equally important political driver in the case of the former Yugoslavia countries, which is to achieve a degree of political integration with the other countries of Western Europe.

Cross-border transfers

Table 2 summarizes total cross-border transfers for 2006. This obviously does not give the full picture that is affected by seasonal and time-of-day factors. It is also a one-year snapshot that is affected by economic factors (which can affect demand levels) and hydrology factors (affecting the level of demand served from hydroelectric sources).

Another important factor not shown in the table is that cross-border transfers have sometimes been limited for economic reasons with some utilities choosing load-shedding rather than imports. This has been a particular factor in Kosovo but has also affected Albania

[9] "EU Market" should be interpreted broadly; the EU should be considered a transnational political institution as well as an economic area, and potential membership is often viewed in political as much as economic terms by aspiring members.

in some years. The utilities in question are often financially weak due to a mixture of price controls, poor collection rates and theft—load shedding increases resistance to payment among consumers, leading to a vicious circle.

Table 2 indicates that there is already considerable interdependence between countries in the region as well as between the region and bordering countries, with wheeling of power already a significant factor. Import dependence of some countries is likely to grow as demand increases unless there is a surge in generation investment in those countries.

Table 2 Electricity Transfers in 2006

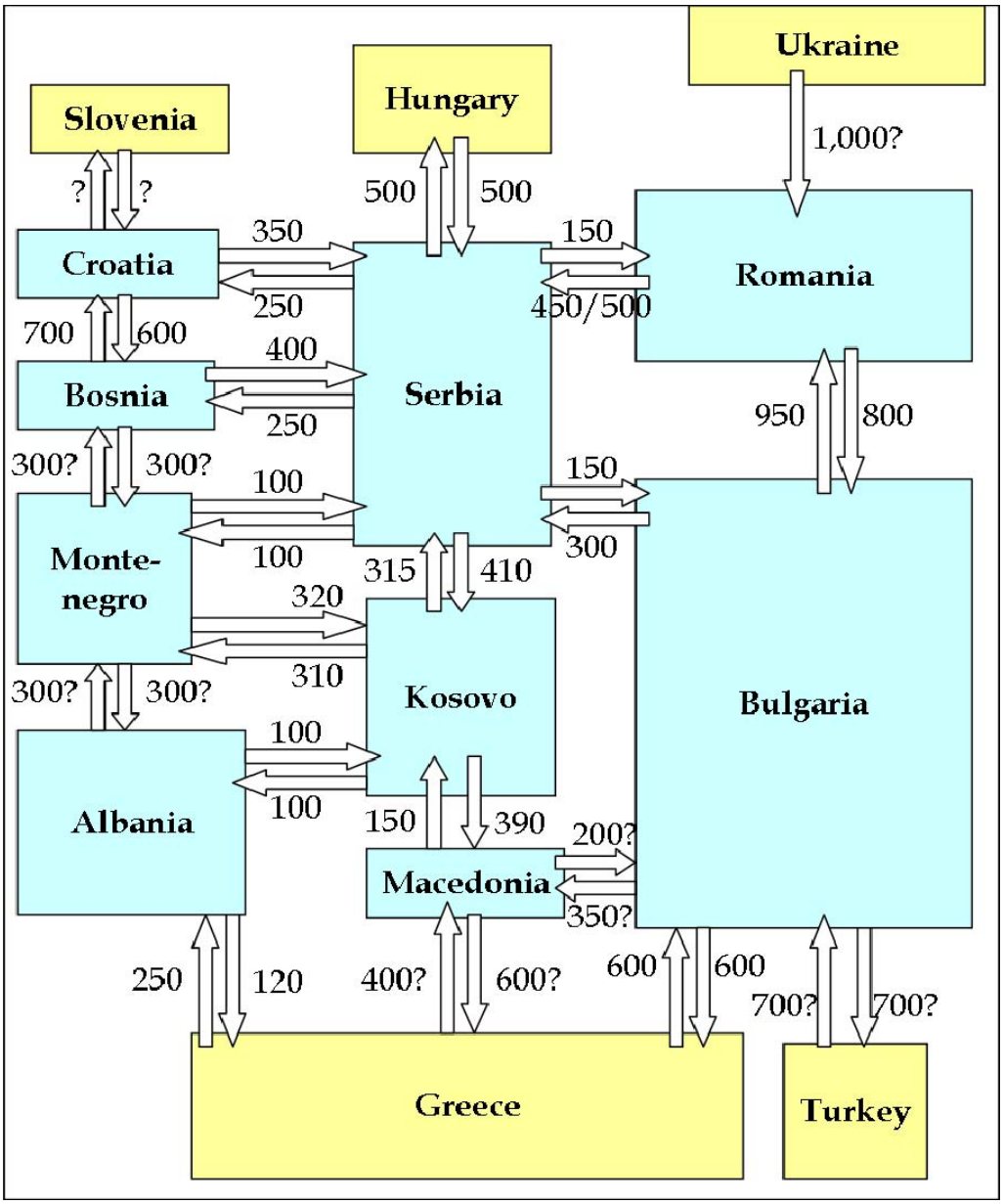
Country	Imports GWh	Exports GWh	Net exports GWh	Imports as % of Demand	Exports as % of Generation
Albania	611	-	-611	10.7	-
Bosnia and Herzegovina	3,015	5,123	+2,108	26.8	38.4
Bulgaria	1,139	8,882	+7,743	3.0	19.4
Croatia	8,374	3,306	-5068	46.4	26.6
Kosovo	n.a	n.a	n.a	n.a	n.a
Macedonia	1,735	-	-1,735	19.7	-
Romania	989	5,262	+4,273	1.7	8.4
Serbia and Montenegro	8,567	9,377	+810	21.8	23.8
REGION	24,430	31,950	7,520	13.7	17.3

Source: EIA

Figure 3 sets out the estimates of interconnection in terms of power transfer. Distances between countries are generally relatively small, and so the main aspects of interconnection infrastructure relative to regional integration are not primarily the cost but rather the ability to support cross-border transfers between surplus and deficit areas and the integration of the area as a synchronous zone.

Another factor to be observed with regard to interconnection is the extent to which there are links to countries outside the areas of the Energy Community Treaty signatories, notably, links to Ukraine (a small part of the Ukraine system is synchronized with the UCTE zone) as well as Turkey and Greece and the EU countries to the north of the area.

Figure 3 Estimated Cross-Border Transmission Capacities in 2007 (MW)



Sources: ETSO, EMS, MEPSO, Kostt, estimates

2.2 Supply options

The existing generation capacity in the region is summarized in Table 3 (Annex A2, *Figure 9* gives an indication of the geographic distribution of the larger generators). Coal is the biggest single primary fuel in the region, although in many cases, the coal–fired capacity is actually burning indigenous lignite. The other significant indigenous source of primary energy is hydro. Except in Romania, gas plays only a minor role, due to lack of significant gas infrastructure in much of the region.

Table 3 Electricity Generation and Consumption, 2006

Country	Generation (GWh)							Cons-umption (GWh)
	Coal	Oil	Gas	Nuclear	Hydro	Other	Total	
Albania		93			5,001		5,094	5,705
Bosnia and Herzegovina	7,330	159			5,857		13,346	11,238
Bulgaria	19,206	379	2,159	19,493	4,579	27	45,843	38,100
Croatia	2,257	1,961	2,058		6,124	30	12,430	18,052
Macedonia	5,108	248			1,650		7,006	8,801
Romania	25,268	1,606	11,831	5,632	18,356	4	62,697	58,424
Serbia	25,073	325	118		10,965		36,481	35,671
Montenegro	1,146				1,718		2,864	3,595
Kosovo	3,900				96		3,996	4,281
TOTAL	89,288	4,771	16,166	25,125	54,346	61	189,757	183,867

Source: IEA, CIA, GIS (2003 projected)

The GIS study projected that new capacity would come from a mixture of rehabilitation of mainly lignite plant as well as new lignite capacity (the new capacity being in Kosovo), with only a small contribution from new CCGT developments mainly in Romania and Bulgaria.[10] New hydro resources are unlikely to be significant; alternative renewable resources do not figure significantly in the GIS analysis.[11]

In summary, expected development of generation is heavily dependent on exploitation of lignite resources, which in turn, hinges on a major new development in Kosovo. In addition to a requirement for the rehabilitation and reinforcement of the transmission network, a contractual framework will be needed that allows most of the resulting generation to be exported from Kosovo, which is too small a market to absorb the additional energy. Information about existing transmission and interconnection is also summarized in Annex A2.

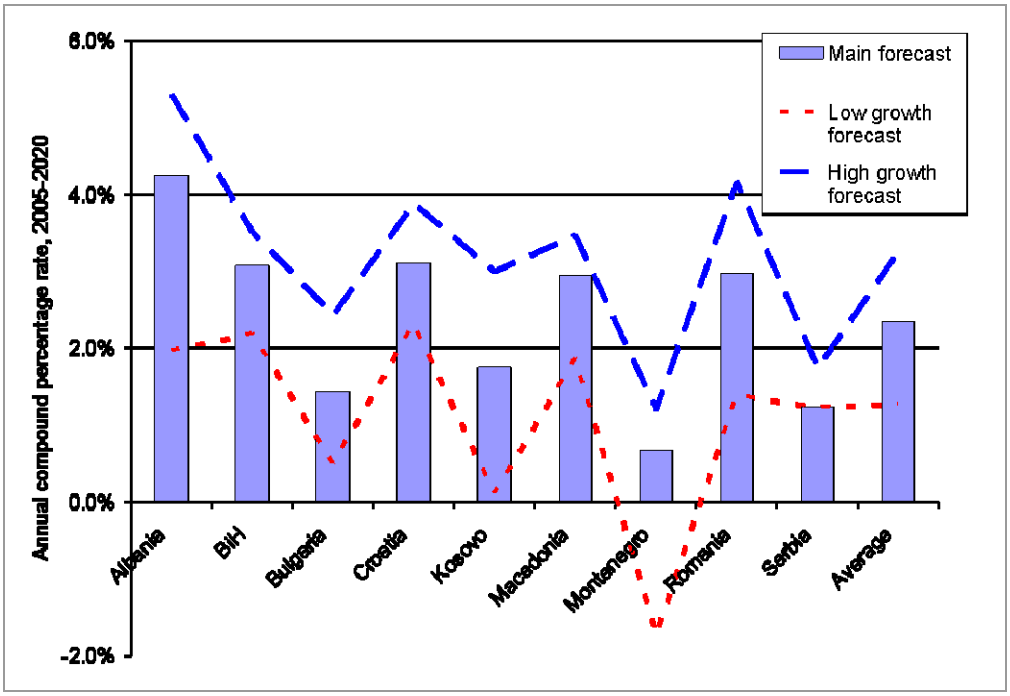
[10] The GIS study assumes that development of the gas network will remain limited, but this picture could change significantly depending on options for the routes of new gas pipelines from the Caspian area into Europe. The position is summarized in Figure 10 in Annex A2.2.

[11] This picture will change as all countries in the region seek to increase renewables as a proportion of total final energy consumption under the influence of the new Renewables Directive.

2.3 Demand

As indicated in Figure 4, demand growth is projected to be moderately fast in the region but with considerable variation between countries.[12] The fastest growth is projected for Albania and the slowest is for neighboring Montenegro. However, because of their sizes compared to other countries, regional growth is dominated by demand in Romania and Bulgaria.

Figure 4 Projected Demand Growth, 2005-2020



Source: GIS

What the data do not show is the extent of supply failure at certain times. This is a significant feature of supply in the poorest areas such as Albania and Kosovo, but there is currently a more stable supply situation in other countries. The main cause of supply interruption is economic,[13] although poor distribution infrastructure is also a contributory factor.[14]

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[12] Figure 11 in Annex A3 puts this in context while Figure 12 shows that sources of demand are varied between countries, with domestic demand forming 60% or more of total demand in Serbia and Kosovo but with Romania and Bulgaria being far more industrial. This limited sectoral demand data is relatively old, but the picture is not likely to have changed significantly in recent years.

[13] "Economic" in the sense that the financial state of the domestic utility, often exacerbated by poor retail revenue collection rates, can lead to insufficient electricity purchase to meet demand even though total generation and transmission across the region is sufficient to meet demand.

[14] See, for example, World Bank on Albania (http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/ALBANIAEXTN/0,,contentMDK:21087956~pagePK:141137~piPK:141127~theSitePK:301412,00.html), which notes the link between import prices and load shedding during recent crises in supply.

2.4 Energy tariffs

Tariff information is difficult to compare on a consistent basis, not least because of current volatility in exchange rates. The data in Table 4 relate to 2006. The main point to note is the variability between countries. It is common for residential tariffs to be too low to cover costs. Despite the current level of interconnection, it is clear that, at the retail level, competition has not proved particularly effective.

Table 4 Estimated Retail Tariffs in 2006 (US$ per MWh)

Country	Commercial Customer Tariffs	Residential Customer Tariffs
Albania	65–79	77
Bosnia and Herzegovina	100	57
Bulgaria	40	51
Croatia	n.a	50
Kosovo	57–84	70
Macedonia	77	37
Montenegro	n.a.	n.a.
Romania	66	69
Serbia	46	36

Sources: Eurostat, Herzmark IRG presentation,[15] regulator websites

A March 2009 study by IPA,[16] which covers some of the countries, concludes that:

- There are significant variations between the tariff levels of the different parties, but overall tariff levels have been increasing in the period 2005 to 2007 toward more cost-reflective levels.
- Variation in tariff levels is driven by differences in generation costs: coal–based countries have higher tariffs and hydro-based countries have lower tariffs.
- Charges to residential consumers have been generally lower than charges to either industrial or commercial consumers, but this discount is being gradually eliminated.

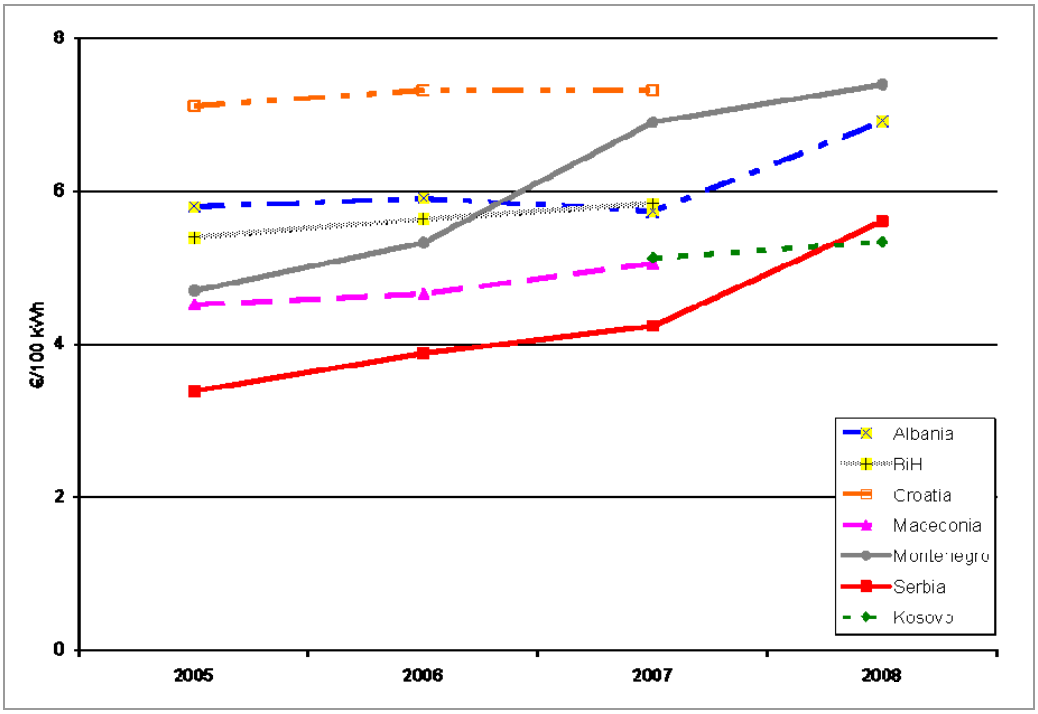
[15] *Eurostat, Herzmark IRG presentation , Regulator websites* http://www.naruc.org/see_monitoring/docs/Hertzmark_Don_IRG_Presentation_ATH_bench-a.pdf .

[16] *Study on Tariff Methodologies and Impact on Prices and Energy Consumption Patterns in the Energy Community, March 2009:* http://www.energy-community.org/pls/portal/docs/284177.PDF . The countries covered exclude Bulgaria and Romania (but include Georgia).

- Tariff methodologies are fairly similar but with different parameters, especially with the rate of return.

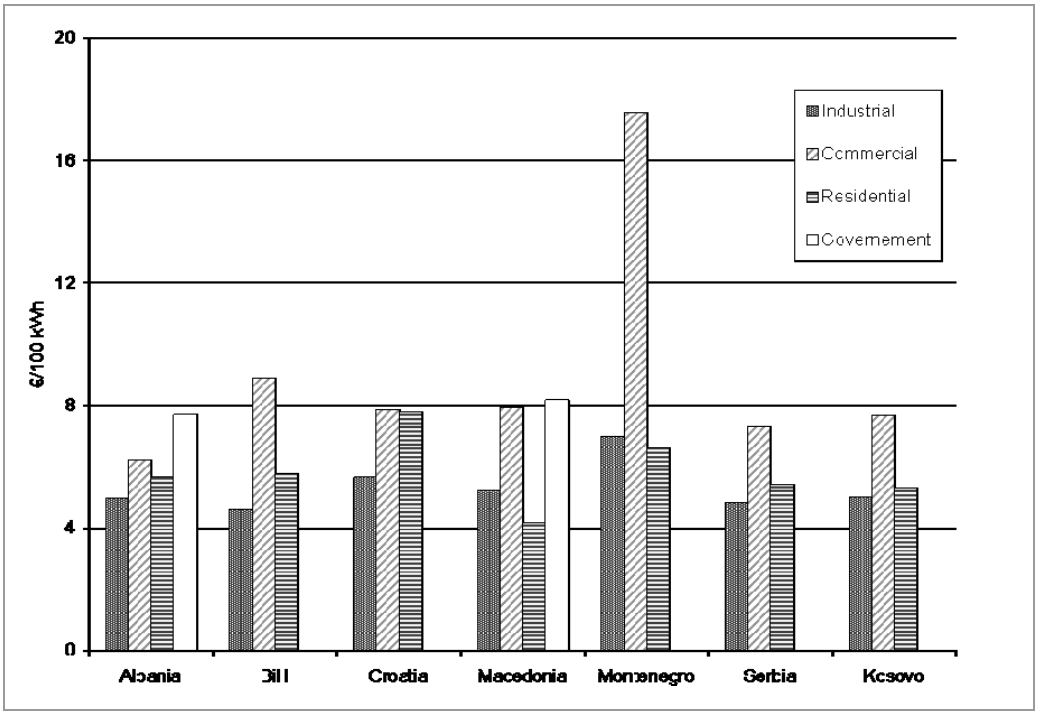
Overall then, there seems to be a gradual move toward price equalization across the region that is possibly being driven by the introduction of competition in supply and cross-border trade. The pace of adjustment is controlled, in large part, by the regulators in the region, many of whom have allowed tariffs to residential consumers to remain low for social reasons. See Figures 5 and 6.

Figure 5 Trends in Average Retail Prices



Source: IPA Report

Figure 6 Retail Tariffs by End Use, 2007



Source: IPA Report

3 History of scheme

3.1 Overview

A full chronology of important events in the region is given in Annex A4.

Background

Following the Second World War, the region was divided into separate spheres of influence, with most of the countries bundled into the Yugoslav Federation but with Bulgaria and Romania part of the Warsaw Pact; Albania operated in isolation. The development of the electricity systems reflected these divisions.

Rising tensions in Yugoslavia predated the fall of the Warsaw Pact in 1989, but it was in 1991 that a decade of highly destructive wars broke out in Yugoslavia:

1991	Slovenian independence war (10 days)—an exception to subsequent independence wars as it was not destructive of infrastructure; Slovenia joined the EU in 2004.
1991–1995	Croatian civil war.
1992–1995	Bosnia and Herzegovina civil war ultimately ended by NATO bombing of the Serbian ethnic areas.
1999	NATO bombing in Kosovo and Serbia leading to UN Mandate in a separated Kosovo.

These conflicts led to considerable destruction of electricity infrastructure, especially with the final NATO bombing campaigns against Serbia.

The collapse of the Warsaw Pact was a relatively smoother affair. Bulgaria and Romania saw a dramatic collapse in electricity demand but had recovered considerably by the time of EU Accession in 2007.

Finally, Albania had pursued a policy of rigid isolation under the Communist rule of Enver Hoxha. After his death in 1985, a process of reintegration began with multiparty elections being held in 1992. However, its economic development has since been haphazard, and so Albania was ripe for participation in the reintegration initiatives set in train by the Athens Memorandum.

Preliminary agreements

The first agreement was the Thessaloniki Declaration of 10 September 1999 signed by representatives of Albania, BiH, Macedonia, Bulgaria, Romania, Greece and the EU. This set out the objective of a regional electricity market (REM), targeting 2006 as the year when it should be in place. Although the declaration suggested coordination and a high-level

supervisory group, it laid out no effective steps for practical implementation. Unlike the Athens Memorandum of 2002, the declaration makes no reference to the European Union.

The Thessaloniki Declaration was formalized into a preliminary "Athens Memorandum" in June 2000,[17] but it remained no more than a declaration of intent rather than a set of concrete commitments. This declaration is referenced in the more substantial Athens Memorandum of 2002, which is usually taken as the main reference agreement.

Athens Memorandum

In November 2002, a memorandum of understanding[18] ("The Athens Memorandum") was signed at the Athens Ministerial Meeting by all the countries with the Commission and the Stability Pact acting as sponsors. The Commission also agreed on a common strategy paper with all international donors active on a regional basis. The country signatories were:

Republic of Albania	Republic of Romania
Bosnia and Herzegovina	Republic of Turkey
Republic of Bulgaria	Federal Republic of Yugoslavia
Republic of Croatia (will sign later)	Former Yugoslav Republic of Macedonia
Hellenic Republic	United Nations Interim Administration Mission in Kosovo (UNMIK)

In December 2003, the Memorandum was updated.

The Memorandum represents a reasonably detailed blueprint of what each party needs to do to prepare for a regional market (role of regulator, TSO, etc., plus market opening commitments, grid code objectives, and so on), including an approximate timetable. Details of the main commitments are set out in annex A7.1.

Treaty establishing the Energy Community

Building on the signed memoranda of understanding, the European Commission—in conformity with the legal constraints of Article 300 of the EC Treaty (Treaty of Nice)—obtained a negotiating directive from the Council on 14 May 2004 to conclude a legally binding agreement having essentially the same content as the two memoranda. The Energy Community Treaty[19] (now excluding Turkey) was signed in Athens on 25 October 2005 and entered into force on 1 July 2006. Extracts of the commitments are set out in Annex A7.2.

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[17] http://www.bsrec.bg/mmeetings/MemUnderstanding.html

[18] *"Memorandum of Understanding on the Regional Electricity Market in South East Europe and its Integration into the European Union Internal Electricity Market" ("The Athens Memorandum - 2002")http://www.energy-community.org/pls/portal/docs/36297.PDF*

[19]*Treaty establishing the Energy Community http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty#Preamble*

The treaty has set up a secretariat and institutions to bring forward integration of the national markets, including coordination of donor expenditure and regular intergovernmental seminars.

3.2 Project concept, objectives, and development

3.2.1 Treaty objectives

Although economic drivers for the integration scheme are strong, the political drivers have been very much EU led. The primary aim of the Energy Treaty is the implementation of the European Acquis Communautaire into the legislation of the region. This means that the driving force has been the evolution of competition in wholesale and retail supply rather than the development of physical infrastructure.

The major commitments are listed on the Energy Community website[20] as:

- to create a regionally integrated energy market for electricity and natural gas networks and to integrate that market into the wider EU market;
- to establish common rules for generation, transmission and distribution of electricity;
- to similarly establish common rules for the transmission, distribution, supply and storage of natural gas;
- to establish state-level national energy authorities, regulators and transmission system operators;
- to establish compatible state and regional electricity and natural gas market action plans;
- to create embryonic regional-level dispute resolution mechanisms;
- to open the markets in line with EU commitments but with a suitable transition period (all nondomestic markets were projected to be open by 2005, but this has been only partially achieved in many cases);
- to unbundle integrated utilities;
- to authorize procedures for new infrastructure that are transparent;
- to create an anti-corruption program;
- to implement grid codes and other technical and commercial codes that are necessary for the functioning of the market; and,
- to regulate third-party access, tariff systems that encourage trade, and technical codes necessary for the operation of a trade-based regional system.

[20] *Energy Community website: http://www.energy-community.org/portal/page/portal/ENC_HOME*

3.2.2 Expected benefits

Short term

The short-term opportunities seen for the regional power scheme were to enhance trade and revenue and to integrate the transmission networks into the European UCTE network. This has been achieved; the networks are all synchronized with Western Europe, but shortages of power remain apparent for some areas, notably Kosovo and Albania.

Longer term

The longer-term opportunities were seen as:

- Efficient and competitive access to energy for all consumers;
- Enhanced investment in least-cost power and networks.

The expected benefits include substantial gains from energy trading, reconnection and strengthening of transfer infrastructure, and investment efficiencies. Improvements are also expected in energy conservation and efficiency, reduction in the current high energy intensity of production, strengthening of national institutional capacities, and adaptation of legislation and regulation to EU norms and practices.

3.2.3 Quantified benefits and requirements

Generation

The GIS study found that "operation of the SEE power system as one fully interconnected network reduces the investment requirements and saves approximately €3 billion (Net Present Value, NPV) during the planning period 2005-2020 mainly due to reduction of the need for new power generating capacity (11 GW vs. 15.5 GW of new power plants). System integration reduces the need for natural gas/oil (up to 6.8 GW) and hydro plants (1.3 GW), while the capacity of lignite and nuclear increased (2.0 GW and 1.2 GW, respectively)." Details of the updated GIS conclusions are summarized in Annex A6.

The Energy Community Treaty is silent as to how new investments in the region are to be financed. Donor agencies and market integration (to facilitate the ability of investments in small countries to find customers, thus assisting commercial investment) are the main sources of finance envisaged.

Transmission

The 8th Athens Forum concluded that transmission investment criteria have to be defined from a regional perspective, and transmission projects have to be prioritized according to those criteria. The aim of this conclusion is to support market activities for free-market trading inside the Energy Community and to remove barriers caused by transmission

bottlenecks.[21] This has since been overtaken by the establishment of ENTSO-E and the obligation contained in 2007 EU Directives that require an EU-wide 10-year network development plan.

Progress is therefore required in institutions capable of contributing to network planning from an economic perspective, with an especial focus on regional benefit. Financing of new transmission infrastructure remains the prerogative of individual TSOs; this looks set to continue.

3.2.4 Approach taken and achievements to date

The approach taken so far has been to develop a common institutional framework that each country could individually adopt. To this end, the following separate functions were to be developed in each country at the national level:

- **Independent regulator** responsible for licensing of trading entities, fostering competition and price controls. This has been fully achieved, although effective independence from government is often limited.[22]
- **Independent TSO** responsible for system development and management. All TSOs are formally functionally independent but they often remain government owned (along with the dominant vertically integrated utility using the TSO's network); in some cases they are still incorporated within the government-owned utilities.
- **Independent market operator** (although this could be a TSO function) responsible for a balancing market and facilitation of competition in supply. Market rules are mostly in place, but the balancing market is only fully functional in Romania and Bulgaria, although elements of market discipline are being introduced in other countries.

In parallel with this, there has been work performed to investigate:

- Development of a day-ahead regional power exchange[23]
- An integrated cross-border congestion management system to determine congestion costs and maximize cross-border transfers[24]

Progress at national government level

A World Bank report in 2006[25] summarized the state of development.[26] Table 5 replicates the results of that survey. The table is out of date but the pattern of a mixed rate of progress for

[21] EIHP: "Transmission Network Investment Criteria," Final Report, March 2007, on behalf of SECI Project Group on Regional Transmission System Planning, supported by USAID http://www.energy-community.org/pls/portal/docs/81794.PDF
[22] This is of particular relevance where the government also owns the vertically integrated dominant utility being regulated.
[23] See Poyry et al. (2009).
[24] For current position, see Valente (2008).
[25] Kennedy (2006)

the different countries still holds. The key elements of change since Table 5 was compiled are:

- Progress in adoption of secondary legislation
- All TSOs have now been formally unbundled. However, in several cases the TSO remains government owned via some form of holding arrangement. Independent TSO/market operation has now been established in BiH, Bulgaria, Kosovo, Macedonia, Montenegro, Romania and Serbia; the effective status of the TSO in some countries can still be ambiguous.
- Some form of market opening has been established in most countries but with limited effective independent supply.[27]

Table 5 Stage of Development of Power Markets

	PRIMARY LEGISLATION ADOPTED	MARKET OPERATOR ESTABLISHED	SECONDARY LEGISLATION ADOPTED	BALANCING MARKET ESTABLISHED	MARKETING OPENING COMMENCED
Albania	Yes	Yes	No	No	No
Bosnia & Herzegovina	Yes	No	No	No	No
Bulgaria	Yes	Yes	Yes	Yes	Yes
Croatia	Yes	Yes	No	No	No
Kosovo	Yes	No	No	No	No
Macedonia	Yes	Yes	No	No	No
Montenegro	Yes	No	No	No	No
Romania	Yes	Yes	Yes	Yes	Yes
Serbia	Yes	Yes	No	No	No
Turkey	Yes	Yes	Yes	Yes	Yes

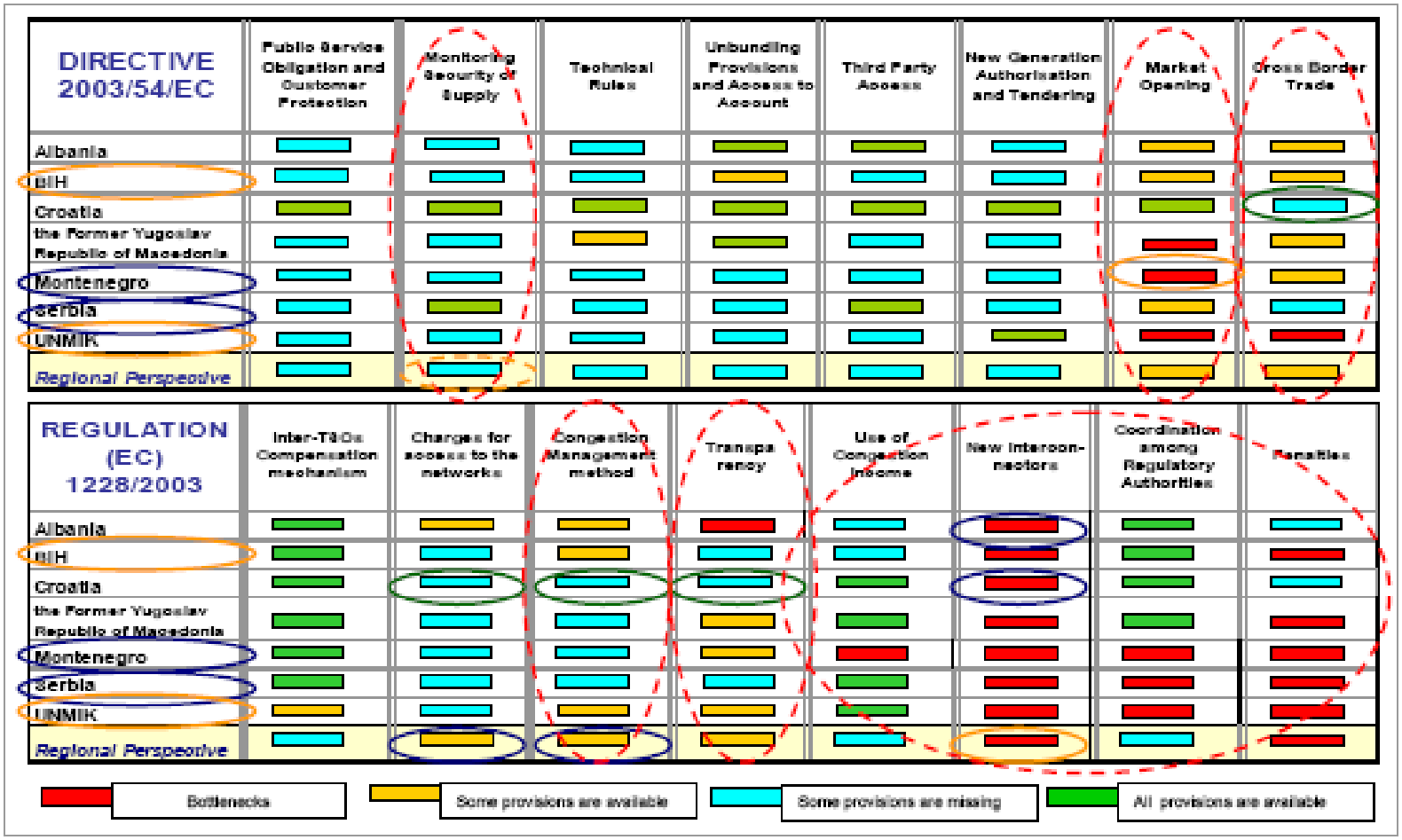
Source: "World Bank Framework for Development of a Power Market in South East Europe," March 2006

Other implementation aspects as summarized for the 14th Athens Forum are replicated in Figure 7.

[26] The Energy Community also publishes progress reports; county summaries (latest are December 2008) can be found at: http://www.energy-community.org/portal/page/portal/ENC_HOME/DOCUMENTS?library.category=162&library.offset=0

[27] It should be noted that since many of the countries have had a large overhang of surplus generation capacity, there has been limited need for new generation capacity, which has in turn limited the scope for competition from independent suppliers.

Figure 7 Summary of Legislative Progress Presented to Athens Forum



Source: Energy Community Secretariat (2009)

A 2008 report by the IEA concludes that, while there has been major progress in refurbishing and strengthening the electricity infrastructure in the region, particularly the re-interconnection of the various grids with the UCTE, many physical and market barriers limit the opportunity for new market entrants and competitive electricity supply:[28]

- Relatively low levels of regulated end-use tariffs and low collection rates
- Continued dominance of vertically integrated companies
- Weak market rules
- Congestion of cross-border capacities (which are difficult to access for new entrants)
- Lack of reliable and accessible market data
- Lack of regional/cross-border market regulation and enforcement
- Lack of transparency

Progress at regional level

The achievements to date include several key steps to establish the institutional and, to some extent, the physical infrastructure capability to achieve further market integration:

- Establishment of operating institutions and working groups that can call on the practical support of electricity industry participants (usually through the industry organizations such as ETSO) and which provide benchmarking and monitoring processes to measure progress against commitments under the Energy Community Treaty
- Resynchronization of the transmission networks with the European UCTE network[29]
- The cross-border tariff compensation mechanism (CBT) designed to share revenues from cross-border trade among the infrastructure providers applying EU principles designed to facilitate bulk energy trade across borders

The volume of electricity trade between the various countries has been growing slowly. In 2006 it represented about 15% of national electricity needs (13.7% of demand and 17.3% of generation across the region), and in 2007 it grew by around 3%.

Areas not being addressed

The process is mainly focused on market development and does not directly address specific investment requirements.

While seeking to facilitate coordination of investment strategy, there are no specific plans for compensation of investment in cross-border investments in transmission capacity outside

[28] *IEA: The Western Balkans, The Path to Reform and Reconstruction, 2008* http://www.energy-community.org/pls/portal/docs/254186.PDF

[29] This was very much driven by UCTE who imposed a unified operational handbook on the different TSOs and undertook all necessary testing. Some limited details are set out on the UCTE website at http://www.ucte.org/activities/systemdevelopment/

the EU-inspired CBT mechanism. There has been no investigation of alternative models that might be appropriate to a region in need of extensive new infrastructure rather than just incremental increases.[30]

3.3 Feasibility studies

The regional power integration process has benefitted from a considerable number of studies. Major studies have been performed by the World Bank, USAID, CIDA and the EU. These institutions also run projects to facilitate the objectives of the Energy Treaty in the different national institutions.

As already mentioned, the most important single study is perhaps the REBIS Generation Investment Study (the GIS study) undertaken under the EU CARDS framework.[31] This study looked at a model of least-cost investment in generation and transmission resources to meet scenarios of demand in 2020.

Other important studies were delegated to the TSO organization SETSO, which concentrated on proposing rules for:

- Cross-border tariff (CBT) allocation mechanisms;[32]
- Congestion charging;[33]
- Regional Day-Ahead Market.[34]

A CBT mechanism is in place, but the other elements have yet to be implemented, although a congestion-charging model is now being tested.

3.4 Assets built and planned resulting (directly and indirectly) from scheme itself

The only formalized facilitation of commercial investment has been World Bank assistance under the Lignite Power Technical Assistance Program (LPTAP) contracting process for developing a new power station in Kosovo.[35] This underwrites a commercial venture.

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[30] For example, the EU mandates a different regime for gas interconnectors that allows direct compensation for investments within the contracting and tariff structure.
[31] Stability Pact for South Eastern Europe: "Transport and Energy Infrastructure in South East Europe."
[32]*Operational proposal on CBT mechanism implementation in South-eastern Europe region for 3rd Athens Forum, October 2003: http://www.etso-net.org/upload/documents/CBT%20OperationalProposalCBTcountries.pdf*
The SETSO model of cross-border transfer compensation (CBT), which seeks to allocate remuneration based on an assessment of flows, seems an appropriate model for Western Europe where substantially developed transmission systems need to be compensated, but it is not necessarily a good way of allocating scarce money for new investments in small countries because the link between investment and remuneration is very indirect. In particular, substantial cross-border investments may prove too large a risk where the transmission owner only has a small network and cannot get a bilateral guarantee for returns on the investment.
[33]For current position see Valente (2008).
[34] Various studies, see summary at SEETEC (2007). The most recent study and the most detailed was presented to the Athens Forum in May 2009; see Poyry et al. (2009).
[35] *LPTAP contracting process for developing a new power station in Kosovo http://web.worldbank.org/external/projects/main?menuPK=228424&pagePK=64283627&piPK=73230&theSitePK=40941&Projectid=P106580*

Notably, the success of the venture as planned would be very much dependent on the success of the cross-border institutions in creating a market environment whereby the considerable output from the project can be traded across the borders and sold into different markets in the region. The Kosova government gave approval in July 2009 to construction of the plant.[36] Initial capacity was to be 1,000 MW (probably from 2015) and eventual capacity 2,000 MW. The size of the planned facility has subsequently been scaled back.[37]

3.5 Interconnections and electricity trade

As indicated in the history of the electricity system, there was, with the exception of Albania, a high degree of integration between the countries of the region as well as a degree of cross-border transfer to other regions. Due to military action, a significant part of the infrastructure was destroyed, and the post-conflict arrangements were rudimentary, with energy swaps between the control areas.

A major physical impact of the scheme has therefore been the resynchronization of the regional network followed by synchronization with the UCTE network. This has been reinforced by the adoption of a common grid code and the development of common institutions.

Within a synchronous zone, the flows across interconnectors will be determined by the topography of the entire network. This means that nationally planned interconnections and reinforcements can have unplanned effects on the shares of energy flows paid out under the CBT mechanism. This imposes significant risks on interconnector investment returns for individual TSOs. Figure 8 shows current and planned interconnections. Many of these new interconnections look sensible, but examples such as the proposed Nis-Skopje (Serbia to Macedonia) link appear to be based on national interest rather than least-cost investment as it seeks to bypass Kosovo rather than utilizing the 400 kV infrastructure already in place.

[36] There are three short-listed commercial bidders: Czech and US consortium CEZ/AES, a consortium of Italy's Enel, and the Greek-American Sencap. A fourth bidder, RWE AG, has just pulled out, citing "issues of complexity and the level of maturity of the project."
[37] As of March 2010, a 500 MW plant reserved for domestic consumption is being planned.

Figure 8 Planned Interconnectors

Source: Stability Pact for South Eastern Europe: "Transport and Energy Infrastructure in South East Europe."

Inability to guarantee an economic return on interconnector investments seems to be a major impediment to attracting private sector money, and the resultant risks can prove a big obstacle to large-scale power station investments planned at a regional level.[38]

3.6 Environmental and social issues

Croatia, Bulgaria and Romania are the treaty parties who are also Annex 1 signatories of the Kyoto Protocol with formalized greenhouse gas commitments. The remaining Energy Community Treaty signatories are listed as non-Annex 1. More recently, the adoption by the EU of a new Renewables Directive in April 2009 is influencing targets for renewable source generation that is likely in due course to significantly increase the development of wind, hydro and biomass generation in all countries in the region.

All countries are committed to environmental impact assessments on new projects in line with EU requirements. This will ensure a minimum standard of new investments but will not have a significant impact on the choice of technology used. Hydropower projects will be developed wherever possible but with no restrictions on carbon emissions for new projects

[38] The congestion management proposals would allocate revenues according to usage of the interconnections, but this does not contractually allocate returns to specific investments.

such as proposed lignite power plants. Therefore the only market-related environmental restraint on investments will arise from monetization of the value of CO_2 emissions in the form of carbon credits using Kyoto mechanisms.

The potential cost of carbon has been factored into the projections in the updated GIS. Although GIS does not explicitly publish its carbon assumptions, it is possible to estimate from the updated data the impact of projected generation development on carbon emissions. Table 6 estimates likely changes in carbon emissions from generation as a result of changes in fuel mix. The table shows that as output increases, the share of hydro will decline, which will increase reliance on fossil fuels, so carbon emissions will rise.

However, GIS projections also take account of the de facto tax on carbon emissions in the EU, which will be factored into generation costs in both EU member states and in nonmembers that are electrically connected to the EU area. This "tax" affects generation investment decisions such that, if carbon is costed at €20/tonne (which is close to current levels), there will be a fall in lignite investments and a corresponding increase in gas-fired generation that leads to an 8% fall in emissions from 2005 levels. If carbon is valued at €30/tonne then GIS predicts that investments in nuclear will increase at the expense of both lignite and hard coal, such that there will be a near 30% fall in carbon emissions.

Table 6 GIS Projected Generation Fuel Mix and Impact on Carbon Emissions

Carbon Price	**n/a**	**0**	**€20/tonne**	**€30/tonne**	
	% of output 2005	**% of output 2020**	**% of output 2020**	**% of output 2020**	**Carbon Factor**
Lignite	45	45	29	20	1.27
Coal	11	15	15	11	1.00
Fuel oil	…	…	…	…	0.70
Gas	2	5	21	21	0.57
Nuclear	14	15	15	27	0
Hydro	29	21	20	20	0
Total	**100**	**100**	**100**	**100**	
Carbon change over 2005 (%)		**+9**	**-8**	**-29**	

Source: ECA based on GIS data. Possible greenhouse gas impacts from decay of organic matter in hydropower reservoirs are not included in this analysis.

All these GIS figures are given for illustration; a very different picture is likely to emerge if, as is likely, the renewables targets proposed by the EU are adopted under the Energy Community Treaty.

4 Institutional arrangements

4.1 Governance

A full description of the governance arrangements of the treaty establishing the Energy Community is given in Annex A5. The treaty has been in operation since 2006, but it was built on the institutions established in 2002 under the Athens Memorandum. In establishing institutions under the treaty, there was a clear attempt to maintain continuity. This section looks at the institutions established in 2002 under the Athens Memorandum and examines how they have evolved under the 2005 treaty.

In 2002, a multilevel organizational structure was applied as follows:

- The process was headed by a **Ministerial Council**, which made strategic decisions and which was supported by a **Permanent High Level Group** (PHLG) that sought to ensure smooth political operation of the council itself.

  These institutions have continued largely unchanged under the treaty, although reporting requirements are more explicit under the treaty.

- The Regional **Energy Community Secretariat** (ECS) was funded out of the EU general budget. This has continued under the treaty as a separate legal body explicitly serving the Ministerial Council and the PHLG, and it is now established in Vienna.
- The **South East Europe Electricity Regulation Forum** (SEEERF) played the main coordination role and brought in expertise from two work groups covering:
  - Regulation (the **SEE Energy Regulators Work-Group**) managing the regulatory aspects of market coordination;
  - Technical (the **SEE Transmission System Operators Work-Group**) managing technical aspects of market coordination.

Under the treaty establishing the Energy Community, continuity of these fora (the Athens Fora) has been maintained, including an explicit article in the treaty specifying that meetings be held in Athens. Because the treaty also covers the natural gas market, there is also an additional Gas Forum. However, in the more formalized structure set out in the treaty, fora cannot easily be empowered to make expenditure decisions and so cannot finance work groups reporting to them.

The issue of work groups has been resolved by extending the role of a new body created under the terms of the treaty establishing the Energy Community: the **Energy Community Regulatory Board** (ECRB). This body is set up under the treaty to provide a cross-border dispute board, but it has the wider role of advising the Ministerial Council and the PHLG on statutory technical and regulatory rules. It has therefore extended its role to establish working groups which can coordinate development work. It has established four main working groups:

- Coordinated Auction Office Implementation Group (CAO IG)[39]
- Electricity Working Group (EWG)
- Gas Working Group (GWG)
- Customer Working Group (CWG)

Funding for the institutions established under the treaty establishing the Energy Community is 98% provided by the EU Commission.[40] However, this underestimates the costs that are being borne at the national level in terms of development of independent institutions. These costs are carried mainly by the national industries with cost recovery through retail tariffs or through donor-assisted projects.

The biggest expected costs are for the new generation, transmission and distribution infrastructure that is needed, and no direct provisions for financing of this are made under the treaty.

The governance arrangements seek to ensure that national governments comply with the EU Directives that deal with energy matters, which are the essential subject of the Energy Treaty. As such, cross-border institutions can only be imposed to the extent that they are mandated under the EU Directives. Therefore, the Energy Treaty institutions may only seek to coordinate cross-border commercial and planning activities, which must ultimately be agreed upon by each of the national governments in the region before they can implemented.

4.2 Role of national governments and regional institutions

As indicated in Annex A5, the regional power integration process is supervised by governments and the Commission. This is inevitable now that it is a formal treaty. However, while EU member governments play a crucial role in setting the full objectives of the treaty (by ratifying, or otherwise, changes to the EU Directives proposed by the Commission) the actual strategy for implementation has been delegated to national governments.

Governments have individually accepted obligations under the Energy Treaty relating to structural and institutional reform (e.g., competition in supply or TSO separation from—or within—integrated utilities), and these must be advanced regardless of any progress within the Energy Treaty institutions that have been set up.

4.3 Regulatory agencies

In many cases the independent regulators are still evolving. The scope of regulation seems to be relatively standard and follows a European model whereby the regulator:

- Licences market participants;

[39] This works with a SETSO task force; seeSection 6.
[40] The EU budget includes €2.8 billion for energy and transport, but there seems to be no separate budget for the Energy Treaty institutions.

- Monitors the market and may also develop the market rules (and will need to approve those rules if developed by the TSO or market operator);
- Facilitates market opening, including the setting of targets for customer eligibility in the competitive market;
- Sets connection conditions and charges for network access;
- Sets regulated prices for network operators;
- Sets regulated prices for captive customers and imposes social obligations on suppliers.

Regulators are not directly involved in new investment decisions but may hold TSOs to account in terms of system planning.

There is no regional regulator at present, although there are regulatory fora existing within the EU (e.g., CEER).

4.4 Role of outside agencies

In addition to the role of the EU Commission in facilitating compliance with the Energy Treaty by providing central overview institutions (as discussed in Annex A5), there has been considerable involvement by donor agencies.

5 Contractual, financial and pricing arrangements

5.1 Contracts

The current arrangements for cross-border energy trade are heavily dependent on government-authorized trades from one integrated utility to another. There is little public information on volumes and prices in these contracts.

The competitive market requires that this be replaced by bilateral contracts between independent generating companies in one country and suppliers or distributors in another, and proposals for changes to institutions and laws are designed to facilitate this. As a result, the role of government and regulators in price setting will necessarily diminish. Regulatory facilitation is moving in the following areas:

- Bilateral contracting is intended to be supplemented by a day-ahead market exchange along the lines already developed in Europe (cleared exchanges with a day-ahead auction to set a transparent clearing price). For such a day-ahead market to be implemented, complementary balancing market rules are needed and, in particular, a gate closure that allows exchange traded positions to be notified under bilateral contracts.
- There is in place an agreement on the sharing of capacity revenues from cross-border trades that is in line with the Acquis Communautaire. Further integration initiatives are envisaged, including an eventual integrated system control area.

5.2 Ownership and finance

The regional power scheme in South East Europe makes no explicit provision for ownership and financing other than functional and financial unbundling of the TSOs in the region.

Currently, only in Bulgaria and Romania are the assets not substantially or exclusively state owned. Although TSOs are functionally separated, they are often subsidiaries of the state-owned, vertically integrated utility. This ownership structure will change slowly because private-sector generation investment is permitted in all countries and is an emerging trend, although private-sector generation is presently significant only in Bulgaria and Romania. There is also some private ownership of distribution in one or two other countries. The development of the new power station in Kosovo will be a substantial private-sector investment.

Ownership of transmission assets remains effectively in the public sector. This applies also to transmission assets which are owned by the TSOs in whose area they are physically located. This is a potential area of risk because, with the development of the new power station in Kosovo, the consequent reinforcement of cross-border transmission will, in some cases, be substantial in comparison with the existing charging base of the TSOs concerned.

5.3 Pricing arrangements

There are no explicit targets in the Energy Treaty regarding price levels. However, consistent with obligations set out in the Acquis Communautaire, there are specific objectives as set out in the EU Commission's 2005 strategy paper.[41]

For retail tariffs:

- Energy price regulation is a matter for national regulatory authorities, but all "price distortions" should be removed by 2010.[42] It is suggested that the approach to price regulation should be harmonized across the region, to avoid distortions between market participants.
- Competition in supply for non-household customers was to start in 2008 with households fully eligible by 2015. Within this, wholesale trading by separate distribution companies should have been in place by 2008. This has been only partly achieved in many cases; dominance by vertically integrated utilities has limited competitive trading. Bulgaria and Romania, however, do have functioning traded markets.

For wholesale trading:

- Replication of European use of a zonal pricing model. Wholesale electricity has the same price within a price zone. In case of congestion inside a price zone, TSOs use redispatching of generation plants in order to keep the uniform price zone.

For interconnector tariffs:

- The EU regulation 1228/2003 provides for a cross-border trade compensation mechanism for transits. Control areas which host transits from other control areas are compensated by the ones causing the transits. A permanent arrangement should have been in place by 2007.

[41] A fuller list of all objectives is given in Section 6, Future plans.
[42] This is often far from achieved. Regulators often seek to protect consumers from price increases by keeping prices below cost, which then distorts competition.

6 Future plans

The developments to be pursued by Energy Community Treaty countries were formalized in a strategy paper submitted by the EU Commission in 2005.[43] Timetabled commitments were made in several areas. The main commitments involve:

- Completion of country obligations under the EU Directives:
  - in commercial areas, such as wholesale and retail market opening, third-party access to interconnections, transparency and non-discriminatory pricing;
  - in technical areas, such as grid code and security rules;
  - and in structural areas, such as unbundling of transmission and distribution.
- Development of coordinated transmission development planning, with specific review of generation adequacy.
- Development of competitive cross-border trading arrangements to replace the current situation in which bilateral deals between the incumbent integrated utilities predominate with little cross-border competitive access to consumers; it is thought likely that the establishment of cross-border markets in capacity and energy will require some development of a regional balancing capability.
- Development of a day-ahead regional power exchange.
- An integrated cross-border congestion management system to determine congestion costs and maximize cross-border transfers, which will be implemented through the auction office that has been set up.
- A new, large lignite power plant in Kosovo that will be reliant on regional export markets for sales of much of its output.

The Acquis Communautaire puts considerable emphasis on the development of competition. The degree to which effective competition will result may be questioned given variable progress to date in more mature EU markets where the same objectives apply. Although unbundling of transmission and distribution will be effectively achieved, where the main utilities remain vertically integrated, the achievement of competition is likely to remain limited.

The establishment of the auction office for cross-border trading is an important step (although it has yet to become operational). Vertically integrated utilities will cease to be able to control access to cross-border trading, thereby allowing independent generators to wheel power to markets both within and beyond the South East Europe region. Freeing up access to cross-border flows will allow larger consumers to contract with companies other than the incumbent utility.

[43] *South East Europe Electricity Market options paper:* http://ec.europa.eu/energy/electricity/south_east/doc/ref_doc/options_paper_see.pdf

It is less clear that there will be early development of the proposed day-ahead energy market. This has always been seen as an important support to a competitive wholesale market, but it is reliant on there being several traders in the market needing to access short-term energy in order to balance their portfolios. Vertically integrated utilities have less need for such short-term balancing energy.

Although the main model of a utility in most countries remains vertical integration, both Romania and Bulgaria have moved away from that model, and the introduction of independent power producers for new generation will further weaken the dominance of the incumbent utilities in other countries as they become more dependent on generation bought from third parties. Over time, therefore, the structural factors restricting the development of competition and barring the establishment of the day-ahead market will disappear.

The other important area of development promoted by the Energy Community Treaty is in the regional coordination of infrastructure investment. The treaty is oriented to fostering market-based developments and seeks to facilitate cross-border cooperation in planning and investment, but it does not give a mandate to plan or finance those investments. However, the small size of many of the markets will force larger-scale generation projects to seek cross-border markets, with the proposed investment in a large new lignite power station in Kosovo being the obvious example.

The extent to which future plans for coordinated investment in infrastructure will be realized is nonetheless uncertain. There are clear efficiency benefits from coordination, but sophisticated planning mechanisms need to be implemented and translated into physical investments. This level of coordination has not yet been fully achieved in the more sophisticated markets in Western Europe. Going forward, this may be the most important issue to be resolved because the utilities investing in reinforcements will want guarantees on remuneration that are not currently catered to in the Energy Community program.

Many of the anticipated benefits of implementing the Aquis Communautaire in South East Europe are difficult to quantify. The proposed investment in a new large lignite power plant in Kosovo is now progressing as a domestic project, but in its original regional conception it would have been considered a tangible achievement because the planned power plant would be reliant on a regional market for export for much of its output and would therefore require reinforcement of transmission in third countries. Given that the status of Kosovo is only partly resolved, overcoming this political risk factor and attracting commercial bidders to build this plant would have been a tangible achievement. The progressive scaling back of plans for this plant suggests that more progress in the market is needed.

Large-scale private sector investment in any electricity industry must overcome several long-term risks, including political risk. A major achievement of the Energy Community initiative in South East Europe could well prove to be the management of this risk factor.

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A1 Economics and demographic environment

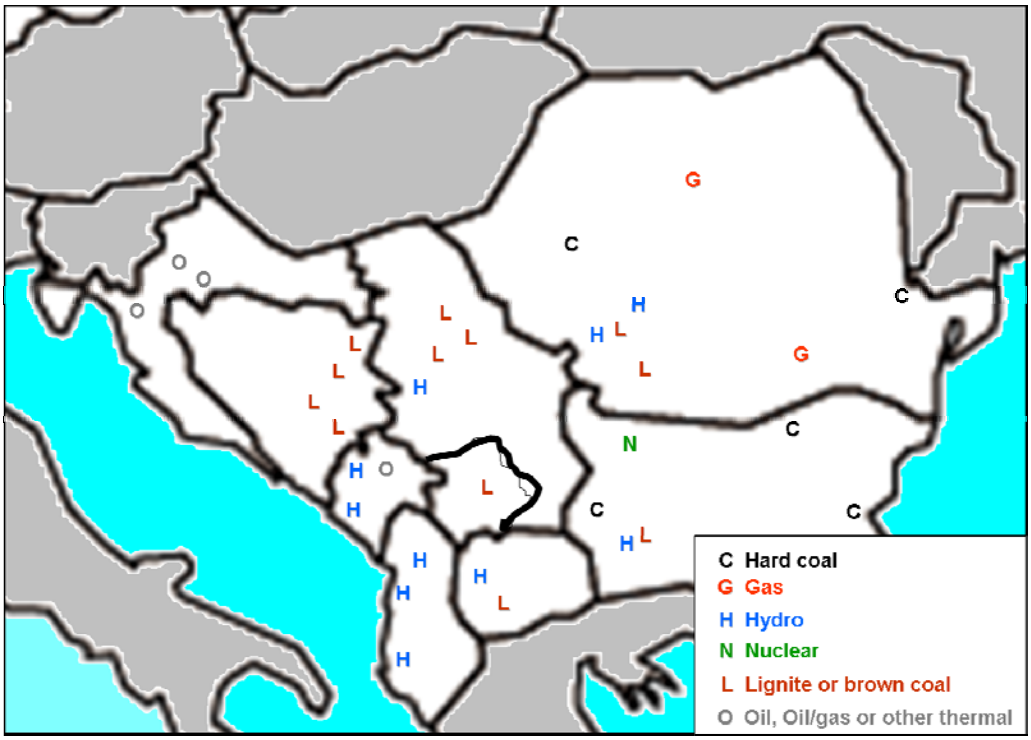
All parts of the region have some indigenous energy source: either in the form of hydroelectric capacity or else in the form of lignite or brown coal deposits, but there are different levels of self-sufficiency in the resulting generating capacity in the different countries.

A2 Electricity supply

A2.1 Current generation capacity

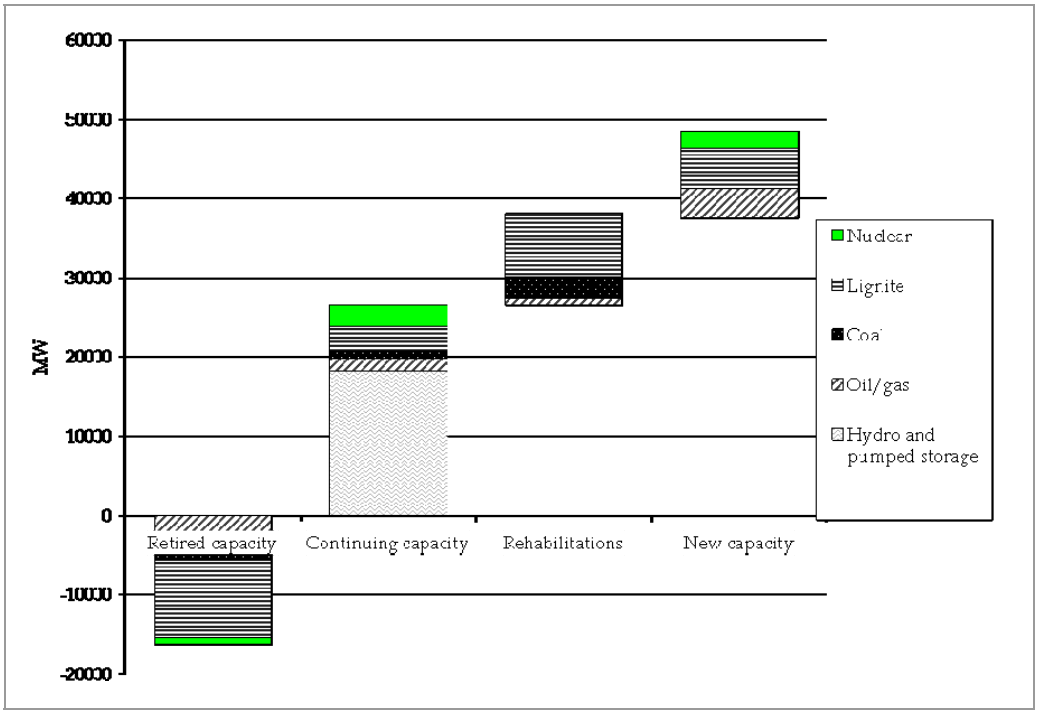
The locations and types of the larger generators are given in Figure 9.

Figure 9 Distribution of Larger Generating Stations



A2.2 Projected generation capacity

Figure 10 Projected Changes in Generating Capacity Stock by 2020



Source: GIS

A2.3 Transmission

Summary information on the transmission characteristics of each country are given in Table 7 and Table 8. Data are based on the GIS Study.

Table 7 Characteristics of National Transmission Systems (1)

Albania

Overhead Lines	400 kV	220 kV	150 kV	110 kV	Subtotal	Below 110 kV
Length (km)	120	1,100	50	1,198	2,468	45,712

Substations (kV)	400/220	220/X	115/110	110/X	MT/LT	Total
No. of Substations No. of Transformers Installed Power (MVA)	600	1,699	40	1,732.8	1,259.2	5,331

Bosnia and Herzegovina

Transmission Lines (km)	EPBiH	EPHZHB	ERS	Total
400-kV	179	89	430	698
220-kV	594	358	414	1,366
110-kV	1,362	453	1,655	3,470
Cable 110 kV	31	N/A	N/A	31
Total	2,166	900	2,499	5,565

Transmission Substations (kV)	Company	400/220/110	220/110	110/X	Total
No. of Substations	EPBiH EPHZHB ERS	2 N/A N/A	4 N/A N/A	48 N/A N/A	54 N/A N/A
No. of Transformers	EPBiH EPHZHB ERS	4 N/A N/A	8 N/A N/A	79 N/A N/A	91 N/A N/A
Installed Power (MVA)	EPBiH EPHZHB ERS	1,400 N/A N/A	1,200 N/A N/A	2,144 N/A N/A	4,744 N/A N/A

Bulgaria

Overhead Lines	750 kV	400 kV	220 kV	110 kV	Total
Length (km)	85	2,266	2,650	9,511	14,512

Substations (kV)	750/X	400X/220X	110/X	Total
No. of Substations	1	28	248	277
No. of Transformers				
Installed Power (MVA)	2,500	14,654	13,095	30,249

Croatia

Overhead Lines	400 kV	220 kV	110 kV	Below 110 kV	Total
Length (km)	1,157	1,245	4,836	121,465	128,703

Substations (kV)	400/220	220/X	110/X	MT/LT	Total
No. of Substations	5	12	142	23,721	23,880
No. of Transformers					
Installed Power (MVA)	3,400[1]	3,150[2]	6,695[3]	10,690[4]	23,935

Kosovo

Overhead Lines	400 kV	220 kV	110 kV	Subtotal	Below 110 kV
Length (km)	181	361	643	1,185	15,516

Substations (kV)	400/x	220/x	110/X	Subtotal	MT/LT
No. of Substations	1	4	24	29	4,193
No. of Transformers	3	9	41	53	4,370
Installed Power (MVA)	1,200	1,370	1,418	3,988	1,294

Table 8 Characteristics of National Transmission Systems (2)

Macedonia

Overhead Lines	400 kV	220 kV	150 kV	110 kV	Below 110 kV	Total
Length (km)	419	103	23	1,659	22,178	24,397

Substations (kV)	400/110	220/110	150/110	110/X	MT/LT	Total
No. of Substations	4	2	1	66	n.a.	n.a.
No. of Transformers	7	4	2	128	6,424	6,565
Installed Power (MVA)	2100	600	100	3,379	2,894	8,873

Montenegro

Overhead Lines	400 kV	220 kV	110 kV	Subtotal	Below 110 kV
Length (km)	254	318	657	1,229	19,380

Substations (kV)	400/220	400/110	220/110	110/X	Subtotal	MT/LT
No. of Substations	1	1	3	17	22	2,249
No. of Transformers	2	2	4	30	38	
Installed Power (MVA)	800	600	700	774	2,874	1,580

Romania

Overhead Lines	750 kV	400 kV	220 kV	110 kV	Below 110 kV	Total
Length (km)	155	4,475	4,132	18,441	212,415	239,618

Substations (kV)	750/X	400/X	220/X	110/X	MT/LT	Total
No. of Substations	1	32	43	859	38,486	39,421
No. of Transformers	2	42	90	1,872	60,610	62,616
Installed Power (MVA)	2,500	19,098	13,934	36,870	21,152	93,554

Serbia

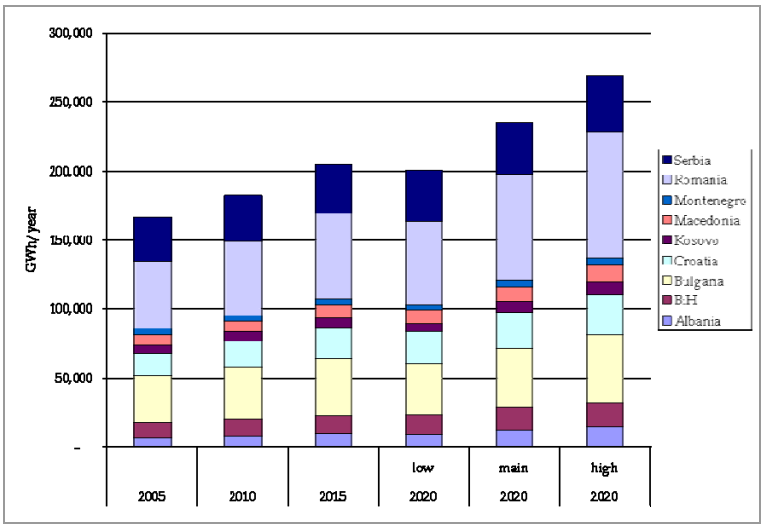
Overhead Lines	400 kV	220 kV	110 kV	Subtotal	Below 110 kV
Length (km)	1,378	1,826	5,804	9,008	139,469

Substations (kV)	400/x	220/x	110/X	Subtotal	MT/LT (35/x, 20/x and 10/x)
No. of Substations	8	14	33	55	29,990
No. of Transformers	14	24	80	118	NA
Installed Power (MVA)	5,400	5,130	11,431	21,962	18,951

A3 Electricity demand

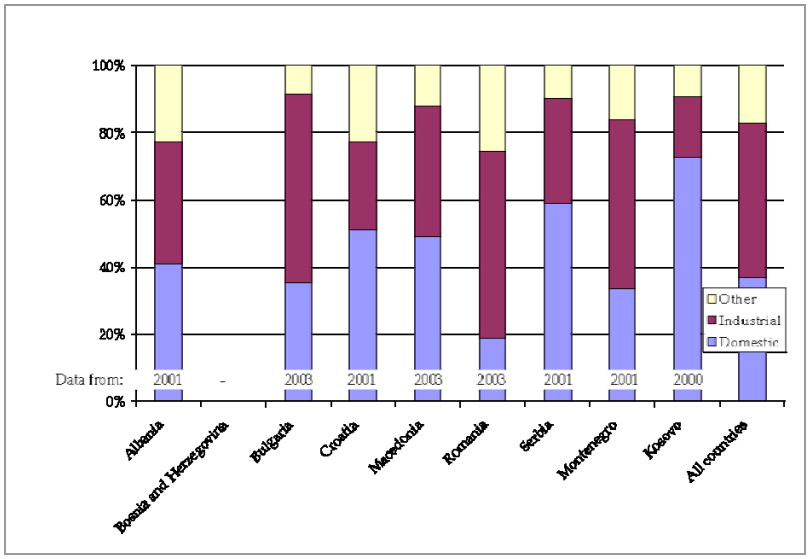
Figure 11 shows the gross demand projections made by PwC for the 2004 GIS Report.[44] On its central projections demand growth will be 2.3% per year overall but varying from a growth rate of 0.7% per year in Montenegro up to 4.2% per year in Albania.

Figure 11 Projected Demand



Source: GIS

Figure 12 Demand by Sector



Source: GIS

[44] The report was updated in 2007, but not all the data tables that were updated were published.

A4 Chronology of events and institutional developments

The current phase of development has emphasized national development of common frameworks necessary for regional integration, but there remain important political obstacles to the evolution of regional institutions that can coordinate operations and investment. Markets in energy and capacity are yet to be realized, although some bilateral trading does take place both within the region and with countries outside the region.

Some key events in the process are summarized in Table 9.

Table 9 Chronology of Regional Power Integration in South East Europe

Year	Event
1989	Warsaw Pact fails, Bulgaria and Serbia gain independence
1991	Slovenia independence, Croatia civil war commences
1992	End of Albania isolation
1992	Bosnia and Herzegovina civil war commences
1995	End of Croatia and Bosnia civil wars; NATO bombing of infrastructure in Serb areas of Bosnia
1999	NATO bombing in Kosovo and Serbia leading to UN Mandate in a separated Kosovo
1999	Thessaloniki Declaration
2000	Initial Athens Memorandum of Understanding
2002-3	First full Memorandum of Understanding signed in Athens (updated in 2003)
2004	First report of REBIS: Generation Investment Study
2004	Slovenia becomes EU member
2005-6	Energy Community Treaty signed with EU then comes into force; institutions established during 2006 (see Annex A5): Energy Community Secretariat established in Austria First meeting of Permanent High Level Group First meeting of Ministerial Council First meeting of Energy Community Regulatory Board (in Greece) First meeting of Electricity Forum
2005-6	Re-synchronization of Balkans transmission region with Western Europe network
2007	Bulgaria and Romania join EU
2007	LPTAP financing project for lignite project in Kosovo
2008	Dry run for auctions of cross-border transmission capacity

A5 Organisation of the Energy Community

The treaty establishing the Energy Community is an intergovernmental treaty signed at minister/head-of-state level.

Figure 13 Organizational Structure of the Energy Treaty Institutions and Fora

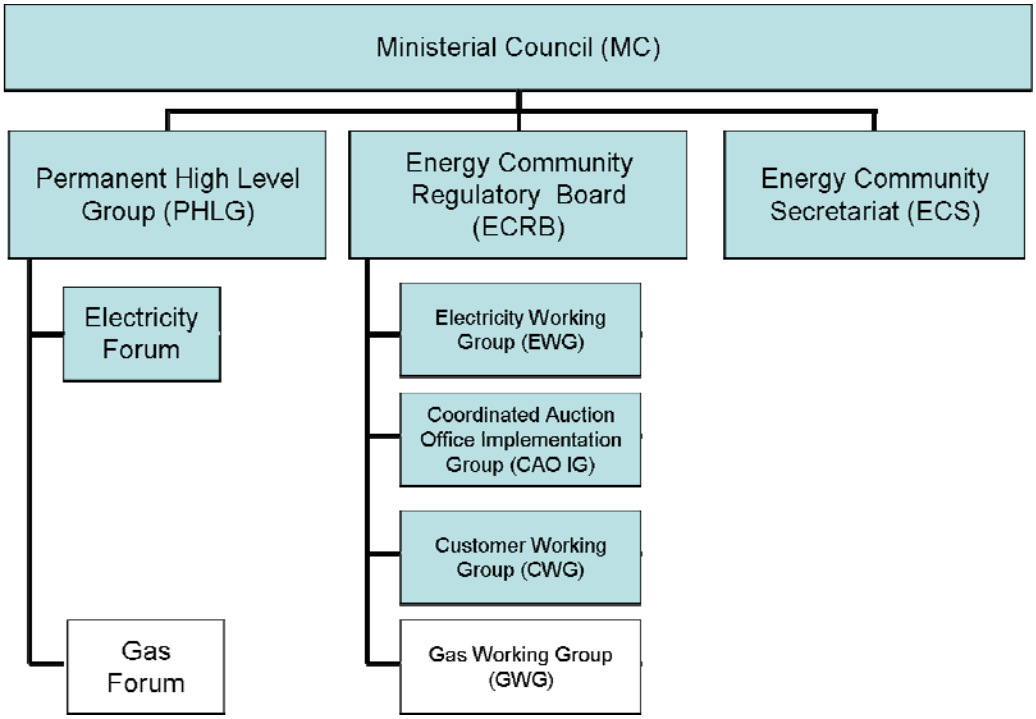


Figure 13 summarizes the main functions of the institutions established under the treaty:

- The **Ministerial Council** rules and procedures were formally adopted by it in November 2006. It is composed of a representative from each Contracting Party[45] and two representatives from the European Community (plus a nonvoting representative from each participant). Its presidency is held by each Contracting Party for a six-month term. It must meet at least every six months. It must submit an annual report to the European Parliament and the parliaments of each Contracting Party. It functions as the executive organ of the treaty establishing the Energy Community. Its central task is to ensure that the objectives of the treaty are attained; as such it:
  - Takes measure;
  - Provides general policy guidelines;
  - Adopts Procedural Acts.

[45] The treaty considers a Contracting Party to be a signatory other than the European Union.

The Ministerial Council is, in many ways, a continuation of the Ministerial Council set up under the Athens Memorandum of 2002, although its role under the treaty establishing the Energy Community is broader as it encompasses gas as well as electricity.

- The **Permanent High Level Group** (PHLG) is composed, like the Ministerial Council, of a representative of each Contracting Party and two representatives from the European Community (plus a nonvoting representative from each participant). It adopted its internal rules and procedures in October 2006. It normally meets four times a year. It is more closely involved in the day-to-day work of the treaty institutions and is in charge of the following:
  - Preparing the work of the Ministerial Council;
  - Giving assent to technical assistance requests made by international donor organizations, international financial institutions, and bilateral donors;
  - Reporting to the Ministerial Council on progress made toward achievement of the objectives of this treaty;
  - Taking measures, if so empowered by the Ministerial Council;
  - Adopting Procedural Acts not involving the conferral of tasks, powers or obligations on other institutions of the Energy Community;
  - discussing the development of the Acquis Communautaire described in Title II of the treaty establishing the Energy Community on the basis of a report that the European Commission submits on a regular basis.

  The PHLG is a continuation of a similar institution set up under the Athens Memorandum of 2002.

- The **Energy Community Regulatory Board** (the **ECRB**, which is also known simply as the **Regulatory Board**)[46] is set up under Article 58 of the treaty, which specifies that it will be comprised of a representative from the regulator of each Contracting Party and the European Community. This board:
  - Advises the Ministerial Council and the Permanent High Level Group on the details of the statutory technical and regulatory rules;
  - Makes recommendations on cross-border disputes where two or more regulators are involved;
  - Takes measure where empowered by the Ministerial Council;
  - Adopts Procedural Acts.

  The ECRB has established the following working groups:

  - Coordinated Auction Office Implementation Group (CAO IG)

[46] The ECRB has established a website at: http://www.ecrb.eu/portal/page/portal/ECRB_HOME

- Electricity Working Group (EWG)
- Gas Working Group (GWG)
- Customer Working Group (CWG)

The treaty specifies that the ECRB meet in Athens.

- The **Electricity Forum** (and the Gas Forum) is established under Article 63 of the treaty establishing the Energy Community to advise the Energy Community.[47] The fora are chaired by a representative of the European Community and include representation from all industry stakeholders including:
  - European Commission;
  - Governments;
  - Regulators;
  - Transmission system operators of the participating countries;
  - Council of European Energy Regulators (CEER);
  - European Transmission System Operators (ETSO); and,
  - Representatives of donor countries, electricity companies and consumers.

  The fora operate by consensus and forward their conclusions to the PHLG.

  The Electricity Forum is very much a continuation of the South East Europe Electricity Regulation Forum (SEEERF) established under the Athens Memorandum of 2002. Article 66 of the treaty specifies that the Electricity Forum will meet in Athens; indeed until 2008, meetings of this forum were identified as the "Athens Forum" meetings, which emphasizes the continuity of the original Athens Fora established under the Athens Memorandum; meetings are now listed as "Electricity Forum," although meeting numbers continue to follow on from the numbering used under the Athens Forum heading. The Forum usually meets at least twice a year.

- The **Energy Community Secretariat** (ECS) was officially inaugurated in June 2006, and it was formally established in Vienna in August 2007. Under the treaty its role is to
  - Provide administrative support to the Ministerial Council, the Permanent High Level Group, the Regulatory Board and the fora;

[47] The treaty establishing the Energy Community extended the work performed under the Athens Memorandum into the area of gas; although this forms an important part of the energy community, this case study is restricted to the work in electricity.

- Review the proper implementation by the parties of their obligations under this treaty, and submit yearly progress reports to the Ministerial Council;
- Review and assist in the coordination by the European Commission of the donors' activity in the territories of the adhering parties and the territory under the jurisdiction of the United Nations Interim Administration Mission in Kosovo, and provide administrative support to the donors;
- Carry out other tasks conferred on it under this treaty or by a Procedural Act of the Ministerial Council, excluding the power to take measures; and
- Adopt Procedural Acts.

A6 Scheme targets and potential

Generation

The key findings from the GIS update are:

- Kosovo lignite is the cheapest fuel; most scenarios indicate the need for 4,000 to 4,800 MW; high CO_2 prices may limit its use, but significant capacity (~2500 MW) is still competitive. Other lignite mines are more expensive; most are noncompetitive;
- Imported coal: up to 3,000 MW selected; relatively stable price; plentiful and secure supply; but lack of infrastructure (ports; railroads); presently, available in Bulgaria, Croatia and Romania;
- Natural gas: up to 8,000 MW selected; cleanest fuel, but highly volatile price; multiple supply sources could enhance diversification and competition, but require significant investments;
- Nuclear: competitive at €30/ton CO_2, but serious obstacles remain (siting and financing);
- Hydro: 2,112 MW competitive under high gas prices or high CO_2 prices; higher potential exists but more comprehensive assessment is needed;
- Renewables may be competitive at high gas or CO_2 prices; more review needed;
- CHP: District heating could be modernized and expanded to generate electricity, too; high efficiency and small increments which are easier to finance are attractive features; more detailed assessment is needed;
- Electricity imports (from Ukraine and Russia) is a viable option which depends on pricing (break-even cost is €32.6 / MWh) and strengthening of transmission networks.
- The net present value of the updated GIS under the "official rehabilitation scenario" is € 35,725.3 million compared to € 35,195.2 million for the "justified GIS Base-case scenario"; in other words, eliminating the noncompetitive rehabilitations saves approximately €530 million over the planning period.

Transmission investment requirements identified

A 2007 study[48] concludes:

- Planning criteria used by the SEE TSOs today are generally similar and mainly concentrated around the (n − 1) security criterion;
- Market-oriented transmission investments and investments from a regional perspective are not mentioned and satisfactorily treated in the national grid codes;

[48] "Background Information Package" (2007, September)

- National transmission networks are mainly planned according to technical considerations, but the economic rationalization of new investments generally stays out of interest;
- The SEE transmission system planning process must include regional criteria. The most important ones are generation investment plans; a multi-scenario approach is recommended so that transmission development may be more effective and faster. This will need:
  - full independence of TSOs;
  - faster national authorization procedures;
  - effective market design and a stable regulatory framework;
  - market-oriented signals for transmission investments;
  - private investments in transmission development;
  - coordination of TSO planning issues;
  - establishment of a stable financing mechanism that will support regionally important projects;
  - establishment of an official SEE regional transmission planning group, which should be supported by the Energy Community, the SEE TSOs, the SEE regulatory authorities and the European Commission.

A7 Extracts from the MoU and the treaty

This summarizes the key commitments made under the original Athens Memorandum of Understanding in 2002 and the Energy Treaty in 2005.

A7.1 Athens Memorandum of 2002

The undersigned … Resolve to devote their best endeavours to achieve the following:

1. AN INTEGRATED REGIONAL ELECTRICITY MARKET

To establish an integrated regional electricity market in South East Europe by 2005 and ensure its integration into the European Union's Internal Electricity Market.

This market will be based on the principles set out in the Electricity Directive and other legislation relating to the operation of the European Union's Internal Energy Market.

The structures and organisations agreed in this memorandum replace those in the Thessaloniki Declaration and the Athens Memorandum of Understanding.

1.1. National Electricity Market Models

Recognising that in order to achieve the regional approach, it is necessary to establish compatible national electricity market models, in line with the EU Electricity Directive in force (Dir 96/92) and the European Commission's new proposals – once adopted, the adhering parties will endeavour, where this has not already been done, to create institutions for the operation of an integrated electricity market in South East Europe, namely;

1.1.1. A State Energy Authority

A government body, within a Ministry of an adhering party, entrusted with development of energy policy by June 2003, and which has a primary purpose of ensuring the provision of energy under secure conditions at competitive prices with high levels of public services and consumer protection;

1.1.2. An Electricity Regulatory Authority

The Electricity Regulatory Authorities of the adhering parties, wholly independent of the interests of the electricity industry, by June 2003. They shall at least be responsible for continuously monitoring the market to ensure non-discrimination, effective competition and the efficient functioning of the market, in particular with respect to:

(a) the level of competition;

(b) the rules on the management and allocation of interconnection capacity, in conjunction with the national regulatory authority or authorities of those countries with which interconnection exists;

(c) any mechanisms to deal with congested capacity within the national electricity system including a mechanism to use the collected funds for increasing the capacity where existing capacity is congested;

(d) the time taken by transmission and distribution undertakings to make connections and repairs;

(e) the publication of appropriate information by transmission operator concerning interconnectors, grid usage and capacity allocation to interested parties, taking into account the need to treat nonaggregated information as commercially confidential;

(f) the effective unbundling of accounts to ensure there are no cross-subsidies between generation, transmission, distribution and supply activities. For this purpose they shall have access to the accounts;

(g) the terms, conditions and tariffs for connecting new producers of electricity to guarantee that these are objective, transparent and nondiscriminatory, in particular taking full account of the benefits of the various renewable energy sources technologies, distributed generation and combined heat and power.

The Electricity Regulatory Authorities shall at least be responsible for fixing, approving or proposing prior to their entry into force, the methodologies used to calculate or establish the terms and conditions for:

(a) connection and access to networks, including transmission and distribution tariffs; and

(b) the provision of balancing services.

The Electricity Regulatory Authorities shall have the authority to require transmission and distribution system operators, if necessary, to modify the terms and conditions, tariffs, rules, mechanisms and methodologies mentioned above, to ensure that they are reasonable and applied in a non-discriminatory manner.

Any party having a complaint against a transmission or distribution system operator with respect to the issues mentioned above may refer the complaint to the Electricity Regulatory Authority which, acting as dispute settlement authority, shall issue a decision within a reasonable time.

In the event of inter-regional disputes:

(a) the decisive Electricity Regulatory Authority shall be the Electricity Regulatory Authority covering the system operator, which refuses use of, or access to, the system;

(b) and in the case of a dispute not relating to access a body will be designated, for the purpose of resolving such disputes, by the regulators acting jointly and by unanimity.

The use of any Regulatory Authority shall not prejudice other rights under applicable law.

1.1.3. Transmission System Operators

Transmission System Operators of the adhering parties by June 2003, which shall have the following tasks:

(a) ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity;

(b) contributing to security of supply through adequate transmission capacity and system reliability;

(c) managing energy flows on the system, taking into account exchanges with other interconnected systems. To that end, the transmission system operator shall be responsible for ensuring a secure, reliable and efficient electricity system and, in that context, for ensuring the availability of all necessary ancillary services;

(d) providing to the operator of any other system with which its system is interconnected sufficient information to ensure the secure and efficient operation, co-ordinated development and interoperability of the interconnected system;

(e) the non-discrimination as between system users or classes of system users, particularly in favour of its subsidiaries or shareholders.

Unless the transmission system operator is already fully independent from other activities not relating to the transmission system in terms of ownership, the system operator shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to transmission.

In order to ensure the independence of the transmission system operator, the following minimum criteria shall apply:

(a) those persons responsible for the management of the transmission system operator may not participate in company structures of the integrated electricity undertaking responsible, directly or indirectly, for the day-to-day operation of the generation, distribution and supply of electricity;

(b) appropriate measures must be taken to ensure that the professional interests of the persons responsible for the management of the transmission system operator are taken into account in a manner that ensures that they are capable of acting independently;

(c) the transmission system operator must have effective decision-making rights, independent from the integrated electricity undertaking, with respect to assets necessary to maintain or develop the network;

(d) the transmission system operator must establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded. The programme must set out the specific obligations of employees to meet this objective. It must be drawn up and its respect monitored by a compliance officer.

1.1.4. Distribution System Operators

1.1.4.1 Distribution System Operators of the adhering parties by January 2005, which shall have the following tasks:

(a) ensuring the maintenance of and, if necessary, developing the distribution system in a given area;

(b) where applicable its interconnections with other systems; and ensuring the long-term ability of the system to meet reasonable demands for the distribution of electricity.

Unless the distribution system operator is already fully independent from other activities not relating to the distribution system in terms of ownership, the distribution system operator within the integrated electricity undertaking shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to distribution. This provision is not applicable if the number of customers served by the Distribution System Operator is below the threshold of 20,000.

1.1.4.2 In order to ensure the independence of the distribution system operator, the following minimum criteria shall apply, as of January 1, 2005:

(a) those persons responsible for the management of the distribution system operator may not participate in company structures of the integrated electricity undertaking responsible, directly or indirectly, for the day-to-day operation of the generation, transmission and supply of electricity;

(b) appropriate measures must be taken to ensure that the professional interests of the persons responsible for the management of the distribution system operator are taken into account in a manner that ensures that they are capable of acting independently;

(c) the distribution system operator shall have sufficient decision-making rights, independent from the integrated electricity undertaking, with respect to assets necessary for the maintenance and development of the network;

(d) the distribution system operator must establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded. The programme must set out the specific obligations of employees to meet this objective. It must be drawn up and its respect monitored by a compliance officer. An annual report, setting out the measures taken, must be submitted by the compliance officer to the national regulatory authority.

None of these provisions is applicable if the number of customers served by the Distribution System Operator is below the threshold of 20,000.

1.2. Regional Market Aspects

1.2.1 The adhering parties will take the steps to establish compatible state and regional level action plans, to be co-ordinated by the Permanent High Level Group, for:

– comprehensive tariff reform,

– the reduction of non-technical losses,

– an increase in energy efficiency necessary to abate demand; and

– the facilitation of sensible energy substitution, whilst maintaining a free market framework.

1.2.2 The adhering parties, aiming at regional investment optimisation, the need to attract private capital by ensuring least cost solutions, will, in co-operation with the donors:

- identify infrastructure needs and prepare a prioritised infrastructure plan that would ensure the complementarity of state and regional projects and shall have a regional focus;

- prepare and implement a thermal and hydropower plant rehabilitation plan, that starts from a regional perspective but that has regard to state needs.

1.2.3 The adhering parties, in order to facilitate regional trade on electricity with the objective of making optimal use of regional resources and facilities, will implement trading facilitating mechanisms such as cross border tariffs or systems and congestion management that are presented by the representative groups of the European Transmission System Operators Organisation (ETSO) and the Council of the European Energy Regulators (CEER).

2. FUNCTIONING OF THE MARKET

The adhering parties agree, in order to promote the functioning of effective markets:

(1) To ensure that all non-household customers—eligible customers—are free to purchase from the supplier of their choice by 2005;

(2) To ensure that integrated electricity undertakings shall, in their internal accounting, keep separate accounts, for their transmission, distribution, generation and supply activities, as they would be required to do if the activities in question were carried out by separate undertakings, with a view to avoiding discrimination, cross-subsidisation and distortion of competition. They shall keep separate accounts for supply activities for eligible customers and supply activities for non-eligible customers. Revenue from ownership of the transmission/distribution system shall be specified in the accounts. Where appropriate, they shall keep consolidated accounts for other, non-electricity activities. The internal accounts shall include a balance sheet and a profit and loss account for each activity;

(3) To adopt for the construction of new generating capacity an authorisation procedure, which accords authorisation if warranted without undue delay; which shall be conducted in accordance with objective, transparent and non-discriminatory criteria. The criteria for the grant of authorisations, in their territories, for the construction of generating capacity may relate to:

(a) the safety and security of the electricity system, installations and associated equipment;

(b) protection of public health and safety;

(c) protection of the environment;

(d) land use and siting;

(e) use of public ground;

(f) energy efficiency; and

(g) the nature of the primary sources;

(4) To avoid imbalances in the opening of the markets, contracts for the supply of electricity with an eligible customer in the system of another country of the region shall not be prohibited if the customer is considered as eligible in both systems involved;

(5) To implement grid codes by June 2004, that have common elements across the region that allow basic operation of the grid and do not discriminate against regional trade; these grid codes shall allow trade on a non-preferential basis and shall be based on best practices within the European Union and according to the Union's for the Co-ordination of Transmission for Electricity rules. These codes will facilitate and encourage regional trade with the objective of making use of the regional resources and facilities. This task shall be co-ordinated and agreed between the Council of European Energy Regulators and the Union for the Coordination of Transmission for Electricity. The European Transmission System Operators shall be invited to give their opinion.

(6) To identify all relevant technical norms for the operation of national markets, under the co-ordination and control of the European Transmission System Operators and the Union for the Co-ordination of Transmission for Electricity by June 2003, as it is agreed with these bodies;

(7) With the assistance and encouragement of the European Commission, the adhering parties shall consider the application of the Council of European Energy Regulators' and European Transmission System Operators' guidelines for inter-country trade and commercial codes, cross-border tariffs and congestion management, with suitable adjustment for national circumstances as the Council of European Energy Regulators and the European Transmission System Operators consider appropriate, by June 2004. They shall apply these guidelines if their responsible TSOs and Regulators give a favourable opinion.

(8) To identify a transparent financial settlement systems, assign roles in accountancy and principles for apportioning of cost, and apply international accounting standards (IAS); to develop a system of independent audit; to implement accounts transparency at a level that meets international standards; and in addition adopt best practice on corruption abatement as advised by a reputable international body by December 2003;

(9) To implement, in collaboration with the European Transmission System Operators and the Union for the Co-ordination of Transmission for Electricity, an appropriate method for collaboration and information exchange between national dispatch centres by June 2003; to implement the SECI Working Group Plan for Tele-information System among National Dispatch Centres, with the agreement of European Transmission System Operators and the Union for the Co-ordination of Transmission for Electricity, by 2005.

(10) To implement a system of Regulated Third Party Access to the transmission and distribution systems based on published tariffs, applicable to all eligible customers and applied objectively and without discrimination between system users. The countries shall ensure that these tariffs, or the methodologies underlying their calculation, are approved prior to their entry into force by the national regulatory authority and that these tariffs are published prior to their entry into force;

(11) Where not covered by the authorisation procedure above, to implement a licensing system for all types of infrastructure facilities and for market participation that is transparent, non-discriminatory and in line with international best practice by December 2003;

(12) To adopt legislation on competition that is at least applicable to the entire energy sector by June 2004.

(13) To draw up and agree an action plan on an annual basis for actions to be undertaken on an appropriate basis by each country in a manner consistent with the objective of optimising the regional electricity system, the first being published in June 2003, and thereafter on an annual basis. In this plan, the adhering parties will discuss what might be better achieved at a regional level rather than the state level.

A7.2 Energy Treaty of 2005

The European Community on the one hand,

And

The … Contracting Parties:

…

Consolidating on the Athens Process and the 2002 and 2003 Athens Memoranda of Understanding,

…

Resolved to establish among the Parties an integrated market in natural gas and electricity, based on common interest and solidarity,

Considering that this integrated market may involve at a later stage other energy products and carriers, such as liquefied natural gas, petrol, hydrogen, or other essential network infrastructures.

Determined to create a stable regulatory and market framework capable of attracting investment in gas networks, power generation and transmission networks, so that all Parties have access to the stable and continuous gas and electricity supply that is essential for economic development and social stability,

Determined to create a single regulatory space for trade in gas and electricity that is necessary to match the geographic extent of the concerned product markets,

Recognising that the territories of the Republic of Austria, of the Hellenic Republic, of the Republic of Hungary, of the Italian Republic, and of the Republic of Slovenia are naturally integrated or directly affected by the functioning of the gas and electricity markets of the Contracting Parties,

Determined to promote high levels of gas and electricity provision to all citizens based on public service obligations, and to achieve economic and social progress and a high level of employment as well as a balanced and sustainable development through the creation of an area without internal frontiers for gas and electricity,

Desiring to enhance the security of supply of the single regulatory space by providing the stable regulatory framework necessary for the region in which connections to Caspian, North African and Middle East gas reserves can be developed and indigenous reserves of natural gas, coal and hydropower can be exploited,

Committed to improving the environmental situation in relation to gas and electricity, related energy efficiency and renewable energy sources,

Determined to develop gas and electricity market competition on a broader scale and exploit economies of scale,

Considering that, to achieve these aims, a broad ranging and integrated market regulatory structure needs to be put in place supported by strong institutions and effective supervision, and with the adequate involvement of the private sector,

Considering that in order to reduce stress on the state level gas and electricity systems and contribute to resolving local gas and electricity shortages, specific rules should be put in place to facilitate gas and electricity trade; and that such rules are needed to create a single regulatory space for the geographic extent of the concerned product markets,

Have decided to create an Energy Community.