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August 2025

Pathways for empowering regulators to advance decarbonisation

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Foreword

This document is the second policy brief by the Clean Energy Ministerial's campaign Empowering Regulators for Accelerated Decarbonisation. The campaign, launched at COP29 in Baku, is co-led by Australia and the United Kingdom, and Canada, Chile and Japan have joined as members.

The Regulatory Assistance Project (RAP) and the 21st Century Power Partnership collaboratively operate the campaign, which was envisioned as a follow-up to a project of the Regulatory Energy Transition Accelerator (RETA), a platform of more than 60 regulators around the world, launched at COP26 in Glasgow. The campaign is based on the findings of the RAP-RETA report *Elevating the Priority of Decarbonisation in Energy Regulators' Decision Making*. In a survey of more than 25 regulators, the authors found that, although only two have explicit mandates to consider decarbonisation, regulators across the world are already deploying creative solutions to this end.

The Empowering Regulators for Accelerated Decarbonisation campaign aims to strengthen the interface between policymakers and energy regulators. The goal is to align regulatory actions with national decarbonisation goals, accelerate solutions for the clean energy transition and provide a repository of best practices for effective policy implementation.

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EMPOWERING REGULATORS FOR ACCELERATED DECARBONISATION
A CAMPAIGN OF THE CLEAN ENERGY MINISTERIAL

RETA Regulatory Energy Transition Accelerator

Executive summary

Countries around the world have committed to decarbonisation targets as part of efforts to limit global climate warming below 1.5°C. In order to meet these objectives governments should be encouraged to set strategies to follow through on these commitments.

In addition to policy carried out by government departments, other government agencies will be involved, including regulators, planners and system operators. This brief presents a set of regulatory empowerment pathways and aims to highlight the importance of all stakeholders working together to further inform policy for more effective regulation to tackle decarbonisation.

Energy sector regulators play a key and vital role in enabling decarbonisation, as they authorise the new energy infrastructure while allowing for efficient cost recovery. Overlooking or minimising decarbonisation within the remit of regulators is likely to prolong current investment practices, undermining the success of the energy transition and exposing the nation to avoidable costs.

Regulators can be more successful at supporting the government's energy policy when provided with clear guidance. Although less formal guidance can be effective in specific circumstances, enlarging the regulatory toolkit (e.g., by including a mandate to support decarbonisation) will empower the regulator to play a stronger role in the transition.

Once the government has set a well-defined objective and the pace for the transition, regulators can be powerful partners, dealing with the often difficult trade-offs between the cost of decarbonisation, energy security, energy access and affordability, as well as dealing with new issues as these arise. Such well-defined objectives and strategies should also prioritise the implementation of integrated planning.

Regulators, well-grounded in the practicalities of energy investment from a public interest perspective, can also provide practical insight into the feasibility of government policies and their impact on the energy sectors in their jurisdiction.

The following policy brief draws on international experiences to highlight the wide range of proven solutions available to address misalignments between national climate objectives and regulatory actions for decarbonisation, and offers steps for governments and policymakers to identify the most suitable pathways for regulatory empowerment.[1]

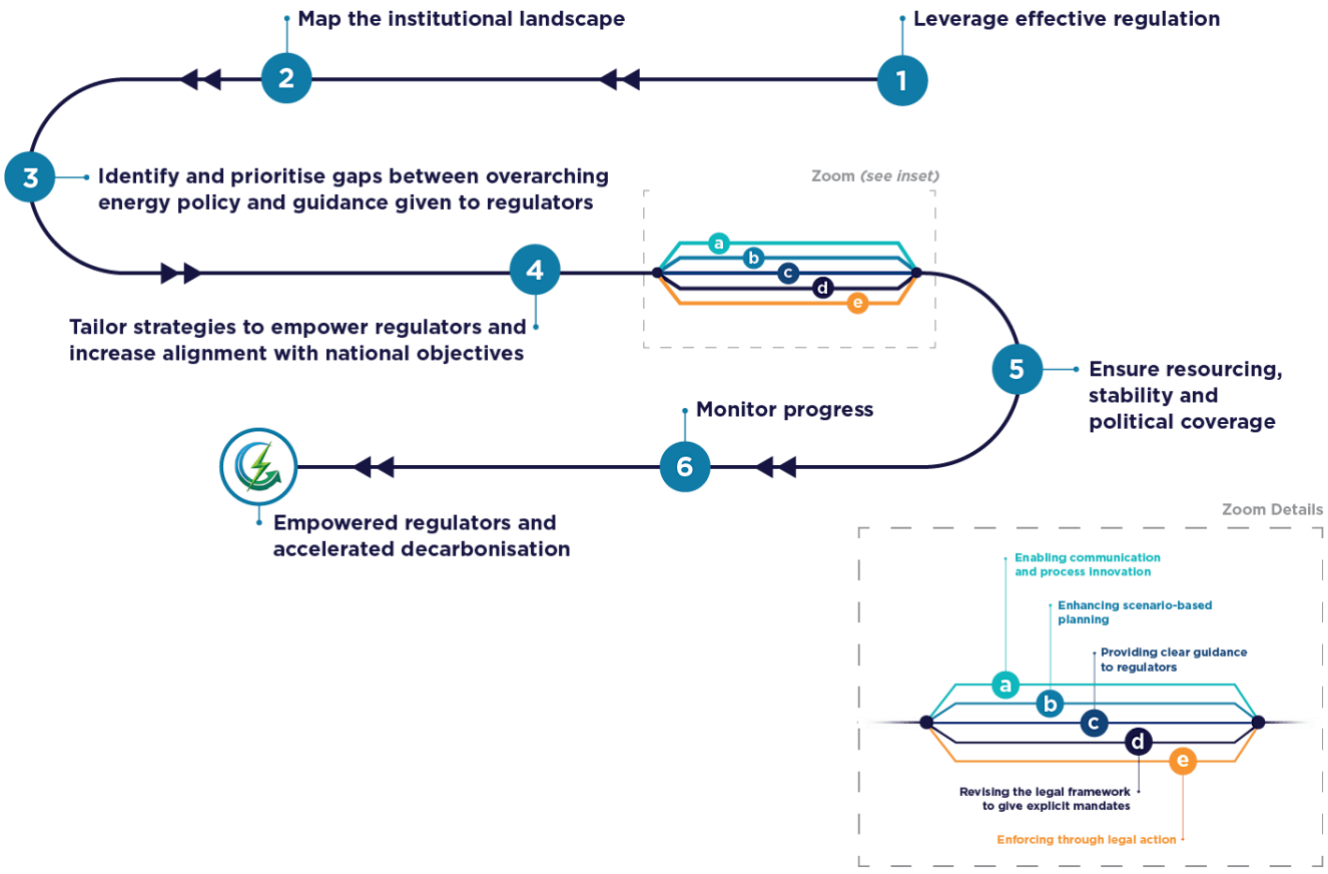
[1] The authors would like to express their appreciation to the following people who provided helpful insights into drafts of this report: Floris van Dedem, International Energy Agency and Regulatory Energy Transition Accelerator; Peter Fraser, Board of Directors, Canadian Energy Regulator; Hannah Williams and Robert Cooke, UK Department for Energy Security and Net Zero; and Richard Sedano and Rebecca Wigg of the Regulatory Assistance Project (RAP). Steena Williams and Deborah Bynum of RAP provided editorial expertise. Responsibility for the information and views set out in this paper lies with the authors.

Introduction

Energy regulators around the world play a key role in energy sector governance, overseeing investments as well as ensuring affordability, access and security of supply. The strategic development of these investments in the coming years will be crucial for ushering in a clean energy future and for achieving our shared climate objectives.

This report offers pathways to identify these gaps and to accelerate decarbonisation, drawing on lessons learned from both national and international experiences. It looks at six key steps to identify and address gaps in a way that allows governments to tailor solutions to their specific contexts (Figure 1).

Figure 1. Six steps to empower regulators and accelerate decarbonisation



The report concludes with a set of recommendations for governments, including to leverage platforms like the Clean Energy Ministerial (CEM), the Regulatory Energy Transition Accelerator (RETA) and the Regulatory Assistance Project (RAP) to encourage effective international collaboration and knowledge exchange.

1. From goals to implementation – leveraging effective regulation

The first step in addressing the misalignment between Nationally Determined Contributions (NDCs) and their implementation within the energy sector is to recognise the valuable role regulators can play. Involving them early and effectively can help reduce the overall cost of the energy transition, and ensure that energy sector investments support national and international climate objectives.

Despite more than 200 countries adopting NDCs as part of their efforts to limit the average global temperature rise to less than 1.5°C, there is increasing evidence about the disconnect between these pledges and their actual implementation. According to the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Environment Programme (UNEP), one of the key reasons for the NDC implementation gap is the lack of measurable or time-related criteria (UNEP, 2024). Moreover, at present, only 48% of countries have integrated their NDC targets into legislative, regulatory and planning processes (UNDP, 2020). Without clear development strategies this leads to ambiguity in pursuing climate goals, meaning that a large share of governmental bodies – like ministries, agencies, planning bureaus and regulators – do not integrate climate objectives into their day-to-day work. RAP-RETA's 2024 report *Elevating the Priority of Decarbonisation in Regulatory Decision Making* found that only two of the 25 surveyed regulators had explicit decarbonisation mandates.

A key goal of the campaign Empowering Regulators for Accelerated Decarbonisation is to inspire policymakers towards an intentional rethink of the role of energy regulators in the energy transition. Regulators possess expertise about how to manage trade-offs between reliability, affordability, security of supply and competition, yet they are not always able to prioritise decarbonisation. Power sector investments have long lifetimes, which elevates the value of long-term regulatory clarity and stability in the approval process. As a result, engaging regulators early can ensure that investment decisions align with overall policy goals from the outset and can prevent stranded assets in the coming decades, such as early retirement of generation or gas distribution assets. Governments that want to foster consistency between decarbonisation objectives and investment decisions should set a clear direction of travel and pace for the energy transition (Figure 2). This will enable regulators to leverage their toolkit to balance costs, and allow utilities and other actors to make efficient investment decisions.

Figure 2. Energy regulators play a pivotal role in advancing the clean energy transition

The following sections provide international examples on how policymakers and governments can effectively engage regulators in the energy transition and address both institutional and capacity-related gaps in implementing decarbonisation objectives.

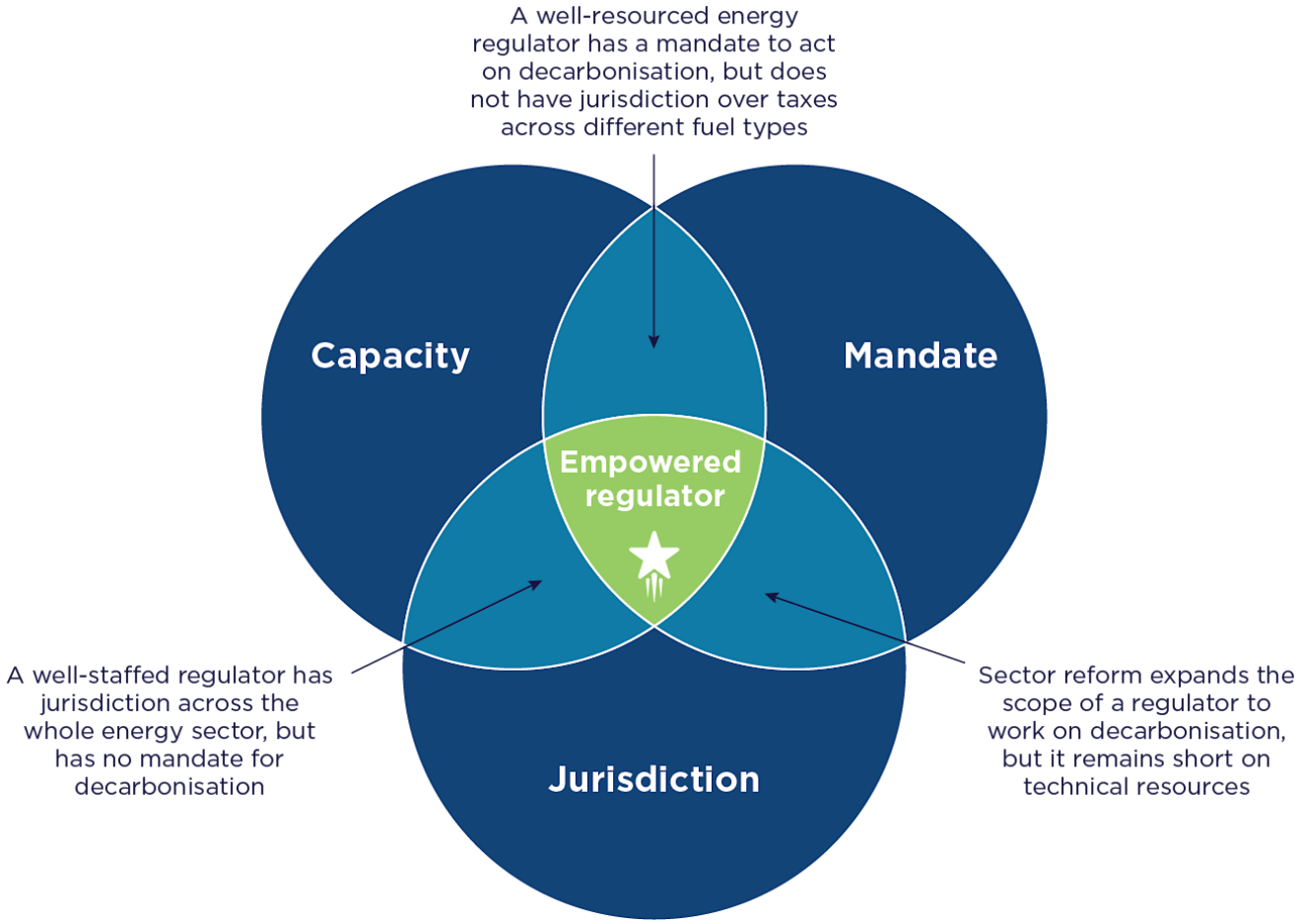
2. Mapping the institutional landscape

The first step to empower regulators for accelerated decarbonisation is to carry out a mapping or diagnostic exercise built around three key questions:

- Which organisations have jurisdiction over regulation or standards related to decarbonisation?
- Does the regulator have the statutory support needed for the decarbonisation tasks assigned to it?
- Does the regulator have the capacity to assume these responsibilities in addition to the existing objectives of its mandate?

It is crucial to identify systemic institutional gaps, particularly regarding any unassigned roles pivotal to ensuring an effective energy transition (Figure 3). Such gaps may manifest as discrepancies between an entity's responsibilities and its actual capacity for action, or as deficiencies within the broader institutional framework for decarbonisation. When identifying these disparities, governments should also be mindful of organisations with relevant mandates or jurisdiction that may remain passive until clear policy direction is provided. Addressing these institutional dynamics is essential for ensuring an effective decarbonisation strategy.

Figure 3. An empowered regulator has jurisdiction, a clear mandate, and capacity to deliver



Addressing gaps between mandate and jurisdiction is particularly important since decisions on decarbonisation may have further advantages in terms of planning or reducing import bills. Kenya offers a strong example where the regulator, the Electricity and Petroleum Authority, has worked with the Energy and Finance Ministries to develop an explicit nighttime EV charging tariff for public transport that makes the most of the country's geothermal power fleet while reducing costly imports of fossil fuels for transport (Government of Brazil, 2022). In Brazil, the development of the National Hydrogen Programme PNH2 offers another example. The National Council for Energy Policy sets the strategy for hydrogen. The Council coordinates with the National Petroleum Agency, which has jurisdiction over hydrogen, while engaging the Brazilian electricity regulator ANEEL, the National Electric Energy Agency, to advise on the electricity-related aspects of hydrogen production. ANEEL is also in charge of coordinating transmission and distribution decisions related to hydrogen.

3. Identifying and prioritising the gaps

Decisions made by regulators today play a pivotal role in guiding energy investments, setting the course for how our energy systems will develop over the coming decades. Addressing gaps between overarching energy policies and the guidance given to regulators and planners will be essential for decisions that lock in emissions, affect the entry of new technologies, or even reshape how the grid is developed.

Brazil and the Netherlands' decisions to phase out net metering are examples of identifying a key gap, namely the impacts of grid congestion and cost redistribution resulting from net-metering design that triggered significant expansion of distributed solar PV. In both countries, reforming the tariff to address grid impacts and constraints required careful coordination with planners, ministries and industry. This collaboration helped identify and balance the trade-offs between restructuring subsidies for consumers and meeting broader grid reinforcement needs while maintaining reliability and mitigating additional system costs.

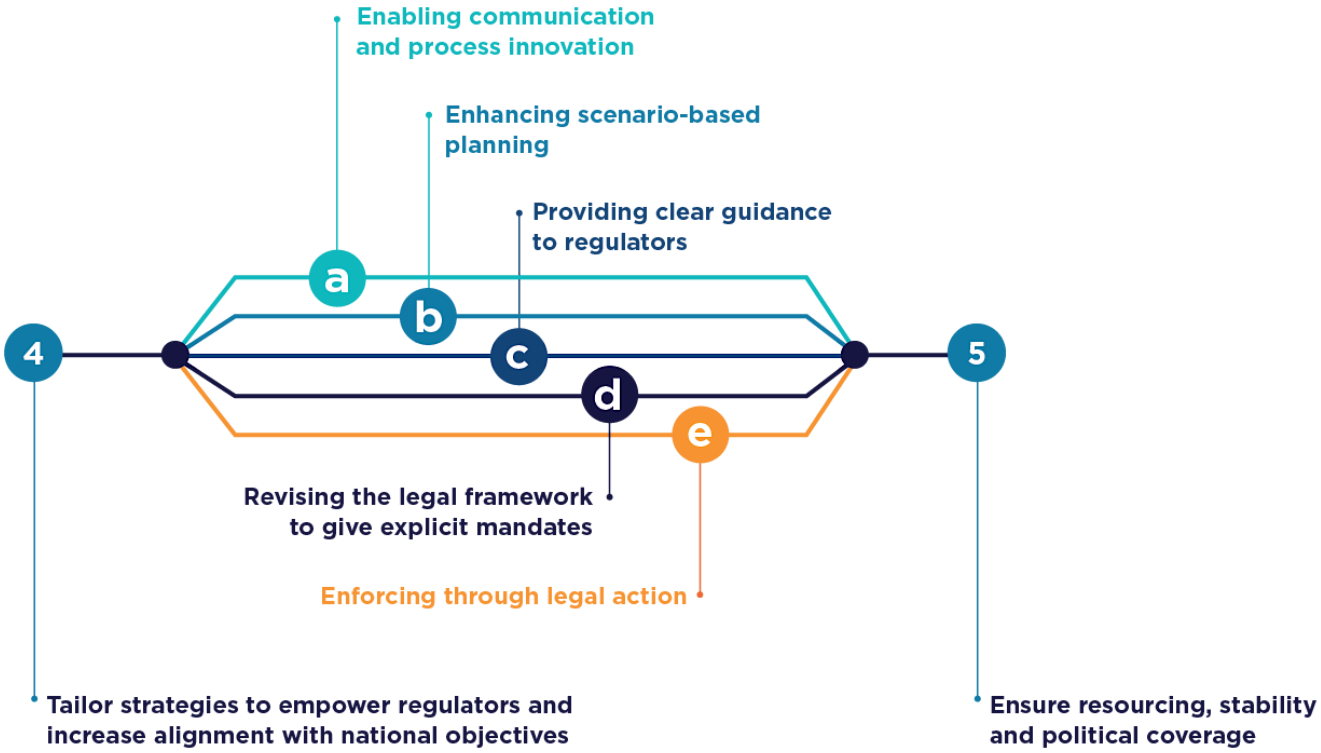
Between 2020 and 2024, Germany redefined the role of battery energy storage systems in its power market; these had previously been ambiguously defined in the ministry's original energy storage strategy (Bundesrepublik Deutschland, 2023). The main discrepancy arose due to the classification of battery energy storage systems as both generation and demand-side assets: they were double-charged for grid fees, yet could not be deployed as grid-side assets. By soliciting feedback from transmission system operators and industry, the ministry and the grid regulator, the Federal Network Agency, collaborated to define storage as a separate class and create two new definitions of grid access. The market class permits ownership of battery energy storage systems by generators, aggregators and traders, while the grid-related class allows network companies to own and operate them as part of the regulated asset base and to participate in ancillary services and grid congestion management.

Recognising and addressing key regulatory gaps while continually refining approaches based on new insights is vital for guiding power systems towards ambitious decarbonisation goals.

4. Tailoring strategies to empower regulators

After mapping the institutional landscape and identifying key challenges, it is important for governments to assess how best to empower their regulators: there are a range of possible approaches, depending on the national context and the nature of the issues involved. The following paths differ in terms of how easy they are to implement and how prescriptive they are – ultimately, the strategy of choice will depend on the political capital available and the ease of implementation (Figure 4).

Figure 4. Pathways to increase alignment with national objectives



a. Enabling communication and process innovation

The examples above demonstrate that effective collaboration – whether across the power industry as in Germany, or between regulatory remits as in Brazil – can effectively align government policy, strategic direction, and regulatory frameworks. In such cases, institutional mapping is essential to understand which organisations are relevant when it comes to implementing decarbonisation objectives and deciding how to engage the relevant institutions with the right jurisdiction. Government guidance through a defined strategy is essential to drive collaboration across all levels of energy governance.

Improved communication not only comes from breaking down silos, but also from innovative regulatory processes. Depending on the jurisdiction, traditional regulatory methods such as evidentiary processes can at times be adversarial, whereas shifting to more participatory approaches can enable new solutions.

In another example, the Oregon Legislature passed Senate Bill 978 in 2017 after recognising that the Public Utility Commission had fulfilled its primary obligation to ensure reliable electricity access across the state (OPUC, 2018). The bill tasked the Commission with developing a public process to investigate the effects of technology change and industry trends on the electricity regulatory framework. In collaboration with RAP and RMI, the commission developed a seven-meeting process that brought together representatives from generators, utilities, environmental and social groups, and staff from the commission. By bringing in third parties to facilitate and provide technical expertise, and by building capacity

among the participants, the public process allowed for a more collaborative approach that more effectively identified the needs to be communicated back to the state legislature.

In the cases above, a key driver was the government's recognition that more efficient outcomes could be realised by changing the way regulatory decisions were made. This can be achieved either by providing platforms for participatory dialogues with multiple actors or by moving on from standard procedures that had previously led to adversarial exchanges without reaching new solutions.

b. Enhancing scenario-based planning

Other strategies may, however, require allowing the regulator to implement scenario-based planning. For example, in the United States, Michigan's Public Utility Commission requires utilities to develop integrated resource plans that incorporate various scenarios (Hernandez, Fraser, Faraon, 2024). These include an environmental policy scenario to assess the impacts of accelerated decarbonisation, including effects on system reliability, emissions, financial requirements and risks. Integrating the criteria through scenario-based planning led to an agreement that will speed up coal plant retirements. Although the plan was challenged and upheld in court, the commission's approach exemplifies a proactive method to quantify the trade-offs involved in moving towards a cleaner system.

c. Providing clear guidance to regulators

Depending on the context, governments can also empower regulators to consider decarbonisation by providing guidelines related to a specific policy. One example of this is providing a reference or shadow carbon price to be considered in regulatory decisions. These and similar decisions are often outside the jurisdiction of regulators and are set by an overarching ministry, such as the energy ministry. Defining such reference prices at the ministerial level can also help strengthen the implementation of national development strategies beyond energy objectives.

Another example of such guidelines can be seen in Ontario, where in June 2025 the government issued a directive requiring the Ontario Energy Board to improve regulatory efficiency by introducing joint gas and electricity planning exercises while expediting the construction of assets to ensure reliability and competitiveness (Government of Ontario, 2025). The directive includes specific provisions on assessing the feasibility of integrating low-carbon gases and distributed energy resources into Ontario's network.

d. Revising the legal framework to give explicit mandates

Governments can also formally empower regulators to consider decarbonisation in their decisions by enshrining in legislation or statute an explicit mandate for them to do so. In 2022, Singapore's government introduced an amendment under the provisions of the Electricity Act that allows the regulator, the Energy Market Authority, to implement regulations and policies connected to greenhouse gas emissions reductions in the generation, transmission, import and export of electricity supply (SSO, 2022). In the United Kingdom, the Energy Act of 2023 explicitly gave the regulator, Ofgem, the mandate to consider net-zero goals in its regulatory decisions (Government of United Kingdom, 2023). It also expanded Ofgem's remit to include heat networks and appointed it as the economic regulator for CO_2 transport and storage networks. Similarly, since 2023, decarbonisation has been included as

one of the key energy policy objectives recognised in the country's industry act (Government of United Kingdom, 2023). Introducing mandates for decarbonisation requires regulators to consider it along with their other missions such as affordability, reliability and security of supply, while allowing them the freedom to explore the path that most efficiently balances these priorities.

e. Enforcing through legal action

Besides government mandates, in specific cases society or industry groups can bring legal action for or against decarbonisation. However, without proper backing or clear guidelines, exposing regulators to a scenario of constant litigation can also undermine efforts towards decarbonisation and confidence in regulatory decisions. In 2015, the Supreme Court in the U.S. state of Massachusetts issued an order prohibiting the Department of Public Utilities from allowing electricity distribution companies to enter into gas pipeline contracts backed by electricity ratepayers, citing the availability of more environmentally friendly options (Gotsis, 2016). Depending on the jurisdiction, challenges to regulators' decisions may come from multiple fronts, as in the case of Michigan, where early coal phase-outs were contested in court. To avoid the threat of constant litigation, governments should provide clear guidelines for the implementation of decarbonisation targets.

5. Ensuring resourcing, stability and political coverage

Expanding the jurisdiction or the mandate for regulators to effectively accelerate decarbonisation requires consideration of whether they have sufficient capacity to cover potentially new topic areas. For this reason, it is important that policymakers carry out intentional exercises to define the role that they want the regulators to play and to identify partner organisations that can share knowledge.

Once the role of the regulator has been defined, it is essential to understand whether the agency concerned has sufficient resource with the right capabilities to effectively work on its mandate. This may involve retraining, upskilling or expanding the workforce. An open dialogue is important, so that regulators can effectively communicate their needs to the government. Expanding the scope of a regulator's work without carrying out a capabilities assessment and adjusting staff accordingly risks exposing the power system to inefficient decision-making, or undermining existing key duties like safeguarding reliability and consumer protection.

Regulators are meant to provide stability and continuity for investment decisions to advance decarbonisation. It is, therefore, critical to protect their ability to conduct their work effectively across various government cycles. With this in mind, policymakers must strike the right balance between providing stable enough guidelines for the regulators to operate while respecting their scope of work – that is, to support them in steering investment to fulfil social objectives such as affordability, reliability and decarbonisation.

Given that updating regulatory criteria might provoke a contentious reaction from various actors, governments also have a role in ensuring that regulators can effectively fulfil the

decarbonisation-related duties assigned to them: in other words, they must provide political cover so regulators can stay focused on decarbonisation. In some jurisdictions regulators might be perceived as not doing enough – or indeed as doing too much – towards their specific goals, so ensuring there is also clear communication to the broader community about the specific responsibilities assigned to the regulator and other planning bodies is essential.

6. Monitoring, feedback and accountability

A further avenue for governmental leadership lies in establishing clear frameworks to track progress towards energy goals and to identify areas that might need more support. The initial mapping of the relevant institutions can provide the basis for defining who owns the specific metrics, who is accountable in cases of non-compliance, and what the respective remediation processes are. Such efforts, however, should avoid becoming scorecard exercises that end up placing an additional burden on the regulator's resources or those of other actors in the power system. The focus on energy, climate and the pace of progress will likely then be more fruitful.

Building on a clear definition of roles, governments can set regulators up for success by setting clear timeframes for the implementation of regulatory and planning decisions once they have been agreed. Fostering industry-wide transparency on the exact roles and timelines for implementation is essential to avoid deliberate inaction by decision-makers and to bolster credibility in the policymaking and regulatory process.

Conclusion

Given the diverse institutional structures governing energy at national and subnational levels, each country will need to chart its own path towards empowering its regulators and ensuring that regulatory decisions align with overarching national objectives. Governments have a pivotal role to play in establishing a clear direction for all stakeholders involved in the energy transition. Key steps includes:

1. **Leverage effective regulation**: Define the intended role of regulatory bodies and prioritise practical, actionable solutions.
2. **Map the institutional landscape**: Comprehensive institutional mapping, identifying all relevant actors, clarifying roles, and assessing their current capacity to fulfil these responsibilities.
3. **Identify and prioritise gaps between overarching energy policy and guidance given to regulators**: Involve regulators early in decarbonisation policy decisions to reduce the overall cost of transition and minimise the risk of stranded assets – thereby protecting system affordability and reliability.
4. **Tailor strategies to empower regulators and increase alignment with national objectives**
5. **Ensure resourcing, stability and political coverage**: Support regulators with the necessary authority and political backing while maintaining their independence, fostering greater continuity throughout the energy transition.
6. **Monitor progress**: Establish clear, transparent frameworks for tracking progress.

By taking these steps, governments can ensure that regulatory decisions consistently support decarbonisation objectives, creating a more resilient and adaptive energy system for the future. To accelerate progress, engaging with platforms like RAP, RETA and CEM can be a great first step to build on existing experiences and design tailored programmes that fit the specific needs of a country.

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