

How IT can help energy companies meet their net zero targets

IT leaders at energy companies have a significant role to play in helping their organisations meet net zero targets. This report proposes a range of actions they can take and provides real-life case studies.



The energy industry is undergoing significant transformation, whether due to decarbonisation, new approaches to energy retail or changes in energy consumption.

At least 73 countries worldwide, including all those in the EU, have a target to become net zero carbon by 2050 (some countries are even aiming for 2045).

There are also EU-wide targets for 2021-2030 within the 2030 Climate and Energy Framework: At least 40% cuts in greenhouse gas emissions (from 1990 levels), at least 32% share for renewable energy and at least 32.5% improvement in energy efficiency.¹

This green revolution is happening now, and energy companies must continue to innovate, transform and get closer to the targets year-on-year. They also need to be setting the wheels in motion on initiatives that allow the next generation of energy leaders to succeed in achieving the stretch targets, while encouraging consumers to contribute where they can.

Technology itself needs to keep up with the development of new improved energy sources, improved energy storage solutions and grid upgrades to avoid, as one major global energy supplier put it at a recent European Energy Transition event, *'that Kodak moment'*.

There can be no doubt that IT leaders will need to play a key role in helping energy and utilities companies across the supply chain to deliver on reduced emissions, increased sustainability, keeping up with increased demand whilst keeping customer engagement and experience high.

The question that this Report looks to address is: **what help can IT leaders provide in meeting these goals?**

Energy Market Challenges

When looking across the energy market from Generation and Distribution through Retail and to Consumption, there are a number of specific challenges the industry currently faces that IT could help to address:

GENERATION

Increase In Renewables

Companies need to increase renewable energy year on year and continually develop areas like hydrogen & biofuels; all balanced with requirement for cleaner traditional generation.

Variable Supply

Companies need to balance variable supply of wind and solar renewable energy generation to ensure supply keeps up with demand.

Increasing Demand

Companies need to support increased demand due to the energy shift in the developing world, predicted growth of EVs and the growing use of tech by consumers.

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TRANSMISSION / DISTRIBUTION

Storage, Volatility & Grid Developments

Companies need to deliver efficient, clean, affordable, and reliable energy storage to match supply & demand fluctuations, along with Grid improvements to distribute renewable energy and localised generation.

Trading With New Green Energy Suppliers

Companies need to be more flexible and open with integrated systems / tools due to more suppliers, demand increase and changing demand profiles.

Increased Remote Workforce, AI & Robotics

Companies require more flexible and secure networks to support a more mobile/remote workforce, along with shift to robots to identify, predict and fix faults.

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INDUSTRY WIDE

Decarbonisation & Regulation

Companies need to adopt solutions to reduce energy consumption and carbon emissions, while also addressing specific government regulations and targets.

Decentralisation & Democratisation

Companies need to be able to generate, use & sell energy off the grid along with strengthened local energy ownership.

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RETAIL / MARKETS

Suppliers, Brokering & Sales

Companies need to be able to cope with increased trading and changes to energy sales/charging due to disruptive firms offering green energy and the ability of customers to generate energy themselves.

Increase In Channels & Digitalisation

Companies need to keep up with the increasing number of ways customers can - and want - to communicate i.e. smart devices, chatbots, energy control devices.

Smart Metering & Benefits From Customer Data

Companies need to supply visibility of usage and carbon footprint data to better informed customers. Companies need to collect & analyse customer data for demand trends and keep customers aware.

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CONSUMPTION

Growth Of Electric Vehicles

Companies need to be able to cope with the increasing demand on electricity and a reduction in ICE fuels and thus consumption profiles that comes from the exponential growth of pure electric and hybrid cars (predicted to grow 25% per year for the next 20 years).

Consumption Points & Options

Networks and technology will need to keep up with growth in consumption points for the ever growing digital, mobile and Internet of Things world as well as the increase in EV charging points while also benefiting from opportunities to harvest demand-related data.

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INDUSTRY-WIDE

Decarbonisation & Regulation

"ICT has the potential to maintain global CO₂e emissions at 2015 levels, decoupling the past pattern where each 1% of growth in GDP equated to an 0.5% increase in CO₂e emissions, and promote sustainable growth through 2030."

GeSI SMARTer 2030²

INDUSTRY-WIDE CHALLENGE

Adhering to government / industry regulations at a global, continental and national level

Regulations in each country will have significant societal impact on the electricity network, with DNO's, for example facing several interlinked challenges including: transformation of the energy network landscape as we move towards net zero carbon; increasing use of EV's as move to eliminate fossil fuels from the mobility sector; continuing, and increasing connection of low carbon generation, especially offshore wind; and the change of state to become a DSO and the new responsibilities and accountabilities associated with this, to facilitate the previous examples.



How IT can help

IT can help companies respond to regulatory requirements demonstrating how they are innovating for low carbon future and providing both options and value-for-money for consumers.

COEUS CASE STUDY:

Helping a Multinational Energy Transmission Company Build the Investment Case for UK regulation RIIO-T2

An energy transmission company was required to submit their investment proposals for the UK's RIIO-T2 price control period in 2019 to ensure regulatory compliance and show how they would achieve the specified measures and targets.

Coeus were engaged by the UK CIO to develop and prepare the IT component of this submission and to advise on the governance around content development. We were also asked to provide an independent view of the IT strategy and architectural implications of proposed changes to the business.

This involved working closely with the governance and regulation team, the business partners for electricity and gas transmission as well as the system operators and the IT team.

We used our experience to ensure that appropriate discussion, clear business benefits and cost justification were in place for all the proposed investments.

INDUSTRY-WIDE CHALLENGE

Reducing the carbon emissions / becoming carbon net-neutral across an organisation (including its own IT usage)

Data centres are critical to organisations' technological needs and advancement; however, they require a lot of power to operate - roughly 2% of the world's electricity, contributing approximately 0.3% to global carbon emissions.

Studies show that moving out of, and closing down, standalone data centres in favour of cloud solutions can result in carbon reduction of between 30 and 90%.

However, the various cloud providers have different commitments to the use of renewable energy and carbon emission reduction, so businesses need to make sure they choose wisely to best align with their targets and strategy.

How IT can help

IT can support sustainability targets and identify opportunities to reduce environmental impact across the organisation by providing IT solutions, enhanced operating models and ways of working.

COEUS CASE STUDY:

Helping a Global Energy Company Ensure its Hosting Vision & Strategy Provided Value, Savings & Environmental Improvements for the Business

A global Energy company needed advice on creating a vision and strategy for their future hosting landscape across their whole business.

In particular, they needed a long-term programme detailing how to get value, required savings and whether they could achieve environmental improvements by investing in cloud technologies.

A key challenge faced by the company included a lack of transparency with data around volumes, servers and application costs, therefore a fully documented data landscape was created, that could be used across multiple programmes.

Additionally, a full summary of current vs future state was created, including an OPEX cost model, investment modelling and potential environmental considerations over the next 5 years.

We used our experience to ensure that appropriate discussion, clear business benefits and cost justification were in place for all the proposed investments.



GENERATION

New ways of generating energy, renewables & variability

According to European utility federation Eurelectric, renewable energy share in the EU has increased to 40% in 2020 (up from 34% in 2019) and could well reach 60% by 2030. Part of this increase can be attributed to the bloc's coal phase-out³.

In the UK, renewable Energy currently makes up almost 50% of electricity generation, a ~7 percentage point increase compared to Q4 2019. This increase has predominantly been driven by the continued move towards using solar panels and windfarms. Q1 2020 saw a significant increase in energy generated by onshore and offshore wind; government energy analysts state that the introduction of new windfarms combined with the UK's wet and windy weather at the start of the year – particularly with storms Ciara, Dennis and Jorge helped to generate record wind power generation.⁴

GENERATION CHALLENGE

Meeting increase in renewable energy targets while transforming ways of working and offerings

Energy companies are feeling the pressure to grow and improve renewable energy generation, and to hit (increasing) annual targets.

At the same time, they are having to adapt strategies, such as: procuring or investing in renewable energy, such as wind and solar power; developments in bio-fuels; and introducing new renewable products and offerings to retain market share and profitability.



How IT can help

IT can ensure that IT strategy, processes and policies are fully aligned and directly contributing to company sustainability targets and investment & product initiatives.

COEUS CASE STUDY:

Helping a global Energy Company transform their Retail Energy Business Model to offer more Renewable Products

A global Energy company needed to be able to offer renewable energy products to customers (wind, solar, hydrogen & electric vehicles) and wanted advice on transforming their state-of-the-art global retail energy business.

We helped the client to define their product roadmap and customer experience, which we used to run an RFP to select the most appropriate technology partner. Additionally, we helped the client understand the commercial impact of their business aspirations, assisting them in achieving the best possible cost to serve.

Having helped the client scope and define the programme, our responsibility expanded to global delivery. This involved the rapid delivery of an MVP and the full scaling to production business.

We worked with senior global stakeholders to maximise the re-use within the solution to drive down operating costs and build a fully functioning renewable-led retail energy company.

GENERATION CHALLENGE

Balancing variable supply of wind and solar renewable energy generation to keep up with demand

Being able to predict energy yield has always been demanding, but even more so as energy generation sources change and become more variable due to weather conditions.

Dependency on IT systems to manage, monitor and report from multiple sources, and not just power stations, requires a strong infrastructure of applications to balance the challenges of increased renewables, sources on the grid, sustainability and meeting demand.



How IT can help

IT can build the IT infrastructure and network of applications for the future using appropriate technologies and suppliers to support.

COEUS CASE STUDY:

Helping a Global Renewable Energy Leader with Transition and Transformation of their Global IT Service

A renewable manufacturing and energy generation company was running a global transformation for over 27,000 users, spread across 43 countries and 138 sites. They were also migrating business critical applications including wind farm energy yield forecasts and AI based 3D modelling environments for worldwide access for the engineering teams.

The core objective in moving to a new IT services supplier was to improve reliability and build the foundation for future digital solutions after a recent merger. We were engaged by this global leader in renewable energy to provide delivery and collaboration expertise on two critical migration streams as part of a major supplier migration.

Working with the new supplier, we helped the client plan an effective transition to a new IT service provider and to divest the IT estate from the legacy organisations into a standalone IT estate.

In addition, we introduced controls which provided improved visibility and reporting on transformations all within tight timelines during the early stages of the pandemic requiring much re-planning.

TRANSMISSION / DISTRIBUTION

Managing volatility, increase in demand and democratisation

“Advanced communication and data exchanges between different parts of the power network are to an increasing extent required, making central management and operation more and more challenging. Local distributed control and management techniques are required to accommodate these decentralisation and digitalisation trends.

Blockchains or distributed ledger technologies (DLT), were primarily designed to facilitate distributed transactions by removing central management. As a result, blockchains could help addressing the challenges faced by decentralised energy systems.”⁵

TRANSMISSION / DISTRIBUTION CHALLENGE

Measuring, predicting and balancing energy generation demand while balancing volatility and storage

New ways of generating energy such as solar and wind are naturally more volatile: at the same time demand continues to increase.

This will require a greater ability to manage demand while storage becomes even more critical in ensuring that energy can be supplied -even when generation may be reduced.



How IT can help

IT can help the company manage the increased use / dependence on digital solutions by developing & designing more flexible systems and IT operating models.

COEUS CASE STUDY:

Helping an Energy Company Build a Roadmap and Business Case for a Replacement Energy Management and Distribution System

A major energy transmission client had a critical, and highly complex, control system that was core to the distribution and transmission of energy efficiently and affordably across the UK. The system was nearing end of life and needed replacing. The system provided different functionality to 2 separate business entities, including data collection, data presentation, management and control and site access control.

Subject to custom development, the system was not capable of delivering further functionality changes to support planned changes leading to committed business benefits. It also needed separating due to the imminent legal separation of the 2 business entities.

Coeus undertook a highly detailed study of the existing system, confirming all aspects of the existing functionality, business outcomes, technology stack and support model. The outcome of this study was a clear set of options for replacement systems covering both single and separate systems as well as the sourcing options.

The final justified recommendation, detailed sourcing and implementation roadmap and investment / cost estimate were praised and accepted by the executive committee and were used as the basis for both regulatory submissions and further business cases.

Having the right IT structure to support the business with changes in the market

Trading needs to become more flexible in order to manage increasing demands from new suppliers for greener energy.

The rollout of blockchain technology and smart devices may be required for the microgrids that will support small-scale generation and also the ability for people to trade energy amongst their community and with their neighbours.

How IT can help

IT can help support current infrastructure while increasing innovation and improving flexibility by reviewing and improving IT structure, operating model and supplier outsourced agreements.

COEUS CASE STUDY:

Reshaping IT to Deliver Next Generation Services for an Energy Network Operator

In this award-winning project* an energy network operator recognised IT was key to maintaining a reliable service delivered via an aging infrastructure to meet the accelerating and dramatic change in patterns of electricity generation and consumption.

We helped them to identify the investment needed in the energy management control system and performed a review of the operating and sourcing models to ensure the right capabilities for the future.

Having created a detailed, granular, bottom-up view of activity, we worked with the client to design a top-down functional model that would achieve clear flow of work and delineation of responsibility for both traditional and agile delivery approaches.

With a strong business case for IT of like-for-like savings of 27% on outsourced services re-invested in the operating model, the Board approved the proposed change. They acknowledged the significant step forward that Coeus delivered which enhanced the capability and reputation of IT within the organisation and ensured the team were ready to meet future challenges.

**This project won Coeus the Global Sourcing Association's "Sourcing Works - Award for Value Creation".*

Smart metering & benefits from customer data

The replacement of gas and electricity meters with smart meters is a national infrastructure upgrade for many countries in Europe; that will help the energy system cheaper, cleaner and more reliable. It also allows for more efficient consumption and improved customer engagement & experience.

By 2024, it is expected that almost 77% of European consumers will have a smart meter for electricity and around 44% will have one for gas.⁶

As of end of Q2 2020, 21.5M smart and advanced meters had been installed in homes and small businesses in the UK, 81% of which were advanced meters or smart meters operated in smart mode as opposed to traditional mode. However, the COVID-19 pandemic has had a significant downwards impact on the number of installations last year, with only 137,000 smart meters being installed by large suppliers in Q2, 870,000 less than in Q1.⁷

RETAIL / MARKETS CHALLENGE

Managing customer data and optimising customer journeys

Customer journeys and channels are changing, while customers are becoming more knowledgeable about how much energy they use, how they can contribute and how to support global sustainability goals.

The generation of smart meter users, localised generation and growth of consumption points requires a greater dependence on a flexible, yet robust, network that can grow with these changing needs.



How IT can help

IT can increase innovation and improve flexibility by reviewing and improving supplier contracts and sourcing models.

COEUS CASE STUDY:

Helping a Global Energy Company Select a New Network Supplier by Running a Sourcing Process and Subsequent Delivery Programme

In this award-winning project*, an energy retail company had a number of challenges: outdated systems, smart meters that needed upgrading, regulatory changes in different countries and two major supplier contracts that needed renewing.

When agreement on an improved contract with greater flexibility and ability to hold the supplier to account couldn't be agreed with the existing network supplier, the client decided to 'go to market'. Coeus were retained to run the sourcing process on their behalf.

We supported the client in their decision to choose a more innovative supplier with a greater network solution to support global and expanding mobile workforce, while achieving multi-million-pound savings; all underpinned by a more flexible, modular contract model.

We were retained further to programme manage the migration on behalf of the company. We supplied a team that worked with the client and new supplier to manage the delivery of all 13 network solution projects and manage the exit of the incumbent supplier. We also acted as the broker and facilitator between the client and supplier as they developed a new supplier relationship.

**Project awarded 'International Project of the Year' by the GSA; also a finalist in both the 'Commercial Management' and 'Change & Transformation' categories at the MCA Awards.*

RETAIL / MARKETS CHALLENGE

Improving customer experience and gaining / retaining market share

There is a greater need for companies to have the capabilities in house to quickly and accurately analyse & provide customer data; this would enable businesses to better serve and enrich their customer's end to end experience.

The ultimate goal being to reduce carbon emissions as well as providing the best customer experience and giving the power to reduce carbon to companies and consumers alike.

How IT can help

IT can improve customer experience by introducing and enhancing Data & Analytics capabilities.

COEUS CASE STUDY:

Helping a Multinational Vehicle Parts Company Set a Data Strategy to Optimise Pricing Process

A multi-national vehicle parts supplier wanted to be able to focus on analysing customer data and improving their product offerings for their customers. We helped them by addressing a number of issues in the pricing process of their products, picking a pricing tool and shifting their focus by reducing manual processes.

In order to facilitate this, we conducted a detailed review of all data sources, calculations and processes currently in place uncovering numerous problem areas. For example, the business relied heavily on disparate data sources which were combined in manual spreadsheets. Our analysis led us to conclude that the business' data capabilities were not robust enough.

To that end, we provided a set of detailed recommendations and roadmap on how to automate and optimise the whole pricing process. This included setting up a good data foundation, which included a data management framework, and reviewed cloud providers to move data storage from on-prem to the cloud. We also looked at the use of business intelligence tools to automate calculations and processes.

Our recommended solution not only met their pricing requirements but added additional analytical capabilities and value to other areas of the business.



CONSUMPTION

Growth of electric vehicles and associated charging points

Electric Vehicles (EVs) are creating one of the greatest new sources of revenue for residential electricity suppliers across Europe.

Strict EU CO2 targets have had a positive effect on EV adoption in 2020, with market share of EVs in Europe expected to treble to 10%, increasing to 15% in 2021.⁸

Specifically, in the UK, transport accounted for 28% of all greenhouse gas (GHG) emissions in 2018. The UK Government's consultation proposes for all new cars and vans to be zero emission by 2035 or earlier in order to help become a carbon neutral economy by 2050.

Indeed, the UK government made a statement on 18th Nov that new cars and vans wholly powered by petrol and diesel will not be sold in the UK from 2030 while making a £1.3bn investment in EV charging points.

The large-scale adoption of EVs is key to meeting targets across Europe.

CONSUMPTION CHALLENGE

Ensuring the reliability of the growing network of electricity consumption points

With the growth of EV adoption, ensuring the reliability of IT networks is more important than ever.

Energy firms need to ensure customers have reliable access to electricity consumption points and be able to keep up with increasing usage and demand.

Energy companies must make sure that customer demand and trend data can be collected, aggregated and used to deliver true benefit.



How IT can help

IT can introduce and build a robust ERP / CRM & Customer Journey management strategy.

COEUS CASE STUDY:

Helping a Global Manufacturing Company to Architect a New ERP Strategy

An energy solution manufacturing company wanted a more aligned view of their business architecture and customer support processes from their ERP systems, as their current ERP platforms did not fully support the organisation business processes and varied between divisions.

We helped our client select their next-generation ERP landscape provider, developing an upgrade and replace approach that took advantage of best-of-breed solutions and technology shifts.

We conducted a maturity assessment to gauge gaps in the client's current and future ERP plans, performed a strategic platform selection process and defined a strategy to leverage Cloud where possible.

The introduction of a LEAN ERP core, combined with supporting SaaS systems, allowed the client to align its ERP platform to the business and introduce new digital capabilities. They also benefited from best-in-class agreements for licenses and services from the ERP provider to support transition and future cost stability.

CONSUMPTION CHALLENGE

Digital and technology solutions to support changes in customer consumption & business needs

With a rapidly changing market, Energy companies need to make sure their in-house digital solutions are ahead of the game and flexible enough to support evolving business needs that match changing customer profiles.

There will also be a need to find cost savings and manage costs associated with such changes.

How IT can help

IT can work with the business on new ways of working and new creative digital solutions.

COEUS CASE STUDY:

Building a New DevOps Capability and Transforming Digital Vendor Management (Software as a Service)

An energy generation and retail company wanted to retain market share by competing on cost and a superior customer experience. To do this they needed to move away from a complex, siloed and sub-optimal technology and supplier landscape.

They decided to do this in two distinct ways: build a new DevOps capability to simplify the ways of working for employees and deliver a simplified Ecosystem with the removal of poorly performing suppliers through contract management.

By comparing the existing digital operation against best-practice and identifying capability gaps, we were able to develop an action plan of recommended changes. We were able to deliver streamlined processes in line with new digital ways of working and develop a roadmap to transition to a new DevOps operation to sustain large customer volumes. This work ultimately led to savings in excess of €50m.

Within the Ecosystem work we assessed the digital supplier landscape, reviewed all contracts and created a solution. We then led negotiations with suppliers enabling the client to take on the responsibility of the SaaS Vendor Management function resulting in savings of c.€40m.

References

- 1. EU 2030 Climate & Energy Framework**
https://ec.europa.eu/clima/policies/strategies/2030_en
- 2. ICT Solutions for 21st Century Challenges**
<http://smarter2030.gesi.org/the-opportunity/>
- 3. Renewable Energy EU**
<https://www.rechargenews.com/transition/renewable-energy-surges-in-eu-power-mix-on-trajectory-to-reach-60-by-2030/2-1-874391>
- 4. Energy Trends: UK renewables**
<https://www.gov.uk/government/statistics/energy-trends-section-6-renewables>
- 5. Blockchain technology in the energy sector**
<https://www.sciencedirect.com/science/article/pii/S1364032118307184#bib8>
- 6. Smart Grids and Meters**
https://ec.europa.eu/energy/topics/markets-and-consumers/smart-grids-and-meters/overview_en#deployment-of-smart-meters
- 7. Smart Meter Statistics in Great Britain: Quarterly Report to end June 2020**
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/912324/Q2_2020_Smart_Meters_Statistics_Report_FINAL.pdf
- 8. Electric Cars – Transport & Environment**
<https://www.transportenvironment.org/press/electric-cars-will-treble-market-share-year-most-carmakers-track-meet-eu-emissions-targets>

About Coeus



Ben Barry

Ben is a founder and Director of Coeus and an experienced business and IT transformation professional with over 20 years in consulting and management. Ben has coached and led the leadership of many energy & utility organisations on strategy development through to transformation and benefits delivery. He is a proven IT leader with an outstanding track record of delivery.



Simon Reynolds

Simon heads up the energy & utilities sector for Coeus, where he has advised several global companies. He is a highly skilled and versatile senior transformation leader who was shortlisted for 'Team Leader of the Year' by the Management Consultancies Association. Innovative and influential, Simon's strengths lie in his ability to lead and motivate, alleviate resistance to change, build cohesion and foster business relationships. Simon has a strong track record in managing multi-million £ / € programmes to deliver strategic priorities, digital technology, business improvements and efficiencies.



Simon Walker

Simon has shaped and delivered some of the largest global IT programmes, aligning business objectives with IT capability. Recent engagements include IT strategy / solutions and operational enhancement at a global energy company and renewable solutions for a global Oil & Gas company. Simon has successfully introduced and improved Agile capabilities for a variety of clients, introducing efficient DevOps and Digital based solutions. He has typically worked with the CxO's to define suitable, cost effective solutions and has then continued to deliver the programme of work, possessing excellent senior stakeholder management skills.



Joe Hart

Joe is an experienced energy markets and technology leader who simplifies complex challenges into deliverable programmes and projects. He has significant operational management experience and is used to taking the lead in negotiations at executive levels with industry regulators, market participants and within the organisation. He is practised in the design and delivery of business and IT operating models, leading the implementation of these across different sectors.

Coeus Consulting has worked alongside EU- and UK-based energy and utility IT organisations to deliver a wide range of benefits, programmes of work and cost savings. Find out more [here](#).

Coeus Consulting is an independent, award-winning IT advisory that empowers technology, business and procurement leaders to deliver more. We do this by standing alongside clients energy to create, execute or manage tailored and strategic change, and drawing upon our truly independent and unique experience to exceed expectations.

Our capabilities include Operating Model, Data & Analytics, Technology & Architecture, Commercial Management, Sourcing, Change Delivery, Business Architecture, Service Integration & Operational Excellence and M&A & Divestments.

We also help leadership teams evaluate technology innovations against the needs of their business. This includes IoT, AI, DevOps and Customer Experience.

UK Office

28-30 Cornhill, London, EC3V 3NF

P: +44 (0)207 127 4321

E: info@coeus.consulting

German Office

Bleichstraße 8-10, 40211 Düsseldorf

P: +49 (0)211 9319 0898

E: info@coeus.consulting



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