



Synopsis and Conclusions of the 1st Meeting of IENE's Southeast East Europe Energy Dialogue

Thessaloniki 28-29 June 2007

A. Synopsis

Session I: Introductory Session: “The Political Background”

SEE lies at the very epicenter of several major energy developments that directly influence not only the region's geopolitical and geoeconomic future, but the security of energy supply for the European Union economies as a whole. The re-emergence of Russia as a major hydrocarbons exporter along with the rapid development and of oil & gas production from the Caspian Sea Region have coincided with the deepening of Europe's internal energy market liberalization initially launched back in 1998.

In spite of the important steps taken over the last two years with regards to the establishment of an integrated energy-community for the greater region of Southeastern Europe, the concept of this Community needs to be further refined as the region is emerging as a major transit hub, - the “south gate” for energy supplies of the European markets - given not only the construction of the Burgas-Alexandroupolis Pipeline, but also of the IGI (Italian-Greece Interconnector) and the Nabucco gas pipelines, which would impede Russia's near-monopolization of European gas imports. (*Mousavi, Maniatopoulos, Papoutsis*)

The importance of the region as a crucial transit area for pan-European imports precipitates the necessity of its own integration and liberalization. According to the World Bank this process will create investment opportunities surpassing €25 billion over the next 15 years (*Karkanis*).

In energy terms the region is defined by an ever increasing dependence on hydrocarbon imports, primarily from Russia, and the dominant role played by lignite

(43%) and hydro power (24%) in terms of the region's electricity generation capacity of 66.000 MW.

Cross-border trading is still very limited while the general trend for market liberalization follows a paradigm of partial liberalization that will continue to secure a dominant role for the state as the sole operator of the transmission/distribution system and/or the major stakeholder in the "decoupled" generation system. The oil sector is more open and versatile than the electricity and gas markets. Competition at pump level is already evident in most countries (*Stambolis*).

According to several speakers the integration of the region's electricity markets does not merely create investment opportunities. It establishes interdependencies that can significantly reduce the region's volatility after a generation of nearly incessant wars. (*Maniatopoulos*).

It is extremely important to have in mind that all S.E. European countries are net importers of energy goods and their energy balances are largely dependent on oil and gas imported from Russia. Given the fact that the majority of prospective pipelines (Nabucco, IGI) transiting the region are supposed to serve the diversification of EU gas imports away from Gazprom, Iran remains the only country that can potentially challenge Moscow's increasingly "monopolistic" market share. In reality, in spite of the multitude of projected pipeline routes, the imposing Russian energy production capacity can not easily be replaced and what we could expect in medium term is simply supplementary imports from the **Caspian region** and – sooner or later – substantial imports from **Iran** (*Maniatopoulos*).

Despite its enormous gas reserves base of nearly 28,13 trillion cubic meters, which is second only to Russia's, Iran continues to face a multitude of problems in transforming its reserves into an actual production and net export capacity. It is indicative that, whereas Iran holds 15,5% of world proven reserves, it currently produces a mere 3,3 % of world production and exports less than 2% of total world exports (*Mousavi*).

Another important point is that despite Russian-Iranian cooperation within the Gas Exporting Countries Forum (G.E.C.F.), Russia is trying to block the penetration of Iranian Gas exports to Europe by i.e. blocking the extension of the Iran-Armenian gas

pipeline to Georgia and Ukraine. Gazprom has “preemptively” bought 50% of the Armenian part of the pipeline. (*Mousavi*).

It is also worth mentioning that the energy relations of EU and Russia are facing difficulties. The energy dialogue is not progressing as Russia is disagreeing with the proposed provisions of the transit protocol and not willing to ratify the Energy Charter Treaty. Moreover, some of the new E.U. member states are constantly blocking the Dialogue on the basis of suspicions and with a negative attitude against their former protector (*Maniatopoulos*).

Session II-a: The Energy Community in Southeastern Europe: “Facts & Figures”

Three major characteristics seem to stand out re. the major European energy issues: (i) the fact that Europe’s dependency on energy imports will grow from 50% today to about 70% in 2030, (ii) that fossil fuels account for 54% of Europe’s Electricity production while nuclear energy accounts for about 30%, and (iii) that growing concerns about climate change and CO2 emissions force some major E.U. member-states to rethink the current energy mix by turning into the development of Renewable Energy Sources, including Nuclear-generation. Nuclear Power Production can tackle E.U.’s energy challenges since it constitutes a competitive, low-carbon energy source. (*Slavov*)

The establishment of a Regional Energy Market, which eventually led to the signing of the Energy Community Treaty/ECT in Athens (2006), has been a process with deep roots in European Commission policy priorities ever since the idea was initially proposed in 1995. The ECT concept involved every major regional player from Austria and Croatia to Romania, Bulgaria and Greece. Currently it has incorporated every E.U. member-state as well as the region’s “7” core non-E.U. members (Albania, Bosnia & Herzegovina, Croatia, FYROM, Serbia, Montenegro, UN Interim Administration Mission in Kosovo (UNMIK), including, as observers, Turkey, Norway, Ukraine and Moldova.

Despite the impressive pace of regional integration the actual process of liberalization leaves much to be desired. (*Mavrakis*) For the core countries of the region, which are not E.U.-members, even though nearly all provisions are already in place for the monitoring of security of supply, decoupling and third party access, the crucial

market opening and cross border trading parameters of a truly integrated market, are still in the very early stages of the process.

That is true for both the electricity and natural gas markets. In particular, no provisions whatsoever have been introduced in the cross-border trading requisite of gas market liberalization for the entirety of the region. Apart from Bulgaria and Romania, no progress has also been made in the market opening requisite. Investment needs for the life extension and rehabilitation of existing power-generation units and for new installations to cover projected demand rise would amount to €18,6 billion over the next 15years. (*Mavrakis*)

On a regional basis that level of non-compliance with European Commission acquis and regulations is further aggravated by a series of factors such as regional and national political instabilities, persisting lack of infrastructure, the existence of a supply monopoly in natural gas and a major different level of economic development between EU and ECT countries in SEE.

In order to bridge that gap one of the participants (*Mavrakis*) proposed the establishment of a a Regional Intermediary Energy Organization (RIEO) that would promote transparency and standardization in wholesale power transactions in the region, facilitate investments of regional character in the power sector, establish of a fully functioning regional energy exchange, allocate production and transmission capacity – via a regional TSO, standardize transaction rules and procedures, while hedging services via derivatives without physical delivery - Contracts For Differences (CFDs). At a later stage RIEO could also establish a next day – intraday delivery spot market by offering regional exchange contracts with physical delivery.

From a financial point of view the aforementioned investment projections appear to be quite promising. One regional banking organization set to play a significant role in energy project finance is the Black Sea Trade and Development Bank/BSTDB, which is based in Thessaloniki (*Horozov*). Contrary to other financial institutions it can incorporate political and country risk that often keep private investors away, while allowing investors to share in Preferred Creditor Status and thus to focus on commercial issues.

BSTDB has been micro-financing –for the better part of a decade- several energy-related projects throughout the greater Black Sea region with a particular focus on Ukraine and Romania both in the upstream (Rompetrol, Chernomornaftogaz) and mid-stream levels (South Western Ukraine gas pipeline). BSTDB has also expressed intense interest to participate in the financing of the Nabucco pipeline (*Horozov*).

Unfortunately enough respective Hellenic institutions such as the National Bank of Greece remain reluctant to invest in energy infrastructure projects at least for the near term. (*Loufir*).

Session II-b: Security of Energy Supply Issues

One of the most important issues of regional energy security is directly related to SEE's emerging role as a critical transit area for Pan-European gas imports. Apart from its major transit role, the region itself is projected to become an important consumer of gas over the next 25 years. Regional gas market growth will come nearly from all sectors of the economy but will be mainly driven by power generation needs as well as by the continuing process of economic development and demographic/social change (*Paleoyannis*). Most regional players, with the sole exceptions of Romania and to a certain extent Greece, have raised serious concerns for their ongoing over-dependence on Russian gas, despite Moscow's historic reliability over the last 30 years.

Two major transportation projects have emerged at the forefront of that process both of which transit via Turkey (*Pala*): the Nabucco pipeline with a throughput capacity of 25-31 BMC/y and the Turkey-Greece-Italy Interconnector with a throughput capacity of 8-11 BCM/y. Both projects are extremely long and capital intensive enterprises but the most serious concern of all is that there might not be enough exportable gas volumes to render them commercially viable, at least not by their projected start date of 2012.

Given Russia's major deal with both Turkmenistan and Kazakhstan for the construction of an inter-Caspian gas pipeline that would channel their exports in a northerly- *not westerly*- direction, the significance of prospective Azeri and Iranian exports, becomes ever more important. As far as Azerbaijan is concerned Statoil's strategic position in the country constitutes a major source of optimism. Statoil, which is the third larger net oil exporter in the world, already holds a prominent position in

Europe's gas supply equation, covering 11% of European consumption in over primarily 13 West European states (*Billington*).

In Azerbaijan Statoil has invested over \$2,2 billion over the last 15 years, becoming the operator of the Shad Deniz field as well as the commercial operator of the 680-km long South Caucasus Pipeline, that would connect Shah Deniz's output to Erzurum (Turkey) and through the Turkish pipeline system to the Nabucco and the Greek-Italian Interconnector (Poseidon Project). Shah Deniz has an initial capacity of 8,5 BCM/y that is already contracted to Turkey (6,6 BCM/y), Georgia (0,8 BCM/y) and Azerbaijan (1,5 BCM/y). That represents the entirety of Shah Deniz's export potential leaving very little "room" for a major Azeri contribution to either Nabucco or Poseidon. This will have to wait until after 2012 when the second-phase of the field's development is set to start. This is expected to increase Shah Deniz's output to over 12 BCM/y with a potential ultimate production capacity circa 20 BCM/y, which may be reached by the end of the next decade (*Billington*).

As far as Iran is concerned the situation appears to be even less promising, even though Iran exports, since 2004, approximately 6-7 BCM/y to Turkey. There is a vast discrepancy between the country's reserves potential and its actual natural gas production and exports. Iran's present import-export balance is -2 BCM/y. Tehran is in the middle of making a series of fundamental changes in its natural gas strategy. According to its official 2030 Energy Strategy Iran aims to develop almost 40% of its total recoverable gas reserves, in order to capture 8%-10% of the global gas market, from a market share of less than 2% today. That translates to the near quadrupling (475 BCM/y by 2025) of its current (2006) production level (125 BCM/y). (*Ghorban*)

Despite this enormous – expected - rise in production the overwhelming majority of Iran's 2030 output will still be consumed within the country. Iranian gas demand is growing by an annual base of 10% and is expected to grow even faster in the medium-term. It is important to underline that the reserves base dedicated to the development of the country's export strategy is exactly the same with the reserves base allocation for oil fields injection, namely 1,8-2 Trillion Cubic Meters. Still, if Iran manages to reach its target it will effectively break Russia's increasing market dominance in Europe (*Ghorban*).

Session III: Investments and Market Liberalization: “A View to the Future”

Regulators find themselves in the forefront of regional market liberalization. There are not merely the precursors of the “market opening”, but the actual enforcers of E.C. directives spearheading SEE’s energy integration. Overall, Regulatory Authorities, have three basic missions: (i) Restructuring: namely the vertical unbundling of generation, transmission, distribution and supply activities as well as the horizontal splitting of generation and supply, (ii) Competition: namely the introduction of competitive conditions in both the wholesale and retail markets, as well as the assurance of new entrants access to the market, (iii) Regulation: namely the establishment of an independent Regulatory Authority that provides for third party access, safeguards the independence of the system’s operator and promotes the diminution of the former state monopoly’s market share via privatization.

In the case of Romania the Electricity Law 13/2007 established ANRE (Romanian Regulatory Authority) and provided the legal framework for the country’s full harmonization with the respective European Commission Directives. Actually over the last three 30 months the electricity market’s opening degree has more than doubled from 21% in May 2004 to almost 50% in February 2007 (*Stanciulescu*).

In the case of Bulgaria the process of liberalization has been much more prolonged and with more mixed results and the introduction of the Balance Groups market model will be further delayed until January 2008. Despite these regulatory delays the market seems to be opening at an increasing pace. (*Georgieva & Kanev*).

On the other hand one should not be too judgmental of Romania and Bulgaria for not fully complying with E.C. directives and regulations. Apart from the Nordic states and the U.K.- no other E.U. member state has fully liberalized in practice its electricity and gas markets. Greece is an indicative example of this discrepancy between the typical harmonization of legal edits and their actual market relevance. Despite years of deregulation the Greek power generation market continues to have monopolistic characteristics in both the production and supply sector. There still is only one CCGT and one OCGT unit that do not belong to PPC. It is noteworthy that a potential tariff deregulation presupposes that PPC’s market share falls below 70% from a nearly 95%

share today. The same holds true for the gas sector where there is no real competition either in an international or local framework, a situation that is not likely to increase the price elasticity of natural gas any time soon (*Tzouros*).

Session IV: Environmental Protection and Climate Change

Despite the dominant share of oil & gas in the future world primary energy supply, coal plays and will continue to play a major role in balancing off the multitude or primarily geopolitical risks that are associated with increased hydrocarbon import dependency. Coal currently provides ~40% of electricity worldwide. It is prominent in the energy policy planning of several OECD countries and dominates not only the electricity-generation but the overall TPES balance in both China and India as well as in other developing economies.

That is also true for Southeast Europe where 43% of all generation-capacity is lignite-fired. Nevertheless, the perennial strategic significance of coal needs to be viewed in relation to its environmental impact as the most polluting or all carbon-based primary energy supplies. Coal is projected to account for more than half of the incremental CO₂ rise increase to 2030, emanating primarily from new coal-plants constructed in China and India. As a consequence Clean Coal Technologies are needed for about 1400 GW of additional capacity over the next 25 years (*Morrison*).

There are two principal technology options for achieving that goal: (a) Supercritical pulverised coal leading to ultra-supercritical steam conditions (>650C and >30 MPa), offering net efficiencies of 50% and above on an LHV basis over the next ten – twenty years and (b) Integrated gasification combined cycle (IGCC), which in the longer term could become the clean-coal technology based on present knowledge as CO₂ capture and storage becomes the norm. In reality the world is in dire need of both technologies since we cannot be sure of the outcome and associated costs for IGCC. IGCC technology, even if successful, would still need 15-20+ years to achieve a sufficient level of market penetration (*Morrison*).

Apart from the introduction of clean coal technologies an equally pressing priority for the region of SEE is increased energy efficiency applications. The World Bank

supported Bulgarian Energy Efficiency Fund/BEEF constitutes a capital example of concentrated action by an IFI that can have a significant impact in a relatively short time-period. A year before Bulgaria's admission into the E.U. its electricity intensity was seven-times higher than the OECD-average. Bulgarian industry operated only at 50% of its savings potential. BEEF was set up as an independent legal entity and had an initial seed capital of \$15 million, 2/3 of which were financed by the World Bank and the rest from a consortium of public and private financiers such as the Austrian Government, DZI Bank, Lukoil AD, and Brunata Bulgaria.

In its first year of operations, BEEF approved a total of 20 projects, 17 of which have already been completed at a total cost of \$3,4 million. The results were truly impressive. BEEF's capitalization is set to increase to \$25 million a process that could be supported by E.C. structural funds (*Dobozi*).

Greece offers another regional success story when it comes down to lowering CO₂ emissions via a combination of clean-coal technologies, increased efficiency and –rather belatedly- significant RES penetration. Given its dominant position, PPC, is the natural leader of that process. From 1990 to 2005 PPC managed to curtail its emissions by nearly 25%. PPC is already implementing a medium term strategy (2007-2012) that would additionally diminish its overall energy-intensity even further.

This strategy is based on: (i) the construction of a 370-420 MW CCGT plant in Aliveri by 2009 and two additional 400 MW-capacity CC plants in Megolopolis (2011) and probably Keratsini (2012), (ii) the operation of six additional hydro-electric units with a total capacity of 650 MW and (iii) the production of 900 MW of RES-generation capacity via PPC Renewables and international JVs like the one with EDF Energies Nouvelles that would help PPC control; 23% of the Greek RES-electricity output by 2014 (*Kanellopoulos*).

Session V: Major Energy Projects Under Development

Five major infrastructure projects currently define the strategic environment of the region's emerging transit importance. Apart from the Burgas-Alexandroupolis oil pipeline/BAP, the rest are directly related to gas imports. The 280-303 km-long BAP has been recently boosted (Intergovernmental Agreement of March 2007) as the dominant

alternative for Russian and Kazakh oil exports to Europe, effectively diminishing Russia's export dependence on the Turkish Straits. The pipeline's initial capacity is estimated at 0,75 mb/d. According to extensive studies the project's total cost –including the construction of sizeable tank farms in both Burgas and Alexandroupolis- is approximating \$1 billion. Despite exaggerated concerns over the project's environmental impact, preliminary environmental licenses have been obtained in both transit countries (*Dimas*).

Apart from Consortium's participating companies, 51% of which will remain in Russian hands, equally divided between three state controlled companies (Rosneft, Gazprom, Transneft), negotiations are already underway with other private and state players (TNK-BP, Kazmunaigaz, Chevron) for their inclusion in the BAP Line. Since last month commercial discussion among the consortium members are already underway. By the end of the year the international project company that will construct and exploit BAPLine will be established, while all transit agreements among the IPC, Greece and Bulgaria will be signed. Construction should start by early 2008. The project should become fully operational by 2011 (*Dimas*).

On the natural gas front, three alternative pipeline schemes are competing against each other for a limited amount of non-Russian controlled gas exports from the FSU and the Middle East : Nabucco, TGI and TAP.

TAP is a completely private scheme promoted by a Swiss-based multinational electricity and gas trading company is steadily gaining ground. EGL's Trans-Adriatic Pipeline TAP is planning to pump –starting in 2010- up to 10 BCM/y to its CCGT generation units in Italy. EGL is developing a variety of projects with a combined generation capacity of 3.260 MW (*Karidogiannis*).

EGL has already secured a 5,5 BCM/y supply contract from Iran's NIGEC that is due to start in 2010. The transit contract with BOTAS is being currently negotiated. TAP is planned to feed on the Turkish-Greek pipeline from Thessaloniki and then cross Greek and Albanian soil in a northerly direction to the Albanian port city of Vlore and then across the Otranto Straits to Brindisi. Vlore is also strategically important because it can link up to the projected Ionian-Adriatic Pipeline (IAP) linking Albania to Montenegro and Bosnia & Herzegovina. The project has been endorsed by the World Bank and TAP

is following a policy of equal access vis-à-vis all gas producers on an “open season” basis. The project is currently at its detailed engineering phase. It is also important to add that the EU has granted financial aid for TAP for the second time. If all goes according to plan the line should begin construction by late 2010 (*Karidogiannis*).

Besides Nabucco the other highly “publicized” alternative is TGI. TGI aspires to become another major gas pipeline that will serve the purpose of European import diversification away from Gazprom by tapping on Caspian, Iranian and Iraqi long-term exports. TGI is consisted of three complementary projects. The 300-km long Turkish-Greek connection which is nearly completed with a maximum capacity of 11,6 BCM/y. The DESFA (Gas Transmission Company) sponsored on-shore part of IGI from Rodopi to the western city-port of Egoumenitsa.

That second “leg” of the project has an initial capacity of 8-10 BCM/y and is 590-km long. It is expected to become operational by 2012. Finally the underwater link of the TGI, the so-called Poseidon Project, has an initial throughput capacity of 8 BCM/y, 80% of which –namely 6,4 BCM/y- is earmarked for Edison’s utilization and is not likely to be completed before 2014. This timeline is in accordance to the developmental pace of Shah Deniz’s Phase II that starts in 2012 (*Rocca*).

Poseidon has been exempted for a 25-year period from any Third Party Access requirements by both the Italian and Greek gas system operators, effectively excluding any potential deal with Gazprom. The Poseidon Project is currently completing, with EU financing support, the PRE-FEED phase consisting of clearing all authorisation permitting procedures in both countries. That phase along with the completion of the Pre-Basic Engineering details are to be concluded by November 2007 (*Rocca*). Given its smaller capacity-size compared to the “gargantuan” 25-31 BCM/y Nabucco pipeline, Poseidon has significantly more chances to be constructed and to be –actually-filled.

Another related consequence of the region’s emerging role as a major gas hub is the incentive this process provides for the expansion and modernization of domestic gas distribution system. Nowhere is that trend more evident than in Croatia, a country that by 2011 will have more than doubled its network’s size, under the supervision of the system’s operator Plinacro. In its second phase of development (2007-2011) Plinacro plans to invest €450 million in the expansion of the system, the construction of

underground storage and LNG de-liquefaction facilities, as well as its prospective connection to the Western Balkans Gas pipeline Connector/WBC that is planned to connect Skopje with Ljubljana after traversing the entire former Yugoslavia (*Durovic*).

Session VI: Business Opportunities: “The Developers Meetings”

Group A: Electricity Generation (in association with Eurelectric)

Despite the discrepancy between the nominal and actual level of market liberalization inside the individual members of the SEE Energy Community the dissipation of domestic barriers in the trading of electricity between those states has created an opportune environment for the establishment of strategic synergies among regional and European corporate players. The admittance of Bulgaria and Romania in the European Union has significantly increased that trend. Since all countries need interconnections, and to various extend, investments in generation across diversified technologies, corporate players can focus on different parts of entire value chain from generation and distribution to commercialization and trading.

One *par excellence* example of this trend has been the recent merging of Endesa and Mytilineos S.A. This JVs, Endesa Hellas, which is 50,01% owned by Endesa, aspires to become a major regional player in the generation and trading of electricity, controlling –by 2010- almost 10% of Greece’s generation capacity while developing several export oriented options throughout SEE. Part of Mytilineos’ asset portfolio includes the operationalization of one 334 MW CHP plant and one 430 MW CCGT unit in Viotia, which will be respectively completed by 2007 and 2009. According to the same 2010 business development strategy, Endesa Hellas plans to control 750 MW of installed gas-fired capacity and 150MW of RES-installed capacity primarily in wind-parks (*Desypris*).

The province of Kosovo/Metojia is one characteristic area in the region where investment opportunities abound. If the area’s major political problem is resolved in a peaceful and mutually constructive way, its significant lignite resources (14 billion tones) could constitute a major bone of contention between several energy developers. Since 2004, under U.N. administration, the local authorities have made significant progress in conforming to E.C. directives. Kosovo has joined the Energy Community Treaty in

October 2005 and has virtually completed all necessary steps in securing its transition to an open market once the independence issue is resolved. The system's transmission operator, KOSTT, was established in July 2006 and has set the following investment priorities in order to upgrade the grid after ten years of nearly total neglect and renew –to a certain extent- Kosovo's lignite reserves that will be exhausted by 2011 (*Ismajli*). The new mine's lignite resource potential is estimated at 1 billion tones and will provide one of the major feed-stocks for the 2000 MW of additional capacity, which is expected to be in place by the beginning of the next decade. A secondary priority will be the development of small-scale hydro plants.

Despite its non-contentious status as an independent state Montenegro is facing an ever increasing energy shortage. Since its establishment in 2004 the county's Regulatory Authority and its TSO -Nikšić- have been noting a steady rise in Montenegro's import dependency that has currently reached 1.430 GWh of generation capacity. In 2005 that shortage amounted to 34% of the state's total electricity needs which last year rose to 36% of total consumption (*Mijušković*).

Unless there is a major inflow of investment that worrisome trend will only grow along with the country's rising power consumption. It is indicative that the last power station built in Montenegro dates back to the early 1980s (TPP Pljevlja). Existing Hydro-Electric stations that are in dire need of modernization account for almost 2/3 of total generation capacity. It is nonetheless important, and optimistic to note that Montenegro holds one of the region's greatest hydro-electricity potentials which is vastly underutilized (~17%) at the moment (*Mijušković*).

Group B: Oil & Gas

As it has already been mentioned the process of market liberalization has been implemented at different levels throughout the region. Bulgaria is one characteristic example of the government's adaptability in implementing E.C. directives without simultaneously sacrificing its overall "commanding authority". The decoupling of Bulgaria's natural gas supply and distribution system according to the statutes of the 2003 E.C. Directive has fulfilled the letter of the law while securing a continuous 100% state control over the Bulgargaz EAD holding and its three legally, organizationally and

financially distinctive subsidiaries, namely: (i) Bulgartransgaz that controls the day-to-day management of the gas transmission system while balancing and optimizing its operations, (ii) Bulgargaz that acts as the main supplier as well as trader of the system and (iii) Bulgartel that deals in the field of telecommunications primarily charged with the maintenance and development of the Bulgargaz Holding optical cable highway (*Beyazova*).

Romania's liberalization experience is somewhat different for its Bulgarian counterpart. Romania's gas transmission operator, *Sntgn Transgaz SA*, has completed all necessary unbundling ever since its original establishment back in April 2000 and is not completely controlled by the state. The Romanian government actually owns 85% of the company while the other 15% is controlled by the Proprietatea Fund. Contrary to any other regional TSO, *Transgaz S.A.* is planning –starting on Q4 of 2007- to publicly offer 10% of its shares to the Bucharest stock exchange, in order to collect the necessary capital for the implementation of a very ambitious rehabilitation and expansion programme covering the entirety of SEE's vastest transmission network (*Mares*).

Transgaz's strategic priorities focus on the following sectors: (i) the comprehensive rehabilitation of the system's entire infrastructure and the implementation of a SCADA system, and (ii) the emergence of Romania as the quintessential hub for intra-regional gas transit from the FSU and the Middle East to Southeastern and Central European markets.

Nabucco's "crossing" is among the top priorities of the company (*Mares*). Apart from the fact that the pipeline will cross over 457-km of Romanian soil, Transgaz plans to complete one compressor station with installed power of 31-37MW, two gas import stations in the Craiova and the Arad-Nadlac areas, one custody transfer metering station in the former district, and two "pig" launching/receiving stations, all servicing Nabucco. In addition to Nabucco Transgaz aspires to build three major interconnections line with Ukraine (Cernăuți – Siret Pipeline), Hungary (Szeged – Arad pipeline) and Bulgaria (Russe – Giurgiu Pipeline) with a combined throughput capacity of 4,5-5 BCM/y (*Mares*).

In terms of upstream oil development Hellenic Petroleum (hereafter HELPE) constitutes without a doubt SEE's "super-major". The company that is currently run by

the state, even though it controls a mere 35,5% of its shares, has developed over the last few years as a prominent upstream (Libya, Egypt, Montenegro) and downstream (Cyprus, Georgia, Albania, FYROM, Serbia, Bulgaria via refinery & retail subsidiary EKO) player throughout the region and beyond. In Greece HELPE controls 71,3% of the country's refinery and 21,8% of its retail/domestic market. HELPE has also established a major presence in FYROM where it owns one of the state's largest refinery (capacity of 65.000 b/d) as well as the country's major oil pipeline artery linking Thessaloniki to Skopje (*Nikolaou*). In addition to its oil related activities, HELPE is a major shareholder (35%) in Greece's state natural gas company, DEPA, as well as the first owner of a private Combined Cycle electricity unit, the 390 MW-strong Thessaloniki Power station.

In Libya HELPE controls 20% of a Woodside Energy-led JVS for the development of 5 blocks in Sirte basin and one in Murzuk. So far –after 7 exploration and 3 appraisal wells- 5 wells have been approved by Libya's National Oil Company and reported as official hydrocarbon reserves. The Exploration programme is set to continue until 2009. In Egypt the West Obayed block, along Egypt's Mediterranean seaside was awarded to Hellenic Petroleum as operator under EGPC's International Bid Round 1 back in 2005. The Messaha Block in the country's southwestern tip is developed under a Joint Venture led by Melrose, where HELPE controls 30% of the project. E & P activities are proceeding according to the original plan. In the Balkans, HELPE is in the process of drafting an E&P programme for approval by Montenegrin authorities in concessions areas 1&2 situated along Montenegro's northern coastline, while negotiating access terms for a third Block along the country's southern coastline (*Nikolaou*). Yet, apart from its significant regional presence, HELPE has played no role in developing Greece's own hydrocarbon resources. That is not the company's own fault. Back in the mid-1990s when HELPE was established by the merging of different state owned companies, the licensing branch for E&P concessions (DEP/Public Oil Company) was naturally incorporated into the new vertically integrated company.

Yet, as HELPE's privatization process continued throughout the last decade, the company's E&P branch authorities were not transferred to a new independent state company that could organize and execute the necessary concession rounds for developing the country's significant reserves. HELPE could not legally organize the concessionary

rounds over areas (62.000 km²) it already controlled or would be willing to claim within the context of an open and competitive process. Consequently the company remained self-paralyzed for over a decade even though there are at least three half-finished hydrocarbon areas (the Katakolo and South Prinos/Babouras oil fields as well as the Epanomi gas field) where production has been stymied.

Last June, as it was underlined by the short yet very useful remarks made by former Deputy Minister of Development for Energy, *Mr. Salagoudes*, a draft law was introduced that annulled HELPE's concessionary rights, without hitherto establishing the necessary independent authority for reinvigorating Greece's upstream oil activities. Once this problem is resolved, HELPE's exploratory work over the last twenty years has singled out the Ionian Sea, Epirus, the greater Gulf of Thermaikos and the region of Evros as major E&P priorities (*Nikolaou*).

Group C: Renewables in association with EREF

One of the region's most important drawbacks in terms of its overall energy security lies in the small level of RES participation in the generation-mix at a time when most E.U. member-states are progressing rapidly towards the 2020 targets set by the recent European Council decision of March 2007. The main conclusions of that Council Decision will be presented in a comprehensive RES "green paper" by the Commission this coming November. The main scope of EREF's (European Renewable Energies Federation), where Greece has a strong voice via the Federation's Vice-President Nikos Vassilakos, efforts is to affect current legislation in ways that will make EC to impose obligatory, mandatory targets for all EU Member States and all sectors (transport, electricity, heating) in order to reach a level of minimum 20% RES share in terms of Total Primary Energy Supply by 2020. That would result in the near tripling of RES's current share of EU 27 Total Primary Energy Supply and the more than doubling of RES's contribution to the EU's generation mix from its current 15% to 34% by the end of the next decade. Wind energy lies at the forefront of that process and is expected to account for more than 1/3 of 2020's prospective generation-mix (*Hatzivassiliadis*).

The most successful and widespread system of state-subsidies in the promotion of RES is the feed-in tariffs option that is followed by 19 out the Union's 27 member-states,

with Germany and Spain being the most prominent examples in this regard (*Fouquet*). Yet, since all feed-in systems are not structured well enough nor effectively embedded in an efficient planning environment a new form of feed-in tariffs (Future Sharing) should be supported by EREF. Germany and Spain were among the two first countries to implement the future-sharing option. In Germany 2,2 billion Euros of RES incentive was added to the consumption price costing the final consumer approx. 0,5 Cent per kWh. An average household with electricity consumption of 3.500 kWh per year actually paid less than 1,50 Euro per month. Consumers will be willing to accept this new form of feed-in tariffs. European citizenry is always greener than its respective governments. Germany is a major example of this trend, since it constitutes –along with China- the world leader in RES investments (around \$7 billion annually) over the last three years (*Fouquet*).

Another characteristic attestation of Germany's leading role as a RES-developer is its dominant status in the Photovoltaic/PV european market. In late 2006 there were 3.419 MW of solar power installed in EU 27. Germany controlled more than half of them. In 2006, 1.246 MW of additional capacity was installed, more than 90% of which in Germany, followed by Spain, Italy and France. In Greece, on the other hand, arguably the Union's most heavily endowed solar-energy region, the total PV-generation capacity is close to zero. If Germany's example is to be followed on a pan-European level the Commission the OECD and their member-states need to drastically modify their own R&D budgetary priorities (*Hatzivassiliadis*), since for over two decades 50%-60% of all related subsidies are channelled to Europe's nuclear industry (*Fouquet*).

Companies such as Endesa Hellas and Terna Energeiaki are already operating as the market accelerators for the expansion of RES-penetration in Greece and eventually throughout the region. Terna is particular has been among the early entrants to the process of market liberalization in Greece, its involvement predating by one year even the first E.C. Directive of 1998. Terna is already among the most influential private electricity providers having installed a total of 266 MW of capacity (119 wind, 147 thermal). Emboldened by the newly established legal framework for the promotion of RES in Greece (L.3468/2006) Terna is currently constructing an additional 526 MW (114 Wind, 12 Hydro and 400 thermal) of production capacity aiming to become Greece's leading private generator by the end of this decade (*Tzavaras*).

It is significant to note that Terna's strategic focus is increasingly shifting towards wind power. According to its medium-term market strategy the company has heretofore secured production licenses for 438 MW of wind-generated electricity while filing permit applications for another 1.121 MW. Comparatively it has secured no production licences for any additional thermal units and is planning to limit its overall thermal "portfolio" to a total of 1.007 MW of installed, constructed or "licensed" generation capacity, whereas the share of wind (1793MW, 1000 of which in operation by 2012) and small-hydro (197MW) capacity is almost double that figure (1990MW). It is indicative of the newly improved investment environment that state-subsidies play a significant role of Terna's financial planning. The company has ascertained state-subsidies covering 30% of total investment cost for its wind, 35% of its small-hydro, and 30% for its large-hydro projects under construction. Regionally Terna is focusing on emerging opportunities in Romania and Bulgaria (*Tzavaras*).

Apart from Greece's vast and vastly untapped wind and solar resource potential, Southeast Europe as a whole could emerge as one of Europe's most dynamic markets for hydro-generation. Hydro-generation already plays a very significant role in the region's power generation-mix, varying from 20 % in F.Y.R.O.M. to 97 % in Albania. Only in Bulgaria does hydro play a minor role covering merely 6 % of the country's electricity production. With the sole exception of Kosovo, where the province's hydro-potential cannot "sustain" more than 2-3 plants, SEE's hydropower resource-base is very considerable. Only an average 33% of this potential has been technically developed so far (*Babalis*). Pump storage schemes exist mainly in Bulgaria, Serbia, Romania and Croatia. An important capacity for rehabilitation exists in Serbia, Montenegro, Croatia, Romania, Bulgaria and Albania, all of which has remained idle primarily due to lack of available financial incentives.

According to a relatively recent (2004) E.C. Study (*The Card Programme*), the development of 6.5 GW or 13,3 Thw/y concerning the 70 most feasible hydro plants, requires a total of 9.5 billion Euros for all nine countries. Montenegro (1.800 MW), Bosnia-Herzegovina (1373 MW), Serbia (883 MW), FYROM (696 MW), and Albania (604 MW), have the most important share in the Card Programme. Still, according to other studies the region's ultimate economically feasible potential is at 108.5 TWh/a. An

addition of approximately 300 large schemes –each over 10 MW- can result in a total installed capacity of 19.2 GW producing c.48.5 TWh per annum (*Babalís*).

Another case of major RES underdevelopment is Bulgaria, where RES-share of total generation capacity was around 8% in 2006 (*Penchev*) consisted of 599 MW, with hydropower (304 MW) and geothermal (170 MW) occupying the largest shares of that overall mediocre capacity, the lowest even by SEE standards. Still according to the Phare Energy Programme studies (1995-1997), the technical and economic assessment of Bulgaria's RES potential remains very important, particularly in the hydro-generation (14.300 GWh/y) and wind-energy (5.750 GWh/y) sector.

In order to further its target of increasing RES's contribution to 11% of the generation-mix by 2011 the Bulgarian government has introduced a variety of feed-in tariffs so as to attract the necessary interest from investors, ranging from 40 €/MWh for hydro power plants with compensating reservoirs to 87,1 €/MWh for wind power plants with new equipment and ≥ 2250 hours of annual full load operation, and from 171 €/MWh for wood and wood-waste biomass to 391 €/MWh for PV systems with a ≥ 5 kW capacity (*Penchev*). Last year feed-in tariffs covered a minimum of 70% of the average electricity price paid by household consumers.

B. Conclusions

- Despite the very condensed time-schedule available in the hands of the organizers the 1st Meeting of the SEE Energy Dialogue process has been a heart-warming success. It managed to bring together senior representatives from all parts of the evolving energy market, all key players from both the public and private sectors: regulators, regional, national and European electricity-generators and financiers, academics and bureaucrats.
- IENE's Energy Dialogue initiative aspires to utilize this very productive two-day event in order to establish a process of fruitful and policy-generating dialogue between the basic pillars of an ever integrating energy market.
- The IENE's Energy Dialogue Initiative should act as a bridge between the different protagonist of the energy market, but should simultaneously remain focused on the

actual energy corporations that are already moving in a much faster pace than any regulatory agency, national or regional organisation might have anticipated.

- By helping the major corporate players to better understand the new regulatory environment and recognize its concomitant investment opportunities, IENE can progressively complement and facilitate the actual implementation of what is envisioned in the Energy Community's Charter Treaty and even move beyond that, in the field of energy investment and energy trading .
- A change of mentality towards a more market-driven energy system is necessary and could be achieved by the executive empowering of Regulators, instead of a mere consultative role many of them still play in SEE, in order to assure transparency, to safeguard equal and free access to the grids, and to standardize rules of trade and investment for all potential or present players.
- In the electricity sector, despite the rapid harmonization of national legislations to E.U. norms, the most promising development so far has been the formulation of strategic synergies between regional, national and private corporations.
- In particular Power Generation investments should go hand in hand with investment in the technical updating of the grid system and the improvement of intra-regional exchange flexibility, especially during a crisis period.
- In the gas sector the main conclusion was that there is a severe need for investment in order to upgrade the existing capacity of the system, not to mention the urgency of constructing a series of inter-connections particularly in the eastern Balkan states, starting with Romania, Bulgaria and Greece. Those inter-connections are of vital importance if the region is to develop as a critical European transit hub for natural gas imports.
- Also, of vital importance is the urgent need for natural gas introduction to the Eastern Balkan region which severely lacks behind the use of gas. An obvious negative impact is the lack of power generation capability in Albania and South Croatia.
- In the upstream oil sector the most promising regional hydrocarbons area is that of Greece, which has nevertheless remained practically unexplored and unexploited due to a series of bureaucratic, legal and (geo)political problems. Most recently (June 2007) the Greek government has taken the initiative of putting things back in order by

reclaiming through a special legislative measure oil and gas regions which had been extended to Hellenic Petroleum.

- An era of greater opportunity for the development of RES technologies and resources is at hand throughout Europe as a consequence of (i) the increased debate regarding the long-term availability of fossil fuels and (ii) the challenges of confronting the results of climate change.
- The “binding” character of the recent goals adopted by the European Council concerning the “penetration” of RES up to 20% of E.U.’s Total Primary Energy Supply by 2020 constitutes a major political/institutional and prospectively regulatory incentive.
- On a regional basis, apart from wind and to a certain extent solar energy, the most promising and simultaneously untapped Renewable Energy Sources are hydro-electricity and biomass.
- Yet, both EREF and a number of speakers expressed serious reservations on the feasibility of the 2020 targets, since there still are a series of institutional, economic and –primarily- political impediments, which need to be overcome for an actual RES break-through to occur.

Finally,

- It was generally agreed that IENE’s mission can be to provide and support via dissemination of information, scientific analysis and policy-making proposals, an actual as well as an electronic – e.g. via a blog site- community of thought and action on the region’s vital energy issues.
- It was particularly encouraging that several participants already proposed joint studies e.g. on the feasibility of long-term European energy imports from Iran and the Caspian Sea or on the establishment of joint thematic task forces for dealing with several aspects of the energy market. The conclusions of such studies could be circulated as a comprehensive set of actionable proposals to governments, regulators and the Energy-Community’s secretariat, based in Vienna.

- Another very encouraging conclusion was the general feeling that the IENE's initiative for a S.E.E. Energy Dialogue is very constructive and should be continued and enlarged.