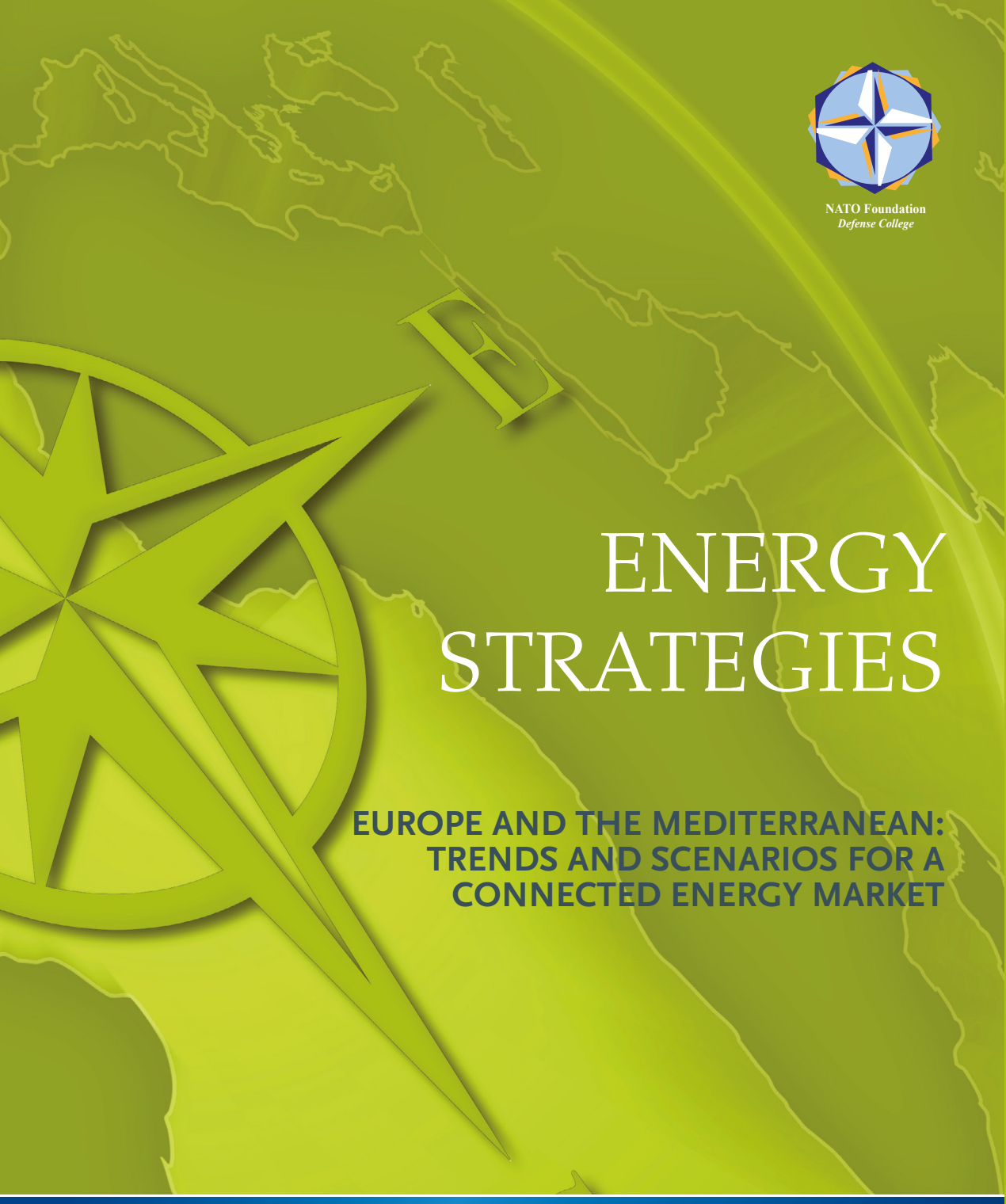

NATO Foundation
Defense College

ENERGY STRATEGIES

EUROPE AND THE MEDITERRANEAN: TRENDS AND SCENARIOS FOR A CONNECTED ENERGY MARKET

NATO
OTAN

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ENERGY STRATEGIES
Europe and the Mediterranean: trends and scenarios for a connected energy market

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ENERGY STRATEGIES

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3
2

INDEX

Alessandro Minuto-Rizzo
President, NATO Defense College Foundation, Rome

FOREWORD

We live in special times, and therefore the public cannot be physically present and there are strict rules to be followed. However, we made a big effort to offer a conference as attractive and interesting as possible from the point of view of entertainment and substance as well.

We will discuss and analyze issues concerning the Mediterranean, particularly the Western Mediterranean, and energy from different angles, in a multi-facet reality which is changing very fast.

The Foundation, as you know perhaps, has its main focus on global security issues and energy is very relevant in this context. It is a subject that has to be discussed and presented to the general public, and not to be reserved only to specialists.

Energy security is a recurrent expression and can be seen in different ways. It may refer toward the protection of infrastructure, to the security of transportation, shipping lines, to the overall supply available to consumers, and to the security of smart electric grids. But it can also mean international cooperation and projecting security. Security and economic go together, more deeply than before.

The Mediterranean is relevant, being at the junction of three continents – Europe, Africa and Asia – and has a long history, Rome where we speak is at its center.

It is inevitable to look at the overall scenario, as we do it in this conference.

When we mention energy strategies, in the Mediterranean, we have to address a number of issues connected to each other. They are – mentioning the important one – economic development, green economy, regional cooperation, North-South connections, markets integration. A combination leading to a possible Euro-Mediterranean energy market, this is the perspective.

This goes in parallel with the gradual creation of a region based on peaceful cooperation and cooperative security. The reason being that, when interests are shared and markets are better supplied in sustainable economies, there is a good

chance that all misgivings and frictions might subside. Of course, these concepts are not new, but it's useful to reflect on them in today's perspective and in a comprehensive context.

Ladies and gentlemen, it has not been easy for us to develop such an intense program, and we are glad and happy that we have been able to have the best available expertise with competent speakers, coming from different angles and countries.

The first panel will discuss the development of renewable energies in North Africa, together with regional cooperation and economic development.

The second panel will focus on security issues from different perspectives, namely the NATO one in conjunction with the regional one, and those of traditional energy companies.

The third panel will address North-South cooperation with a view to achieving a Euro-Mediterranean market with more stability than in the past.

Ladies and gentlemen the Foundation has now reached 10 years of age, just on these days, and we are grateful for this achievement and our record of activities, we are gratified by that. Today and tomorrow event are a welcome coincidence with this anniversary.

We expect, in the next two days, a high-level debate based on a scientific basis and mutual respect.

I thank all speakers and moderators and the people connected with us, the entire staff of the Foundation for their enthusiasm.

Special thanks, very warmly, to all those who supported us, helping to make this event possible.

First of all, Philip Morris International, Science for Peace and Security Programme of NATO, the Trans Adriatic Pipeline, the NATO Defense College and, of course, our friends of the PCNS in Rabat, in Morocco.

I also thank our media partners – Formiche, AGI and Air Press – and special thanks again go to the entire staff of the Foundation for their good work.

I should also mention the Union for the Mediterranean and Terna, who have been cooperating with us.

So, in fact, there's a long list of agencies and people and institutions, who has helped us to build this conference and I'm very grateful to all of them, including our partners in Morocco. Thank you very much.

Stephen J. Mariano
Dean, NATO Defense College, Rome

WELCOME REMARKS

It is always a pleasure to participate and help sponsor NATO Defence College (NDC) Foundation events; thank you Ambassador Minuto Rizzo and Dr. Politi for the invitation and congratulations on your courage, persistence, and creativity in organizing workshops like this one in the midst of the pandemic.

If I have one regret about the Foundation's events, which are always so thoughtfully organized, it is that the College and Foundation cannot better synchronize our respective planning cycles to allow students at the College to participate in such outstanding and intellectually challenging events. Today, for example, the NATO Regional Cooperation Course is discussing Iran, a topic that has obvious implications beyond Persian Gulf security, for European security, and for energy strategies in the Mediterranean. At the same time, Senior Course 138 is participating in the College's first ever "innovation week," where they are hearing from organizations working at the frontier of technological innovation, including the US Defense Advanced Research Project Agency (DARPA), and an upstart non-profit agency called the Joint European Disruptive Initiative (or "JEDI" for short).

I am confident that during this workshop, the panels and panelists will address the importance of continual innovation in the energy sector. Energy *has* changed and *will* continue to change the way we live our lives. In the fossil fuel sector, "fracking" comes to mind, though clearly such technology is accompanied with environmental risk. In recent years, we have come to learn that the phrases "energy" and "the environment" go hand-in-hand, and in some colleges and universities, students are encouraged to think of these terms as mutually inclusive. Liquid Natural Gas (LNG) has become popular and profitable and LNG infrastructure continues to accommodate additional market potential. Clean burning LNG is not just competing with old ideas about oil, but with new ideas about renewable energy; and both have implications for climate change.

Most likely, we will hear about energy sector innovations in terms of renewables

as well as fossil fuels. For those of us who have landed at the airport in Copenhagen, or driven through California, we have seen first-hand that worldwide, wind farms are springing up like mushrooms. In fact, according to the United States Bureau of Labor Statistics, wind turbine service technician is the fastest growing occupation in the American economy. How will that trend manifest itself on the southern shores of the Mediterranean? This workshop will likely stimulate thinking on answers to this question and many related questions.

We may also want to remind ourselves that the energy sector is not all about technology: it can have a profound impact on the political sphere too, whether on the level of local, regional, or great power politics. It would be naïve to think that any European strategy towards or for energy security could be regionalized and localized. Energy is a global commodity and any useful regional energy strategy will have to be viewed with a global perspective. Debates on the Nord Stream 2 gas pipeline, increased Chinese energy demand, increased US energy supply, and Norway's avoidance of the "oil curse" will assuredly influence southern region energy strategies. For those interested in the nexus between energy, politics and security, if you have not already, I highly encourage you to watch the Netflix series "Occupied". The show is a dramatization, of course, but it highlights the tension between interests and values.

In that vein, let me offer a reminder of the connection between history, energy, security, strategy, politics and values – and connect them to the NATO Defense College's 70th Anniversary, which will take place later this year. Seventy years ago, then-General Eisenhower, the first Supreme Allied Commander in Europe, signed a memorandum creating the College. In an effort to honor his initiative, I have been doing some reading about his distinguished career; not only regarding his generalship, but also his time as the President of the United States of America.

President Eisenhower understood, perhaps better than most, the interplay between politics and security, between geography and oil – and, most importantly, between interests and values. In 1956, after Egyptian President Nasser seized control of and nationalized the Suez Canal, France, the United Kingdom and Israel conspired to "take back" the waterway. However, Eisenhower decided not to intervene military but eventually political and economically influenced two of America's closest allies to withdraw forces. Keeping the Canal open was in the United States strategic interest, so too was respecting the value of Egyptian sovereignty.

Other examples from history demonstrate the connection between the energy sector, peace and security. For example, western support for Israel in 1973 prompted production cuts and an oil embargo by Organization of the Petroleum Exporting Countries (OPEC) nations (which severely affected my lawn mowing business as young boy). Has so much changed today? The weaponization of energy has never disappeared – or at least the role that energy plays in foreign and security policy at the global, regional, and local levels has not changed much.

Materials used to make solar panels and socio-environmental factors may in-

fluence the global energy market in unexpected ways. In the United States, we see local politics coming to the surface with President Biden's Executive Order to deny permits to the continuing work of the Keystone XL pipeline. And to complicate matters, in the north-west of the country, environmental activists are simultaneously advocating for more renewables, including hydroelectric power, while counterpart activists have successfully advocated for the dismantling of hydroelectric dams due to their damaging effects on the environment.

In conclusion, these situations can present a complex and even confused picture of the future energy environment. I have no doubt that this workshop will offset some of the existing confusion. Its participants will better understand the complicating factors facing NATO members and its partners, and hopefully everyone participating will contribute to the development of creative and innovative solutions to vexing challenges.

I am particularly proud that Dr. Marc Ozawa, Senior Researcher at NDC's Research Division, and Dr. Chloe Berger from our Academic Plans and Policy Division will be participating in various sessions. Thank you again and congratulations to the NDC Foundation on its 10th Anniversary.

Richard Brewin
Programme Manager, Science for Peace & Security Programme, NATO HQ, Brussels

WELCOME REMARKS

Ladies and Gentlemen,

It is a pleasure to address you today. Thank you Ambassador Minuto-Rizzo and Dr Mariano for your introductory remarks.

I would also like to thank the NATO Defence Colleague Foundation for organizing the event and for engaging with such a number of high quality speakers and of course the participants for joining us. I am certain that this will be a very productive event.

I work in NATO Headquarters in the Science for Peace and Security programme where both energy security and environmental security are key priorities.

However, these are also strategic priorities for NATO more broadly.

The Alliance has been addressing energy and environmental considerations for many years, and in many different ways.

In fact since 1969 and the creation of the predecessor to the Science for Peace and Security Programme.

We have also included energy security in each NATO Summit Declaration since 2008 as well as in NATO's 2010 Strategic Concept.

Currently, NATO is undergoing a reflection process – the Secretary General's NATO 2030 initiative. This is focused on considering how NATO can be stronger militarily, stronger politically and have a greater global outlook.

The Secretary General has pitched the implications of climate change on the security environment as a key challenge. Why?

Well climate change affects every element of military activity. The second and third order consequences of climate change – drought, famine, desertification, the impact on marine ecosystem – all lead to loss of land and livelihood and in turn demographic change.

Where this is mixed with already existing pressures, climate change acts as a threat multiplier. It causes instability and even armed conflict. As we have already seen in the Sahel. It will also bring natural disasters.

So it will affect where armed forces are likely to operate – whether for humanitarian assistance or for peace keeping missions.

Climate change also affects the operation of military equipment because of the impact of more extreme environmental conditions and of course this also has implications for our personnel.

It is imperative that we understand our future security and operating environment. For that reason, NATO has been preparing work on climate change and security. Yesterday during the Foreign Ministers meeting at NATO, ministers accepted a report on climate change which is focused on three key themes.

Awareness and greater understanding of the topic. Adaptation as to remain effective in any sector, we must adapt.

And mitigation of impact on the environment.

Of course energy security plays a significant role in this agenda.

This includes the transition from dependence on fossil fuels to integrating new energy technologies in to the way we work. We have made considerable progress in enhancing energy efficiency in the military, for example by seeking opportunities for reducing our reliance on fossil fuels through efficiency measures and by exploiting the opportunities offered by renewable energy technology through smart grids – while enhancing military mission endurance. But this also brings other challenges such as cyber security.

It also includes the protection of critical energy infrastructure. We already work with our 30 member countries across Europe and North America to prepare them for shocks to things like energy, food and water supplies. We do this through guidelines on how to be more resilient. We need to look at how we can further strengthen these guidelines. For example, by ensuring that energy and telecommunications grids can withstand more extreme weather events.

This is not without its challenges, but longer term benefits far outweigh these.

It means governments and societies working together to address the challenges that we face.

This also means that climate change and energy security must increasingly be reflected in our partnerships.

As climate change and energy security affects many partner countries, NATO is interested in scientific cooperation on mitigation and adaptation measures, but also on consequence management, training and education. We should do more in helping partner countries build capacity and resilience to manage the impact of climate change and the transition to more sustainable forms of energy.

This is why events such as these are of high importance. They bring together different nations to speak about common challenges and work towards common solutions. Therefore, I am delighted that NATO's Science for Peace and Security programme has been able to support the event.

I wish you all a successful event and I look forward to the proceedings.

Thank you for your attention.

Mohammed Loulichki
Senior Fellow, Policy Center for the New South, Rabat

OPENING REMARKS

Let me begin by thanking, on behalf of President Karim El Aynaou, the NATO Defense College Foundation through its President, Ambassador Alessandro Minuto-Rizzo, for the kind invitation to join other eminent partners to this webinar devoted to a very important and very timely topic.

As you know, the Policy Center of the New South has a keen interest in this topic and has devoted a lot of work to its different dimensions.

After almost 26 years, since the Barcelona process, the gap between the European Union and North African countries is almost as large as ever. This calls for a fresh spirit to cooperation between the Mediterranean northern and southern shores.

Since the energy is a common challenge that unites European and North African regions, it could act as a catalyst to the process towards a more widespread cooperation between the two regions.

In the European Union, the energy dependence rate is still following an upward trend, reaching 58% in 2018. Its level of dependency on Russia, which provides 30% of EU crude oil and 40% of its natural gas in 2018, raise the concerns specially following the Russian-Ukrainian gas crisis of 2006 and 2009.

The North African power sector is not as dependent on energy imports as Europe for the simple reason that, with the exception of Morocco, all the North African countries are net gas and/or oil exporters.

However, the region faces other challenges. For instance, the Algerian and Libyan economies connected to the European Union via/cross Mediterranean gas pipeline to Spain and Italy, either directly or via other countries, i.e., Morocco for the Maghreb-Europe gas pipeline and Tunisia for the trans-Mediterranean pipeline. Security of demand is at least as important as security of supply in Europe. The economies of both countries are very dependent on revenues from gas and oil trade, but these have proven to be highly volatile, due on one hand to the volatility of the oil prices, especially after COVID-19 shock; and, on the other hand, the

instability of the region is facing particularly in Libya.

Morocco's power system is, on the other hand, still highly dependent on import. The country's big investment in renewable energy for power supply have resulted in their growing share in the power mix, which reached 35% in 2019. By investing in different modes of power generation, Morocco is reducing import costs, while at the same time leveraging its ample solar and wind natural resources for energy security.

The country's current energy strategy will undoubtedly have a profound impact on its development for the years to come. However, Morocco is still relying mostly on important fossil fuels to meet its power needs, a big part of which come from Algeria through the Maghreb-Europe gas pipeline, and the deal set to end in 2021 with renegotiation prospect still undecided.

Instead of being a debilitating factor, the uneven distribution of energy resources among EU and Southern Mediterranean countries can constitute future forms of interdependent. This requires from the North African countries to adopt a regional approach, that can promote a solid partnership in the sector and beyond.

I will conclude my remarks by recalling the recent electrical outrageous that affected the state of Texas and raised some questions about the state's power system, which run independently from the US or the power grids.

Texas produce its own energy and control both wholesale and retail sales of power without further military oversight. Some said it's a utopia however, the Lone Star State gas production infrastructure, as well as its electric power infrastructure, were hobbled by sub-zero temperature. As a consequence, some 4 million Texans were freezing in the middle of February cold.

This serious incident means that the state had no places to turn to it, if faced by sudden shortages or potential outreaches.

The main benefits of cooperation and interconnections is that they allow better use of complementarity in addition to enhancing reliability and security supply.

With these notes, I wish you a very successful outcome of this conference, and I thank you.

Alessandro Politi
Director, NATO Defense College Foundation, Rome

POLITICAL SUMMARY

"Gouverner c'est prévoir", is a French popular proverb of the XIX century, meaning that foresight and ruling go together and the first thing relevant of this conference is that energy security of supply is not a strategic concern for the Euro-Atlantic community, whereas energy security of demand is a real issue for today and tomorrow.

Global oil markets are fully accessible and the pipeline-LNG infrastructure in Europe is well developed and sufficiently redundant, but the pandemic has shown how important demand reductions have serious economic effects and may have repercussions on the stability of supplying countries. The gradual restarting of global economy will bring again in the forefront the increased consumption not by countries north of the Mediterranean, but south because an increasing production quota will be dedicated to internal consumption

If Europe reduces continuously its demand in hydrocarbons, this implies a change from the old paradigm "South: produces and exports; North: imports and consumes" to the new "South: produces, consumes more and exports less; North: imports and consumes less". This means that the stream of revenues may change volume and composition and that new investments are necessary to keep abreast with a bigger consumption in the South and a more diversified supply to the North.

On top of these serious problems, one has to add a further layer of complexity represented by the strategic competition between China and the USA: if tensions will continue to increase, the widely shared consensus is that relevant components of the global market will be fragmented into protected regional supply chains, each depending on the respective hegemonic power. Creeping protectionism will become more and more frequent and climate challenges could be transformed into weapons of political competition.

The second important aspect regards the geopolitical effect of energy policies. After the shocking retreat from Afghanistan, it is rather difficult to imagine that the US presence will increase in the MENA region. Even if their energetic inde-

pendence would be true, the Middle East would remain a strategic interest, but not a vital one.

The rub is that Washington is neither independent nor fully self-sufficient in the balance between internal production/consumption and energy exports. Only in 2020 and 2021 the USA have been net energy exporters on a small scale, thanks precisely to the global demand reduction caused by the pandemic, and they still continue to import refined oil products. Ironically, while discussions rage about a European energy dependence from Russia, no one pays attention that, after Canada, Moscow is the biggest supplier of refined products to America.

From a purely commercial side, one should also consider that any swing in prices originating in the MENA region has global effects, because the Persian/Arab Gulf still produces almost a third of global crude oil.

For Europe the issue is much more straightforward: it depends from Russia by 27% for its oil, 41% for gas and 47% regarding coal. Nevertheless, Saudi Arabia, Iraq, Algeria and Qatar are very important to diversify sources. Apparently, the silver bullet would be the European Green Deal whereby old fossil fuels would be substituted by clean renewables in generating electricity.

Now this echoes very much forgotten debates about clean nuclear power, where proponents tended to forget that nuclear fuels supply chains were much more rigid and less diversified, as well as ignoring that also uranium ore producing countries are not always immune from problems (by volume of reserves: 1. Australia, 2. Kazakhstan, 3. Russia, 4. Canada, 5. South Africa, 6. Niger, 7. Namibia, 8 China).

And again, major solar energy candidates are in the MENA region. So, in addition to the China-USA strategic rivalry, there is an increased regional power competition that had the Iran-Iraq war (1980-1988, First Gulf War) as precursor and that emerged fully in 1991 (invasion of Quwait, Second Gulf War), when superpowers ceased to "regulate" effectively the area. While Europe becomes greener one has to assist fossil producers in their own transition, lest to have the development of Venezuelan scenarios in Iran, Saudi Arabia, Algeria or Russia, for instance.

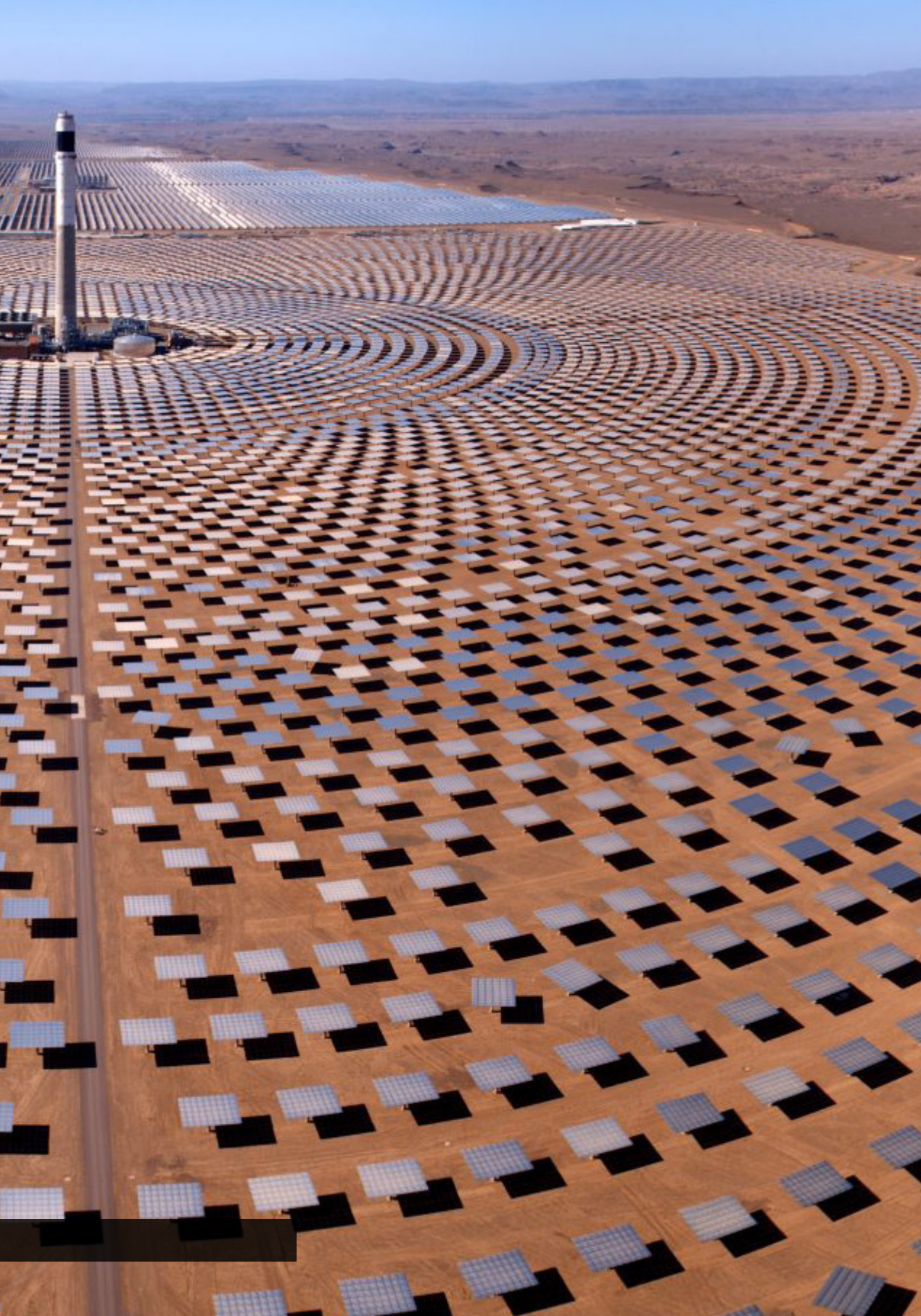
Europe needs really to be strategic because we may substitute pipelines with cables, but stability and security in the region will remain a paramount concern. It is true also that this scenario can become a win-win situation for both shores of the Mediterranean, but the outcome will be possible at a "price": a much closer integration South-South and North-South of the Mediterranean. Stability can be achieved through shared interests in lieu of control, but for the moment elites do more talk the talk, avoiding to walk the walk.

NATO, waiting for a concrete strategic concept, can do three things: situational awareness among allies, protection of NATO's own energy infrastructure and reducing the energy consumption of its weapons systems and logistic chains. Especially the third initiative should be aggressively pursued because energy austere armed forces can be sustained longer, with smaller budgets and in less developed environments.

Session 1

EVOLVING POWER CAPACITY IN THE WESTERN MEDITERRANEAN

Noor Solar Power in Morocco. Source: www.drax.com



Stefano Silvestri
Vice President, NATO Defense College Foundation, Rome

ENERGY AND GEOPOLITICS IN THE MEDITERRANEAN

We all know and we all are discussing the increased threats and risks coming from climate change; from the energy policies of the past and of the present; and how these changes are increasing, in fact, unrest.

They are working as a kind of multiplier, making conflicts riskier and more acute by adding, for instance, the element of control of water and of changing in the patterns of rain, that influences agriculture and that creates problems of scarcity of food. This, crossed together with the old existing conflicts.

This is certainly the major and most powerful element that brings us to consider the possibility of changing our energy consumption patterns, to go towards zero carbon or a carbon neutrality, trying to limit the effects on the climate. But that will be a long process.

Meanwhile, we still have the geopolitics linked to the old energy policy, that are dominant and that we tend a little bit to forget. We remember from time to time.

For instance, when there was, some time ago, an attack against the Saudi Arabian refineries, even if the attack was rapidly compensated and the effects were not very noticeable (they lasted less than a week), nonetheless the price of oil increased and the problem of scarcity was again immediately a subject.

Not many know or remember that there has been a second attack very recently. Not to the same place, but again, in this case, to the place where they the oil is put inside the terminal for exports. Fortunately, this time the attack did not succeed. It was very important, but it did not succeed.

It did not have the same effects also because, meanwhile, the price of oil had already increased, thanks to the OPEC-Plus Agreement and thanks to the fact that, notwithstanding the economic crisis and the COVID crisis, consumptions on a global level are starting to be, again, very high. So, there is a consumption of oil and gas, that is not really reduced, not even by the economic crisis.

On the contrary, the International Energy Agency forecasts that, in a few years, there will be an increase of about 5-6% of oil consumption.

The idea that we can avoid the geopolitical effects of the traditional energy policy, is not easy to argue and is unrealistic. However, what is happening is that the situation is changing because of the policies of the major powers related to it.

For instance, the footprint of the United States in the Middle East is reducing. It is not disappearing, it is still remaining, but is less important than it was. Maybe, since the fact that today the United States are fully independent from imports of oil or gas, the Middle East remains a strategic interest of United States, but not a vital one, and there is the difference.

At the same time, what is really changing is that the Middle East is becoming not so much the place of confrontation between major powers, like it was during the Cold War, but the place of confrontation between regional powers that are not controlled by major powers, but have their own agenda: from Saudi Arabia to Turkey, to Iran, to Pakistan, to Egypt et cetera.

The result of this is a very high instability and volatility, that may bring about a new increase of oil prices or not.

Today the Europeans, still very much dependent from imports of oil and gas, are trying to diversify their energy production, and that may help create a new relationship, in particular with Northern African and specifically Western Mediterranean Northern African countries.

What would that mean? Well, we may substitute pipelines with cables, but that means that we will still be very interested in the stability and security of a very peculiar region, that will be influenced by the instability in the Middle East and by the crises, instability and wars in Israel.

If Europe really wants to develop that kind of cooperation, which I think is a very good idea, it will have to think really in strategic terms. There is no energy policy, not even the one for renewables, that does not have its own strategic consequences.

Ahmed Badr
Acting Director, Project Facilitation and Support, International Renewable Energy Agency, Abu Dhabi

HOW MUCH IS NORTHERN AFRICA READY FOR RENEWABLE ENERGIES?

I would look at this topic from the standpoint of the needed infrastructure. I set the scene by saying that there are two important elements here.

First, renewable energy is now increasing its share and become more commercially viable, not only at a larger scale, but also at a medium and smaller scale.

It is very importantly also to say that the renewable energy has a very important feature, that it is basically different from the oil and gas or fossil fuel-based infrastructure, namely the mini-grid and small scale, and the independent mini-grid solutions. These really make renewable energy more ready to be widely spread.

Second, if you look at it from the standpoint of the interconnected projects, which I think are very important to link the two rims of the Mediterranean, I believe that renewable energy is going to play a big role. I agree with the earlier comments, that maybe one of the issues could be thinking of replacing pipelines with cables. That will be also working, given the fact that the potential of, for example, solar power coming from the south to north, is also very important. Yes, still, there is a challenge for the stability of the grid and the transmission system, but this could be also worked out rather easily.

Quickly, I want to say that currently there is a very important aspect for this infrastructure, that has to be worked out and developed based on global multilateral mega initiatives, but has to be implemented on bilateral basis. This will allow to fit the infrastructure within each and every country business context, meaning that to scale up the renewable energy deployment in the southern Mediterranean, we need to look at mega initiative (like the one about which I will talk), but to be implemented in the country's context.

The Initiative is called CIP, standing for Climate Investment Platform, that was launched during the 2019 Climate Summit of the United Nations, and with the International Renewable Energy Agency (IRENA), the United Nations Development Programme (UNDP) and Sustainable Energy for All (SE4All), in co-operation with the Green Climate Fund. And actually, it works by supporting countries

to develop their national determined contribution with a clear investment plan, whose realisation is based on a clear access to finance to implement these projects.

I also have to say here, what is nice of it is that it is a mega initiative, but again to be implemented based on the national context of each country. I also have to say that Morocco, Egypt, Tunisia are working well with strong support from IRENA and UNDP.

The initiative is working based on four tracks to help the countries achieving their plans based on realistic plans, matching with their medium-term expenditure forecast. A further effort consists in putting in place all relevant policies and regulation to attract private sector investors to come together in partnership with national governments. Thirdly, and more importantly, the objective is to provide financial risking, so projects are definitely appealing for the private sector mainly. And finally, is to match these projects with the right financial institution and lending partners.

Actually, this is a very important example that I would like to leave it here for the discussion. And I would stop here looking for the question and answer time to capitalize on this.

Marco Carnelos
President, MC Geopolicy srl, Rome

THE POLITICAL STAKES OF NORTH-SOUTH ENERGY COLLABORATION IN THE REGION

Before addressing the specific topic assigned to me, I would like to draw your attention on the overall global scenario where our discussion should be contextualized, and I would like to mention three specific facts:

1) The increasing attention that the USA, the EU and other major economies are giving to the Green Revolution. The Biden Administration, after having approved the 1,9 trillion dollars economic package to deal with Covid-19's economic impact, is preparing to spend additional 3 trillion dollars for a Green New Deal and to relaunch America's infrastructure and education, mainly, but not only, aimed at fulfilling the following targets: to have 100% CO2-free electricity generation by 2035 and zero total net emissions by 2050.

2) On the 27th of January, President Biden signed an Executive Order known as *Tackling the Climate Crisis at Home and Abroad* which affirms, I quote, "*… climate consideration shall be an essential element of the United States foreign policy and National Security…*", and whose implications are quite clear. If climate is a national security priority for the United States, you can be certain it will be a NATO priority as well. Such decision was reinforced by issuing, this April, the Interim National Security Strategic Guidance. In essence, the main implication of such new important US position is that, whoever will not respect (in the US or abroad) the emission targets prescribed by international agreements to prevent climate change, will be considered a threat to the national security of the United States.

3) The third, and of most immediate impact aspect, is not what Presidents Biden or Xi Jing Ping might do or say in the future, it is rather the open letter that Larry Fink, the CEO of BlackRock, the biggest asset management company in the world with almost $ 9 trillion assets under its control, sends every year

to the CEOs of the company whose capital is subscribed by BlackRock. From such reading it is quite easy to draw the conclusion that any company which should wish to remain in business, will have to reduce its carbon footprints in the future. Far before any measures that might be adopted by the governments, it is BlackRock and other very big hedge funds and investors that are setting the climate agenda, and far more quickly.

Coming now to our area of concern, the Mediterranean, we should have in mind the historical failure of the Euro-Mediterranean Barcelona Process; the least we can say is that this time such new opportunity should not be wasted. Barcelona failed because it tried to promote too ambitious political principles in a highly volatile region. Energy, and particularly renewable energies, might allow us to achieve pragmatically – focusing on energy security – what decades ago has not been possible to fulfil politically.

There are still political tensions that prevent us from proceeding speedily: the high uncertainties and enduring rivalries in Libya, the concern for Egypt's excessively autocratic policies, the ongoing hibernation of Algeria in the post-Bouteflika era. The only good news so far are that democratic transition in Tunisia is ongoing.

Unfortunately, there are also new problems like the contending and overlapping Exclusive Economic Zones proclaimed in the Eastern Mediterranean, among Turkey, Libya, Greece, Egypt and Cyprus, just to name a few. They are complicating explorations and drilling for oil and gas as well as the laying of their relative pipelines and, with the same logic, they might affect also future powerlines and electrical grids charged to deliver the electricity produced with renewable energies. Therefore, it is not possible to take for granted that the shifting from geopolitics to infrastructures will be easier, but there are no other options.

Renewable energies may also be quite helpful in changing the perspectives. The northern shore of the Mediterranean may stop perceiving the southern one only as a constant source of threats and problems fuelled by illegal immigrations, as it has been the case in the last two decades and, similarly, the southern one might stop in seeing the northern one as big wall to break to get the chance for a better life.

The European Union has now a chance to really help the North African countries, and, indirectly, the Sub-Saharan ones. The EU should have all the interest to invest massively in renewables energy produced in Africa. It would improve significantly its energy security, decreasing its reliance on Russia, especially now that a Cold War 2.0 is emerging; and, at the same time, it would create in Northern Africa the economic conditions and job opportunities that should hopefully increase growth and reduce migration flows.

However, such new opportunity should not be wasted by northern African countries too. They should improve their efforts in terms of reforms and better governance and definitely improve their respective bilateral relations. Their vol-

ume of trade is extremely low, while the opportunity provided by renewable energies should push them to put aside their differences and join their efforts to struggle for a better future. The EU will be far keener to invest if good signals in terms of reforms, governance and cooperation will arrive from the southern shore.

There are many companies who are already investing. Italy is extremely committed on this point especially with one of its major energy companies, SNAM, that has decided to invest massively in hydrogen. It seems quite promising as a green fuel. Its production costs are still high but could decrease in parallel with the decreasing cost of clean energies like sun and wind that could be produced in North Africa. Green hydrogen could be generated using such renewable energies and its overall cost is projected to drop by 70% in the next decade.

Renewable energies and energy security for the first time provide all the elements for a win-win situation for all the countries on the two shores of the Mediterranean. The chance is out there, and it is up to them to grab it. NATO must remain the proper security framework within such vision should be developed.

Tayeb Amegroud
Senior Fellow, Commodity Economics and Finance,
Policy Center for the New South, Rabat

THE MOROCCO-SPAIN LINK AND ITS WIDER IMPLICATIONS

I think that the future of the power sector in North Africa is profoundly linked to the medium- and long-term impact of COVID-19 in Europe: energy and climate change-related policies will play an important role in the recovery plans that are going to be soon drafted and implemented in the continent.

We know that North Africa's power generation is marked by its reliance on fossil fuels (mainly natural gas and oil products), with an excess of 95% in the case of Algeria, followed by Tunisia, Libya and Egypt. When it comes to Morocco, despite some serious decarbonisation efforts, the Moroccan power sector is heavily fossil-fuelled as well: coal remains dominant in the country, as it provides more than two thirds of the power generated (70% in 2020), making it the largest coal importer in North Africa and the Middle East region.

Being a reliable and affordable energy source to meet a fast-growing power demand and support economic and social development, coal made perfect sense back in the 90s. Yet, according to global energy trends and power sector's dynamics in neighbouring European countries that are evermore aiming at a sharp decarbonisation (notably Spain), coal might now present a challenge to the growth of electricity generation in Morocco. This divergence might even hinder Moroccan efforts to significantly increase the share of renewable energy in the coming years.

With that being said, the recently announced new European Green Deal, part of the European Union's COVID-19 recovery plan, will have a profound influence on the EU's comparative position in the future world economy and also affect, directly or indirectly, non-EU countries with significant trade flows towards the Union. The CO2 Border Adjustment Mechanism, for instance, will bind to decarbonisation each external country willing to compete in EU markets.

If we focus on the specific case of power exchange between Morocco and Spain, Rabat became a net exporter to Madrid for the first time in 2019. It went from importing 20% of its power needs from the Iberian Peninsula to exporting, two years ago, about 1,2 TWh (Terawatt/hour). Obviously, it is only a fraction of Spanish

electricity demand, but still an important amount. In addition, the shift happened right when Spain largely reduced domestic coal generation by a much larger 25 TWh, so 20-21 times. At the same time Spain is aiming at a complete phase out of its coal capacities by 2025.

Out of necessity, coal generation in Morocco will thus outlive the Spanish domestic one, and a border carbon adjustment on electricity would remove this cost advantage for Moroccan coal generators, making it harder to export the same electricity from Morocco to Spain. It would also have an important effect on Morocco's quest to massively scale up renewable energies: it will be difficult or at least costly to achieve important targets without a parallel drive to more regional power systems' integration and more cross-border flows and trade of electricity. On the other hand, if renewables do increase, Rabat will be able to be more flexible in power imports – which come, once again, mostly from Spain and are the main system shock absorber for the Moroccan power system.

In my view, in the end, regional electricity market integration across the Mediterranean would provide the EU with a vast, more diverse and flexible supply of renewable energy. Besides, it will be crucial for those North African countries that are committed to achieve deeply decarbonised power systems, which is a very costly path for independent systems.

Finally, in addition to fostering more cross-border interconnections, one should not forget a second aspect that is key for North African countries in order to implement this agenda and integrate their power sectors into the European economy: try to achieve some regulatory convergence or alignment aimed at tackling important environmental and climate change challenges.

Session 2

ENERGY SECURITY: THE MUTATION OF A CHALLENGE

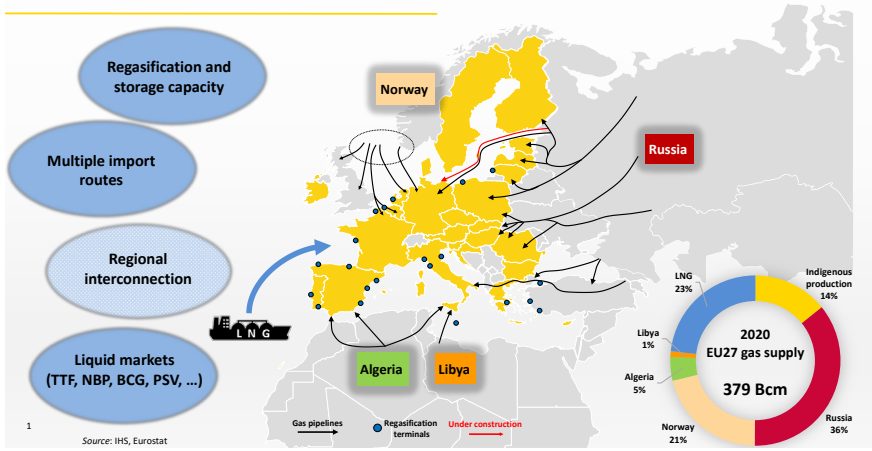
Zohr gas field in Egypt

Marco Piredda
Head, Political Scenarios and Institutional Support for Business Development, Eni, Rome

THE IMPLICATIONS OF ENSURING ENERGY SECURITY OF SUPPLY WITH A DIVERSIFIED ENERGY PORTFOLIO

Today, security of supply is not a strategic concern for Europe: global oil markets are fully accessible, and we have a well-developed gas system, diversified in terms of reliable sources and routes.

EU27: diversified, developed and reliable gas supply



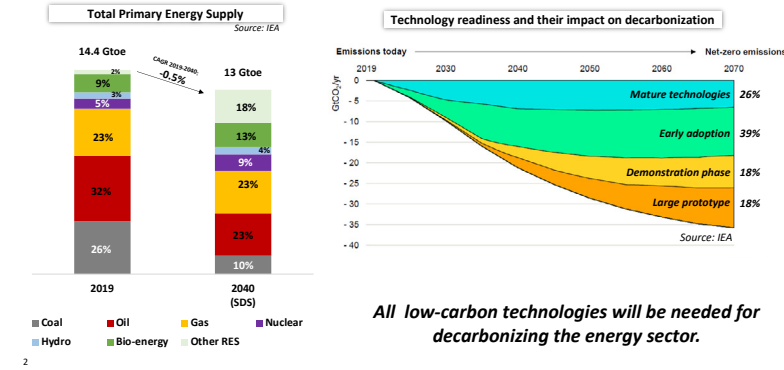
We can rely on robust and diversified connections with main oil and gas (o&g) suppliers, in particular in the Mediterranean region. The Italian system has always showed a high level of resilience (lately confirmed, during the Covid crisis). This is also because security of energy supplies has always been a strategic priority for Europe (and Italy) and its market players. This comfort does not come by chance and is based on complex systems and a certain level of redundancy.

On gas, for example, you need to consider that security is not measured in BCM/year but in MCM/day: here you can have a temporary problem, but the system is safe.[1]

Today the energy sector is not concerned about security of supply, but security of present and future demand: and this is a twofold issue 1) revenues for the business, 2) level of investments needed to cover future demand.

The strategic reasoning over security of supply is adapting as the energy world re-thinks itself. An already visible trend is the growing energy demand in the Southern shore of the Mediterranean; this implies that existing and future resources (now mainly conventional) will be increasingly dedicated to domestic consumption. Combined with declining hydrocarbons demand in Europe, this is changing the old pattern (South: produces and export; North: import and consumes).

Energy transition: sources and technologies



All low-carbon technologies will be needed for decarbonizing the energy sector.

Energy transition will certainly cause power shifts. In the mid-term (i.e., the make-or-break decade when we must act to stop climate change) the winners among importing countries will be those able to ensure a fast transition, combining security of supply with environmental and economic/social sustainability. For the producing countries, the challenge is already economy diversification and efficiency in the use of vastly available (conventional) resources.

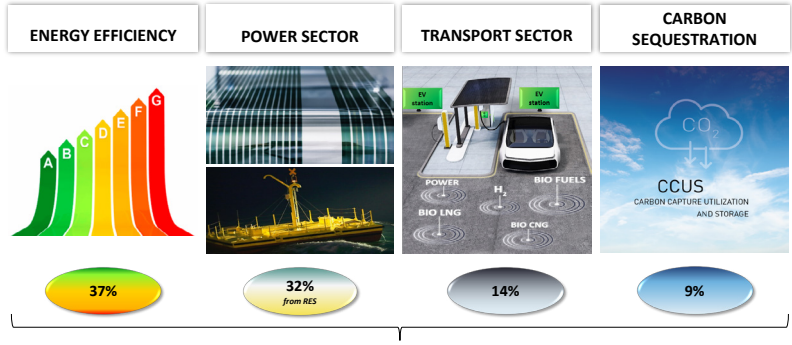
Uncertainty on regulatory frameworks, new market structures and technologies affects the investments needed to get more quickly and safely to a correct transition; while companies are now focused on security of future demand, the role of sovereign States and international organizations is key.

1 BCM Billion Cubic Metres; MCM Million Cubic Metres

Most part of the industry is in a "holding" pattern, standing still on big new projects until the great public/governmental decisions are taken (on carbon pricing, energy mix, tech solutions to be incentivized).

We will see if the process will be even or uneven. On carbon markets regulation, a global agreement would be certainly preferable and more efficient; however, a fragmented carbon regulation is highly probable; even if this would be sub-optimal, the do-nothing option is not an option.

Pillars of decarbonization



Impact on Decarbonisation: contribution on CO_2 reduction @ 2050

(IEA «Sustainable Development Scenario»)

3

Turning away from o&g will not make energy security less relevant. Physical connections and supply/demand balance will heavily depend on digital systems, redundancy and alliances. Interdependence between countries will not end, while new imbalances emerge.

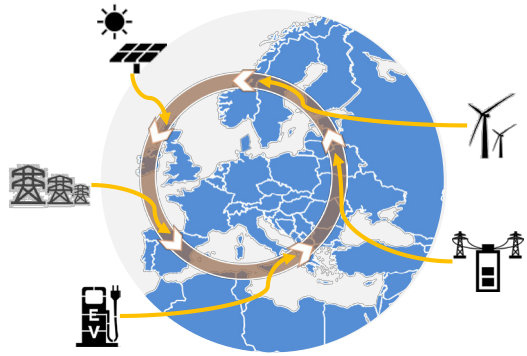
On the one hand, we should be wary of a spreading narrative of the energy future as a world where every State and almost every household will have its own RES (Renewable Energy Sources) production and energy resource will be widely distributed; renewables have been assumed to radically change the energy landscape to a more "peaceful" and balanced one, due to their more equally distributed presence on the planet. I believe that comparative advantages will still prevail, while supply/technological specialization will largely survive this revolution.

On the other hand, interdependence and interconnection, now perceived as a risk (also due to the pandemic), in fact are a way of reducing conflicts and enhancing collaboration.

The big question, in the energy field as well in international security, is how strategic competition (e.g., US/China) will affect global supply/value chains and to what extend technological decoupling and race for essential supplies will produce new regional blocks.

Combining localised/regional protection with global competition in open markets seems quite a difficult target to reach. So, I would rather expect a more and more "combative climate diplomacy".

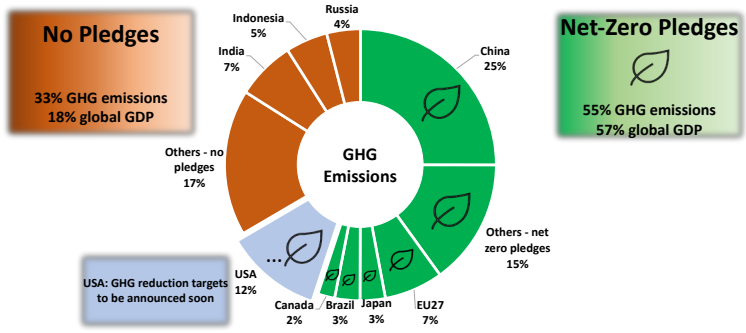
Interconnected, digitalised, RES-based systems…



…huge opportunities and emerging risks (access to technologies and rare minerals, large scale integration, cyber attacks, grid balance, …)

5

"Race to zero" diplomacy



Public policies and sovereign decisions will set the path for energy transition

Global agreements vs. regional competition

4

Oded Eran
Senior Research Fellow, Institute for National Security Studies, Tel Aviv

THE LEVERAGE OF ENERGY IN THE MEDITERRANEAN TO INCREASE STABILITY AND SECURITY

We have two medium-size producers and potential exporters, Egypt and Israel. While the situation in the Western Mediterranean is secure and safe, the Eastern Mediterranean is a bit more complex.

We have problems between Turkey and almost all the other East Mediterranean countries, mostly Greece, Cyprus, and even with Israel and Egypt. Then, we have the unsettled dispute between Israel and Lebanon, and then the question of what the Palestinians will do with the little, but still very important for them, quantity of natural gas.

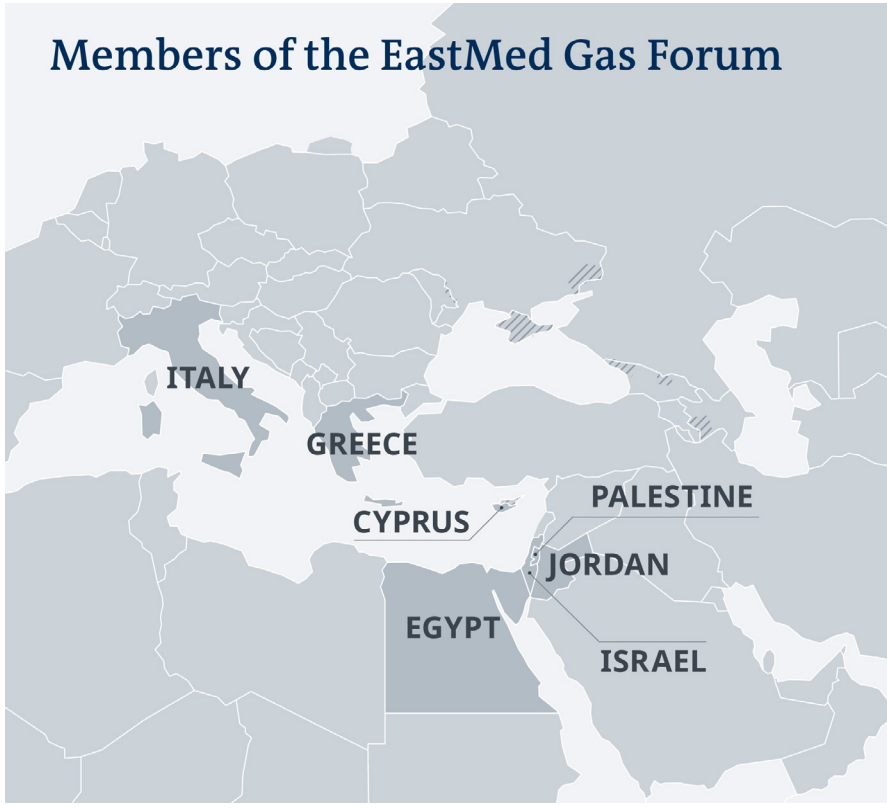
Basically, Israel and Egypt are already producing LNG, for at least 10 years. Others – Lebanon mostly, Cyprus and the Palestinians – will begin to exploit their natural gas in years to come. This is something that is reflected on their economies. If you look at the situation of the Lebanese economy, partly it is where it is, because they are not even beginning to exploit their natural resources, mostly their natural gas.

It is very important and essential that they begin to do this, because all the owners of the natural gas are in a race of time. Assuming that the Green Deal (the European very ambitious plan to come to green energy) and the climate international agenda kicks in, we have mostly 20 years before moving effectively to green energy. This is a very important and very crucial factor for the economies of the Eastern Mediterranean countries.

We have an interim period where we will have what is called blue hydrogen/blue energy, which is still moving towards renewables but based on current fossil energy resources; and then, we will move totally to green energy, where we do not use any of the traditional resources of energy. I think this is where the regional and international effort, mostly of Europe, is stepping in or kicking in.

First of all, I think that the current regional producers have to increase their cooperation. We have already the East Mediterranean Gas Forum – created two/three years ago, but we need to move further to increase the cooperation together

with some European countries (Italy, France, Greece, Cyprus) in order to transport whatever we can sell to Europe in this interim period of 10 to 15 years. We have to increase the cooperation between the Eastern Mediterranean countries in beginning to move to green energy, mostly solar energy.



Source: DW

If you have 365 days a year, Jordan, for instance, has 400 days of sun. Therefore, the new cooperation should concentrate on: first of all, supplying the region itself with solar and other renewables; and then, in cooperation with Europe, selling solar energy to Europe which does not have 400 days or not even 200 days of sun.

It is very important that Europe becomes the umbrella for political cooperation between the various East Mediterranean countries, and becomes also the economic umbrella, including assistance in creating the economic cooperation between these countries. I think that this is a message that I hope that Europe will read and translate into action as EU, not only as individual member States like Cyprus, Greece, or Italy.

Marc Ozawa
Senior Researcher, NATO Defense College, Rome

NATO AND ENERGY SECURITY IN THE WEST MEDITERRANEAN: TOOLS AND PARTNERSHIPS

I wanted to thank the NDC Foundation for the invitation to come speak. I shall preface what I am going to say with this, that these are my own opinions and do not necessarily reflect the views of the NATO Defense College (NDC) or of NATO itself.

So, as I was preparing for the discussion, I was wondering what part of this session's theme I should focus on given the seven minutes that I have. I thought that since I am coming from NATO, it would probably be helpful for me to comment on the last point about "What role for NATO, what tools does it have and what of the point about partners"?

Since joining the NDC, I have been asked already a few times to speak on the topic of NATO and energy security. Usually, in the context of Europe's dependence on Russian natural gas or something related to Nord Stream 2.

I think what would be helpful is to first clarify what NATO is and what is not. Although energy security is part of NATO's mandate, the Alliance deals with it on a very limited scope. Ever since the Bucharest Summit in 2008, energy security has been officially identified as an area of NATO's activities.

With every summit, and especially after the Ukraine crisis and Russia's illegal annexation of Crimea, the scope of how NATO approached energy security has become more clearly articulated. Although NATO's program was born out of concern over Russia and the geopolitics of energy supply, NATO's approach is fundamentally apolitical, in order to keep divisive politics out. This reflects the different views about energy security within the Alliance, and the need to maintain cohesion.

With this in mind, there are three areas that NATO addresses. The first is through situational awareness among the allies, and I think that, with respect to security of supply from dubious places, this is probably the most impactful area because it helps not only to inform, but also create unity of views on a topic. Situational awareness, in my view, also contributes to overall resilience because it am-

plifies the impact of a supplier's breach of contract to a greater audience, thereby raising the penalty of any mischief.

In addition to information sharing, NATO has also created a center of excellence in Lithuania to conduct studies and raise awareness of energy security challenges and most of its studies are also publicly available.

What NATO is not: it not is an energy regulator and, beyond NATO's own energy infrastructure, it has no say on any issues of security of supply. These are under the auspices of the energy regulator at the national level or at the EU level.

This does not mean, however, that sometime energy security debates will not spill over into NATO discussion forums as it happened with the unpleasant discussion over Nord Stream 2 when President Trump visited NATO headquarters. Historically, however, NATO has played a greater role in security of supply concerns, but this has not been the case since the Cold War period.

The second way that NATO deals with energy security is through the protection of NATO's own energy infrastructure. I think this second point is pretty self-explanatory, so I will not ad too much detail.

And the third way is through raising the level of energy efficiency across the Alliance through energy efficiency measures. Here, considering the facilities that NATO manages and the energy requirements of military operations, there is a lot to be done here, and "greening NATO" as the Secretary General has laid out in the 2030 initiative, is going to play a more prominent role in the future. Besides, this was also a major point raised by the both the expert reflection group and the young professionals' advisory group that Secretary Stoltenberg appointed.

And it is worth noting that this represents a shift in the focus of energy security discussions within NATO. Whereas energy security has historically been associated with concerns over Russia, in the future, it will be increasingly focused on climate change, greening NATO and supply diversification.

I think it is also important to mention that the energy security environment for European NATO has fundamentally changed over the past decade.

I do not want to get too technical, but the first major change is firstly in the market structure for natural gas, that now reduced the potential for suppliers like Russia to form monopolies and dominate the market, and secondly is the transition from oil indexed long-term contracts to spot market indexation. Basically, the market has become more reliant on spot markets that are more efficient, and it gives suppliers less control over the price of natural gas.

And this is just one component of an overall energy transition process to make Europe cleaner, more efficient, and more sustainable – what is often referred to as the "Energiewende" which is German term meaning the energy transition process.

So, this brings me to the subject of this panel and also to the overarching theme of the event, namely energy security strategies in the Western Mediterranean. From a NATO perspective, the Mediterranean is NATO's south, or the southern flank as it is usually referred to.

Some NATO member states stand to be transit countries, or points of entry into Europe ranging from countries in the MENA Region and extending to Russia and Central Asia through the East Mediterranean and the Black Sea.

NATO also has partners in the region, who are energy suppliers and transit countries; Egypt for example, is developing substantial offshore hydrocarbon fields with ENI. These are all promising developments in terms of diversification of supply and in my view, the clearest role for NATO in the region is through situational awareness among the partner and member States. The point at which these supplies fuel NATO facilities or flow through NATO infrastructure is another piece of the value chain where NATO will play an active role.

But given NATO's current mandate, I do not see any greater role for NATO than this at least for now. For me, it will be interesting to see, when the new strategic concept comes out (probably in the summer), whether energy security will continue to play an important role in NATO's future strategy. I suspect that it will, but I also think that there will be a stronger emphasis on NATO's role in the "Energiewende" and how NATO can work with the EU, institutional partners and national partners on this point will be very interesting to see.

Davide Sempio
Senior Stakeholder Relations Coordinator,
Trans Adriatic Pipeline AG, Lecce

TAP: IMPLICATIONS FOR THE ENERGY MARKET AND THE EU SECURITY OF SUPPLY

It is a great pleasure for me to be here today and to talk about the contribution that TAP is already bringing to the overall security of supply of the continent and neighbouring areas.

I think most of you are aware that TAP, and the Southern Gas Corridor at large, are bringing gas to Europe via a new source and a new route, thus strengthening the security of supply of the continent. A new and competitive route has been opened and new gas volumes are flowing through our pipeline, feeding Italy and ultimately Europe. So far, a total of 1 billion cubic meters has reached last week the Greek border, where our pipeline starts. This amount corresponds more or less to the yearly consumption of some 1.300.000 households. This is surely is good news because, as I appreciated during the previous interaction, this way we are able to further diversify and strengthen the security of energy supplies of Europe.

I also agree with the idea that most of the cooperation between countries is key to ensure more stable energy deliveries and eventually cope with the challenges that the whole industry is facing at present and in the near future.

When it comes to pipelines, of course, the book Connectography, written by Paragh Khanna, comes to my mind. In the author's mind, connectivity defines a new global map, no longer based on physical or political geography data but rather on infrastructural networks: highways, railways, gas pipelines, power lines and Internet wires. Numbers are impressive: with only 250.000 km of borders between states, there are currently over 64 million km of highways, 2 million km of gas and oil pipelines, more than 1,2 million km of railways and over 750.000 km of undersea cables.

In this context, TAP plays a key role in fostering competitiveness and decarbonisation. We will see later how natural gas, in partnership with renewables and innovative technologies such as hydrogen and CCS, will guarantee an uninterrupted energy supply to warm homes and feed businesses in the medium-to-long term, thus reinforcing Europe's energy security. TAP makes the market a little

more stable as it further diversifies the sources of supply: an outage or a sudden supply disruption of another pipeline would be partially compensated by this new route/source, especially when the ramp up on production is completed. TAP is a new route because it helps Italy and Europe, that are heavily dependent on external suppliers, to further diversify their connections to the supply source. The key contribution of TAP has been underlined also by the recent report of the intelligence Security Department of Italy's Presidency of the Council in terms of 10% of our gas needs. So, in the broader picture of Europe (the Mediterranean, and I would argue also the South-eastern area of Europe), TAP can play a significant role.

Of course, when we talk about security, we also speak about the cost of energy, because a more interconnected market also allows for the levelling of the different prices amongst countries. From the end of December, we are assisting to a progressive reduction of the spread between the Dutch TTF (the Title Transfer Facility, a virtual trading point for natural gas) and the Italian PSV (Punto di Scambio Virtuale or Virtual Trading Point). That difference in Italian imports, which was typically around EUR 2 per megawatt/hour, decreased reaching zero and, in some cases, going in the opposite direction. In fact, the volumes exported from the Italian alpine station of Gries Pass to Northern Europe seem confirming this, despite being almost symbolic. In other words, we were able as a country, as Italy, to transfer gas towards Northern Europe during the first weeks of the year, and this are very good news, although for small quantities.

This situation allows the Europe and the Mediterranean area to meet their energy needs by drawing from a more diversified mix of sources: liquefied natural gas, volumes from existing pipelines and, now, also the new source and route opened by TAP.

I would also underline the key contribution that TAP is providing to the further decarbonization and diversification of supply of South-eastern Europe and namely in Greece, Bulgaria, and the Balkans. The TAP flows can supply between the 20% and the 30% of the yearly gas demand of Greece and Bulgaria respectively.

Retrofitting the existing infrastructure and hydrogen are important elements in achieving a carbon neutral future and this is something that TAP is actively following in strict coordination with its shareholders. Using gas-hydrogen blends achieves a larger GHG reduction at a lower systemic cost than by using only new dedicated infrastructure to deliver hydrogen and provides renewable and low-carbon energy to consumers currently connected to the gas network.

I want to conclude with the information that, regarding this issue, we have recently signed an open letter (alongside with other 100 companies active in the European energy sector) to the EU Commission Executive Vice President, Frans Timmermans, to facilitate the discussion between these operators.

Special Intervention

FORGING THE INDISPENSABLE LINK BETWEEN NORTH AND SOUTH

Wind turbines in Andalusia (Spain) with Africa on the horizon.

Grammenos Mastrojeni
Deputy Secretary General for Energy and Climate, Union for the Mediterranean, Barcelona

SPECIAL INTERVENTION

Indeed, the Mediterranean is segmented; according to United Nations subdivisions, the Mediterranean enters into three geographical competencies.

States tend to tackle the Mediterranean, dividing it between East and West. We look at it as a whole, as a pan-Mediterranean unity and, indeed, it is a unity. It has an historical, cultural, economic unity and it has its own unity in the dynamics of climate change, which is the big challenge for the years to come.

Climate change is the starting point to tackle the problem of energy in the Mediterranean. Our region is the second fastest warming in the world; if we consider atmospheric temperature, it is the fastest warming mass of waters in the world, and with this awareness come a lot of disquieting forecasts.

We are expecting impacts like 250 million people suffering water scarcity within no more than 15 years; we are expecting a sea level rise around 20 centimetres, which might seem not so worrying, but 20 centimetres means the salinization of agricultural lands around the coasts, including the salinization of the Nile Delta, which implies jeopardizing the agriculture of a country with almost 100 million inhabitants. And this is not the whole story.

The Mediterranean is a history of unity in culture and economy, but what unity? It is a unity of asymmetry, that can be described just quoting the data about international commerce in our region. Of all international exchanges around the Mediterranean, 90% happens between states on the North rim, 9% between the North and the South, and only 1% among southern states. It tells a lot about a region in which there are those who can, and those who cannot.

However, even quoting a collection of disquieting predictions does not tell the whole story. Climate change over the Mediterranean is actually altering the whole balance and the whole identity of the region. If you look at Europe and North Africa, there are some anomalies we do not really perceive. Europe in itself should not be a continent; if you apply the criteria through which we have divided all other continents, Europe should not exist, it is just a tip of Asia; even North Africa

is Africa, but at the same time it is not Africa. There is something peculiar that establishes an identity there, that is not defined by geographical boundaries and, as Montesquieu had already understood more than two centuries ago, probably our common denominator is a special climate, an incredibly favourable climate that enabled the agricultural revolution, the most important revolution in humans' history, to take place in the Mediterranean.

Now this is changing. Instead of a stable, predictable and sweet climate, we are having an area divided in two parts, because African anticyclones are entering into the realm that used to belong to the Azores anticyclones. It means that Europe itself is divided in two; that there are new connections between Southern Europe and Northern Africa, and there are new division in the middle of Europe.

It seems so abstract, but let me just give you an example. The fastest warming area in the world is the Arctic. It comes with a lot of problems but also with some advantages, for instance the forecasted opening of new maritime routes. We are very happy if our friends in the North, together with all the problems brought by an accelerate warming, can benefit by some advantages. However, if these routes – the Northwest Passage and the Northeast Passage – become practicable, it means that the Suez Canal is not worth anything anymore and that ports in the Mediterranean loose part of their value.

At the same time, we have witnessed new solidarities for instance in the forestry sector, which has started a more intense cooperation a between North and South. Is it due to environmental awareness? For sure, but also because there is a subjacent awareness that we need each other. In the North, we will need the crops and the species that are vital and productive now in the South, and we will need them in a span of time just between 10 and 50 years to have our economies survive.

So, in this whole Mediterranean identity, what is the role of energy? Energy still lives with a contradiction. Energy is a commodity in the market following market rules; at the same time, energy is an enabler of development, important in rebalancing that asymmetry that I mentioned before; and energy is essential in the respect of human rights.

If the energy sector sees what is going to happen, it might come to the conclusion that, at this stage, there is no contradiction between playing by the rules of the market and playing by the rules of society, i.e., adaptation to climate change. This apparent paradox is possible not only because, if we let climate change become a disruptive factor there will be no market, but also because in the end it is more convenient and it makes more revenue to rush towards and secure those values that now are needed.

I have told you this rather abstract story to introduce you to the approach of the Union for the Mediterranean to energy issues in our region. Facing this common challenge, we realize that no one, not even the strongest countries around the Mediterranean, has enough resources to face and cope with future problems on its own, so we need each other. The energy sector is essential via one solution: inter-

connection; physical interconnection of grids, but also regulatory interconnection and the wider connection between the North and the South.

I was talking to the European Commission a couple of weeks ago, and together we recognized that there will be no Green Deal inside Europe without the participation of the South. Zero carbon or carbon neutrality cannot be reached within Europe if we do not rely on those users, that are not connected to the grid, on green hydrogen. But we cannot have green hydrogen without relying on the solar capacity of the cells arrayed in the South.

At the same time, we need interconnection between certain states. We need the transition towards renewables but, although you have a lot of potential in generating renewable energy, these countries still need to be backed by traditional grids. National grids are not enough to perform that duty, they have to be interconnected.

We need interconnection in technologies, which is not only modern industrial technology coming as a God-given gift from the North. In the South, they have an experience that we will badly need, namely thousands and thousands of years of experience in coping with drylands, just as our lands will become here, in our North. We need to put together knowledge.

So, what is our hope at the Union for the Mediterranean? With the objective of tackling climate change, if we do all we need to tackle climate change, even if it is not our objective, we will end up solving the everlasting problem of the Mediterranean, a sea of civilization, the sea of exchanges, but which has never completely been a sea of security and peace.

What do we need to do? Put together forces, but putting together forces means rebalancing inequalities; it means a participatory economy and wiping out all the root causes of those conflicts that have made our sea so fantastic but, at the same time, never a sea of peace.

In tackling this ultimate challenge, if we do what we have to do, especially through the energy sector – that demonstrates to us that we need one another – we will maybe be able to adapt to climate change, mitigate climate change; but by doing that, we will do exactly what we need to reach what we have never been able to reach, peace.

Session 3

THE TWIN GOAL OF A CONNECTED MARKET AND STABILITY

Beni Haroun, the biggest dam in Algeria

Rim Berahab
Economist, Policy Center for the New South, Rabat

MARKET INTEGRATION AND THE MOROCCAN WAY

The global energy landscape is experiencing significant changes in terms of demand, supply, technology, market, and investment. Today, new developments, that are beyond the traditional considerations of security of oil and gas supply, are reshaping the nature of international energy cooperation and governance. This means that a connected and integrated energy industry will have to prepare for these changes, particularly in the case of the Western Mediterranean. In my contribution I will talk first about some general conditions regarding the issue and then about Morocco and the regional context in more detail.

One of the main shifts that emerged in the past 10 years is the rise of renewable energy. Renewables have entered a virtuous circle of technological progress and cost reduction. They are becoming increasingly competitive with fossil fuels, particularly for electricity generation, with remarkable experiences in Morocco and Egypt. Moreover, with the European Green Deal, new cooperation potential is emerging in the area of renewable energies, namely green electricity and hydrogen. Yet at the same time, North Africa's large oil and gas exporters face serious questions about their development models, that rely heavily on Europe for their fossil fuels revenues.

Therefore, regional integration of electricity market in the West Mediterranean area has to address new challenges coming from renewables. In this sense, the concept of cross-border power grid connectivity has gained increasing support from states and international organizations, given the benefits it can offer in enhancing security of supply, lowering costs, balancing capacity, diversifying supply and helping the deployment of renewable and low carbon energy resources. Additionally, new technologies can be beneficial to grid integration and enables new opportunities. For example, an advanced smart grid infrastructure with wide storage capacity can mitigate renewable energy curtailment.

However, despite all these changes and potentials, achieving a connected energy market is not a simple process. In fact, expanding regional trade within North

Africa and between north Africa and Europe has been hindered by inadequate physical electrical connections and poor physical integration in European electricity grids. Thus, an important amount of capital is needed to strengthen and expand grid interconnections, while radically increasing the level of utilisation of existing cross-border transmission lines.

Currently, electricity trade within North Africa has remained at modest levels, and, speaking about cross continental electricity interconnections, the only links between Europe and North Africa are the two electricity lines with a combined nominal capacity of 1,4 GW between Spain and Morocco. That said, one should note that additional links between the two continents are being discussed and developed.

In addition to physical infrastructure, an effective and transparent institutional governance framework is equally important. This is a key precondition not only for attracting private investors but for the regional integration to reach any substantial volumes and attract new private and public traders. This includes setting up market rules and regulations supporting fair competition as well as implementing adequate financing mechanisms.

It is also necessary to achieve a level playing field requiring that a certain volume of electricity trade must be based on international fuel prices, thus supporting domestic policy reforms to phase out subsidized generation fuels and end-user tariffs.

These are all prerequisites to establish a connected energy market between Europe and North Africa. If these goals are achieved, they will contribute in increasing the local workforce opportunities, promoting development, stabilising migration, and consequently one can enhance stability in the region.

Regarding the possible implication of NATO, the changing global energy landscape, not to mention the security threats on critical infrastructure (e.g., the civil one enabling global energy trade), has once again made energy security an issue of strategic importance. The Alliance has a potential role in the protection of critical infrastructure, by offering its expertise in prevention and emergency response tasks.

To conclude, we know through international practice that developing regional institutional capacity, securing the needed financing for upgrading infrastructure, and establishing a cooperative security framework can take a long time. It requires active, consistent cooperation of multiple parties, supported by the political will of member states and a sound governance. This may not be easy or fast, but this work is essential for strengthening energy market connections and fostering the development of the region, which in turn will ensure stability.

MOROCCO

Morocco is blessed with abundant natural resources. What the country lacks in hydrocarbons is compensated by the excellent solar and wind potential. Morocco

has understood this long time ago and directed the focus away from digging and drilling to harvesting the elements to produce very cost-competitive green electricity.

Important lessons can also be drawn from Morocco, that alone accounts for three-quarters of the region's renewable electricity production growth in the region. Here too, impressive achievements in the energy transitions process have been underpinned by concerted government policy.

In addition to setting long-term targets, Morocco sought to provide the legal and regulatory framework to roll out its broader transition strategy, aiming first and foremost at market creation. Since then, subsequent legislation was passed that allows tendering and auctions for large-scale solar and wind projects, encouraging private investments in the sector. Other enablers of success focused on fostering investor and lender confidence by ensuring strong institutional off-takers and increasing institutional capacity. One major step was the creation of competent "one-stop-shop" agencies including the Moroccan Agency for Sustainable Energy (MASEN) that:

- Organize auctions to select developers based on a wide range
- Provide land and infrastructure, as well as permitting;
- Provide a dual PPA procurement model to optimize risk allocation between the private and the public.

Morocco's persistence in its strategy has been steady and the uncertain climate in 2020 has not derailed its initiatives, as shows the commissioning of two wind projects this year. It now plans to increase its renewables penetration by including in it in a future regional integration and trade plan and it is also looking into new emerging sources like green hydrogen.

HYDROGEN

Green hydrogen holds significant opportunities and its local usage includes: green ammonia (NH3) production as fertilizer, replacement commodity of costly grey ammonia imports and grid stabilisation after high shares of variable renewable energy are produced or for export to Europe. But the challenge now is to translate these opportunities into practicable strategies and projects and address the cost-competitiveness issues.

Hydrogen can be produced in Morocco from sun, wind and water. A combination of solar and wind power can provide a high load factor for the electrolysis process, leading to green hydrogen at a competitive cost. Since COP22 (the UN conference on climate change) in 2016, Power-to-X (PtX) has been gaining traction in the Moroccan climate change agenda. Under this term are regrouped all the processes that transform excess green power into mobility fuels, raw chemicals and electrical storage chemical cells.

The Institut de Recherche en Énergie Solaire et Énergies Nouvelles (IRESEN) is leading the charge and succeeded in prioritizing PtX within the agenda of the Moroccan Ministry of Energy and Environment. Furthermore, IRESEN has a key role in supporting academic and research efforts on green hydrogen. Morocco is elaborating a hydrogen roadmap (May 2021) and several pilot projects are being defined and early discussions are taking place concerning scale-up possibilities.

REGIONAL INTEGRATION

Regional energy market integration offers numerous benefits to the power systems and the economies of the region.

The current level of grid connectivity in the Med region shows three differentiated situations:

- Sufficient endowment in interconnection within the North Shore countries, but with a level of utilization that is not yet satisfactory;
- Insufficient endowment in interconnection infrastructure within the South Shore, in addition to insufficient utilization and synchronization difficulties;
- Poor North-South interconnection, limited volume and topology.

Expanding regional trade between NA and Europe has been hindered by inadequate physical electrical connections and poor physical integration in European electricity grids. Other factors are the underdeveloped legal and regulatory frameworks, particularly the lack of alignment of market rules, high upfront costs and lack of financing mechanisms and insufficient coordination of power systems.

If we're zooming to the ***North African region***, there is the Maghreb regional interconnection between Morocco, Algeria and Tunisia, that was initiated in the 1950s and evolved into multiple high voltage transmission interconnection. In the late 1990s, Morocco was connected to Spain via an AC interconnection, entailing that Algeria and Tunisia were all synchronized with the European high voltage transmission network. Moreover, the HVAC interconnection of Tunisia and Libya, although built in 2002, is not fully operational, due to the non-compliance of the network with the requirements of the European network.

So, though the Maghreb electrical interconnection have existed for some time and have been reinforced in capacity, electricity trade among countries has remained at modest level (limited generation reserve margins, the absence of a harmonized regulatory framework with clear rules governing electricity trade and institutional weakness at both the national and regional levels).

Adding to that, the high levels of renewable generation from variable renewable energy sources (VRE) will pose new challenges to system planners and operators => increased power system flexibility will be needed to ensure that the higher levels of VRE can be accommodate securely and efficiently => coordinated approach.

The very same energy source presents distinctive problems when considered as a

source of national revenue. An over-reliance on this narrow and volatile source of revenue creates considerable financial risks because export revenues are subject to large swings, with knock-on effects for the economy, and typically, high levels of public spending during boom times are followed by periods of severe fiscal strain during downturns.

Historically, conventional power plants, electricity networks and pumped storage hydro have been the primary sources of flexibility, but now new solution are required from four different categories:

- Dispatchable power plants;
- Electricity networks and interconnection;
- Energy storage;
- Distributed energy resources (including demand-side response).

Again it is not a matter only of resources, technologies, production and markets, it is a major policy, government and governance effort that makes possible a new integrated market.

Vincenzo Camporini
Former Italian Defence Chief of Staff

NORTH AFRICA'S FUTURE ENERGY NEEDS A SERIOUS EURO-ATLANTIC CONVERGENCE

I will say something which might seem trivial, because these things are becoming more debated in the public opinion and are familiar to many, but I think it is worthwhile repeating them in order to clarify and put in a wider perspective the issue of energy.

It is a truism that energy is something which will be required for the future development of our societies, and it is also very clear to most of the specialists that we will be unable, at least for the next couple of decades, to rely on renewable energy sources. We had some illusions in the past, and now we have to face the reality that replacing fossils it is a process which will require a long time.

The energy required will increase; of course, there is an effort to rationalize the use of energy, but, nevertheless, the requirement will increase and there will be a greater shift towards electrical energy. We see the revolution in the mobility with a large number of car makers relying on either hybrid or full electric means of transportation, which means that, if we today transform all the cars and all the trucks into electrical vehicles, we will be unable to produce all the required electricity.

There is a requirement for energy, that is going to increase in the future. It is evident that, on the northern side of the Mediterranean, in our beloved Europe, we will be unable to produce this type of energy, and we have to rely on sources which will come from outside like the Middle East and the Eastern countries (Russia). However, North Africa will be a place of election for providing us the energy which we require and not only for the fossils, namely the energy sources which we have in the oil fields in Libya and which elsewhere are essential. In fact, if we go renewable, this area will be absolutely ideal to develop the initiatives in order to provide us the energy which we need. However, if energy is produced, it must be transported somehow, and this issue is a critical one.

We have to rely on the stability of this source of energy; stability means that there is a very strong and vital interest for the European countries to have areas in the North African region on the Mediterranean coast and southwards, where

political stability is granted. We do not have yet this. Therefore, we will have to act in order to create this stability, which does not mean only that we have to work on the military side; this aspect is just one of the means to grant this type of stability, but there must be a political effort by our nations in order to create the conditions so that the life inside these areas is such that, we will not have to fear that the supply, which we require, will be in any way altered.

It is something that is extremely important for the development and the welfare of our societies, and it requires the contribution and the convergence of the efforts of our nations, which so far has been missing.

We cannot expect to be effective in order to offer these populations the means to self-govern in an equitable and in a proper way, unless we converge our effort together. We have seen that this has not happened in the recent past. Libya is a clear example where the effort of some nations was in opposition to the effort of others, which did fuel some internal disturbances.

This must stop. We need a convergence of effort, we need a convergence of all the means which we have at our disposal, starting from the diplomatic, economical and also the military means. In this perspective, the role of NATO and of the European Union is absolutely essential, and the fact that these organizations have to work side-by-side is essential for the survival of our societies.

Linus Mofor
Senior Environmental Affairs Officer (Energy, Infrastructure & Climate Change), United Nations Economic Commission for Africa, Addis Ababa

THE SUSTAINABILITY OF AN ENERGY TRANSITION

I would like to sketch three main points: fossils and Paris Climate Agreement; the challenges ahead and the link between the region and the EU Green Deal.

Firstly, how we deal with fossil fuels is very crucial in terms of how we meet the goals of the Paris Agreement. The North African countries in this region are very fossil-fuel intensive, they have huge amounts of renewable energy and fossil fuel energy resources. They are also being very heavily impacted by climate change. Actually, it is a very tall order to do a transition from a very fossil-fuel heavy region to one that embraces new clean energy technologies.

I want to use this opportunity to frame this context by quoting somebody from the MENA region, who said that: "*Humankind did not come out of the Stone Age because they ran out of stones, but because they found a better way; our countries in the Northern Africa region are going to come out of this fossil-fuel intensive economies structure, not because they are running out of fossil fuels, but because they are going to find better ways for renewables, and they are doing so*".

So much is happening in places like Morocco, which, in fact, is only one of the very few countries that, according to its Nationally Determined Contributions in the framework of the Paris Agreement, has been assessed as overall compliant to the Agreement due to the amount of its investments in renewable energy. We have seen huge increases in wind power in Morocco, solar in Egypt and Algeria, while Tunisia has achieved remarkable results in electricity efficiency.

Morocco is doing a very aggressive program that is also based on increasing local content, which then addresses the issues of general and youth employment and of security, because without employment and development, you cannot have security.

Morocco is also the host to the biggest concentrated solar power plant in the world; and the African Development Bank is promoting the "Desert to Power initiative", aimed at bringing in new capacities of about 10 gigawatts of renewables.

However, there are huge challenges that have to be overcome: gradually disposing of fossil fuels is going to be challenging. In these countries it is urgent speeding

up the economic diversification that has to come, because with the increasing pressure to phase out of fossil fuels globally, demand and prices are falling. It means that these countries are also having a shrinking fiscal space from which they can generate the revenue that will be needed to invest in the necessary future clean energy. Then, you also have the apparently strange situation that in many of these countries there are huge subsidies with very low tariffs. While it may make political sense, that is big hurdle because, with very low tariffs, the revenue collection becomes very reduced. This entails the risk, that in order to bring in new capacity to meet the increasing demand, there might be a tendency to want to fall back to the least-cost generation option, which is not good as a way going forward. And of course, energy efficiency performance still remains a big unsolved issue in the region and at the same time it is a big opportunity that can help in the transition.

I think interconnections in this area are really critical because, if we take into account the Egypt to Morocco interconnection (the ELTAM connection, i.e., Egypt-Libya-Tunisia-Algeria-Morocco), and also the one going from Morocco to Spain and the ELMED connection (going from Tunisia to Italy), then we have a huge opportunity.

We have a huge opportunity because we are now able to connect North Africa and Europe, but you are not only connecting North Africa and Europe because, if you look further south from North Africa, there are other interconnectors, particularly the Zambia-Tanzania-Kenya one. If you invest and have that interconnector working, it means basically you were able to link Cape Town to Cairo, and this could have huge implications.

EU has got a very high share of fossil fuels in the power mix and similarly the countries in this region; they all have the same agenda. If EU wants to eliminate fossils by 2050, and this region also will have to follow suit, given that the EU also imports a lot of fossil fuels from this area, which will not happen again, then we have an opportunity that through cooperation both actors can substitute the import/export of fossil fuels with one of clean energy.

Therefore, Europe has the possibility to meet its Green Deal objective. The region is able to transition from fossil fuel by enhancing and diversifying the economy, bringing more employment because, like from the work that IRENA and other institutes carry out, when you invest in renewables, there is a concrete job creation possibility.

We can also use these abundant renewable energy resources to develop a hydrogen economy. Again, that will be one way of diversifying the economies, boosting employment and increasing cooperation, and that way we are all able to move towards the goal of the Paris Agreement, where action is needed and from whose objectives we are at the moment so far away.

It is story of opportunity, where we can have an equitable transition that will keep the global warming low, will not decimate or destroy economies and that will create new opportunities, contributing towards a world that leaves no one behind.

Chloe Berger
Faculty Adviser/Researcher, NATO Defense College, Rome

MARKETS: SOCIO-POLITICAL CONUNDRUMS AND THE ALGIERS-RABAT IMPASSE

Just a little disclaimer from my side. I do not pretend to reflect neither NATO nor the NDC views but just speaking on my personal quality. The "Ever Given" incident, few days ago, just reminded us the critical importance of energy security for the Alliance and its partners in the Mediterranean Basin. With respect to energy transition and resources, I think that Mediterranean countries should play a leading role in developing renewables and energy efficiency and fostering regional integration in the energy domain. Therefore, I would like to share with you a few thoughts about regional integration.

First of all, I would like to look at the factors that have, to a certain extent, prevented the development of a stable regional policy framework favouring the development of energy efficiency and renewable energies. Over the last decades, significant factors have played against the "green energy" transition in that region.

Fossil energy has played a critical role in the development of North African and Middle Eastern countries over the last century, largely shaping the structure of their economies. Most countries in the Maghreb and the Levant still heavily depend on fossil resources to meet their growing energy needs (around 98% of MENA's energy mix), driven by economic and demographic growth, as well as rapid urbanization. Morocco and Israel are notable exceptions.

Nevertheless, some promising changes must be acknowledged, driven by the long-term decline of hydrocarbons reserves, the impact of oil price volatility on fiscal resources and the supply disruptions caused by conflicts and attacks on energy infrastructure. Short-term interruptions have forced national authorities to purchase resources on international markets at very high cost: an additional burden on fiscal resources already constrained by the implications of the COVID-19 crisis. At the same time, most of the production contracts, agreed with foreign and national companies, are reaching their terms. During the previous drop in oil prices around 2014/2015, disruptions in energy supplies occurred due to conflicts in Libya, in Syria and also in Sinai.

This context stimulating the reflection on energy transition, governments have gradually started looking at options to develop renewables and energy efficiency, albeit important challenges still need to be overcome. Firstly, phasing out the fossil energy production will not be an easy task; first and foremost, because renewables are heavily dependent on private investments whereas fossil energy production is dominated by state actors. More generally, this duality reflects the complex challenges linked to the reform of the social contract in these societies. The changes that have taken place in the region over the last decade illustrated intents from the civil societies' side to renegotiate this relationship.

At the heart of the regional instability lie unsolved major governance issues and compromises need to be found to contribute positively and efficiently to the energy transition towards renewables. Given the strategic significance of energy for North African countries (which are all, but Morocco, net gas exporters), we all understand the prominence of challenges connected to energy transition.

Political will, or at least awareness, is there; but for the moment, governments still lack proper tools. A transition that will require an overall transformation of North African societies and economies and for these reasons we have discussed about subsidies, the rentier state model, the energy sector managed by state-owned actors.

The lack of investments is another obstacle: the energy production and supply require massive investments in infrastructure, technologies and well-trained personnel. For the moment, most of the foreign direct investments in the energy sector come from countries like China or Russia and are obviously conditioned by geopolitical interests. This is also part of the conundrum.

The regional integration process is also hampered by political obstacles. If North-South integration is a fait accompli since the early 1980s, North Africa's economic integration is yet to be achieved.

Finally, with respect to the contribution of the private sector in North African economies, the absence of a robust regulatory framework discourages banks and private entrepreneurs.

Nevertheless, some opportunities exist: for instance, the Arab League has developed action plans in that domain; Mediterranean countries have adopted objectives linked to the Paris Agreement; some national electricity networks are already interconnected. What is missing to develop a regional integrated market? Some national and regional standards for energy efficiency and renewables, as well as legislation guiding the long-term development of renewables. However, exploring ways to reform energy subsidies mechanisms and diversifying fiscal incomes for rentier states will require considerable efforts and a true political commitment. There is an urgent need for creating enabling frameworks for attracting private sector investors, both local and foreign entrepreneurs. Trust-building mechanisms among North African countries would facilitate the development of a more regionalized approach to energy security.

This will probably require serious discussions among North African governments, especially between Morocco and Algeria. International organizations, like NATO or the EU, can provide a suitable platform or forum to favour a rapprochement between those states. It is very unlikely that any economic regional integration could be achieved, if these two leading countries are not able to overcome their disagreements and coordinate their efforts.

BIOGRAPHIES

FOREWORD

Alessandro Minuto-Rizzo
President, NATO Defense College Foundation, Rome
After having served at the Italian Embassy in Washington D.C. and as Commercial Counsellor at the Embassy of Italy in Prague, Ambassador Minuto-Rizzo worked as Head of the External Relations Office of the EEC from 1981 to 1986. In the next years, his career focused on Europe and Space Policy. In 1997 he was appointed Diplomatic Counsellor of the Minister of Defence Beniamino Andreatta, then of his successors Carlo Scognamiglio and Sergio Mattarella. In 2000, Minuto-Rizzo held the position of Italian Ambassador to the Western European Union and to the Political and Security Committee of the EU, of which he was among the founding members. He was Deputy Secretary General of the Atlantic Alliance between 2001 and 2007. His mandate was mostly carried out in the strategic-political industrial area, in the relations with sensitive countries such as those in the Gulf and the Southern Mediterranean. He is the author of the books: "The road to Kabul" (Il Mulino-Arel, 2009); "A political journey without maps. Diversity and future in the Greater Middle East" (Rubbettino, 2013), and "NATO and the Middle East: The Making of a Partnership" (New Academia Publishing, 2018).

WELCOME REMARKS

Stephen Mariano
Dean, NATO Defense College, Rome
Stephen Mariano was appointed Dean of the NATO Defense College in January 2019. Prior he was Professor of National Security Studies at the National Defense University's National War College. Dr Mariano taught military strategy and com-

parative military systems at the U.S. Military Academy at West Point, as well as politics and U.S. foreign policy at the Royal Military College of Canada. Formerly, he was U.S. Army War College Visiting Defense Fellow at Queen's University's Center for International Relations, U.S. Army's Senior Fellow at Harvard University's Weatherhead Center for International Affairs, and M.I.T. Seminar XXI Fellow. He acted as Deputy Director of Strategy, Plans, and Assessments at the Multinational Security Transition Command-Iraq, where he liaised with the NATO Training Mission in Iraq, and as Military Advisor to NATO's Senior Civilian Representative in Afghanistan. He also served as Strategic Plans and Policy Officer within NATO's International Military Staff in Brussels and at the U.S. European Command in Stuttgart.

Richard Brewin

Programme Manager, Science for Peace & Security Programme, NATO HQ, Brussels

Richard Brewin is an environmental scientist educated to M.Sc. level with membership of the Institute of Environmental Management and Assessment, as well as a Chartered at the Royal Society of Biology. He is currently covering the position of Programme Manager at the Science for Peace & Security Programme, at the NATO Headquarters in Brussels. Dr Brewin is also a Specialist Fellow of the UK Ministry of Defence where he has spent the majority of his career working on integrating sustainability concepts into defence strategy and policy, military equipment acquisition, supplier engagement, and military research management. Previously, Dr Brewin was responsible for the European Defence Agency's Energy and Environment Progamme and chaired the associated Energy and Environment Working Group, which comprises representatives from member state Ministries of Defence as well as industry and academia.

OPENING REMARKS

Mohammed Loulichki

Senior Fellow, Policy Center for the New South, Rabat

Ambassador Loulichki is a Senior Fellow at the Policy Center for the New South, focusing on diplomacy, conflict resolution, and human rights. He has extensive experience in diplomacy and legal affairs. He assumed inter alia the functions of Head of the Department of Legal Affairs and Treaties in the Moroccan Ministry of Foreign Affairs. He was also Ambassador of Morocco in Hungary, Bosnia–Herzegovina and Croatia (1995-1999); Ambassador Coordinator of the Government of Morocco with MINURSO (1999 – 2001); Ambassador of Morocco to the United Nations in Geneva (2006-2008) and New York (2001-2003 and 2008-2014), as well as President of the Security Council (December 2014). Ambassador Loulichki was appointed President of the Counter-Terrorism Committee of the Security Council (2013); President of the Working Group on Peace Keeping Op-

erations (2012); Vice-President of the Human Rights Council (2006); Facilitator of the Universal Periodic Review of the said Council (2006 and 2010), and President of the National Committee in charge of the follow up on nuclear matters (2003-2006).

SESSION 1
EVOLVING POWER CAPACITY IN THE WESTERN MEDITERRANEAN

Stefano Silvestri
Vice President, NATO Defense College Foundation, Rome

Dr Silvestri is the Vice President of the NATO Defense College Foundation. From 2001 to 2013, he was the President of the International Affairs Institute (IAI). He has been a lead writer for Il Sole 24 Ore since 1985. Between January 1995 and May 1996, he served as Under Secretary of State for Defence, having been an advisor to the Under Secretary of Foreign Affairs, for European matters, in 1975, and a consultant to the Prime Minister's Office under various Governments. As a professional journalist, he has been a special correspondent and columnist for Il Globo (1982), a member of the Policy Committee of L'Europeo (1979), and has contributed with articles on foreign and defense policy to numerous national daily newspapers. He was Professor for Mediterranean Security Issues at the Bologna Centre of the Johns Hopkins University (1972-1976) and has worked at the International Institute for Strategic Studies in London (1971-1972). He is currently a member of the administrative council of the Italian Industries Federation for Aerospace, Defence and Security (AIAD) and of the Trilateral Commission.

Ahmed Badr
Acting Director, Project Facilitation and Support, International Renewable Energy Agency, Abu Dhabi

Ahmed Badr is the Acting Director of the International Renewable Energy Agency's (IRENA) Project Facilitation and Support Division (PFS). Mr Badr brings more than 30 years of international experience in the field of banking and finance. In his role, Mr Badr is tasked with leading the development of the division, while spearheading the Agency's implementation of the Climate Investment Platform. It is a multi-stakeholder platform established in partnership with SE4All, the UNDP, and in coordination with the Green Climate Fund, to streamline access to climate funding for developing countries and advance renewables deployment. Prior to joining IRENA, Mr Badr held several senior operational positions in the field of climate change, renewable energy, energy efficiency, water and infrastructure projects in a number of multinational financial institutions, including the World Bank; the European Bank for Reconstruction and Development; the European Commission (EuropeAid), and the Japan Bank for International Coop-

eration. Mr Badr is certified as a project manager for infrastructures development, with a B.Sc in Civil Engineering and a Master's Degree in Infrastructure Economics from the Université de Nantes, France.

Marco Carnelos
President, MC Geopolicy srl, Rome
Ambassador Carnelos spent 25 years working for the Italian Foreign Service, with postings in Somalia, Australia, the United Nations HQ in New York, and Iraq. For ten years, he covered different positions in the Office of the Italian Prime Minister as a foreign policy adviser in charge of special dossiers such as the Middle East and North Africa, Russia, Afghanistan, and Terrorism. He has been Special Envoy for the Middle East Peace Process and the Syrian Crisis for the Italian Government. In 2017, he left the Italian Foreign Service and founded his own consultancy company, the MC Geopolicy srl. Currently, he is a Board Member of the Italian Institute for International Political Studies (ISPI), the Scientific Committee of the Institute of Global Studies (IGS), and the Mediterranean Institute for Asia and Africa (ISMAA). Ambassador Carnelos is a regular columnist for the Middle East Eye magazine, and his articles have also been published by Limes, Diplomazia Italiana, La Stampa, Italiani Europei, and Nomos&Kahos edited by Nomisma.

Tayeb Amegroud
Senior Fellow, Commodity Economics and Finance, Policy Center for the New South, Rabat
Dr Amegroud is the founder of GPower Consultants and an expert in energy planning, projects development, valuation, financing, and structuring, as well as a Senior Fellow at the Policy Center for the New South. Dr Amegroud has 18 years of combined experience in energy projects and investment banking. In his lastest position, he was Director in charge of Renewable Projects Development, Planning and Strategy at the Office National de l'Electricité (ONE), and member of its executive committee. Prior to that, he was Executive Director at Swiss Re in New York and London, and held the same position at Lehman Brothers and various other international financial firms.

SESSION 2
ENERGY SECURITY: THE MUTATION OF A CHALLENGE

Marco Piredda
Head, Political Scenarios and Institutional Support for Business Development, Eni, Rome
Dr Piredda is a senior manager of Eni – the Italian global energy company – where he works in the Public Affairs and International Relations Department. He earned a BA degree with honours in Political Science at the LUISS University in Rome

and holds a MA degree in Administrative Law, and a Ph.D. in Constitutional Law from the University of Bologna. Previously, he conducted academic and research activities on Public Law and Government at the LUISS University, the University of Bremen, and other academic institutions. Dr Piredda worked for 6 years for the Italian Government, in the Financial and Banking Directorate of the Italian Department of Treasury, as Director of the Unit in charge of Legal International Cooperation. In this assignment, he managed several EU-funded projects on economic regulation, mainly with Eastern European countries. He joined Eni in 2008 to work in the External Relations and Communication Department. Then he worked in the Legal and Regulatory Affairs Department and in the Public Affairs Department. In 2017 he was assigned the position of Head of Analyses and International Relations for the development of Eni's oil and gas businesses. In June 2019 he was appointed Head of Political Scenarios and Institutional Support for Business Development in the MENA, Americas, and the Asia Pacific.

Oded Eran

Senior Research Fellow, Institute for National Security Studies, Tel Aviv

Oded Eran, a Senior Research Fellow at the Institute for National Security Studies (INSS) in Tel Aviv, served as director of INSS from July 2008 to November 2011, following a long career in Israel's Ministry of Foreign Affairs and other government positions. Before joining INSS, Dr Eran served as the World Jewish Congress Representative in Israel and as the Secretary General of the WJC Israel Branch. From 2002 to 2007, he served as Israel's Ambassador to the European Union (covering NATO, as well). Prior to that he was the Israeli Ambassador to Jordan, and head of Israel's negotiations team with the Palestinians. Other previous positions include Deputy Director General of the Ministry of Foreign Affairs and Deputy Chief of the Israeli embassy in Washington. Between 2007 and 2013 he served as an advisor to the Knesset sub-committee on Foreign Affairs. He holds a Ph.D. from the London School of Economics.

Marc Ozawa

Senior Researcher, NATO Defense College, Rome

Dr Ozawa is a Senior Researcher at the Research Division at NATO Defense College. His current research examines NATO-Russian relations, hybrid conflict, and Russian and Eurasian affairs. He has previously held teaching, research and editorial positions at the University of Cambridge, IHS CERA, Yale University, and the Yale Journal of International Affairs. Dr Ozawa has taught and supervised both undergraduate and graduate level students in the subjects of international relations, Russian foreign policy, and the geopolitics of energy. He has published works on Russia's relations with its neighbors, energy security and European-Russian relations. He is a graduate of the University of Alaska (BA), Yale University (MA) and the University of Cambridge (MSt, Ph.D.). Additionally, he conducted

coursework at Lomonosov Moscow State University and North-Eastern Federal University in Yakutsk.

Davide Sempio
Senior Stakeholder Relations Coordinator, Trans Adriatic Pipeline AG, Lecce
With more than 20 years of experience in public affairs, stakeholders engagement, and external relations, mainly spent in the energy industry, Mr Sempio is currently leading the External Affairs team of Trans Adriatic Pipeline (TAP) in Italy. Previously he served for seven years as Head of External Relations at Snam, one of the world's leading companies in the gas infrastructure business. Prior to that, he has been Media Relations Manager at Eni, from 2004 to 2011. He is also a lecturer at the Master's course in Media Relations of the Catholic University of Milan.

SPECIAL INTERVENTION

Grammenos Mastrojeni
Deputy Secretary General for Energy and Climate Action, Union for the Mediterranean, Barcelona
Grammenos Mastrojeni is an Italian diplomat, professor and writer who has focused for the past 25 years on the societal, geo-strategic and economic impacts of environmental degradation. He is currently the Deputy Secretary General for Energy and Climate Action at the Union for the Mediterranean. Till August 2019, he was the Coordinator for the Environment and Head of the Science-Policy Interface at the Italian Development Cooperation. Chair of the UN Mountain Partnership, and Co-Chair of the Global Islands Partnership, he is President of the largest Italian association for sustainable development education "Isola della Sostenibilità", and member of the Scientific Boards of numerous university courses and entities. Author of various articles and official reports on the environment, he published 8 books, including "Greenhouse effect, war effect", written together with the climatologist Antonello Pasini (Chiarelettere, 2017), and "The Ark of Noah – Saving together our Common Home" that ranked as a best-selling collection of essays. Among his publications there are also "The indissoluble cycle. Peace, environment, development and freedom in the global balance" (Vita e Pensiero, 2002); "The necessary eco-revolution" (Italian Scientific Editions, 2008); "Now or never. A decade, and not beyond, to save ourselves and the Earth" (Amazon, 2016).

SESSION 3
THE TWIN GOAL OF A CONNECTED MARKET AND STABILITY

Rim Berahab
Economist, Policy Center for the New South, Rabat
Rim Berahab is an economist at the Policy Center for the New South. She is

currently working on issues related to international trade and regional integration in Africa. Her areas of research focus also on energy issues, economic growth and gender inequalities. Dr Berahab published several articles related to trade and FDI between Morocco and Sub-Saharan Africa. Recently, she co-authored a book – supervised by Pierre-Richard Agénor – on gender inequalities, public policies, and economic growth, and published various articles on the climate change-economic development nexus. She was also a visiting fellow at the International Monetary Fund (IMF) within the Commodity Unit of the Research Department for three months. She holds an engineering degree from the National Institute for Statistics and Applied Economics (INSEA).

Vincenzo Camporini
Former Italian Defence Chief of Staff
General Camporini is a Scientific Advisor for the International Affairs Institute (IAI) in Rome. Enlisted in the Air Force Academy in 1965, he rose through the ranks to eventually take up the highest office of Chief of Staff of the Italian Air Force (2006-08) and Chief of Defence Staff (2008-11). General Camporini has dealt with the most topical issues of international politics as a scholar and academic, focusing on the political-military dimension of the European Union and the development of its ability to use the military instrument in the framework of its external relations. Among other things, he was President of the Centre for High Defence Studies, Rome (2004-06) and Vice President of the IAI (2011-19). General Camporini graduated in Aeronautical Sciences at the University of Naples Federico II and in International and Diplomatic Sciences at the University of Trieste.

Linus Mofor
Senior Environmental Affairs Officer (Energy), United Nations Economic Commission for Africa, Addis Ababa
Dr Mofor is a Senior Environmental Affairs Officer in charge of energy, infrastructure and climate change at the African Climate Policy Centre of the United Nations Economic Commission for Africa, based in Addis Ababa, Ethiopia. Previous, he joined the Commission for the International Renewable Energy Agency (IRENA) where he worked as a renewable energy innovation and technology analyst. Before joining IRENA, Dr Mofor was an industrial development expert within the Energy and Climate Change Branch of the United Nations Industrial Development Organization (UNIDO) in Vienna. Prior to working with UNIDO, he was a senior lecturer and consultant at the Centre for Engineering Research and Environmental Applications at the University of Glamorgan (now the University of South Wales) in the UK.

Chloe Berger

Faculty Adviser/Researcher, NATO Defense College, Rome

Dr Chloe Berger is Faculty Adviser and Researcher at the NATO Defense College. As a Researcher, her work focuses mainly on the broader MENA region and NATO's Agenda for the South (Projecting Stability, partnerships, etc.). As a Faculty Adviser, she oversees the Curriculum Planning of the NATO Regional Cooperation Course and the Senior Executive Regional Conference. Before joining NDC, Chloe Berger held different positions in French educational institutions, public and private, in Syria and Egypt. She worked as a consultant for risks analysis and strategic monitoring on Middle-Eastern issues (Egypt, Syria, Lebanon, and Palestine). Dr Berger is a graduate from the Political Studies Institute of Paris (Sciences-Po Paris) and she received a PhD in Political Sciences from Paris II – Assas University. She also holds a Master 2 in "International Security and Defence" from Pierre-Mendes France University (Grenoble). Her research work focuses mainly on security, political and socio-economic issues in the MENA region, and their implications for NATO; security issues related to MENA non-state actors and hybrid warfare, and innovation and defense in the MENA region.

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ENERGY STRATEGIES

EUROPE AND THE MEDITERRANEAN: TRENDS AND SCENARIOS FOR A CONNECTED ENERGY MARKET

Advanced Research Workshop

ORGANISED BY

NATO Defense College Foundation

IN CO-OPERATION WITH

the NATO Science for Peace and Security Programme,
the Policy Center for the New South, the Trans Adriatic Pipeline AG,
the Union for the Mediterranean and the NATO Defense College

ROME, THE 24TH AND THE 25TH OF MARCH 2021

Venue: Live streamed from the Rome Cavalieri, A Waldorf Astoria Hotel
Via Alberto Cadlolo, 101, Rome

15,00-15,15 Participants Registration

Welcome Remarks

- Alessandro Minuto-Rizzo, President, NATO Defense College Foundation, Rome
- Stephen Mariano, Dean, NATO Defense College, Rome
- Richard Brewin, Programme Manager, Science for Peace & Security Programme, NATO HQ, Brussels

15,15-15,25 **Opening Remarks**

- Mohammed Loulichki, Senior Fellow, Policy Center for the New South, Rabat

SESSION 1

EVOLVING POWER CAPACITY IN THE WESTERN MEDITERRANEAN

The existing energy infrastructure in the area (part of the NATO Mediterranean Dialogue) is evolving from a purely fossil production towards more renewables. What are the challenges and the technological issues of a production diversification and the conditions for regional electrical connections? The objective is favouring at the same time more stability, through a diversified energy production, and more collaboration through an integrated energy market.

15,25-16,40 Chair: Chloe Berger, Faculty Adviser/Researcher, NATO Defense College, Rome

- Stefano Silvestri, Vice President, NATO Defense College Foundation, Rome
- Ahmed Badr, Acting Director, Project Facilitation and Support, International Renewable Energy Agency, Abu Dhabi
- Marco Carnelos, President, MC Geopolicy srl, Rome
- Tayeb Amegroud, Senior Fellow, Commodity Economics and Finance, Policy Center for The New South, Rabat

Q&A

SESSION 2
ENERGY SECURITY: THE MUTATION OF A CHALLENGE

Energy security of supply goes beyond the traditional stability of energy producing countries. Cooperative security is an added value to tackle old and new threats to traditional and advanced energy infrastructures, including cyber attacks. The role of NATO tools and partnerships.

18,00 -19,15 Chair: Nicola Graziani, Head, Foreign Editorial, Agenzia Italia, Rome

- Marco Piredda, Head of Political Scenarios and Institutional Support for Business Development, Eni, Rome
- Oded Eran, Senior Research Fellow, Institute for National Security Studies, Tel Aviv
- Marc Ozawa, Senior Researcher, NATO Defense College, Rome
- Davide Sempio, Senior Stakeholder Relations Coordinator, Trans Adriatic Pipeline AG, Lecce

19,30-19,40 **Special Intervention**
Grammenos Mastrojeni, Deputy Secretary General for Energy and Climate Action, Union for the Mediterranean, Barcelona

Q&A

19,30-19,40 **Special Intervention**
Grammenos Mastrojeni, Deputy Secretary General for Energy and Climate Action, Union for the Mediterranean, Barcelona

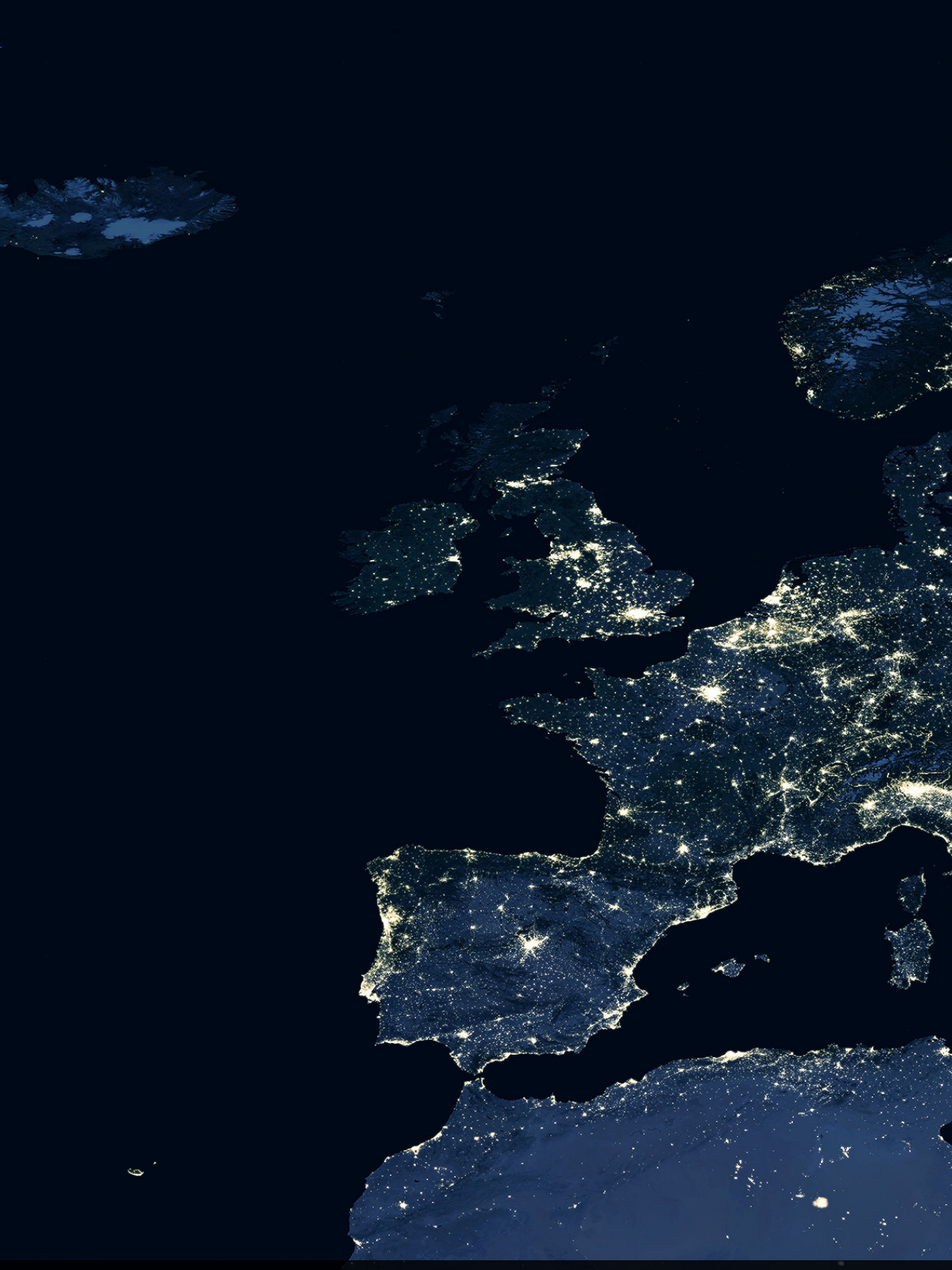
SESSION 3
THE TWIN GOAL OF A CONNECTED MARKET AND STABILITY

A connected energy market in Northern Africa on the one hand requires infrastructures, interconnections, grids and well implemented regulations. On the other hand, in order to ensure North-South exchanges, it also needs a cooperative security framework to achieve stability. How do market actors interact among themselves and with (inter)governmental bodies assuring energy security?

15,10 -16,30 Chair: Andrew Spannaus, Journalist and Political Commentator, Milan

- Rim Berahab, Economist, Policy Center for the New South, Rabat
- Vincenzo Camporini, Former Italian Defense Chief of Staff
- Linus Mofor, Senior Environmental Affairs Officer (Energy), United Nations Economic Commission for Africa, Addis Ababa
- Guido Guida, Head of International Institutional Affairs, Terna SpA, Rome
- Chloe Berger, Faculty Adviser/Researcher, NATO Defense College, Rome

Q&A



Europe map, view of city lights on night Earth in global satellite photo. Elements of this image supplied by NASA.

Energy is no more what it used to be. During the long period between 1945 and 1989 it was a matter of access and security of supply. For many decades the idea, reinforced by the two oil shocks (1973-1979) was that direct control either by own troops or by friendly governments was indispensable and that the security of maritime choke-points was the second immediate priority, especially concerning oil.

Gas was less visible as a factor, but the fact that European countries got their energy supplies since 1983 directly from the USSR (Union of Soviet Socialist Republics), at that time a hostile power, raised concerns both in Washington and in the NATO HQ.

The geopolitical answer was evidently diversification. On the one hand it aimed at friendly Arab/African states or at those who were willing to sell despite ideological differences and non-Western strategic patronage (this was broadly the European/Japanese approach). On the other it strived to minimise the disruption created by Gulf suppliers both from the GCC and the Islamic Republic of Iran alike and to increase supplies from the Western Hemisphere. This is what after 1973, the first oil shock created by Arab solidarity after the Ramadan/Yom Kippur, what the United States started to do very consequently until the recent energy export capacity (2019-2020), achieved through shale oil and shale gas.

The market response was integration and competition between different sources and suppliers, while the technological parry was the development of renewable energies.

The actual scenario is characterised for the time being by an abundant energy supply that has kept for many years prices at levels dangerously low for the financial sustainability of many supplying countries and that has minimised important disruptions due to instability in the MENA region.

At the same time, energy savings in the North and increased consumption in the South change the paradigm from the old "South: produces and exports; North: imports and consumes" to the new one "South: produces, consumes more and exports less; North: imports and consumes less".

How to manage the transition from fossil energies to renewables in the North and the South without increased instability for societies, markets and geopolitical balances is the challenge of the coming decade.

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