



Electrical contractors: problem solvers in a fast-changing Europe

2024 Sector Report

EuropeOn Members

- Austria - Bundesinnung der Elektro-, Gebäude-, Alarm- und Kommunikationstechniker
- Belgium - Techlink
- Denmark - Tekniq Arbejdsgiverne
- England, Wales & Northern Ireland - Electrical Contractors' Association (ECA)
- Estonia - Eesti elektritööde ettevõtjate liit (EETEL)
- France - Fédération française des intégrateurs électriciens (FFIE)
- France - SERCE
- Finland - Sähkö- ja teleurakoitsijaliitto (STUL)
- Greece - Πανελλήνια Ομοσπονδία Σωματείων Εργοληπτών Ηλεκτρολόγων (POSEH)
- Germany - Zentralverband der Deutschen Elektro- und Informationstechnischen Handwerke (ZVEH)
- Iceland - Samtök rafverktaka (SART)
- Luxembourg - Fédération du Génie Technique (FGT)
- Netherlands - Techniek Nederland
- Norway - Nelfo
- Scotland - Electrical Contractors' Association of Scotland (SELECT)
- Spain (Catalonia) - Federació de Gremis d'Installadors de Catalunya (FEGICAT)
- Sweden - Föreningen Installatörsföretagen (IN.SE)
- Switzerland - EIT.swiss

About EuropeOn

EuropeOn has been the European voice of the electrical contracting industry since 1954. Electrical contractors are responsible for the electrical installations in buildings and infrastructure, enabling cities and citizens to take part in the Energy Transition. EuropeOn leads the #Skills4Climate campaign and is part of the Electrification Alliance, the Platform for E-mobility, the Forum for European Electrical Domestic Safety, and the Construction2050 Alliance, among others.

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Disclaimer

The data and figures presented in this Sector Report by EuropeOn come from an internal survey conducted among EuropeOn members in Spring 2024, except when stated otherwise.

The figures in this report have been produced with an updated and refined methodology and should not be directly compared with those in EuropeOn's 2019 Sector Report. These changes in methodology allow for more accurate and comprehensive account of the electrical contracting sector.

The scope of this report is the EU 27 member states, the United Kingdom, Switzerland, Norway and Iceland.

Visual Summary | Key Figures from the electrical contracting sector



2.7 million
professionals in the
electrical contracting
sector



420,000 companies



€ 300 Billion
annual turnover



70% of electrical contracting
companies have
less than 10 employees



1 out of 88 active
Europeans is working in
the electrical contracting
sector



Initial electrical education
lasts on average
3-4 years



Workforce shortages
are equal to **1/5** of the electrical
contracting workforce
in Germany



Close to **0%**
unemployment



81% of decarbonisation
targets for 2030 depend on
electrical contractors*



47% of accidental **fires**
in Europe have an electrical
source



132 million buildings
in Europe have obsolete
electrical installations

Visual Summary | Electrical contractors are problem solvers in a fast-changing Europe

HOW?

TACKLING CLIMATE CHANGE

Electrical contractors are Green Deal implementers

They are the last link connecting clean tech and end-users

They roll out clean electrification in all possible sectors



HELPING DURING THE COVID-19 PANDEMIC

Electrical contractors were considered an "essential service" during lockdown

They helped with the development of teleworking and contactless tech



CARING FOR AN AGEING POPULATION

Electrical contractors create a supportive environment for seniors, fostering independence and improving their quality of life



COUNTERING THE WEAPONISATION OF ENERGY IN GEOPOLITICS

With Russia's decision to use gas and oil supply to pressure European states, accelerating electrification is key to assert Europe's (energy) independence



MITIGATING GRID CONGESTION

Electrical contractors equip end-users with smart solutions to make their consumption more dynamic and flexible. They also help decongest the grid with off-grid installations



FAST-TRACKING DIGITALISATION

Enabling smart homes for individuals, implementing IT solutions for companies, upgrading public digital infrastructure, and much more



ADDRESSING THE HOUSING CRISIS

Electrical contractors integrate renewable and energy efficient technologies which lower energy consumption and bills



ANSWERING THE CRISIS OF VOCATIONS

The sector offers meaningful, permanent, local, and varied career opportunities



DELIVERING SAFE INSTALLATIONS IN A SAFE WORKING ENVIRONMENT



Ensuring the competence of electrical contractors promotes safe working environments and guarantees the safe installation and operation of electrical systems for end-users

BUILDING UP GROWTH AND COMPETITIVENESS OF EUROPEAN INDUSTRIES

Installing and maintaining sophisticated infrastructure crucial for optimising productivity, energy efficiency, and costs



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Introduction

From installers to integrators

In 2024, EuropeOn, the European association of electrical contractors, celebrates its 70th anniversary—a fitting moment to reflect on the impressive evolution of a long-standing sector that continuously undergoes transformation. What began as a trade focused primarily on wiring homes and buildings with essential lighting and electrical systems at the start of the 20th century has transformed into a modern, dynamic, and multi-faceted sector with varied expertise.

Over the years, the role of electrical contractors has expanded dramatically. They have built on their traditional expertise to now operate in a fast-evolving landscape where smart and complex electrical systems, and advanced clean technologies are the new norm. Today, electrical contractors are key players in markets as varied as 5G and fibre optic installations, net-zero solutions like solar panels, electric vehicle charging stations, and segments of the heat pump industry. Their competence also extends to automation and control systems. **Beyond installation, their role encompasses the entire lifecycle of buildings, infrastructure or industrial sites and processes, to include maintenance, operation and in some cases decommissioning.**

A distinctive aspect of electrical contractors' work is their **direct engagement with end-users.** Before the installation, they collaborate with customers at every stage—from providing tailored advice on suitable technologies to designing and planning integrated solutions. In many ways, **they can be regarded as ambassadors of the energy transition to end-users.** Post-installation, they continue to add value by overseeing the operation and maintenance of systems, for optimal performance and consumer benefits.

Electrical contractors are no longer merely installers but integrators who guarantee that all devices operate harmoniously and efficiently. For instance, they will enable consumers to reap the full benefits of their electric vehicles by charging the batteries during times of low prices and later using them to power their heat pumps when prices are highest, allowing consumers to save on energy costs all the while decarbonising their energy consumption.

This expanding expertise positions electrical contractors at the heart of several key ecosystems, from construction—which still comprises around a third of their activity—to mobility, infrastructure, industry, and digital technologies.

The sector's reach is impressive. While electrical contracting businesses vary in size, the majority are small enterprises and often individual businesses. **In Europe, the electrical contracting sector is comprised of 2.7 million professionals, 420,000 companies and generates over 300 billion euros in turnover.** Employers play a crucial role in the education of their workforce, providing for a skilled, versatile workforce in every corner of Europe.



Larger and smaller companies also make significant contributions to local economies, as explored in Chapters 1 and 3 of this report.

Finally, the diverse nature of their activities places electrical contractors and their representative associations in a central role to address Europe's pressing challenges. Chapter 2 of this report will delve further into these challenges and the sector's contributions.

EuropeOn's new report provides an up-to-date snapshot of the European electrical sector, based on a questionnaire and series of interviews with its members. It also formulates some policy asks in the context of the start of the European Parliament and Commission's new term. Finally, the report showcases 40 case studies and infographics from members and partners that will transport the readers in unexpected places, such as behind the scenes of the Paris 2024 Olympic games, in the vicinity of active volcanoes and at school, where quality education shapes the skills of competent professionals.

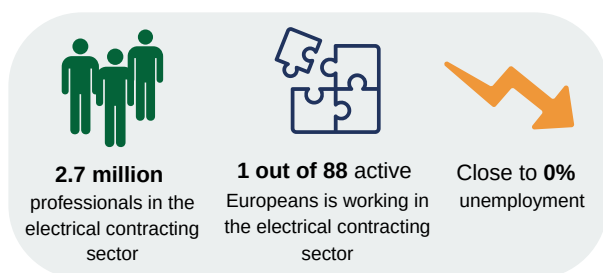
1. Electrical contractors are massive employers and training providers

The electrical contracting sector gathers many different types of proven, qualified professionals, all committed to rolling out electrification in Europe and maintaining electrical installations in the long run. Traditionally, they were active in the construction sector, including residential and commercial buildings, both for new buildings and renovations. They have now broadened their scope to encompass (electro) mobility, infrastructure, industry, digital technologies, and much more.

This diversity of activities is therefore reflected in the breadth of jobs that form the electrical contracting sector, with some of these professions overlapping. An electrical contractor can for example be an electrician (with different skillsets, depending on whether they work on low, medium and/or high voltage), a powerline technician, a clean tech installer, a project manager, an electrical engineer, an automation expert, an electromechanics, an expert in industrial maintenance, a manager in Building Information Modelling (BIM), and so much more.

Roles are also varied, depending on whether their core activity is related to installation, project management and planning, supervision, system integration, etc.

A bright force of electricians in Europe



Altogether, there are currently 2.7 million professionals working in the electrical contracting sector across Europe. This figure aggregates business owners and employees, including apprentices.

As showcased later in the report, a sizable portion of electrical contractors are self-employed or run small businesses with few employees.

2.7 million professionals is an impressive figure, but it is even more striking compared to the European working population: 1 out of 88 active Europeans is working in this sector. Most of this report's readers probably know someone working in electrical contracting!

The new methodology used in this report has also been applied to the data collected from EuropeOn members in the previous Sector Report (2019). The comparison of 2024 and 2019 figures shows that the number of electrical contracting professionals rose by 3.8% in 5 years. What appears to be moderate growth is made even less impactful by the fact that the entire working age population in EU 27 + the UK, Switzerland, Norway and Iceland also rose by 3.8% over the same period.

In conclusion, the growth of the electrical contracting workforce has kept pace with that of the overall working-age population in Europe. However, this rate of increase falls short when measured against the rapidly expanding markets and rising expectations for the sector resulting from energy and climate policy.

The electrical contracting sector not only provides employment opportunities to millions of workers across Europe, it also bears a significant responsibility in the education of the workforce, surpassing the commitment typically found in other sectors.

SAM'S JOURNEY AS AN ELECTRICIAN

16 YEARS OLD



Starts education & apprenticeship

Acquires theory & practice
"Earn as you learn" with paid apprenticeship

19 YEARS OLD



Finishes studies

1st job in an electrical contracting company right after graduation

25 YEARS OLD



Becomes project manager

Gets more responsibilities

30 YEARS OLD



Opens own business

From an individual company to an SME of less than 10 employees & apprentices

40 YEARS OLD



The business grows further

Buys companies, develops new branches, or get acquired by a larger company

55 YEARS OLD



Shares experience as a mentor

Joins mentoring initiatives, speaks at schools, gets more active in trade associations



Keeps on up-skilling with lifelong learning

Acquires new skills, both technical (clean technologies, industrial segment...) and managerial

This timeline illustrates the career journey of Sam, a fictional electrician. Each electrician's career path is unique, shaped by the upskilling courses they pursue, their preference for entrepreneurship or advancement within a larger company. Some electrical contractors may start their own business in their 20s, while others do so later in their careers, or never. Similarly, some professionals remain within a single market segment, while others branch out into multiple areas. Electricians' careers are highly adaptable, offering diverse opportunities for individuals at all stages.

The electrical contracting sector's contribution to apprenticeships and youth employment



Initial electrical education
lasts on average
3-4 years

Electrical contractors' initial education lasts on average 3 to 4 years and can be complemented with specialisation degrees. Apprenticeships (or equivalent) are in most cases the first step of the educational path to work in the sector. Among the companies represented within EuropeOn members, the share of apprentices can reach as high as 30% of the entire workforce.

They provide young professionals a first tangible outlook at their work field, as they juggle between theoretical education at school and a training in a company. Electrical apprenticeships are among the longest apprenticeships provided to applicants, when compared to other technical curricula. The first thing they learn is to work in safe conditions, as electricity and construction sites can be dangerous. **It requires electrical contracting companies to take on applicants to train them on-site.** Whenever possible, these apprentices are later on hired by their apprenticeship mentor.

Merits of a thorough technical education, and the disillusion of “six-week wonders” (Scotland) [1]

SELECT Managing Director Alan Wilson has warned against the rising trend of “six-week wonders” who are trying to enter the electrical industry after taking just a short course in basic skills.

In a hard-hitting interview, Alan dismissed the spread of fast-track courses and said people with inadequate training and experience pose a safety risk to both the electrical sector and consumers. *“You can't become a doctor or a nurse in six weeks – experience and training are vital. Even after a four-year apprenticeship and a final assessment, most employers say electricians need two to three years' experience on top of that. To imagine you can do in six weeks what real electricians are doing in six or seven years just doesn't add up. We all know how dangerous electricity can be if things aren't done properly, so proper training is key. The last thing anyone wants to do is put themselves – or any customer they carry out work for – at risk.”*

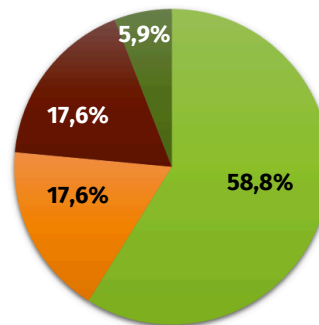
The more apprentices enrol, the more the sector can grow in the next few years. This is why the sector rejoices in the good enrolment figures of the post-Covid years. **Overall, EuropeOn members commented that the apprentice enrolment rate trend is upwards** with some noteworthy exceptions, for example in Spain and Greece.

[1] https://www.spreaker.com/user/fixradio/thomas-nagy-bradley-jones-talk-to-select_1?utm_campaign=episode-title&utm_medium=app&utm_source=widget

Associations in the electrical contracting sector are relentlessly looking for new opportunities to attract more candidates, such as during the Scottish Apprenticeship Week which is “a time when everyone can promote the benefits of work-based learning to people, employers and Scotland”[2]. Companies’ willingness to take on apprentices is key.

What is the general trend of enrolment of electrical apprentices over the past few years in your country?

■ Increasing ■ Declining
■ Stagnating ■ Other



*Results from the survey completed by EuropeOn members

Electrical contractors are key actors of youth employment. In this sector, young professionals are provided with theoretical education and a paid apprenticeship. They are also nearly guaranteed to quickly find a job once their apprenticeship is over. Besides, the sector is growing, offering versatile and fast-evolving opportunities over the time of a career.

The number of apprentices in the German electrical contracting industry further increases[3]

In 2023 in Germany, 16,134 young people entered an electrical training program – an increase of 3.9% compared to the previous year. Not only is the number of new apprentices higher than in the pre-Covid19 year 2019, it even surpasses the 2019 figure by a significant margin (15,172 new apprentices in 2019). In pandemic years such as 2020 and 2021, the number of new apprentices had declined slightly, mainly because of lacking or severely limited opportunities for contact between companies and young people in the career orientation phase (training fairs, internships, etc.).

Meeting with potential students long before considering an apprenticeship (Denmark)[4]

Some electrical contracting associations start engaging with potential apprentices long before they can apply in a company. This is the case of EuropeOn’s Danish member Tekniq Arbejdsgiverne who teamed up with other partners to open the “MakerCamp”, a vocational summer school where up to 210 young people aged 10 to 16 can spend a week exploring technical trades in a playful way.

[2] <https://europe-on.org/2024/03/03/select-launches-video-for-scottish-apprenticeship-week-to-celebrate-commitment-to-green-skills/>

[3] <https://europe-on.org/2023/04/28/members-corner-the-number-of-apprentices-in-the-german-electrical-contracting-industry-further-increases/>

[4] [Makercamp: Vejen til flere faglærte](#)

Another illustration of the electrical contracting sector's commitment for better education is their contribution to shaping curricula and apprenticeships, although the extent of their role varies depending on countries. For instance, in Germany, the Central Association of Electrical and Information Technology Contractors (ZVEH) was instrumental in the establishment of a new building systems integrator apprenticeship in 2021. The sector is in the best position to assess which new skillsets are needed in a fast-evolving environment and which competences have to be acquired by the next generation of professionals.

Germany's new "building systems integrator apprenticeship" [5]

In 2021, a new apprenticeship, designed by the German Central Association of Electrical and Information Technology Contractors, emerged: Elektroniker/-in für Gebäudesystemintegration, or building systems integrator.

The core motivation to set up a new apprenticeship came from the growing demand for smart home applications and the observation that building technologies are increasingly interconnected, requiring integration skills. It was also seen as a way to attract a new profile of qualified electricians who would aspire to work in interdisciplinary areas related to challenges such as digitalisation, climate change mitigation and adaptation, smart living, data analysis, and so on.

So far so good. The first year, this new apprenticeship attracted 131 entrants. 153 new students arrived in 2022 and 173 in 2023!

Further, trade associations do their utmost to avoid dropouts at school and ensure that workers employed in the sector get their full education.

Leaving no one behind: flexible education for workers (Iceland)

To address the issue of electrical workers who could not complete their education, the Icelandic association of electrical contractors SART has partnered with a vocational education and training centre to develop a new project-based educational pathway. This curriculum targets workers over the age of 25 who are employed by electrical contracting companies within SART, but never finished their training. This program, focused on distance-learning methods, offers great flexibility for workers who need to accommodate their studies to their full-time job.

This program allows students to complete their education and work towards certification thanks to a final exam.

[5] <https://europe-on.org/2023/04/28/members-corner-the-number-of-apprentices-in-the-german-electrical-contracting-industry-further-increases/>

The electrical contracting sector's contribution to lifelong learning and up-skilling

Electrical contracting associations design trainings or fund training centres that their member companies can tap into to up-skill their workforce. New courses are created or updated every year, so that employees and business owners can keep up with technological developments and grow their workforce's managerial and non-technical skills as well.



Close to **0%**
unemployment

With electrical contractors' expertise being indispensable for so many economic activities, the sector knows virtually no unemployment. Actually, most apprentices sign a job contract even before graduating. This is of course a strong argument in awareness campaigns led by the sector.

Surveying European electrical contractors' contribution to training their workforce: a closer look at the EU-funded project EQF elec

Between 2022 and 2024, EuropeOn took part in an EU project funded under Erasmus+ called "EQF elec[6]", aiming to set up an optional reference framework for electrical skills. Within this project, EuropeOn has surveyed its members and sector to take stock of the current situation regarding skills requirements, availability, demand and training practices across Europe.

Electrical contractors have an important responsibility to train newcomers and youth by taking on apprentices. The survey shows that "peer-to-peer" training is the second-most common type of training workers receive. Dual education (involving apprenticeships) is the most commonly available type of education. Further, surveyed electrical contracting companies have an average of 29% of apprentices among their workforce.

When it comes to lifelong learning, most countries do not have an obligation for companies to train their employees. Out of the 15 countries surveyed, only 3 have a legal obligation to do so. Yet, thousands of employees are trained every year and 96% of surveyed contractors claimed to train their workers.

Trainings reflect the commitment of contractors to keep up with the fast-paced innovation in clean technologies. Indeed, the survey showed that the most popular upskilling courses revolve around solar PV, EV charging, heat pumps and battery storage. However, safety remains a top skill for workers and an important point of attention for employers.

[6] <https://europe-on.org/2024/06/28/positive-feedback-at-the-final-efq-elec-project-workshop/>

Further, while the survey also shows that the cost (time and money) of upskilling is a clear obstacle for many companies, it appears that employers bear the costs of paid trainings in a majority of cases.

A dynamic and publicly funded approach to up-skilling: higher VET in Sweden

"Higher VET" (Vocational Education and Training) refers to advanced technical education that goes beyond initial training levels. Sweden's Higher VET system, locally known as "Yrkeshögskolan", is provided in educational institutions such as INSU, located in Nyköping, a few minutes' drive from Stockholm.

One of the core strengths of Swedish Higher VET is its close collaboration with industries, ensuring that curricula align with industry needs and current trends. These programs are typically at the post-secondary level and can last up to three years. They are heavily focused on work-based learning, with a significant portion of time dedicated to practical training in real work environments.

Programs are designed to be flexible and accessible to cater to diverse learners, including young adults, working professionals seeking further qualifications, and individuals re-entering the workforce. Many programs offer part-time and distance learning options to accommodate various life circumstances, enabling people to up-skill or re-skill throughout their careers.

Additionally, Swedish Higher VET can serve as a stepping stone to further higher education. Some credits earned in Higher VET may be transferable to university-level programs, providing a pathway for students who wish to pursue further education.

Swedish Higher VET is publicly funded, making it accessible to students without the burden of high tuition costs.

Always looking for more bright minds to train and recruit

However, there is another side of the coin. The near-zero unemployment rate does not only reveal the dynamism and high-demand for electrical services, **it also brings to light the substantial workforce shortages faced by the sector.** There are many roots to this worrying situation: a general tendency to over-value academia compared to technical education, retirement of the “baby boomer” generation, lack of investment in technical schools, obsolete curricula, lack of predictability from policymakers regarding the deployment targets for clean tech, etc. This report does not provide aggregated data on the level of vacancies in Europe. However, **all EuropeOn member associations mentioned workforce shortages as a top concern for their companies. Some national associations, such as in Germany, estimate that the workforce could be at least 1/5th larger compared to current numbers in order to address today’s market demand.**

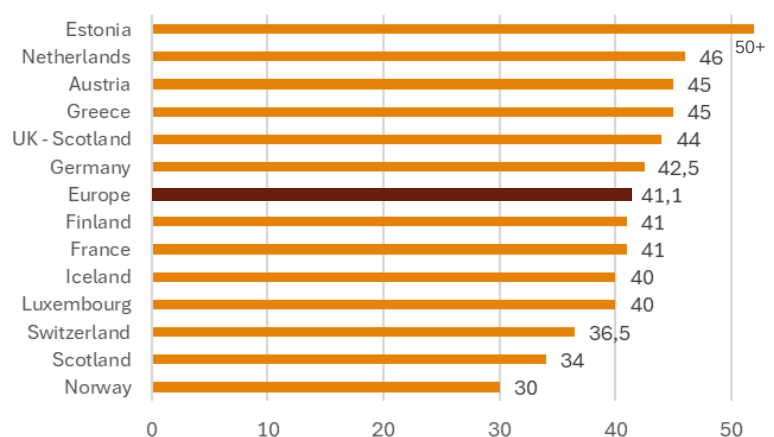


Workforce shortages
are equal to **1/5** of the electrical contracting workforce in Germany



Courtesy of ECA

AVERAGE AGE OF AN ELECTRICIAN IN EACH COUNTRY



Data provided by EuropeOn members

Moreover, another challenge arises when considering workforce shortages: how can the sector improve gender diversity? In OECD countries, 72% of “green jobs” are held by men[7]. This analysis encompasses all types of jobs, not just technical ones where the share of women is lower. Even in Sweden, which is known for higher levels of gender equality, there were 32,543 male electricians (97.6%) but only 790 female electricians (2.4%)[8] in 2020. Germany reports comparable figures for apprentices: 2.5% of all electrical apprentices were women in 2021; in 2023, 2.8% of the new apprentices were women[9].

[7] <https://www.oecd-ilibrary.org/sites/302d43f1-en/index.html?itemId=/content/component/302d43f1-en>

[8] <https://www.upplystsverige.se/framsteg/>

[9] [Members' Corner - The number of apprentices in the German electrical contracting industry further increases - EuropeOn \(europe-on.org\)](#)

Action is being taken from an HR perspective (e.g. re-defining work/life balance, providing attractive maternity leave policies) or in more informal ways (e.g. employers talking to their peers about the benefits of hiring more diverse employees[10], setting up women-to-women mentoring). EuropeOn and their members are increasingly holding best practice roundtables to explore successful initiatives and work on measures and policies that can turn the tables. However, it all comes down to training more female applicants through VET. Highlighting women and diverse profiles in communication campaigns also effectively promotes inclusion[11].

With the energy transition, the need for skilled workers in the electrical trades is growing (Germany)[12]

As of autumn 2023, 96,580 skilled workers in electrical trades are missing. This applies not only to apprentices and workers, but also to highly qualified workers and master craftsmen. The increasing need for skilled workers is a typical characteristic of a growing industry, boosted by the energy transition, rapid electrification and digitisation.

This was the result of an analysis by the Central Association of German Electrical and Information Technology Crafts (ZVEH), which was prepared on the basis of the results of the ZVEH economic survey from autumn 2023 and the data from the craft census of the Federal Statistical Office. Fortunately, the industry has been able to attract increasing numbers of trainees (2022: 45,967/+ 0.3%) and employees (2022: 527,354/+ 1.8%). However, the cohort of available employees is inevitably decreasing due to demographic developments, making further growth more difficult. In addition, with increasing electrification as a result of the energy transition, the fields of activity of electrical contractors, the largest climate profession, are growing.

Interestingly, this increasing number of vacancies is also characterised by a growing demand for highly qualified employees. While there was only an increase in vacancies for highly qualified workers between 2021 and 2022 from 21,447 to 21,662, there is already a significantly higher demand in 2023 with 24,755 vacancies. For master craftsmen, the number of vacancies was 5,820 in 2021, and 6,038 in 2022. By the end of 2023, 6,596 vacancies had already been advertised.

[10] <https://europe-on.org/2022/05/02/members-corner-danish-installers-are-looking-for-more-female-employees/>

[11] EuropeOn (2024): The Makers of Tomorrow: Setting up the framework for attractiveness campaigns: <https://europe-on.org/wp-content/uploads/2024/05/The-Makers-of-Tomorrow.pdf>

[12] <https://www.zveh.de/news/detailansicht/e-handwerke-bedarf-an-hoehere-qualifizierten-fachkraefte-steigt.html>

2. Electrical contractors provide solutions for all types of challenges

You can ask any electrician what they prefer about their job. The most likely answer will be: “I love it when I press a button and the building comes to life, because I know I just solved a problem”. One switch at a time, electrical contractors spark solutions for many of the key challenges of our time.

Tackling climate change with electrification and energy efficiency

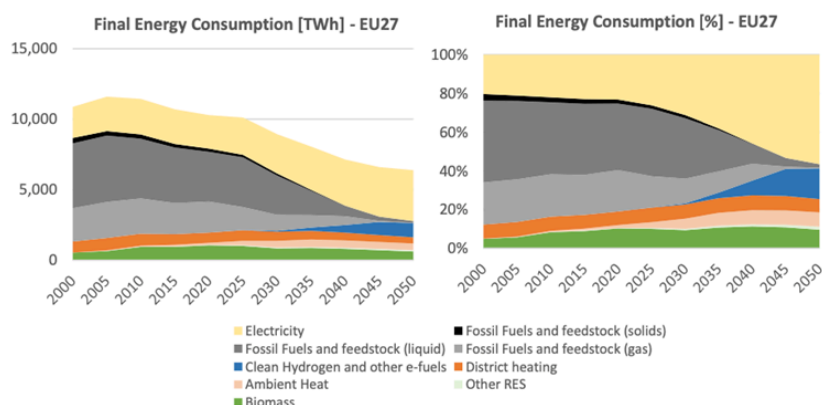


81% of decarbonisation targets for 2030 depend on electrical contractors*

Electrical contractors are the last link bringing clean tech to end-users. This is probably the most expected contribution of the electrical contracting sector to a European continent faced with crises. They help end-users access services and technologies that run on clean and efficient electricity. When replacing a fossil fuel boiler with a heat pump, when installing a charging point for an electric car (possibly consuming electricity produced by nearby solar panels), they set electrification and decarbonisation in motion.

Following the **European Green Deal and the targets it set for all EU countries, electrical contractors view themselves as the “Green Deal Implementers” who are turning laws into tangible progress. Their role will undoubtedly also be critical for the Clean Industrial Deal.**

Figure 1-2 Final energy consumption broken down in different energy carriers. Shown in (a) absolute values (TWh) and (b) relative shares (%)



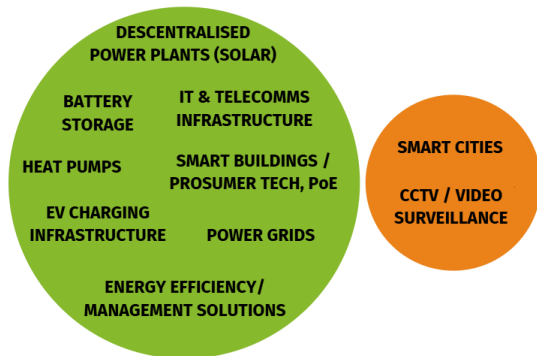
Source: Stylised projections based on 2040 Climate target plan. SWD (2024) 63 final

EU publication: *Study on promoting energy system integration through the increased role of renewable electricity, decentralised assets and hydrogen.* [13]

*Assessment conducted in Denmark

[13] <https://op.europa.eu/publication-detail/-/publication/316e479f-39b1-11ef-87a1-01aa75ed71a1>

Trends in clean energy technologies

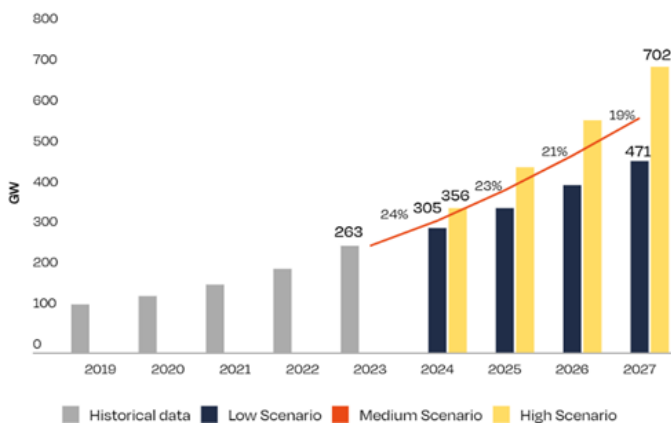


Which of the following technologies is going to grow, remain stable, or decline in the next 5 years for our sector?

- Grow
- Remain stable

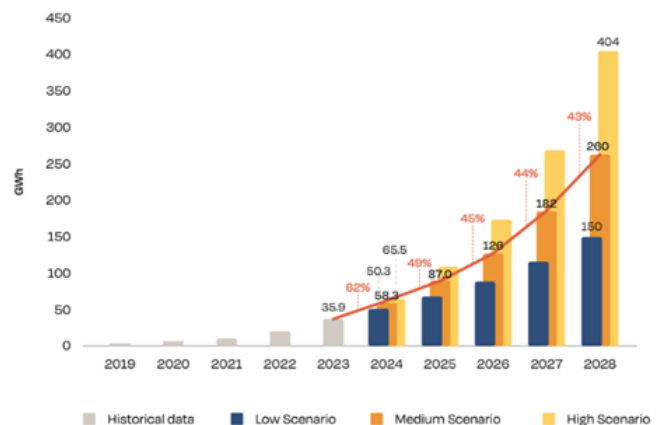
*Results from the survey completed by EuropeOn members

EU Cumulative Solar PV market scenarios 2024-2027



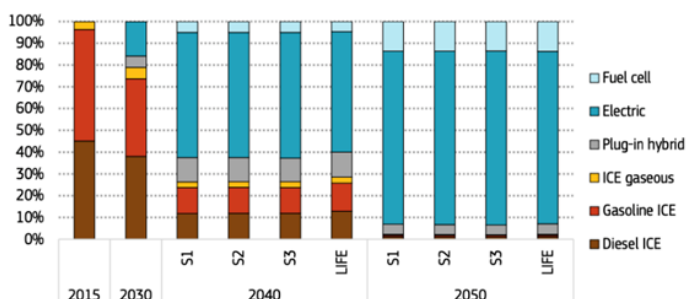
SolarPower Europe (2023): EU Market Outlook for Solar Power 2023-2027 [14]

FIGURE 28 EUROPE CUMULATIVE BATTERY STORAGE INSTALLED CAPACITY SCENARIOS 2024-2028



SolarPower Europe (2024): European Market Outlook for Battery Storage 2024-2028 [15]

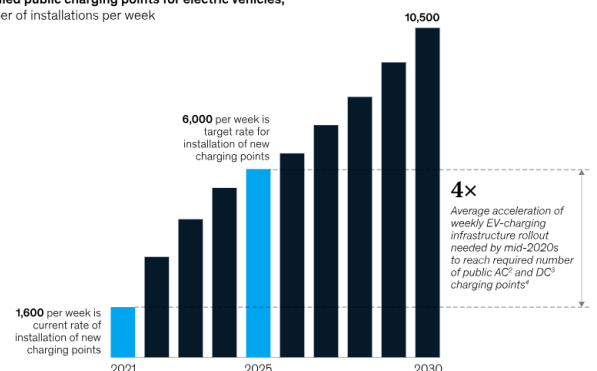
Figure 67: Distribution of the EU passenger car stock per type of drivetrain



European Commission (2024): Impact assessment on a 2040 Climate Target SWD/2024/63 [16]

The pace of public-charger installations in Europe must quadruple by 2025.

Installed public charging points for electric vehicles,¹ number of installations per week



¹Target rate reflects utilization-oriented scenario described in the European Automobile Manufacturers' Association (ACEA) report.
²Alternating current.
³Direct current.
⁴470 weeks left until end of 2030 and some 3 million public charging points to be installed.
Source: European Alternative Fuels Observatory; national transport and mobility organizations; McKinsey EV charging-infrastructure model

McKinsey (2022) Europe's EV opportunity—and the charging infrastructure needed to meet it [17]

[14] <https://www.solarpowereurope.org/insights/outlooks/eu-market-outlook-for-solar-power-2023-2027/detail>

[15] https://api.solarpowereurope.org/uploads/1424_SPE_BESS_report_12_mr_84bdb6c5ae.pdf

[16] European Commission (SWD/2024/62) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52024SC0063>

[17] <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/europes-ev-opportunity-and-the-charging-infrastructure-needed-to-meet-it>

81% of Denmark's decarbonisation targets for 2030 depend on electrical contractors

A recent report by Valcon consultancy^[18] shows that the electricity industry can contribute to as much as 81% of the CO2 reductions required by the Danish Parliament, in order to cut emissions by 70% compared to the level in 1990.

This equals 18.6 million of avoided CO2 emissions. To take up this challenge, electrification and optimisation of transport, agriculture, buildings and industry are a priority.

German electricians are bringing heat pumps, photovoltaic and electro-mobility to end-users [19]

In 2023, electrical contractors in Germany were involved in the installation of:

- 70,000 heat pumps (60,000 in 2022)
- 550,000 PV systems (220,000 in 2022)
- 442,000 EV charging points (600,000 in 2022).

In 2023, electrical contractors were involved in the installation of around 70,000 water-based heat pump installations – 57,000 air-to-water, 11,000 brine-to-water and 1,500 water-to-water heat pumps – according to calculations by ZVEH (Central Association of German Electrical and Information Technology Crafts). In addition, electrical contractors installed a substantial number of air-to-air heat pumps last year.

Of the 7.3 gigawatts of PV capacity installed in 2022 according to BSW Solar, 3.87 GW, or more than half of the installed PV capacity, comes from systems which involved electrical contractors. Thanks to these new PV systems, approximately 2 to 2.5 million tons of greenhouse gases could be saved. The majority of the PV systems installed by electrical contractors are rooftop systems (216,000) and, to a lesser extent, ground-mounted systems (500) or other systems (3,500). Around 50 percent of member companies are already active in this market, and the trend is rising sharply.

85 percent of German electrical contracting companies are already active in electro-mobility. They are involved with both “normal” and fast-charging stations, providing services for residential buildings, private and administrative buildings, and public parking areas. As of spring 2023, charging infrastructure installation accounted for 5% of electrical contractors' turnover.

[18] <https://www.teknik.dk/politik-analyse/analyser/baeredygtighed-og-klima/el-branchens-bidrag-til-at-naa-danmarks-klimamaalsaetninger/>

[19] [Members' Corner - Electrical contractors and climate technologies - significant contribution to the energy transition - EuropeOn \(europe-on.org\)](#)

A related and crucial aspect is sustainability. Electrical contractors work with components made of rare materials that must be used as efficiently as possible. They also actively contribute to the circular economy, for instance enabling the “right to repair”. But sustainability also applies to working ethics. As stated by Marko Utriainen, CEO of the Finnish electrical contractors’ association STUL: **“striving for high quality in installation, i.e. by doing things right first time, also contributes to having technologies that will last in the long run, sustainably.”**[20]

Electrical contracting companies are increasingly pivoting or diversifying in order to provide services and installations related to the energy transition. This has become a key market for them, on top of all their traditional missions and tasks. This trend is also accentuated by both the construction sector crisis that started in 2022, and the governments’ financial and tax-related incentives to deploy clean tech.

Are your electrical contracting businesses pivoting towards other activities. Which ones?



COMMERCIAL / TERTIARY SECTOR

RENOVATION (RESIDENTIAL & COMMERCIAL)

DIGITALISATION

REPAIR AND MAINTENANCE

INDUSTRY

*Results from the survey completed by EuropeOn members

The Port of Barcelona launches its first Onshore Power Supply for cargo ships

In July 2024, the Port of Barcelona inaugurated its first Onshore Power Supply (OPS) system, a giant electrical outlet allowing cargo ships to connect to the electrical grid. Setting up this charging point involved significant electrical work, with the installation of a 3,000-meter medium-voltage cable network to the dock, where three custom connection boxes were added.

This is the first OPS for a container terminal in a Mediterranean port, representing a major step toward the electrification of maritime transport. The installation is part of the Nexigen project, an initiative aimed at decarbonising port activities. By 2030, the port plans to electrify all cruise berths, one of the wharves, and several ferry terminals.

Paris 2024 Olympic Games: gold medal for clean electrification and energy efficiency

Lighting the stadiums, welcoming spectators, timing the athletes, broadcasting their sporting achievements around the world... for all of this, energy supply is essential. The 2024 Paris Olympics have set the ideal playground for EuropeOn's French members to prove that the Olympic Games could fully rely on renewable electricity and trigger a reflection on curbing the carbon footprint of big events.

Reducing energy consumption

In both the existing stadiums and the Olympics' temporary venues, the lighting systems installed or replaced focused on LED technology, delivering an 80% reduction compared to standard lighting.

Connecting all the Olympic Games' venues to the electricity network

To avoid any risk of power cuts, many stadiums usually rely on (diesel) generators. For the 2024 Paris Olympics, a different approach was chosen, focused on setting up supplies through the public electricity network. This required existing connections to be linked up or secured for all the sports venues and facilities welcoming spectators. Overall, the organisers estimate that the event produced 80% less energy-related carbon emissions compared to a "standard" model for sports events using diesel generators.



During the Olympics, a photovoltaic carport, over nearly 1,000m², was set up at the bus station and supplied the international delegations' reception centre with self-generated electricity.

Sourcing renewable energy

To supply the venues connected to the electricity distribution network, the organisers of the Olympic Games chose 100% renewable electricity generated in France, sourced from 6 wind farms and 2 solar farms. The French utility supplied the same quantity of electricity to the network as that consumed by the Olympics' venues. This approach is the first of its kind in the history of the Olympics.

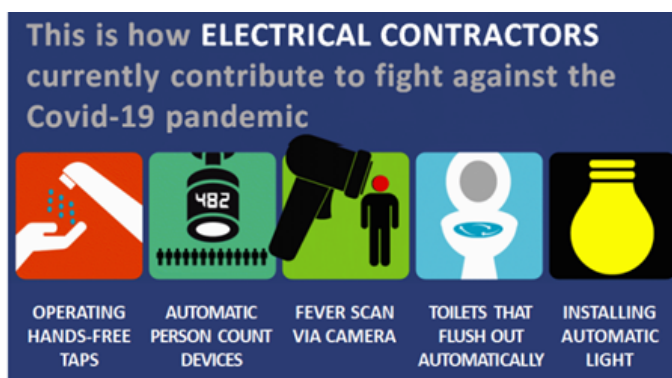
Electrical contractors support the Norwegian government in establishing programs to electrify the transport sector—such as introducing electric city buses [21]

The transport sector currently produces about one-third of Norway's greenhouse gas emissions. Until now, the government mainly relied on CO₂ taxes and biofuel requirements to reduce emissions, but more targeted actions are needed. Transitioning to electric vehicles is crucial for decarbonising transportation and achieving climate goals.

With this target in mind, the government has, in recent years, introduced requirements for public purchases of electric vehicles, affecting passenger cars, vans, ferries, and express boats. While electric city bus requirements were initially planned for 2025, the Ministry of Transport has requested an earlier start in 2024. This change will have a significant impact: for each diesel bus replaced with an electric one, CO₂ emissions are reduced by approximately 50 tons per year.

Maintaining an essential service in pandemics and supply chain disruptions

At the start of the Covid-19 pandemic, most European countries implemented lockdowns that put a halt on many economic activities. Due to the importance of their work, **electrical contractors were usually considered an “essential service”** and were authorised to continue working, with strict guidelines to avoid spreading the virus.



Courtesy of *Tekniq Arbejdsgiverne* (2020)

At EuropeOn, these extraordinary times led to the release of a report on *Business Opportunities since Covid-19*[22]. It has become clear that electrical contractors have an important role to play in helping workers and administrations **develop teleworking, e.g. by bringing fibre optics to their homes, ultimately mainstreaming digitalisation.**

They also provide **contactless technologies** that are critical for all sorts of buildings with extensive social interactions. Contactless technologies remain relevant even after Covid-19, for example to slow down seasonal flu or, simply to improve energy efficiency (making sure lights in a building do not stay on all night). Some companies are exploring innovations such as germicidal UV lights.

[21] <https://www.vegvesen.no/fag/fokusomrader/baerekraftig-mobilitet/nullutslippsmalene/>

[22] <https://europe-on.org/wp-content/uploads/2021/04/EuropeOn-Business-Opportunities-since-Covid19-Public-version-January.pdf>

Installers with a double hat: manufacturing and installing solar panels in Luxembourg [23]

The Covid crisis is not only a health crisis, as it unveiled Europe's dependency on international supply chains, in the medical sector and beyond. In 2020-2021, it became very difficult for electrical contractors to access solar panels and other electrical equipment.

This observation was the starting point of Solarcells, a joint project between Socom SA, an installation company in Luxembourg, and Belga Solar, a PV manufacturer based in Belgium. The first PV factory in Luxembourg was officially inaugurated in January 2024. This new entrepreneurial project is committed to manufacturing products with a low carbon footprint: most components are sourced in Europe, 95% of them will be recyclable, packaging will be reusable and does not include plastic. They also built partnerships with qualified installation companies, to provide a turnkey solution from production to installation.

Ultimately, this is a compelling example of how electrical contractors can up their game by moving up the value chain.

Countering the weaponisation of energy in geopolitics

With Russia's decision to use gas and oil supply as a mean to pressure European states, it has become obvious that accelerating electrification was paramount to assert Europe's energy independence. Electrical contractors are part of this fight, by installing and maintaining clean energy systems such as PV, EV charging points and storage.

These efforts reduce Europe's reliance on third countries' supply, diminishing the leverage they could have against Europe.

More generally looking at new war strategies, electrical contractors have a growing role in spreading digitalisation in a way that is cyber-safe (see below).

[23] <https://europe-on.org/2024/02/05/europeon-celebrates-the-launch-of-a-solar-panel-factory-in-luxembourg/>

Lumière! Helping local authorities cut their energy use and spending with efficient public lighting (France)

Public lighting can represent a large chunk of a municipality's energy costs, especially when it is based on outdated solutions. With energy costs rising, it can be tempting to cut back on public lighting to save money. However, this comes at a cost for citizens who may feel less safe at night. Besides, a darker area can appear less attractive to city dwellers.

Electrical contractors are the first point of contact for local authorities who want to address this dilemma. In 2022, at the height of the energy crisis with skyrocketing energy costs, SERCE, a EuropeOn member association from France, released a video explaining to local authorities how they can cut their costs without compromising on lighting. It emphasises the role of electrical contracting companies who are well-placed to guide their clients through the different stages of this process: feasibility studies, design, installation, operation and maintenance.

Municipalities can save up to 50%-80% of the energy allocated to public lighting, with modern lighting solutions such as LEDs but also automation and control systems or even motion sensors.

On top of cost and energy savings, a granular adjustment of lighting (in the city centre versus a park) is also beneficial to biodiversity, which can be affected by overly intense public lighting.

[Watch the video \(in French only\) here.](#)

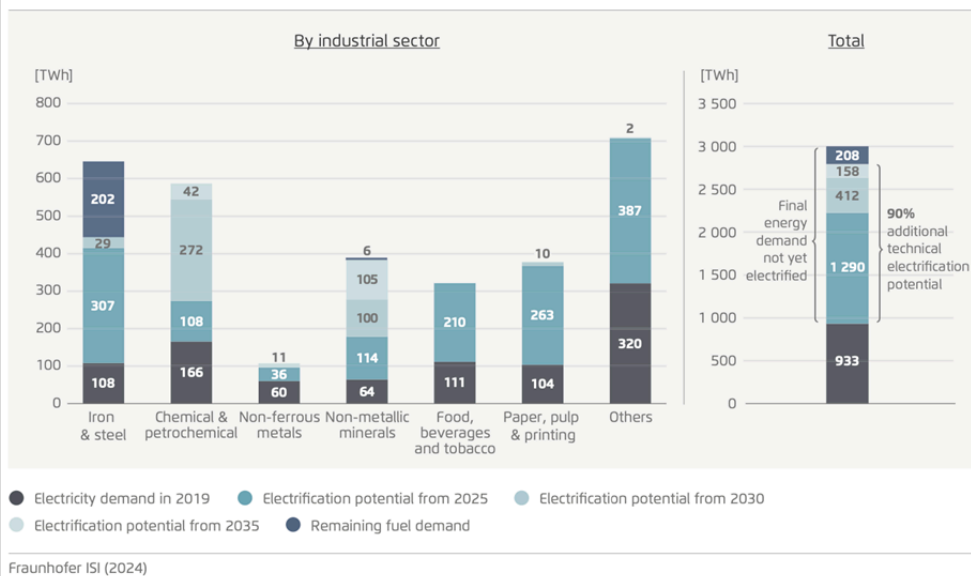
Building up growth and competitiveness for European industries

The electrical contracting sector can pride itself for being “made in Europe” as workers are trained in Europe and they provide services in all European territories. They also have a role to play in Europe's re-industrialisation strategies.

Electrical contractors help businesses boost their competitiveness in multiple ways. They install and maintain sophisticated electrical infrastructure, such as automation systems, real-time monitoring and control, and energy-efficient lighting, which are all contributing to **reducing costs and strengthening productivity**. Through integration of renewable electricity sources like solar and wind power, coupled with storage solutions, electrical contractors make industries **less dependent on a troubled international energy market**. Ultimately, they also enable businesses to reduce their carbon footprint, comply with environmental regulations and meet corporate social responsibility goals.

Technical potentials for direct electrification in the EU-27 in 2019

→ Fig. 29



Fraunhofer ISI (2024): Direct electrification of industrial process heat. An assessment of technologies, potentials and future prospects for the EU. Study on behalf of Agora Industry [24]

Carbon-neutral manufacturing thanks to electrification (Finland) [25]

Electrification and electric devices are efficient and critical to decarbonise and integrate more renewables in our energy consumption, whether it is for buildings or industrial sites.

An ABB factory located in Porvoo, Finland has recently leveraged the potential of electrification to become carbon-neutral. This project combined digital solutions, electrification and renewable technologies to achieve its ambitious aim.

Digitalisation has enabled the facility manager to monitor energy flows, report on energy consumption as well as the cost and carbon footprint of the site. Further, the lighting system has also benefited from the retrofit and assures energy efficiency via constant lighting and presence dependent control.

When it comes to renewables, the factory hosts a 375kW ground-mounted PV system that is able to reduce emissions by 636 tons of CO₂ per year. Further, 93% of the building's heating has been electrified, and energy efficiency has improved by 21%.

This factory can now manufacture electrical equipment in a carbon-neutral way, and close to its local customers, which is seen as a great business value for its customers and partners in the future.

[24] https://www.agora-industry.org/fileadmin/Projects/2023/2023-20_IND_Electrification_Industrial_Heat/A-IND_329_04_Electrification_Industrial_Heat_WEB.pdf

[25] <https://stories.abb.com/electrification-power-of-together-porvoo/the-solution>

Growing Sweden's position in the submarine cables manufacturing market

Karlskrona is a city in southern Sweden which is home to one of the world's largest facilities for the production of submarine cables. The factory, which is operated using 100-percent green electricity, has expanded its production with, among other things, a new tower, the "NKT Lighthouse", which is Sweden's third highest.

Assemblin, a company member of the Swedish association of electrical and mechanical contractors, Installatörsföretagen, has conducted a multi-technical assignment at the factory. Their assignments include design and installation work in electricity, telecommunications, data and security, heating and sanitation, automation, ventilation and cooling.

The whole extension project is estimated to cost around 1 billion euros and will make the factory the world's largest production facility of its kind, when it goes into operation in 2027.

Addressing the housing crisis and inflation



47% of accidental fires
in Europe have an electrical
source



132 million buildings
in Europe have obsolete
electrical installations

In recent years, Europe has faced a growing housing crisis, characterised by high costs and substandard living conditions, leading to energy poverty, adverse effects on health and well-being, and rising safety risks. This is likely to have prompted the President of the European Commission, Ursula von der Leyen, to announce a European Affordable Housing Plan.

Electrical contractors help tackle high energy prices and the housing crisis by integrating smart and efficient technologies which **lower energy consumption and bills**. With the installation of solar panels and home battery storage systems, contractors enable homeowners to **shield themselves from external price fluctuations and access cheaper electricity**.

Furthermore, electrical contractors are trained to competently retrofit, maintain and install electrical systems that **meet safety standards**. With almost half of accidental fires in Europe having an electrical source, the electrification of buildings must be carried out by fully qualified professionals[26]. EuropeOn is part of the Forum for European Electrical Domestic Safety (FEEDS) which estimated that 132 million buildings in Europe have electrical installations that are considered obsolete, meaning they have not been renovated since 1990[27]. **Having a sufficient workforce with the right skills is also paramount to ensure the safety of buildings and their occupants.**

[26] <https://feedsnet.org/wp-content/uploads/2023/01/FEEDS-accidental-fires-202104.pdf>

[27] <https://feedsnet.org/what-we-are/>

Energy poverty and fire risk [28] (Europe)

The Forum for European Electrical Domestic Safety (FEEDS) is a think-tank and a do-tank that brings together organisations aiming to improve electrical safety in dwellings, including EuropeOn. In October 2022, they released a report on energy poverty.

Energy poverty is a multi-dimensional phenomenon, caused by a combination of low-income, high energy expenses, and poor efficiency of housing, affecting 34 million Europeans (Energy Poverty Advisory Hub). In the sphere of fire safety, there is an opinion that the people living in energy poverty face a greater fire risk and so are exposed to a double penalty, but there is very little research on this topic. As a consequence, FEEDS decided to undertake research with associations working on energy poverty in 13 countries.

The report evidenced a link between lack of fire safety and energy poverty, although data and good practice remain limited. One key recommendation was to mandate free gas and electrical checks before all renovations, as this is not systematically the case over Europe. The gas or electrical upgrades must be integrated into energy renovation support, both financially (subsidies) and technically (one-stop-shops and other technical assistance). For renovation practitioners, there is a need for standardised training in fire risk, to include fire safety in their documentation.

Delivering safe installations, in a safe working environment

Electrical safety is paramount, as electricity poses serious risks that can be fatal for both practitioners and end-users. To maintain safety, it is essential to work with competent professionals equipped with comprehensive electrical education. These professionals must have thorough knowledge of established norms and demonstrate strict compliance with safety standards.

However, this is not always the case. In countries such as the UK or the Netherlands, anyone can claim to be an electrician, leading to sub-standard and potentially dangerous installations. Having incompetent people offering electrical services is a plague that electrical contractors' associations are striving to curb (see below).

Ensuring the competence of electrical contractors not only promotes safe working environments for practitioners but also guarantees the safe installation and operation of electrical systems for end-users. This dual focus on safety for workers and the public is essential for building trust and maintaining high standards across the industry.

[28] <https://feedsnet.org/report/energy-poverty-and-fire-risk-2022/>

The importance of skilled professionals becomes even more critical with the energy transition, as retrofitting existing buildings and infrastructures involves integrating complex new appliances with higher electrical loads. This shift requires a deeper level of expertise to manage new technologies safely and efficiently.

Moreover, as electrical contractors increasingly engage in the digitalisation of buildings and infrastructures, it is imperative that they receive training in cybersecurity.

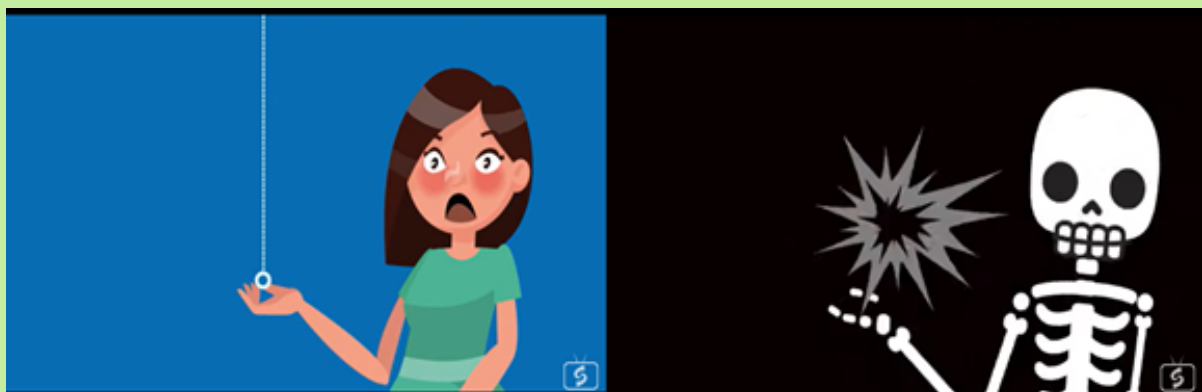
Promoting competent electrical professionals (Scotland)

SELECT, the trade association for electrical contractors in Scotland, is currently leading a long-running campaign for the regulation of the electrical industry and to have “electrician” recognised as a profession. This campaign has gathered a massive groundswell of support, with leading organisations and politicians now backing this crusade for a safer Scotland.

At present, lack of regulation means anyone can claim to be an electrician and carry out electrical work in Scotland. These unqualified individuals put the people of Scotland at risk of injury and death, through faulty electrical installation and maintenance work.

A report commissioned by SELECT estimated that the “human cost” of faulty electrical work is around £120 million per year. It also pointed out that regulation would offer an opportunity to grow the industry by attracting more aspirational entrants, where reward and reputation is enhanced and the value of an electrical apprenticeship is more widely accepted. Authors 4-Consulting cautiously estimated that the net reward to the Scottish economy of regulating the electrical industry would be £58 million.

To show the depth of support for the campaign, SELECT has created a Wall of Support which shows the politicians, surveyors, housebuilders, professional bodies and trade unions backing the crusade.



Courtesy of SELECT, see the video

Ensuring that IT installations are cybersafe (Norway)

The Norwegian association of electrical contractors, NHO Elektro, partnered with a consultancy to create a guide for their members to better master cybersecurity, both as business managers but also to provide safe IT installations to their customers.

The guide highlights the (often systemic) risks created by unverified digital interfaces and helps the reader identify vulnerabilities in IT installations.

Fast-tracking digitalisation and the rise of AI

Electrical contractors significantly advance the digital transition for individuals, companies, and administrations by installing and maintaining the necessary infrastructures.



For all end-users, their most obvious contribution is deploying fibre optics. For individuals, they enable smart homes by integrating IoT devices and automated systems that boost convenience, security, and energy efficiency. For companies, electrical contractors design and implement robust IT and data network solutions, facilitating seamless connectivity and efficient digital workflows. They set up advanced communication systems, support server installations, and ensure the integration of automation technologies, boosting productivity and enabling remote work capabilities. For administrators, electrical

contractors upgrade public infrastructure to support digital governance initiatives, including the installation of secure communication networks, smart city technologies, and energy-efficient public lighting systems. They also ensure that critical facilities, such as hospitals and schools, are equipped with reliable and advanced electrical systems to support digital services and e-learning platforms.

Norwegian electrical contractors deploying automation and AI solutions for more sustainable and efficient fish farms [29]

Norway is known to be an exporter of clean electricity but also of farmed fish. This has led local electrical contractors to develop leading solutions using digitalisation, automation and artificial intelligence (AI) to make fish farming more efficient, sustainable and profitable.

[29] [Electrical company JM Hansen facilitates the use of AI in the aquaculture industry.](#)

Electrical contracting company JM Hansen has developed the “FEED” service which combines data collection and human expertise to achieve more precise feeding of fish farms. Sensors are deployed in and around cages to collect data such as ocean currents, oxygen or salinity. This is collected by the company and cross-referenced with the data of the local meteorological institute to provide clients with turnkey analysis that enables farming companies to optimise their feeding strategy.

The FEED service enables operators to decrease waste, increase animal welfare, and has a positive effect on sustainability, the economy and the environmental impact of the farming industry.

Using robots to curb labour shortages (Denmark) [30]

In Denmark, the shortage of electricians compounded with the ongoing surge in demand for electrical work needed to meet climate and energy targets has led Tekniq Arbejdsgiverne, the main trade association for electrical contractors, to look for out-of-the-box solutions. They have partnered with the relevant union to commission a study looking into how automation and robotics can help bridge labour shortages.

The consultants conducted an analysis of over 50 tasks an electrical installer does. They found that 13 of those could benefit from automation, such as pulling cables, drilling holes or measuring and marking. Some of these are among the most wearying and draining tasks where automation could spare employees a great deal of exhaustion.

This could include using a 3D scanner and a printing robot to measure and do the markings necessary before the installation can start. Robots equipped with a powerdrill can drill holes in ceilings without the electrician having to climb on a ladder and hold the drill above his/her head.

The study found that existing automation solutions could already make up for 14% of the labour shortages expected by 2030 in the electrical field. Looking further ahead, new solutions that could be developed in the near future could address up to 70% of the expected shortage.

[30] [Denmark Eyes Automation to Address Electrician Shortage | HowToRobot](#)

Mitigating grid congestion

Electrical contractors and grid operators work closely in multiple ways. The most obvious one is notifying the grid any time an electrician connects a new appliance. But the sector has many more ways to interact and contribute to a good grid management.

And their role in mitigating grid congestion is direly needed. Indeed, electricity grids have come under scrutiny lately as rampant electrification has put ageing infrastructure under strain. This is where electrical contractors come in. While they add more balancing challenges to the grid by connecting additional (and often intermittent) clean electricity sources, they also equip end-users with smart solutions that help the latter make their consumption more dynamic and flexible. Moreover, electrical contractors help decongest the grid with off-grid installations.

Versatile partnerships with grid operators (Finland) [31]

In Finland, Caverion, a European leader in technical solutions for buildings, infrastructure and industrial sites and processes, is engaged in approximately 20 projects for Fingrid (Finland's transmission system operator). Projects include modernising substations, renewing power lines and implementing substation expansions to support the green transition and securing future transmission capability.

Alleviating grid congestion starts by getting a grip on your flexibility (Netherlands)

In the Netherlands, grid congestion is especially dire, with long waiting lists for new grid connections or reinforcements, limiting the growth of certain businesses.

While it may take years for the Dutch grid to be sufficiently reinforced, EuropeOn member Techniek Nederland has already partnered with like-minded organisations to offer an immediate solution to this issue. They have set up a new scheme, called the Grip-on-your-flex Scan. Operations of interested businesses are “scanned” to generate valuable insight into their peak power demand and energy consumption patterns.

This information is accompanied by potential corrective measures that can lower demand peaks and reduce energy consumption, such as installing an energy management system or smart charging for electric vehicles.

This Scan acts as a first contact point for businesses, who can use the generated information to get in touch with a contractor who will be able to implement the suggested corrective measures.

[31] <https://www.caverion.com/catalog/services/industry-substations/>

Thanks to this scheme, Techniek Nederland and their partners are providing businesses with an easy first step towards addressing the limits on grid capacity they may be facing, while investigating potential energy savings. A win for the business, a win for the grid and a win for the climate!

Caring for an ageing population

By 2050, the proportion of people over the age of 65 will be close to 30%, compared to around 20% today. This demographic shift toward an older population presents significant challenges, particularly for the healthcare sector, as the latter must adapt to meet growing demand for age-related services and support systems.

Electrical contractors play a crucial role in supporting aging populations by adapting homes and public spaces to enhance comfort and accessibility. Their expertise enables people to maintain autonomy for longer periods, offering an alternative to the often costly and limited availability of retirement homes. Electrical contractors also provide specialised services for residential care facilities, such as lighting control, heating regulation, and communication technologies, tailored to the needs of elderly residents. This focus on the "silver economy" — economic opportunities and activities related to the aging population — is an area of growing importance within the electrical contracting sector.

Caring for the elderly through innovation (France)

The French Federation of Integrators and Electricians (FFIE) has embarked on a reflection to develop electronic and digital solutions that can help the elderly live at home as long as possible while improving their quality of life. Solutions currently focus on:

1. Smart monitoring devices that allow remote supervision of individuals at home. These systems alert caregivers or healthcare professionals with increased responsiveness, for rapid intervention.
2. Smart home automation systems that make homes more adapted and secure facilitate daily tasks and reduce the risk of accidents (e.g. fall detection technologies).
3. Telehealth and remote assistance technologies, connected devices, and at-home monitoring systems that enable individuals to communicate with their doctors and receive care remotely.

Answering the crisis of vocations: making a difference with a meaningful job

Countless articles, books and testimonies have described a rising "crisis of vocations" in Europe, which can be defined as the widespread feeling of dissatisfaction and lack of purpose at work, leading individuals to re-evaluate their career paths.

Electrical professions have many assets to answer to this crisis, by **offering meaningful, permanent, and varied career opportunities**. Electrical contracting jobs allow individuals to **make a concrete difference** for people to live more comfortably at home and for companies to improve their internal processes. A growing share of their activities contribute directly to **tackling climate change** by implementing energy-efficient technologies and renewable energy solutions, giving them a sense of purpose.

In terms of career stability, **jobs in the electrical sector are long term**, as electricians will always be needed to maintain and upgrade electrical systems. The work is dynamic, dealing with fast-evolving technologies, ensuring a stimulating and varied career. These jobs also allow for **career evolution**, enabling individuals to start as apprentices and progress to managerial roles or even become business owners. Additionally, electrical contracting jobs are non-relocatable, as the work is inherently local, providing stability and the chance to contribute directly to one's community.

EuropeOn's report: "The makers of tomorrow" [32]

In Spring 2024, EuropeOn released a reported title "The Makers of Tomorrow", that collects and benchmarks attractiveness campaigns designed by EuropeOn members from England, the Netherlands, Finland, Belgium and Sweden, with a view to inform policymakers to comply with new skills-related provisions under the Energy Efficiency Directive.



[32] EuropeOn (2024): The Makers of Tomorrow: Setting up the framework for attractiveness campaigns: <https://europe-on.org/wp-content/uploads/2024/05/The-Makers-of-Tomorrow.pdf>

From the Netherlands: looking for “climate fighters”

2 examples: a testimony from a young professional, released in the press[33] and a campaign portraying installation professionals as heroes[34]



'Charging station wizard' Abdullah makes the Netherlands greener

THE MAKERS OF TOMORROW / CARRIEREMAKERS / 'CHARGING STATION WIZARD' ABDULLAH MAKES THE NETHERLANDS GREENER

JENS HOLLIERHOEK JANUARY 16, 2024 READING TIME: 3 MINUTES

Abdullah Zineddine (22) installs charging stations at **VEBE Veiligopladen-TSG** five days a week. In this way, he helps to make the Netherlands greener. He is also studying to become an electrician. "My dream is to lead large projects."

What does a Charging Station Technician do?

"I place and install charging stations for electric cars. One day it's a wall charger at someone's home, the next day a fast charger along a highway. Or at once dozens of charging stations at companies that are going to run on electricity."

You make the Netherlands emission-free?

"Exactly. I am helping to build a network that will make the Netherlands more sustainable. That gives me a good feeling."



[33] <https://demakersvanmorgen.com/laadpaalwizad-abdullah-maakt-nederland-groener/>

[34] <https://jekuntzoveelmeerindetechniek.nl/>

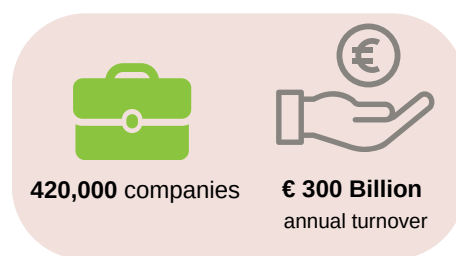
3. Electrical contractors are local growth enablers

After looking at European (if not global) challenges partly addressed by the electrical contracting sector, it is time to zoom in on the local level. Across Europe's regions, small communities, and sometimes remote territories, a myriad of contractors contributes to keep local economies thriving.

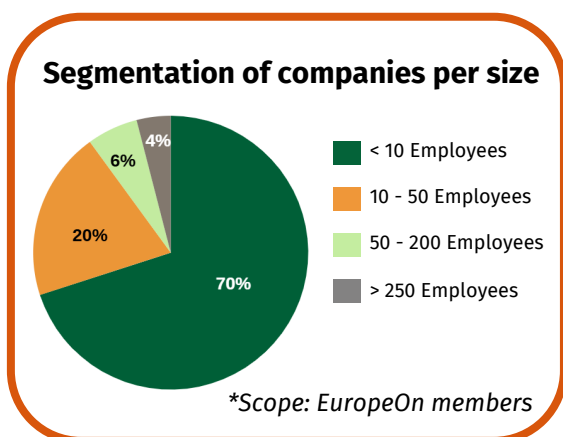
“Your local electrician” everywhere across Europe

With 2.7 million professionals spread across 420,000 companies, electrical contractors also generate growth in every corner of Europe. Altogether, their turnover for 2023 is estimated to reach over 300 billion euros.

These aggregates do not do justice to the variety of sizes of projects and companies behind it. Some electrical contractors fix the heating system of a single-family home in wintertime, others light heritage buildings in downtown Helsinki[35] or power famous British pop band Coldplay[36].



Most often, electrical contracting companies are small enterprises. Segmentation of course varies from one country to the next. It is worth mentioning that in France, Spain, and Estonia, the share of companies below 10 employees is up to 90%. It is also quite frequent to find individual businesses, or self-employed professionals. At the other end of the spectrum, the Netherlands appears as an exception with 44% of companies being large companies of over 250 employees.



Electrical businesses play a key role in local economies and communities providing essential services that must be made accessible to even remote areas. They also bring the benefits of the energy transition everywhere across Europe. By doing so, they contribute to maintaining small communities. They also play a role through the multiplier effect: your “local electrician” spends money on housing, food, and services, benefiting other local businesses. They can also attract new businesses such as retail stores or tech firms.

[35] <https://www.lsk.fi/hotelli-tornin-julkisivuvaistatus-palkittiin-vuoden-2023-ulkovaistatuskohteena/>

[36] <https://installtomorrow.be/fr/juul/>

From the perspective of local administrations, electrical work partly turns into tax revenue that funds public services. They provide local employment which is not seasonal. Electrical contractors can also become local ambassadors of their sector, speaking at schools and contributing to local communities' activities.

Here are some examples from France, showing the great diversity of companies in the sector:

3 examples of electrical companies in France:

SHIERER & JUNG Electricité

Strasbourg (Grand Est region)

Founded in 1927

CEO: Mrs. Cathie Meppiel

5 employees, including 1 apprentice

Segments: residential and tertiary buildings, small industries

- Renovation & maintenance of electrical installations

- Home automation

- Installation of heating & cooling systems

- Compliance of electrical systems

- CCTV

- ...

Mrs. Cathie Meppiel took over the management of this family-owned business in the 1990s. She is also involved in local electrical trade and construction associations and is part of the Bureau of the French Federation of Integrators and Electricians (FFIE) where she chairs the committee on jobs and skills.

SVEG

Vannes (Brittany)

Founded in 1972

CEO: Mr. Stéphane Lelièvre

151 employees

Segments: SVEG is a company comprised of 4 branches:

- Electricity (including renewables) and HVAC in residential buildings

- Electricity (including renewables) and HVAC in tertiary and public buildings

- Electricity and automation for industries (including agribusiness)

- Telecoms

The company initially focused on electrical work in buildings and progressively developed new markets in telecoms, HVAC, renewables, and automation in industry. Mr. Stéphane Lelièvre is more widely active in the sector as regional delegate for the French Federation of Integrators and Electricians (FFIE).

SPIE

Cergy-Pontoise (Île-de-France)

Founded in 1900

CEO: Gauthier Louette

50,000 employees across Europe and globally

SPIE is an independent European leader in multi-technical services in the areas of energy and communications. They identified 4 key markets:

- Industry services

- Smart city

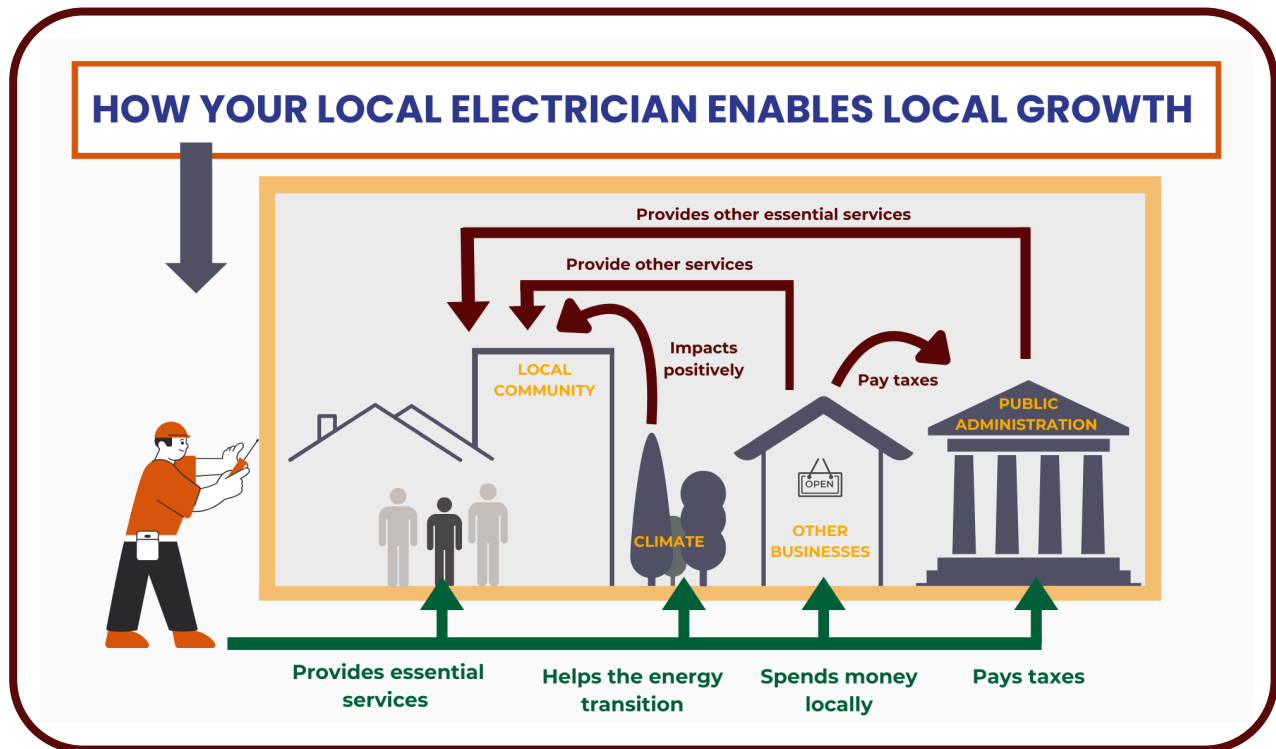
- Energy

- Efficient buildings

Example of a recent project: Maintenance of France's first offshore wind farm

Having provided support during the design, installation and onshore maintenance phases for the offshore wind farm of Saint-Nazaire (France), SPIE Industrie has entered a new contract with EDF Renewables. Its teams will be providing offshore preventive and corrective maintenance support for the electrical systems of the substation and the foundations of the 80 wind turbines at the wind farm over the next two years. Expert technicians will be recruited locally to ensure they can respond rapidly to operations while also reducing the travel-related carbon footprint.

Large electrical companies provide other benefits to territories. They are often present in an entire country, if not several, and have integrated multiple segments of their value chain to provide systemic thinking with all-inclusive offers. **Actively committed to their trade association, larger companies also play the role of front-runners, which can guide the entire sector.**



Coming back to the smaller scale, **electrical contractors' ability to provide services even in less connected territories or in challenging contexts is an invaluable support to local communities.**

GR-eco islands initiative: clean installations turning Greek islands into clean energy models

It can be challenging for islands to provide for their energy needs and especially when the idea is to switch to clean energy. When interconnections with the mainland grid are difficult, costly or polluting, locals have to find other solutions to meet their energy demand.

This is where electrical contractors step in and provide a decentralised clean energy solution, such as on the small island of Chalki in Greece. In this example, a 1MW solar PV plant was installed through a local Energy Community that ensures citizen engagement. Further, this model will also lead to significant savings on their energy bills. Local authorities on Chalki will also be equipped with 6 EVs and 4 charging stations and an electric boat itself equipped with solar panels.

As in many cases, digitalisation goes hand in hand with electrification. Chalki was also equipped with a powerful 5G network and public lighting infrastructure that uses a smart management system.

This initiative should lead to annual savings estimated at €150k-€200k, and CO2 emission reductions of 1.8 million tons per year.

Electricians battling with earthquakes and lava in isolated territories: an Icelandic testimony

Electrical contractors contribute significantly to society in various ways, and their roles in Iceland are especially multifaceted, given the country's isolation and its dramatic geological phenomena, including earthquakes and volcanic eruptions.



Repairing the fibre optic network in Grindavík, Iceland (courtesy of [SART](#)).

These contractors are often called upon to act either preventively or in response to seismic events. Preventive measures include the maintenance of sites vulnerable to such activity. In 2024, a review was conducted at an industrial site situated nearly directly above a previous earthquake epicentre. The inspection revealed severe, previously undetected damage to a dry-type transformer used in cooling processes. Although the transformer remained operational, it was deemed a fire hazard and required immediate attention. Electricians were able to reassemble the transformer on site, and after comprehensive offline testing, it was successfully re-energized, ensuring continuous power.

In other cases, electricians respond following geological events. The most recent example occurred when lava flows reached Grindavík, located approximately 50 kilometres from Reykjavík. During this event, a critical fibre optic communication line was severed, necessitating the swift installation of a bypass to restore connectivity.

Finally, looking at the sector's representatives, i.e. **local, regional and national associations of electrical contractors**, they also play a pivotal role in helping businesses get stronger and grow. Associations provide trainings and counselling on contract law, pension or wages, as well as up-skilling trainings, networking, etc. This support is particularly valuable to newly established companies or in times of instability, as the Covid-19 pandemic and supply chain disruptions have shown.

A growth potential hindered by workforce shortages

Big or small, electrical contracting entrepreneurs share a common observation: their business could provide much more services if they knew where to find competent people to hire. As stated by Techlink, EuropeOn's Belgian member, in their 2024 Memorandum: **"Finding new team members remains a headache for 8 out of 10 construction and installation companies, not only for specific professional profiles but also for the general skills that the sector needs. Furthermore, this "talent war" is associated with a (r)evolution in team composition and on the labour market, which is increasingly focused on digital skills (data analysis, augmented reality, cybersecurity, AI...) and requires social skills as well"**[37]. Many initiatives are launched either by companies themselves or via their national associations, to try and attract more workers to their field.



[37] https://techlink.embuild.be/sites/default/files/media/files/2024-06/Techlink - Memorandum 2024_FR.pdf

Conclusion & Policy asks

EuropeOn's new Sector Report demonstrates the pivotal role of the 2.7 million professionals working in the electrical contracting sector in shaping a sustainable, resilient, and competitive Europe. The 420,000 electrical contracting companies active in Europe sustain a large number of jobs and are a vital part of local economies across the continent. Electrical contractors contribute to the employment and education of our youth, and enable the upskilling of their current employees, fostering a skilled workforce for the future.

In a world increasingly defined by climate challenges, geopolitical tensions, and rapid technological change, electrical contractors have proven to be effective problem solvers. Their most obvious contribution to addressing crises is supporting the achievement of our climate goals, with 81% of necessary CO₂ reductions attributable to their work in Denmark, for instance[38]. Other crucial contributions range from ensuring energy security to advancing digitalisation and responding to societal needs like affordable housing and elder care. These multifaceted responsibilities illustrate the sector's adaptability and essential function in the growth and stability of Europe.

However, the sector's potential is held back in several ways that go beyond its control and require strong political action. Here are some recommendations to policymakers, both at national and, where relevant, EU level:



1. Enhance predictability with electrification policies: stable long-term policies and incentives relating to electrification are crucial for electrical contractors to confidently plan and invest in their companies and workforces. Providing predictability will allow electrical contractors to fill their role in the attainment of EU climate and energy goals, in the efficient management of resources, and will drive local growth and employment.

- To be on track with agreed decarbonisation targets, EU Member States should set a binding target to reach at least 35% electrification of final energy use by 2030. The steps to achieving such objective should be defined in the upcoming Electrification Action Plan.
- Ensure enabling factors such as pricing, taxation and primary energy factors incentivise electricity over fossil fuels.
- Avoid “stop-and-go” incentives and policies. The electrical value chain requires stability, particularly around subsidies and incentives, while “stop-and-go” policies hinder progress and discourage investments in clean technology.
- Simplify data access, interoperability of devices, open software, and cyber resilience schemes so as to foster emerging business models for smart electrification.

[38] <https://www.tekniq.dk/politik-analyse/analyser/baeredygtighed-og-klima/el-branchens-bidrag-til-at-naa-danmarks-klimamaalsaetninger/>



2. Address both the quantitative and qualitative dimensions of the shortfall of professionals: On the one hand, there are not enough people joining the sector; on the other hand, electrical installations require full skillsets and an appropriately high level of education. Indeed, an adequate understanding of electrical scientific theory and principles and demonstrable occupational competence are critical for the safe and efficient installation of technologies.

- Governments must assess the gap between available and needed workers to reach their energy and climate goals, as a first step to take corrective measures. Such an assessment must be completed by the EU Member States by the end of 2024 as required in the Energy Efficiency Directive[38]. However, this effort should be broadened beyond energy efficiency professions and should be supported by the Net Zero Industry Act's Net Zero Platform which already has a mandate to continuously assess the availability of relevant workforces.
- Actively promote technical professions and education. Technical education is too often considered as a last resort option by students and their parents. Significant regulatory and financial support must be geared toward incentives, awareness raising through large-scale attractiveness campaigns, updating education to follow market evolutions and digitalisation. These objectives can be partly met with the support of the upcoming VET (Vocational Education and Training) Strategy and dedicated EU funding.
- Strengthen labour migration policies with third countries, in cooperation with employers and workers' representatives.
- Policymakers should give priority and adequate funding to comprehensive education approaches that build long-term competencies such as apprenticeships, rather than investing in short-term fixes leading to partial skillsets.
- Predictability will also incentivise business owners to invest in upskilling their personnel in new technologies that offer long-term prospects.



3. Reduce administrative burden: Streamlining administrative processes supports companies, and even more so SMEs, so that they can focus on service quality, innovation, and workforce development. This is also true when it comes to EU grants that should become more easily accessible to smaller companies and independent workers, including with the assistance of local actors (e.g. Public Employment Services).



4. Include the electrical contracting sector in the upcoming EU Clean Industrial Deal: Recognising the critical importance of electrical contractors for the EU's industrial strategy by addressing their above-mentioned needs will ensure they are able to support the implementation of Europe's green industrial goals.

[38] EuropeOn released a comprehensive series of recommendations (2024): [https://europe-on.org/wp-content/uploads/2024/05/A-Checklist-for-Green-Workforce-Assessments .pdf](https://europe-on.org/wp-content/uploads/2024/05/A-Checklist-for-Green-Workforce-Assessments.pdf)

Annex 1

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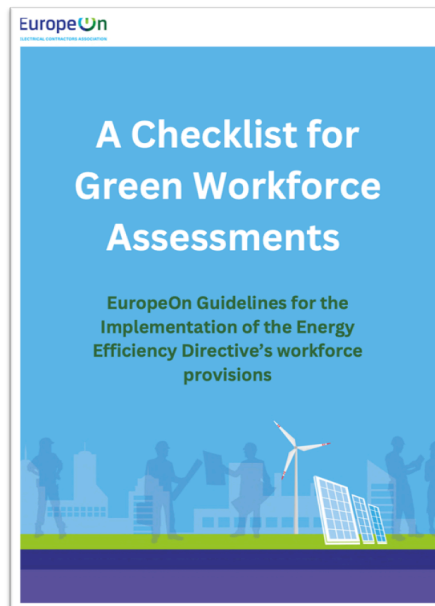
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Electrical contractors: problem solvers in a fast-changing Europe

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