

# ENERGY UNLOCKED

ENERGY

LEADERS

ACCELERATING PRIVATE SECTOR  
DEMAND FOR NEW ENERGY  
SOLUTIONS

POWERED BY



# LEADERSHIP AT A MOMENT OF ENERGY SYSTEM CHANGE

Driven by new technology advances and the need to curb climate change, consumers are taking a more active role in energy systems. Corporate consumers - the businesses that run our economies - are no exception.

Companies expect to be able to meaningfully drive demand for 'decarbonisation' by making commitments such as those for 100% renewables<sup>1</sup>, Net Zero, or doubling energy productivity<sup>2</sup>. Though the focus on renewables procurement is better documented, without energy efficiency, renewables are costlier and harder to deploy.

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*"ENERGY IS NOT JUST ANOTHER LINE ON THE BALANCE SHEET"*

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With more renewable energy coming onto the grid, the global growth of distributed energy resources, the scale of energy efficiency management programmes and an increase in electricity storage, the 'grid edge' is becoming a more dynamic resource for energy production and demand. Global investment in digital energy - data, analytics and connectivity<sup>3</sup> - is 40% higher than in new gas fired turbines and almost equals the entire Indian electricity economy<sup>4</sup>. These trends are changing the energy system.

This is the time when energy demand - how companies reduce, manage or time-shift their consumption - is having more of an impact than ever on our ability to transition to a zero carbon energy and electricity economy.

Innovators are already on the case. Industry players and new entrants are seeking to create more value-added energy services and offering customers solutions such as data analytics and control systems, new financing models and 'flexibility' services such as storage and demand-side response<sup>5</sup>. Though home consumer products like NEST or Tesla are household names, Johnson Controls or Siemens alongside new commercial and industrial solutions like Autogrid or Stem can increasingly capture value for companies with large energy demand.

It's a welcome indication that there is early but serious demand and supply of technology for decarbonisation. However, as an increasing number of companies make commitments to harness these technologies, measuring their impact on a wider scale becomes more challenging. As companies are translating their energy aspirations into policies and practice, will they get the cost reductions and decarbonisation impacts they expect? And what are the opportunities to enhance their impact in line with business and brand value?

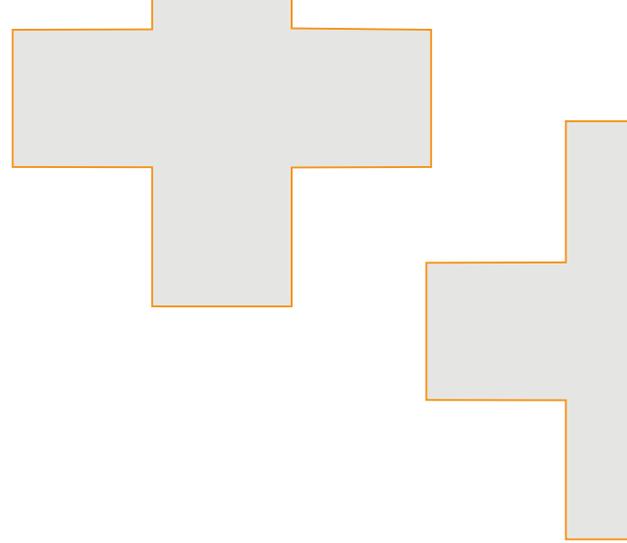
1. RE100 campaign, over 100 major global brands committed <https://www.theclimategroup.org/RE100>

2. EP100 campaign <https://www.theclimategroup.org/project/ep100>

3. See <http://www.iea.org/digital/> for more on the definition of digital energy

4. Digitalization and Energy, International Energy Agency, 2017

5. EPIC100, over 100+ companies offering energy productivity solutions <http://epic.energyunlocked.org>



## NEW FINDINGS

Our analysis highlights the scale of corporate action on energy demand, but also the complexity in linking demand-side efficiency to carbon impacts.

In the section ‘The Journey So Far’, we explore what the data across thousands of company level projects shows, that efficiency is currently the majority of reported actions (65%) but has undersized carbon impact (23%). And as we move into a more renewable world, efficiency is not being used as effectively as a dynamic resource offering much needed flexibility for a rapidly electrifying energy system.

In the next section “Increasing Impact” we then explore how companies can increase decarbonisation impact based on what we have learned from the data, interviews and in-depth ‘discovery’ processes for companies.

We found that more can be done to ensure companies are delivering both low carbon commitments that benefit their brand and business, particularly in light of the growing complexities in the electricity grid system as highlighted in the introduction. We see a greater need for companies to be more aware of their energy load on the grid and efficiency impacts alongside dedicating resources to procuring renewable energy.

Finally, we conclude with key opportunities and recommendations for the leadership challenge ahead. To increase impact, we recommend that companies should consider setting and reporting on energy productivity targets, looking for alignment with other corporate buyers, and engaging in more ‘open’ processes of innovation that bring in rapidly evolving market intelligence.

### Methodology

We researched companies’ energy aspirations and challenges across sectors by:

- ① Analysing responses to the CDP questionnaire from the 7,000 companies who said they were using energy efficiency as a carbon abatement measure.
- ② Analysing CDP data to identify the top 100 companies leading on energy efficiency.
- ③ Conducting in-depth interviews with 25 companies about their energy strategy, and desk research of company energy goals.
- ④ Managing ‘Request for Discovery’ processes with companies to understand their energy needs and where appropriate introduce them to innovative SMEs or startups to begin taking action on implementing solutions.

# THE JOURNEY SO FAR

Operational efficiency and excellence is most obvious place for companies to take action. By addressing the ‘first fuel’ of energy efficiency, companies can ensure they procure the right volumes of (renewable) energy, and the wider business benefits from lower costs and increased productivity. While it is true that efficiency projects are viewed as a key tool for carbon action, we have found that with a few exceptions, the advantages of focusing on efficiency first are not being realised, and the outcomes of their projects are not adding up to expected carbon abatement benefits.

Analysis of company responses to CDP's 2016 climate change questionnaire revealed energy efficiency projects to be the most popular emissions reduction activities, accounting for 65% of the nearly 7,000 responses. However, despite dominating in terms of volume of activities, just 23% of the total reported impact (in terms of tonnes of CO2e savings) is due to energy efficiency.

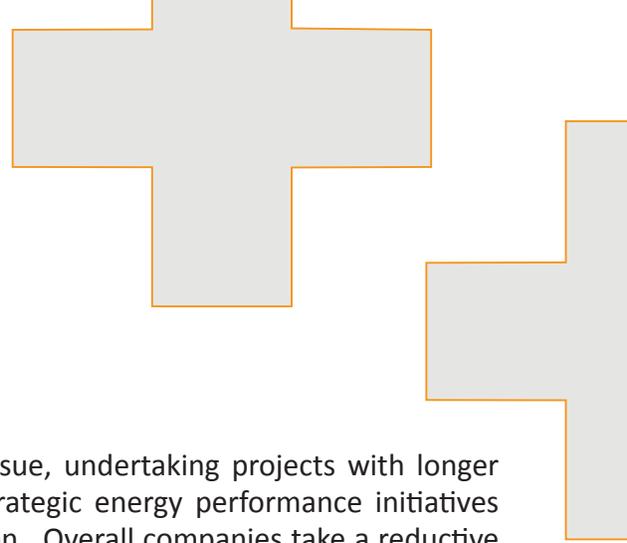
65% of reported activities are energy efficiency projects

Analysis of the amounts invested by companies in energy efficiency indicates a median investment of just over \$50,000, and the mode (most common) amount invested is \$0. Keeping in mind that many of these companies are among the largest in the world, these figures appear very low. While there are some excellent examples of long-term energy efficiency investment to be found among CDP responses, there is good evidence that the majority are simply paying for excessive energy consumption rather than investing in measures to reduce it. And much of the investment that is reported is very short-term in nature. In fact, generally respondents say that most of their emissions reduction projects have short payback periods; most projects had roughly a 1 year payback with almost all under ten years.

23% of total carbon impact is due to energy efficiency

There is an apparent prevailing view among companies that energy is purely an operational cost, to be tackled through operational solutions, rather than an issue of strategic importance that has impacts beyond the system boundary of the organisation. Across CDP data we analysed, the approximate mean energy spend is just 8% of operational spend across all sectors. Taking a subset of the best performing 100 companies in the CDP database based on the carbon impact of their energy conservation measures, 90% of them were voluntary measures and the materials sector, which has a higher-than-average operational energy spend, made up 35% of the total.

\$0 = the most common amount invested in energy efficiency projects



While a few companies do take a long-term perspective on the issue, undertaking projects with longer payback periods and expected lifetimes, even these long-term, strategic energy performance initiatives are not a large proportion of companies' emissions abatement action. Overall companies take a reductive view of energy demand management, with energy efficiency initiatives subject to tight hurdle rates and constrained decision-making. Energy performance is not front of mind when a company makes major corporate decisions, such as contracting or taking on new property leases.

The way many businesses organise their operations limits their visibility of energy as a strategic issue and their ability to manage it as such. For example if buildings are leased rather than owned, control over energy costs may be very low, being wrapped into a larger property or facilities contract. Where manufacturing is outsourced and no supply chain initiatives are in place, the global corporate influence over these supply chain energy costs and emissions may be greatly reduced. Programmes such as CDP's Supply Chain initiative are helping companies identify and act on excessive energy use in their supply chains. But in general there appears still to be systemic under-investment in the energy productivity of operations and supply chains, at all levels of energy intensity, compared to the investment level needed to align to a 1.5 or 2 degree future.

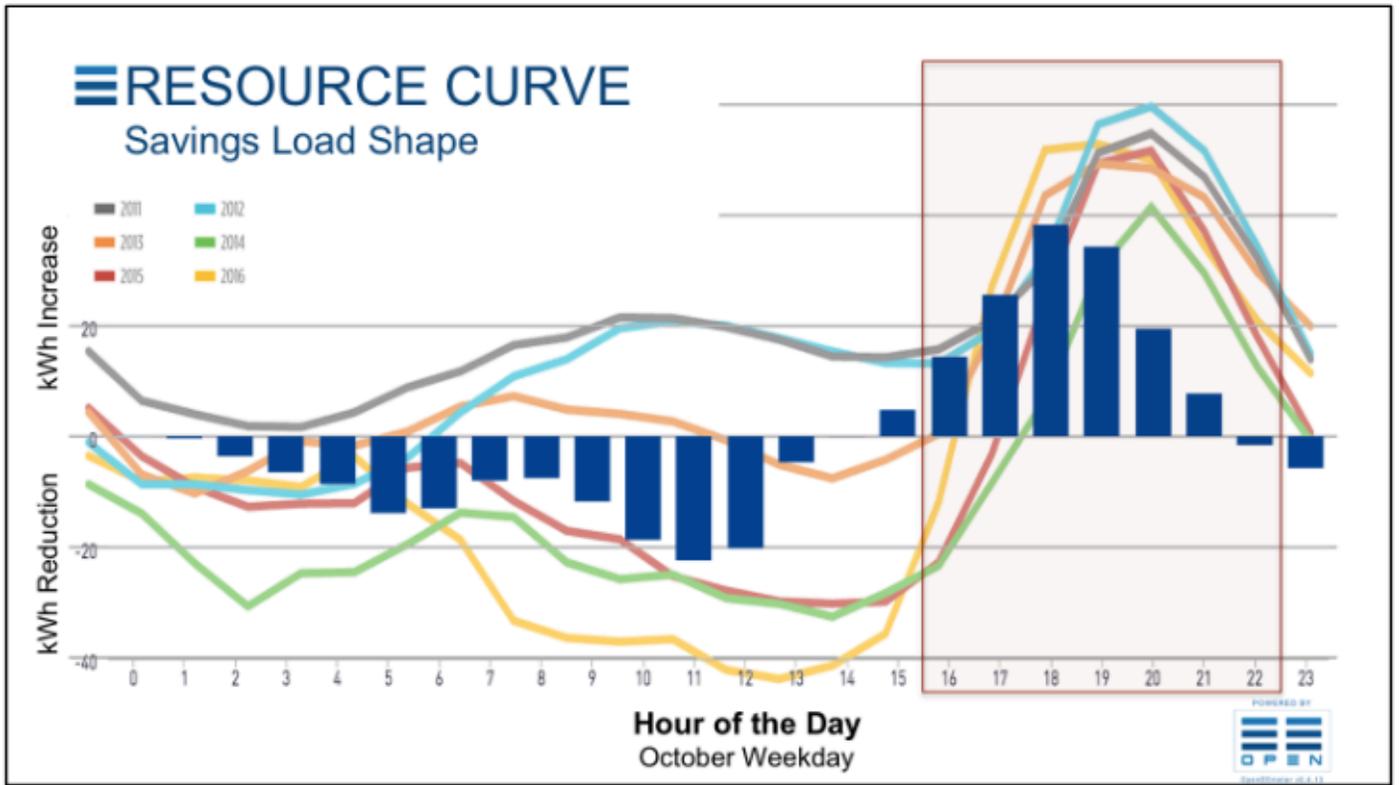
## **EFFICIENCY IN MARKETS WHERE RENEWABLES ARE A LARGER SHARE OF TOTAL CAPACITY**

As more data on efficiency on projects becomes available particularly through digital energy platforms, we will also have new aggregate data on how efficiency may impact on the electricity grid's decarbonisation<sup>6</sup>. The surprising contradiction emerging in the electricity markets with high penetration of renewable energy is that decarbonisation is not a straightforward result of more renewables<sup>7</sup>. What we have long called 'efficiency' is therefore more than ever a key part of the decarbonisation agenda. But we will need to see a shift toward demand side control of 'flexibility' rather than absolute efficiency, where the new value is efficiency at the right time, in the right place.

The duck curve is a common graphic representation of electricity demand or 'load shape' showing that higher levels of renewable generation on the grid during the day keep overall load low (homes or offices can power themselves) and higher peak load in mid to late evening (when the sun isn't shining). The figure below shows analysis of 4,000 retrofit projects in California. Individually projects deliver monthly savings, but in aggregate, they still show increasing load during the evening peak. The backup capacity to meet demand at those times is often when the dirtiest fuels, rather than renewables, are being utilised. Therefore, efficiency does not necessarily change load shape, and may not necessarily support increased decarbonisation, unless load shape is considered in project design.

6. OpenEE, Energy Efficiency is a DER resource, 2017 <https://pro.ispringcloud.com/acc/hYGBYkYSMDU4/s/9058-T1wag-EPhNJ-ccmcu>  
7. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/04/Managing-Electricity-Decarbonisation-OIES-Energy-Insight.pdf>

Figure 1: Resource curve of efficiency projects and California 'duck curve'

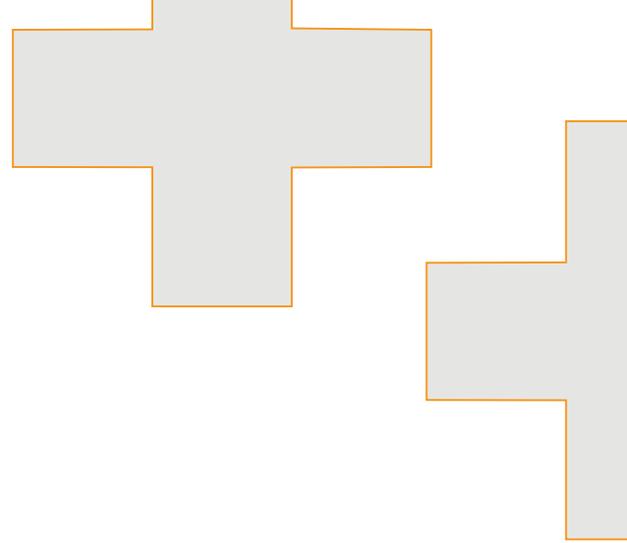


Source: OpenEE, Energy Efficiency is a DER Resource, 2017<sup>8</sup>

Whilst today, not all markets have the same challenges as California (or similar markets that have a higher than average penetration of renewables), as electrification of transport and heat continues globally we will increasingly see that efficiency will be required as a distributed energy resource for grid stability. In that role, corporate buyers benefit because their efficiency can be turned into a revenue stream from grid operators.

We found that most of the energy-use-related emissions abatement activity reported to CDP does not yet incorporate a time-sensitive, 'flexible' element, consisting mostly of traditional energy efficiency measures. But our wider research found that companies are increasingly interested in these opportunities to provide 'flexibility' - essentially efficiency-on-demand, which we explore further in the next section.

8. <https://pro.ispringcloud.com/acc/hYGBYkY5MDU4/s/9058-T1wag-EPhNJ-ccmccu>



# INCREASING IMPACT

## THE OPPORTUNITY

Given the imperative to meet 1.5 - 2 degree international climate change targets, the urgency to better utilise corporate energy demand as a resource for decarbonisation is greater than ever. If big-brand companies such as those part of the RE100 campaign are achieving their renewable energy targets by taking on PPA deals to cover their entire current energy use, they may be paying too much to meet their renewable energy commitment. Reducing and managing energy use first makes the commitment more cost effective, in turn creating greater demand and reducing costs for energy efficiency and grid edge solutions.

As companies organise their own operations to deliver energy decarbonisation, those that have high operational costs related to energy are the ones most likely to take early and significant action. Even where this is the case, it is not easy to coordinate internal teams across departments to overcome working in silos. For instance in a top technology company, we found that teams were working on one commitment at a time - missing out on key opportunities to integrate efficiency, data and renewable procurement. In other cases, information is held disparate reports or formats, in multiple places in a company with limited ties to business key performance indicators. For other companies we find they are sensibly setting commitments and goals based on areas in the business that has the highest carbon impact but have yet to consider the grid implications, as discussed in the previous section.

For the majority of companies in all sectors for which energy is not a big portion of their operating budgets, efficiency actions need to be aggregated in some way across companies and / or sectors, either voluntarily for instance through 'buyers clubs' or driven by regulation, financial products or other market offers. In our interviews, most companies did not see external regulatory or policy drivers as a major incentive to solve energy needs in a company.

Reporting to investors such as through the CDP questionnaire was seen as an important driver of action, and this aggregation of data is providing unique insights for sector-wide optimisation. To report, companies gather disparate information across multiple geographies and departments, check progress toward their internal key performance indicators and align external commitments with internal business processes. While they are doing this voluntarily, the common format allows other advocates or industry players to identify In short, trends, provide insights by sector or geography, and identify new areas for improvement that go beyond what each company can do individually.

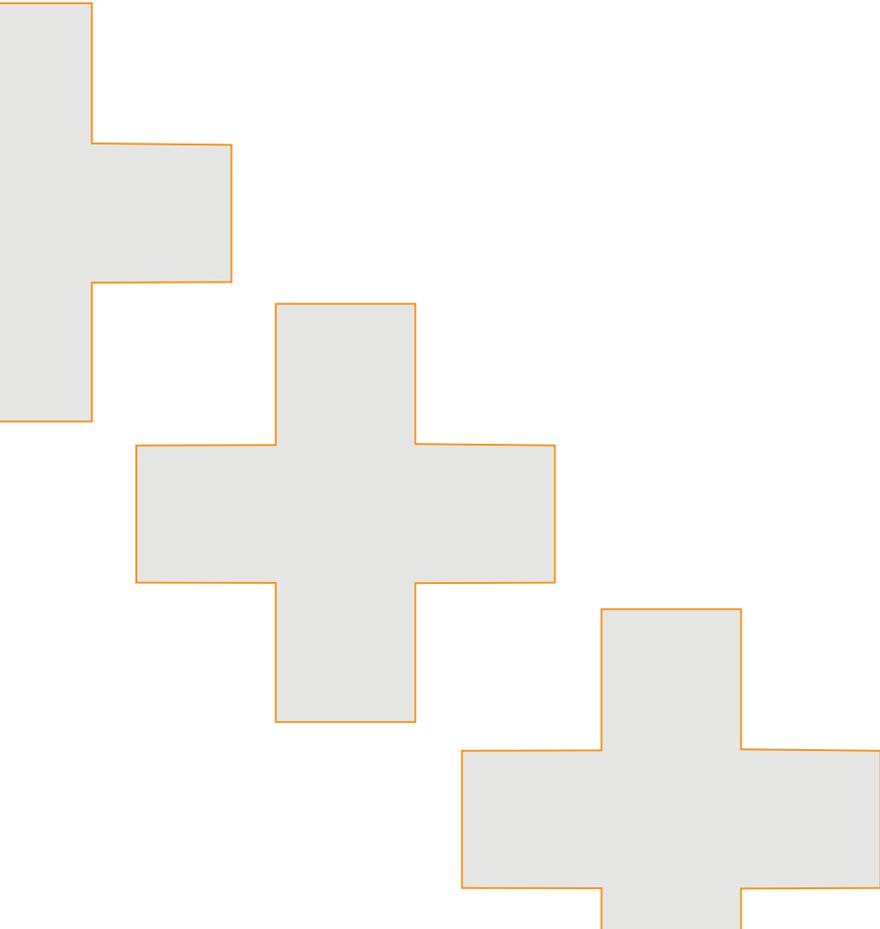
"The work we are doing isn't government pressured. It isn't only about cost. It is about sustainability and continuity, and if you are operationally efficient then it is also more energy efficient." *Large telecommunications company*

Well designed environmental reporting schemes create the enabling conditions for better energy productivity. Other opportunities for aggregation of company load within or across sectors will come from market-based advances, such as standard-setting, as we have seen with the LED lighting revolution. As LEDs are widely adopted, they contribute to efficiency across the economy.

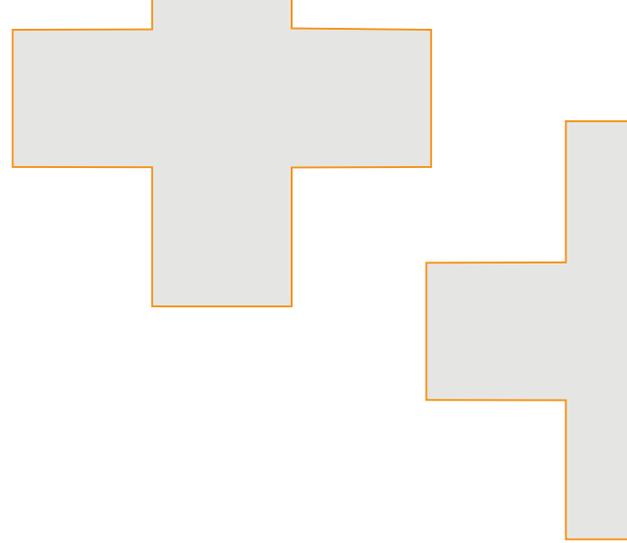
### WHERE DO WE EXPECT THIS NEXT 'AGGREGATED' MARKET OPPORTUNITY?

In our **Requests for Discovery** process undertaken for companies looking for early insights into market opportunities, companies indicated their increasing interest in market intelligence in new demand side innovation such as predictive analytics, demand response, blockchain, battery storage, machine learning, smart home, advanced distributed energy systems and EV management solutions, beyond the business as usual efficiency technologies.

The driver behind this need, particularly for energy management data and predictive analytics, was to give companies greater insight into how their business could achieve operational efficiencies beyond efficiency-as-usual and perhaps integrate new revenue opportunities such as by being paid for grid services. For more advanced solutions such as EV management and machine learning, their focus was on wider integration with existing infrastructure.



“The biggest energy productivity challenge is that the infrastructure around the site at grid level or national level isn’t fit for purpose” --  
*Large manufacturer*



## VALUE AT STAKE

### COMPETITIVENESS THROUGH ENERGY PRODUCTIVITY

Already committed to doubling energy productivity, Mahindra & Mahindra have saved 25% of energy use per vehicle they produce compared to 5 years ago, by upgrading to efficient lighting and motor systems, re-engineering their business processes and enhancing heat recovery<sup>9</sup>.

Where companies do have internal expertise, it can be applied in ways that in turn strengthen their core business. Johnson Controls benefits from having its core business focus on energy optimisation, and by applying that knowledge to its own operations, it is already improving its energy productivity by two-thirds since 2002, the equivalent in savings of finding another \$1 billion dollar new business opportunity<sup>10</sup>.

Some companies such as IKEA, Apple and Walmart are exploring how to influence their supply chains to procure renewable energy and improve energy productivity. This is an example of companies going beyond their own operations to taking a system view. These companies recognise that it is their responsibility to minimise the climate impacts of the goods and services supporting their businesses, and use their influence as key customers to encourage the uptake of energy productivity enhancing measures by suppliers<sup>11</sup>. For example, companies participating in CDP's Supply Chain Program<sup>12</sup> are benefiting from fresh visibility of climate risks in their supply chain, and improved performance from key suppliers who are given access to energy efficiency solutions through the programme.

Local policy and regulation regimes are a major driver of action on energy consumption for smaller, geographically constrained organisations<sup>13</sup>. But for the large multinational companies surveyed, most agreed that policy was only a minor driver, and three interviewees cited carbon price as a primary incentive for accelerating internal action, with companies beginning to use voluntary internal carbon pricing. Outside of carbon pricing returns, only eight of the companies interviewed had a research and development budget dedicated to energy; Teams were allocated funds to work with start-ups or for staff to explore new ideas.

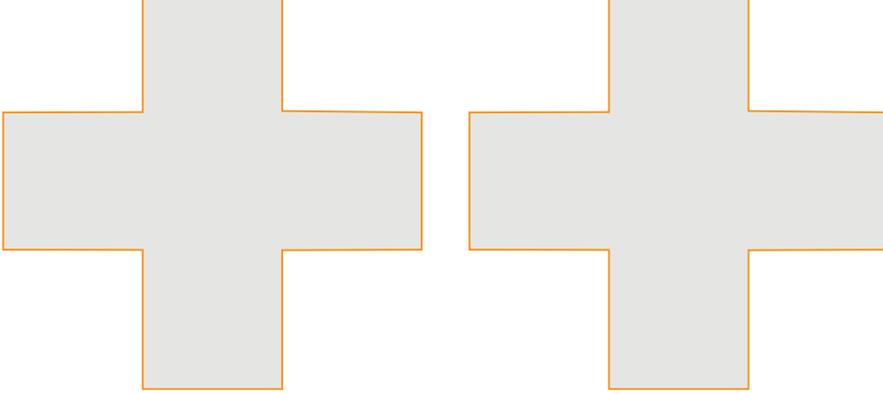
9. <https://www.theclimategroup.org/news/energy-productivity-dominant-form-mitigation-corporation-can-contribute-mahindra-group>

10. <https://www.theclimategroup.org/news/energy-productivity-improvements-can-help-deliver-great-return-investment-any-business>

11. <https://www.theclimategroup.org/news/going-beyond-how-re100-members-are-going-beyond-their-own-operations-engage-suppliers-renewable>

12. <https://www.cdp.net/en/supply-chain>

13. <http://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report%20EEFIG%20v%209.1%2024022015%20clean%20FINAL%20sent.pdf>



## **BETTER PRODUCTS AND SERVICES FOR CUSTOMERS**

Companies from the technology and telecommunications sectors, managing large networks and deploying Internet of Things (IoT) products are also showing interest in advanced solutions for their customers. We see these network operators investigating their forward supply chain to see how customers will use their network for efficiency purposes. Through our interviews, we learned that this is driven by need to have more dynamic network capabilities and utilisation for energy efficiency.

Companies like BT or AT&T have explicitly set targets for the ‘net good’ their products can achieve with their customers, and measure the effects through corporate commitments. For instance, AT&T Internet of Things (IoT) Solutions was deployed alongside industrial.io’s energy management analytics to monitor food and energy wastage for a frozen food cold chain company who also happen to be AT&T’s customer. Their combined solution achieved a 40% reduction in food waste and 20% in energy savings. To put this into context, about 30% of the US food supply passes through these facilities. Overall, this type of customer impact contributes to AT&T’s 10x Carbon Reduction goal.

An international Indian IT services company found they are ‘increasingly seeing that operational efficiency projects are closely aligned to sustainability objectives’ particularly from the utilities, oil and gas industries that are seeking digital solutions such as custom design artificial intelligence (AI), blockchain and energy resource management solutions.

Covestro, committed to doubling energy productivity, is creating new business opportunities through creating lighter and less energy-intensive materials for use in a range of environmental applications such as vehicles or aircraft<sup>14</sup>. In addition, a separate large materials company we interviewed is in the process of identifying lucrative markets for more efficient technologies in electrification of process, decarbonised heat and storage. In this case, the justification to shift entire R&D units to investigate these areas is proving challenging internally, as they are still profiting from a reliable product that will be needed less as increasing numbers of EV’s are deployed. As a result they are looking to find external opportunities to collaborate and jointly work together with the startup community to help improve their products for customers, with the aim of generating value in the future.

14. <http://press.covestro.com/news.nsf/id/covestro-wants-to-halve-energy-use-by-2030>

## NEW BUSINESS MODEL OPPORTUNITIES

In the energy utility segment, we see grid-edge technologies with digital capabilities disrupting the traditional utility business model. Not surprisingly, these utilities are embracing innovation to ensure their competitive advantage in the market either by running innovation programmes to meet their business needs, such as Centrica Innovation, EDP Open Innovation, Enel for Start-Ups or taking part in acceleration programmes such as Free Electrons<sup>15</sup> or acquiring new businesses.

Recently, we are seeing corporate mergers and acquisition activity demonstrating the strategic value of distributed energy management with 'flexible' digital assets in terms of meaningful dollars and cents. Itron's \$830 million acquisition of Silver Spring Networks and \$100M acquisition of Comverge, Centrica buying power management firm REstore for €70 million, and Enel's recent acquisitions of eMotorWerks, EnerNoc, and Demand Energy are prime examples. And 'flexible' demand is seen as a key enabler of renewables. The International Energy Agency again predicts that flexible demand including storage is worth \$270 billion globally. As an international energy utility said, 'the commodity of energy is free or close to free and it is about how you manage your consumption and data and insights that makes being in the energy business worthwhile'.

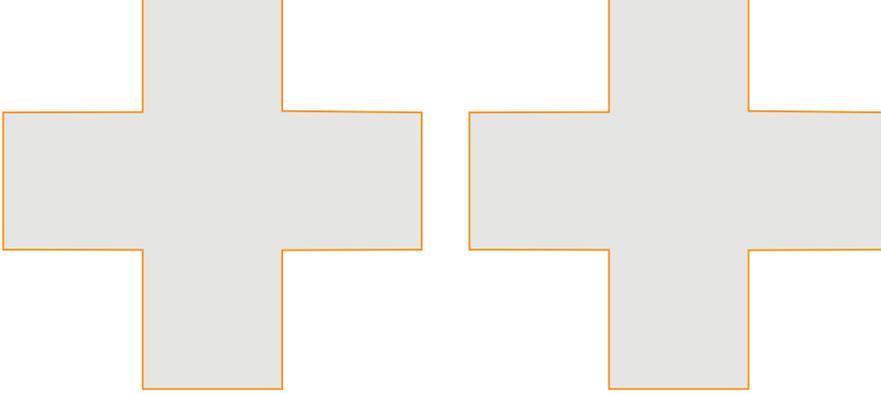
The area least reported is how core business teams engage external expertise. Of the twenty-five companies interviewed, only a quarter were either running or involved with innovation programmes and competitions to help find and understand new energy solutions to meet their needs. Companies such as Facebook work with Open Compute on their calls for innovation on data centre energy efficiency - which is a common challenge for a range of technology companies that were interviewed. In the energy segment, utilities such as Centrica, EDP, Enel, ESB, E.On are running a range of innovation programmes to find new solutions for their customers as demand is rapidly increasing. We also found that less than half the companies were communicating about their needs externally at all, despite the urgency to rapidly implement action on decarbonisation.

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"Flexible demand including storage is worth \$270 billion globally" *IEA 2017*

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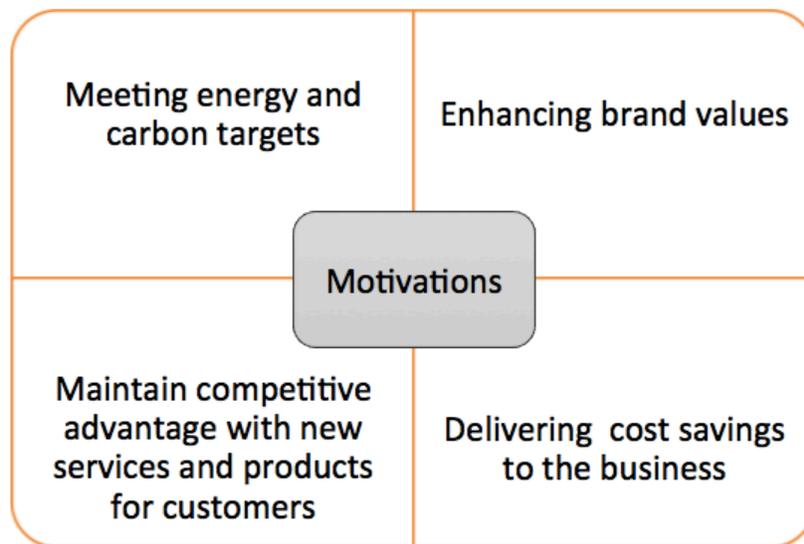
15. <http://freeelectrons.co/>



## PATHWAY TO PRODUCTIVITY

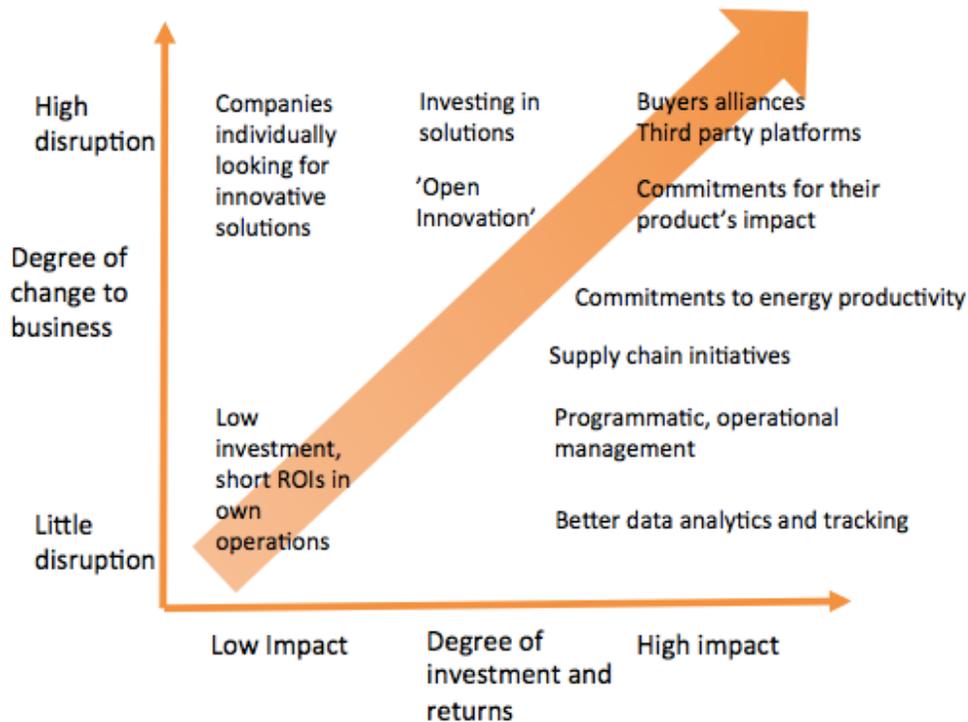
For some companies, controlling energy costs is critical, and failure to deploy cutting-edge solutions would risk making them uncompetitive. But for other companies, where operations are less energy intensive, it is harder to justify using internal resources to boost energy productivity. However, our research found that companies have four motivations, beyond cost, for taking action on energy and decarbonisation, highlighted below.

Figure 2: Motivating factors



We found that companies are interested in new energy solutions, products, services and business models because they are motivated by brand as well as business value. Considering all these factors allows a company to develop approaches all along the axis of Figure 3 to increase impact and even 'disrupt' their own business by capturing new value, as we have discussed in the previous examples.

Figure 3: Opportunities for companies to increase 'disruptive' impact for decarbonisation



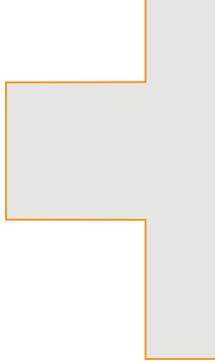
Source: Own analysis, BNEF

Companies have three main levers to use to their advantage in sourcing innovation to meet their energy requirements.

1. Procurement functions making energy buying decisions
2. Commitment setting to influence business units internally and to display leadership externally plus adoption of high level metrics that drive action (ie: energy productivity)
3. Innovation functions making decisions on new and better products and services to deliver targets

The role of sustainability team within companies is often to provide oversight across these processes and to report outcomes to external stakeholders, for example, through annual corporate reports and the CDP questionnaire.

16. <https://about.bnef.com/blog/market-digitalization-energy-sector-grow-64bn-2025/>



## PROCUREMENT FUNCTIONS MAKING ENERGY BUYING DECISIONS

Most of the data we gathered relates to how companies can identify and then procure better efficiency projects. The majority of our interviewees rely on internal expertise.

Companies do have options to go look for market intelligence outside their own teams either through standard procurement or more open processes where they make their challenges known. A platform like 2 Degrees' Innovation Gateway<sup>17</sup> helps companies find sustainability best practices outside their organisation. Though there are notable exceptions, we found companies are just beginning to link energy demand and their role as procurement engines to achieve their energy ambitions, and ultimately, impact on energy systems.

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*“Energy productivity is the outcome of projects, we don’t talk about it internally”*

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*“Energy productivity doesn’t add enough incremental value”*

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*“We don’t use the term energy productivity because it is not customer friendly”*

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### **COMMITMENT SETTING TO INFLUENCE BUSINESS UNITS INTERNALLY AND TO DISPLAY LEADERSHIP EXTERNALLY PLUS ADOPTION OF HIGH LEVEL METRICS THAT DRIVE ACTION (IE: ENERGY PRODUCTIVITY)**

One opportunity to drive integration across departments for core business benefit is to measure ‘Energy Productivity’ or value of economic benefit per unit of energy consumed. Energy productivity is gaining currency as a high level metric that links energy to core business, through the efforts of the Climate Group’s EP100 initiative, among others. Aligning business interests with their energy impact is the biggest advantage of energy productivity metrics, allowing energy savings to be viewed in the context of core business outcomes.

Companies already making commitments are seeing substantial returns, as we noted above. But this is early days. At present it is not as well understood by companies as other key metrics such as dollars invested in energy innovation, energy efficiency or energy intensity<sup>18</sup>. We found that companies had little knowledge of framing’s benefits nor did they directly see productivity’s link to decarbonisation. Because delivering value for customers is a huge driver for a business, a number of commitments have end customer behaviour integrated, such as those made by AT&T and BT mentioned in the section above.

17. <http://innovationgateway.com/>

18. A majority of survey respondents are not using ‘energy productivity’ as a catch-all term

## INNOVATION FUNCTIONS MAKING DECISIONS ON NEW AND BETTER PRODUCTS AND SERVICES TO DELIVER TARGETS

Some of the innovation functions of cross-company programmes such as buyer's clubs like we have seen with the Renewable Energy Buyers Club<sup>19</sup> can help set up companies for greater economies of scale and impact than if they sought out innovation on their own. Their group buying power attracts innovation. It helps overcome lack of in-house expertise, and lowers the risk of trialing new solutions, thereby supporting nascent industries to scale.

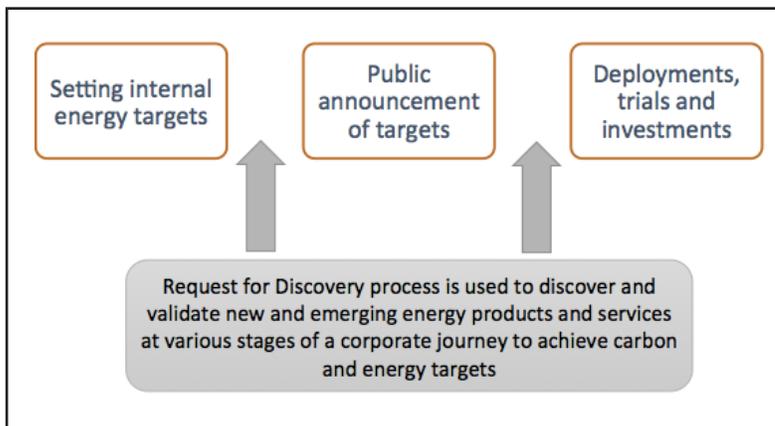
For companies to remain competitive across all sectors they need to keep pace with energy innovation if they expect to avoid higher energy costs, contribute to decarbonisation and be ready for the shifting energy landscape with the expected rise of EV's, battery storage and a host of digital disruptions coming to the industry. Partnering with external organisations that are coalescing companies to focus on discovering, trialling and buying these new innovative products and services to meet their energy needs will create a peer to peer environment where companies can learn from each other and achieve their results faster.

This was our intention with Energy Unlocked's Energy Productivity Innovation Challenge (EPIC) platform, and we found that companies were most interested in meeting solution providers at key moments in their commitment setting and implementation journey. Our "Request for Discovery" process uncovered where companies were interested in solutions, but didn't know who else might share their problem, and in some cases, did not yet have a good definition of their own challenge.

Here, we've outlined the three stages at which companies were most interested in a 'Request for Discovery' process:

- Those who were just about to announce their commitments and needed to validate emerging solutions existence in the market
- Those well on the pathway of achieving their commitments and needed solutions to push them 'over the edge'
- Those who had an innovation programme that linked to internal business units and were looking for emerging companies to take part.

**Figure 4: Stages of company journey that align with Request for Discovery process**



19. REBA, Renewable Energy Buyers Club <http://rebuyers.org/>

# CONCLUSIONS

We assume that the private sector, accounting for around half of the world's energy consumption<sup>20</sup>, can make a rapid contribution to decarbonisation. Companies are a key driver of energy impact through their own 'demand', or what energy they procure from the market for their operations, as well as the impact their products and services have when used by customers. The private sector is the home of significant technical and commercial innovation in energy management, and companies approach this by relying on internal or external expertise, and often employ a combination of both.

Responses to CDP's questionnaire indicate widespread activity by companies in driving emissions reductions through better use of energy. Most companies report the use of energy conservation measures to curb their consumption, but it is difficult to get a sense of the pace of innovation from these responses, or to discover how companies stimulate innovation. Just 4 out of the top 100 energy efficiency companies (based on their carbon impact) seemed to report 'innovative' activities, but this could be because of the wording of the question, or that they do not internally link this activity to delivering carbon commitments. Our qualitative research showed a range of disparate actions by companies driving innovation through their investments, or through competitions or trials of energy management products and services.

The approaches companies are taking today are necessary but not sufficient to ensure they get the outcomes they are looking for: low cost, low carbon services that deliver increased competitiveness, and have impact on the decarbonisation of the energy systems they will ultimately procure energy from.

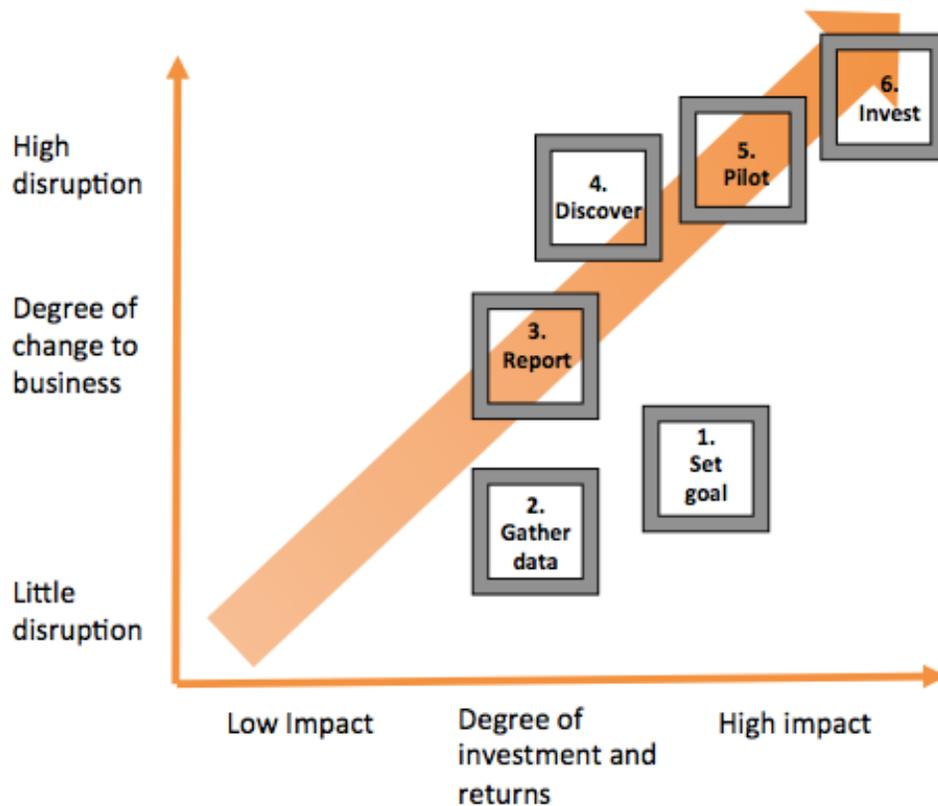
20. <http://there100.org/re100>

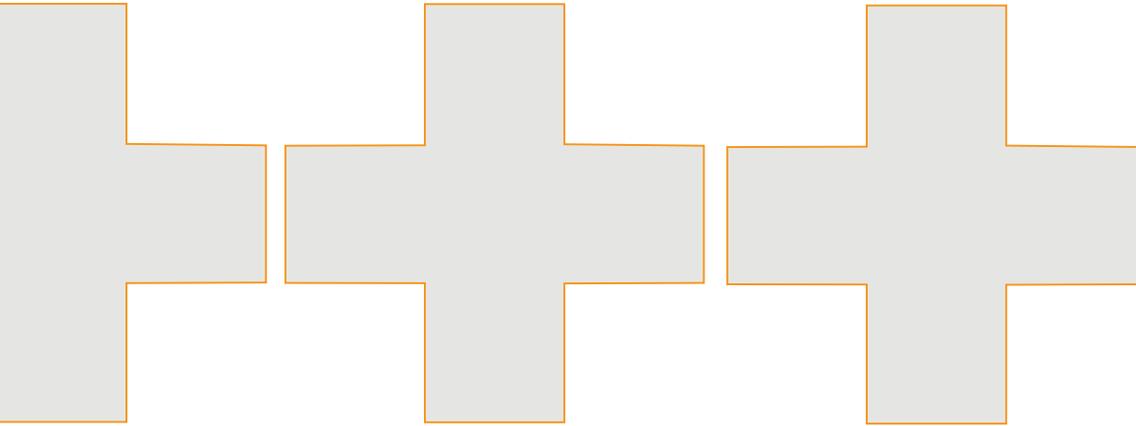
## RECOMMENDATIONS

In our previous report, EPIC100, we highlighted system wide energy productivity recommendations for companies, governments, finance sectors that address how different stakeholders can support aggregation and scale up of new, energy productivity solutions<sup>21</sup>.

Based on our 2017 research, we believe some key actions are needed to raise energy productivity on the agenda for companies at any stage of their journey. In Figure 5, we describe a continuum of six actions that can be deployed by companies to move towards and achieve high disruption and decarbonisation impact.

**Figure 5: Six recommended actions companies take to increase decarbonisation impact**





## 1. Set Goal

Setting a stretch target like doubling energy productivity creates the imperative for ambitious, cross-departmental action. A public commitment and visible progress towards a target is a key way to not only gain internal buy-in but also external recognition. The EP100 campaign is facilitating this by setting objectives and helping companies develop pathways for boosting their energy productivity. It can and will do more peer education and create a movement amongst energy leaders by highlighting success stories from brands and energy intensive businesses. Companies can align their focus by initiating an energy lead to sit across different teams internally.

## 2. Gather Data

Ensure you are collecting and reporting data that will drive action. Collecting data on energy use and the factors that drive it will encourage companies to proactively manage these factors across departments in order to demonstrate year-on-year progress as well as allow the company to iterate their strategy and create future stretch targets. In turn this data provides a vital barometer of individual, sectoral and global progress towards improved energy productivity and provide content for reporting frameworks such as CDP.

### 3. Report

Make data available through CDP, other platforms and corporate reports so investors and stakeholders can follow your energy productivity journey. Celebrate success and be open about challenges. Recognising that CDP and similar environmental reporting frameworks are a key driver of corporate action on emissions, we ensure CDP is asking questions that drive companies to evaluate and improve their energy strategies and therefore energy productivity.

### 4. Discover and Collaborate

Work with others, even competitors, to bring scale to the market for energy technologies. Bring in expertise from beyond your company's boundaries to imagine new ways of working, and work between siloes. Independent solutions platforms such as Energy Unlocked's EPIC can improve the early stage discovery process or provide a forum for information exchange between energy productivity 'champions' within companies, and provide a route to market for solution providers. We have seen that many responsible companies still lack internal expertise to make strategic energy decisions. Platforms like EPIC that gather market intelligence about opportunities currently available from a rising tide of new entrants bringing new technologies in storage, analytics and flexibility to the market can increase visibility of corporate options that are anywhere from low cost to 'disruptive' in their ability to transform their core businesses.

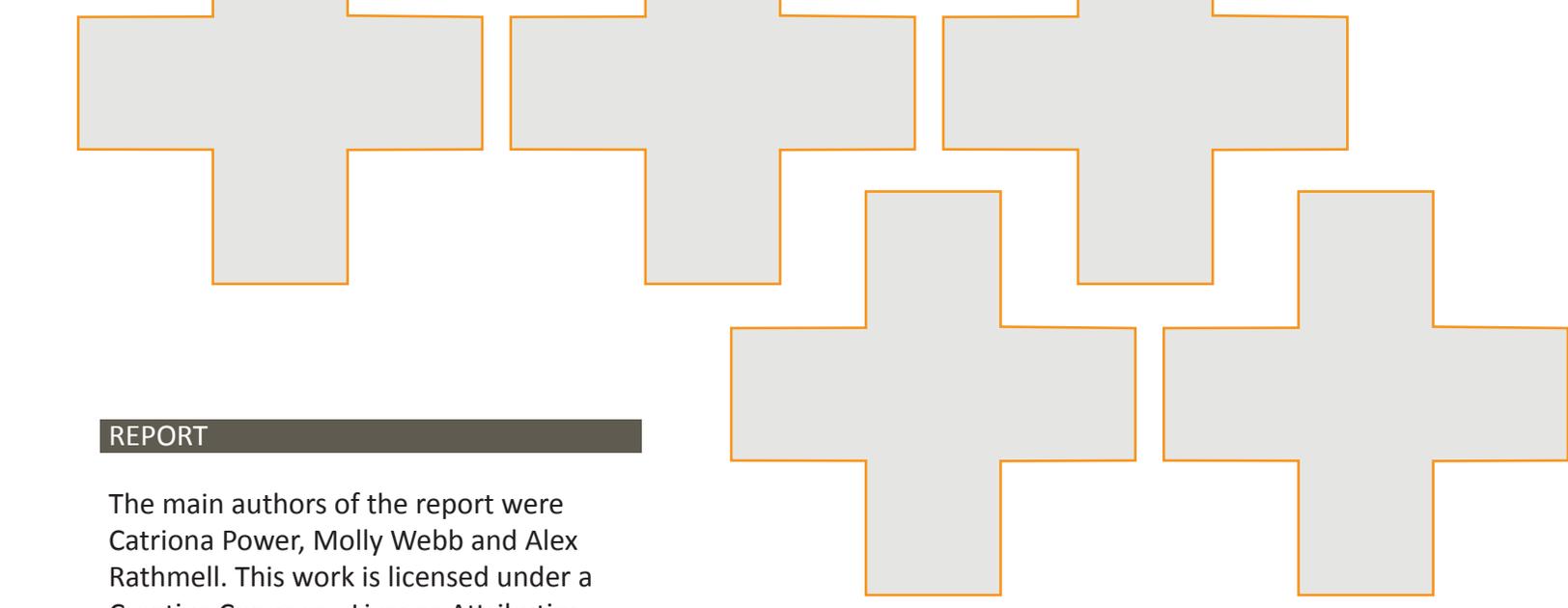
### 5. Build Confidence and Pilot

Try new technologies and new service models, integrating thorough evaluation of performance and share this publicly where possible. Given the fact that increasing digitisation and distribution of energy resources is opening up a largely untapped opportunity to better utilise our electricity systems at the grid edge, particularly as we electrify entire industries such as transport, companies can play a larger role in the most cost-effective societal transition to renewables by thinking of their efficiency as a resource and building confidence in the new solutions for their own business, and others.

## 6. Embrace and Invest

If a solution is working for you, now is the time to invest at scale either on an individually or in aggregate. Ways of aggregating company buying power or actions, either through market-based instruments or policy, are still needed to keep companies 'disrupting' themselves. For instance, the ongoing collaborative work of the Investor Confidence Project in defining best practice in energy efficiency will give companies the confidence to invest beyond today's 'low hanging fruit' initiatives in more impactful, ambitious programmes, and will increase flows of external finance for these programmes. Staying within a 1.5 or 2-degree world means deploying all available solutions today.

With the tools, products and services available today, companies that demonstrate leadership in decarbonisation are -- more than ever before -- also able to maximise company value. However, sharpening their role as 'demand for commercially viable decarbonisation' is a journey, not a quick fix, and requires new market intelligence as energy systems change rapidly, including exploring their role as 'flexible' energy users. This is just the beginning of an explosion in opportunities for companies to flex their muscle as strong buyers and early adopters of new energy services, in addition to what they can offer as new energy products and services to their own customers.



## REPORT

The main authors of the report were Catriona Power, Molly Webb and Alex Rathmell. This work is licensed under a Creative Commons License Attribution non-Commercial 4.0 International (cc by-nc 4.0)

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