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Electric Decade

challenges & opportunities

The energy transition will transform the European economy

The electricity value chain will be at the core of a demand-driven shift powered by technology

The drive to net zero has a fundamentally different dynamic to any transition that has come before. Not only is it the biggest infrastructure intervention since World War II - it is also the most urgent and complex.

But what really sets this energy transition apart is that it is demand driven. For the first time, consumers, businesses, and governments are all asking for the same thing: a reliable, affordable supply of renewable electricity.

With electricity consumption in Europe set to grow significantly in the next decade, it will be necessary to embrace technology to find new means of production; in fact, many industries are counting on electricity companies to lead the transformation.

The evolution of electrification

The dynamic charge to net zero is different from anything that has come before

	Previous Energy Transitions	The Net-Zero Transition	
Goals	**Supply Driven** Discovery or creation of a better energy source often to meet existing demand via existing or adjusted supply side infrastructure	**Demand-driven:** Consumer demand is growing for low carbon solutions and outcomes, which need to scale to accelerate the energy transition	**Demand less influenceable than supply**
Proponents	**Asset owner-driven:** Pursuit of value creation by suppliers and infrastructure players via lower cost or more flexible supplies	**Society & stakeholder-driven:** Pressure from all directions: Consumers, Policy Makers, Investors, Employees	**Imperative for change goes beyond (near term) financial results**
Scope	**Unilateral / Bilateral:** Certain fuel sources & sectors in certain geographies	**Cross-industry:** Requires alignment across many actors, sectors & markets across the value chain	**Distributed responsibility for coordinated action**
	Single Technology or Concept: Individual technology led transition (e.g. LNG)	**Multiple technology or concept:** Requires a portfolio of technologies to meet climate goals	
Timeframe & Economics	**Classical economics-driven:** ~50 years of innovation & ~50 years of diffusion	**Externality & deadline-driven:** Race against 2030 emissions reduction goal	**Need for new markets and re-pricing**

Sustainability is the new Digital

Electricity companies that prioritize sustainability can benefit from a strong immediate rebound, and a competitive edge in the medium term

The EU 2030 targets require a significant acceleration of the energy transition in this decade

-55% GHG emissions reduction (vs. 1990)

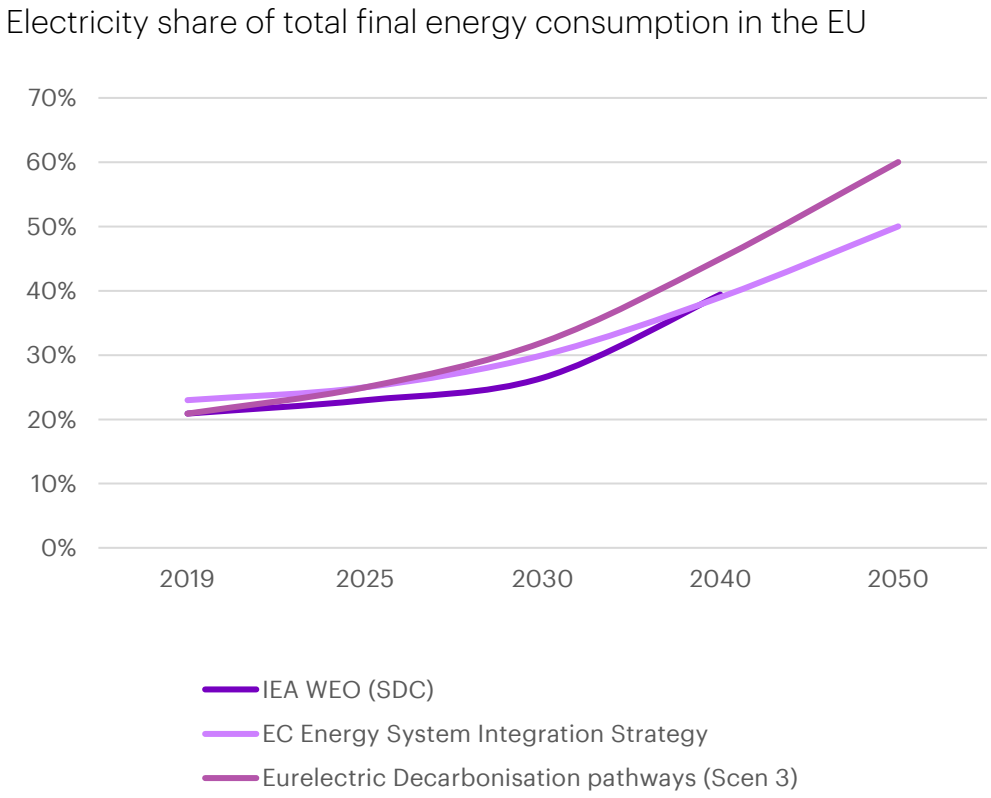
38% Share of renewable energy

40% Improvement in energy efficiency

85% Carbon-neutral electricity

Source: EC. 2030 climate & energy framework.

Electrification of end use is the cornerstone of scenarios for net-zero by 2050



Source: IEA. World Energy Outlook 2020. Sustainable Development Scenario.

In the Electric Decade, E becomes the new I

In the Electric Decade, E becomes the new I

Electricity will have a new role at the core of both emerging and established industries

Just like the fourth industrial revolution brought a wave of products that started with "I" to indicate their intelligence, we expect the accelerated electrification of everything from trucks to cities to meet growing demand while decarbonizing at speed: **so E will become the new I.**

This shift will put electricity providers at the center of new and emerging industries that will electrify society.

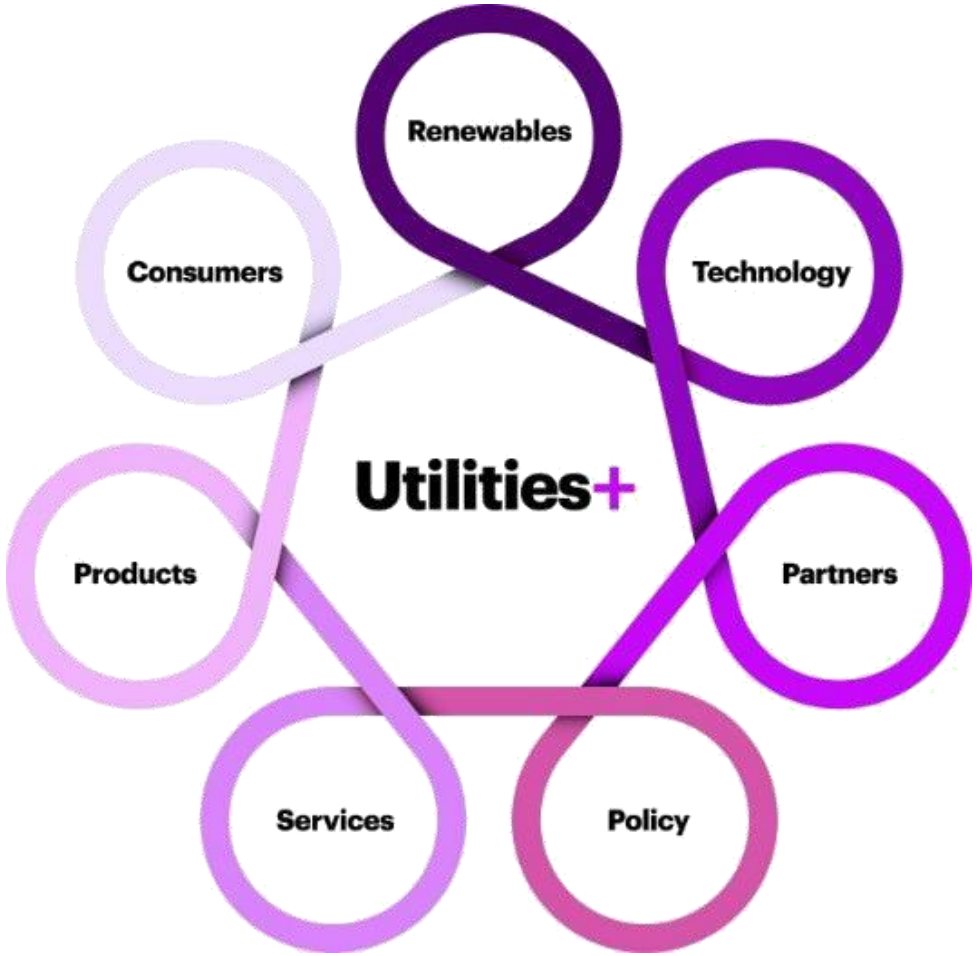
For example:

Electricity + Automotive + O&G retail = eTransport

Electricity + Chemicals + Manufacturing = eIndustrials

Electricity + Government+ FMCG = eHeating

Electricity + Technology + Logistics = eCities

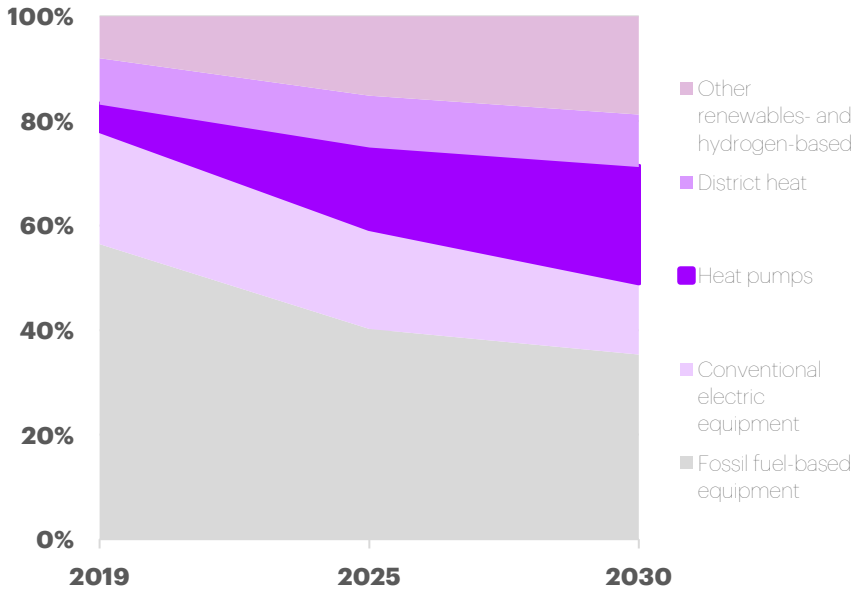


The net zero consumer

Direct electrification will reinvent everything from heating to mobility

Electric and renewable heating solutions can grow to meet close to 65% of residential heating system sales by 2030

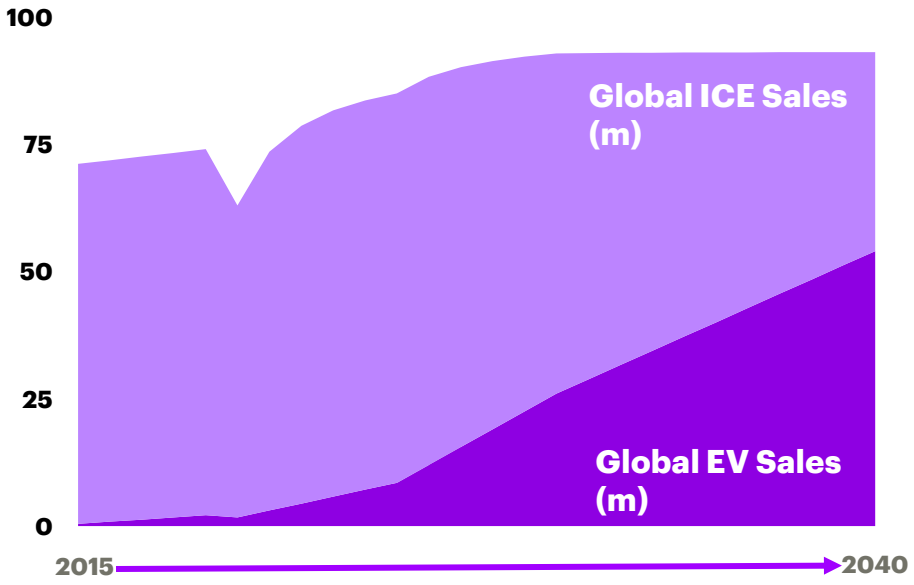
Share of households purchasing heat pumps for heating and hot water production (selected regions, Sustainable Dev. Scenario)



Source: IEA, Tracking Sustainable Energy Progress - Heat Pumps.

Electrification of end use is the cornerstone of scenarios for net zero by 2050

Global EV sales could reach 26 million by 2030 and 54 million by 2040 (compared to 8.5m by 2025)

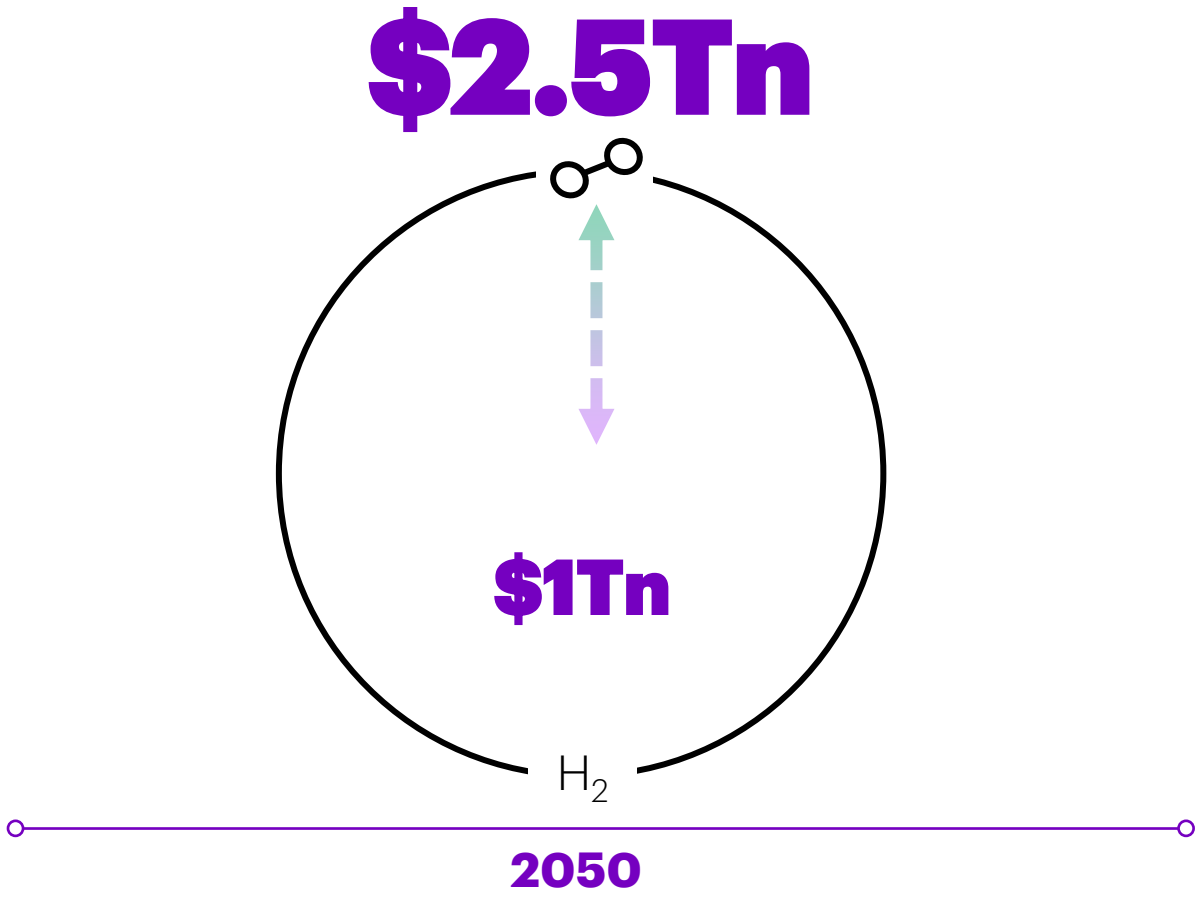


Source: Bloomberg NEF. Electric Vehicle Outlook 2020.

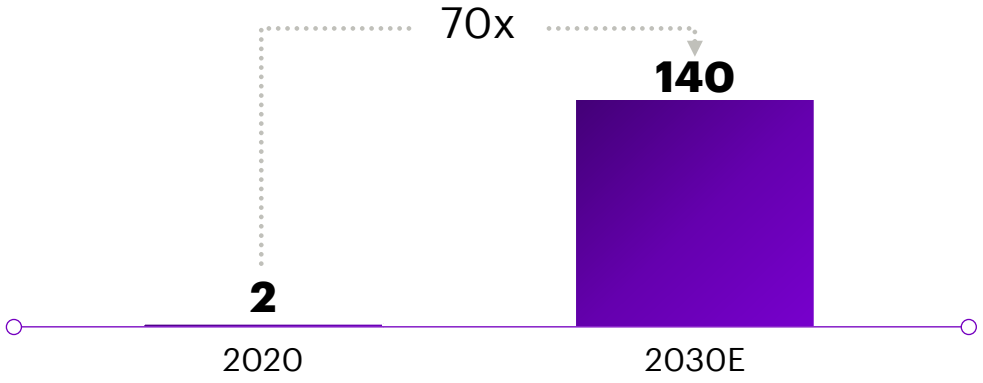
Is Hydrogen the silver bullet?

Hydrogen offers new pathways for indirect electrification of hard-to-decarbonize sectors of the economy

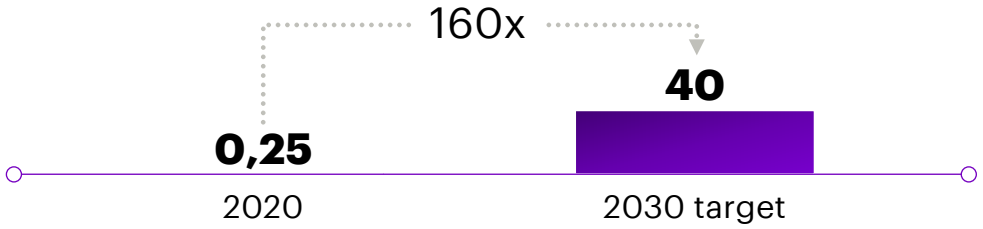
By 2050, the hydrogen economy has the potential to grow significantly – and European markets are expected to grow their hydrogen economy over the coming decade as a result.



European hydrogen economy annual revenues, BN euro



European installed electrolyser capacity, GW



Source: Hydrogen Europe, EU Hydrogen Strategy

Source: Accenture analysis, Navigate, Hydrogen Council, Aurora, BNEF, FCH, IEA, IRENA, Shell, BP, Deloitte

A win win win scenario

The electrification of Europe's economy could have major advantages for consumers, business and society

A scenario for 95% emissions reduction by 2050 can be achieved through deep electrification of end-use sectors

CO_2 emissions

-95%

Reduction

Buildings	↑63% of energy use
Transport	↑63% of energy use
Industry	↑50% of energy use

Source: Eurelectric. Decarbonisation Pathways study.

Societal benefits of electrification

24m

New jobs
could be created globally by 2030 through the shift to a greener economy, including 2 million in Europe[1]

€107bn

Energy import cost savings
In the EU in 2030 due to reduced use of fossil fuels, or 0.7% of GDP[2]

€24bn

Health benefits
In the EU in 2030 due to reduced use of fossil fuels, or 0.1% of GDP[2]

[1]: ILO. World Employment and Social Outlook 2018: Greening with jobs. 2018
[2]: Enerdata. Costs and Benefits to EU Member States of 2030 Climate and Energy Targets; scenario for 40% GHG emissions reductions, 30% RES share & 30% energy efficiency improvement.

Change is in great demand

Technology is a key lever as electricity shapes new ecosystems.

Organizations hoping to lead in the electric decade will be challenged to master technology in every part of their business, as it empowers them to transform at the speed and scale needed to solve problems that are increasingly complex.

Embedding technology in everything from strategy to daily operations and talent can accelerate the transition. It is a pattern that first noted in B2C, then manufacturing, and now across energy – and there are many lessons to learn from what has happened before.

Excellence in technology that drives sustainability is central to the transformation.

Empowering the electric decade

Europe's electricity companies have a pivotal role in leading the way to net zero

Objectives

1

Shaping demand

What opportunities will evolving demand present to European electricity leaders?

2

Scale at speed

Should established organizations partner with startups to innovate at scale?

Enablers

3

Digital + Data

How can data drive better physical infrastructure performance?

4

People

How can electricity companies upgrade their culture and attract the tech-savvy talent needed?

Technology can enable electricity companies to achieve their goals

Shaping demand:
The Net Zero Consumer

Clean electricity on demand

Electric companies will play a central role as demand evolves: producing and delivering the net-zero energy and services that clients want and orchestrating the cross-industry ecosystems that will deliver the energy transition.

Residential customers want better experiences from service providers that reflect their values and lifestyles, at affordable prices, fuelling rapid growth of markets for new value models: eMobility and charging, alongside housing, will change the game in the decade to come.

To succeed in this demanding environment, electricity companies will be challenged to reposition themselves and become the trusted partner for net zero consumers – as indicated in Eurelectric's 15 Pledges to Consumers.

60% of residential consumers have become more aware of climate change and its environmental impact since the start of the outbreak [1]

>50% of residential consumers likely to invest more in energy efficiency today than before the pandemic [1]

€8 Billion of business value that can be realized by 2030 in the 6 largest European markets from lease and rent models [1]

10 GT/year possible GHG reduction through collaboration between suppliers and customers [2]

25% CAGR can be unlocked through new value models compared to traditional commodity growth levels of 1% [1]

[1] Accenture. Deliver new energy experiences for future growth. Oct 2020.
[2] Accenture. Energy Decarbonization: From A to Zero. Sept 2020..

Shaping demand: **Decarbonized industrial clusters**

Demanding more from utility players

For **corporate consumers**, investments in low-carbon technologies present significant opportunities.

Industrial clusters are a perfect example of the magnitude and number of opportunities available from a multi-stakeholder and integrated approach toward a net-zero future.

Utility providers are at the heart of this opportunity. Now is the time to claim that position as the active leader decarbonizing heavy industry.

~37% of the total energy consumed in 2018 was used by the industrial sector [1]

~40% of industrial emissions that can be abated by 2050 via electrification of light industries using commercially available technology [1]

25% of potential emissions reductions depend on collaboration between energy suppliers and their customers [2]

15% possible industrial GHG reduction by 2030 through circularity and greater system efficiency [1]

15% possible industrial GHG reduction by 2030 through direct electrification and renewable heat [1]

1: Accenture. Industrial clusters: Working together to achieve net zero. March 2021.
2: Accenture. Energy Decarbonization: From A to Zero. Sept 2020.

Scaling at speed

Capabilities + assets = innovation

At this point of the transition, the real innovation challenge is not in new ideas. Renewables, electric heat pumps, charging, hydrogen, energy efficiency programs and carbon free technologies are in place – what matters is bringing them to scale as quickly as possible.

Europe's electricity companies possess the capabilities and assets to bring net zero energy innovations to scale, enabling uptake among a broad customer base.

To do so, new solutions and technologies from "small" companies and start-ups would be critical – but only if these innovations are scaled by larger players.

7.2% CAGR revenue trajectory of companies adopting *extensive innovation governance (past and future) [1]

$5 Billion estimated EBITDA available to European leaders through fleet and vehicle electrification [2]

11 Million electric vehicles are expected to be on the road by 2030, which will grow to 36 million by 2050 [2]

77% of executives state that their technology architecture is becoming very critical or critical to the overall success of their organization [3]

90% of executives state that multiparty systems will enable their ecosystems to forge a more resilient and adaptable foundation to create new value with their organization's partners [3]

[1]: Accenture. GOVERNING INNOVATION: The recipe for portfolio growth. Jan 2020.
[2]: Bloomberg NEF. The Electric Vehicle Outlook. May 2020
[3]: Accenture. TECHNOLOGY TRENDS. Mar2021

Digital & Data

The new energy system has a data layer on top of the traditional physical energy system.

Physical infrastructure data can drive value and differentiation by optimizing the electricity system—across electricity and gas networks—shaping service design, and helping guide demand-side development,

Digital twins optimize economic and environmental performance at design and construction and can be operated in real time to develop new models that optimize asset management, ensure grid stability, and integrate technology to deliver new consumer propositions.

-5% potential reduction in maintenance CAPEX through digitized systems [1]

33% of utilities say that they have achieved value from their technology investments [2]

15% estimated recovery of lost production time through digitized systems [3]

$5b. amount the power sector is expected to spend in software by 2025 [4]

$221b. estimated value of the energy-as-a-service market by 2026 [5]

[1] Accenture. Deliver new energy experiences for future growth. Oct 2020.
[2] Accenture. FULL VALUE. FULL STOP. 2020
[3]: Bloomberg New Energy Finance. Digitalization Could Provide $38 Billion in Benefits to Energy.
[4] Bloomberg New Energy Finance, Power Sector To Spend $5 Billion on Software by 2025
[5] Utility Dive. Navigant sees $221B energy as a service market by 2026.

Power to the people

It's all about deep digital expertise

People will be the main enabler–and constraint–determining success in the electric decade.

One looming challenge in the electric decade will be the race to reskill the distributed workforce and empowering them to transform the sector as quickly as needed.

Building a new workforce requires a deep understanding of what people need, and matching technology development and training with a sustained focus on leaving every team member "Net Better Off": a state where their needs are truly met.

70% of the top 10 emerging jobs in energy & utilities in the next 5 years require deep digital expertise[1] along with engineering skills

277k people are estimated to be needed to address workforce and skills shortages in the sector this decade in the UK [2]

30% of people within the energy sector who say they would consider leaving their current organization in the next 3 years [3]

48% of the 2030 Utilities workforce in the UK will either be new recruits, or staff who have been retrained [2]

5% of potential revenue growth can be achieved by looking after employee wellbeing [4]

[1] :World Economic Forum. The Future of Jobs Report 2020.
[2]:Energy & Utilities Skills. Energy & Utilities sector collaborate to close 277,000 workforce gap.
[3]:Airswift. What are the key energy employment trends we expect to see in 2021?
[4]:Accenture. Care to do Better. Sept. 2020.

Digital jobs need digital talent

Navigating the energy transition will require electricity companies to attract a new kind of talent: experts, including technical and engineering talent, who want to use their digital skills to solve the complex challenges ahead and have a positive impact on the environment.

To attract that level of talent, which is in short supply, European electricity leaders will need to embed the latest technology and match that progress with a culture built on innovation.

Collaborating with nimble start-ups and large organizations is also a powerful tool to acquire new skills at speed and pursue the level of innovation needed in the electric decade, and beyond.

The Electric Decade is an extraordinary time requiring extraordinary action

“Failure is obviously not an option.”

John Kerry; Special Presidential Envoy for Climate

Davos 2021[1]

For the first time, there is alignment between consumers and the industries and governments that serve them. However, to prepare for the electric decade, that shared purpose needs to be translated across the electric value chain.

So, how do we solve the largest, most complex, most expensive problem in human history? Climate change has set a hard deadline: for a 66% chance of avoiding a 1.5-degree increase, we need to half emissions by 2030. That means phasing out coal 5 times faster, and increasing tree cover just as quickly. It means ramping up renewables six times faster, and making the transition to EVs 22 times more quickly.

Doing so will require investments of an unprecedented magnitude – and yet technology and human ingenuity offer the promise of success, provided prices fall and solutions are scaled with purpose.

Every industry would be reliant on the electricity sector to some extent as we approach net zero, and so we must decarbonize now to empower them to follow.

Although the sheer size and urgency of the journey means it is a unique challenge, it is also exciting; particularly for an industry that is already doing extraordinary things in extraordinary times for an extraordinary purpose – to save the planet.

So, let there be change.

[1] :US Department of State. Remarks at World Economic Forum, Davos 2021.

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