

Minimising consumer harm for a successful energy transition

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Overview

At some time in the past ten years, the so-called ‘energy transition’ began. Initially, most of the changes were marginal to the core operations of the market. While governments, policy and regulatory authorities recognised these changes as harbingers of the world to come, they did not respond with a great sense of urgency. But the energy transition has gathered pace. It is now rapidly advancing on the core of the electricity market.

Governments, policy makers and regulators have acknowledged that economic regulation of the National Electricity Market (NEM) is no longer fit for purpose. This paper agrees but contends that too much regulatory effort is now focussed on improving the framework’s fitness rather than questioning its purpose. As a result, consumers are being exposed to risks they are often not well-placed to manage.

Before identifying the way forward, Part A of this paper opens with three micro-essays. These short reflections set the scene for the discussion that follows. It is not necessary to read these essays before moving to Part B which outlines reforms required for ensuring a successful energy transition.

The first essay in **Part A** is the most abstract of the three essays. It contemplates how Einstein might have approached the sort of challenges facing the NEM. The second essay describes the ‘dual track’ approach currently framing economic regulation of the NEM, highlighting its unresolved inconsistencies. The final essay describes the emerging ‘complexification’ of the energy market for consumers.

Part B begins by describing how the ‘complexification’ of the energy market makes contracting a much riskier proposition for consumers – and therefore, the risk of harm is greatly heightened. As this harm manifests, it will imperil ongoing community support for the energy transition with the community demanding government act to prevent the harms being experienced. To safeguard against this loss of support, the paper proposes economic regulation must be made ‘fit for purpose’ by focussing on a new purpose – namely, the minimisation of harm to consumers.

A framework for managing this risk is briefly outlined. It begins with a ‘theory of harm’ which would describe the risks and harms to which consumers will be exposed. It would outline unacceptable risks of harm and in doing so, it would establish a new regulatory objective for minimising consumer harm. Service providers’ opportunity to innovate would not be limited, but they would face new obligations requiring proper risk disclosures to customers. Service providers would also be subject to a duty of care to their customers.

Part B ends with a short reflection on why consumer harm has not been properly addressed to date by economic regulation, and why this regulatory shortcoming will be intensified in the future. **Part C** concludes the paper with a call for action.

“When I am judging a theory, I ask myself whether, if I were God, would I have arranged the world in this way.”

Albert Einstein

PART A: THREE ESSAYS

ESSAY 1: What would Einstein think?

Einstein is known as a brilliant physicist but not many people may be aware that he was also an outstanding philosopher, particularly of science. He understood that insight comes from independent philosophical inquiry. Insight comes from the search for truth. It does not come from sheer technical prowess or ‘artisanship’, as Einstein described in a letter in 1944.¹

I fully agree with you about the significance and educational value of methodology as well as history and philosophy of science. So many people today—and even professional scientists—seem to me like someone who has seen thousands of trees but has never seen a forest. A knowledge of the historic and philosophical background gives that kind of independence from prejudices of his generation from which most scientists are suffering. This independence created by philosophical insight is—in my opinion—the mark of distinction between a mere artisan or specialist and a real seeker after truth.

The notion of “independence from prejudice” was one that concerned Einstein for decades. Almost 30 years earlier he had lamented:²

Concepts that have proven useful in ordering things easily achieve such authority over us that we forget their earthly origins and accept them as unalterable givens. Thus they come to be stamped as “necessities of thought,” “a priori givens,” etc. The path of scientific progress is often made impassable for a long time by such errors. Therefore, it is by no means an idle game if we become practised in analysing long-held commonplace concepts and showing the circumstances on which their justification and usefulness depend....

Einstein feared science would become a meaningless pursuit if physicists thought like “artisans or specialists” who learnt their trade from their masters and then applied those theories to solve the problems they encountered. Einstein recognised that an artisanal approach to knowledge leads to our understanding of the world coming to be treated as a set of “a priori givens” – that is, ways of thinking that neither require nor invite intellectual examination. Einstein recognised that once entrenched, these “a priori givens” create intellectual “prejudices” that make the path to scientific advancement “impassable”. Einstein warned this impassibility could only be overcome when science is conducted by “real seeker[s] after truth” motivated by the search for “philosophical insight”. Intellectual advancement would not come from the “mere artisan or specialist” who plies their trade as their master has taught them.

¹ Originally from: A. Einstein to R. A. Thornton, unpublished letter dated 7 December 1944 (EA 6-574), Einstein Archive, Hebrew University, Jerusalem, quoted with permission.

² Originally from: A. Einstein, *Phys. Zeitschr.* 17, 101 (1916)

In 1949, Einstein beautifully captured this concern.³

Science without epistemology is, insofar as it is thinkable at all, primitive and muddled.

In other words, when contemplating the workings of the universe, Einstein would not start with a question like: *How do the available theories of physics help solve problem 'X'?* Instead, he would start with questions like: *How can it be that problem 'X' exists?*

Of course, the National Electricity Market (NEM) is not the universe and none of us can lay claim to being Einstein.

The universe exists independently of Einstein, while the NEM only exists because the regulatory community continues to safeguard its existence.⁴ Whereas the universe's secrets are there to be discovered, the NEM has no secrets. The NEM only has consequences. These consequences are programmed into the NEM through the vast volume of laws, rules, regulations, standards and guidances created and diligently guarded by the regulatory community.

While the NEM and the universe are not the same, and while science and economic regulation are not the same (though some people might wish to think otherwise), something marvellous happens when economic regulation is swapped into Einstein's beautiful quote.

Economic regulation without epistemology is, insofar as it is thinkable at all, primitive and muddled.

Suddenly, we are forced to ask: What is the NEM's epistemological foundation?

Because the NEM exists only through intellectual effort, rather than a set of undiscovered laws of nature, the starting questions for uncovering the NEM's epistemological foundation must differ from those asked by Einstein.

The opening question about the NEM cannot be in the nature of Einstein's opening question, that is, *How could it be that problem 'X' exists in the NEM?* The answer to that question is trivial. It exists because the structures of economic regulation and the practices of economic regulators put it there.

This means economic regulation finds itself subject to an awkward paradox. If there's a problem with the NEM's regulatory framework, then it exists because rules and regulatory arrangements destined that problem to exist. Trying to fix that problem using economic rules and regulation means economic regulation is the problem economic regulation is trying to fix. In turn, this means that if economic regulators try to fix the NEM by simply

³ Originally from: P. A. Schilpp, ed., *Albert Einstein: Philosopher-Scientist, The Library of Living Philosophers*, Evanston, IL (1949), p. 684.

⁴ In this context, the regulatory community involves governments, policy makers, regulatory authorities and even regulated businesses. The NEM only exists (and persists) because these parties continue to uphold the laws, rules, etc which construct the NEM.

applying more of the same artisanship (ie. technical prowess) already programmed into the NEM, then the more “muddled” the NEM risks becoming according to Einstein.

The fundamental change embodied in the energy transition demands finding a way to step away from the “*a priori* givens” entrenched in the NEM by three or four generations of artisans, where each generation of “artisans” has been trained by the previous generation. Today, we are more likely to refer to these artisans as ‘technocrats’ or ‘econocrats’.

A pathway to “independence from [the] prejudices” of past thinking is urgently needed if the energy transition is to succeed with enduring community support. As Einstein identified, independence from prejudice and the desire to seek truth are the necessary conditions for insight and advancement.

The NEM’s “*a priori* givens” are the neo-classical assumptions of late 19th century theories. Alfred Marshall’s assumptions are the “*a priori* givens” entrenched in the economic regulation of the NEM. While Marshallian concepts are comfortably familiar to artisans, they are not laws of nature. They are mere simplifications adopted so that all of life’s complexities can be collapsed into two lines on a graph (*aka* supply and demand curves). But, as Einstein put it, even though these concepts are not “unalterable givens”, they have come to “achieve such authority over us that we forget their earthly origins”.

Therefore, the uncomfortable epistemological questions now confronting the future of economic regulation in the NEM are:

Can economic regulation break free of “such authority” it has placed in 19th century concepts?

Can economic regulation once again discover the forest it is seeking to understand and manage rather than remaining focussed on the “thousands of trees” (read: thousands of rules), as described by Einstein?

It was epistemological examination — not equations, spreadsheets, draft decisions or public consultation — that led Einstein to his great insight. In the twentieth century, Einstein changed our entire understanding of the universe with just three little words.⁵ In the twenty-first century, which three little words will change our understanding of the role of economic regulation in the NEM?

⁵ Time is relative.

ESSAY 2: The non-convergence of economic regulation

Many people at today's event may have attended the ACCC/AER regulatory conference three months ago. If not, fear not. Any of the conferences held since about 2015 will suffice for today's purpose.

What is so striking about so many of the presentations and panel discussions over the past few years about the economic regulation of the NEM is how they take place on two parallel thematic tracks – where each discussion takes place without reference to the other track. It's as though none of the speakers has been willing to bear the responsibility of openly acknowledging the convergence of the two tracks in the distance is a mere illusion. (Well, there was one speaker this year, but more on that shortly.)

On the first track, economic regulation is motivated by the Austrian concept of price discovery. On this track, the role of economic regulation is to design markets, establish trading rules, compensate investors and impose disclosure requirements – all in the pursuit of revealing the 'true' (Marshallian) cost of delivering services.

In the National Electricity Market (NEM), this means:

- trading rules designed to reveal the short-run marginal cost of energy production
- network regulation seeking to uncover the long run marginal cost of infrastructure services, and
- retail price disclosure so consumers can accurately match their consumption to the marginal utility they derive from consuming electricity.

In this Marshallian world, economic regulators endlessly fret about inefficient price signals, misaligned incentives, cross-subsidies, market failures and information asymmetries. Consumers are viewed as incurring the consequences of these imperfections only insofar as they are market participants. In other words, consumers' interests are defined as one with the efficiency of the market (and therefore, efficient prices). No further regulatory attention is given to the meaning of the statute's reference to the "long term interests of consumers".⁶ No attention is given because it is viewed as superfluous to the pursuit of efficient prices.

The ACCC/AER regulatory conference has dedicated countless hours over the past 20 years (not just the past 7-8 years) to the pursuit of market efficiency, signals for efficient investment and exposing consumers to efficient price signals.

For reasons not discussed here, in around 2015, an alternative discourse emerged at these conferences and in the broader economic regulation of the energy market. This second

⁶ The National Electricity Objective as stated in s.7 of the National Electricity Law is "to promote efficient investment in, and efficient operation and use of, electricity services for the **long term interests of consumers** of electricity with respect to price, quality, safety and reliability and security of supply of electricity; [and] the reliability, safety and security of the national electricity system."

discourse did not displace the focus on efficiency but sat alongside it – the two parallel thematic tracks mentioned above.

The second track consists of an entirely different discourse. It comprises of regulatory fealty to consumers in their own right. Its taxonomy differs from the one used on the first track. Its narrative refers to notions such as:

- regulatory commitment to consumer engagement
- consumer-centred market design
- making consumers better-off now and in the future
- empowering consumers through choice, information and education
- removing barriers to consumers actively participating in the energy market, and
- honouring the ‘social licence’ governing the provision of energy services.

The second track self-evidently lacks the conceptual precision of the first track. As a result, regulatory placations come easily.⁷

Consumers need to feel confident that Australia's transitioning energy market is working for them.

While such statements may be noble in sentiment, they lack precise meaning. Their implications for economic regulation are even less clear. Yet they exist and they increasingly appear in public statements, discussion papers and regulatory decisions concerning the economic regulation of the NEM. But precisely what they mean for consumers remains a mystery shrouded in noble sentiments.

The real question facing the NEM is not whether such sentiments are meaningful but whether economic regulation can simultaneously proceed on two parallel tracks. Can regulators simultaneously swear fealty to efficient prices and confident consumers?

It is not difficult to imagine the potential for conflict between consumers’ preferences and regulatory expectations (as enunciated in laws, rules, guidelines and handbooks governing the regulation of the NEM). For example, what would happen if, during the course of their consumer engagement on Tariff Structure Statements, networks found that consumers rejected real time pricing and expressed a preference for simple tariff structures (eg. flat and universal tariffs).⁸ In such circumstances, who might be expected to prevail – the regulator or consumers?⁹

⁷ <https://www.abc.net.au/news/2022-10-01/australias-great-energy-transition-reaches-tipping-point/101493280>

⁸ Tariff structure statements set out electricity (distribution) networks’ tariffs for an upcoming regulatory period. These statements are submitted to the AER for assessment as part of a network’s broader revenue proposal. Networks are required to consult with consumers before submitting their tariff structure statements.

⁹ For further discussion of this and similar conflicts, see Ben-David, Ron (2021) **Response to consultation on the draft Better Resets Handbook**. Submission to the Australian Energy Regulator (October), section 5.

Lynne Gallagher, Chief Executive of Energy Consumers Australia (ECA), provided a powerful example to this year's ACCC/AER conference which demonstrates the inconsistency between the two tracks of economic regulation.

I defy anyone to explain how to respond to a monthly maximum demand charge. Or to explain how kilowatts or amps could or should feature in people's day to day lives. I once asked a room full of economists – who supported cost reflective tariffs - if they would take a monthly maximum demand charge home to their family, and there were no takers.

(Gallagher is highlighting the yawning difference between the attitudes of regulators and consumers toward monthly maximum demand charges.)

The NEM's regulators offer no framework for resolving the dilemma exemplified by Gallagher. For now, they seem content to accept the illusion that the twin narratives of Marshallian markets and consumer-centricity will converge eventually (just as parallel railway tracks appear to converge in the distance).¹⁰

But here's the kicker...

Consumers instinctively understand the convergence of these dual narratives is an illusion, and they are deeply suspicious. As ECA's Consumer Sentiment Survey shows, consumers' trust in the energy market – and by implication, everything that sustains it (including economic regulation) – is low and it is declining.

Does anyone seriously believe this decline in trust will be reversed by giving consumers clearer price signals, better information (disclosure) and more education about the market? Does anyone seriously believe consumers are waiting to be told what is good for them?

Available at: <https://www.aer.gov.au/system/files/Ron%20Ben-David%20-%20Response%20to%20Consultation%20on%20Better%20Resets%20%2820%20October%202021%29.pdf>

¹⁰ The above discussion should not be interpreted as diminishing the significance of engaging consumers in regulatory processes. However, the discussion seeks to highlight that while these processes invite consumers into the 'regulatory tent', regulators remain firmly in charge of what goes on inside the tent. The invitation into the tent does not extend to inviting consumers to challenge the 'house rules' (ie. the Marshallian principles of economic regulation).

ESSAY 3: History calls

It is now over 20 years since the retail electricity and gas markets were first opened to competition. Retail market reform was predicated on five simple precepts.

- A competitive market drives prices to reflect efficient costs.
- Choice facilitates consumer satisfaction (of preferences).
- Information disclosure and lowering transaction costs empowers consumers.
- Consumer protections prevent and remedy disputes.
- Retailers innovate as they compete for custom.

For the most part the reformers of the late 1990s and early 2000s did not question these precepts. They were largely treated as articles of faith. It was considered self-evident that setting to work the 'invisible hand' of self-interest would negate the need for regulatory involvement.

Two decades later, a second energy market revolution has begun. These days it's called the 'energy transition'. For reasons that are far from clear, little (or no) effort is being made to understand how the lessons of the first revolution should be informing the regulatory approach to the second revolution.

For most of the past 20 years, energy customers have had to negotiate a single decision variable when engaging with the retail energy market, that is, price. When shopping for an energy plan, the task facing consumers principally involved identifying the plan that offered the lowest prices given their energy consumption.

In the future, the consumer facing electricity market will look very different. Future contracts could or will be specified in manifold dimensions potentially including some or all of the following variables:

- the price of grid supplied electricity
- the price of electricity exported to the grid
- volume controls on outflows (exports) of electricity
- agreements regarding the use and timing of consumption
- delegated control over onsite electricity production and/or consumption
- exceedance penalties when consumers breach or over-ride previously agreed limits on consumption, production or export
- delegated control of onsite battery services
- terms of access to offsite battery services
- the price of offsite battery services

- control and ‘ownership’ of electricity stored in offsite batteries
- payments for provision of ancillary system services
- other?

Contracts may be further ‘complexified’ when:

- many of the decision variables listed above are dynamic in nature, meaning they will change with market conditions rather than having set values specifiable in a contract
- they include financing arrangements (which may or may not be indistinguishable from payment for energy services)
- customers contract with multiple service providers each supporting specific, but interacting, services or products.

Of course, not all these decision variables are entirely new. Some are already observable in the consumer-facing energy market, but complexity increases geometrically with each additional variable. Even though ‘simpler’ contracts excluding some (or many) of these variables may be available, that will not ease the decision burden on consumers. They will still need to decide whether it is in their interests to exclude such variables.

There is now plenty of evidence that even in the one dimensional market of the first retail energy revolution (ie. full retail competition), many or most consumers fail to solve the ‘simple’ cost minimisation problems they face. Even when they shop around, they rarely find themselves on the most cost-effective contract.¹¹

Herein lies the central dilemma for economic regulation during the energy transition. If customers have not successfully navigated a market constructed around one decision variable, how can they be expected to navigate a labyrinthine market involving all the decision variables noted above?

This question usually prompts one of two answers.

First, it is suggested the competitive market will solve complexity -- whereby either retailers or new service providers create products consumers can readily understand. Unfortunately, 20 years of experience with full retail competition lays bare the falsity of this claim.

Second, it is suggested ‘machines’ (algorithms or the Internet of Things) will do the work for consumers by optimising across multiple decision variables in real time. It’s an understandable response given the platform technologies now emerging, however, it misses the point entirely. How will consumers assess the value of each machine? How will they compare the benefits promised by competing machines? Having entered a contract, how will consumers verify whether a ‘machine’ is delivering the value it promised?

¹¹ For example: Mountain, B., Burns, K. *Loyalty taxes in retail electricity markets: not as they seem?* Journal of Regulatory Economics 59, 1–24 (2021). <https://doi.org/10.1007/s11149-020-09418-9>

And then there are these two sobering findings from separate studies commissioned by the AER.¹²

44 per cent of Australians have literacy levels considered to be below what is required to fully participate in society.

40–45 per cent of consumers were unable to select the cheapest offer when presented with three options, let alone when comparing plans from the 40 retail brands currently offering products in the NEM.

It is without regard to all these consumer realities that discussions about the energy transition. Complexity may be mentioned, but it is not described or explored. The incomprehensibility of contracts is hardly even acknowledged in all the excited discussions and reports about flexible demand, price signals, dynamic operating envelopes, value stacking, virtual power plants, two-sided markets, microgrids, community batteries, vehicle-to-grid services, peer-to-peer trading, and so on.

In all these discussions and reports, consumers just adapt to the new energy environment – implicitly and silently. Not one single report describes how things may go wrong for consumers in the emerging energy market.

Yet at the same time, nary a paper is released from the multitude of energy authorities¹³ that does not refer to the importance of trust, confidence, social licence, fairness or consumer-centred regulation.

The disconnect is glaring.

History shows that complexity undermines consumer confidence. Incomprehensibility subverts trust. Simply talking about putting consumers at the centre while delivering complexity and incomprehensibility, is (and will be) viewed by consumers as a breach of the **social licence** governing the energy market and its regulation.

It is readily conceivable that ‘complexification’ of the consumer-facing energy market may even lead to the polity re-writing, limiting or withdrawing the authority it has delegated to the regulatory authorities’ overseeing the energy market. Maybe this withdrawal has already begun.¹⁴

¹² AER (2021) *Consumer Vulnerability Strategy: Draft for consultation* (December), p.9 and 29, respectively

¹³ Including: the Australian Energy market Commission (AEMC), Australian Energy Regulator (AER), the Australian Energy market Operator (AEMO), the Energy Security Board (ESB), the Australian Renewable Energy Agency (ARENA), the Australian Competition and Consumer Commission (ACCC), state and federal energy departments, and state utility regulators.

¹⁴ Since this essay was first drafted, the Victorian state government announced, as an election commitment, that it would establish an energy investment vehicle which will also consider providing a retail service. See: <https://static1.squarespace.com/static/5b46af5a55b02cea2a648e93/t/635081cc456e953e2dee5108/1666220494096/PUTTING+POWER+BACK+IN+THE+HANDS+OF+VICTORIANS+-+Copy.pdf>

PART B: DISCUSSION

Risk is everything (for now)

If consumers lose confidence in the energy market, and by implication, how it is regulated, then the energy transition is imperilled. This is not idle anxiety. It is a concern expressed by regulators and consumers alike.¹⁵ Even though this observation seems like a simple truism, it is far from obvious how it will manifest. What is clear however, is that the complexity described in Essay 3 and the non-convergence described in Essay 2 make a failed energy transition a clear and present danger for economic regulation. But if hope is to be found, it is to be found in Essay 1 and Einstein's exhortation to seek truth ahead of "mere" artisanship. So what is the new truth for economic regulation?

The truth is this.

For the past 20 years, economic regulators of the energy market have told consumers to shop around for a better energy deal if they are not happy or if they are concerned their bills are too high. As far as consumers are concerned, the 'system' has said to them:

It's your risk. You manage it.

And now, despite everything that history has taught us¹⁶, the 'system' is asking consumers, actually, telling them, that for the sake of an efficient energy transition, they must navigate a market that will be incomprehensibly more complicated. The 'system' is now saying:

Here's even more risk. You manage it.

And despite all the commentary about the opportunities the energy transition will create for consumers, there is little (if any) recognition that each opportunity comes with risk. There is little (if any) recognition that, for many consumers, 'complexification' of the energy market will shift assessment of risk and opportunity beyond human computational ability for most (if not all) consumers. There is no recognition that a misjudged assessment of an energy market contract by a consumer will result in either:

- a wealth transfer from the consumer to their service provider, or
- a welfare transfer from the consumer to other consumers,

or both – where the former reflects badly on market design, while the latter is not the purpose of the energy market (or any market for that matter). Yet these are the consequences to which economic regulation of the consumer-facing energy market is hurtling, seemingly without concern or fear of contradiction.

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¹⁵ See Essay 2

¹⁶ See Essay 3

Essay 1 concluded by wondering whether there was a three-worded insight (equivalent to Einstein's realisation that 'time was relative') that could helpfully redefine the purpose of economic regulation during the energy transition.

It is now time to suggest what that insight might be.

In its short form, the insight that should redefine the purpose of economic regulation for the foreseeable future is: **Risk is everything.**

More fully, this insight can be expressed as a play on Paul Krugman's famous aphorism – namely:¹⁷

“Risk isn't everything but, for now, it's almost everything.”

The risk to which this borrowed aphorism refers is the sum of all the risks that flow down through the energy supply chain and end-up with consumers to manage. If this risk is everything (or nearly everything) as far as consumers are concerned, and if consumer resentment at having to manage this risk imperils the energy transition, then the task of economic regulation must be reoriented towards minimising this risk for consumers.

None of this suggests, however, that economic regulation ought to preclude confident consumers from assuming risk if they determine it is in their interests to do so. But it does imply that the regulatory framework should not be predicated on the unrealistic assumption that they will do so.

A new purpose for economic regulation during the energy transition

If “risk is everything”, or almost everything that needs to be managed in order for economic regulators to maintain consumer confidence and deliver a successful energy transition, then minimising the risk of consumer harm must become a central point of reference for economic regulation. This imperative applies irrespective of whether the harms are caused inadvertently or intentionally (though stricter sanctions may apply against service providers who act negligently or exploitatively – see below).

In this context, ‘harm’ is not limited to concerns about affordability, financial vulnerability, bill shock or rising prices. Instead, it is concerned with *individual* consumers' experience in, and of, the energy market. Most broadly, ‘harm’ can refer to any process, treatment or outcome that causes a consumer to question whether (or conclude that) the energy market they experience is not aligned with their interests. This experience matters. It matters more than in other markets. It matters more because, unlike in other consumer markets, the ultimate consumer safeguard does not exist. Consumers cannot withdraw from the energy market (withhold their custom), even for a brief respite from the harm they experience.

¹⁷ In 1990, when writing about national economic prosperity, Paul Krugman coined the aphorism, “Productivity isn't everything but in the long run it's almost everything.” (Krugman, P. *The Age of Diminished Expectations*, MIT Press, 1990)

Importantly, the focus on *individual* consumers means a harm experienced by one customer (or cohort) cannot be netted against benefits that may accrue to other customers. Economic regulation is not an exercise in utilitarianism and economic regulators should not be left to make such moral judgements.

Focussing on harm avoidance as a primary regulatory objective represents a profound shift for our regulatory (and policy) institutions whose entire existence, whose every sinew, is oriented towards the pursuit of revealing prices as represented in the neo-classical tradition. It might even mean that our current institutions are the wrong ones to manage the energy transition, but that's a discussion for another day.

The challenge for this paper is to outline the purpose of economic regulation when it is re-oriented toward minimising the risk of consumer harm made possible by market complexification during the energy transition.

For the avoidance of doubt, this new purpose does not negate or replace the pursuit of efficient prices. It does, however, require our regulatory authorities to temper their enthusiasm for exposing *unready* consumers to these price signals and some of their associated decision variables (see Essay 3). (This paper does not engage with the question of when consumers might be deemed to be 'ready'.)

So what does 'repurposed' economic regulation look like in a transitioning energy market?

If managing the risk of harm is a necessary condition for a successful energy transition, then the cornerstone of the new framework will need to be a **theory of harm** which identifies and assesses the nature of detriment consumers can incur from the complexification of energy market contracts.¹⁸ This theory would be a consumer-centred analysis showing how misjudged contracting would disadvantage consumers, financially *and* otherwise.

The theory would *inter alia* define, identify and evaluate the sources, forms and impacts of harm, as well as consumers' exposure and susceptibility to those harms. This paper does not pre-empt the scope of that work though expects it would be focussed on the existing concept of a 'small customer' (once adjusted to reflect emerging contract types).¹⁹ Importantly, to avoid economic regulation and the energy market becoming an instrument of social or redistributive policy, the consideration of consumer harm should not be contingent on income or wealth.

The theory of harm would inform a new **harm minimisation objective** which would make clear that consumers should not be exposed *as a matter of course* to risks they are not

¹⁸ This **theory of harm** should not be confused with the reference in competition law to a *theory of harm* which typically refers to prohibited forms of conduct that would otherwise weaken the competitive process.

¹⁹ The *National Electricity Law*, s.16(1), states: "*small customer* has the same meaning as in the *Electricity Act 1996*." The *Electricity Act 1996*, s.4(1), states: "*small customer* means a customer with an annual electricity consumption level less than the number of MWh per year specified by regulation for that purpose, or any customer classified by regulation as a small customer." The *Electricity (General) Regulations 2012*, s.8, states: "For the purposes of the definition of *small customer* in section 4 of the Act, each customer whose annual electricity consumption level for a connection point is less than 160 MWh is classified as a small customer in relation to electricity supply to the customer through the connection point."

ready to manage – that is, unacceptable risks as defined by the theory of harm. This objective would govern the regulators’ efforts in the design and administration of the rules, processes and methodologies governing the NEM during the energy transition. The harm minimisation objective would precede but not replace the operation of any other objective(s) in the National Energy Law.

Put simply, the harm minimisation objective would prohibit regulatory authorities from designing consumer-facing markets and regulations (including network pricing) without regard to the risk of consumer harm. Regulators would be responsible for protecting consumers from risks that the theory of harm identified consumers were not capable of identifying, evaluating and managing efficiently.

Once a harm minimisation objective has been established, the regulators would need to codify rules for contract terms and types that comply with the objective. However these terms are structured, all consumer-facing energy service providers would be obliged to provide **safe consumer contracts** that comply with these requirements.

Having established the harm minimisation objective and the requirement for safe consumer contracts, market rules and regulatory frameworks would need to be reviewed to ensure they promote efficient compliance with these requirements. That is, an **efficiency objective** would continue to operate in the NEM, as it has since 1998, however, now it would become a means to an end, rather than an end in its own right. That ‘end’ would be the efficient provision of safe consumer contracts by **the market**.

Importantly, service providers would be free to offer consumers alternative contracts provided the risks (and potential rewards) posed by these contracts were clearly disclosed in accordance with a risk-based taxonomy (to be developed by the regulators). These **risk disclosure** obligations would reflect the theory of harm without limiting consumers’ freedom to assume risk if they decide it is in their *properly informed* interests to do so.

Finally, and crucially, service providers offering alternative contracts would be subject to a positive **duty of care** requiring them to act in the best interests of a customer when offering or providing services under an alternative contract.²⁰ The duty would:

- impose a positive responsibility on service providers to work with the customer (or prospective customer) to identify the customer’s best interests and ensure compatibility between the provider’s service offerings and the customer’s best interests,²¹ and
- apply to any service provider who has (or would assume) the contractual capacity to control, constrain or prevent the flow of electricity to, around, or from, a customer’s premises or assets.

²⁰ For more information, see: Ben-David, Ron (2022) ***Energy market uncertainty, consumer protection, and a new duty of care***. A response to the Australian Energy Regulator’s retailer authorisation and exemption review (April). Available at: <https://www.aer.gov.au/system/files/Ron%20Ben-David%20Submission.pdf>

²¹ The duty would require service providers to advise customers proactively, conscientiously, reasonably and demonstrably, of the risks associated with their alternative contracts.

The duty to act in a customer's best interest would prohibit a service provider from taking advantage of a customer by acts of omission or commission. Put simply, the duty requires service providers to put themselves in the 'customer's shoes' when assessing the merits of an alternative contract.

The duty would be supplemented with a consumer facing **charter of rights** which outlines for energy consumers the standards of fair treatment and fair outcomes they can expect when assuming risks beyond the ones embodied in safe contracts.

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The above construction of the regulatory task differs markedly from the one that has prevailed in the NEM since 1998. It must. The NEM of the foreseeable future will be very different from the one that has operated in the past. The regulatory task of the past quarter century has been centred on a singular efficiency objective delivered via regulatory efforts to apply a theory of markets to the production and sale of energy, and network regulation. The ultimate goal has been to reveal, and disclose to consumers, the 'true' (Marshallian) price of producing and delivering energy services.

In a nod to the messiness of the 'real world', these economic objectives were buttressed by consumer protection frameworks (including payment difficulty arrangements) and independent dispute resolution schemes. More recently, the AER has developed a vulnerability strategy and default market contracts have been added by the polity (rather than regulators) to this list of consumer support mechanisms.

Figure 1 summarises the alternative topographies of the current and proposed approaches to the economic regulation of the NEM.

No doubt this reframing of the challenge for economic regulation will seem counterintuitive, and probably unholy, to many practitioners of the current regulatory framework. But as Einstein identified long ago, the search for truth cannot be left in the hands of "artisans".²² It requires philosophers.

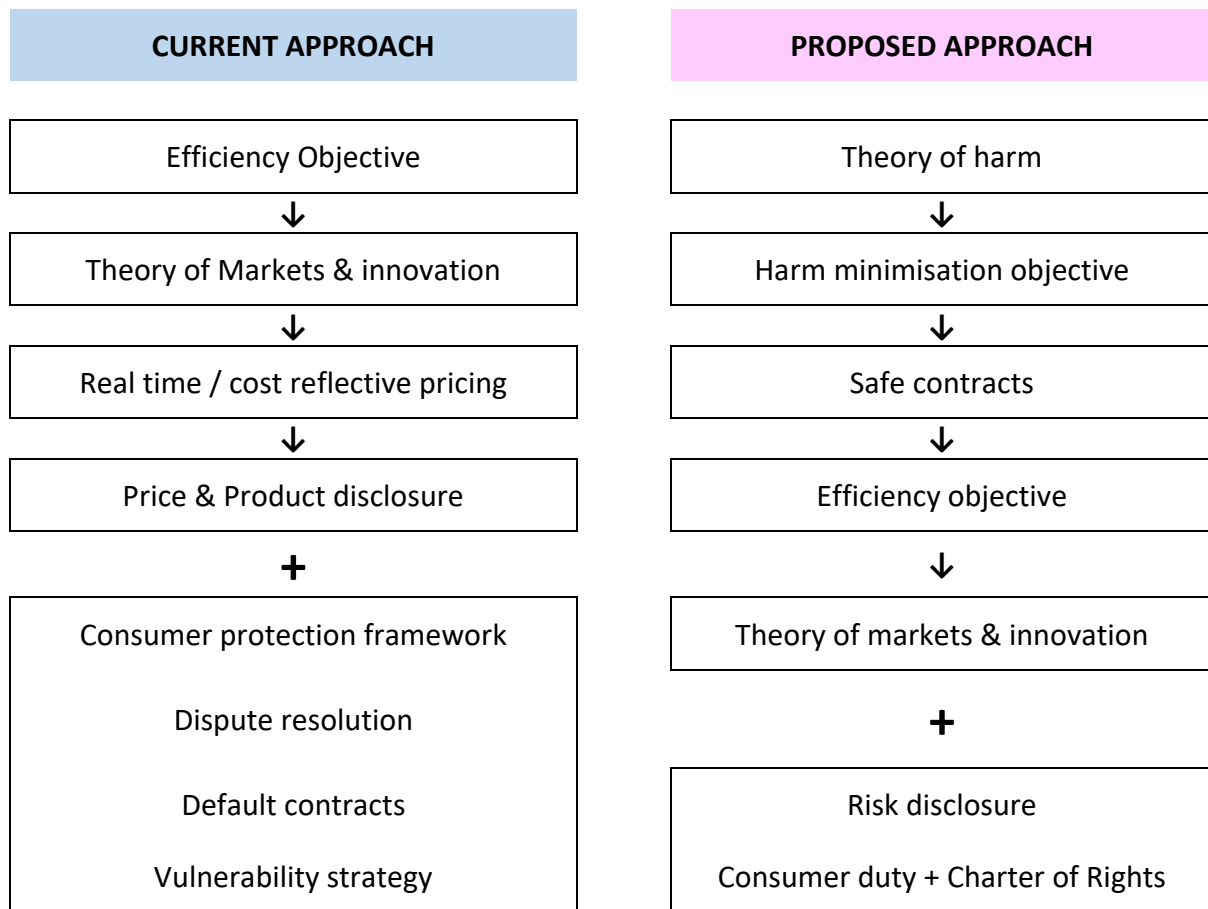
The truth the NEM confronts today is not the search for more or new rules. The truth now facing the regulatory community centres on finally bringing the two tracks of economic regulation into a single, unified whole.²³ This will not be achieved by continuing to treat the limits of human computational capacity as a mere inconvenience while the consumer-facing energy market 'complexifies' ever faster.²⁴

²² See Essay 1

²³ See Essay 2

²⁴ See Essay 3

Figure 1 Alternative topographies for economic regulation



It would be folly to pretend the energy market’s evolution can be constrained; or that innovation should be stymied. This paper makes no such advocations. The market must be allowed to evolve as it will, with all the risks that will entail. This does not mean, however, that all these risks must inexorably flow along the energy supply chain to land heavily on consumers’ shoulders. This is not what consumers signed up for when they agreed late last century to energy market reform and economic regulation.

Exposing consumers to risks they are not well-equipped to understand endangers their confidence in the system of markets and regulation that places them in that situation. In the decades ahead, such actions will imperil their confidence in the energy transition.

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The following section briefly attempts to describe the above regulatory reforms in terms that may be more familiar to some readers.

An economic explanation of the required reforms

The economic framework governing the NEM since 1998 begins by defining the problem to be solved as the balancing of electricity supply and demand by using efficient price signals in all places, at all times and in real time.²⁵ This optimisation problem is subject to a resource minimisation constraint, namely, the efficiency objective in the National Electricity Law. Historically, this resource constraint operated only on the supply-side with regulators seeking to promote efficient investment in generation and network capacity. Demand was largely viewed as exogenous to the regulatory optimisation problem.

Because the determination of demand sat outside the optimisation problem, regulators responded to dissatisfied customers by simply urging them to ‘shop around’ for a better deal. Regulators saw their role as limited to providing consumers with information, operating comparator sites and authorising dispute resolution schemes. They otherwise saw themselves as having no role on the demand-side of the optimisation function.

Alternatively stated, consumer harm has played no role in the regulatory optimisation problem of matching supply to demand. Harm has been treated as a zero-priced externality. That externality represents the community’s loss of confidence in the energy market and its regulation. To the extent that this externality has been of concern to regulators, then they have responded by leaving it to governments to address the harm through social policy interventions such as customer concessions and grants.

The energy transition is fundamentally altering the regulatory optimisation problem.

Supply is becoming less predictable and controllable (or ‘firm’), and more stochastic in nature. In the meantime, stochastic *net* demand replaces predictable gross demand as the relevant input to the optimisation function.²⁶ Importantly, the NEM reforms currently being pursued seek to treat net demand as a regulatory control variable exercised through exposing consumers to real-time price signals. The same system of price signals is also expected to promote efficient investment in large-scale generation and network capacity. In other words, economic regulators view price signals as the relevant coordination mechanism: up, down and across the energy system.

In seeking to expose net demand to price signals, regulators are designing markets and forms of regulation relying on consumers rationally determining the efficient mix of investments in energy efficient appliances, load shifting, and consumer-owned energy production and storage assets. At the same time, consumers are relied upon to decide their optimal mix of electricity ‘imported’ from the grid, electricity exported to the grid, electricity stored in their batteries and electricity drawn from their batteries.

It is this endogenisation of net demand that exposes consumers to the multi-dimensional contracting decisions described above – and therefore, the risk of harm caused by consumers entering contracts that do not reflect their individual best interests. The ongoing

²⁵ This ideal has never been fully realised, for example, nodal pricing remains an unfulfilled economic outcome of the regulatory framework.

²⁶ Net demand equals gross demand less electricity supplied from distributed resources.

mispricing of this harm takes on vastly greater significance during the energy transition because of the greatly increased risk (and cost) of harm to consumers.

Under-pricing harm is not a trivial problem from either an economic or moral perspective. If harm is under-priced in the regulatory optimisation function, then regulatory decisions will result in too much harm being caused to consumers. Eventually and inevitably, this will become a non-trivial political problem as well. And as already noted, a successful energy transition will be imperilled when lost consumer confidence 'goes political'.

This paper responds to the mis-specified optimisation function currently guiding efforts at modernising economic regulation of the NEM. It does so by identifying that a harm minimisation constraint must urgently be included in the regulatory optimisation function (along with its long-standing efficiency objective).

PART C: CONCLUSION

De-risking the energy transition for consumers

For now, it appears the NEM's lifecycle will consist of three phases.

The first phase began in 1998 when energy supply and demand were largely in steady-state. The market and regulatory structures put in place reflected the commodity nature of energy at that time. Around a decade ago a new phase began and has gathered pace ever since. Now known as the 'energy transition', this phase reflects a market far from the steady-state of the first phase. Inputs and outputs to the energy supply and demand equation are in a profound state of flux. At some time in the decades ahead, the market will find itself in a third phase probably represented by a new steady-state. That future market remains unknowable today. This suggests the present regulatory challenge need not concern itself with the purpose of regulation in the future.

Phase 2 is so fundamentally different from phase 1 that those things that may have been true 20 years ago, simply do not apply in the present reality. This is not a contentious observation. Many from within the regulatory community have observed that the economic regulation of the NEM is no longer fit for purpose. In response, a great deal of regulatory effort is being invested in improving the framework's fitness. Concerningly, far too little investment is being made on examining its purpose – at least when it comes to reconceptualising the emerging realities faced by consumers.

It does not need to be this way. Economic regulation can be re-invented. It can be repurposed. Regulators do not face a binary choice between consumers and markets; but at the same time, they can no longer proceed with the overly abstract idea that Marshallian market concepts can be sufficiently equated to the interests of consumers. The manifold uncertainties of the energy transition render moot such regulatory simplifications.²⁷

If consumers, who do not voluntarily participate in the energy market, face little prospect of successfully navigating the multidimensional contracts of the future, then managing the risk of harm, and the loss of confidence it will engender, must be the purpose of economic regulation in the years ahead.

This paper describes how the regulatory task can be re-purposed to manage this risk for consumers. There is a great deal of work to be done.

²⁷ Noting, this paper does not examine whether these simplifications were ever true.

About the author

Dr Ron Ben-David currently holds a Professorial Fellowship with the Monash Business School and Monash Sustainable Development Institute. He is also the principal of Solrose Consulting providing policy and regulatory advice across various (utility) sectors.

Between 2008 and 2019, he served as full-time chair of the Essential Service Commission (Vic) where he led far-reaching reforms in many areas of regulation administered by the commission. Prior to his appointment to the commission, Ron was a Deputy Secretary in the Department of Premier and Cabinet (Vic) and headed the secretariat for the Garnaut Climate Change Review.

Ron is a board member at Climate Works 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 Customer Stewardship Australia, and a member of the AER's Consumer Reference Group and the Consumer Challenge Panel. In July 2022, Ron was appointed to the Victorian Gambling and Casino Control Commission as deputy chair.