The Bridge Beyond 2025

Conclusions Paper

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KEY CONCLUSIONS

The priority for Europe's energy sector is to decarbonise while maintaining security of supply, affordability for consumers and competitiveness for businesses. For the electricity sector, the "Clean Energy for all Europeans" Package (CEP) sets the path. For the gas sector and for cross-cutting aspects, such as infrastructure planning, legislation and policy need to be updated to facilitate decarbonisation, improve market functioning and maximise the opportunities arising from sector coupling.

Following extensive consultation, our key conclusions include:

- Decarbonised gases should be able to be integrated into existing gas markets, with full valuation of their environmental benefits, and captured in market monitoring through sustainability indicators published alongside GTM metrics. Clear definitions and categorisation of decarbonised gases, including carbon capture and use or storage, should be established in European legislation, and consistent principles should be applied across the EU to facilitate the blending of decarbonised gases. Legislation should be sufficiently flexible to allow the emergence of new gases/technologies.

- To improve market functioning and address emerging issues, a new system of dynamic and targeted regulation should be established in EU law, based on the Agency's market monitoring and NRA analysis and action. In order to maintain flexibility to adjust metrics and thresholds over time and to decide on appropriate interventions at national or regional level, the detailed indicators and thresholds should not be fixed in legislation but rather established transparently by the Agency in collaboration with the NRAs.

- Transmission System Operators (TSOs) and National Regulatory Authorities (NRAs) currently lack the means to act in an effective and timely manner to deal with fraud. *Ex-ante* measures for registration and licensing can contribute to mitigating the risk of fraudulent behaviour. Furthermore, TSOs should develop harmonised counterparty risk management policy at European level and set up a centralised EU database on creditworthiness and market behaviour accessible to TSOs, NRAs, the Agency and the European Network of Transmission System Operators for gas (ENTSOG), in order to avoid that the costs of fraud and/or default are socialised.

- To ensure that licensing requirements do not act as a barrier to entry, there should be mutual recognition across the EU of licensing for wholesale traders (or an equivalent mechanism). This should be accompanied by a mechanism for enforcement action, such as revoking the licence without undue delay if needed. In addition, further steps are needed to mitigate the risk of fraud, including the right to exclude parties found to have breached requirements in another Member State.

- A technology-neutral, level playing field should be established between different conversion and storage facilities across the energy sector, so that they face equivalent categories of costs in network tariffs and levies, and equivalent recognition of environmental and security of supply benefits. To facilitate this, the Agency could be requested to undertake an assessment of the current situation and provide recommendations.

- New assets and activities should be facilitated through regulation, including a sandbox model at EU level for pilot, small scale projects and appropriate differentiation between competitive and monopoly activities. Any subsidies are a matter for governments rather than regulators, and should not take the form of discounts on or exemption from network tariffs in any case. TSOs and Distribution System Operators (DSOs) should only be allowed to undertake potentially competitive activities under strict rules and as a last resort. While it is too early to be definitive, large-scale hydrogen networks could be expected to provide regulated third party accessing.

- For infrastructure planning, an effective regulatory framework at EU level, similar to that existing in some Member States, is needed to ensure a level playing field for new solutions. The existing network operators face challenges from decentralised solutions and can no longer be regarded as completely neutral. Improvements in network code governance introduced in the CEP for the electricity sector are needed in the gas sector as well.

- New investment in natural gas assets should be checked to ensure consistency with decarbonisation targets. Re-use of existing assets should be explored prior to any decommissioning, with due consultation of neighbouring authorities and stakeholders where their markets may be affected.

- For tariffs, both regulators and stakeholders find that, at present, tariff design does not appear to be causing major issues at a pan-EU level and therefore the implementation of the Tariffs Network Code[1] shall remain a priority. However, there are concerns in some regions and legislative changes can unlock better regulatory tools to address any instance where cross-border tariffs become a barrier to trade and where there is a risk of foreclosure of cross-border capacity.

Alongside this Conclusions Paper, the Agency has published a formal Recommendation for changes to legislation and the Agency and CEER have published the Evaluations of Responses to their respective consultations.

[1] Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas

RELEVANT LEGISLATION

- Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators
- Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity
- Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU
- Regulation (EU) 2018/1999 on Governance of the Energy Union
- Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009
- Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency
- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC
- Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005

RELATED DOCUMENTS

- ACER Guidance Note on Consultations
- ACER European Gas Target Model: review and update, January 2015
- ACER Market Monitoring Report 2018, October 2018 (Gas Wholesale Markets Volume, Consumer Protection and Empowerment Volume, Electricity and Gas Retail Markets Volume, Electricity Wholesale Markets Volume)
- ACER Report on the methodologies and parameters used to determine the allowed or target revenue of gas transmission system operators, October 2018
- CEER consultation document on Regulatory Challenges for a Sustainable Gas Sector, March 2019
- ACER consultation document on The Bridge beyond 2025, July 2019
- CEER Evaluation of Responses
- ACER Evaluation of Responses
- ACER Recommendation

1. INTRODUCTION, PURPOSE AND STRUCTURE

Delivering sustainable, secure and affordable energy for all European consumers is at the heart of the EU's Internal Energy Market. Within this context, the purpose of energy regulation is to ensure a level playing field in which competition can flourish and to provide a sound investment framework that is based on predictable regulatory principles.

The purpose of this Conclusions Paper is for the European Union Agency for the Cooperation of Energy Regulators (the 'Agency') and the Council of European Energy Regulators (CEER) to identify priorities for legislative and regulatory action that go beyond the scope of the "Clean Energy for All Europeans" Package (CEP). In particular, we focus on the gas sector, also with a view to sector coupling. In so doing, we aim to support the European Commission in relation to any future legislative initiative in this area.

Alongside this Paper, and based on the results presented in it, the Agency has issued a Recommendation to the European institutions.

The conclusions presented in this Paper take into account the responses to two public consultations: CEER's Consultation Paper on Regulatory Challenges for a Sustainable Gas Sector (March 2019) and the Agency's Consultation Paper on the Bridge beyond 2025 (July 2019). Evaluations of the responses to these consultations are published alongside this Paper.

The context for our considerations includes increased electrification of economic activities and extensive decarbonisation of the energy sector, leading to reductions in the use of unabated natural gas (and other fossil fuels), but with substantial uncertainty over the pathway to these reductions and the extent to which various alternative technologies will be adopted. In many areas, natural gas is likely to continue to be a key energy vector in the 2020s and potentially beyond, for example in conjunction with carbon capture and use or storage. Gas provides essential services for consumers such as heating, serves as feedstock for industry, is used in transportation and in various industrial processes to provide heat, and is converted into other energy products such as electricity.

The regulators' priority is to improve outcomes for consumers and other gas users in both the short and longer terms. Progress on decarbonisation of energy is already underway and needs to accelerate in the near term, not just in the medium term. However, the importance and priority of decarbonisation does not remove the need to improve outcomes for consumers where and whilst natural gas is still being used. Decarbonisation and market development need not be at odds; regulators' emphasise that more efficient outcomes will be achieved through a full valuation of environmental externalities ("polluter pays" principle) in market pricing.

Some improvements seem straightforward, such as aligning (or "mirroring") some of the gas legislation with the strengthening of consumer rights and information introduced for electricity in the CEP. Other areas covered by the new CEP provisions, such as self-consumption, dynamic pricing, demand response and (renewable) energy communities, may seem less obviously relevant for the gas sector, but they may nevertheless merit careful consideration in order not to foreclose future technological solutions, such as developments in renewable gases.

The energy transition and decarbonisation policies that lead to a substitution of natural gas with other energy vectors will have financial (and comfort) consequences for household consumers, as well as for others who currently use natural gas to meet some of their energy needs. The cost of replacing devices and equipment that use natural gas with devices and equipment that use other kinds of energy, in particular electricity, should also be considered.

It is therefore important to ensure that the transition is based on sound economic principles and leads to the selection of the best-value technologies for decarbonisation, learning from the experience with the approach of administered support for renewable electricity whose costs continue, in most countries, to be passed on to consumers via their electricity bill. We see significant potential benefits from competition between alternatives, including decarbonised gases.

We have identified four thematic areas which require regulatory attention. They include issues relating to electricity and gas sector coupling, going beyond the regulatory alignment of the gas and electricity sectors. The problems are outlined here and then addressed in turn in the sections below. These themes incorporate the complementary topics and ideas presented in the Agency and CEER consultation papers[2].

THEME A: ACCESS AND MARKET MONITORING. While the European Gas Target Model[3], where applied, is generally working well, there are some markets where competition is still not effective and consumers' interests are not sufficiently protected, or where the current system of gas regulation may need review.

THEME B: GOVERNANCE OF INFRASTRUCTURE AND OVERSIGHT OF EXISTING AND NEW ENTITIES. In a sustainable future, the current roles and responsibilities may no longer be fully appropriate. The existing unbundling rules may need to be applied to new circumstances. And, in particular, what was a natural monopoly may now be competing with other services.

THEME C: DYNAMIC REGULATION FOR NEW ACTIVITIES AND TECHNOLOGIES. It seems clear that a sustainable future needs decarbonised gases and new technologies (such as power-to-gas), but the current regulatory framework was not designed with these activities in mind. The potential lack of regulation, or inadequate regulation, for these areas may have unintended consequences, acting as a barrier or hindrance to their development.

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[2] Whilst the structure of this joint Conclusions Paper follows that of the Agency consultation document, the thematic areas embed organically the key issues from CEER's Regulatory Challenges for a Sustainable Gas Sector, such as the scope of network operator activities, regulation of hydrogen networks, tariffication, guarantees of origin for renewable gases, infrastructure investment and regulation and potential decommissioning of network infrastructure

[3] https://acer.europa.eu/Events/Presentation-of-ACER-Gas-Target-Model-/Documents/European%20Gas%20Target%20Model%20Review%20and%20Update.pdf

THEME D: TRANSMISSION TARIFFS AND CROSS-BORDER CAPACITY ALLOCATION. As the Network Codes are implemented, in some markets particular issues relating to cross-border tariffs or capacity allocation are emerging, for example as long-term bookings decrease, which need to be assessed for targeted action.

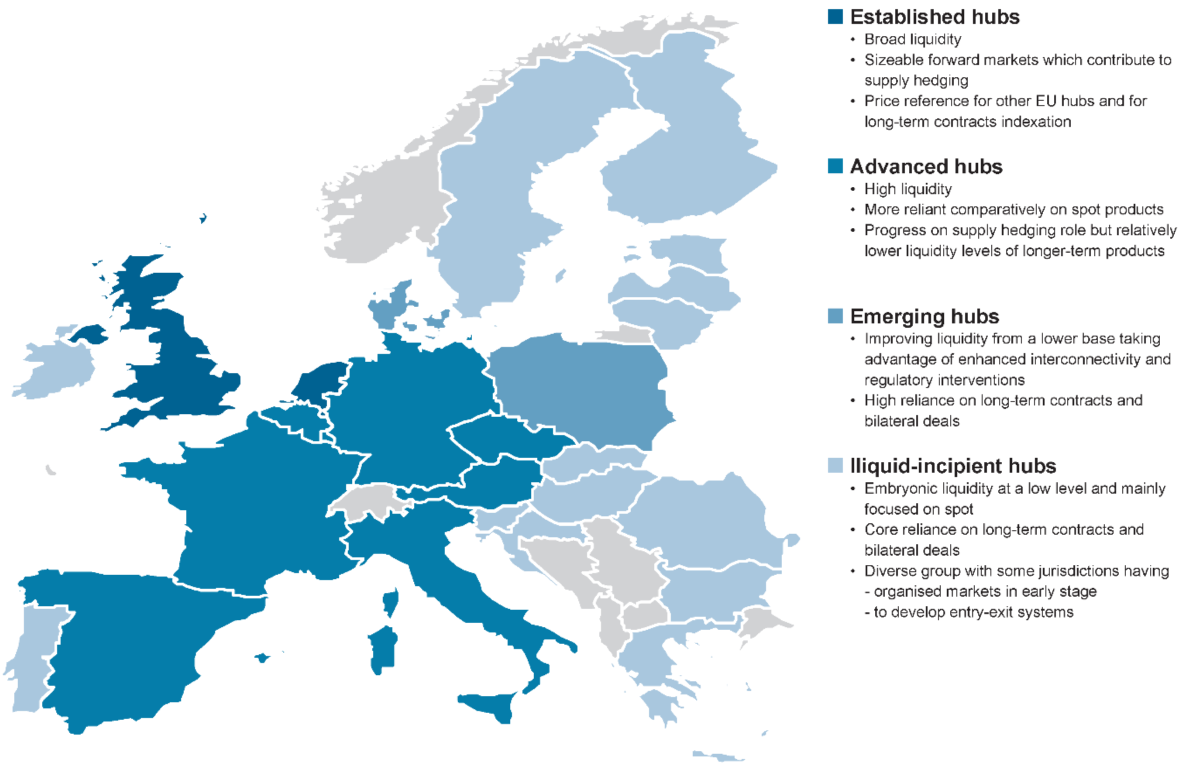
2. THEME A: ACCESS AND MARKET MONITORING

Where are we now? What are the challenges?

The Agency's Gas Target Model (GTM) set out a vision of a competitive European gas market, envisaging entry-exit zones with liquid virtual trading points, where market integration is served by appropriate levels of infrastructure, which is utilised efficiently and enables gas to move freely between market areas to the locations where it is most highly valued by market participants. The GTM guides the coherent implementation of European Network Codes and specifies the steps required to achieve liquid and dynamic gas markets, thereby enabling all European consumers to benefit from secure gas supplies and effective competition.

While the GTM has been generally successful, the Agency's market monitoring shows that some markets still face problems deriving from weak competition or institutional and structural issues. As also noted by stakeholders, the GTM metrics focus on market functioning and have not, to date, tracked progress on decarbonisation.

Figure 1: Ranking of EU gas hubs based on monitoring results – 2018



Market functioning at regional level

Typically, the challenges to market functioning are structural and institutional, and more severe in certain regions of Europe, often linked to reliance on a single source of supply. Competing sources of supply and new infrastructure are often not heavily utilised, which could also be linked to the fact that some infrastructure investments were primarily meant to make markets contestable or for security of supply[4]. Investments in infrastructure and regulatory measures (like the application of reverse flows) to alleviate bottlenecks appear to be effective. While in some regions, mainly in South South-East (SSE) Europe, bottlenecks remain, once on-going infrastructure projects become operational and the antitrust issues addressed by the European Commission are resolved, many of these bottlenecks should be overcome.

Gas hubs in the North-West Europe (NWE) region show the highest price convergence in the EU, due to similar market fundamentals, ease of access for upstream suppliers, stable increases in hub trading, relatively lower-priced transportation capacity and surpluses of long-term contracted capacity and commodity. Price alignment in the Central and Eastern Europe (CEE) region has improved in recent years, while Mediterranean hubs in general show lower price convergence. This is due, among other things, to lower interconnection capacity levels, the effects of transportation tariffs and weaker competitive pressure and hub functioning.

Other issues affecting market functioning that have been identified in the Agency's annual market monitoring and network code implementation reports include insufficient liquidity on some balancing platforms and possible market barriers stemming from administrative and legal requirements (licensing) or exemptions (reverse flows).

The GTM identifies actions that can be taken to address the identified issues, but progress remains mixed. The Baltic-Finnish market integration initiative provides an example where action is being taken[5]. Rather than changing the GTM or proposing new measures to be applied across the EU, a more targeted and effective GTM-based approach appears to be merited.

In particular, in markets without effectively competing sources of supply, there may also be security of supply and competition advantages associated with infrastructure development or improvement in its use. For example, an LNG terminal, even with a relatively low utilisation factor at present, may act as a competitive backstop by making the local market contestable, and provides additional security of supply in a market that would otherwise be reliant on pipeline imports from one or a few sources. Therefore there could be strategic value in keeping the LNG terminal open, even if it may be unprofitable at current utilisation levels. Similar considerations may apply to gas storage facilities.

[4] On average, only 26% of the available capacity of liquefied natural gas (LNG) facilities was used in 2018, up from 21% in 2016. The utilisation rate of cross-border Interconnection Points (IPs), measured by the yearly average ratio of nominations over booked capacity in 2017 was estimated at 57%, based on a sample of 20 IPs. The use of averages is illustrative and meant to show the overall European situation, recognising that peak utilisation may be more important for capacity requirements. LNG prices also have an impact on the use of this infrastructure.
[5] https://figas.fi/en/gas-market-integration-between-finland-and-the-baltics-going-forward/

Proposed response

Market monitoring as a basis for action

The key metrics identified in the GTM will continue to be monitored. The system of having the Agency track indicators to measure market performance should be enshrined in EU law, while the choice of metrics needs to be capable of change over time, in order to be adapted to the sector evolution. Therefore, legislation should only specify the process enabling the Agency to update them. The Agency will cooperate with NRAs on data requirements, seeking the additional needed data from TSOs and other relevant stakeholders. Some information is already available through data reporting under the EU Regulation on Energy Market Integrity and Transparency (REMIT). Threshold values for these metrics could be specified by the Agency in collaboration with NRAs in advance and then used to indicate (as a screening mechanism) cause for concern on competition grounds in the gas wholesale market.

Alongside the GTM metrics, sustainability metrics are needed to give a fuller picture of the extent to which the sector is operating successfully. At least initially, the Agency could utilise metrics already being collated by EU organisations, rather than developing new ones.

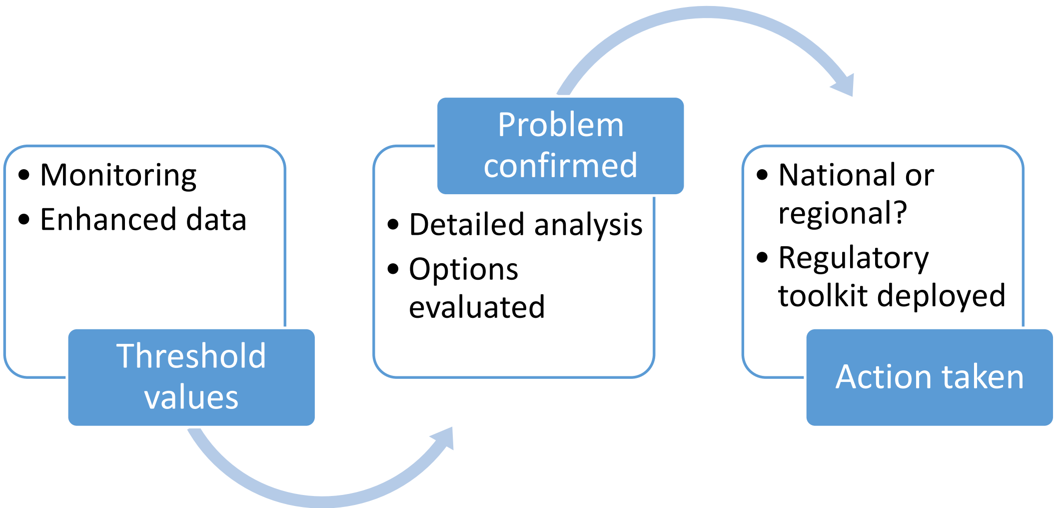
Where the GTM indicators do not meet the thresholds, this indicates potential competition concerns. The process set out in legislation should, in such cases, require the concerned NRA(s) to undertake a more detailed analysis of the situation, properly defining the market (e.g. national or multi-national), ascertaining the underlying causes and considering whether any of the options available from a “regulatory toolkit” would be likely to provide the expected improvements. The regulatory toolkit should be based on the tools described in the GTM, such as various forms of market mergers, but should also comprise other tools, such as the introduction of a market maker function to improve liquidity, adaptations of the tariffs, or commodity or capacity release programmes.

If the problem were confirmed by the analysis, the NRA(s), or the relevant decision maker(s) (depending on who is responsible for the appropriate action), following consultation with all market participants, would then have to decide on what action to take. Any major action should be subject to a cost-benefit analysis (CBA), to ensure that benefits outweigh the costs. Where there are decisions with cross-border relevance that fall on NRAs, if the latter do not agree within a prescribed period of time, the decision would be transferred to the Agency[6].

This process is summarised in the graphic below. At each stage, there is a decision gate (the blue box) to pass to the next stage of the process. The legislative requirement would be for the analysis to be published and for decisions to proceed or not to be duly justified. If the detailed analysis indicates that a regional approach would have an added value, orientations chosen should however not create obstacles towards achieving an integrated European market.

[6] In line with ACER competences as provided in the ACER Regulation.

Figure 2: Process for monitoring and improving market performance



As an example of how targeted regulation would work in practice, we can consider the arrangements in the Balancing Network Code where Member States can use balancing platforms to manage gas balancing until 2024. As this deadline approaches, market monitoring will inform whether sufficient liquidity is developing or interventions are needed. As stakeholders indicated in response to the consultation, this could include use of a market maker role. Irrespective of the interventions eventually decided, the process should be to undertake and publish an analysis, consult with stakeholders and justify decisions to act (or not) sufficiently in advance of the deadline.

Administrative and legal requirements

Licensing and registration requirements serve the purpose, among others, of protecting market functioning from malicious practices. Experience has shown that in some cases the requirements were insufficient as the relevant party (TSO and/or NRA) lacks the means to act in an effective and timely manner to deal with (allegations of) balancing fraud (like taking a position in the balancing market and leaving the market before the required payment was due). This risk needs to be mitigated by a combination of sensible *ex-ante* checks by the TSO (for registration) and/or the NRA (for licensing) and, where appropriate, proportionate requirements for collateral. TSOs should develop harmonised counterparty risk management policy at European level.

In some markets, licensing requirements can act as a barrier to entry. In order to address this, a system of mutual recognition for wholesale market authorisations/licences should be introduced across the EU. Once a wholesale supplier/trader is authorised or licensed in one Member State, based on well-defined standardised minimum requirements, including in relation to the reliability and financial solvency of the entity, this should automatically be recognised in any other Member States requires a licence or authorisation for wholesale trading.[7] In this line, if an agent´s licence is revoked in one Member State, the agent may be prevented from trading in the other Member States. The relevant authorities should agree and lay down in rules or regulation the potential minimum authorisation/licensing standards. Taking forward this proposal would first require further legal assessment to ensure enforcement action, such as revoking the licence, can be taken without undue delay[8].

To ensure that arrangements for mutual recognition do not increase risks, a counter-balancing system of mutual warning should be established among those responsible for registration, authorisation or licensing. Factual information on the creditworthiness and inappropriate behaviour of trading parties should be appropriately shared across the EU. In particular, TSOs should set up a centralised EU database on creditworthiness and market behaviour accessible to TSOs, NRAs, the Agency and ENTSOG, in order to avoid that the cost of fraud and/or default are socialised. In the extreme, in the rare cases when energy trading companies are convicted of fraud or found to be in breach of their licences, after due process, it should be possible for all Member States to exclude them from trading in their markets. This could be implemented through an EU-wide "blacklist", where companies found to be in breach of the relevant licence or authorisation conditions are listed and the relevant authorities are then permitted to exclude them from operating in their markets. The same could apply to board members and subsidiaries of convicted companies. There would also be a process for removal of companies and individuals from the blacklist where appropriate.

3. THEME B: GOVERNANCE OF INFRASTRUCURE AND OVERSIGHT OF EXISTING AND NEW ENTITIES

<u>Where are we now? What are the challenges?</u>

Infrastructure governance

At present, in most countries responsibility for planning network infrastructure sits mainly with TSOs at national level, overseen by NRAs who determine remuneration for investments and - in some instances - approve the national development plans, as well as with the European Networks of Transmission System Operators (ENTSOs)[9] at European level, plus the role of the European Commission and Member States in the PCI selection process and the provision of the EU's Connecting Europe Facility (CEF) grants. This planning is primarily done separately for electricity and gas networks, notwithstanding the joint work between ENTSOG and European Network of Transmission System Operators for electricity (ENTSO-E) on developing common scenarios and first elements of an interlinked model for the purpose of infrastructure planning. While the Agency provides non-binding opinions on the ENTSOs' network development plans, these have less impact than NRAs' decisions e.g. on investment

[7] A parallel could be drawn with network electricity market operators (NEMOs) in the CACM regulation. Article 6 of CACM describes the criteria for a NEMO to apply for a designation. Article 4 describes the process for designation, passporting the services in another Member State, and revocation.
[8] An equivalent mechanism could be to automatically grant (or deem) a licence with no additional conditions in all other Member States, which may enable enforcement to continue in the market where the alleged breach occurs.
[9] ENTSO-E and ENTSOG.

remuneration. Moreover, divergent views are emerging on the need for some infrastructure intended to bring gas into the European Union and certain cross-border infrastructure. This situation has led to some challenges, such as the need to coordinate planning between electricity and gas and the coordination between cost-benefit analysis and market testing of gas investments.

Furthermore, in the future, the boundaries between competitive activities and monopoly activities may blur, and gas and electricity may compete with each other. Going forward, TSOs will likely be less neutral to market developments. Electrification of heating, development of power-to-gas projects and/or networks of pipes conveying pure hydrogen could change the value of gas (and electricity) transmission assets.

In some countries, national legislation for natural gas may already be defined to apply to pure hydrogen, potentially depending on how it is used. In others, hydrogen may be unregulated and its infrastructure may be outside the monopoly of TSOs and DSOs.

Increasingly, as new technologies and locations for supply of "green gas" are considered and substitution between energy vectors increases, gas (or electricity) network assets may become one of several ways to provide solutions to meet the low-carbon energy needs of consumers (i.e. one of the competing options), instead of being the only way and hence an essential facility. The owners of those network assets have a vested commercial interest in how those assets are used and developed, and so may not be incentivised to encourage more economic alternatives to come to the market through forward-thinking and planning. Or, on the contrary, they may have an interest in participating in the energy transition through the development of activities which could be potentially open to competition. While, in this respect, they enjoy a privileged position to contribute to reach the decarbonisation targets, the role of network operators in the decarbonisation context must be legally clarified, to ensure that their involvement does not foreclose potentially competitive activities or distort competition in these activities. In particular, a clear separation of regulated and non-regulated activities should be ensured.

Oversight of regional entities and market areas

Regional cooperation can be fostered by entities such as booking platforms or balancing operators covering a larger geographical area. However, such entities should not be used to weaken overall regulatory oversight of the sector.

Proposed response

Institutional and governance arrangements

The overall governance arrangements in gas should be brought into line with those recently updated for electricity in the CEP (especially in a context of sector coupling and a holistic system view in the future). This alignment will involve changes to the gas legislation in relation to the Ten-Year Network Development Plan (TYNDP), Network Codes, the Agency's powers, enforcement of the compliance of ENTSOG with its obligations, exemptions and planning obligations for distribution systems. In particular, regulators consider that the revised governance for the relationship between the Agency and ENTSO-E set out in the CEP is equally relevant in respect of ENTSOG, where ENTSOG has not always taken sufficient account of the Agency's opinions to date[10] and further issues are increasingly likely in the future as decarbonisation increases the risks of conflicts of interest for TSOs.

In terms of overall energy governance, the ENTSOs should be obliged to submit their annual work programme and their sufficiently detailed budget for approval to the Agency. The Agency should have the ability to request an amendment, if it deems the work programme and/or the budget to be insufficient to cover the ENTSO's legal obligations, as well as if it considers the budget to be too generous. Such oversight of the Agency needs to be coordinated with the NRAs overseeing their TSOs' contributions to the respective ENTSO's budget.

To avoid weakening of regulatory oversight, a clear legal requirement should be introduced to the effect that TSOs can only delegate or mandate legally required tasks to another (new) entity if there is at least the same degree of regulatory oversight over such an entity. How this regulatory oversight is shaped can be left to lower-level legislation or regulation.

Governance for infrastructure planning

It may be inappropriate for the TSOs, as owners/operators of one of the competing options for providing energy system management, to have a monopoly over the identification of system needs. There is a need for a coherent approach across multiple sectors, including integration of power-to-gas and with energy management services for households, transport, services and industry. Scenarios should be driven by the National Energy and Climate Plans established in Regulation (EU) 2018/1999 on Governance of the Energy Union, to ensure that they are in line with the EU policy objectives. This may be facilitated by establishing, at European level, consistent definitions, criteria and policy scenarios, such as the speed of decarbonisation in different sub-sectors, the extent of technological innovation and energy efficiency improvements, and trends in demographic and economic factors. In order (later) to test the robustness of the proposed solutions, energy-sector scenarios or sensitivities should be defined, to be used to develop alternative, realistic pathways, notably taking into account and promoting the availability of efficiently produced "green" gases, and identifying the related system needs. The choice of these scenarios and needs can materially influence the choice of investments, so it should not be left to promoters of those investments. Therefore, energy-sector scenario development and needs identification at EU level, as a basis for the TYNDP, should be at least subject to approval by the Agency.

On the basis of the identified needs and taking into account the supply of decarbonised gases, multiple solution providers (including TSOs and flexibility providers) could come forward with ways to meet those needs, which could be network-based or not. Where possible, these

[10] For example, in relation to the Agency's Opinion on the 2018 TYNDP: https://www.acer.europa.eu/en/Gas/Infrastructure_development/Pages/TYNDP-2018.aspx

alternatives would compete either in the market or for the market via market tests. At EU level, the assessment of the available options and pathways should be supported by the availability of the necessary fundamental data, with the Agency having stronger oversight of the operational planning activities undertaken by the ENTSOs.

The above considerations reflect the growing recognition that the “natural monopoly” element of TSOs lies really in network planning and operation. Current trends in the industry may take this further as digitalisation and decentralisation allow bypass of some networks or of network components.

Analysis needs to test how robust each proposed infrastructure investment is under various pathways. These should consider both total and peak demand, and the effects of these on the transmission capacity needs. The Agency should be conferred the power to approve the ENTSOs’ TYNDPs and require amendments by the relevant ENTSO, with due justification and when the plan is deemed non-compliant with the objectives in the relevant regulation. Alternatively, the Agency should be given the power to prescribe binding guidelines for the TYNDP development, and check the draft TYNDP against those guidelines, similar to the Framework Guidelines – Network Codes development process. Whichever approach is adopted, this should not overwrite national approvals of the NDP. In this respect, it should be noted that currently not all NRAs have the power to approve the NDPs, and this should be changed. In this way, consistency between the EU and national regulatory approval could be ensured through collaboration between the Agency and NRAs.

The CBA methodology needs to be adapted to ensure that sustainability (including climate) effects of new investments are properly taken into account. In this respect, the Agency should be given the power to prescribe binding guidelines for the CBA methodology and have the power to require ENTSOs to amend the methodology where necessary and to document any models used in the CBA in a way that allows third parties to run the analysis independently. The CBA methodology should include a full assessment of the decarbonisation effects and their monetisation. It should also be applicable for cases of decommissioning of assets, as well as of re-purposing of natural gas assets for use in a decarbonised future (which could include transportation of hydrogen or of carbon dioxide for use or long-term storage). Through this approach, decommissioning should be subject to due consultation of neighbouring authorities and stakeholders where their markets may be affected.

Investment in and operation of natural gas infrastructure

Investments geared solely towards fossil fuels should be avoided or require a quick payback of costs, while investments in gas infrastructure should be future-proof, meaning that they should also be useful for “low-carbon” or “green” gases, properly defined.

Furthermore, TSOs, storage operators and LNG operators, as well as DSOs above a size threshold, should be obliged to measure and report their methane emissions according to a standard methodology, with sufficient granularity to allow the identification of the highest emitters. The data should be publicly available through a European Methane Emissions

Observatory, as well as in the audited annual reports of the operators, which should also cover other sources of methane emissions. The measurements should be followed by an action plan at system operator level to address emissions. NRAs should recognise efficiently incurred costs for regulated entities. Once emission data are sufficiently robust, tradeable permits or taxes on actual emissions could be introduced.

4. THEME C: DYNAMIC REGULATION FOR NEW ACTIVITIES AND TECHNOLOGIES

Where are we now? What are the challenges?

Impact of new activities and technologies on markets and regulation

Decarbonisation solutions include blending biogas, biomethane, synthetic methane or hydrogen into natural gas, or using biogas, biomethane, synthetic methane or hydrogen in place of natural gas. This includes "power-to-gas", where the resulting gas could be synthetic methane or hydrogen. It may also include carbon capture and use or storage where relevant[11].

The potential expansion of these technologies gives rise to a number of technical issues, such as the definitions of various decarbonised energy products in technical terms, as well as in terms of being "green", and technical standards for connections and gas quality. For the purposes of this Paper, we only note that, to the extent that blending of other gases into natural gas becomes more prevalent, variations in gas quality standards across borders should not become a barrier to trade[12]. In any case, the interoperability requirements of the Interoperability and Data Exchange Network Code[13] should remain applicable.

We are here more concerned with the impact of these new solutions and technologies on competition and on regulated monopolies. Our current view is that new "green gas" production assets could be developed in a competitive market, supported in the early stages for technology development reasons, if government policy so decides. There is a wide range of different decarbonisation technologies and we do not yet know which ones will end up providing the most economic solutions, in which locations and combinations. The terms on which they connect to the existing gas system and the tariffs they pay should put them on a level playing field with other technologies. In this way, they can compete fairly in the wholesale market, benefiting from the greenhouse gas reduction value they provide.

In some cases, there may be related assets with monopoly characteristics, for example if end consumers are supplied with pure hydrogen conveyed through a network of pipes. In many countries, there is no regulatory framework for these assets today and it is unclear whether they would or should fall within the same regulatory framework as natural gas networks.

[11] For example, hydrogen production in combination with steam methane reforming.
[12] Under the RED II Directive, Guarantees of Origin (GOs) for gas are introduced, so the action required may be more related to implementation than legislation.
[13] Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules

For some assets, it is still unclear whether they are better treated as part of the competitive market or as monopoly infrastructure. We already see TSOs looking to invest in assets that are arguably for competitive activities, for example power-to-gas or renewable gas facilities. For power-to-gas assets, there may be issues where differences in tariffs or market rules between gas and electricity cause distortions or unintended consequences. For example, differences between the gas day and electricity day (i.e. the period covered by day-ahead auctions) could increase risks. The topic of tariffication is treated in more detail in Theme D below.

Overall, one of the main issues here is uncertainty as to how new assets and activities will be treated in regulation. The historical system was not designed with them in mind and they may, by chance, currently be treated differently in different countries depending on the precise wording of legislation or regulation, highlighting the need for uniform definitions and criteria to be met for a product to be designated as “low-carbon” or “green. On the other hand, it is currently uncertain whether and how such assets and activities will develop, so it may be considered prudent to “wait and see” rather than closing down choices too soon. The challenge for policy and regulation is to provide sufficient predictability to promote efficient investment without taking decisions that preclude innovation and efficient investment.

Proposed response

Defining and monitoring new technologies

As technologies are still developing and the future mix is rather uncertain, we favour adopting consistent principles at European level and a dynamic regulatory approach, rather than including detailed rules in legislation at this stage.

This will need to be supported by effective definitions and monitoring. Definitions and criteria should unambiguously determine the different types of decarbonised gas and the extent to which each can be regarded as “green” or “low carbon”. It is also necessary that they can be easily modified or be general enough to include new gases/technologies that may emerge. We welcome the work on taxonomy being taken forward by the Florence School of Regulation following discussion at the 32nd Madrid Forum. While the Renewable Energy Directive is helpful in establishing Guarantees of Origin (GOs) for renewable gas injected into natural gas networks, further consideration is needed for decarbonised gases more generally and to ensure that a consistent approach is taken to accounting, most likely following the “book and claim” model applying in electricity.

In terms of blending of hydrogen in gas networks, regulators call for preparatory assessments coordinated at European level at least in terms of principles or methodology. Security takes on a special relevance when dealing with hydrogen. National and regional conditions differ and it will be important that any EU-wide thresholds for hydrogen admixture do not prevent significant development of blending in regions where this can proceed quickly, nor require excessive investment in other regions where flows of hydrogen remain marginal.

For the proper regulatory assessment of the impact of decarbonised gas production on the sector, including transmission system development patterns and trading, reliable fundamental data on gas production assets in place and planned should be systematically collected from TSOs, DSOs and GO issuing bodies, and should be available at European level.

Dynamic regulation for new activities

In general, we favour market-based approaches where conditions allow this. Regulation should be neutral between technologies and support efficient outcomes and investments. In particular, and in a sector-coupling context, there should be a review of market rules across gas and electricity, as they affect power-to-gas assets, to ensure no undue distortions.

As regards the development of new technologies and activities for gas, regulators and stakeholders all acknowledge the need to reduce barriers for genuine, first of a kind or small-scale pilots, without waiting for market wide changes to legislation or regulation. Several Member States are developing “sandbox” models which allow for small scale derogations from existing rules. It has been noted in response to our consultation that there is no equivalent provision at EU level, which could limit the effectiveness of national action where EU rules are unintentionally getting in the way. We therefore propose to provide for an “EU umbrella” for the sandbox approach, allowing time-limited derogations with the view to generate information that is useful in the public interest and there is no significant risk of a material impact on the wider market. The resulting lessons should be shared between NRAs to avoid the need to replicate the pilots in each Member State and to accelerate decisions on whether regulation or legislation needs to be adapted.

In terms of the role of TSOs and DSOs, a parallel can be drawn with the approach for electricity storage and recharging stations for electric vehicles adopted in the CEP. This could be formulated as a confirmation of how the existing approach to unbundling applies to new activities[14].

In general, TSOs[15] and DSOs should be precluded from investing in potentially competitive activities. Where the market is not already bringing forth needed investment, the next course of action could be to utilise competitive tenders. If this fails, then following careful analysis of the cost and benefits of the proposed investment and of the effect on competition, it may be possible to grant limited exemptions to TSOs and DSOs to allow them to invest in order to get the market started. Additional restrictions could be considered such as requiring investments to be through a separate but related company for greater transparency, and requirements to divest once the market is ready to take over. Unbundling of regulated and non-regulated activities must be ensured. Care would need to be taken not to allow TSO/DSO-operated assets to foreclose the market for the services these assets provide, to use their inside information to secure the best sites or to cross-subsidise the new projects putting the TSO/DSO in an unduly favourable position. This would likely include requirements for regulated third party access for all assets developed by TSOs or DSOs.

[14] See also the CEER conclusions paper on DSOs and new activities, published March 2019.
[15] TSO refers to certified TSO as defined in Directive 2009/73/EC.

We note that support for investment in technologies that are not yet commercially viable may be justified to promote learning, but this is largely a matter for governments rather than regulators.

Nonetheless, and without pre-empting the question of whether some or all such new installations should or should not be in the regulated domain, we note that the existing tools, such as the TEN-E Regulation, could be amended to enlarge the range of investments eligible to be included in the TYNDP and possibly become Projects of Common Interest (PCIs), where this would facilitate increased efficiency in supporting the energy transition in the best interests of energy consumers.

Where new infrastructure such as power-to-gas or biogas plants are developed by the market, there is a need to coordinate with network availability and development. This starts with the TSOs (and DSOs, where relevant) being required to publish information on relative ease of accommodation of new assets. Economic efficiency is likely to be best served if this is backed up through a price signal, such as connection charges, but in any event appropriate processes will need to be put in place to ensure that there is a level playing field. Where it is clear that network operators cannot invest in such assets themselves, it should be possible to achieve effective coordination so that networks can accommodate solutions provided by the market.

In terms of the impact on existing networks, we note that care must be taken that new investments in natural gas networks are consistent with future decarbonisation. Efficient management of the infrastructure is the responsibility of the operators, who should therefore bear part of the risk of their future use. Where policy scenarios indicate that existing assets may become stranded, there should be a requirement to coordinate with neighbouring authorities in case of a risk of undesirable effects on neighbouring markets. Options to address the risks would include re-use of assets for alternative purposes, with accelerated depreciation, or decommissioning seen as last resorts.

In the CEP, the establishment of an EU-DSO entity is foreseen. While this is primarily focused on the electricity sector, also on the gas side many of the experiences and learnings with renewable energy (for example, biomethane fed into gas distribution networks) occur more at DSO than at TSO level. This implies that the possibilities and limitations of DSO networks need to be taken into account much more than before. To ensure the DSOs' views are part of the EU deliberations when developing new measures, it would be useful to bring gas DSOs into a European DSO entity with clearly defined tasks and objectives to support new technologies. This could assist in the development of a new Network Code governing decentralised injection of decarbonised gases. With respect to an EU-DSO entity, it will be important to recognise that (as with TSOs and market participants), DSOs generally have vested interests in promoting their own business model and their own assets, so their views should be considered alongside those of other stakeholders.

More generally, regulation of new assets and activities is an area where dynamic regulation is more important than a focus on setting the best rules today. There is value in learning from experience and in the legislation giving the relevant authorities powers to act at a later stage, with procedural safeguards.

Regulation of new networks

Consideration should be given to a regulatory framework for a pure hydrogen network. This might appear premature, as initial investments are being made in a competitive market (e.g. for use of hydrogen in industry) rather than as a network asset. The prospect of a widespread hydrogen network still seems some years away, and is likely to be localised at first. However, uncertainty over future regulation could hamper (and delay) investments in decarbonised gases. Some principles, such as third party access, could potentially be set down at EU level before investments are made. Just as it is important to ensure effective regulation of networks, so it will be important to avoid unnecessary regulation of competitive activities. For example, where hydrogen is piped to a single industrial user, it is unlikely to be appropriate to impose significant regulatory requirements. But should hydrogen networks become widespread, and where blending of decarbonised gas increases in existing networks, there would be real value in leveraging the liquidity of existing markets and the understanding of existing rules and regulations. This could be achieved by extending the existing Gas Directive and Regulation to apply beyond natural gas to include decarbonised gases, with clear carve-outs for direct pipes to individual (or small clusters of) industrial users where additional regulation is unwarranted.

5. THEME D: TRANSMISSION TARIFFS AND CROSS-BORDER CAPACITY ALLOCATION

Where are we now? What are the challenges?

The current approach to gas transmission tariffs is predominantly based on national entry-exit models. The variety of national situations leads to a wide range of tariffs on cross-border flows, from well below €0.5/MWh up to €2/MWh within the EU and up to nearly €3/MWh on external borders (see Figures 30-32 in the Agency's 2018 [update?] Market Monitoring Report). Cost reflectivity is the background principle for tariff setting, in particular for cross-border capacity. Thus, there is a potential concern, especially where the entry-exit zones are relatively small and where gas transits across several borders, that gas flows are being charged exit and entry fees each time even over relatively short distances. As cross-border tariffs are one of the factors that influence price spreads on hubs, a fair, and efficient split of costs among users should be guaranteed to avoid pancaking being an issue.

We would expect cross-border tariffs to be a contributing factor to wholesale price spreads between markets either side of the border, which can also be caused by congestion on interconnector capacity (all capacity made available being utilised). In general, spreads between most EU gas markets are relatively modest. So at present, as most stakeholders also noted, the tariff design does not appear to be causing major issues on a pan-EU basis.

However, some stakeholders have highlighted that concerns about gas tariffs are already present in some regions and are expected to grow – at least in some markets - as long-term capacity contracts come to an end and bookings move to a shorter-term horizon. Evidence across the EU is that new capacity bookings are running overall at a lower rate than contract expiry, but with local differences which can be significant. Furthermore, short-term tariffs are often higher than long-term tariffs. If the rationale is properly to allocate costs among users in a context where capacity has been sized according to peak requirements, in some circumstances, such a tariff approach could increase barriers to trade. This question should be properly assessed.

Moreover, the way in which TSOs assets are valued and their allowed revenues calculated has an impact on the tariff levels, thus indirectly on the possibilities for cross-border trade and market integration. The Agency's Allowed Revenues Report[16] has shown significant differences in approach among NRAs. These may result from differing infrastructure and market characteristics, although in some cases the justification is unclear[17].

As well as cross-border charges, differences between gas and electricity tariff frameworks could distort other decisions where the two energy forms are substitutable and hence compete, as is increasingly likely in the future with sector coupling. For example, where energy from power-to-gas may be competing with energy from, for example, gas storage, LNG or electricity storage (or any combination), they should face network charges which allow them to compete on a broadly level playing field, each paying for the costs they impose on the network. In addition, power-to-gas and gas storage could compete with electricity storage, while through power-to-gas, electricity transmission can compete with gas transmission. For example, if the demand for energy in a transformation process (gas to power or vice versa) is charged with fixed cost or (even worse) with levies, charged on a per kWh basis, these fees increase the marginal cost (price) of the energy input in the transformation process, which may distort competition. In some markets, the approaches to charging gas storage and electricity storage differ significantly, potentially distorting investment and operational decisions.

Proposed response

On tariffs, regulators agree with the views of many stakeholders that the implementation of the Tariffs Network Code shall remain a priority. As noted above, at present tariff design does not appear to be causing major issues on a pan-EU basis. However, some stakeholders have highlighted that concerns about gas tariffs are already present in some regions and are expected to grow.

The Agency's experience is that, alongside the implementation of the Tariffs Network Code, the basis of the current gas market design needs to be anchored more firmly in EU legislation. In particular, the definition of the entry-exit system and of harmonised capacity products (firm, interruptible and conditional) in the context of an entry-exit system is currently lacking and needs to be accurately developed, taking into account the topology of the network, flow

[16] Link.
[17] See examples provided in the Agency's Report on the methodologies and parameters used to determine the allowed or target revenue of gas transmission system operators: https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Report%20Methodologies%20Target%20Revenue%20of%20Gas%20TSOs.pdf

patterns and the potential for physical congestion. Such a definition needs to include rules indicating if and when deviations are allowed and explain whether and how capacity constraints apply, when using these products.
Regarding possible concerns about gas tariffs and increasing price spreads in some areas, the system of market monitoring and targeted regulation set out under Theme A above should be applied. Identification of potential market problems and understanding their causes are necessary before targeted action can be taken.

Cross-border tariffs might influence hub price differentials, but are not the sole driver, as proper competition can offset price segmentation at IPs. Should cross-border capacity charges for gas be a hindrance to trade, there are a range of possible measures that could be taken at a regional level. A response could be to allow the reserve price in cross-border capacity allocation to be reduced, on the basis of an agreement between the concerned NRAs, supported by the Agency in a mediating role where needed. The implementation of such a measure at regional level would also provide relevant experience in case the issues now detected in some regions were to become more pervasive and an EU-wide solution be needed.

Where national entry-exit zones are merged into regional zones to improve market functioning (as discussed under Theme A), it may also address the price-segmentation issue referred to above[18].

Any of these measures could be combined with an inter-TSO compensation (ITC) mechanism, to ensure the recovery of the allowed revenues also for TSOs whose systems are significantly affected by transits. In case of market mergers, this implies gradually rebalancing away from cross-border tariffs to higher tariffs on external borders of the merged zones and on demand.

In case a regional merger is considered, it should be subject to a cost-benefit analysis (CBA), as explained in Theme A. If an ITC mechanism is implemented, additional transparency requirements are needed, in particular covering the calculation and value of the allowed revenue, respecting confidentiality requirements. In order to foster the implementation of ITC mechanisms at regional level, clear principles are needed, along with an appropriate institutional framework setting out the roles and responsibilities of each actor.
While harmonising tariff structures goes some way towards protecting consumers in a Member State potentially overpaying for TSO transmission services in countries through which the gas they use passes, it only addresses part of the issue. Implementation of the Tariffs Network Code reveals that there may be further room for improvement in order for cross-border tariffs properly to allocate the costs of the network used by domestic and non-domestic flows. The allowed revenue of the TSO is part of the equation for calculating the cross-border entry-exit

[18] Provided it does not lead to significant congestion within zones, to cross-border capacity reduction or to cross-border tariffs at the edge of the larger zones. In fact, the merging of zones does not automatically imply an increase in remaining cross-border tariffs. For example, this would be the case with an ITC mechanism that applies a reference price methodology compliant with the Tariff Network Code for each of the market areas that are part of a merger and leads to significantly higher transit costs of the disappearing IPs according to the gas flow at those IPs

prices. In order fully to address the issue in those circumstances where an ITC mechanism is in use, the calculation of a TSO's allowed revenue to be considered in the ITC mechanism should be assessed against a set of common criteria. The guidance would be applied by the NRAs to derive specific parameters for the ITC mechanism in a comparable way.
To address sector coupling issues, regulators should be tasked with reviewing the substitutability of gas and electricity and ensuring that network charges provide a level playing field between gas and electricity – for example, between gas and electricity storage: electricity storage may currently be treated either as a generator (often exempt from network access charges) or as a consumer (subject to network access charges similar to those applied to end consumers), while for gas storage a discount may be applied on network access charges. Similar considerations may arise for power-to-gas facilities. In order to ensure a level playing field and promote economic efficiency, the tariffs applied to these assets should reflect the costs they impose on the network, With regard to taxes and levies, they are in general defined by policy-makers, and are not related to the use of the network. It is important to rethink if and how those taxes and levies should be applied in order to minimise possible distortive effects.

Finally, with respect to capacity allocation, the system of market monitoring and targeted regulation set out under Theme A above should be applied. Where there is a risk of a dominant party in a given market area securing most long-term capacity, particularly in markets which are highly concentrated or illiquid, additional measures of intervention should be elaborated as part of targeted regulation to allow for (urgent) response to possible risk of market foreclosure.

In this case, as a first measure, regular market analyses should be performed on the possible market impacts to allow market players and NRAs to prepare for such limitations. Under the Capacity Allocation Mechanisms Network Code[19], the regulatory toolkit includes the ability for NRAs to limit the capacity to be allocated in a long-term auction. Other options include Use-It-Or-Lose-It and Use-It-Or-Sell-It provisions and over-subscription and buy-back of capacity. However, additional measures might be required.

[19] Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013.

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