



ANNUAL REPORT 2021



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PRESIDENT'S MESSAGE



Dear members and friends of MEDREG,

As we are aware, last year was a very challenging one for all National Regulatory Authorities (NRAs) wherein we had to implement important regulatory decisions in ensuring the functioning of the energy markets and minimising the impact of the pandemic and volatility of the very high energy prices with a view to protecting consumers. In this respect, MEDREG's purpose and relevance is proving to be as effective and valuable as ever in providing a platform for its members in jointly striving with the repercussions of the pandemic and the unprecedented high energy prices.

The current conflicts and the energy crisis urge us to reconsider our existing strategies and policies to accelerate energy transition. Under these conditions, the Mediterranean region has an important role to play to further strengthen security of supply through diversifying sources and routes, particularly for its Euro-Mediterranean neighbours.

In 2021, MEDREG continued to address these critical issues of security of supply, energy efficiency, and the energy transformation challenge under the prism of regulation. The energy markets are undergoing dramatic changes to which regulators, policy makers, TSO-DSOs, International Financial Institutions, and companies must respond correctly, timely, and using appropriate tools and measures.

Through reports and technical activities, MEDREG sought to improve flexibility and interoperability of gas infrastructure and foster electricity exchanges and trade in the Mediterranean region with key partners. We embraced digitalisation and initiated discussions on hydrogen for a common vision and strategy at regional level.

At the operational level, the Secretariat has been reorganised with a clear structure and a more independent and fully functional organisation, managing its own human and financial resources with solid duties and responsibilities through dedicated permanent staff like similar organisations. The Secretariat, under the auspices and the directions of the Presidency Board will oversee MEDREG's strategy for the next three years covering 2023–2025 and will lead its implementation due to the renewed trust and financial support from the European Commission.

It is extremely important to have a non-discriminatory, compatible, and transparent regulation to pave the way for a fully functioning and interoperated energy market.

However, in the course of its technical activities, MEDREG has always recognised the peculiarity of each country, regarding the barriers impairing functioning energy markets. Nowadays, regulators have another important duty towards digitalisation of the markets, cybersecurity, and increased consumer awareness. The Energy Efficiency issue demonstrates the critical role that NRAs have to play and it varies from country to country in MEDREG. Additionally, e-mobility in the Mediterranean region is gaining attention among all our members. In its report, MEDREG presented different strategies illustrated by some case studies along with a set of recommendations meant for regulators and policymakers to improve the energy system efficiency as a cost-effective tool for achieving decarbonisation and expand the development of e-mobility.

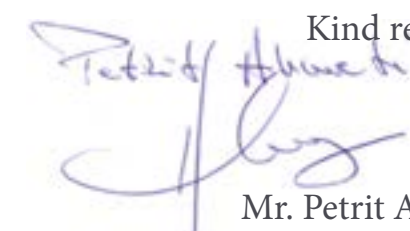
In the coming years, digitalisation, cybersecurity, technological deployments, and innovation, notably the development of renewable gases and hydrogen, will be key to ensure that markets function properly.

It is important to highlight again that the role of regulators is to deploy a stable regulatory framework, which will not only foster investments but also guarantee fast track permitting, secure funding, and enable stability and clarity of the tariffs and final prices perceived by the consumers.

To cope with changes in the energy mix, regulators should continue to be the watchmen of the market to avoid abuses of dominant positions and try to implement smart policies to promote both hydrogen and renewable energy sources. Long-term regulatory predictability is a key aspect to support the development of infrastructure and market design supportive of electricity and gas market development and of the energy transition.

Regulators are stronger and more voiced together. Therefore, it is important that regional associations are involved in developing coherent regulatory policies, trying to build consensus around sustainable policies.

We, as MEDREG, will continue to coordinate to promote more efficient ways of discussions and interaction with a view to establishing a platform for all stakeholders along with regulators to respond to the challenges correctly and timely. Therefore, the necessary steps are to be taken in a collaborative manner.

Kind regards,

Mr. Petrit Ahmeti
MEDREG President

MESSAGE DU PRÉSIDENT

Chers membres et amis de MEDREG,

Comme tout le monde le sait, l'année passée fut très difficile pour les autorités de régulation nationales, année durant laquelle nous avons dû appliquer d'importantes décisions réglementaires pour assurer le fonctionnement des marchés de l'énergie et minimiser l'impact de la pandémie ainsi que la volatilité des prix très élevés de l'énergie, dans le but de protéger nos consommateurs. A cet égard, la raison d'être de MEDREG et la pertinence de son action se sont révélées plus que jamais précieuses et efficaces pour assurer une plateforme à ses membres, en s'efforçant collectivement de lutter contre les répercussions de la pandémie et les prix élevés de l'énergie sans précédent.

Les conflits actuels et la crise énergétique nous incitent à reconsidérer nos stratégies et politiques existantes pour accélérer la transition énergétique. Dans de telles conditions, le bassin méditerranéen a un rôle très important à jouer afin de renforcer davantage la sécurité d'approvisionnement, par le biais d'une diversification des sources et des moyens, en particulier pour ses voisins euro-méditerranéens.

En 2021, MEDREG n'a cessé d'aborder les questions critiques que sont la sécurité d'approvisionnement, l'efficacité énergétique et le défi de la transition énergétique sous le prisme de la régulation. Les marchés de l'énergie subissent des changements de grande ampleur auxquels les régulateurs, les décideurs politiques, les gestionnaires de réseaux de transport et de distribution d'électricité (TSO-DSO), les institutions financières internationales et les entreprises doivent répondre de manière adéquate et rapide, en utilisant des outils et mesures appropriés.

Par le biais de rapports et activités techniques, MEDREG a cherché à améliorer la flexibilité et l'interopérabilité des infrastructures de gaz et favoriser les échanges et le commerce d'électricité dans le bassin méditerranéen avec ses principaux partenaires. Nous avons embrassé la digitalisation et initié des discussions concernant l'hydrogène pour une vision et une stratégie commune au niveau régional.

Au niveau opérationnel, le Secrétariat a été réorganisé avec une structure claire et une organisation pleinement fonctionnelle et plus indépendante, gérant ainsi ses propres ressources humaines et financières grâce à un personnel permanent dévoué doté de responsabilités définies, à l'instar d'organisations similaires. Le Secrétariat, sous les auspices et les directions du Conseil de la Présidence, va superviser la stratégie de MEDREG pour les trois prochaines années, de 2023 à 2025, et sera chargé de sa mise en œuvre grâce à la confiance et le soutien financier renouvelé de la Commission Européenne.

Il est extrêmement important d'avoir une régulation non discriminatoire, compatible et transparente pour ouvrir la voie à un marché énergétique complètement opérationnel et interfonctionnel.

Cependant, dans le cadre de ses activités techniques, MEDREG a toujours reconnu la singularité de chaque pays, en ce qui concerne les obstacles qui compromettent les marchés énergétiques opérationnels. De nos jours, les régulateurs possèdent un autre devoir important vis-à-vis de la digitalisation des marchés, de la cybersécurité et de la forte sensibilisation des consommateurs. La question de l'efficacité énergétique témoigne du rôle critique que les autorités de régulation nationales doivent jouer et cela varie selon les pays pour MEDREG. De plus, nos membres s'intéressent de plus en plus à la mobilité électrique dans le bassin méditerranéen. Dans son rapport, MEDREG a présenté différentes stratégies illustrées par des études de cas, accompagnées d'un ensemble de recommandations destinées aux régulateurs et responsables politiques afin d'améliorer l'efficacité du système énergétique et d'en faire un outil rentable pour atteindre la décarbonisation et élargir le développement de la mobilité électrique.

Dans les années à venir, la numérisation, la cybersécurité, les avancées technologiques et l'innovation, notamment le développement de gaz renouvelables et de l'hydrogène, seront la clé qui permettra aux marchés de fonctionner correctement.

Il est important de souligner encore une fois que le rôle des régulateurs est de déployer un cadre réglementaire stable, ce qui non seulement favorisera les investissements mais garantira également l'obtention plus rapide de permis et de financements et permettra de stabiliser et clarifier les tarifs et le prix final perçu par les consommateurs.

Pour faire face aux changements du mix énergétique, les régulateurs doivent demeurer gardiens du marché pour éviter les abus des positions dominantes et essayer de mettre en place des politiques intelligentes afin de promouvoir à la fois l'hydrogène et les sources d'énergies renouvelables. La prévisibilité réglementaire sur le long-terme est un aspect majeur pour soutenir le développement d'infrastructures et la conception de marchés d'électricité et de gaz favorables à la transition énergétique.

Les régulateurs sont plus forts et davantage audibles ensemble. Ainsi, il est important que les associations régionales soient impliquées dans le développement de politiques réglementaires cohérentes, pour essayer de construire un consensus autour des politiques durables.

Chez MEDREG, nous continuerons à coordonner et à promouvoir des moyens de discussion et des interactions plus efficaces avec les régulateurs dans la perspective d'établir une plateforme pour toutes les parties prenantes, afin de répondre aux défis de manière rapide et adéquate. Ainsi, les initiatives nécessaires doivent être mises en place dans un esprit de collaboration.

Meilleures salutations,

Mr. Petrit Ahmeti
Président de MEDREG

رسالة الرئيس

السادة أعضاء MEDREG وأصدقائها،

تحية طيبة وبعد،

لقد كان العام الماضي، كما نعلم جميعاً، مليئاً بالتحديات لجميع الهيئات النازمة الوطنية، حيث كان علينا تنفيذ قرارات تنظيمية مهمة لضمان استمرار عمل أسواق الطاقة والحد من آثار الجائحة وتقلبات أسعار الطاقة العالية جداً بهدف حماية المستهلكين. وفي هذا الصدد، برز أكثر من أي وقت مضى الدور المهم والفعال الذي تقوم به MEDREG في توفير منصة لأعضائها للعمل معاً على معالجة تداعيات الجائحة وأسعار الطاقة المرتفعة بشكل غير مسبوق.

إن الصراعات الحالية وأزمة الطاقة تدفعنا إلى إعادة النظر في استراتيجياتنا وسياساتنا الحالية لتسريع وتيرة الانتقال الطاقى. وفي ظل هذه الظروف، تلعب منطقة البحر الأبيض المتوسط دوراً مهماً في تعزيز أمن الإمدادات من خلال تنويع المصادر والطرق، ولا سيما بالنسبة للدول الأوروبية المطلة على البحر الأبيض المتوسط.

في عام ٢٠٢١، واصلت MEDREG معالجة هذه القضايا الحساسة المتعلقة بأمن الإمدادات وكفاءة الطاقة وتحدي تحول الطاقة من الناحية التنظيمية فأسواق الطاقة تشهد تغييرات جذرية تفرض على الهيئات النازمة وصانعي السياسات ومشغلي أنظمة نقل الطاقة وتوزيعها والمؤسسات المالية الدولية والشركات التعامل معها بشكل صحيح ودون تأخير باستخدام الأدوات والتدابير المناسبة.

وسعت MEDREG، من خلال التقارير والنشاطات الفنية، إلى تحسين المرونة وإمكانية التشغيل التوافقي للبنية التحتية للغاز وتعزيز تبادل الكهرباء والتجارة بها في منطقة البحر الأبيض المتوسط مع الشركاء الرئيسيين. كما تبيننا التحول الرقمي وبدأنا مناقشات حول الهيدروجين من أجل وضع رؤية واستراتيجية مشتركة على المستوى الإقليمي.

على المستوى التشغيلي، أُعيد تنظيم سكرتارية MEDREG بحيث يكون لها هيكل واضح وتنظيم كامل وأكثر استقلالية يمكنها من إدارة مواردها البشرية والمالية وأداء واجباتها ومسؤولياتها بالاعتماد على موظفين دائمين مقررغين كما هو حال المؤسسات المماثلة. وستشرف السكرتارية، تحت رعاية وتوجيهات مجلس الرئاسة، على استراتيجية MEDREG للسنوات الثلاث القادمة بين عامي ٢٠٢٣-٢٠٢٥ وستقود تنفيذها بفضل تجديد الثقة والدعم المالي من المفوضية الأوروبية.

من المهم جداً وجود عمل تنظيمي متوافق وشفاف دون تمييز لتمهيد الطريق لسوق طاقة يعمل بشكل كامل ومتربط.

لقد كانت MEDREG تراعي دائماً في نشاطاتها الفنية خصوصية كل بلد فيما يتعلق بالحواجز التي تعيق عمل أسواق الطاقة. ولدى الهيئات النازمة الآن واجب مهم آخر يتعلق برقمنة الأسواق، والأمن السيبراني، وزيادة وعي المستهلك. أما فيما يتعلق بترشيد استهلاك الطاقة فلقد تبين الدور الحاسم الذي يجب أن تلعبه الهيئات النازمة الوطنية، وهو دور يختلف من بلد إلى آخر في منطقة البحر الأبيض المتوسط. بالإضافة إلى ذلك، تحظى وسائل النقل الكهربائية في منطقة البحر الأبيض المتوسط باهتمام متزايد بين جميع الأعضاء. وقد عرضت MEDREG في تقريرها استراتيجيات مختلفة مصحوبة ببعض دراسات الحالات ومجموعة من التوصيات للهيئات النازمة وصانعي السياسات من أجل تحسين كفاءة نظام الطاقة كأداة فعالة للوصول إلى هدف إزالة انبعاثات الكربون وزيادة تطوير وسائل النقل الكهربائية.

في السنوات القادمة، سيكون التحول الرقمي والأمن السيبراني واستخدام التقنيات والابتكار، ولا سيما تطوير الغازات المتجددة والهيدروجين، أمورأ أساسية لضمان عمل الأسواق بشكل صحيح.

ولا بد من التأكيد مرة أخرى على أن دور الهيئات هو وضع إطار تنظيمي مستقر، وهو أمر لن يعزز الاستثمارات فحسب، بل سيضمن أيضاً استصدار التصاريح بسرعة، وتأمين التمويل، وتمكين الاستقرار ووضوح التعرفة والأسعار النهائية بالنسبة للمستهلكين.

للتكيف مع التغييرات في مزيج الطاقة، يجب أن تواصل الهيئات النازمة دورها في مراقبة السوق لمنع إساءة استخدام مناصب الهيمنة، ومحاولة تنفيذ سياسات ذكية لتعزيز مصادر الطاقة المتجددة والهيدروجين. الإستقرار بالاتجاهات التنظيمية على المدى الطويل تمثل جانباً رئيسياً لدعم تطوير البنية التحتية وتصميم سوق يدعم تطوير سوق الكهرباء والغاز والانتقال الطاقى.

إن التعاون بين الهيئات النازمة يزيد من قوتها وفعاليتها. ولذلك من المهم أن تشارك الجمعيات الإقليمية في وضع سياسات تنظيمية متناسقة لمحاولة الوصول إلى توافق بشأن السياسات المستدامة.

نحن في MEDREG سنواصل التنسيق لتشجيع المناقشات والتواصل بطرق أكثر فعالية بهدف إنشاء منصة تجمع كافة الهيئات النازمة والأطراف المعنية لمواجهة التحديات بشكل صحيح وفي الوقت المناسب. لذلك يجب التعاون في اتخاذ الخطوات اللازمة.

مع خالص التحية والتقدير،

بيتريت أحمدي
رئيس MEDREG

MISSION AND OBJECTIVES

Mission and Objectives

The Association of Mediterranean Energy Regulators' (MEDREG's) mission is to provide a transparent, stable and compatible regulatory framework for all Mediterranean energy actors. The Association is based on independent and objective regulatory bodies. Governed by predictable and impartial regulations, energy markets are more likely to attract investment, ensure the efficient use of the system and encourage fair practices towards consumers.

The Mediterranean energy regulators work together to:

- Promote a compatible, transparent and non-discriminatory energy regulation
- Stimulate regional integration and energy trading among Mediterranean countries
- Facilitate and analyse conditions for promoting infrastructure investments
- Increase competition and transparency in the Mediterranean electricity and gas markets
- Foster the deployment of renewable energy sources (RESs) in the system while supporting RES technologies
- Advance the protection of consumers

GOVERNANCE



General Assembly

The General Assembly (GA) is the decision-making body of the Association and meets biannually. Among other prerogatives, the GA approves MEDREG's Action Plan, its annual budget, the reports and the studies prepared by the Working Groups (WGs) and the Secretariat and protocols and agreements with external bodies and organisations.

The GA consists of the President, the Vice-Presidents, the Chairpersons of the WGs, high-level representatives from among MEDREG members and representatives of the MEDREG Secretariat. The European Commission is invited to the GA meetings as an observer.

Presidency Board

In 2020, MEDREG members elected Mr Petrit Ahmeti, Chairman of the Board of the Albanian Energy Regulator (ERE), as their President for two years. Mr Ahmeti had served as MEDREG Vice-President in his former mandate and was one of the founders of MEDREG in 2006. The members also elected two Vice-Presidents: Eng. Abdellatif Bardach, President of the Moroccan National Electricity Regulatory Authority (ANRE), and Eng. Karem Mahmoud, CEO of the Egyptian Gas Regulatory Authority (GASREG), joined by the Permanent Vice-President Mr Stefano Besseghini, President of the Italian Regulatory Authority for Energy, Networks and Environment (ARERA). Along with the election of the Presidency Board, the new WGs' Chairmanships took office.

Steering Committee

The Steering Committee coordinates the activities of the Association in accordance with the GA's instructions, prepares its work, supervises implementation of the Action Plan and provides orientations. However, the Steering Committee has no decisional powers. It is composed of the President, the Vice-Presidents, the Chairpersons of the WGs and representatives of the MEDREG Secretariat.



Mr. Petrit Ahmeti
President
ERE - Albania



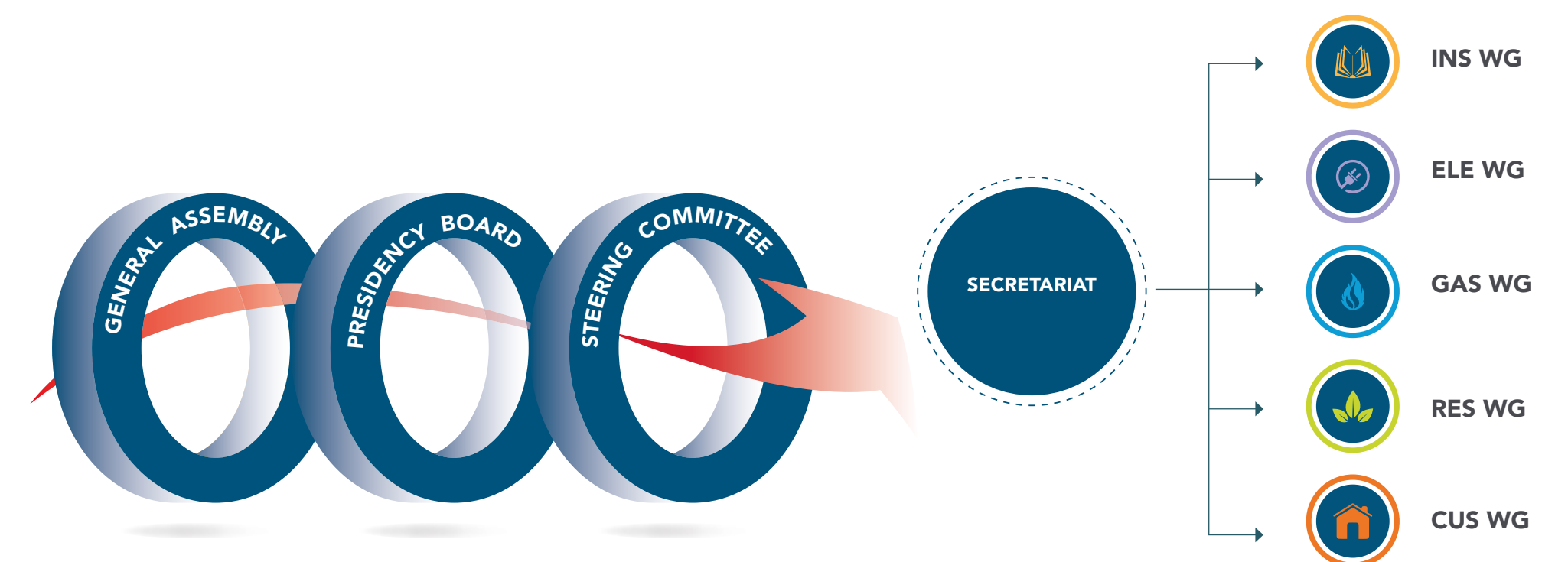
Eng. Abdellatif Bardach
Vice President
ANRE - Morocco



Eng. Karem Mahmoud
Vice President
GASREG - Egypt



Mr. Stefano Besseghini
Permanent Vice President
ARERA - Italy



AREAS OF WORK

Working Groups

Currently, MEDREG has five WGs composed of representatives from each member regulator. WGs are permanent bodies of the Association. They meet face-to-face biannually, are led by one chair and are supported by two other regulators acting as Vice-Chair. WGs organise their annual agenda based on the principle of subsidiarity



CHAIR
Mr. Mohammad Maayah
EMRC - Jordan

Institutional Working Group (INS WG)

The INS WG aims to enhance coordination and cooperation among MEDREG members by sharing energy regulators' competencies, best practices and experiences.



VICE CHAIR
Ms. Anne-Lise Teani
CRE - France



VICE CHAIR
Ms. Bagdagul Kaya-Caner
EMRA - Turkey



CHAIR
Mr. Vincenzo Cioffo
ARERA - Italy

Natural Gas Working Group (GAS WG)

The GAS WG assesses the status of natural gas and liquified natural gas (LNG) markets in Mediterranean countries and their relevant regulatory frameworks and possible evolutions with a view to ensuring an interoperated and integrated Mediterranean energy market.



VICE CHAIR
Ms. Evi Gazi
RAE - Greece



VICE CHAIR
Mr. Mohamad Eltahan
GASREG - Egypt



CHAIR
Mr. Igor Telebak
REGAGEN - Montenegro

Consumers Working Group (CUS WG)

The CUS WG works to enhance the protection of consumers in MEDREG countries. It identifies and promotes best practices for the protection of particularly vulnerable customers and ensures quality service regarding electricity and gas from the perspective of final consumers.



VICE CHAIR
Mr. Andre Buttigieg
REWS - Malta



VICE CHAIR
Ms. Erjola Sadushi
ERE - Albania



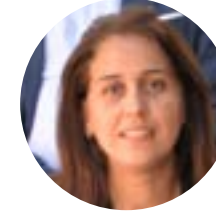
CHAIR
Prof. Pedro Verdelho
ERSE - Portugal

Environment, Renewable Energy Sources and Energy Efficiency Working Group (RES WG)

The RES WG focuses on the legislative and regulatory mechanisms that promote renewable electricity generation, energy efficiency and RES deployment in the Mediterranean area with attention to off-grid solutions and independent power producers (IPPs).



VICE CHAIR
Dr. Sorina Mortada
LCEC - Lebanon



VICE CHAIR
Ms. Chafika Behloul
CREG - Algeria



CHAIR
Ms. May Mohamed Yousry
EgyptERA - Egypt

Electricity Working Group (ELE WG)

The ELE WG oversees the assessment of the current status of electricity markets and regulatory frameworks in MEDREG countries and their possible developments with a view to ensuring an interoperated and integrated Mediterranean energy market.



VICE CHAIR
Mr. Mustafa Yavuzdemir
EMRA - Turkey



VICE CHAIR
Mr. Benoit Esnault
CRE - France

LIST OF MEMBERS

MEDREG hosts a growing number of members, formed by the energy regulatory authorities of 22 Mediterranean countries: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, Palestine, Portugal, Slovenia, Spain, Tunisia and Turkey.

MEDREG's 27 regulatory members include:

- 9 European countries
- 3 Balkan countries plus Turkey, and 9 Middle East and Northern Africa (MENA) countries
- 14 members that regulate **electricity and gas**
- 8 members that regulate **electricity only** and 5 that regulate **gas only**
- Members that also regulate **other sectors** such as water, oil, waste, LPG and telecoms
- 19 independent regulators and 8 Ministries



ALBANIA (ERE)



ALGERIA (CREG)



ALGERIA (ARH)



BOSNIA AND HERZEGOVINA (SERC)



CROATIA (HERA)



CYPRUS (CERA)



EGYPT (EgyptEra)



EGYPT (GASREG)



FRANCE (CRE)



GREECE (RAE)



ISRAEL (PUA)



ISRAEL (NGA)



ITALY (ARERA)



JORDAN (EMRC)



JORDAN (MEMR)



LEBANON (LCEC)



LIBYA (ME)



MALTA (REWS)



MONTENEGRO (REGAGEN)



MOROCCO (ANRE)



MOROCCO (MTEDD)



PALESTINE (PERC)



PORTUGAL (ERSE)



SLOVENIA (AGEN-RS)



SPAIN (CNMC)



TUNISIA (MIT)



TURKEY (EMRA)

SECRETARIAT



● **Mr Hasan Ozkoc**
Director



● **Mr Bardhi Hoxha**
Deputy Director & Head of Institutional Affairs and Adm. Unit



● **Ms Veronica Lenzi**
Head of Policy and Communication Unit



● **Ms Daphné Lacroix**
Communication Manager



● **Ms Genta Sinani**
Finance and Human Resources Officer



● **Ms Valentina Pelosi**
Events and Communication Officer



● **Mr Lamine Zitouni**
Electricity Expert



● **Mr Tony Gebrayel**
Policy Expert



● **Mr Omar Raafat**
Gas Expert



● **Ms Tika Svanadze**
Office Secretary

The MEDREG Secretariat comprises 10 experts, representing seven countries from the region. The Secretariat has gone through a restructuring, which was approved by the GA in June 2021. The number of employees has almost doubled, with the joining of highly skilled professional experts. These valuable additions to the team will enable the smooth implementation of the deliverables of the Grant Contracts, without the need to hire external consultants, in conformity with the European Commission's guidelines. The new organigram is established on a permanent, transparent and merit-based structure where the duties and responsibilities are equally shared among the staff members. Consequently, the Secretariat will be fully responsible for implementing its duties vis-à-vis its members, the European Commission, and the stakeholders, with a solid hierarchical chain as well as clear roles and duties assigned to the staff.

The Secretariat develops and implements the MEDREG strategy in close coordination with all members, enhancing MEDREG's accountability and institutional cooperation in the Mediterranean energy sector.

The Secretariat is based in Milan, with independent premises. It oversees the management and development of the Association's activities, guaranteeing continuous support to the President, Vice-Presidents and all members.



ACHIEVEMENTS

MAPPING ENERGY EFFICIENCY PROGRAMMES AND E-MOBILITY IN THE MEDITERRANEAN



Key takeaways

- The two shores of the Mediterranean must work together to shape policies and actions that will lead to a successful energy transition while minimising the impact on energy costs and consumer costs.
- Making renovations in the private and public sectors, adopting low-energy-demanding techniques and equipment, installing smart distribution networks, serving increasingly informed consumers and spreading e-mobility are all part of a package of actions and policies that are flexible enough to allow each MEDREG country to tailor their choices to their own characteristics.
- Through personalised trainings, webinars and workshops that foster discussions and exchange of good practices among regulators, MEDREG's members will be able to accelerate the development of energy efficiency and e-mobility in the Mediterranean region.

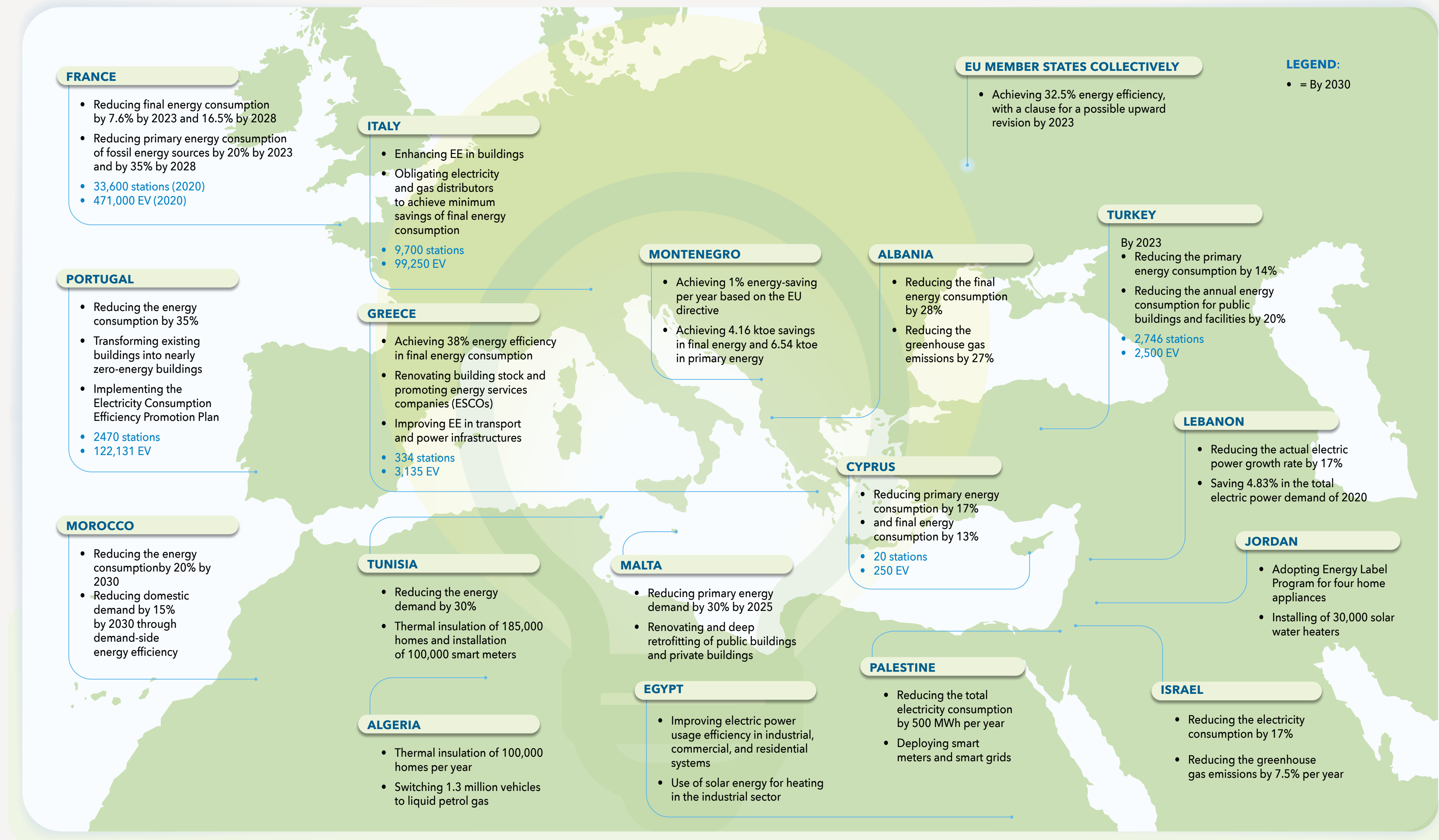
Challenges

While MEDREG has long been working on the integration of RESs in the grid, there is a great interest in developing **energy efficiency to reduce the end-use consumption** and **electric mobility (e-mobility) to enhance the energy mix in the transport sector**. In 2021, the RES WG explored the evolution of the power system by mapping out the energy-efficient programmes and e-mobility in the Mediterranean region under the report titled “Energy Efficiency Programmes and Electric Mobility in the Mediterranean Countries”.

Main outcomes

- A **common trend** prevails in the Mediterranean region to improve energy system efficiency through a **diversity of approaches**.
- There are existing strategies, policies and action plans tackling energy efficiency in the Mediterranean region locally, nationally and regionally, although **disparities in their implementation** are noticeable among the countries.
- The sectors that are targeted vary by country, depending on the country's energy consumption profile and priorities.
- Energy efficiency is **multi-dimensional** and occurs in all economic sectors, in one form or another. The efficient use of energy, which refers to optimising the amount of energy needed to achieve a given output, is **important for consumers** and contributes to **decarbonising** our economies and society.
- The integration of energy efficiency into the electricity system happens in multiple stages:
 - ▶ Implementation of **technologies and policies** aiming to reduce end-use electricity consumption
 - ▶ Increase of **electrification of end-use energy consumption** and supply of the additional electricity with sustainable sources
 - ▶ Utilisation of **smart grid** and **smart meters** to manage the fluctuating energy sources and changing energy habits.
- **Energy regulators** play an **important role**, either by proposing an energy-efficient regulatory framework or by providing advice to the relevant authorities as well as involving in developing strategies.

MAPPING ENERGY EFFICIENCY PROGRAMMES AND E-MOBILITY IN THE MEDITERRANEAN



IMPROVING FLEXIBILITY AND INTEROPERABILITY OF GAS INFRASTRUCTURE SYSTEMS



Key takeaways

- Natural gas will remain in use as an energy source for the coming decades, depending on the transition pace of the energy systems, and will be a key element in the fuel switching; the role of the functioning gas market will increase with the future development of eco-friendly gases.
- To improve flexibility, it is crucial to integrate significant levels of clean power. There are different ways to ensure the real-time matching of supply and demand. For example, gas plants can increase or decrease production to smooth out fluctuations in the output of wind and solar power.
- Installation of natural gas pipelines carrying more eco-friendly alternative fuels (biogas, hydrogen and other renewable or decarbonised gases) is technically feasible, and such pipelines operate in various locations. However, it should be taken into account that building such a network is cost intensive and the time required to rearrange the existing infrastructures is significant.

Challenges

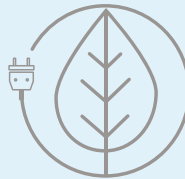



The world has started to target **emission neutrality** by 2050. However, this entails a **transitory period** from using the current energy mix to reaching the carbon neutral energy mix. In this transition period, it is important to search for known **energy vectors** that could **reduce the current trend of emissions**. To develop more on this subject, the GAS WG developed the report entitled “Analysis of Gas Infrastructure to Improve Flexibility and Interoperability of Energy Systems”.

Main outcomes

- Flexibility describes the degree to which a power system can achieve an equilibrium between power supply and power demand as well as interoperability in relation to gas quality.
- **Large-scale electrification** and natural gas decarbonisation are emerging as prime energy topics. **Decarbonising the power sector** while satisfying the rapidly **growing energy demand** is perhaps the most critical challenge faced by the global energy system.
- The energy system is transitioning from a centralised, fossil-fuelled bulk power, system-centric and siloed architecture to a decentralised, decarbonised, event-driven and technology-rich architecture. Several different technologies and fuels, such as **hydrogen**, that can play an essential role in the energy transition would likely be required.
- The **distributed generation of renewable gases** will require a greater degree of **distribution/transportation interoperability**, giving a central role to smart distribution networks.
- The European Union (EU) is keen to achieve its 2050 decarbonisation goals, with an estimated 24% of hydrogen (~ 2,250 TWh) in total energy demand. However, the EU's entire hydrogen demand cannot be met locally; therefore, **energy partnerships** with renewable energy-abundant regions would be required to **procure green hydrogen** in order to **meet the EU decarbonisation goals**. In this regard, given the priority that the European Commission, under the new EU Green Deal, gives to cooperation with the African Union, the two continents are poised to explore a mutually beneficial hydrogen ecosystem.

IMPROVING FLEXIBILITY AND INTEROPERABILITY OF GAS INFRASTRUCTURE SYSTEMS

PILLARS OF DECARBONISATION

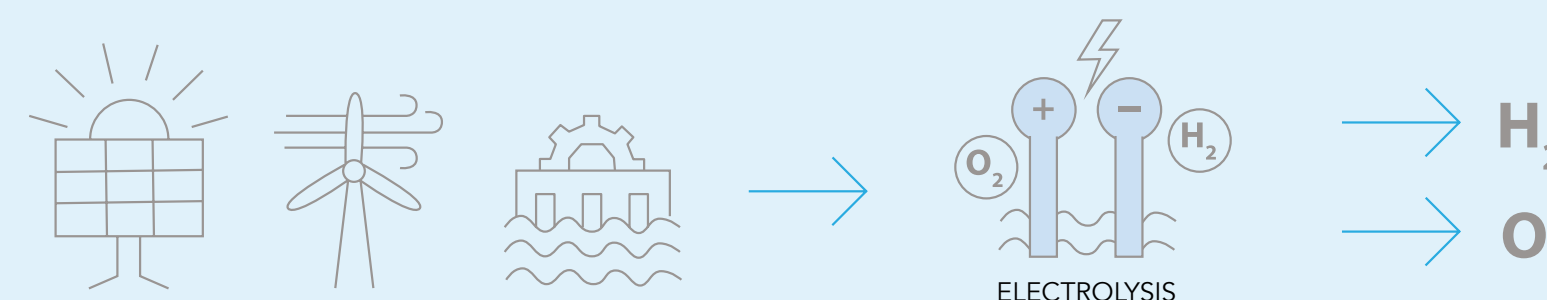
				
	ENERGY EFFICIENCY	LOW CARBON GENERATION	ELECTRIFICATION	NON-COMBUSTION GHG REDUCTIONS
ACTIONS	<ul style="list-style-type: none"> • Building and appliance efficiency • Industrial processes 	<ul style="list-style-type: none"> • Renewables • Electric storage • CCS • Low-carbon fuels (RNG, hydrogen) 	<ul style="list-style-type: none"> • Transportation • Building (HVAC) • Industrial processes 	<ul style="list-style-type: none"> • Agriculture, land use
POLICIES	<ul style="list-style-type: none"> • Energy efficiency standards 	<ul style="list-style-type: none"> • RPS • Carbon pricing • RNG pilots • Hydrogen initiatives 	<ul style="list-style-type: none"> • EV targets • Natural gas bans • Utility electrification 	<ul style="list-style-type: none"> • No known policy directives

Source: "Utility portfolio planning for a decarbonized future" by Anant Kumar and Patrick Augustine May 2020 CRA. Charles River Associates

HYDROGEN PRODUCTION

will be a mix of mostly electrolysis and Steam Methane Reforming (SMR)/ Autothermal Reforming (ATR) with Carbon Capture and Storage (CCS) in Europe

WATER ELECTROLYSIS



Carbon-free production method for hydrogen if fueled by renewables

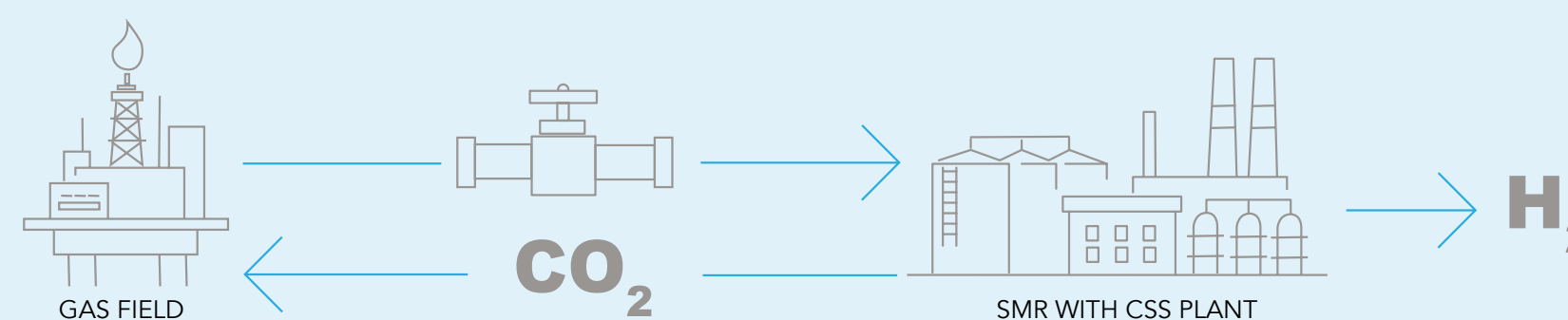
Provision of **sector-coupling** mechanism required for integration of renewables

Decentral production taking load of the grid and providing power at remote locations or points of sale (e.g. at refueling stations)

Long-term potential to match or even beat SMR cost in case of low-cost solar and/or electrolyser capex decrease

No issues with political/societal acceptance compared to CCS

SMR/ATR WITH CCS



In combination with carbon capture (CCS), **carbon emissions are reduced significantly by up to 90%**

Hydrogen production method **for large scale** as required for the industry

Higher infrastructure costs for natural gas and CO2 handling

SMR is **established and mature** technology

Reliable constant production possible

SMR is currently **lowest-cost hydrogen production**

Source: Fuels Cells and Hydrogen (FCH) Joint Undertaking, Presentation on "Hydrogen Roadmap Europe - A sustainable pathway for the European energy transition", 6 February 2019

EXPLORING THE POTENTIAL OF HYDROGEN TO MEET FLEXIBILITY AND STORAGE NEEDS

Key takeaways

Establishing a functioning and competitive Mediterranean sustainable energy market requires the following:

- ▶ Addressing investment risks
 - ▶ Developing standards of Guarantee of Origins and Safety
 - ▶ Eliminating unnecessary regulatory barriers and harmonising standards for hydrogen
 - ▶ Creating functional and innovative incentive mechanisms
- Hydrogen is a new and promising energy vector that holds strong potential to facilitate the energy transition and the decarbonisation of the energy markets. However, not unlike any other new technology, it requires additional research and development.
 - With the scaling-up of renewable electricity production, hydrogen can provide an efficient storage and flexibility solution. This would balance the intermittency of renewables and, therefore, allow a simpler transition to cleaner energy systems.

Challenges

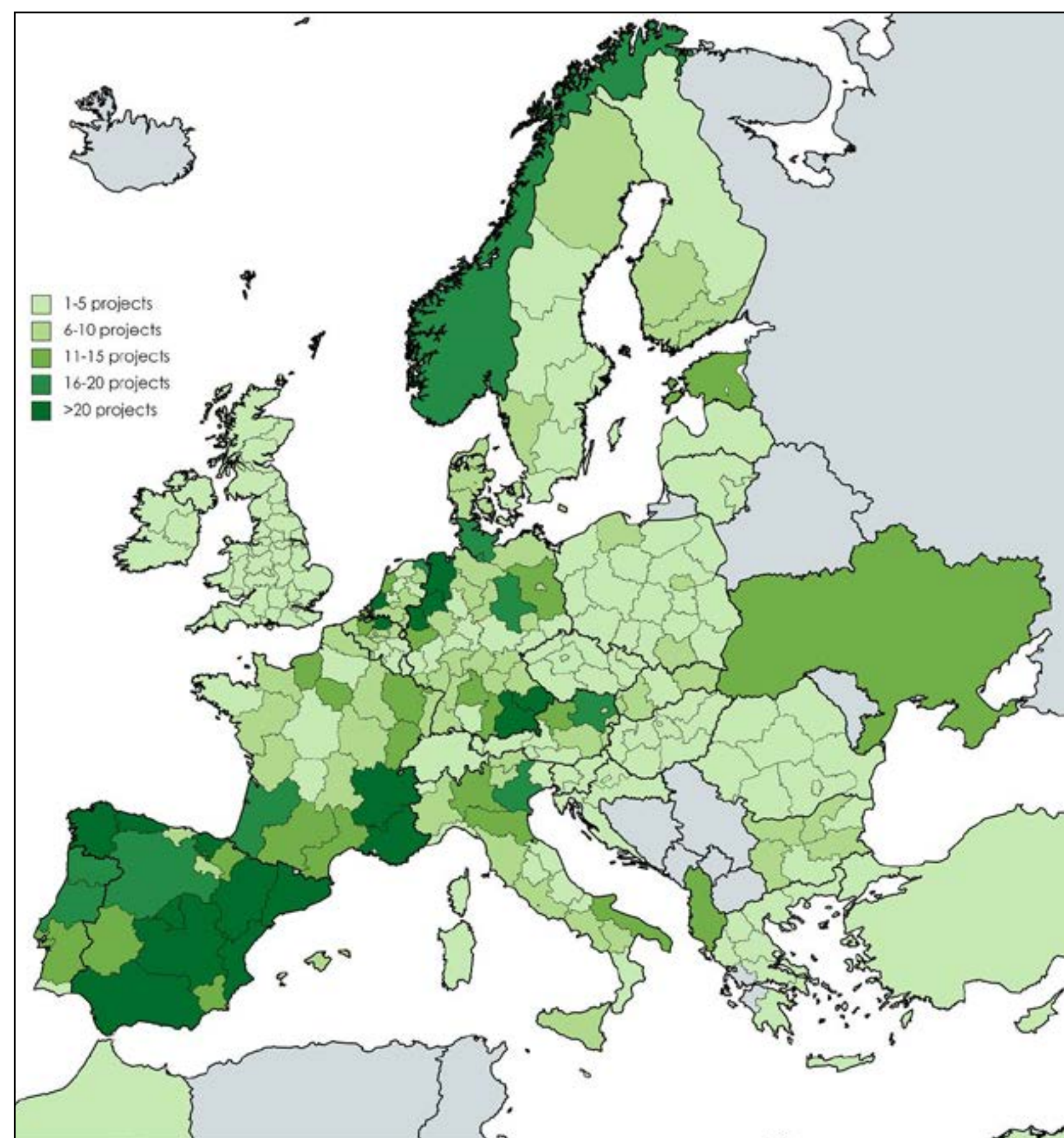
In the recent years, **hydrogen** has emerged as a **new vector for energy storage** that can be developed using RESs and that might become a **competitive solution by 2030**, owing to the ongoing research and development efforts and to the pilot projects that are being tested in multiple countries. This will lead to a big effort for the **incorporation of hydrogen in the gas networks**, which will be faced with important **technical and logistical difficulties**. In this context, MEDREG decided to step in and assist its member regulators by organising the **first Hydrogen Workshop**, which took place online on 3 November 2021 and was attended by more than 70 participants from the MEDREG countries.

Shared knowledge and experience

The European Commission created the **European Clean Hydrogen Alliance**, which supports the identification of new investment projects in pipelines. The Alliance brings together more than 1400 stakeholders who meet twice a year to discuss the large-scale deployment of clean hydrogen technologies and what this requires, around six thematic working groups covering the following parameters of hydrogen value chain: energy, production, transportation and distribution, mobility, buildings and industrial applications. To reach the expected decarbonisation of the energy sector and succeed in the energy transition, a **solid articulated regulatory framework** is needed to enable and foster the **participation of investors**.

EXPLORING THE POTENTIAL OF HYDROGEN TO MEET FLEXIBILITY AND STORAGE NEEDS

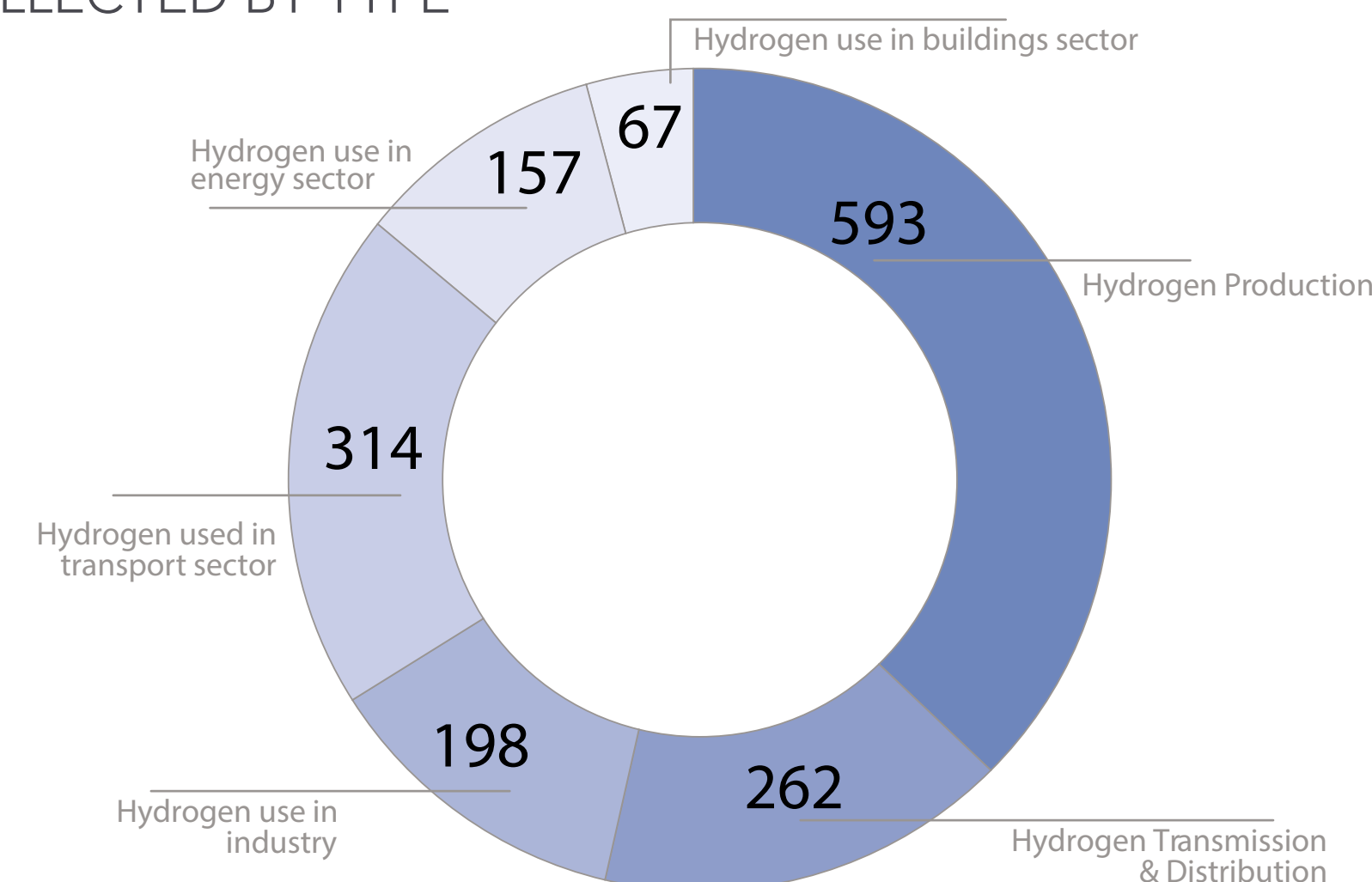
EUROPEAN CLEAN HYDROGEN ALLIANCE – OVERVIEW OF ALL ELIGIBLE PROJECTS COLLECTED



At the **industrial level**, several studies and analyses have been carried out to first assess the hydrogen potential and then determine to which extent hydrogen could play a role towards the decarbonisation of the energy sector. The hydrogen **potential seems promising** and is following the footsteps of the evolution of the RESs. However, the **technical barriers** including the maturity of **technologies** and the necessary **infrastructure**, plus the **costs** incurred for the massive deployment, **decreased the interest of some investors**.

The cost of hydrogen supply from renewables has come down and continues to fall, while the urgency of greenhouse gas emission mitigation has increased. Moreover, hydrogen, although clean and versatile, is not an energy source, but an **energy vector**. The discussions during the Hydrogen Workshop highlighted the considerable potential of the creation of a **well-functioning hydrogen market** between the producers/exporters on the southern shore and producers and consumers on the northern shore.

PROJECTS COLLECTED BY TYPE



Source: The European Commission¹, Hydrogen Forum, 17-18 June 2021

¹ <https://prod5.assets-cdn.io/event/6779/assets/8375992644-bc85860f7c.pdf>

PROMOTING LOW-CARBON INNOVATION AND MARKET DESIGN PRINCIPLES TO SUPPORT ENERGY TRANSITION

Key takeaways

- Challenges regarding regulatory decisions and design should be overcome wisely in order not to choose technologies blindly and give equal opportunity to all the solutions, both centralised and decentralised. Increasing these types of workshops is crucial to sharing knowledge and avoiding repetition of mistakes.
- Energy transition to more friendly resources is vital, and regulators must direct the markets towards the new technologies. Regulatory authorities must be one-step ahead of new technologies to set clear frameworks in order to encourage clean technologies. Energy efficiency is crucial for further development, especially in the industrial sector, and tariff design methodologies and TSOs are essential to supporting energy transition.

Challenges

Energy transition is gaining momentum, mainly thanks to consistent advances in technology, lowering costs, and increased confidence towards RES-based electricity generation. Regulators and system operators are particularly getting involved owing to the rapid pace of this change, which is likely to interest different markets and countries. Energy transition will require that all market actors develop **new skills** capable of delivering on the ambitious objectives posed by national strategic plans. Hence, the RES WG decided to organise an online workshop titled “Analyse Mechanisms to Promote Low Carbon Innovation and Market Design Principles to Support Energy Transition”.

Shared knowledge and experience

On 16 December 2021, MEDREG held an online **workshop** to assist **three of its members**: the **Moroccan ANRE**, the **Jordanian Energy and Minerals Regulatory Commission (EMRC)** and the **Lebanese Center for Energy Conservation (LCEC)**. The workshop allowed a wide discussion with these regulators about their opportunities to **support and sustain the energy transition needs**. Indeed, regulators have a role to play by recognising the acceleration and coincidence of multiple agents of change, by **incentivising investments**, innovations and **research and development** and by **defining tariffs that enable the fair recovery of grid maintenance and investment costs** based on usage by different consumer groups. The three regulators introduced the energy transition measures taking place in their respective countries. In addition, **experts from fellow Spanish, French and Portuguese regulators** (respectively CNMC, CRE and ERSE) as well as from **Med-TSO** shared information on how to **link incentives with innovation** in capital expenditure (CAPEX) and operational expenditure (OPEX). They also exchanged perspectives on **tariff design** and the role of **consumers/prosumers**, the **role of TSOs** in supporting energy transition, and the creation and operation of **grid-scale storage facilities**.

SHAPING THE ELECTRICITY GRID OF THE FUTURE FOR EMPOWERED CONSUMERS



Key takeaways

- The communication and availability of information at the regulators' level is crucial to raising consumer awareness regarding their obligations and rights and their role in the energy systems. Most regulators share general information and information related to consumers' rights and tariffs and energy saving, using at least one social media platform. This may lead to a well-oriented and informed consumer who can contribute in a more efficient way to the energy transition.
- Smart technologies represent a cornerstone of digitalisation, especially the smart meters, which represent the first step towards the digitalisation of the energy system. A smart meter provides additional and accurate information to operate the electricity and gas systems in an efficient way while reducing the costs. Furthermore, it provides enough information to the consumers to allow them to be more active in the market. In this context, cooperation between northern and southern shore countries of the Mediterranean may help boost and foster the implementation of smart meters in the southern shore countries.

Challenges

Digitalisation is crucial to reaching the electricity grid of the future, and MEDREG countries are interested in investigating the potential, opportunities and challenges that lie under this theme. It is important to explore **how digitalisation will support** the development of **smarter energy**. Digital solutions will help consumers to not only **better manage their consumption** but also handle unintended consequences, which need to be explored.

Nowadays, digital technology is part of our daily lives, and consumers are becoming more demanding in terms of information and developing more user-friendly solutions. **Smart meters, demand response management** and **electric vehicles (EVs)** provide a further solution to achieving the energy transition and, simultaneously, require the use and analysis of an important amount of **data and information**.

In this effort, the CUS WG developed a report entitled "Role of Digitalization and its Impact on Consumer Issues".

Main outcomes

Smart meters

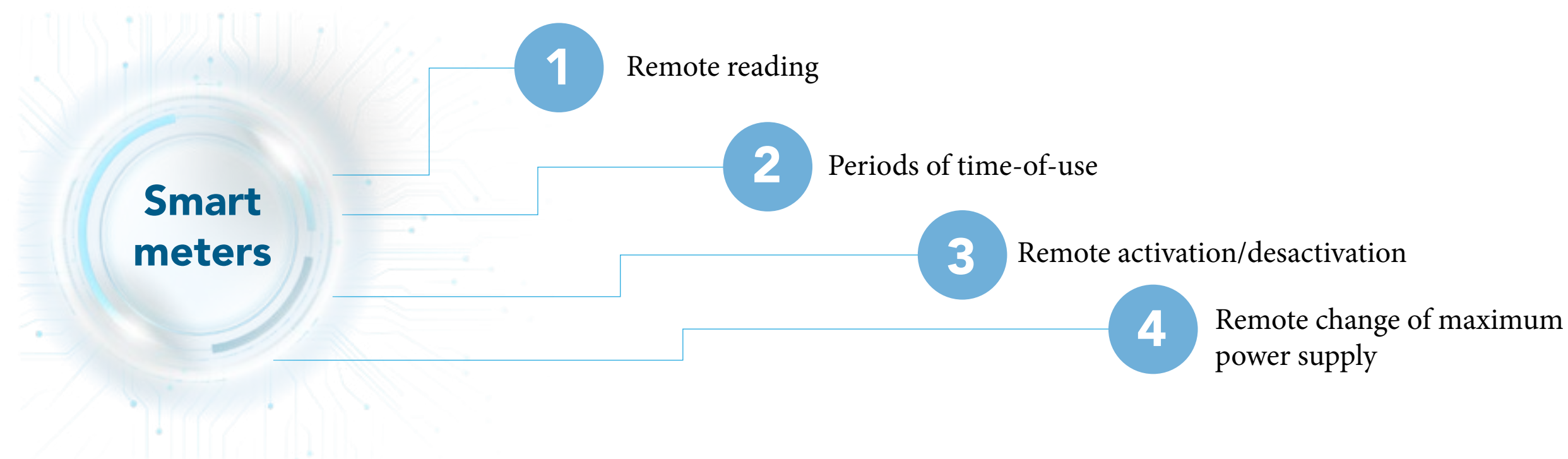
Smart meters are electronic measurement devices that precisely record the energy consumption data and allow communication among the different nodes of the network.

They constitute the **fundamental piece of the smart grids** and one of the means that allows the digitalisation of the energy system.

Many countries in the Mediterranean region already have a **high share of consumers equipped** with smart meters, mainly on the **northern shore** of the region, while most **southern shore** countries have initiated the implementation of smart meters by launching **pilot projects**.

SHAPING THE ELECTRICITY GRID OF THE FUTURE FOR EMPOWERED CONSUMERS

MAIN FUNCTIONS OF SMART METERS:



Distributed electricity generation

Since the beginning of the development of renewable energies, consumers have demonstrated interest in installing proper renewable energy equipment to produce at least a part of their consumption, in return for economic or social/environmental benefits.

Today, multiple types of distributed electricity generation exist, such as **self-consumption generation** (legally defined in 12 of the MEDREG countries), **prosumers** (legally defined in seven of the MEDREG countries) and **local energy communities** (legally defined in four of the MEDREG countries).

Cybersecurity

In the wake of digitalisation, cybersecurity has become a critical aspect of the energy sector, as, today, the reliance on interconnected systems and data analyses is gradually increasing. Many MEDREG countries have adopted **national strategies and policies related to cybersecurity in general**, and most of these countries have put in place cybersecurity rules **specific to the energy sector**.

National Strategy/Policy Related to the Security of Network and Information System

In general

- Albania
- Algeria
- Cyprus
- Egypt
- France
- Greece
- Italy
- Jordan
- Montenegro
- Portugal
- Spain
- Turkey

Covering the energy sector

- Albania
- Cyprus
- Egypt
- Greece
- Italy
- Jordan
- Montenegro
- Portugal
- Spain
- Turkey

UPDATING REGULATORY FRAMEWORKS TO PROMOTE INNOVATION AND ENERGY TRANSITION

Key takeaways

- Energy poverty is an issue of growing importance that must be carefully considered if we do not want to impede energy transition. The trend for energy transition is leading to an ever-growing increase in energy prices, which will lead to fewer and fewer households and businesses being able to afford energy supply. This is likely to hinder the building of social consensus on the energy transition itself; hence, it is essential that energy poverty be addressed without jeopardising cost effectiveness. The role of regulators is to analyse, discuss and identify solutions and tools to ensure the access to high-quality, reasonably priced and transition-oriented energy services.
- The development of smart grids increases the awareness of consumers, which, in turn, facilitates the transition from consumers to prosumers. Aggregators and retailers play a critical role in demand-side management. They can, assuming that specific signals are sent, organise a coordinated demand-side reaction based on the state of the system.

Challenges

Energy transition is an important topic for the MEDREG member countries. To **keep pace with this transition** and accelerate it while keeping an eye on the effect on the vulnerable consumers, it is important to **study how regulatory frameworks can evolve** and be updated in that sense. With this objective in mind, the INS WG in MEDREG developed a **solid governance model** by assessing the future characteristics of the energy markets (smart and agile) against the core institutional elements of each regulator, identifying the requirement for **quick adaptation** and further **improvement**. This work is elaborated under the report titled “Study on the Interlink Between Good Regulatory Principles and the Energy Transformation Challenge”.

Energy regulators must play an important role in the fight against climate change by strongly cooperating with policymakers. Moreover, MEDREG members shall act as **promoters of change** towards **innovation** and **energy transition**. Good examples from vanguard countries, such as **regulatory sandboxes**, or other **innovative solutions** should be shared and promoted. This is particularly true for EU countries in the light of their ambitious climate objectives aiming for carbon neutrality by 2050.

Main outcomes

The energy sector will have to undertake a major transformation to achieve net-zero emissions. **Energy regulators** will have to **play a crucial part** in the system **shift to a low-carbon energy sector**, using their powers to **foster investment in renewables** and **support innovation**, with special focus on **consumers**. Furthermore, MEDREG members will have to play an important role to support **digitalisation** of their energy markets, increase consumer awareness, foster their empowerment, manage the data and ensure cybersecurity.

Regarding EVs, the **charging points regulation** seems critical, and related regulatory issues should cover topics of business model ensuring competition, network tariffs without discrimination, connection procedures and the integration of EV recharge in power system transformation.

In competitive markets, the development of **smart grids** supports the transition from **consumers to prosumers** via an improved consumer awareness. As far as demand-side management is concerned, **aggregators and retailers** can organise a **coordinated reaction** of consumers according to the state of the system, assuming that specific signals are sent.

GRASPING THE CHALLENGES AND OPPORTUNITIES OF DIGITALISATION

Key takeaways

- Digitalisation will dramatically transform the current energy grid model, paving the way for advances in matching demand to the need of the system in real time.
- Emerging technologies such as Internet of things, artificial intelligence and blockchain should be integrated in the energy system to act quickly, safely, cheaply and efficiently on the network.
- Further, certification should be transparent and useable in the entire sector and ecosystem of energy exchange. Certifications build trust as they demonstrate that the requirements are met.

Challenges

When energy actors discuss the move towards a low-carbon economy, digitalisation is a word much used. However, digitalisation is going to bring new challenges to the drafting of regulations for this new technological era. The northern Mediterranean countries are already experiencing a competitive and mature market structure, while the **southern ones** are progressively **opening their markets**, often through **technologically advanced moves** that allow them to skip a few steps of the process. To further discuss this issue, the CUS WG organised a training on the “Regulatory Implications of the Digitalization of the Energy Markets and the New Role of Consumers”, which was presented by top tier professionals who are leading the digitalisation and cybersecurity sectors in Europe.

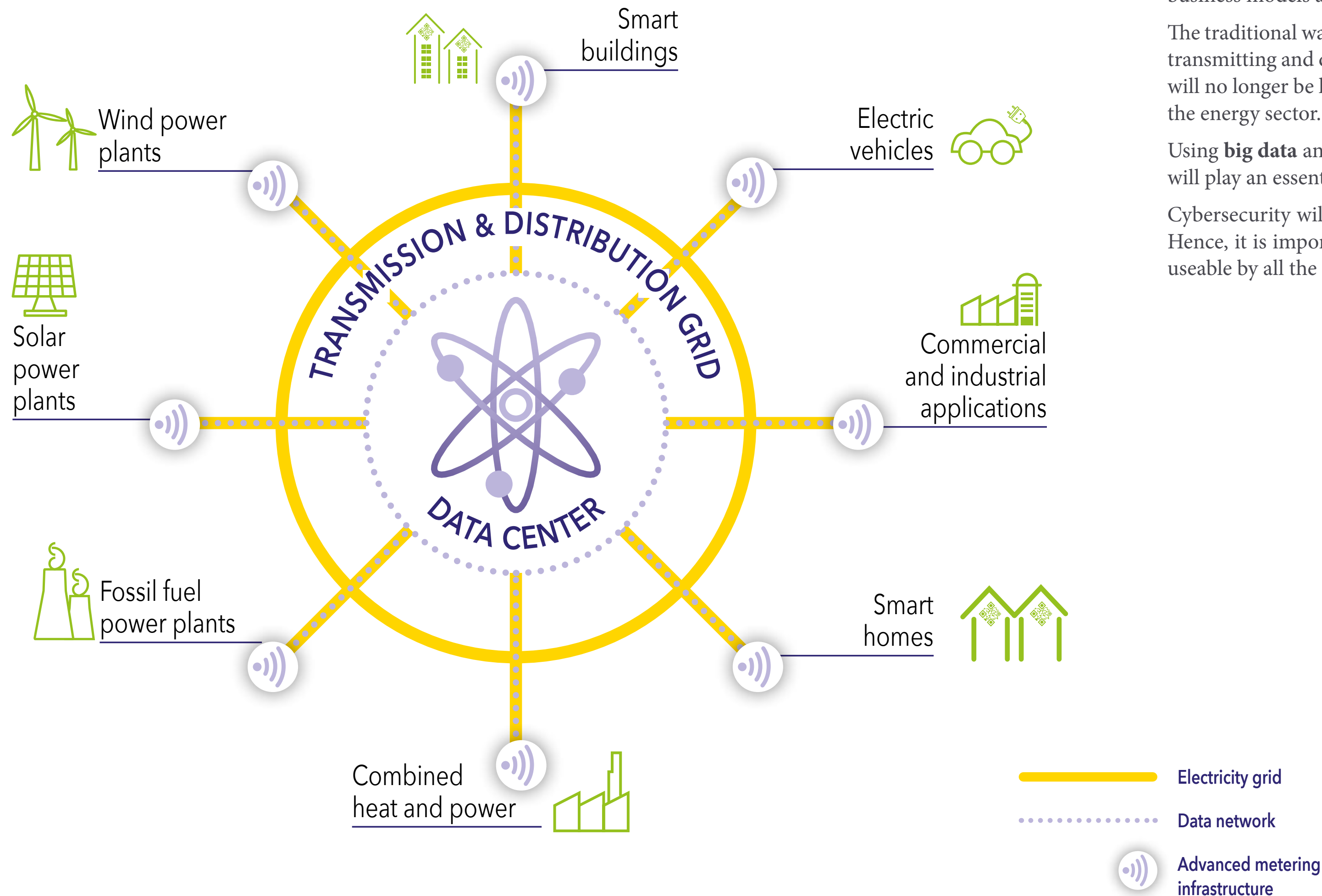
Shared knowledge and experience

During a two-day training held online on 27 and 28 October 2021, MEDREG introduced its members to the challenges that digitalisation will bring to the drafting of regulations for this new technological era. The workshop, **actively followed by 63 staff members** from regulatory authorities, was provided by contributors from public institutions, regulators, research centres and the private sector – all renowned experts in the field of digitalisation.

The discussions covered multiple topics, e.g., the **infrastructure** enabling digitalisation, **smart meters** and **flexibility of services** in digitalised markets, the impact of digitalisation on **networks codes**, the **role of consumers/prosumers**, the importance of **exchange of data** among operators and the **challenges and opportunities** of digitalisation. Moreover, cybersecurity challenges were exposed, and **solutions to minimise the risks of cybersecurity threat** were provided, along with the indicators and **tools for regulators** to monitor these threats. The EU Cybersecurity Act and certification schemes were also presented as an integral part of the threat mitigation actions.

GRASPING THE CHALLENGES AND OPPORTUNITIES OF DIGITALISATION

SMART GRIDS



Multiple **innovations** are available to reach good flexibility levels with enabling technologies, new emerging business models and update of the market design and of the system operation.

The traditional way to build an energy grid involved generating the electricity in large power plants and then transmitting and distributing it to the end users. However, the management of the **smart grids of the future** will no longer be linear, but will build more on the **communication of the multiple stakeholders** acting on the energy sector.

Using **big data** and **processing them in real time** is crucial for the management of the system. Smart grids will play an essential role in this by providing a big set of **storage** and generation solutions.

Cybersecurity will be vital to the future smart grid, as the world is becoming increasingly interconnected. Hence, it is important to develop **cybersecurity regulations and certifications** that can be applicable and useable by all the stakeholders in the energy sector.

ENHANCING SECURITY OF SUPPLY

Key takeaways

Transmission planning should include a generation adequacy assessment and focus on the following five areas:

- Supply–demand balance and potential impacts on network infrastructure
- Allowance of greater communication on future infrastructure needs and on how to manage potential bottlenecks
- Allowance of regular communication on national supply and demand scenarios
- Collaboration on both national and regional generation adequacy assessments
- Collaborative work on examining the potential impact on system security of loop and transit flows, increasing penetrations of variable renewable energy, EVs and storage.

Challenges

Electricity security is vital to functioning of modern societies and economies; hence, security of supply has always been a major driver of investments in transmission systems. Digital technologies, communications infrastructure and industrial operations rely on efficient supply of electricity.

In addition, the trend towards **greater penetration of intermittent renewable energies** poses new challenges in terms of the stability of electricity systems.

As all countries aim at enhancing their security of supply, the ELE WG has developed a document detailing the ways in which regulators can reach this goal. The report titled “Security of Supply” **maps out the security of supply in the Mediterranean region, identifies the main indicators** used and **proposes recommendations** based on the experiences of MEDREG countries to improve the security of supply of the other countries.

Main outcomes

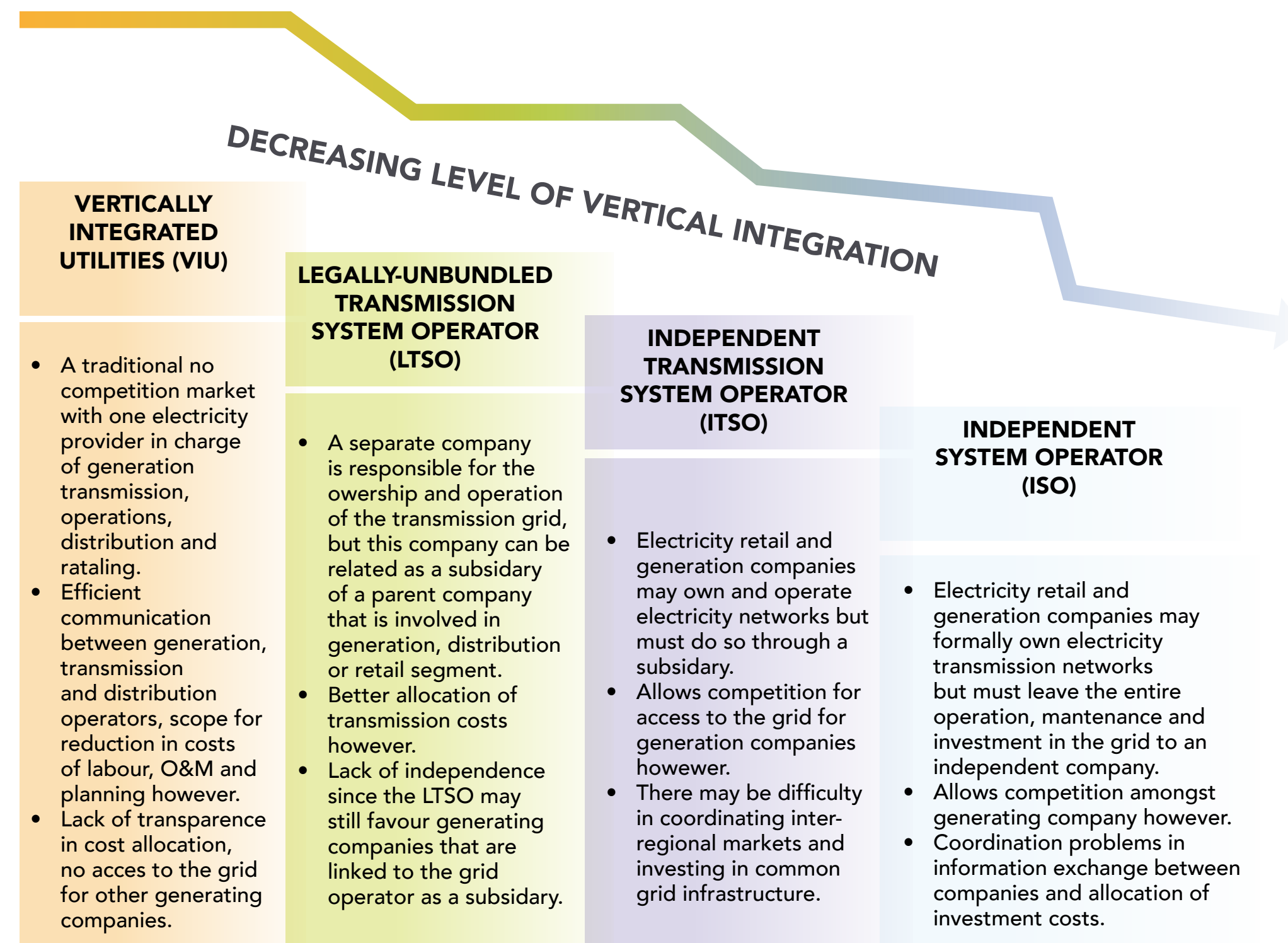
- **Security of supply** is mostly defined as the availability of an “adequate supply of energy at a reasonable cost”.
- **Power system flexibility** refers to the capability of a power system to maintain continuous service in the face of rapid and large fluctuations in supply or demand, regardless of the cause.

Countries that have not yet identified the vulnerable consumers shall

- develop definitions for vulnerable consumers and energy poverty;
- enhance interaction among involved entities to identify and protect vulnerable customers;
- establish systems to facilitate automatic recognition of vulnerable consumers;
- develop protection measures that respond to the needs of vulnerable consumers and
- assess the impact of the protection measures continuously.

ENHANCING SECURITY OF SUPPLY

LEVELS OF VERTICAL INTEGRATION OF SYSTEM AND TRANSMISSION SYSTEM OPERATORS.



Source: Adapted from Chawla and Pollitt (2013)

As countries transit to less carbon-intensive sources of electricity, system operators face **ongoing challenges**, as renewables generally require a **higher degree of flexibility** from the network to compensate for their intermittency.

Possible solutions to ensure security of supply and flexibility encompass not only **transmission grid expansion** but also **increased cross-border trading options**, **innovative solutions** based on **new technologies** and **optimal use of available technologies** on the market.

System and transmission system operators might have different levels of vertical integration, with the most intensive being vertically integrated utilities and the least intensive corresponding to independent system operators. The characteristics of these different companies can be seen in the table aside.

The power sector is going through fundamental changes: decarbonisation with fast growth in variable renewable sources, digitalisation expanding the surface for cyberattacks and climate change leading to more extreme weather events. In response, governments, industries and other stakeholders will need to **improve their frameworks** to ensure electricity security through **updated policies, regulations and market designs**.

Both production-side and demand-side flexibility **positively affect security of supply**. In addition, there must be a **power grid with adequate transmission capacity**.

DESIGNING AND IMPLEMENTING REGULATION FOR THE GAS SECTOR IN JORDAN

Outcome

The workshop helped the EMRC in setting the way to establish **network codes to regulate pipelines bringing gas to the cities, establish codes for LNG transportation and distribution by trucks and elaborate regulations that can stimulate investment in the Jordanian gas sector.**

Challenges

In the context of **growing demand for electricity in Jordan**, which is currently produced from gas almost exclusively, and as the Jordanian energy regulator began the creation of sector-specific regulations, the regulator asked for support from MEDREG to learn about other regulators' provisions concerning **network codes, LNG transportation by truck and performance standards for licensees** for activities related to the use of natural gas.

Indeed, Jordan's average daily gas consumption is around 9.5 million cubic meters, of which 99% is used to produce electricity, while 1% is used for the industrial sector. The need for natural gas can be covered by floating storage regasification units (FSRUs) and by increasing the amount of current production and the number of fields under exploration in the eastern Mediterranean.

Jordan has already contracted some quantities of these new sources, which should cover the projected national demand for electricity, allowing for substantial penetration of natural gas in sectors of the economy such as industry, residential and commercial sector.

According to the Jordanian National Energy Strategy, future electricity generation up to the year 2030 and beyond will be based on combined use of natural gas and renewables as well as storage (e.g., batteries and energy storage plants).

Shared knowledge and experience

From 4 to 6 May 2021, MEDREG held an **online workshop on the design and implementation of regulation for the gas sector** at the demand of the EMRC.

Six regulators from Egypt, France, Greece, Italy, Spain and Turkey shared their national cases and provided a first set of information for EMRC.

During the workshop, multiple subjects were discussed, starting with an introduction to the Jordanian gas legislation and followed by discussion on **the opening of the gas market to liberalisation and redesigning of the gas distribution market**. Other topics were addressed such as the regulator's role in the development and approval of methodologies for **gas transportation**, regulation for **gas distribution** and **monitoring of operators**, criteria to design **network codes and licenses** in an opening market, regulations of **LNG trucks loading** and overseeing investment programmes in **gas transportation and distribution**.

IMPROVING THE QUALITY OF SERVICE FOR THE ELECTRICITY AND GAS DISTRIBUTION IN ALGERIA

Outcome

The webinar, through the wide array of instructors and their expertise, provided CREG with the means to push forward the regulation of the unbundled energy sector in Algeria.

Challenges

Over the past decade, Algeria has been modernising the management of the electricity and gas distribution public service and has been working on ensuring **better protection for consumers**, with **higher standards of quality of service**. With a review of performance indicators of the quality of service foreseen in 2023, the Algerian Commission for Electricity and Gas Regulation (CREG) saw an opportunity to **improve both the reporting and the auditing processes** of the Algerian electricity and gas distribution activity. Willing to learn about practices of other regulators in terms of quality-of-service monitoring tools and methodology, it asked support from MEDREG to organise a technical exchange among regulatory peers.

Shared knowledge and experience

On 6 December 2021, in a webinar involving the **Italian, Portuguese, Spanish and Turkish energy regulators**, the Algerian energy regulator CREG explored **concrete ways** of monitoring the **quality of service** of the electricity and gas distribution activities.

The webinar addressed the **performance improvement commitments** and the ways to choose the **performance indicators setting procedures**. The **reporting systems** used in other countries were also presented, focusing on the type of required indicators and the details on reports prepared by the regulator as well as **how these reports are audited**.

Through the practical examples provided by the regulatory peers, CREG colleagues were reassured that it is **normal to experience some bumps** at the beginning of the process.

The main lesson learned from the webinar is that it is preferable to **concentrate on fewer but crucial indicators** rather than on many. In this vein, the **regulator shall guide distribution system operators (DSOs) on the monitoring process**, with yearly checks and onsite audits, adapting its approach to the dimensions of the DSO. Although these audits might provide negative results in the initial years, the fact that they are conducted yearly will produce a kind of discipline effect for DSOs, ensuring the quality of data provided. This will allow the regulator to collect well-recorded data as well as reliable and long-standing information.

PLANNING DISTRIBUTION NETWORK IN ISRAEL

Key takeaways

- Competition in energy generation, energy supply and provision of services would facilitate the development of flexible uses, i.e., EV charging stations.
- The regulator should have authority to approve, partially approve and reject DSO plans, mirroring the current regulation of TSO plans, since DSO networks are to become more crucial within a decentralised energy system.
- The member countries would benefit by division of LT-DNIP and LT-DNMP, whereas mid-term to long-term DNMP serves as guidelines for LT-DNIP.
- Law should grant regulators the power to assess DSOs' master plans and especially DSOs' investment plans. Regarding the cost determination, both cost-base and normative pricing (unit based) should coexist.
- Transparency is key to the evaluation of long-term investment plans and should be administered throughout the whole process by conducting a public consultation on the proposed plan(s), organising a public hearing of the operators and having final plans publicly available.

Challenges

The presence of fully bundled market and the absence of a wholesale market and an independent system operator obstruct new market entrants and make private investments unfeasible.

In this context and given the importance of regulation in enhancing the planning for the distribution networks, the Israeli electricity regulator sought the help of MEDREG to **understand how other MEDREG countries are dealing with the approval and development of their Long-Term Distribution Network Master Plan (LT-DNMP) and Distribution Network Investments Plan (LT-DNIP)**. The ELE WG assisted by developing a questionnaire on the issue, sharing it with the members and then drafting a report titled "Planning of Distribution Network in Israel".

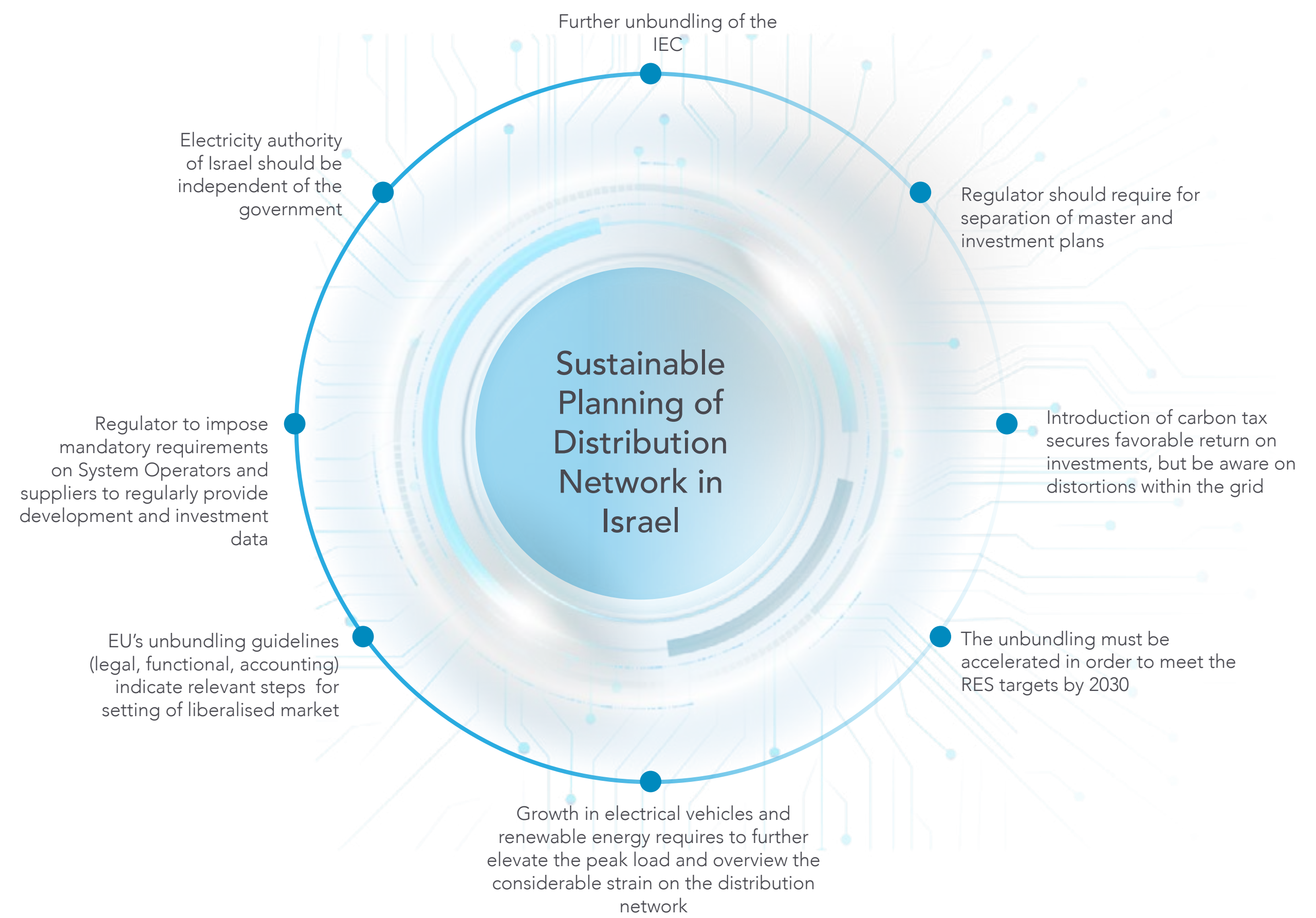
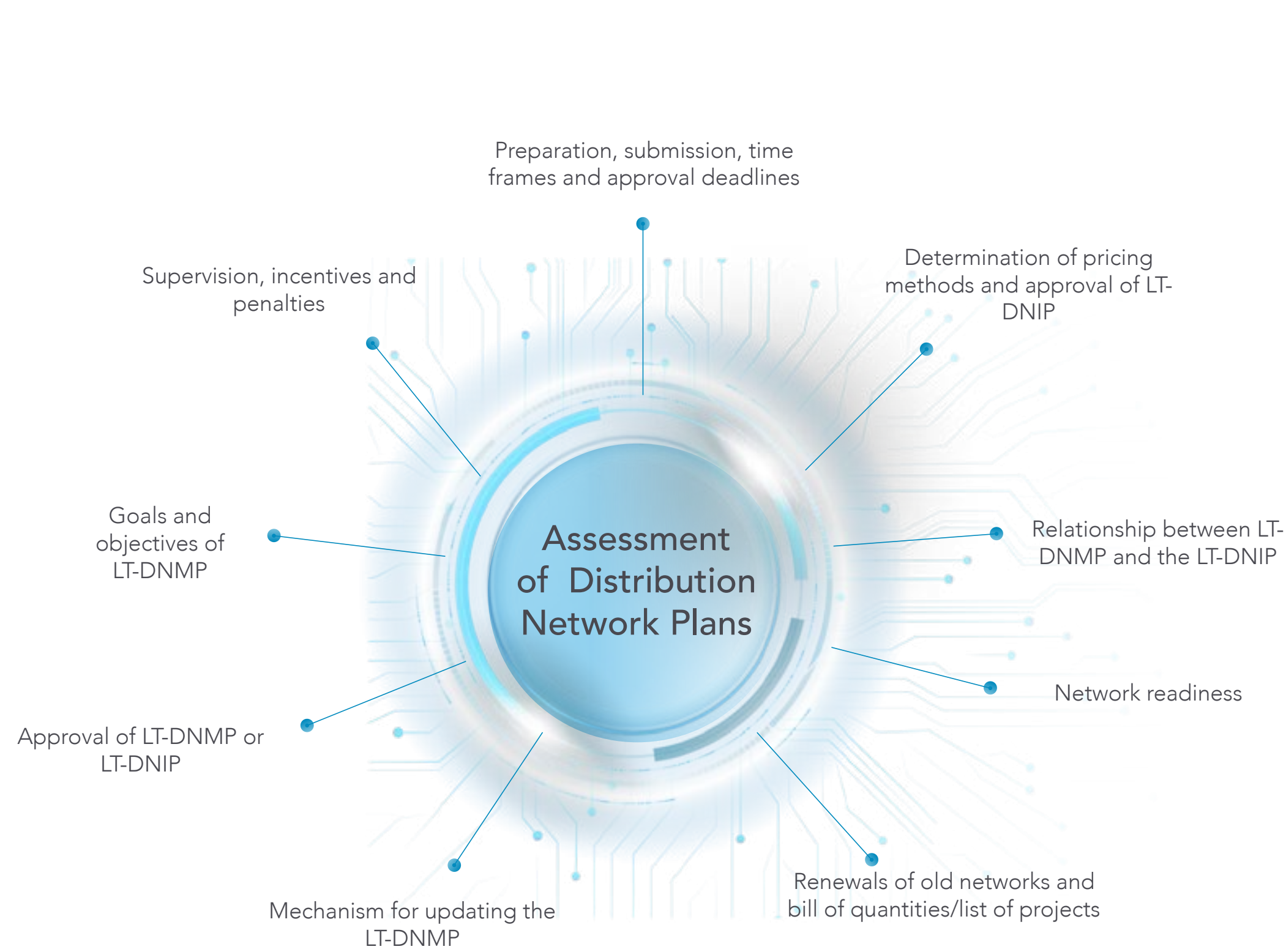
Main outcomes

The report commissioned by MEDREG for the Israeli Public Utility Authority (PUA) showcases the various legal and regulatory policies as well as practical implementation of the LT-DNMP and/or an LT-DNIP. The study is particularly focused on Israel, yet it provides an outline of the **policies and practices in numerous Mediterranean countries**. It gives an overview of **economic aspects** of LT-DNMP and LT-DNIP, mainly regarding the determination of costs and the approval of LT-DNIP and examines the policies on **incentives and penalties** for investing in distribution networks throughout the Mediterranean area.

Unbundling remains the main challenge, and the energy regulator can, therefore, impose an obligation on DSOs to **collect data** and provide the grid users regularly with **information on qualitative development and investment data**, which are necessary for efficient access to the grids for IPPs and the development of flexible uses.

PLANNING DISTRIBUTION NETWORK IN ISRAEL

ONLY COMPREHENSIVE AND CONTINUOUS ASSESSMENT CAN LEAD TO SUSTAINABLE GOALS





EXTERNAL RELATIONS

JOINT WORKSHOP WITH ECRB ON INTEGRATING RENEWABLES IN THE ELECTRICITY NETWORKS



Challenges

Owing to cost-competitiveness of renewable energy technologies, the investments in these energy sources are becoming increasingly significant. To be trustworthy, these investments will require to make the energy system more secure and sustainable by **reducing the risks for investors** in the emerging sectors. In this transition towards a wider use of RESs, the three main challenges must be overcome in the near future:

- Policy and regulatory uncertainty
- High investment risks in developing countries
- System integration of wind and solar in some countries

Integration of renewables into the system and market mechanisms require an in-depth discussion and understanding by the responsible entities to ensure smooth functioning of the market.

Outcome

To elaborate widely how TSOs/DSOs and regulators deal with the challenges that RESs are bringing to the system, on 15 April 2021, **MEDREG** and the **Energy Community Regulatory Board** gathered regulators from southeast Europe, the Black Sea region and beyond to hold a **joint workshop on integrating renewables in the electricity networks and balancing mechanisms**. The members from the two associations shared discussions from the workshop as a further contribution to their ongoing efforts to facilitate and develop a common regulatory culture and a coherent approach in the Mediterranean and energy community regions, specifically regarding renewable energy market regulation.

TRILATERAL WORKSHOP ON CONSUMER ENGAGEMENT



Challenges

Active consumer engagement plays a vital role in driving strong competition, ensuring markets work effectively and making the energy transition a reality. This, in turn, raises questions regarding which regulatory measures can be used to extend these benefits to all consumers and how to engage them all. **Ensuring that no one is left behind is a fundamental guiding principle** for the **Council of European Energy Regulators (CEER)**, the **ECRB** and **MEDREG** in their regulatory responsibilities and their work relating to consumer protection.

Outcome

The three regional regulatory associations held their **Third Trilateral Workshop on regulatory means to foster active customer engagement** on 26 and 27 May 2021.

Strengthening **regulatory dialogue** across Europe and the Mediterranean region to support consumers in becoming active energy market participants in the context of the COVID-19 pandemic and recovery were themes of the two-day trilateral workshop. Special focus was given to **commercial quality, prosumers and active self-consumption, billing and digitalisation**. Different **case studies and trends** of activity of the three associations were presented, focusing on **flexibility, demand response and prosumers**.

The annual trilateral workshop is an important part of CEER's, ECRB's and MEDREG's work programmes and an element of the cooperation arrangement signed between the three regional regulatory bodies in December 2018.

MEDREG AND RES4Africa WEBINAR ON ASSESSING INVESTMENT RISK IN RENEWABLE ENERGY

Challenges

Given the Mediterranean countries' **huge potential** to produce energy through renewable sources, pledges to increase renewable energy production are rising. However, the **investments in RES in the region remain limited** mainly because many **risks impede the bankability** of this type of projects. Therefore, analysing the risk perception of public and private stakeholders is important to identifying and analysing their respective risk perception. Hence, a study was developed by **RES4Africa** in partnership with PwC to **identify this risk perception in seven Mediterranean countries** comprising Morocco, Egypt, Jordan, Tunisia, Algeria, Libya and Lebanon.

Outcome

On 4 May 2021, we organised a **webinar** with **RES4Africa Foundation** in partnership with **PwC** to promote **dialogue between public and private entities** on the **legal framework** and ways to **de-risk investments** and **enhance the bankability of renewable energy projects**. in the Mediterranean. The findings of the study were presented to **policymakers** in order to **help them identify the risks** when they are designing mechanisms to **increase private investments in the RES sector**.

MEETINGS OF UNION FOR THE MEDITERRANEAN (UFM) ENERGY PLATFORM AND OBSERVATOIRE MÉDITERRANÉEN DE L'ÉNERGIE (OME)

On 10 December 2021, MEDREG participated in the high-level conference on the **role of gas in the Mediterranean Energy Transition**, which was organised by the **Observatoire Méditerranéen de l'Énergie (OME)** in Paris. MEDREG Secretariat, represented by its Director Hasan Ozkoc, highlighted that natural gas and new gases such as **biogas** and **hydrogen** will have an important role in the energy transition, and to succeed in that, the existence of a sound and adequate policy and regulatory framework constitutes a key element. Moreover, our Egyptian member GASREG presented the role of natural gas in achieving energy transition in Egypt.

The day before, on 9 December, MEDREG **presented the main findings of its report** titled “**Analysis of Gas Infrastructure to Improve Flexibility and Interoperability of Energy Systems**” – a topic of high importance in the Union for the Mediterranean (UfM) Gas Platform meeting, considering this era of changing dynamics in global gas markets.

11th TURKEY ENERGY SUMMIT

MEDREG actively participated in the international 11th Turkey Energy Summit, which took place in Antalya, Turkey, on 21–23 November 2021. The summit was held under the auspices of the Ministry of Energy and Natural Resources of the Republic of Turkey and the Energy Market Regulatory Authority (EMRA).

The summit addressed the latest **developments and trends in Turkey** on the global energy sector and the effects of the **Green Deal**, the **26th United Nations Climate Change Conference of the Parties (COP26)**, **energy investment finance**, power, **natural gas and LNG markets**, EVs and renewable energy.

In an exclusive session allocated to MEDREG on “**The Role of Regulators towards the Energy Transition in the Mediterranean Region**”, our Association presented the work and activities that have been undertaken for our members as well as our members' contributions in creating a functioning and interoperated Mediterranean energy market. Four **MEDREG members**, namely **Albania, Lebanon, Jordan and Morocco**, **shared their recent developments** towards these objectives. In addition, MEDREG also presented its long-term objectives to providing a sustainable Mediterranean energy market to the audience.

A woman wearing a light-colored hijab and glasses is speaking to a group of people in a meeting. She has her hands clasped in front of her. To her left, a woman with long, dark, curly hair is seen from the back. To her right, a man in a yellow striped shirt is looking at a whiteboard. The background shows a meeting room with a table, water bottles, and a whiteboard.

VISIBILITY AND COMMUNICATION

DIVERSIFYING COMMUNICATION CHANNELS TO REACH A GROWING AUDIENCE

In 2021, MEDREG deployed an array of digital communication products coupling technical aspects with policy relevant messages aimed at both our members, on the one hand, and at external partners, energy stakeholders and the wider public, on the other hand.

With a view to best ensuring MEDREG's added value, the communication products focused on the main findings of major recent reports, including key lessons and best regulatory practices replicable by MEDREG members, in the fields of renewable energy, consumer protection, digitalisation, energy efficiency and e-mobility, among others.

Digital cards

Three digital cards were developed to provide a concise high-level take on relevant studies, highlighting short and visual key policy messages:

- Digital card on the **Competences of Mediterranean Energy Regulators and Their Role in the Market**.
Published in March 2021.
▶ **Impact: 1,172 downloads and 1,033 impressions** on social media.
- Digital card on **Regulatory Options for Integration of RES**.
Published in September 2021.
▶ **Impact: 328 downloads and 1,385 impressions** on social media.
- Digital card on **Improving the Quality of Consumer Services through Regulation – Recommendations to regulators**.
Published in December 2021.
▶ **Impact: 130 downloads and 1,445 impressions** on social media.

Snapshots

Two snapshots were released on the topics of digitalisation and energy efficiency and e-mobility. These were short infographics, which offered concise visual content and graphs meant to highlight the main findings, key recommendations, good practices and the road map to follow on topics of particular importance.

- Snapshot on **Digitalisation of Energy Markets from the Regulators' Perspective**.
Published in February 2022.
▶ **Impact: 185 downloads and 678 impressions** on social media.
- Snapshot on **Energy Efficiency and e-Mobility in the Med**.
Published in April 2021.
▶ **Impact: 120 downloads**.

Handbooks

Two handbooks were developed and published on MEDREG Experts Exchange for our Lebanese member LCEC and on MEDREG Study Visit for our Egyptian member GASREG to our French member CRE.

- Handbook on **Transparency and Accountability in Renewable Energy Auctions**.
Published in March 2021.
▶ **Impact: 1300 downloads.**
- Handbook on **Development and Implementation of TPA Rules and Activities for the Gas Sector**.
Published in March 2021.
▶ **Impact: 1445 downloads.**

Animated videos

MEDREG's members are willing to demonstrate the value and impact of their study and report activities outside of regulatory circles and through different channels. With this objective in mind, **two engaging animated videos** were made to raise awareness of the regulators' role in the green energy transition and in the protection of vulnerable consumers.



Video titled "Towards the Mediterranean Green Energy Transition".

Released in September 2021.

▶ **Impact: 1998 views.**



Video titled "Consumer Working Group: Protecting the Rights of Vulnerable Consumers".

Released in February 2022.

▶ **Impact: 411 views.**



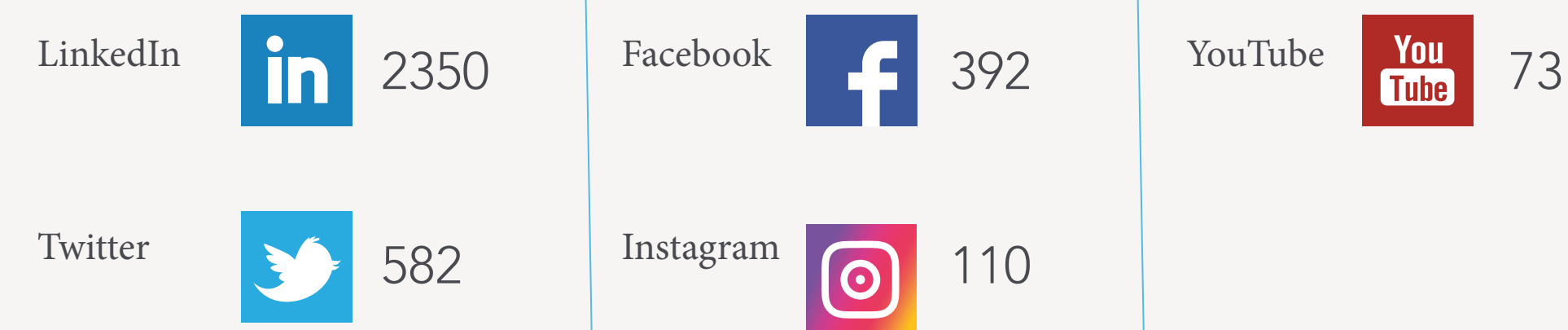
Website, newsletters and press coverage

- **Increased traffic on the website** by 38% compared to the previous year, witnessing 11,300 visitors during the year.
- **13 media mentions** mainly in the Moroccan and Turkish press, highlighting the regulators' role and MEDREG's key messages to the local public.
- **16 news alerts and four quarterly newsletters** kept abreast our members, subscribers, external partners, energy experts of the EU delegations of the Mediterranean countries and some influential journalists of our latest activities and publications.
▶ **Impact:** Greater interest from a larger audience in MEDREG's work, activities and publications.

Social media

In 2021, we reinforced our communication on social media, which attracted new followers amounting to a total of more than **3,500 followers** on our different channels, representing a **33% increase** compared to the previous year.

NUMBER OF FOLLOWERS - JANUARY 2022



▶ **Impact:** The regular engagement and publication on our social media channels strengthened **MEDREG's profile** and reinforced its **visibility and accountability** not only to its members who are responsive to the posts but also to energy stakeholders and members of the general public actively following it.

Communication Officers (COs) network meeting

The COs network gathered virtually on 21 September 2021, after a two-year break. The COs **reconnected** with one another and provided **input for the up-coming communication strategy**, thereby shaping it closely to their expectations and needs.

Advocacy and awareness raising at international events
































With the participation of the Presidency Board and Steering Committee as **MEDREG ambassadors in important international events**, MEDREG advocated its views on regulatory issues, multiplying opportunities for visibility and exposure of the organisation's work.

Other visibility efforts

MEDREG contributed to the **International Confederation of Energy Regulators biannual chronicle** with an article titled "The Growing Role of Regulation in the Mediterranean Energy Transition", which was published in July 2021.



A LOOK AT 2022

AUTHORITY RECEIVING THE ASSISTANCE	SECTOR	TOPIC	SUPPORT TYPE
GASREG (Egypt)	Gas 	Third-party access rules and activities: Second leg of study visit to CRE	Study visit
MEDREG members	Gas & electricity  	Training on climate package, environmental standards and regulation	Training
MEDREG members	Gas & electricity  	Regulatory outlook update	Report
MEDREG members	Gas & electricity  	Model rules against conflict of interest	Report
MEDREG members	Gas & electricity  	Workshop on regulatory outlook update	Workshop
Egyptian Electricity Regulator (EgyptERA; Egypt)	Electricity 	2-Day workshop on planning the Egyptian grid of the future	Workshop
MEDREG members	Electricity 	Joint workshop with MED-TSO on Med grid code survey	Workshop
MEDREG members	Electricity 	Joint workshop with MED-TSO on “Security of Supply & Adequacy”	Workshop
MEDREG members	Electricity 	Joint workshop with MED-TSO Knowledge sharing on digitalisation and cybersecurity	Workshop
MEDREG members	Electricity 	Joint webinar with MED-TSO on “Benefit and Measures for International Power Exchanges”	Webinar
MEDREG members	Gas 	Cross-border coordination for interconnection capacity development	Report
MEDREG members	Gas 	Cross-border coordination for interconnection capacity development	Workshop
Regulatory Authority for Hydrocarbons (ARH - Algeria)	Gas 	Optimisation of the natural gas transportation network and determination of natural gas wholesale price	2 Study visits
All members from Mediterranean Partners Countries	Gas 	1-Day online workshop for southern shore members of the Mediterranean on the topic of commercial aspects of renewable gases and the effects that COP26 decisions will entail for the southern-shore gas markets	Online workshop
MEDREG members	Gas & electricity  	Future role of renewable gases	Report
South Shore MEDREG members	Electricity 	Energy storage and demand management	Experts’ mission
MEDREG members	Electricity 	Workshop on energy efficiency and e-mobility	Workshop
MEDREG members	Electricity 	Update on technical and non-technical losses report	Report
MEDREG members	Gas & electricity  	Workshop on regulators’ support to consumer protection (joint event with a national or regional consumer association)	workshop
MEDREG members	Gas & electricity  	Training on infrastructure investments, network remuneration and tariffs	Training
MEDREG members	Gas & electricity  	Biannual – Basic training on regulatory principles and energy economics	Biannual basic training
MEDREG members	Gas & electricity  	The Crosslinks between the three UfM Energy Platforms	Report

LIST OF REPORTS



List of reports:



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March 2022

Study on the interlink between good regulatory principles and the energy transformation challenge



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March 2022

Role of digitalization and its impact on consumer issues



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March 2022

Security of supply



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March 2022

Conclusion document from 1st MEDREG Hydrogen Workshop - 3 November 2021



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March 2022

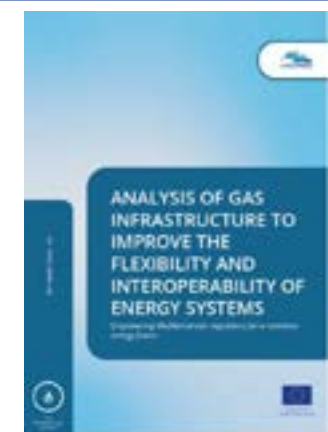
Workshop report: Enabling electricity exchanges and trading in the Mediterranean



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March 2022

Planning of Distribution Network in Israel



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March 2022

Analysis of gas infrastructure to improve the flexibility and interoperability of energy systems



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March 2022

Technical summary: The Digitalisation of Energy Markets and the New Role of Consumers



Download ENG

March 2022

Energy efficiency programmes and electric mobility in Mediterranean countries



LIST OF 2021 EVENTS

- ▶ Workshop on “Least Cost Distribution Network Tariff Design in Theory and Implementation in the Palestinian Electricity System”, dedicated to the Palestinian Electricity Regulator (PERC), 9 February 2021, online
- ▶ Workshop on “System Operator Data Information Schemes for Monitoring and Planning Purposes”, dedicated to EgyptERA, 10 February 2021, online
- ▶ 30th INS WG meeting, 3 March 2021, online
- ▶ 30th ELE WG meeting, 9 March 2021, online
- ▶ 29th RES WG meeting, 18 March 2021, online
- ▶ Launch of a consultation on the MEDREG report titled “The Role of Natural Gas in Supporting the Energy Transition”, 31 March 2021, online
- ▶ 18th Consumer WG meeting, 8 April 2021, online
- ▶ 29th GAS WG meeting, 14 April 2021, online
- ▶ Joint MEDREG–ECRB workshop on “Integrating Renewable Energy Sources in the Electricity Networks and Balancing Mechanisms in MEDREG and ECRB Regions”, 15 April 2021, online
- ▶ Joint webinar of MEDREG and RES4Africa Foundation on a new survey titled “Assessing Investment Risk in Renewable Energy”, developed by RES4Med in collaboration with PwC, 4 May 2021, online
- ▶ Workshop on the “Design and Implementation of Regulation for the Gas Sector”, dedicated to the Jordanian EMRC, 4–6 May 2021, online
- ▶ 3rd Trilateral Workshop of the CEER, ECRB and MEDREG on regulatory means to foster active customer engagement, 26 and 27 May 2021, online
- ▶ 3rd Presidency meeting, 7 June 2021, online
- ▶ 41st Steering Committee meeting, 16 June 2021, online
- ▶ 31st GA meeting, 29 June 2021, online

- ▶ MEDREG participation in a webinar on “The Challenges of the Energy Sector after the Pandemic”, organised by the Peruvian energy regulator Osinergmin, 14 July 2021, online
- ▶ 14th COs meeting, 21 September 2021, online
- ▶ 30th GAS WG meeting, 12 October 2021, online
- ▶ 4th Presidency meeting, 13 October 2021, Milan (Italy)
- ▶ 31st ELE WG meeting, 19 October 2021, Istanbul (Turkey)
- ▶ 31st INS WG meeting, 20 October 2021, Istanbul (Turkey)
- ▶ Training on the “Regulatory Implications of the Digitalisation of Energy Markets and the New Role of Consumers”, 27 and 28 October 2021, online
- ▶ First MEDREG workshop on hydrogen, 3 November 2021, online
- ▶ 42nd Steering Committee meeting, 8 November 2021, online
- ▶ 19th CUS WG meeting, 9 November 2021, online
- ▶ 30th RES WG meeting, 10 November 2021, online
- ▶ 5th Presidency meeting, 16 November 2021, Kotor (Montenegro)
- ▶ 32nd GA meeting, 17 November 2021, Kotor (Montenegro)
- ▶ MEDREG’s participation in the international 11th Turkey Energy Summit, 21–23 November 2021, Antalya (Turkey)
- ▶ Workshop dedicated to the Algerian CREG on “Quality of Service Monitoring Tools and Methodology for the Regulated Electricity and Gas Distribution Activity”, 6 December 2021, online
- ▶ Participation in the UfM Gas meeting and conference on “The Role of Gas in the Mediterranean Energy Transition”, organised by the OME, 10 December 2021, Paris (France)
- ▶ Webinar dedicated to the energy regulators of Jordan (EMRC), Lebanon (LCEC) and Morocco (ANRE) to “Analyse Mechanisms to Promote Low Carbon Innovation and Market Design Principles to Support Energy Transition”, 16 December 2021, online



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