WEC-MED Energy Transition Checklist

Draft

Introduction

The World Energy Council is the world's leading member-based energy network and the only truly global and impartial energy organisation. Since 1923, the Council has been engaging energy leaders all over the world to meet whole energy system challenges.

100 years from the time of the World Energy Council's creation, our focus on delivering energy for peace, people and planet is more relevant than ever.

At the core of our approach is our *Humanising Energy* vision, an agenda of impact that connects more energy for sustainable development AND climate change management through collaborative innovation, which is not only about new technologies, but promotes system-wide collaboration to unlock exponential growth opportunities and successfully manage energy transitions at all scales.

The true strength of the World Energy Council comes from its network of over 3,000 member organisations in around 90 countries.

Strenghtening cross-regional collaboration in the Mediterranean

The Mediterranean region is at the crossroads of three continents and is a unique area with highly diverse energy systems and situations but also significant economic, (geo)political, social and cultural ties and interdependencies. In over a dozen countries across the Mediterranean region national Member Committees of the World Energy Council currently exist.

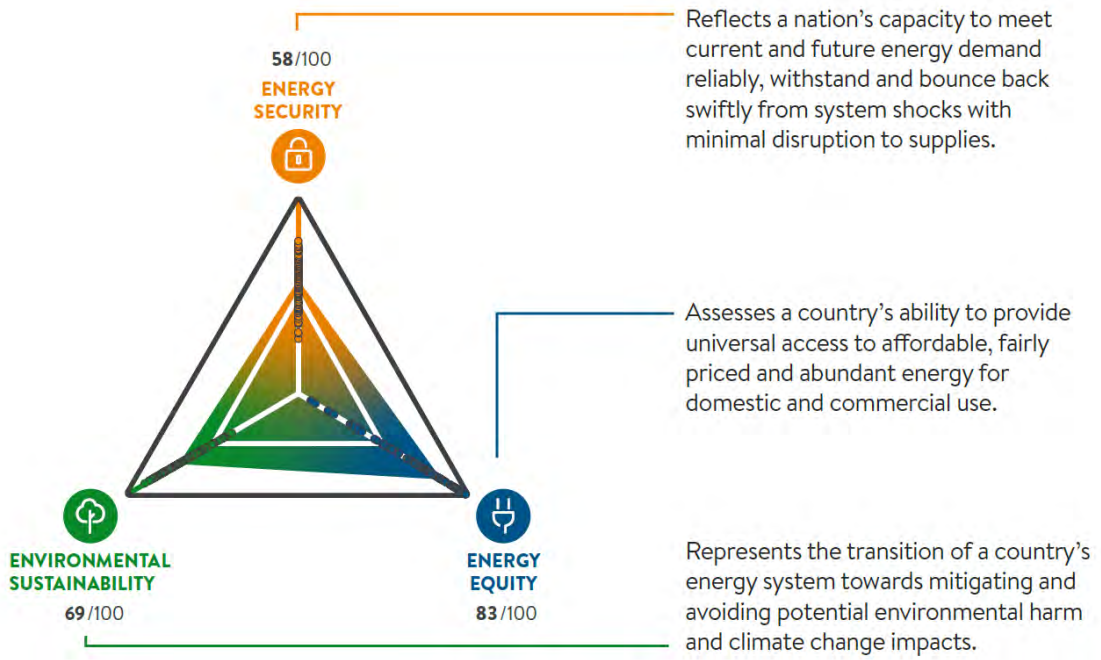
In this pivotal moment in time, there is more than ever a need to strengthen collaboration and benefit from the possibilities of the unique Council network to generate and share insights, best practices and know-how, and implement our *Humanising Energy* agenda together with peers across countries and regions.

For this reason, Word Energy Council launched the WEC Med cross-regional collaboration initiative, developed in collaboration with WEC General Secretariat, with Vice Chairs of Africa, Europe, the Gulf States and the Middle East, and coordinated by WEC Italy, which aims to strengthen regional dialogue and cooperation in the Mediterranean basin. The initiative, through an annual working program characterized by monthly online and face-to-face meetings, gives participants the opportunity to come into direct contact, discuss and deepen issues at the heart of their respective energy agendas and collaborate on concrete projects that can promote development of the transition in the Area.

The main deliverable of the first year of work of the Initiative will be the "WEC MED Energy Transition Checklist", a map of the energy agenda of the Area which highlights the challenges facing the Region in the medium-long term; a document developed thanks to the contribution of WEC Mediterranean national Committees and main stakeholders active in the process, including OME, MEDREG, MEDTSO, WFP, Universities and IFIs.

Contribution from World Energy Council Regional Vice Chairs

The World Energy Trilemma Index



Mediterranean Energy Trilemma

A comparative analysis of the performance of the Mediterranean Region in the 2 periods 2020 and 2022 shows changes in the 3 indicators of the energy trilemma – energy security, environmental sustainability and energy equity.

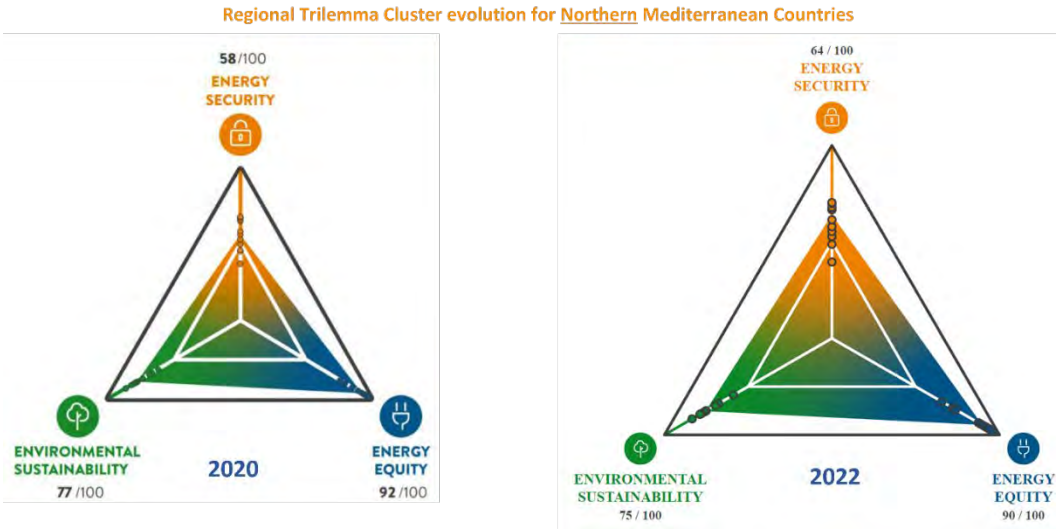


Figure 1. Mediterranean Regional Trilemma Cluster evolution 2020 to 2022 for Northern Mediterranean Countries

The Northern Mediterranean countries recorded improvement in energy security from 58 percentage points in 2020 to 64 in 2022. This may be attributable to geo-politics, the Northern Mediterranean's and indeed Europe's response to the Russia/Ukraine war, which compelled Europe to quickly diversify its energy source.

On the other hand, environmental sustainability suffered in the North Mediterranean from actions to ensure energy security. From environmental sustainability score of 77 in 2020, it dropped to 75 in 2022. This is attributed to the return to the use of fossil fuels but could have been much greater should Europe not have significantly increased its share of renewable energy in the overall mix.

North Mediterranean countries also recorded lower energy equity scores in 2022 due to the global escalation of energy prices. Its performance fell from 92 to 90.

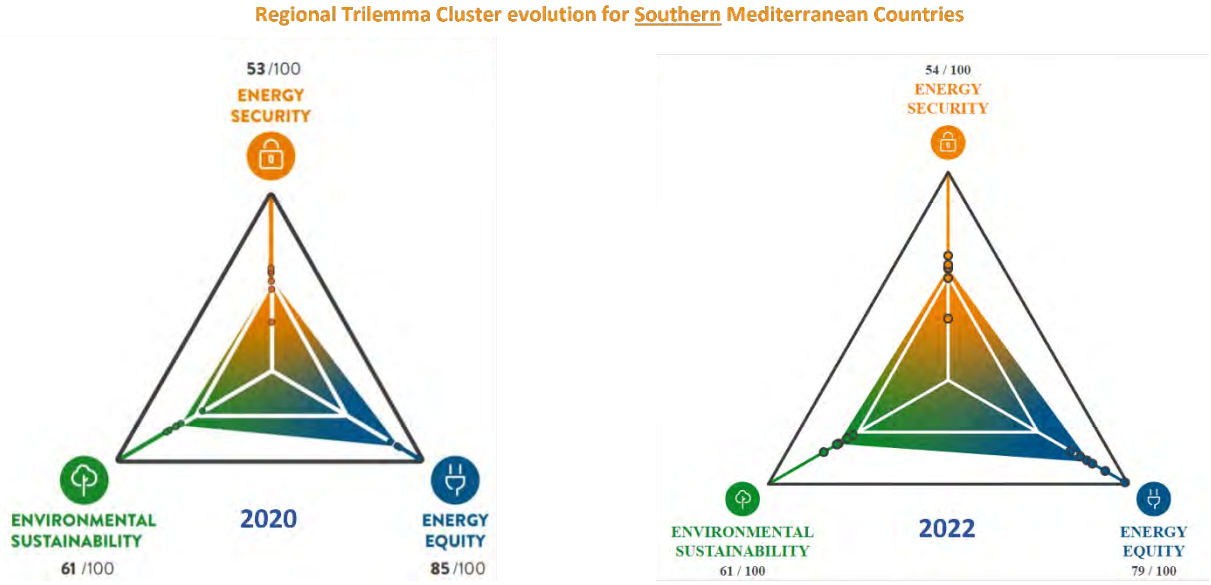


Figure 2. Mediterranean Regional Trilemma Cluster evolution 2020 to 2022 for Southern Mediterranean Countries

Performance of Southern Mediterranean Countries was a bit different between 2020 and 2022. Although changes have been recorded, they are not as dramatic as observed in the North. For instance, energy security rose by just 1 point from 53 to 54 between 2020 and 2022.

This improvement is much lower than what the North recorded with 6 points over the same period. This minimal change can be attributed to the region's heavy reliance on its own energy source especially fossil fuels, whose supply, the crisis in Russia/Ukraine did not affect.

On the other hand, energy equity or access suffered due to the global escalation of energy prices, even though these countries also provided energy subsidies to their population. Thus, the fall from 85 points

in 2020 to 79 in 2022 on the energy equity index could have been much more pronounced if not for the subsidies provided by the states.

Key take-aways from the comparative analysis:

- The crisis has showcased the resilience of both Northern and Southern Mediterranean countries albeit for different reasons. Diversification of supply sources is proven to be key to energy security.
- Diversification of sources of supply and technologies will require a strategic approach to the sourcing of raw materials as the shift becomes more pronounced toward minerals with rising Renewables and hydrogen technologies. Ensuring a more balanced sourcing of energy materials will be crucial to avoiding the previous experience of monopolies that can have devastating impacts. Diversification both in geographical source and energy type are critical.
- Energy efficiency was a key element of resiliency for both sides of the Mediterranean but can be further developed, specifically with industry.
- It is Important to note that in the case of the Southern Mediterranean Countries the concentration of energy sources has helped them with energy security improvement. The fact that they owned and controlled their energy made it possible for them to sustain energy equity in 2022 when Northern Mediterranean Countries and other rich nations were prepared to buy any available energy to cover their needs. If the Southern Mediterranean Countries had a large proportion of their energy coming from outside their region and given their relative poverty to the Northern Mediterranean Countries, they could have found it more difficult to compete with the richer regions in buying energy at prevailing global market prices.
- Further collaboration between southern and northern Mediterranean countries are developing around potential exports of lower carbon energy sources as they become more viable (REs and H2) which would be of significant economic and environmental interest to both zones.

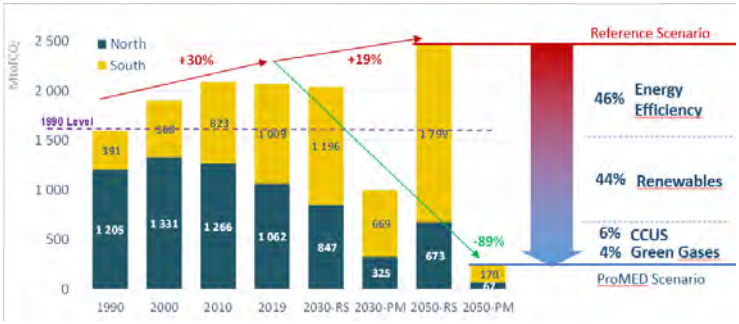
Place-based approaches with different paces and different strategies for the southern and northern Mediterranean countries are essential to ensure the trilemma remains in balance in both zones which would of course secure an overall balance in the Mediterranean region. Eventually connecting the dots through the balance of the trilemma will help drive a faster, fairer and further reaching energy transition.

Contribution from OMEC

MEP2022 scenarios results

To mitigate further impacts on climate, CO_2 emissions will need to reach net-zero around mid-century. For the Mediterranean region this means reducing carbon emissions nearly tenfold (from 2000 to 235 Mt) by 2050. The challenge ahead is significant for all Mediterranean countries, as current trends indicate a projected 21% increase in emissions by 2050, while the goal is to reduce actual emissions by 89% within 2050 (Fig. 1).

Figure 1. Mediterranean CO2 Emissions



Energy efficiency and renewables will be the major drivers of the reduction of energy related carbon emissions. However, to reach full decarbonisation, green gases and carbon capture technologies (CCS) will also be pivotal, especially in the industry.

Over the past 3 decades, energy demand increased by 43% and, under current trends, it would increase by 31% (with fulfilling unconditional NDCs Targets) to 2050.

To achieve a net-zero carbon future by 2050, total Med energy demand should reduce by a quarter from current levels – a big challenge considering the +130 Million increase in population in the South coupled with a doubling of GDP prospects over the same horizon.

Figure 2. Mediterranean Energy demand by fuel & region

The energy landscape is quite contrasted across the two shores. In the North, energy demand is already declining due to both implemented energy efficiency measures and decreasing population trends. On the other hand, in the South, energy demand is rapidly increasing alongside population and economic growth. To achieve carbon neutrality by 2050, the North Mediterranean will need to further reduce energy demand by 41%, while the South should limit the increase in demand to under 2% from current levels.

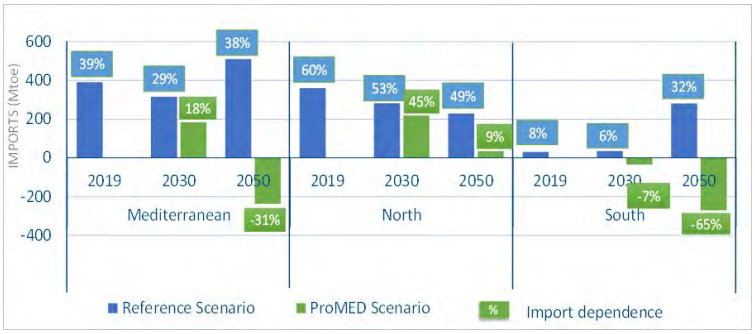
It is not just the level of demand that needs to be brought down, but also the fuel mix that needs to improve drastically. At present, fossil fuels account for 76% of the energy mix.

Renewables, although fast increasing, stand at only 12% of the total Mediterranean energy demand. In 2030, even if all NDCs are reached, fossil fuels will still account for 71% of the mix due to the inertia of transport and industry demand that cannot be hastily displaced. In a net-zero carbon future, by 2050, renewables will need to reach 57% of the total mix, with 17% nuclear and 26% fossil (23% for gas alone – the least carbon intensive among hydrocarbons). Gas will thus still play a role in the net-zero future chiefly in power generation and industry (Fig. 2).

Today, the Mediterranean stands at the crossroad of multiple crises. The energy crisis is exposing the dangers of high energy dependence levels of the region on fossil fuels. Under current trends, Mediterranean energy imports would only increase to reach over 20 000 PJ in 2050 – a 25% increase from current levels. This would be economically and geopolitically unsustainable.

A net-zero carbon future in the Mediterranean would lessen fossil fuel dependence (Fig. 3). By 2030, fossil fuel imports would be more than halved, and the region would become a net exporter by 2040, driven by increasing exports in the South Mediterranean.

Figure 3. Mediterranean Energy dependence



Amidst escalating political risks and the ongoing conflict in Ukraine, countries in the Mediterranean region have the chance to come together and play a constructive role in mitigating energy supply risks and addressing current instability. By developing gas fields, solar and wind projects, and collaborating on energy infrastructure projects with regional partners, and also by jointly promoting innovation and human capabilities an ambitious and just-Mediterranean energy strategy can create a win-win situation where cooperation benefits all parties involved while contributing to combatting the global challenge of climate change.

The Mediterranean region offers unique opportunities to build a new energy model that can best interpret the challenges of the energy transition. However, by 2050, from nearly 4 trillion in the Reference Scenario to just under 7 trillion euros in the ProMED Scenario will be required for the whole Mediterranean to became carbon neutral. This amounts to an average investment of €136 billion to €236 billion per year to supply the Mediterranean's energy needs. The investment requirements to reach carbon neutrality are 75% higher in the ProMED Scenario than in the Reference case and the structure of the investments would also be radically different.

Investments in energy efficiency are expected to more than double (from €1.4 to €3.3 trillion) in all sectors and actually near tripling in the industry sector. Energy supply investments stand between €2.4 trillion in the Reference and €3.2 trillion in the ProMED Scenario - a 31% increase but their destination is also quite different. There is a much stronger emphasis on renewables in the ProMED Scenario where investment in renewable energy would account for 45% of energy supply investments and for 22% of total investment.

In this context, international financing is essential to meet climate goals while guaranteeing security of supply. Cooperation between the energy industry and international financial institutions is functional in moving from theory to practice and turn projects into reality.

Contribution from WEC MED Committees

In light of its strategic position and the remarkable energy potential, the Mediterranean region can play an active role in the energy transition path, setting an example of virtuous and effective cooperation.

Most of the parts involved are still in the process of defining and/or updating their energy transition pathways, including carbon neutrality commitments, renewable energy and energy efficiency targets; these are generally embedded into comprehensive strategies aimed at guiding deep transformations of the national systems not only in the energy production sector but also in the transport and residential fields.

At the same time, all the national systems in the region will need to ensure the security of supply and an adequate energy access throughout the whole transition period by making sure that while updating their energy mixes, they do not neglect the social aspect of this process and their paths of economic growth. Carbon neutrality should be reached through optimal cost coupling between supply and demand, whilst minimising decarbonisation costs for the society. The latter is a particularly sensitive point, since it calls into question the public acceptance of the energy transition and requires adequate efforts in ensuring that there is sufficient human capital (especially in terms of skills and reskilling), to preserve the economic growth and socio-economic development during the transition.

This creates ample room for political, regulatory, and economic regional collaboration, building on the opportunities embedded in the respective national transition pathways and local specificities, supporting the development of a “resource-efficient” economy (circular economy, critical materials, water-energy-food nexus…). The awareness of population, investors and decision makers should be dramatically increased through dissemination activities and campaigns, like organizing National Sustainable Energy Investment Roundtables to put together relevant stakeholders (IFIs, banks, authorities, private sector), Universities, regional and international organizations, creating networks to activate investments and replicate best practices.

Mutually beneficial regional cooperation patterns can emerge building on joint efforts to address the common challenges while promoting industrialization synergies across sectors and circular economies. Governance related aspects and implementation remain crucial for successful solutions to be provided to the common challenges of the energy transition. The definition of comprehensive strategies for the Mediterranean region will have to address at the same time the future role of hydrocarbons and renewables, the development of strategic sectors such as critical raw materials, water management, low carbon fuels (including hydrogen) and industrial decarbonization technologies, while ensuring that adequate infrastructural development, upgrading and interconnection can secure sufficient network capacity and flexibility, including to accommodate a progressive renewable energy expansion, and market build-up and integration for enhanced diversification and energy security. This will require the involvement of several Ministries, competent authorities, and

national/transnational agencies with the assumption of clear responsibilities, effective institutional build-up and policy enforcement.

Ultimately, a shared vision for a regional transition pathway, in line with the economic growth and industrial policy ambitions of the countries involved, will lead to a faster and more substantial mobilization of private and public funding for their realization, while innovative schemes to improve access to finance and to mobilise financial support should be further investigated and promoted. This will require the definition of clear policy and regulatory frameworks, adequate to cope with the technological advancements and capable of promoting mutually beneficial cooperation schemes in a wide number of areas, ranging from renewable energy and low carbon fuels development to energy efficiency, new interconnections, and the creation of regional hubs.

Coordinated actions in this direction can lead to a gradual north-south/east-west market development and integration that could maximize the economic potential of the whole region.

Conclusions