

Energy Union Watch

An evaluation
of four years of
Energy Union



About the Energy Union Watch

Energy Union Watch is a project launched by the Istituto Affari Internazionali (IAI) in cooperation and with the support of Edison to follow step by step the evolution of one of the widest initiatives launched by the Juncker Commission, the Energy Union, and to bring the discussion closer to public opinion and the key stakeholders. Since 2015, the project has been monitoring the activities of the key EU institutions – the European Commission, the Council of the EU, the European Parliament and the European Council – on the five Guiding Dimensions envisaged by the Energy Union. It has also covered the debate among the key national and European stakeholders, including industrial players, think tanks and interest groups, on the evolution of the policies and measures adopted in the framework of the initiative. The Energy Union Watch is produced on a quarterly basis, collecting official documents, public information and open source data, which are processed and analysed by the IAI team.

<https://www.iai.it/en/ricerche/energy-union-watch>

About the IAI

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About the authors

Nicolò Sartori is Head of the Energy, Climate and Resources (ECR) Programme at the IAI, where he leads a wide array of projects, ranging from EU energy and climate strategy, to the different geographical and sectoral aspects of the energy transition.

Lorenzo Colantoni is Researcher for the ECR Programme of IAI, with specific attention to European energy policy and the geopolitics of energy transition.

Margherita Bianchi is Junior Researcher in the ECR Programme of IAI. She focuses on dynamics of the energy transition and on the EU integration process.

With the contribution of Anna Giulia Murgia, trainee in the ECR Programme of IAI

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THE FOCUS OF THIS REPORT

This report is a special issue of the quarterly Energy Union Watch, on the occasion of the end of the first cycle of the initiative. This publication aims at providing an overall evaluation of the Energy Union, the ambitious initiative regarding European energy policy launched between 2014 and 2015 by the Juncker Commission. The analysis has been developed through a general perspective of political and legislative action on the Energy Union in its four years of activity (Part 1: Four years of Energy Union) and via a detailed overview of the National Energy and Climate Plans (NECPs) provided in the previous months by the Member States (Part 2: An analysis of the NECPs), divided into the five guiding dimensions on which the activities of the Energy Union have been structured. The aim is to describe actions at the level of European institutions as well as the contributions made by Member States (MS), as described in the NECPs, which will be at the core of translating the Energy Union vision into reality. This report is complemented by an interview with the Vice President for the Energy Union, Maroš Šefčovič, on the future of the initiative, a timeline highlighting the major activities and achievements of the Energy Union and a contribution from the World Energy Council focused on the Italian NECP.

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PART ONE | FOUR YEARS OF ENERGY UNION

The Fourth (and final) State of the Energy Union was published on 9 April, a few weeks before the first cycle of the initiative will end, and was launched by the Commission in decisive and enthusiastic terms: *The Commission has fully delivered an Energy Union strategy guaranteeing accessible, affordable, secure, competitive and sustainable energy for all Europeans*, states the press release accompanying the document, which also provides an overview of the four years of activities of the Energy Union. Yet, assessing whether such an ambitious initiative has in fact delivered what it promised at its inception, on 25 February 2015, is anything but straightforward. While the proposed approach was innovative and the effort put into the Energy Union project by the Commission has been clearly significant, political and budget constraints, a lack of effectiveness by previous EU energy policies and strategies, as well as a perhaps too general and undefined vision have cast a shadow on the initiative's chances for success since its beginning. Some of these doubts have been dispelled, others remain; this Foreword will thus aim at providing a brief analysis of the Energy Union over its four years of activity, by answering six key questions encompassing strengths and weaknesses of the initiative's action.

1. Has the Energy Union moved from security of supply to a wider focus?
2. Has the Energy Union brought in strong elements of novelty?
3. Has the Energy Union delivered effective Security of Supply and Energy Market policies?
4. Has the Energy Union aligned the EU climate leadership ambitions with its targets and tools?
5. Has the Energy Union respected its Efficiency First principle?
6. Has the Energy Union turned its strategies and vision into achievements?

1. HAS THE ENERGY UNION MOVED FROM SECURITY OF SUPPLY TO A WIDER FOCUS?

When the Energy Union was launched, many were wondering if the project would be able to shift from its strong focus on security of supply, to a wider approach. The intentions of the Commission were clear: the 25 February Communication divided the areas of action of the Energy Union into the now well-known five dimensions (Security of Supply, Energy Market, Energy Efficiency, Decarbonisation and R&I), promising balanced efforts towards each. Yet, attention to the security dimension was, at first, clearly prominent: not only was the Energy Union born out of 2014 concerns on the increasing tensions between Russia, Ukraine and the EU (and thus their potential impact on gas supply, as happened in the 2006 and 2009 gas crises) and thus sponsored by the Polish Council President Tusk, but its very first actions were delivered in that dimension. While the Vice-President to the Energy Union Šefčovič worked for a greater involvement in the Russia–Ukraine dispute, finally launching the still ongoing trilateral talks, some of the first major pieces of legislation proposed by the Energy Union were dedicated to this dimension, such as the February 2016 Communication on an EU strategy for liquefied gas and gas storage.

Nevertheless, the Commission was concurrently structuring its action on the other dimensions, following the “one at a time” principle that Energy and Climate Commissioner Cañete had stated as one of the fundamental components of the Energy Union approach since its beginning: the

initiative would work on all dimensions, but would focus its work on one dimension at a time. In this sense, the timeline of the Energy Union (which we summarise on page 35 of this report) clearly shows the implementation of such a method: while starting with Security of Supply measures, the Commission also put efforts into the Energy Market dimension soon after the start of the initiative, through the Communication on “Delivering a New Deal for Energy Consumers” (July 2015) and the second list of Projects of Commons Interest (PCIs) (November 2015) for instance. It worked on Decarbonisation as the Paris COP21 was approaching at the end of 2015, and then again through the Effort Sharing Regulation and other documents published at the end of 2017. Despite the “Efficiency First” announcements, attention to energy efficiency was smaller than to other dimensions, yet the plan included in the 2016 review of the Directive on Energy Efficiency (finally approved in 2018) was however greater than any other proposition for the sector by previous European Commissions.

Generally speaking, the Energy Union did manage to enlarge from a security-of-supply focused initiative to one encompassing its proposed five dimensions. However, its efforts could have been more balanced among these, particularly regarding those sectors that MS have less incentive to invest in and have been historically less concerned about, notably R&I. Indeed, the latter has been the most neglected dimension of the Energy Union, having

received only scattered proposals, without the systematic planning done, for instance, for Decarbonisation or for gas supply. Action on the R&I dimension mostly exploited other, non-energy-focused plans (such as the Investment Plan for Europe), rather than proposing a dedicated Energy Union R&I focus.

Initiatives such as the September 2015 Communication on Strategic Energy Technology (SET) Plan, the November 2016 Communication “Accelerating Clean Energy Innovation”, were small compared to the need of the dimension and the action in other sectors.

2. HAS THE ENERGY UNION BROUGHT IN STRONG ELEMENTS OF NOVELTY?

Analysts did not just fear that the Energy Union was going to be an anti-Russian, security-of-supply focused initiative, but also that it would not deliver something new – rather, that it was simply going to be a new name for old policies. Already in the early months of activities it was clear that this was not going to be the case: the Energy Union tour in the EU-28 made by VP Šefčovič, the extent of involvement in energy and climate diplomacy, the attention to the energy market and, above all, the coherent approach to different sectors manifested a radical change in the EU's attitude towards its energy policy. The decision to publish an annual State of the Energy Union and the use of the five dimensions as a lens to interpret energy and climate events and strategy further strengthened this shift, and it is likely that such an approach will be maintained in the future, whether the Energy Union as proposed by the Juncker Commission remains or not. Most of all, what has proven the ambition and the novelty of the initiative has been the Clean Energy for All Europeans Package (Clean Energy Package in short) – the massive (totalling more than one thousand pages) set of legislative proposals, strategies and analyses the Commission published in December 2016. This was

the third legislative package sent out by the Energy Union, following a Winter and a Summer Package, but it was radically larger in its vision and ambition. The Commission indeed proposed a set of key measures that addressed several dimensions, using however a single, decarbonised vision of the European energy sector as a *fil rouge*. It included not only much-awaited pieces of legislation, such as the Renewable Energy Directive, but also proposals for areas which have been at the core of the European energy debate but which previous Commissions either did not dare to touch, or addressed with significantly low levels of ambition: governance, the reform of the EU Agency for the Cooperation of Energy Regulators (ACER), the new structure of the electricity market. Even if it still is uncertain how effective these measures will be, and considering that some of the ambitious measures proposed by the Commission have been significantly reduced, the Package was a clear message regarding the nature of the Energy Union, which it then defined not as a rebranding of the European energy policy, but as a tool to chart unexplored areas of the energy and climate sectors of the EU.

3. HAS THE ENERGY UNION DELIVERED EFFECTIVE SECURITY OF SUPPLY AND ENERGY MARKET POLICIES?

Another significant concern at the beginning of the Energy Union was whether the initiative would be able to accomplish an effective European energy policy on Security of Supply and the Energy Market, dimensions where both political and budget constraints have been historically greater for European energy policy. It was indeed not clear how and to what extent the Energy Union would be able to win over MS and their widespread conviction that energy policy is a strictly national competence, thus leading to an often conflicting or uncoordinated action on the EU level. In this regard, the Energy Union achieved a partial success, being perhaps more effective in the Energy Market than in Security of Supply.

Concerning the latter, the Commission managed to have an unprecedented impact on the structure of Europe's energy supply and, generally speaking, the external dimension of the European energy sector. Thanks to the determination brought in by the Energy Union and the diplomatic skills of VP Šefčovič, the Commission's involvement in energy diplomacy ranged from North Africa, through the launch of the High Energy Dialogue with Algeria, to the East, with mediation between Ukraine and Russia and steady exploration of the diversification possibilities offered by natural gas discoveries in the Eastern Mediterranean – a very promising area, yet troubled by the territorial conflicts between Cyprus and Turkey, and between Israel and Lebanon. Despite these and other initiatives, the Energy

Union however failed in “speaking with one voice” and compacting MS on core issues, where their interests, their approach and their political moves have often been conflicting – first and foremost regarding the case of Nord Stream 2. The development of the infrastructure, which the Commission strongly opposed, greatly divided European countries, exacerbating tensions between MS such as Germany and Poland, while damaging others, such as Italy, and denting the already weak political cohesiveness of the EU as a whole, offsetting part of the effort delivered by the Energy Union in Security of Supply.

The Commission's action in the Energy Market has been less problematic and probably more successful. The Energy Union had to face both political constraints, as MS such as France have been struggling for years to keep their energy markets closed; and budget limitations, due to the extremely low resources available on the European level to build the physical infrastructures needed to increase interconnections in Europe. The overall outcome has however been positive: the Energy Union proposed at its start a 10% interconnection target by 2020, which is likely to be reached and was recently upgraded to a 15% target to 2030. The second and third list of PCIs offered the necessary tools to reach these objectives, while energy markets that have been historically isolated, such as the Baltic and the Iberian Peninsula, are boosting their interconnections

after almost two decades of struggle to do so. In the meantime, the opening of national markets has speeded up, also in countries (France in particular) where this has been particularly difficult in the past. The Energy Union has also discussed the hot topic of energy governance in Europe, including a proposal in the Clean Energy Package,

which was approved at the end of 2018. However, the new role for ACER and other proposed measures appear to be far less ambitious than what is expected, or needed, to reform the governance of the European energy sector – which, as we discuss below, will probably be a task for the next Commission and for MS.

4. HAS THE ENERGY UNION ALIGNED THE EU CLIMATE LEADERSHIP AMBITIONS WITH ITS TARGETS AND TOOLS?

Concerning the Decarbonisation dimension, the debate focuses on whether the Energy Union managed to align the climate leadership ambitions with its targets and tools or not. The answer to this is probably the most mixed of all, since the tools delivered by the Commission will still require a significant amount of almost voluntary efforts by MS, which is not sure they will be able or willing to provide.

In October 2014, months before the launch of the Energy Union, the Juncker Commission delivered one of its first actions: agreement on new targets for the decarbonisation of Europe, focused on renewables, emission cuts and energy efficiency. The task of making these targets achievable was assigned to the Energy Union, and it was a hard one: unlike the 20-20-20 climate and energy targets, those for 2030 are binding on the European, but not on the national level. The task of the Commission through the Energy Union was therefore to match the national efforts to the European ambition, updating and reforming tools such as the Renewables Directive and the Emission Trading System (ETS). In theory, the Commission delivered all this: in 2017 it proposed a new Renewables Di-

rective as part of a complex decarbonisation plan (the Clean Energy Package), which was then approved one year later. It also finalised the Effort Sharing Regulation, dividing the overall European emission cuts into national targets. In practice, it is not clear if all of this will be effective, as currently it is not: emissions in Europe are on the rise, casting doubts on the ability of MS to reach their already unambitious national emissions targets. The new Renewables Directive leaves perhaps too much space to the discretion of European countries, failing to provide the strong direction many believed the EU needed in this sector, at least to reduce the significant heterogeneity among national energy mixes. The reform of the ETS was achieved, but at a huge political cost, and the success of the new structure will only be proven in the years to come. Thus, the Commission managed to deliver a significant set of tools which were missing in the EU, but failed to structure them in a way that would address the main problem behind the still uncertain decarbonisation of the EU: the fragmentation and lack of commitment by MS to the European vision. This is a situation which mirrors that of Security of Supply.

5. HAS THE ENERGY UNION RESPECTED ITS EFFICIENCY FIRST PRINCIPLE?

This mismatch is perhaps even more evident for Energy Efficiency. When structuring the Energy Union, the Commission clearly identified an “Efficiency First” principle which was to guide the initiative. The question that immediately arose was whether the Commission would be able to actually follow this principle. In fact, since the 20-20-20 target negotiations, efficiency has been a complicated sector for the European energy policy, as improvements were strongly opposed by the energy-inefficient Central and Eastern European countries, and only mildly promoted by those supporting efficiency, such as Germany, which had far greater interests in boosting other decarbonisation measures, particularly the promotion of renewables. Indeed, many saw the promotion of solar PV and wind energy as a way to relaunch industrial growth in Europe, while at the same time contributing to the decarbonisation target, while efficiency was mostly perceived as a cost for the industry – particularly for energy-intensive (and often inefficient) businesses. In its first years of activity the Energy Union did not enter the debate, promoting small, relatively innocuous measures (such as the February 2016

strategy on heating and cooling). The unpopular Efficiency First principle was put aside, despite a wide-range set of analyses promoting the dimension as the best instrument to achieve at the same time a reduction on the EU's energy bill and the decarbonisation of the economy. Attention to this dimension arrived with the 2016 Clean Energy Package, which was indeed structured using the Efficiency First principle as guidance. Furthermore, it included long-awaited pieces of legislation, such as the Energy Efficiency and the Energy Performance in Buildings Directives, which were followed shortly after by a new regulation on energy labelling. However, while the legislative package was large and touched key sectors, the final version which was approved in 2018 watered down the proposal, which again left much of its potential impact to the interpretation and willingness to act of MS. Despite being perhaps the dimension where an ambitious and clear direction was needed the most, Energy Efficiency succumbed to pressure by MS, as the Energy Union had to reach an unsatisfying compromise which will hardly deliver the results needed in one of the worst performing sectors of the whole European energy policy.

6. HAS THE ENERGY UNION TURNED ITS STRATEGIES AND VISION, INTO ACHIEVEMENTS?

Indeed, the Energy Union has been trapped between successful delivery on a vision for European energy policy as wide and ambitious as never before, and its inability to transpose this radical change into equivalent, practical achievements, due to the lack of commitment by Member States, but also because of the difficulties of the Commission in coordinating them. Indeed, the significant amount of legislative proposals delivered by the Energy Union and its ambitious security of supply and decarbonisation strategies would have put the EU on track to achieve the targets discussed above – if only MS were to follow them.

This is not a new issue: the 2020 efficiency target will likely be missed by the EU not because of inadequate EU legislation, but because almost all MS have so far failed to implement it properly. Germany's one-sided decision to build Nord Stream shook the already fragile front of the European external energy action in 2011, and in a similar way the country – ideally one of the leaders of EU cohesion – is now endangering the small but growing trust other MS have been placing in Energy Union energy diplomacy. MS have heterogeneous energy mixes, different diversification needs and a historic aversion to agreeing on a common energy policy, both domestically and internationally, so it was predictable that such an attitude would also manifest during implementation of the Energy Union. However, the Commission failed in delivering adequate governance tools to smooth these differences and con-

trasts, and to harmonise individual policy decisions; if anything, the 2030 energy and climate target and the structure of legislative tools such as the new Renewables Directive have increased this intra-European distance, allowing more space of action for MS which will hardly result in a convergence of both national interests and achievements. The Energy Union did deliver a few instruments to achieve this in the Regulation on the Governance of the Energy Union, included in the Clean Energy Package and approved in December 2018, but it fell short of expectations, lacking binding targets and punishment measures to correct and coordinate national action in case it should veer off-track to reach the European target. Looking at the National Energy and Climate Plans (NECPs) sent by MS in the first half of 2019 as required by the governance Regulation, the mismatch between EU and national objectives is more than a possibility: national targets do not match the EU level of ambition in most cases, policies appear uncoordinated particularly from a security perspective and MS have not put any effort into improving any of this (as our analysis, starting from page 12, has shown). These are only draft NECPs which were published only a few months after the approval of the Regulation, yet they show the almost chaotic heterogeneity among the energy strategies of MS, which the EU seems to still be missing the tools to confront.

Nevertheless, despite all these major caveats, the evaluation of the Energy Union is positive. The initiative has had the merit of shifting the debate on Eu-

ropean energy policy to a level of ambition which many did not expect was possible, and of allowing MS and European institutions to recognise the growing importance of energy and climate policies per se, instead of as a complement to transport or industrial policies.

However, after three legislative packages and a long list of other measures (which occupies thirty pages of the Fourth State of the Energy Union), it is time for the Energy Union to further evolve and move from the limbo it is currently stuck in to a structure holding the tools to turn its ambitions into reality. It is entirely a question of political willingness on the part of MS and, not by chance, one of the last documents published by the Energy Union has been the Communication on “A more efficient and democratic decision making in EU energy and climate policy”, proposing radical shifts in the decision-making process behind energy taxation and

other areas, moving from unanimity to qualified majority. Yet, the effort by MS has to be much greater than this and extend to truly aligning domestic policies to the European vision – or to renounce having a European vision at all. In these fragile times for the Union, energy and climate are thus two exemplificative sectors of the European dilemma, on how to deliver the stronger EU that we need now more than ever, when internal and external pressure is instead mounting to destroy the little we have built so far.

Yet, considering sectors such as the promotion of renewables and climate diplomacy, where the need for and the benefits of this cooperation are more evident than others, such as migration or fiscal policy, perhaps energy and climate could become the model sector for launching a renewed, greater European cooperation. The future Energy Union, whatever form it takes, could be the key to achieve such a vision.

PART TWO

AN ANALYSIS OF THE NECPs

While the 28 draft National Energy and Climate Plans (NECPs) required within the governance of the Energy Union rules are duly reviewed by the Commission against the bloc's laws and commitments, our analysis in the meantime aims at providing a first assessment of Member States' answers through NECPs.

Our work looks at the five dimensions of the Energy Union (namely: security of supply; internal energy market; decarbonisation; energy efficiency; and research, innovation and competitiveness) and considers them in terms of ambition, accuracy and tools. For evaluation of the NECPs we use a mix of both qualitative and quantitative indicators – the latter predominantly in cases where the EU legislation sets specific targets to underpin single dimensions, as it does in decarbonisation, market and energy efficiency. Three draft NECPs (Luxembourg, Poland and Cyprus) were only partially assessed, due to their nonexistent or incomplete translation available at the time of writing. According to the methodology applied in the previous issues of the Energy Union Watch, our evaluation is also summarised at the beginning of each dimension, ranking from 0 (no action) to 12 (full action). Finally, a “Public Debate” section has been included, to provide an overview of the academic and institutional discussion over the NECPs.

The Energy Union undoubtedly has already achieved a lot in these four years, and EU citizens are already enjoying the benefits of a more integrated market. The draft plans presented to the Commission however do not provide satisfactory answers to what has been achieved so far at the EU level and on which MS are called to deliver. We observed a very low number of complete, coherent and far-reaching dimensions or plans. As a general trend, most Member States display insufficient levels of ambition on climate targets and planning, robust divergences in energy security priorities and energy mix scenarios compared to those of the bloc, and a high heterogeneity in terms of detailing and tools, sometimes conflicting among dimensions. Negligible ambition

on renewables with objectives set below or ranging around the bare minimum, as well as unmatched EU and national efficiency pledges, leave much room for improvement if the EU is to lead the way towards net-zero emissions by 2050. Similar considerations are applicable for those dimensions where the Energy Union is most challenged at speaking with one voice, such as security of supply.

We identify a number of reasons for the low level of detail. First of all, timing. The political agreement on the text of the governance of the Energy Union regulation only left six months for countries to present a draft plan to the Commission. Second, despite a template provided to MS to allow easier comparison, this exercise might not have been straightforward for all dimensions for the 28 different MS. Most importantly, concerning the low level of ambition especially on climate policies, we definitely expect improvements following the upcoming evaluation by the European Commission and hope the NECPs exercise will prove useful to provide a better framework for each state's situation and push for stronger coordination on all dimensions.

1. Security of Supply
2. Energy Market
3. Energy Efficiency
4. Decarbonisation
5. Research, Innovation & Competitiveness
6. Public Debate

1. SECURITY OF SUPPLY



Methodology and variables considered

Although there are a number of requirements arising from EU legislation, quantitative targets are not established to underpin this dimension, and thus comparison among Member States' performance in draft NECPs on this area is not straightforward. Our analysis is for this reason mainly carried forward by considering qualitative indicators.

Our evaluation takes into consideration the following:

1. Net import dependency (present + foreseen in 2030);
2. Current and planned energy mixes;
3. Announced reduction in supply from other MS;
4. Objectives with regard to increasing diversification of energy supply and dependency from third countries;
5. National objectives concerning storage and demand-response
6. Forecast investments in new capacities or infrastructures (regassifiers, LNG);
7. Added capacities for domestic production (mainly RES); and
8. National objectives for development of the ability to cope with constrained or interrupted supply of an energy source, including gas and electricity.

Since the launch of the Energy Union strategy in early 2015, the SoS dimension was one of the most debated between EU institutions and among Member States, with frequent clashes over political priorities, diverging commercial interests and diplomatic ties with third countries, primarily Russia and the United States. In this sense SoS might be considered the most divisive dimension of them all, displaying the difficulty of effectively “speaking with one voice” at the EU level when it comes to energy.

Draft national plans are situated within this complex context, and definitely reflect these differences in their security dimension. Regional dynamics are clearly detectable: if compared to western or northern countries, central and eastern Member States tend to give a stronger emphasis to security than to decarbonisation (i.e., the Polish or Czech NEPC and in general throughout the whole Visegrad group’s plans). Some clearly state that security of supply is the guiding principle of the whole draft plan (such as Bulgaria) and make strong statements on the rationale for exploiting national energy resources.

In general, as currently set up, plans are unable to capture (and provide solutions) to all determinants of energy supply shocks of both single MS and the EU as a whole. The SoS dimensions across plans vary in length and level of detail. Those MS already displaying a national plan regardless of the governance of the Energy Union rules (i.e., Italy) used it as basis for the SoS dimension in their NECP, without adding significant improvements. If on the one side certain plans are particularly well constructed and coherent in their SoS dimension (i.e., France) others are incomplete, only broadly assessed, frequently displaying provisional guidelines, omitting comprehensive 2030 scenarios, displaying unclear

underlying methodologies or impact assessments of planned policies (i.e., Croatia), presenting a multilayered and fragmented governance (i.e., Belgium) or a low level of detailing for the ambitious measures planned (i.e., Austria).

In coherence with the Energy Union strategy, gas plays the main role in this dimension, addressed in terms of diversification of supply and imports, diversification of routes, reverse flows, strengthening of infrastructures, storage capacities and LNG facilities. Some MS explore potential solutions to bring diversified gas resources to the market, while LNG alternatives are deemed viable for several countries (i.e., Greece, Croatia, Italy). Given the strong emphasis dedicated to gas and electricity in the Energy Union, almost all plans refer to specific PCIs to reach their security goals, both in SoS and in the market dimensions. PCIs are in some cases clearly listed (i.e., Portugal, Greece, Germany), and in others more vaguely considered throughout the plan (i.e., Romania, Finland).

From a first analysis of the dimension in draft NEPCs, we identified a number of tendencies:

First of all, plans show the weak convergence of Member States on SoS, despite the fact that each country’s choice on SoS is strongly linked to those of other countries, and that the underlying purpose is to reach an EU SoS and not to define 28 single SoS strategies per se. That’s why several MS expressed interest in a wider bilateral or regional cooperation (i.e., France, the Netherlands) or lament the narrow margin of manoeuvre and influence that small MS can have on this dimension as well as the many political and security issues linked to it (i.e., Cyprus). A stronger cooperation on security of supply and interconnections is furthermore demanded by Ireland, worried about the uncertain impacts of Brexit. A

number of MS have already agreed on regional cooperation in this area, while others, referring to the derogation under Article 11 of the Regulation on the Governance of the Energy Union, will do so once the plans are finalised (i.e., Austria). Although it lacks sufficiently detailed benchmarks and investment in its planning, the Latvian draft NECP, for example, considers a strong regional collaboration and electricity synchronisation measures, the implementation of which has already started (cooperation of the Baltic States with Poland and the EC) as well as natural gas cooperation with Finland.

Second, several SoS dimensions show a weak integration with the other four. In some cases, one may witness a focus on internal sustainability and reduction in fossil fuel as a key to reach SoS (i.e., Portugal or Spain), thus in line with climate and decarbonisation priorities. Although it lacks sufficient detailing, Spain certainly presents a SoS dimension coherent with its climate policies by setting up a plan in which renewables, energy efficiency and stronger energy system flexibility can also lower the degree of energy dependence (from 74% in 2017 to 59% in 2030 with planned measures). Others, such as Bulgaria, want to improve local natural gas extraction and develop the transmission capability (coherent with its high dependence on Russia and with the Energy Union diversification strategy) but at the same time also aim at making maximum use of the existing potential of indigenous coal and lignite (in Bulgaria these would provide feedstocks for electricity generation over the next sixty years). Consequently, a country's SoS strategy might appear particularly strong, but not be coherent nor integrated with the other dimensions.

Third, overlaps and interactions with other dimensions are frequent and, in a way, unavoidable. One main

determinant in this sense concerns the radical conversion of electricity supplies during the 2021–2030 timeframe in several countries. The phase out of coal or the decommissioning of nuclear plants – mainly touching upon the decarbonisation and market spheres in the Energy Union strategy – are evidently intertwined and strongly impact SoS as well (i.e., Hungary, Romania, Poland, Belgium). For Belgium, for example, security of supply is one of the major challenges in the short and medium term, strongly linked to the phasing out of nuclear power by 2025 with 5,918 MW to be replaced and the announced reduction of gas imported from the Netherlands in 2022. This situation will increase its dependence on fossil fuels provided by foreign suppliers. Similarly, market and efficiency measures like incentives for prosumers are also measured within some SoS plans (i.e., Lithuania).

Fourth, for a number of MS, the SoS dimension manifestly overtakes the other four given their prevailing security interest as peripheral locations at the end of the European electricity and gas grids or the fact that their territory includes certain “energy islands”- i.e. areas without energy connections. A number of plans are coherent with this urgency – such as Ireland, which despite room for improvement and need for planning a stronger cooperation with other MS, does provide a clear framework on problems, priorities (also related to Brexit) and funding (including those from the CEF, the Connecting Europe Facility). On the other side Cyprus, the last “energy isolated” MS, displays a low level of detailing on the dimension (in contrast to its market dimension which is better developed). The country, being dependent on oil products for 90% of its energy needs, doesn't present clear national objectives with regard to reducing import dependency and neither does it mention sufficiently detailed financing measures.

2. ENERGY MARKET



Methodology and variables considered

For this dimension we evaluated the plans according to their overall coherence with the governance rules in terms of both qualitative and quantitative indicators, considering their level of (a) ambition, (b) accuracy, and (c) tools. We furthermore considered their detailing in terms of regional cooperation and common priorities.

Our evaluation takes into consideration the following:

1. Level of electricity inter-connectivity (present, 2030);
2. Level of cross-border inter-connection capacities and usage rates for electricity;
3. Installed generation capacities by 2030 (especially RES);
4. Objectives with regard to ensuring flexibility and electricity system adequacy;
5. Projects of Common Interest (PCIs) and other infra-structural projects supported, especially in gas and electricity; and
6. Strategies with concern to energy poverty and vulnerable consumers.

Among the main priorities of the Energy Union is to put an end to the energy isolation of disconnected regions, enhance their security and contribute to the overall EU climate targets. A more integrated market can be considered as one fundamental crosscutting dimension to reach these goals.

The EU legislative framework sets out quantified objectives and a clear direction of travel to 2030 for countries to follow. Translated into MS plans, this means planning the level of interconnectivity by 2030 in consideration of the target of at least 15% for each MS (stepping up from the 10% level set for 2020); it also means setting out national objectives for electricity and gas transmission infrastructures; displaying national objectives on market integration and coupling, and objectives on the overall system flexibility with regard to RES production and balancing measures; and finally it means including energy poverty objectives and evaluating the number of households under such threshold. A clear timeframe for when these objectives will be met is requested, when possible.

From the launch of the Energy Union, significant progress on electricity interconnectivity has been registered, such as in the case of the Baltic States which in their plans tend to build upon developments and continue the push towards integration of their grids with continental ones. Nearly all plans report their commitment on the level of electricity interconnectivity by 2030 (with exceptions: i.e., Slovenia or Denmark), while for those countries already well interconnected there are weak or no measures for improvement (i.e., Sweden). Several countries explicitly state that as they have already reached the 15% interconnectivity target foreseen by 2030, they are not planning

specific objectives (i.e., Austria). Others manifestly lag behind, such as Bulgaria or Spain, the latter admitting its very low interconnection level and projecting itself as the only EU country remaining behind the 10% target by 2020. Inevitably, some countries have however less physical options than others due to their geographical conformation (i.e., Italy).

Plans frequently display only blurred details on cross-border planning for electricity. In terms of objectives, several are reporting current and forecast cross-border interconnection capacities (i.e., Greece or Finland), others indicate a potential range (i.e., Portugal or France) and another consistent group of countries do not indicate clear objectives (i.e., Romania or Austria). The way market parameters are calculated and displayed throughout plans also precludes a quick and immediate assessment of ambitions. Cross-border electricity interconnections are for example sometimes referred to in terms of added kilometres (Km), other times megawatts (MW) or gigawatts (GW), other times in percentages out of overall capacities. Usage rates of cross-border interconnections are similarly incomplete, with many not displaying 2030 projections.

The need to strengthen gas and electricity interconnectors is a priority of the Energy Union and is reflected in the market dimension of plans, especially those MS that are suffering more from energy isolation and those that have a stronger interest given their geographical position and specific energy and economic interests. As for what concerns gas, among the most detailed plans we might include Greece and Cyprus, the latter for example supporting and detailing on several PCIs such as the EastMed Pipeline or the CyprusGas2EU project which includes

an Floating Storage Regasification Unit (FSRU), and aiming at introducing natural gas via LNG to the island. The Trans Adriatic Pipeline (TAP), once much discussed in Italy, finds the necessary support (i.e. Greek and Italian plans), as does the Bulgaria–Greece interconnector (IBG) in the respective NECPs. A detailed report on the amount of investment needed by each country was rarely displayed adequately (with exceptions: i.e., Cyprus, Italy, France), with several not providing any information (i.e., Slovenia) or stating that figures are under preparation and will be duly detailed by 2019 or by 2024.

Not all states, fortunately, have huge problems with energy-vulnerable consumers (i.e., Finland). This aspect is in fact not assessed by all; but also among those at stake, plans seem incomplete. Many set objectives to be reached by 2030 (i.e., Italy, Romania, Greece). Others don't address the problem because it falls under their domestic social policy pillar (i.e., Estonia, Lithuania, Germany). Greece provides a good example, displaying a quantitative objective to reduce by at least 50% the relevant energy poverty footprint by 2025, to reduce it by 75% compared to 2016 and to bring it to levels well below the EU average by 2030, and by planning measures to tackling energy poverty. The UK has probably one of the most articulated plans on energy poverty: divided by county, the plan includes data and targets to be reached within years. Another virtuous example in this parameter is Cyprus, which clearly considers number of beneficiaries, planned measures and eligibility for applications, and defines financial amounts dedicated to fighting the problem. Countries, in general, display different energy poverty definitions, don't have definitions at all

(i.e., the Netherlands) or plan to have one in the future (i.e., Portugal, in 2021). Energy subsidies are in some cases not explicitly detailed and in other cases lack indications for the future. Among MS, only a few describe and plan phase-out of fossil fuel subsidies (i.e., Romania). Spain, Italy or Ireland describe their fossil fuels subsidies but don't detail their phasing out. Most MS (among them the UK, Finland, Portugal, Luxembourg, Austria, Czechia, Belgium) don't provide information at all.

Convergence with other MS and with other dimensions of NECPs is also weak. First of all, as in the SoS dimension, the market pillar depends on strong regional cooperation to improve its effectiveness, and the majority of the challenges falling under its scope cannot be met through uncoordinated national action. Many are lacking an assessment of market risk factors in the national/regional context (i.e., Estonia), although some perform well. South Eastern countries, for example, seem more coordinated on single projects, given the strategic value for many in the whole region (i.e., the liquefied natural gas terminal near Alexandroupolis, Greece.) Secondly, projections concerning infrastructure and market integration must be coherent with other dimensions – and are generally so when considering SoS – but we note they miss a link to energy efficiency scenarios for example, as required by governance rules. Thirdly, as currently declined, this dimension could represent a good starting point and a basis for addressing specific cooperative work especially on cross-country infrastructures, through the role hopefully played by the next Commission.

3 . ENERGY EFFICIENCY



Methodology and variables considered

For the energy efficiency dimension, we have been able to perform a mostly quantitative analysis on the information provided in the NECPs. Almost all MS have delivered energy efficiency targets in absolute terms, indicating the maximum amount of primary and final energy they aim to consume by 2030. In order to facilitate the comparison between MS, we calculated what reduction in energy consumption (both primary and final) these values corresponded to, comparing them to consumption levels expected by forecasts to 2030, and then showed them in percentage form.¹ Such levels are calculated by the Commission using the 2007 PRIME model, which has also been used to define the 2030 Energy Efficiency target. However, this model does not provide a clear picture of the real commitment of MS, as GDP growth and energy consumption are calculated using significantly more optimistic pre-crisis data. We thus calculated national targets twice, using both the 2007 and the latest 2016 PRIME model. Additionally, we consulted the 28 NECPs to add a qualitative evaluation of the tools proposed by MS.

Our evaluation takes into consideration the following:

1. Primary energy consumption targets, calculated using the 2007 and the 2016 PRIMES model;
2. Final energy consumption targets, calculated using the 2007 and the 2016 PRIMES model;
3. Change in the ratio between final and primary energy intensities, comparing 2016 values and 2030 targets;
4. Gap between the 2016 final energy consumption levels and the 2020 energy efficiency target; and
5. Existence of a plan or a set of comprehensive policies for energy efficiency, with special consideration to public buildings, transports and smart meters.

The picture provided by the NECPs regarding energy efficiency is clearly negative: national targets do not match the EU level of ambition, tools are inadequate, while the state of the dimension in 2019, considering the implementation of the 2012 Energy Efficiency Directive and the path towards reaching the 2020 target, is undoubtedly weak. However, this does not come as a surprise. The dimension has been perhaps one of the most neglected in the past four years by both the Commission and the MS action, suffering also from a longstanding opposition to raising the level of ambition by Eastern and Central countries and by the UK. Despite the Efficiency First principle the Energy Union claims to have followed since its inception, legislative proposals and a serious consideration of the dimension by the Commission arrived late, in the second half of the life-so-far of the initiative, through the proposal for a new Energy Efficiency Directive and the Energy Performance in Buildings Directive, published between April and June 2018. The involvement in the dimension by the Commission from June 2018 to early 2019 has been directed towards raising the 2030 efficiency target, which was ultimately done, yet significantly lowering the level of ambition, from a 7% or 5% increase on the original 30% target to a mere 2.5% – and after lengthy and politically expensive negotiations. The urgency of setting up efficiency measures in the EU has also been reduced by the low levels of energy consumption registered in the past decade, which were in turn caused by the impact of the economic crisis on domestic consumption and industrial production. However, as the Union has taken a more or less stable path of economic growth and recovery, it has found itself without the necessary tools to support the decarbonisation of a growing economy through energy efficiency. Considering the draft NECPs,

MS are also not rushing to deliver.

Generally speaking, the situation presented by the plans underlines a significantly low level of ambition in the reduction of energy consumption, a marked heterogeneity in national commitments and a lack of adequate policy measures, particularly in the MS which need them the most – and which thus hold the highest potential for efficiency improvements (Central and Eastern Europe in particular). The plans are insufficient considering both the perspective to 2030 and the current status of energy efficiency in the EU. According to the 2018 Commission evaluation, in 2017 15 MS were above the ideal trajectory to reach their individual efficiency target for 2020, France, Belgium and Ireland among those holding the worst records. Regarding the implementation of the 2012 Energy Efficiency Directive, all MS – none excluded – are facing an open infringement procedure, Spain even two. The EU as whole is thus likely set to miss its 2020 efficiency target, a fact which has been known by the Commission for at least the past two years, but which did not trigger any particular action. As the European economy has started recovering from the crisis, energy consumption has begun to rise again: between 2014 and 2017 the average energy consumption of the EU has increased following a seven-year decrease. Such a rise took place in all MS but a few, in some likely thanks to the efficiency measures they implemented (Denmark, Spain), in others mostly because of low GDP growth (Italy, Greece). The objectives proposed by MS appear to be largely inadequate to improve such a negative picture and to reach the 2030 target. According to our calculations, national targets for final energy consumption account for only a 26.4% reduction², far below the European target, which

is -32.5% on the overall European final energy consumption. National targets also present an increasingly negative discrepancy between primary and final energy consumption. As the difference between the two highlights the amount of energy lost between generation and consumption, a greater divergence underlines an increasingly inefficient energy sector.³ This is the case, for instance, for Hungary, Latvia and Lithuania, whose ratio between final and primary energy intensity will decrease by a remarkable 10%.

The presentation of the national targets themselves in the NECPs is also misleading since, in most cases and according to Commission instructions, it uses the PRIMES 2007 model as a means of comparison, instead of the more recent (and accurate) PRIMES 2016. The difference between the two forecasts is significant, as PRIMES 2007 was produced before the economic crisis and has GDP and energy consumption growth levels significantly higher than those of PRIMES 2016. While the use of PRIMES 2007 is justified by the fact that the 2030 target for efficiency has been calculated by the Commission using this model, this strongly skews the perception of national contributions to the European target. Indeed, the proposed national reductions appear much higher for several countries, because they take into consideration levels of growth which are far greater than they will actually be, as pre-crisis forecasts were significantly more positive than those produced in later years. If we consider the case of Italy, its proposed primary energy reduction in 2030 would be -46% if we use the PRIMES 2007 forecasts, but only -12.2% if we adopt the more accurate PRIMES 2016. This adds further confusion to the presentation of the national planning for energy efficiency, already highly erratic, incomplete and unclear in most of the NECPs.

The set of tools proposed by MS is

similarly thin. In the plans, almost all countries underline the fact that the measures they are now proposing are still incomplete, as they are waiting to deliver new ones while implementing the recently approved new Directive on Energy Efficiency. However, they equally fail to account for their lack of success in fully implementing the previous 2012 Directive on Energy Efficiency. Many elements of the old Directive they have not included in national legislation so far are similarly ignored in their NECPS, as in the case of specific measures for smart meters in Bulgaria, Croatia and Czechia. Furthermore, the majority of MS do not have a comprehensive plan or set of policies for energy efficiency, as some of them have instead developed for other dimensions, such as security of supply (Slovakia) or decarbonisation (the Netherlands). Fundamental and relatively easy-to-implement measures, such as smart meters and smart grids, are barely considered in their plans by several MS.

Nevertheless, some countries are performing much better than the European average, in terms of both objectives and tools. In fact, the comprehensive decarbonisation plan proposed by France has also a significant focus on energy efficiency measures, which extend to several different sectors. The country plans to renew 1 million oil boilers by 2023, phasing out coal for households and decreasing industrial coal use by 75% (however with the notable exception of the steel industry) by 2028. This is all part of a wide-ranging strategy for efficient houses in France. The country's target for final energy consumption is positive, as France aims at a -20% for 2030 according to the PRIMES 2016 forecasts, which becomes -34.5% if we consider PRIMES 2007 data – 2.5% more than the European target which, as stated above, is calculated using the older model. Similarly, Italy, a country with a longstanding tradition in energy efficiency, is aiming at extending

already consolidated measures, such as the *Fondo Nazionale per l'Efficienza Energetica* (National Fund for Energy Efficiency) and the *Conto Termico* (Thermal Balance). Italy's ratio between final and primary energy intensity will increase from 78.4% to 83.2%, showing a marked improvement in its already efficient energy system. Its relatively low target (-10.23% for final energy consumption, according to PRIMES 2016 data) is however mostly due to low GDP growth expectations, as this value increases to -39.5% if we use the more optimistic PRIMES 2007 data. Germany, which is often considered the most energy efficient country in the world (by, for instance, the American Council for an Energy-Efficient Economy), performed relatively poorly in its NECP – despite being however positioned better than the European average. The country in fact proposes an 8.6% decrease in primary energy consumption, but a 3.1 increase in its final energy consumption (both according to PRIMES 2016. Considering PRIMES 2007 the values are, respectively, -28.2% and -12.2%). When compared to the 32.5% European target, its target is however still well below the EU level of ambition – not a comforting piece of news, considering that Germany is the largest economy in the EU and presents itself as one of the leaders of Europe's decarbonisation.

Germany's performance is however far better than that of several other MS, particularly those in Central and Eastern Europe. Hungary plans to majorly increase its energy consumption, rather than decreasing it: it expects to raise primary energy consumption by 25.6% and final energy consumption by 16.8%, according to PRIMES 2016, values which respectively increase to plus 53.8% and 18.2% if we consider the PRIMES 2007 forecast. The country is missing a comprehensive approach to energy efficiency, while even the measures contained in its NECP seem far less structured and ambitious than those proposed by

most of the other MS. Bulgaria, which already holds the lowest commitment in decarbonisation, is similarly lacking engagement in improving its energy efficiency: while planning to decrease its final energy consumption, the country aims at increasing its primary energy consumption. In other words, the Bulgarian NECPs expect its already significantly inefficient energy system (its final to primary energy intensity is one of the lowest in the EU) to even get worse – likely due to the low commitment towards renewables and the significant presence of outdated coal plants. Its plan does not contain relevant measures for energy efficiency and, above all, even introduces subsidies for energy consumption – despite Bulgaria being the most energy-intensive economy in the EU. Unlike Latvia and Estonia, whose NECPs are relatively ambitious, Lithuania's plan is also proposing a very low contribution to the energy efficiency dimension. The country indeed aims at significantly increasing its energy consumption, decreasing the efficiency of its energy system, without however deploying any relevant measures to improve energy efficiency – the projects proposed in the plan are for the greatest part funded by the EU and part of Europe-wide programmes, rather than national initiatives.

1. The formula we used is:

(Target proposed in the NECP - Consumption Forecast for 2030)/(Consumption Forecast for 2030)

for both primary and final energy consumption and for both PRIMES 2007 and PRIMES 2016 forecasts.

2. As the UK did not provide a 2030 target we entirely excluded the country from this calculation.

3. The formula we used is :

(NECP Target for Final energy consumption in 2030/NECP Target for Primary energy consumption in 2030) - (Final energy consumption in 2016/Primary energy consumption in 2016)

4. DECARBONISATION



Methodology and variables considered

Regarding decarbonisation, we performed a mostly quantitative analysis, using also a qualitative evaluation of the tools and the commitment proposed by MS in the NECPs. We gathered national data on the share of renewables and levels of emissions in 2016 and then calculated for each MS the difference between these and both the existing 2020 and the proposed 2030 targets. This allowed us to understand the current position held by each MS in the decarbonisation process and the relative effort they will have to deploy to reach the proposed target. We then performed a qualitative analysis on each plan to analyse the countries' response to specific sectors and issues, such as renewables for transport, heating and cooling and coal phase-out.

Our evaluation takes into consideration the following:

1. Share of renewables in 2016;
2. Renewables target by 2020 and 2030;
3. Emission level in 2016;
4. Emission target by 2020 and 2030, land use, land-use change and forestry (LULUCF) emission target by 2030;
5. Gap between renewables share in 2016 and the 2020 and 2030 targets;
6. Gap between emissions in 2016 and the 2020 and 2030 targets;
7. Sector-specific targets for renewables; and
8. Decarbonisation and coal phase-out national plans.

Since the start of the Energy Union, decarbonisation has been one of the dimensions where the work of the Commission has focused the most, because of its encompassing nature, the Paris Agreement commitments and the growing role of the renewables industry both in Europe and on the global level. In the NECPS evaluation, decarbonisation however gains additional importance: under the current governance scheme, the plans represent the missing link between the EU and national renewables targets, and they also describe the tools made available by MS to achieve the individual CO₂ emissions cuts detailed in the recently approved Effort Sharing Regulation. Considering that, unlike the 20-20-20 package, the 2030 climate and energy framework does not envisage national binding targets for renewables, the NECPs are thus key to understanding whether national levels of ambitions and tools match the European targets and international climate commitments.

Generally speaking, the picture presented by the NECPs regarding decarbonisation is positive, despite a significant heterogeneity, improvable efforts and a lack of detail in the plans themselves. Indeed, even the Decarbonisation dimension show that the majority of the NECPs are largely a draft, often missing key elements and mostly consisting of a paste-up of previous plans and policies which, aside from enhancing clarity over the structure of national decarbonisation policies, does not provide any added value. A coherent vision on decarbonisation policies is in fact owned only by those MS which defined a national plan or roadmap for the sector regardless of the NECPs (Italy, France), while most of the others included in their NECP only a list of heterogeneous and uncoordinated policies (Czechia, Romania, Malta).

Nevertheless, the MS level of ambition

proposed for emissions reduction and, particularly, renewable energies seems to be sufficient to reach the EU targets of 40% reduction in emissions compared to 1990 and the minimum 32% share of renewables, both by 2030. The remarkably low 2030 targets for renewables of some MS (18.1% for Belgium, 20.8% Czechia, 11.5% Cyprus) are largely compensated by the relevantly greater efforts of other, better-positioned MS, such as Spain (42%), Finland (50%) and Sweden (65%). However, the lower-than-average targets of some of the largest European economies, in particular Italy (30%) and Germany (30%), significantly decrease the overall level of ambition for the European decarbonisation process, which appears well below the potential of the Union. Indeed, the picture provided by the NECPs appears to show that MS have negotiated national targets with the Commission which satisfy the minimum requirement to achieve the European target – but nothing more. This not only undermines the exploitation of the full potential of the growing European and global renewables industry, but also exposes the Union to the risk of failing its 2030 objectives, in case one or more of its larger economies should miss its individual target, as will likely happen for Ireland, the UK and others regarding their 2020 renewables targets. However, considering that most of these plans are drafts and that several MS are rediscussing their renewables plans and ambitions, while starting to implement the recently approved directive on renewables, the hope is that this will be the chance for them to raise the bar when the final NECPs is sent by December 2019.

The trajectory proposed by some MS is, however, already quite ambitious. Some, such as Austria and Spain, are aiming at a 100% renewable energy

mix by 2030 and 2050, respectively, while others have linked the plan to the roadmap towards carbon neutrality by 2050, as in the case of France and Denmark. Nevertheless, these efforts are counterbalanced by the strong focus on coal and hydrocarbons by other MS, such as Poland, or the still insufficient decarbonisation performance of others, as in the case of Croatia or Ireland, which will likely surpass their emissions target by 2020. Such heterogeneity is also reinforced by very different contributions to the EU CO₂ emissions reduction targets, ranging from the outstanding 40% cuts on 2005 emission levels by Sweden, Finland and Denmark, to the remarkably low 0%, 2% and 6% decreases of, respectively, Bulgaria, Romania and Latvia. Such dissimilarities are also to be found in the renewables targets by 2030, which go from the 65% share of renewables proposed by Sweden or the 47% by Portugal, to the 18% of Belgium and Slovakia and the 11.5% of Malta. Efforts also vary: in order to reach their proposed 2030 renewables share some countries will have to add a remarkable 25–24% of renewables to their energy mix (Spain, Netherlands, Denmark), while others only 5% (Hungary, Slovenia, Malta). In this sense, neither the Effort Sharing Regulation nor the proposed NECPs have in any way addressed the significant, and growing, differences among EU energy mixes. While a certain degree of heterogeneity is inevitable, considering the different structures of the energy sector and economy of these Member States (as in the case of the strong Polish coal sector, or the role of nuclear in France), it also increases the difficulty in delivering coherent, EU-wide decarbonisation policies, thus frustrating the coordination work of the Commission. The NECPs provide a fragmented picture also regarding the issue of coal. Out of the nine MS which, according to Eurostat, had a 25% or larger share of solid fuels in their energy mix in 2016 and 2017 (the Netherlands, Portugal, Greece, Germany, Bulgaria,

Poland, Czechia and Greece) only two (the Netherlands and Portugal) included a proposal to phase out coal or at least significantly diminish the share.

Globally speaking, the heterogeneity in the decarbonisation efforts by MS is proven by the exceptional distance between countries performing the best and those with the lowest commitment. Sweden surpasses all other countries by far: although one of the best performing MS for renewables in past years, it has not slowed its efforts in the sector, unlike others (such as Italy). Its relatively small addition to its overall renewables share (only 11% in 14 years, from 54% in 2016 to 65% in 2030) is compensated for by a decisive plan to reach a fully renewable energy mix by 2040 and carbon neutrality by 2045. The country also aims at a negative value for its LULUCF emissions, thus delivering a forest and land management coherent with its climate ambitions. France delivered one of the most comprehensive climate and energy plans of all, thanks to the Low Carbon Strategy the MS published in the previous months, and the decisive decarbonisation path it has taken at least since leading the negotiations for the Paris Agreement. A small proposed share of renewables in the electricity sector by 2030 (19.9%) is balanced by the role of the French nuclear generation (even if its future share is still quite uncertain) and by a significant focus on renewables in the transport and heating and cooling sectors (respectively with a proposed share of 39.9% and 25% by 2030). Finally, also Portugal presented a solid decarbonisation strategy; a remarkable share of 47% renewables by 2030 and the proposed carbon neutrality roadmap to 2050 are supported by a National Investment Plan to 2030 which presents a strong focus on clean energy and the green economy – part of a socio-environmental approach to the economy which proved successful in the country in the past few years. Portugal has also addressed its still

significant share of coal generation by imposing a coal tax running from 2018, increasing from 10% of the energy price at its start to reach 100% in 2022, aiming at a complete phase-out by 2030.

Other MS performed the opposite. In particular, Bulgaria's contribution to EU's decarbonisation is – literally – zero, as no emissions cuts are expected by 2030. While it is true that the MS will deliver a much greater decrease than required by its 2020 emissions reduction, this is likely due to a reduced and more efficient industrial activity, which will not sustain the decarbonisation of the country in the long run. Also, Bulgaria will only increase its share in renewables in the transport and heating and cooling sector, while actually decreasing the share in electricity generation (from 19.2% in 2016 to 17% in 2030). Despite the country being the third in Europe for coal generation in its energy mix (46% in 2017), after Poland (77%) and Czechia (47%), no efforts to phase out or diminish reliance on the resource are presented in the plan, except for some very general remarks regarding the implementation of "clean coal". Similarly, Poland's overreliance on coal is the greatest issue in the decarbonisation proposal of its NECPs, as it is not addressed by

a phase-out plan or any other measure reducing the role of the resource. The country agreed on one of the lowest emission cuts in the Union (-7%) and will have a net debit on its LULUCF emissions – which spells bad news for Polish forests, already threatened by excessive exploitation by both legal and illegal logging. The decarbonisation proposal of the Polish NECPs is also fragmented and incoherent, lacking a serious commitment towards the deployment of renewables, whose target is low (21%) and will require a minimum effort to be reached (only a +6% share, from the actual 15%). Also Romania's proposed efforts to reduce emissions are almost nonexistent, only -2% when compared to 2005 levels. The relevant coal generation (26% in 2017) has not been discussed in the plan, which also proposes largely inadequate decarbonisation measures. The MS will practically make no increase in its share of renewables (+3% in 14 years) and LULUCF emission targets have not yet been defined; this could represent a threat for the forests in the country, particularly in the Carpathian mountains, which have suffered from indiscriminate deforestation in the past fifteen years.

5. RESEARCH, INNOVATION & COMPETITIVENESS



Methodology and variables considered

A complete framework of quantitative targets is not established to underpin this dimension, nor are Member States obliged to support defined investment targets on R&I and on specific sectors. Our analysis is for this reason mainly carried forward by considering qualitative indicators, and in particular their rationale and division by sector/technology according to the country's specificities and the overall EU priorities.

Our evaluation takes into consideration the following:

1. National objectives and funding targets for public and private R&I related to the Energy Union;
2. Investments/expenditure planning via national or EU programmes;
3. National 2030 and 2050 objectives for the development of low-carbon technologies; and
4. National objectives with concern to competitiveness.

R&I is key to bringing the objectives of the Energy Union into the market – and in particular low-carbon technologies – at a fast pace. Despite not setting specific thresholds or targets for Member States in this dimension, translating the governance rules into plans means for each country to insert national objectives and policies turning to a national context the SET Plan and clarifying national objectives for total spending (public and private) in R&I related to clean energy technologies as well as for technology costs and performance development. Member States are as well requested to consider the 2050 framework for the deployment of low-carbon technologies in energy-intensive sectors and concerning carbon use, transport, capture and storage.

Usually, the R&I dimension has lagged behind within the Energy Union. This is reflected in the national plans as well, with several countries presenting only vague guidelines and with draft plans not completely addressing the urgency and scale of effort needed to provide solutions in line with the climate and energy targets of the EU. We indeed observe a low level of ambition in providing detailed resources and planning, a wide heterogeneity in commitments and a weak range of tools. The dimension is only in rare cases very detailed (i.e., France, Germany, UK), while in many others it is very short and only barely developed (i.e., Malta). France probably provides the most complete and coherent plan, with details on funding via domestic and EU programmes, national objectives for public support and the foreseen role of privates, with a coherent sectorial division and timeframe attached to most projects. Another example of a coherent and complete plan is the UK's, which provides detailed expenditures per sector.

In terms of clarity on general expenditures, plans seem particularly defined in describing the current state of innovation and research (i.e., the Netherlands, Malta) or framework and expenditures in the short term by 2020 (i.e., Hungary, Italy) but rather weak in planning towards 2030, which is what NECPs are actually expected to do. In general, almost no country provides its intended investment in R&I related to energy in GDP share by 2030. Some (i.e., Belgium) aim at reaching a 3% gross domestic expenditure on R&D as foreseen at the EU level, but this refers to an overall and not energy-specific R&D expenditure. Some have special devoted plans (and resources) that were already established regardless of 2030 plans (i.e., Czechia with its 2018–2025 plan) and thus are not foreseeing specific 2030 finances to the dimension. In short, details on current and past expenditures seem clear, while on future planning there is much room for improvement.

Funding on the dimension via national/EU programs is again fragmented and incomplete in most plans, making it difficult to comprehend synergies between tools available at the national and at the European level, also in those MS displaying more details (i.e. Germany). Several MS refer to previously set up national projects or general directions provided by their ministries. Among cited programs, the SET Plan and references to the H2020 2021-2027 program, in parallel with more specific instruments to support innovation as the European Innovation Council, the European Innovation fund connected to the ETS system, the innovation support fund. Interesting initiatives taken by Member States are detectable throughout plans as France, also having a very large financing basin for R&I in the French energy sector, ADEME, that will sustain projects for 1 billion euros.

Timeframes for policies and measures to be met are often incomplete (i.e., Belgium, Austria, Cyprus, Denmark, Hungary, Romania), only related to single projects (i.e., Croatia, Ireland, Czechia) or mostly missing (i.e., Bulgaria). Most countries provide sectorial divisions, but justification for specific sectoral scopes is rarely detailed (with exceptions: i.e., Germany). Among the most considered are Carbon Capture and Storage (CCS) and Carbon Capture and Usage (CCU) technologies, hydrogen, the power sector and renewables (i.e. UK, foreseeing 900 million GBP between 2015 and 2021 in research and innovation in the power sector). A number of areas are quickly emerging, in line with the Energy Union overall strategy: new gas storage technologies in the form of CNG or LNG, research in hydrogen or nuclear.

We also noticed a high level of incoherence in plans. In terms of national objectives and targets, some provide only broad guidelines that moreover are in total contrast with the other dimensions of their plan. In its R&I objectives, Bulgaria for example lists a number of priorities of the Energy Union including the achievement of the 2030 CEF Package, the development

of a low-carbon economy, and the improvement of air quality in the country. It doesn't however provide any content or sectorial division/timeline. It doesn't, even more importantly, consider how to reach those goals in combination with the measures contained in other dimensions, such as Security of Supply. The nature of measures taken within the R&I dimension is heterogeneous, sometimes being economic in nature, sometimes regulatory, or concerning the economic and fiscal spheres. Several MS set up an overview (i.e., Italy) but in general, as currently framed within plans, it is difficult to immediately get an overall perspective on ambitions and planned impacts of the dimension.

Finally, lack of cooperation prevents a clear framing of projects and impacts. Plans are missing a sufficiently clear identification of areas of competitive advantage where R&I objectives investment under EU funds could be prioritised at the regional level as well as an effective coordination of policies and measures through the SET Plan.

6. PUBLIC DEBATE

With the report “Time to pick up the pace: Insights into the draft National Energy and Climate Plans” the Climate Action Network Europe analyses the drafts of 24 NECPs – thus those of all EU Member States except Lithuania, Malta, Cyprus and the UK – focusing on how each plan approaches the issue of decarbonisation, pointing out any shortcomings and providing each individual country with recommendations “to foster the transition away from fossil fuels” (15 April, [here](#)).

In “Planning for net zero: Assessing the draft National Energy and Climate Plans” the European Climate Foundation has analysed the NECPs and created a ranking, using 3 dimensions – namely target quality, policy details and process quality – and 14 indicators within these dimensions to assign to each plan a score out of 100. In the overall ranking results the highest score is Spain’s 52.4, and the lowest is Slovenia’s 3.2 (16 May, [here](#)).

In “Can Europe create string energy and climate coalitions?” the European Council on Foreign Relations shows that countries among the EU Member States attribute a different level of importance to climate and energy policy: while northern and western states seem to value more climate policy, those in central Europe prioritise energy policy. Thus, all EU Member States should use their National Energy and Climate Plans as a basis for cooperating and achieving their respective goals (1 March, [here](#)).

With “Are the Dutch going green? Climate Policy in the low lands heading towards crunch time”, Clingendael discusses the Dutch national policies and how the government, which has “pledged to become a European Climate frontrunner”, is developing a National Climate and Energy Agreement. This has been done at the same time as the development of the first Dutch “Integral National Energy and Climate” report – the National Energy and Climate Plan – which appears to be “very quiet” regarding the Netherlands’ strategy to achieve the European goals by 2030 (21 January, [here](#)).

In “How can EU’s energy system contribute to climate neutrality?” E3G presents its suggestions concerning how Europe can reach climate neutrality by 2050. Among the issues that must be tackled are structural changes, new technology solutions, and the role of National Energy and Climate Plans. The NECPs should be updated together with the 2030 targets and they should provide “planning certainty”. Also, since the sectors directly connected to non-renewables will phase out, national governments should elaborate an “industrial strategy for decarbonisation” (4 March, [here](#)).

IN- TER- VIEW

MAROŠ ŠEFČOVIČ VICE-PRESIDENT TO THE ENERGY UNION

Energy and Climate Commissioner Cañete recently declared the Energy Union is “completed”. Several finalised measures however need implementation; what are your suggestions to fully deliver the work started in February 2015 with the launch of the Energy Union?

The Energy Union aims to transform the European energy system. We’ve completed the task for this Commission mandate which was to put a solid foundation for the Energy Union on the European level. I think we can’t yet even measure the importance of this achievement. We are the first in the world to have put in place fully integrated climate and energy legislation, in coherence with mobility, research and other priorities. It will put us on track towards climate neutrality by mid-century, while delivering many economic benefits such as improved energy security and better functioning markets. Of course implementation on the national level is now the key priority, but there are many initiatives to continue developing on the European level. We have pioneered new ways of working: with industry through the European Battery Alliance, with cities through the Global Covenant of Mayors, with coal regions through the Coal Regions in Transition initiative. All of these are responding to essential needs and Europe should strengthen them.

Considering the four years of activity of the Energy Union, which dimension delivered the strongest results and which the weakest, and why?

One of the aspects of the Energy Union that I’m very proud of is that the five-pronged strategy of February 2015 has proven the right one: we advanced decisively on all five dimensions and we’ve shown they are all mutually reinforcing. Some of them are based on long-term investments and we don’t yet feel the results of the decisions we made under this Commission: for example on energy security, we’ve put in place over 30 projects of common interest, but 75 more are due before 2022. In implementation, one area in which further efforts are needed on the national level is energy efficiency. There is huge potential, notably in buildings and transport, that we need to tap into. Our 2020 target is still within reach and we have established a task force to help Member States mobilise efforts.

Are you satisfied with the governance framework achieved by the Energy Union? Which are its strengths, and what more could have been done?

The Energy Union governance framework is groundbreaking. It means that Member States need to design their policies in the same way as we do in Europe: with an integrated approach, looking at climate, energy, mobility, research and competitiveness together, and a medium- or long-term outlook. This will be key for investors into everything energy-related, as it will give them clarity and predictability. Member States are also strongly encouraged to look at synergies with their neighbours, and to help with that, Member States agreed to a common planning and reporting cycle, synchronised with the global stocktakes under the Paris Climate Agreement, articulated around the National Energy and Climate Plans. The framework is well-designed, and it's now essential that we make it functional. This is a huge task for national administrations that have to go through a similar policy integration and rethinking process as what we've done on the European level, and the Commission will be there to help and point to European cooperation opportunities.

The publication of the latest State of Energy Union is accompanied by a Communication on "A more efficient and democratic decision making in EU energy and climate policy", which will also involve a revision of the EU energy taxation. Is this measure more focused on strengthening the internal energy market, or on the adoption of an EU-wide carbon tax? How would it be possible to have homogeneous energy taxation in Europe, while taking into account so many different energy mixes?

At this point, we have not proposed any specific measures on energy taxation. It's next to impossible to agree any such measures on the European level, because they have to be accepted unanimously by all Member States. This is the topic of the Communication we adopted, which proposes to move to the ordinary legislative procedure in this domain, also with full democratic role of the European Parliament. Without this it will be difficult to make changes, and these would be very useful, as the current legislation on energy taxation dates back to 2003. Taxes are not based on energy content but on the volume or weight of the energy products consumed. This does not create the right incentives for diversification of energy sources or improvement of energy efficiency. The outdated framework also risks distortions in the internal market as some Member States have increased their national level of taxation since then while others have not. We need more coherence and that can definitely be achieved despite differing energy mixes, if political will is there. We will see after the elections!

According to your first evaluation, do you believe that the proposals contained in the NECPs are adequate? And how will the EU achieve

its targets, if Member States' action is not sufficient even when the final plans are submitted in December 2019?

Right now we're hard at work analysing the NECPs, and will come up with recommendations to Member States in June. I'm first of all very encouraged by the fact that all Member States have submitted their plans despite tight deadlines, and that the plans address all the relevant issues as required by the legislation. These are the very first plans, and these are still drafts, so it's normal there is still work to do before the final plans are due in December, both on the level of ambition and especially on the amount of detail of the planned measures. The Commission will be there to assist Member States and highlight best practices. If the plans are not sufficient to achieve EU targets, the legislation is clear: we will need to take "gap filling" measures. For renewable energy these will fall mainly on the national level, while for energy efficiency the focus would be on further EU measures.

Considering the upcoming European elections, could the rise of populists and extreme right parties in Europe, and their unconcerned or anti-climate positions, endanger the energy transition and decarbonisation path taken by the Energy Union?

In my work I do all I can to show to Europeans they have better choices than extremists and populists. Like on many issues, on climate and energy the easy-sounding solutions they offer are counterproductive. But I also have trust in the citizens' clarity of understanding. More than nine in ten Europeans see climate change as a serious problem, and recently I'm impressed with the mobilisation of young people to encourage politicians to act. With all the work done in the last years, we have laws taking us to ambitious targets in 2030, and we have charted a path towards climate-neutrality by mid-century. We've also demonstrated that it's economically beneficial and that it can be socially fair. These are all solid foundations to pursue the transformative path we've taken.

The following list includes the major legislative and political actions of the Energy Union since its launch in February 2015. The different elements are divided per year and have an indication on the dimensions to which they belong (square brackets for the dimensions it dominantly refers to, parentheses for those which are only partially included in the measure). Approved pieces of legislation also have an indication of the date of the relative legislative proposal by the Commission. SEP, WEP and CEP respectively refer to the Summer Energy Package, the Winter Energy Package and the Clean Energy Package.

2015

25 February: **Communication “A framework Strategy for a resilient Energy Union with a Forward-Looking Climate Change Policy”** COM(2015)80

[Security, Market, Efficiency, Decarb., R&I]

25 February: **Communication “Achieving the 10% electricity interconnection target Making Europe’s electricity grid fit for 2020”** COM(2015)82

[Market/Security (Decarb.)]

June: **Gas Platform Launched**

[Security, (Market)]

15 July: **[SEP] Communication “Delivering a New Deal for Energy Consumers”** COM(2015)339

[Market, (Efficiency, R&I, Decarb.)]

15 September: **Communication “Towards an integrated Strategic Energy Technology (SET) Plan”** [C(2015)6317]

[R&I]

18 November: **Formally adopted: 2nd List of PCIs Delegated Act**

[Market (Security, Decarb.)]

2016

January: Renewables and energy efficiency platform launched (Part of the attempt to "Strengthen Euromed cooperation on gas, electricity, energy efficiency and renewables")
[(Security, Market)]

16 February: [WEP] Communication "An EU strategy for liquefied gas and gas storage" COM(2016)49
[Security]

16 February: [WEP] Communication "An EU strategy on Heating and Cooling" COM(2016)51
[Efficiency (Security, Market, Decarbonisation, R&I)]

20 July: Communication "A European Strategy for Low-emission Mobility" COM(2016)501
[Decarbonisation (Efficiency, R&I)]

14 September: Communication "Strengthening European Investments for Jobs and Growth: Towards a Second Phase of the European Fund for Strategic Investments and a New European External Investment Plan" COM(2016)581
[Efficiency (Decarbonisation)]

24 November: Signed: Memorandum of understanding on an upgraded strategic partnership with Ukraine
[Security (Market)]

20 November: Communication "Accelerating Clean Energy Innovation" COM(2016)763
[R&I]

2017

21 March: [WEP] (Legislative proposal: 16/02/2016) Formally adopted: Decision (EU) 2017/684 on establishing an information exchange mechanism with regard to intergovernmental agreements and non-binding instruments between Member States and third countries in the field of energy, and repealing Decision No 994/2012/EU
[Security (Market)]

26 June: [SEP] (Legislative proposal: 15/07/2015) Formally adopted: Regulation (EU) 2017/1369 setting a framework for energy efficiency labelling and repealing Directive 2010/30/EU
[Efficiency (Security, Decarbonisation, R&I)]

9 October: (Legislative proposal: 16/02/2016) Formally adopted: Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010
[Security (Market)]

November: **Published: Report on achieving the 10 % and 15 % targets, by the Commission expert group on electricity interconnection targets**
[Market (Security, Decarbonisation)]

23 November: **Formally adopted: 3rd list of PCIs**
[Market (Security, Decarbonisation)]

23 November: **Communication “Strengthening Europe’s Energy Networks” COM(2017)718**
[Security/Market]

12 December: **(Legislative proposal: 14/09/2016) Formally adopted: Regulation amending Regulations (EU) No 1316/2013 and (EU) 2015/1017 as regards the extension of the duration of the European Fund for Strategic Investments as well as the introduction of technical enhancements for that Fund and the European Investment Advisory Hub**
[Efficiency (Decarbonisation)]

2018

27 February: **[SEP] (Legislative proposal: 15/07/2015) Formally adopted: Directive [COM(2015)337] amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments**
[Decarbonisation (Security, Market)]

May: **4th edition of the Energy Infrastructure forum**
[Security (Market)]

14 May: **(Legislative proposal: 20/07/2016) Formally adopted: Regulation on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 for a resilient Energy Union and to meet commitments under the Paris Agreement (non-ETS).**
[Decarbonisation]

14 May: **(Legislative proposal: 20/07/2016) Formally adopted: Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU**
[Decarbonisation]

14 May: **[CEP] (Legislative proposal: 30/11/2016) Formally adopted: Revised Energy Performance of Buildings Directive (EU) 2018/844. Before 2026, the Commission should review in depth the functioning of the whole directive.**
[Efficiency (Decarbonisation, R&I)]

24 May: **EU ends the antitrust case against Gazprom**
[Security (Market)]

4 December: [CEP] (Legislative proposal: 30/11/2016) Formally adopted: Review of the Energy Efficiency Directive
[Efficiency (Decarbonisation, R&I, Security)]

4 December: [CEP] (Legislative proposal: 30/11/2016) Formally adopted: Regulation on the Governance of the Energy Union - Regulation (EU) 2018/1999 on Energy Union and Climate Action
[Decarbonisation (Security, Market, R&I, Efficiency)]

4 December: [CEP] (Legislative proposal: 30/11/2016) Formally adopted: Directive on the promotion of the use of energy from renewable sources
[Decarbonisation (Market, Security)]

2019

9 January: Commission Decision C(2019)125 approved the optional model clauses and guidance developed pursuant to Art. 9(2) of the Decision (EU) 2017/684 on information exchange mechanism with regard to intergovernmental agreements between Member States and third countries in the field of energy
[Security (Market)]

21 January: Beginning of trilateral gas talks between the EU, Russia and Ukraine
[Security]

26 March: [CEP] (Legislative proposal: 30/11/2016) EP adopted: Regulation on the internal market for electricity. Still needs to be formally adopted by the Council
[Market (Security, Decarbonisation, Efficiency)]

26 March: [CEP] (Legislative proposal: 30/11/2016) EP adopted: Electricity market directive. Still needs to be formally adopted by the Council
[Market (Security, Decarbonisation, Efficiency)]

26 March: [CEP] (Legislative proposal: 30/11/2016) EP adopted: Regulation [COM(2016)863] Review of the Agency for the Cooperation of Energy Regulators (ACER) and the energy regulatory framework. Still needs to be formally adopted by the Council
[Market (Security, Decarbonisation)]

26 March: [CEP] (Legislative proposal: 30/11/2016) EP adopted: Review of the Directive concerning measures to safeguard security of electricity supply [COM(2016)862]. Still needs to be formally adopted by the Council
[Security (Market, Decarbonisation)]

18 April: (Legislative proposal: 08/11/2017) EP adopted: Review of Directive on the Promotion of Clean and Energy Efficient Road Transport Vehicles. Still needs to be formally adopted by the Council
[Efficiency (Decarbonisation)]

On the European level, the framework arranged by the Commission at the end of 2018 in its “Clean Energy for All Europeans” package provides a demonstration of how relevant these themes have become in the EU’s long-term energy and climate strategy: energy efficiency, renewable energy, the development of electricity markets, security of energy supply, measures to favour investments, promoting the competitiveness of EU enterprises, and reducing the social impact of the transition with a renewed role for consumers.

Among the Member States, Italy’s framework appears to be particularly positive. In the WEC World Energy Trilemma Energy Index 2018, Italy was in fact awarded a triple AAA score. In line with regional and global trends, the country continues its path of reinforcing environmental sustainability with a reduction of greenhouse gas emissions, while improving energy efficiency and energy security. In 2017 renewable energy sources accounted for 17.7% of Italy’s gross final consumption of energy, its GDP energy intensity had fallen by 4.9% compared to 2013, and there was a decrease in dependence on foreign sources of supply as well – in fact, energy imports (76.5%) have fallen by 6 percentage points since 2010. At the same time, the report underlines how among the three trilemma dimensions Italy’s worst performance is in the dimension of energy equity/competitiveness: the country’s costs for several electricity user categories – and, in general, for “energy bills” – are among the highest at the international level. On the other hand, the Italian Integrated National Energy and Climate Plan (NECP) positively focuses on the consolidation of its important achievements regarding renewables, energy efficiency and emissions reduction, as much as on the necessity for an improvement in the internal market competitiveness. For the next years, the development guidelines on the agenda of the main European and global stakeholders are the expansion of renewable sources together with reinforcement of the role of natural gas and attention to the themes of innovative mobility with electric and low/zero emission technologies. Resilience of the energy sector, efficiency, natural gas and renewable energies are the main themes that Italian energy players are similarly working on, aiming to correctly balance the three axes of economic, social and environmental sustainability of the strategies and operative models that are being implemented. Furthermore, in a pivotal sector such as that of mobility, our country is first in Europe for transport using alternative fuel, with sales volumes of LPG, methane, hybrids or purely electric vehicles representing 11.7% of the market in 2017 and displaying 24% growth over 2016 volumes. As LPG and methane are the most common green fuels in Italy, followed by hybrid and electric, the push towards emissions containment has brought Italian stakeholders to develop cutting-edge solutions which lead us to expect a further reinforcement of these development trends.



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Istituto Affari Internazionali
Via Angelo Brunetti, 9 - 00186 Roma
Tel: +39 063224360
iai@iai.it

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