ReDESIGNING REGULATION

POWERING FROM THE FUTURE

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We have also engaged, listened and noted recommendations, advice and observations from over 250 organisations from across the sector and beyond. There has been "push back", "push further" and some saying "impossible". All of these inputs we have welcomed, adopted many, politely ignored others, and have aimed to shape a set of recommendations that we believe meet the challenges for the future.

We are very thankful to our funders' generous support and input throughout the project. They are however not responsible for the outcomes but we hope that they, like us, believe that this is a useful contribution to the future of a very exciting electricity sector.

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INTRODUCTION

TOMORROW IS ALREADY TODAY

The electricity sector is already going through unprecedented change, and new solutions to new challenges are ready to shape a transformed sector with new opportunities and new risks. The question is whether incremental change provided through issue-specific changes, derogations or technology specific responses will unlock the new consumer and system advantages. Or should we recognise that the innovation in all parts of the system is totally transformative and changes the fundamentals of what the market is and what we need to regulate? Regulators and policy makers are currently sitting in the middle addressing the legacy concerns while looking hesitantly at the future. They have a choice – whether to try to squeeze the transformed system into the architecture of the past or to embark on a 'managed' revolution to embrace the new structure of the future of electricity. This report aims to propose regulatory actions needed to meet the challenges and opportunities of a transformed system – reimagining the market design, refocusing regulation, opening up consumer choice, and unlocking the power of supply-chain pressures while shaping a new 'retailer' market. In addition, we propose much greater use of energy-system data, and a recalibration of security of supply to drive greater efficiencies and unlock demand reduction.

This report builds on our first report which proposed four core regulatory principles:

- **Regulate for how consumers consume, not how businesses are organised**
- **Regulate for system optimisation to deliver the most productive, efficient and affordable system**
- **Regulate to promote transparent, cost-reflective and open markets**
- **Regulate for where security of the system is truly at risk**

EXECUTIVE SUMMARY: TOMORROW IS ALREADY TODAY

Capturing the decarbonisation dividend

The decarbonisation journey is not just driving clean energy but is reshaping the whole market design. It is crucial that we harness these technological, market and business dividends on behalf of consumers, delivering them clean but also better-managed and more appropriately costed electricity. If captured and not stifled, these benefits should drive a faster trajectory for decarbonisation, reduce the overall consumer bill, and fully modernise the sector around new technologies, better price discovery and greater choice.

This is an exciting 'tipping point' for electricity where the old-fashioned market design is being truly challenged by a new market designed from the bottom up and facilitated by the digital revolution.

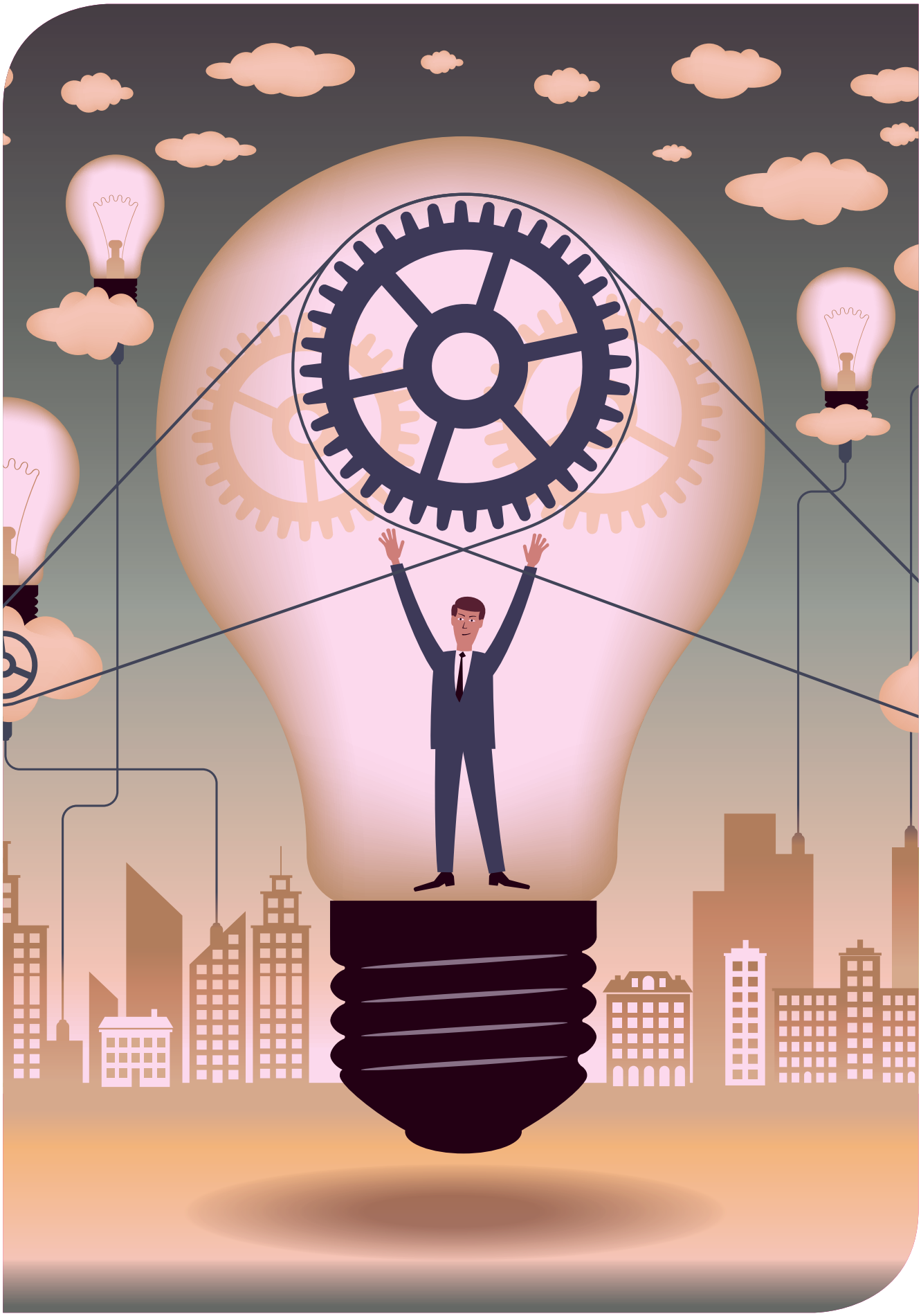
A decarbonised, decentralised and digitalised energy system of the future will contest some of the 'truths' of the sector and requires fundamental rethinking around key drivers:

- **New choices:** consumers buying and selling energy in lots of different ways, tailored to their individual needs
- **New cost base:** differentiated value of location, time and service to the system, replacing the cost of a uniform kWh
- **New asset classes:** distributed supply and demand assets competing to balance the system
- **New roles:** networks playing a much more active role
- **New security and new insecurities:** issues of system security will materialise in new places with more and less resilience across the system
- **New players:** proliferation of players accessing new value and introducing new business models and services
- **New skills:** multi-disciplinary skills required to design, build and operate the system of the future

If captured, these benefits should drive a faster trajectory for decarbonisation, reduce the overall consumer bill, and fully modernise the sector

Avoid the worst of all worlds

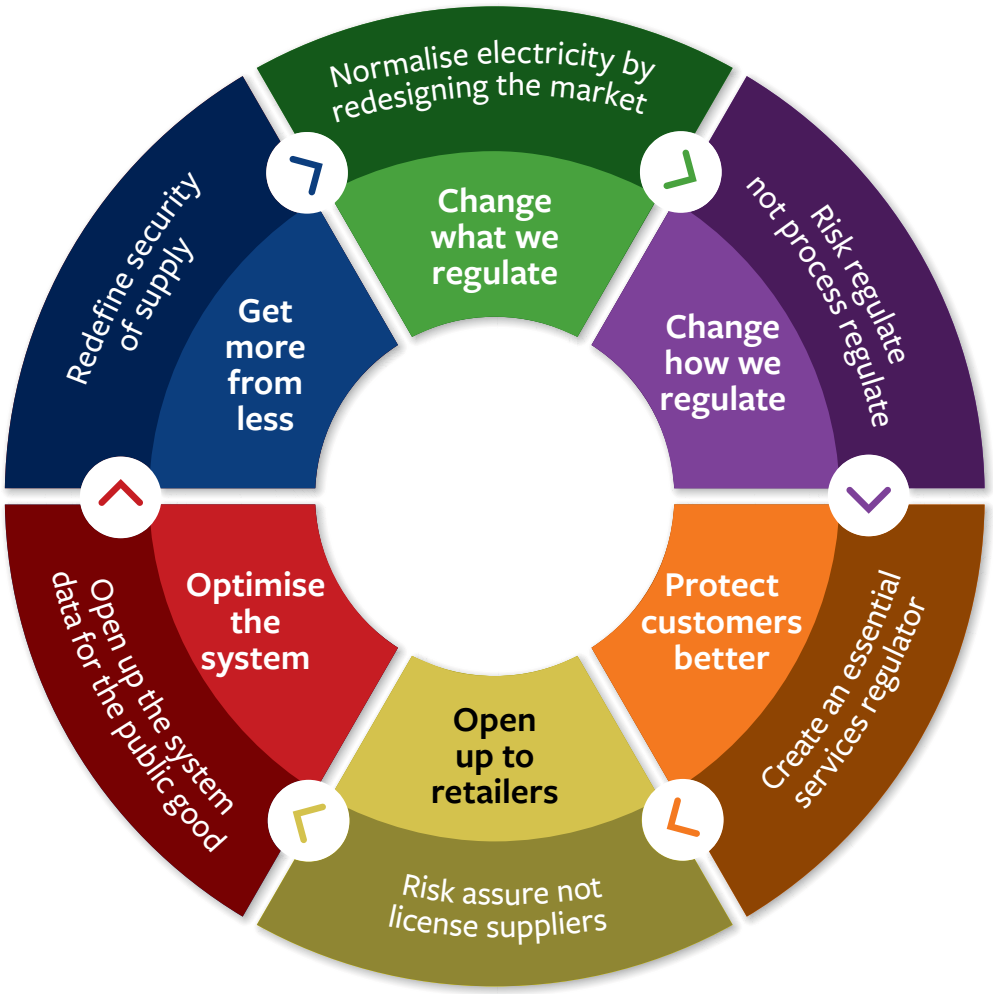
We must resist from trying to squeeze a very exciting multi-vector future into a rigid command-and-control straitjacket. The current arrangements will crush innovation and also add significant cost to the consumer.



Doing nothing is not an option

The current prescriptive regulatory model will not be able to survive in the multi-vector, multi-product world of the future, managing both sides of the meter. It will face enormous pressure to 'catch up' with innovations through derogations, will become increasingly confused if it aims to process regulate the multiple interactions, and find itself behind the curve in identifying bad behaviour.

However, as important as 'how' we regulate, is 'what' we regulate. It is an opportunity – maybe a necessity – to redesign the market to reflect new dynamics and introduce new price, service and innovation pressures that other sectors experience. In short, we need to normalise the electricity sector. Identifying where risks really lie, open up new competitive pressures and shape a new market structure.



Difficult but necessary journey

As other countries embark on the same journey, establishing new regulatory frameworks for their transitioning electricity systems, the UK needs to lead the world in starting this transformative change now. It is important that we avoid embedding old-fashioned business models, incentives and constraints into 2030, but capture the significant benefits of cost, performance and consumer choice offered by the new system.

The timing could not be better to consider a reformed regulatory framework as consumers will need to see and feel that the market is run and regulated in a very different way to today if we are to lift the price cap.

Change is difficult, but we believe that it is possible to do **today's job better**, while at the same time **doing tomorrow's job differently**.

OUR RECOMMENDATIONS

- **Change what we regulate:** normalise electricity through redesigning the market
- **Change how we regulate:** change from regulating process to regulating for risk
- **Protect and serve consumers better:** create one essential service consumer regulator
- **Open up to retailers:** risk assure retailers rather than license suppliers
- **Optimise the system:** opening up system data for the public good
- **Get more from less:** redefine and recalibrate security of supply

TODAY

DEMYSTIFY THE SYSTEM: LET'S BUST THE MYTHS

The electricity sector has defined itself as unique, unusual and exceptional. Complex structures have been put in place to manage this 'exceptionalism' and these have been deployed across the supply chain rather than targeted and limited to the very specific 'essential' service 'risks' of the sector.

To unlock the real benefits of the future it is important to be very specific about what is unique to electricity and challenge the myths that have grown up around the sector.

The realities of the electricity system:

- **Electricity is unique but only in places**
- **Consumers sit at the margins of the market**
- **Electricity does not have a complex supply chain**
- **Normal competitive pressures are limited**
- **Market design has misallocated risk and complexity**

Electricity does have unique characteristics

There are six key unique aspects to electricity:

- It is an essential service and supply cannot be withheld without consent
- There are specific categories of people for whom access to electricity is life critical
- As an essential service, its reliability and cost need to have regulatory oversight
- There are monopolistic components to its dispatch and delivery, and these monopolistic positions must not be exploited
- The characteristics of providing electricity are unique in terms of just-in-time balancing
- Failure to supply adequate electricity and heat are critical in terms of life, and the functioning of the economy

Electricity's exceptionalism needs to be managed, although we must identify much more clearly what risk these unique characteristics pose and address these very specifically while not migrating these risks throughout the whole system

By regulating the whole system as if it was all 'unique' we have not been able to introduce price, service and innovation pressures into the 'normal' parts of the sector

Consumers sit at the margins of the market

Electricity suppliers are currently so prescribed in their marketing and product development that there are few differentiators other than a differently coloured logo and a marginal price difference.

Currently, the product is uninteresting, badly marketed and charged through a unit that has never been translated into consumer value

There is already consumer detriment through our current siloed regulatory models, with multiple billing and customer-service costs across all utility services, multiple engagement programmes for each utility service, varying definitions and initiatives to address vulnerability and, most importantly, consumer time spent across a set of dull products.

In a perverse outcome to driving greater switching there is now a significant 'loyalty' detriment as clearly highlighted by Citizens Advice.

There is also a misconception that consumers are baffled by the complexity and they require simple 'vanilla' products. Consumers are perfectly able to deal with complexity if choices are designed around their preferences and lifestyle needs rather than expecting them to navigate the businesses' complexities. They are likely to engage much more effectively if they are given the tools to engage and that choices are shaped around interesting outcomes and valuable, even delightful, services – not kWhs.

Consumers have been excluded from playing their crucial role in being active players in making, shaping or breaking business models

Electricity does not have a complicated supply chain

While there are evident complexities related to electricity, it is not as complicated as the sector and regulation suggests. It delivers a product - electricity – from producers at fixed points to fixed points in homes. While electricity is complex in terms of real-time balancing, the behaviour and nature of the product are defined by physics with few variables. The current supply chain has few players, while most of the interactions between the parties are predominantly pre-determined and price controlled.

> **As we move towards a decarbonised, decentralised system it is crucial that we don't overlay more layers of regulation but strip down the current system**

We have allowed too many regulatory layers, actors, intermediaries and governance models to manage this simple, short supply chain. This has added cost and complexity to the system.

As we move towards a decarbonised, decentralised system that will most certainly be more complicated it is crucial that we don't overlay more layers of regulation but strip down the current system to its skeleton before reshaping it around the new market design.

Compare 'complex' electricity – a product determined by physics – with the complexity of running a supermarket with 30,000 products, 150 different regulatory jurisdictions, multiple distribution channels, food safety, and complex and varied supply chains

Normal competitive pressures are limited

THERE IS LIMITED COMPETITION
The number of players in the supplier market has been mistaken as a barometer of competition and, while it has delivered some price pressures, the competitive pressures of varied business models shaped around different consumer preferences have been significantly restricted.

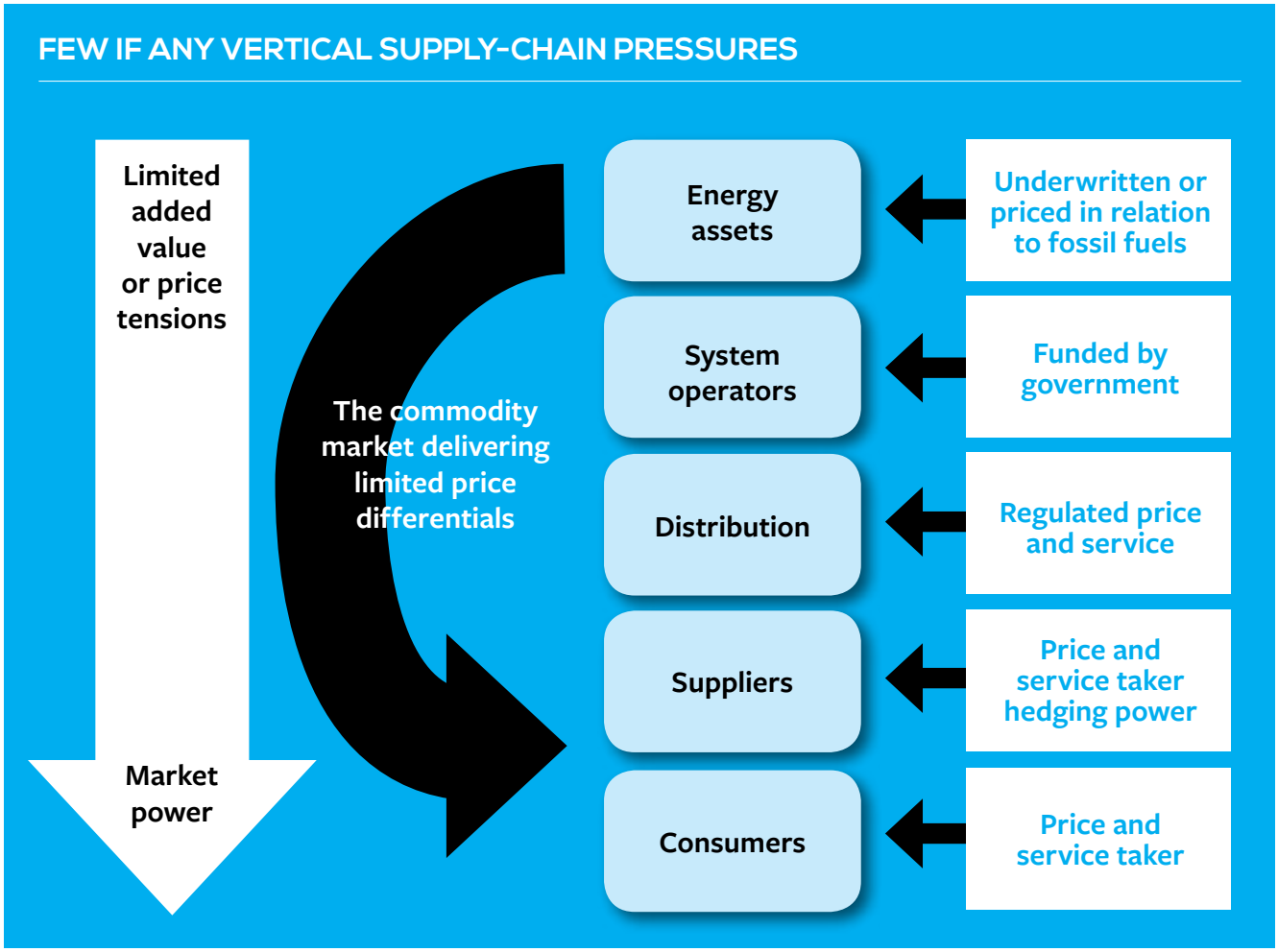
A competitive market is not determined merely by the numbers of players selling the same product in the same way with little price or service differentiation. For consumers to have a role in making, breaking and shaping a market, they need choice – competing products, tailored service propositions – reflecting their myriad needs – no longer one size fits all.

COMPETITION SITS IN THE WRONG PLACES
There are unnecessary layers of 'competition' that have added complexity but have not added value, reduced cost or enhanced service.

By introducing new rules, new actors, structures and institutions within this relatively simple supply chain we have potentially increased costs to consumers while creating additional corporate structures that inhibit productivity gains and cost reductions. For example, the whole regime around metering has created a ludicrous number of players who block cost reductions, reduce convenience and add complexity.

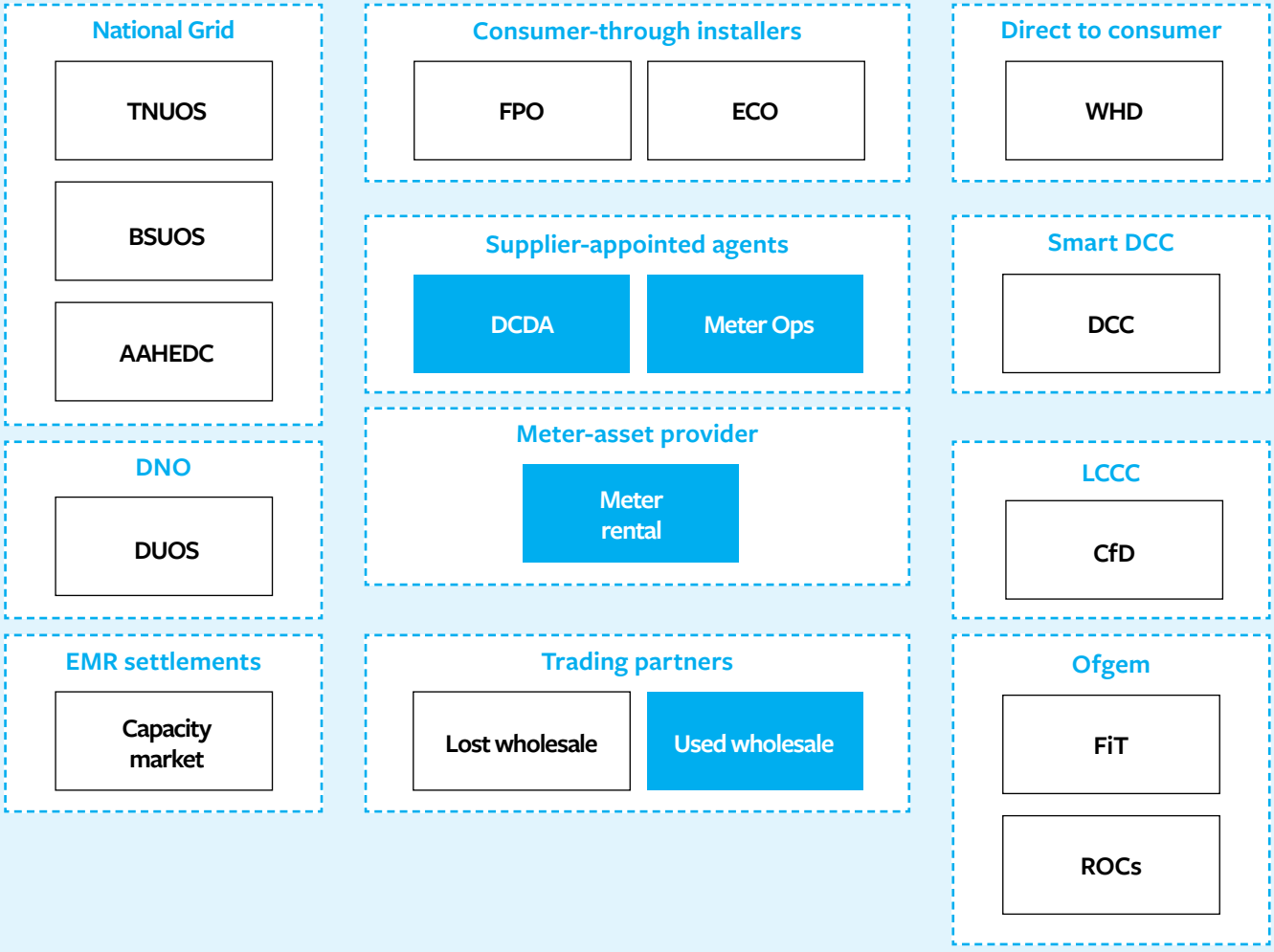
LIMITED SUPPLY-CHAIN PRESSURES
One of the key components of competition – that of supply-chain pressure – is almost non-existent. The barriers to competitive behaviour include the levels of uncontested pass-through costs and restrictive licences that frequently preclude significant differentiations in price, service or corporate behaviour.

Each part of the supply chain has been priced as if it was a standalone asset or service rather than part of a dynamic and integrated supply chain – or system. A normally functioning supply chain would drive efficiencies, cost reductions and service enhancements between vertical functions, not just within the currently horizontally siloed parts of the system.



ENERGY SUPPLIERS HAVE LITTLE CONTROL OVER THE SUPPLY CHAIN

This shows where a supplier can exercise supply-chain pressure and that most 'relationships' are predetermined, with few opportunities to develop negotiated commercial agreements. The Competition and Markets Authority concluded that even across the wholesale market there was little price differential over a five-year period across the key suppliers.



Key

Supplier can influence	Supplier cannot influence

Without any influence over most of the cost base the supplier has no incentive or ability to try to reduce these costs and help drive efficiency into the system

Market design has misallocated risk and complexity

The sector has been off-putting to many consumer-centric companies as the commercial environment is so heavily 'managed'. Highly commercial companies have little ability to add value, price reduce, build new products and services and, most importantly, be competitive in how they manage risk.

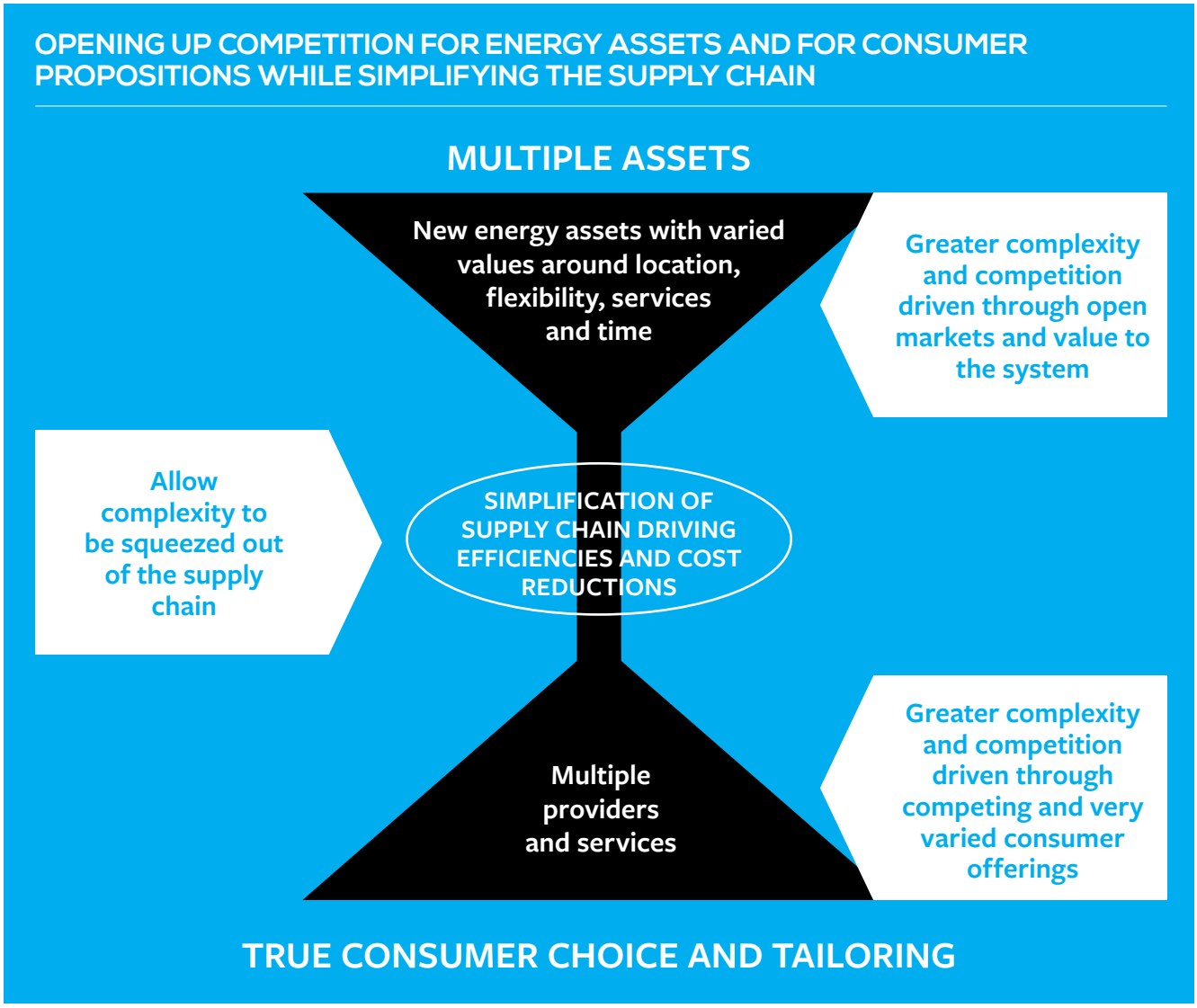
MOST COMMERCIAL RELATIONSHIPS ARE INSTITUTIONALISED, AND RISK SOCIALISED

Much of the supply chain is governed by a set of regulated relationships. This has transferred the complexity of a supply chain from the businesses to the regulatory framework 'institutionalising' and 'socialising' these relationships, with the costs passed directly to the consumer. Risk that lies with the regulator needs to be clearly defined and as much risk as possible must lie with the businesses.

COMPLEXITY CREEP

As a simple system of fixed assets moving electrons in a linear manner we have created a lot of complexity in the management of the system. Normal markets aim to squeeze out complexity where it doesn't add value, driving efficiencies and introducing new business models to bypass incumbent complexity. Normal supply-chain pressures would have identified unnecessary components of the market and either consolidated them through greater integration or abolished them through business model or market redesign.

As we move to a much more complex environment with more players it is going to be crucial that complexity sits where competition can drive cost down and service up, while simplicity sits where there is little competition.



Vulnerable consumers are not well served

In our last report we proposed that vulnerable consumers and the responsibilities for fuel poverty should not sit solely with the energy sector. It is an incredibly loosely defined term and needs to be appropriately triaged and addressed in a manner that effectively serves those it is designed to serve.

As the challenges facing consumers are often cumulative and not exclusive to one service, effective interventions should be designed holistically with a wraparound service across all essential services as they are developing in Australia..

TRIAGING VULNERABILITY

Vulnerability has been used as a catch-all phrase that does not reflect the real needs of key groups of consumers. It is also a term that is patronising and disrespectful.

To address the public's exact needs we should resist from using the term vulnerable and articulate the exact need and problem that require intervention. In addition, we should also recognise that specific groups needs will not fall neatly into one category or be unique to energy, and will be both transient and dynamic.

ONE SIZE DOESN'T FIT ALL

If a customer faces one of these challenges then it is very likely that they experience one or two other difficulties. The public does not fit into the neat bureaucratic boxes that current policy prescribes and it is time for all sectors, from financial services through to energy, to deliver holistic solutions tailored to need, not business models.

It is also a moment when the essential service sector could push back on some of these wider societal issues and urge government to allocate these important responsibilities appropriately.

NATURE OF VULNERABILITY	APPROPRIATE RESPONSIBILITY	POSSIBLE RESPONSE
MARKET DESIGN		
Disengaged from the market	Ofgem	More consumer-centric market design
Paying the loyalty penalty	Ofgem	Price cap
ECONOMIC		
Unable to access the best online deals from multiple markets	Ofcom/Department for Culture, Media and Sport	Internet use/ digital inclusion
Very low income/debt	Department for Work and Pensions	Increase incomes to accommodate essential-service cost increases
Bad housing	Ministry for Housing Communities and Local Government	National refurbishment programme/improved housing standards and LA enforcement across current housing stock
HEALTH / AGE RELATED		
Health-critical connection requirement	Across utilities, including telecoms	Wraparound service from a consolidated list for essential provision
Elderly with greater need for heat	Department for Health and Social Care/DWP	Targeted benefits
Disabled	DHSC/DWP	Targeted benefits
Learning difficulties/ mental health	DHSC	Wraparound service across all essential services

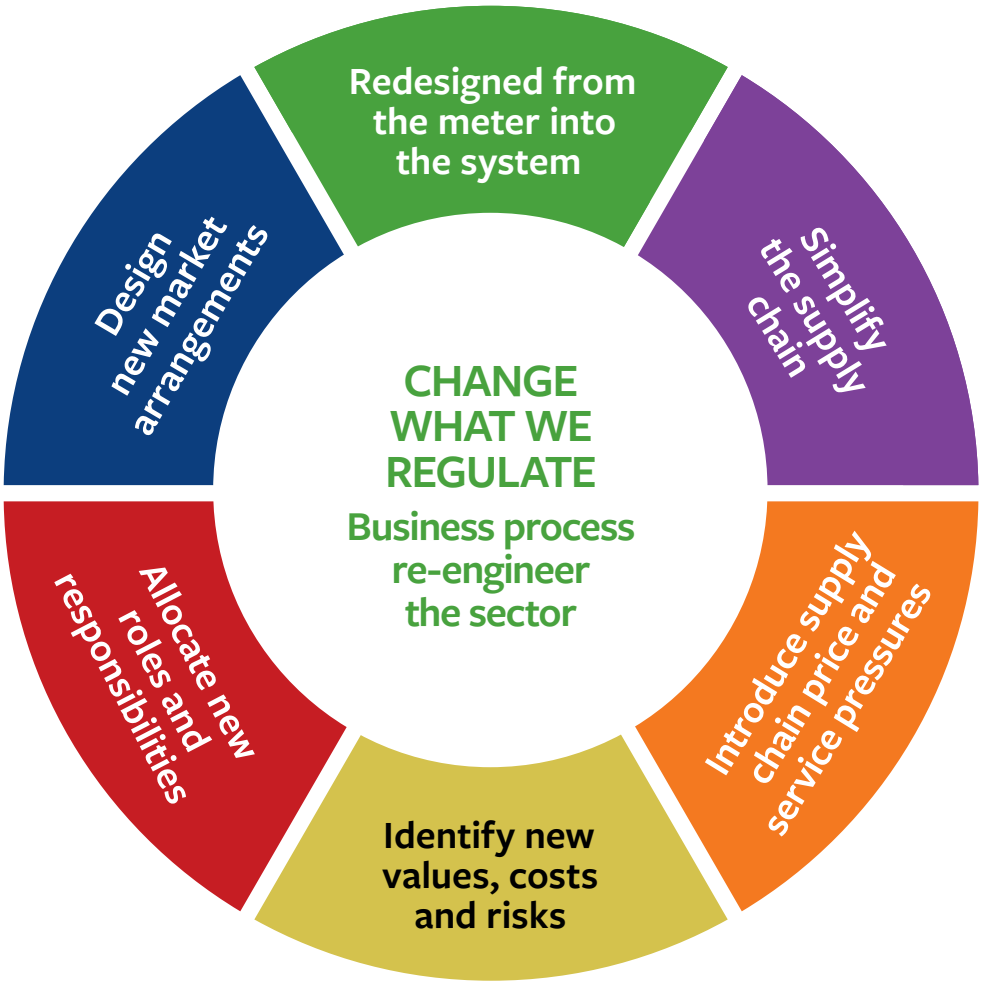
CONCLUSION

While it is recognised that electricity is a difficult business, it is fundamentally a simple supply chain. On the one hand the 'supply chain' has over years become too complex, while the potentially competitive parts of the market – the assets and the consumer-facing businesses – are 'protected' from complexity, creating one service that fits all. The competitive pressures do not always lie in the appropriate place and two key components of competition – that of supply-chain pressure and competitively managing risk have been more or less 'socialised'.

In addition, the sector is expected to manage 'vulnerability' across areas that it has no responsibility or agency and we should be much more specific about what service, support, or redress customers with specific requirements really need.

TOMORROW

CHANGE WHAT WE REGULATE: NORMALISE ELECTRICITY THROUGH REDESIGNING THE MARKET



The transformation of the sector requires a totally new market design. The most fundamental change is the move from a linear despatched kWh to a multi-valued unit considering time, location and system service. Added to this the new system offers diverse technological options and two-way provision, all enabled by a digital revolution. Consumers should expect to benefit from this transformation through much more tailored, personalised services delivering meaningful choice with their 'retailer' driving down costs throughout the supply chain on their behalf.

OUR RECOMMENDATIONS

Re-engineer the market design: the sector should undertake business process re-engineering (BPR) to reshape the market design starting with the consumer, redesigning the relationships within the supply chain and to reflect the new value opportunities of the new system.

Re-engineer the system

There needs to a fundamental rethink of the market design starting at the plug. This needs to include a reallocation of risk and responsibilities, greater freedoms to allow for businesses to organise and manage that risk effectively, greater supply-chain pressures and a move to allocate complexity to where it adds value and reduce it where it has little value.

A new market structure needs to recognise:

- While electricity is different, it is not *that* different
- Consumers should expect similar experiences to those of other products and services
- Supply-chain price and service pressures should be introduced where possible
- New risks will emerge while existing risks might diminish

Re-engineering the market design

Re-engineering recognises that a sector's roles are often fragmented into sub-processes and tasks are carried out by several specialised functional areas within a system. Re-engineering maintains that optimising the performance of sub-processes can result in some benefits but cannot yield dramatic improvements if the process itself is fundamentally inefficient and outmoded. For that reason, re-engineering focuses on redesigning the process as a whole in order to achieve the greatest possible benefits to the sector and its customers.

It is designed to identify solutions to businesses or sectors that face:

- **Changing operating environment:** a dramatically changing market environment that the sector/company is not acclimatised to but needs to adapt to
- **Changing consumers' needs:** systems that are no longer appropriate for changing customers' expectations
- **Transformative technologies:** need for significant change in face of new technologies
- **Outmoded operating models:** structures that require systemic review and reform

The electricity system ticks all of these boxes

Re-engineering emphasises a holistic focus on the system's objectives, encouraging full-scale recreation of processes rather than iterative optimisation of sub-processes.

This process would revisit the old regulatory assumptions made in relation to a top-down system and reshape these assumptions around the new 3D electricity system. It would break down the 'horizontal' regulatory model and shape a much more holistic approach to the whole system architecture. The key to business process re-engineering is that it starts with the consumer and works through business, service and price relationships back into the supply chain.


REINVENT
RESET
RETHINK
REVISE
REFORM

Outcomes

This redesign would produce exciting outcomes shaping a new market structure delivering:

- **Consumer value:** highlighting where there is added or reduced consumer value within the system
- **Efficiency and productivity gains:** focusing on measures and actors that are barriers to greater efficiencies and productivity
- **New values and new costs:** develop a new set of costs and values that reflect the value of system optimisation rather than the cost of a kWh
- **Vertical supply-chain pressures:** identify where supply-chain pressures can be introduced, and where normal commercial relationships can replace 'regulated' relationships
- **Clarity around roles and responsibilities:** ensure that roles and responsibilities are clear and appropriate in a changing electricity system
  - **Risk reallocation:** allocate risk within the system in the appropriate places with the actors driving more commercial actions and better pricing of risk
  - **Complexity v simplicity:** reallocating the current distribution of complexity/simplicity that can deliver best consumer outcomes
  - **Role for regulation:** calibrate in much more detail the points of regulatory need
  - **New market arrangements:** identify the need and nature of new markets that could deliver the greatest value and system-wide benefits

> **For the new system to truly benefit consumers the sector has to be able to behave more like normal markets while appreciating the constraint of a monopoly distribution system**

CONCLUSION

If we try to incrementally modify the regulation and market shape to respond to every change in the system we will lose the overall benefits from the changing 3D electricity system. For the new system to truly benefit consumers the sector has to be able to behave more like normal markets while appreciating the constraint of a monopoly distribution system.

Normalisation will take time and there will be winners and losers. This journey might be long but must start now.

TOMORROW

CHANGE HOW WE REGULATE: MOVING FROM PROCESS REGULATION TO REGULATING RISK

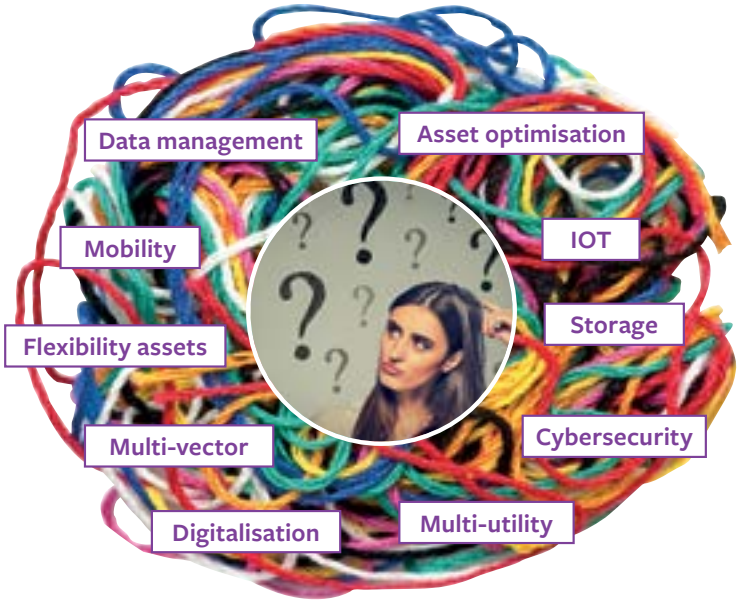
Change is not just needed around WHAT we regulate but also HOW we regulate. With the multi-directional, multi-actor, dynamic and interactive players the current command-and-control framework managed by prescriptive licences will not work. Compound this with the increasing number of players with different business models and little knowledge of the intricacies of energy regulation and norms, but offering potentially added value to the consumer. In response to these current changes the regulator is already employing derogations that indicates that the regulatory system is not keeping up with desirable innovations emerging.

Perimeter regulation

Energy regulation is facing one of the most important periods since privatisation, with the opportunity to reshape regulation from being 'of' the sector to being 'for' the consumer.

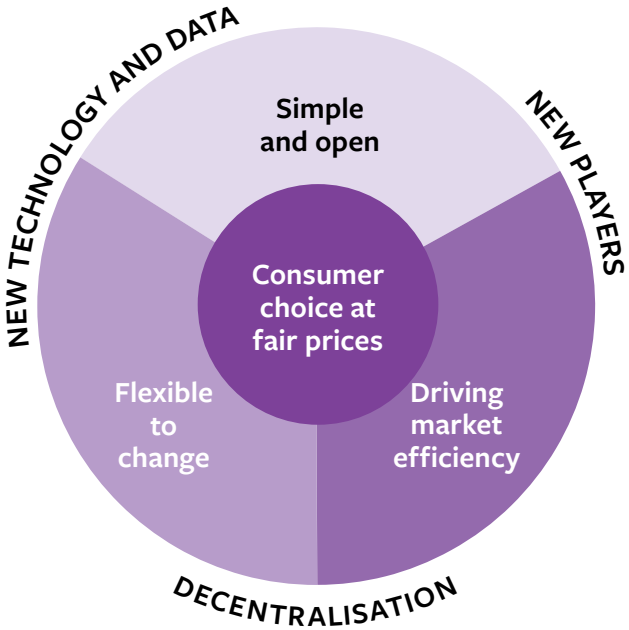
While a more dispersed and dynamic system cannot be regulated through process, regulation does have an extremely important role to play – it is just that its role needs to move to the perimeter of the system rather than sitting in the middle.

TOO COMPLEX TO MANAGE



PROCESS REGULATION

MANAGING THE PERIMETER



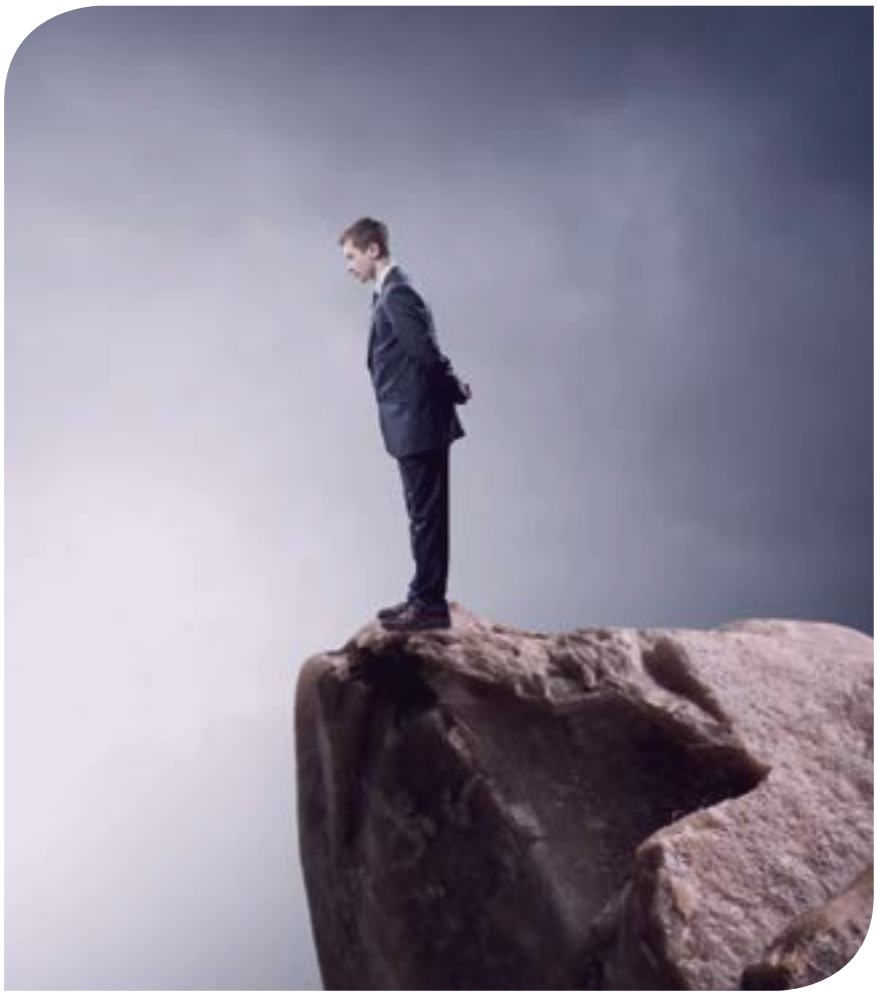
MANAGING THE RISK

OUR RECOMMENDATIONS

Perimeter risk regulation: the regulator should sit outside the sector looking in rather than aiming to conduct every dimension of a growingly complex and diverse electricity system. Risk assessment needs to sit at the heart of regulation, developing anticipatory skills and allocating more risk and freedoms to the businesses while more aggressively sanctioning bad behaviour.

The Food Standards Agency's rationale for regulatory reform

The existing 'one size fits all' approach to regulating food businesses is ill-suited to the incredibly diverse nature of the industry. In recent years we have witnessed large numbers of new players enter the global food and food-safety landscape; for example, online retailers, food-delivery services, private auditors, and independent food-safety certification schemes. These and many other developments have reduced risks, created different risks, and increased risks. But the current regulatory approach doesn't allow us easily to focus our effort on changing risks. It's clunky, rather than flexible and agile.



Principles of perimeter regulation

The key principles of perimeter and risk regulation include:

- **Stand apart from the sector:** businesses are responsible for their businesses and outcomes – not the regulator
- **Risk assessment:** risk assess more effectively, and risk manage through sanctions
- **Clarity about the unacceptable:** establish what is unacceptable
- **Employ strong and timely sanctions:** don't be fearful of strong enforcement
- **Drive continual improvement:** employ measures that raise the 'floors', moving with the fastest not the slowest
- **Drive more from less:** all interventions should aim to drive greater productivity, efficiencies and innovation

And, as importantly, **RESIST** from:

- **Prescribing process:** process management of the businesses must sit with their risk register, not the regulator's risk register
- **Regulating for any specific business model:** let the entrepreneurs come up with the new businesses – and then regulate them
- **Developing 'false' competition that adds no value for consumers:** allow for streamlining the supply chain if that delivers better value to consumers
- **Nationalising risk:** there are some aspects of the system that need 'socialising', but these should be subjected to very close scrutiny
- **Fearing Returns:** if consummate with consumer satisfaction, price pressures and risk taking

Regulate where risk really lies

Today, responsibility for the risk is muddled and has created a lack of clarity of who owns the risk. Businesses blame the regulator, while the regulator sometimes takes on risk responsibility that should sit with the business. Some have said that this confusion around the lack of responsibility for risk has infantilised the sector, dampened the businesses' risk appetite and put the brakes on innovation.

In the new 3D system the regulator needs to reassess where risk really lies to the consumer, to the market and to the system. The risks of the sector are significantly changing, and increasing in some areas, while it will be important to strip away the redundant risk profiles of the past system. It needs to allocate as much of the risk management to the businesses themselves so that the regulator's risk management sits firmly around expectations and sanctions rather than process. The regulator needs to avoid smearing these risks throughout the whole supply chain by being very specific of the nature of the risk.

Through an effective incentive-and-penalty regime, risk can be reallocated and the complexities of business management transferred to the businesses. This will require a different approach to regulatory surveillance that will be facilitated by data, clear metrics and risk profiling.

> **Some have said that confusion around who "owns" risk has infantilised the sector, dampened the businesses' risk appetite and put the brakes on innovation**

Code reform

The coded system of operational management is very 20th century and does not meet the needs of a dynamic sector. We propose that all codes are triaged and managed differently across four key categories:

- **Safety issues** – these should be governed by rules not codes
- **Engineering norms –** these should become operating standards
- **Inter-operability** – these should be determined as standard 'floors' allowing for innovation
- **Market arrangements** – these should be uncoded and established through either market assurance, commercial negotiation or supply-chain pressures

CONCLUSION

It is becoming increasingly impossible for the current regulatory model to manage the emerging complexity and changing landscape. It needs to change its position in the sector from conducting the orchestra to sitting in the front row with the audience. It will need to be very focused on existing and emerging risk, and adopt a more anticipatory, predictive risk model.

Many other regulators are reviewing their approach to complexity and risk assessment using data, new risk-assessment tools and as a quid pro quo for being less deterministic, becoming tougher with sanctions.

TOMORROW

PROTECT CONSUMERS BETTER: PUTTING CONSUMERS AT THE HEART OF MARKETS

Nowhere more than in the consumer space will complexity emerge driven by the digital and connected revolution, delivering multiple choices designed around tailored products and services.

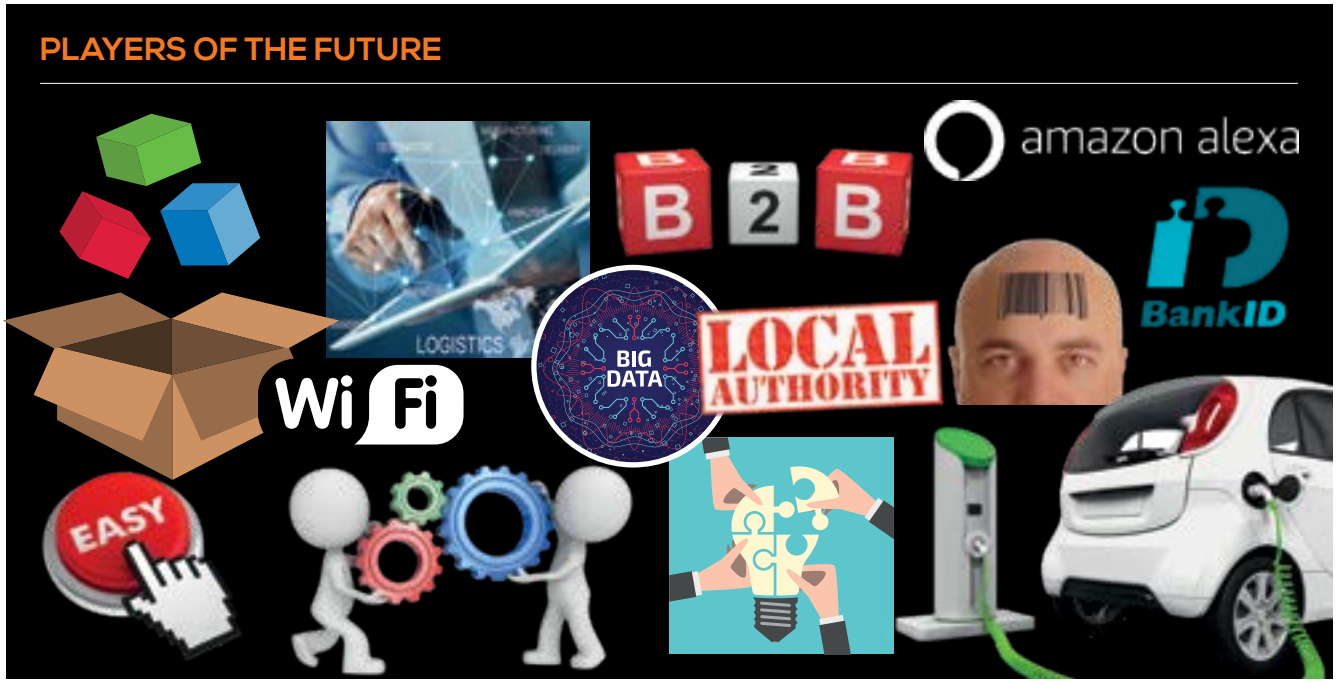
Regulating the consumer space will be complex but must allow for consumers to benefit from varied possibilities – bundled utility products and services, propositions that include 'prosumer' benefits, financial service agreements, consumer storage opportunities, and optimisation across multiple utility services.

Energy might become invisible, embedded in products and services that are more appealing and desirable to consumers, with businesses managing complexities. Regulation will need to move from product regulation to one regulating services. Identifying detriment will become complex, multi-vector and multi-product but will need to reflect consumers' meaningful choices and be more textured around the perceived service value rather than just product cost.

Moving from siloed regulation to an essential service consumer regulator

To harness the benefits of digitalisation, new consumer expectations and the multi-vector nature of the future of utility provision, we need to move from a sectoral regulatory model to a single essential services consumer regulator. This would address the 'under the bonnet' complexities for the consumer while releasing consumer-facing businesses to build greater value, develop new products and services, and deliver cost reductions to consumers. It would include the consumer-facing parts of Ofgem, Ofwat and Ofcom.

If these functions are not merged then either consumers will not be able to benefit from bundled services, or the consumers will have to unpick these propositions themselves, which would create increased detriment.



OUR RECOMMENDATIONS

Establishing a single essential service consumer regulator

- Merge the consumer parts of the existing regulators into one consumer regulator for essential services
- Triage vulnerability appropriately and merge consumer vulnerability responsibilities across all essential services
- Develop a common essential service ombudsman regime
- Merge the consumer advocacy role to reflect the new essential service regulator remit
- Adopt new consumer protection principles
- Tighten up the customer journey, identifying new risks
- Develop a 'complexity' labelling system
- Introduce new weights and measures reflecting the new values across the essential services

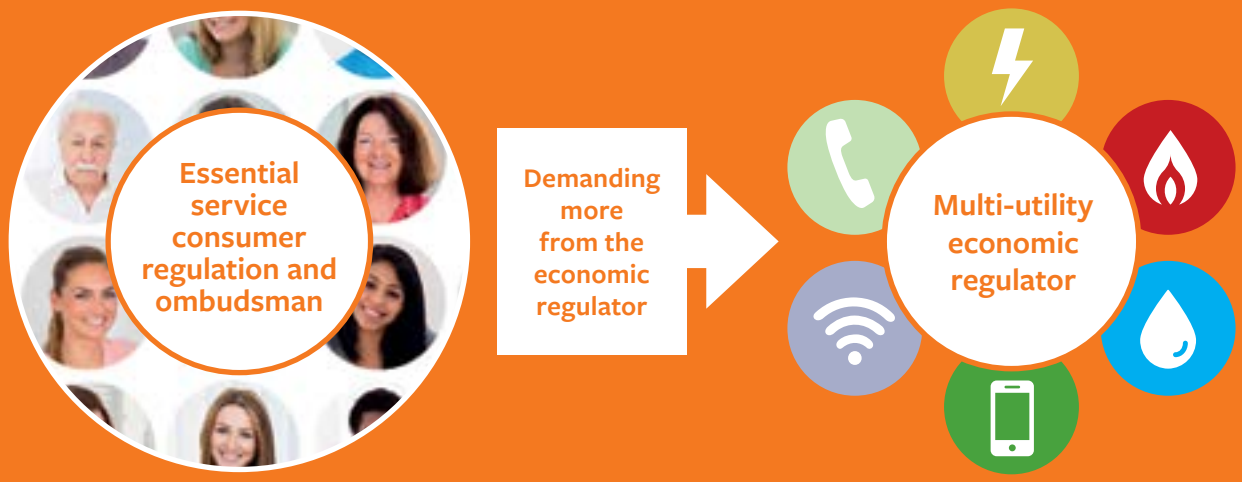
The benefits of one essential service consumer regulator

- **Consumer benefits:**
  - **More tailoring:** allow businesses to bring to market wider service and product packages with tailored packages and individually shaped services.
  - **Cost reductions:** cost reductions across a wider range of products and services through consolidated integrated billing and customer service.
  - **Real choice:** greater choice – from more complex home-service packages through to vanilla products – whatever suits that consumer.
- **Consumer protection:**
  - **Easier for consumers and businesses:** a one-stop shop for consumers and businesses alike across utility products and services.
  - **Identify interaction distortions:** the ability to identify consumer risk across the interaction of these new packages.
  - **Deliver integrated solutions for 'vulnerability':** design the appropriate support tailored to the issue facing the customer, reflecting the likely overlap of issues across all essential services.
- **Consumer advocacy:**
  - **Consumer interests:** as a consumer regulator it will be able to place pressure on the supply chain either in terms of the regulated asset price controls, or identifying market misalignments that are not delivering for consumers.
  - **Cross-sector redress:** to complement this new regulator a strengthened essential service ombudsman would be needed. This would simplify the redress process for consumers across the packaged, bundled product and service landscape.
  - **One statutory independent consumer-advocacy voice:** there should be a single consumer-advocacy voice that challenges the regulation across all essential services examining the misalignments and highlighting potential mis-selling. This will become more important with the increased complexity of the product and service offerings.

Implications for monopoly infrastructure regulation

With the emergence of one consumer regulator there could be a rationalisation of the economically regulated monopolies with the development of a new infrastructure regulator regulating the fixed assets across all infrastructure utility monopolies. There are emerging business models that indicate that cross-utility asset management and upgrades offer cost reductions and synergies.

IS THIS THE MOMENT FOR REAL CHANGE?



The pathway towards convergence

The emergence of a single consumer regulator will take time and primary legislation. However, there are steps that could be taken now to release value for consumers:

- **Converging consumer service principles:** the regulators should start to develop regulatory 'equivalence' measures allowing for bundled products to meet one standard of consumer protection across the utilities, only highlighting what is truly unique to their product. In transition this could be managed through a primary authority model of convergence and compliance.
- **Merging vulnerability responses:** addressing vulnerability could be converged to deliver much better value and service to vulnerable consumers who would not have to navigate the different regimes and would benefit from an integrated one-stop shop of support.
- **Shaping a one-stop-shop ombudsman:** this is already taking place incrementally. However, with new products and services, consumers deserve a redress service that can unpick complex consumer complaints.
- **Unifying the consumer voice:** the regulators can start converging the consumer voice around one organisation that can make representation around the complexity and risks of bundled and embedded products and services.

Managing new consumer risks

There is no doubt that conflated, complex products and service will reveal new risks to consumers. The cross-subsidising and cross-marketing will become much more complicated to police and risk assess. However, we believe that the benefits will greatly outweigh the risks. It will require a very different approach to assessing and managing consumer risk.

Consumers must be given the tools to make good choices and these include consistent information, comparable information, certainty of rights and clear redress mechanisms.

CORE CONSUMER RISKS

TYPE OF PRODUCT	PROVIDER	RISKS
Vanilla Energy	Supplier	Highest prices?
Bundled	Retailer	Hidden pricing Mis-selling Complexity
Embedded	3rd-party product/service agreement – car/fridge etc	Lack of transparency Tie-in
Integrated	Through housing providers	Lack of transparency No competition Bad prices
Prosumer/flexibility/storage	Energy services aggregator	Complexity Price discovery
Multiple suppliers	Mix of the above	Complexity Muddled responsibilities
Location costs	Distribution costs and optimisation ability	Differential costs in different locations

This level of complexity will require a strong set of regulatory principles and demand significantly less process regulation and more risk regulation

The customer journey

It is also important to unpick the consumer journey and examine how that might be impacted in a changing marketplace. Regulation will need to understand the key points of risk throughout the consumer experience rather than through the one-size-fits-all supplier licence.

KEY STEPS IN THE CONSUMER JOURNEY

Terms and conditions: point of purchase becomes crucial

What are you signing up to?

'Weights and measures': how customers measure price and value will be complex

Is it value for money?

Consumer capture: how consumers 'exit' products and services has crucial data implications

How to exit?

Sanction police: what are the penalties for mis-selling?

What should the penalties be?

OUR RECOMMENDATIONS

Key recommendations for the consumer journey include:

- **Point of purchase:** adopt a complexity 'labelling' system with a traffic-light system. This will offer transparency to consumers and be clear that complex products have many moving parts that interact.
- **Weights and measures:** consumers will need to be able to compare between different offers, including those that are service based and where services are bundled together. It will be important to establish core metrics by which comparisons can be established.
- **Terms and conditions:** T&Cs are critical, particularly in a market where myriad service propositions exist. It must be clear to consumers what services come with the package and what the cost or penalty is for requiring services outside the package.
- **Consumer capture:** bundled and product-based service 'exiting' and 'cool off' periods need to be explicit in the complexity labelling.
- **No-choice consumers:** some consumers, such as those in social housing, may be mandated to take a communal energy service – an effective monopoly. This needs carefully risk managed with some element of 'contestability'.
- **Sanction policy:** in balance with greater freedoms to develop more exciting products and services, sanctions must increase and be exercised explicitly to provide consumer confidence.

The consumer balancing act – carrot and stick

With a more diverse set of propositions for consumers we have identified the principles that should guide the development of new consumer facing regulation.

THE CONSUMER BALANCING ACT: NEW PRINCIPLES

Opportunities

- Simplicity of the products
- Convenience, easier home-bill management
- Lots of choice and increased competitive pressures
- Data calibrating consumption and automating energy savings

Risks

- Complexity of the products
- Inability to unbundle and tie in
- Unclear redress mechanisms
- Lack of transparency
- Consumer data – privacy and value

More complexity
More transparency

More choice
More consumer power

More freedoms
More penalties

More services
More redress

CONCLUSION

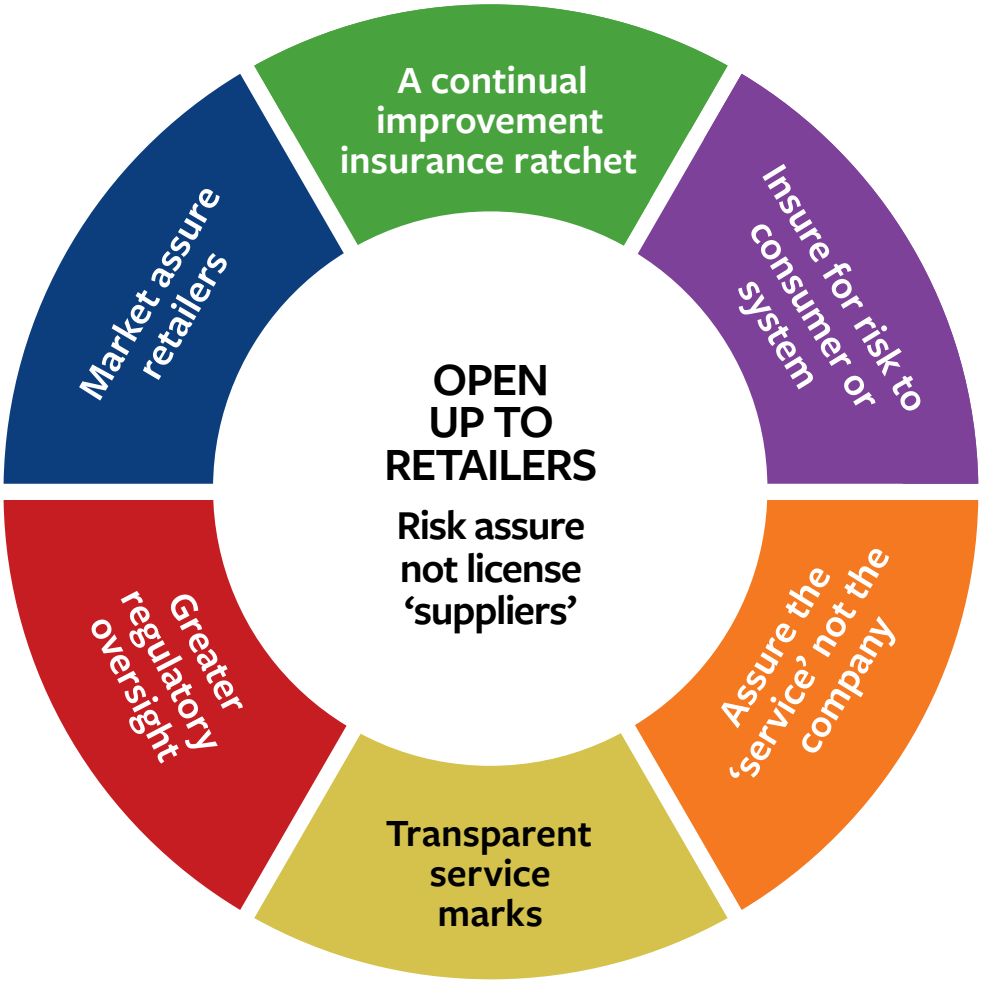
It is a potentially exciting time for consumers, with essential services driven by digitalisation and consumer participation adding value to the system. With the complexity of the new propositions on offer to consumers, the current one-size-fits-all approach will not work and will add greater costs to consumers.

While we believe that a single essential services consumer regulator is the key to releasing the value and adequately manage the risk, there are many measures that can be taken to start that journey.

Consumer protection will require a regulatory approach that is much more consumer focused, explicit about risk, flexible to respond to new business models, exercises sanctions more proactively and holds the businesses to account throughout their relationship with the consumer.

TOMORROW

OPEN UP TO RETAILERS: TRANSFORMING SUPPLIERS INTO RETAILERS



In a new world of conflated products and services responding to consumer needs, the regulator is reviewing the current supplier licence. We welcome the proposals but would urge the regulator to go further to normalise the retail sector and make it attractive to new entrants from beyond the sector while effectively identifying risk to consumers and the system.

We should also expect more from suppliers than merely being billers, tax collectors, and hedgers adding little value and costing between 5-11% on bills. Retailers in other sectors drive supply-chain efficiencies, are able to procure and negotiate freely to deliver best value to consumers and find new ways to serve.

OUR RECOMMENDATIONS

Turning suppliers into retailers

- Adopt an insurance-backed assurance scheme to replace supplier licences
- Regulate the electricity but not the company
- Drive a continual improvement regime based on risk and ratings

Migrating from 'supplier' to 'retailer'

We need to open up the consumer space to varied products and services and attract companies with experience of fast-moving consumer goods, consumer services, technology retailers and online merchandisers and aggregators.

A vision for a retailer would be one that offered multiple and meaningful choices to consumers shaped around their lives. Retailers would act as the price drivers within the sector, demanding better prices, new services and identifying new providers for their customers. Retailers would be free to negotiate prices for energy, shaping new supply chains and contesting existing service contracts.

The Ofgem review should be guided by the principle that the regulator is not there to determine or shape business models but rather to manage risk and detriment to the consumer or the system. This review could aim to manage risk by adopting a more radical approach to retail regulation, from a licence to a market assured and insurance-risk framework.

Over and under-regulated

The current framework over-regulates with highly prescriptive licence arrangements while it is very resistant to allowing businesses to fail. The licence requires a supplier to undertake multiple and sometimes inappropriate functions. To address these hurdles, the back-office complexities have created the need for supplier-in-a-box licence intermediaries, which has become an industry in itself.

Unlike other sectors it is the whole company that is licensed rather than the electricity component itself. As we move forward, not all bundlers or providers of energy services will want to become an energy company, as electricity will be just one component of their offer.

A market-assurance and insurance framework

An assurance scheme underpinned by an insurance policy should be developed to regulate retailers as is common across many other sectors.

Businesses would be mandated to enter a regulator-designed assurance scheme for the electricity component of their service or product offering. This assurance scheme would be underpinned by an insurance product that would evaluate their risk to the consumer, the market or the system. This insurance component would replace the need for lodging credit funds as the premium would assess risk appropriately and fund any supplier-of-last-resort measures, releasing significant funds for investment in consumer-facing benefits.

Assurance schemes can be designed in any appropriate manner to evaluate service standards, switching times, customer satisfaction and/or any other dimensions of the business activity. The insurance component of this model will be crucial as that would manage, assess and pay out against any risk that that supplier posed, organised by risk brokers who truly understand risk.

> **Businesses would be mandated to enter an Ofgem-designed assurance scheme for the electricity component of their service or product offering**

It differs from current licence arrangements in the following ways:

- **Tailored to consumer risk:** it appropriately assesses and costs individual businesses' risk profile according to the standards set by Ofgem.
- **One size does not fit all:** with varied products and services, different types of businesses will require different components of any assurance scheme and the insurance component will determine the risk that this poses to the consumer or the market.
- **Cost wholesale market risk more effectively:** the insurance component would effectively cost risk to the wholesale market more efficiently than current security deposit arrangements.
- **Drive up standards:** the insurance premium increasing or decreasing depending on risk and behaviour would drive continual improvement. As the fastest in the market innovates, the assurance standards and cost of risk can change without needing agreement through code bodies.
- **Floor not ceiling standards:** it sets minimum not ceiling standards, allowing for new business models to develop, not restricting innovation while promoting upward competitive pressures.
- **Deliver consumer information:** provides the opportunity to develop 'service standard' accreditation – bronze, silver and gold assurance marks – and would also manage complexity 'marks'.
- **Provide greater regulatory visibility:** the data shared through the assurance/insurance scheme will provide key indicators for the regulator to assess sanctions, risk and consumer detriment.
- **Benefit good businesses:** credit lodging will no longer be needed as the insurance premium would cover their exposure to the market. The sanction of increased insurance premiums will provide the businesses with clarity of their risk profile.
- **Assure aggregators:** with the likelihood of aggregators playing a significant role, their business models can be incorporated into the assurance scheme with appropriate risk-insurance policies.

We believe that an assurance scheme underpinned by professionally insuring risk will reshape the sector, providing the appropriate risk information to the regulator while ratcheting up service and consumer satisfaction. The assurance scheme would be owned by Ofgem but could either be managed internally or through an external body which has experience of assurance systems.

> **Different types of businesses will require different components of any assurance scheme, and the insurance component will determine the risk that this poses to consumers, the market or the system**

Market assurance for 'retailers'

Covering business interoperability, credit insurance, compliance.
Continual improvement through dynamic insurance risk premiums.
Tailored risk profile as one size doesn't fit all.
Model contracts, business practices, and an assurance mark providing consumers with surety.
Provide the regulator with key data on compliance.

Nature of assurance:

- Non-code-specific/ risk managed
- Business-model based
- Single assurance route
- Single body
- Business-role assured
- Assurance mark
- Compliance with changing market needs

Consumer protections:

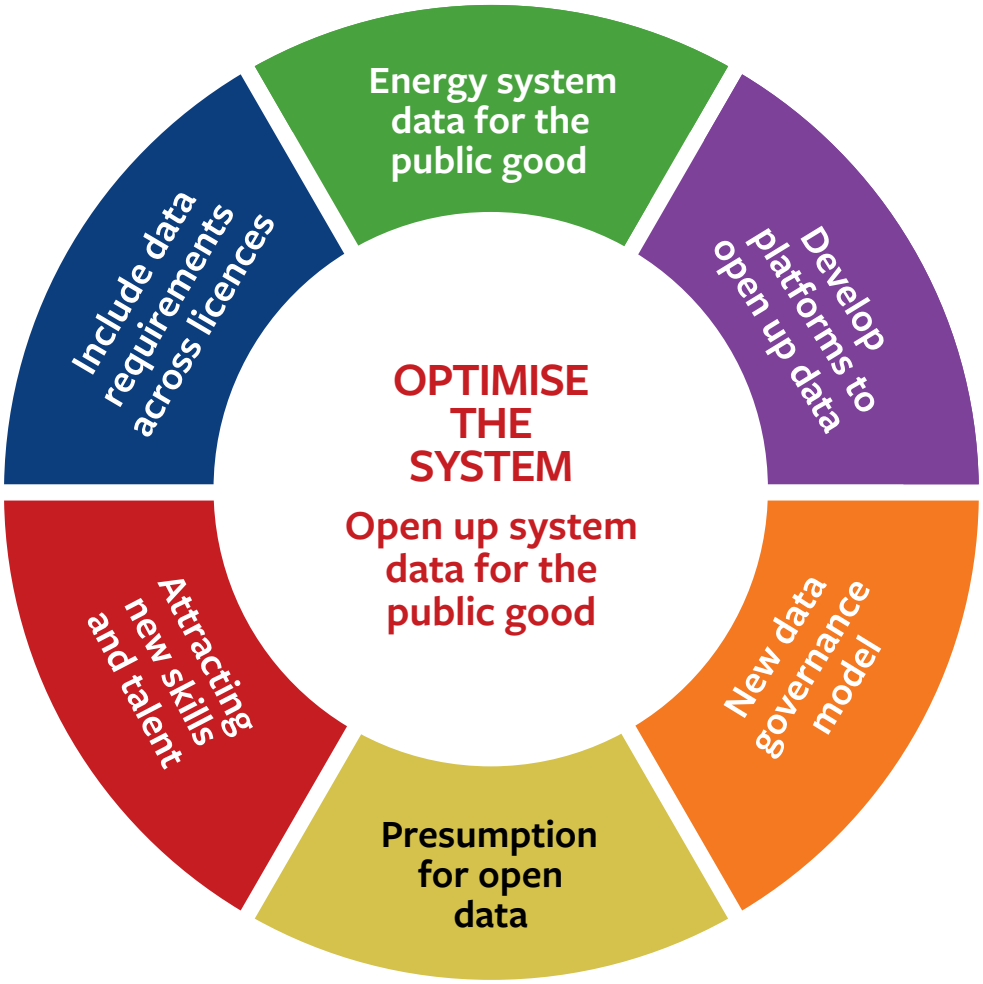
- Insurance levy to cover service failure
- Continual-improvement ratchet through insurance premium
- Reputation and complexity mark
- Able to adapt to changing business models and complexity
- Moves at the fastest not slowest rate
- Shares risk data with key regulators
- Sanction to withdraw assurance

CONCLUSION

We need to move away from the current supplier licence and open up the market to varied, diverse and consumer-facing product and service providers. With diversity come different risks that can be better managed through a dynamic system of assurance underpinned by an insurance-risk premium – the first line of sanction. This will provide the regulator with the flexibility to create a continual improvement model that ratchets up standards and creates in-built and ongoing sanctions.

TOMORROW

OPTIMISING THE SYSTEM: UNLOCKING THE VALUE OF DATA



We very much welcome the Government and Ofgem establishing the Energy Data Taskforce and expect that its leadership on opening up data will deliver significant opportunities.

Optimisation rather than 'delivery' of electricity should become the objective of regulation, reflecting the new realities of the assets on the system. Greater visibility of the system is a key component needed to unlock the benefits of flexibility, facilitate an increase in demand management, and drive full system cost reflectivity relating to the new values of time, location and functionality. A new approach to system data will facilitate much of the regulatory change and new business models for the system, and is a truly exciting enabler of the new energy system. This approach is very focused on system data – rather than consumer data – on which there is a lot of important work ongoing by others.

OUR RECOMMENDATIONS

Define system data as a public good:

- Energy system data presumed for the public good unless evidenced as proprietorial data
- Introduce appropriate data-retrieval and disclosure requirements across all existing licence and contractual arrangements
- Establish an appropriate governance structure for system data
- Shape a set of principles that indicates data value to the system and transparency requirements.
- Determine a clear timetable for data release to be implemented
- Establish a list of the data sets that will have the greatest value to the system

Keeping up with the Joneses

The effective use of data is transforming all parts of the economy, delivering efficiency gains, opening up new markets, helping achieve social benefits, building smarter systems and providing regulatory and policy visibility to support better decision-making.

The energy system, while going through significant transformation, has been very slow in embracing the opportunities around data and analytics in a coherent way.

Only 1 in 6 energy companies is implementing a data-driven strategy according to @Exasol

"Knowing where all the country's infrastructure is and how it is being used will help decision-makers and operators to plan and maintain these crucial national systems better"

National Infrastructure Commission report, 'Data For The Public Good'

Other sectors

Food: the Food Standards Agency has built a transformative data platform to better regulate the food sector

HM Revenue and Customs: has been able to rationalise all its actions through APIs and a consumer-facing platform, cutting the size of its agencies significantly

Open banking: is delivering consumer control across the wide range of banking products and services

Transport for London: the release of its data to the market has delivered many different consumer and system business models, enhanced operations, driven efficiencies and created exciting consumer-facing propositions

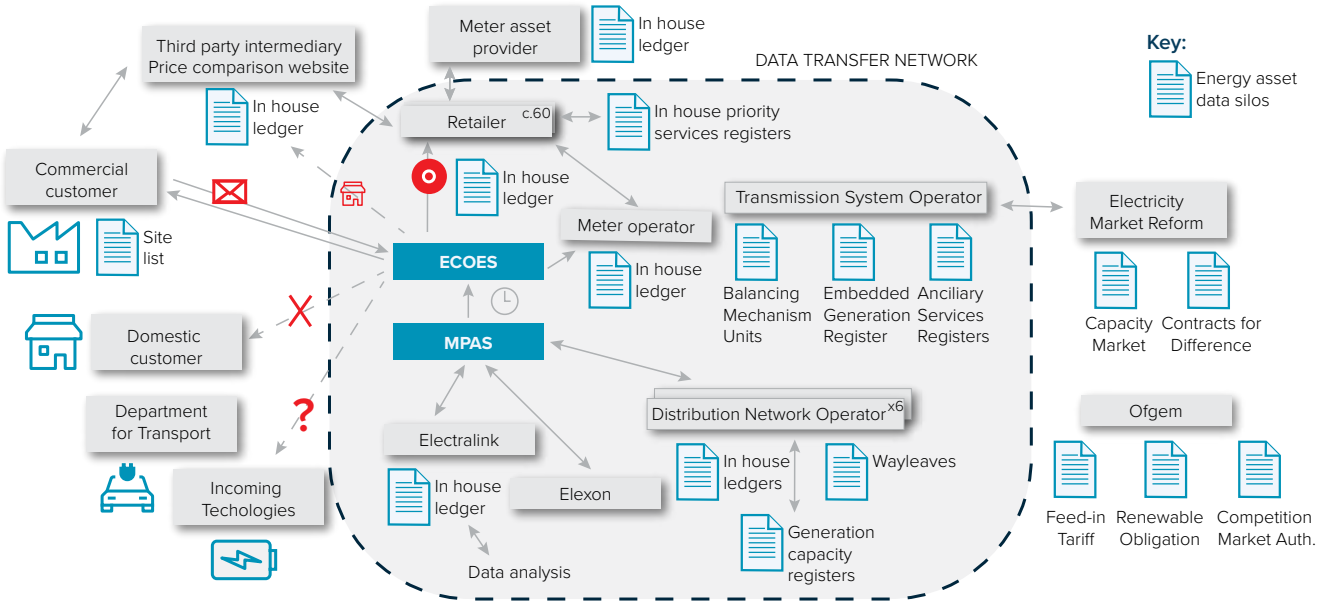
Waste: the Office of National Statistics is building a waste-stream materials tracking system to deliver better visibility and price discovery for reuse, recycling and remanufacturing

Blind man's bluff

Currently we are playing blind man's bluff, with limited visibility of the system that will only become worse as new assets and new forms of demand and demand management engage with the system. The system data sits in uncoordinated silos and is put to little use to optimise the system. Without addressing what data is needed to optimise the system we will procure assets suboptimally, regulators will have limited information to monitor and assess risk, and actions on the system will not be able to be effectively coordinated.

Liberating this data for the public good as proposed by the National Infrastructure Commission 'Data for the Public Good' would open up new business models, optimise the system and reveal the real needs for security of supply.

FRAGMENTED DATA INFRASTRUCTURE



@Electron Analysis 2018

Without addressing what data is needed to optimise the system we will procure assets suboptimally, and regulators will have limited information to monitor and assess risk

Releasing the value of data – the prize

OPTIMISING SYSTEM MANAGEMENT

- **Effective system optimisation:** with greater system visibility effective system optimisation will be much more textured and deliver efficiencies and more cost-reflective responses to system needs.
- **Clarity across the roles of each of the system players:** with visibility the interrelationship and actions taken by the system operator, transmission owners and distribution network operators can be effectively coordinated.
- **Harnessing new energy assets:** the markets for balancing and ancillary services and new energy assets would be open, more flexible and less opaque.

OPTIMISING PROCUREMENT AND REDUCING COSTS

- **Appropriate procurement:** greater data analysis and asset knowledge will drive more accurate procurement of energy assets with greater clarity around need, location and function.
- **Better price discovery:** with visibility of the system needs, greater price discovery and competitive pressure will be possible, driving markets to discover best solutions with the greatest system value.
- **Enhancing demand-side response markets:** with greater system knowledge, the role and value of DSR can be more effectively calibrated.
- **Efficiency and productivity gains:** shining the light of transparency across the system will reveal potential system efficiency and productivity gains.

POLICY AND REGULATORY OVERSIGHT

- **Symmetry of information:** policy and regulation can accurately assess the needs, risks, resilience and potential of the energy sector, with less asymmetry of knowledge.
- **Network needs and investment:** with greater visibility, both the network operators and Ofgem will be able to make more accurate decisions around investment.

NEW MARKETS AND ACTORS

- **Accelerating new consumer markets:** while it is not possible to know what open data will deliver in terms of new business models, in all other sectors open data has delivered surprising new business models that optimise systems and deliver consumer-centric products and services.
- **Opening up to new actors:** with greater price discovery and information on system needs, new actors will be able to evaluate whether the market is appropriate or desirable to enter.
- **Digital and technology entrants:** with data available, new transformative technology companies might identify some exciting possibilities to further drive efficiencies.

In all other sectors open data has delivered surprising new business models that optimise systems and deliver consumer-centric products and services

Principles shaping data release

We believe that there should be some clear principles guiding existing and future data.

- **It is OUR data:** all energy-system data should be deployed for the benefit of the system and presumed for the public good.
- **Burden of evidence:** companies will need to make an evidence-based case that data gathered through government support or by a regulated asset can be withheld from open access.
- **New data requirements:** all future regulations, contracts and licence conditions should include data-retrieval and disclosure requirements
- **Clear but simple data governance:** energy-system data requires a governance framework to ensure compliance and needs to embed security measures around data failure and cybersecurity.

Action now

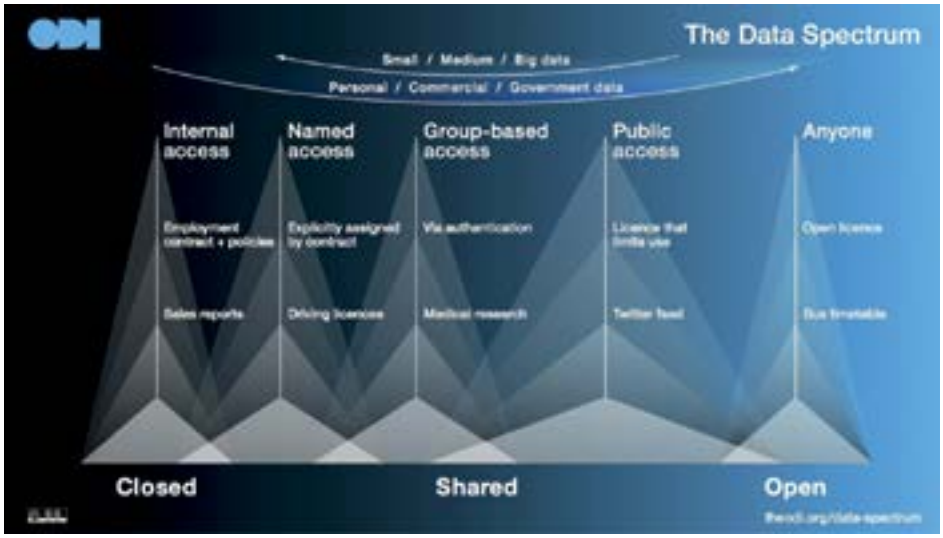
We so welcome BEIS and Ofgem's announcement of an Energy Data Taskforce and believe that this is very timely. Unleashing data is an ongoing activity with no end point. However, it is important that we start as soon as possible. Not only will data inform current decisions that we will live with for decades, but actors on the system are already starting to recognise the value of data and are capturing this value in the absence of a regulatory framework.

Pathway to data release

- **Top 10 data sets max:** we don't need to address all the data sets across the energy sector immediately and should start the journey with the top 10 data sets that have the biggest impact on system optimisation.
- **Don't reinvent the wheel:** we should learn from the opportunities and mistakes made by other sectors in data release.
- **Shadow data:** for data that is system critical we should set a timeframe for the data to be used in shadow, assessing current behaviour against data-informed actions.
- **New skills and expertise:** the energy sector needs to recruit skills and expertise from other sectors to capture the advantages and opportunities that data can deliver.

Triaging data

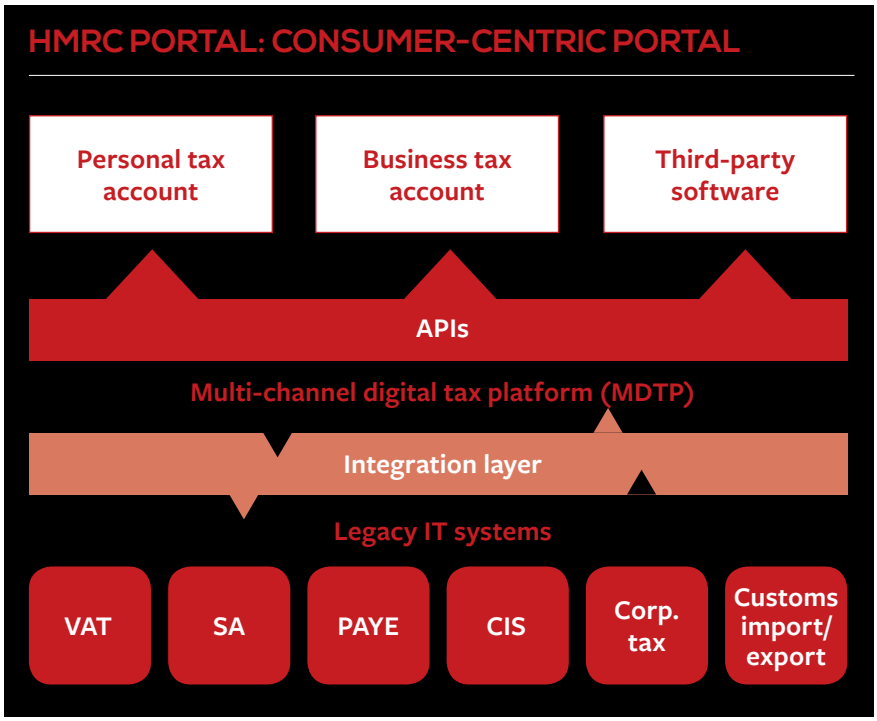
There needs to be clear understanding of what data is for the public good and what sits with institutions or companies. It is crucial, however, that government places an emphasis on open data wherever it can add value to the system. The Open Data Institute has an excellent triage process and should be deployed across the energy data sets with the principle of open access unless justified as commercial.



Governments can be good at opening up data

There are some really great examples of open data within government, and its expertise and experiences can be employed to support the opening-up of energy-system data.

HMRC was able to develop a consumer-friendly interface across six separate organisations through an integration layer and APIs to create an integrated data platform.



Transport for London opened up its data and had few expectations of what new products and services might emerge. As a result of its open-data policy there has been a proliferation of consumer-centric system operations, and system-design products and services that have emerged.

The Australian energy system has led in energy-data platforms with the development of interactive maps to consolidate information on current and future capacity constraints in electricity-network infrastructure across Australia based on network planning-report data.

CONCLUSION

Data release will deliver much greater visibility of the system, offering many opportunities to ensure that we are getting more from less. However, more exciting are the new ideas, different business models and new markets that will emerge from the release of data. There has never been a significant data release in any sector without some surprising and dynamic uses emanating from open data.

Data release could be more transformative than we can imagine today – let it happen soon.

TOMORROW

GET MORE FROM LESS: TACKLING THE REAL INSECURITIES OF SUPPLY

As we move towards a 3D world, electricity system security will need to be reassessed, accommodating a much wider, more complex set of assets and interventions. This will require a sophisticated approach that starts behind the meter and considers time, location, functionality and system needs. It is also crucial that security is seen as a system issue and does not promote inappropriate procurement that might kill off exciting flexibility, system optimisation and data-driven solutions.

As seen in other markets, a decentralised and digital energy system is likely to present a different security profile with changes to national resilience and local infrastructure with differential security profiles depending on location.

OUR RECOMMENDATIONS

- **Redefine security of supply**
  - Adopt new principles shaping security of supply
  - Define accurately service, system, resilience and security risks and their tailored responses
  - Appreciate locational insecurity as an important new dimension
- **Develop a new hierarchy for electricity system security**
  - Flexibility first
  - Fully costed build options
  - Technology and connectivity risks

New principles measuring security of supply

In a flexible, smart-systems world, system security needs to be informed by new realities. These include:

- **Changing consumers' security of service:** security should be redefined around consumer demand, not necessarily the system's needs, as the consumer might not be getting 100% of their energy directly from the system at times of peak demand if, for example, they have a behind-the-meter battery.
- **Whole-system economic assessment**: currently, new capacity and energy service interventions are not fully costed at the plug and do not allocate the full distribution costs into the life-cycle procurement process.
- **Managing peak rather than meeting peak:** new technologies and emerging business models that reduce peak should be encouraged and demand a much greater role.
- **New constraints:** network reinforcement costs and approaches are a growing supply constraint. These need to be part of the security of supply calculations – with drivers to improve productivity, capacity shifting and smart-system management as well as reinforcement.
- **Location, location, location:** locational specificities will become a more important factor in procurement of additional capacity. In the future it will really matter what is connected where.
- **Addressing new risks:** cybersecurity in particular is a new risk to the system. While intentional disruptive risks are high profile, there will be new system risks emerging including data breaches, technology failures and communications resilience.

The last part of energy supplied at peak could be as well provided by non-generation assets and grid-edge distributed interventions to increase system security.

What risk are we aiming to address?

In the procurement process there has not been enough textured diagnosis of what 'Insecurity' we are trying to address. With a more complex and interactive system we need to be more specific and tailored in our response to the insecurity identified. We need to move away from one size fits all.

By more explicitly defining the need around secure service, system functionality, resilient despatch and system security, appropriate and tailored responses can be identified.

SECURE SERVICE:
Consumer provision: 99.99% secure service on demand

- Should be measured at the plug not at the system level
- Primary focus on shifting peak rather than meeting peak
- Greater investment in demand data and analytics
- Focus on engineering outages more than supply shortfalls

SYSTEM FUNCTIONALITY:
Appropriate procurement of appropriate assets

- Accurate diagnosis of nature of the functions required is key
- Appreciation that not all electrons are equal and different system needs require different types of assets
- Non-generation assets should be on a level playing field with generation assets
- System resilience might well improve due to multi-vector optimisation

RESILIENT DESPATCH:
Ensuring the system can deliver the energy produced

- Distribution constraints will be an increasing challenge to the system
- Locational insecurities need to be better calibrated and fully costed
- Recognition that engineering rather than supply of electricity has the greatest impact on security of service

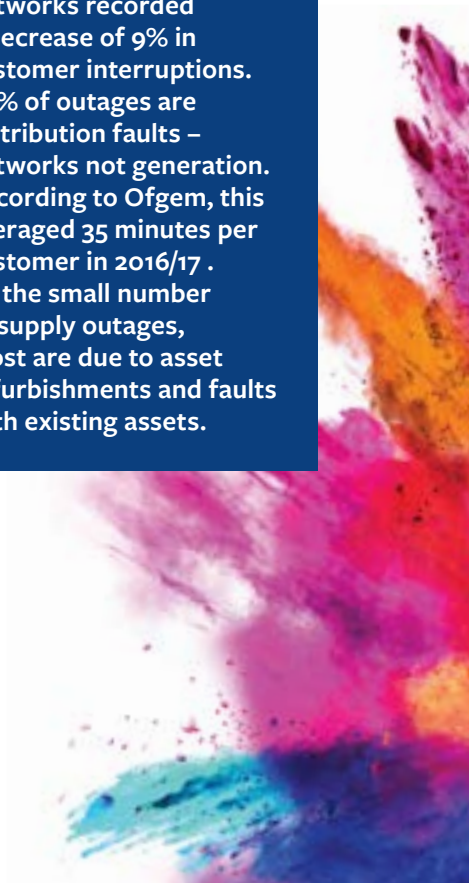
SYSTEM SECURITY:
Technology and connectivity risk

- With increasing connectivity and automated behaviours, communications system resilience and cybersecurity will become a crucial dimension of system and service security
- Recognition that the sector needs to invest in technology skills and capabilities to ensure a secure system

Causes of insecurity to consumers

For too long we have been responding to security of supply concerns with supply assets. However, the security experiences of consumers are different:

- **The transmission network recorded a reliability of 99.999964% during 2016/17. Distribution networks recorded a decrease of 9% in customer interruptions.**
- **99% of outages are distribution faults – networks not generation. According to Ofgem, this averaged 35 minutes per customer in 2016/17 .**
- **Of the small number of supply outages, most are due to asset refurbishments and faults with existing assets.**



> With a more complex and interactive system we need to be more specific and tailored in our response to the insecurity identified. We need to move away from one size fits all

The new security of supply hierarchy

Responses to electricity-system security should be constantly driving greater productivity and efficiencies, delivering the lowest carbon intensity, and employing the most adaptive dynamic solutions. Any procurement of security of supply measures therefore needs to adopt a new hierarchy.

It is expected that our overall resilience and security of supply will be enhanced, not diminished, by distributed assets and services with more localised balancing offering more nuanced approaches to security of service.

No build: procure system-management assets

- **Flexibility first:** peak management should be the priority across the whole system, from consumers through to generators.
- **System visibility:** much greater system visibility will allow for greater calibration of the nature of the intervention, price it accurately, locate it at point of need, and understand its impact on other parts of the system.
- **Distributed interventions:** locational interventions that manage peak or constraints are as important as those that deliver additional national supply.
- **Address wastage and leakage:** place greater pressure to get more from less and improve productivity, reducing network losses, store constrained energy when economic, and drive energy-efficiency measures.

Better build and fully costed procurement

- **Buy what is needed:** supply procurement must recognise that not every supply response is equal, and specify the functionality –
  - Fast response (seconds)
  - Response (minutes)
  - Reserve (hours)
  - Resilience (days)
  - Network
  - Location.
- **Fully costed:** consider the full life-cycle distribution costs at the plug of all increased supply on the system.
- **Varied contracts:** with the dynamic changes in technologies and new responses to security of supply, the system should vary its procurement terms dependent on the nature and capital costs of the asset or service required.

Technology and connectivity risks

- There needs to be a much greater focus on technology resilience, inter-operability risk and cybersecurity.
- Connectivity will be crucial to the management of the electricity system, from the generation asset through to behind the meter.

It is expected that our overall resilience and security of supply will be enhanced, not diminished, by distributed assets and services with more localised balancing

CONCLUSION

The current approach to electricity system security of one size fits all does not reflect the changing architecture of the system. Assessing and procuring for electricity system security now needs much greater texture in terms of assessing the real nature of the risk and the need.

We have more assets at our disposal to address the real insecurity and therefore need a new approach to better procurement, fully costed at the plug.

We propose that there should be an explicit hierarchy to asset procurement by government – flexibility first; no build; less build; better procurement.

CONCLUSION

Moving from a top-down electricity system to one that is driven by decarbonisation, decentralisation and digitisation is not just a 'transition' – it is totally 'transformative'. The dynamic systemic impacts of their interaction shapes a totally new system with new values, new costs, new players, new opportunities and new risks.

Incremental change is not an adequate response to address this new market. It demands new regulatory and policy thinking to ensure that we capture this new value, and do not burden the new with the costs from the past.

Significant change is already impacting the system and our approach to regulation needs to reflect the new market conditions.

The transformational factors

- **Value of energy:** from the value of a 'universal' unit to one of time, location and functionality.
- **Shape of the market:** from a linear 'pass through' set of costs, to a dispersed multi-actor, multi-functioning set of market actors from the plug through to the 'power station'.
- **Impact of technology:** from a physics/engineering-based operating model to one driven by varied data-driven mini, maxi, and mega interventions all with different value and risks.
- **Changing consumer expectations:** from consumers accepting an analogue product with only a vanilla set of choices to the public expecting new types of services tailored around their preferences and lifestyles.

While our ambition is to propose simplification to regulation, the new system is actually more complex and will pose new risks. It is crucial that these new risks are not managed by squeezing out the value of the new opportunities, and that to effectively regulate a more complex market, regulation is both proportionate and focused on where really risk lies.

A proportionate regulatory model will be more likely to succeed if we recognise the abnormalities of the system today, that has made energy unlike normal consumer markets:

- **Lack of choice:** consumers do not have real choice.
- **Comparatively simple business:** electricity does not have a very complex supply chain.
- **Limited competitive pressures:** there are few vertical supply-chain pressures, with coded contracts not normal commercially negotiated relationships.
- **Universal risk allocation:** risk has been equally allocated across the whole sector rather than targeting the specific risks.
- **Complexity and risk lie in the wrong places:** much more of the complexity and risks need to sit within the businesses expecting them to manage these competitively.

While the system might be more complex, stripping down some of these myths and reallocating risk and complexity, and introducing more commercial relationships, will reduce the regulatory 'management' of the system and will allow it to focus on consumer and system risk more specifically.

Our proposals

These might seem radical to the electricity sector but do reflect what is currently being implemented or considered across other regulatory regimes for other sectors across the world.

We propose:

- **Business process re-engineer the market design:** re-engineer the electricity market to fully harness the value of the transformation.
- **Regulate for risk:** adopt risk-based regulation to manage increasing complexity and new risks.
- **Regulate through one essential service regulator:** allow for consumers to benefit from varied, convenient and complex services and products while protecting their interests.
- **Regulate for continual improvement:** adopt more adaptive regulatory mechanisms for consumer-facing businesses to drive up standards and appropriately cost risk.
- **Open up data to optimise the system:** adopt a presumption of open data for energy system data.
- **Redefine security of supply:** recalibrate the new system and supply risks in line with the new realities of the transformed market.

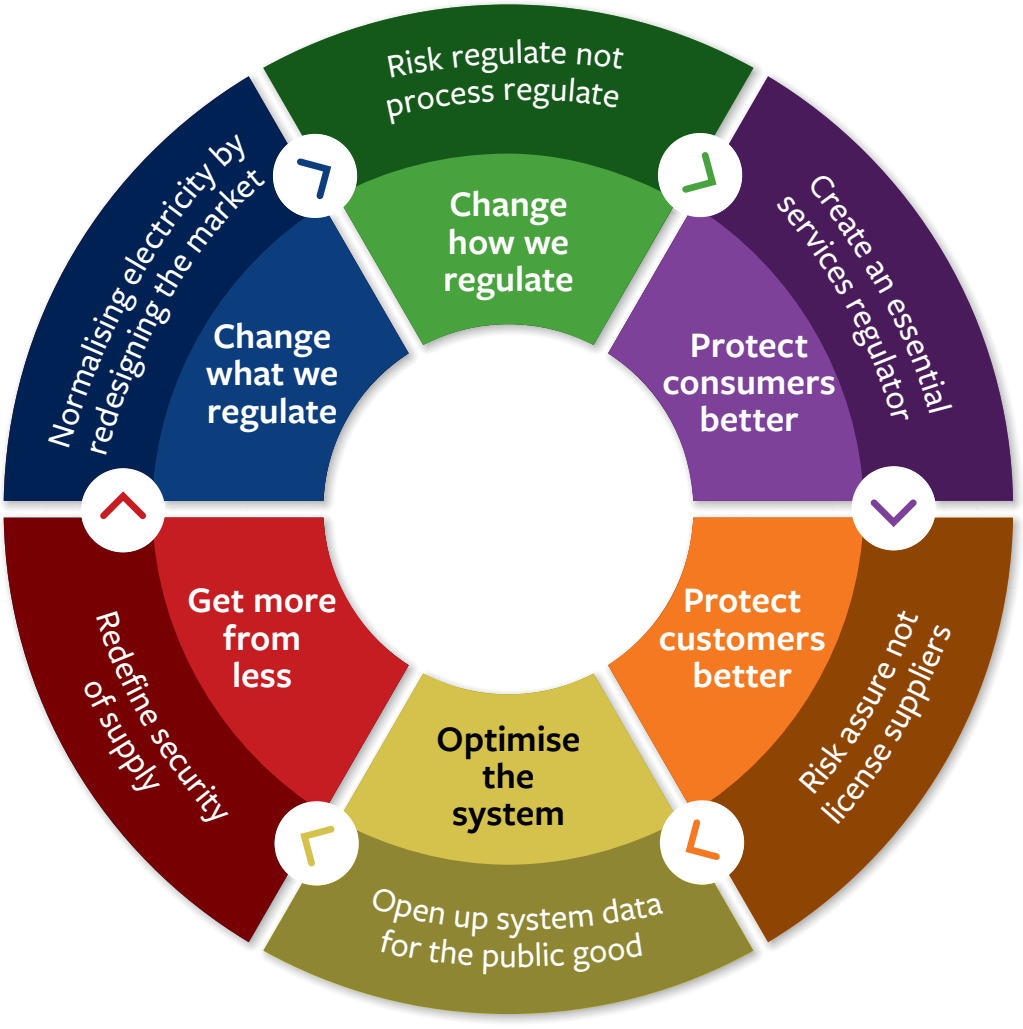
A time of opportunity

There are both domestic and international imperatives that make significant regulatory reform important and time sensitive. The price cap will be reviewed in 2021 and for the cap to be removed there will have to be clear evidence that the regulatory regime, business behaviour and risks to consumers look and feel very different from today. Without explicit and visible change to the sector it will be difficult to gain political consensus for the demise of the price cap.

> **Without explicit and visible change to the sector it will be difficult to gain political consensus for the demise of the price cap**

In addition, there are some very innovative approaches to energy regulation trialing internationally and if the UK is to maintain its status as 'capital of regulation' it is crucial that we design a model fit for the 'transformed' electricity sector.

For the health of the sector and our regulatory pre-eminence we must own the future of energy regulation and embrace a truly 21st-century set of regulatory measures.



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