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**SECURE**  
**Security of Energy Considering its Uncertainty, Risk and Economic implications**

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Proceedings of thematic workshop:

**Regional Stakeholders Meeting**

**“The Role of South and East Mediterranean in the EU Energy Supply Security”**

*Cairo, 19 October 2010*

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## Regional Stakeholders Meeting

### Agenda

**19 October 2010**

Venue: Egyptian Natural Gas Holding Company (EGAS) Conference Center  
85 El Nasr Road, 1<sup>st</sup> District, Nasr City, Cairo, Egypt

**09:00** *Registration*

**09:30- 10:00** **WELCOME AND INTRODUCTION**

**The SECURE project**, started in 2008, aims at building a comprehensive framework for measuring energy security of supply in the EU. Assessing the risks related to geopolitics, price formation and the economic and technical design of energy markets inside and outside the EU, the project focuses on both qualitative and quantitative analyses, adopting a global as well as a sectoral approach. The tools, the models and the policy recommendations provided by this project will serve policy-makers to formulate energy security policies taking into account the related costs, benefits and risks.

Welcome by **Mahmoud Latif Amer**, Chairman of EGAS and President of OME

Welcome by **Tarek El Hadidy**, *First Under-Secretary, Ministry of Petroleum*, Egypt

Welcome by **Sohbet Karbuz**, *OME*, SECURE Coordination

Introduction to the SECURE project by **Manfred Hafner**, *FEEM*, SECURE Scientific Coordination

**10:00- 11:00** **SESSION I – “Looking into the future: EU and its Southern Neighbours”**

Keynote speech on Egypt’s role in Europe’s Energy Security of Supply  
**Hamed Korkor**, Vice-Chairman, *EGAS*, Egypt

SECURE long-term energy scenarios for Europe  
Presentation by **Silvana Mima**, *University of Grenoble/LEPI-CNRS*, France

*Open discussion*

**11:00- 11:20** *Coffee break*

**11:20- 13:15 SESSION II – “The EU Oil and Gas Supply Security & the Mediterranean Region”**

SECURE project findings on EU oil supply security

Presentation by **Giacomo Luciani**, *Gulf Research Center Foundation*, Switzerland

SECURE project findings on EU gas supply security

Presentation by **Jack Kristensen**, *RAMBOLL*, Denmark

Turkey’s role as an energy bridge between the Caspian and Middle-East regions to Europe

Presentation by **Yusuf Yazar**, *Deputy First Secretary, Ministry of Energy and Natural Resources*, Turkey

The EU and North African oil and gas suppliers

Presentation by **Sohbet Karbuz**, *OME*, France

*Open discussion*

**13:15- 14:15 LUNCH BUFFET**

**14:15- 15:30 SESSION III – “Development of Renewable Energy & Electricity Interconnections in the Mediterranean Region and its Contribution to EU Energy Security”**

The Mediterranean Solar Plan: What role to play in the EU energy security?

Presentation by **Roberto Vigotti**, *OME*, France

Electricity interconnection projects between North Africa and Europe: challenges and opportunities

Presentation by **Angelo L’Abbate**, *ERSE*, Italy

The role of renewable energy sources in the future of electricity sector in Egypt

Presentation by **Mohamed Gamel**, *New and Renewable Energy Authority (NREA)*, Egypt.

*Open discussion*

**15:30- 15:45 Coffee break**

**15:45- 16:45 ROUND TABLE**

Open discussion on the road map of EU-Mediterranean cooperation in energy in the long-term until 2050 with the emphasis on energy security.

**16:45- 17:00 CONCLUSIONS**

Conclusions and wrap-up by **Manfred Hafner**, *FEEM*, and **Sohbet Karbuz**, *OME*.

**17:30 Visit to Egyptian Natural Gas Company (GASCO)**

## INTRODUCTION

**Mahmoud Latif**, Chairman, EGAS

In his welcome address to participants in the SECURE stakeholders meeting, **Mahmoud Latif** shared some thoughts on the security of energy supply and markets for Europe & Mediterranean regions from an Egyptian perspective. The energy sector in Egypt went through a radical evolution cycle for more than one hundred years but is still facing today tremendous challenges to meet rising local demand and Egypt ambitious economic and social development plans. With its natural gas proven reserves, Egypt is already participating in achieving energy security worldwide and especially in Europe but access to those reserves will require enormous investments and state of the art technologies. A comprehensive action plan between Egyptian companies, their upstream existing partners and other major international firms needs to be activated to convert those reserves into production. Thanks to its existing infrastructures in the oil, gas and electricity sectors, Egypt is well prepared to be recognized as a regional energy hub and is committed to play this active role as long as its upstream partners continue to support its exploration and development activities.

Moreover, Egypt enjoys tremendous renewable energy resources, mainly solar and wind powers that could contribute gradually to the energy supply security. In this regards, Egypt, with France, led the Mediterranean Solar plan initiative within the framework of the Union for the Mediterranean. **Mahmoud Latif** concluded stressing that the SECURE project is essential for the region and that it will ensure better quantitative insights into the energy security of supply integrated parameters from technical, economical and geopolitical view points. This in turn will assist policy makers to rationalize their decisions based on benefits versus risk assessment.

Due to an unexpected event, **Tarek El Hadidy**, First Under-Secretary at the Ministry of Petroleum of Egypt had to cancel his participation in the SECURE workshop.

**Sohbet Karbuz**, SECURE Coordination, OME

**Sohbet Karbuz** introduced the concept of security of energy supply for the EU and highlighted the importance of the project. He reminded participants that the main objective of the SECURE regional stakeholders meetings like the one in Cairo was to hear and gather comments/reactions about partners work as well as to hear the views of the participants on energy security. He also briefly presented the role of the OME in promoting dialogue among all actors involved in the Mediterranean energy sector.

**Manfred Hafner**, FEEM

**Manfred Hafner** presented the scientific aspects of the SECURE project. Carried out by a consortium of 15 major European research institutions for the last three years, SECURE aimed at providing a comprehensive framework of all issues related to energy security of Europe. It developed tools, methods and models to measure and assess security of supply and should propose policy recommendations to the European Commission on how to improve energy security (of Europe) taking into account of costs, benefits and risks of various policy choices.

## SESSION I – “Looking into the future: EU and its Southern neighbours”

**Hamed Korkor**, Vice-Chairman, EGAS, Egypt

In his keynote speech, **Hamed Korkor** presented Egypt and North Africa’s role in securing energy supply to Europe. After an overview of oil and gas reserves, production and consumption of key players for European energy security, he emphasized the increasing energy security risks that face the World and Europe: booming energy demand in developing countries, volatility of (oil) prices, concentration of known hydrocarbon reserves and resources and access to them.

Thanks to its natural resources and its geographical location, Egypt participates in securing energy supply for Europe: possibility of exporting natural gas via the Arab Gas Pipeline to be interconnected with the European network, via LNG through recent implementation of LNG infrastructures in Idku and Damietta, but also transit of hydrocarbons through the Suez Canal and the SUMED pipeline. Moreover, North Africa and Mediterranean regions, including Egypt, enjoys high potential of abundant renewable energy resources.

EU's increasing dependency on imported energy requires from Europe developing both a broad common internal policy and an external energy strategy with regions where Europe may turn for future energy supplies. Europe has a role to play in securing energy markets for North Africa by encouraging long term contracts, investment cooperation, transfer of technology, knowledge and skills. There is a need for a new multilateral producer-consumer dialogue between major energy actors of the Mediterranean region.

**Silvana Mima**, University of Grenoble/LEPI-CNRS, France

**Silvana Mima** presented main results from the POLES long-term world energy model used to produce a number of framing scenarios, in order to explore the climate change and energy security nexus. Five scenarios (Baseline, Muddling Through, Muddling Through and Europe+, Europe Alone, and Global Regime) and three sensitivity studies including one on the impact of an oil and gas price shock (in 2015) were developed. Global outcomes of the SECURE scenarios show that the Muddling Through scenario is not sustainable as it entails a doubling of emissions by 2050 and extremely high production levels for oil and gas with risks of crises. The Europe Alone case in some way alleviates tensions, but it doesn't solve the twin energy and environment problems (growing scarcity for oil and gas, and accumulation of GHGs in the atmosphere). Lastly, only the Global Regime scenario can bring a sustainable energy system to 2050.

When looking at the impact on EU's Southern neighbours of those scenarios, primary consumption increases significantly in all cases for all countries. Fossil fuels still represent a major share of their primary consumption. Renewables increase considerably in all scenarios and all countries. Algeria and Libya remain net exporters of oil and gas during the whole period (2010-2050) and Egypt remains net exporter of natural gas up to 2035.

She concluded her presentation by showing the impact of the scenarios on European imports. The dependence rate for oil does not change much from one scenario to the other. Import dependency stands between 83 and 86% in 2050. For gas, EU import dependency varies more from 73 to 96% in 2050 and from 200 Mtoe to almost 500 Mtoe. Climate policies strongly impact the energy-security problem and illustrate the type of uncertainties that EU will have to face in the next decades.

### **Open discussion**

During the open discussion, participants underlined the importance of developing several scenarios to assess future trends and to envisage a business as usual scenario as the reference one.

## **SESSION II – “The EU oil and gas supply security & the Mediterranean Region”**

**Giacomo Luciani**, GRFCF, Switzerland

**Giacomo Luciani** presented the conclusions of work package 5.1. Several potential threats to security of oil supplies have been identified like resource nationalism, political instability, export restrictions and armed conflicts. He went through all those threats and proposed associated policy measures. With regards to resource nationalism and political instability, it was shown that there is no easy and immediate connection between those elements and global supply of oil and gas. They have rarely been associated to severe supply crises or shortfalls in the past. Their effect is rather gradual and normally compensated by action in other parts of the system. Similarly oil and gas installations appear to be much more resilient to armed conflict that is normally acknowledged. However, it is very

obvious that governments' inability to overcome or reabsorb violent opposition discourages international oil company investment even if the violence does not affect the vicinity of oil and gas installations.

He also evoked threats to logistics at chokepoints but also in the high seas (piracy or accidents). Maritime logistics are unlikely to generate major crises, but require constant attention. Thus patrolling and surveillance of maritime traffic is essential. Investment to reduce pressure on key choke points (particularly Bosphorus, Danish Straits) is essential. In addition, investment to reduce traffic in enclosed seas is highly advisable.

He continued with the unsatisfactory functioning of the international oil markets and the consequences on energy security. The growing volatility of prices and their fundamental unpredictability is the main obstacle to security of oil and gas supply. Encouraging the freer trading of major crude oil streams, enforcing an international agreed price band, offering demand security through take or pay contracts are some of the policy proposals that could moderate this threat.

**Mr Luciani** ended his presentation by addressing the main challenges the European refining industry faces. He proposed several mitigations measures that could help EU secure its supply of refined products like the international alignment of products standards, greater coordination between industry and legislators, and the reduction of differential in taxation.

**Jack Kristensen**, Ramboll, Denmark

**Jack Kristensen** presented first the scope of Work Package 5.2 on energy security in the gas sector. Then, he discussed the recent dynamics in the security of supply of gas markets, the security of supply index developed by Ramboll and policy recommendations to be addressed to the EU.

The period of the SECURE project, which started in 2008, was rich in events that impacted security of gas supply and helped SECURE partners refine their analysis and conclusions. In particular, the Ukraine crisis, the Belarus crisis, shale gas-technological breakthrough in the US, world financial and economic crisis are among others events that changed perception on security of gas supply.

Ramboll created a security of supply index that allows for assessment of security of supply (SoS) impact of new investments and policies, and for analysis of scenarios. There is no simple recipe for SoS nor response to supply disruption. Natural gas security is both a question of external and internal issues e.g. diversification but also demand side and internal factors such as fuel switching and storage for instance.

In his conclusion, **Mr Kristensen** emphasized on the need to increase cooperation between legislators and oil and gas industry. Security of demand, and therefore security of supply, requires the EU to provide clear (policy) signals regarding future gas demand. Although the potential of unconventional gas in Europe and its impact upon supply security is still unclear, legislation regarding unconventional gas should be streamlined and reviewed.

**Yusuf Yazar**, Deputy First Secretary, Ministry of Energy and Natural Resources, Turkey

In his presentation, keynote speaker **Yusuf Yazar** discussed Turkey's possible contribution to Europe's energy security. He started by providing an overview of the energy situation of Turkey, one of the fastest growing energy economies in the World. According to official projections, energy demand in Turkey is set to double in fifteen years. However, Turkey's primary energy sources are highly limited and today only one quarter of the demand is met by domestic production. Securing oil and gas from diversified sources and routes is therefore a common concern to Turkey and the EU.

Turkey is geographically located in close proximity to around 72% of the world's proven gas and oil reserves. Like Egypt, Turkey forms a natural energy bridge between important sources countries and big consumer markets. Turkey stands as key country in ensuring global energy security through diversification of supply sources and

routes. For this purpose, in cooperation with suppliers and consumers some major energy pipeline projects have already been realized and some others are planned. He drew the attention of the audience to the fact that 20% of ships passing Bosphorus carry dangerous products and passing cargo level is not declining which is why the Turkish Government is encouraging Bosphorus bypass routes. Strengthening Turkish electricity transmission grid is also an integral part of the energy security of the region. Turkey has connections with all of its neighbouring countries. Synchronous parallel operation with the European Electricity System has started. Other important project is the Mediterranean Ring Project which envisages electrical interconnection among countries bordering the Mediterranean Sea.

**Mr Yazar** concluded by emphasizing that Turkey is dedicated to play a key and driving, constructive role in transportation of the Caspian, Middle Eastern and Central Asian energy resources to Europe and World Markets in a timely, reliable, cost-effective, environmentally sound and high-quality basis. For this purpose, Turkey puts forth its full efforts for development of new projects through the spirit of multilateral cooperation to contribute more in enhancing energy security of EU and to improve prosperity and enhance the peace in a broader region.

Finally, he touched upon the issue of Turkey's accession to the EU. Turkey has been in accession talks with EU since 2005 and energy constitutes an important aspect of the relations between Turkey and EU. Due to non-technical issues, negotiations related to the energy chapter have not been started yet. With its dynamic energy market, modernized energy infrastructure, developed regulatory framework and unique geographical location, EU membership of Turkey could contribute extensively to the energy security of EU and wider Europe.

**Sohbet Karbuz**, OME, France

**Sohbet Karbuz** discussed in his presentation the role of South and East Mediterranean countries in the EU energy supply security. Traditionally, North African producers have supplied Europe with oil and gas. They always remained reliable suppliers to Europe and this relationship is a good example of cooperation and partnership between producers and consumers.

North Africa accounts for 14% of EU's oil imports and 20% of its gas imports. Although North Africa has a long experience in petroleum, the region is still largely unexplored or under-explored. Reserves reached 61.3 GB of oil in 2010 and 8300 bcm of gas. Unconventional resources potential in North Africa is still unknown and further growth in offshore activity seems assured. However, hydrocarbons exports potential of North African countries might be constrained by rising domestic demand. Moreover EU and North Africa should face a common challenge of gasoline surplus and of worrying diesel deficit in the short to mid-terms.

In his conclusion, **Mr Karbuz** reiterated the big potential in terms of natural resources North Africa offers. But successful development of these resources will require increasing cooperation between producer, consumer and transit countries on one side, between IOCs and NOCs on the other side. Thanks also to its geographic proximity to Europe, North Africa is becoming an even more important energy bridge. However, the EU must fully engage North African countries to further diversify and improve its energy security.

### Open discussion

A vivid Q&A session followed the presentations. It was suggested from the floor that a more significant role from EU/importing countries in helping exporting "instable" countries to fix their political issues would help secure energy supply. **Mr Luciani** commented that political instability is a threat to global/EU security of supply, however, it is not the role of importing countries to interfere in domestic policies of sovereign nations. Domestic tensions are unable to generate interstate wars and in most cases it is impossible to solve domestic tensions. However, international community may play an intermediary role even if it may not be promising. There has been domestic violence and conflicts even within Europe but the EU was not successful.

Proposal of vertical integration in the gas sector was intensely discussed. Although vertical integration is against the market it is generally good for security of supply. Participants agreed that it could be a way to ensure security of supply however they also raised their concerns about the impact on the energy market structure.

Participants discussed the consequences for the Mediterranean region of the Deepwater Horizon accident in the Gulf of Mexico late April; its impact on the drilling activity, the risks (of oil spills) in the Mediterranean, access to deep offshore reserves, new rules to be announced. They also discussed the lack of common agreement between Mediterranean countries and how responsibilities would be shared in case of a similar accident in the Mediterranean Sea.

Lastly, to the question about the possibility of creating a new crude oil benchmark at Ceyhan terminal in Turkey **Mr Luciani** answered that Ceyhan is a key point. Market based deliveries of crude either based on Ceyhan or Suez should be the basis for a new benchmark. And if developed it could be very successful. In this sense, success will also depend on who moves first. Dubai is not any significant crude oil producer but it created the Dubai Mercantile Exchange. Anything in the East Mediterranean, say Ceyhan plus Alexandria or something of their combination, could do this same but the underlying benchmark has to be based on physical delivery, which is crucial.

### SESSION III – “Development of renewables energy and electricity interconnections in the Mediterranean Region and its contribution to EU energy security”

**Roberto Vigotti**, OME, France

**Roberto Vigotti** presented the potential initiatives and critical factors of the renewables deployment in the Mediterranean Region. The outlook for renewables in the Mediterranean and North Africa (MENA) Region is promising with substantial potential (solar, wind, desalination coupled with CSP generation, etc.) and a continued sound electricity demand growth. Renewable energy technologies are part of the solution under climate mitigation policies and require to invest in turnkey manufacturing units locally (jobs, economic development, transfer know-how, capacity building). But barriers remain to overcome like market barriers, regulatory/administrative barriers, financial barriers, social acceptance, etc.

He then went through several initiatives which are ongoing in the MENA region: The Mediterranean Solar Plan (MSP), Transgreen, the Tunisian Solar Plan, DESERTEC etc. The MSP project is one of the most ambitious. It intends to increase the use of solar energy and other renewable energy sources for power generation, improve energy efficiency, develop electricity grid interconnections and foster and encourage the transfer of know-how and technology towards developing countries. The final target of this project is the development by 2020 of 20 GW of new renewable energy installed capacity in the Southern and Eastern Mediterranean countries. The development of a Mediterranean Solar Plan will have a strong impact on the electrical interconnections around the Mediterranean ring, both between the different Southern countries and the South/North electric systems.

To conclude, **Mr Vigotti** presented OME’s involvement in those projects and the potential role of its Member companies which are in a position to give a unique input in many critical tasks of the initiatives and projects on renewables under way. He underlined the non sustainability of current energy paths in the Mediterranean and countries have a common interest in preparing together their long-term future. Solving regulatory and legal issues is a key aspect. It is necessary to establish a credible, predictable and incentivizing framework, which reduces the regulatory risk and encourages both necessary national and foreign investments.

**Angelo L’Abbate**, ERSE, Italy

In his presentation, **Angelo L’Abbate** discussed the challenges and opportunities of electricity interconnection projects between North Africa and Europe. He started with a short background of first studies on potential European – North African interconnections that date back to the 1970s. He proceeded with a description of the



Southern and Eastern Mediterranean Countries (SEMC) power systems which are composed of four separate blocks: Europe plus Morocco, Algeria and Tunisia; Libya, Egypt, Jordan, Syria and Lebanon; Israel and the Palestinian Territories; and Turkey. Power exchanges among SEMC have not changed remarkably for the last few years except between Spain and Morocco. But according to all estimations, demand in SEMC is forecasted to increase fivefold by 2050. Therefore he explained that regardless of the chance of exporting electric energy to Europe, SEMC power systems will require substantial investments to cope with this rapidly increasing domestic demand.

Next, **Mr L'Abbate** presented the challenges of closing the MedRing and the problems came across. When the closure is effective, additional HVDC links will be necessary across the sea to accommodate the envisaged high renewable electricity exchanges to Europe. But projects are constrained by the current technical limit of Mediterranean Sea depth. Moreover, large dedicated corridors for renewable generation as well as a strong reinforcement of the European grid will be needed. He introduced the Supergrid concept which will connect renewables generation sites with the largest demand centers in Europe and may be considered as a potential long-term (2050) option.

He ended his presentation by stressing that EU – SEMC interconnections will entail greater diversification for EU electricity supply, hence greater security of supply; greater regional integration of SEMC in the EU energy market with an increased amount of commercial exchanges; but also environmental benefits due to greater exploitation of renewable in the interconnected power system. Nevertheless several challenges still remain. There is a need for a strong political support to set up an adequate legal, institutional, regulatory, economic, organizational and technical environment to give certainty to investors and to “make things work”.

**Mohamed Gamal**, NREA, Egypt

Last speaker of the day, **Mohamed Gamal** presented Egyptian renewable energy activities and strategy to 2020. The New and Renewable Energy Authority (NREA) was established in 1986 and is under the authority of the Ministry of Electricity and Energy. Its mission is to develop and introduce in Egypt renewable energy technologies on a commercial scale together with implementing related energy conservation programs.

In February 2008, an ambitious plan to satisfy by 2020 20% of the electricity generated in Egypt by renewable energies was approved (12% from wind energy, 8% from hydro, solar and others). Meeting this objective will entail reaching more than 7200 MW of grid-connected wind farms. A new electricity law has been developed by the Ministry to reflect the ongoing market reform, to strengthen the regulatory agency as well as to encourage private investments in renewable. More than 7600 square kilometers of desert land have been allocated for implementing future projects.

With regards to solar energy, the first CSP plant with a capacity of 140 MW is planned to be operational by the end of 2010. NREA plans up to 2017 include a second CSP project at Kom Ombo with a capacity of 100 MW.

### Open discussion

The session helped clarify several points and exchange views. With regards to problems of intermittence with renewable energy sources and estimates of transportation losses of electricity through continents, **Roberto Vigotti** explained that some 5% to 7% will be lost in transportation but this will not jeopardize the profitability of the project. Losses will always be there and DC will help reduce losses.

**Angelo L'Abbate** was asked to elaborate on the concept of supergrid, and make a distinction between the input from large scale off shore wind in the North of Europe which will impact on a very well meshed EU grid and the possible impact of the grid North-South and South-South still to be built to accommodate and transfer large quantity of solar from the Mediterranean. He replied that while he agrees the concept of future supergrid at 2050 is a static vision, the timeframe within which the two components mentioned is quite different, and the problems to be

solved also differ. In the North, the grid is so strong that can accommodate and distribute in an efficient way also massive production from off shore wind, while in the South the MedRing is still a very weak concept and there is no solution yet on the role of national electric companies in accomplishing it.

Another issue discussed was about the critical segment of the South-Eastern ring in case of generation of renewables from a country like for instance Egypt to be “transferred” into the EU Community (to take advantage of article 9 of the Directive which encourages such transfer in order to allow some EU country in deficit of RE power). **Mr L’Abbate** answered that the grid is mostly in deficit in Syria, while the connection between Turkey and Bulgaria and Greece have been completed. The only limit to the transit of power from Turkey to EU territory (max 400 MW instead of potential 2000 MW) is due to the fear of EU TSO not to synchronize easily countries beyond Turkey as it may impact the stability of the whole EU electric system. But solution is under study to allow the potential physical transfer of power along the South-Eastern ring. Syria and Turkey is interconnected but there is only local exchange. Since it is not synchronized any problem in Syria could be felt in Europe.

Lastly, **Mohamed Gamal** and **Angelo L’Abbate** were asked some additional information about respectively the two CSP projects in Egypt and their connection to the grid, and the current technical limit to add HVDC links across the Mediterranean Sea due to deep sea water levels. For the Solar project in Egypt, Mr Gamal mentioned that they hope to overcome the differences in costs by creating new incentives and approaching financing institutions.

## ROUND TABLE

During this last session, **Yusuf Yazar** was asked to elaborate on the potential of Turkey to become a major bridge in energy and to help realize and/or accelerate completion of some of the projects he evoked. He was asked that despite big gas resources around Turkey there are several hurdles for finding gas for Nabucco and how he sees these hurdles can be overcome. He stressed that finding gas for Nabucco is not Turkey’s responsibility. Nabucco is a private project and BOTAS is only a partner in that project. Therefore participation of the Turkish Government in this issue is very limited. For Turkey’s role to facilitate the passage of gas to Europe from the eastern and southern neighbors **Mr Yazar** underlined that dialogue and cooperation between all the actors in these projects were necessary to make them successful and that EU, or at least its energy policy, has also its share of responsibility in the recent slow developments.

The issue of negative impact of EU/US sanctions on bringing Iranian gas to Europe via Nabucco and other pipeline projects was also raised.

The current difficulty laying electricity lines below 2000 meters was also discussed. The limitations of the technology are mostly related to the risk of mechanical stress when laying down the cable from the ship. In case of high rating cables and a high depth the weight of the cable can be reduced by using aluminium instead of copper for very depth sections. This solution has been adopted for the first time in the world for the SAPEI link.

For high rate HVDC cables (1000 MW and above), the current technology allows a maximum depth of 1500-2000m. Higher depths might be reached, provided a reduction of the cable rating is acceptable. This leads to smaller cross-sections, less weight and, therefore, less mechanical stress. It was mentioned that cables are installed with a special ship and one of the deepest cable laying so far was around 1600 meters in Italy. So, there exists technical barriers today but with the advancement in technology, this barrier could be overcome.

Participants from Egypt underlined the need for more cooperation between Egypt/MENA and EU especially because of the increasing future energy needs in the South and East Mediterranean. Security of supply of EU will pass through security of non-EU Mediterranean energy markets. They need technical support, transfer of technologies, foreign/EU investments. South and East Mediterranean countries have hydrocarbons as well as huge renewable resources but they need support to develop them.

Participants also remarked that North African region may face shortage of fresh water supply. To satisfy the need requires desalination which in turn means more energy needs to be used domestically. They emphasized that renewable energy projects may play an important role in alleviating the pressure on fossil fuel utilization for water desalination. However, for that they need to see an enhanced cooperation in terms of concrete projects instead of too much talk.

The participants showed their interest in SECURE and all projects that promote global energy security but they also raised their concern with the lack of concrete outcome so far. More specially it was mentioned that continued dialogue based on fair prices and secure markets in the future, need for more investment from Europe in developing the resources in North Africa, more know-how, transfer and develop technology in those countries, and developing solar resources by domestic technology development (such as domestically manufacturing solar energy components) are crucial for establishing a sound north-south energy dialogue and cooperation.

Another important point raised was the media reports about Egypt facing gas shortage for especially electricity production. The participants emphasized that they need electricity, no matter from what source. Instead of waiting for the shortage to really affect the whole system, action is needed now. **Mr Gamal** mentioned that they have studied multiple desalination projects but realized also the fact that the lands suitable for those projects are expensive and fall in tourist areas.

## CONCLUSIONS

**Manfred Hafner** and **Sohbet Karbuz** concluded the meeting thanking EGAS for the organization, logistical support and all participants for their contribution in the discussions.

### Visit to Egyptian Natural Gas Company (GASCO)

EGAS organized a visit of the National Advanced Control Center (NATA) for speakers and SECURE partners. NATA is under the authority of the Ministry of Petroleum. Role and objectives include maximizing gas utilization in all sectors (industry and residential) but also catering for exports to the global market. NATA handles gas transmission and distribution tasks using real time data to optimize operation on the National Gas Grid while maintaining the highest safety standard.