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Imposing versus Enacting Commitments for the Long-Term Energy Transition: Perspectives from the Firm

Alain Verbeke[1,2,3] and Thomas Hutzschenreuter[4]

[1]Haskayne School of Business, University of Calgary, Calgary, Alberta, T2N 1N4, Canada, [2]Henley Business School, University of Reading, Reading, RG6 6UD, UK, [3]Solvay Business School, Vrije Universiteit Brussel, Brussels, 1050, Belgium, and [4]TUM School of Management, Technical University of Munich, Munich, 80333, Germany

Corresponding author email: alain.verbeke@haskayne.ucalgary.ca

Introduction

Societal stakeholders in many developed economies are increasingly pushing for a long-term energy (LTE) transition from high carbon-emitting energy supply to lower emission and even emission-free energy sources. For most of these stakeholders, the societal debate on the merits of an LTE transition is over, and in their minds the remaining implementation challenges relate to the timing and scope of this transition across industries and locations: how can the LTE transition be accelerated and how can it be broadened to cover as many industries and geographic milieus as possible?

It is factually correct that the global energy mix has changed significantly during the past three decades, with world renewable energy generation having more than tripled. Building upon the current state of energy technologies, the LTE transition is expected to entail further reductions in carbon emissions when using conventional energy sources, and also additional shifts from non-renewable energy sources towards renewable ones (hydro, biomass, wind, solar). However, given the growth in world population and the increase in wealth in many countries, global carbon emissions have not been reduced (Ritchie and Roser, 2020). At this point in time (2021), some proponents of the LTE transition therefore desire a more rapid and more drastic reduction in greenhouse gas (GHG) emissions from conventional sources, accompanied by an equally swift and significant increase of emission-free sources of energy supply.

But as is usually the case in business, one size does not fit all when large-scale capital investments and innovation activities are involved. The timing and scope of the LTE transition appear to vary greatly across country and industry contexts. At the national level, the impact and speed of the LTE transition appear to depend at least partly on the type of legal system prevailing in the country. Within the developed world, the liberal market economies governed by common law have historically had national policy frameworks favourably inclined towards supporting the hydrocarbon industry (Boersma and Johnson, 2012; Brown and Hess, 2016; Chasek, 2007; Jacoby, O'Sullivan and Paltsev, 2011). Conversely, in other developed countries with more market coordination and governed by civil law, the policy agenda appears to have shifted more swiftly to stimulating renewables (Chasek, 2007; Reiner *et al.*,

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2006; Renn and Marshall, 2016; Szulecki *et al.*, 2016).

In this realm, US and UK business investments in renewables have historically been somewhat more modest in relative terms, and the policy environment more challenging, than in a number of more strongly coordinated markets (Reiner *et al.*, 2006; Sawin *et al.*, 2010). In emerging markets, policy responses have typically been less coherent, although some large nation-states such as China – with its massive state-controlled segment of the economy that is complemented by more market-driven segments – have promoted a greater usage of renewables and have fine-tuned industry incentives accordingly. However, even if some market and non-market forces try to impose commitments towards an LTE transition on existing firms, this pressure – albeit possibly a *necessary* condition for firm-level changes – may not be a *sufficient* condition for wholesale changes in capital expenditure projects and technological innovation. The *sufficient* condition for an LTE transition is that business firms operating in sectors with the highest GHG emissions, respond to the market and non-market forces at play by enacting these imposed commitments via investments and innovation (Verbeke, Osiyevskyy and Backman, 2017). The notion of enacting is used here to reflect the sensemaking process inside firms, whereby they try to make sense of their new business environment with commitments imposed on them by outsiders. They attempt to author their own reality, based at least in part on their unique historical trajectory in terms of identity, social context, the products they deliver and the markets they serve (see Eddleston, Banalieva and Verbeke, 2020 on the relevance of sensemaking and enacting for strategy).

The goal of this Special Joint Initiative, 'The Grand Challenge of Energy Transitions' by the *Journal of International Business Studies (JIBS)* and the *British Journal of Management (BJM)*, is to showcase new work that engages with this challenge at the societal and business levels. Here, we highlight the distinction between *imposing commitments* and *enacting commitments* towards the LTE transition. Researchers sometimes assume as self-evident the linkages between macro-level intention and firm-level action: that is, the affected firms are simply assumed to carry out investments and engage in innovations to reduce GHG emissions as a result of (especially) non-market forces imposing commitments towards an LTE transition on business. In our view, however, the most promising avenue for research in this area is to assess whether such linkages are actually present, and what the underlying mechanisms are to move from external forces imposing commitments on firms to large-scale capital investments and tangible innovation outcomes. We propose a simple framework linking commitments *imposed* on firms by market and non-market forces to affect GHG emissions with firm-level behaviour *enacting* these imposed commitments towards the LTE transition. In the following section, we introduce the *imposing commitments* versus *enacting commitments* framework and then discuss how the papers in this Special Section align with this framework. We conclude with suggestions for further research on the LTE transition, using a firm-level lens.

The 'imposing' versus 'enacting' commitments framework

The human-induced contributions to climate change can be viewed in part as consisting of negative externalities arising from the *collective* consumption of non-renewable energy and the related GHG emissions. Implementing the polluter-pays principle is one way of reducing the negative external effects of non-renewable energy consumption. However, many governments and non-governmental organizations (NGOs) want to go further in order to achieve climate neutrality during the 2050–2060 period.

If establishing a clear path to climate neutrality represents the goal to be achieved, then the requisite LTE transition is particularly ambitious. *First*, the LTE transition must have a *global reach*. Since climate change is a consequence of collective non-renewable energy consumption, a global reach of the LTE transition is necessary to affect climate change significantly. Only if the most important GHG emitters – such as China, the United States, India and Russia – as well as a large majority of other countries in the world commit themselves to this proposed path, will it be possible to reach the climate goals that are often communicated at global conferences on the issue.

Second, the LTE transition – if it is to unfold without a reduction of overall economic activity – demands the decoupling of economic activity and growth from energy consumption associated with GHG emissions. Such decoupling entails *massive*

capital expenditures and *technological innovation*, especially by firms and industries that are large emitters. The LTE transition represents the most fundamental change in the world economy since the industrialization based on fossil energy sources.

Third, the LTE transition is viewed as *urgent* by a variety of societal stakeholders; this sense of urgency places strong pressure on business firms in industries and geographic milieus where GHG emissions are high, to reduce their GHG footprint in order to retain their social licence to operate.

The joint occurrence of needed *global reach*, requisite *massive capital expenditures* and *technological innovation*, and perceived *urgency* of the LTE transition translates into major challenges of *complexity, uncertainty* and *ambiguity* in public policy and corporate strategy formation. The complexity is related to the fact that the LTE transition does not simply affect isolated economic actors, but entire business systems, spanning vertical value chains and a wide variety of interconnected but spatially distributed economic activities. In addition, how the different actors involved in these systems depend on each other, and how decisions by one actor affect others, is often not transparent, thereby creating challenges of uncertainty and ambiguity as to the likely effects of particular courses of action.

Actors on both the imposing and enacting sides of the LTE transition operate subject to similar micro-foundational constraints, namely *bounded rationality* and *bounded reliability*. Bounded rationality in the realm of policy and strategy formation reflects the conditions of imperfect information; imperfect information processing capacity in the face of complex, uncertain, ambiguous and distributed information; biased selection of the information facets viewed as most important to decision-making; and coloured judgement on the meaning of the information facets selected for decision-making purposes. One result of higher bounded rationality on the policy side is that those actors trying to impose a transition on industry may not fully comprehend the implications of specific policy measures on the business firms supposed to enact a transition, largely because the overall policy framing and the policy goals pursued are macro-level oriented. And one outcome of this for the enacting firms is that they are supposed to respond to new rules of the game, whether incentivizing or constraining, that were not designed with their firm-level context and associated challenges in mind.

Bounded reliability reflects imperfect efforts to make good on open-ended promises, whether because of strong-form self-interest, benevolent preference reversal, or identity-based discordance. In an ordinary organizational context, and assuming manageable challenges of bounded rationality, it is often relatively easy to identify the unreliability of economic actors and to diagnose remedies for preventing or mitigating instances of unreliability via effective interventions in structural and strategic governance (Kano and Verbeke, 2015; Verbeke and Fariborzi, 2019). However, in the realm of public policy design and the broader exerting of societal pressures on business, non-market actors try to impose commitments on businesses. Imposing commitments as a type of contracting is supposedly required because businesses cannot be expected to act reliably in addressing their own climate change impacts to serve societal interests. But public policymakers and other non-market actors, when deciding not to follow the polluter-pays principle, instead need to make a large number of assumptions as to how public policy measures and societal pressures will in the short run change the behaviour of polluters and affect pollution outcomes, and in the longer run will also support shifts in capital expenditure patterns and technological innovation. From the perspective of the firms upon whom an LTE transition is imposed, the assessment may be that the boundedly rational external forces involved may have unrealistic expectations as to the speed with which the imposed commitments can actually be implemented, as well as the cost thereof. In addition, in the realm of technological innovation and shifts to renewable energy sources, the relevant innovation processes occurring inside businesses are typically a black box for non-market actors, which amplifies further the divide between those imposing transition commitments and the firms supposed to enact these commitments. In the following we introduce a simple '*imposing commitments*' versus '*enacting commitments*' framework and illustrate how bounded rationality and bounded reliability shape LTE transition outcomes.

Imposing transition

In order to make the LTE transition a reality at the aggregate level of a national or regional

economy, or even the global economic system, strong non-market forces imposing transition commitments on business are often viewed as necessary. Commitments that are urgently needed and that must ultimately be global in reach and consist of massive capital expenditures and innovation will not be made solely through bottom-up processes with business firms taking the lead. Individual companies face substantial bounded rationality problems themselves, for example, in terms of understanding the requirements for a future social licence to operate and for profitable investments in new technologies. At least some commitments imposed on business by the non-market may be required to drive the LTE transition, despite these forces having only a black-box understanding of business, and despite the fact that sometimes, imposing commitments on energy systems may be more a form of virtue signalling than a driver of investments and genuine technological innovation (in such instances also highlighting the bounded reliability of some non-market actors).

The forces at play that try to impose commitments on firms have a *source dimension* and a *time dimension*. The *source dimension* refers to where the imposed commitment originates and how powerful this source is. Among the non-market forces that can act as the source, a distinction can be made between regulatory authorities such as governments and supra-governmental bodies such as the European Union on the one hand, and NGOs and activist movements on the other. A number of market forces may also be active in this realm. These may include, *inter alia*, value chain partners such as customers and suppliers, providers of capital and other inputs, as well as – albeit more implicitly – competitors. Competitors who have enacted an LTE transition early on and are gaining competitive advantage by such enactment pose a threat to laggards and can implicitly reinforce the non-market pressures on these companies. Sources imposing a transition can be further differentiated based on their scope, that is whether they operate mainly at the local level and with a limited reach – such as industry emission regulators in a particular country, or, on the contrary, span multiple industries and nations.

As regards the *time dimension*, the commitments imposed on firms may be in operation already (e.g. via a regulatory framework that is presently in place), or might be evolving over time, meaning that it is important to anticipate how they will unfold in the future. The already imposed commitments can result from laws and other formal regulations, as well as from pressures exerted by a large number of market and non-market forces. Here, interpretations by firms as to the goals, the content and the impact of existing, imposed commitments can vary significantly. Importantly, anticipated future impositions can be associated with considerable uncertainty. Senior management and Boards at the firm level can sometimes anticipate accurately future impositions pushing a transition, but this accuracy is limited because of bounded rationality constraints; for example, the prediction as to which government (more transition-leaning versus more transition-reticent) will be in power in the foreseeable future. What matters is imagining how future, imposed transition measures might affect the firm's operations and its survival, profitability and growth. The firm must therefore carefully monitor both non-market and market actors who could be instrumental in imposing transition commitments, with a special focus on how those actors may themselves be facing severe bounded rationality constraints in contemplating new measures and may also have little reliability in terms of making good on implicit or explicit promises not to disrupt completely normal business operations in industry.

Figure 1 shows the spectrum of forces imposing transition commitments on firms. Understanding fully this spectrum may support firms in their strategizing about actions to be undertaken to reduce the costs of these imposed commitments and to identify possible business opportunities related to these commitments. In Figure 1, the vertical axis distinguishes between the two main sources imposing such commitments, namely non-market forces and market forces. The horizontal axis makes the distinction between the existing arsenal of imposed commitments and anticipated, future impositions.

Enacting transition

Given the outcomes of the analysis of the forces imposing transition commitments, each firm needs to decide how to enact these commitments, by engaging in a firm-specific transition process (Backman, Verbeke and Schulz, 2017). The enactment process that follows pricing-related or end-of-pipe (emission-reducing) commitments imposed on firms is typically relatively easy to observe by researchers based on publicly available data. But

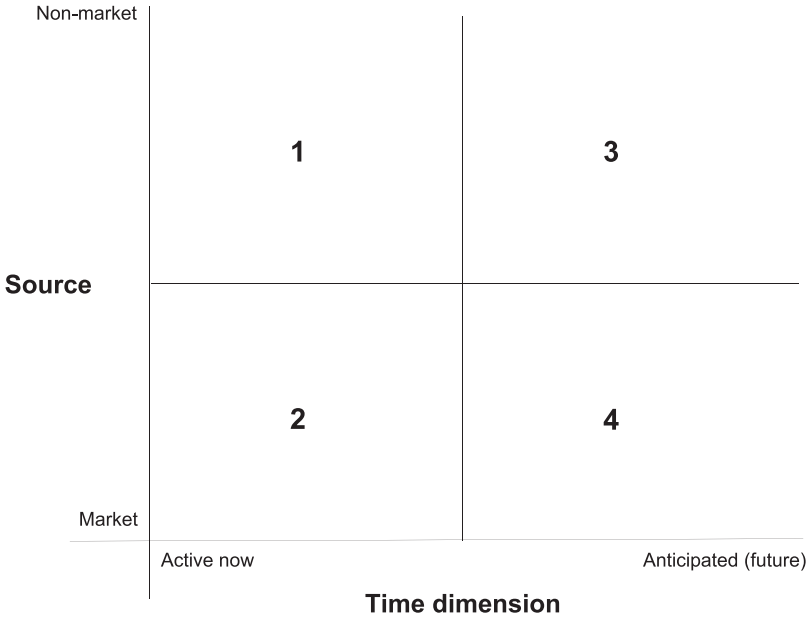

Figure 1. Spectrum of LTE transition commitments imposed on business firms

the enactment of an imposed transition commitment that takes the form of long-term capital investments, as well as process and product innovations, is much more difficult to assess and to comprehend fully. For example, Backman, Verbeke and Schulz (2017) highlighted the fallacious perception that large European firms had performed much better than North American firms in terms of climate change impact mitigation. Whereas this perception was correct in terms of indicators of governance and information systems quality, North American companies had actually performed better where it mattered most: product and process innovations, with market forces playing a more important role than the non-market in imposing these commitments and eliciting these investments.

Figure 2 suggests that the enactment process has a *scope dimension*, shown on the vertical axis, whereby change resulting from an imposed commitment can be organization-wide versus strongly differentiated, with a narrow set of functional or location-specific value chain activities being much more affected than other activities. In addition, Figure 2 also shows on the horizontal axis that imposed changes, beyond responses in the realm of pricing or end-of-pipe emission reductions, can be enacted *swiftly* versus in a *delayed* fashion, with slower or hesitant responses often the result of prior, irreversible resource commitments that are difficult to redeploy elsewhere, except at a large economic loss. Difficulties in anticipating accurately the trajectories of commitments that will be imposed (as described on the right-hand side of Figure 1) can also contribute to delayed enactment.

Imposing transition commitments versus enacting transition commitments

The combination of Figures 1 and 2 suggests the strong likelihood of a disconnect between what the forces imposing transition commitments on business may try to achieve on the one hand, and how the affected business firms will enact the required changes on the other hand. Here it should be remembered that those imposing transition commitments on firms typically face almost insurmountable bounded rationality challenges in terms of understanding the firm-level transition processes that will ensue. It is, however, the responsibility of business firms facing the prospect of losing their social licence to operate, to respond to the imposed commitments in ways that make most sense to them given their initial conditions, especially their extant asset reservoirs and business models. Understanding the variety of forces at play as described in Figure 1, and reflecting on the alternative courses of action shown in Figure 2 as an input for their own enactment process, can

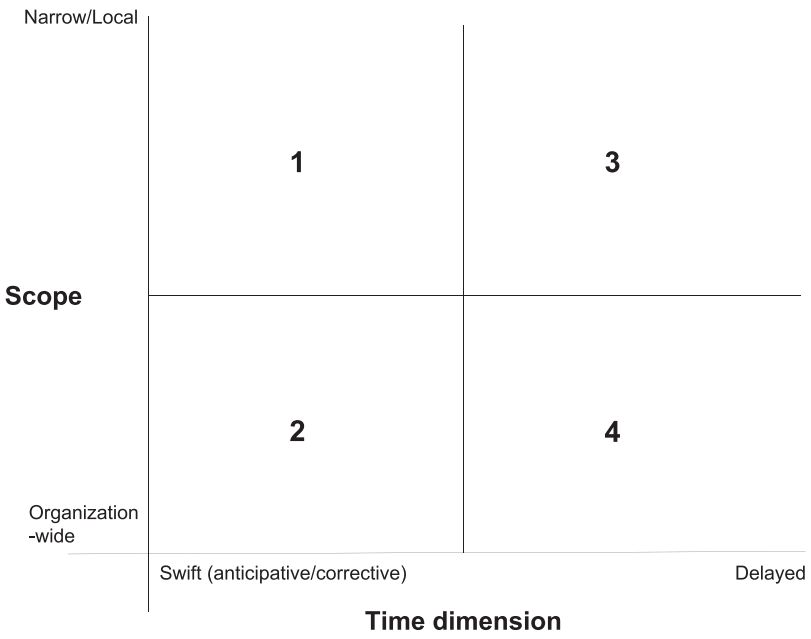

Figure 2. Firm-level enactment of imposed LTE transition commitments

help firms alleviate their own bounded rationality challenges. Most research in the business and management sphere appears to be very concerned about the potential bounded reliability of firms in making good on imposed commitments to contribute to the LTE transition. For example, the notions of greenwashing and political rent-seeking front and centre in numerous scholarly publications. But perhaps equal concern should be voiced about the limited competences of some of the actors imposing transition commitments on business. These actors often have insufficient insight into the long-term effects of their impositions on business. In addition, their own reliability in terms of pursuing societal goals rather than, for instance, political goals or ideology-driven agendas is sometimes debatable at best.

Contributions to the special issue

The four papers included in this special issue contribute in complementary ways to understanding the LTE transition from the firm's perspective. The papers address in a creative fashion the challenges associated with both external forces *imposing* transition commitments on firms and these same firms *enacting* these commitments.

As noted in the Introduction, investments in renewable energy are not evenly spread across the globe. Liu *et al*. (2021) investigate the role of the legal system within which energy firms operate, as a driver for *investments* in renewable energy sources. They examine 236 renewable energy firms across 20 countries and also include data on a control group of 429 traditional energy firms from 42 countries. The main focus of their analysis is on how features of the legal system can contribute to imposing successfully renewable energy development. The authors distinguish between common law and civil law countries, whereby the latter are differentiated further according to the civil law's origin, that is the Scandinavian, French, German and Chinese traditions. The key assumption made is that the nature of the legal system will ultimately shape how an LTE transition can be imposed. The authors make the meta-level point that legal regimes affect both non-market and market forces, which will act as a conduit for imposing desired transition commitments on energy firms. In the realm of non-market forces, the legal system provides the foundation for the broader governance system at the national level that will then supposedly affect firm-level investments. The authors investigate the impact of governance mechanisms at the national level in both civil law and common law countries, with a focus on parameters that measure

regulatory quality, respect for the rule of law, voice and accountability as drivers for renewable energy investment. They find a lower level of renewable energy investment in common law countries as compared to civil law ones. They also observe that features of national governance systems in civil law countries affect investment levels more strongly than in common law countries. In terms of our transition framework, this study sheds light on the effectiveness of the non-market pushing commitments on firms (often via subsidies) to invest in renewable energy (quadrants 1 and 3 in Figure 1). As to Figure 2, the authors discuss the *delayed* enacting of renewable energy commitments in common law countries where shareholder goals, as well as concerns about risks, high upfront costs and time lags of over 20 years for positive returns, are actually viewed as critical. They also describe the *swifter* enacting of commitments in civil law countries, thereby showing a differentiated response to non-market forces trying to push the transition.

Allen *et al*. (2021) develop a related but complementary perspective. They investigate differences in renewable energy *usage* across 27 EU countries. Adopting a historical institutionalism lens, they ask whether the 'variety of capitalism' (VOC) considered can affect the level of renewable energy usage. Their approach is somewhat similar to that of Liu *et al*. (2021) in the sense that each VOC is influenced by the overarching legal system (common law versus civil law), but at the same time an array of national governance mechanisms will determine the significance of each VOC to explain focal outcome variables. Allen *et al*. (2021) selected the share of renewable energy usage in total energy consumption as the critical indicator of the realized LTE transition. They investigate how differences in capital markets and labour markets, public spending in renewable, nuclear and fossil energy technologies, and regulatory institutions explain differences in the relative usage of renewable energy. Their paper suggests that most of the factors investigated have some relevance to the outcome variable. Surprisingly, public spending on technology does not appear to have an influence, possibly because of the long time lags involved. Perhaps the most important result in terms of our framework is that a more advanced market for corporate control, as proxied by merger and acquisition (M&A) activity, increases the share of renewable energy sources. The authors speculate that this result, related to quadrant 2 in Figure 1, reflects M&A activity facilitating restructuring and resource reallocation in industry, thereby also capitalizing on investment opportunities in renewables, as described by quadrant 2 in Figure 1. Allen *et al.'s* (2021) study adopts a dynamic perspective and highlights, much in line with quadrant 1 in Figure 1, the role of the non-market forces presently in play – in particular after the EU 2009 Directive that promotes renewable energy sources – to achieve at the aggregate level, the desired LTE transition outcome. The authors, however, do not attempt to open the black box of how exactly firms enact renewable energy commitments.

A number of macro-level outcome measures suggest that an LTE transition is presently underway, as a result of tangible commitments in the form of capital investments and investments in innovation, and more efficient energy usage. But the effectiveness at the micro-level of attempts at imposing commitments for an LTE transition, ultimately depends on how and when firms enact these imposed commitments. In their study of the EU's emissions trading system, Andreou and Kellard (2021) investigate how 856 firms from 11 countries with varying levels of proactivity (in terms of exceeding or undershooting imposed emission allowances) have reacted to the introduction and development of an emissions trading system. Their analysis covers mainly the top part of Figure 1, with quadrants 1 and 3 representing both static and dynamic aspects of the EU emissions trading system. They find that publicly listed companies, as well as firms from common law countries and state-owned firms, have been less proactive in their enactment of the imposed commitments – which admittedly are accompanied by the flexibility to buy and sell permits – than non-listed companies, firms from civil law countries and privately held firms. The authors also find, however, that proactivity may be associated with weaker short-term performance. They interpret this result as meaning that pro-activity is not appropriately rewarded. A complementary explanation may be that highly efficient and well-functioning companies delay committing to drastically reduced emissions, as described by the right-hand side of Figure 2 (quadrants 3 and 4), because of irreversible investments with difficult to change emission levels, and because of more urgent business priorities. The authors suggest that if an LTE transition is to be enacted swiftly and with a broad scope by many firms, as reflected in quadrant 2 of Figure 2,

the current system designed to drive the transition via assigning emission permits and allowing the trading thereof, may need to be rethought. More specifically, not only should higher emissions be penalized, but proactive transition behaviour as measured by emissions lower than the permits allocated should be rewarded, which appears not to be the case. Andreou and Kellard's (2021) study still implies that an ambitious, imposed transition programme via the pricing of emission permits should take into account firm-level features to determine feasible trajectories in terms of timing and scope for firms to enact the imposed commitments. But the question of course arises, whether the pricing of emission permits should be viewed as the best tool to support firm-level enactment processes towards technological innovation and ensuing large-scale capital expenditures. Here again, the firm-level enactment processes following imposed commitments largely remain a black box.

Tarim, Finke and Liu's (2021) study is more process-oriented than the ones discussed above. It uses case histories and corpus-based computer-assisted textual analyses to assess both the forces imposing transition commitments and the approaches to enacting such commitments. In particular, the authors analyse 2,055 texts from UK and Chinese political and legislative data sources in addition to 324 texts from UK and Chinese corporate data sources from the 1979–2017 period.

Tarim, Finke and Liu (2021) show how institutional complexities and ambiguities related to LTE transitions have emerged in two very different country-level settings, and how energy supply firms have enacted transitions in these contexts. A key finding is that the unreliability of policymaking translates into higher uncertainty for the affected firms and also makes it much more difficult to anticipate correctly, in quadrant 3 of Figure 1, future institutional quality and the imposition of commitments. High uncertainty can result in the delayed or discontinuous enacting of commitments at the firm level. In the latter case, a slower pace and a narrower scope of commitments can follow a period of faster and more wide-ranging enactment of commitments, with firms moving from quadrant 2 to quadrant 3 in Figure 2. Tarim, Finke and Liu (2021) also show how properly anticipating the forces that drive an imposed LTE transition, as described in quadrant 3 of Figure 1, can influence the timing and scope of how this transition is effectively enacted in Figure 2. Tarim, Finke and Liu's (2021) usage of descriptive historical analysis and their fine-grained analytical approach represent a valuable alternative to the more prescriptive approach for informing policymakers and corporate executives on how imposed commitments are enacted at the firm level.

Outlook on future research

We conclude with five suggestions for future research. *First*, the papers included in this *BJM* portion of the joint initiative with *JIBS* on long-term energy transitions have done an excellent job in describing how macro-level forces, especially government agencies, have tried to impose commitments on industry to reduce GHG emissions, thereby highlighting policy actions in quadrant 1 of Figure 1. The bounded rationality challenges facing public policymakers and government agencies clearly loom large and are wide-ranging, but these challenges are typically given a back seat in the analyses presented, due to the perceived need for urgent and large-scale action to combat climate change. Bounded reliability challenges in public policy formation, and especially the trade-offs between targeting GHG reductions and making good on other policy promises in the economic, social and political spheres, probably also merit attention. As is the case with any type of contracting, one party to a contract (in this case, the non-market forces imposing LTE transition commitments on industry actors) cannot reasonably be considered as fully benevolent and reliable, with the other party (the firms supposed to enact the commitments imposed on them) being viewed as largely self-interested and even opportunistic.

Second, there is clearly a need for research on the impact of market forces in value chains and business systems as drivers of reductions in GHG emissions. In some cases, market forces can be just as important as the non-market in imposing commitments on firms, as exemplified by the role of institutional investors associated with the Carbon Disclosure Project (CDP). This type of research highlights quadrant 2 in Figure 1, but future endeavours should assess especially the complementarity versus substitutive effects of market and non-market forces as drivers of the LTE transformation.

Third, research on anticipated trajectories of commitments that will (or may) be imposed on

firms by both market and non-market forces, is critical for two reasons. On the one hand, LTE transition commitments ultimately refer to capital investments and investments in technological innovation that will only be made if there is a business case favouring them over alternative resource allocation options, especially in terms of having adequate profitability and growth prospects over time. These prospects depend not only on present pressures to move towards an energy transition, but also on expectations about future pressures. On the other hand, irreversible investments that are difficult to redeploy for other purposes without great loss of economic value, as is the case with many investments in the energy supply sphere, require a predictable institutional environment for making these investments. A higher degree of uncertainty in this realm will almost certainly reduce business investment levels, as well as the types of investments made in terms of their asset specificity and redeployability. The right-hand side of Figure 1 matters much to realizing the LTE transition.

Fourth, the papers in the *BJM* portion of the joint initiative have superbly highlighted the importance of the macro-level governance context. But the micro-level, strategic governance context beyond broad structural characteristics – such as the firm's ownership structure – matters too. This would include analysis of the role of the Board of Directors, the firm's dominant coordination and monitoring practices, the firm's culture and attitudes towards risk-taking, as well as its relational and entrepreneurial capabilities (Goergen and Tonks, 2019). All these elements can play a role in the enactment process by firms facing imposed innovations and sensing possible opportunities in the sphere of GHG emission reductions and renewable energy investments. Moreover, many of the firms targeted by imposed commitments are multinational enterprises operating in multiple institutional environments and facing a great variety of pressures in the sphere of the LTE transition. Here, it is important to conduct research as to which of the spatially distributed forces trying to impose commitments on multinational enterprises ultimately prevail and which do not in the enactment processes described by Figure 2.

Fifth, as should be the case for all business and management research on corporate social responsibility and sustainability, it is important in studies on the LTE transition to separate verbose prescription (as well-intentioned as it may be) from accurate explanation and credible prediction of firm-level behaviour. Individual firms face great challenges of bounded rationality and bounded reliability, both in their internal functioning and in their dealings with the external forces that try to impose LTE transition commitments on them. Rather than adopting a normative perspective on *good* versus *bad* firms, as a function of how much they have reduced their GHG emissions or have invested in renewable energy supply, it may be more instructive to study the configurations of variables that facilitate or render more difficult the enacting of the new environment in which impatient external forces try to impose significant commitments on these companies (Bass and Grøgaard, 2021; Doh, Budhwar and Wood, 2021).

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Alain Verbeke holds the McCaig Chair in Management at the Haskayne School of Business, University of Calgary, Canada. He is also the Inaugural Alan M. Rugman Memorial Fellow at the Henley Business School, University of Reading, UK and an Adjunct Professor at the Solvay Business School, Vrije Universiteit Brussel, Belgium. He presently serves as the Editor-in-Chief of the *Journal of International Business Studies*.

Thomas Hutzschenreuter is a Chaired Professor of Strategic and International Management at the TUM School of Management, Technical University of Munich, Germany. His research interests are in the realm of ownership, governance and corporate strategies, with a particular focus on transformation, digitization, growth and internationalization.