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Six institutional reforms for a timely energy transition

Dr Ron Ben-David[1]
Professorial Fellow
Monash University
ron.ben-david@monash.edu

This paper should be read as a **postscript** to Ben-David, Ron ***Rethinking markets, regulation and governance for an energy transition***. August 2023[2]

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[1] See final page for information about the author. The author is solely responsible for the views expressed below.

[2] Available at: https://www.accc.gov.au/system/files/Ben%20David%20R.%20Rethinking%20markets%2C%20regulation%20and%20governance%20for%20the%20energy%20transition.pdf

ABSTRACT

In a recent paper, I raised concerns about the inability of current institutional arrangements to deliver a timely energy transition in Australia. Even though the paper did not offer solutions *per se*, it seems to have tapped into a broad vein of discontent with current arrangements. This **postscript** to the earlier paper proposes six institutional reforms. Some of these reforms are less contentious than others. Some are more easily implemented than others. Some require more imagination than others. *How* these reforms would be implemented, individually or jointly, and coordinated nationally, is beyond the scope of this short paper. It would seem, however, there would be a strong case for a new **National Energy Transition Agreement** to reflect newly designated roles and responsibilities, and institutional and funding arrangements.

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I. Introduction

A few weeks ago, I presented a paper titled: *Rethinking markets, regulation and governance for an energy transition*.[3] The *Rethinking* paper called out a regulatory secret that has been hiding in plain sight – namely, current institutional arrangements will not, and cannot, deliver the energy transition within the required timeframe. Emissions will not fall fast enough, insufficient investment is imperilling system reliability, and consumer price relief is nowhere in sight. In response, the paper identified four "pivot points" around which current market, regulatory and governance arrangements needed to be reconsidered. And urgently.[4]

The paper has elicited a great deal of interest from all quarters. There is clearly widespread concern and frustration with current arrangements. There is a powerful sense that the regulators responsible for upholding current arrangements are unable to respond to the urgency of the energy transition. The constant stream of papers, stakeholder consultation, submissions, reports, regulatory decisions and implementation timelines is just not 'moving the dial' fast enough.

The *Rethinking* paper contends this regulatory drag on the energy transition is the result of arrangements, methodologies, assumptions and processes which were established at a time when the energy system was effectively in steady-state.[5]

> Despite the breaking down of the steady-state conditions … the "regulators we know today" remain unreconstructed versions of their earlier selves (albeit significantly larger). While the form of their activities may have evolved somewhat over the years, the substance of those activities remains effectively unchanged. The substantive nature of the regulators' actions remains largely aligned with the principles and methods that emerged *of, by* and *for* the steady-state conditions at the time of their establishment.

The *Rethinking* paper details the reasons for this conclusion. It then proceeds to identify the four pivot points mentioned above. The paper does not, however, take the next step of proposing an alternative set of institutional arrangements. Perhaps not surprisingly, the most common response I have received following publication of the paper has been the question: *What's the solution?*

The easy response is that another rule change is not the answer (as outlined in Box 1) but that's not a very helpful insight.

To date, I have avoided pre-emptively offering solutions. Doing so comes with a number of risks. First, the most likely response to any proposed solution will be a 'pile on' over the particulars of the proposal. After all, no alternative set of arrangements can avoid upsetting one-or-more established interests.[6] While these criticisms may have merit, they risk mistaking the wood for the trees. Secondly, it is preferable to avoid the practice so common in public policy formulation

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[3] Available at: https://www.accc.gov.au/system/files/Ben%20David%20R.%20Rethinking%20markets%2C%20regulation%20and%20governance%20for%20the%20energy%20transition.pdf

[4] The four points require: (1) Focussing on coordination risk, (2) Rethinking value, (3) Thinking realistically about consumers, and (4) Rethinking energy governance.

[5] ibid. p.7

[6] Those interests could be: commercial, institutional, intellectual or historical.

these days, namely, jumping to solutions before carefully identifying the problem. Thirdly, and as noted in the *Rethinking* paper, the very best solutions will require "many minds – across many disciplines – over many years – working together."[7]

Despite these reservations about pre-emptively offering solutions, the response to the *Rethinking* paper compels me to put my head above the parapet. This short postscript to the earlier paper therefore identifies six institutional reforms for moving the energy transition apace. These reforms affect all segments of the electricity market. *How* these reforms would be implemented, individually or jointly, and coordinated nationally, is beyond the scope of this short paper. It would seem, however, there would be a strong case for a new **National Energy Transition Agreement** to reflect newly designated roles and responsibilities, and institutional and funding arrangements.[8]

Box 1. Implementing the perfect rule change

Imagine that after reading this paper, the gods of Olympus descend during the night to whisper the perfect energy market rule in your ear (and your ear only). The rule is guaranteed to deliver reliable, affordable and clean energy; and quickly. In the morning, you excitedly set about preparing the necessary paperwork for a rule change request in line with the AEMC's published requirements.[9] Some weeks later, you rule change request is ready for submission.

The AEMC begins assessing your proposal, probably requesting that you submit further supporting information. Some months later, the AEMC agrees to consider your proposal and initiates a public review. Discussion papers, information notices, cost-benefit analyses, economic modelling, stakeholder consultations, and interim position papers ensue. A draft decision is eventually published followed by more economic and social impact modelling, stakeholder workshops and public forums. In due course, the AEMC enters the 'bunker' to consider its position on your proposal. The months tick by until a final decision is made to amend the National Electricity Rules (NER) in line with your proposal.

The AER now commences a review into how it should implement the rule change.[10] Another round of discussion papers, stakeholder workshops, consultancies, draft and final decisions follow over the next year-or-so. Industry participants would request appropriate time to update their systems and processes to comply with the AER's final determination. A hitch-or-two would probably see an extension of time requested by industry and granted by the AER.

Finally, the day comes when the rule change takes effect. It's now 2030 (or later).

[7] ibid. p.8
[8] The **National Energy Transition Agreement** would replace the current Australian Energy Market Agreement.
[9] Australian Energy market Commission (AEMC)
[10] Australian Energy Regulator (AER)

II. Six institutional reforms

This section briefly presents the kernels of six institutional reforms for managing a timely energy transition. The reforms are presented in no particular order. As already noted, *how* these reforms would be implemented is beyond the scope of this paper. The six ideas respond to the four pivot points described in the *Rethinking* paper. In the interests of brevity, the six ideas are not mapped against the four pivot points.

#1. Promoting urgency, not just efficiency

As discussed in the *Rethinking* paper, the singular efficiency focus of the National Electricity Objective (NEO) was a product of its time; the product of an energy system effectively in steady state. The energy transition is shredding those steady-conditions and in turn nullifying the utility and relevance of the NEO.[11]

The upcoming amendment to the NEO is unlikely to make much difference to the activities, processes and decisions of the energy regulators.[12] Simply requiring the market bodies (or regulators) to "have regard to" jurisdictional emissions reduction targets is unlikely to hasten greatly the energy transition. The NEO's narrow and exclusive focus on efficiency remains untouched.

While no-one would suggest efficiency should be discarded as an objective, it must now be tempered by an *explicit* time variable. In other words, decision-making must be able to trade-off efficiency gains if it means transition-focussed policy targets can be achieved sooner (or just on time). Of course, such trade-offs would not be unlimited. The benefits of a more timely energy transition would still need to be weighed against the impacts on consumers.

If policy-makers consider it is beyond the remit of independent regulators to make judgements regarding the trade-offs between the twin objectives of efficiency and urgency (and the cost impact on consumers), then they should relieve the regulators of that responsibility – see Reform #3 (below).

#2. Investing in long-term system planning

At the risk of stating the bleedin' obvious, the energy transition could be delivered with little fuss if there were no resource or budget constraints. Alas, those constraints are real and they are pressing in.

Undergraduate microeconomics, which informs many elements of current regulatory design, suggests the marginal cost of access to land will increase with the building of thousands of kilometres of transmission lines and thousands of hectares of renewable plant. That increasing cost will not be expressed only in financial terms. We can expect the community will demonstrate 'diminishing marginal tolerance' for invasive infrastructure. Perhaps this explains why so much is now being said about the need to gain "social licence" for the energy transition.

[11] ibid. pp.6-8
[12] ibid. p.28. Appendix C: *Too little. Too let. Too vague*

Decoded, this means gaining private, community and political support for access to private and public resources – most immediately, land. Similar financial and social licence constraints can be expected to eventually emerge in for distribution network.

The implications are clear. System planning must be tasked with maximising the benefits extracted from existing assets (including easements) and minimising the drawdown on the 'social licence' for the energy transition.

Moreover, according to system engineers, there are critical path-dependencies in network investment – as already seen in the level of curtailment and rising loss factors in parts of the transmission network. All of which further evinces the need for substantial public investment in long-term system planning.

#3. Accepting there's no transition without ~~transmission~~ *derogation*

As noted in the *Rethinking* paper, the steady-state conditions of the 1990s and 2000s allowed governments to adopt a standard economic framework for assigning functions to markets, regulators and governments.[13]

> Markets would be responsible for discovery. Regulation would deal with market failure. And governments would be responsible for, well, nothing much.

History shows this assumed allocation of roles has long since broken down. Governments are entirely 'back in the game' with each State government reasserting its constitutional responsibility for the well-being of its citizens. This paper does not consider the merits of each State's policies; it only acknowledges the reality that such policies are now fully in play. Romantic visions of a single ('national') regulatory framework now seem like a quaint whim from long ago.

Quaint or not, these whimsical arrangements, consisting of multiple regulators, are now imposing costs, delays and confusion. Clear lines of accountability for the energy transition do not exist. Alignment between system plans, market rules, regulatory processes and State policies is, too often, just a happy coincidence. Responsibility for coordinating the energy transition must be streamlined.

As States are the only sovereign institutions in this whimsical menagerie of regulatory entities, they must free themselves to do what must be done to deliver a timely energy transition within their individual jurisdictions. The National Electricity Law provides for States to derogate from national arrangements. The time has come for each State to make much more liberal use of derogations.[14]

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[13] ibid. p.7

[14] Each State will need to consider the rules and regulatory requirements from which it must derogate in order to implement its policies. How they do so is likely to render unsustainable current national arrangements – suggesting urgent attention should be given to identifying those roles and responsibilities that can realistically remain national in scope (eg. minimum operating standards, inter-operability requirements, model rules, nationally coordinated incentive or investment schemes, appliance and production efficiency standards, and so forth). These arrangements would form the basis of the new **National Energy Transition Agreement** mentioned in Section I of this paper.

#4. Reorganising the market to internalise coordination problems

Despite all the talk about the non-linearity of the future electricity system, its organisation and its regulation remain firmly bound to a structural separation defined by a linear, four-way, infrastructure-driven conception of the market.[15] Most notably, the treatment of networks is at odds with the operational and investment challenges posed by the energy transition.

For the most part, networks continue to be treated as mere carriers to whom generators and consumers have an access right. This treatment largely limits networks' responsibility to building more access infrastructure. It also explains why the tiresome slogan of "No transition without transmission" has gained currency.[16,17] At the same time, the proliferation of small-scale energy resources in distribution networks (typically consumer-owned) is leading to all sorts of regulatory contortions as the regulators seek to accommodate these resources within an increasingly inadequate market structure.

There is another way, however, to organise the electricity market, its regulation and governance.

At the highest level, the electricity system consists of just two sub-systems which meet at a single point – figuratively speaking, a substation.[18] Above the sub-station lies the bulk power system consisting of everything required to aggregate and deliver stable, high voltage power to the substation. Below the sub-station lies everything required to meet and aggregate consumers' low voltage needs (net of bi-directional flows between distributed generation, storage and consumers).

When viewed in this way, a substation represents a specific point where bulk supply and *net* demand must be in physical and economic balance – regardless of how operational requirements are *respectively* coordinated above and below the substation.

Given the enormity of the coordination challenges posed by the energy transition, it must surely be more efficient to organise markets, regulation and governance so that they are solving these challenges *within* two sub-markets, rather than *across* four sub-markets. This would see the market consisting of a single bulk supply provider (BSP) transacting with a single *net* demand purchaser (NDP) at the 'door of the substation'. A BSP would be responsible for coordinating everything above the substation. A NDP would be responsible for coordinating everything below it. A balancing and settlement system would operate at the point where the two entities transact. Policy would be implemented through targets imposed on each BSP and NDP.[19]

The design, regulation and governance of this re-organised electricity market is beyond the scope of this paper but would need to prevent the exercise of market power by a BSP or NDP.

[15] Generation, transmission, distribution and retail

[16] This 'right' has been extended recently to include consumers' ability to export electricity to the grid.

[17] Albeit networks are subject to regulatory obligations to assess non-capital alternatives if submitting regulatory proposal for new capital (capex).

[18] Or more correctly, the Transmission-Distribution Interface or the Bulk Supply Point.

[19] For example, the BSP may be subjected to a declining emissions-intensity targets; while a NDP may be subject to a net demand target. Targets would apply at the 'door of the substation'.

#5. Avoiding unrealistic expectations about consumers

While the demand side of the market was largely overlooked (or even ignored) in the original NEM reforms of the 1990s and 2000s, it has gained great prominence in recent years.[20] These days, demand flexibility is viewed as central to restraining overall system costs. Enlisting consumers in the energy transition is now a common rallying cry.

This is a topic on which I have written extensively.[21] For the most part, I have raised concerns about regulators pursuing arrangements requiring consumers to navigate market contracts of extraordinary complexity. (I have also suggested some remedies.[22]) While these market-oriented reforms have the potential to deliver benefits to consumers, they also have the potential to cause harm if the regulators continue to be guided by reifying consumer choice theories.

Whether or not the regulators put in place mitigants against harm, two central questions still remain unanswered: What is the relationship between consumer flexibility and end-to-end system savings? What proportion of the system savings will be shared across the community as opposed to captured by a few 'winners' (ie. consumers who can navigate extraordinarily complex market contracts and who can afford to make the required investments[23])?

And then there's the simple mathematics of democracy, after all, electricity is an essential service. If the 'losers' outnumber the winners (or even if the former are just more vocal), then the social and political mandate for the energy transition will be imperilled.[24]

It would be unwise to repeat the mistakes of the NEM reformers and ignore the demand side of the market. It would be just as unwise for today's regulators to continue designing markets that presume 'rational' participation and penalise everything else.

#6. Mobilising SWAT teams to solve technology gaps

There are known technology gaps in the design and operation of the electricity grid of the future. No doubt other gaps will become evident in the years to come. Unless these knowledge gaps are filled, they will inhibit a timely energy transition. To the extent workarounds might be identifiable, these are likely to be inefficient and, when combined with path-dependency, could destine consumers to unnecessarily high prices for decades to come.

Rapid deployment, problem-solving teams are needed to support mini-Manhattan projects with sufficient funding, intellectual resources, leadership, and freedom from bureaucratic friction and industry capture, to deliver solutions in short-order. The public good nature of such investment suggests it will require public funding.

While such arrangements are likely to be costly given the urgency under which they will operate, these costs will be tiny in comparison to the overall investment required in transforming the energy system (not to mention the cost of failing to do so).

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[20] National Electricity Market (NEM)

[21] See References at pp.29-31 in the *Rethinking* paper.

[22] Primarily, imposing a **duty of care** on providers of energy service to act in their interests of the customers.

[23] For example: solar PV systems, batteries, smart appliances, EVs, and trading technologies/algorithms.

[24] The notion of a 'loser' is likely to be assessed (or perceived) in relative terms, rather than in absolute impact.

III. Conclusion

This short paper seeks to advance the discussion about how we achieve a timely energy transition. The *Rethinking* paper and the papers preceding it describe current institutional arrangements as an artefact of history. These arrangements were established at a time when the energy system was effectively in steady-state. The relentless uncertainties of the energy transition are now unravelling established methods, processes, instruments, assumptions and regulatory traditions. The regulators have responded by seeking to corral these uncertainties using the same approaches developed for an energy system in steady state.[25] They are unlikely to succeed.

But there are no 'silver bullets'. The cavalry is not about to charge over the hill to save the day. [Add cliches here]

This paper – which is a postscript to last month's *Rethinking* paper – puts forward a set of six institutional reforms. These reforms address all segments of the electricity market. Some of these reforms are less contentious than others. Some are more easily implemented than others. Some require more imagination than others. What is clear, however, is that the status quo cannot continue.

About the author

Dr Ron Ben-David holds a Professorial Fellowship with the Monash Business School and is the principal of Solrose Consulting. Between 2008 and 2019, Ron served as full-time chair of the Essential Service Commission (Vic) where he led far-reaching reforms in many areas of economic regulation administered by the commission. Prior to this appointment, Ron was a Deputy Secretary in the Department of Premier and Cabinet (Vic) and headed the national secretariat for the Garnaut Climate Change Review.

Ron is a board member at ClimateWorks Australia, the Consumer Policy and Research Centre, and the Regulatory Policy Institute (A-NZ). He is an advisory board member for the Centre for Market Design and an associate to Utilities Regulation Advisory (URA). He has been a member of the AER's Consumer Reference Group and Consumer Challenge Panel. In July 2022, Ron was appointed to the Victorian Gambling and Casino Control Commission as deputy chair.

[25] ibid. p.7