



Future Skill #1

How to become an electrician apprentice

Future Skill #1: electrical and building-services trades. Includes a breakdown of plumbing, HVAC and lineworker.

Free Career Guide · startthebag.com/guide-electrician.html
Last checked 26 October 2026 · Pay is a median or rough range, never a promise.

How to become an electrician apprentice

A paid route into the trade that three growing industries all need at once. Plus a breakdown of plumbing, HVAC and lineworker: the related trades on the same path.

In 30 seconds

- Electricians are needed by the power grid and renewables, AI data centers, and EV charging all at once.
- AI risk and robot risk are both rated **low**. Robots help with layout and drilling on big new builds, not fault-finding or retrofits.
- You **earn while you learn**: in the US most electricians train through a paid 4 to 5 year apprenticeship ^[1].
- You can start the route at **15 or 16** in many places, but the most hazardous tasks wait until 18.
- Starting pay is low. Qualified electricians earn around the middle of the pay range: a US median of US\$63,190 ^[1], a UK full-time median of £40,717 ^[5].

02 • WHAT THE WORK IS

What electricians actually do

Install and wire

New homes, extensions and commercial buildings: running cable and fitting boards, sockets and lighting to the safety code.

Find faults and fix them

Diagnosing problems nobody has seen before, often in old or occupied buildings. This is the part robots can't do.

Specialize as demand grows

Solar, EV chargers, batteries and AI data centers all need electricians, on top of everyday building work.

Interested in plumbing, HVAC or power lines instead? See [Related trades on the same path](#).

03 • WHY IT HOLDS UP

Why AI and robots won't take this one soon

AI RISK

Low

Our rating, from the evidence on Future Skills

ROBOT RISK

Low

Robots take prep on big new builds, not repairs

US GROWTH, 2025-35

+9%

About 72,700 openings a year (projection) ^[11]

UK CONSTRUCTION NEED

47,860

Extra workers a year to 2029 (CITB projection) ^[15]

The hardest parts of the job to automate

- ✓ Diagnosing faults nobody has seen before
- ✓ Retrofitting old or occupied buildings
- ✓ Emergency call-outs
- ✓ Explaining the problem to a customer
- ✓ Working at height or in tight, unpredictable spaces

Where the demand comes from

- ✓ **UK:** the Clean Energy Jobs Plan targets up to 400,000 extra clean-energy jobs by 2030, with electricians among its 31 priority occupations (target) ^[16].
- ✓ **Australia:** Jobs and Skills Australia estimates about 32,000 extra electricians are needed for 2030 clean-energy targets ^[17].
- ✓ **AI data centers:** Nvidia's Jensen Huang says "hundreds of thousands" of electricians, plumbers and carpenters are needed to build them ^[18].

These are projections and targets: directions, not guarantees.

04 • WHAT IT PAYS

What it pays, by country

Medians show what the middle earns. Apprentices start well below this. Each figure is in that country's own currency, with its source. Pay for plumbers, HVAC techs and lineworkers is in [Related trades](#).

UNITED STATES

Electricians **US\$63,190**

Median, May 2025 • BLS ^[1]

Apprentices start near minimum wage. Data center pay over US\$100,000 depends on overtime and travel ^[18].

UNITED KINGDOM

Electricians **£40,717**

Full-time median, ONS ASHE 2026 provisional ^[5]

JIB electrician rates, England and Wales

Hourly, from 5 January 2026, national rate with transport provided ^[6]:

Apprentice stage 1 / 2 / 3 / 4 **£8.16 • £10.60 • £13.05 • £14.03**

Per hour

Electrician **£18.38**

Per hour

Approved Electrician **£20.08**

Per hour (about £39,200 a year at 37.5 hours, before overtime: our estimate)

Technician **£22.70**

Per hour. London rates are higher.

Minimum wage from 1 April 2026: £8.00 an hour for 16 to 17 year olds and apprentices, £10.85 at 18 to 20, £12.71 at 21+ ^[7].

CANADA

Construction electricians, national median

C\$35.00/hour

Job Bank ^[8]

Alberta

C\$38.00/hour

Job Bank ^[8]

Quebec

C\$41.30/hour

Job Bank ^[8]

Alberta apprentices

50% → 80%

Of the journeyperson rate, over 4 periods · Tradesecrets ^[38]

Check the Job Bank wage pages for your province ^[8].

AUSTRALIA

Minimum award rates for electrical apprentices who started after 1 January 2014, from 1 July 2026 ^[43]:

1st-year apprentice (didn't finish Year 12)

A\$16.39/hour

A\$622.72 a week

1st-year apprentice (finished Year 12)

A\$17.97/hour

A\$682.76 a week

4th-year apprentice

A\$26.50/hour

A\$1,006.97 a week

Adult apprentice (21+ at sign-up), 1st year

A\$25.87/hour

A\$982.95 a week

These are minimums, not medians. No reliable figure on our site yet for qualified electricians' median pay in Australia.

Your route, step by step

1

AT SCHOOL

Hands-on taster

Math, physics and a practical class or project.

2

FROM 15 OR 16

School-based or youth apprenticeship

Earn credits or wages while you finish school.

3

16 TO 18+

Paid apprenticeship

Usually 4 to 5 years of work plus classroom training.

4

QUALIFIED

Licensed or certified electrician

The rules depend on your country, state or province.

5

NEXT

Specialize

Solar, EV charging, batteries, heat pumps or data centers.

UNITED STATES

- ✓ **Registered Apprenticeship from 16.** A parent signs if you're under 18, and most hazardous work is 18+. Paid. [9]
- ✓ **4 to 5 year apprenticeship:** how most US electricians learn the trade [1].
- ✓ **Taster first:** a CTE class or a US pre-apprenticeship while you're at school.

Official places to apply and check

- ✓ Search real openings with the Apprenticeship Finder [23].
- ✓ Pre-apprenticeship on-the-job learning starts at 16 and prepares you for a Registered Apprenticeship; many link with CTE [24].
- ✓ Union route: apply to your local JATC through the Electrical Training Alliance. Typical requirements: minimum age 18, high school education and one year of high school algebra [25].
- ✓ IEC route: about 4 years with at least 8,000 on-the-job hours plus 576 classroom hours, generally for 18+ with a diploma or GED [26].
- ✓ After the apprenticeship, your state licenses journeyman electricians. Check your state's licensing board for its hours and exam.

UNITED KINGDOM

- ✓ **Apprenticeships in England from 16**, if you're not in full-time education. Paid at least £8.00 an hour from April 2026. ^[10]
- ✓ **Foundation apprenticeships (England)**: launched 1 August 2025 for ages 16 to 21, with construction among the sectors ^[19].
- ✓ **T Levels (England only)**: a two-year course after GCSEs, equal to 3 A levels, with an industry placement of usually at least 45 days. Subjects include construction and engineering.
- ✓ **WorldSkills UK** competitions from 16 (on 1 September), entered through a college or employer ^[14].
- ✓ **Scotland**: Modern Apprenticeships are paid jobs from 16. **Wales**: foundation apprenticeships for 16 to 24 in a job of at least 16 hours a week ^[21]. **Northern Ireland**: ApprenticeshipsNI needs a paid job of at least 21 hours a week, from 16 ^[22].

Official places to apply and check

- ✓ England: apply through Find an apprenticeship, from 16 if you're not in full-time education ^[28].
- ✓ The Installation and maintenance electrician standard (ST0152) is being revised, with a new version for new starts from 17 December 2026 ^[29].
- ✓ You finish with the AM2S practical assessment, run by NET ^[30], then apply for your first ECS Gold Card with your completion certificate, AM2S and Level 3 qualification ^[31].
- ✓ Scotland: the Electrical Installation Modern Apprenticeship is SCQF Level 7, takes 3 to 5 years and has no set entry requirements ^[32].
- ✓ Wales: search Find an apprenticeship from 16 ^[33].

CANADA

- ✓ **Ontario OYAP:** from 15 in Grade 11 or 12, per the province (some school boards say 16). Earns co-op credits. [11]
- ✓ **Alberta RAP:** for high school students aged 15+ with a parent's or guardian's consent, paid at least minimum wage [39]. Your school board may run its own RAP page, like Edmonton Public Schools [12].

Official places to apply and check

- ✓ Construction Electrician is a Red Seal trade in 13 provinces and territories [35].
- ✓ Ontario (309A): about 9,000 hours in total, with a Grade 10 entry standard [36]. The in-school and on-the-job split is changing with a new curriculum, so check the latest chart [37].
- ✓ Alberta: a 4-period apprenticeship. Apprentices earn at least 50%, 60%, 70% then 80% of the journeyperson rate [38].
- ✓ Alberta RAP is open to high school students aged 15+ with a parent's or guardian's consent; each 125 hours of work earns 5 credits [39].
- ✓ BC Youth Work in Trades: earn up to 16 high school credits as a sponsored apprentice [40].
- ✓ Explore trades at Careers in Trades [42], and compete in Skills Canada's Electrical Installations [41].

AUSTRALIA

- ✓ **School-based apprenticeships and traineeships (SbATs), paid:** NSW from 15 and Year 10; Victoria Years 10 to 12 and 15+; South Australia Year 10 or 16+ [13].
- ✓ **Demand:** about 32,000 extra electricians needed for 2030 clean-energy targets [17].

Official places to apply and check

- ✓ NSW school-based electrician apprenticeship: two years part-time during school, then three years full-time, with at least 180 paid days while at school [45].
- ✓ Victoria: a 4-year apprenticeship contract, then licence assessments where you need 75% or more [44]. School students on work experience may not do electrical installation work.
- ✓ Find a provider through Apprentice Connect Australia at apprenticeships.gov.au.

Plumbing, HVAC and lineworker

These sit in the same Future Skill as electrician: hands-on, hard to automate and learned through a paid apprenticeship. The route works the same way as above. Search your country's apprenticeship finder for the trade by name.

ROBOT RISK: LOW

Plumber and pipefitter

Water, heating and pipework in homes and industry.

No credible plumbing robot deployments found. Emergency call-outs, retrofits and tight spaces keep it human.

US median

US\$63,800

May 2025 • BLS ^[2]

UK full-time median

£39,179

Plumbers and heating installers • ONS ASHE 2026 provisional ^[5]

Canada and Australia

No figure yet

No reliable figure on our site yet. Check Job Bank (Canada) or the Fair Work Ombudsman (Australia).

ROBOT RISK: LOW

HVAC and heat pump technician

Installing and fixing heating, cooling and heat pumps in all kinds of homes and buildings.

Smart diagnostics speed the job up but don't replace the tech. Heat pumps are part of building electrification.

US median

US\$61,010

May 2025 • BLS ^[3]

UK full-time median

approx. £42,199

Air-con and refrigeration, small sample • ONS ASHE 2026 provisional ^[5]

Canada and Australia

No figure yet

No reliable figure on our site yet. Check Job Bank (Canada) or the Fair Work Ombudsman (Australia).

Power-line installer (lineworker)

Building and repairing the power lines that carry electricity.

Storm repairs, heights and live lines on rough terrain. Dangerous, which is part of why it pays more.

US median

US\$95,320

May 2025 · BLS ^[4]

UK full-time median

£49,900

Closest code: electrical trades n.e.c. · ONS ASHE 2026 provisional ^[5]

Canada and Australia

No figure yet

No reliable figure on our site yet. Check Job Bank (Canada) or the Fair Work Ombudsman (Australia).

These trades will get fuller coverage as the series grows. For now, the electrician route above is the clearest way into all four.

What you can do at your age

13–15

EXPLORE

- ✓ Take math and physics seriously.
- ✓ Try a hands-on taster: a CTE class, VET in Schools or a free electronics project.
- ✓ Ontario OYAP from 15 (Grade 11 to 12, 14+ credits) ^[11]; Alberta RAP from 15 with a parent's consent ^[39].
- ✓ SbATs: NSW from 15 in Year 10, Victoria from 15 ^[13].
- ✓ Earn: tech help for older neighbors (13+), fixing and reselling bikes or electronics (14+).

16–17

START

- ✓ US Registered Apprenticeship from 16, with a parent signing ^[9].
- ✓ England apprenticeship from 16, paid at least £8.00 an hour ^[10]; foundation apprenticeship 16 to 21 ^[19].
- ✓ WorldSkills UK competitions from 16 ^[14].
- ✓ Scotland Modern Apprenticeships from 16; South Australia SbAT at 16+.
- ✓ Earn: holiday light installing (16+, ladders need an adult).

18+

GO FULL-TIME

- ! Waits until 18 in the US: hazardous jobs like power tools, roofing and driving for work ^[20].
- ! Most hazardous trade tasks in an apprenticeship are kept for over-18s ^[9]. US apprentices aged 16 to 17 get a limited exemption for some tasks (like power saws and roofing), but not driving, hoisting or demolition ^[27].
- ✓ Full apprentice duties once you're 18. US union (JATC) and IEC programs generally start at 18 ^[25].
- ✓ Skills Bootcamps open at 19+ in England, if you change direction later.

Start free this year

STEP 1 • ANY AGE

Try it with your hands

Take math and physics seriously and do a hands-on taster: a CTE class (US), a college Level 2 course (UK), VET in Schools (Australia) or a free electronics project at home. Free through school, or low cost.

STEP 2 • 15 TO 16

Apply for a school-based or youth apprenticeship

- ✓ US Registered Apprenticeship: 16+, parent signs under 18, paid ^[9]
- ✓ England apprenticeship: 16+, not in full-time education, at least £8.00 an hour ^[10]
- ✓ Ontario OYAP: 15+ in Grade 11 to 12, earns co-op credits ^[11]
- ✓ Alberta RAP: 15+ with a parent's consent, paid ^[39]
- ✓ Australian SbATs: from 15 (state rules vary), paid ^[13]

STEP 3 • 16+

Compete and get real experience

Enter WorldSkills UK (16+ on 1 September, entered through a college or employer) ^[14]. Anywhere: ask a local electrical contractor about work experience or a summer helper job.

What nobody puts in the ad

- ! **Physical risk.** Live electricity, heights and tight spaces. That's why the most hazardous tasks wait until 18.
- ! **Low starting pay.** US apprentices start near minimum wage. A UK JIB stage 1 apprentice earns £8.16 an hour ^[6].
- ! **Long training.** Most US electricians train for 4 to 5 years ^[1].
- ! **"Six-figure trade" headlines are overhyped.** Data center pay over US\$100,000 depends on overtime and travel ^[18]. The US median electrician earns about US\$63,000 ^[1].

Your next 12 months

1

MONTH 1

Pick this skill

Read this guide, then talk to one electrician, plumber or HVAC tech about their week.

2

MONTHS 1-3

One free course or taster

A school CTE, Level 2 or VET class, or a free electronics project. Write down 3 things you can now do.

3

MONTHS 3-8

One real experience

WorldSkills UK (16+), work experience with a contractor, or a summer helper job.

4

MONTHS 6-11

One proof-of-skill project

A page with photos of a safe, low-voltage project: the problem, what you did and the result.

5

MONTH 12

Review and apply

Apply for the apprenticeship route in your country, with a parent if you're under 18.

Built on the 12-month plan from our [Future Skills](#) page.

Earn while you learn

Side hustles that build the same habits: working with your hands, safety, and explaining things to customers. Pay is a rough range, shown in your currency.

AGE 16+

Holiday light installing

\$65–190 per house rough range

People want lights but hate putting them up, and you can sell the take-down too.

Watch out: Ladders and roofs need an adult. Outdoor-rated lights only.

AGE 14+

Fixing & reselling bikes or electronics

\$25–130 per item rough range

Broken things are cheap. Fixed things aren't.

Watch out: No mains electrical repairs without an adult. Damaged lithium batteries can catch fire.

AGE 13+

Tech help for older neighbors

\$13–25 per hour rough range

Lots of people feel stuck with phones, smart TVs and scam texts. Patience matters more than skill.

Watch out: Never see or write down passwords or bank details. Go with a parent at first. Teach scam spotting; never handle their money.

Stay safe

- ! **Talk to a parent or guardian before you apply or sign up.** In the US a parent signs a Registered Apprenticeship agreement if you're under 18 ^[9].
- ! **No mains electrical work without a qualified adult.** Stick to low-voltage projects on your own. Damaged lithium batteries can catch fire.
- ! **Ladders and roofs need an adult.** In the US, roofing and power-driven tools are banned for under-18s at work ^[20].
- ! **A parent knows where you are.** Before any job in someone's home, an adult you trust has the address, the customer's name and when you'll be back.
- ! **UK:** anyone under 18 counts as a young person, and children below school-leaving age can't work in industrial workplaces except on work experience ^[34].
- ! **Never pay to get work.** Real apprenticeships pay you.

Sources

1. BLS Occupational Outlook: Electricians (median pay May 2025, projections 2025–35, apprenticeship)
<https://www.bls.gov/ooh/construction-and-extraction/electricians.htm>
2. BLS Occupational Outlook: Plumbers, pipefitters and steamfitters
<https://www.bls.gov/ooh/construction-and-extraction/plumbers-pipefitters-and-steamfitters.htm>
3. BLS Occupational Outlook: Heating, air conditioning and refrigeration mechanics
<https://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm>
4. BLS Occupational Outlook: Line installers and repairers <https://www.bls.gov/ooh/installation-maintenance-and-repair/line-installers-and-repairers.htm>
5. ONS: ASHE Table 14, pay by occupation (2026 provisional)
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitoc2010ashtable14>
6. JIB: Industrial Determination 2026–2028 (electrician rates) <https://www.jib.org.uk/wp-content/uploads/2025/06/JIB-Industrial-Determination-062025.pdf>
7. GOV.UK: National Minimum Wage and National Living Wage rates <https://www.gov.uk/national-minimum-wage-rates>
8. Job Bank Canada: Electrician wages <https://nl.jobbank.gc.ca/marketreport/wages-occupation/20680/ca>
9. US Department of Labor: Youth apprenticeship fact sheet
https://www.apprenticeship.gov/sites/default/files/DOL_IndFactsheet_Youth_043024.pdf
10. Acas: Apprentice pay <https://www.acas.org.uk/apprentices/pay>
11. Ontario Youth Apprenticeship Program (OYAP) <https://www.ontario.ca/page/ontario-youth-apprenticeship-program>
12. Alberta Registered Apprenticeship Program (RAP), via Edmonton Public Schools
<https://epsb.ca/programs/skills/registeredapprenticeshipprogramrap>
13. NSW Education: School-based apprenticeships and traineeships FAQ
<https://education.nsw.gov.au/schooling/students/career-and-study-pathways/school-based-apprenticeships-and-traineeships/sbat-faq>
14. WorldSkills UK: Competition rules <https://www.worldskillsuk.org/skills/national-competitions/competition-rules/>
15. CITB: Construction Workforce Outlook 2025–29 <https://www.citb.co.uk/about-citb/news-events-and-blogs/citb-publishes-construction-workforce-outlook-2025-29>

16. Clean Energy Jobs Plan (via ITV News) <https://www.itv.com/news/2025-10-19/government-unveils-plans-to-recruit-400000-new-workers-for-green-energy-sector>
17. Jobs and Skills Australia: Clean energy workforce
<https://jobsandskills.gov.au/publications/towards-national-jobs-and-skills-roadmap-summary/meeting-the-needs-of-the-clean-energy-transformation>
18. Fortune: Jensen Huang on demand for skilled trade workers
<https://fortune.com/2025/09/30/nvidia-ceo-jensen-huang-demand-for-gen-z-skilled-trade-workers-electricians-plumbers-carpenters-data-center-growth-six-figure-salaries>
19. Prospects: Foundation apprenticeships <https://www.prospects.ac.uk/jobs-and-work-experience/apprenticeships/foundation-apprenticeships/>
20. US Department of Labor: YouthRules <https://www.dol.gov/agencies/whd/youthrules>
21. Prospects: Apprenticeships in Wales <https://www.prospects.ac.uk/jobs-and-work-experience/apprenticeships/apprenticeships-in-wales/>
22. Prospects: Apprenticeships in Northern Ireland <https://www.prospects.ac.uk/jobs-and-work-experience/apprenticeships/apprenticeships-in-northern-ireland/>
23. Apprenticeship.gov: Apprenticeship Finder <https://www.apprenticeship.gov/apprenticeship-job-finder>
24. Apprenticeship.gov: Apprenticeship for young people
<https://www.apprenticeship.gov/educators/apprenticeship-for-young-people>
25. Electrical Training Alliance (IBEW/NECA): Apprenticeship training
<https://www.electricaltrainingalliance.org/training/apprenticeshipTraining>
26. Independent Electrical Contractors (IEC): Apprenticeship <https://ieci.org/apprenticeship/>
27. US Department of Labor: Fact Sheet #43, child labor rules (non-agriculture)
<https://www.dol.gov/agencies/whd/fact-sheets/43-child-labor-non-agriculture>
28. GOV.UK: Find an apprenticeship <https://www.gov.uk/apply-apprenticeship>
29. Skills England: Installation and maintenance electrician standard (ST0152)
<https://skillsengland.education.gov.uk/apprenticeship-standards/st0152-v1-2>
30. NET: AM2S assessment <https://www.netservices.org.uk/am2s/>
31. ECS: Apprentices applying for their first Gold Card
<https://www.ecscard.org.uk/content/Apprentices-applying-for-their-first-gold-card>
32. Apprenticeships.scot: Electrical Installation Modern Apprenticeship
<https://apprenticeships.scot/modern-apprenticeships/electrical-installation/individual>
33. Welsh Government: Find an apprenticeship <https://www.gov.wales/find-apprenticeship>

34. HSE: Young people at work, the law <https://www.hse.gov.uk/young-workers/employer/law.htm>
35. Red Seal: Construction Electrician <https://www.red-seal.ca/eng/trades/const-elect.shtml>
36. Skilled Trades Ontario: Electrician, Construction and Maintenance (309A)
<https://www.skilledtradesontario.ca/trade-information/electrician-construction-and-maintenance/>
37. Skilled Trades Ontario: Apprenticeship programs chart (June 2026)
<https://www.skilledtradesontario.ca/wp-content/uploads/2026/08/Apprenticeship-Programs-Chart-EN.pdf>
38. Alberta Tradesecrets: Electrician profile <https://tradesecrets.alberta.ca/trades-in-alberta/profiles/003/>
39. Alberta Tradesecrets: Registered Apprenticeship Program <https://tradesecrets.alberta.ca/get-started/start-in-high-school/registered-apprenticeship-program/>
40. SkilledTradesBC: Youth Work in Trades <https://skilledtradesbc.ca/youth%20work-in-trades-program>
41. Skills Canada: Electrical Installations
https://www.skillscompetencescanada.com/en/skill_area/electrical-installations/
42. Careers in Trades (Canadian Apprenticeship Forum) <https://www.careersintrades.ca/>
43. Fair Work Ombudsman: Electrical, Electronic and Communications Contracting Award pay guide (from 1 July 2026) <https://calculate.fairwork.gov.au/payguides/pact/MA000025/20260701>
44. Energy Safe Victoria: About electrical apprenticeships
<https://www.energysafe.vic.gov.au/licensing/apprentices/about-electrical-apprenticeships>
45. NSW Education: School-based electrician apprenticeship (Certificate III)
<https://education.nsw.gov.au/schooling/students/career-and-study-pathways/school-based-apprenticeships-and-traineeships/apprenticeships/certificate-iii-electrician>

Facts come from our Future Skills research and these official sources, last checked 26 October 2026. Rules and pay change: confirm on the official site before you apply.
