Business Environment Reform and Competition Policy for a Green Transition

Business Environment Working Group

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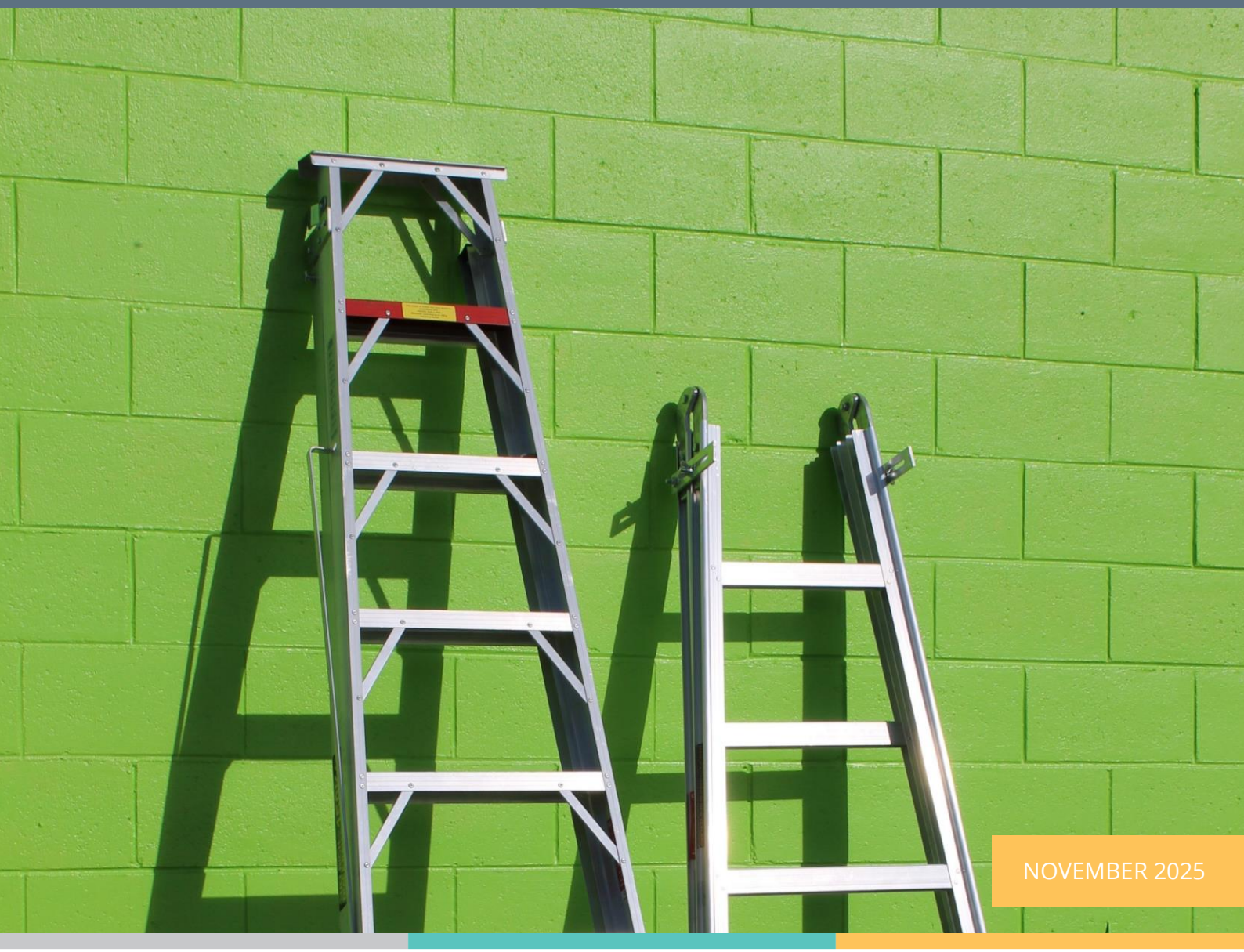

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Executive Summary

The study explores how business environment reform (BER) and competition policy can be better utilised to support a green transition in developing and emerging economies. While competition policy traditionally focuses on efficiency and consumer welfare, its potential role in enabling sustainability goals is gaining increasing recognition. Donors and development agencies, but also implementers, require evidence-based guidance on how to support reforms that foster growth that is inclusive and environmentally sustainable. An accompanying policy brief is also available.

1. Methodology

This report first **defines key terms** (Chapter 3) and combines a **systematic literature review** (Chapter 4) of around 150 academic and policy publications with in-depth **case studies** (Chapter 5) supplemented by interviews. This report offers both a conceptual underpinning for policy and evidence from real-world reform experiences, and results in a **Theory of Change** (Chapter 6).

2. Findings from the literature review

The review shows that competition policy and industrial policy have often been treated in isolation, with limited integration into broader sustainability agendas. Competition enforcement can complement green industrial policy when designed to prevent market concentration and support innovation. The evidence highlights that competition policy is not a stand-alone driver but can complement green industrial strategies when aligned with national objectives and backed by adequate institutional capacity. By supporting competition, a green competition policy approach also offers a way to secure public support for the green transition.

- **Innovation and productivity:** Competitive markets generally stimulate innovation, improve productivity and, crucially, incentivise the adoption of existing green technologies.
- **Sustainability:** By lowering costs and stimulating technological adoption, competition can enhance environmental performance. Yet without strong regulation, firms may cut compliance costs, undermining sustainability. Several jurisdictions are experimenting with sustainability exemptions in competition law, but policymakers must be ready to address "greenwashing".
- **Trade and integration:** Competition policy supports international competitiveness and integration into global markets and offsets some of the anticompetitive effects of environmental regulation.
- **Energy markets: competition**-oriented reforms can lower prices and accelerate renewable energy integration, but entrenched incumbents and political resistance remain significant obstacles.

Challenges and Trade-offs

Yet, the literature also underscores that integrating sustainability into competition policy involves difficult balances. Overly broad exemptions for cooperative agreements can dilute enforcement or create opportunities for incumbents to shield themselves from competition, while overly strict enforcement may deter legitimate collaborations that could advance environmental objectives. Limited technical expertise, resource constraints in agencies, and conflicting industrial or political priorities further complicate reform

efforts. These tensions illustrate that advancing green goals through competition policy is neither straightforward nor risk-free and requires careful, transparent design and monitoring.

In addition, studies highlight potential first-mover disadvantages and coordination risks—firms may free-ride on innovators or misuse collaborative agreements to mask collusion. Concerns about reduced competitiveness or increased market concentration ("greenflation") also feature prominently, suggesting that competition authorities must weigh environmental gains against possible harm to consumer welfare and market dynamism.

3. Findings from the cross-country analysis and case studies

In high-income countries, particularly in Europe, strong institutions have enabled experimentation with sustainability provisions in competition law. Middle-income countries face more challenging resource constraints, and green objectives are often overshadowed by other priorities. Low-income countries generally have weak or absent regimes, leaving little scope to link competition policy to sustainability - in these countries, establishing functional competition regimes should take priority over using competition to promote the green transition. The case studies illustrate diverse pathways for aligning competition and industrial policy with green transition objectives. Successful examples were characterised by strong institutional coordination, clear legal frameworks, and political commitment to balancing growth with sustainability.

- **Austria** introduced a sustainability exemption into competition law, offering lessons on integrating environmental objectives within a high-capacity legal system.
- **Mexico** demonstrated how competition advocacy in energy reform opened opportunities for renewable investment, but reforms faced political rollback and resistance from entrenched incumbents.
- **South Africa** used competition enforcement to address cartels restricting access to renewable energy inputs, yet institutional capacity and resource limitations remained significant constraints.
- **China** and **India** showed the tension between strong state-led industrial policies and competition principles, with state-owned enterprises and policy capture limiting alignment with green goals.

Lessons learned

Durable reforms depend on high-level political commitment, cross-agency coordination, and alignment with national development priorities. Policymakers should prefer approaches well-calibrated to the circumstances they face. In many economies, this may mean prioritising developing effective competition institutions which are currently weak or absent. In middle- and high-income countries, the development of clear and consistent guidance for the application of competition considerations to sustainability considerations is essential. Effective pro-competitive policy interventions can encourage innovation and productivity growth, while also promoting the green transition.

4. Conclusion

Aligning competition policy with green industrial strategies offers the chance to promote green transition while also lowering consumer prices and boosting growth. Competition contributes to innovation, productivity, and affordability, and targeted intervention can achieve lasting change.

Donors and development agencies have a critical role in convening stakeholders, providing technical expertise, and facilitating dialogue between policymakers, regulators, and private sector actors. Donor support was most effective where it focused on institutional capacity building, fostering cross-agency dialogue, and financing analytical work linking competition to sustainability. Short project cycles and fragmented efforts limited long-term effectiveness. At the same time, cases also revealed political economy constraints, limited technical expertise, and fragmented donor interventions that weakened reform outcomes. Reforms succeed when they are embedded in national development priorities and supported by long-term donor engagement. The report further highlights a need for stronger monitoring and evaluation frameworks and better data systems to assess the long-term effects of sustainability exemptions and competition reforms.

5. Recommendations

For donors and development agencies

- *Build Capacity* – Provide training and technical assistance to strengthen agencies' ability to handle green cases.
- *Support Systemic Approaches* – Fund comprehensive strategies, impact assessments, and cross-border enforcement.
- *Promote Advocacy* – Back market studies, business guidance, and engagement with environmental regulators.
- *Encourage International Coordination* – Share best practices, align standards, and support technology diffusion across borders.

For competition agencies and policymakers

- *Develop Green Competition Frameworks* – Introduce clear rules that recognise sustainability, including exemptions and longer assessment horizons.
- *Target Strategic Sectors* – Focus enforcement on polluting industries, green technology inputs, and monopolistic energy markets.
- *Strengthen Assessment Tools* – Build capacity to measure environmental claims, develop green theories of harm, and prevent greenwashing.
- *Enhance Cross-Border Coordination* – Harmonise exemptions and cooperate on cross-border investigations in green markets.
- *Align Incentives Through Reform* – Use BER to ease compliance for green technologies and lower entry barriers.
- *Remove Market Barriers* – Open energy markets, ease local content rules, and support markets for green certificates.
- Promote Adoption of Green Technologies – Reduce import restrictions, enable cooperative agreements, and open monopolies to green entrants.

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Acronyms

BER	Business environment reform
BEWG	Business Environment Working Group
CMA	Competition and Markets Authority (UK)
CSR	Corporate social responsibility
DCED	Donor Committee for Enterprise Development
EC	European Commission
EU	European Union
FDI	Foreign direct investment
GHG	Greenhouse gas
GIP	Green industrial policy
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICT	Information and communication technology
MSME	Micro, small and medium enterprises
NGO	Non-governmental organisations
OECD	Organisation for Economic Cooperation and Development
R&D	Research and development
SDG	Sustainable Development Goal
SME	Small and medium enterprises
SOE	State-owned enterprise
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organisation

Introduction

Business environment reform (BER) and competition are highly relevant policy mechanisms for supporting a just and green economic transition in developing and emerging economies because they directly address the conditions that shape private sector development. While BER and competition policy provide the institutional and regulatory foundations, industrial policy takes a more active role in steering the direction of economic transformation. A recent UNCTAD (2023) review notes that, although these mechanisms "ultimately aim at achieving the goal of economic growth and development," tensions can arise—for example, subsidies or local content requirements introduced under industrial policy to aid certain sectors may distort market competition. More attention should therefore be given to frameworks that improve interaction between competition authorities, BER actors and industrial policymakers. Insights from such interaction are essential to inform how donors and development agencies can support BER and competition policy within the broader context of policies aimed at promoting the green transition.

The Donor Committee for Enterprise Development (DCED) has built a substantial body of work on BER and industrial policy[3]. Yet, in the wider literature, competition policy in the context of BER and GIP remains comparatively underexplored. At the same time, competition policy has expanded markedly: at least 40 new agencies were established between 2006 and 2016 (Jenny, 2016); by 2020, more than 125 jurisdictions had competition authorities (OECD, 2020); and by 2025 an estimated 145 jurisdictions or supranational bodies had an active agency (FTC, 2025).

In the green transition space, governments often rely on measures that sit in tension with competition—such as subsidies, preferential credit or price interventions—which can generate unintended effects if poorly designed (IEA, 2024; Heutel & Kelly, 2016; Irvine, 2017). These tensions underscore the need to align competition and industrial policy objectives, and to explore pro-competitive instruments that reduce barriers to entry in green markets. Evidence indicates the promise of such approaches: Aghion et al. (2023) show that, where consumer attitudes favour green innovation, modest increases in competition intensity can substantially raise the likelihood of green innovation (their estimates are context-specific but sizeable). Design still matters; information failures and first-mover disadvantages can blunt the effect of competition, and some carefully authorised sustainability cooperation may be warranted—while guarding against cartel-like behaviour and innovation ceilings (Volpin, 2022).

For developing and emerging economies, these design challenges are compounded by small market size, capacity constraints, wider regulatory remits, and risks of policy capture and coordination failures across ministries and regulators. Absent competitive pressures, monopolies and cartels can result in higher prices, lower quality and reduced access—impacts that fall disproportionately on poorer households and small and medium-sized enterprises (SMEs**)** in essential goods markets. Conversely, well-designed competition frameworks, complemented by BER levers such as streamlined licensing, procurement reform and fair grid-access rules, can widen consumer choice, enhance efficiency and support the production of safer and more

[3] E.g., on Green Industrial Policy (2025); the compatibility of BER and industrial policy (2013); Donor Guidance on BER and Industrial Policy Support (2013); and on Promoting Economic Transformation through BER (2019)

environmentally responsible goods. There is a clear need for an intellectual framework that clarifies how competition policy and BER can complement, rather than conflict with, the industrial policy approaches – for example, the extensive use of subsidies for green technology utilised by many governments – which have traditionally been the focus of green policy programmes.

In sum, there is a compelling need to address this gap by articulating how competition policy and BER can be aligned with GIP in developing and emerging economies, recognising institutional capacity constraints, small market size and political-economy risks, while supporting innovation, consumer welfare and sustainable growth.

1. Objectives and methodology

The study examines how business environment reform (BER) and competition policy can be aligned with green industrial policy to support a green transition in developing and emerging economies and investigates opportunities for greater synergies in donor support. This report addresses the following questions:[4]

1. How can competition policies, laws and authorities support the green transition in developing and emerging economies?

2. How can donor and development agencies support business environment reforms that enhance, harmonise and complement competition policies so that industrial policies, especially those with environmental and social objectives (i.e., GIP), do not lead to undesirable distortionary effects on national, regional and global competition?

3. What are donor-supported business environment reform trends supporting competition policies and authorities towards a just and green economic transition in developing and emerging economies? This includes the following sub-questions:

    a. How does donor-supported business environment reform complement GIP? Is there evidence of direct synergies designed to achieve a just and green economic transition in developing and emerging economies?

    b. Have government objectives, policy mix and implementation models for business environment reform and competition policy changed within the context of the demand for a just and green economic transition?

    c. Have new features to business environment reform and competition policies emerged (e.g., job creation, economic growth, inequality, climate resilience, increased focus on small and medium-sized enterprises (SMEs) or location, bottom-up and sector-based approach)?

    d. What lessons can donor and development agencies learn from these trends?

To answer these questions, we undertook: (i) a structured literature review; (ii) five short country case studies (China, India, Mexico, South Africa and Austria) supported by interviews; and (iii) the development of a generalised theory of change outlining pathways through which competition policy and BER can complement GIP and where donor support adds value.

The rest of the report is structured as follows. Section 3 briefly defines and discusses important terms (Competition Policy, Business Environment Reform and Green Industrial Policy), Section 4 presents the literature review, and Section 5 sets out the selection and findings from the country case studies and interviews. Section 6 develops the theory of change, outlining pathways through which competition policy

[4] The research questions are drawn directly from the Terms of Reference.

and BER can complement Green Transition and where donor support adds value. Lastly, Section 7 concludes by providing implications for competitiveness in national, regional and global markets; and recommendations and good practices for donors and development agencies, as well as policymakers.

2. Definitions

This section sets out the groundwork for the study by defining key terms, providing a clear basis for analysis. While these definitions are drawn from the academic literature and existing policy papers, we have adapted these definitions to make them more appropriate for this research report. In particular, we have proposed **purposive definitions**, which are intended to be of use to donor agencies, partner governments and other stakeholders (see Table 1).

Table 1: Definitions

Term	Description
Business environment reform	• **Policies aimed at bringing about structural change** *to the set of policy, legal and regulatory conditions that govern business activities.* • *Note:* As this definition is broad, it is a useful exercise to include a number of examples here. In line with the definition above, some examples of BER could include: reform of regulations governing energy markets, the existence or otherwise of state monopolies, "command-and-control" environmental regulations, and innovation subsidy regimes. • For the purposes of this report, we have considered BER to include laws and regulations which are likely to affect competition, but **not** the activities of competition agencies themselves.
Competition policy	• **Policies aimed at promoting [or removing restraints against] competition**, *in order to increase (broadly defined) economic welfare and the green transition*.
Green industrial policy	• *Policy measures through which governments* **encourage the reallocation of economic resources to support the green transition** *while supporting productivity growth.*

These definitions set out above may differ from those used in the academic literature for a number of reasons. Firstly, the definitions used in the academic literature reflect the focus of the researchers, but may be less suitable for the purposes of, for example, a donor agency. Some definitions in the academic literature may be too narrowly defined - for example, omitting important policy goals because of the descriptive focus of the paper - or defined in ways which make their application difficult in practical policy settings.

Secondly, the definitions used in this report will typically synthesise definitions from several sources in the literature to capture the important common characteristics of the definitions set out in the literature. This is intended to allow the definitions set out in this report to be applied broadly and flexibly in a range of policy settings, while still retaining a clear link to the academic literature. The rationale for each of these definitions is set out in more detail in Annex 1.

3. Literature review

3.1 Approach

As part of this study, we conduct a literature review focused on the impact of competition policy, laws and the activities of competition authorities in supporting the green transition. We also consider the policies with respect to their impacts, whether intended or otherwise, on the competitiveness of the affected industries in national, regional and global markets. The purpose of the literature review is to **provide a clear summary of the policy environment**, considering **differences across income groups and regions**, and to clearly **contextualise the policy recommendations and theory of change**. Our literature review draws on research in academic journals, as well as the research output of major intergovernmental organisations such as the OECD and UNCTAD.

In total, more than 150 articles, books or policy documents were used to inform this review, although only the most important of the selected studies, about 100, have been explicitly included in the section below. The literature review sets out our findings from the most important of the selected papers - **around 100** of those 150 papers considered in total.

The findings from the literature review are structured around the following topics: i) competition policy and green transition (Section 4.2), ii) the role of innovation (Section 4.3), iii) Competitiveness, Productivity, and Trade (Section 4.4), iv) competition and energy policy (Section 4.5). This chapter concludes by drawing up by summarising findings and drawing up policy implications.

3.2 Competition policy and the green transition

Key lessons

- The relationship between competition and the green transition is complex, but more intense competition generally promotes sustainability.
- Most competition authorities are yet to systematically use competition policy to promote the green transition beyond occasional use of public interest exemption provisions in merger cases and green agreements.
- Policy makers should ensure that promoting competition remains the primary objective of competition enforcement.
- This is especially true in developing economies, where competition agencies may face more difficulties in identifying “greenwashing”.

There is no clear consensus in the academic literature on the strength of the relationship between competition and sustainability. On the one hand, many articles emphasise the effect of competition driving innovation, reducing consumer prices, and incentivising greener methods of production. For example, Fernández-Kranz and Santalo (2010) find that **"more competition is associated with superior environmental performance [and]… a lower level of toxic emissions".**

There is strong evidence that more concentrated markets are less sustainable. For example, less competitive markets have been found to:

- Emit more carbon (Fernández-Kranz and Santalo, 2010; Simon and Prince, 2016);
- Worsen inequality (Ennis et al, 2019);
- Increase healthcare and hospital markups (De Silva et al, 2018); and
- Score worse on corporate social responsibility (Flammer, 2015).

On the other hand, some argue that **in some circumstances, competition can make the achievement of environmental goals more difficult, as players in competitive markets may seek to cut costs even at the cost of the environment.** For example, Ye et al (2015) find that more intense competition leads to an improvement on some social and economic dimensions of sustainability, but increases environmental harms, and Tsendsuren et al. (2021) found that more intense product market competition in the US appears to reduce firms' efforts to address environmental harms.

Competition may also promote sustainability indirectly. Although Gani's (2023) analysis found little evidence of an empirical relationship between competition and achievement of sustainable development goals, this report also finds that increases in per capita national income are associated with improved SDG performance. Given the well-established and enduring link between competition and growth (e.g. Buccirossi et al., 2013; OECD, 1996; Benetatou et al.,2020), competition can promote the green transition by promoting productivity growth more generally.

There is a clear role for competition policy and enforcement in promoting the green transition, irrespective of any aggregate-level relationship between competition indices and SDG performance. In essence, **the evidence indicates that competition usually promotes the green transition**, but that it may have counter-productive effects under some circumstances, and that competition is generally more likely to be helpful than unhelpful in promoting green transition. **The evidence of the literature shows competition "generally – but not always – increasing sustainability" (Treuren, 2024).**

Firstly, **competition agencies and policy-makers should engage in targeted competition interventions which account for industrial and local factors**, instead of hoping that general competition enforcement will accelerate the green transition without further targeting of policy design. Policy makers must "recognize the multifaceted influence that antitrust regulations have on green technological advancements within corporations and to refrain from enforcing a one-size-fits-all approach" (Ma & Li, 2025). The evidence that competition interventions can promote the green transition when correctly targeted is stronger than the evidence that greater competitive intensity *in general* promotes the green transition *in general*. As noted above, the evidence in favour of this more general proposition is contested. Some evidence regarding what this more targeted approach might look like is discussed throughout the rest of this report.

Secondly, **competition agencies could be more aggressive in using competition enforcement and advocacy to support policies relating to sustainability**. For example, the first competition agency to introduce a specific public interest exemption based on sustainability considerations is Austria, which introduced such an exemption in 2021, which was described by Thyri et al (2021) as "an absolute novelty".

Many of the policies analysed in the literature are intended to influence prices to ensure that the incentives of producers and consumers are aligned so as to reflect the true social costs and benefits of their use. These policies can be grouped into two categories: firstly, policies aimed at reducing the price of green products and greener ways of producing; and secondly, policies aimed at increasing the price of highly polluting products.

It is well established that **stronger competition reduces prices**. While estimates of the exact magnitude of the price effects of various restraints on competition differ substantially, there is little disagreement about the direction of these effects. Merger activity, which subsequently brings about an anticompetitive effect has been found to generate price increases of around 15-20% relative to the status quo ante (Weinberg, 2008; Bergman, 2008), and cartels were similarly found to bring about price increases of around 25% (Connor, 2007; Bergman, 2008).

There is little reason for believing that regulatory restraints on competition - i.e. restraints on competition which could be eliminated through judicious business environment reform policies - have any less effect on prices. Indeed, a number of recent studies have shown that **policies aimed at increasing competition in a wide range of markets have indeed produced lower prices in those markets**, which range from electricity in the USA (Bowen et al, 2023) to telecommunications and mobile phones in Nigeria (Dieli, 2021).

We should expect price reductions brought about by increases in the intensity of competition to play a major role in encouraging the green transition. **Concerns about costs appear to play a major role in limiting the willingness of firms to deploy greener technologies and production processes, and some green sectors are currently viable as a result of extensive subsidies** (Harrison, Martin & Nataraj, 2017; Grau et al, 2012).

Typically, policies aimed at increasing the prices of "brown" products and ways of producing have used taxes or tradable credits to bring market prices into line with true social costs (Harrison, Martin & Nataraj, 2017). As noted elsewhere in this report, the focus of this study is the use of competition policy and business environment reform and not command-and-control, tax, or tradable credits policies. As such, the technical report does not focus on policies aimed at increasing the prices of highly polluting products except as a complement to competition policies and business environment reform.

Nonetheless, the principle that increasing the price of highly polluting products will incentivise firms to move towards greener alternatives has two major implications. Firstly, **the use of price-focused policies with regard to highly polluting products may be a complement to competition policies** and business environment reform aimed at encouraging the green transition. For a given firm faced with a choice between green and polluting alternatives, the relative price of those inputs is likely to be essential in encouraging firms to make greener production decisions. As such, a policy set which uses competition policy and business environment reform to make green products cheaper and uses other policy instruments to penalise highly polluting production technologies is likely to be more effective than one that relies solely on reducing the prices of green technologies using competition policies.

This is likely to be especially true given that one key finding of the literature is **that firms may be deterred from greener modes of production by the perceived risk of using green production technologies** as well as by price considerations (Yang et al, 2020; Nanda and Rhodes-Kropf, 2017).

Secondly, competition agencies should consider the environmental implications of the price effects of their competition enforcement activities. In particular, limited competition is typically associated with higher prices and lower volumes – the same outcomes which tax and tradeable credit tools aim to create as a matter of government policy. It is therefore worth considering whether, when conducting **competition interventions, competition agencies should take into account possible emissions effects of price changes arising from the impact of the competition intervention**.

Competition agencies should develop a more appropriate understanding of the benefits of competition enforcement in green markets. There have been some examples of successful competition enforcement reflecting this renewed focus on green markets, such as the 2021 case brought by the Italian competition authority against Google, in which Google were found to have unjustifiably prevented competitors in the e-mobility sector from developing versions of their software which would be compatible with Google's android operating systems (Hoffman, 2023; ACGM, 2021).This conduct was found to have impeded the use of e-vehicles by consumers, and **by taking action against such conduct the Italian competition authority has provided a clear example of the uses of competition policy in promoting the green transition**.

There are a number ways in which the existing literature indicates competition agencies could take such considerations into account in competition work: for instance, making use of **"green theories of harm" in competition investigations, which explicitly allow competition agencies to consider likely environmental harms** arising from conduct on the part of firms - for example, likely increases in greenhouse gas emissions as a result of a merger; similarly, by explicitly allowing competition agencies to consider environmental benefits such as emissions reductions as public benefits in assessing conduct by firms under investigation (Majcher & Robertson, 2024).

Most competition agencies are permitted to take into account countervailing public benefits when considering whether to authorise mergers which may have some adverse effect on competition. In promoting the green transition, **competition agencies could consider possible reductions in emissions as a public benefit when assessing merger cases** (Majcher & Robertson, 2024). Competition agencies should also develop more robust frameworks for considering "green mergers and acquisitions".

In doing so, **competition agencies and policymakers should be aware of the risk that firms will use dubious sustainability considerations to "greenwash" anticompetitive conduct**. Philipsen (2022) notes that firms are likely to take advantage of opportunities to engage in rent-seeking behaviours, and may dubiously claim that anticompetitive conduct of various kinds produces sustainability benefits which could not otherwise be achieved. This is a risk inherent to the assessment of sustainability agreements, but may also be salient in assessing public benefits in merger cases – for example, **Yang and Chi (2023) found that many "green" mergers and acquisitions in China were useful in disguising the environmental impact of a given firm's activities, but did not have clear sustainability benefit**s.

One important distinction raised in the literature is between permissive and prohibitive approaches to competition policy. Majcher & Robertson (2024) note that "competition enforcement has so far primarily focused on the question of how it can be more permissive, i.e. permitting sustainability initiatives among

(non-)competitors … rather than prohibiting certain practices." Each of these approaches is considered further in the sections below.

It is important to remember that **competition policy must primarily focus on the promotion of competition and** promote sustainability in so far as it is compatible with the general objectives of competition agencies. A report for Kronberger Kreis (2022) emphasises that **any weakening of competition law in the service of sustainability goals has the potential to bring about considerable consumer harm**. Instead, therefore, competition agencies should seek ways of demonstrating the compatibility of robust competition enforcement with sustainability goals. Some practical applications of this principle are discussed further in the section below.

It should be noted that recognising the importance of competition policy as a tool for promoting the green transition and making use of other regulatory instruments should not be seen as mutually exclusive. Philipsen (2022) argues that **competition policy should be used as part of a "smart mix" of policy instruments,** and policymakers should "aim at finding the right balance with IP law and leave the internalization of externalities to environmental law, taxes and subsidies, emissions trading mechanisms, and hybrid forms of regulation".

Competition agencies should ensure that they have developed reliable frameworks for quantifying the benefits and costs of sustainability agreements and green mergers and acquisitions, because exemptions should only be granted where benefits can be shown to significantly outweigh losses arising from the weakening of competition. Schinkel and Treuren (2021) provide a number of clear examples of Dutch competition cases in which higher consumer costs are weighed against external benefits arising from reduced emissions, and coming to a decision based on the comparison of modelled price increases against emissions reductions.

There have been a number of recent examples of competition agencies developing guidance frameworks which take sustainability considerations explicitly into account. The United Kingdom and European Commission have both recently issued guidance on the application of public benefits rules to sustainability cases, and both extend special treatment to cooperations with sustainability objectives (European Commission, 2023; CMA, 2023). The Austrian Federal Competition Authority have gone further, with sustainability agreements incorporated directly into their legislation - this is discussed further in the Austria case study later in this report.

Guidelines and frameworks which are clear and publicly accessible are vital in providing businesses and other stakeholders with a clear framework in which to act. The European Commission, UK Competition and Markets Authority and Austrian Federal Competition Authority have all emphasised the importance of the certainty that guidelines provide in encouraging businesses considering green collaborations. Indeed, the European Commission's guidance notes explicitly that the guidelines "are intended to provide legal certainty by assisting undertakings to assess the compatibility of their horizontal cooperation agreements with Union competition rules while ensuring effective protection of competition" (European Commission, 2023).

This need for clarity is reflected in the structure of the guidelines. The UK and Austrian guidance both set out clear examples of conduct which is unlikely to breach competition law - such as agreeing industry-wide environmental standards. This is typically combined with an open-door policy to businesses seeking guidance on the permissibility of potential collaborations on an informal basis. This is an important feature of the guidelines - despite the efforts of these authorities to provide clarity, it is difficult to pre-empt any sources

of uncertainty for businesses without such an open-door approach. Some scholars, for example, have noted the complexity of adequately defining sustainability and weighing it against other competing considerations (Colangelo, 2024), which is likely to impede the effectiveness of sustainability agreement guidance in the absence of dialogue with competition agencies.

3.2.1 Public interest considerations and the green transition

A number of competition agencies are able to use public interest considerations to grant exemptions to conduct which could otherwise breach anticompetitive conduct or cartel provisions in competition law. Typically, these provisions will provide the competition agency with a general ability to take into account public interest considerations and balance such considerations against any possible anticompetitive harm arising from the conduct under consideration.

For most competition authorities, public interest provisions do not explicitly make reference to sustainability considerations, and as such any considerations relating to the green transition are introduced to the analysis performed by the competition authority on a relatively ad hoc basis. Recently, however, the possibility of including explicit sustainability considerations in public interest exemption provisions has become a focus of some consideration by competition authorities. Notably, Austria introduced reforms to its competition law in 2021 which, among other changes, **introduced a specific sustainability exemption**, which provides exemptions from cartel conduct and other anticompetitive conduct offences where the conduct in question "substantially contributes to an ecologically sustainable or climate-neutral economy".

This is the first such explicit exemption for environmental purposes in the world. While other competition agencies often have public interest exemptions which can be used in competition cases, the Austrian reform is the first to explicitly focus such exemptions on sustainability considerations.

This reform allows the competition agency to consider both sustainability effects in the market affected by the conduct and in other markets through "out of market efficiencies". This was described by Thyri et al (2021) as "an absolute novelty" and has not, as of 2025, been widely imitated. Given the increasing urgency of addressing the challenges of climate change and the green transition, it is likely that this reform will be adopted by other competition agencies in the near future. Given the arguments put forward by Treuren (2024) that **coordination is only likely to promote sustainability (relative to purely competitive market outcomes) in the event that there are substantial spillover benefits to firms from the innovations of their competitors**, the incorporation of out of market efficiencies seems to be an important step towards designing competition law in such a way that public benefits relating to the green transition can be assessed appropriately.

Nonetheless, competition agencies in other countries have been active in applying public interest provisions to sustainability considerations in competition cases. Some notable recent examples include the European Commission's recent decision to permit washing machine suppliers to coordinate not to import or manufacture energy inefficient washing machines (OECD, 2021f), and exemptions granted to Australia and Germany (OECD, 2021f).

It is noteworthy that these cases typically represent examples of exemptions being applied to competition law, rather than examples of competition policy being used actively to promote the green transition. While the cases noted above clearly show consideration by competition agencies of the

green transition, this has typically taken the form of granting exemptions for firms to weaken some aspect of competition in order to facilitate the green transition.

It is important that competition authorities ensure that attempts to incorporate sustainability considerations into competition law do not fundamentally lead to the undermining of competition as the central objective of competition enforcement and policy. Hoffman (2023) notes that while sustainability-focused public benefits exemptions may "contribute to meeting the climate goals ...the focus should be on a 'green push' that is reflected in enforcement priorities and not on the re-design of competition law".

While policymakers have so far refrained from engaging in major restructuring of competition law in pursuit of sustainability goals, the incorporation of sustainability benefits into competition enforcement has so far not amounted to blanket exemptions for conduct which can claim to provide climate-related benefits (Hancher and Herrera Anchustegui, 2024).

With the possible exception of greater consideration of innovation spillovers in competition assessments, this is argued by Treuren (2024) to reflect an appropriate approach to considering sustainability benefits in competition assessments. **Treuren (2024) argues that competition law in Europe "already appears to be sufficiently flexible to take into account the benefits of coordination of investments in sustainable production methods when spillovers exist** – precisely the case when theory indicates that coordination increases those investments". Given the empirical relationship between competition and innovation, this report further argues that increased use of exemptions on the basis of sustainability concerns may actually reduce innovation.

There are some examples, however, of a more proactive approach being taken by policymakers. For example, in 2013, Mexico reformed its energy industry to allow the participation of private firms, with the dual aim of promoting efficiency and reducing emissions. Promoting greener energy production was an explicit target of the reform. **This represents a clear attempt to use competition advocacy to promote the green transition in a proactive fashion**, beyond simply applying public interest provisions to existing competition cases. This is discussed further in the Case Studies chapter of this report.

3.2.2 Green mergers and acquisitions

The relationship between mergers and acquisitions and the green transition is complex and likely to vary greatly from case to case. **While mergers and acquisitions, by virtue of increasing market concentration, may weaken competition and reduce the incentives of businesses to innovate**, there are important ways in which **merger and acquisition activity can have the effect of promoting the green transition through "green M&A" activity**.

For example, **the acquisition of small but innovative players by larger rivals may sometimes have the effect of sharing knowledge between firms and accelerating the uptake of green technologies** (Liang et al, 2022). As noted elsewhere in this report, the adoption of green technologies may be as much of a barrier to the green transition as the development of the technology in the first place. The possibility that mergers and acquisitions could promote the diffusion of knowledge essential to the green transition should be taken seriously by competition practitioners.

The application of green public benefits considerations to merger cases may differ from the typical application of public benefits in such cases in a number of ways. Firstly, as noted elsewhere in this report,

green public benefits are likely to take the form of innovation spillovers, many of which may be "out of market". Secondly, the timescale associated with green public benefits may be longer than that typically considered to represent "foreseeable" public benefits in competition cases (OECD, 2021a). As such, "adopting a longer timeframe would allow capturing potential harms and efficiencies that take longer to be realised" (OCED, 2021a), meaning that **competition agencies may wish to consider basing their assessments on timeframes which are longer than the two or three years typically used by most competition agencies.**

However, competition agencies must be careful to ensure that sustainability exemptions are applied only to merger and acquisition activities which genuinely promote green transition. **"Green" mergers and acquisitions have not generally been effective in promoting the green transition**. Yang and Chi (2023) find that green merger and acquisition activity in China is generally associated with "green industry switching" rather than green innovation. Green mergers and acquisitions appear often to be motivated by a desire to change the sectoral composition of the business – often for regulatory reasons – rather than to improve environmental sustainability.

Yang and Chi (2023) argue that this reflects a desire to improve the perceived legitimacy of their business in the eyes of regulators and the public and has a limited impact on the green transition of polluting firms. While the overall "greenness" of the business may appear to have improved, within each activity, the authors find limited evidence of green efficiency upgrading.

3.2.3 Cooperation and production agreements

In general, cartels and collusive agreements between businesses should be expected to impede the green transition. There have, for example, been a number of high-profile cartel cases in which the colluding businesses were found to have coordinated in order to delay the introduction of lower emissions technology (Treuren, 2024). One notable example was a 2021 case in which German car manufacturers were found to have coordinated in order to slow down the adoption of lower emissions technology, as a result of which they were fined over 875 million euros (Treuren, 2024).

Similarly, the AGCM in Italy intervened against anticompetitive behaviours in the waste management market (OECD, 2021e). The ACGM found that anticompetitive cooperation in this market was responsible for creating a misalignment of fees and actual costs, with the result that the market was no longer capable of delivering the environmental benefits the cooperation purportedly aimed to deliver. The ACGM even used environmental costs as part of their assessment in ascertaining the harm generated by the cooperative conduct.

However, the harms associated with true cartel conduct **should not be confused with lawful collaborations between firms to be used to coordinate on lower-emission equilibria**. As noted elsewhere in this report, the existence of spillover effects and first-mover disadvantages in innovation means that competitive markets may settle into low-innovation equilibria or fail to adopt green technology even when such technology already exists. For example, Inderst et al (2023) argue that the markets characterised by weak competition may be able to coordinate to adopt green technology better than highly competitive markets, and Saecker & Schnattinger (2024) show that more intense **competition may limit innovation by keeping pre-innovation prices at a level which inhibits potentially costly green investments**. Under

such circumstances, it is at least possible that reductions in competitive intensity arising from coordinated conduct between firms could promote green transition.

The possibility that coordination could promote the adoption of green technology is already recognised by a number of competition authorities, albeit typically as a particular application of more general public benefit principles. This has given rise to a number of decisions in which public interest provisions have been used to grant exemptions to cooperation agreements between businesses which could otherwise have breached competition law. For example, the European Commission exempted an agreement between washing machine suppliers not to import or manufacture energy inefficient washing machines (OECD, 2021f). Similarly, a number of automobile manufacturers' associations have coordinated to reduce the CO2 emissions of their vehicles without falling foul of competition law (OECD, 2021f).

Similarly, there have been a number of other cases in which agreements between competitors have been exempted by competition agencies to promote broader environmental ends, including packaging recycling in Germany, battery recycling in the European Union, and battery disposal in Australia (OECD, 2021f). Similarly, Brazilian competition authorities decided not to prohibit joint measures taken by businesses aimed at complying with environmental regulations (OECD, 2021g).

Nonetheless, competition agencies should be wary of such agreements, because **there is a significant risk that such cooperative approaches will extend beyond the point at which they are necessary to achieve the promised sustainability benefits**. Indeed, the Italian example mentioned above as an example of collusion impeding the green transition was initially introduced because it was felt that "market mechanisms would not be sufficient to provide a service that was desirable for environmental protection purposes" (OECD, 2021e).

3.2.4 State aid and the green transition

As noted elsewhere in this report, the approach to promoting the green transition preferred by policymakers in most instances to date has centred around the use of command-and-control instruments, carbon taxes and subsidies to green producers. Naturally, such approaches raise questions about the application of state-aid provisions in competition legislation to projects aimed at promoting the green transition. **The need for competition policy to take green objectives into account when assessing state aid cases has recently been recognised by a number of policymakers**: notably, the European Commission has amended the "General Block Exemption Regulation" to facilitate state aid policies aimed at accelerating the green transition, and "[make] it easier for the Member States to grant necessary support for crucial sectors in line with the Green Deal Industrial Plan" (Hoffman, 2023). Nonetheless, state aid rules still aim to ensure that aid is "limited to what is necessary and does not lead to undue distortions of competition, in line with antitrust rules" (OECD, 2023).

These changes to competition regulations are intended to provide member states with more flexibility to "design and implement support measures in sectors that are key for transitioning to climate neutrality and a net-zero industry" without falling foul of state aid rules (Hoffman, 2023). This change in the approach taken by competition agencies to the application of state aid rules is likely to be applicable to every country with state aid provisions existing in their competition legislation, because **there is a clear case for treating state aid measures designed to promote the green transition as legitimate policy tools** and not beggar-my-neighbour measures aimed at undermining the competitiveness of industries in neighbouring countries.

The primary limitation of this development as a source of learning for donors and policymakers in developing economies is that state aid policies are not widespread outside the EU. While a handful of countries have provisions in their competition legislation directed at preventing state subsidies from undermining competition, most countries with explicit state aid provisions are either European Union member states or states in the EU accession process. As such, **the applicability of learnings around state aid for developing economies is limited by the limited prevalence of state aid provisions**. Nonetheless, trade rules are increasingly regionalised (Zain et al, 2024), and this may lead to an increase in the prevalence of state aid rules in competition law globally – policymakers should, under such circumstances, ensure that state aid rules have specific exemptions for green industrial policies.

3.3 The role of innovation

Key lessons

- Competition typically promotes both the creation of new technologies and the adoption of new technologies by incumbents.
- Innovation is more likely if businesses perceive there to be "transition risk" – the risk that policymakers will impose stringent environmental regulations in markets where businesses do not appear to be greening their business models.
- In many markets, especially in developing countries, the major barrier to green transition is the failure of firms to adopt existing green technologies at scale, rather than failure to innovate.
- First-mover disadvantages can disincentivise innovation, and competition policy should take this into account.
- Developing economies often face a different innovation landscape, and emphasis should be given to competition policy interventions which pragmatically encourage the adoption of green technology.

Competition policy and business environment reform, similarly, clearly have a significant role to play in promoting innovation in green product markets. There are, essentially, two channels through which competition could promote innovation: firstly, **by encouraging firms to innovate** by creating new products through which they hope to retain an advantage over the competition; and secondly, **by encouraging firms to adopt innovations which have already been created.**

That competition promotes innovation is broadly supported by the literature (UNCTAD, 2015, 2023; OECD DAFCOMP, 2023; Kerber, 2017), although **recognition of some tensions between competition and innovation has been recognised since Schumpeter** (1942). One commonly discussed concept is the "inverted-U" hypothesis, whereby firms face weak incentives to innovate in markets which are either extremely competitive or extremely uncompetitive, but in the middle of the distribution face powerful incentives to innovate to escape the competitive pressure exerted by their peers (Kerber, 2017).

Competition authorities, nonetheless, generally support the view that competition encourages innovation in ways which promote the green transition. The European Commission, for example, notes in its guidelines on horizontal cooperation that competition promotes innovation (Majcher and Robertson, 2022) and that this could contribute to sustainable development.

Competition incentivises innovation in a number of ways. Firstly, when firms are faced with competition for market share, they are incentivised to innovate in order to capture market share; and secondly, competitive markets may encourage the adoption of green technologies in other markets through spillover effects.

Policies which make green innovation and investment cheaper, or which strengthen firms' incentives to compete through green investment, should be a priority for policymakers. The effects of reducing the cost of green investment on the uptake of green technology may be substantial: Saecker & Schnattinger (2024), for example, find that "a cut of greening costs by 50% increases the share of greening investors by roughly 20%-points".

In addition to potentially reducing the costs of transition directly – by reducing the cost of green investments – **competition may boost competing firms' incentives to innovate by changing the relative rents before and after innovation and investment**. In essence, "if competition increases (decreases) post-innovation rents compared to pre-innovation rents, then competition will increase (decrease) investments in sustainability" (Treuren, 2024). This is supported by Aghion et al (2005), who show that increasing competition increases innovation and R&D spending by virtue of reducing pre-innovation rents relative to the rents that are available to the innovating firm in the aftermath of successful innovation.

This introduces two key focuses of the research set out in this report. In particular, optimal policy design depends greatly on whether the empirical evidence supports the "inverted-U hypothesis". Similarly, the interactions, if any, between the "inverted-U hypothesis" and other government programmes such as subsidies in key markets for the green transition will also be a key consideration for policymakers considering how best to promote the green transition.

The problem of the adoption of technology, which already exists is as significant a problem as the question of innovation itself. For example, there are already solar panels which can generate energy relatively effectively, but the adoption of such technologies has been reasonably limited in many countries. For example, in India, adoption of solar technologies appears to be relatively weak (Harrison, Martin & Nataraj, 2017), even in the presence of both command-and-control policies and trade policies designed to protect the domestic solar panel market.

There appears to be at least some tension between the speed of innovation and the rate of adoption of technology. For example, Torani, Rausser and Zilberman (2016) find that if the speed of innovation is too high, it may slow the adoption of technological innovations as firms wait for further advancements. While this is a matter for serious consideration, **it may be possible for policymakers to offset this concern by increasing firms' perception of "transition risk", by signalling to firms that they will be made subject to stringent environmental regulations if they fail to engage in the greening of their business models** (Radi and Westerhoff, 2024).

Their effectiveness of competition policy as a tool for promoting innovation is likely to vary from industry to industry. Ma & Li (2025) find that "antitrust laws do not universally promote corporate green innovation; instead, they significantly inhibit green innovation activities in companies with strong monopolistic power",

although competition interventions appear to improve innovation performance in industries which are not monopolistic.

This result appears largely to be driven by **the relatively poor innovation performance of state-owned enterprises in the aftermath of antitrust interventions**. Ma & Li (2025) find that competition interventions in China have yielded limited improvements in green innovation in sectors which are most intensively monopolistic, especially where the monopolist is a state-owned enterprise, or especially low-tech industries, while generating improvements in green innovation in less concentrated and more high-tech industries.

One key consideration for competition agencies when considering green competition interventions is, therefore, the extent to which the market will be characterised by intense competition in the aftermath of the competition intervention. Competition interventions which introduce only marginal intensifications of competition to monopolistic markets may, in light of this evidence, sometimes fail to improve – or even inhibit – green innovation.

A further tension which must be considered by policy makers relates to the appropriate design of intellectual property and patent laws. The design of intellectual property rules must, inherently, take into account a trade-off between encouraging businesses to innovate by allowing them to benefit from monopolistic rights to their innovations, and permitting the uptake of technological innovations by their competitors. While the effects of patent law on innovation are complex, some authors have argued that the green transition may be a special case where the need for widespread adoption of new technologies to reduce emissions may require a less restrictive interpretation of patent law (Hoffman, 2024).

Nonetheless, while there may sometimes be tension between competition policy and innovation under some circumstances, it is unnecessary to allow this concern to be generalised into broad scepticism of the use of competition policy as a tool to promote the green transition. **Competition policy may be applied strategically and selectively, and existing tools – such as public interest exemptions – may be used to balance competition and sustainability considerations when they are in tension with one another**. This point was succinctly summarised by UNCTAD as follows: "Competition policy may be designed so as to promote such businesses while environmental policy may provide incentives to eco-friendly production processes, green sectors and products.

The effectiveness of competition policy in driving green innovation may vary significantly from market to market depending on the strength of consumer preferences for product sustainability. Treuren (2024) argues that when competition for consumers' custom is more intense, markets are more responsive to consumers' demands. If consumers exhibit strong preferences for sustainability, therefore, firms will respond by investing in more sustainable modes of production.

The existence of this relationship is supported by the empirical evidence - Aghion, Bénabou, Martin, and Roulet (2020) find that **firms are much more likely to engage in green innovation in markets where consumers express strong preferences for sustainability**. They also find that the strength of **this relationship is stronger in more competitive markets**. Consumers in developed economies, moreover, appear willing to spend money on sustainability, with consumers' willingness to pay showing a positive relationship with firms' CSR records (Kitzmueller and Shimshack, 2012).

Conversely, when consumer preferences for sustainability are weak or norm-based (i.e. consumers' preferences are based around matching the preferences of other consumers, for example, not wanting to

consume products which are less sustainable than an average peer consumer's consumption bundle), competition may not straightforwardly promote innovation (Inderst et al, 2023).

This point generalises to all forms of R&D spillovers. Treuren (2024) argues that "competition is generally positively related to sustainability investments unless substantial investment spillovers exist". If – and only if – spillovers from R&D spending are substantial, there may be some possibility of sustainability benefits arising from allowing firms to coordinate. As such, coordination offers some prospect of promoting sustainability only when there are substantial benefits to firms in a given market arising from the investment decisions of *other* firms.

3.3.1 First-mover disadvantage, competition policy and BER

One recurrent theme in research relating to green innovation is the existence of "first-mover disadvantages", which discourage innovation. Firms may face weak incentives to innovate in cases where their competitors would be able to take advantage of innovations without bearing the risks and costs associated with developing new technologies, especially in markets where consumer demand for green technology is uncertain.

The implications of first-mover disadvantages for the relationship between competition policy and innovation are, on the face of it, ambiguous. In simple terms, **firms in more competitive markets may face stronger incentives to innovate** in order to capture market share, **but may also face stronger incentives to free-ride on the innovation of other players in the market.**

This phenomenon has been considered to provide a justification for cooperation between firms under some circumstances. The European Commission already makes use of guidelines which allow for cooperation between firms in support of innovation and justify this exemption in part because of the existence of first-mover disadvantages in some markets (Inderst et al, 2023). This exemption is to be applied subject to an "indispensability" requirement, under which firms must argue that the benefits apparently realised by the collaboration could not be realised individually. This represents an important defence against the granting of exemptions for collaborative conduct, which is not necessary to achieve public benefits, but may not fully guard against collusive conduct facilitated by the exemption. Given the challenges noted elsewhere in this report of detecting when cooperation has become counter-productive – such as those illustrated by the ACGM waste management case (OECD, 2021e), for example – it is likely that the optimal approach for competition agencies will be to err against granting exemptions. This may be especially true in developing economies, where competition agencies may face capacity constraints which make the reassessment of previously investigated markets a less attractive use of scarce resources.

Inderst et al. (2023) show convincingly that the existence of first-mover disadvantage may result in multiple equilibria if the first-mover disadvantage arises from changes in consumer preferences after the introduction of the innovation. When consumers' preferences for sustainable products depend on their expectations about other consumers' preferences for sustainable products,[5] Inderst et al. (2023) show that in markets

[5] This assumption about consumer preferences is justified in Inderst et al (2023) by reference to some examples of competition and consumer cases in the mid-2010s, notably the "Chicken of Tomorrow" case, in which Dutch competition authorities rejected an application for a coordination exemption.

characterised by weak competition, firms may coordinate on introducing more sustainable product variants, whereas under more intense competition, firms may instead coordinate in order to avoid introducing more sustainable variants of their products. This result depends on the existence of "norm-based" preferences, in which consumers' preferences for sustainable products are stronger when they expect other consumers to share strong preferences for these sustainable products, because under such circumstances, firms can profitably coordinate to move consumer norms. Whether consumer preferences generally exhibit such complementarity is in need of further research, especially with regard to lower-income countries.

That competition may exacerbate first-mover disadvantages is empirically supported by evidence from firm data in Germany. Saecker & Schnattinger (2024) analyse the relationship between competition and innovation in Germany and find that **competition from "laggard" firms, which refrain from investing in R&D "keeps aggregate prices and thus idiosyncratic profits low and prevents potential early greening investors from engaging in greening investment".** This mechanism introduces a clear tension between competition policy and green policy, which policymakers should consider when assessing competition interventions in support of the green transition.

It is less clear whether such concerns about (possible) adverse effects of competition on innovation are as significant in developing countries. Firms in developing economies are less likely to be at the technological frontier (Klinger and Lederman, 2006) and as such will not bear so much of the cost of innovation as firms in more developed economies – in some sense, many firms in developing economies will enjoy the benefits of being a "laggard" even when competition is strong and there is no *local* firm engaged in burdensome R&D spending, because technologies developed in advanced economies can be adopted by firms in developing economies.

This suggests that **the relationship between competition and environmental innovation may be more straightforwardly positive in developing economies** than in their developed counterparts.

One possible solution to the first-mover disadvantage problem is to allow a degree of coordination between businesses in support of environmental goals. While it is common for competition authorities around the world to have some mechanisms for authorising coordination between businesses when it is expected to give rise to public benefits, such an approach carries substantial risks when implemented imperfectly. Notably, coordination designed to achieve environmental goals in the settings characterised by first-mover disadvantage can be difficult to distinguish from harmful cartel conduct and may act as a de facto ceiling on innovation and product quality (Volpin, 2022). Nonetheless, there are some clear examples of policy successes arising from public-interest-based exemptions to competition law being used to allow green cooperations between businesses, which are discussed in more detail in our case studies.

3.3.2 Environmental policy and innovation

This Chapter has so far primarily considered the extent to which competition policy may support environmental goals, and under what circumstances the promotion of competition may be in tension with the promotion of the green transition. However, it is also essential to consider the circumstances under which environmental regulations may frustrate or support the promotion of competition by competition agencies.

There is some evidence that non-competition environmental regulations increase compliance costs faced by firms (e.g. Yang et al, 2023). This may adversely affect the intensity of competition by increasing

the minimum efficient scale of businesses in the affected industry – essentially limiting the ability of smaller firms to compete.

As discussed elsewhere in this report, there is some evidence that **environmental regulation may adversely affect competition** even when regulation successfully induces firms to innovate, because "environmental regulations apply uniformly to a given firm population, whereas the induced innovation races tend to produce skewed returns" (Arvanitis et al, 2016; Popp, 2005). As such, in markets where environmental regulations are used to encourage innovation, the cost of the regulation may be spread evenly while rents arising from the innovation are concentrated among the "winners" of the innovation race. **This may produce increases in concentration in markets affected by the regulations**, which competition authorities should take into account when planning competition interventions.

The OECD recommends that **environmental regulators carry out competition impact assessments of their environmental policies** (Nordic Competition Agencies, 2010). Environmental regulations can act as restraints on competition by raising barriers to entry and expansion, or by imposing compliance costs which increase the minimum efficient scale of firms in affected markets. In a joint report, the Nordic Competition Agencies recommended that national competition agencies assist environmental regulators in carrying out competition assessments of proposed environmental regulations (Nordic Competition Agencies, 2010). Given the relative scarcity of expertise in competition policy and industrial organisation in many developing countries, this recommendation is likely to be even more important in developing economies, where there is likely to be less competition expertise embedded in other agencies and government departments.

While environmental agencies may be sceptical of the need to prioritise pro-competitive approaches to promoting the green transition, **a pro-competitive approach to promoting the green transition may help to secure public support for environmental policies**, as it is well-established that competition lowers prices.[6]

Concerns about whether first-mover disadvantages may make the relationship between competition and innovation more ambiguous – for example, by trapping firms in highly competitive markets in a low-innovation equilibrium as in Inderst et al. (2023) – may be partly offset by the use of environmental regulations as a complementary policy. Radi and Westerhoff (2024), for example, find that policies which increase "transition risk" by threatening firms with the possibility of tightening environmental regulations can "effectively incentivise the green transition". Consequently, in markets where policymakers are concerned about possible limitations on the effectiveness of competition policy as a tool for promoting innovation arising from first-mover disadvantages, the use of complementary regulatory policies to maintain a high level of transition risk is likely to improve the effectiveness of competition policy interventions. The OECD has already recognised the utility of the threat of other regulations as an incentive for firms to innovate (OECD, 2023).

Finally, it is worth noting that environmental regulation should also be considered as an alternative to the granting of coordination exemptions for the promotion of innovation – often a superior alternative. Treuren (2024) argues that regulation is generally better at internalising externalities facing firms than collusion would

[6] There are innumerable papers supporting this point, and it is so well-established as a general principle that selecting the most clearly demonstrative example is difficult. For one clear example, see Hausman and Leonard (2002).

be. In support of this point, it is noted that in other markets characterised by serious externalities Pigouvian taxation has performed better than allowing market power (Conlon and Rao, 2023), and that taxing polluting products can incentivise firms to invest in less polluting alternatives in order to avoid the costs imposed by the tax (Treuren et al, 2024; Acemoglu, Aghion, Bursztyn, and Hemous, 2012; Aghion, Dechezleprêtre, Hémous, Martin, and van Reenen, 2016). This is in line with the general principle, noted elsewhere in this report, that **increasing post-innovation rents and decreasing pre-innovation rents incentivises firms to invest in green innovation** (Aghion et al, 2020; Treuren, 2024).

3.4 Competitiveness, productivity and trade

Key lessons

- The relationship between environmental regulation and productivity is ambiguous. In most markets, it appears that environmental regulation spurs innovation but the evidence of productivity gains arising from the imposition of environmental regulations is weaker.
- Productivity and competition losses arising from environmental regulations appear to be driven by the anti-competitive effects of command-and-control regulations. Offsetting post-regulation increases in market concentration should be a key focus of competition advocacy.
- Productivity gains from competition policy appear to be larger in developing countries.
- Developing countries aiming to encourage the adoption of existing technologies, should consider removing import barriers and non-tariff barriers such as local content requirements.

This section considers the impact of competition policy approaches to promoting the green transition on productivity and competitiveness. Given the well-established links between competitiveness and productivity, any competition policy intervention which is likely to give rise to an impact on productivity should also take into account any concurrent effect on competitiveness, especially where the implementing economy is particularly open to international trade. This section also considers – briefly – the reverse of this relationship, where policy makers could use trade policy to promote competition in domestic markets for green products. This latter consideration lies largely outside the bounds of this technical report, because trade policies are not the focus of this study.

Nonetheless, trade policy appears to be a feature of the green policies of a number of countries, either by virtue of encouraging the import of green products made abroad or because export promotion is a key part of plans to develop green industries. **Notably, both China and Germany have made great progress in developing their solar power technology markets by encouraging the export of photovoltaic systems to other countries** (Harrison, Martin and Nataraj, 2017), although in recent years German PV manufacturing has suffered as result of the success of China's policy of export promotion.

While export promotion has been an important feature of the development of green industries, there has also been progress in the **use of tariff reductions on green products and technologies as an approach to promoting the green transition**. The Agreement on Climate Change, Trade and Sustainability (ACCTS), for

example, includes provisions to remove tariffs from "environmental products" such as energy efficient lighting, wind and hydraulic turbines, and rechargeable batteries (MFAT, 2025).

In addition to the effects of trade on the green transition, policy makers should also consider the effects of policies which are aimed at promoting the green transition on trade and competitiveness. While competition policy interventions would typically be expected to improve trade competitiveness, other green policies are likely to have a more ambiguous effect. Although some economists have suggested that environmental regulations might spur innovation and improve productivity - widely known as the "Porter Hypothesis" (Ambec et al, 2011) - regulatory burdens are typically expected to reduce competitiveness by virtue of increasing production costs. Analysis of the relationship between firm productivity, competitiveness, and both regulatory and BER approaches to promoting the green transition is considered further in the sections below.

3.4.1 Competitiveness and the green transition

As noted elsewhere in this report, the conventional understanding of the effect of green policies, especially those which are based on command-and-control regulation – is that they raise compliance costs for firms (e.g. Yang et al, 2023; Nordic Competition Agencies, 2010), and thereby reduce the competitiveness of the exports of the implementing country.

On the other hand, there have been a number of studies which have found evidence in favour of the "Porter Hypothesis" that environmental regulations may promote innovation, following Porter (1991) and Porter and van der Linde (1995). There are two versions of the Porter Hypothesis discussed in the literature: a "weak" version, which posits that environmental regulations will stimulate innovations; and a "strong" version which holds that this increase in innovation will be sufficient to improve business productivity and competitiveness (Ambec et al, 2011).

The evidence for these hypotheses is ambiguous, and the true impact on competitiveness of broad green policies may differ from sector to sector. A 2011 survey of the literature regarding the Porter Hypothesis found that the evidence in favour of the weak version of the hypothesis is "well-established", the evidence in favour of the strong version of the hypothesis is "mixed" (Ambec et al, 2011).

Nonetheless, **there does seem to be some evidence of short-term negative productivity effects from environmental regulations**, with evidence of such an effect being found consistently over several decades (Gollop and Roberts, 1983; Gray and Shaldbegian, 2003; Dufour et al, 1998; Iraldo, 2011). This is consistent with evidence from a number of papers (e.g. Yang et al, 2023) that environmental regulations drive up costs.

The literature does, however, suggest a degree of heterogeneity across industries in the extent to which the Porter Hypothesis should be used to guide policy. Notably, studies in the energy sector have found that, with regard to regulations designed to encourage the adoption of green energy technologies, the evidence rejects "both the conventional expectation of a negative trade-off as well as the Porter hypothesis of a positive effect" (Arvanitis et al, 2016).

That the evidence supports the weak version of the Porter Hypothesis more robustly than the strong version is a powerful argument in favour of using competition policy tools to promote the green transition, for three key reasons.

Firstly, if environmental regulations promote innovation without necessarily promoting productivity and competitiveness**, competition policy may be used as a complementary policy to promote competitiveness in combination with environmental regulations**. As noted elsewhere in this report, innovation appears to be a function of the gradient between pre- and post-innovation rents. Competition policy and environmental policy can both be used as complementary tools to increase the relative rewards of innovation, and thereby encourage productivity growth.

Secondly, **competition policy interventions can encourage the adoption of innovations arising as a result of the imposition of environmental regulations**. As noted above, firms in developing countries are less likely to be at the technological frontier (Klinger and Lederman, 2006) and competition generally encourages the adoption of new technologies by firms (Treuren, 2024). As such, we can reasonably expect competition to accelerate the adoption of technological innovations in line with the Porter Hypothesis.

Finally, evidence suggests that, **while environmental regulations may promote innovation, the impact of environmental regulations may also increase concentration in affected markets**, and competition policy interventions may be required to offset such increases in concentration. Larger companies are better placed to develop green innovations (Borsatto and Amui, 2019) and, given that a key mechanism underpinning the Porter Hypothesis is the effect of rising regulatory costs on incentives to innovate, policymakers should be concerned that the same mechanism which encourages innovation will also promote concentration.

Regulatory costs tend to decrease with scale, and this has been found to produce pressures towards increased market concentration (Philippon, 2019; Callander et al., 2021; Cowgill et al., 2021). This concentration-increasing effect "may arise naturally from economies of scale in regulatory compliance, due to the presence of fixed costs or it may derive from regulatory capture and special deals for large players" (Trebbi and Zhang, 2022). Whatever the mechanism, this suggests that – in addition to their role in promoting the green transition in their own right – **competition interventions will retain an essential role in offsetting the anticompetitive effects of other green policy tools**. Indeed, competition interventions may be required simply to maintain the intensity of competition observed in the status quo prior to environmental regulatory interventions.

It should be noted that the competitive impact of green policies is likely to depend on both the nature and the market and the regulatory intervention. Some green policies – notably the requirement to use green energy technologies – have been found to produce little impact on competition. For example, Arvanitis et al (2016) found that, with respect to green energy technology, "the need and incentives for adoption apply similarly to firms in the same market, leaving little scope for differential impacts on their relative competitive position".

The impact of competition on competitiveness is less ambiguous than that of environmental regulation. Competition policies which promote competition successfully are likely to also promote competitiveness. Policies which promote the green transition through the promotion of competition are unlikely to face the same complex relationship with competitiveness that is observed in the case of command-and-control green policies. In essence, **policies which – through the promotion of competition – make green products competitive domestically are likely also to make such products competitive in export markets**.

It should be noted that the evidence in support of the proposition that competition policy promotes productivity and competitiveness is compelling. For example, Buccirossi et al. (2013) find that "a well-designed

and well-implemented competition policy has a significant impact on TFP growth", and that the effect of competition policy on growth was especially strong for antitrust activities. This builds on an extensive body of research stretching back decades, which suggests that competition increases average productivity while reducing the variance of productivities among existing firms (OECD, 1996). More recent research (e.g. Benetatou et al. ,2020) continues to provide evidence in support of the productivity boosting powers of effective competition policy.

Moreover, competition policy is generally even more effective in promoting productivity growth in countries which have been historically less active in the competition policy space, with clear implications for optimal policy design in developing states – which typically have less mature competition regimes - in considering how best to promote green transition. For example, Benetatou et al. (2020) find that the effect of competition policy interventions on growth for competition policy "laggards is about three times as large as the effect estimated for all ten countries in our sample, while it is very small and statistically insignificant for the leaders".

One tension which must be considered by policymakers who are concerned about competitiveness when applying competition policy in support of the green transition is that between competition and innovation and adoption of green technology. As noted elsewhere in this report, competition policy interventions must be calibrated such that they do not exacerbate first-mover disadvantages in innovation. The first-mover disadvantage effect in domestic markets may trap firms in an equilibrium in which it is not profitable to move away from unsustainable production methods. That this may be a serious concern has already been noted elsewhere in this report.

This may have substantial implications for export competitiveness because there is some evidence of trade policies being used as a tool to promote the green transition in some countries. Notably, for example, the Agreement on Climate Change, Trade and Sustainability includes an agreement to remove tariffs from a range of environmental and energy saving goods, and improve access to environmental services and environmentally related services (MFAT, 2025). While most industrialised economies typically do not make use of extensive tariff barriers, many lower income countries still impose substantial tariffs on foreign imports – World Bank data suggests that the mean tariff rate in Low Income Economies is around 9.8%, compared to only 1.4% in the European Union[78]. Consequently, the impact of trade barriers on competition may be more considerable in developing countries.

[7] It should be noted that the Agreement on Climate Change, Trade and Sustainability currently includes only a small number of signatories (New Zealand, Iceland, Costa Rica and Switzerland), accounting for a very small share of global GDP. The United Kingdom and Fiji were also involved at different stages of the drafting process, but have not signed the agreement as of March 2025.

[8] According to tariff data available at: https://data.worldbank.org/indicator/tm.tax.mrch.wm.ar.zs

3.5 Competition and energy policy

Key lessons

- The carbon dependence of incumbent businesses can create opposition to the green transition. This may create significant constraints on states' willingness to promote the green transition, especially through competition policy approaches which threaten the monopoly rents of powerful incumbents. Public support may also be undermined by fears of "greenflation".
- Pro-competitive energy policies can promote green transition and address political constraints by reducing energy prices.
- Evidence from the literature suggests that lowering green energy prices is the most cost-effective decarbonisation measure.
- There have been some recent examples of energy reforms which have strengthened competition in energy markets by reducing or removing entry barriers for green energy producers – Mexico's 2013 energy market reforms represent a notable recent success.

Energy policy is a policy area deserving of special consideration, both because of the impact of energy policy on climate change, and because energy security is likely to be a major consideration for many countries when designing policies aimed at promoting the green transition. Im et al (2023) argue that **reliance on carbon-emitting industries acts as a constraint on the state's willingness to support industrial decarbonisation**.

Dependence on carbon-emitting industries is likely to deter policymakers from aggressively promoting the green transition because, as noted elsewhere in this report, environmental regulations are likely to increase firms' costs. A number of authors have worried about the "greenflation" phenomenon, where environmental regulations push up energy costs, which are subsequently passed through into a more general cost-push inflation effect.

Competition policy may offer a way for policymakers in carbon-dependent countries to promote the green transition without excessively driving up costs. **Mexico offers an example of successful green competition policy in the energy market**. In 2013 Mexico reformed its energy industry to allow the participation of private firms, with the dual aim of promoting efficiency and reducing emissions. This liberalisation was combined with the introduction of clean energy targets and market mechanisms designed to internalise social benefits from clean energy production (OECD, 2021a). The reform which allowed new providers into the energy market was combined with the introduction of clean energy production requirements, through the creation of a market "which constitutes a mechanism aimed at assigning a monetary value to the social benefits of generating electricity from clean sources" (OECD, 2021a). This appears to have been relatively successful in promoting both competition and the achievement of Mexico's clean energy goals, although it has required some ongoing intervention by Mexican competition authorities.

If competition policies can be used successfully to reduce energy costs, this may have an outsized impact on both promoting efficiency and retaining public support for the green transition. Zhang et al (2021) find that **energy efficiency improvements are the most cost-effective decarbonisation measure**. Further to the concerns about "greenflation" noted above, García-Vaquero et al (2024) find that reductions in consumption associated with energy-related cost-push inflation can "negatively impact economic welfare, particularly for lower-income households that spend a larger proportion of their income on essential goods and services".

Kim (2021) emphasises the role which green energy policies can play in development, and argues that the dependence of Korea and Taiwan on fossil fuel imports renders their economies more vulnerable than "other manufacturing-based countries such as Germany and China, which have led the world in the use of renewables". Kim and Thurbon (2015) showed that this vulnerability had motivated a focus on energy security through the development of green energy sectors.

While this approach in Korea has largely been driven by state coordination – Kim (2021) describes how the process was led by ministries such as the Ministry of Knowledge Economy – and may suffer from the anticompetitive effects inherent to "picking winners", it may be possible for other developing economies to pursue similar ends by more pro-competitive means. Indeed, the Korean approach is founded on Korea's status as a "developmental state", and it is not clear how easily states with less state capacity could implement such a policy. Nonetheless, there are a number of aspects of Korea's approach to developmental environmentalism which are simultaneously pro-competitive and imitable by developing states with lower levels of state capacity.

While some aspects of the Korean approach clearly create risks to competitive neutrality – notably the involvement of some major car manufacturers in state-sponsored projects relating to electric vehicle technology (Kim, 2021) – the approach taken to energy policy has also been strongly focused on competition, with the government promoting the involvement of independent power producers to compete against Taipower and KEPCO, the two major incumbent energy companies.

3.6 Summary of the literature review for policy Implications

This Chapter has set out the key findings of the literature relating to competition policy and the green transition, and these are summarised briefly below. The summary presented below is non-exhaustive, but nonetheless summarises some key findings of the literature review set out above.

Competition (usually) promotes innovation and technology adoption

While there is some evidence that competition can, in some circumstances, inhibit innovation, **competition is typically more likely to encourage innovation and the adoption of green technology**. Among other authors, Fernández-Kranz and Santalo (2010) find that "**more competition is associated with superior environmental performance [and]… a lower level of toxic emissions**", and this finding appears to generalise across many different facets of sustainability, and even CSR concerns more generally (Simon and Prince, 2016; Ennis et al, 2019; De Silva et al, 2018; Flammer, 2015, Schinkel and Treuren, 2021).

There do appear to be **some relatively narrow circumstances in which competition can impede innovation by encouraging free-riding** by firms on the innovation of others when there are significant first-

mover disadvantages (Saecker & Schnattinger, 2024), where consumer preferences are strongly norm-based (Inderst et al, 2023), or where the cost advantages of polluting production methods are most substantial.

However, **given that weakened competition is very strongly associated with higher prices** (Weinberg, 2008; Connor, 2007; Bergman, 2008), and that **any innovation improvements associated with less competitive market structures are relatively doubtful, policymakers and competition agencies should employ a strong bias towards competition** promotion as a default.

Sustainability exemptions can promote green transition, but should be used cautiously

In circumstances where competition is unlikely to give rise to creation or widespread adoption of green innovations, some competition agencies have made use of public benefit exemptions to allow cooperation between businesses to promote green objectives. **There is some scope for public benefit exemptions to promote the green transitio**n. As Treuren (2024) notes, **markets characterised by extensive spillovers from green innovation provide some scope for cooperation to accelerate the green transition**, and markets with highly norm-based consumer preferences may be able to coordinate sustainably on greener outcomes (Inderst et al, 2023).

Some competition agencies have gone further, introducing specific exemptions for green agreements, although this is not yet the norm among competition agencies[9] – the Austrian competition authority's introduction of a specific exemption has been described as "an absolute novelty" (Thyri et al, 2021). One key aspect of the Austrian reform which could be productively adopted by other competition agencies is the wider recognition of out-of-market spillover effects of innovations, given how fundamentally climate change is related to the failure of producers to internalise the costs and benefits of their production choices.

Nonetheless, **while there is some scope for competition agencies to permit cooperation between businesses, caution should be exercised in doing so**. Even if firms are not guilty of making dubious "greenwashing" claims about the benefits of collusion, these benefits are often intrinsically uncertain and must be weighed against certain consumer losses through higher prices. **Developing countries face an even less attractive trade-off in such cases**, given that sustainability agreements are prone to becoming counter-productive (even if useful at initiation) and therefore require the use of limited resources for ongoing re-assessment.

Competition authorities should consider making explicit provisions for sustainability-based public interest exemptions, following the example of the Austrian competition authority. Sustainability arguments have featured in claims made by a number of merger parties with regard to possible public benefits exemptions in merger cases in recent years and, while existing public benefits provisions offer some scope for competition agencies, the explicit incorporation of sustainability considerations into public benefit exemptions may allow competition agencies to assess such considerations more effectively.[10]

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[9] Many agencies have made use of existing powers which allow them to take in general "public benefits" without such a specific exemption. Some limitations of this more traditional approach are discussed in the case studies section of this report.

[10] There are also some further examples of merger cases taking sustainability considerations into account in more orthodox ways. In one recent case in South Africa "market definition hinged partly on whether customers of the merging parties

It is essential that clear standards are established to assess the public benefits claims made by businesses in their dealings with competition agencies. The UK's CMA has, for example, developed guidance for assessing "green agreements" (CMA, 2023), which could be used as a model for other competition agencies.

Competition agencies in developing countries should generally be more wary, not less, of granting "green" public benefit exemptions to cartel conduct. Detailed monitoring may not always be feasible in developing states with lower state capacity. Given that some competition agencies in developing states may lack the resources to carry out ex-post reviews of the effects of green agreements which have already been allowed to proceed, granting "green agreement" exemptions may be misguided when there is a substantial risk that, in the longer term, cooperation may be worse at promoting the green transition than competition.

Finally, **policymakers should ensure that clear and consistent guidance is available to businesses**, to provide them with the confidence to engage in legitimate green cooperation without undue fear of breaching competition law. This should be combined with an open-door policy to ensure effective dialogue between competition agencies and other stakeholders.

Strategic competition interventions can promote the green transition

One key finding from the literature review is that competition interventions should be deployed strategically, to increase the gradient between pre- and post-innovation or adoption economic rents and to decrease the transitional costs of moving from "brown" to "green" modes of production.

At a fundamental level, businesses are incentivised to innovate or adopt existing innovations if there are economic rewards for doing so – that is, if they will be more profitable after engaging in green investment (Treuren, 2024), and if the margin by which they are more profitable is sufficiently large to justify any transitional spending required. Conversely, if "laggards" are able to keep prices low even once innovations have been adopted by offering cheaper but sustainable alternatives, then they may succeed in inhibiting green investment (Saecker & Schnattinger, 2024).

This means that **competition agencies may wish to target competition interventions relatively aggressively towards the least green product markets**, in order to reduce the profitability of highly polluting modes of production. As Aghion et al (2020) show, increasing competition incentivises green investment by depressing pre-innovation rents in the affected market. **Similarly, encouraging competition in key input markets for green investment is likely to promote the green transition by reducing the transitional investment costs** associated with "greening" products.

The optimal design of competition policy is likely to vary considerably from country to country, and the optimal approaches to competition policy design may be very different in some developing economies compared to donor states. These differences should reflect both the different economic characteristics of the countries and capacity differences between institutions in different countries.

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considered the environmental sustainability of waste management processes as a significant factor when choosing a healthcare waste management supplier" (OECD, 2021d).

Competition interventions and environmental regulations are complementary

The relationship between competition policy and environmental regulation runs in both directions. Competition policy interventions may be used to offset the anticompetitive effects of environmental regulations, and environmental regulations may be used in conjunction with competition policy interventions to encourage firms to innovate and adopt green technologies.

The implementation of (non-competition) green policies, especially those which are based on command-and-control regulation is likely to impose compliance costs on firms, and raise barriers to entry and expansion (e.g. Yang et al, 2023; Nordic Competition Agencies, 2010). This is likely to have counter-productive effects on competitive intensity. Given that non-competition environmental policies are likely to make up a substantial share of the policy set of many countries, this suggests that **competition policy interventions will have an important role in offsetting the anticompetitive effects of such environmental policy interventions.**

Conversely, there is evidence that environmental regulations, by making highly polluting conduct relatively more expensive, encourage firms to innovate, although the evidence that this innovation makes them more productive relative to the pre-regulation status quo is more mixed (Ambec et al, 2011).

There is, similarly, some evidence that environmental regulations can incentivise firms to innovate to reduce "transition risk" arising from the threat that environmental regulations will be imposed on them (Radi and Westerhoff, 2024). This suggests that environmental regulations can be used in conjunction with competition policy to simultaneously promote the creation and adoption of green technologies.

4. Cross-country analysis

One key focus of this research study is to identify ways in which optimal policy design for Business Environment Reform and Competition Policy for a Green Transition may differ across regions and income groups. We first draw on general findings by income and region from the literature review. We then dive deeper into five country case studies.

Key lessons

- Command-and-control environmental policies appear to be less effective in less developed economies and states with weak enforcement capacity. This is compounded by high rates of informality in some economies, which can undermine enforcement.
- The benefits of competition policy relative to command-and-control approaches are magnified in developing economies, where evidence suggests that the harmful effects of command-and-control regulation are more severe and regulatory capacity is lower.
- Optimal policy choices will also differ considerably even between countries at similar levels of economic development. Social policy institutions, levels of carbon dependence and macroeconomic vulnerabilities all influence the optimal design of environmental competition policy.
- By lowering prices, competition interventions can help secure support for the green transition among the general public. This is especially important in developing economies, where public support for the green transition is generally weaker.

4.1 Differences by income group and region

There are a number of reasons for which we might expect optimal policies to differ across countries with different characteristics, for example differences in: **market size, state capacity, current energy mix, industrial composition and geography.** Indeed, there may be substantial policy differences even between comparatively similar countries. Im et al (2023) note that member states of the European Union with different social policy institutions, levels of carbon dependence and macroeconomic vulnerabilities may differ in both their optimal and likely policy choices. Given that developing countries typically differ from EU member states much more than EU member states do from one another, this implies that there is likely to be significant heterogeneity in the optimal policy choices of developing countries aiming to promote green transition.

These features appear to have substantive implications for optimal policy design. One finding of our literature review, for example, is that **command-and-control policies are likely to be ineffective in**

countries with weak enforcement capacities (Harrison, Martin and Nataraj, 2017). For example, Duflo et al (2013) found that attempts to use command-and-control instruments to enforce pollution standards in Gujarat were significantly hampered by limitations in the government's ability to carry out inspections of polluters**. Such enforcement problems may be exacerbated in many developing countries, where many firms are informal and governments consequently enjoy only limited ability to monitor their activities**. This is not a trivial problem, because in many markets - even highly polluting markets - the share of informal firms may be very high. For example, Nataraj (2011) found that around 80% of manufacturing firms in India were not formalised. While these informal businesses may not be the largest polluters on an individual level, cumulatively their contributions to emissions may be considerable (Blackman, 2000).

Similarly, while command-and-control approaches to the green transition may be less effective in promoting it in developing countries with lower state capacity and higher rates of informality, some evidence suggests environmental regulations may be less effective in promoting the green transition in less productive sub-national regions within developing countries. For example, Yang et al (2023) find that "local environmental governance policy has an inverted U-shaped nonlinear impact on the local and neighbouring industrial green transformation" – that is, in the least developed areas of China, environmental policies increase costs for affected firms, without encouraging green transition.

This is indicative that business environment reform and competition policy approaches might be especially fruitful in settings where state capacity is relatively constrained, because the ability of command-and-control approaches to promote the green transition is likely to be limited. By providing an alternative policy channel, therefore, competition policy and business environment reform may represent effective policy instruments where earlier approaches had proven ineffective.

Some policies aimed at promoting research and development of green technologies may be less practical for developing states. Im et al (2023) noted that, while more affluent member states could subsidise R&D and the adoption of green technologies, "**if they cannot afford it, these industries are left with the costly tab to decarbonise, or risk being phased out [to] meet … climate targets**". It is further noted in the same paper that, in industries for which decarbonisation is most expensive, the industry may become uncompetitive and workers will suffer adverse labour market consequences – with possibly severe implications for public support for climate policies.

This suggests that using competition policy to create a larger gradient between pre- and post-innovation (or pre- and post-adoption) rents for businesses adopting green technology may even be the only practical way for many developing states to promote the green transition. Measures which are too expensive for many EU member states are likely to be too expensive for many developing countries, and competition policy may perhaps be most valuable in providing an alternative mechanism for the promotion of the green transition to infeasibly expensive command and control measures and subsidies.

4.1.1 Development and the green transition

The relationship between green policy and economic development is complex, but there are a number of ways in which green policies may be used to promote economic development. Given that economic growth is a common goal of competition policy – or at least a significant motivator for the introduction of competition policies by governments – this suggests that there may be a degree of complementarity between competition and environmental policy even where competition policy is used in a way which is more focused on growth

and productivity than on the green transition. **Many countries – especially developing economies with relatively young competition agencies – may find it easier to persuade the public of growth-focused competition interventions than environmental interventions**, even when the intervention in question serves both purposes.

This is likely to be especially important given that many existing (command-and-control) environmental interventions are in tension with growth objectives. This appears to be especially true in developing countries: Yang, Liu & Deng (2023) find that there is a "'U' type nonlinear relationship between environmental governance and industrial green transformation". In their study, they use provincial panel data covering the period 2006-2021 to show that almost all regions in China "are still in the development stage where environmental governance is not conducive to industrial green transformation". **They argue that environmental regulations introduce compliance costs which may incentivise R&D spending in highly productive industries while reducing growth in less-developed contexts**.

This opens up some space for a more competition-focused environmental policy to achieve the "best of both worlds", by promoting the green transition and growth simultaneously, in countries where the level of economic development is such that top-down interventions would be likely to inhibit economic growth.

Some recent papers argue that the strategic promotion of green transition could be part of a "developmental environmentalism" strategy, by using the promotion of competitiveness in green industries to anticipate wider global shifts to renewables and green products. Naturally, such a policy approach would require a reasonably high degree of state capacity, such that "developmental-cum-environmental states possess national competitive advantages for coping with a global shift to renewables" (Kim, 2021).

Moreover, there is some evidence that environmental protections and sustainable products are, generally, normal goods, for which demand increases as income rises - to such an extent that support for green parties (as well as policies) appears to rise as income rises (Gourley and Khamis, 2023). This may have substantial implications for policymakers in promoting the green transition in developing states, because voters are likely to be characterised by greater scepticism towards green policies in less developed countries, and policies which promote green objectives at the expense of growth objectives may be politically infeasible. Competition policy approaches may be even more important under such circumstances, because **green competition policy offers a way to pursue both objectives simultaneously**.

4.2 Selection of country case studies

As noted elsewhere in this research report, there are relatively few countries which have pursued competition policy approaches to promoting the green transition in a systematic way. As such, while no jurisdiction has so far attempted to implement a comprehensive green competition policy programme, there are learnings from the experience of competition practitioners in these jurisdictions from which policymakers can draw when constructing such a programme. To understand better what worked, what did not work and for whom, we selected **five country case studies**. In total, we considered 10 countries (see **Table 2**), from which we selected **China, India, Mexico, South Africa, and Austria**.[11]

[11] Other countries considered were Germany, Brazil, and Rwanda.

Table 2: Case study selection

Country	ODA (USD)[12]	Population [13]	GDP per Capita (USD)[14]	Relevant Policies	Case study	Interview
China	4.8 billion	1.42 billion[15]	12,969	Yes	Yes	No
India	238 billion	1.41 billion[16]	$2,698	Yes	Yes	No
Mexico	495 billion *(525 billion)*	130 million	13,972	Yes	Yes	Yes
South Africa	1 billion	61 million	6,377	Yes	Yes	Yes
Austria	Donor	9 million[17]	58,669	Yes	Yes	Yes
United Kingdom	Donor	68 million [18]	54,280	Yes	Focused insights	Yes
Fiji	358 million *(129 million)*	0.9 million	6,257	Partially	Focused insights	Yes

Rationale

In selecting these five case studies, we aimed to construct a sample of policy approaches which can be easily referred to by policymakers in other jurisdictions when designing pro-competitive approaches to promoting the green transition. The country case studies were selected to achieve regional diversity, provide heterogeneity in a range of country characteristics (ODA recipient or donor, population size, GDP per capita). For example, there is considerable heterogeneity between countries with regard to the size of both the economy as a whole and key markets related to the green transition, which may affect the combination of

[12] Source: https://data.worldbank.org/indicator/DT.ODA.ODAT.CD. Figures iare for 2022, and figures in *italics* and parentheses are for 2019. Figures for 2019 are included in order to provide some indication of aid receipts unrelated to the SARS-CoV-2 pandemic rounded to the nearest USD 500,000.
[13] Source: https://www.statsfiji.gov.fj/
[14] Source: "World Economic Outlook Database, October 2024". IMF.org.
[15] Source: China Population (2025) - Worldometer
[16] Source: India Population (2025) - Worldometer
[17] Population at beginning of year/quarter - STATISTICS AUSTRIA - The Information Manager
[18] Source: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest

policies which best supports the green transition. Lastly, to derive learnings, we only considered countries where our desk research[19] suggested that considerable actions were taken and policies are available aimed at harmonising Business Environment Reform and Competition Policy for a Green Transition.

Interviews

In addition to a desk review, we aimed to add important insights through **interviews with the relevant competition authority and the Governmental body responsible for Environmental policy decisions in each of the selected countries.** In total, we carried out six interviews, which on average lasted one hour. The guiding questions for the interviews can be found in Annex 2.

For two countries, India and China, we were unable to secure interviews at the relevant institutions. However, in search of adding complementary insights, we were able to secure additional interviews with (i) an academic expert in the field, (ii) the competition authority of an additional donor country, which provides clear lessons-learned, (iii) a research body focusing on competition in the Asia Pacific, and (iv) the competition authority of an island-nation heavily affected by climate change.

4.3 Insights from the country case studies

General lessons

- **Competition policy should recognise the unique nature of environmental benefits** - established competition frameworks can be challenged by environmental considerations, which are often outside the scope of traditional efficiency and public benefit frameworks.
- **Well-targeted competition interventions can bring enormous benefits** - for example, energy market interventions in Mexico and South Africa have encouraged green energy generation while improving reliability and reducing costs.
- **A cross-border approach to policymaking and enforcement is both essential and underutilised** - policymakers should ensure that consumers and businesses can access green products from international markets, and that these import markets function effectively. This also applies to essential goods markets affected by increasing climate volatility.
- **Public benefits exemptions should be redesigned for green collaborations** - most existing public benefits frameworks are designed to focus on clearly definable benefits within markets, exclude out-of-market efficiencies, and insist on "fair share for consumers" tests. While these are useful in most markets, policymakers should review the appropriateness of these frameworks for e.g. green collaborations.

[19] Despite best efforts, we do not claim that we have correctly identified all relevant country policies as they are sometimes not accessible to the public, outside of the languages the team speaks or not clearly identifiable.

- **Advocacy often outperforms enforcement** - while competition agencies can strategically authorise green collaborations, many of the policy successes in case study countries arose from competition agencies working with legislators to redesign legal and regulatory frameworks outside the remit of the competition agency.
- **Capacity building is essential, especially in developing countries** - the effective implementation of green competition policy requires expertise both in competition policy and in assessing the environmental claims of businesses and policy stakeholders. This can be challenging for enforcement bodies in developing countries with limited resources and legal powers. Donors should focus on building capacity and supporting the development of green competition frameworks.

4.3.1 Mexico

Key lessons from Mexico

- Pro-competitive BER in the energy market that provides opportunities for green energy suppliers to enter the market can successfully promote green energy generation.
- Mexico's energy market reforms are a successful example of BER, which promotes competition by opening up a state monopoly while also incentivising green energy generation in a targeted fashion.
- Advocacy for pro-competitive reform can be more effective as competition enforcement when well targeted, and should be directed at the general public as well as policymakers.
- Consistent engagement with policymakers and the integration of competition assessments into policymaking on a general basis can ensure that environmental regulation and BER are pro-competitive.

Background

Mexico provides some interesting examples of policy initiatives which are aimed at using competition to promote sustainability goals (see below). Mexico is a large upper-middle income country in Latin America, and the recipient of a relatively large amount of aid, consistently receiving between USD 0.5 – 0.9 billion over the last ten years. The relevant competition authority in Mexico is the Comisión Federal de Competencia Económica (COFECE).

Policymakers in Mexico are broadly committed to the reduction of greenhouse gases, as illustrated by the 2022 decision of the Mexican Government to "[increase] its greenhouse gas reduction target from 22% to 35% for 2030" (COFECE, 2024). This decision is noted by COFECE to be rooted in the fact that the Constitution of Mexico "recognises the human right to a healthy environment" (COFECE, 2024).

Mexico's approach to green competition policy and BER

Competition policy may offer a way for policymakers in carbon-dependent countries to promote the green transition without excessively driving up costs. **Mexico offers an example of successful green competition policy in the energy market**. **In 2013, Mexico reformed its energy industry to allow the participation of private firms, with the dual aim of promoting efficiency and reducing emissions.** This liberalisation was partly the result of advocacy activity by COFECE, who had issued opinions on this matter after the completion of a market study of the market for green energy certificates. COFECE has also been active in novel forms of advocacy, including essay and graphic design competitions, aimed at promoting understanding of the new energy market structure and the benefits of green energy.

This **liberalisation was combined with the introduction of clean energy targets and market mechanisms** designed to internalise social benefits from clean energy production (OECD, 2021a). The reform which allowed new providers into the energy market was combined with the introduction of clean energy production requirements, through the creation of a market "which constitutes a mechanism aimed at assigning a monetary value to the social benefits of generating electricity from clean sources" (OECD, 2021a). This appears to have been relatively successful in promoting both competition and the achievement of Mexico's clean energy goals, although it has required some ongoing intervention by Mexican competition authorities.

Subsequent to the reform, the energy market experienced what COFECE have described as a **"huge surge" of entries in the green energy space**. Given that the energy market was previously monopolised by state-owned industries, COFECE considers this to represent a major success for the energy reform, both from the perspective of the green transition and from a narrower consumer-welfare perspective.

COFECE is in the process of further activity in the green transition space, and recently produced a **Green Competition Strategy** document. Academics and experts were invited to participate in the process of creating this green strategy, and COFECE plan to use the recent elevation of the COFECE chair to the position of Chair of the International Competition Network to further pursue green competition advocacy.

Challenges

Similar to some other competition authorities, COFECE has also considered the possibility of taking green considerations into account in **merger and antitrust cases**. Currently, **COFECE does not have a legal mandate to consider sustainability benefits** – like many other competition agencies, their law restricts them to the consideration of within-market efficiencies, and this power has not so far been used to pursue green goals.

COFECE considers the **design of secondary regulations** to be a significant obstacle to the widespread adoption of green technology. Improving secondary regulations is a major focus of COFECE's advocacy work, and regular impact assessments are carried out to establish the effects of regulations on key markets.

Lessons learned

Advocacy and engagement with government is key to the work of COFECE, who employ a specialised advocacy department which regularly engages with businesses, academics and government. Mexican policymakers are typically receptive to the advocacy work of COFECE, and there is a requirement for new laws

to be made subject to a **regulatory impact assessment,** which includes an assessment of the regulation's impact on competition. This positive relationship appears set to continue, as "Defending and protecting the environment, as well as facing the climate change emergency" are noted to be priorities of the incoming Federal Government administration by COFECE's green strategy document (COFECE, 2024).

These regulatory impact assessments cover all new laws in Mexico, including laws aimed at promoting the green transition and environmental sustainability. Ministers submitting new laws to the legislature are expected to respond to a questionnaire regarding the likely impact of the new law on competition, and COFECE may issue recommendations when it appears that a law is likely to give rise to a significant impact on competition.

Perhaps as a consequence of this impact assessment framework, **COFECE does not believe that regulatory efforts to promote the green transition have given rise to an adverse effect on competition.** While COFECE note that they have considered this possibility in past advocacy work, they do not believe that green regulation has so far produced an anticompetitive effect. Similarly, while COFECE's Green Competition Strategy notes that they were aware that competition agencies in other jurisdictions had received submissions in merger or antitrust cases arguing in favour of sustainability exemptions to competition law, such submissions have not yet become common in Mexico.

COFECE noted in their Green Strategy Document that "various competition agencies from other jurisdictions have already delved into the interrelation between competition and sustainability" (COFECE, 2024) and that there are consequently opportunities to learn from global best practices.

4.3.2 South Africa

Key lessons from South Africa

- Opening up energy markets to competition from renewables and green IPPs provides an opportunity to address other issues common to energy markets in developing states, including price and reliability.
- Without more extensive reforms of energy markets, such reforms are likely to provide genuine but limited success in promoting green energy generation and competition. The ongoing existence of state-owned monopolists and monopsonists in the energy market is a significant barrier to the entry of green IPPs.
- Green considerations in competition cases are often treated by competition agencies as non-central to their assessments, and policymakers should review whether to empower or direct agencies to treat them as more essential.

Background

South Africa is the only African country found in the literature review to have engaged actively with the relationship between competition and sustainability policies. An upper-middle income country, South Africa has committed to achieving net zero emissions by 2050, as set out in the country's Low Emission

Development Strategy. Competition in South Africa is regulated by the Competition Commission. The Competition Commission is "empowered to investigate, control and evaluate restrictive business practices, abuse of dominant positions and mergers in order to achieve equity and efficiency in the South African economy" (Competition Commission, n.d.).

South Africa's Approach to Green Competition Policy and BER

The most significant aspects of the Commission's work in promoting the green transition have been concentrated in renewable energy markets, where the Commission has allowed a number of business cooperation to install common green infrastructure to proceed. This has allowed a significant number of green projects to proceed, for example by allowing businesses to come together to jointly finance the installation of common renewable power sources.

While generally producing an **adverse effect** on the economy, it was noted that recent challenges in energy markets in South Africa – notably load shedding and the occurrence of black- and brownouts – have encouraged the adoption of renewable energy technologies as businesses seek power sources independent of the main grid.

The Competition Commission has also **prioritised anticompetitive practices in green energy markets for enforcement action.** For example, the Commission took action against Victron Energy B.V. in 2024 on the basis that Victron had engaged in anticompetitive retail price maintenance in the solar power market (Competition Commission of South Africa, 2024).

While the above activities have provided some successes in promoting renewable energy use, the penetration of renewable energy - especially from IPPs - remains relatively limited. Ukoba et al (2025) note that only around 12% of South Africa's energy generation comes from renewable sources, with about 77% coming from coal. This reflects in part the ongoing dominance of state-owned energy sources.

The Competition Commission's governing legislation is the Competition Act 1998. The Act allows for public benefits considerations to be taken into account in merger and antitrust cases. While the Act makes no specific reference to climate change or environmental sustainability, the Competition Commission is able to interpret the public benefits provisions of the Act reasonably broadly.

Most of the cases in which the Competition Commission's activity has produced an impact on the progress of the green transition in South Africa have not taken environmental considerations to be central to the case under consideration. For example, the 2023 assessment of the proposed sale of Sasol South Africa Limited's sodium cyanide business to Draslovka Holding A.S noted that – as it would produce an anticompetitive effect – the transaction would be likely to reduce the environmental impact of the business by bringing about price increases and sales-volume reductions. Nonetheless, the fact that it would be likely to bring about an anticompetitive effect caused the Commission to prohibit the transaction, notwithstanding any environmental benefits likely to arise therefrom.

Challenges

The **lack of a public benefits exemption specific to "green" considerations** means that the Competition Commission primarily considers environmental benefits only insofar as these can be narrowed down to

environmental benefits affecting a specific locality or market. A more general "green" provision allowing, for example, for the consideration of reductions in carbon emissions is not currently permissible under the Act.

One major barrier to the adoption of green energy technology in South Africa is the **continued existence of state monopolies in the energy sector.** While private generation is permitted, there are limited opportunities to sell surplus energy produced by private renewable energy sources to the grid, and the nature of the bidding process faced by independent power producers means that the prices received for doing so are often unfavourable.

Lessons learned

Regulations can impose barriers to the adoption of green technology, and the Commission has recognised this by engaging in advocacy activity around these provisions. For example, the existence of local content requirements may impose a barrier to import for some green technologies such as solar panels. This may be significant, given the ongoing global oversupply of solar panels.

Policymakers can use pro-competitive interventions both to promote the green transition and address other productivity concerns simultaneously - especially where the intervention takes the form of removing regulatory constraints on activity. Allowing cooperations between businesses to privately generate energy has helped address difficulties in South Africa's energy market, although regulatory barriers to IPPs remain.

When considering public benefits exemptions, it is important to **focus more closely on the design of the exemption than on attempts to quantify benefits and costs** likely to arise from permitting the exemption. In particular, the Commission focuses on ensuring that cartel-type conduct is expressly excluded from any exemption granted by the Commission, and specific cooperation with clear public benefits are expressly permitted.

There is a clear need for stronger regional enforcement agencies with information gathering powers, and this is likely to become more important as a result of climate change. Climate change is likely to increase local volatility in key markets and consequently strengthen the need for enforcement in cross-border markets.

Box 1: Insights from Professor Simon Roberts, University of Johannesburg

Simon Roberts is a professor at the University of Johannesburg with the Centre for Competition, Regulation and Economic Development. His research straddles competition economics, industrial development and climate change.

In his interview, he suggested that Policymakers aiming to promote sustainability should focus on improving cross-border cooperation in competition advocacy and enforcement.

distributors prevents cleaner (and cheaper) alternatives from entering markets in the region.

Improving the functioning of regional and international markets will become increasingly important as a result of the effects of climate change. This is true both in markets which have a direct effect on the green transition and in markets which will face an increasing frequency of adverse shocks as a result of climate change. In particular, the market observatory has focused on the functioning of international markets in food products, which is likely to become more important as climate change increases the frequency of localised crop failures.

Importantly, while there has been much policy focus on both improving domestic regulations and the removal of formal trade barriers between countries, there has been much less focus on ensuring that international markets function well. The Market Observatory has been working with COMESA on monitoring the functioning of food and agriculture markets across borders in Zambia and Kenya.

This research indicated the possible existence of cross-border cartel conduct and collusion, and concluded more broadly that the market was not functioning well. It was noted, for example, that Zambia's impressive agricultural production and substantial demand from major urban centres in Kenya, agricultural productivity remained poor in Zambia and food prices remained high in Kenya despite the lowering of trade barriers.

It was noted that donor-supported projects overwhelmingly operate on a country-by-country basis, and there is currently very little focus from funding bodies on supporting work focused on cross-border regulation and market-functioning.

COMESA's enforcement powers, like that of most international organisations, are very limited, and their most effective roles in this space are therefore advocacy and research. While these activities are very useful, the absence of regional and international competition enforcement means that cross-border cartels remain difficult to address.

The failure of mark-ups on food and agricultural products to fall in the aftermath of trade barriers being reduced indicates that these markets continue not to function well even once tariff barriers have been removed. This clearly highlights the need for effective **regional** enforcement agencies, better positioned to address cross-border competition concerns than domestic agencies can be. Regional competition agencies would also be better placed than domestic agencies to compel businesses to provide necessary information about cross-border elements of their business.

Regarding energy markets, it was noted that energy regulations in South Africa are largely based on the equivalent regulations in the United Kingdom, and are consequently focused strongly on the imposition of price caps and limiting the costs faced by end consumers. This impedes investment, because it does not adequately incentivise firms to incur investment costs which cannot be passed through into prices in the short term. This is especially socially wasteful in South Africa, where there is enormous potential for large-scale renewable power generation through solar and wind power. As such, investment in renewables is largely held back by problems with regulatory design rather than a lack of competition per se.

4.3.3 China

Key lessons from China

- Pro-competitive BER requires a policy environment which is generally supportive of competition. In the absence of such an environment, ostensibly pro-competitive reforms which in practice do not apply to SOEs and favoured businesses may have limited impact.
- In cases where domestic demand for green products is weak, export promotion may offer a viable alternative for policymakers seeking to promote green industries.
- Weak competition in highly polluting markets may sometimes reduce emissions by limiting output, although this is unlikely to represent optimal policy design.

Background

First, China is both one of the world's largest economies and the world's largest producer of carbon emissions, producing more than twice as many greenhouse gas emissions as the second-highest producer, the USA (European Commission, 2024). Secondly, China has made substantial efforts to promote the production and use of various forms of green energy, as a result of which it has become one of the world's major producers of solar energy equipment (Harrison, Martin & Nataraj, 2017). This reflects, in part, the result of concerted efforts by the Chinese government to encourage the use of green technology and promote the export of these products to other countries. China's efforts on this front are well-represented in the literature, and this represents an opportunity to build a case-study profile which is supported by a great depth of academic literature.

As such, China simultaneously represents both a country which has engaged in substantial attempts to promote the green transition through a range of measures, and a country whose efforts to encourage the green transition are substantively important in their own right for the successful achievement of the green transition for the world as a whole.

China also provides an interesting contrast to the policy approaches pursued in other jurisdictions, because China typically pursues a much more active industrial policy than other jurisdictions discussed in this report. Nonetheless, while China's economy is often characterised as state-led, there is an active competition policy regime governed by the Anti-Monopoly Law, which has been in effect since 2008.

China's approach is instructive because the starting position of the Chinese economy at the time policymakers became interested in pursuing a green competition policy was relatively unpromising - with a highly concentrated economy and a history of policy approaches which did not prioritise competition.

China's approach to green competition policy and BER

China has made great progress in developing their solar power technology markets by encouraging the export of photovoltaic systems to other countries (Harrison, Martin and Nataraj, 2017) - Chinese installed

capacity from photovoltaic power had overtaken Europe by 2012, despite the country having had essentially no capacity in the early 2000s.

This growth in the Chinese PV industry was fundamentally driven by export promotion - Huang et al (2016) note that this was facilitated by China's entry into the WTO, which greatly reduced the transaction costs facing Chinese PV producers when selling into world markets.

While, historically, China's policy approach has not set much weight on domestic competition, in the last decade, there has been an increasing emphasis by Chinese policymakers on stimulating competition domestically and using market-based BER reforms to promote the green transition.

In 2021, China introduced an emission trading scheme (ETS), which requires large emitters to cumulatively reduce their emissions of CO2 by around 40% of China's total emissions as of 2021 (Nedopil Wang, 2023). This was part of a wider package of reforms, including green finance programmes.

Challenges

One major challenge to promoting green industries in China is the limited scale of domestic demand. While China has succeeded in promoting PV production in export markets, there has been relatively limited adoption of these technologies within China. This suggests that there is much scope for China to promote the green transition domestically, but also highlights the importance of international coordination - the effect of China's policy programme has been to create an opportunity to green the energy markets of other countries at low cost, but has not yet translated into a domestic green transition.

Whether China's efforts at promoting the green transition can be considered successful is not clear. While there have been modest reductions in the carbon intensity of China's GDP since 2010 (Global Carbon Budget, 2024), China's emissions have continued to rise rapidly and it remains both the world's largest emitter and third-worst in terms of carbon intensity. Only Russia and South Africa emit more per unit of GDP.

Lessons learned

The key lesson from the Chinese experience of green transition is the importance of a broader policy environment which is supportive of both promoting competition and the green transition. Many government policies in China continue to have the effect of consolidating market power in the hands of a few national champions. Harrison, Martin and Nataraj (2017) note that since the introduction of the Anti-Monopoly Law, "the Chinese government has continued its campaign to consolidate the largest SOEs in already highly concentrated industries in an effort to forge China's national champions".

China, furthermore, provides an unusual example of achieving industry-specific emissions reductions through *anti*-competitive BER - notably by reducing excess capacity in some industries through the deliberate anti-competitive consolidation of businesses in the steel industry, which succeeded in reducing steel production (and consequently emissions derived from the steel industry) and increasing profit margins (Zheng, 2022). We do not recommend this as an optimal policy approach for other jurisdictions.

Green competition policy in China is inhibited by the privileged treatment of state-owned enterprises, which have the effect of reducing the strength of China's competition regime for SOEs. Zheng (2022) notes that "despite the robust merger review process China has developed for private—and mostly foreign—firms, there has been a continued absence of a meaningful merger review mechanism for the largest SOEs".

4.3.4 India

Key lessons from India

- Local content requirements can undermine the competitiveness of green industries, and inhibit their development - especially when combined with tariffs on imported inputs.
- Command-and-control regulation can promote sustainability, but this is heavily dependent on optimal regulatory design and state capacity.
- Similarly, command-and-control regulation's effectiveness is likely to be limited in many developing countries where the share of informal employment is high.

Background

India, like China, has made substantial efforts to promote the green transition. However, in contrast to China, India has faced more significant challenges in driving green transition. In particular, while India has also used a combination of command-and-control and market-based incentives to promote the green transition, India's efforts appear to have been both less successful and to have given rise to more harmful effects on competitiveness.

Johnson (2013) argues that India's efforts to promote domestic photovoltaic cell use have resulted in failure, which Harrison, Martin and Nataraj (2017) argue results from attempts to use poorly designed command-and-control policies to effect change, while allowing these command-and-control policies to include other aims not relevant to the green transition - such as job creation.

The case of India offers some important lessons regarding policies which have not worked effectively, and is likely to be instructive in setting out some limitations to the possible efficacy of policies aimed at, for example, reducing the price of green products to encourage their adoption.

The Indian experience, moreover, may provide some informative contrast with other case studies due to the reliance of many of the Indian government's attempts to promote the green transition on command-and-control measures. It is likely that successful policy programmes aimed at supporting the green transition will rely on a combination of command-and-control measures, market-based measures, competition policy and BER to encourage firms to make decisions aligned with the green transition. Understanding the reasons for the apparent ineffectiveness of these command-and-control policies is likely to be informative in understanding the characteristics of successful green policies. India also has the advantage of exhibiting substantial policy variation within its borders, as a result of its federal system.

India's approach to green competition policy and BER

The Indian Government introduced a number of market-based business environment reforms to encourage green innovation. Notably, the government has introduced a carbon credit trading scheme which, under the supervision of the Ministry of Power, will establish a domestic market for tradeable emissions credits (ICAP ETS Map Factsheet, n.d.).

This marks a break from India's earlier approach, which had relied heavily on command-and-control regulation to promote the green transition. For example, requirements to use catalytic converters; a National River Conservation Plan (NRCP); and a "Supreme Court Action Plan (SCAP), in which the Supreme Court mandated that 16 cities develop plans to address air pollution" (Harrison, Martin and Nataraj, 2017).

This brought about some successes. Harrison et al (2015) found that the SCAP had indeed both reduced emissions and increased investments in pollution control equipment. Similarly, the introduction of catalytic converter requirements appears to be associated with improvements in air quality.

In contrast to the approach followed in China, which has focused on export promotion, policymakers in India have focused on encouraging the development of their solar equipment industry through domestic consumption, primarily through the use of extensive local content requirements (Harrison, Martin and Nataraj, 2017).

Challenges

India's focus on command-and-control approaches to regulation to promote the green transition has enjoyed only relatively limited success. For example, while attempts to impose controls on emissions by businesses have produced mixed results. A number of studies such as Duflo et al (2013) and Duflo et al (2014) indicate that many firms which were reporting emissions levels below the requirements imposed by the regulations were in fact emitting more than the regulatory standard.

India's attempts to stimulate its PV industry have similarly been greatly hampered by local content requirements. Johnson (2013) finds that firms responded to LCRs by moving to technological substitutes which were not subject to the local content rules, and in doing so, moved predominantly to materials imported from abroad. Given that these new materials were subject to import tariffs, the combined effect of these policies appears to have been to have been to make domestically produced PV equipment more expensive, and implicitly subsidise the import of foreign PV equipment. This appears to have inhibited the growth of a domestic solar industry in India.

Lessons learned

India provides some key lessons on the limitations of command-and-control approaches to regulation in promoting the green transition. While India's largely command-and-control approach appears to have given rise to some successes, challenges in monitoring and enforcement substantially undermine the success of this approach. While competition policy approaches focus on aligning firm incentives towards the green transition through market signals, command-and-control regulations require more extensive monitoring and may be highly sensitive to regulatory design.

The experience of India also illustrates the importance of regulatory design when command and control approaches are used. Rules which allowed firms to select their own auditors - once this provision was amended, under-reporting appears to have fallen substantially. Similarly, the regulatory interventions were aimed predominantly at large emitters, which limited the impact of the regulatory intervention on the large share of businesses in India which are informal (Harrison, Martin and Nataraj, 2017).

Box 2: Insights from a multi-sector institution in an island state

Opening up the retail grid to competition from green IPPs could encourage new providers to enter the market, and allowing utility giants to retain monopsony power over IPPs is likely to deter entry.

Donors and policymakers should invest in developing stronger frameworks for cross-border regulation and policy frameworks

Fiji is vulnerable - as a small island developing state - to the effects of climate change, and faces significant risks from the effects of climate change with regard to, for example, rising sea levels and extreme weather events (e.g. Cyclone Winston in 2016 (Rowan Gard & Veitayaki, 2017)). Fiji has committed to achieving net zero by 2050, and has set out a range of targets in a "Climate Change Directions" plan (Government of Fiji, 2024). The plan outlines the government's plan to cut emissions, "deploy clean energy and new technologies, implement adaptation projects to protect Fijians and build resilient and prosperous communities".

Fiji's competition regime is overseen by the **Fijian Competition and Consumer Commission (FCCC)**, created by the FCCC Act 2010. The FCCC is a multi-sector regulator which, in addition to its role as a competition agency, regulates a wide range of other markets including electricity and telecommunications. The FCCC's role as a multi-sector regulator provides a great deal of scope to support the green transition, although this typically has a regulatory rather than competition focus. Some of this work has been donor-supported. The FCCC has embarked on a Fiji Rural Electrification Framework (FREF) initiative to increase the penetration of electrification in Fiji, which has been used to encourage the entry of green IPPs to the market. About 30% of all licenses issued are for solar generation which may be sold to the grid. The **FCCC's Merger Assessment Guidelines feature a section on "systemic risks" which allows out of market efficiencies and risks to be considered, which has clear applications to the green transitio**n - although there have not yet been many cases in which businesses have applied for Part 11 exemptions on this basis. Fiji is also **in the process of designing a national Competition Policy, which will incorporate sustainability considerations**, including a dedicated section on the use of competition enforcement and targeted public benefits exemptions to promote the green transition.

As with many of the stakeholders consulted, the FCCC indicated that they believed that the legal monopoly enjoyed by energy supplier Energy Fiji Limited (EFL) hinders innovation and excludes potential green energy suppliers from entering the market. While IPPs are able to generate energy, EFL's role as the monopoly supplier of retail power to consumers means that in practice IPPs are faced with EFL as a monopsony purchaser[20] of any energy they may produce, which may serve to reduce incentives to enter the market.

The **Asia-Pacific Regulatory Centre (APRC)** is an independent centre supporting regulatory governance in Pacific Islands, recognising that competition policy, environmental sustainability, and

[20] "Monopsony" refers to a market with a single buyer, just as "monopoly" refers to a market with a single seller.

inclusive development are mutually reinforcing. **Most competition frameworks in the Pacific are still evolving, and very few currently provide for explicit sustainability exemptions.** APRC is working to fill this gap by supporting the development of model legal frameworks and public interest tests with which to implement these frameworks.

In the context of a small island developing state subject to considerable costs arising from the impact of climate change. Joel Abraham of the Asia Pacific Regulatory Centre emphasised the need for cooperation across jurisdictions to promote the green transition. Stressing the weakness of regulatory capacities in many smaller jurisdictions in the South Pacific – and the labour cost associated with policy development even for more mature agencies – the APRC submitted that they believed there to be a clear need for cross-border enforcement and sharing of information.

In their work designing policy toolkits for Pacific Island regulators, the **APRC embed green transition objectives into market regulatio**n. Template guidelines produced by the APRC, for example, include sustainability exemptions that allow environmentally beneficial collaborations according to a public interest test. This is in line with their goal of providing template guidelines for Pacific Island states. The APRC is developing a Regional Model Competition Policy, which aims to provide regulatory consistency across jurisdictions in the South Pacific. This policy includes provisions for environmental sustainability, resilience, and sustainable public procurement.

The **APRC is developing a Regional Green Competition Roadmap**, which proposes institutional reforms, legal amendments, and exemptions for environmentally beneficial conduct. This is intended to be part of a broader Pacific Regional Competition Strategy, which is designed to promote a whole-of-government approach to green policy design, and embed competition considerations into broader policy questions such as climate finance.

The APRC considers that many important markets in the South Pacific are monopolistic, including fuel import, food supply and transport. It is believed that this inhibits innovation in these markets - including green innovation. The dominance of legacy utilities and distributors prevents cleaner (and cheaper) alternatives from entering markets in the region.

Donor-supported reforms, in the view of the APRC, typically focus too strongly on specific projects, as opposed to supporting regulatory systems and institutions, and are typically too focused on assistance which is country-specific and siloed. The APRC argues that coordinated enforcement and consistent standards inhibit the effective functioning of competition law in the Pacific.

4.3.5 Austria

Key lessons from Austria (a donor country)

- Competition agencies should develop specialised frameworks for taking sustainability and environmental benefits into account.
- These frameworks should take into account the unique nature of environmental benefits, and policymakers should consider introducing a presumption that consumers will receive a fair share of the benefits from green collaborations.
- The key focus for competition agencies considering green collaborations should be on the nature of the conduct authorised, rather than attempting to quantify exact benefits and costs of collaborations.

Background

Whilst a donor country, rather than an ODA recipient, Austria's proactivity in the competition policy-sustainability space argues in favour of its inclusion as a case study. Austria has shown great commitment to combating climate change. The Austrian Federal Government's Government Programme 2020–2024 envisages climate neutrality being reached by 2040" (BWB, 2022). It is noteworthy that this is ten years ahead of the EU's target date for climate neutrality of 2050. The Government Programme 2020–2024 sets out a commitment to making Austria both climate neutral and internationally competitive.

Competition in Austria is governed by the Bundeswettbewerbsbehörde (BWB). It was established by the Competition Act 2002 as an independent competition regulator (BWB, 2025) and is responsible for the enforcement of both domestic and European competition law in Austria.

The governing legislation of the BWB was amended by the Cartel and Competition Law Amendment Act 2021 ("KaWeRÄG 2021") (BWB, 2022). This amendment was intended to: "**orient (national) cartel and competition law more strongly towards sustainability objectives"**; "make a contribution to the discussion still ongoing at the European level"; and "send out a signal to undertakings that they should direct their attention primarily at the long-term aspects of competitive activity" (BWB, 2022).

Austria's approach to green competition policy and BER

In 2021, the legislation governing Austria's competition regime was amended explicitly to allow for the consideration of sustainability-related public benefits to be taken into account when considering whether to grant exemptions to cooperation between businesses under competition law. This was the first such provision in the world – indeed, it was described by Thyri et al (2021) as "an absolute novelty" – and consequently represents a new frontier in competition enforcement.

There have been a number of cooperation agreements considered by the FCCC relating to this provision since the introduction of the sustainability provision. For example, the BWB permitted an agreement to cooperate to jointly increase the percentage of retail petroleum which is derived from bioethanol, and cooperations on the transport of timber from logging sites as well as the delivery of newspapers in rural

areas. The BWB noted that it was difficult to clearly say whether the new sustainability provisions were decisive in any of these cases. There were, in each case, compelling reasons for believing that the cooperation would bring about public benefits through efficiencies. Nonetheless, the sustainability exemption provides extra support for the green transition through business cooperation.

In considering green cooperation and sustainability agreements, the BWB takes into account five considerations. These are set out in the **BWB's Guidelines on the Application of Sec. 2 para. 1 Cartel Act to Sustainability Cooperations** ("Sustainability Guidelines") (BWB, 2022):

1. **Efficiency gains** – the cooperation must lead to a gain in efficiency.
2. **Ecological contribution** – the efficiency gains must contribute to ecological sustainability or a climate-neutral economy.
3. **Substantiality** – the contribution of the efficiencies to ecological sustainability or a climate-neutral economy must be substantial.
4. **Indispensability** – the restrictions imposed by the cooperation must be indispensable for the realisation of the efficiency gains.
5. **Preservation of competition** – the cooperation must not open up opportunities for competition to be eliminated.

The substantiality criterion is intended to prevent the "greenwashing" of collusive behaviour by firms through the creation of trivial environmental benefits, and is defined as follows:

"The efficiency gain that results from the cooperation contributes substantially to an ecologically sustainable or climate-neutral economy when the efficiency gains from ecological benefits realised by the cooperation at least compensate for the cooperation's negative impacts on competition on the market in question." (BWB, 2002).

The criteria are largely the same considerations which must be taken into account when assessing business cooperation. Nonetheless, there are – in addition to the inclusion of the "ecological contribution" as an efficiency – some qualitative differences in the factors which are considered in cooperation agreement cases when the agreement relates to sustainability. Notably, the BWB is able to consider out of market efficiencies in sustainability cases, to account for the spillover effects that are so important in environmental cases.

The mechanism by which the new provisions encourage sustainability agreements is itself relatively novel. In many jurisdictions, businesses seeking exemptions from competition law are required to demonstrate both that there are efficiencies which are likely to arise from the cooperation, and that consumers are likely to enjoy a fair share of the benefits from the cooperation. That is, corporations which produce benefits which are wholly captured by the cooperating businesses are typically not granted exemptions even when there are efficiencies to be gained from the cooperation.

One novelty in the BWB's guidelines for sustainability agreements is the presumption, in cases where the cooperation brings about environmental benefits, that consumers will enjoy a fair share of these benefits unless it can be clearly demonstrated to be otherwise.

"Consumers shall also be deemed to enjoy a fair share of the benefits which result from improvements to the production or distribution of goods or the promotion of technical or economic progress if those benefits contribute substantially to an ecologically sustainable or climate-neutral economy." (BWB, 2022)

In essence, this creates a legal fiction whereby consumers are automatically assumed to enjoy a fair share of the benefits if and only if the efficiencies in question are environmental. This is important, because the "fair share" consideration has often been considered an impediment to sustainability agreements. Indeed, it has been argued that **"the biggest obstacle to exempting sustainability cooperation agreements under EU competition law (and national laws that have the same legal provisions) is the requirement that consumers must get a "fair share" of the benefits of the agreement"** (Holmes et al, 2023).

The sustainability agreement provision is relatively new, and the guidance governing the interpretation of the provision is consequently also relatively new. Nonetheless, the BWB is able to apply its long-standing methodology for considering the merits of proposed business cooperations. Typically, this does not rely on a formally-defined methodology, but on the submission of a detailed account of expected benefits by the applicant, which is then assessed by the BWB.

Importantly, the exemption for sustainability-related cooperation between businesses solely relates to cooperation within Austria. Cooperation with cross-border effects in other European economies remains governed by Article 101 of the Treaty on the Functioning of the European Union (TFEU), which does not contain any specific provision for sustainability-related public interest exemptions.

Similarly, the guidelines offer a list of types of cooperation which are typically not considered to be contrary to competition law, in order to improve the ease with which businesses can engage in harmless cooperation, including: joint databases of suppliers which satisfy sustainability requirements; joint agreements to improve the sustainability of internal business practices; and industry-wide awareness-raising campaigns.

Challenges

The BWB indicated that they believed that most barriers to green innovation lie outside the realm of competition law. While competition law has an important role to play, other policy levers must be used in order to promote green innovation.

It was noted that many of the factors which could promote or hinder green innovation are fundamentally driven by political questions, which lie beyond the remit of competition agencies. Indeed, the introduction of the sustainability agreement provision itself demonstrates the importance of political will, having been introduced as part of Austria's commitment to the European Green Deal (Concurrences, 2023).

Nonetheless, the BWB identified some clear cases where business cooperation could overcome some barriers to green innovation, and provided clear examples of cases where the new sustainability agreement provision could help the BWB to facilitate such agreements. Notably, the BWB provided examples of agreements in the bioethanol and logging markets in which such corporations had brought about efficiencies and environmental benefits.

Lessons learned

The BWB noted that their new responsibilities in assessing sustainability agreements and greenwashing cases required a degree of "on the job" acquisition of expertise in environmental and ecological economics. It was

noted, furthermore, that the introduction of explicit sustainability considerations had had the effect of introducing some challenges associated with being a multi-sector regulator. In expanding the remit of the BWB, the new provisions have expanded the range of expertise required for the BWB to carry out its statutory responsibilities. This expansion in the range of expertise required for the execution of their statutory responsibilities was also driven by a number of "greenwashing" cases considered by the BWB.

It was also noted that the pushback against the use of out-of-market efficiencies – and indeed the European Green Deal more broadly – had created a risk of fragmentation in enforcement practice between domestic and cross-border competition cases.

The BWB emphasised the importance of their open door policy, through which they allow businesses to submit proposed agreements relating to sustainability to the BWB for their assessment. The BWB provides informal guidance to businesses as well as engaging in enforcement action.

Box 3: Insights from another donor country

The United Kingdom has consistently been among the most committed among developing country governments to taking action against climate change. In 2019 the UK "became the first major economy in the world to legislate to finish the job with a binding target to reach net zero emissions by 2050" (HM Government, 2021).

The United Kingdom's competition regime is overseen by the Competition and Markets Authority (CMA). The CMA assumed the functions of the former Competition Commission and Office of Fair Trading in 2014. It is also responsible for a number of regulatory functions, including digital markets, and carries out extensive consumer protection work.

The **CMA published "Green Agreements Guidance" in 2023**, which recognises that the urgency of the challenge of climate change means that the CMA should "help businesses take action on climate change and environmental sustainability, without undue fear of breaching competition law" (CMA, 2023). The guidance is fundamentally focused on the use of public benefits exemptions to support green collaborations between businesses, where these are able to solve the coordination problems created by first-mover disadvantages.

The most innovative feature of the Green Agreements Guidance is that they consider that ***"a more permissive approach to exemption is appropriate in relation to agreements which contribute to combating climate change"*** relative to the CMA's approach to other collaborations.

Like the BWB, the CMA provides, for the information of businesses, clear examples of conduct which is **not** likely to raise competition concerns. These "safe harbour" examples overlap substantially with the BWB's, including: joint awareness campaigns, non-binding industry-wide environmental targets; information pooling about suppliers' environmental credentials; and the creation of joint sustainability standards.

Similarly, the CMA's guidance also makes a point of operating an ***"open-door policy",*** in which the CMA expects to informally consider planned agreements before they become operative, and will typically not take enforcement action where the agreement had previously been discussed with the CMA.

The Green Agreements Guidance establishes a three-tier framework for green agreements based on market size and the nature of the conduct: safe harbour agreements cover both agreements which in their nature are unlikely to be anticompetitive, and which are conducted by businesses with a sufficiently small market share to pose no competitive threat; agreements eligible for exemption because of the public benefits they generate; and agreements which could be in breach of competition law. In their review of the CMA's Green Agreements Guidance, Bird & Bird note that "international businesses will no doubt be frustrated that a more global approach on sustainability agreements, has not yet been adopted by competition authorities" (Le Strat et al, 2024).

Like the BWB, a major difficulty in applying standard public benefits exemptions to environmental considerations is that the existing analytical frameworks impose limitations on the types of benefit which can be taken into account by the CMA. To address this, the central analytical change set out in the Green Agreements Guidance relates to the treatment of the "fair share" consideration typically applied to business collaborations, although the specific treatment of the fair share consideration differs from the Austrian approach. While the BWB has introduced a presumption that consumers receive a fair share of any benefits from green agreements, the CMA instead allows ***"the 'fair share to consumers' condition [to] be satisfied taking into account the totality of the climate change benefits to all UK consumers arising from the agreement".*** This represents a significant break from practice in other cooperation assessments, where benefits to consumers in one market cannot be traded off against costs to consumers in another.

5. Theory of change

There Drawing on the literature reviews, case studies and stakeholder consultation, **Figure 1** depicts a **generalised theory of change (ToC)** which shows how competition policy and business environment reform can be used to support the green transition, following a standard framework of inputs (such as through donor support), outputs, outcomes, and impacts, taking into account implementers, such as Competition Authorities, enabling factors, such as institutional capacity, influencing factors, such as consumer demand. The purpose of the ToC is to set out a broad **framework** through which the process of policy change can be considered, highlighting some key focuses for domestic policymakers as well as donors and other stakeholders. The ToC was validated through stakeholder engagement and through interviews (where possible).

The interventions and inputs shown follow a number of strategic pathways. The entities identified as **"implementers"** naturally have a key role in this theory of change, especially given a number of the proposed intermediate changes require substantial technical inputs which may be demanding to develop without technical assistance - notably guidelines and frameworks for quantifying and assessing sustainability related public benefits.

Interventions in this ToC follow a number of strategic pathways. Firstly, implementers should design **policy and legal reforms to align competition law and practice with sustainability goals**, and use advocacy efforts to promote the pro-competitive design of environmental regulations. **Targeted technical assistance will be required to build capacity** in support of this pathway, particularly in strengthening the analytical and implementing capacities of competition authorities in developing states.

Secondly, the degree of **heterogeneity across jurisdictions and markets requires a focus on capacity building in market assessment and structural institutional analyses**. Optimal and feasible policy sets may differ considerably from country to country, but transforming this truism into practical policy recommendations requires analysing the structure of markets and institutions effectively. This is likely to require further capacity building and technical assistance from implementers. From these inputs, our ToC proposes that implementers should aim to bring about an improvement in intermediate outputs, principally through better-designed, more effective competition and environmental policies - and implementation of those policies - and from this key output, broader improvements in the functioning of essential markets.

Accordingly, we should expect to see a **strengthening of the alignment between competition policy and environmental objectives through the strategic application of competition law**, while using competition law and policy in ways which fundamentally act to promote competition first and foremost. Ultimately, these outcomes will, according to our ToC bring about a transformative impact by promoting the green transition while still promoting innovation, productivity growth, and affordable consumer prices. Therefore, we should expect to see green competition policy bringing about the alignment of green and development goals, in ways which more conventional environmental regulations would not be able to achieve.

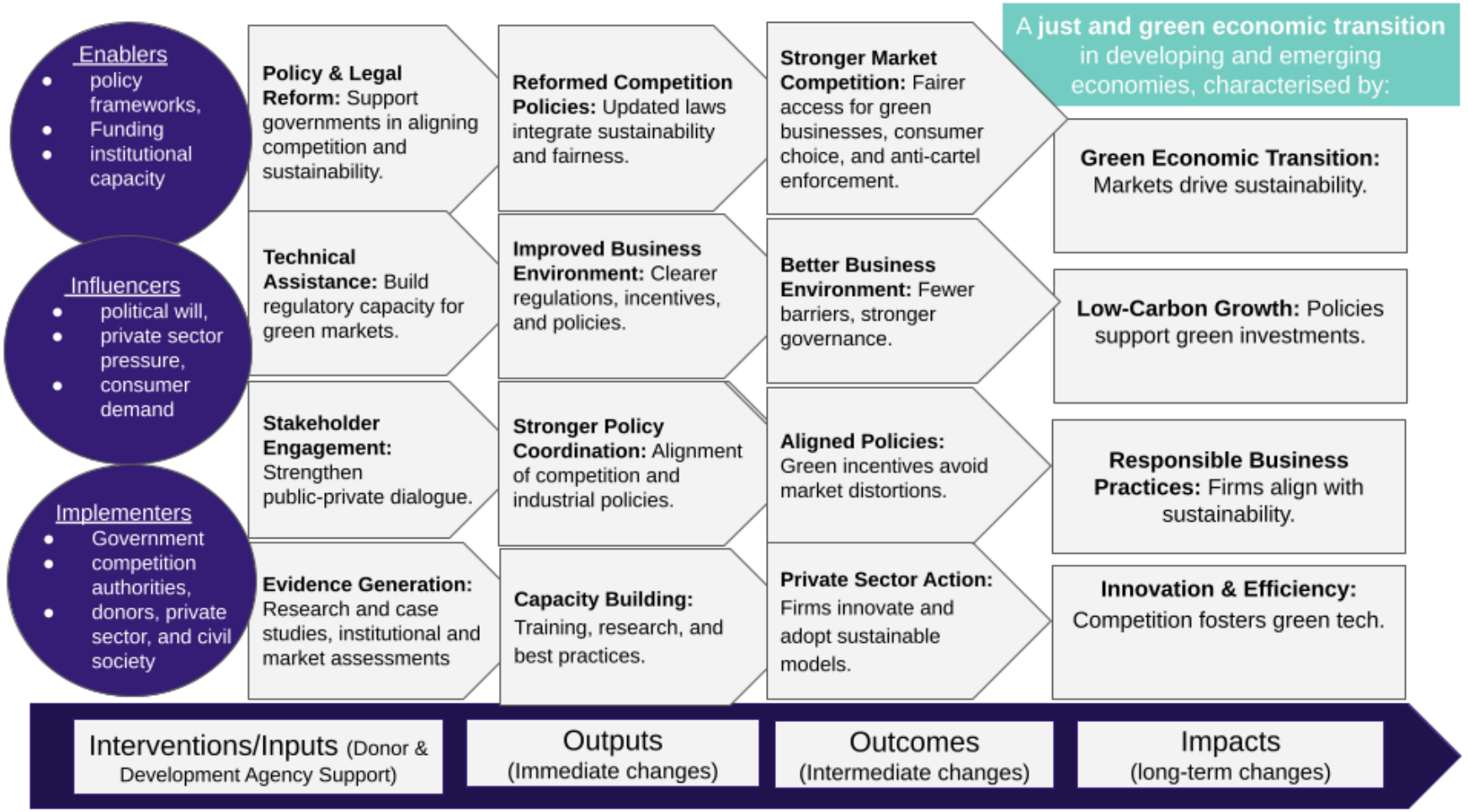

Figure 1: Theory of change

6. Conclusion and recommendations

6.1 Conclusions

This report provides the basis for the development of a policy programme aimed at promoting the green transition through competition policy and business environment reform. The learnings developed through our literature review, and case studies provide clear evidence of a positive effect of market competitiveness on sustainability, and detailed examples of successful attempts to promote sustainability through pro-competitive reform.

Our analysis confirms more intense competition generally promotes sustainability through multiple channels. Competition drives innovation in green technologies, encourages the adoption of existing sustainable solutions, and reduces prices of green products. By reducing the costs associated with green production, and by reducing the economic rents available to businesses persisting with highly polluting activities, targeted competition and BER interventions can substantially accelerate the green transition.

Nonetheless, there are significant gaps in existing practice. Very few policymakers or competition agencies have so far systematically integrated green transition objectives into their BER and competition enforcement priorities and assessment guidelines. While it is appropriate for competition policymakers in particular to maintain a clear focus on promoting competition as an overriding objective - and it is understandable that newer agencies have focused on “bread and butter” issues early in their existence - the lack of a clear green competition policy is socially wasteful. Green competition policy and green BER represent a rare case in which policymakers can improve outcomes on many dimensions simultaneously, because green competition policy and BER offer:

1) Reduced emissions and improved sustainability;
2) Improved productivity and competitiveness; and
3) Lower consumer prices, and consequently stronger public support for the green transition.

There are few other policy focuses which can offer all three of these benefits simultaneously. The nature of many other green policies - such as command and control regulations - is often to bring about reductions in emissions in ways which incur (at least in the short run) increases in costs, and can consequently be controversial with the public. Green competition policy and BER offer the chance to support the green transition while reducing consumer prices - a “win-win” policy approach which cannot be neglected.

This is especially true of reforms to energy markets. Mexico's energy market reforms and South Africa and Fiji’s renewable energy initiatives demonstrate how well-designed interventions can simultaneously promote the green transition while improving market efficiency and reducing consumer costs.

This is especially true of developing economies, which face distinct challenges and opportunities in promoting the green transition. Command-and-control environmental policies, which dominate the policy approaches followed to date in most countries, may be less effective in contexts characterised by weak enforcement capacity. In contrast, approaches which change market *structures* are able to continue to produce benefits

even when policymakers are not able to provide ongoing monitoring of the conduct of businesses in those markets.

Furthermore, while the effectiveness of command-and-control regulation may be weaker in developing economies, the impact of pro-competitive interventions and reforms are likely to be magnified. As businesses in developing economies are typically further from the technological frontier, the productivity gains available from innovation and - importantly - the adoption of existing technologies is likely to be magnified.

The green transition represents one of the great challenges of our time, but also an opportunity for developing economies to seize the opportunities it provides for promoting innovation and productivity, reducing the cost of living, and mitigating other systemic risks to their economies. Through the strategic deployment of competition policy and BER, the green transition can be promoted in a way which represents an opportunity for achieving sustainable and sustained development.

Achieving this outcome will require the assistance of donor agencies in a number of important areas. Key recommendations regarding the role of donors in promoting a competitive green transition are set out in the section below.

6.2 Recommendations

Based on our findings, we propose the following recommendations for donors, development agencies, policymakers, and competition authorities.

Competition agencies and policymakers

1. **Develop Explicit Green Competition Frameworks** - Competition authorities should develop clear frameworks that explicitly recognise sustainability considerations while maintaining competition as the primary objective. This includes:
    a. Introducing sustainability-specific public benefit exemptions following Austria's model;
    b. Recognising out-of-market efficiencies in environmental cases, and applying a presumption that green collaborations achieve a fair share for consumers
    c. Extending assessment timeframes beyond the typical 2-3 years, where appropriate, to capture longer-term environmental benefits.

2. **Prioritise Strategic Competition Interventions** - Target competition enforcement toward markets critical for the green transition:
    a. Focus aggressive enforcement on highly polluting industries to reduce pre-innovation rents
    b. Promote competition in green technology input markets to reduce transition costs
    c. Address anti-competitive barriers in renewable energy markets, particularly monopolistic utility structures

3. **Strengthen Assessment Capabilities** - Build robust capabilities for evaluating environmental claims and quantifying sustainability benefits:
    a. Develop standardised methodologies for assessing green public benefits, which are focused on the nature of the conduct under consideration;
    b. Create "green theories of harm" for competition investigations;

    c. Establish clear criteria to distinguish genuine environmental benefits from "greenwashing".

4. **Enhance Cross-Border Coordination** - Given the global nature of climate challenges and many relevant markets:
    a. Develop regional competition frameworks with consistent sustainability provisions;
    b. Strengthen cooperation mechanisms for investigating cross-border cartels in green markets;
    c. Harmonise approaches to green exemptions across jurisdictions.

5. **Incentivise the Green Transition Through Reform** - Use BER to align business incentives with environmental goals:
    a. Combine command-and-control environmental regulation with efforts to reduce compliance costs for green technologies;
    b. Promote market entry in key markets by removing barriers to entry - especially in energy markets;
    c. Consider exempting green projects from some regulatory conditions, such as local content requirements.

6. **Address Market-Specific Barriers to Entry and Expansion** - Target support toward removing specific barriers:
    a. Open up monopolistic energy markets to new competitors - especially green competitors;
    b. Support the removal of local content requirements that impede green technology adoption;
    c. Facilitate the development of competitive markets for environmental certificates and credits.

7. **Prioritise the Adoption of Existing Green Technologies** - When green technology already exists, encourage firms to adopt it:
    a. Reduce legislative and tariff barriers to the import of green products;
    b. Design frameworks for allowing businesses to cooperate to promote sustainability goals;
    c. Open up key markets - especially state-owned monopolies - to new entrants using green technology.

Donors and development agencies

1. **Prioritise Capacity Building** - Focus technical assistance on building capabilities essential for green competition policy:
    a. Support the development of quantitative assessment skills in competition agencies
    b. Provide training on evaluating environmental claims and sustainability agreements
    c. Facilitate knowledge exchange between mature and emerging competition regimes

2. **Support Systemic Approaches** - Move beyond project-specific interventions to support institutional and regulatory systems:
    a. Fund the development of comprehensive green competition strategies
    b. Support regulatory impact assessments that include competition considerations
    c. Invest in cross-border enforcement mechanisms and regional coordination

3. **Promote Competition Advocacy** - Support competition agencies in their advocacy role:
    a. Fund market studies in sectors critical to the green transition
    b. Support the development of guidance documents for businesses on green collaborations

    c. Facilitate engagement between competition authorities and environmental regulators

4. **Support International Coordination** - Support mechanisms for ensuring that cross-border markets work well.
    a. Provide technical support for mechanisms for cross-border enforcement in the markets most adversely affected by climate change;
    b. Encourage the sharing of best practices in green competition policy and BER between jurisdictions;
    c. Encourage the diffusion of green technologies through consistent regulatory standards between jurisdictions.

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8. ANNEXURE

8.1 Annex 1: Definitions

This section sets out the groundwork for the study by defining key terms, providing a clear basis for analysis. The proposed definitions for use in this project are set out in the sections below, along with discussions of the rationale for each choice of definition.

While these definitions are drawn from the academic literature and existing policy papers, we have adapted these definitions in order to make them more appropriate for the purposes of this research project. In particular, we have proposed **purposive** definitions, which are intended to be of use to donor agencies, partner governments and other stakeholders.

Therefore, the definitions set out below may differ from those used in the academic literature for a number of reasons. Firstly, the definitions used in the academic literature reflect the research focus of the researchers, but may be less suitable for the purposes of, for example, a donor agency. Some definitions in the academic literature may be too narrowly defined - for example, omitting important policy goals because of the descriptive focus of the paper - or defined in ways which make their application difficult in practical policy settings.

Secondly, the definitions used in this report will typically synthesise definitions from several sources in the literature, in order to capture the important common characteristics of the definitions set out in the literature. This is intended to allow the definitions set out in this report to be applied broadly and flexibly in a range of policy settings, while still retaining a clear link to the academic literature.

Business environment reform

Proposed definition	
Business environment reform	• **Policies aimed at bringing about <u>structural change</u>** *to the set of policy, legal and regulatory conditions that govern business activities.* • *Note:* As this definition is broad, it is a useful exercise to include a number of examples here. In line with the definition above, some examples of BER could include: reform of regulations governing energy markets, the existence or otherwise of state monopolies, "command-and-control" environmental regulations, and innovation subsidy regimes. • For the purposes of this report, we have considered BER to include laws and regulations which are likely to affect competition, but **not** the activities of competition agencies themselves.

Discussion

This definition is based on the DCED definitions of business environment reform. The definitions used by these bodies are relatively similar. The business environment is defined by the DCED as "a complex of policy, legal, institutional, and regulatory conditions that govern business activities" (DCED, 2008a).

Similarly, the DCED has previously noted that the business environment represents a subset of the "investment environment", which can be defined - following the World Bank - as "the many location specific factors that shape the investment opportunities and incentives for firms to invest productively, create jobs and expand" (DCED, 2008b).

Our definition follows on clearly from these existing definitions, in that Business Environment Reform is defined as deliberate structural transformation of the business environment. For this definition we have chosen to remain close to the existing DCED definition in order to ensure that the output of this project is consistent with existing practice.

Competition policy

Proposed definition	
Competition policy	• **Policies aimed at promoting [or removing restraints against] competition**, *in order to increase (broadly defined) economic welfare and the green transition*.

Discussion

This proposed definition largely follows that of Motta (2004), with an additional focus on the green transition as well as more conventionally defined economic welfare. Definitions of Competition Policy in the academic and policy literature are typically comprised of two components:

- A **process** component; and
- An **outcome** component.

The ***process*** component, as expected, focuses on the promotion or protection of competition and the competitive process. There is some variation in whether the definition is negatively-framed - i.e. framed in terms of preventing restrictions of competition - or positively-framed, typically in terms of promoting competition.

There is a strong case for a positively-framed version of this definition, in which competition policy is framed as promoting competition, rather than removing restraints on competition. This reflects the experience of policymakers globally in promoting the green transition, which has typically involved the active promotion of certain important activities, such as research and development spending, by policy makers, rather than simply removing restraints on competition.

This is likely to reflect the unusual nature of the green transition, which differs from previous transitions in a number of important ways. For example, while previous economic transitions have been bottom-up market-led processes driven by the price and cost incentives arising organically from the market, the green transition is likely to be - and indeed, has so far been - much more state-led and centralised. (Crowley-Vineau et al, 2023). This is probably inherent to the nature of the green transition, given that much of the fundamental problem facing policy-makers with regard to the green transition is the failure of existing markets to internalise benefits from innovation, it is likely that many policy measures will involve some form of subsidy to producers for the near future. In such circumstances, it is more reasonable to use the positive-frame of competition promotion.

In practical terms, however, there is likely to be little difference between the two framings, which share a focus on ensuring that the intensity of competition is more intense in relevant markets as a result of the policy programme.

Measuring the intensity of competition in any given market is typically not straightforward, so our proposed definition of competition policy will be agnostic about how competitive intensity is measured. While various measures exist,[4] In fast-moving markets these measures may not always be reliable guides to the true intensity of competition. However, it is likely to be possible to identify the *direction* of the competitive effect of a given policy measure - that is, whether it intensifies or weakens competition - and as such our chosen definition is focused on measures which promote competition while not relying on a specific measure of competitive intensity.

The ***outcome*** component of competition policy definitions typically focuses on one of consumer welfare, economic efficiency, or social welfare. Naturally, given the focus of this study, we consider that it is important that the definition of competition policy includes reference to the green transition.

Green industrial policy

Proposed definition	
Green industrial policy	• *Policy measures through which governments* **encourage the reallocation of economic resources to support the green transition** *while supporting productivity growth*.

Discussion

This is based on a combination of the definitions used in research papers by the World Bank, IMF, DCED and the academic literature - for example, Rodrik and Altenburg (2017). Typically, the existing definitions considered in our review emphasised the process aspects of the green transition that GIP is intended to support - that is, they made use of definitions characterised by the economy moving from the current status quo to a new equilibrium which is “greener”. For example, Altenburg and Assmann (2017) in "Green Industrial Policy:. Concept, Policies, Country Experiences" define it as "any government measure aimed at accelerating the structural transformation towards a low-carbon, resource-efficient economy in ways that also enable productivity enhancements in the economy".

While such definitions in many ways capture the essence of the aims underpinning green industrial policy, we considered that our definition should emphasise the process of transformation rather than the end-state which policymakers hope will prevail after green industrial policies have encouraged the green transition. This reflects our view that definitions should be designed in such a way as to assist policymakers, donor agencies, and partner governments who - naturally - are able to observe the process of "greening" the economy, but not the end-state that will prevail after the green transition.

Our definition is in line with approaches to defining industrial policy more generally, which typically feature two key claims: firstly, that industrial policy brings about, or intends to bring about, a transformation of the economy; and, secondly, that this transformation is a result of the deliberate reallocation of resources by policymakers to encourage this transformation.

For example, the OECD defines "industrial policy" as: "Industrial policy refers to government assistance to businesses to boost or reshape specific economic activities, especially to firms or types of firms based on their activity, technology, location, size or age" (OECD, 2025). Similarly, the DCED follows Pack and Saggi (2006) in defining industrial policy as "any type of selective government intervention or policy that attempts to alter the structure of production in favour of sectors that are expected to offer better prospects for economic growth in a way that would not occur in the absence of such intervention in the market equilibrium".

In each of these cases, industrial policy is defined so as to focus on the use of government intervention to alter the incentives of private firms to redirect economic activity. This informs our chosen definition. The main difference between these traditional definitions of industrial policy and our chosen definition is that our chosen definition focuses on the green transition rather than promoting economic growth.

Nonetheless, our definition has retained productivity growth as a key concept. We consider this to reflect the importance of greening the economy in ways which broadly support productivity growth, and emphasise that our focus is on transition to a new green economy rather than pursuing a policy of "de-growth".

8.2 Annex 2: Guiding interview questions

1. How does your organisation currently address the intersection of competition policy and environmental sustainability in its work?

2. Have you seen specific examples where business environment reform or competition law helped or hindered the green transition in your country?

3. How are environmental or sustainability goals weighed when assessing potentially anticompetitive practices or market interventions? Do you make use of specific exemptions related to green considerations?

4. Have donor-supported reforms in your context effectively aligned with national green industrial policy objectives? If so, how?

5. What challenges or risks do you foresee in aligning pro-competitive policies with green transition priorities?

6. *Optional, Competition Agencies only:* Have you engaged in any advocacy interventions regarding the use of competition policy or BER to promote the green transition or other environmental objectives? If so, which?

7. *Optional:* To what extent do policies aimed at promoting green transition (other than competition policy and BER) pose challenges to the promotion of competition?

8. What do you consider to be the major obstacles restricting the adoption of green technologies and production methods by businesses in your country?

9. *Optional:* Do organisational capacity constraints influence your approach to competition policy, business environment reform and the green transition? If so, how?

10. *Optional:* Do policy makers in your country generally take competition considerations into account when designing green policies? Is there a national competition policy to encourage the use of pro-competitive approaches in policy design?

DCED

The Donor Committee for Enterprise Development