



Labour Market Intelligence: Refresh – 2023



A report for The Electrotechnical Skills Partnership by
Pye Tait Consulting

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Executive summary

Background

The electrotechnical industry has experienced significant change since the turn of the century. Today, the sector is at the very forefront of technological change and related technologies are now integrated into our daily lives. Meanwhile, the drive towards Net Zero is defining how the industry works and has brought fresh challenges and opportunities.

These drivers and others in recent years such as the Covid-19 pandemic, the war in Ukraine, and any ongoing impacts from the UK's exit from the EU have created a whirlwind of change to which the electrotechnical sector – like other sectors – is adjusting.

With such seismic changes occurring in such a short period of time, it has become vital to gather up-to-date labour market information on the electrotechnical sector.

The Electrotechnical Skills Partnership (TESP) first commissioned Pye Tait Consulting, an independent research agency, to undertake a Labour Market Intelligence (LMI) study in 2018/19, with some additions in 2020 via a mini-LMI study. It is timely now to revisit this critical research to provide an updated picture of the sector.

Aim and objectives

The overarching aim of this research was to update the previous LMI work to ensure accurate and up-to-date intelligence, building upon the 2018/19 baseline and 2020 update-research findings.

The research had several objectives, namely to:

- provide an up-to-date estimate of the size and demographic make-up of the sector's workforce,
- examine challenges employers face relating to recruitment and retention,
- understand the current and future skills requirements to work within the electrotechnical sector, and
- explore the future of the sector with regard to technological change and the Net Zero agenda.

Methodology

The study involved three core strands of research:

- desk research,
- a telephone survey of 467 employers, and
- follow-up interviews with 12 employers.

Research tools, and a sampling approach, were co-developed between TESP and Pye Tait Consulting to ensure comparability of approach with the preceding LMI studies. Targeting of survey participants was deliberately weighted towards achieving a greater proportion of responses from medium and larger companies. Fieldwork was undertaken in February and March 2023.

Sector profile

- The size of the electrotechnical workforce is estimated, based on national statistics, to be 276,000 ± 10,000. This is a decrease of 19% from 342,000 in the 2018/19 LMI study.
- Half (50%) of the UK workforce is aged between 25 and 49 years old. This is a small drop since 2018 (56%) and the corresponding increase is split evenly between a rise in the proportions of younger and older workers.
- There has been a substantial change in the citizenship of the electrotechnical workforce over the past five years. It now comprises almost entirely UK citizens (97%) with small proportions from Ireland (2%), elsewhere in the EU (1%), or beyond (0.2%). In 2018/19, some 14% were EU citizens and 9% were from outside the UK/EU. This trend is seen across all regions/nations except Northern Ireland.
- Most surveyed businesses continue to work in the commercial sector, with around three quarters (72%) undertaking maintenance and repair, and seven in ten (70%) new installations. Meanwhile, slightly under half work in domestic settings, either in maintenance (46%) or new fit (44%). Data suggest that businesses are tending towards specialising more in one area, rather than spreading themselves across multiple work settings, compared to 2018/19.
- The two most commonly undertaken electrotechnical activities are low voltage work including both maintenance and repairs (84%) and electrical installations (82%). There is now more activity in work associated with the Net Zero agenda such as heat pump installations, micro renewables, and grid-sized renewables.

Recruitment, retention, and ways of working

- The most commonly advertised-for roles are electricians, then apprentices/trainees, and unskilled workers. However, supervisor, director/manager, and apprentice or trainee roles are most difficult to fill, while skilled electrician roles are least difficult.
- Reasons for recruitment difficulties centre on a lack of quality candidates and an elevated market competition for suitably skilled workers. The rising cost of living is also pushing up salary expectations.
- Compared to 2018/19, more businesses are now 'more likely' to use a PAYE direct employment approach and fewer to loan labour, indicating a reduced appetite for risk.
- Companies are evenly split as to whether the Covid-19 pandemic has increased their use of technology, or increased demand for technology from clients. The majority disagree the pandemic has resulted in more homeworking, or a workforce that is less willing to travel.
- There is notable concern about course curricula aligning to current needs with 41% disagreeing that job applicants have the skills needed of them to do the job well, and

43% disagreeing that current available qualifications fully reflect demands of the job today. Related apprenticeship standards have, however, recently been refreshed to reflect the latest sector developments including green skills.

- Employers believe the best way to attract and recruit to the sector is to focus on a homegrown workforce through more promotion of electrotechnical careers in schools, and for businesses themselves to be more proactively involved in outreach activities.
- Workforce diversity is felt to be limited to an extent by the current labour pool. Some businesses are taking a more proactive to boost diversity, while increased prominence of under-represented groups in promotional activities, and more outreach with schools at an earlier age are also suggested.

Skills needs of the electrotechnical sector

- Most employers consider their workforce to have few skills gaps and confidence in current technical skill levels has increased since the 2020 LMI refresh study (although this may instead indicate a degree of ambivalence or ignorance about the speed and extent of technological change).
- Anticipated future demand for different technical skills reflects the same skillsets which employers say they need and have currently.
- However, future anticipated demand for almost all technical skills has decreased, suggesting either that businesses are taking a more focused approach to deliver their core service/s, or that the pace of technological change is seen to have slowed.
- There are high levels of confidence that businesses hold a variety of generic skills among their workforce – instances where a skill is needed but lacking are almost exclusively small and micro businesses' concerns.
- The two most common suggested reasons for skills deficiencies are an ageing workforce find it hard to keep up-to-date (28%), and training courses being inappropriate (26%). This is a change from the 2018/19 LMI study when cost was cited as the main barrier (32%).

Future of the electrotechnical sector

- Main challenge foreseen by industry over the coming years is a labour pool shortage, often mentioned alongside skills shortages. Other challenges include adapting to new technologies like solar/PV and electric vehicles (EVs), working towards Net Zero targets, and rising costs for labour, materials, and energy.
- There is a mixed picture in terms of how prepared businesses are for the shift to Net Zero. Some are adapting easily, others are facing headwinds such as accessing training that meets their needs or is not too costly, while others (mainly smaller firms) may not see Net Zero as relevant to them or see little client demand.

- Businesses are taking advantage of the Net Zero agenda to upskill, especially in solar/PV and EV chargepoints, with some looking to strategically grow their business in these areas.
- Energy efficiency management, EVs, automation, and network/wifi enabled devices are the technologies anticipated to have greatest impact on job roles in the future, although to a lesser extent than was predicted in the 2020 LMI refresh study. Medium/large firms more commonly predict that technology will impact job roles.
- Over half (53%) see no challenges to taking up new technology, up from 19% in 2018/19 indicating businesses are more optimistic or able to act with greater confidence. The main challenges that are noted are a lack of finance/resource (18%) and concerns around training either being not at the cutting edge or not readily available (both 11%).
- Most (61%) disagree that sector-wide take-up of new technology is relatively modest. Agreement is higher among medium/large companies than small/micro firms. Those that do agree suggest this is due to the quality or availability of training.
- Demand is expected to increase for qualified electricians (predicted by 54%), apprentices (49%) and labourers (31%) over the next two to three years. Few see demand decreasing for any role (4-7%).
- Workforce projections are difficult to make with accuracy given the huge number of factors that influence this. Employers believe they will grow very slightly over the next three years. It is likely there will be a slight dip in the short-term (next 12 months) but overall growth in the medium term (five years). Projections based on a best case scenario suggest an additional 33,000 workers are needed over the next four years (not including natural churn) while a worst case scenario may see sector contract further losing up to 17,500 workers.

Recommendations

Drawing together the findings, the two largest challenges that the industry is currently facing are:

1. Attracting a sufficient number of high-quality recruits, and
2. Upskilling the existing workforce to meet changing technological needs.

In developing and implementing any forward action, account should of course be taken of the balance of the industry comprising predominantly small and micro employers, and how they might best be supported.

Boosting the pipeline of homegrown talent

There is worth in considering developing a 'how to' pack, particularly targeted at SMEs, to outline best practice in terms taking a proactive approach to engaging with schools at an early stage. This pack could be informed by lessons learned from larger firms, or SMEs already doing this successfully, to understand the best routes into schools, and approaches to delivering engaging and inspiring sessions with young people. This could be

supplemented by developing a freely available resource pack containing template material that can be adapted by each individual employer for use in these sessions. A working group comprising employers with extensive experience of successfully engaging with schools could therefore be convened to help develop such materials for wider use in the sector.

More closely aligning curricula with industry skill needs

As a priority, it is suggested that employers involved in apprenticeship development take a critical review of the sector's needs to ensure that courses are adapted to meet these, and that reviews are carried out more frequently to keep pace with technological developments.

Alongside this, there is value in considering developing an internal industry campaign to highlight the benefits of training for the purpose of encouraging greater take-up and investment in apprentices.

Ongoing promotion targeted at young people

TESP, along with its partners and members, have spent considerable time and effort on careers promotion to-date. Efforts should continue to be channelled into promotion of electrotechnical careers through social media platforms to engage effectively with young people. To boost diversity, it is suggested – if not already happening – that individuals from under-represented groups feature in promotions.

Deeper understanding of sector diversity

Understanding the diversity of the sector ensures that targeted action can be taken. Therefore, it is critical that LMI continues to be gathered at regular intervals in the coming years, including gathering detailed diversity data from electrotechnical firms to highlight trends and where specific action may be required.

1. Introduction

1.1 Background

It would not be an understatement to say that the electrotechnical industry has experienced something of a revolution since the turn of the century. Just two decades ago, work mainly comprised traditional wiring and installation, and was widely, although erroneously, regarded as a trade within the construction sector. It is difficult to exaggerate the change that has taken place in such a short span of time, or the impact it has had on the electrotechnical sector.

Today, the sector is at the very forefront of the digital age. Electrotechnical employers now work in far more business-areas than construction, and it can be extremely difficult to define just exactly in what the sector is involved. Increasingly employers work in not just installation and maintenance of services, but also design and planning phases. There is still a need for basic electrical wiring and installations but, more and more, the electrotechnical sector is being required to integrate digital solutions within the fabric of buildings. This requires an extended range and level of skills and precision in electrotechnical work that may not have been envisaged even twenty years ago.

The rapid pace of technological change brings with it challenges, as well as opportunities. Adjusting to the pace of change, and knowing in which direction to move, is ongoing. But new technology has created new roles that did not previously exist even a decade ago. And the challenges have not simply been around the digital revolution. With the drive towards Net Zero targets, the government has set out its plans for *Powering up Britain*, and its blueprint for the future of energy in the UK.¹ This includes outlining how the UK will diversify and decarbonise energy production.

Whereas in the past there was always a clear divide between national electricity production and industrial and domestic electrical delivery systems, that segregation is now being blurred by domestic and even local production. Companies, homes, and localities are now an increasingly significant part of the production equation and the Government is encouraging renewable sources of power at all of those levels. At the base of this policy is the need for exponential increases in electricity production to power the future needs for electric vehicles and the internet, as well as normal domestic and industrial demands. Central to delivering this agenda will be the electrotechnical industry. Renewable technologies such as solar photovoltaics, wind turbines, local hydro, and heat pumps will all require an enhanced sector workforce, as will the shift towards greener transport with the move towards zero emission vehicles leading to more electric vehicles on the road, and the corresponding need for chargepoints of varying types and power capacities.

It is also important to note that technologies that will impact on the electrotechnical sector are still in a state of rapid change. New technologies that currently have a major or minor impact on the sector include:

- Improved solar systems efficiency
- Wifi systems integrated with 4G/5G

¹ HM Government, 2023, Powering up Britain

- Smart grids (including IoT)
- Smart home systems (including IoT)
- Domestic battery storage systems
- Electric vehicle systems – domestic, local, commercial
- Safer measurement of AC voltages up to 1000V (e.g. the Fluke)

On the horizon are such things as:

- Wireless LEDs
- Wireless electric vehicle charging
- Sodium energy converters
- DC power lines
- Domestic fuel cells
- Domestic supercapacitors (graphene-based)

Virtually every sector of the UK economy relies on the electrotechnical sector and its workforce. However, the economy has experienced significant challenges over the past few years. While the impact of the UK's exit from the European Union is yet to become clear, the Covid-19 pandemic has fundamentally altered the way in which society interacts and has tended to accelerate the sorts of changes discussed above. Meanwhile, Russia's war in Ukraine has led to increasing energy prices fuelling inflation in the UK and around the world. The war has led to significant change in strategic direction for national energy production, with the UK government – among many others – looking to increase energy self-reliance and boost efficiency of use in homes and businesses.

With such seismic changes occurring in such a short period of time, it has become vital to gather up-to-date labour market information on the electrotechnical sector.

The Electrotechnical Skills Partnership (TESP) first commissioned Pye Tait Consulting, an independent research agency, to undertake a Labour Market Intelligence (LMI) study in 2018/19, with some additions in 2020 via a mini-LMI study. It is timely now to revisit this critical research to provide an updated picture of the sector.

1.2 Aims and objectives

The overarching aim of this research was to update the previous LMI work to ensure accurate and up-to-date intelligence, building upon the 2018/19 baseline and 2020 update-research findings.

The research had several objectives, namely to:

- provide an up-to-date estimate of the size and demographic make-up of the sector's workforce,
- examine challenges employers face relating to recruitment and retention,
- understand the current and future skills requirements to work within the electrotechnical sector, and
- explore the future of the sector with regard to technological change and the Net Zero agenda.

The findings will provide TESP with renewed/up-to-date data that can be used to inform the development or update of a future labour force strategy.

1.3 Methodology

The study involved three core strands of research:

- desk research,
- a telephone survey of 467 employers, and
- follow-up interviews with 12 employers.

The desk research sought to gather the latest data available on the electrotechnical workforce, examining official statistics and other data sources to collate the most recent secondary evidence available.

The survey questionnaire was co-designed between TESP and Pye Tait Consulting to maintain coherence with that used in 2018/19 and the subsequent 2020 mini-LMI refresh study to enable longitudinal comparison. A sampling approach was co-developed between TESP and Pye Tait Consulting, to ensure the research engaged with a wide variety of employers by size, nation, and sector, and to ensure comparability of approach with the preceding LMI studies. The telephone survey was undertaken using a CATI-based approach (computer-assisted telephone interviewing) in February and March 2023.

This report outlines the UK-level findings and details trends in the sector over the past few years. It provides a detailed insight into the state of the electrotechnical sector in terms of its workforce size, demography, and skills needs/challenges. In addition, a series of twelve regional reports (one per English region and per devolved nation) were separately developed to succinctly present the key findings from the research for TESP's regional managers to take forward in their work. As such, the telephone survey sought to speak to a minimum of 25 employers per region to ensure a sufficient sample size for regional analysis.

Participants for in-depth interviews were recruited from the telephone survey, and these were conducted in March 2023. Interviewees were purposively sampled from those registering interest to achieve a spread by region, size, and sector.

Note that some charts in this report may not sum to 100% due to rounding. Note also that not every respondent answered every question.

2. Sector profile

This chapter provides an overview of the findings from the desk research, collating information and data available from national statistics to provide an estimate of the electrotechnical sector and industry size. This provides context for the primary research findings detailed in later chapters. An overview of the respondent profile is also included.

Key findings

- The size of the electrotechnical workforce is estimated, based on national statistics, to be 276,000 ± 10,000. This is a decrease of 19% from 342,000 in the 2018/19 LMI study.
- Half (50%) of the UK workforce is aged between 25 and 49 years old. This is a small drop since 2018 (56%) and the corresponding increase is split evenly between a rise in the proportions of younger and older workers.
- There has been a substantial change in the citizenship of the electrotechnical workforce over the past five years. It now comprises almost entirely UK citizens (97%) with small proportions from Ireland (2%), elsewhere in the EU (1%), or beyond (0.2%). In 2018/19, some 14% were EU citizens and 9% were from outside the UK/EU. This trend is seen across all regions/nations except Northern Ireland.
- Most surveyed businesses continue to work in the commercial sector, with around three quarters (72%) undertaking maintenance and repair, and seven in ten (70%) new installations. Meanwhile, slightly under half work in domestic settings, either in maintenance (46%) or new fit (44%). Data suggest that businesses are tending towards specialising more in one area, rather than spreading themselves across multiple work settings, compared to 2018/19.
- The two most commonly undertaken electrotechnical activities are low voltage work including both maintenance and repairs (84%) and electrical installations (82%). There is now more activity in work associated with the Net Zero agenda such as heat pump installations, micro renewables, and grid-sized renewables.

2.1 Estimating the sector and industry size

Appendix A contains a detailed discussion of the considerations that were borne in mind when deriving an estimation for the current size of the electrotechnical workforce.

A range of different sources were consulted, including (but not limited to) official data available from the Annual Population Survey (APS) and Labour Force Survey (LFS) managed by the Office for National Statistics (ONS) pertaining to Standard Industrial Classifications (SIC) and Standard Occupational Classifications (SOC) which classify the economic activities of businesses and individuals.

2.1.1 Summary

To summarise the detailed Appendix discussion, 2021/22 statistics gathered via census data and the APS for SOC and SIC codes both provide differing estimates for the electrotechnical workforce.

1. SOC (occupations) indicates there are **213,600** electricians and electrical fitters in SOC code 5241. Added to this total we have included an estimated proportion (varying between 62,000 and 70,000 depending on whether SOC 2020 or SOC 2010 data are used²) of those with electrotechnical skills who may operate at different skill levels to electricians and electrical fitters e.g. owners, managers, supervisors, technicians and electrical engineers who are classified in different SOC codes. Taking into account estimated proportions, the overall total of all electrotechnical-skilled employees using SOC 2020 codes is **276,000 ± 10,000**. This has the potential to change, however, if adjustments are made to estimated proportions of workers in other SOC codes.
2. SIC (industrial) figures indicate a total employment in the code 43210 (electrical installation and some associated businesses) of around **214,000** but this total excludes numbers of electrotechnical-skilled people working in other major sectors (e.g. manufacturing or healthcare) as indicated by the SOC codes.

The electrotechnical sector, based on latest available data, therefore comprises a core “contracting” element of some 214,000 electrotechnical-skilled workers, to which must be added around 62,000 people who possess electrotechnical skills but work outside the core contracting industry.

This equates to a total workforce with electrotechnical skills of around 276,000 – a notable decrease of around 19% from the estimate in the LMI study in 2018/19, which placed the workforce size at around 342,000.

Given the way in which data are collected by ONS has changed in recent years, findings should be interpreted with a degree of caution, and may be an artefact of statistical recording. However, triangulating secondary data available from a range of sources appears to indicate a decrease in workforce numbers. This is supported by primary evidence from employers (see later report chapters) who suggest the labour pool has reduced.

2.2 Profile of survey respondents

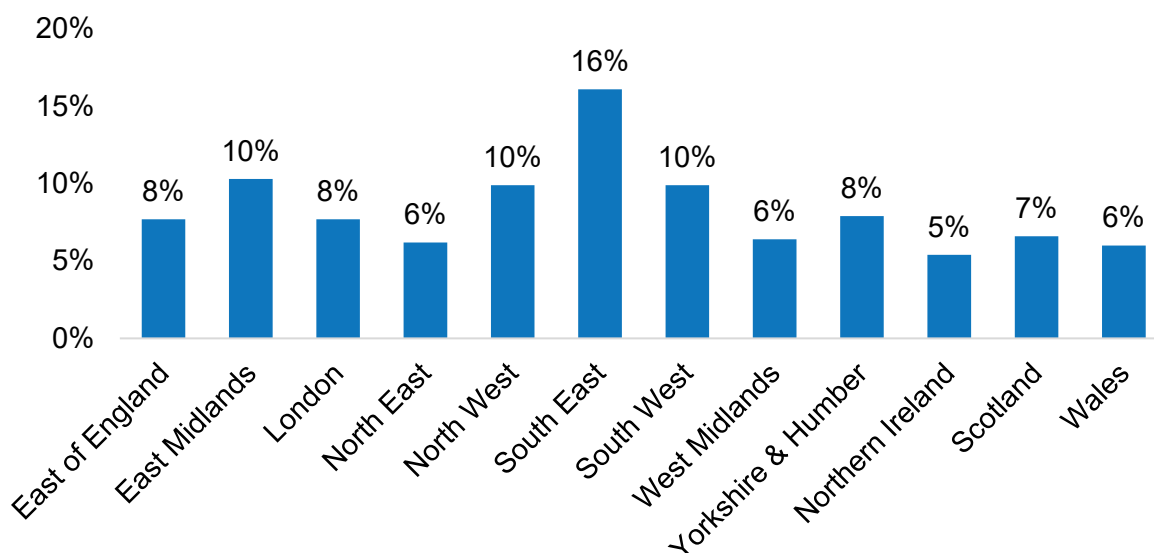
2.2.1 Workforce demographics

In total, 467 unique responses were achieved, spread across the UK with at least 25 responses from each region/nation of the UK. The largest proportion was from companies

² ONS identified an issue with the collection of some occupational data when reclassifying from SOC 2010 to SOC 2020 which directly affects the accuracy. For more detail see Appendix section A.3.3.

based in the South East (75, 16%), followed by East Midlands (48, 10%), and the South West (46, 10%), with the fewest from Northern Ireland (25, 5%) and Wales (28, 6%).

Figure 1 Respondent profile by region



Base: 467 respondents. Source: Pye Tait Consulting 2023.

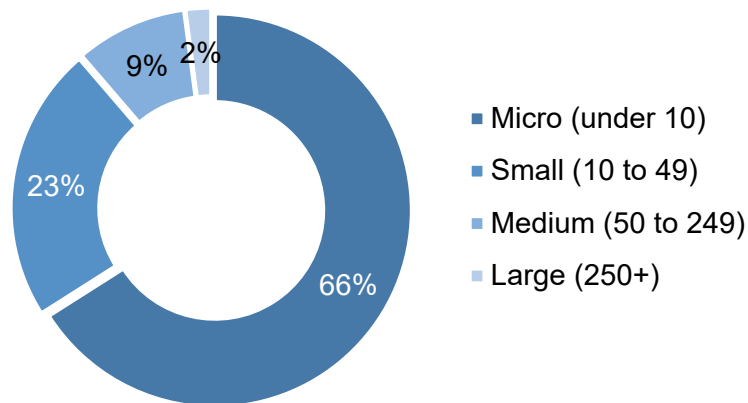
Targeting of survey participants was deliberately weighted towards achieving a greater proportion of responses from medium and larger companies to acquire more information on future technologies. Piloting during the initial 2018 research showed that most micro and small companies are not actively researching or trialling future technologies due to a lack of clarity on the technologies themselves, on costs, and on long term profitability.

With that in mind, the following spread of surveyed companies was achieved. Two thirds (66%) of responding firms are micro (employing fewer than 10 staff). Around one quarter are small firms (23%) while the remaining respondents (11%) have 50 or more employees.

The average (mean) size of responding firms is 33 staff, while the most common (mode) size of responding business is three employees.

The above figures include both PAYE direct staff and other staff (including, for example, self-employed staff). On average (mean), responding businesses employ 29 staff directly and most common number of direct employees is three. Around two in five responding companies (42%) employ 'other' staff and of these, the average (mean) number of such workers is ten per business.

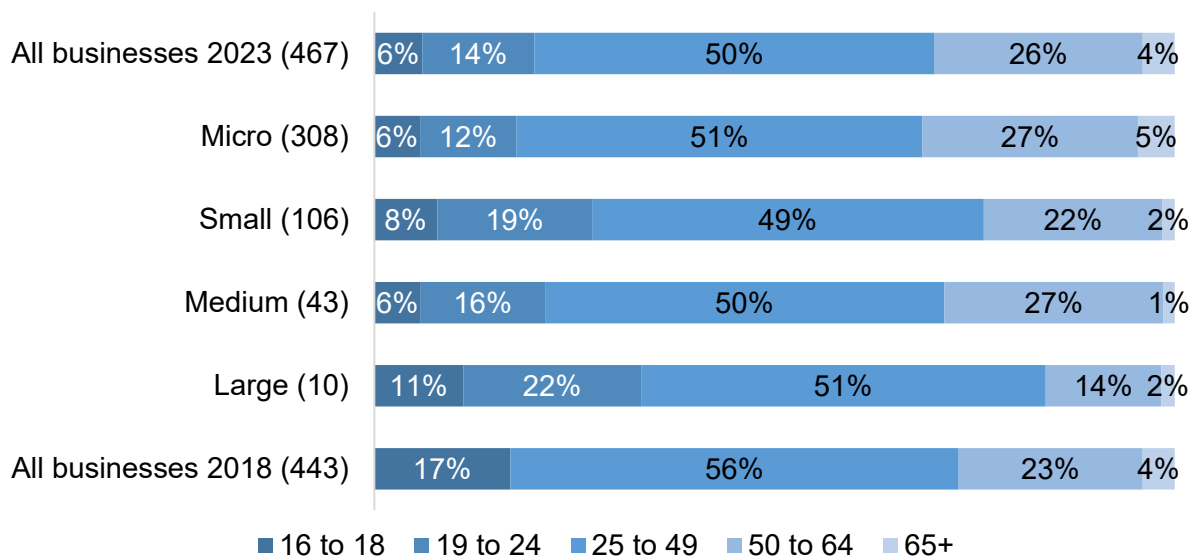
Figure 2 Company size of responding firms



Base: 467 respondents. Source: Pye Tait Consulting 2023.

Half (50%) of the UK workforce is aged between 25 and 49 years old. This is a small drop since 2018 (56%) and the corresponding increase in 2023 is split evenly between a rise in the proportions of younger workers aged under 25 (20% in 2023, up from 17% in 2018) and those aged 50+ (30% up from 27%). Since the 2020 refresh study, the proportion of workers aged 16 to 18 has increased from 4.5% to 6%.

Figure 3 Workforce age profile of responding businesses



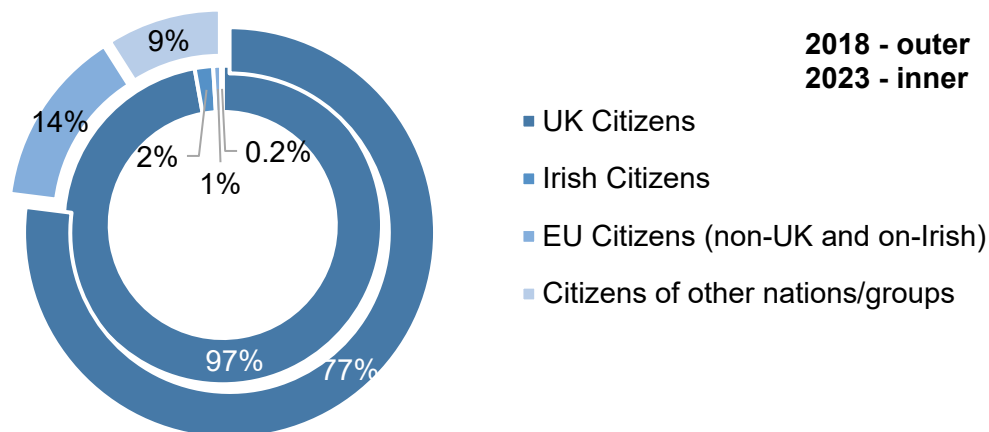
Note: In 2018, there was only an 'under 25' response option – for 2023 this was split into two response options of '16 to 18' and '19 to 24'. The 17% figure in 2018 represents workers under 25. Source: Pye Tait Consulting.

It would appear that small and large companies have a slightly more youthful workforce, while micro firms have a slightly older workforce with just under one third (32%) being aged 50 or over.

There has been a substantial change in the citizenship of the electrotechnical workforce over the past five years. In 2018, around one in seven workers (14%) were EU citizens and nearly one in ten (9%) were from other nations/groups outside the UK/EU. However, in 2023 the electrotechnical workforce comprises almost entirely UK citizens (97%) with small proportions from Ireland (2%), elsewhere in the EU (1%), or beyond (0.2%).

For context, latest ONS data show the UK workforce comprises 87% UK workers, 7% EU workers, and 6% from the rest of the world.³

Figure 4 Employees' citizenship 2023 vs 2018



Note: In 2023, the 'EU citizens (non-UK)' response option used in 2018 was split out into two response options of 'Irish citizens' and 'EU citizens (non-UK and non-Irish)'. The 14% figure in 2018 represents EU citizens (non-UK).
Base: 467 (2023) and 437 (2018) respondents. Source: Pye Tait Consulting.

This trend is replicated across all nine English regions, Scotland, and Wales; however, in Northern Ireland (NI), UK citizens comprise around three quarters (72%) of the workforce, with just under one quarter (24%) being Irish citizens, and the remaining 4% from the EU.

With this finding consistent across different regions and nations (except NI), this change would appear to be real rather than an artefact of the sampling. However, it does raise the question as to what has happened to non-UK workers in the past five years. There is the possibility that employers themselves may have been less stringent in the way they answered this question, for instance, by not asking too many questions of their staff.

This swing is potentially a reflection of the impact of EU Exit on the sector, with overseas workers now requiring a visa if they wish to work in this country for longer than six months, and employers needing to apply for a sponsor licence, acting to put in place additional administrative barriers.

The workforce in 2018/19, according to the survey conducted for the first LMI report, comprised 23% non-UK workers (equivalent to around 78,700 workers based on a total workforce size of 342,000 at the time), while in 2023 it comprises 3% (equivalent to 8,280 based on a total workforce size now of 276,000). This is a decrease of approximately 70,000 non-UK individuals. With the total workforce contracting by around 66,000 (from 342,000 to

³ ONS, 2023, Employment, unemployment and economically inactive levels by nationality

276,000), this would appear to suggest that one of the primary causes for this decrease is due to the exodus of non-UK individuals.

Government data pertaining to applications for British citizenship suggest that there has been a small upswing in the number of applications (increasing 5% from 2019 to c.183,000 applications in 2022).⁴ Over that same time period, passport applications have fallen.⁵ Taken together, these would suggest that the swing in citizenship of the electrotechnical workforce in the past few years is unlikely due to the workforce changing nationality.

The decrease in the proportion of migrant workers is not isolated to the electrotechnical sector. CITB reports that between 2019 and 2021, the number of migrants working in construction fell by 15% from over 326,000 to just 280,000,⁶ although this is far smaller drop – relatively speaking – than this research has found for the electrotechnical sector.

The proportions of non-UK electrotechnical workers reported here are similar to those in the engineering construction industry. ECITB's 2021 workforce census report, while heavily caveated, suggests 2.8% of the workforce at that time were EU nationals, and 1.6% from outside the UK/EU.⁷

2.2.2 Profile by business activity

Most surveyed businesses continue to work in the commercial sector, with around three quarters (72%) undertaking maintenance and repair, and seven in ten (70%) undertaking new installations. Meanwhile, slightly under half work in domestic settings, either in maintenance (46%) or new fit (44%). 'Other' types of work mentioned by six respondents include marine industry, substations, street lighting, cabling, utility plant installation, and property marking for the police.

Overall, there has been a small decrease in the proportion of firms which are undertaking work in each area. This would suggest that companies have, over the past five years, tended towards specialising more in one area, rather than spreading themselves across multiple work settings.

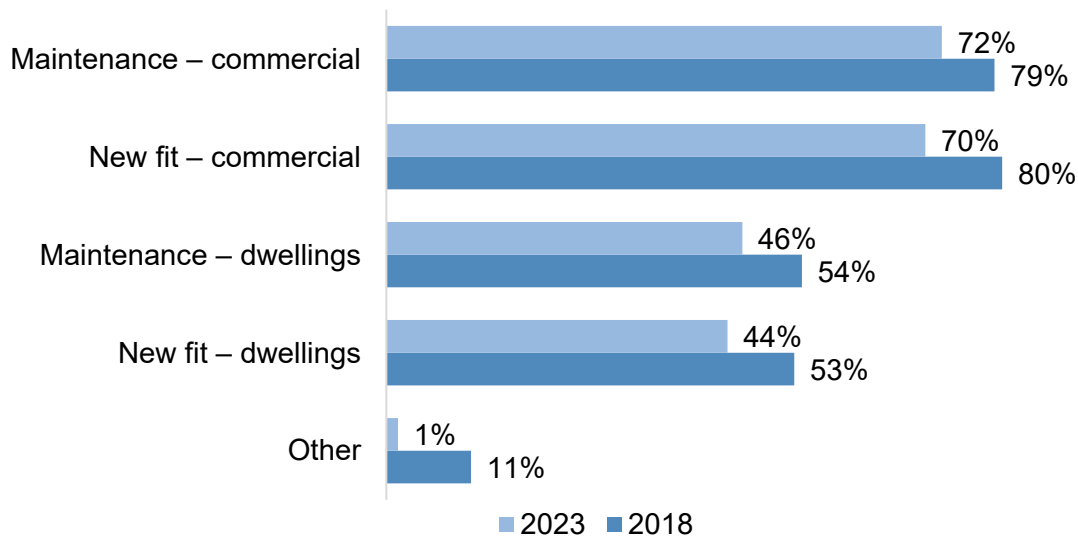
⁴ GOV.UK, How many people continue their stay in the UK or apply to stay permanently?, Nov 2022

⁵ GOV.UK, HM Passport Office data: Q2 2022, Aug 2022, <https://www.gov.uk/government/publications/hm-passport-office-data-q2-2022>

⁶ CITB, Migration and UK Construction 2021, 2021

⁷ ECITB, 2021, Workforce Census 2021

Figure 5 Commercial/domestic work 2023 vs 2018



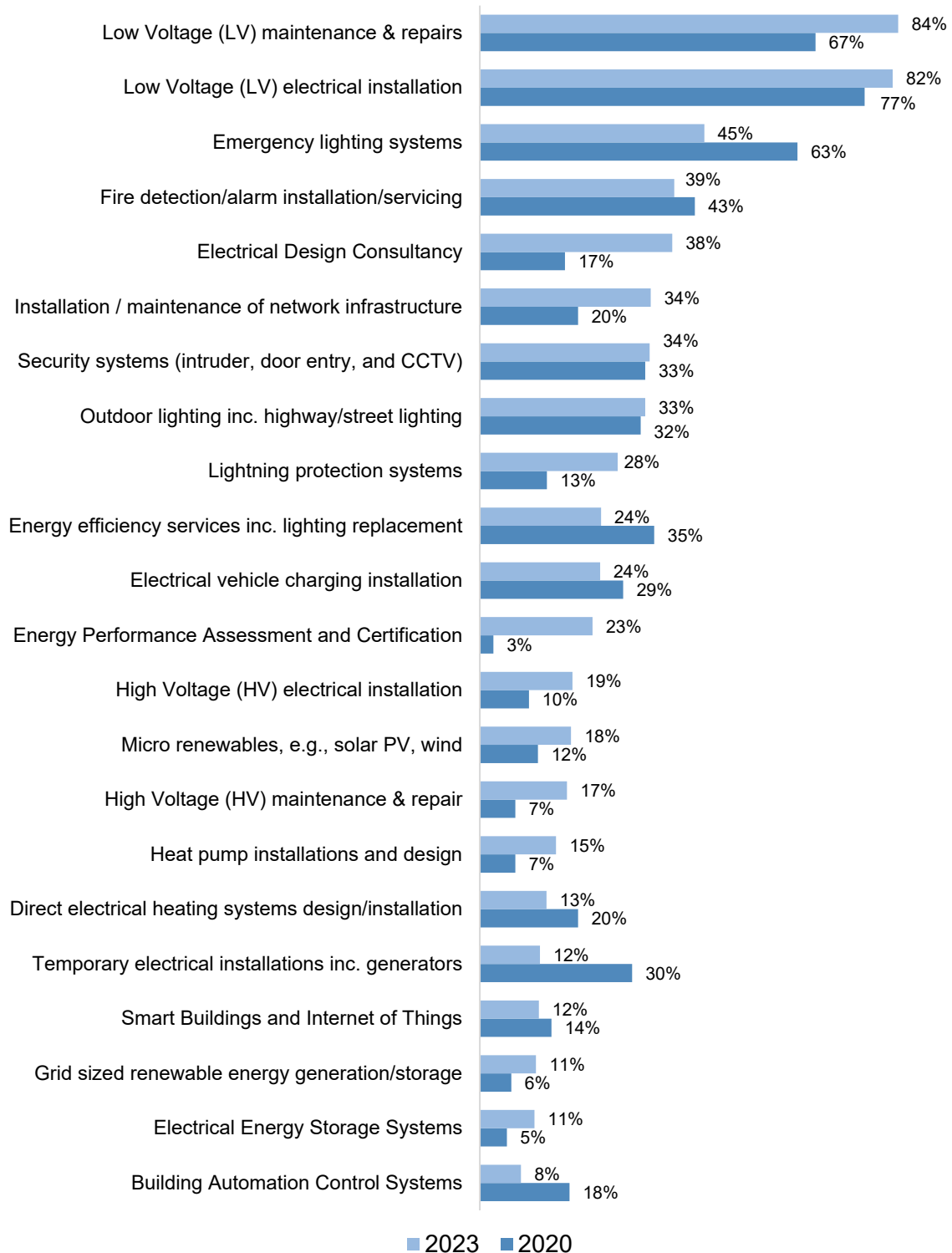
Base: 467 (2023) and 442 (2018) respondents – multiple responses permitted. Source: Pye Tait Consulting.

For companies undertaking maintenance and repair in the commercial sector, this type of work accounts for on average (mean) 42% of their work (by turnover). The corresponding figures for new fit (commercial), new fit (domestic), and maintenance (domestic) are 46%, 34%, and 42%, respectively.

The two most commonly undertaken electrotechnical activities are low voltage work including both maintenance and repairs (84%) and electrical installations (82%) although these two have switched in order since 2020. There appears to have been an upswing in the proportion of companies undertaking electrical design consultancy (38% up from 17%) and installation/maintenance of network infrastructure (34% vs 20%), with a decrease in emergency lighting system work (45% down from 63%).

Meanwhile, there appears to be more activity in work associated with the Net Zero agenda with an uptick since 2020 in the proportion of firms undertaking heat pumps installations (15% up from 7%), micro renewables (18% vs 12%), grid-sized renewables (11% vs 6%), and electrical performance certification and assessment (23% vs 3%).

Figure 6 Business activities 2023 vs 2020



Base: 466 (2023) and 112 (2020) respondents – multiple responses permitted. Source: Pye Tait Consulting.

3. Recruitment, retention, and ways of working

This chapter provides an overview of the recruitment challenges that employers are currently facing. Suggested actions to tackle recruitment issues and to boost diversity are outlined. It also touches on employers' views of qualifications, and the impact of the Covid-19 pandemic for businesses' ways of working.

Key findings

- The most commonly advertised-for roles are electricians, then apprentices/trainees, and unskilled workers. However, supervisor, director/manager, and apprentice or trainee roles are most difficult to fill, while skilled electrician roles are least difficult.
- Reasons for recruitment difficulties centre on a lack of quality candidates and an elevated market competition for suitably skilled workers. The rising cost of living is also pushing up salary expectations.
- Compared to 2018/19, more businesses are now 'more likely' to use a PAYE direct employment approach and fewer to loan labour, indicating a reduced appetite for risk.
- Companies are evenly split as to whether the Covid-19 pandemic has increased their use of technology, or increased demand for technology from clients. The majority disagree the pandemic has resulted in more homeworking, or a workforce that is less willing to travel.
- There is notable concern about course curricula aligning to current needs with 41% disagreeing that job applicants have the skills needed of them to do the job well, and 43% disagreeing that current available qualifications fully reflect demands of the job today. Related apprenticeship standards have, however, recently been refreshed to reflect the latest sector developments including green skills.
- Employers believe the best way to attract and recruit to the sector is to focus on a homegrown workforce through more promotion of electrotechnical careers in schools, and for businesses themselves to be more proactively involved in outreach activities.
- Workforce diversity is felt to be limited to an extent by the current labour pool. Some businesses are taking a more proactive to boost diversity, while increased prominence of under-represented groups in promotional activities, and more outreach with schools at an earlier age are also suggested.

3.1 Recruitment

Surveyed employers were asked – for a range of job roles – how many vacancies they had advertised in total over the past year, and how many they had advertised but which had proved hard or impossible to fill.

The most commonly advertised job position is for skilled roles (e.g. qualified electricians) with nearly 1,000 roles advertised across surveyed companies in the past year – an average of just over two per company. This was followed by apprentices/trainees (just over 300), unskilled workers such as labourers (around 75), and project personnel such as contractors, estimators, and planners (around 50).

Skilled positions such as electricians are, however, reported to be the least difficult to fill, relatively speaking, with around a quarter of firms (27%) saying these positions were challenging to fill (although this role represents the highest volume of hard to fill vacancies). Meanwhile, supervisory roles were most difficult to fill, with nearly three quarters (73%) of such positions being hard or impossible to fill, followed by just over half (53%) of apprentice and trainee positions, and half (50%) of director or manager roles.

Table 1 Vacancies advertised and which were hard to fill

Role	Total no. of vacancies advertised	% that were hard to fill
Directors and managers	16	50%
Supervisors	26	73%
Project personnel, e.g. contract, estimators, planners, commercial	52	35%
Skilled, e.g., qualified electrician	987	27%
Unskilled, e.g., labourer	74	43%
Apprentices/Trainees	310	53%
Other	42	74%

Base variable 184 to 282 respondents. Source: Pye Tait Consulting 2023.

‘Other’ roles that businesses report being hard or impossible to fill include:

- engineers (inc. radio engineers, chartered engineers, mechanical engineers) – mentioned by five respondents,
- admin staff (three),
- and other roles including plumbers, drivers, and cable jointers.

Respondents were asked which specific jobs roles they found hard or impossible to fill, and why recruitment was challenging. Of the 135 who provided comment, many (94, 70%) claim that finding workers for skilled roles – for example, qualified electricians – was the hardest role to fill (this role represents the highest volume of hard to fill vacancies, but is not relatively speaking, the hardest role to fill). Apprentices were also noted to be particularly hard to find by just under two in five (52, 39%) respondents from across all regions of the UK. Unskilled roles (seven, 5%), project personnel (seven, 5%), supervisors (six, 4%) and directors (three, 2%) were noted as hard to recruit by a handful of organisations.

Of those noting that they have struggled to fill skilled roles, some (27, 20% of all those commenting) feel this is due to a lack of quality candidates that have the required qualifications and/or skills for the role, particularly when sourcing electricians and electrical engineers. A total of 21 respondents (16%) described specific skillsets that are missing with specifically mentioning: repair and rewind skills; plumbing and jointing; CCTV surveillance system engineering skills; fire alarm security installation and engineering skills; power distribution and storage; and knowledge and experience of onsite work.

Some respondents (18, 13%) believe that one of the reasons they are unable to recruit skilled workers – particularly post-Covid – is due to an elevated market competition. They feel that workers have increased their salary demands since the pressures of the pandemic, and companies are struggling to, or refusing to, meet such requirements. Of these respondents, 12 are small or micro in size.

Salary requirements have been the largest problem, the salaries that are being asked for now are ridiculous, materials have gone up drastically and if we were to pay the salaries requested, we would price ourselves out of the market. – Small, East of England

Furthermore, some respondents (16, 12%) have observed that, since the pandemic, skilled workers are demonstrating a decreased willingness to undertake more difficult tasks or to travel for work. Some feel that such workers may have wished to remain self-employed post-Covid or have lost their enthusiasm for the sector, thus further reducing the talent pool for the skilled positions.

For respondents who feel that apprentices are hard to recruit to fill roles, 15 (11%) believe colleges are not adequately preparing apprentices during their training period for work in the real-world, and are emerging with minimal relevant skillsets, particularly in terms of onsite, practical experience. A couple mention that the content delivered within the courses at the colleges is not indicative of what is needed in the sector, particularly regarding latest processes and technology. Specifically, they would welcome greater coverage of new technologies such as solar PV and other renewable technologies, suggesting that there could be closer links between industry and training providers to ensure that needs are clearly articulated and reflected in curricula. It should be noted that the apprenticeship standard for Domestic Electricians – updated to include the latest technologies – was approved in June 2022, while the Installation and Maintenance Electrician was updated and refreshed in March 2023.

The quality of apprentices from college is poor. Colleges are not training students in standard / up to date electrical engineering techniques. – Small, Wales

The attitude and unwillingness of apprentices was also a concern raised by some respondents (15, 11%). These respondents claim that apprentices have a poor attitude to work, and a weak work ethic, and are likely to drop out of courses and job positions. They are not seen to be committed to the sector or to their roles as given. A handful (four, 3%) note that some apprentices may even leave as soon as they have acquired the training, so they can receive better pay at other companies.

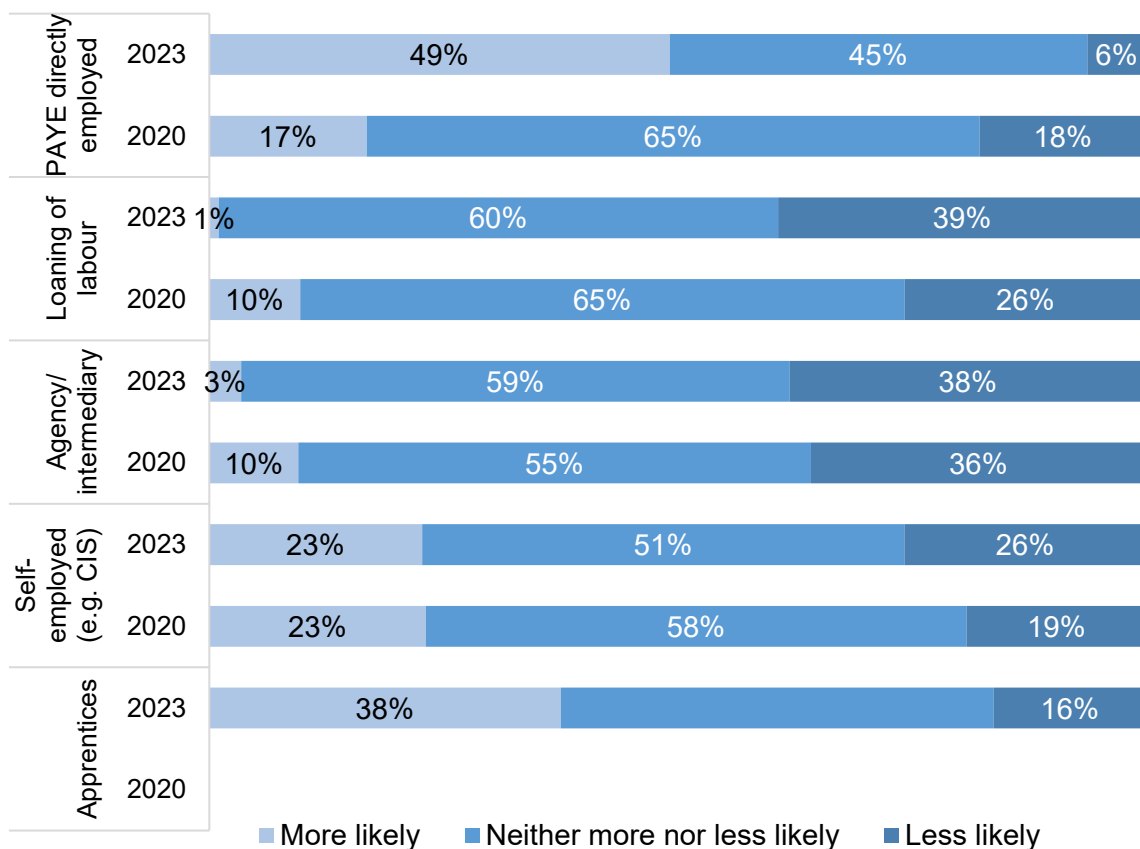
Other reasons mentioned, for other job roles, are outlined below.

- For unskilled job roles, respondents report that they are simply not receiving applications.
- For project personnel, there is a low volume of quality candidates to begin with, and those who do qualify have high salary and remuneration package expectations.
- For supervisors and directors, it is difficult to find staff with the right mindset and calibre for the role in the business, which is noted to be a long-standing challenge when recruiting senior positions.

In terms of employment basis, as compared to pre-Covid-19, just under half (49%) are ‘more likely’ to recruit using a PAYE directly employed approach, and around two in five (38%) are more likely to recruit using apprentices.

This question was also asked in the 2020 LMI refresh study. Since then, there appears to have been a notable swing in terms of recruitment, not just in terms of the increase in the proportion of firms being ‘more likely’ to use a PAYE direct approach (up from 17%), but also in terms of an increase in the proportion being ‘less likely’ to loan labour (39% up from 26%). This would indicate that businesses are seeking a greater degree of control in how they hire and manage their workforce, with a reduced risk of appetite to partner/share with other firms. The popularity of other methods of recruitment appears relatively unchanged, indicating a degree of continuity in that regard.

Figure 7 Likelihood of using various recruitment methods compared to pre-Covid-19



Base variable 390 to 450 (2023) and 44 to 107 (2020) respondents. Apprentices not asked in 2020.
Source: Pye Tait Consulting.

Employers participating in follow-up depth interviews were asked, based on their experience, what they believe are the best ways to recruit people into the electrotechnical sector, bearing in mind previous reports that the industry may need more homegrown workers as the impacts of EU Exit are fully realised.

Three quarters (nine of 12) of those interviewed say that there needs to be an increased focus on attracting more people down the apprenticeship route, arguing this is the best way to grow a homegrown workforce. Interviewees feel the sector needs to be better promoted in schools, and that it is important to showcase the positive side, for example to highlight the growth of an individual through from an apprenticeship to a managerial position, and to explain that the skills gained through an apprenticeship will give them a good income in years to come. In this respect, it is perceived by employers that businesses need to be more proactive, to attend careers fairs, road shows, offer work placements, whilst government could assist in running advertising campaigns (similar to those in recent years for the armed forces) to highlight the digital side and attract more youngsters to pursue a career in the sector.

It needs signposting – we do careers fairs in local schools which has been the best way for us. They [young people] are often blinkered by the university path which is pushed onto them by teachers and parents. They don't see the potential pathways they can achieve in the electrotechnical sector. Electrician is a first step so we champion it and explain to prospective applicants what can be achieved. Overall, it needs promotion. Apprenticeships are the first step on the ladder and the world is your oyster. All of our workers, including me, took this route. – South West, Medium

Two say it is important to build relationships with local colleges to ensure they have the best chance of finding suitable apprentices.

Meanwhile, other ways mentioned by one or two interviewees as the best way to recruit people into the sector include the following.

- Take on more adult trainees.
- Word of mouth – those who come to work through this route are more invested in the business as a family member or friend is already there.
- Greater investment – more training courses available and more funding for apprenticeships.
- Increase the rate at which apprentices are paid, it is very uncompetitive compared to other jobs roles they can take.

The rate apprentices get paid is very low, it is not attractive to young people, they can get paid far more labouring. They do not have the ability to see four or five years down the line. Our most effective way of recruiting is through word of mouth, our best success with apprentices is when they come from family or friends who are already working for us. We need to market the sector better to schools' children, that is the pipeline of workers for the future. – London, Large

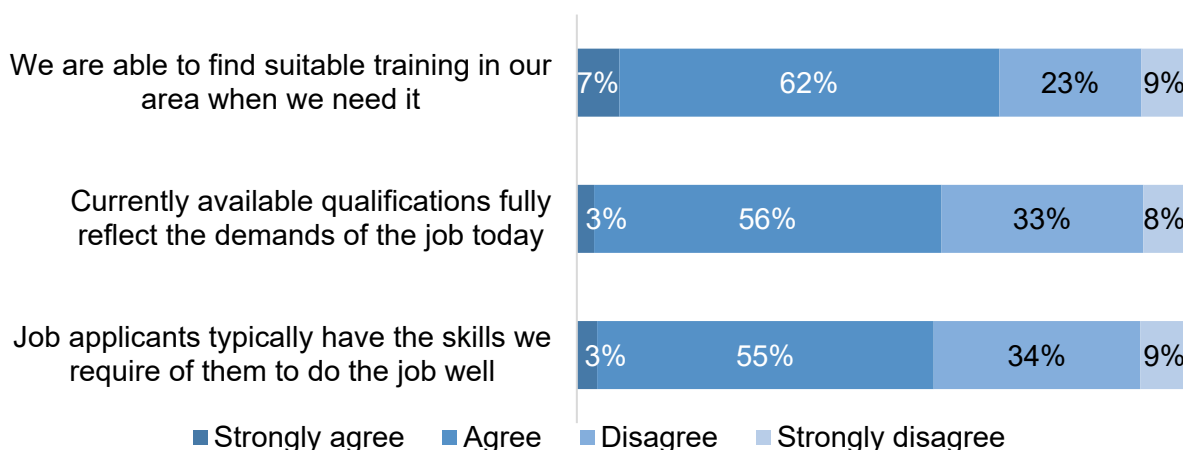
3.2 Electrotechnical qualifications

Surveyed employers were presented with a series of statements relating to training, qualifications, and job applicants' preparedness, and asked to indicate their level of agreement.

Over two thirds (69%) agree or strongly agree they can find suitable training in their area when needed, while just under three in five agree to some extent that currently available qualifications fully reflect the demands of the job today (59%), or that job applicants typically have the skills required of them to do their job well (58%). Just under two in five disagree to some extent with these latter two statements.

A higher proportion of medium and large firms agree that they can find suitable training when they need it (77% and 90%, respectively), while 80% of large firms agree current qualifications reflect the demands of the job today. Otherwise, responses by company size broadly align to the overarching trend.

Figure 8 Employers' views on training, qualifications, and applicants' preparedness



Base variable 460 to 462 respondents. Source: Pye Tait Consulting 2023.

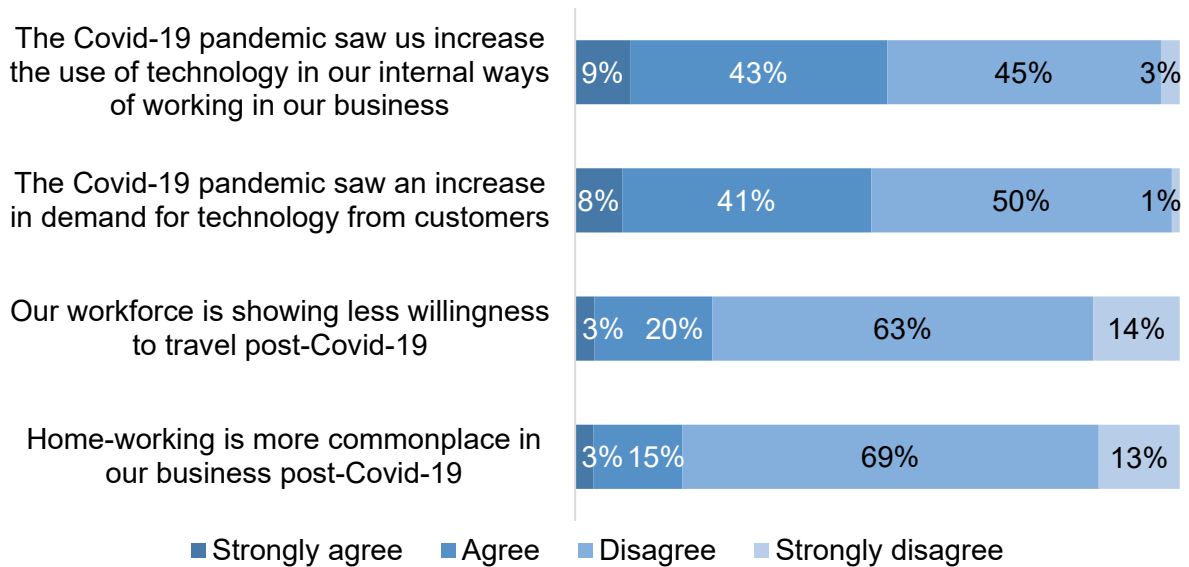
3.3 Impact of Covid-19 on ways of working

Surveyed employers' views were sought on the extent of the impact of the Covid-19 pandemic on their business and ways of working. There is an approximately equal split between respondents regarding technology, with just over half (52%) agreeing to some extent that the pandemic resulted in greater use in their internal ways of working, while just under half (49%) agree there was an increase in demand for technology from customers. This trend is broadly the same across employers of all sizes, although seven in ten large firms (70%) disagree they saw an uptick in demand from customers.

Meanwhile, the majority disagree to some extent that home-working is now more commonplace following the pandemic, or that their workforce is now showing less willingness to travel (82% and 77%, respectively). Larger firms show slightly higher levels of

agreement, with half (50% - five of ten) reporting their workforce is less willing to travel, and one in three (33% - three of nine) agreeing home-working is now more common.

Figure 9 Impact of Covid-19 on businesses' ways of working



Base variable 459 to 462 respondents. Source: Pye Tait Consulting 2023.

3.4 Diversity

Previous LMI studies have shown that the electrotechnical industry still has work to do in terms of the diversity of its workforce. Depth interview participants were asked how their companies approach this issue, what challenges they have faced in boosting diversity, and what best practice (if any) they have developed.

Of the 12 interviewees, over half (seven) say they do not see many people applying for jobs from a diverse background, outlining how job applications are typically from white British males. Interviewees say their companies judge applicants on whether they have adequate qualifications, skills and experience, commenting further that the labour pool is so sparse that it is a small pool to pick from.

We are not very diverse; we haven't seen any applications from women or people with disabilities. We just don't see applicants from a diverse audience. Many of our clients would probably like to see more women and diverse people doing their jobs for them. Again, it comes down to marketing the role better to these people. Get a diverse group of people to sell the roles to younger people, get more women going into schools to sell the sector to younger people. – South East, Small

One interviewee believes the sector is “an old man’s club” and that there needs to be an overhaul, arguing that many people would join the sector if they knew they would be

welcome. This individual recounts how they have had their apprentices attend multicultural awards to promote the sector, and social media pushes to promote diversity.

Another says that requesting a diverse shortlist for all open positions, more training opportunities for staff when recruiting, and a diverse interview panel, will all help to increase the diversity of the workforce.

One other interviewee notes they work with local schools and encourages individuals from all genders, ethnicities, and backgrounds within the schools to enter the sector.

We recruit far and wide – we aim for schools so we can target the diversity issues at the root, break the stigma and promote the opportunities and successful career options to all. It's about breaking societal norms and ensuring people are aware the sector is changing. – South East, Medium

Another interviewee comments that having a diverse group of people to sell the roles to younger people will help, for example getting more women going into schools to sell the sector to younger people.

Interviewees were asked to think beyond their own company and how they believe the industry should, more broadly, best approach the issue of equality, diversity, and inclusion (EDI), to ensure that routes into the sector are truly open to all.

Four of those interviewed would like to see more advertising, and believe this should be on a national scale through the press, TV and social media to reach the widest possible audience. Interviewees suggest that people from different backgrounds are used as role models to sell the sector to the under-represented groups, showing that it is a sector that is truly open to all. Ideally, interviewees say, government should be a part of this and any funding to assist would be welcomed.

In the RAF adverts, the main focus is on a woman – I have no idea if this is effective in encouraging more women into their sector but that's something that needs to be started. It's all about the right promotion. Generations need to be taught from an early age that they can do what they want to do if they have an interest in it, regardless of gender/race, especially for this sector. – South East, Small

Four others say it is important to sell the sector to schools as they have a diverse group of younger people which the sector needs to engage. Businesses across the sector need to come together and take a proactive approach to visiting more schools, it is argued, and use a diverse group of people to sell careers to young people.

We need to attract more younger people – the key is selling the sector to people at school. To increase diversity, we need a diverse audience of people selling the merits of the sector to younger people. – South East, Small

Two interviewees believe more diversity training is required, noting that offensive language used onsite can be a barrier to women entering and staying in the workforce, and that a zero-tolerance approach to bullying needs to be implemented within every organisation. To change its image, these interviewees feel that industry has to change to attract individuals from different backgrounds and promote equality.

Another thinks it would be a good idea for all businesses to publish diversity data to help fully understand where businesses are in relation to the sector as a whole, and to enable informed action to be undertaken.

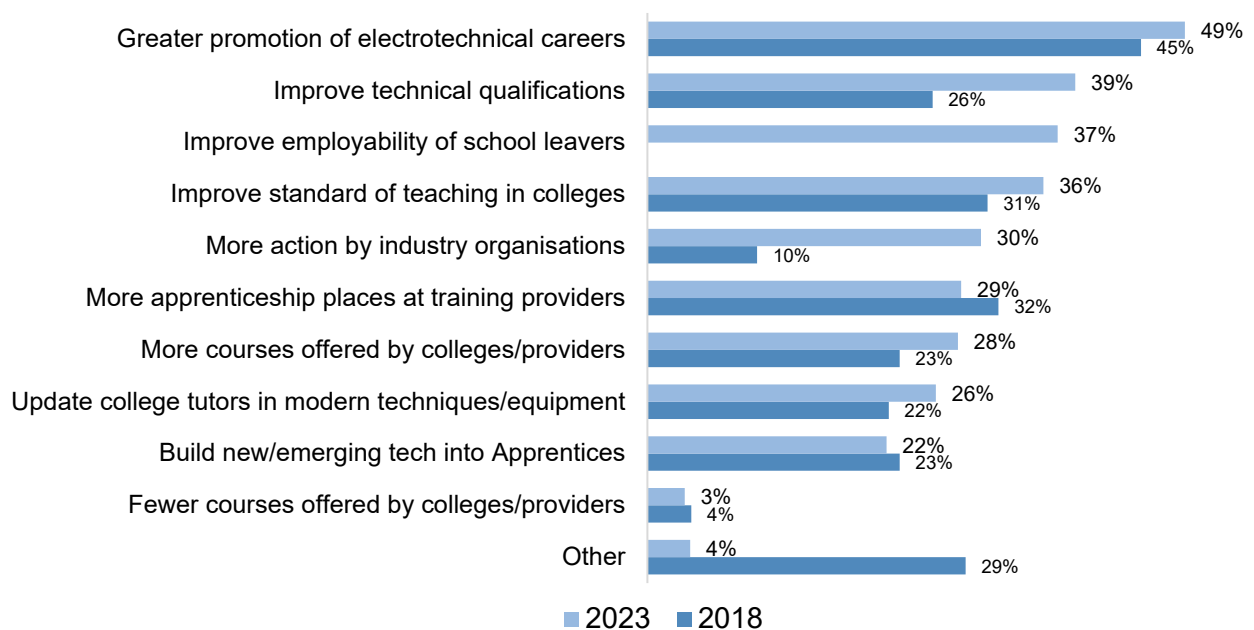
3.5 Potential actions required

Survey respondents were asked what actions they believe are needed (if any) to tackle recruitment problems and skills shortages in the electrotechnical sector.

The most common suggested action – as in 2018 – is for greater promotion of electrotechnical careers, being noted by nearly half of respondents (49%). Around two in five (39%) suggest technical qualifications could be improved, while similar proportions would welcome improvements in the employability of school leavers (37%) and in the standard of teaching in colleges (36%).

These represent a similar trend to the findings in 2018/19, although typically the proportion of employers noting each has increased, representing increasing concern within the sector that action is required on these points.

Figure 10 Perceived actions to tackle recruitment problems and skills shortages



Base: 441 (2023) and 401 (2018) respondents (multiple responses permitted).
 'Improve employability of school leavers' was not an available option in 2018. The 2023 option 'more action by industry organisations' was changed from 'more action by trade associations' used in 2018.

Source: Pye Tait Consulting 2023.

Greater promotion of careers is the most common action suggested by firms of all sizes and is noted by around two thirds of large (67%) and medium (65%) firms.

'Other' potential actions were suggested by 17 respondents. Just under half (eight, 47%) would welcome some form of financial intervention, such as increasing government funding for apprenticeships or increasing the financial incentive for prospective electrotechnical employees. Other respondents discuss how to improve the way in which those coming into the sector are educated. They suggest better employment support in colleges and changes in courses which are more closely aligned and more relevant to the realities of the sector.

[The industry needs] more funding and incentives from [the] government to take youngsters on. – Micro, North East

Depth interviews explored with participants what they think needs to be done to better support a prosperous and skilled electrotechnical workforce. The majority (seven of 12) believe that the industry needs to be advertised and signposted in a better way, to increase the labour pool and the number of younger apprentices coming through. Of these, three believe that the government should take a more active role in promoting the industry. Another three interviewees focus on promotion in education, and feel there is greater opportunity with the current education system to increase potential candidates' awareness, knowledge, and motivation to enter the industry.

There needs to be an appeal for people's skillsets from an early age. When I was in school I was offered a wide variety of topics to keep me interested in STEM, and I don't know if I'm out of touch, but I don't feel there is enough of that in modern education. There needs to be more interaction between the electrotechnical sector and schools to show engineering etc. is a good and interesting path. – Small, South East

Four interviewees believe the workforce could be better supported by changes in the training the workforce receive. Of these, two small employers find issue with colleges, and highlight the need to improve the training standards of apprenticeships. One medium and one small employer note that courses could be more readily available and accessible, with the latter emphasising that government funding would help smaller businesses keep up with upskilling for Net Zero targets.

The wages of the workforce are another factor which three interviewed firms believe needs changing. One of these also mentions the need to advertise the industry better to prospective entrants to the workforce, but generally the emphasis is more on increasing wages to increase the incentive to join the sector. These firms believe that prospective labour candidates are put off by the starting wage, therefore disregarding a potential career in the sector.

4. Skills needs of the electrotechnical sector

This chapter outlines businesses' self-assessment of their current skill levels and anticipated future demand for skills, for a variety of technical and generic skills. It also explores views for the reasons for any skills deficiencies.

Key findings

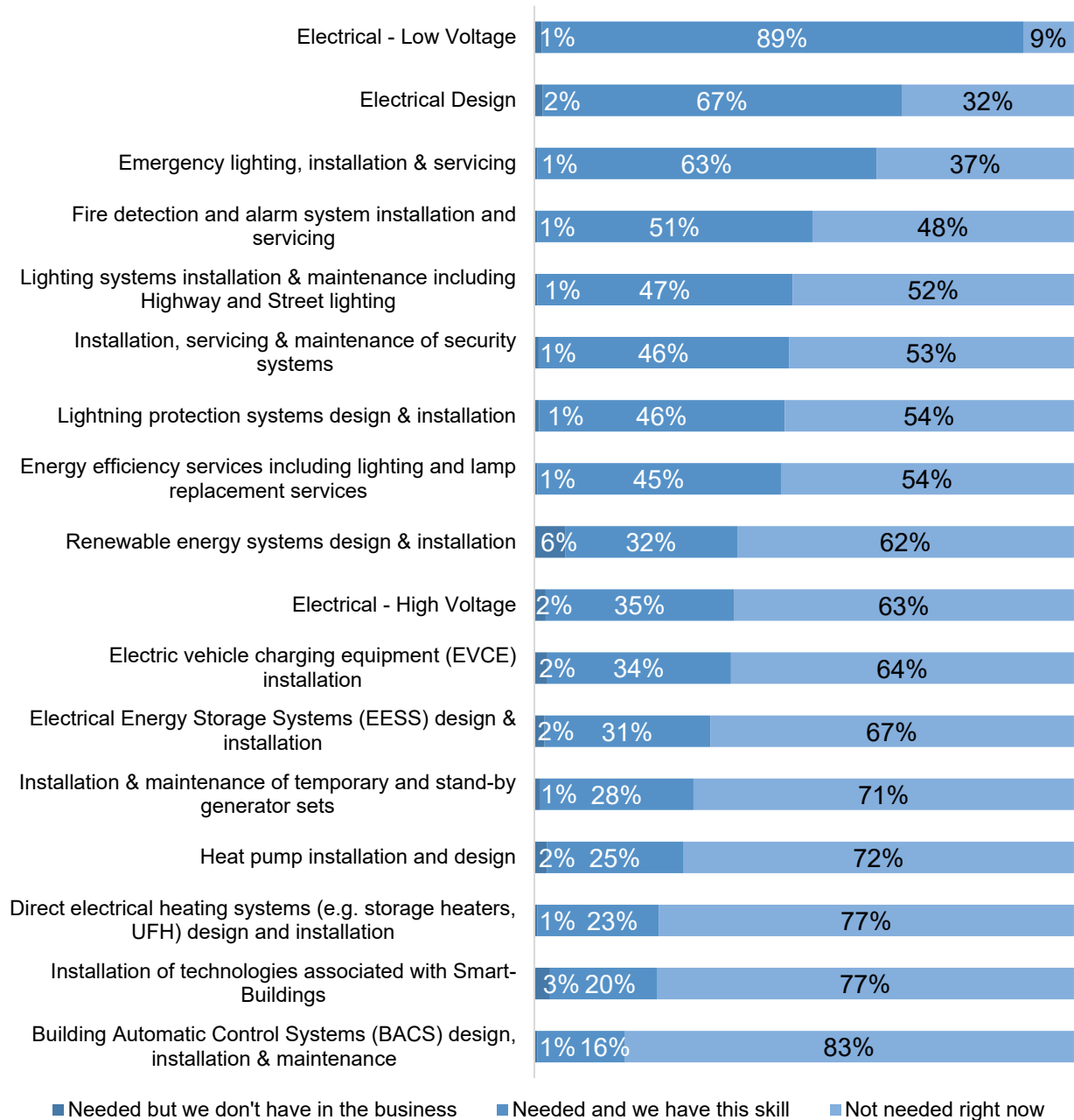
- Most employers consider their workforce to have few skills gaps and confidence in current technical skill levels has increased since the 2020 LMI refresh study (although this may instead indicate a degree of ambivalence or ignorance about the speed and extent of technological change).
- Anticipated future demand for different technical skills reflects the same skillsets which employers say they need and have currently.
- However, future anticipated demand for almost all technical skills has decreased, suggesting either that businesses are taking a more focused approach to deliver their core service/s, or that the pace of technological change is seen to have slowed.
- There are high levels of confidence that businesses hold a variety of generic skills among their workforce – instances where a skill is needed but lacking are almost exclusively small and micro businesses' concerns.
- The two most common suggested reasons for skills deficiencies are an ageing workforce find it hard to keep up-to-date (28%), and training courses being inappropriate (26%). This is a change from the 2018/19 LMI study when cost was cited as the main barrier (32%).

4.1 Technical skills

Surveyed employers were asked to comment on their business's current demand for a variety of technical skills. For each skill, a small minority (between 1% and 2%) say they need that skillset but do not have it in the business – the outlier in this regard is renewable energy systems design and installation which 6% mention they require, but lack currently. This concern of needing, but not currently having, a skill in the business lies almost exclusively with micro and small companies.

The most common skills needed which businesses currently have and require relate to low voltage electrical work (89%), electrical design (67%), and emergency lighting and installation (63%). Skills related to Building Automatic Control Systems (BACS), smart-buildings, and direct electrical heating systems are least required by businesses currently (83%, 77%, and 77%, respectively). The findings may – to an extent – reflect the type of businesses that were surveyed (see Figure 6, section 2.2.2).

Figure 11 Employers’ current demand for technical skills in their business



Base variable 334 to 437. Source: Pye Tait Consulting 2023.

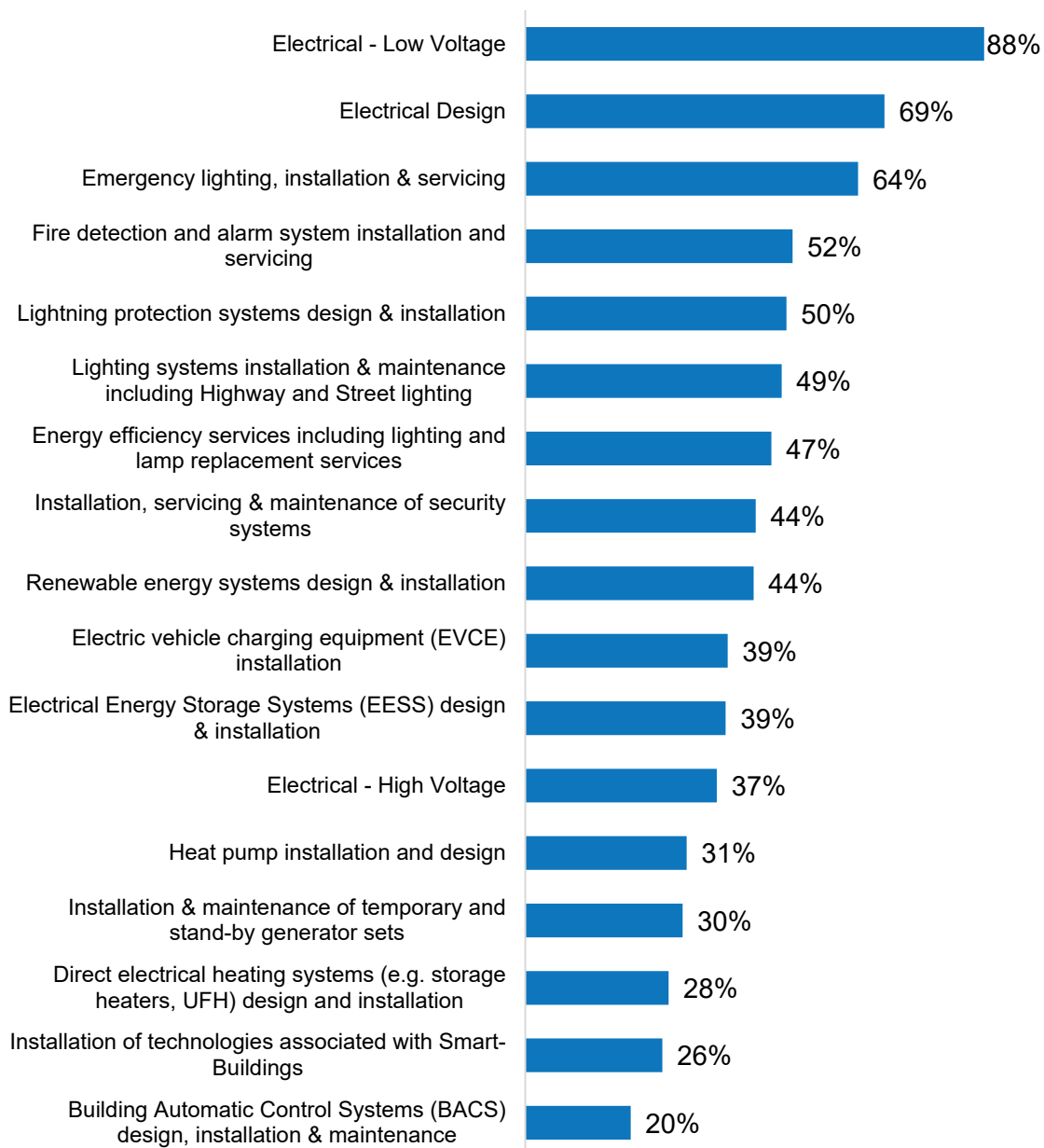
These responses suggest most employers consider their workforce to have few skills gaps, but may also indicate a degree of ambivalence or ignorance about the speed and extent of technological change. Since the 2020 LMI refresh study, employers appear to have greater confidence in the skills of their workforce – at that time nearly one in five businesses (18%) were concerned they needed, but lacked, skills related to renewable energy systems.

Employers were next asked to comment on their business’s anticipated future demand for these skills in three years’ time. The majority (88%) will require low voltage electrical skills,

with around two thirds requiring electrical design (69%) and emergency lighting and installation (64%) skills. Skills anticipated to be in least demand include those related to BACS (20%) and smart buildings (26%).

Indeed the trend in future demand closely mirrors the skillsets which employers say they need and have currently, with the top four and bottom three options in the same order and noted at approximately the same magnitude.

Figure 12 Technical skills which employers will need in three years



Base variable 345 to 424. Source: Pye Tait Consulting 2023.

Broadly speaking, a greater proportion of large and medium firms say they will need each skill set in three years' time. For example, 75% of large and 53% of medium companies say they will need renewable energy systems skills, 57% of large companies say they will require skills for smart building installations, and energy efficiency services will be needed by 71% of large employers.

Since the 2020 LMI refresh, future anticipated demand for almost all skills has decreased, with notable falls for EV chargepoint skills from 85% then to 39% now, and installation of smart building technology from 65% to 26%. This implies either that businesses are taking a more focused approach to deliver their core service(s) (i.e. not spreading themselves too thin) or that the pace of technological change is seen to have slowed meaning skills will not be required quite so soon.

4.2 Generic skills

Surveyed employers were asked to comment in a similar manner on their business's current demand for a variety of generic skills. There is near-consensus among companies that they hold this variety of skills among their workforce. Some 7% state they currently need – but lack – skills relating to digital literacy (e.g. using the cloud and other platforms for planning), and 2% say likewise with regard to client engagement. Similar to technical skills, the concern of needing but lacking a skill in the business lies almost exclusively with micro and small companies, and those employers who say such skills are not needed in their business are all micro and small firms too.

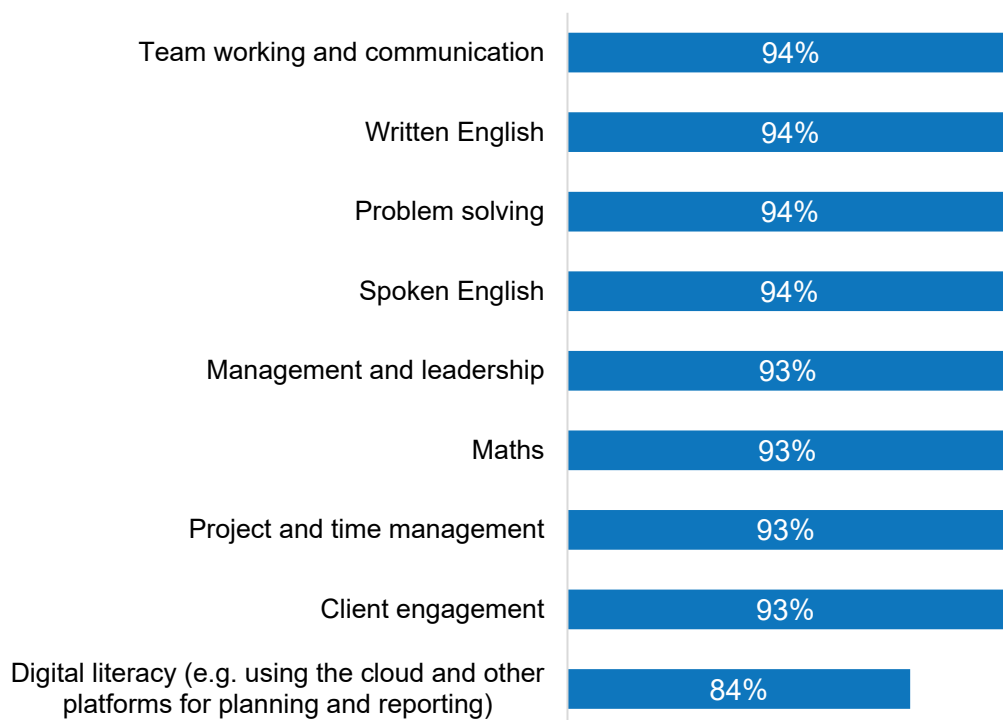
Figure 13 Employers' current demand for generic skills in their business



Base variable 343 to 460. Source: Pye Tait Consulting 2023.

Employers were also asked to comment on their business’s anticipated future demand for these skills in three years’ time. Almost all skills are anticipated to be required in the future by between 93% and 94% of employers – the exception is digital literacy which is slightly lower at 84%. Those indicating any skill will not be required in the future are almost all micro or small employers, with one or two medium firms, while all medium and large firms say they will require all these skills.

Figure 14 Generic skills which employers will need in three years



Base variable 356 to 453. Source: Pye Tait Consulting 2023.

4.3 Perceived reasons for skills deficiencies

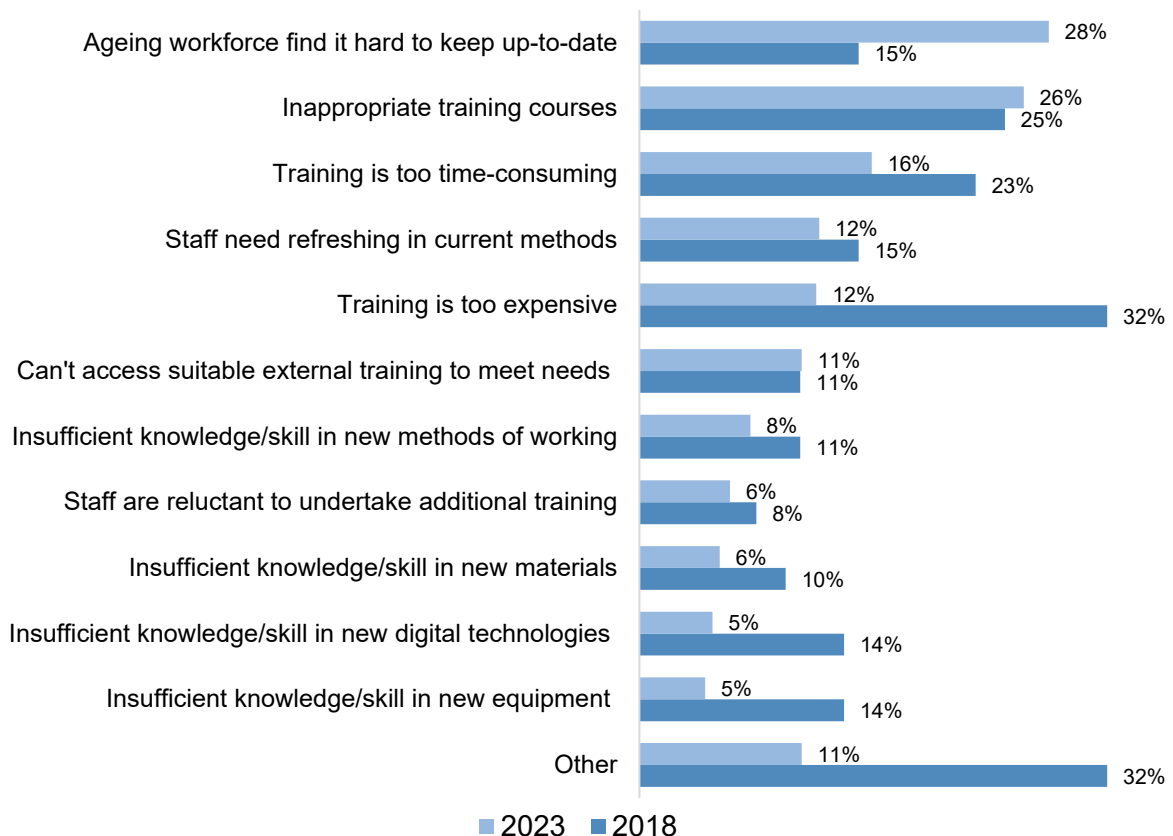
Surveyed employers were asked for their thoughts on what they believe might be the reasons for skills deficiencies in the electrotechnical sector. The most common reason, noted by around one quarter of respondents (28%), is that an ageing workforce finds it hard to keep up-to-date. A slightly smaller proportion (26%) believe current training courses are inappropriate, while one in six (16%) suggest that training is too time-consuming.

The two most common reasons overall are also the top two noted by firms of all sizes; however, inappropriate training courses are mentioned most commonly by medium and small firms.

The greater prominence of an ageing workforce finding it hard to keep up-to-date would appear to align with the latest demographic profile of the workforce (see section 2.2.1) which found a higher proportion of workers aged over 50 compared to 2018/19.

Perceived reasons for skills deficiencies appear to have altered since 2018/19. Then, the cost of training was cited as the most significant issue (noted by nearly one third, 32%). Compared to 2018/19, all but the most common two reasons noted in 2023 have decreased in prominence.

Figure 15 Perceived reasons for skills deficiencies



Base: 422 (2023) and 367 (2018) respondents (multiple responses permitted). Source: Pye Tait Consulting.

'Other' perceived reasons are noted by 47 respondents, with three common themes arising. Around two in five (43%) are concerned about the volume of individuals and the lack of available labour coming through into the industry. Some say again that the education system does not appear to encourage students to consider it a viable career option, while others feel that wages are too low to attract potential labour. This concern is raised most commonly by employers in the North of England (Yorkshire and the Humber, North West, and North East) and Scotland.

Youngsters are not leaving school with the thought of wanting a trade. More leave school and have no clue what they want to do. I feel that a lack of careers teaching in schools prior to leaving is causing a huge gap not only in this sector but in all trades. – Large, North West

Just under two in five of those commenting (38%) feel the quality of training in colleges and of apprenticeships is insufficient to meet the needs of industry, arguing that they do not

adequately prepare people coming to work in the sector. These businesses – almost all of which are micro and small firms – believe apprentices lack sufficient support, that the course material is focused on the wrong areas, and that there is a lack of funding support for apprenticeships.

Around one fifth (19%) of those commenting questioned the motivation and attitude of younger people joining the workforce. They perceive that young people are not instilled with a sense of discipline and work ethic and are unwilling to apply themselves fully to their role.

5. Future of the electrotechnical sector

This chapter explores the major drivers of change for the sector in the coming years and particularly the implications of the Net Zero agenda. The impact of new technologies is discussed, and the future workforce is considered.

Key findings

- Main challenge foreseen by industry over the coming years is a labour pool shortage, often mentioned alongside skills shortages. Other challenges include adapting to new technologies like solar/PV and electric vehicles (EVs), working towards Net Zero targets, and rising costs for labour, materials, and energy.
- There is a mixed picture in terms of how prepared businesses are for the shift to Net Zero. Some are adapting easily, others are facing headwinds such as accessing training that meets their needs or is not too costly, while others (mainly smaller firms) may not see Net Zero as relevant to them or see little client demand.
- Businesses are taking advantage of the Net Zero agenda to upskill, especially in solar/PV and EV chargepoints, with some looking to strategically grow their business in these areas.
- Energy efficiency management, EVs, automation, and network/wifi enabled devices are the technologies anticipated to have greatest impact on job roles in the future, although to a lesser extent than was predicted in the 2020 LMI refresh study. Medium/large firms more commonly predict that technology will impact job roles.
- Over half (53%) see no challenges to taking up new technology, up from 19% in 2018/19 indicating businesses are more optimistic or able to act with greater confidence. The main challenges that are noted are a lack of finance/resource (18%) and concerns around training either being not at the cutting edge or not readily available (both 11%).
- Most (61%) disagree that sector-wide take-up of new technology is relatively modest. Agreement is higher among medium/large companies than small/micro firms. Those that do agree suggest this is due to the quality or availability of training.
- Demand is expected to increase for qualified electricians (predicted by 54%), apprentices (49%) and labourers (31%) over the next two to three years. Few see demand decreasing for any role (4-7%).
- Workforce projections are difficult to make with accuracy given the huge number of factors that influence this. Employers believe they will grow very slightly over next three years. It is likely there will be a slight dip in the short-term (next 12 months) but overall growth in the medium term (five years). Projections based on a best case scenario suggest an additional 33,000 workers are needed over the next four years (not including natural churn) while a worst case scenario may see sector contract further losing up to 17,500 workers.

5.1 Major drivers of change in the sector

Interview participants were asked for their views on what they believe are the main challenges facing the industry over the next three to five years and four common themes arise among responses. In order from most to least frequently mentioned these are: labour pool shortages (mentioned by nine of 12 interviewees), skills shortages (six), adapting to new technologies (five), and increasing costs (three).

A dearth of available labour is a primary concern. Interviewees argue that the industry has an ageing workforce, resulting in a dwindling supply of senior workers with a broader skillset and years of experience, which presents a critical challenge as such workers retire. A lack of apprentice intake is another aspect identified, with businesses saying they can find it difficult to both attract and retain younger people into the sector.

Loads of the older generation are coming up to retirement so we need to backfill those roles. – Medium, Scotland

Recruitment and retention – trying to entice the youngsters that there is a great career in the industry. – Large, West Midlands

Skills shortages are identified by half of the interviewees (six of 12) – often, but not always, in conjunction with labour pool concerns. Two feel the skills shortage issue has arisen due to the quality of the training being provided through apprenticeships and colleges, while two firms based in the South East/London find issue with the quality of staff hired through agencies.

We've had years of underfunding apprenticeships so there's no good ones starting; they're not up to speed on technical skills. – Small, Wales

The need to adapt new technologies is identified as a main industry challenge by five firms. Examples provided typically relate to renewable technologies such as solar/PV and electric vehicles (EV) as areas in which businesses are aiming to advance in tandem with Net Zero targets. Businesses note this is a challenge not just for them, but for the industry as a whole.

Costs are also a source of concern, particularly for larger businesses. Two large businesses identify the rising cost of labour in terms of wages, with reference to how inflation has climbed rapidly in the past year. One large and one medium firm see future challenges with rising costs of fuel, energy, and materials, catalysed by global events which will have an effect on the UK economy, including the Covid-19 pandemic, the UK's Exit from the EU, and the war in Ukraine.

5.2 Preparedness for Net Zero

With the drive in the industry to move towards Net Zero currently, interviewees were asked how prepared they feel their business is in this regard.

Half (six of 12) of interviewed businesses indicate that they are making some headway in meeting Net Zero targets but raise specific issues their firm or the wider industry face along the way. The most frequent issue mentioned in this regard relates to training to upskill

industry workers. Employers say they are doing whatever they can but do not have the capacity to upskill their staff as much as they might like. Some raise concern about the scarcity of suitable, available training for specific aspects of renewable technologies. Others reference the cost involved in upskilling their workforce. Two firms suggest that the government could provide more assistance to the industry's development to meet Net Zero targets, through better guidance and funding initiatives.

I've seen first-hand that there is a push for us to meet the green agenda. However, in terms of batteries and storage, from my personal experience from a previous job, I think there's going to be very much a lack in that area. I tried looking for training for people in that industry and there was nothing available. I think there's going to be some serious issues down the road. – Medium, Scotland

Three employers from the South of England (South West, South East, London) indicate that they are prepared for the industry's Net Zero drive. They find few issues with adopting relevant renewable technologies as this does not detrimentally impact their particular business operations. For instance, one has been able to increase the amount of electrical vehicles in its fleet, and another finds that EV/PV installation does not significantly alter the parameters of their work.

The other three interviewed firms say they are not making much progress, either because they do not believe Net Zero targets particularly pertain to their business (this is mentioned by small businesses) or because they feel that Net Zero targets are unrealistic. On the former point, employers say that upskilling for technologies such as EV/PV installation depends more on customer demand (or a lack thereof) rather than government requirements.

I'm not really worried about Net Zero, to be honest. It's a waste of time and a distraction to the rest of the industry's needs such as new tech. There are no [government] requirements for us here – we do the EV chargepoints and PV installation but that'll only scratch the surface if that's its [government's] approach to climate change. – Small, Wales

Interviewees were then asked if their company had faced any challenges in being able to upskill their staff quickly enough as the electrotechnical sector evolves with Net Zero, and if there are any barriers stopping them. Almost all interviewees (10 of 12) report facing challenges that they expect will evolve.

Five note they cannot find suitable training provision to upskill their workers, with many courses being unavailable, too far away, or not existing in the skills areas the company needs. Further to this, five also note that the expense involved to undertake such training can be very costly and may act as a barrier to undertaking training. Costs include not just the cost of the course, but the forfeited working hours that are needed to undertake the training, as well as the travel costs that are incurred if the provision is a substantial distance away. This is noted predominantly by small and medium organisations.

The availability and cost of courses [are the main challenges for upskilling]. This was especially during Covid, [though] there are probably more available now. Sometimes courses are advertised at the last minute by the council, because there's not enough people on them. – Large, West Midlands

Two further businesses (one small, one medium) feel they have struggled with workers potentially being unwilling to undertake further training. This is particularly the case for older members of staff who may be close to retirement age, who are less interested in gaining new skills.

The changing market in terms of technology was the largest challenge for one large organisation in London, as the rapid pace with which new technology is introduced can be hard for them to keep up with.

Continuing on this theme, interviewees were then asked what opportunities they have taken advantage of, or plan to take advantage of, to upskill their staff, in relation to Net Zero. The majority mention new skills or courses they are branching out into. Four organisations (three of which are in the South East) note they have been, or will be undertaking, upskilling in PV and solar installations. A further four also refer to opportunities in training relating to EV chargepoint installations, and two refer only to “green skills” in general.

We’ve branched out into the renewables area. We’ve launched a separate business arm focused on solar PV, battery storage, EV chargepoints (although we were already doing that) and heat pumps. The idea was to branch out, take advantage of the focus on Net Zero to recruit into this area specifically. There have also been webinars and CPD from our training providers to support courses and offer additional skills in these areas. – Medium, South East

In terms of business opportunities, four interviewees (two medium and two large) mention they are looking at business growth. This is particularly in terms of hiring new staff in sustainability roles, bidding for green projects, and undertaking more EV chargepoint installations. Two are specifically looking into the electrical integration of renewable energy systems into the national grid.

Interviewed businesses were also asked if they had encountered any challenges in managing any potential change in the balance or focus of work arising due to the increased focus on Net Zero targets, and how they had overcome these.

Nine firms (of the 12 interviewed) have not encountered any challenges, and of these, four are seeing slight increases in demand in certain areas including EV chargepoints, solar PV and air source heat pumps, whilst another says there have seen a switch from gas to electric in commercial kitchen installations. All five of these say the change in focus has been manageable.

We haven’t encountered any challenges. We are seeing more demand for air source heat pumps; it is slowly building so we have been able to manage the transition easily. – Large, Scotland

Two say they are starting to upskill their workforce in preparation for potential increased demand in EV and solar PV work.

We aren’t seeing enough demand for EV and solar PV work to make it a problem, we can easily do the extra work coming in. We have upskilled our workforce in preparation for any increased demand that may come. – Small, South East

Challenges mentioned by a small number of firms include:

- changing to fleet vehicles whose emission levels comply with local Council guidance,
- the cost of training prevents the business from tackling skills shortages/gaps, and
- tendering conditions stating that the business must buy into sustainable supply chains that are taking action to reduce their carbon footprint.

5.3 Future technologies and the sector's adaptability

Surveyed employers were asked to think about various emerging technologies and processes, and to rate to what extent each would impact on job roles in their business over the next three years.

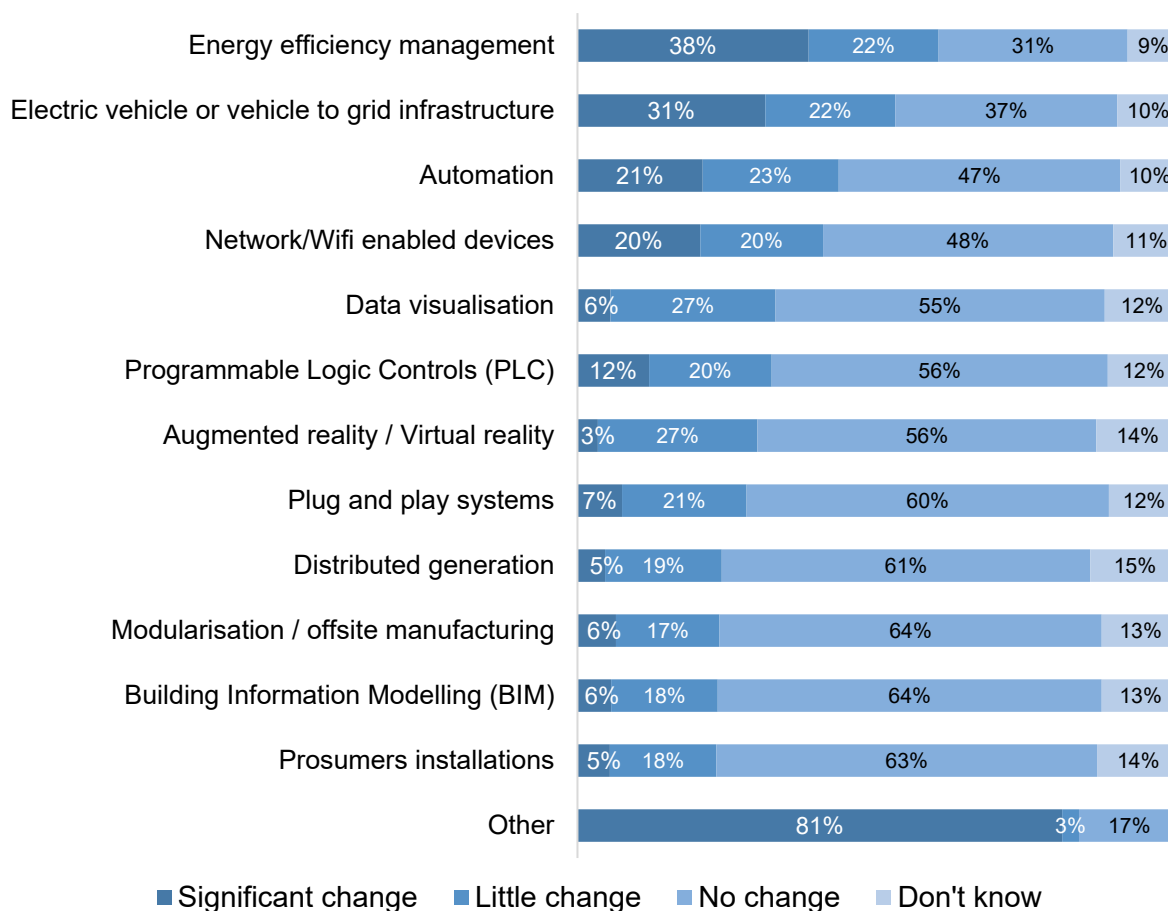
Energy efficiency management is perceived to have most impact, anticipated by two in five firms (38%) to bring a 'significant change', with a further 22% stating 'little change'. EV or vehicle to grid infrastructure is also rated highly, with around three in ten (31%) seeing this will have 'significant change'. Automation and network/wifi enabled devices are also seen as technologies with notable impacts on job roles over the next three years.

Technology anticipated to have the least impact on job roles in the next three years includes prosumers installations⁸, and Building Information Modelling (BIM).

For almost all these technologies and processes, there is a general trend that more medium and larger firms see these as bringing change. For example, for energy efficiency management, nearly three quarters of medium firms (74%) and seven in ten large companies (70%) see this bringing significant or a little change. For EV or vehicle to grid infrastructure, these figures are 59% and 75%, respectively.

⁸ More information on prosumer installations is available here <https://professional-electrician.com/technical/prosumer-electrical-installations-what-are-they-eca/>

Figure 16 Impact of emerging technologies on job roles over the next three years



Base variable 372 to 417 (other – 36) respondents. Source: Pye Tait Consulting 2023.

‘Other’ technologies or processes are mentioned by 36 respondents, with the following being mentioned by multiple respondents: PAT testing (eight), solar PV (six), battery storage (four), EV-NICEIC approved (three), CAD design (two), and heat pumps (two).

Compared to when this question was asked in the 2020 LMI refresh study, energy efficiency management has moved from third to first on the list, and network/wifi enabled devices fallen from second to fourth. Notably, data visualisation has moved up the list, and BIM has plummeted from fifth to second from bottom. Across almost all technologies and processes, however, there is a general trend that each technology is anticipated to have less of an impact on job roles over the coming years, compared to what employers were thinking back in 2020.

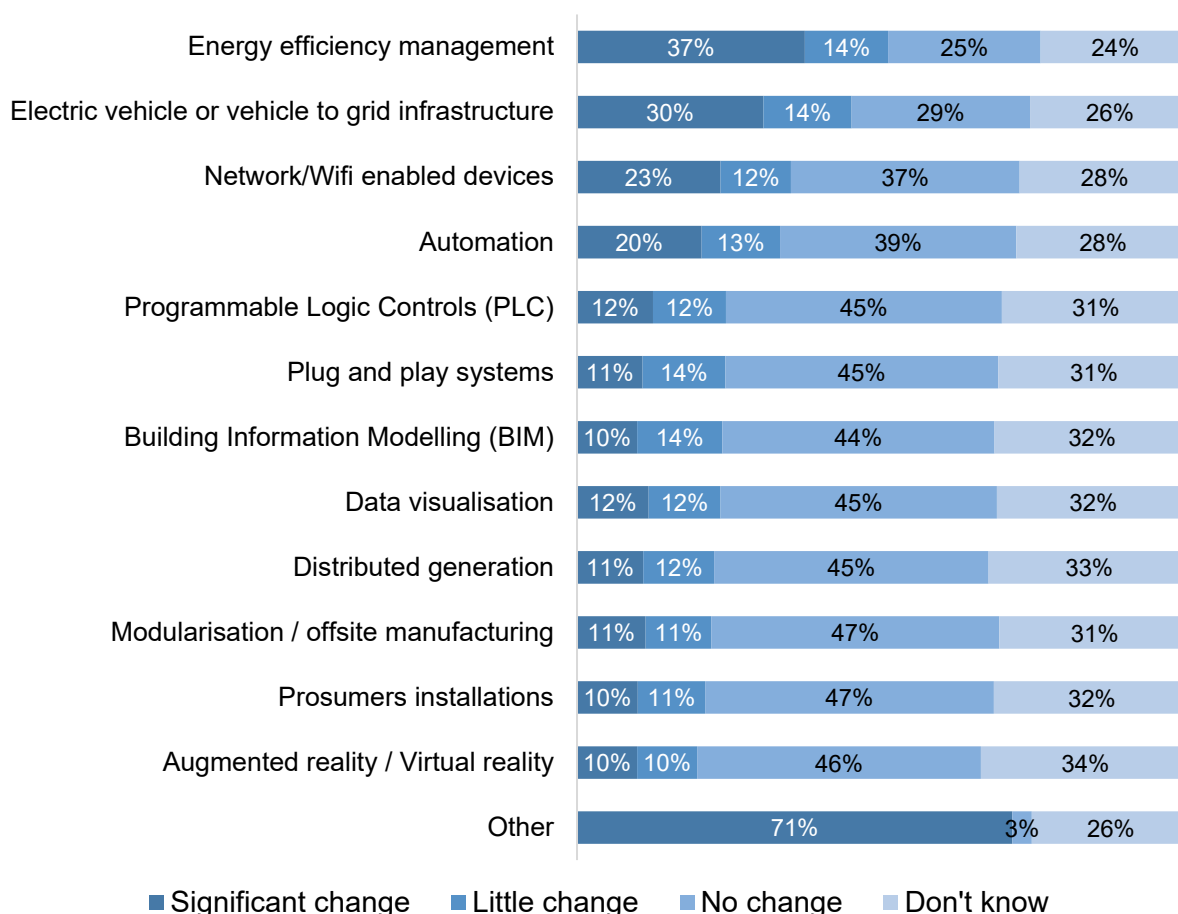
Surveyed employers were then asked a very similar question, but to look further into the future, and to rate to what extent each would impact on job roles in their business over the next 10 years.

The top two technologies – energy efficient management and EV or vehicle to grid infrastructure – are once again at the top of the list, with 37% and 30%, respectively, envisaging these to have a significant impact on job roles. Network/wifi enabled devices and automation have switched positions to third and fourth in importance. Meanwhile AR/VR and

prosumers installations are anticipated to have least impact in the longer term, while BIM is anticipated to increase in prominence.

Again, there is a general trend that medium and larger firms see each technology as having a greater impact than smaller employers.

Figure 17 Impact of emerging technologies on job roles over the next 10 years



Base variable 362 to 398 (other – 31) respondents. Source: Pye Tait Consulting 2023.

‘Other’ technology and processes are mentioned by 31 respondents including PAT testing (five), solar PV (four), while others mentioned by multiple respondents include Electrical Installation Condition Reporting (EICRs), battery storage, auto CAD, and heat pumps.

Compared to the 2020 LMI study when a similar question was asked, energy efficient management has moved from third to first on the list, EV or vehicle to grid infrastructure and network/wifie enabled devices each down one position. Once again, across all technologies and processes, there is the trend that each is anticipated to have less of an impact on job roles over the next ten years, compared to what employers thought back in 2020.

Surveyed employers were asked if there were any other new technologies or processes not already mentioned that their workforce will need additional skills for, and 150 comments were received.

The most frequently mentioned technology is solar/photovoltaic (PV) installation, mentioned by around one in eight respondents (13%), with several small and micro firms indicating that they are – to varying extents – moving their business more in this direction to focus more on renewable technologies. Indeed, other renewable technologies are commonly mentioned including EV-related technologies, and smart/automated technologies (each noted by around 8% of those commenting).

We are getting more involved in Solar, PV, renewable energy systems installation and most recently E/V. Demand for renewable energy has increased. – Micro, West Midlands

Other areas that are mentioned (typically by smaller firms) include upskilling for NICEIC standards and certification, Portable Appliance Testing (PAT), and three-phase installations. Larger employers typically focus on renewable energies and smart technologies.

Some businesses take the opportunity to note that they are making headway introducing the skills required for renewable technologies. Although acknowledging their workforce will need additional skills to meet Net Zero targets and demands, their experience so far has yielded few insurmountable challenges.

A few smaller employers, however, emphasise the need for funding and training opportunities to be able to upskill their workforce in renewable energy technologies, saying they lack the means to keep up with consumer demand.

We will be taking on more apprentices and recruiting two qualified electricians to undertake PV, new renewables solar projects. We will also need funding to train our guys to install these new technologies. – Micro, North West

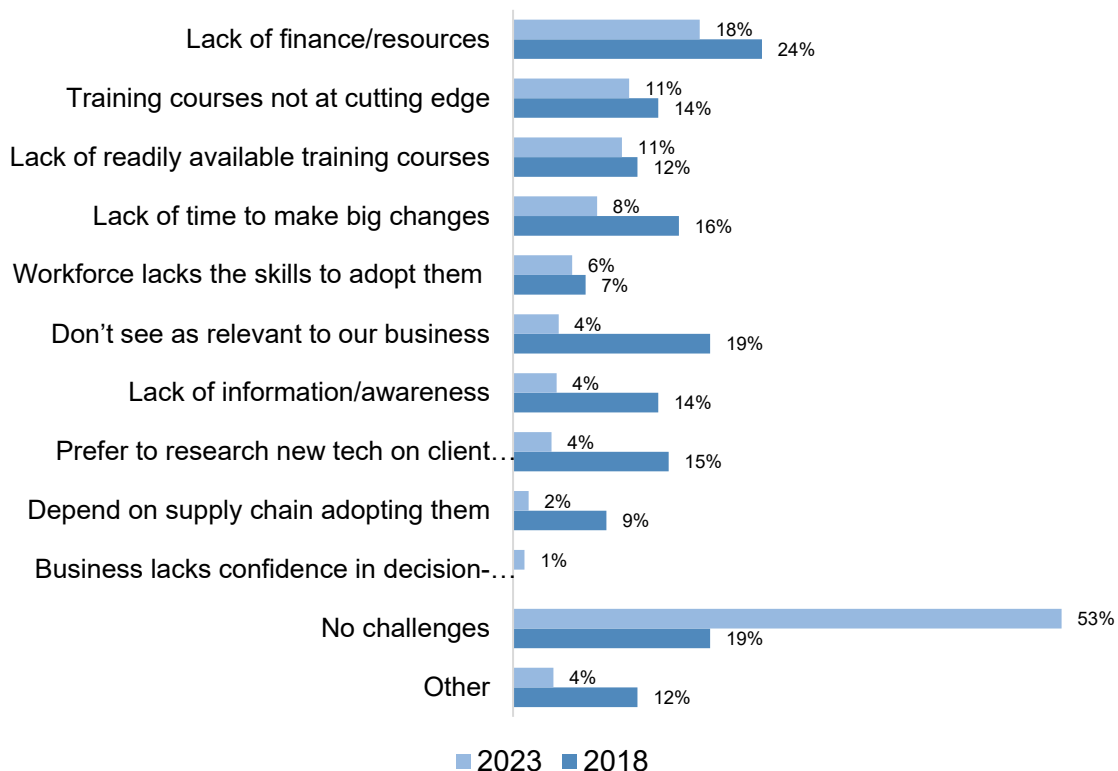
5.4 Take-up of technology

Surveyed employers were asked what challenges (if any) they face in adopting new technologies and processes. Over half (53%) of respondents say there are no challenges to taking up new technology – a large increase from 19% in 2018/19. This is broadly the same across firms of all sizes, increasing to 70% for large employers.

Of those that do encounter challenges, a lack of finance or resource is the most common issue, noted by around one in five companies (18%) – this is micro firms' largest concern (mentioned by 22% of micros). Training courses not being at the cutting edge of industry needs, and a lack of readily available training courses are each mentioned by just over one in ten employers (both 11%). These two issues relating to training are small and medium firms' greatest concerns (noted by 15% of small and 19% of medium companies). A lack of time to make big changes is large companies' biggest challenge (noted by 20%).

Broadly, the level of perceived challenge has decreased since 2018, and it would appear that employers now hold a more optimistic view, or feel they are able to act more proactively or with greater confidence, with regard to using new technology and processes.

Figure 18 Perceived challenges to adopting new technology

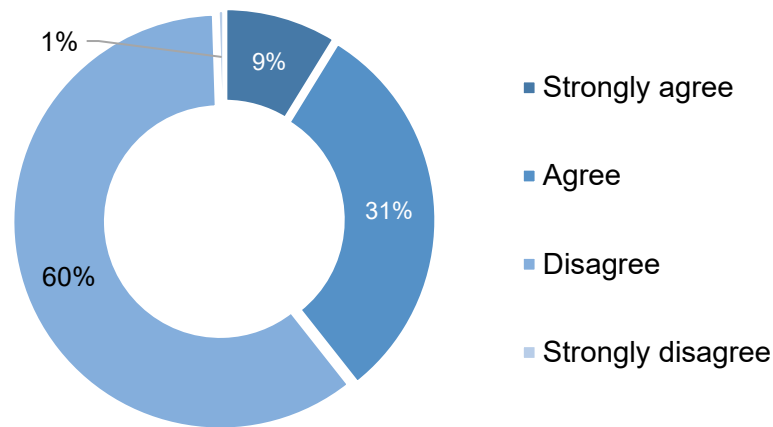


Base: 456 (2023) and 431 (2018) respondents (multiple responses permitted). Source: Pye Tait Consulting.

'Other' challenges are noted by 18 respondents. The quality of apprentices, and not being 'job-ready' on leaving college, will – it is argued – result in challenges to adopt these new technologies. A further four say they are facing recruitment challenges which is holding the business back. Other challenges to adopting new technology include a lack of time, poor communication from the local authorities, and poor tutors and training in colleges.

Survey respondents were asked to what extent they agree or disagree that the sector-wide take-up of new technologies and processes is relatively modest. The majority (61%) disagree to some extent with this statement, while just under two in five (39%) agree or strongly agree. Agreement levels that take-up is relatively modest are higher among large and medium employers (50% and 48%, respectively) and lower among small and micro firms (31% and 41%, respectively).

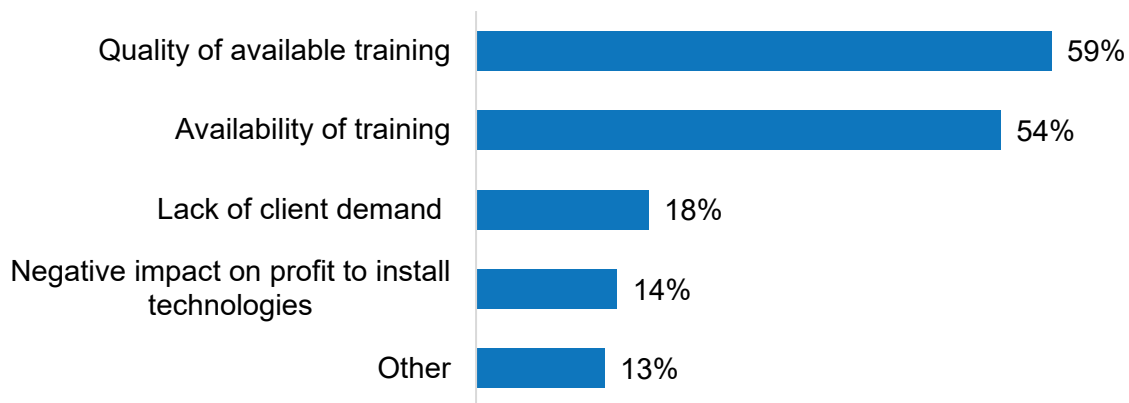
Figure 19 Agreement whether sector-wide take-up of new technology is relatively modest



Base: 399 respondents. Source: Pye Tait Consulting 2023.

Those agreeing to some extent with this statement, were asked why they think take-up of new technology has been relatively modest. Just under three in five (59%) cite the quality of available training as an issue, while over half (54%) mention the availability of training. Fewer than one in five suggest the lack of client demand, or the negative impact on profit to install technologies are issues (18% and 14%, respectively).

Figure 20 Reasons for the relatively modest take-up of new technology



Base: 153 respondents (multiple responses permitted). Source: Pye Tait Consulting 2023.

Concerns regarding the quality and availability of training are higher among small companies (mentioned by 69% and 62%, respectively), while nearly three quarters of medium companies (73%) raise concerns about the quality of available training as reason for the relatively modest take-up of new technology.

‘Other’ reasons are mentioned by 20 respondents. Seven feel there needs to be more funding place to encourage take-up of new technologies, while a further five say the cost of training is preventing them upskilling their staff. Other reasons given include:

- legislation changes frequently, which can make it hard to keep up-to-date,
- fewer apprentices coming through the system to learn the new skills needed,
- staff do not like adapting to new ways of working,
- customers are unwilling to pay,
- the quality of apprentices is poor, and
- businesses are still catching up after Covid-19.

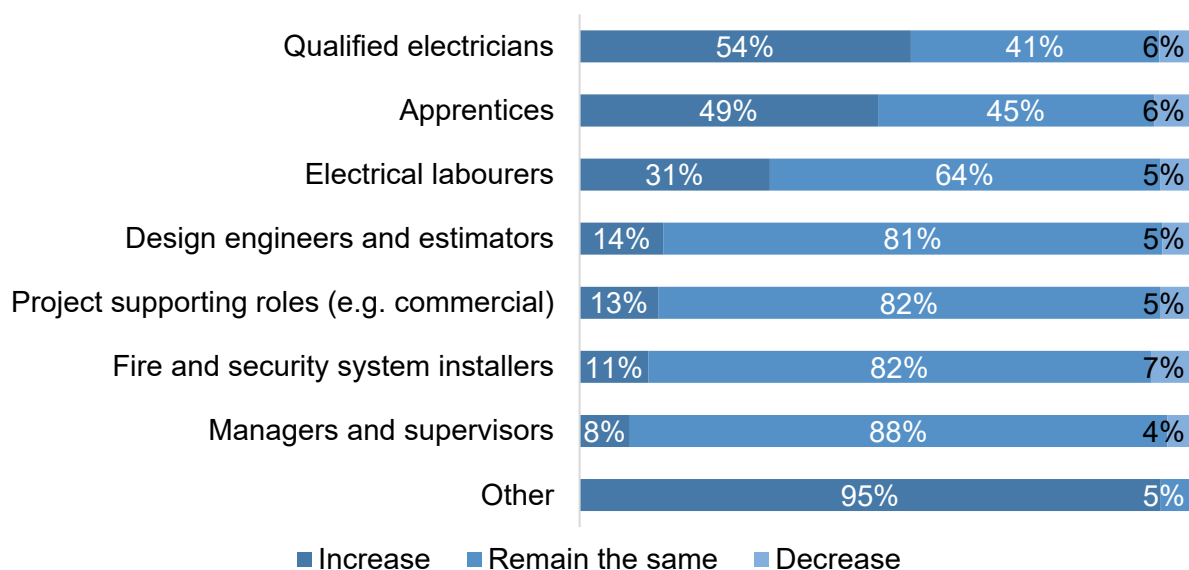
5.5 Future workforce

5.5.1 Anticipated change in demand

Surveyed employers were asked how they anticipate their demand for personnel will change over the next two to three years. Over half (54%) foresee demand for qualified electricians increasing, and just under half (49%) say likewise for apprentices. Around three in ten (31%) predict an increase for electrical labourers. Demand for roles such as design engineers, project supporting roles, and managers and supervisors, is anticipated to remain steady by over four in five respondents. Only a small minority (between 4% and 7%) see demand for any role decreasing.

A greater proportion of large and medium firms anticipate demand will increase for any given role. This is most pronounced for apprentices (predicted to increase by 80% of large and 73% of medium employers), qualified electricians (large – 70%, medium – 85%), design engineers (large – 67%, medium – 51%), project supervisors (large – 63%, medium – 49%), and managers and supervisors (large – 60%, medium – 30%).

Figure 21 Businesses’ anticipated demand for personnel over next two to three years



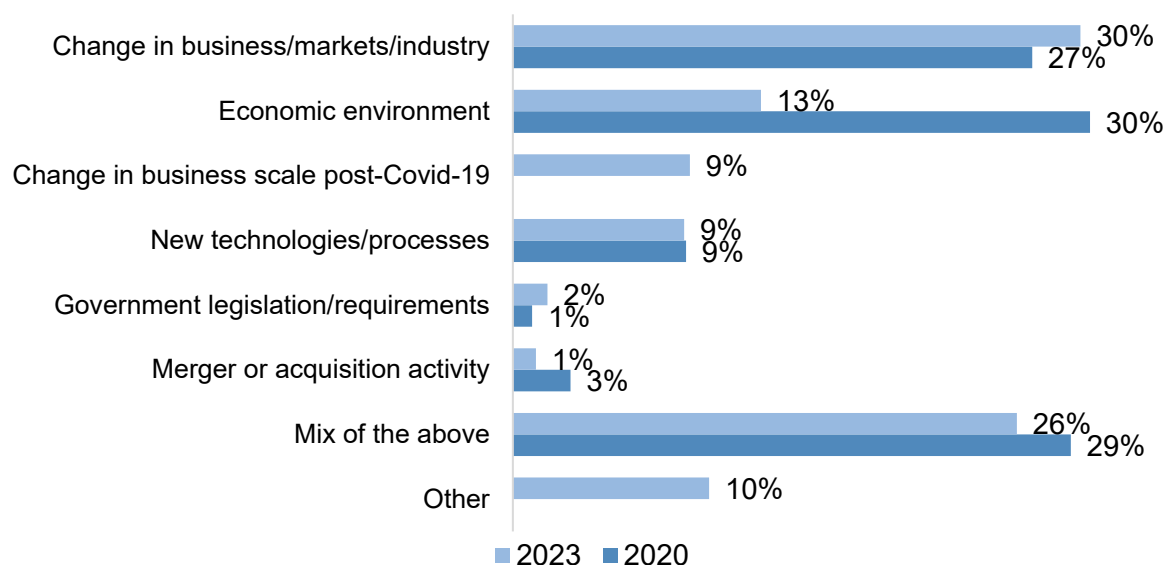
Base variable 390 to 450 respondents (other –19). Source: Pye Tait Consulting 2023.

‘Other’ roles are mentioned by 19 respondents. Half predict an increased demand for specialist roles including CCTV, home automation, HVAC, and audio-visual installation and support. Other roles anticipated to increase in demand are supporting roles (e.g. admin) or non-electrotechnical roles (e.g. plumber).

Since the 2020 LMI refresh, anticipated change in demand for roles has remained fairly consistent. Changes of note include a higher proportion of employers now foreseeing a need for more apprentices (49% up from 39%) and a lower proportion currently envisaging a need for fire and security system installers (11% down from 24%), and managers and supervisors (8% down from 25%).

In cases where respondents had selected ‘increase’ or ‘decrease’ for at least one role, employers were asked the main reason for this viewpoint. The most common main reason, mentioned by three in ten (30%), is a change in business, market, or industry – a similar prevalence to 2020. The economic environment is mentioned by around one in eight (13%) – a notable decrease from 30% citing this in 2020. Other issues are each mentioned by fewer than one in ten, while around one quarter (26%) cite a combination of reasons.

Figure 22 Main reason for anticipated change in demand



Base: 325 (2023) and 89 (2020) respondents. Source: Pye Tait Consulting.
Note: ‘Other’ and ‘Change in business scale post-Covid-19’ were not available options in 2020.

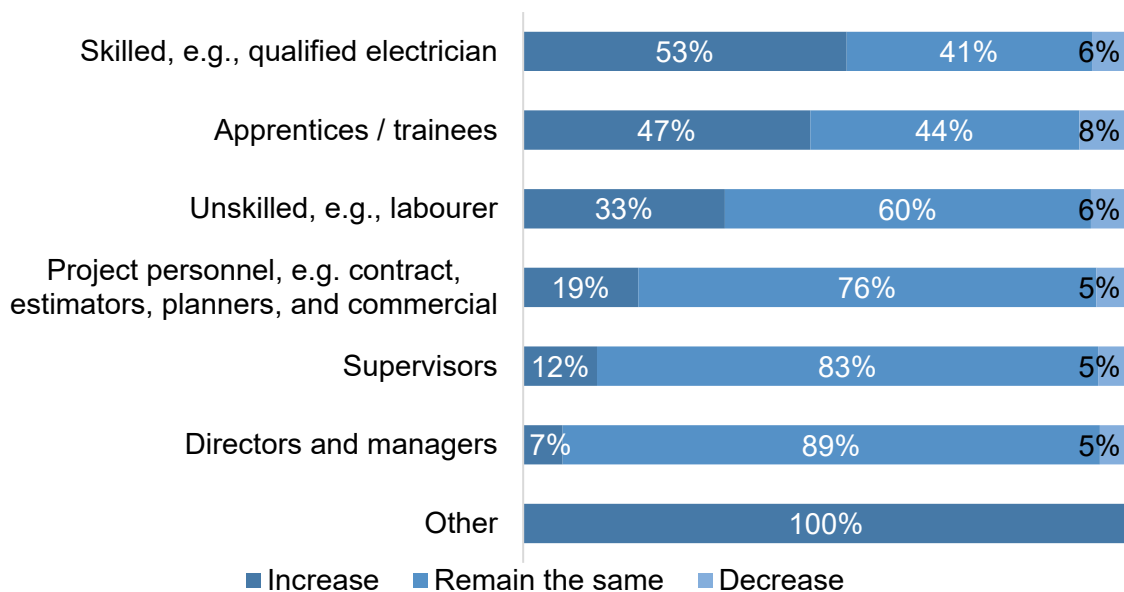
‘Other’ reasons are mentioned by 33 respondents. Half say they are winding down the company or planning to retire, hence they are decreasing staff numbers. Four employers say they are planning strategically to grow their business, and four are increasing staff numbers as they recover after Covid-19. Other respondents mention the poor attitude of apprentices and other staff working in the sector as a factor in decreasing demand, while in contrast, others refer to their positive experience of taking on apprentices and the need to replace an ageing workforce due to increasing demand.

5.5.2 Anticipated change in demand due to technology

Surveyed employers were asked how they anticipate their demand for various jobs roles will change over the next three years, as a direct result of new technologies and processes. Over half (53%) anticipate demand for skilled workers (such as qualified electricians) will increase as a direct result, while just under half (47%) say likewise for apprentices and trainees. One third (33%) see demand increasing for unskilled workers. Meanwhile, over four in five see demand remaining steady for supervisors and managers and supervisors. Only a small minority (5% to 8%) see demand due to new technology decreasing for any given role.

A greater proportion of large and medium firms anticipate demand will increase for any given role directly as a result of technology. This is most pronounced for skilled workers (predicted to increase by 80% of both large and medium employers), apprentices / trainees (large – 70%, medium – 73%), unskilled workers (large – 63%, medium – 60%), project personnel (large – 56%, medium – 55%), and supervisors (large – 67%, medium – 42%).

Figure 23 Anticipated change in demand as a direct result of new technologies



Base variable 396 to 442 (other – 14) respondents. Source: Pye Tait Consulting 2023.

‘Other’ roles are mentioned by 14 respondents. These micro and small firms note specific roles increasing in demand due to technology, typically linked to renewable technology, such as EV specialists, PAT testers, PV specialists, wind turbine experts, and heat pump engineers.

Since the 2018/19 LMI study, anticipated change in demand for roles has remained fairly consistent for skilled workers, apprentices/trainees, and unskilled workers. However, anticipated demand due to technology has decreased for other roles. For example, in 2018/19, 40% predicted an increased demand for supervisors compared to 12% now, directors and managers has likewise fallen from 28% to 7%, and project personnel is now down to 19% from 39%.

5.5.3 Evolving job roles

With the pledge for the UK to be Net Zero by 2050, there has been widespread discussion across the sector as to whether existing roles/occupations will be required to upskill and/or broaden their core skillset to be able to undertake new or additional work related to Net Zero. Depth interview participants were asked to provide their views on this.

Most (seven of 12) believe that upskilling is needed across the sector (although three note that upskilling is less important for their organisation as they have access to the skills they require already). These interviewees stress the value of having workers with certain skill sets aligned with Net Zero technology. In particular, nine directly refer to skills relating to EV and associated EV chargepoint installations. They state that such installations are in high demand currently and foresee this to only increase in the future. Further to this, “green skills” in general were noted as important to upskill by seven respondents, of which five specifically mention PV and solar energy installations and one refers to alternative fuels and energy storage.

There's going to be a lot of upskilling and potentially driving more people to be trained in that sector from the start as opposed to upskilling. There are elements of the business that I don't think anybody's particularly skilled or trained up for as it is anyway, for instance alternative fuels like hydrogen. I don't think anyone is prepared for that side of things. I definitely think there will be new roles – going back to that battery energy side, I don't think that's a particular role that I've seen come up or that anybody's looking for.
– Medium, Scotland

Four interviewees raise potential issues that might arise when undertaking upskilling. In particular they note that older members of the workforce may have difficulties adapting to new content, or show less willingness to undertake related training. Another interviewee feels that there is not enough training available in the required fields, even if people were willing.

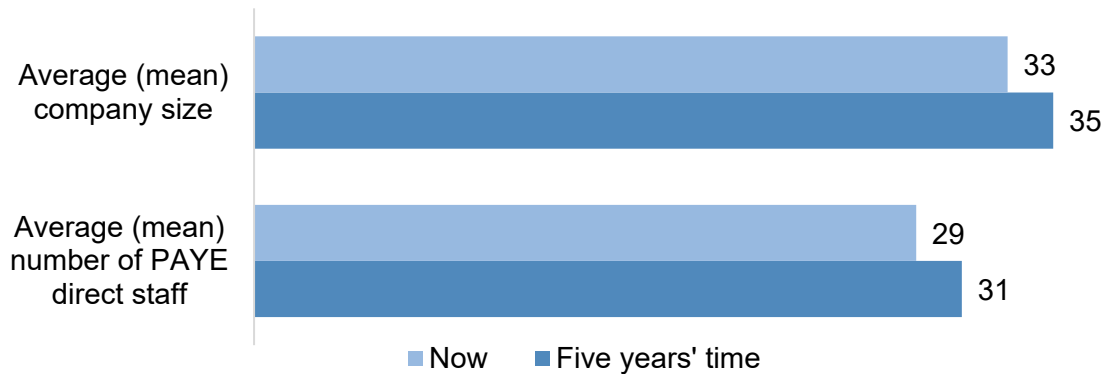
How do you really upskill a workforce? We take on around 22 apprentices a year and they're not getting green tech skills in these apprenticeships. They need [extra] courses when they come to us to get them up to speed in PV and EV etc. The older generations are reluctant, stuck in their ways and difficult to upskill to match the changing industry and the new strategies. There is not a formal L3 in these sort of topic areas and it's needed so that there are CPD options, learning activities – the industry is changed. – Medium, South West

5.5.4 Future workforce projections

Surveyed businesses were asked how many people they hope to employ in five years' time. The average (mean) size of company predicted by businesses is 35 employees – a slight increase of 6% from 33 now – while the modal size remains three employees. These figures include both PAYE direct staff and other staff. On average (mean), surveyed employers anticipate directly employing 31 staff – a slight increase of 7% from 29 – while the modal

size remains three. Just under two in five companies (39%) anticipate employing ‘other’ staff – a slight fall from the current position (42%) – but the average (mean) number of such workers is anticipated to be 11 per business, a small increase from 10 now.

Figure 24 Anticipated change in company size



The size of the electrotechnical sector workforce is c.276,000 and uncertainty remains as to whether the sector will expand or contract over the next five years. The main drivers of any medium-term expansion will be further technological development and anticipated economic growth, although there may be a short period of economic stagnation or decline will be experienced in 2023 as a result of the economic downturn caused by a combination of the post-pandemic slowdown and high inflation.⁹ Economic growth in real GDP terms for the UK is expected to range between 2.3% and 0.6% in the next few years to 2027, peaking in 2025.¹⁰ PwC forecasted, in September 2022, that GDP growth could vary from -1.3% to 0.6% over the next two years (2023 and 2024) dependent upon possible impacts of the conflict in Ukraine, although the Bank of England has since painted a slightly more positive picture that the UK will avoid recession in 2023.¹¹ These figures should be taken in the context of ongoing long-term impacts of the pandemic, the volatile situation in Ukraine, increasingly delicate relations with China, impacts upon energy supplies and wider inflation, and the government’s target of achieving a trend growth rate of 2.5%.¹²

A number of variables can influence the electrotechnical sector including the action the industry takes to prepare itself for the future, the levels of political interest in the sector and its contribution to the UK economy, consumer demand and investment levels in areas such as infrastructure and technological research. However, based on economic projections, the overall workforce across all job roles may either grow in line with the best-case scenario for the economy resulting in a need for an additional 33,000 employees over the next four years, or the worst-case scenario (somewhat unlikely) would see it contract further, potentially losing up to 17,500 individuals.

⁹ <https://tradingeconomics.com/united-kingdom/forecast>

¹⁰ https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/GBR

¹¹ <https://www.pwc.co.uk/services/economics-policy/insights/uk-economic-outlook.html>

¹² HM Treasury, 2022, The Growth Plan 2022

Table 2 Economic growth rate and the electrotechnical workforce

	Economic growth rate and current sector size	2023	2024	2025	2026	2027
Economic growth Best case	2.3%	6,348	6,494	6,643	6,796	6,952
Economic growth Worst case	-1.3%	-3,588	-3,541	-3,495	-3,450	-3,405
Electrotechnical sector size Best case	2.3% and 276,000	282,348	288,842	295,485	302,282	309,234
Electrotechnical sector size Worst case	-1.3% and 276,000	272,412	268,871	265,375	261,925	258,520

In the best-case scenario for economic growth (2.3%), to meet the need for new recruits solely due to sector expansion (i.e. not to replace those leaving the industry) the requirement for skilled workers, which make up nearly two thirds (65%) of sector recruitment, will rise from around 4,158 in 2023 to 4,554 new recruits in 2027 across the UK. The table below shows the approximate need for “expansion recruits” over the next five years.

Table 3 Recruitment needs by job role to meet ‘best case’ sector growth scenario

Job role	% of recruitment ¹³	2023	2024	2025	2026	2027
Directors and manager	1.1%	70	71	73	75	76
Supervisors	1.7%	108	110	113	116	118
Project personnel, e.g. contract, estimators, planners, commercial	3.5%	222	227	233	238	243
Skilled, e.g., qualified electrician	65.5%	4,158	4,254	4,351	4,451	4,554
Unskilled, e.g., labourer	4.9%	311	318	326	333	341
Apprentices/Trainees	20.6%	1,334	1,365	1,396	1,428	1,461
Other	2.8%	178	182	186	190	195
Total	100%	6,348	6,494	6,643	6,796	6,952

¹³ These percentages reflect the proportions of each role in total recruitment over the past year as reported by employers in response to a specific question in the employer survey.

In addition, the Construction Skills Network (CSN) report (mentioned in Appendix A) predicts a slight dip in output in 2023 before picking up again in following years. It should be recognised that this was based on national projected growth rates prior to the Bank of England's more positive re-appraisal in early 2023.

For electrical trades and installation, the CSN report predicts a fall in total employment from 186,300 in 2022 to 183,700 in 2027. This prediction is based – among other considerations – on the economic slowdown in 2023 in response to rising inflation in the UK. While the workforce remains largely static, there is a level of churn that will always take place, and this is taken into account in the Annual Recruitment Requirement (ARR), which is additional to the expected movements in and out of the workforce. Based on workforce forecasts, the CSN predicts an ARR of 3,500 electrical trades and installers.

Meanwhile, the National Careers Service's tool, LMI for All (see Appendix A), projects a decrease in total employment in electrical trades and installation workers from 234,000 currently to 218,000 by 2027. In the same period, this data source suggests that just over half (51%) of the electrical workforce is projected to retire, creating up to 121,200 job openings over this time period (when taking into account natural turnover), equivalent to around 17,300 per year. The report does caveat that this may not reflect up-to-date information about the job market, particularly in terms of the impact of Covid-19, however, this estimated decrease is potentially attributed to experienced electricians retiring faster due to the pandemic, and a lack of younger generations joining the industry to fill the gaps they leave.

These various projections are difficult to square with each other. However, what neither the CSN nor the LMI for All source take into account is that, while electrical work in construction projects is an important part of the work of electrotechnicians undertaken, it is by no means the only work. The sector's skilled people currently work more and more in a wide range of other sectors, besides construction and electrical contracting companies, which includes work for commercial businesses and domestic consumers.

Taking various projections into account, the sector may see a slight dip in numbers in the short-term (12 months) but ultimately it is likely to experience growth in the medium term (next five years) and a corresponding need to recruit workers to the sector.

6. Conclusions and recommendations

6.1 Conclusions

This detailed LMI study has provided up-to-date information on the electrotechnical sector in terms of its size, workforce demography, and challenges and opportunities that it faces.

The sector comprises approximately 214,000 core workers, with an additional 62,000 or so individuals working outside the core contracting industry, resulting in a total workforce of around 276,000.

The sector has shrunk in size by 19% from 342,000 since the 2018/19 LMI study. While this decrease may be an artefact of changes in the recording of official statistics, triangulation of various secondary data, supported by primary evidence gathered during the course of this research, suggests the workforce has indeed shrunk.

The sector's contraction may be due to a decrease in self-employed workers, a decrease in the number of large electrotechnical businesses, a decrease in the number of non-UK workers within the sector (comprising 3% of the sector now compared to 23% in 2018/19), or a combination of the above factors. Meanwhile, data suggest that the number of electrotechnical businesses continues to grow, implying that the average size of company is decreasing.

Like other sectors of the economy, the electrotechnical sector has faced unprecedented challenges in the past few years, not just EU Exit, but also the Covid-19 pandemic, and the war in Ukraine driving increasing energy costs and rising inflation. On the face of this research, it would appear that businesses in the electrotechnical sector are experiencing a period of consolidation, focusing more on their core business offerings, and taking a less risk-based approach. The latter, for instance, by becoming less reliant on other businesses for labour, or by scaling back the variety of different types of activity undertaken (although there appears to be an uptick in the proportion of employers offering renewable technologies as part of their 'core' services). Indeed, businesses would appear now to have greater confidence in the skills of their workforce compared to a few years ago.

Looking ahead, the economic climate appears (in the short term at least) to be steady for 2023, with some small growth in the following years, although there is a large degree of uncertainty. Various data sources point to the sector shrinking in the short term due to retirement (although this may slow down as people postpone this decision with the rising cost of living) before some growth in the medium term. Workforce projections – based on a best case scenario – identify a need for an additional 6,350 to 6,950 workers per year in the sector. This is purely to meet anticipated sector expansion and does not include workforce churn.

The biggest demand, naturally, is anticipated to be for skilled workers (e.g. qualified electricians) and for apprentices, and this demand is only anticipated to increase over the next two to three years by around half of businesses. Firms currently report struggling most to recruit manager, supervisor, and apprentice roles.

Many reference the limited labour pool, which is unsurprising given the number of workers in the sector has dropped by around 66,000 in the last few years. This labour pool shortage is

highlighted in depth interviews as the largest challenge that businesses will face over the coming years, and it should be noted that in addition to this limited pool, there is also limited diversity in terms of new entrants joining the sector.

There are some indications that more young people (aged under 25) are entering the sector, with this age group now accounting for 20% of the workforce (up from 17% in 2018/19). Businesses see a pressing need, against the backdrop of the limited labour pool, for the UK to develop its own pipeline of homegrown talent to be able to meet future anticipated demand, and this would appear to be critical and a timely action for the industry.

Regarding current apprentices, there is notable concern. A thread which ran throughout workforce and skills related conversations with businesses was that apprentices are not emerging from their training with the skills required to be able to do the job. For example, 41% of respondents disagree that qualifications fully reflect the demands of the job, and 43% disagree that job applicants have the skills needed to do the job well. This represents a very marked proportion of employers who believe that current curricula and skills do not sufficiently align to industry needs. It should be noted that the apprenticeship standards for both Domestic Electricians and for Installation and Maintenance Electricians have been refreshed in the past year, and these will take time to flow fully into the sector.

There appears to be an upswing in the work that employers are undertaking with regard to renewable technologies and the Net Zero agenda, and the majority (61%) disagree that take-up of these skills has been relatively modest. Firms are typically expanding into EV charging, solar PV, and other renewable technology such as heat pumps, etc. Almost half (47%) anticipate challenges in taking up technology which, although still a considerable proportion, could be seen as an improvement on the 81% holding the same view in 2018/19.

However, the two main concerns in this regard relate to the cost of training, and to the suitability of training that is currently available – viewed by many as not being at the cutting edge of industry needs. Typically, it is small and micro employers which are struggling with skills gaps in their workforce relating to technology, and it is generally larger employers which anticipate increases in demand for job roles directly due to technology.

6.2 Recommendations

Based on the conclusions and findings of this research, the recommendations below are put forward for TESP's consideration. Drawing together the findings, the two largest challenges that the industry is currently facing are:

1. Attracting a sufficient number of high-quality recruits, and
2. Upskilling the existing workforce to meet changing technological needs.

In developing and implementing any forward action, account should of course be taken of the balance of the industry comprising predominantly small and micro employers, and how they might best be supported.

Boosting the pipeline of homegrown talent

The size of the electrotechnical workforce appears to have shrunk considerably in the past few years, and employers face considerable challenges recruiting given the limited labour pool. There are indications that the sector will expand after 2023 and that demand for roles will increase. There is therefore an urgent need to ensure the pipeline of homegrown talent is in place to be able to satisfy this demand.

Almost half (49%) of employers would like to see greater promotion of electrotechnical careers to overcome recruitment challenges. Suggestions from businesses include greater engagement with schools by employers, to engage with young people at an earlier age and to show them the opportunities available in the sector. This would help to increase awareness of the industry, and boost knowledge of both the potential career paths and the exciting opportunities that come in helping to deliver the Net Zero agenda (e.g. being at the forefront of technology), as well as the potential rewards (salary) that are available. This also comes at a time when T Levels – with their industry placements – become more mainstream.

There is therefore worth in **considering developing a ‘how to’ pack, particularly targeted at SMEs, to outline best practice in terms taking a proactive approach to engaging with schools** at an early stage. This pack could be informed by lessons learned from larger firms, or SMEs already doing this successfully, to understand the best routes into schools, and approaches to delivering engaging and inspiring sessions with young people. This could be supplemented by **developing a freely available resource pack containing template material that can be adapted by each individual employer** for use in these sessions. A working group comprising employers with extensive experience of successfully engaging with schools could therefore be convened to help develop such materials for wider use in the sector.

More closely aligning curricula with industry skill needs

Employers report a clear disconnect between the skills which they need from apprentices entering the industry, and the level of skill they hold in reality. Some 37% would like to see the employability of school leavers improved. Meanwhile, employers also report that some training – particular around renewable technologies – is currently unsuitable for their needs, and indeed 39% would like to see improved technical qualifications. There is certainly the sense that the industry is having to widen its skill levels and types, but that qualifications are being left behind to an extent – despite the recent refresh of relevant apprenticeship standards – as the pace of technological change accelerates.

Taken together, this implies that urgent action is required to more closely align apprenticeship course content with industry needs, and on a regular basis. **As a priority, it is suggested that employers involved in apprenticeship development take a critical review of the sector’s needs to ensure that courses are adapted to meet these, and that reviews are carried out more frequently to keep pace with technological developments.**

The cost of training is also cited as a concern by employers to upskill their workforce. While funding is, of course, a perennial issue mentioned by employers, particularly in the wake of the Covid-19 pandemic and in the context of the rising cost of living, **there is value in considering developing an internal industry campaign to highlight the benefits of**

training for the purpose of encouraging greater take-up and investment in apprentices, resulting in higher skilled employees who can earn more, and increased client satisfaction for employers.

Ongoing promotion targeted at young people

TESP, along with its partners and members, have spent considerable time and effort on careers promotion to-date. While a nationwide recruitment campaign in the national press would be too resource-intensive, **efforts should continue to be channelled into promotion of electrotechnical careers through social media platforms** to engage effectively with young people. To boost diversity, it is suggested – if not already happening – that individuals from under-represented groups feature in promotions.

Deeper understanding of sector diversity

Understanding the diversity of the sector ensures that targeted action can be taken. Therefore, **it is critical that LMI continues to be gathered at regular intervals in the coming years, including gathering detailed diversity data** from electrotechnical firms. This could be collected, for example, from member employers of trade associations at re-registration, or through a specific research study with the industry. This will help to build up a picture of the sector's diversity and to highlight trends and where specific action may be required to boost diversity from certain groups.

Appendix A: Estimating the sector size

A.1 Considerations

As outlined in the initial labour market intelligence report in 2018/19, estimating the size of the sector and the electrotechnical industry depends fundamentally on the definition of the sector. Such estimations are always fraught with difficulty for three reasons. Firstly, because the sector's workforce is constantly changing and evolving (moving into specialist activities for example). Secondly, because the economic and business components of the sector are almost impossible to fully define. And thirdly because the way in which all economic sectors are officially classified and measured through national statistics is increasingly complex.

Furthermore, rapid technological change is not simply driving the need for new skills and job roles and the obsolescence of others, but is shifting the boundaries of what electrotechnical businesses do. The result is that precise definitions are extremely difficult because people and businesses work across the boundaries of once-distinct economic activities. In addition, multi-skilling has created jobs whose titles may not contain the words "electrical" or "electrotechnical" even where electrotechnical qualifications are required.

It is possible to say that the core of the electrotechnical sector – the electrotechnical or electrical contracting industry – comprises a few large and many small contractors. From a skills point of view, however, the sector is much larger than the workforce employed by core electrotechnical companies, meaning that electrical skills can be found in many companies outside the electrotechnical contracting industry.

For consistency in comparing to prior LMI studies, the main focus for this research is primarily the core electrotechnical contracting industry, which employs the bulk of those who require electrotechnical skills.

There are several ways of building up a picture of the size of the electrotechnical sector. Each has its strengths and weaknesses.

1. National statistics
2. Commercial mailing lists
3. Research reports and surveys from other sources
4. Certification Bodies/Trade association membership

National statistics are regularly gathered and are reasonably comprehensive but use fairly rigid classifications which often do not fit the needs of employment and skills research. Commercial mailing lists are less constrained by rigid categories but can suffer from inaccuracies and mis-classifications. The use of other research and reports is extremely valuable but may suffer from being dated or may use incompatible definitions. Finally, the lists maintained by certification bodies and trade associations can be limited by being voluntary and are often restricted in terms of usage by modern privacy systems.

The most important source of data is national statistics. These are gathered on two main bases: industries – using the Standard Industrial Classification (SIC),¹⁴ and occupations –

¹⁴ ONS, UK SIC 2007, <https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007>

using the Standard Occupational Classification (SOC). We have detailed below the main datasets as described through the lens of ‘industries’ and ‘occupations’ i.e. those in working in a particular industry and those working in a particular occupation.

A.2 Working with SIC and SOC codes

These codes are commonly used for the purposes of economic analysis and national research, being used to inform policy and investment decisions. The data that feed into the SIC and SOC codes are sourced from the ten-yearly census of the UK and then updated with quarterly household Labour Force Survey (LFS) results.

SIC and SOC major and sub-codes are subject to periodic reviews, with SOC revisions happening more frequently than revisions to SIC codes, to reflect industrial and occupational change. SOC codes have been updated since the last LMI study, with SOC 2020 codes replacing SOC 2010. The main areas of change in SOC 2020 are:

- a review of the classification of roles as professional or associate professional,
- the reclassification of occupations associated with information technologies, and
- disaggregation into less heterogenous unit groups.

The classification codes are by no means perfect measures, and advances in technology have had the effect of polarising the work of the electrotechnical sector from traditional wiring and fitting into an increasingly diverse range of operations.

A.3 SOC codes

Currently, electricians and electrical workers reside within the SOC 2020 code group:

524 Electrical and Electronic Trades

and within this group lies a sub-group which distinguishes electricians from, for example, Telecommunication engineers and TV, video and audio engineers. The relevant code is:

5241 Electricians and electrical fitters (also includes electrical contractors and engineers).

Based on the January to December 2022 Annual Population Survey (APS) run by the Office for National Statistics (ONS), a total of **213,600** individuals across the UK work within the 5241 SOC code. The breakdown of this total figure by devolved nation is shown below.

Table 4 Workers in SOC 5421 by nation

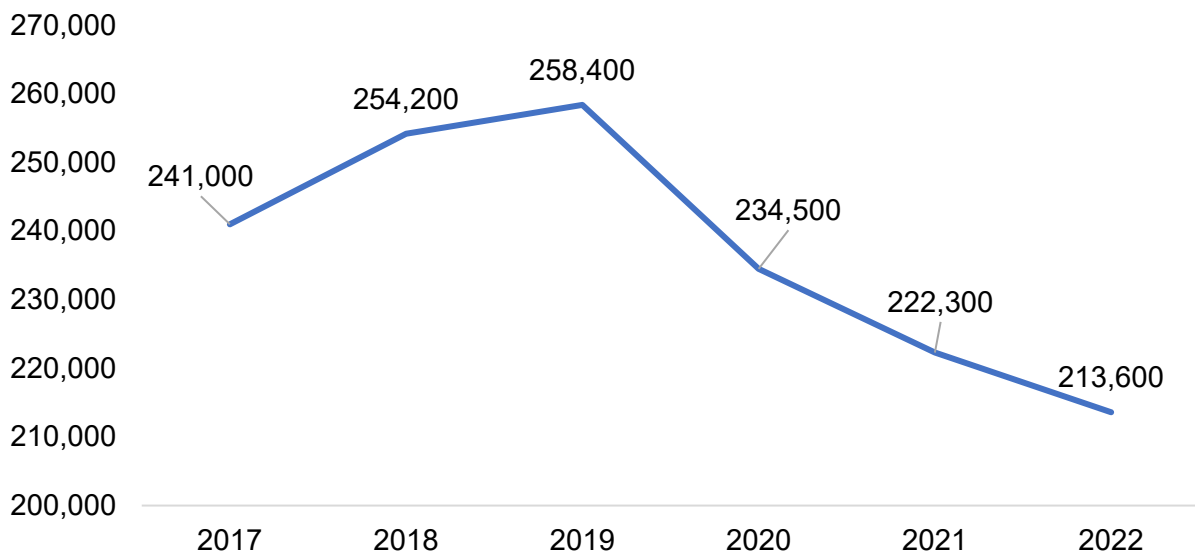
Country	No. of workers SOC 5421
England	178,700
Wales	11,000
Scotland	15,700
Northern Ireland	8,300
TOTAL	213,600

Source: ONS APS occupation (SOC2020) by sex by employment type, Jan to Dec 2022.

It is important to note that those coded to 5241 will be people in this occupation at this level regardless of which sector – i.e. they could work in electrical contracting firms or work for a company in another sector entirely.

Total workforce numbers peaked in 2019 at 258,400 and have since fallen by 17% to 213,600 in 2022.

Figure 25 Total workforce in SOC 2020 code 5241 electricians and electrical fitters (2017-2021)



Source: ONS APS occupation (SOC2020) by sex by employment type, Jan to Dec 2022. (NB: 2022 figures were obtained from data released after SOC2020 codes were implemented)

ONS labour force data put the workforce size for 5241 at 258,400 in 2019.¹⁵ (Note that the LFS is taken quarterly and figures for this code appear to fluctuate by 10,000 or more during the year.) This data series has not been made available for any proceeding years, most likely owing to COVID-19 potentially affecting data, but it should also be noted that, after 2019, employment figures aligned to SOC codes have been drawn instead from the Business Register and Employment Survey rather than from the LFS, breaking continuity of more than 10+ years and, although queried with the ONS back in 2019, the SOC code figures look smaller as a consequence.

A.3.1 Self-employment

Meanwhile, the number of self-employed workers within SOC 5241 has steadily decreased since a spike of 90,000 in 2018 to 59,600 in 2022 – a decrease of 34%.¹⁶

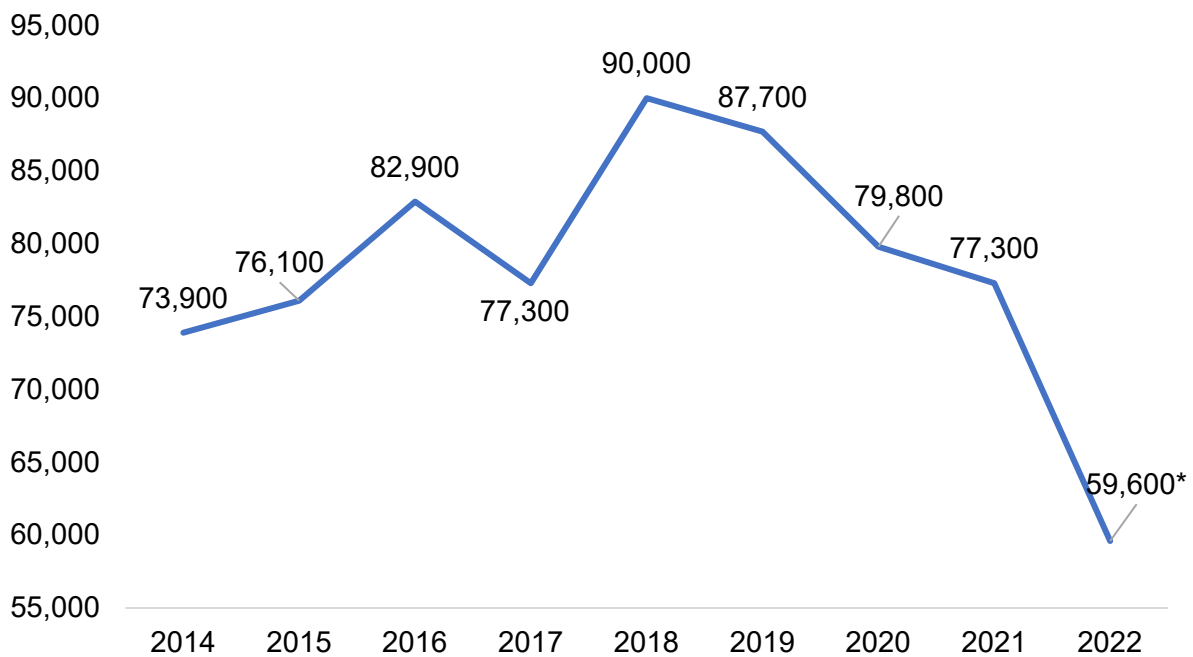
¹⁵ Between 2010 and 2019, the highest number of electricians was recorded in 2011.

¹⁶ It should be noted that the 2022 statistics were obtained from a separate data set released by ONS from the annual population survey. These numbers may have been impacted by the change over from 2010 to 2020 SOC.

Self-employment figures in related SOC codes were examined for context, and similar trends were found, revealing the decrease in self-employment is not isolated to the electrotechnical sector. For example, SOC 5314 Plumbers and heating and ventilating engineers has seen a decrease of 27% since 2018 from 92,700 self-employed workers to 67,500 in 2021.

This decrease may partly be attributable to the Covid-19 pandemic as workers seek greater stability in their work and income.

Figure 26 Number of self-employed workers operating under SOC 5241 by year



Source: ONS APS Occupation by Employment Type, Jan to Dec 2022. (*NB: 2022 figures were obtained from data released after SOC2020 codes were implemented, and may be impacted by ONS issues as noted above)

A.3.2 Other SOC codes of interest

To the total employment figure of 213,600 it is necessary to add a proportion of other occupational codes that are relevant to electrical contracting to attempt to bring together an aggregate figure. Codes in scope may include those in the table below (where conf. % is the standard error as a percentage of each figure).

codes as issues were reported with the collection of occupational data, which may affect the accuracy of the breakdowns of some detailed occupations, and data derived from them. ONS has urged caution when interpreting such figures. For more information: <https://www.ons.gov.uk/news/statementsandletters/occupationaldatainonssurveys>.

Table 5 Other relevant SOC codes and their total employment (2022)

SOC code 2020	Description	Gross – all industries	Conf. %	Possible %	Electrotechnical employment
1122	Production managers and directors in construction (includes electrical contracting)	159,300	15,400	10	15,930
1259	Managers and other proprietors in other services (n.e.c) includes owner/managers of security installations	101,300	12,300	5	5,065
2123	Electrical engineers (engineering and includes professional)	45,000	8,200	5	2,250
2124	Electronics engineers	23,400	5,900	5	1,170
3112	Electronic and Electrical technicians	26,800	6,300	50	13,400
5231	Vehicle technicians, mechanics and electricians	152,600	15,100	5	7,630
5244	Computer system and equipment installers and servicers	38,700	7,600	5	1,935
5245	Security system installers and repairers	27,400	6,400	5	1,370
5249	Electrical and Electronic trades n.e.c (includes fitter of alarms)	36,600	7,400	25	9,150
5250	Skilled metal, electrical and electronic trades supervisors (includes engineers of installations in a range of	30,100	6,700	15	4,515

	industries including electrical contracting)				
	Total	641,200			62,415

Source: ONS APS Employment by occupation, Jan to Dec 2022 (above excludes administrative roles and other business functions in support of those with electrotechnical skills).

This offers a total estimate for electricians and electrical fitters plus electrotechnical-skilled people from other – related – SOC codes (totalling est. 62,415) of **276,015 ± 10,000**. The equivalent table calculated in 2018/19 (but without SOC 2020 codes 5244 or 5245 as these were not standalone codes until the January 2021 update) suggested a workforce of 341,800.

A.3.3 Accounting for issues with ONS SOC re-classifications

Before making comment on differences between the 2018/19 estimates and those for 2022, it is important to note that ONS has identified an issue with the collection of some occupational data in several of its surveys, which directly affects the accuracy of the breakdowns of some detailed (four-digit SOC) occupations and data derived from them. The issue was caused by the implementation of the updated Standard Occupational Classification from SOC 2010 to SOC 2020 in January 2021.

From recent research conducted by ONS, around half of four-digit SOC codes are likely affected and it indicates that this has led to ‘minor’ to ‘significant’ mis-categorisation of people within codes.¹⁷

With the consideration that SOC 2020 four-digit codes may be partially compromised, we have sought to use SOC 2010 occupation statistics from 2021 data to compare figures (note: as before these exclude the SOC 2020 codes 5244 or 5245 as these were not standalone codes until the January 2021 update; also note that no confidence levels were provided for these data below). The 2021 figures are currently the most up to date available for SOC 2010 codes.

¹⁷ See

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/them-pactofmiscodingofoccupationaldatainofficeforationalstatisticsocialsurveysuk/2022-09-26>

Table 6 Other relevant SOC 2010 codes to SOC 5421 and their total employment (2021)

SOC 2010	Description	Gross – all industries	Possible %	Electrotechnical employment
1122	Production managers and directors in construction (incl. electrical contracting)	164,300	10	16,430
1259	Managers and other proprietors in other services (n.e.c) includes owner/managers of security installations	226,100	5	11,305
2123	Electrical engineers (engineering and includes professional)	29,300	5	1,465
2124	Electronics engineers	25,000	5	1,250
3112	Electronic and Electrical technicians	21,200	50	10,600
5231	Vehicle technicians, mechanics and electricians	150,800	5	7,540
5249	Electrical and Electronic trades n.e.c (includes fitter of alarms)	66,800	25	16,700
5250	Skilled metal, electrical and electronic trades supervisors (includes engineers of installations in a range of industries including electrical contracting)	32,600	15	4,890
	Total	716,100		70,180

Source: ONS APS Employment by occupation, Jan to Dec 2021.

With these SOC 2010 numbers, the combined employment estimate for electricians and electrical fitters plus electrotechnical-skilled people (est. 70,180) increases to **283,780**. This would appear to align reasonably closely to the SOC 2020 figures within given confidence levels.

A.4 SIC codes

The industry SIC code and associated employment figures are always worth reviewing because they provide a vertical sense of all those who work in a particular industry at all levels, as opposed to the horizontal look at those with certain skills (via SOC). Additionally, they can provide a total number of businesses operating within certain sector areas.

The particular challenge with the industrial classification (SIC) which causes frustration for many industries is what is often seen as the unsatisfactory allocation of industries to codes. For the electrotechnical sector the most frustrating aspect is that it has always been included within the construction grouping, albeit as a specialised activity.

As SIC codes are self-assigned by companies when they register with Companies House (companies can select one or more and give any code as their main business) the system can miss numbers of companies which classify themselves outside the construction group.

The nearest code with relevance to the electrotechnical industry is:

43 Specialised construction activities
43.21 Electrical Installation

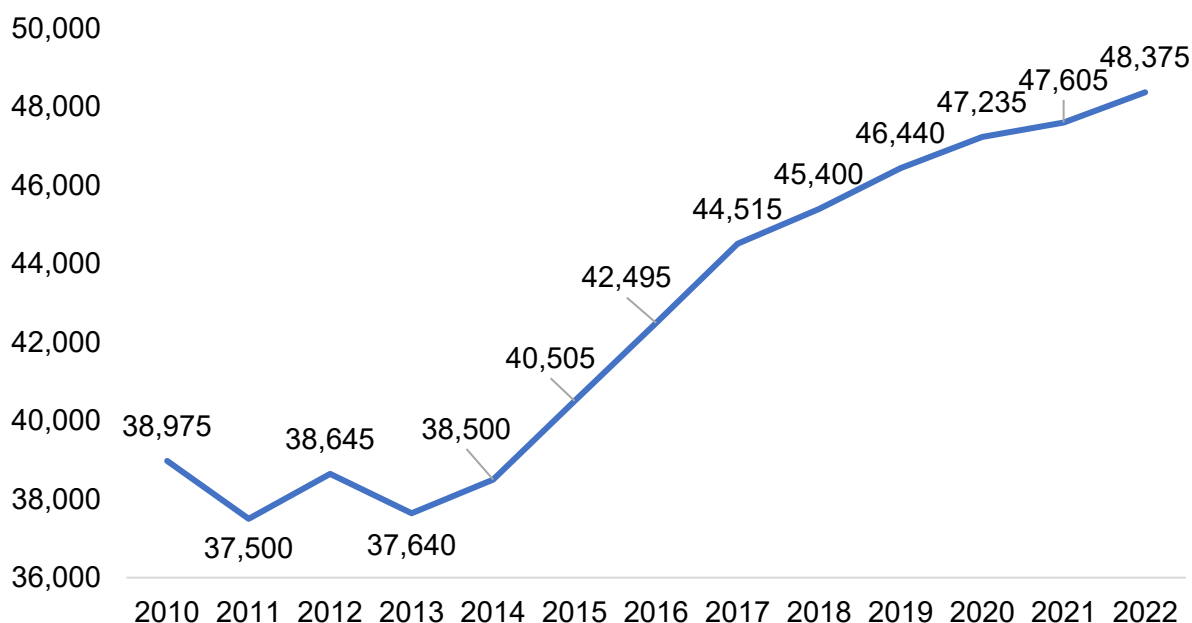
The more granular code – at the five-digit level (43210) – clarifies a large range of activities within the industry from aerial erection (domestic), connecting of electric appliances and household equipment, to installing security alarms, local authority street lighting and sign (electric) erection and maintenance.

The latest SIC code data at the five-digit level for 43210 (ONS/NOMIS) show that there were an estimated 202,000 employees in 2021 in Great Britain. Extrapolating to include Northern Ireland based on population counts, this equates to 207,900 in the UK as a whole. Added to this are those who work in the industry of repair of electrical equipment (SIC code 33140) which is 6,300, bringing the total to **214,200**.

As a further check on industry employees, the most recent version of the Construction Skills Network (CSN) issued by CITB on employment and growth figures in construction looks forward four years to 2027 from 2023.¹⁸ It estimates a total of 186,300 electrical trades and installation workers within the construction industry in 2022, including employees, self-employed and trainee staff, with a projected slight decrease of 2,600 (to 183,700) by 2027.

The number of businesses operating under this five-digit SIC code has been increasing steadily over the last 10 years. From 2013 to 2022, there has been an overall increase of 28%.

Figure 27 Number of businesses total in the UK within the 43210 SIC code by year



Source: ONS APS enterprises by industry and employment size band, Jan to Dec 2022.

Growth in the total number of businesses has been driven by the increase in the number of SMEs, while the number of large businesses has fallen.

¹⁸ Experian/CITB, 2023, Construction Skills Network Industry Outlook 2023-2027

Table 7 Number of organisations within SIC 43210 SIC code by size and by year

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Micro (0 to 9)	34,595	35,525	37,475	39,495	41,460	42,325	43,330	44,125	44,475	45,155
Small (10 to 49)	2,725	2,680	2,720	2,675	2,725	2,735	2,760	2,765	2,795	2,880
Medium (50 to 249)	270	250	270	285	290	310	315	305	305	305
Large (250+)	50	45	40	40	40	35	35	35	30	35
Total	37,640	38,500	40,505	42,495	44,515	45,400	46,440	47,235	47,605	48,375

Source: ONS APS enterprises by industry and employment size band, Jan to Dec 2022.

For context, growth in the number of businesses over the past decade is seen in other, SIC codes related to the construction industry. For example, transport and storage has seen a 26% increase in the last five years.

The increasing number of businesses in the sector may appear to contradict the earlier trend in decreasing numbers of employees. The workforce size (in SOC 5241) fell by approximately 17% from 2018 to 2022 during which time, there was a 7% increase in the total number of businesses.

This apparent contradiction could potentially be explained through two reasons.

1. Workers who were previously self-employed may have instead registered themselves as a micro organisation.
2. The number of large businesses in the sector has fallen by nearly one third in the past decade, resulting in a substantial loss in workforce numbers.

A.5 Commercial mailing lists

Where these once proved useful to ascertain a good idea of numbers in industries or occupations, nowadays there are so many means by which businesses and individuals can choose not to have their phone number, contact details, or financial details registered, these mailing lists have become a very clear underestimate.

National databases such as FAME or MINT that are run on the basis of regular updating and are linked to other sources, such as Companies House, are more reliable sources but also rely on SIC codes to classify businesses. FAME currently holds 60,218 businesses registered to SIC code 43210.

A.6 Other research reports and surveys

The National Careers Service provides some further indications of the sector size with information on the electricians and electrical fitters job group. It sources data from the LMI

for All 2020 publication (a portal for high quality LMI funded by the Department for Education).¹⁹ It estimates a total of **173,000** electrical trades and installation workers across all trades in 2020, including specialised construction (78,500), construction (44,200) and retail trade (8,800), with a projected decrease of 15,700 by 2027.²⁰

A.7 Certification bodies/trade association membership

The Electrotechnical Certification Scheme (ECS)²¹ has over 175,000 valid cards in circulation, which may suggest a penetration of at least 60% of those working in electrical installation companies. This is an increase from 161,000 valid cards in 2018/19.

Meanwhile, the Electrical Contractors' Association (ECA) has nearly 2,500 Member businesses, ranging from SMEs to large, nationwide contracting businesses.

Further to this, NICEIC assesses over 37,000 electrical businesses across the UK and has around 80,000 individual contractors registered.²²

¹⁹ For more information see: <https://www.lmiforall.org.uk/>

²⁰ See <https://nationalcareers.service.gov.uk/job-groups/5241>

²¹ ECS is owned by JIB/SJIB which accredit qualifications and experience of workers in this sector. The card is taken up by individuals.

²² For more information see: <https://niceic.com/about-us/>