



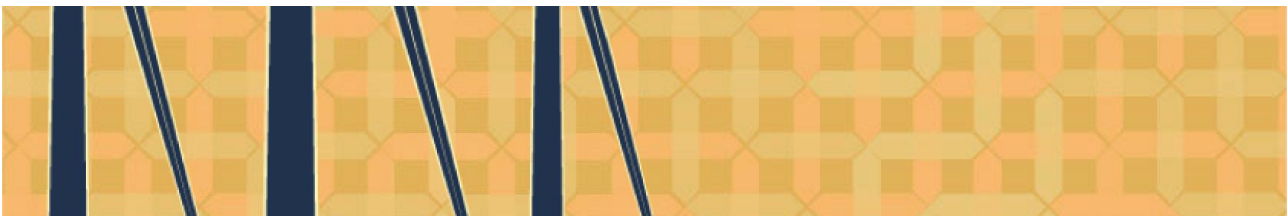
NATO Foundation
Defense College



ENERGY STRATEGIES

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

Rome, the 24th and the 25th of March 2021

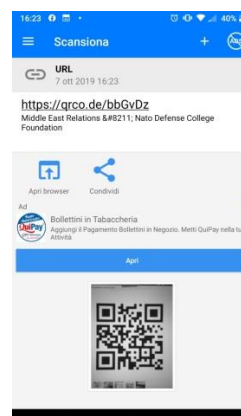


Special Thanks to PMI

Scan the QR Code to visit our website



1. Open the Camera app (iPhone) or go to Google's Play Store, download the **QR & Barcode** app (Android) and then launch the app on your smartphone. // Apri l'app della fotocamera (iPhone), oppure l'app **QR & Barcode** (Android) scaricabile dal Play Store.
2. Hold your device steady for 2-3 seconds towards the QR Code you want to scan // Punta il dispositivo per 2-3 secondi sul codice QR che vuoi scansionare.
3. A window with a link to our webpage will appear // Si aprirà una finestra con un link al nostro website





NATO Foundation
Defense College



Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط



Trans Adriatic
Pipeline

ENERGY STRATEGIES

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

Advanced Research Workshop

Organised by the 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, Terna SpA, 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

WEDNESDAY, 24TH OF MARCH 2021

15,00 – 15,15 CET

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 (Virtual)

15,15 – 15,25 CET

Opening Remarks

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

15,25 – 16,40 CET

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.

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 (Virtual)
- **Marco Carnelos**, President, MC Geopolicy srl, Rome
- **Tayeb Amegroud**, Senior Fellow, Commodity Economics and Finance, Policy Center for the New South, Rabat (Virtual)

Q&A Session

18,00 – 19,15 CET

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's tools and partnerships.

Chair: **Nicola Graziani**, Journalist, Agenzia Giornalistica Italia, Rome

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

Q&A Session

END OF THE FIRST WORKING DAY

THURSDAY, 25TH OF MARCH 2021

15,00 – 15,10 CET

Special Intervention

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

15,10 – 16,30 CET

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?

Chair: **Andrew Spannaus**, Journalist and Political Commentator, Milan

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

Q&A Session

END OF THE SECOND WORKING DAY

Special Thanks to Philip Morris International

In Media Partnership with

AirPress  

AGI  **AGENZIA
ITALIA**

#EnergyStrategies



ENERGY STRATEGIES

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

SPEAKERS' BIOGRAPHIES

WEDNESDAY, 24TH OF MARCH 2021

WELCOME REMARKS

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).

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 comparative 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 Programme 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 Operations (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

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.

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 Cooperation. 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 Geopolitics 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 Geopolitics 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 latest 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****Nicola Graziani**

Journalist, Agenzia Giornalistica Italia, Rome

Mr Graziani is a journalist of the Italian News Agency - Agenzia Giornalistica Italia (AGI). Additionally, he is the Dean of the accredited journalists at the Quirinale, one of the three official residences of the President of the Italian Republic. He teaches Analysis and Practice of Communication at Santa Croce University of Rome.

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.

THURSDAY, 25TH OF MARCH 2021

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

Andrew Spannaus

Journalist and Political Commentator, Milan

Andrew Spannaus is an American journalist and political commentator based in Italy, known in particular for his analysis on the populist revolt in the United States and Europe. His commentary on U.S. and international politics appears on Rainews24, Swiss Italian Radio, Aspenia, and various other media outlets. He is the founder of the Transatlantico.info newsletter, which provides news and analysis of geopolitics and economics to institutions and businesses. Andrew Spannaus is a Lecturer at the ASERI Graduate School of the Catholic University in Milan, where he teaches a seminar on U.S. economic history. He served as the Chairman of the Milan Foreign Press Association from 2017 to 2020.

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.

Guido Guida

Head, International Institutional Affairs, Terna SpA, Rome

Mr Guida is the Head of International Institutional Affairs at Terna SpA, the largest independent grid operator for electricity transmission in Europe. From 2015 to 2018, he was the Head of Italian Dispatching & Energy Operations Department. He managed several projects aimed at contributing to the integration of Renewable Energy Source within the Italian electrical system, strengthening TSO-

DSO cooperation and the development of Storage Systems. Also, Mr Guida is a Member of ENTSO-E's Board of Directors. In 2019, he was appointed Chairman of the European Technology and Innovation Platform for Smart Networks for the Energy Transition (ETIP SNET) platform.



ENERGY STRATEGIES

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

BACKGROUND POLICY PAPER

You say renewables in North Africa and you get in reflection an image of sun and desert. Then you spell “market” and the power market of the EU suddenly materialises. Reality may however be harder than mirage; and to turn the mirage into reality a few issues have to be dealt with.

Resource sharing, to start with. North Africa needs energy for its own development and then (one would add only then) comes export. Conversely, without export there may be no resources for internal development. Wisdom (diplomacy would say “cooperation”) will be needed to balance.

This takes us to defining a target **project size**. Mainly, whether the investment and production plan should be national or regional. Business as usual would dictate individual State jurisdiction. Some rethinking could however be proper. Regionality would require a lot of good interstate politics; but as a matter of potential production, volumes may contribute significantly to optimize the domestic/export balance; and ensure a better ground distribution of the facilities. The desert is vast but not infinite; and due to low power, intensity solar requires plenty of space.

The **investors**, then. An issue almost symmetrical with the issue of size. Individual company vs. EU or at least Southern European consortium. Beyond size, the magnitude of the infrastructural investment required and the necessity to guarantee a soft landing on the European shore for significant volumes of VRE (Variable Renewable Energy) generates the need for joining forces. How to achieve it implies the opening of an importers’ forum capable of conjugating business and political progresses.

Choice of **technology** may then be guided by a number of factors. Solar thermal vs. PV (Photo-Voltaic) cells? Or the two will coexist? Or some new combination will in time take over? One issue relevant for decision on location-by-location basis may be the need for storage. Solar thermal is showing signs of improvements; while PV may just resort to convert in green hydrogen to be reconverted in power. The latter process (“power to power”) may run into some efficiency issues but evolving technology may provide for some of it.

The **product**. What is going to be produced/delivered? Just power or via electrolyzers green hydrogen to be exported as such? Part of the answer will be the resilience of the grid to the intermittency of solar/PV generation. The production in excess of what the grid is able to bear converting in green hydrogen may become a viable option. Exporting hydrogen would bring back more value than just reconvert it to power. Infrastructure cost and infrastructure security will contribute to the choice. Power would need a power line crossing the Mediterranean; green hydrogen, upon liquefaction, may

just travel by ship. Yet, green hydrogen needs water to be produced (today's technology uses nine liters of water for producing 1 kg of hydrogen) and the water logistically available may be scarce.

Finally, the **importing infrastructure**. Sun radiation is by definition intermittent (even in deserts) and a grid hosting intermittent generation needs to adapt to secure balancing. This requires investments and further developments of the ability to store and of the cost of storage. The intermittency costs may influence the power/hydrogen balance, but also become an issue between producers and importers as to their distribution.

How do we approach **energy security** in the context of renewables in (and from) North Africa? Once upon a time the mantra was security of supply, i.e. of producers' supply. Let us call it the 1973 paradigm. However, it faded long time ago. The dependency on petroleum rents imposed on the producers the need to constantly sell. Supply became reliable by necessity. Power is for development, not for rent. The more the importers will help, also financially, North Africa to retain a substantial amount of the power produced, the quicker the issue of reliability of supply will just vanish.

After a period of violent regimes changes (as in the case of Libya), security of supply as a rule leaves the stage and security of infrastructure makes its entrance. The main issue is no more security from traditional attacks - terrorists may cause a temporary outage and yet permanent disruption is out of question -, but the technological security of a more and more complex power chain, and adequate protection of the system from cyber-attacks. The safety of the grid and its interconnections will be evermore essential for electricity in the word to come.

This is today a topic of discussion on power generation and consumption in Europe and the Mediterranean. How much of the discussion will then be political and how much of it will be usual private company/public administration dialectics is too early to call. It is important to remind that without public support VRE generation would not have even started, and that without public support market alone may bring decarbonisation nowhere.

Massimo Nicolazzi

President, Centrex Italia SpA, Milan

With almost 35 years of experience in the hydrocarbon sector, Massimo Nicolazzi worked for Eni and Lukoil before being appointed CEO of Centrex Europe. Today he is President of Centrex Italia SpA and Senior Advisor of ISPI's Energy Security Program. He has written several publications and he is member of the Italian Geopolitical Magazine "Limes".



ENERGY STRATEGIES

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

CONCEPT

Energy security is clearly included in the preamble of the Washington Treaty (*...seek to promote stability and well-being in the North Atlantic area*) and stated in NATO's Strategic Concept (para 15) as one of the priorities of international security.

The focus of the conference is the evolving challenge of energy security. This takes into account three aspects: the change of energy paradigms, the new challenges to infrastructure protection, and the shaping of a collaborative regional market that leads to more stability in the Western Mediterranean via cooperative security.

The first panel will sketch how investments in renewables will change regional markets (offer, demand and reserve capabilities), in addition to existing and planned fossil energies infrastructure. The two key problems are: renewables' investments (market diversification) and new electrical connections among North African countries (market integration). Diversification reduces revenue dependence from one type of energy exports - more stability -, interconnection reduces political and economic fragmentation - more collaboration.

The second panel will discuss the changing nature of energy security of supply, and how old and new vulnerabilities of traditional and renewable energy plants require a special focus by the Alliance. Infrastructure protection, in its physical and cyber dimensions, is a strategic goal. NATO's cooperative security tools and partnerships are able to act in the domain of cooperative security to support partners in resilience from old risks (old plants) to new risks (renewable plants). Cyber dimension is crucial in smart grids.

The third panel will explore and analyse the possibility to transform the Western Mediterranean region into a more integrated Euro-Mediterranean energy market that allows a shared energy security of supply on both sides of the sea. This entails appropriate infrastructures and regulatory frameworks, whose result is to increase security and stability in this strategic area, where Euro-Atlantic values and stakes are under external soft and hard challenge.

THE NATO FOUNDATION

The NATO Defense College Foundation, the only existing think-tank bearing the name of the Alliance, was established in Rome in 2011. It grew out from a common intuition of the President Alessandro Minuto-Rizzo and the NATO Defense College top decision makers who understood the value of a non-profit NGO that could work beyond usual and institutional outreach, training, communication and scientific research activities.

The principles stated in the preamble to the Washington Treaty of 1949 are our heritage.

Our mission is to promote the culture of stability and well-being in the North Atlantic area and in NATO partner nations.

Our aim is to meet the highest standards in contributing to public debate and future deliberations on strategic, security and geopolitical issues.

Therefore, the NDCF strives at considering relevant issues not just in a descriptive or prescriptive way, but by catching the sense of events and the essential vectors of future developments. In a word: Charting ahead.

CONTACTS

-  www.natofoundation.org
-  info@natofoundation.org
-  [@NATOFoundation](https://twitter.com/NATOFoundation)
-  [NATO College Foundation](https://www.facebook.com/NATO.Collective.Foundation)
-  [@natofoundation](https://www.instagram.com/natofoundation)
-  [NATO Foundation](https://www.youtube.com/NATOFoundation)

#EnergyStrategies

PARTNERS



NATO Science for Peace and Security Programme



Policy Center for the New South



Trans Adriatic Pipeline AG



Union for the Mediterranean



NATO Defense College

In media partnership with



Special Thanks to Philip Morris International

NOTES

NOTES

NOTES

NOTES