

The decarbonised energy opportunity
Impacts of the transition to a sustainable energy
future on industrial & commercial businesses





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Executive summary

The decarbonised energy opportunity

The energy transition presents exciting opportunities for businesses to take control of their energy, reduce costs and become sustainable. Businesses who don't engage now risk getting left behind and being subject to increased costs.

The way in which energy is generated, used and managed is changing and this will profoundly change the way in which businesses engage with energy.

The energy system is currently undergoing a transformation of increasing:



Decarbonisation: shifting away from fossil fuels towards low carbon and renewable sources such as solar, hydro and wind.



Digitalisation: in all aspects of work and home, digital technology is becoming the norm. In energy, this means a multitude of new opportunities from granular recording of production and consumption data to smart, connected remote grid infrastructure and machine learning.



Decentralisation: whilst large infrastructure and generation assets will still be productive for many years to come, options to build and co-locate new technologies at MW capacity scales, rather than GW, have emerged across the grid. More types of technologies are available at the building level.

What does this mean for industrial & commercial (I&C) businesses?

More volatility to manage

- Forecasting renewable energy availability for generation as well as supply, making understanding energy contracts more difficult
- Hard to forecast wholesale and grid charges
- Accurate generation and consumption data means more sophisticated forecasting and trading, and cybersecurity concerns

Changing costs

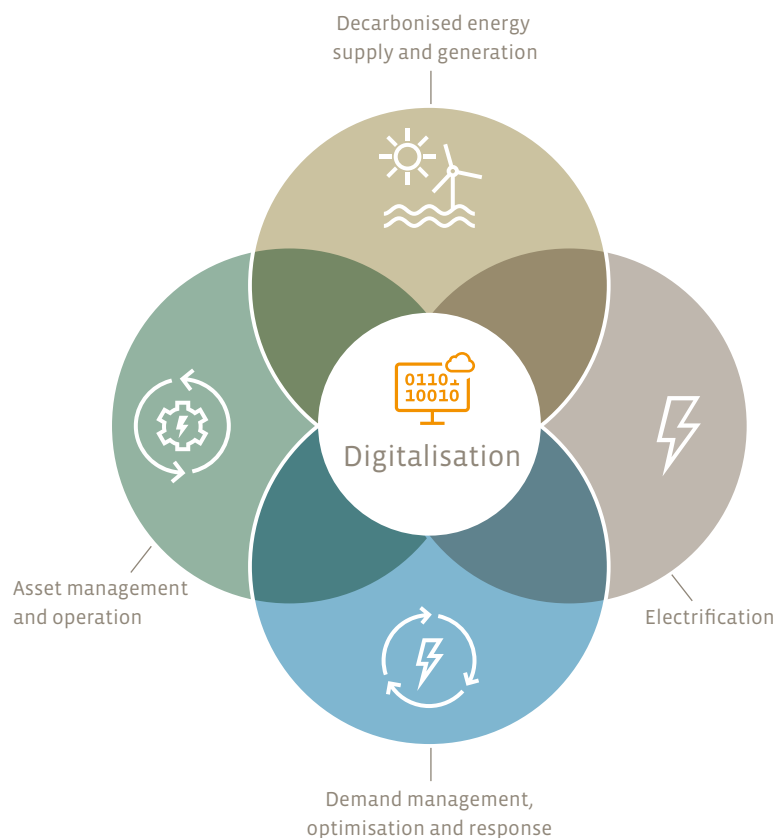
- Short-term fluctuations
- New energy services and products could result in energy savings as well as carbon savings

- Annual energy budgets may need to be rethought

New opportunities for businesses, like:

- More sophisticated and intelligent energy monitoring, with machine learning enhancing efficient decision making
- Providing demand response grid services
- Self-generation, and locking in power prices via PPAs
- Becoming more active and engaged, demanding more from solution providers

Services in the new energy world



Introduction

Businesses interested in managing their energy needs in a more cost-effective, greener and efficient way can use this paper to understand how they can maximise opportunities presented by the new energy transition.

The new energy transition will have profound impacts on businesses. This paper explains these changes and how businesses will need to adapt.

The way in which energy is generated, used and managed is changing and this will have considerable impact on how businesses engage with and relate to energy.

The energy system is undergoing a significant transformation to a ‘new energy’ world – one that is more decarbonised, decentralised and digital. The change is already happening and businesses are starting to adapt. But as the transformation evolves, the impacts on businesses will become more considerable and the risk of not adapting will have even greater impacts. Those who take advantage of new opportunities will not only reap financial and reputational rewards but will also contribute to the wider environmental good.

This whitepaper:

- Explains what the new energy transition is and what it means for organisations.
- Highlights how businesses can take advantage of existing services and how these might evolve in the future.

The paper has been written by Delta-EE on behalf of Alpiq.

- **Delta-EE** is one of Europe’s leading consulting and research companies providing insight into the energy transition, covering the broad energy sector across heat, electricity and transport. Delta-EE provide research, analysis and expertise to help the energy sector best navigate the energy transition. We provide research to a broad range of companies across Europe and beyond.
- **Alpiq** is a leading Swiss energy services provider and electricity producer in Europe. It offers businesses comprehensive and efficient services in the fields of energy generation and marketing as well as energy optimisation and zero-emission mobility.

Energy needs vary across organisations

Energy needs are typically not a core focus for businesses. But this will evolve in the future as more and more turn their attention to energy.

Energy needs now

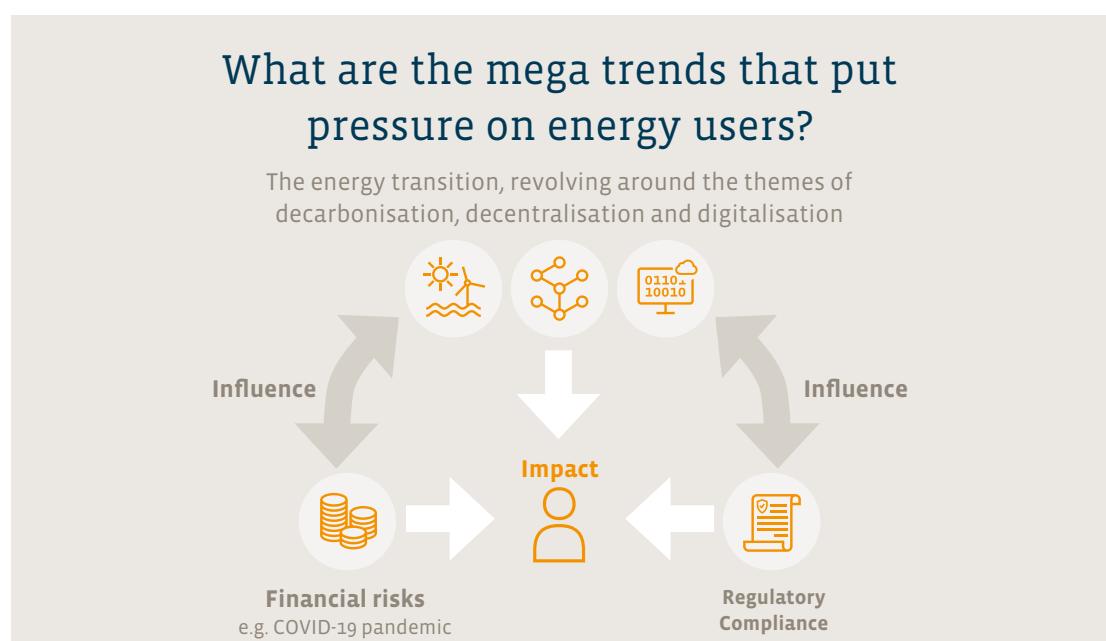
The demands for organisations will vary since there is multitude of different sectors and business sizes. The needs may also vary according to location, e.g. resiliency being a different priority when comparing Europe with the US.

Throughout, there are some mega-trends that will impact all organisations and drive changes in energy needs. The key emerging trends of the energy transition are decarbonisation, decentralisation and digitalisation.

... and in the future

While energy for many organisations is not a core activity or a significant budget line, the energy transition is something that will have wider and greater impact on customers. Energy users will become more exposed to new risks, resulting from these megatrends.

The energy needs of businesses vary between types, sizes and locations of organisations. But all have key financial and compliance needs, and these will be influenced as the energy transition progresses.





What is driving decisions about energy?

Based on European research the following key factors on energy decisions have been identified.



How can I minimise energy costs?

The energy transition has resulted in increased energy costs, which increases pressure on organisations to reduce their energy consumption and make significant cost savings.



How can I easily comply with regulation and CSR, or exceed them?

Organisations are increasingly exposed to more risks related to compliance on emissions standards and environmental regulations.



How can risks around energy and grid reliance be managed?

This is especially true for customers, where energy security of supply is very important for risk management as it can severely affect business output. For example, a cement factory's process can be severely impacted by a short-term disruption of power supply.

Need

What does it mean?

Some of the most popular energy-related actions for organisations that move towards this direction are :

- Energy efficiency & optimisation measures
- Becoming an energy prosumer, by generating power onsite, which adds extra sources of revenue for organisations
- Improved power purchasing, e.g. via flexible energy tariffs or participating in grid services

For example, customers' energy decisions, can be affected by carbon pricing initiatives, like emissions cap & trade schemes or carbon taxes, where implemented. Such initiatives are increasingly being adopted by countries across the globe.

Sometimes this compliance is also driven by the need to comply to (internal or external) CSR commitments, as sustainability is often a key feature of CSR policies.

The significance of this driver can vary depending on the type of business (more important for most industrial vs commercial customers), but is also strongly regional. For example, it is more important to customers in regions that are more exposed to natural disasters such as landslides.

What can businesses do?

Optimise energy consumption & generation and improve power purchasing

Adjust your energy strategy to ensure that your business is future-proof from regulatory risks

Take control of your energy needs to ensure a more reliable and secure energy supply.



How can I save time and focus my effort on valuable tasks?

Energy consumers are finding the energy landscape more complex to navigate, which is why they often rely on services and offerings that save them time and hassle. Some examples :

- Providing ancillary services with the help of an energy provider / aggregator can provide financial benefits that would have been difficult to access otherwise.
- Power purchase agreements (PPAs) and green tariffs that offer a simple way to reduce carbon emissions from the electricity supply.

Access easy-to-manage products and services from reputable providers.



How can our business become more sustainable?

Sustainability is becoming more and more important for organisations, especially with regards to brand reputation. Beyond better brand recognition and customer preference, this is often associated with stronger position in the capital markets around the world and increased attractiveness to investors.

This view is reinforced by the emergence of sustainability ranking lists, like the Dow Jones Sustainability Index or how accessing funding is sometimes tied to sustainability-related KPIs.

The growth of certification and organisations such as B-Corp or RE100 reflects this trend.

Enhance your green credentials to improve your reputation.



Am I missing out on innovation that can help our business?

A few companies may want to be seen as leaders and have adopted innovative approaches to their energy needs and strategy.

The pace of change is fast in the energy transition, so new products and services which really work for companies may emerge each year. They may not work for all businesses but being aware of them may be useful.

Make sure you are not getting left behind and take a leading part in the changing energy landscape, by understanding the transition and talking to providers.

Need

What does it mean?

What can businesses do?



The energy transition is already happening

Transitioning our energy system to being more sustainable is going to affect us all. Businesses will need to adapt and can seize opportunities in the new energy world.

Decarbonising energy and reducing energy use is key to mitigate the impacts of climate change and to create a sustainable future.

The energy transition refers to the changes in physical energy technologies and assets, with social shifts in consumers, which are transforming energy systems across the world.

European energy systems have evolved over the last few hundred years, culminating in a typically grid-based model of centralised energy production, transported to end users via pipelines and wires. These systems have typically been controlled and run by a small number of organisations, providing commodity services to typically passive customers.

A transformative shift is happening and it will have an impact on all businesses.

Energy systems are becoming more transparent, with the opportunity for more parties to participate and be more flexible. Global economic systems are responding to COVID-19, recognising the opportunity for a green, recovery that accelerates decarbonisation.

The energy transition is being driven by:

- Decarbonised energy being more widely recognised as being beneficial for society and the environment
- Technology research and development improving efficiencies, enabling more renewable energy to be built
- New business models and projects created around these low carbon assets, often at different scales and more distributed than fossil-fuel power generation
- Businesses being more conscious, considering supply chains, investing ethically in their own business and making longer term impacts in their operations.

Organisations have the opportunity in the transition to take advantage of being more in control of the energy they use, via services which are better suited to their needs and budgets, as well as being better for social and environmental good.

The speed in 2020 that businesses, as well as nations, are committing to decarbonisation, has quickened. For example, now 26¹ global companies have committed to 100% renewable electricity under just one initiative, the RE100².

¹ www.un.org/sustainabledevelopment/sustainable-development-goals

² www.there100.org

Three key themes underpin the transition

Decarbonisation

Recognising the need to reduce carbon emissions in energy means ensuring the fuels that we use to power, heat and transport our businesses and business operations are shifting to zero carbon or even carbon negative.

Declarations of net zero from business and government, have combined with the recognition of the social and economic opportunity of a green recovery from COVID-19, as the current major theme.

Traditionally, fuels have been fossil fuel based, emitting carbon and other pollutants as a result of being burned for heat or power generators. Recently a shift to carbon-free sources like solar PV, offshore and onshore wind, hydroelectric, as well as the emergence of hydrogen and biofuels, and better energy efficiency tools, has emerged.

Decentralisation

Large infrastructure and generation assets will still be productive for many years to come but options to build and collocate new technologies, at site scale megawatt (MW), rather than utility scale gigawatt (GW) capacity, across the grid have emerged.

The LCOE³ of other new forms of energy production are now competitive with fossil fuels, a significant change over the last ten years. New renewable power stations will be large scale and centralised in many instances (hydro, offshore wind), but there will be more types of technologies available (tidal, solar, batteries), which can work at a home or building level.

Digitalisation

In all aspects of work and home, digital technology is becoming the norm. In energy, digital can mean everything from granular production and consumption data to smart, connected remote grid infrastructure.

Power and heat monitoring, now at a microlevel, is generating huge amounts of data that can be recorded and analysed digitally, stored in the cloud. The data flows in multiple directions, not just from supplier to customer.

The falling costs of controls and sensors has increased their prevalence, with access via mobile devices enabling real time, more tailored views. Progress in machine learning (ML) techniques mean that the huge amounts of energy data generated can be meaningfully understood, grouped and analysed for businesses to be able to action.

³ Levelised cost of energy,
e.g. <https://www.lazard.com/perspective/lcoe2019>

The energy transformation enables opportunities for businesses to save carbon and money



Decarbonisation:

- The cost of fuel will fluctuate – wholesale energy prices are tracked to oil prices and as decarbonisation strategies play out, this may lead to short term fluctuations.
- Decarbonising heating and cooling is a distinct challenge for businesses. Energy efficiency and decarbonised heat solutions are complex.
- Forecasting renewable energy availability is a sophisticated skill, taking into account local weather patterns for generation as well as supply.
- Annual energy budgets may need to be rethought. Some service-based models may be available monthly, but some investment decisions (e.g.

CAPEX on new energy equipment) may be better planned & calculated and accounted over a 3 year + budget.

- Transport logistics may need to consider electrifying fleet or switching to hydrogen vehicles in the future.

More widely:

- Declarations of net zero by 2050 are being revised to 2040 or even 2030, by governments and businesses.
- Policy support such as the European Clean Energy Package and national measures are being adjusted in COVID-19 recovery to enable a cleaner greener recovery. Focus is on energy, biodiversity & transport, supporting local supply chains and targeting economic resilience.
- Financing is relatively cheap at the moment, combined with many new funds being established. These are looking to invest in green assets, energy efficiency, clean transport and zero carbon innovation, supporting business and solution providers wanting to keep CAPEX off their balance sheet.
- Institutions are divesting fossil fuels, with even oil majors completely repositioning strategy towards renewables.
- Consumers continue to be fascinated by EVs and personal mobility, beyond the ICE car.

Decentralisation:

- Smaller scale distributed generation can be on a business premise, enabling self generation and consumption.
- Business can lock in power prices via PPA agreements for their own or third-party site.
- But distributed assets cause hard-to-forecast wholesale and grid charges for consumers as well as further forecasting complexity.
- More visible generation and media coverage should lead to more active and engaged consumers.

Digitalisation:

- Visualising data is a powerful tool to engage more stakeholders in energy decisions. With more businesses running remotely in post-COVID-19, this may be more important for core operation monitoring when people do not need to be on-site.
- Accurate generation and consumption data by site or location, enables more sophisticated forecasting and trading.
- More businesses can view close to real time energy data, and make optimisation & efficiency decisions, supported by ML and smart software.

The future energy system is evolving radically and quickly

Renewable technologies, more decentralised assets, complexity and flexibility are all key features of the future energy system.

The traditional energy system

- Energy generation is centralised large infrastructure projects, with lifespans of decades, and based “upstream” from users.
- Big coal and gas and cannot be “turned off” easily.
- National transmission and local distribution network transport power to end users.
- The system is managed for power generation and safety, with trading specialised between a few parties.

The future energy system

- Legacy centralised generation continues but new generation focuses on large scale renewable plants, decentralised, more spread out generation over the next few decades.
- Onshore wind, solar PV, hydrogen, will sometimes be built at smaller capacity scales (MW rather than GW).
- New small assets are being connected, like energy storage, EVs, electric heating, which change traditional consumption patterns.



- Energy is still transmitted via distribution and transmission networks, everyone in the system is more engaged.
- Energy trading and management becomes more complex – forecasting renewables, large numbers of assets, and daily changing consumption patterns.
- System resilience and flexibility is key to maintaining safe, secure and reliable grids. Demand response, VPP, battery energy storage, as well as some gas storage, hydro and demand shifting becomes key.

Navigating to the new energy system will be complex and challenging but presents many opportunities for how energy is generated, used and managed.

The complexity of technologies and data can mean confusion, even for experienced energy managers. They will need to liaise with more people in their organisation. But this makes space for new and more tailored services and advice.

Navigating the transition



The transition is challenging for businesses – **more information, a proliferation of new options and uncertainty.** Major elements of the traditional system will be key to the efficient running and sustainability of providing energy but layering on the new diverse capability.

The **intermittency of rising renewables**, impacts the frequency limits, safety and overall operations of the energy system. Forecasting will need to be more reliable combined with a shifting demand, with different end user business models and working patterns. **This**

means needing to understand more about the energy system.

For businesses, it may mean unpredictability for budgets and types of services that are needed. More decision makers – like sustainability, business process, strategy or investment officers – will need to be involved for zero carbon businesses. But the **opportunities presented by the transition are for digital, leaner businesses. The rapid transformation of the system, driven by decarbonization targets in 10 not 30 years, need actions to be taken even faster.**

More tailored and customer focused services will help businesses capitalise on the opportunities from the transition

Fundamentally, businesses will have more choice in the energy transition with a range of services on offer. Businesses can select services that are tailored to meet their needs and provide more benefit, specifically to them.

- **Decarbonisation of energy** will offer businesses different options on reducing the impact of their supply and Scope 2 emissions⁴ from PPA agreements to a guaranteed zero carbon grid supply. It can further include supporting on delivering onsite generation.
- **Asset management and operation**, where support for maximising the production or efficiency of energy technology assets over their lifespan.
- **Demand management, optimisation and response**, where peak demand is shifted and onsite energy reduction and efficiency needs are met.
- **Electrification** – where there are changes in how businesses heat buildings and transport goods. This could be electrifying HVAC demand or increasing demand for electrolysed “green” hydrogen from renewable electricity to power heavy goods logistics vehicles.

The new energy system presents a range of effective services to meet customers' energy needs.

At the core of all these services, sits **digitalisation**. The increase in and use of data is key to the transition. Connectivity, data storage, and intelligent analysis are the building blocks for enabling accurate and tailored services for customers.

⁴ As defined by the GHG protocol

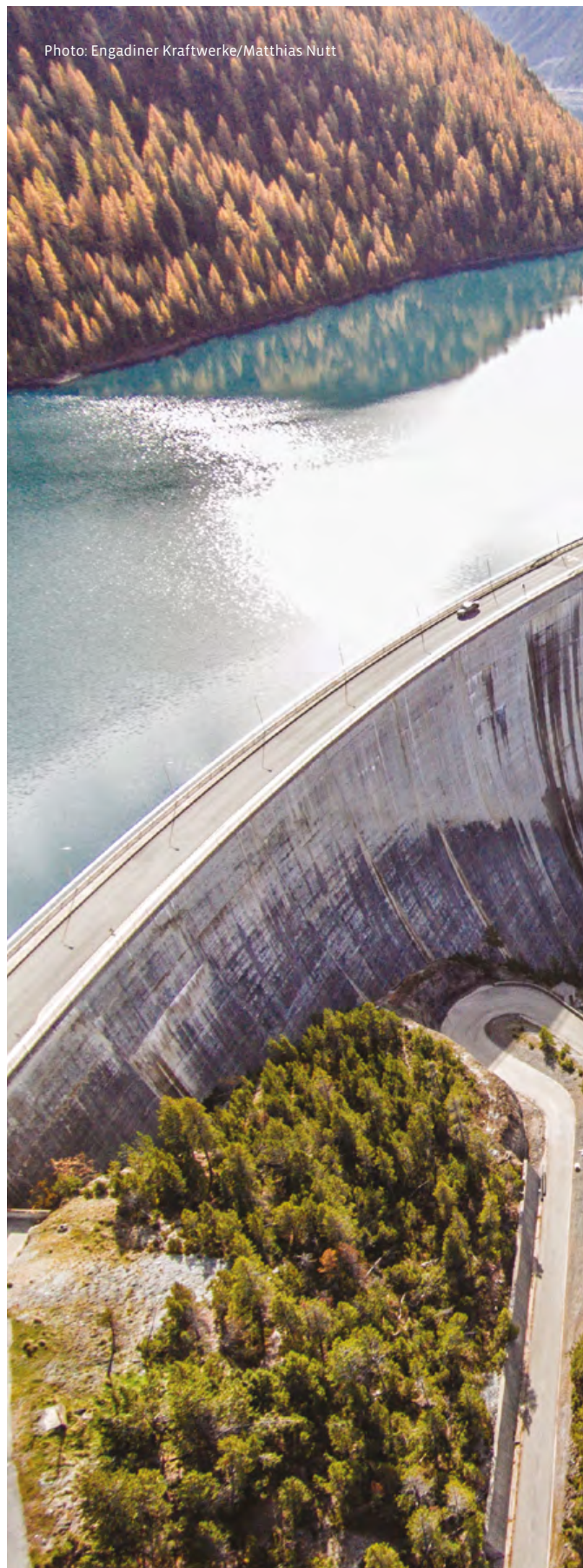


Photo: Engadiner Kraftwerke/Matthias Nutt



Impacts of the energy transition on businesses



The energy transition is already happening and it will have significant impact on customers. The energy needs of businesses are changing, as are the ways in which their needs are met and managed. Customers need to engage with

this now – the risk of inaction are increased costs and missed opportunities for generating revenue. Business that embrace

changes can maximise opportunities and stay ahead of the game – there is security and stability in making changes now.

Businesses need to adapt to the changes in the energy world now to stay ahead and take advantage of emerging opportunities in the new energy system.

Businesses should act now to

- Save money
- Minimise risk and reduce reliance on the grid
- Improve their sustainability
- Take advantage of emerging opportunities

The needs of customers vary and will change. The next few pages outline some of the services customers can benefit from as the energy transition progresses and business needs shift.

There will be challenges in the transition – the important thing is finding **expert and trusted partners who can guide their customers through the transition and can offer tailored and easy-to access services and solutions.**

- Renewables
- Lower CO2 for compliance and social good
- Energy efficiency
- Accelerating timescales



Decarbonisation

- Flexibility to manage intermittency
- Storage technologies
- Decentralised and smaller-scale generation



Decentralisation

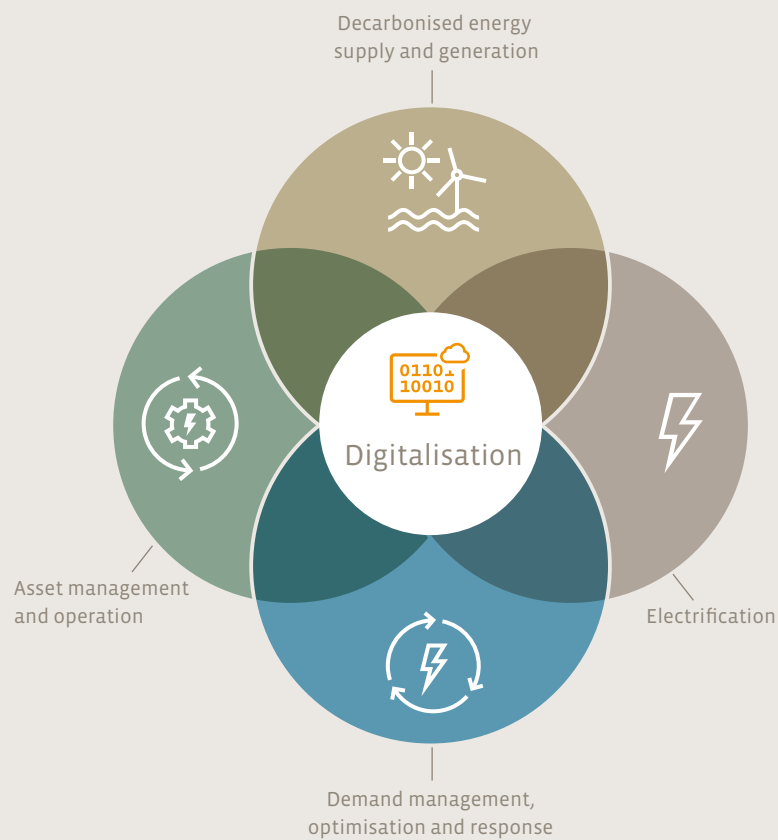
- Optimisation of energy assets
- Energy management
- Digital solutions



Digitalisation



Services in the new energy world



Meeting business needs



Cost reduction and revenue generation



Compliance



Risk management and reduced reliance on the grid



Saving time and hassle



Becoming a sustainable business



Innovation and a front seat in the energy transition



Case study:

PPA with Solaria

Solaria is a leading solar PV developer and green power generation company with more than 410MW worldwide. They own, manage and operate PV plants in a number of countries (Spain, Italy, Uruguay and Greece).

In December 2019 they signed a physical long-term Power Purchase Agreement (PPA) with Alpiq. This covers the output of a portfolio of 3 plants with a joint installed capacity of up to 105 MW. The plants, located in Castilla y León and Castilla La Mancha, will produce energy for an equivalent supply of **around 60,000 households with renewable energy**.

Guillermo Negro, Country Manager of Alpiq in Spain, says: “Alpiq is strongly committed to the Spanish market for almost 10 years and we have a vocation for growth in Spain, where we remain very close to renewable producers and cogeneration plants offering tailor-made solutions to optimise their revenues and help them manage their risks, and on competitive gas and power supply. This is a very relevant transaction for Alpiq in Spain and we expect that we will be able to expand collaboration with Solaria in the future in Spain and in other European countries”.



Asset management for generation and storage asset performance

In the new energy world, increasing numbers of localised renewable and storage assets, as well as thermal power plants, will need to be effectively managed.

Effective asset management improves performance, longevity and profitability, whilst also ensuring supply of green, safe and cost-effective energy.

Key trends and highlights



Increasing amounts of renewables.

Low carbon generation such as solar, wind turbines, hydro and biomass will become increasingly widespread. The production of renewables is weather-driven and intermittent, with a greater need for system flexibility.



Greater role for battery storage,

as well as other forms of storage to assist with on-site self-consumption as well as enabling wider system flexibility.



Thermal power plants (e.g. gas-fired) still have an important role to play. These are controllable, meaning they can support system balancing and flexibility.



“Green” hydrogen, produced from renewable electricity will become part of the decarbonised future. Hydrogen can be used for transport, heat and in industry.

Opportunities for businesses

Services

- **Asset management** – monitoring and effective optimisation enhances asset performance, increases efficiency, minimizes downtime, and reduces operation and maintenance costs.
- **Power Purchase Agreements (PPAs)** – commercial solutions such as PPAs allow generators to access long-term contracts, as well as the wholesale market to sell energy and maximise revenue from their assets.

Benefits

- Provision of safe, green and cost-effective power supply
- Maximise return on investment
- Improve performance, longevity and profitability of assets
- Manage risks
- Decarbonised energy

Generate or purchase clean, renewable energy

Increasing numbers of businesses are looking to generate their own energy on-site, whilst others are making purchasing commitments.

Generating or purchasing renewable energy is a clear commitment to becoming a sustainable business, as well as helping protect businesses from price rises and market volatility.

Key trends and highlights



More businesses are becoming prosumers. The drive to decarbonise has led many businesses to invest in their own generation and storage assets. Decreasing costs of installing and operating renewable assets has made this easier and more attractive.



Larger sites can also become micro-grids with a number of generation assets (such as PV and CHP) and battery storage. This presents further opportunities for cost reduction, resilience and carbon savings.



Service based innovation. More sophisticated and innovative offerings are emerging, enabling businesses to benefit from solutions with less capital investment. Energy as a Service (EaaS) moves away from a CAPEX model. New service models could include asset leasing, performance contracts, subscription payments, or Outcome-as-a-Service contracts.

Opportunities for businesses

Services

- **Self-generation** – become a prosumer by generating electricity on-site and reducing import costs.
- **Commit to purchase green energy** – for example through PPAs or green tariffs. Many large corporations, such as Google, have made clear commitments to achieve this.
- **Energy as a Service (EaaS)** – this wide range of service-based offerings are evolving to meet energy needs in more sophisticated ways.

Benefits

- Clear commitment to becoming a sustainable business
- Reduce CO₂ emissions
- Generate or encourage local power
- Strengthen your reputation
- More control over your energy – protects from price increases and volatility, and improves energy resilience
- Not getting left behind – more and more customers are accessing green energy
- EaaS avoids need to commit capital funds



Case study:

Energy optimisation at Sunstar Hotel

Sunstar Holdings runs ten 4* hotels in the Swiss mountains. They have been using Alpiq's energy optimisation system, Xamax, for 20 years, by which they have saved over 1 million Swiss Francs. In 2020 they upgraded a number of their hotels with the latest version of energy data logging devices and visualisation software, helping them to continue to keep costs down and reduce CO2 emissions whilst not compromising on the quality of the experience provided to guests.

The new energy optimisation platform records energy data locally at measuring points and is displayed on visualisation software. This allows Sunstar Holding to identify larger electricity loads and comprehensively monitor, control and assess energy flows. Peak loads have also been reduced by intelligent algorithms which control flexible loads using pre-defined and assigned priorities and dependencies.

Marco Barbon, Technical Director at Sunstar Holding, said: "We have been fitting out our hotels with Xamax energy optimisation systems for many years, as their performance and the good support are exemplary. On top of that, they help us to reach our own sustainability targets."



Case study:

Managing battery storage at Maienfeld

Alpiq is managing a new battery storage system in the Swiss municipality of Maienfeld using their digital platform.

It is being managed for two applications: first, to regulate peak loads in the regional power grid; and second, provide ancillary services. “This is the first time such a solution has been implemented in Switzerland and it is the basis for the profitable operation of the battery” explains **Thomas Stadler, Head of Digital Solutions at Alpiq**.

The industrial battery is owned by AG EW Maienfeld and has a capacity of 1.25MWh. Alpiq’s digital platform intelligently manages the power grid and maximises the system’s profitability. Data gathered so far enables the platform’s algorithm to optimise future applications and it is now the first battery storage system in Switzerland to have been pre-qualified by Swissgrid for supplying secondary control power. With these two fields of application, the system is ideally equipped for today’s energy world, characterised by digitalisation and decentralisation.

The successful operation of the system is, among other things, attributable to the good cooperation between the partners involved from the outset with Alpiq.



Demand management and optimisation

Advances in digitalisation and automation are driving more effective energy management, enabling better visibility over energy and informing key decisions.

This is a key area for businesses to address to reduce their energy costs, creating real opportunities for significant cost savings. Other benefits include improving operation efficiency and managing risks.

Key trends and highlights



Digitalisation is creating more sophisticated and effective solutions for energy optimisation. Advances in technology mean smarter ways of monitoring energy consumption and driving efficiency improvements through optimising and managing energy. Intelligent controls and automation via machine learning can make a big impact. This gives greater visibility and granularity regarding energy consumption, informing key decisions around energy investments.



Reducing demand and peak loads can create significant savings for businesses. Advances in technology mean more effective ways to reduce and manage loads through, for example, purchasing updated equipment. Savings achieved from this can be significant for energy intensive industries.

Opportunities for businesses

Services

- **Energy management and optimisation solutions.** A range of solutions are available to meet the specific needs of different customer types. This includes reducing demand and peak shaving through intelligent controls and automation.
- **Energy efficiency and efficient equipment.** Fit energy efficiency measures, low carbon and efficient HVAC systems and replace outdated equipment (e.g. lighting, appliances, motors) to reduce demand.

Benefits

- Cost savings, potentially significant
- Optimise performance
- Manage risks
- Improve resilience
- Environmental benefits

Electrification of storage, demand response and smart charging

The move to a more flexible energy system creates opportunities for businesses to benefit from energy storage, EV charging and new value streams.

Engaging with flexibility can provide cost savings as well as generating revenue for businesses. It also reduces carbon emissions and increases resilience.

Key trends and highlights



Increasing flexibility in the energy system is opening up a plethora of opportunities and new value streams such as ancillary services. Customers can generate new revenue through this route.



Energy market opportunities: proactive energy trading, to manage generation and supply risks and changes, and hedge positions on different energy markets.



Energy storage can be used to optimise self-consumption (i.e. store electricity until needed at times of peak demand). It can also be used to participate in demand response.



E-mobility and smart charging will offer huge opportunities. Smart charging can assist with load management, including V2G technology where the EV can also supply electricity to the grid. Customers with large fleets can also make significant carbon savings by converting fleets to electric vehicles (EVs).

Opportunities for businesses

Services

- **Asset management of battery storage** to improve on-site flexibility and participate in demand response.
- **EV smart charging** provides an alternative approach to assist with load management and flexibility.

Benefits

- Generate revenue from emerging flexibility value streams
- Avoid peak charges and reduce costs
- Reduce carbon emissions
- Increased resilience and control over energy needs



Case study:

Meeting DSM's electricity needs and participating in the balancing energy market

Royal DSM is a global company and market leader in vitamin production. Alpiq meets the unscheduled energy demands of all of DSM's sites in Switzerland through a flexible contract model to secure its electricity requirements at transparent and competitive prices. Alpiq enables the company to access the electricity market, integrates electricity sales between DSM and third parties, and balances deviations.

In addition, Alpiq enables DSM to actively participate in the balancing energy market. The electricity generated by a power-to-heat plant at DSM's premises in Lalden provides secondary balancing power to the national grid company, Swissgrid, helping to stabilise the grid.

This case study demonstrates how suitable energy procurement models and software platforms can open up new opportunities for industry to not only make energy supplies more secure and more cost-effective but also to generate additional income for DSM. **Karen Wursteisen, Energy Buyer and Lead Sustainability at DSM**, says: "Our access to the market for balancing energy enables us to generate profitable annual revenues. The performance achieved thanks to artificial intelligence has lived up to our expectations."



The ALPIQ logo is displayed in a bold, orange, sans-serif font within a dark blue rectangular box. The background of the entire page is a scenic photograph of a mountain valley. In the foreground, a vibrant turquoise lake flows over a rocky ledge, creating white water rapids. The middle ground shows steep, dark grey rock cliffs. In the background, majestic snow-capped mountain peaks rise against a clear blue sky. The overall scene conveys a sense of natural beauty and renewable energy.

ALPIQ

Case study:

Real time green pilot

Green energy empowers organisations sustainability strategy:

Today, large energy consumers can buy certificates of origin that guarantees that over a year their electricity consumption is covered by renewable generation. With the “Renewable Energy System (RES) Real Time concept” it goes one step further. The concept provides consumers with 100% green energy in real time, hour after hour and not only on a yearly balance. “Green washing”, raised by many critics, becomes a thing of the past. Customers that consume wind or solar electricity, possibly even from their own facilities can 'when the production of these new renewable energies is not enough' benefit from supplemented hydroelectric power from the Alpiq sustainable portfolio. This way, Alpiq adds value to its renewable, CO₂-free hydroelectric power generation and customers can highlight their commitment to the environment.

How will energy consumers evolve in the future?

The role of energy for businesses and organisations will become more important and complicated in the future.

In the future, a typical consumer will...



have a comprehensive energy strategy

As energy moves away from just another OPEX cost, organisations will have a comprehensive energy strategy, that will align with their overall sustainability goals. There will be more dedicated personnel internally that will look into taking this strategy forward, actively working with more diverse departments to achieve this.



reduce carbon as far as possible

Today, increasingly more organisations consider their carbon emissions, and look for ways that these can be reduced. Therefore, decarbonisation will be a key feature in any energy strategy and companies will be taking measures to reduce emissions relating to energy use.

not just consume energy,



but make sure this is done in an efficient and optimal way

Energy will be optimised to make sure that it is used at very high efficiency and able to take advantage of new market tools like flexible energy tariffs or demand side response services. The ability to react to these new tools will allow consumers to tap into new sources of revenue or cost reduction, via a trusted energy trading partner.

not just have on-site generation assets...



but be active and potentially prosumers

Onsite generation typically just covered internal supply needs, or was present to provide energy in cases of emergency. More consumers are transforming to being a prosumer, not only producing but selling excess energy in energy markets.

Conclusion

New energy presents businesses with exciting opportunities

The energy system is undergoing a massive transformation which will impact how businesses use, purchase and manage energy.

1. The energy system is undergoing a massive transformation through decarbonisation, decentralisation and digitalisation – and it's already happening.
2. Businesses need to adapt now to the changes under the energy transition or be left behind, and risk being subject to increased costs and missed opportunities.
3. Businesses have the opportunity to take advantage of being more in control of the energy they use via services which are better suited to their needs and budgets, as well as being better for social and environmental good. This can help businesses reduce costs, comply with best practice, manage risks and become a truly sustainable business. **The opportunities presented by the transition are for digital, leaner, future proofed businesses.**
4. Opportunities will centre around:
 - Generating or sourcing green energy and increased resilience from energy price volatility;
 - Efficient management of generation and storage assets;
 - Sophisticated and intelligent energy optimisation to reduce demand and manage loads;
 - Opportunities through increased flexibility and storage;
 - Transitioning to low carbon heat and transport solutions.
5. There will be challenges in the transition – more information, a proliferation of new options and uncertainty. This may mean unpredictability for budgets and types of services that are needed, and more decision-makers internally in organisations.
6. The important thing is finding experts and trusted partners who can guide their customers through the transition and can offer tailored and easy-to access services and solutions.



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