MANY SKILLS ONE VISION

OUR JOURNEY









VISION
2025

WORKFORCE RENEWAL AND
SKILLS STRATEGY 2020–2025
RESPONSE AND REFRESH

CONTENTS

1. **FOREWORD** MICHAEL LEWIS E.ON UK CHIEF EXECUTIVE AND CHAIR OF ENERGY & UTILITIES SKILLS PARTNERSHIP

TODAY, EVERY MAJOR BUSINESS SECTOR IN ENGLAND, WALES, SCOTLAND AND NORTHERN IRELAND IS REPORTING SKILLS ISSUES

It is my pleasure to introduce you to the latest Workforce Strategy for 2020-2025, convened on behalf of the whole sector by the Energy & Utilities Skills Partnership. Our voluntary partnership of 30 gas, power, water and waste management leaders ensure that the utilities and their major supply chain partners all have the safe, skilled, diverse and sustainable workforce needed to deliver essential services to the public now, and to meet the fast changing requirements of the future.

When this partnership created the first ever Energy and Utilities Workforce Strategy in 2017, it sought to plan for ten years ahead and predicted that large numbers of new recruits would be needed just to keep the status quo. Since then, and in the time we have been preparing this document, major national, European and global events have further impacted the infrastructure sector, and the UK labour market has broken record after record as it has become ever more constrained. Today, every major business sector in England, Wales, Scotland and Northern Ireland is reporting skills issues and the declaration by HM Treasury that the UK is at economic 'full employment' came well before the Office of National Statistics evidence which showed how real the fight for talent would become. The need for a coherent plan is evident.

This new strategy seeks to ensure workforce resilience by calling on all the policy makers, regulators, unions, utilities, supply chain partners and major interest groups to unite. As much as the human capital challenge has increased for our sector, our very purpose - for society and the environment - has also become pin sharp since events such as the environmental emergency and the COVID-19 pandemic. Together, we have a once in a generation opportunity to work together and show that choosing to take on a career in our industries is about choosing to support our communities and our planet in finding sustainable energy, waste and water solutions; it is about being in the vanguard of tackling the environmental crisis; it is about meeting those vital zero carbon targets and it is about underpinning the UK economy and people with infrastructure and essential services as critical workers.

Many strategies are released each year promising action, and we have scrutinised ourselves intensely as a partnership to be sure we are making a difference in our efforts. The fact is that through this collaboration we have already reached many millions of new people from across society to persuade them to consider a career in our sector. We are securing 50% female inquiries to our Energy & Utilities Jobs portal by communicating to build diversity and have created the first ever Inclusion Commitment for the sector; a commitment already backed by over 40 major energy and utilities partners. We have increased investment in skills by fundamentally changing procurement culture through the Procurement Skills Accord and by new partnership working with economic regulators to have workforce resilience now included in energy and water price setting processes. Our efforts together in supporting apprenticeships has graduated over 1,500 new technically adept people already and secured us explicit recognition as leaders in adapting to the Apprenticeship Levy and the subsequent policy reforms.

The fact is that when everyone in a partnership commits to work together, and then delivers on that personal commitment, positive change happens. This strategy now sets out how through partnership we will build on the fantastic momentum that has already been achieved, to ensure that the gas, power, water and waste management industries continue to access the right quantity and quality of workforce needed, and meet the fast changing demands of our customers, our society and our planet.

Michael Lewis
E.ON UK Chief Executive and Chair of
Energy & Utilities Skills Partnership

2. **EXECUTIVE SUMMARY**

Our sector's one vision is:

"Through our partnership, we will ensure a safe, skilled and sustainable workforce provides the essential services that our customers seek and meets the UK's needs from the energy and utilities infrastructure."

The Energy & Utilities Skills Partnership (EUSP) published its inaugural Workforce Renewal and Skills Strategy in 2017. This pioneering piece of work was the first of its kind for the energy and utilities sector providing a framework for delivering all the required essential services and the government National Infrastructure Delivery Plan (NIDP). The strategy was guided by a Council of nearly 30 senior leaders from across gas, power, water and waste management asset owners, retailers and the supply chain partners.

THE SECTOR HAS EXPERIENCED A PERIOD OF UNPRECEDENTED CHANGE. OUR OPERATING ENVIRONMENT HAS BEEN TRANSFORMED AND OUR SKILLS CHALLENGES HAVE EVOLVED IN RESPONSE.

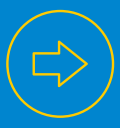
Since then the sector has experienced a period of unprecedented change. Our operating environment has been transformed and our skills challenges have evolved in response. We review the progress we have made against the 10 strategic priorities we set in 2017, highlighting key areas of progress and where there is still more do to.

Sector progress

The inaugural skills strategy created 10 strategic priorities for the sector grouped into three themes:

Sector attractiveness and recruitment
– to increase our future talent pool

Maximising investment in skills
– investment made by asset owners and their supply chain



Targeted action
– to address anticipated skill gaps and shortages

These strategic priorities helped to establish the key challenges and drivers to ensure that the sector was best placed to develop a sustainable talent pool for the ongoing delivery of energy and utility services. Sector employers have stepped up to tackle skills and workforce issues and through this collaboration have established a number of key initiatives and have made significant progress including:

- Building diversity – over half the inquiries received through our Energy & Utility Jobs portal now come from women
- Creating the first Inclusion Commitment for the sector backed by more than 40 employers
- Supporting companies to recover their Apprenticeship Levy contributions by bringing 1,500 talented new apprentices into the sector
- Changing procurement culture and incentivising investment in skills through the Procurement Skills Accord
- Working with economic regulators to include workforce resilience within the price setting process for energy and water.

The skills challenge today

The world has changed since we published our previous strategy and these changes are having a significant impact on our sector. There will be both challenges and opportunities to respond to if we are going to deliver our vision for the future. These include:

- The sector operating environment – this includes significant changes that have taken place in wider society that impact on the energy and utilities sector including:
  - The climate emergency
  - Circular economy
  - Brexit
  - Digitisation and data
  - COVID-19.
- UK skills policy environment – this includes reforms being made by central government and the devolved administrations to skills policy and work policies which include:
  - Refinement of apprenticeship policy across the four nations
  - Introduction of T Level qualifications
  - Improved higher level technical education (Levels 4 and 5)
  - Funding modifications for post-18 education
  - Retraining initiatives to boost skills development
  - Localisation of skills policy
  - Local Skills Advisory Panels and Regional Skills Partnerships
  - Industrial strategy, immigration and migration policy and EU exit.

These changes will exacerbate the existing skills challenges being faced by the sector which means that employers will be functioning within a very different landscape. As a result, the sector will need to manage existing and long-term skills issues, alongside emerging environmental challenges and opportunities and the divergence of the skills and education system.

The analysis of the sector challenges in meeting net zero carbon combined with the constrained skilled labour market and changes to the skills and education system, has identified three critical workforce and skills issues that need to be addressed over the next five years:

- Constricted labour market and evolution of jobs
- Workforce diversity, inclusion and attraction
- Targeted training and retraining to meet market demand

Refocusing our strategic priorities

In order to make progress against these three critical challenges we have revised our skills strategy for 2020 to 2025. We will target our efforts and resources to meet these workforce and skills needs and continue to adjust our approach to meet the demands of the rapidly changing operating environment. Whilst the main three themes remain as before, with the exception of 'Sector attractiveness and recruitment', which has been updated to include workforce diversity, the original ten strategic priorities have been refocused into six.

Sector attractiveness, recruitment and workforce diversity

1. Reflect the population that the sector workforce serves
2. Inspire the next generation to a career within the energy and utilities sector

Maximising investment in skills

3. Deliver the competencies and skills we need
4. Build public recognition of the sector

Targeted action – to address anticipated skills gaps and shortages

5. Support a successful UK economy and society outside the EU
6. Contribute to a sustainable and resilient UK

FUTURE ACTIONS

The challenge facing the sector is significant. Focused and targeted action must happen. As the sector grapples with the requirements of decentralisation, decarbonisation and digitisation, it is clear that it is the human capital, our people, who will deliver net zero carbon. They will keep the lights on, our homes and workplaces heated, clean water running and repurpose our waste. These challenges then need to be delivered against the backdrop of increasingly divergent education and skills policy. To rebuild the economy and deliver our Workforce Renewal and Skills Strategy 2020–2025, our sector has agreed four recommendations to both the UK and devolved governments.

1.

COLLABORATIVE PARTNERSHIP ACROSS THE UK & NATIONAL GOVERNMENT DEPARTMENTS:

The increasingly devolved and fragmented efforts to address the UK's labour market and workforce resilience challenges need coherence and leadership to ensure the UK's prosperity after leaving the European Union.

2.

INVESTMENT IN INDUSTRIES THAT ARE OF STRATEGIC IMPORTANCE TO THE UK ECONOMY:

The energy and utilities sector is the largest single contributor to the National Infrastructure Delivery Plan. Ensuring a sustainable and resilient sector workforce is an essential investment for the whole of the UK.

3.

A STABLE SKILLS AND EMPLOYMENT POLICY ENVIRONMENT:

Sector employers need coherent skills policy to enable them to minimise wasted resources and commit to long-term investment in the workforce.

4.

CONTINUING DIALOGUE AND EVALUATION OF POLICY AND PRACTICE WITH EMPLOYERS:

Ensuring skills and workforce policy interventions are employer-led, recognising the needs of employers in the energy and utilities sector.

This new strategy seeks to ensure workforce resilience, and as a sector we call on policy makers, regulators, unions, and supply chain partners to unite with us. We have a once in a lifetime opportunity to work together, to demonstrate the value of a career in our sector, providing essential services with critical infrastructure and the opportunity to make a real difference to the communities that we live in and to make sustainable changes to the environment.

WE ARE CLEAR IN OUR STRATEGY, OUR ACTIONS AND ASKS, AS WE MOVE FORWARD TO DELIVER THE NEXT FIVE YEARS.

3. INTRODUCTION TO THE ENERGY & UTILITIES SKILLS PARTNERSHIP

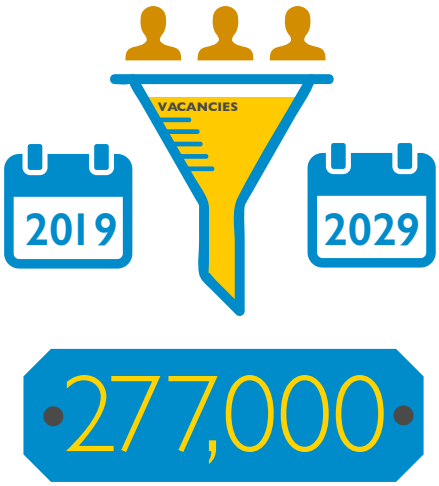
The Energy & Utilities Skills Partnership (the Partnership) was established in July 2016 to demonstrate leadership in workforce renewal and skills enhancement, engaging employers from across the four nations to create a safe operating environment and secure the right people with the right skills and behaviours in the right place at the right time and all at an affordable cost. It is made up of 30 utility organisations from the gas, power, water and waste management asset owners, retailers and the supply chain partners. The sector is critical to the UK economy and employs just over half a million people, which accounts for almost 2% of all UK employees. It provides essential services to more than 66 million people and businesses across the four nations.

The sector keeps the lights on, keeps our homes warm, provides clean drinking water and takes away and repurposes our waste. It forms the backbone of our country and society. It has a clear and pivotal role in the achievement of the Government's net zero targets. Reducing the amount of power generated from fossil fuels, increasing the production of green energy from renewable sources, transitioning the gas network from natural gas to hydrogen, removing plastic from our water sources and creating a circular economy for multi-use material will require a workforce with new skills and knowledge.

However, the baby boomer generation are now all aged 55 and over and we predict that throughout the next decade, 27% of the workforce will retire. Combined with the requirement for the growth of new jobs, new talent and skills, and people leaving the industry, the sector will need to replace or retrain 48% of the current workforce which equates to 277,000 vacancies in the next 10 years.

The sector recognises that it needs to tap into the largest pool of talent possible and one which better reflects the population served by having a diverse and inclusive workforce. Workforce diversity and inclusion numbers for the sector continue to be below the UK averages for gender, BAME, disability and employment of younger people.

Figure 1: Number of vacancies in next 10 years



Specific skills shortages are reported in engineering and technicians' occupations as well as cross-sector disciplines such as quantity surveyors, data scientists, cyber security experts and project management. The industry is struggling to recruit enough people into these, and other critical roles. Being able to attract and retain young people with STEM qualifications continues to be an issue.

Boosting apprenticeships across the sector's technical occupations is paramount. These new recruits will often fill key operational roles, and gain skills that are specific to the sector.

At the time of launching this report we are still in the middle of the COVID-19 global pandemic. With lockdown, industries and businesses are planning how they will get back to work, and significant damage to the economy is predicted. Many employees within the sector have been considered key workers and have played a critical role in helping society continue to function.

It is clear it will take time before the recovery starts to resemble the pre-pandemic economy. Thousands of people have lost their jobs, mainly in the travel, hospitality and retail sectors and as yet it remains to be seen if they have the skills, behaviours and knowledge to transition to the energy and utilities sector.

A SNAPSHOT OF THE ENERGY AND UTILITIES SECTOR

57%

of National Infrastructure Pipeline projects to be delivered by energy and utilities firms[1]

people are employed in the energy and utilities sector across the UK[2]

SUB-SECTOR EMPLOYMENT[2]

103,000
Power

155,800
Waste management

22,900
Construction-related supply chain

151,200
Gas utilisation

39,700
Gas transmission and distribution

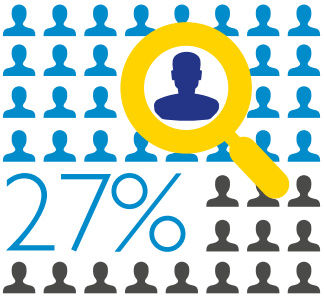
34,100
Manufacturing-related supply chain

65,500
Water

7,000

number of vacancies in the energy and utilities sector, recorded March 2020[3]

NUMBER OF VACANCIES IN THE SECTOR IS INCREASING



of hard-to-fill vacancies are challenging because of skills issues[4]

1 Infrastructure and Projects Authority (Spring 2016), 'National Infrastructure Pipeline'.
2 ONS (2016), Business Register and Employment Survey.
3 ONS (2016), ONS Vacancy Survey.
4 UKCES (2016), UK Employer Skills Survey, 2015.

The collaboration across the sector, and with third party organisations, includes the trade unions, professional institutions, trade associations, Duke of Edinburgh's Awards, Engineering UK, Armed Forces Covenant, Careers and Enterprise Company (CEC), Skills Development Scotland (SDS), Youth Employment UK, Department for Education, Institute for Apprenticeships and Technical Education (IfATE), University Technical Colleges (UTC) and Primary Engineer, and only starts to scratch the surface of the commitment, endeavour and change that the sector has enabled since 2017.

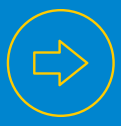
Many of the sector employers have won awards for their endeavours, Balfour Beatty secured the Civil Engineering Contractors Association (CECA) 2019 Inspiring Change in the Workplace award. Anglian Water's Chief Executive, Peter Simpson won the Glassdoor annual Employees' Choice Awards in 2017, and they were winners of Business in the Community's Bupa Health and Wellbeing Award in 2019 and received the Queens Award for Enterprise: Sustainable Development in April 2020 for the second time. Eight of the sector companies are within the top 100, for delivering apprenticeships and work experience schemes for young people for 2018-19. The accolades roll on, but they do represent a sector committed to making a positive change in delivering a sustainable skilled workforce.

4. **PROGRESS SINCE 2017**

The previous strategy, was launched in 2017, supported by 27 of the major employers. The creation of strategic priorities for the sector established the key challenges and drivers of change in recruiting the skills needed to deliver the infrastructure pipeline demand. Recurring issues for filling vacancies and attracting and retaining diverse new talent to the sector were identified. The three themes listed below, aimed to address the challenges and ensure that the sector was best placed to develop a sustainable talent pool for ongoing delivery of energy and utility services.

Sector attractiveness and recruitment
– to increase our future talent pool

Maximising investment in skills
– investment made by asset owners and their supply chain



Targeted action
– to address anticipated skill gaps and shortages

This document reviews the sector response to the Skills Strategy. Below is a summary to date of the sector's key achievements and significant progress made within each of the ten core strategic priorities. The sector employers have stepped up to tackle skills and workforce issues and through this collaboration we have already reached many millions of new people from across society to persuade them to consider a career in our sector. We are securing 50% female inquiries to our Energy & Utilities Jobs portal by communicating to build diversity and have created the first ever Inclusion Commitment for the sector; a commitment already backed by over 40 major utility partners. We have increased investment in skills by fundamentally changing procurement culture through the Procurement Skills Accord and by new partnership working with economic regulators to have workforce resilience included in energy and water price setting processes. Our efforts together in supporting apprenticeships has graduated over 1,500 new technically adept people and secured us explicit recognition as leaders in adapting to the Apprenticeship Levy and the subsequent policy reforms.

THEME 1: SECTOR ATTRACTIVENESS AND RECRUITMENT

PRIORITY ONE:
WORKING WITH SCHOOLS TO INSPIRE THE NEXT GENERATION

Objective: To increase the numbers of young people taking STEM subjects and entering careers in the sector.

Progress to date:

Primary and Secondary Engineer
Supporting the launch of The Institution of Primary Engineers and The Institution of Secondary Engineers in May 2019. Employers in the sector were the early adopters of the strategy to nurture skills early on, engaging and attracting children to engineering and utilities.

Working partnerships and collaboration with the Careers and Enterprise Company (CEC), Duke of Edinburgh's Awards (DofE), Engineering UK, Skills Development Scotland (SDS), and the Collab Group to amplify the sector message to encourage young people to the sector and gain STEM skills.

Out-reach programmes
Employers have instigated and are running a number of out-reach programmes such as "Kiers' Shaping Your World."

Young Professional programme
Youth Employment UK, joined with Energy & Utility Skills to encourage more young people into the energy and utilities sector and helping it to become more youth friendly. Inspiring more young people into roles or training provision in the sector to get 'work-ready' by developing additional skills through the Young Professional programme.

University Technical Colleges
52% of our sector (22 companies) are involved in partnering with local sector based UTC's to provide work experience and training opportunities.

Increased interest among the young in engineering careers
The overall proportion of 16-19 year olds considering a career in engineering has increased over the past decade. Sector employers recognised that it was vital to engage more effectively with young people at a time in their lives when they would be making formative choices impacting their futures.

THEME 1: SECTOR ATTRACTIVENESS AND RECRUITMENT

PRIORITY TWO:
BUILDING RECOGNITION AND SECTOR PRIDE

Objective: To inspire and retain the talented people already in the workforce.

Progress to date:

Regulators' recognition of workforce resilience

The Partnership has secured explicit recognition of strategic workforce resilience within the future visions, strategies and policies of regulators. This is now incorporated into Ofgem and Ofwat price review processes.

Excellence through cross-sector collaboration

The Partnership worked with the National Skills Academy for Power (NSAP) via the NSAP awards to highlight the value of the sector's people. In addition, the NSAP conference sessions brought together policy makers, regulators, regulated, supply chain and unions for the first time to raise the profile of the sector.

The Partnership has created and implemented skills recognition at the Institute of Water Awards and judged both the National School Leaver Awards and Utility Week Awards.

Celebrating and recognising success is a key part of ensuring the sector retains and encourages its talent. It also provides inspiring role models to new talent considering a career in the sector, as a core component of the sector value proposition.

Recognising best practice amongst employers – Key successes include:

- Balfour Beatty recently secured the Civil Engineering Contractors Association (CECA) 2019 Inspiring Change in the Workplace award for creating a more inclusive and diverse workforce.

- Anglian Water's Chief Executive, Peter Simpson won the Glassdoor annual Employees' Choice Awards in 2017, and they were winners of Business in the Community's Bupa Health and Wellbeing Award in 2019 and received the Queens Award for Enterprise: Sustainable Development in April 2020, for the second time.

- Eight companies are within the top 100 for delivering apprenticeships and work experience schemes for young people for 2018–19. ('Rate my Apprenticeship' Top 100 Employers)

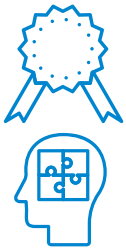
Recognising young talent

A range of awards are dedicated to shining the light on talented young people:

- Young Water Dragons – encourages schools to consider some of the most pressing challenges facing the water industry.

- Energy UK Young Energy Professionals (YEP) of the year award – UK Power Networks, National Grid and EDF were shortlisted.

THEME 1: SECTOR ATTRACTIVENESS AND RECRUITMENT



PRIORITY THREE:
RAISING THE SECTOR PROFILE AND VALUE PROPOSITION

PRIORITY FOUR:
INCLUSIVE APPROACH TO EMPLOYING DIVERSE TALENT

Objectives: To expand the sector talent pool and ensure that it reflects the communities it serves. To make our sector workforce more inclusive

Progress to date:

Sector Inclusion Commitment
As part of this Commitment to build a diverse and resilient workforce, 42 leading employers and stakeholders have agreed to work collaboratively to attract, recruit and retain more diverse talent to the sector. The social media reach of this commitment extends beyond 2.7 million views.

Development of sector wide inclusion measurement framework building on the Royal Academy for Engineering work in this area.

Commitment to becoming a disability confident sector with Thames Water achieving Disability Confident Leader status.

Establishment of sector partnerships including Remploy, The Equal Group and Women's Utilities Network, enabling sharing of expertise and best practice.

Energy & Utilities Jobs
This challenge resulted in the creation of Energy & Utilities Jobs a collaboration of 26 of the partnership's key employers. It aims to attract and inspire new people, bringing new skills, ideas and ways of thinking, to engage with the sector's employers, through a range of New Entrant, Apprenticeship and Graduate routes.

Energy & Utilities Jobs helped to extend the sector's reach to underrepresented groups:

- women represented 48% of all visits to website in 2019
- 28% of applications came via a BAME initiative.
- 8.5m opportunities to see and learn about the sector were delivered in total.
- Attracting more than 20,000 applications (apply clicks) into the companies.

Industry recognition
The Partnership has been nominated for a number of awards - SME News' Energy & Power Awards awarded Energy & Utilities Jobs Best Energy and Utility Skills Talent Attraction Initiative 2019. Energy & Utilities Jobs was also a finalist for the Genanalytics Diversity Award and shortlisted in both 2019 and 2020 for The Network, Partnership of the Year.

Ofgem recognition of progress
Ofgem has recently acknowledged that the energy sector has made progress on this front, stating *"As well as undergoing a transformation to decarbonise and provide affordable and secure energy; the energy sector is starting to wake-up to, and seek, the benefits of making energy companies more inclusive workplaces".*

UK Power Networks achieve the National Equality Standard
The first Distribution Network Operator to achieve the National Equality Standard, maximizing their ability to attract, develop and retain diverse talent. They rank at number 16 in the top 50 inclusive employers.

Armed Forces Covenant
24 sector employers are working in partnership with the Ministry of Defence, (MOD), Defence Relationship Management (DRM) and the Department for Work and Pensions, (DWP) to engage, attract and recruit ex-military personnel into the sector.

Focus on women
The sector workforce is male dominated, with progress being made to recognise and attract women into the sector through partners including Women in Water with British Water and Women in Energy with Network Magazine.

Tracking of gender pay reporting with a wide range of sector activities including family friendly policies, mentoring and tailored attraction strategies.

SevernTrent Water achieving top three position in best performers in 2019 Hampton Alexander report.

THEME 2: MAXIMISING INVESTMENT IN SKILLS

PRIORITY FIVE:
CREATING WORK READY APPRENTICESHIPS

Objective: To build coherent and consistent approaches to workforce development that meet employer needs.

Progress to date:

Pioneering Apprenticeship Standards

The Partnership working with the Trailblazer Groups developed 11 new technical standards. The first Trailblazer Apprenticeship Standard approved was devised by the power industry in 2014 and the first 100 apprentices to receive their standards did so at the Palace of Westminster in 2017.

5% increase in apprenticeship starts

The sector has performed better in comparison with the overall UK picture. The sector has seen a 5% increase in the number of apprenticeship starts in 2018-19 compared to 2017-18 in England; an increase in starts in the same period was also seen in Wales and Scotland. Whereas, in Northern Ireland there was a slight dip in the number of starts.

However, the total number of starts across the UK has not yet recovered to pre-Apprenticeship Levy levels.

ATEAG shaping policy

Energy & Utility Skills established the Apprenticeship and Technical Education Advisory Group (ATEAG), comprised of the skills leads from 27 member companies, ATEAG focuses on apprenticeships, the Apprenticeship Levy, technical education and T Levels so that the sector is engaged in skills policy and can optimise skills investment. The group's achievements include:

- Established credibility with the Institute for Apprenticeships and Technical Education (IfATE), developing new and productive relationships with its CEO, main Route Panel Chair and Board.
- ATEAG was the first employer representative organisation to be invited to give evidence to the National Audit Office enquiry into the apprenticeship programme and all the issues raised by members featured in their recommendations report.
- Secured UK government agreement to increase the amount of unused Levy funds able to be passed from asset holders to their supply chain.
- Minimised the negative financial impacts of apprenticeship funding band reviews; other sectors saw deep cuts in their financial support.

Consistent skills policy across UK borders

This request to policymakers is detailed in the Transnational Research White Paper: Unified Skills Policy for a Truly United Kingdom. It is supported by the views of the 25-strong forum of employers, who assert that the removal of transnational policy obstacles will better position the sector to address existing skills challenges. Its recommendations based on research conducted in partnership with Gatsby include promoting alignment and compatibility of processes governing UK apprenticeships, using National Occupational Standards (or equivalent) to ensure parity between qualifications and training programmes across all four UK nations.

Vanguard of the Apprenticeship Programme

The Energy & Utility Skills Independent Assessment Service (EUIAS) achieved:

- A 100% success rate in securing government approval to deliver end-point assessment in the ten employer-developed standards that it applied for.
- Working with Trailblazer Groups and ATEAG, government reductions in funding allowances were minimised. Many sectors lost much more.
- It was first to graduate an apprentice.
- It was first to graduate a female apprentice.
- It was first energy and utilities sector end-point assessment body to graduate 100 apprentices.
- It was first to graduate apprentices in the water industry.
- At the end of the 2018 delivery year EUIAS was effectively delivering one-in five end-point assessments.
- Achieved 1500 apprenticeship end-point assessments.

THEME 2: MAXIMISING INVESTMENT IN SKILLS

PRIORITY SIX:
CREATING COMPETENCE IN PROFESSIONAL ENGINEERING

Objective: To create a suite of industry-led training programmes and competence assurance schemes to cover the full range of engineering roles in our sector.

Progress to date:

T Level specialism for the sector

In addition to over 100 apprenticeship standards available in the Engineering and Manufacturing Route – all designed by employer groups (Trailblazers), the Partnership are active in ensuring that the sector's skills needs are represented in the design and development of the new T Levels.

As a result, one of the T Levels will have an energy and utilities specialism and will provide the foundation of the technical skills and knowledge that entrants to the sector will need.

In addition, key employers (Severn Trent, Cadent Gas) have actively been involved in the industry placement trials for the T Levels.

Professional competence

Energy & Utility Skills invests in professional standards across the sector through its industry-led passport schemes, skill-based competency schemes, and bespoke programmes which lead to admission to the Energy & Utility Skills Register (EUSR) – the universally available on-line record of skills, training, authorisation and qualifications for operations in gas, power, water and waste management.

There has been continued investment, development and updating of industry schemes including National Water Hygiene, Safety, Health and Environmental Awareness (SHEA) scheme, Competent Operator Scheme for water.

Professional collaboration

Energy & Utility Skills collaborates with partners and stakeholders that are drivers for professional standards across the sector: The Institute of Water, the Institution of Gas Engineers and Managers, the Institute of Engineering and Technology, the Chartered Institute of Waste Management, the Chartered Institute of Ecology and Environmental Management.

Sector representation on the Engineering and Manufacturing Route Panel

A senior level representative from E.ON now sits on the route panel, ensuring that there is understanding on the unique characteristics and skills needs of our sector amongst participants and there is now an energy and utilities specialism within the broader Engineering and Manufacturing Route.

Duke of Edinburgh's Award scheme

The sector has partnered with Duke of Edinburgh's Award to develop the soft skills, attitudes and behaviours required for work.

THEME 2: MAXIMISING INVESTMENT IN SKILLS

PRIORITY SEVEN:
BUILDING A RESILIENT AND SKILLED SUPPLY CHAIN

Objective: To achieve recognition of the shared commitment to investment in skills by asset owners and contractors.

Progress to date:

Using procurement as a lever for skills development

The Procurement Skills Accord was created in response to the 2015 National Infrastructure Plan for Skills as a mechanism to incentivise skills investment through procurement and engagement approaches that would provide the appropriate incentives to retrain and up-skill the workforce to meet the skills needs. The Accord has been recognised and welcomed by Her Majesty's Treasury.

76% of the companies embedded skills development in their procurement processes. The initiative, which entered its final year of the three-year pilot, is supported by 67 signatory companies, including leading energy and utility companies, UK and European utility asset owners and supply chain organisations. The sector has seen a step change in skills investment via the supply chain: in 2018 (Year 2 of the pilot programme), 76% of the companies had embedded skills development in their procurement processes, workforce development and resilience questions were included in the Achilles procurement process and training volumes increased from 9.5% to 11.5%, of which 5% were apprenticeships. In 2019 of the 67 signatories, 46 achieved the Procurement Skills Accord Award.

Teaming with CITB to improve safety record across the supply chain

Energy & Utility Skills collaborated with Construction Industry Training Board (CITB), who part funded production of Breaking Ground, the latest edition of our Highways the Right Way suite of training films to improve risk awareness, health and safety of highway operatives working across the energy and utilities sector. The bite-sized training resources were developed in partnership with members of the contractors' group, CITB and Energy & Utility Skills to reinforce essential safety messages and protocols. While providing increased assurance of workers' health and safety on the job, a common industry standard also promotes workforce flexibility.

Promoting transferability of skills via Competency Accord

The Competency Accord has been refreshed, led by the Distribution Network Operators (DNOs) to promote transferability of skills. Common standards for the training and assessment of core technical (craft) competencies achieved via the scheme reduce the need to duplicate training as individuals move between sites or employers.

Recognition of the supply chain in price review

It is pleasing to see Ofwat and Ofgem recognise workforce resilience in its price review methodologies for PR19 and RIIO-2 for the first time. As well as directing companies to also think about the sustainability and resilience of their supply chain as a matter of good business.

Contractor sustainability roundtable

Ensuring sustainability of the energy and utilities supply chain and understanding the scale of the contribution contractors bring to build a stable and predictable business environment. Contractor CEO's worked side by side with infrastructure business leaders on the Partnership Council. Strategic roundtables brought contractor leaders together with utility regulators, policy makers, economists, regulated companies and the media. These were supplemented by strategic partnerships with the main supply chain representative bodies in water, British Water and The Future Water Association. Success for utilities relies on remaining an attractive market for these vital delivery partners.

THEME 3: TARGETED ACTION

PRIORITY EIGHT:
BUILDING WORKFORCE RESILIENCE

Objective: To ensure that our sector skills pipeline can respond efficiently to changes in workforce supply and demand.

Progress to date:

Regulator recognition of workforce resilience

Building an environment for workforce resilience through statutory sector specific and skills related regulators, the Partnership has been working closely with Ofgem, Ofwat, UK Drinking Water quality regulators, HSE, IfATE and the Environment Agency.

The Partnership's work is now increasingly appearing within regulated price setting, Industrial Strategy, infrastructure policy and the long-term strategies of our sponsoring government departments and agencies. This year we saw Ofwat and Ofgem highlight the importance of workforce resilience in both PR19 and RIIO-2.

Policy impact

In addition, the sector has informed and influenced skills and workforce policy via consultations, resulting in:

- The Migration Advisory Committee (MAC) acknowledging employers' request to have a system that is flexible enough to meet the varying challenges and requirements of different sectors.
- The Department for Education and IfATE recognising the need to refine apprenticeship programme and Levy model, to align with the needs of the economy.
- Apprenticeship funding band review resulted in a modest decrease in the level of funding.
- Modifying the T Level design, content development and industry placements design.
- IfATE acknowledging the recommendations made in the ATEAG 'Test and Adjust' report.
- Recognition of sector workforce and skills challenges by Department for Business, Energy & Industrial Strategy (BEIS).

Partnering with unions

The partnership enjoyed extensive collaboration with the GMB, Prospect, TUC, Unison and Unite unions, to encourage new talent into the sector, promote workforce resilience within regulatory price reviews and to stimulate workforce pride in the role they perform for society. The unions hosted events, spoke in support of the Partnership with regulators and governments, met with young industry talent, supported UK wide consultations and proactively promoted the value of a career in the energy and utilities environment.

Gas Distribution Networks workforce planning

As part of the RIIO-2 business planning activities, Energy & Utility Skills supported the Gas Distribution Networks (GDNs) with an assessment of the current UK labour market as it relates to the gas distribution industry. The result was used to determine the future priorities of the GDNs.

Power workforce planning

The National Skills Academy for Power (NSAP) has undertaken an assessment of the likely workforce supply and demand requirements in the power industry over the coming years. This work quantifies the recruitment requirements of power transmission and distribution and smart meter aspects of the industry and outlines recommendations to inform NSAP's priorities over coming years.

THEME 3: TARGETED ACTION

PRIORITY NINE:
ENCOURAGING SECTOR WIDE COLLABORATION

Objective: To bring the sector together to develop solutions to our workforce and skills issues.

Progress to date:

Encouraging sector-wide collaboration via representative bodies

Working with Water UK, Energy UK, Energy Network Association, British Water and The Future Water Association to explain, cascade and embed drinking water hygiene approaches throughout the vital supply chain that are working right across restricted water company operations.

Supply chain and contractor

Energy & Utility Skills have worked with CITB to develop sector specific standards and more than 60 training programmes which qualify for CITB short duration course funding. These 60 plus sector-specific schemes and standards allow reinvestment of the Levy, and support maintaining a sustainable, skilled and safe workforce.

Ensuring a resilient and proficient training provision

Collab Group and Energy & Utility Skills have formed a strategic partnership to connect the leading 38 UK colleges with the country's leading energy and utility employers to inspire more learners into industry apprenticeships for post-Brexit economy. It includes access to the end-point assessment service.

Developing a boardroom voice for the HR community

There are strategic partnerships with Executive Network, Utility Week, HR Forums, ATEAG which have helped gain a voice in the boardroom on key issues such as the Levy, apprenticeships and human capital.

Thought leadership

The Partnership has worked with employers and experts in the sector on several thought leadership papers intended to present the complex issues the sector is facing and proposed solutions. Papers include:

- Scottish and Southern Energy on human capital
- A call for a consistent skills policy across UK borders
- Two Sides of a Coin white paper call for the water industry to protect the sustainability of its supply chain
- Mind the Skills Gap: What's Missing in Protecting Drinking Water Quality
- A More Strategic Approach to Workforce Planning.

ATEAG collaboration

ATEAG was instrumental in providing evidence to the National Audit Office for their influential inquiry into the apprenticeship programme – the first employer group to be invited to do so. Additionally, ATEAG has ensured:

- apprenticeship funding bands were treated fairly in funding reviews
- sector technical skills will be a part of T Level programmes
- the sector's professional engineering skills needs are represented at the highest level.

Achieving Partner of the Year 2018 Award

Energy & Utility Skills was honoured at the annual Utility Week Awards ceremony in December 2018. Recognised from a shortlist of eight sector companies, the judges explicitly recognised Energy & Utility Skills as being *"a true partner to the entire utility sector".*

Energy & Utility Skills was also shortlisted in the awards in 2019.

THEME 3: TARGETED ACTION

PRIORITY TEN:
DELIVERING SECTOR SUSTAINABILITY

Objective: To work together as a sector to reduce environmental impact and support innovation.

Progress to date:

Water efficiency

Preserving precious water supplies is a key focus within the water industry's Public Interest Commitment, a statement of ambition set out by Water UK. Significant reduction of leakage and increases in water metering form key parts of the overall strategy, each bringing significant demands for workforce quantity and quality at a time of the tightest UK labour market on record.

The Partnership worked with Water UK, UK Water Industry Research (WIR), Water Resources South East (WRSE), British Water, The Future Water Association and the UK water companies to research labour demands, start to attract the diverse workforce needed, and ensure that anyone working on the public water supply, observes the strictest hygiene disciplines via National Water Hygiene Scheme registration. The work brings together water companies and energy companies to share best practice, as they move to build smart networks fitted with smart meters.

Smart metering roll out

The National Skills Academy for Power (NSAP) Smart Metering Network continues to play an important role in ensuring that smart meter installers are appropriately trained, assessed and re-assessed. From 2017 to date 7598 additional individuals have completed the EUSR Smart Meter Programme.

The Network anticipate being consulted on the post-2020 policy for smart metering and expect to be able to collaborate to identify the skills gaps and upskilling requirement for the Smart workforce. They are anticipating an opportunity to diversify and enter alternative industries post roll-out, including the electric vehicle (EV) network.

Informing policy:

Supporting the hydrogen conversion development

In August 2019, as part of a Hydrogen Transformation Group, the Gas Distribution Networks (GDNs) contributed to an Energy Network Association (ENA) Future Technologies Group report. This provided evidence that the Gas Networks can support the widespread conversion to hydrogen.

In addition, the Partnership is supporting the:

- H21 programme - Lead by NGN and Cadent, in partnership with global energy company Equinor, the programme is a suite of gas industry projects.
- H100 project - Lead by SGN, the project is looking to construct and demonstrate the UK's first network to carry 100% hydrogen.

Energy & Utility Skills continues to work with these networks to ensure workforce and skills issues are considered at the development phase, with focus on retraining and upskilling needed for this transition.

ENA Open Networks

The project seeks to enable the uptake of new smart energy technologies by more homes and more businesses, and communities in the UK. NSAP is represented on the ENA's Open Networks Project Forum, ensuring both that NSAP remains strategically aligned with the key drivers of the project to support its members with associated workforce requirements and that skills and competence remain at the forefront of system design.

Waste Strategy and Sector Deal

The waste management industry relies on its workforce to deliver essential services against the four separate strategic approaches of the central and devolved governments. It is also seeking to secure an Industrial Strategy 'Sector Deal' from the Department for Business, Energy & Industrial Strategy (BEIS), with the UK Resources Council leading the strategy and consultations and having specific focus groups for the people and skills aspect.

The Partnership has worked across the waste management industry to attract much needed and diverse talent through the Energy & Utilities Jobs on-line platform and helped drive new levels of competence and health and safety practice. They contributed to the workforce resilience aspects of the Sector Deal proposal and inputted to UK workforce and labour market consultation and policy reforms via collaborations with the Health and Safety Executive (HSE), environmental regulators and policy makers, Chartered Institute of Waste Management, Environmental Services Association and WAMITAB.

5. THE SKILLS CHALLENGE TODAY A RADICALLY CHANGED LANDSCAPE

Many of the challenges we face today are different to those we faced in 2017 when we developed our initial strategy. The key challenges facing the sector can be divided into two key areas:

- The sector operating environment – this includes significant changes that have taken place in wider society that impact on the energy and utilities sector
- UK skills policy environment – this includes reforms being made by the UK Government and the devolved administrations to the labour market skills policy and technical education

THE SECTOR OPERATING ENVIRONMENT

In this section we cover the national and global issues that are changing the way we all live and work and which have a significant impact on the energy and utilities sector: These include:

- The climate emergency
- Circular economy
- Brexit
- Digitisation and data
- COVID-19

The climate emergency

The climate emergency has been dominating headlines, and prior to the COVID-19 outbreak had risen to the top of every agenda and brought carbon emissions reduction and broader questions of environmental sustainability into the mainstream. Volatile weather conditions and disasters, such as the Australian forest fires, have created a sense of alarm and heightened urgency amongst the general public. In 2019, the UK became the first major economy to pass laws to end its contribution to global warming by 2050. The net zero target, recommended by the Committee on Climate Change, must now be delivered – requiring change at an unprecedented pace and scale.

Society is looking to the energy and utilities sector to deliver that change. The role of the energy industry is clear: the transition to more sustainable energy sources and decarbonisation of transport will bring a massive increase in electrification, far-reaching implications for electricity networks and different types of generation and storage capacity.[1] The industry is also evaluating pilot projects around delivery of hydrogen through the gas network to provide space heating. It must now urgently establish where gaps remain, and where more work is needed.[2] However, all major utility infrastructure and service providers, in the energy industry and beyond, will have a critical role to play in reducing our carbon emissions – from the water industry committing to becoming 'carbon zero' by 2030[3] to the ambition of 'zero avoidable waste by 2050'.

ENERGY AND UTILITIES SECTOR JOBS AND SKILLS WILL FORM AN INTEGRAL PART OF THE TRANSITION TO NET ZERO

The implications of achieving net zero greenhouse gas emissions for the energy and utilities sector, and the scale of transformation of the skills it relies on cannot be overstated.

The energy and utilities sector is in a unique position to address UK greenhouse gas emissions, while developing sources of genuine 'green growth' and providing high value employment and skills opportunities in low carbon industries. Indeed, National Grid's recent report into Building the Net Zero Energy Workforce suggests that *"By leveraging people's passion for climate action and a desire to work in a net zero career, the energy sector can attract the best and the brightest"*. Our sector's role in tackling the climate emergency presents an opportunity to highlight the wide range of inspiring careers it has to offer.

With the sector at the forefront of decarbonisation and emissions reduction, we have seen the rise of renewables progressively reducing the share of coal and gas plant which, together, made up less than 45% of the UK's electricity in 2019 (BEIS annual statistics). Since 1990, the power sector has installed over 16.5 million smart meters (BEIS Smart Meters statistics Q4 2019) and over 19,000 UK charge points for electric vehicles (Energy UK) and CO2 emissions reduced by 68%.

At the same time, 209,500 full-time equivalents (FTE) were employed in the Low Carbon and Renewable Energy economy in the UK. The real impact on employment and skills will be even greater as numerous other roles in the sector will have evolved more subtly to reflect considerations around emissions reduction. Employers in our sector can simultaneously help to address the causes of climate change and empower consumers to lessen their own impact, all the while ensuring a 'just transition' to a low carbon economy.

1 'Leading the energy transition: smart, sustainable, personalised', presentation from E.ON, January 2020
2 'Transitioning to Hydrogen', The Institution of Engineering and Technology, June 2019, pp.40-41
3 The goal forms part of the industry's Public Interest Commitment (PIC) released in 2019, with the carbon zero goal one of five social and environmental ambitions.

Circular economy

Reducing our consumption of resources is one of the most fundamental ways in which we can work towards net zero.[4] The transition towards a more circular economy is not just a means of reducing greenhouse gas emissions, but it also represents a significant opportunity. Estimates show that only 9% of the world economy is currently 'circular' and yet potential global growth has been valued at $4.5 trillion over the next ten years.[5] The principles and practices of the circular economy will need to infiltrate every industry and sector. The waste management industry is well placed to act as a key enabler of the step change we need in resource reclaim and reprocessing.

THE CIRCULAR ECONOMY WILL HAVE A TRANSFORMATIVE EFFECT ON SECTOR JOBS AND SKILLS

Sir David Attenborough's high-profile documentary on the impact of waste on marine life has triggered an intense public reaction against single use plastic. From reusable coffee cups to supermarket head offices receiving deliveries of angry customers' unwanted packaging, excessive consumption and generation of waste at current rates is rapidly becoming socially unacceptable. The public demand for change at an individual and corporate level has thrust the waste management industry into the limelight. This industry is now at the forefront of the all-encompassing transition to a climate neutral circular economy.

In England, in recognition of this, the Government's Resources and Waste Strategy seeks 'to redress the balance in favour of the natural world'. Its stated aims, include addressing our dependence on single use plastic, providing clarity around household recycling, and tackling 'waste crime' to the achievement of a more circular economy which 'keeps resources in use for longer'. Proposed incentives and measures within it are designed to enable delivery of Government commitments in the Industrial and Clean Growth strategies to double resource productivity and eliminate avoidable waste, by 2050 in both cases.[6]

The recycling sector will need to extend its remit into re-use and repair, developing new expertise in the extraction of value from all types of products and materials. At the same time, ongoing communication and collaboration will be needed with designers and manufacturers as **waste management becomes 'resource management'** and the interface with other industries, sectors and processes becomes increasingly complex. Indeed, the circular economy does not stop at waste management – radical change will be needed across all industries and sectors of the economy, including water, power and gas.

Just as this process is proving to be fundamentally transformative for the sector, the skills and roles required to make it happen will also require a historic shift away from current norms. The UK will need a workforce with the right skills to take advantage of opportunities flowing from a more circular economy, ensuring our society can innovate and prosper in the future. Sustainable waste management charity WRAP has anticipated that the circular economy could create 210,300 jobs by 2030, worth up to £100 billion to the UK economy.[7]

The UK Government's Environmental Plan A Green Future: Our 25 Year Plan to Improve the Environment, sets out the pressures identified and the challenging goals for the waste sector. The key is maximising the value and benefits from resources, moving to doubling resource productivity and towards the ambition of zero avoidable waste by 2050. The evolving dynamics of the waste industry will mean companies and their workforce, need a more resilient and flexible working practices.

The UK Resources Council has published a draft Resources and Waste Sector Deal. This initiative aims to help create a business environment to *'support the huge investment necessary to achieve the long-term ambitions of a circular and sustainable economy and net zero by 2050'.* This proposed Sector Deal included 'People' as one of four key pillars, setting out a need to establish how many people will be required, the skills they will need to possess and where they will need to be in order to realise this ambition.

4 Around 50% of the world's current greenhouse gas emissions result from the extraction and processing of natural resources, with demand for raw materials under a 'business-as-usual' scenario predicted to double by 2050 (World Economic Forum)

5 Accenture quoted in https://www.weforum.org/agenda/2020/01/the-world-needs-a-circular-economy-lets-make-it-happen/, last updated on 22nd January 2020

6 'Our Waste, Our Resources: A Strategy for England', Department for Environment, Food and Rural Affairs and the Environment Agency, December 2018, p.4

7 http://www.wrap.org.uk/content/new-circular-economy-jobs-created-2030, last updated in 2020

The regions where the ethnic makeup of the sector's workforce is less than half that of the region's entire workforce.

Yorkshire and The Humber (2.8% compared to 8.7%)
North West (4.1% compared to 8.4%)
North East (1.0% compared to 3.6%)
East Midlands (5.0% compared to 10.4%)
East of England (2.5% compared to 8.8%)
South West (2.0% compared to 4.6%)
Northern Ireland (0.5% compared to 1.9%)
Scotland (0.1% compared to 3.1%)
UK (4.8% compared to 12.0%)

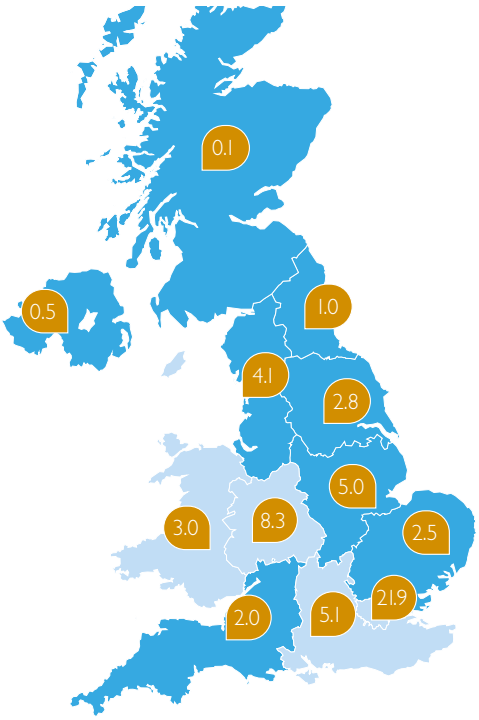


Figure 2: E&U sector UK workforce Variance
Source: Labour Force Survey, January to December 2019, ONS.

Brexit

The UK has formally left the European Union and entered a 'transition period'. However, given the divisions that exist on this subject within and between each of the four UK nations, this could lend momentum to campaigns for greater national political and economic independence. Trends towards increased devolution of powers from Westminster and greater localism could help to diffuse these tensions but are also inextricably linked to a more complex policy and political stakeholder environment. The potential benefits of more accurate tailoring of policies at a national and local level will be counterbalanced by an increased number of agencies and bodies with which to engage and more convoluted decision-making processes around skills policy and funding.

The energy and utilities sector has a presence across the four nations of the UK and plays a vital part in the distribution of innovation and opportunity. Energy and utilities combined, still account for the single largest share of the National Infrastructure Pipeline.[8] In addition to driving emissions reduction while delivering essential services, this sector offers valuable employment and training opportunities and maintains a strong tradition of apprenticeships.

However, with change on the horizon for future immigration policy and an already tight labour market at 76.6% employment, a healthy talent pipeline will be key to our sector's ability to deliver essential infrastructure and services sustainably, in line with the Government's Industrial Strategy.[9] While the COVID-19 outbreak is likely to lead to increased unemployment, most job losses are expected to take place in sectors such as retail, hospitality and tourism. The skills of those seeking work may only be transferable in part, so the focus will need to continue to be on 'growing our own' talent, particularly in parts of our sector already affected by higher proportions of 'hard to fill' vacancies and skill shortages.

GREATER LOCALISM MUST BE PAIRED WITH A COHERENT, UK-WIDE WORKFORCE STRATEGY TO ALLOW OUR SECTOR TO DELIVER MAXIMUM BENEFITS FOLLOWING EU EXIT

Our departure from the European Union has raised questions around sustainable economic growth; self-sufficiency and resilience – how can the UK hold its own on the global stage? The energy and utilities sector is well placed to support economic growth across the nations, given our presence across the UK. It will be essential to gain a better understanding of national, regional and local demographics and skills profiles, as the delivery of growth requires people with the right transferable skills. Major infrastructure sectors such as ours will need a coherent workforce and labour market strategy across all four nations to enable us to deliver maximum value back to UK plc. This will sit within the context of the broader Industrial Strategy, which sets out the Government's approach to boosting productivity and investment in skills and industries.

8 2018 National Infrastructure and Construction Pipeline analysis; Infrastructure and Projects Authority and HM Treasury; last updated February 2019

9 'Industrial Strategy: Building a Britain fit for the future', Department for Business, Energy and Industrial Strategy, last updated June 2018, pp.94-99

Digitisation and data

Rapid developments in robotics and the application of artificial intelligence (AI) have already begun to transform ways of working. The arrival of the Industrial Internet of Things (IIoT) has enabled the gathering and transmission of huge quantities of new data, collected by connected devices, including sensors on power plants or gas pipelines. Modelling approaches using AI can draw together this data to analyse and interpret it, allowing companies to monitor, evaluate and plan investments in a way that would not have been possible previously. For instance, a Transmission System Operator (TSO) could use such data to evaluate thousands of different scenarios to assess the feasibility of a new transmission line. In terms of customer service, AI applications can help call centre operatives anticipate customer needs more effectively.[10] This becomes increasingly relevant in the wake of COVID-19 as it becomes more important than ever for energy and utility companies to engage with their most vulnerable customers, anticipate their needs and offer help proactively, with payment options for cash customers and those in financial difficulties.

DIGITAL AND DATA SKILLS WILL BE ESSENTIAL TO REALISE THE TRANSFORMATIVE POTENTIAL OF TECHNOLOGY

As Ofwat's report Resilience in the Round observes, *"Advances in technology provide clear opportunities to deliver improved efficiency, better service and enhanced resilience.* But as companies embrace new technologies, they will also need to carefully plan to ensure they have access to the right skills and workforce capacity".

The sector is preparing to play a central role over the next strategic period in delivering net zero and contributing to a circular economy. Furthermore, it will need to deliver this transformation against a backdrop of an increasingly challenging operating environment and ever greater national and regional variation in skills policy and funding. In order to do this, the workforce of the future will need to have a synergistic relationship with technology, possessing the knowledge, skills and behaviours to use it to best effect.

For example, delivering a more decentralised energy system and lower carbon power and gas will depend on a wide range of different digital and data skills. Artificial intelligence (AI) can empower the sector to optimise energy system reliability and accuracy, or to detect damage to water pipes before the situation escalates. Data scientists will have a vital role to play in optimising network planning and mitigating risk as big data flows in from a multitude of remote devices. Just as robotics, automation and AI will transform the way we work, these technologies will also empower us to achieve new standards of efficiency, effectiveness and resilience. [11]

COVID-19

COVID-19 WILL PROVIDE A WEALTH OF LEARNING OPPORTUNITIES FOR THE SECTOR IN TERMS OF HONING APPROACHES TO RESILIENCE AND BUSINESS CONTINUITY PLANNING.

The rising frequency and magnitude of extreme weather events and the recent pandemic combined with the intense regulatory focus on resilience means that energy and utility companies will need to develop increasingly innovative approaches to ensuring business continuity. The experience of COVID-19 has provided the ultimate test for sector resilience strategies and paves the way for more agile, responsive ways of working that leverage the full potential of available technologies. Indeed, the pandemic will reveal any points of weakness in existing contingency measures around operational and workforce planning as companies strive to maintain essential services with a reduced number of workers.

In terms of the likely impact on workforce and skills, we have seen a growing number of workers expand their capabilities to be able to step up to fulfil roles beyond their usual daily responsibilities. This has supported 'mutual aid arrangements' that allow workers to move fluidly between networks to wherever the need is greatest. Asset owners will continue to face the challenge of reconciling routine maintenance schedules and the ongoing installation of programmes such as the smart meter roll out along with guidance on social distancing and isolation.

10 'AI: The energy industry's untapped resource' on https://eandt.theiet.org , Institution of Engineering and Technology, July 2019

11 National Grid, Building a Net Zero Workforce

The incentive to deploy remote monitoring devices, to automate control of assets and exploit the potential of robotics has never been greater, requiring workers to gain the skills to use these technologies to best effect in their roles. On the retail side, suppliers will need to rapidly adjust to remote and flexible working for call centre operatives to ensure that the lines of communication remain open for customers, particularly those classed as vulnerable.

In brief, the experience of COVID-19 provides valuable learning opportunities to empower the sector to transform itself culturally and technologically, becoming more resilient than ever and better able to respond to disasters and extreme situations in the future.

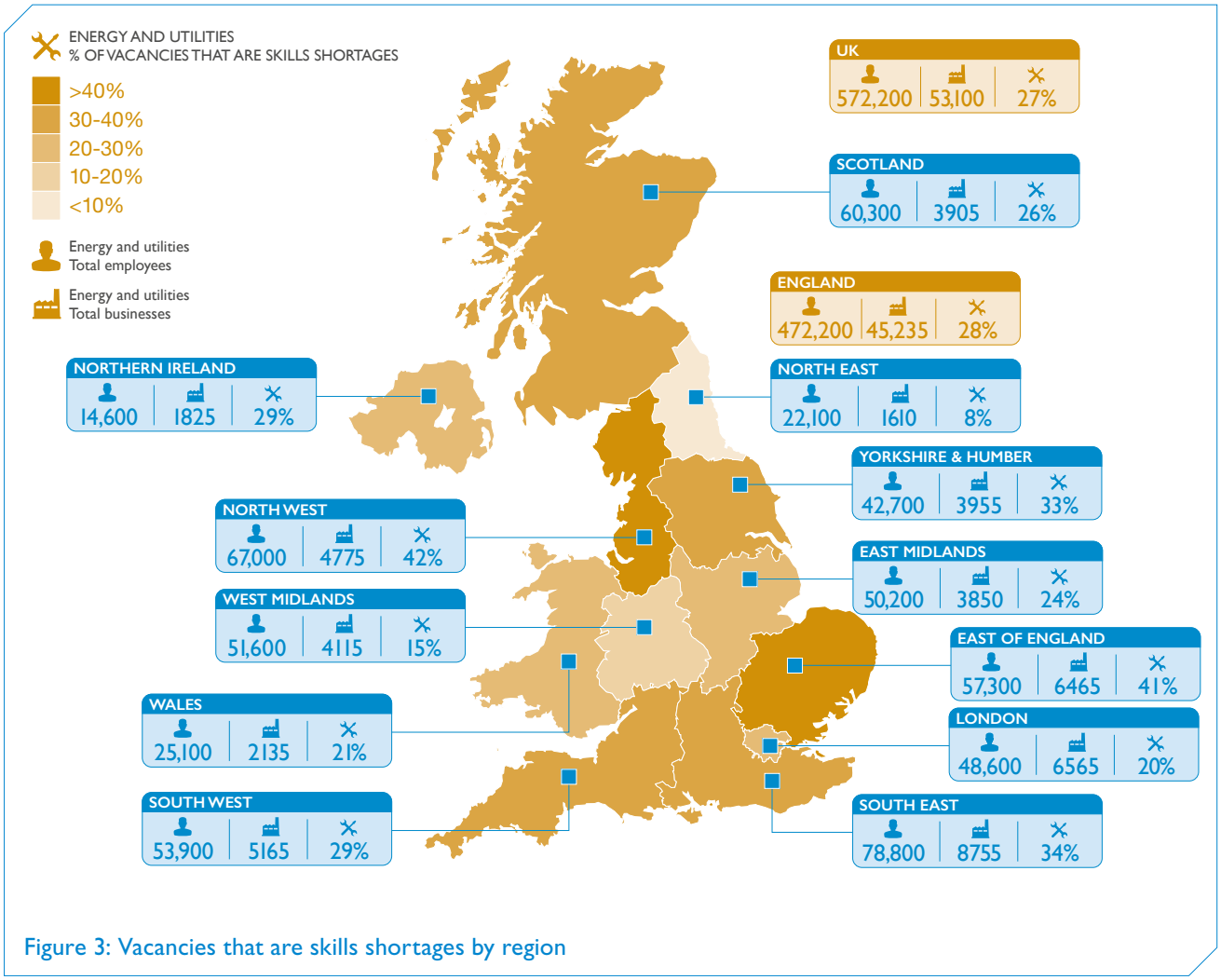


Figure 3: Vacancies that are skills shortages by region

UK SKILLS POLICY ENVIRONMENT

Energy and Utilities sector policy priorities

The operating environment for the energy and utilities sector is underpinned by a plethora of regulations, pieces of legislation, policy commitments and Government strategies. These will determine the demands made on our sector, and subsequently the workforce and skills required to respond effectively.

During 2019, the Government laid out the draft Climate Change Act 2008 (2050 Target Amendment) Order 2019 to amend the Climate Change Act 2008 by setting a new target for a minimum of a 100% reduction in greenhouse gas emissions (compared to 1990 levels) in the UK by 2050.

Flowing from this, the Committee on Climate Change will publish its recommendation on the level of the Sixth Carbon Budget later in 2020, driving subsequent emissions reduction across the economy. Since the Amendment to the Climate Change Act was passed, the Government has announced that Treasury will be conducting a Net Zero Review, also due to report later in the year. The Review will consider how the UK can maximise economic growth opportunities from its transition to a more sustainable economy.[12] The Department for Business, Energy and Industrial Strategy is also due to publish the new Energy White Paper setting out the UK Government's approach to reaching its net zero target.

12 Commons Library Briefing, 16th December 2019

In 2018, the Government published its Road to Zero strategy setting out its policy framework to promote uptake of zero emission road transport and ongoing emissions reduction from vehicles in the interim. Government has consulted on proposals for electric vehicle charge point smart technology regulations, requiring charge points to have integrated smart charging functionality.[13] Initially, these proposals will see new non-public charge points mandated to have BSI-compliant smart functionality. The Government is conducting further research into how use of charge point data could be used to support better electricity network planning. Subsequently, the Government is also consulting on bringing forward the ban on the sale of new petrol, diesel and hybrid vehicles from 2040 to 2035.[14]

These goals bring their own policy and infrastructure challenges: uptake of electric vehicles has increased by almost 100% since 2012, compared to just 44% for the number of available charge points. National Grid has said that 54 charging stations, positioned strategically throughout the road network, could enable 99% of drivers in England and Wales to be no further than 50 miles from a charge point. This raises questions for our sector around the workforce required to deliver this and how these individuals would be regulated and their installations quality assured.[15] The sector will also need to consider current and future use of technologies, such as those using Artificial Intelligence and the Internet of Things, to derive the full operational and strategic benefit of the data flows from a plethora of new smart devices on the network. This alone will require new and different combinations of competencies within the workforce.

Meanwhile, regulatory bodies are setting the bar higher than ever: the sector will need to find new ways of working to achieve ambitious cost reductions for customers, while progressing towards challenging net zero targets, all in the context of an extremely tight labour market. Ofwat has challenged the water industry in England and Wales to reduce bills by 12% before inflation across 2020-2025 (AMP7). Electricity network companies will also be under pressure to innovate; invest and deliver a reliable service for a lower cost to the consumer under RIIO-2, the next round of network price controls, starting from 2021.

The drive to cut costs has led to changing dynamics in an ever more complex procurement process. Asset owners are seeking to work directly with smaller, more specialist contractors, leaving the larger end-to-end contractors to decide whether their existing client relationships will be sustainable in the longer term. This risks exacerbating shortages of supply of technical skills in the sector and asset owners may have to assume more risk, needing a high standard of engineering, health and safety knowledge and understanding in order to manage this effectively.[16]

HMRC's IR35[17] (off-payroll working) reforms will be coming into force on 6th April 2021, which will potentially limit the size of the contractor workforce, since not all individual contractors will want to sign employment contracts. Some asset owners and Tier 1 contractors are already issuing instructions that no non-PAYE contractors should be working on their projects. This coincides with the introduction of a new points-based immigration system[18] currently due in January 2021. It is expected this will exacerbate labour market tensions, making it harder for the sector to access the skills it needs. Layered on top of pre-existing skill shortages, this potentially adds up to a very challenging time ahead for the sector.

Recent regulatory development across the sector has also been characterised by a growing focus on resilience. When setting price controls for the period 2020-2025, Ofwat defined 'resilience in the round' as *"considering all aspects of resilience, including – operational, corporate and financial resilience. Resilience is not just about outcomes and expenditure. It means making sure the right people, leadership, infrastructure, systems and processes, are all in place and working effectively"*. Ofwat also recognised that *"The Energy and Utilities Skills Partnership 'Workforce Renewal and Skills Strategy' (2017) (…) suggests that over 220,000 new recruits will be required by 2027. Companies therefore need to ensure that they have plans in place to secure access to the workforce they need, including transferring knowledge and increasing diversity"*.[19] Quality regulators, such as the Drinking Water Inspectorate, have also been explicit in setting out their expectations for companies to have the workforce competence and behaviours necessary to protect public health and deliver a continuous supply of safe, wholesome drinking water.

Meanwhile, at the All Party Parliamentary Group on Infrastructure, Sir John Armitt, chair of the National Infrastructure Commission, said, *"At present, there is an insufficiently joined-up approach to infrastructure skills development in the UK, with a wide range of responsible bodies operating across different geographic and political boundaries. The human capital aspects of the National*

13 Electric vehicle smart charging consultation (closed), July 2019, Department for Transport and Office for Low Emission Vehicles
14 Open consultation: consulting on ending the sale of new petrol, diesel and hybrid cars and vans, February 2020, Department for Transport and Office for Low Emission Vehicles
15 Clean Growth: Technologies for meeting the UK's emissions reduction targets', House of Commons Science and Technology Committee, August 2019
16 Yorkshire Water head of commercial services, Andy Clark, in Utility Week, https://utilityweek.co.uk/squeeze-contractors-threaten-resilience-drive/
17 Off-payroll working
18 https://www.gov.uk/government/publications/the-uks-points-based-immigration-system-policy-statement/the-uks-points-based-immigration-system-policy-statement
19 https://www.euskills.co.uk/wp-content/uploads/2018/04/Policy-Briefing_2019-Price-Review_FinalEUSG_April-2018.pdf

Infrastructure Plan for Skills need to be refreshed to help ensure our pipeline of future workers is adequate for the challenges ahead."[20]

The energy and utilities sector accounts for the largest share of the projects it includes but must compete for the skills and expertise it needs with other high-profile infrastructure projects, such as HS2. It is vital that the sector has an adequate talent pipeline to deliver on our current and future infrastructure commitments in a way that is safe, affordable and innovative.

SKILLS POLICY AND TECHNICAL EDUCATION REFORM

Major reforms are underway to the vocational and technical education system in England. The proposed changes address two issues identified by the Government:

- the pressing need for more highly skilled and effectively trained people to grow the economy and raise productivity (which will help to ensure prosperity and security for individuals);
- the serious flaws within the current system of technical education.

As a result, every component of the system is under review. The reforms will help the UK to create the skills revolution needed to meet the needs of a rapidly changing industry and the economy, as well as supporting young people and adults to secure a lifetime of sustained skilled employment. These reforms will contribute to improve individuals' social mobility and economic productivity.

The policy timelines (Figures 5 and 6), presents the key education, skills and sector workforce related policy shifts that are on the horizon, demonstrating the intricacies and broader context the sector is working within. These policies form part of the UK Government's Industrial Strategy to improve productivity and build a country that works for everyone. This section summarises the key policy drivers which will impact skills workforce development and resilience. It covers:

- Refinement of apprenticeship policy
- Introduction of T Level qualifications
- Improved higher level technical education (Levels 4 and 5)
- Funding modifications for post-18 education
- Retraining initiatives to boost skills development
- Localisation of skills policy
- Local Skills Advisory Panels and Regional Skills Partnerships
- The UK wide skills policy
- Migration policy and EU exit.

Figure 4: National Infrastructure Pipeline timeline

PROJECT	REGION	TOTAL INVESTMENT (£m)	20/21	21/22	22/23	23/24	24/25	25/26
Smart meters	UK	£5,060						
Virgin Media Broadband	UK	£572						
Scottish Power Renewables - East Anglia 1 Offshore Wind Farm	East of England	£1,887						
Other Grand Challenges Fund and World Class Labs projects	UK	£1,303						
New Digital Networks delivered by alternative network providers	UK	£477						
Other Electricity Generation to 2021	UK	£3,180						
Affordable Homes (including Community Housing Fund)	England	£1,159						
Schools capital expenditure projects	England	£2,896						
Electricity Transmission Offshore - post 3rd bidding round	Offshore	£384						
Network Rail - CP6	UK	£13,080						
Priority School Building Programme Capital 2	England	£449						
Innogy - Triton Knoll Offshore Wind Farm	East Midlands	£420						
DONG - Hornsea Project One (Heron & Njord) Offshore Wind Farm	North East	£1,780						
Thames Tideway Tunnel	London	£719						
Network Rail - Future Enhancement, Accessibility, Freight & Dev.	England & Wales	£7,320						
Hornsea Project Two (Optimus and Breesea) Offshore Wind Farm	Yorkshire and the Humber	£1,640						
Moray East / EDPR - Moary Offshore Wind Farm (East)	Scotland	£1,113						
EDF Energy - Hinkley Point C	South West	£16,640						Completed in 2027
HS2 (phases one and two)	England	£43,052						Completed in 2033
Upstream Oil & Gas	Offshore	£15,750						No specific end date(s)
Electricity Transmission - National Grid - Other Investments	UK	£511						End date TBC
Highways England - Renewals Programme	UK	£689						End date TBC
Energy generation - Post 2021	UK	£92,163						No specific end date(s)
Homes England	England	£2,007	Various start and end dates					
Housing Infrastructure Fund	England	£2,948	Various start and end dates					

= Start of construction (No crane signifies construction has already started) = "Go Live" date.

20 https://www.euskills.co.uk/2020/02/13/there-is-an-insufficiently-joined-up-approach-to-infrastructure-skills-development-in-the-uk/

The reforms related to the apprenticeships system, funding and Levy are well underway. Others, such as T Levels and the National Retraining Scheme, are in development, while others are still at policy proposal stage.

Refinement of apprenticeship policy

In light of the projected funding shortfall in England, the UK Government has made a commitment to review the Apprenticeship Levy model. As identified in the sector's Test and Adjust report, energy and utility employers are ready to lead the way with research into further apprenticeship reforms but report that the level of apprenticeship training funding is insufficient.[21] Evidence suggests the current rate only covers approximately 50% of the training. Employers have stated that apprenticeship funding shortages should be addressed through a reduction in the company payroll threshold. No government restrictions should be placed on age, level or eligibility for apprenticeships.[22] Consequently, the ongoing apprenticeship funding review will be crucial in shaping the opportunities available to train in the energy and utilities sector.[23]

Further change is on the horizon. The final tranche of the English apprenticeship frameworks will be withdrawn in the 2020–21 academic year, coinciding with implementation of the revised standards for the Engineering and Manufacturing Route. This raises questions about the future of apprenticeships in the devolved national administrations moving forward, where frameworks are still being used. In Wales, many frameworks for this sector (and others) have expired and need to be updated, so some employers are opting to train in England using standards. As a result, a vicious circle is becoming established whereby framework numbers in some sectors (including energy and utilities) are very low; these frameworks are not updated or invested in and, consequently, even more employers turn to standards or away from formal apprenticeship training altogether. This feeds into a wider question around how the sector can work towards more equitable access and removal of barriers to training apprentices and broader workforce development for employers operating in more than one UK nation, as well as within each of the UK nations.

Introduction of T Level qualifications

From 2020 in England, A Levels, T Levels and apprenticeships will be the 'gold standard' option for young people after they take their GCSEs. The sector relevant T Level in Maintenance, Installation and Repair is due to be rolled out in September 2022. There is strong support in the sector to boost the flow of young people with technical knowledge and skills, but employers are calling for greater clarity on the qualification, its purpose and how T Levels link to apprenticeships and employment. Energy and utility employers need to ensure they are ready to offer the industry placement which forms a key component of the T Level. The placement offers an opportunity to the sector to raise its profile as an attractive career destination for young people. [24]

The Government will be removing more than 160 duplicate vocational qualifications at this level. The drive is for students to take the newer, more rigorous T Level or apprenticeship vocational route.[25]

T Levels are an England-only policy and represent a significant point of skills and technical education policy divergence between England and the other UK nations over the next five years. Employers need clarity on how T Levels will integrate with the apprenticeship frameworks still operating in the devolved nations. Devolved national governments have noted that T Level qualifications have been developed by employer panels in England with no devolved administration involvement or account taken of the National Occupational Standards (NOS) still adhered to by the devolved nations. Given that the qualification/NOS environment cuts across borders, Welsh Government has developed a Celtic Model for occupational families that marries across to the 15 T Levels. As the T Level reforms progress, Welsh Government has stated that it will review the situation on an ongoing basis, considering the implications for Wales. In Scotland and Northern Ireland, other vocational courses currently available in each nation, such as Scottish Vocational Qualifications (SVQs), will continue to apply in the same way as before.

Improved higher level technical education (Levels 4 and 5)

The higher technical education system reforms are part of the Government's Technical Education Reforms, as recommended in the Post-16 Skills Plan. Although currently only at development stage, the key proposals are:

- To ensure that the 15 routes extend up to the higher skill levels and beyond the age of 18, when training will become more specialised.
- The Institute for Apprenticeships and Technical Education (IfATE) will maintain a register of technical qualifications at Levels 4 and 5 which meet national standards and are therefore eligible for public subsidy through government-backed student loans.
- In populating the register, the IfATE will normally wish to recognise only a single qualification in any given area. Where there are gaps, the IfATE will be able to stimulate the creation of new qualifications within each route.
- There is expected to be a reduction in the overall numbers of regulated qualifications that exist at Levels 4 and 5. [26]

21 Energy and Utility Skills (2019) Test and Adjust: Energy and Utilities Employers Ready to Lead the Way with Further Apprenticeship Reforms.
22 Energy and Utility Skills (2019) Test and Adjust: Energy and Utilities Employers Ready to Lead the Way with Further Apprenticeship Reforms.
23 IfATE (2020) Route Review
24 DfE (2019) T Level Action 2019
25 House of Commons Library (2018) Briefing Paper: Technical Education Reforms
26 DfE (2019) Higher technical education: the current system and the case for change

Funding modifications for post-18 education

In 2019, a review was conducted by Philip Augar[27] with the aim of creating a joined up post-18 education system, supported by a funding regime that worked for students and taxpayers. It resulted in 53 recommendations, of which the following are likely to have the greatest impact on the sector:

- introducing maintenance support for Level 4 and 5 qualifications
- first free full Level 2 and 3 qualification for all learners
- changes to HE fee model - this will result in opportunities for employers and employees to tap into funding to retrain or upskill.

The Government also committed additional funding for the FE sector and T Level implementation to ensure that the apprenticeship and technical education reforms are delivered.

£3 billion has been set aside for the National Skills Fund as a first step towards a Right to Retrain scheme for adults, enabling employees to keep pace with technological change, gain skills for future work and to pursue lifelong learning. This is new funding on top of existing skills funding and so represents additional investment for a range of training programmes and courses, including apprenticeships.[28]

Retraining initiatives to boost skills development

In England, the National Retraining Scheme is an opportunity to join up the skills system and help employees retrain into better jobs, in order to be ready for future changes to the economy, including those brought about by automation. The scheme will also help to meet the needs of businesses to create a more versatile, multi-skilled workforce in the future, supporting greater workforce resilience and sustainability. Although its priority will be to boost digital and construction skills, there are plans to widen the scope to other sectors with critical skills shortages. There is an opportunity for our sector to work collaboratively to ensure that energy and utilities are prioritised for the next phase.

During its testing phase, the first part of the scheme, Get Help to Retrain is available to eligible adults in six areas across England. It will be rolled out to people and businesses across the rest of England during 2020.[29]

Skills Development Scotland will deliver an all-age careers advice and guidance service. Meanwhile, Scottish Government has also published a Future Skills Action Plan and a Global Climate Emergency Skills Action Plan. This includes taking forward a National Retraining Partnership with employers, unions, colleges and universities and training bodies to identify the best collaborative way forward to help workers and businesses prepare for future changes by enabling the workforce to upskill and / or retrain where necessary.

In Wales, a personal learning account programme was launched in September 2019 to promote lifelong learning. It aims to *"give individuals the opportunity to obtain the skills, knowledge and qualifications they need to embark on a new career and to do so in a way that fits around their lifestyle".*

In Northern Ireland, Bridge to Employment offers a pre-employment training programme to help those unemployed and aged 18 years and over to find a job, whatever their experience of work. There is also Steps 2 Success which aims to help individuals build the skills and experience they need to find and succeed in work.

Localisation of skills policy

The aim of the English Local Industrial Strategies is to help ensure that the necessary connections and capacity are in place at a local level to link skills provision with economic need. With skills policy already devolved to nations, and the four national governments currently pursuing four distinct approaches, the introduction of the Local Industrial Strategies will lead to further geographical differentiation of skills policy and will need to be managed carefully.

The immediate concern is that the absence of a coordinated approach between local and national skills and employment strategies will adversely impact employers, who may potentially find themselves taking on multiple new commitments to partnerships, across large national or even multi-national operating territories.

Local Skills Advisory Panels and Regional Skills Partnerships

In England, the Local Skills Advisory Panels will feed into the Local Industrial Strategies. Employers will be invited to engage with Skills Panels across their operating territories, to work on an increasingly localised approach to skills policy making.[30] Meanwhile, in Wales, apprenticeship design will be informed through recommendations from Regional Skills Partnerships, LMI and sector reviews carried out by Qualifications Wales. The Scottish Apprenticeship Advisory Board (SAAB) will continue to provide employer leadership and contribute to the development of apprenticeships in Scotland, ensuring they are aligned with industry and economic need.

The UK labour market is not organised according to these defined territories so close governance and effective communication and engagement will be needed to

27 DfE Independent Report (2019) Post-18 review of education and funding: independent panel report
28 HMT (2020) Budget 2020, HMT (2018) Budget 2018
29 DfE (2020) Policy Paper: National Retraining Scheme
30 BEIS (2017) Policy paper: Industrial Strategy: building a Britain fit for the future

ensure that the panels and boards contribute tangibly to workforce resilience and skills UK-wide. Since the introduction of the Apprenticeship Levy, employers with a workforce in more than one UK nation have experienced differing national government approaches to managing the Levy and use of funds. Many employers have found this inconsistent approach to Levy implementation across the UK has generated additional work and has created perverse incentives in terms of recruitment and access to training. This could be exacerbated at a regional level unless managed carefully.

The UK wide skills policy

A number of sector companies operate across England, Scotland and Wales, with some operating in Northern Ireland. However, the skills and education policy focus continues to be on England. UK-wide skills development remains under-developed and unrecognised. If left unaddressed, this will result in transnational employers in the sector having to work with four different models and systems.

It is vital that employers operating at a national and transnational level do not face additional bureaucratic barriers or challenges in accessing the skills funding they need. A coherent, consistent approach to skills and training across all nations and regions, albeit with a level of localised tailoring, will be required.

Migration policy and EU exit

As the UK leaves the European Union, potential changes to the immigration system could intensify existing skills challenges in the energy and utilities sector. Our analysis of the evidence from employers and sector data indicates that the proposed changes could have a significant impact on the waste management industry and parts of the power sector. Research conducted by Energy & Utility Skills covered the whole of the energy and utilities sector but feedback from employers indicated that potential changes to the immigration system were generally seen as a low-level risk to businesses in the regulated water and gas industries.

In light of these policy developments, and the current and anticipated difficulties being experienced by employers the sector has agreed four recommendations to both the UK and devolved national Governments, designed to support its own strategic priorities:

1.

COLLABORATIVE PARTNERSHIP ACROSS THE UK & NATIONAL GOVERNMENT DEPARTMENTS:

The increasingly devolved and fragmented efforts to address the UK's labour market and workforce resilience challenges need coherence and leadership to ensure the UK's prosperity after leaving the European Union.

2.

INVESTMENT IN INDUSTRIES THAT ARE OF STRATEGIC IMPORTANCE TO THE UK ECONOMY:

The energy and utilities sector is the largest single contributor to the National Infrastructure Delivery Plan. Ensuring a sustainable and resilient sector workforce is an essential investment for the whole of the UK.

3.

A STABLE SKILLS AND EMPLOYMENT POLICY ENVIRONMENT:

Sector employers need coherent skills policy to enable them to minimise wasted resources and commit to long-term investment in the workforce.

4.

CONTINUING DIALOGUE AND EVALUATION OF POLICY AND PRACTICE WITH EMPLOYERS:

Ensuring skills and workforce policy interventions are employer-led, recognising the needs of employers in the energy and utilities sector.

6. SECTOR WORKFORCE AND SKILLS CHALLENGES: CONTINUITY AND DISRUPTION IN A CHANGING OPERATING ENVIRONMENT

OUR SECTOR'S EVOLVING WORKFORCE CHALLENGES

Over the next decade, the workforce and skills challenges the sector faces will be exacerbated by rapid technological, environmental, regulatory, political and societal changes. This is coupled with an overhaul of vocational and technical education and skills, meaning that businesses will be functioning in a substantially different landscape. As a result, the sector will need to manage existing, long term skills issues alongside emerging challenges and opportunities in the educational system.

The Partnership's analysis of the sector challenges in meeting net zero carbon, the constrained skilled labour market and changes to the educational system, has identified three critical workforce and skills issues that need to be addressed over the next five years:

1. **Constricted labour market and evolution of jobs**
2. **Workforce diversity, inclusion and attraction**
3. **Targeted training and retraining to meet market demand**

Constricted labour market and evolution of jobs

THERE HAS BEEN SIGNIFICANT CHANGE IN THE LABOUR MARKET, AND THIS IS SET TO CONTINUE WITH THE EVOLUTION OF JOBS AT THE CORE OF THESE TRANSFORMATIONS.

"The industry will need to redesign the world of work."[31]
Similar to other industries the sector is experiencing an evolution of jobs and the creation of new jobs. Research indicates that over the next 10 years 30-40% of jobs in the industry will not exist, and thus will transform into new jobs. The blend of the work in the pipeline is changing and new, more innovative and productive techniques will require a different mix of skills in the future.

Alongside this transformation, the labour market is tighter than at any point since records began, with the national employment rate reaching record levels in April 2020 at 76.6%. At the same time, the unemployment rate remains at historically very low levels (4.0% in April 2020). In the 12 months to December 2019, the number of jobs in the UK economy grew by 1.6% (in line with the long-term trend). During the same period, however, the number of jobs in the water supply, sewerage and waste management sector increased by 4.3% and in the power and gas sector by 3.4%. Although the aftermath of the COVID-19 pandemic saw thousands become redundant, it was mostly in retail, hospitality and tourism with limited skill transfer opportunity.

Predicated high level of vacancies and employee turnover over the next decade

The number of employees in the energy and utilities industry is just over a half million (572,200) workers, which accounts for almost 2% of all UK employees. We have predicted that 27% of the current workforce will retire in the next decade. When this is combined with the growth of new and replacement jobs, it is estimated that there will be a total of 277,000 vacancies, equivalent to replacing or retraining 48% of the current workforce.[32]

31 Julia Harrison, lead partner in resources and industrials human capital at Deloitte

32 Energy and Utility Skills (2020) Workforce Planning Analysis

Table 1: Vacancies to be filled between 2020-30

Industry	Number of new jobs	Replacement demand	Net requirement
Power	12,000	50,000	62,000
Gas Networks	-<1,000	14,000	14,000
Gas (Utilisation)	0	61,000	61,000
Waste & Recycling	8,000	75,000	83,000
Water	-1,000	28,000	27,000
Supply chain	0	30,000	30,000
Grand Total	**19,000**	**258,000**	**277,000**

Source: Energy and Utility Skills (2020) Workforce Planning Analysis

The total workforce is likely to increase by an estimated net 3% (19,000 people) over the course of the decade. This is primarily due to a combination of the number of new jobs likely to be created in offshore wind energy generation and waste and recycling, particularly relating to energy generation. These estimates include reductions in headcount within administrative and secretarial occupations and sales and customer service occupations across much of the sector.[33]

WORKFORCE DIVERSITY, INCLUSION AND ATTRACTION

Lack of diversity - there is continued gender and ethnic minority disparity in the workforce.

The sector recognises that it needs to tap into the largest pool of talent possible and one which better reflects the population it serves by having a diverse and inclusive workforce. Workforce diversity and inclusion levels for the sector continue to be below the UK averages for gender, BAME and disability (Table 2). [34]

Table 2

	Energy & Utility sector	UK average
Female	17%	47%
Ethnic minority	5%	12%
Disabled	12%	15%
Aged over 55	20%	20%
Aged under 24	24%	12%

Overall, 10% of the sector's entire workforce is aged 60+ years; the same proportion as seen across the UK's entire working population. However, the age profile of the sector's Operative and Technician workforce is slightly older than average (13.6% and 11.9% respectively are aged 60+); while just 1.6% of the customer service workforce are 60+. 14.5% of the Senior Manager / Director are aged 60+, although, to a certain extent, this should be expected as it can take some years' experience to build up to such a role.

The recent Royal Academy of Engineering (RAEng) Women in Engineering and Science (WISE) report also shows that the levels of women leaving engineering is 57% by the age of 45 and only three employers in the sector engage in Race at Work Charter and none have yet appeared in Stonewall 100.

33 Energy & Utility Skills estimate based on a range of assumptions applied to data from the Business Register and Employment Survey (ONS, 2018) and Census of Employment (NISRA, 2017).
34 ONS (2019) Labour Force Survey January-December 2018

Table 3: Occupations where skills shortages exist by sector

Industries	Occupations reported as being in shortage
Gas (Networks)	Technical engineering occupations, including quantity surveyors, as well as project managers, data scientists, cyber security.
Power	Various engineering disciplines (including commissioning, instrumentation & control, power systems, control, etc.), quantity surveyors, data scientists, cyber security, project managers and overhead lines workers.
Waste and recycling	Site managers, landfill managers, maintenance engineers, drivers, mechanics and plant operators.
Water	Procurement specialists, civil engineering, instrumentation & control technicians, chemical & process engineering, quantity surveyors, data scientists, cyber security, software engineering and project managers.

Source: Energy and Utility Skills (2020) Workforce Planning Analysis

Future talent pipeline is constrained

Attracting and retaining young people with STEM training or qualifications continues to be an issue. It is prevalent in every stage of the skills pipeline from attracting students to enrol onto STEM subjects at school to graduate level, the evidence shows:

- 50% plus of 11-16 year olds would consider a career in engineering, however this dips to 45% for 16-19 year olds, the crucial point where career and learning choices are made.
- Although, for this group there has been an upward trend from 2013 where only 29% considered a career in engineering to the current level of 45%.[35]
- After climbing year-on-year since 2011, the last 12 months has seen a notable decline in GCSE engineering entries (-31.1%) – the largest proportional decrease in take-up of all STEM subjects.[36]
- The number of students that sat GCE A level exams in 2019 for chemistry and physics increased on the year, up 9.2% and 3.0% respectively.
- 51% of the 11.5m certificates in 2017–18 were in vocational and other technical and applied general qualifications. The overall number of certificates fell by 8% compared to the previous year, continuing the trend seen over several years. [37]
- In 2016–17, of the 392,000 graduates only 1,505 (0.4%) entered employment in the sector. Similarly, of the 82,000 graduates from STEM subjects, just 655 (1%) entered employment in the sector. [38]

TARGETED TRAINING AND RETRAINING TO MEET MARKET DEMAND

ACUTE TECHNICAL SKILLS SHORTAGES - THE SKILLS EMPLOYERS ARE SEEKING ARE TECHNICAL, DIGITAL AND TRANSFERABLE.

The sector will require a new influx of highly skilled technical workers. Research highlights the areas frequently referenced as acute skills shortages, which are digital, big data analysis, AI scientists, engineers, software creators and analytical skills.

Specific skills shortages are reported in engineering and technicians' occupations (e.g. instrumentation and control, design, chemical, commissioning, civil, electronics, etc) as well as, cross sector disciplines such as quantity surveyors, data scientists, cyber security experts and project management. The industry is struggling to recruit enough numbers into critical roles; Table 3 presents these critical roles by sector.

35 Engineering UK (2019) Engineering UK report 2018
36 ONS (2019) Labour Force Survey January-December 2018
37 Ofqual (2019) Annual qualifications market report: academic year 2018 to 2019
38 EUSG (2019) HESA Data Analysis – Higher Education Statistical Summary 2017/2018

Retraining and reskilling to meet demand

Greater levels of retraining and reskilling to deliver the work in the National Infrastructure Pipeline and ensure future workforce resilience is needed. The World Economic Forum's Future of Jobs Report shows that globally there is predicted to be a shift of 42% in workforce skills required between 2018 and 2022. What this means for the UK is that an estimated 17% of workers will require more than six months of reskilling and a further 23% between one and six months.

In addition, there is demand for cross sector and new technologies training. This is stimulating a changing profile in the nature of roles and skills supply required in the sector. The situation is compounded by a number of other sectors competing for the same, or similar, talent in key roles (HS2, nuclear new builds, Crossrail, Crossrail 2) often at higher rates of remuneration.

The need for more Technical Apprentices

Boosting apprenticeships across the sector's technical occupations is paramount because these are key operational roles. This will be against a background of a period of sustained general growth in apprenticeships since their re-introduction, followed by a decline in employer participation in apprenticeships in England in the last two years, but with the energy and utilities sector performing better in the overall UK picture.

The sector has seen a 5% increase in the number of apprenticeship starts in 2018-19 compared to 2017-18 in England; with increases in the same period also seen in Wales and Scotland, and only Northern Ireland seeing a slight dip in the number of starts.[1] However, the total number of starts across the UK has not yet recovered to the levels seen before the introduction of the Apprenticeship Levy in April 2017, and the number of apprenticeships starts in broader engineering-related subject areas in England decreased by 10.3% between 2016-17 and 2017-18. In the 2018-19 year, there were approximately 8,000 starts on technical apprenticeship programmes that are relevant to the energy and utilities sector, including engineering.

Data from the Procurement Skills Accord highlighted a significant disparity in apprenticeship take-up between the asset owners and their supply chains. Overall, an estimated 5% of the energy and utilities sector's operational and technical workforce are apprentices, but this ranges from 6.6% in asset owners, to 3.8% in Tier 1 contractors and just 2.5% in Tier 2 contractors.

Evidence also suggests that there has been a shift away from lower level STEM and engineering vocational qualifications, particularly in Northern Ireland. While the number of Level 2 certificates awarded decreased across England, Wales and Northern Ireland between 2016 and 2017, the number of Level 3 and above qualifications increased by 0.4% in England, 15.5% in Wales and 106.5% in Northern Ireland (Engineering UK). This was also confirmed by data collected as part of the Procurement Skills Accord's 2019 Annual Review process.

Figure 5: Skills and Technical Education Policy Landscape 2020 Plus

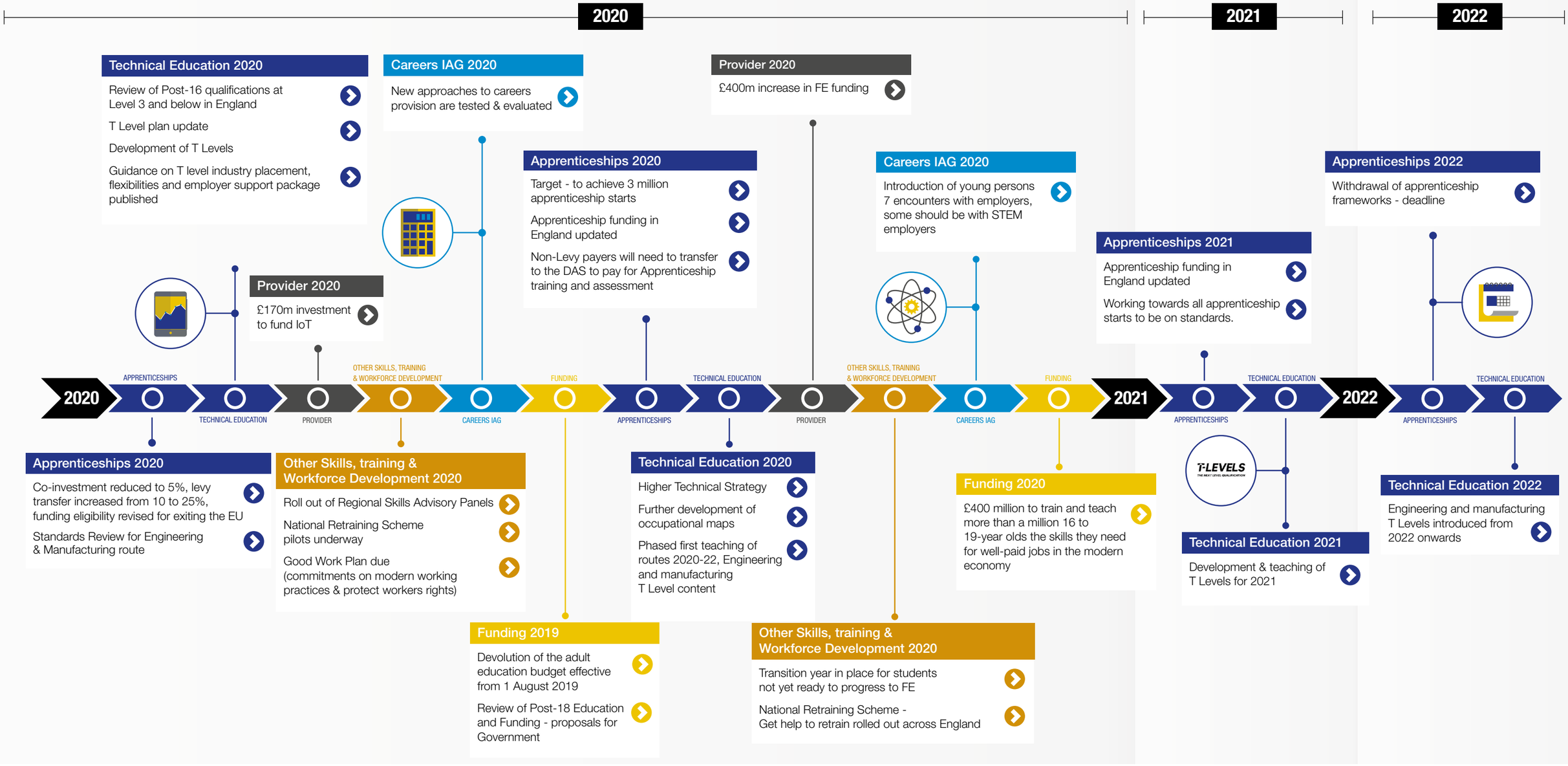
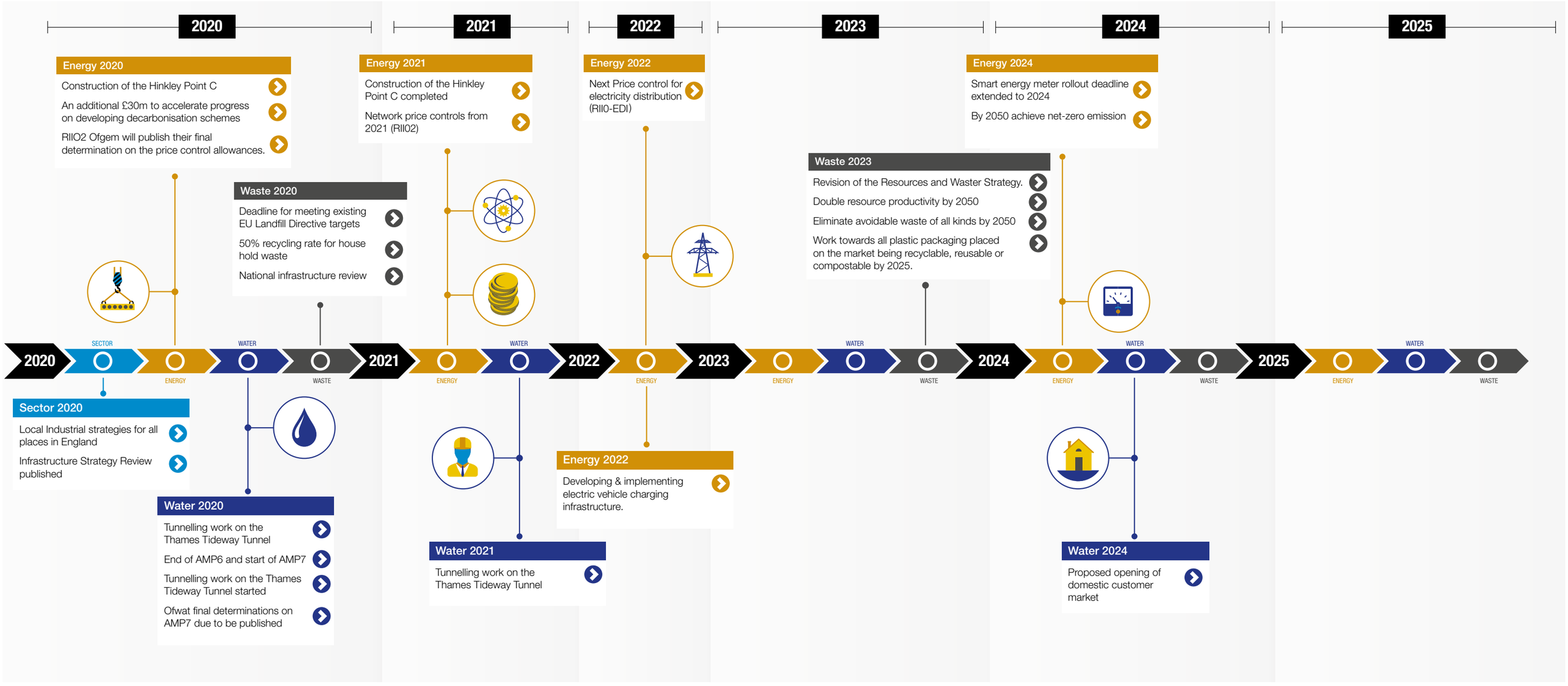


Figure 6: Sector policy landscape



7. LOOKING AHEAD TO 2020-2025: OUR FUTURE STRATEGY

THE TIME IS NOW

We are entering a period of unprecedented challenges and opportunity for the sector. A range of disruptive environmental, public health, political and economic factors are transforming our sector's operating environment. This in turn, is impacting the sector's workforce and skills requirements, against a backdrop of persistent and challenging labour market issues.

REFOCUSING OUR STRATEGIC PRIORITIES

Many of the skills and workforce issues our sector faces remain, and indeed some of these issues have become more acute. We must try harder, as a sector, to address these persistent skills and workforce issues, all the while acknowledging that our operating environment is radically different. As a result, the sector's ten strategic priorities that flowed from the original workforce and skills strategy have been refocused and condensed into six:

Key theme	2017-2020 priorities	2020-2025 priorities
SECTOR ATTRACTIVENESS, RECRUITMENT AND WORKFORCE DIVERSITY 	Working with schools to inspire next generation Inclusive approach to employing diverse talent Building recognition and sector pride Raising the sector profile & value proposition	**Reflect** the population that the sector workforce serves **Inspire** the next generation
MAXIMISING INVESTMENT IN SKILLS – investment made by asset owners & their supply chain 	Creating work ready apprenticeships Creating competence in professional engineering Building a resilient & skilled supply chain	**Deliver** the skills we need **Build** public recognition of the sector
TARGET ACTION – to address anticipated skills gaps and shortages 	Building workforce resilience Encouraging sector wide collaboration Delivering sector sustainability	**Support** a successful future outside the EU **Contribute** to a sustainable and resilient UK

Sector attractiveness, recruitment and workforce diversity – **'reflect and inspire'**

We have a brief window of opportunity to act as a sector to address the climate emergency. We need to recruit the specific skills needed, from technical and engineering to know-how in heat pumps, data science and AI. The circular economy also represents a major opportunity, highlighting the exciting and highly skilled career pathways that are becoming available.

As National Grid's Net Zero Workforce report observes, *"by leveraging people's passion for climate action and a desire to work in a net zero career, the energy sector can attract the best and the brightest"*. The 'buzz' surrounding many of these headline issues can raise the profile of opportunities in the energy and utilities sector for individuals to make a real impact and fuels demand for their skills.

Meanwhile, numbers in some areas starting on STEM-focused courses and programmes of study are dipping and attraction and retention of young people with STEM training or qualifications continues to be an issue. The sector still has some way to go on ensuring that its workforce reflects the communities it serves, with ongoing diversity challenges across the employment lifecycle. In light of this, the 2020-2025 priorities have been refocused on embedding inclusion into our workforce strategies and inspiring the next generation to pursue careers in our sector.

Maximising investment in skills – **'build and deliver'**

Research indicates that, over the next 10 years, 30-40% of jobs in the industry will not exist and will be transformed into entirely new roles. The blend of the work in the National Infrastructure Pipeline is changing and new, more innovative working practices will require a different mix of skills in the future. The total workforce is likely to increase by an estimated 3% (19,000 people) over the course of the decade, due to a combination of new job creation in offshore wind energy generation and resource management and recycling, particularly relating to energy generation. Higher levels of retraining and reskilling to deliver the work in the pipeline, while ensuring future workforce resilience, will be vital.

However, against this backdrop, the number of apprenticeships starts in engineering-related subject areas in England has decreased by 10.3% between 2016-17 and 2017-18. While so much has been achieved through initiatives, such as the Procurement Skills Accord and other sector-wide collaborations, now is the time to do more. With this in mind, the 2020-2025 priorities have been refocused on delivering the skills we need for the energy and utilities sector of the future.

The climate emergency has generated real passion within the sector to take action. National Grid recognised in its report Building the Net Zero Workforce that *"there will be countless opportunities to reshape young people's perceptions of the energy sector around net zero"* and that the transition towards net zero represents a major strategic opportunity for a sector that has long been searching for ways to improve its public image. Conversely, the COVID-19 epidemic offers a different type of strategic opportunity to connect with customers; build trust and have a positive impact on the way the sector is perceived.

The high profile of and media focus on the role of 'key workers', such as those working in energy and utilities, in keeping the country 'ticking over' has reinforced this. Meanwhile, the regulators have lent their support to companies, urging them to 'do the right thing' in these difficult times and offering flexibility in return.

For these reasons, the 2020-2025 priorities have been refocused on building public recognition of the role and value of the sector, which will feed into a healthy talent pipeline and support delivery of the skills we need.

Targeted action to address skill gaps and shortages – **'support and contribute'**

Ofwat and Ofgem have stated that long term resilience means businesses *"identifying and addressing possible skill gaps in the future" and having a 'sustainable workforce strategy"* in place. In addition to filling future skills gaps and ensuring proper forward planning, it will be vital for an increasing proportion of workers to enhance their transferable skills, enabling them to move between roles and often to work remotely and flexibly.

Meanwhile, many companies are realising that future resilience can be enabled and supported by technology. For example, since the start of the COVID-19 pandemic, the incentive to deploy remote monitoring devices, to automate control of assets and exploit the potential of robotics has never been greater, requiring workers to gain the skills to use these technologies to best effect in their roles.

However, research shows that the areas frequently referenced as suffering from acute skills shortages are digital, big data analysis, AI scientists, engineers, software creators and analytical skills. Meanwhile, other more 'traditional' skill shortages in engineering, and STEM more generally, persist. As we approach a future outside the EU, the focus will need to be on 'growing our own' talent, particularly in parts of our sector already affected by higher proportions of 'hard to fill' vacancies and skill shortages.

IN LIGHT OF THIS, THE 2020-2025 PRIORITIES HAVE BEEN REVIEWED AND REFOCUSED ON EFFORTS TO SUPPORT A SUCCESSFUL FUTURE FOR THE UK OUTSIDE THE EU AND CONTRIBUTING AS FULLY AS POSSIBLE TO LONGER TERM SUSTAINABILITY AND RESILIENCE.

The six strategic priorities have been re-ordered as follows, to reflect the competing challenges and opportunities facing the sector over the next five years.

Sector attractiveness, recruitment and workforce diversity

1. Reflect the population that the sector workforce serves
2. Inspire the next generation to a career within the energy and utilities sector

Maximising investment in skills

3. Deliver the competencies and skills we need
4. Build public recognition of the sector

Targeted action – to address anticipated skills gaps and shortages

5. Support a successful UK economy and society outside the EU
6. Contribute to a sustainable and resilient UK

Over the period of the inaugural strategy, it has become clear that some of the priorities for the sector have been easier to address than others. Despite the commitment, it has been hard to make change a reality and they will take longer than three years to achieve. In addition to refocusing our efforts and reprioritising into six key strategic priorities, we have also now built in the time frames when we believe that can start to see the strategies being delivered. The following table (Table 4) summarises the key strategies, the timeframe and the sector commitment.

The six strategic priorities have been re-ordered as follows, to reflect the competing challenges and opportunities facing the sector over the next five years.

Table 4: Re-ordered skills strategies

Priority	Timeframe	Detail	Sector commitment
1. Maximising investment in skills – investment made by asset owners and their supply chain **Build** public recognition of the sector 	Near term	Creating competence in professional engineering Highlighting the importance of registration/ passport schemes in ensuring a competent workforce Setting the bar high for quality assured training and market leading assessment provision A proud tradition of apprenticeship – our sector is a great place to start your career or to move into Facilitating sector-wide collaboration to achieve even better results for employment and skills (and increased efficiency)	Maintain the highest possible standards and competency levels
2. Maximising investment in skills – investment made by asset owners and their supply chain **Deliver** the competencies and skills we need 	Near term	Creating work-ready apprenticeships and clear progression pathways to support workforce renewal Develop apprenticeship standards in new technologies for the sector Ensuring that wider technical education offering is fit for purpose Informing and guiding the future development of the Apprenticeship Levy to ensure that the sector can derive maximum benefit from it Delivering strategic workforce planning to anticipate skills pipeline and impact of future trends (incl. AI), ensuring sector resilience Provide robust LMI to understand gaps and shortages – while anticipating future needs and the impact of future trends, incl. AI and other developing technologies PSA Leveraging procurement practices driving sustainable skills through supply chain	Recognise, renew and retrain the workforce to meet sector requirements

3. Targeted action to address anticipated skills gaps and shortages **Support** a successful UK economy and society outside the EU 	**Medium term**	Promoting the contribution our sector can make to driving economic growth and employment post EU exit Understanding and mitigating against the impact of future migration policy on critical skills shortages (power and waste) Demonstrate our reach throughout nations and regions, embracing localism and working closely with devolved national governments ('just transition')	Ensure the labour market is flexible and resilient
4. Targeted action to address anticipated skills gaps and shortages **Contribute** to a sustainable and resilient UK 	**Long term**	Playing our part in enabling the transition to net zero (and anticipating changes in skills needs required to do this) Considering the implications for our sector in terms of climate change mitigation and adaptation (how does education, training and skills need to evolve?) Building workforce resilience/ disaster and emergency management/ skills and competence management	Collectively prioritise skills requirements to ensure that we can respond effectively to unexpected situations and extreme events
5. Sector attractiveness, recruitment and workforce diversity **Reflect** the population that the sector workforce serves 	**Medium term**	Inclusive approach to employing, developing and progressing diverse talent Widening the talent pool to ensure that our employers can reach a diverse range of people for different types of roles Ensuring our sector is fulfilling its social mission in unifying communities and bringing together people of different backgrounds, ages, gender and ethnicities etc. Measure and be transparent about progress as individual organisations and as a sector	Embed diversity and inclusion into the core of workforce strategies

6. Sector attractiveness, recruitment and workforce diversity **Inspire** the next generation to a career within the energy and utilities sector 	Long term	Working with schools, colleges and youth organisations to promote different careers in our sector, supporting workforce renewal Showcase technologies / solutions to the greatest challenges of our time Support mentoring schemes Communicate clear progression pathways in sector careers to show breadth of opportunity Awareness raising and ensuring equality of access / opportunity (diversity / access to the best people / social mission)	Cultivate young talent in the sector

8. WORKING WITH GOVERNMENT AND REGULATORS

The Energy & Utilities Skills Partnership (the Partnership) works to encourage joined up labour market and skills policy approaches across the UK, seeking coherent strategy and decision making between central and devolved governments, between their departments and across the wide variety of economic, environmental, drinking water quality and apprenticeship regulators.

The challenge in achieving this is significant. Virtually all the key policy levers for UK infrastructure, the labour market and human capital, work, immigration and productivity sit within UK government. The vital subject of workforce skills is however devolved to nations, regions, local areas and even single interest groups.

The efforts are typically centered on further education and learning, with little focus for ensuring that the labour market and skills funding can deliver national priorities or market need. The strategy calls for more UK-wide collaboration, so that all the vital pieces of the workforce puzzle join up into one recognisable picture.

RECOMMENDATIONS:

I. **Collaborative partnership across the UK and National Government departments:** the increasingly devolved and fragmented efforts to address the UK's labour market and workforce resilience challenges need coherence and leadership to ensure the UK's prosperity after leaving the European Union.

a. Coherent labour market approach - The UK needs one joined up and coherent labour market and skills strategy to serve all four nations, with a collective Ministerial focus on securing workforce sustainability in critical industries, addressing the environmental crisis and ensuring the nation is able to remain a global economic leader. This commitment to this type of constructive cross-nation working remains an embedded principle within the existing Industrial Strategy.

b. Retention of National Occupational Standards - The highly regulated UK energy and utilities sector places great value on the National Occupational Standards (NOS), which underpin many of their apprenticeship approaches and core operational job roles. The Partnership strongly recommend that the English policy reforms find a solution so that Standards and the NOS align and can again be operated in the UK labour market by employers.

c. Consistent application of skills policy across the four nations - Employers continue to incur increased costs and red tape through the multiple rules and regimes that exist across the UK. Transnational utilities and their delivery partners increasingly needing to operate with four different and often opposing rules and systems. Inconsistency of funding approach in areas such as apprenticeships is also impacting their ability to deliver coherent and efficient strategies to meet their businesses need, forcing employers to test more cost-effective people programmes. Workforce renewal is by its nature a long-term endeavour, and the Partnership seek a stable, predictable and inter-connected policy and funding environment in which to operate and plan.

> *"The Department relies on market mechanisms to address skills gaps in the economy, and does not decide where, or at what level, apprenticeships take place."*
>
> Report on the Department for Education apprenticeships programme by the Comptroller and Auditor General, National Audit Office, February 2019

2.

Investment in industries that are of strategic importance to the UK economy: The energy and utilities sector is the largest single contributor to the National Infrastructure Delivery Plan. Ensuring a sustainable and resilient sector workforce is an essential investment for the whole of the UK.

d. Connection of skills policy to economic need – External reviews have shown little apparent connection between the policies, strategies and levies of the main education and skills departments, and the UK's industrial strategy and economic aims. The Partnership are seeking coherent change and believe UK education and skills departments are required to have a duty or explicit requirement that will ensure their funding and policy reforms directly support economic and societal need, raising skills levels in the most critical areas that will drive productivity and growth.

e. Joined up infrastructure planning - HM Treasury lead the economic planning and delivery for UK infrastructure. No human capital strategy exists to deliver the UK's requirements and there is currently no coordination with relevant regulators to ensure workforce resilience is a shared ambition across strategies. The National Infrastructure Plan for Skills, is held by the Infrastructure & Projects Authority, but is severely out of date and disconnected from the UK labour market situation. The Partnership calls for the human capital aspects of the National Infrastructure Plan for Skills to be refreshed and offer assistance to HM Treasury to help ensure a safe, skilled, diverse and resilient workforce is in place for the challenges ahead.

> *"At present, there is an insufficiently joined-up approach to infrastructure skills development in the UK, with a wide range of responsible bodies operating across different geographic and political boundaries. The human capital aspects of the National Infrastructure Plan for Skills need to be refreshed to help ensure our pipeline of future workers is adequate for the challenges ahead."*
>
> Sir John Armitt, Chair, National Infrastructure Commission
> All Party Parliamentary Group on Infrastructure, February 2020

3.

A stable skills and employment policy environment: Sector employers need coherent skills policy to enable them to minimise wasted resources and commit to long-term investment in the workforce.

f. ***Better regulation*** **-** Two key economic regulators, Ofgem and Ofwat, met the original request from the 2017 Workforce Renewal and Skills Strategy by requiring sustainable workforce resilience to be built within company business plan submissions and made it part of the main price setting process. Their innovative best practice is welcomed and should now be enshrined by all regulators, not only economic, including through the work of the UK Regulators Network.

g. ***Establishing the value of human capital*** **-** The Partnership welcomed proposals from the Chancellor of the Exchequer and the Office of National Statistics, to create one defined economic value for UK human capital. Doing so will allow future policy, financial and business decisions to be targeted in order to raise that value. The UK energy and utilities sector have been thought leaders in this area and are experts in natural and financial capital. The Partnership formally offer to work in collaboration with central and devolved governments to value human capital.

h. ***Supporting Environmental, Social and Governance (ESG)*** **-** Public and private shareholders are increasingly calling on companies to increase human capital reporting and transparency, to show how they are protecting and promoting the direct workforce and supply chain to reach their strategic goals. The Partnership is already working in successful partnership with enterprises such as the Workforce Disclosure Initiative and will increase its expertise working with governments and the ESG financial community.

4.

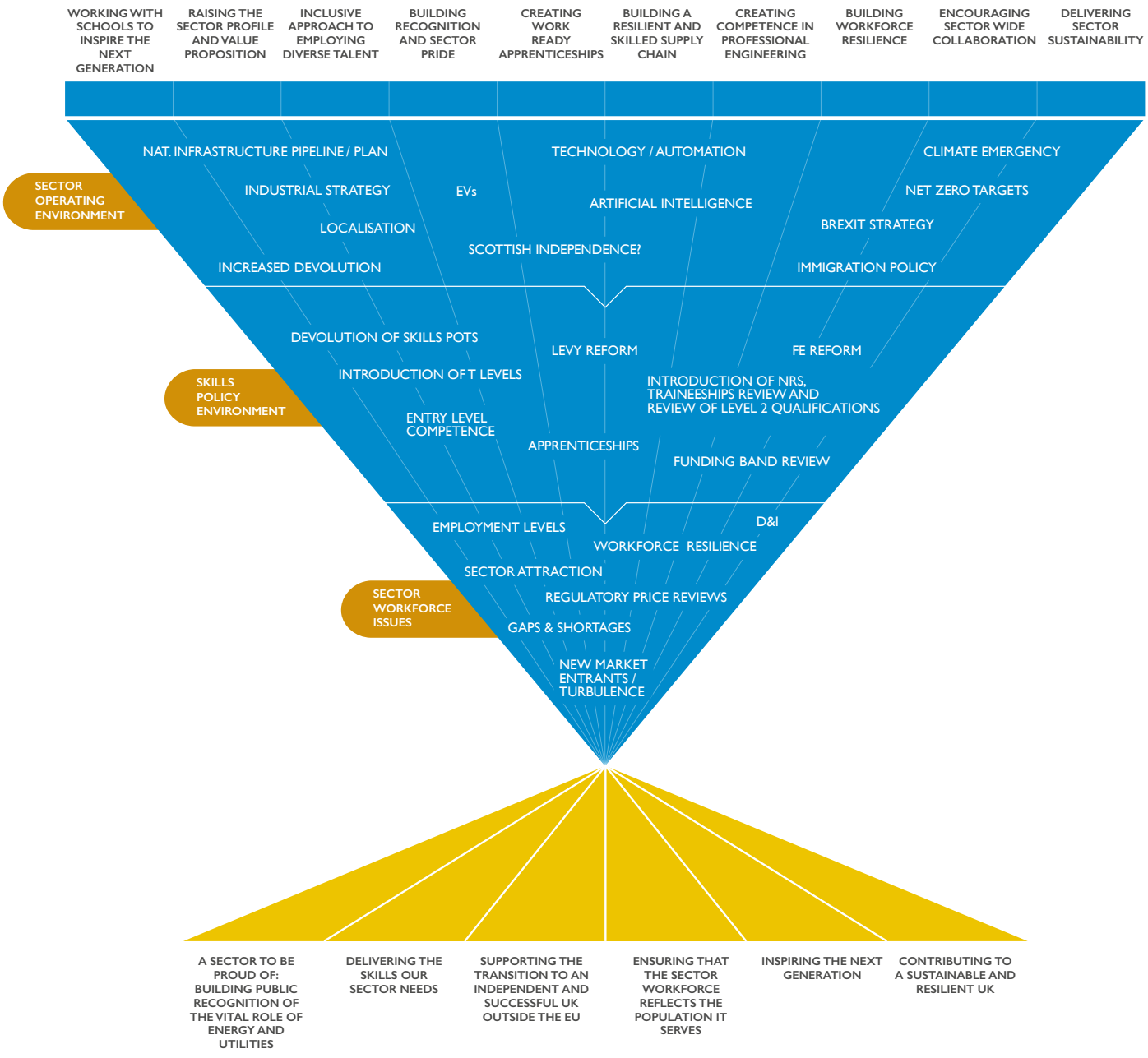
Continuing dialogue and evaluation of policy and practice with employers: Ensuring skills and workforce policy interventions are employer-led, recognising the needs of employers in the energy and utilities sector.

i. A shop window for talent – The Partnership calls on all the key energy and utilities interest groups to work together to build a new narrative for the careers we offer and the vital role we play for society. Our critical worker status through the pandemic and the upheaval experienced by workers across the economy, has brought a once in a generation opportunity for our sector to work together and make us a career of choice for a whole new and more diverse range of talent. Sector attraction and inclusion is incumbent on all key players in the energy and utilities sector, including policy makers, regulators, unions, regulated businesses and delivery partners.

j. Be brave to tackle the environmental crisis – The UK energy and utilities sector sits centre stage for helping governments and citizens to tackle the environmental crisis and meet the demands of net zero carbon emission laws. The Partnership sees opportunities for significant economies of scale, if the government departments across the UK join up their thinking for low carbon strategies and gas, power, water and waste management strategies, and now mandate the technologies that can assist society to reach the goals. Joined up thinking will also allow optimised labour market and workforce planning to ensure that the right quantity and quality of skilled workforce exists, affordably, in the right places at the right time.

9. **ANNEXES**

The diagram illustrates, the 10 strategic priorities from the Energy & Utilities Workforce Renewal and Skills Strategy:2020 and how they have been set against the sector operating environment, the skills policy environment and the sector workforce issues to refocus our priorities into six strategies.



RECOMMENDATIONS:

Report title	Author	Date published
2018 Talent Shortage Survey	Manpower Group	Jul-18
AI: The Energy Industry's Untapped Resources	IET	Jul-19
Analysis of the National Infrastructure and Construction Pipeline	Infrastructure and Projects Authority	Nov-18
Annual Monitoring Report	National Infrastructure Commission	Feb-20
Apprenticeship Start Data	DfE	Dec-19
Circular Economy Skills Demand in Scottish Manufacturing	Skills Development Scotland	Jan-19
Clean Growth: Technologies for Meeting the UK's Emissions Reduction Targets	Parliamentary briefing	Jul-19
Data on EU Financed Projects	European Investment Bank	Jan-20
Diversity and Inclusion Data Summaries	Energy & Utility Skills	Oct-19
Gas Transmission RIIO2 Business Plan	National Grid	Jul-19
Labour Market Overview	ONS	Jan-20
Leading the Energy Transition: Smart, Sustainable, Personalised	E.ON	Jan-20
Our Strategy for Regulating the Future Energy System	Ofgem	
Our Waste, Our Resources: A Strategy for England	DEFRA	Jan-18
Outputs from NSAP Strategy Workshop	NSAP	Jan-20
PR19 Final Determinations	Ofwat	Dec-19
Proposed Resources and Waste Sector Deal	UK Resources Council	Aug-19
Prosperity for All: A Low Carbon Wales	Welsh Government	Mar-19
RIIO2 Framework Decision: Our approach to setting price controls for gas and electricity networks	Ofgem	
Road to Zero	DfT	Jul-18
Scotland 2035: A Human Future	Scottish Government	Sep-19
Scotland's Future Skills Action Plan	Scottish Government	
Sector Employment Data Breakdown	Engineering UK	Jun-19
The Net Zero Energy Workforce Report	National Grid	Jan-20
The UK's Points Based Immigration Policy Statement	UK Government	Feb-20
The Water Report	The Water Report	Feb-20
The World Needs A Circular Economy	World Economic Forum	Jan-20
Transitioning to Hydrogen: Assessing the Engineering Risks and Uncertainties	IET	
UK Employer Skills Survey: Research Report	IFF Research	Dec-18
UK Government Priorities and our 2019 Price Review Draft Determinations	Ofwat	Jul-19
Why AI is Essential for Utilities' Success in the New Energy World	Smart Energy International	Nov-19
Workforce Planning Analysis	Energy & Utility Skills	Jan-20

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