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Careers Wales LMI Bulletin Feature: The Green Economy in Wales November 2025

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Content

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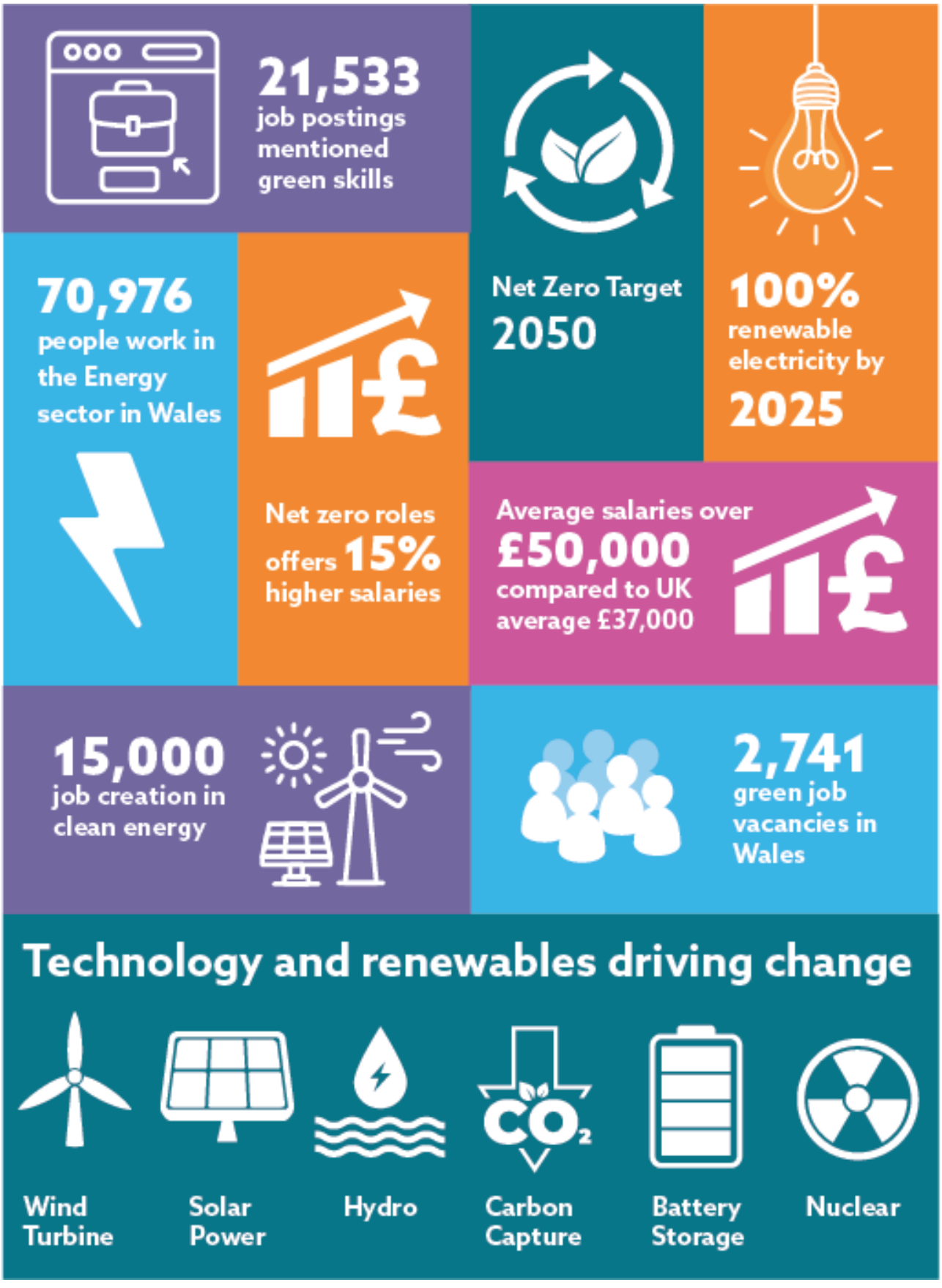
Key Data for Wales



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1. Introduction

Wales is undergoing a significant transformation towards a greener, more sustainable economy. Driven by the urgency of climate change and the commitment to achieving net zero emissions by 2050, the Welsh Government and industry stakeholders are investing in clean technologies, green skills, and innovative business models.
The Net Zero Skills Action Plan sets out the Welsh Government's key priorities . This plan aims to

- Identify current and future skills needs
- Provide the training and support employers need
- Adapt the education system in Wales to ensure learners and workers are equipped for green jobs

This LMI Bulletin Feature provides a summary from various sources of the Green Economy in Wales, highlighting key technologies, workforce needs, job roles, opportunities, threats, and the impact on industries.

2. What is the Green Economy?

The Welsh Government has adopted the Office for National Statistics definition on green employment and skills being *'an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change'*.

The Green Economy encompasses sectors such as renewable energy, energy efficiency, sustainable agriculture, green transport, and waste management. The largest share of emission reduction to date has happened in the power and heavy industries with increased focus required in agriculture and land use, housing and transport.

In Wales, the Green Economy is guided by principles of sustainable development as defined in The Well-being of Future Generations Act 2015. This involves a holistic and just approach to improving economic, social, environmental and cultural well-being.

Find out more about Green jobs in Careers Wales' Industry page.

3. What are the technologies driving the Green Economy in Wales?

Wales is leveraging a diverse mix of technologies to drive its green transition. Key developments include a focus on renewable energy:

- Offshore and onshore wind
- Solar and tidal energy
- Hydrogen production
- Carbon capture and storage (CCS)
- Low-carbon fuels
- Battery storage

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Key technologies and skills in green and renewable projects in Wales:

Key Technology	Project	Skills Needed
1. Offshore Wind: • Wind Turbines • Floating Platforms • Subsea Cables • Remote Monitoring • ROVs and Drones	The Celtic Sea Opportunity | Marine Energy Wales The Celtic Sea, situated between the southern coast of Wales and the southwest of England, is a new area of offshore wind development in the UK, and has the potential to deliver over 16GW of renewable energy through the deployment of offshore wind farms.	• Wind turbine operation • Remote monitoring • Subsea cable installation • Drone piloting • Platform maintenance • Data analysis
2. Onshore Wind: • Land-based Wind Turbines • Grid Integration • Predictive Maintenance	Twyn Hywel Overview - Bute The project is an onshore wind project which will include 14 wind turbines. It will generate up to 92.4MW of clean, green energy, enough to power approximately 81,000 households a year.	• Turbine installation • Grid integration • Maintenance • Electrical engineering
3. Solar Energy: • Photovoltaic (PV) Panels • Inverters • Battery Storage • Solar Tracking Systems • Monitoring Platforms	Home | Alaw Mon Solar Farm Construction and operation of the solar farm will supply up to 160 megawatts (MW) of renewable energy to the National Grid. This is equivalent to the electricity demands of approximately 33,935 homes each year (meeting the energy needs of all households on the Island).	• PV panel installation Inverter setup • Battery storage management • Solar tracking • System monitoring
4. Tidal Energy: • Tidal Stream Turbines • Tidal Lagoons • Subsea Foundations • Smart Grid Integration	Home | Morlais Morlais is Menter Môn's tidal stream energy project. It manages an area of 35Km² of the seabed near Ynys Cybi (Holy Island), Ynys Môn (Anglesey).	• Tidal turbine operation • Smart grid integration • Subsea foundation construction • Sensor deployment

Key Technology	Project	Skills Needed
5. Hydrogen Production: • Electrolysers • Hydrogen Storage • Fuel Cells • Hydrogen Refuelling Stations	Haush Pembroke Dock Hydrogen Hub Powering Wales Clean Energy The state-of-the-art facility will boast a production capacity initially of 12 MW and can be scaled to 120MW and is expected to generate, initially up to 5,000 kilograms of green hydrogen per day starting in 2026.	• Electrolyser operation • Hydrogen storage • Fuel cell technology • Refuelling station management
6. Carbon Capture and Storage: • Capture Units • Compression & Transport • Geological Storage • Monitoring Sensors	Parc Adfer | enfinium | Energy Recovery Facility Parc Adfer converts non-recyclable residual waste into partly renewable, low-carbon power for the National Grid using a combustion system, playing an important part in Wales' circular economy and waste management infrastructure.	• Capture unit operation • Geological storage • Monitoring sensor deployment • Compression and transport
7. Low-Carbon Fuels: • Anaerobic Digesters • Biofuel Refineries • Hydrogen Blending • Synthetic Fuel Plants	Wales' first biomethane refuelling station opens in Bangor The station features 12 fuel pump islands, allowing more than 500 trucks to be refuelled per day with a total capacity of 25 million kilograms (kg) of Bio-CNG annually.	• Anaerobic digestion • Biofuel refinery operation • Hydrogen blending • Synthetic fuel production

Key Technology	Project	Skills Needed
8. Battery Storage: • Grid-Scale Batteries • Battery Management Systems (BMS) • Smart Meters	**Battery at Pen y Cymoedd** The project utilises lithium-ion batteries housed in shipping container units in this first for Wales. The wind farm and the Battery Storage Facility share grid infrastructure so the batteries can either be powered by the wind farm, or directly from the grid.	• Grid-scale battery management • Battery management systems (BMS) • Smart meter installation Energy optimisation
9. Digital Data Technologies: • GIS and Mapping • AI and Machine Learning • Remote Sensing	**Powering Wales Renewably | National Energy System Operator** Over the next four years, an innovative digital twin of the entire Welsh energy system will be developed. This will allow identification of where the best places are to locate renewable energy generation.	• GIS mapping • AI and machine learning • Remote sensing • Digital twin modelling • Data analysis

4. Green skills now and in the future

Green skills are essential for Wales to meet its net zero commitments. However there has been wide report of confusion surrounding what is meant by 'green skills'. The Welsh Government has also been referring to 'net zero skills'. This is defined as

'*An umbrella term that refers to skills, competencies and knowledge within employment that supports our transition to a net zero economy. This can relate to all sectors, organisations and industries, whether directly or indirectly, on their path to net zero.'*

The Welsh Government's Net Zero Skills Action Plan outlines seven priority areas including understanding sector-specific skills needs, growing a skilled workforce and promoting opportunities for young people. In September 2024, the first Sector Skills Roadmap was published identifying more specific skills needed and likely workforce demand in a timeline across 8 priority sectors for Wales.

As the table above shows, the skills needed in the sample of renewable energy projects range from sustainable construction, environmental management, engineering, AI, retrofitting, plumbers to electricians, builders, project management and carbon accounting.

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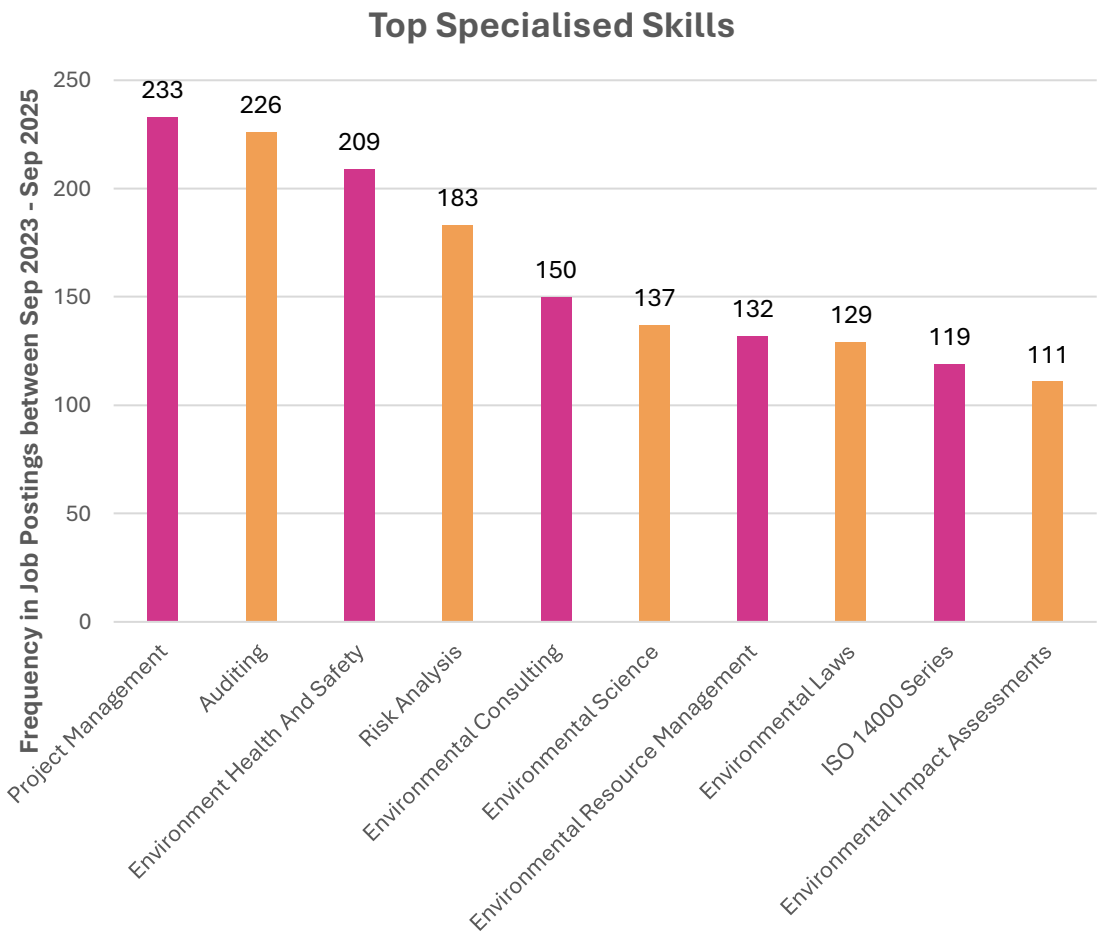
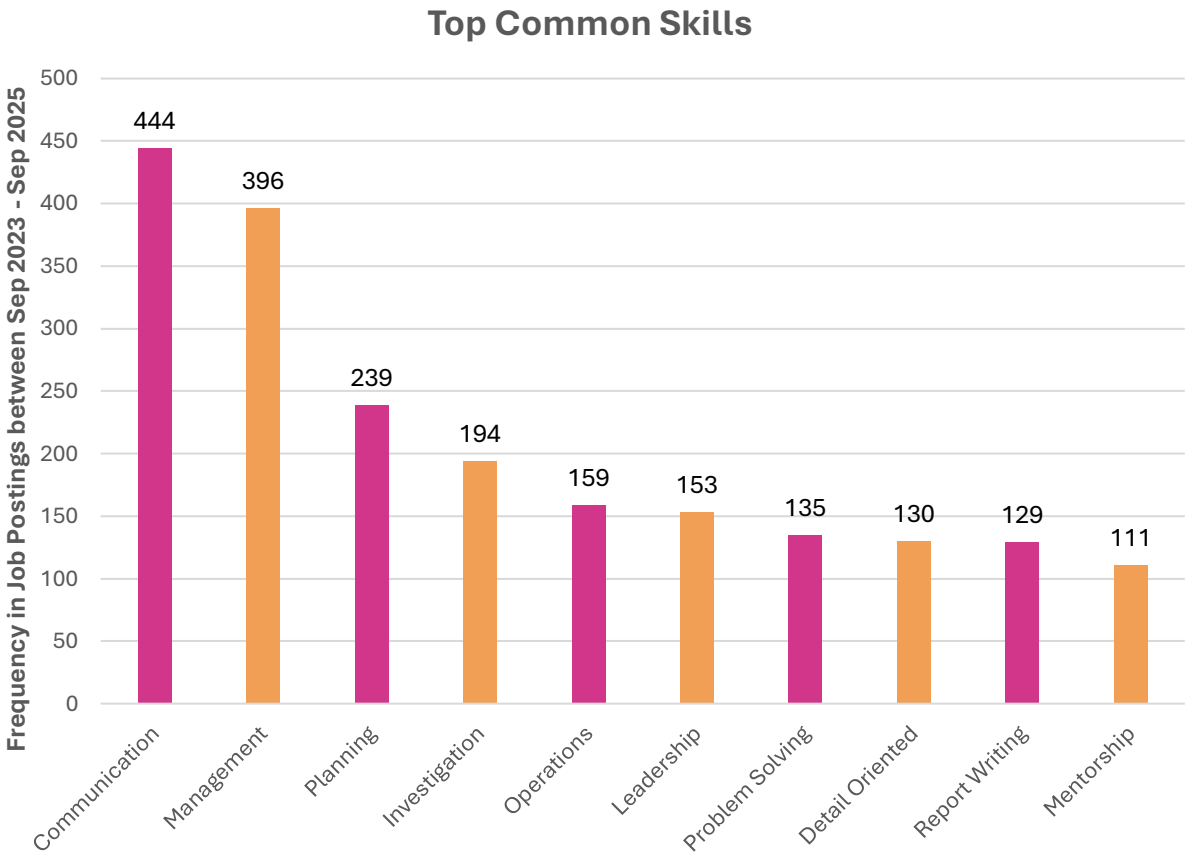
It has been suggested that 'all jobs can be green' and the evidence of developing policies and practices across all businesses and industries shows that all jobs are expected to incorporate green awareness, making sustainability a core competency. Whilst there are job creation and new jobs in the labour market to achieve a net zero economy, there are a significant number of existing jobs that are at risk and focus is needed on reskilling and upskilling. This will ensure businesses and their employees keep up to date with new technology and 'future proof' their skills and careers.

Analytics from job postings from Lightcast™ in the graph below, have identified the top skills relating to how green skills is mentioned in online vacancies in Wales, from September 2023 to September 2025.



Source:Lightcast™ September 2025

The bar graph above shows that Project Management, Auditing and Environmental Health and Safety are the top 3 specialised 'green' skills mentioned in over 21,533 online job postings between September 2023 to September 2025 in Wales.



Source:Lightcast™ September 2025

The bar graph above shows that 'common', or also known as transferrable skills, are just as important in the development of the Green Economy, as they complement the technical expertise required to build and manage green systems.

5. Job Roles in the Green Economy: Wales and UK

The UK government recently announced that the green economy supports over 951,000 jobs, with net zero roles offering 40% higher productivity and 15% higher wages. (Clean energy jobs) Wales is seeing a surge in green job advertisements, particularly in manufacturing, construction, and professional services. Green job roles in Wales include renewable energy engineers, environmental consultants, sustainability managers, construction trades and project managers in clean energy.

According to Jo Stevens, Secretary of State for Wales :

'Wales's growing clean energy industry is delivering the well-paid, highly-skilled jobs of the future. Projects right across the country from Pembrokeshire to Flintshire are creating opportunities for hundreds of our young people and will help drive regional growth as well as accelerating our drive towards lower bills and energy security.'

Clean energy jobs boom to bring thousands of new jobs - GOV.UK

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A sample of the in-demand roles needed according to the recent UK Government's announcement, mirrored by the Welsh Government Sector Skills Roadmaps are:

Wind Turbine Technician: These technicians are responsible for installing, maintaining, and repairing wind turbines, including their mechanical and electrical components. The demand for this role is very high as both onshore and offshore wind power grows. **Environmental Engineer**

Solar Photovoltaic (PV) Installer: These professionals install and maintain solar panel systems on residential homes, commercial buildings, and large-scale solar farms. **Electrician**

Renewable Energy Engineer: Specialising in fields like solar, wind, or hydropower, these engineers design, research, and develop new technologies and systems for generating clean power. **Energy Engineer**

Energy Storage Engineer: These specialists design and manage large-scale battery systems, which are critical for storing energy from intermittent sources like wind and solar and maintaining grid stability. **Electrical Engineer**

Renewable Energy Project Manager: A crucial role for overseeing entire renewable energy projects, guiding them from initial planning and design through to construction and commissioning. **Project Manager**

Grid Integration Specialist: As more renewable projects come online, these engineers are needed to ensure new power sources are connected efficiently and reliably to the existing electrical grid. **Electrical Engineer**

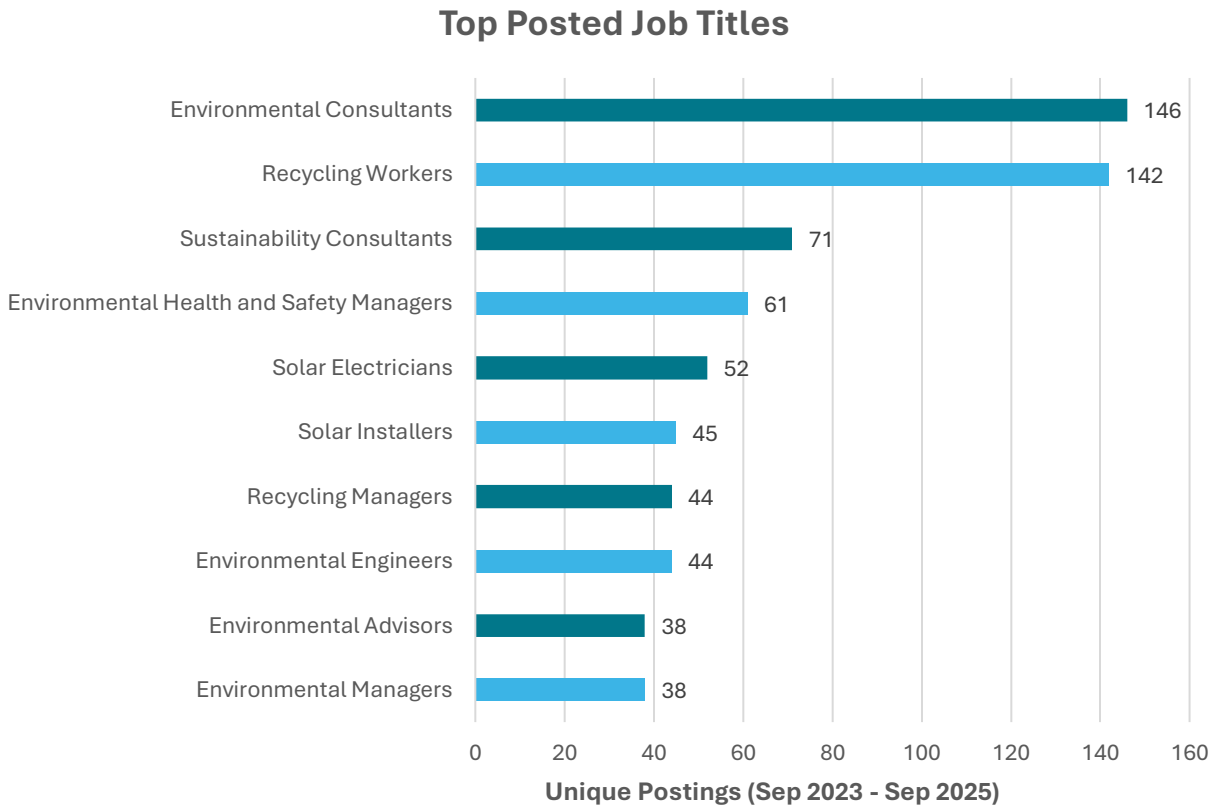
Environmental Consultant: These consultants are responsible for assessing and mitigating the environmental impact of renewable energy projects, which can involve anything from wildlife impact assessments to regulatory compliance. **Environmental Consultant**

Plumber: They specialise in installing, maintaining, and repairing a range of low-carbon heating, hot water, and water recycling systems. This evolving role will require new skills in smart technology, system design, and renewable energy. **Plumber**

Electrician: They install, maintain, and repair systems like solar panels, electric vehicle (EV) chargers, and battery storage, as well as work on modernising electrical grids for new energy sources. **Electrician**

Welder: They construct, fabricate and maintain the infrastructure for various types of clean energy projects. Their work ensures that structures like wind turbines, solar panel frames, and hydroelectric components are strong, durable, and reliable enough to withstand harsh operating conditions. **Welder**

You can find 232 different 'green jobs' in our Job Information industry page.
Find out more about **Jobs in Energy** in our Future Jobs Wales page.



Source:Lightcast™ September 2025

The bar graph above shows that Environmental Consultants, Recycling Workers and Sustainability Consultants were the top 3 posted job titles mentioned in online job postings between September 2023 to September 2025 in Wales.

6. Opportunities and threats of the Green Economy in Wales

Wales is widely recognised for its significant potential to lead the renewable energy sector, as highlighted by the Welsh Parliament. To fully realise these opportunities, it is essential to address critical challenges—particularly closing skills gaps, enhancing education and training pathways, and reducing bureaucratic barriers. Timely action in these areas will be key to ensuring Wales can capitalise on its green economy ambitions.

Opportunities include:	Threats such as:
• Economic growth • Job creation • Environmental sustainability • Education and training • New generation of informed citizens • Upskilling and reskilling	• Grid infrastructure delays • Policy uncertainty • Skills mismatches • Insufficient talent pipeline • Trade barriers • Funding constraints

"Scaling up renewables is not just about hitting climate targets, it is a major economic opportunity for Wales." First Minister Eluned Morgan
Renewable UK Cymru report 2025

7. How is the Green Economy transforming industries across Wales

The Green Economy is transforming industries across Wales and the UK. Traditional sectors like steel and agriculture are adopting low-carbon technologies. Renewable energy projects and industrial decarbonisation are revitalising communities and aims to tackle outward migration of young people. The Renewable UK Cymru report 2025 suggests that investments in clean energy and industrial decarbonisation could add £6.9 billion to the Welsh economy and support 8,000 skilled jobs.

Net Zero Industry Wales is focused on decarbonising industry and manufacturing, positioning Wales as a clean energy hub and a cornerstone of the UK industrial base. Renewable UK Cymru is leading the shift to green electricity by embedding renewables into Wales' wider economic strategy.

Here's how the Green Economy is transforming key industries across Wales and the UK:

Jobs in Health • **NHS** committed to net zero carbon by **2040** • **Solar PV** installations across multiple sites • **Heat pump retrofits-** efficient insulation, double glazing, and **LED lighting replacements** • Some trusts integrate **battery storage systems** to stabilise energy supply	**Jobs in Agriculture and Land** • **Solar PV** on Farmland • **Onshore Wind Turbines.** Many farms host small-scale wind turbines • **Biogas and Anaerobic Digesters** converts animal waste and crop residues into biogas • **Low-Carbon Farming Practices -** electric and hydrogen-powered machinery • **Precision Agriculture-** IoT sensors, drones, and AI optimised fertiliser and water use
Jobs in Business Support and Administration • **Automation** of admin tasks through IoT (Internet of Things)	**Jobs in Care** • **Energy Efficiency-**solar panels, heat pumps, and battery storage to reduce energy costs and carbon emissions

• **Cloud-based systems** and digital workflows replacing manual processes • **AI Document Tools** for processing compliance documents	• **Sustainable Building Designs-** new care facilities are built to use low-carbon materials • **Retrofitting** older buildings with smart heating systems and energy-efficient ventilation • **Green Transport**- transition to electric vehicles (EVs)
Jobs in Construction • **Low Carbon Building Material-** cross-laminated timber, recycled steel • **Energy Efficient Design-** integration of solar PV panels, green roofs, and rainwater harvesting • **Smart building systems** for energy monitoring and optimisation • **Renewable Energy Integration-** on-site renewable generation (solar, wind) and battery storage	**Jobs in Creative Arts, Media and Culture** • **Creative Campaigns-** climate-focused campaigns promoting renewable energy and green lifestyles • **Cultural festivals and events** incorporate sustainability themes and green certifications • **Sustainable Production Practices-** film and TV studios adopting renewable energy sources (solar panels, battery storage) • **Green Venues and Cultural Spaces-** museums, theatres and galleries are installing heat pumps, solar PV and smart energy systems
Jobs in Digital • **Green Data Centres-** major cloud providers and UK data centres are switching to solar, wind, and hydro power • **Energy-Efficient Cooling-** use of liquid cooling and AI-driven thermal management to reduce energy consumption • **Carbon-Neutral Hosting-** digital companies commit to net-zero operations by sourcing 100% renewable electricity • **Sustainable Digital Services-**green cloud computing, platforms optimise workloads to reduce energy use and emissions	**Jobs in Finance and Legal** • **Sustainable Investment Products-** growth in green bonds and renewable energy investment portfolios • **Climate Risk Assessment-** banks and insurers integrate carbon risk into lending and underwriting decisions • **Green Mortgages and Loans-** preferential rates for energy-efficient homes and renewable projects • **Net Zero Compliance-** law firms advise businesses on meeting UK Climate Change Act targets and Welsh Government decarbonisation policies
Jobs in Manufacturing • **Decarbonising Heavy Industry-** using hydrogen and electric arc furnaces instead of coal-based blast furnaces • **Low-Carbon Cement-** integrate carbon capture technology to reduce emissions • **Renewable Energy Integration-** manufacturing plants increasingly powered by	**Jobs in Public Services** • **Decarbonising Public Buildings - r**etrofitting schools, hospitals and council offices are installing solar panels, heat pumps and insulation upgrades • **Smart Energy Systems,** IoT-enabled heating and lighting controls reduce energy waste

on-site solar PV, wind turbines, and battery storage
• **Partnerships with green energy suppliers** for 100% renewable electricity contracts

• **Green Transport for Public Services-** transition to electric buses, refuse trucks and council fleets
• **EV charging infrastructure** rolled out at council depots and community hubs

Jobs in Retail and Customer Service

• **Energy-Efficient Stores-** retrofitting shops with solar panels, LED lighting, and heat pumps
• **Smart Energy Management-** IoT-enabled systems monitor energy use in real time
• **Green Warehousing-** distribution centres powered by renewable energy and equipped with battery storage
• **Growth in sustainable products-** organic, recycled, low-carbon and green packaging
• **Digital Transformation-** E-commerce platforms powered by renewable energy data centres

Jobs in Science and Research

• **Renewable Energy Integration-** laboratories and research centres increasingly powered by solar PV, wind energy, and heat pumps
• **Energy-Efficient Infrastructure-** smart HVAC systems, LED lighting, and advanced insulation
• **Sustainable Research Practices-** adoption of energy-efficient equipment, recycling of lab plastics and green procurement policies
• **Digitalisation-** cloud-based data storage powered by renewable energy reduces reliance on physical servers
• **Climate and Clean Tech Research-** increased research in hydrogen, battery storage, carbon capture and bioenergy

Jobs in Tourism, Hospitality, Sport and Leisure

• **Sustainable Tourism Infrastructure- h**otel adoption of solar panels, heat pumps and energy-efficient systems to achieve carbon-neutral operations
• **Smart Energy Management-** IoT-enabled systems for lighting, heating and water conservation in hospitality venues
• **Renewable-Powered Attractions-** cultural and leisure venues (museums, theatres, sports arenas) integrating solar PV, battery storage and EV charging stations
• **Green Transport for Tourism-** expansion of electric buses and coaches for tourist routes
• **Cycling and walking routes** promoted as low-carbon travel options
• **Sport and Leisure Facilities-** stadiums and gyms adopting renewable energy and energy-efficient lighting

Jobs in Transport and Storage

• **Electrification of Transport-** Electric Vehicles (EVs) for logistics and passenger transport
• **EV Charging Infrastructure** rolled out at depots, service stations and ports
• **Electric Buses and Rail-** Transport for Wales electrifying rail lines and introducing zero-emission buses
• **Warehouses and distribution centres** powered by solar PV, wind energy, and battery storage
• **Smart energy systems** reduce operational costs and carbon footprints
• **Ports** investing in shore-side renewable power for vessels
• **Development of sustainable aviation fuels (SAF)** for airports and airlines

8. Conclusion

Evidence in this report suggests that Wales is making significant strides in building a resilient Green Economy. With strong government support, innovative technologies, and a focus on skills development, the nation is well-positioned to make the ambitious transition to net zero. Continued investment, collaboration, and policy reform are essential to overcome challenges and realise the full potential of a green economy and sustainable future.

9. Further Reading:

Wales Economic and Fiscal report 2024
Acre | Net Zero Investment in Wales
Green Economy Wales - Business News Wales
Stronger, Fairer Greener Wales: Net Zero Skills Action Plan
Wales clean growth map
Green Jobs Barometer - PwC UK
The Well-being of Future Generations | GOV.WALES
Confused by the term ‘green skills’? You aren’t the only one
Understanding barriers to participation in the green labour market | Nesta
Clean Energy Jobs Boom 'Could Create New Generation of Industrial Jobs' for Wales
Home - Green GEN Cymru
Green economy
Clean energy jobs boom to bring thousands of new jobs - GOV.UK
Climate Adaptation Strategy for Wales
What progress is being made in delivering green jobs and growth?
Wind, Solar and Tidal Stream: Unleashing the Full Value of Welsh Renewable.pdf
Assessment of the clean energy skills challenge - GOV.UK
Estimates of green jobs, UK - Office for National Statistics
Future-Ready Industries: Clean Energy
Energy & Climate Intelligence Unit | The future is green:

10. Careers Wales information:

Future Jobs Wales
Green Jobs
Course Search
Green personal learning accounts (PLAs): approved courses

We welcome questions and feedback on the data and key messages included in LMI Bulletins. Please send to information@careerswales.gov.wales

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