

Sustainability

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Introduction

This section provides resources for relating career guidance work to outcomes beyond individuals. This page covers discussions that relate career guidance to sustainability, covering different aspects of the implications-for and role-of of CEIAG.

Studies and discussions are included that support in "making the case" for careers for this agenda, ranging from paradigms to practice. Some specific case study examples of studies are included that demonstrate interventions and their contributions.

This page provides references for the landscape and contextual issues, case studies into practice, relevant research-active institutions, relevant publications, and data sources.

Headlines

A wide range of national and international reports have described, quantified and analysed the requirements for green jobs and changes to current roles, which are creating opportunities and threats for members of the current and future workforce.

- Analysis from LinkedIn in 2024 found green jobs are growing nearly twice as fast as the number of skilled people able to fill them. ([WEF, 2024](#))
- In 2023, the recruitment website [Totaljobs](#) had previously found that the hiring demand for green roles has increased 87% between 2019 and 2023. In a poll of HR decision makers, 23% reported increasing the number of green roles.
- Globally, the energy industry may need 400k new recruits by 2050 ([Energy & Climate Intelligence Unit](#)),
- According to the World Economic Forum's Davos Labs Youth Recovery Plan 2021, almost half of young people feel they don't have the right skills to guarantee them a dignified job in the next five to 10 years ([WEF, 2021](#))
- In 2023, the Climate Change Committee (CCC) predicted that between 135,000 and 725,000 new jobs could be created in low carbon industries to 2030. ([Climate Change Committee, 2023](#))
- Most employers in the UK currently require green skills or expect to in the future. For these employers, skills are needed in a wide range of business areas and at all career levels ([Workskills UK, 2022](#)).
- Forecasts suggest that the capacity and capability of current career guidance provision means that the UK are set to miss the 2050 climate goals, due to a lack of sufficient skills ([Worldskills UK, 2022](#))
- Public research shows a number of very positive indicators towards the ends of further building the green workforce e.g. In a [British Gas commissioned-poll](#) for National Apprenticeship Week in 2023, it was found that 72% of young adults polled said they like the thought of getting to the end of the working day knowing they've helped people live a greener life. Research by the [Children's Commissioner](#) also found very strong positive sentiments.
- Young adults' (16-25 year olds') attitudes to green careers are, however, also sometimes nuanced. For instance, "Young people feel strongly about environmental issues, but environmental purpose does not make jobs more attractive" and pay and prospects remain key factors. ([Public First, 2023](#)).
- Workers will need to be redeployed in the green transition. The OECD ([Causa et al, 2024](#)) suggested policies to support a smoother and fairer transition, where it would seem most likely that career support will be integral.

Research into the impact of CEIG on this programme is still relatively scarce and formative. The literature includes, however, discussions on the roles that CEIAG can and will play, and

case studies that have demonstrated ways that more people can be engaged in green careers. For instance:

- An 2024 OECD study of international programmes in schools found varied interpretations of “green CEIAG”. ([Chang, 2024](#))
- Although difficult to disaggregate from other influences, career guidance activities are evidently already engaging and influencing students in the UK education system based on the attitudinal surveys described above.
- Green career fairs are proving popular and attracting a host of high profile organisations e.g. [Green Careers Week](#),
- In the relatively few studies carried out, careers education can increase student motivation towards green careers (e.g. [Santilli et al. 2020](#))

However, there is scope for the CEIAG profession to lobby to do more:

- Young people, particularly young women, lack awareness on green jobs and careers available, the skills employers require, and the relevant education and training pathways ([Workskills UK, 2022](#)).
- Separately, in a 2023 survey, 73% of young people (16-23 years old) felt uninformed of the green career opportunities they could potentially pursue when entering the world of work ([Engineering UK, 2023](#)).

Context and landscapes

Selected publications, listed below, cover literature reviews and specific studies that help make the case for the role of career guidance in supporting the efforts to tackle climate change: Resources below describe both the opportunities and challenges for CEIAG, and/or evidence for positive contributions.

Publications tend to provide one or more of the following types of insight for practitioners, decision-makers or policy makers, denoted in the "Type" column below: U = Understanding users, needs and experiences, P = Practices and their evaluation, C = Supporting or informing the investment case for careers, E = Understanding enablers of success in systems, processes and workplaces, T= Developing and criticising theories and frameworks.

NB: We have generally tried to include resources that are free to access, but have included a few important studies that require payment. These are denoted by "(Paid)" next to the URL link in the title column.

Title	Type	Themes	Brief description
Guichard, J. (2013, November). Career guidance, education, and dialogues for a fair and sustainable human development. In Inaugural conference of the UNESCO chair of Lifelong guidance and counselling. (Link)	P E T	Introducing sustainability related concerns into careers interventions	The author starts this paper by asking questions such as "How could career interventions promote a fair and sustainable human development?" The author looks at different theoretical paradigms for career guidance to help address the role that career guidance can play in the push to a more sustainable planet. Career and life designing interventions are envisaged which help individuals while also integrating major global environmental and social challenges. For instance, the author introduces such ideas as "care for distant others" to relate the individuals' career motivations to global issues. The author concludes that more work is needed to clarify the concepts raised (The same author contributed a later 2022 paper on similar question cited below).
Baldwin, N. (2014). Beyond green jobs: Assessing sustainability-enhancing career options. Canadian Journal of Career Development, 13(2), 4-16. (Link)	P	Adopt tools to help clients consider the sustainability of their career options.	The authors raise consideration of "sustainability in the broad sense", transcending the idea of "green careers." The paper scopes the area of opportunity for career guidance and represents a call to action to the sector: "This article analyses the current state of green careers, proposes a model for clients to assess sustainability-enhancing career options, examines related growth opportunities, and calls on career development practitioners to be part of the sustainability solution."
Di Fabio, A., & Bucci, O. (2016). Green positive	U T	Deploying "green-positiv	This article discusses "green positive guidance" and "green positive life

guidance and green positive life counseling for decent work and decent lives: Some empirical results. <i>Frontiers in psychology</i> , 7, 261. (Link)		e" guidance or counselling approaches.	counselling", as applied to Italian high school students. The study analysed the relationship between empathy and 'connectedness to nature'. The study revealed that empathy that showed the highest association with connectedness to nature. Implications were noted for future research.
Hašková, K. (2019), Career guidance facing climate change—thoughts for career practitioners. In <i>Career Guidance for Inclusive Society. Conference proceedings</i> 203. (Link)	P	Reflecting on the role of guidance practitioner.	The paper provides a personal reflection on the consequences of career guidance practices on the consequences for career guidance theory and practice. The paper focuses on how the efforts to decrease climate change are influencing labour market and career and career decision making, whether there are connections between solutions of social inequalities and environmental problems, and finally, what role do have career counsellors in the efforts to decrease climate change.
Irving, B. A., & Malik-Liévano, B. (2019). Ecojustice, equity and ethics: challenges for educational and career guidance. <i>Revista Fuentes</i> , 21 (2), 253-263. (Link)	P T	Challenging existing norms to integrate climate and sustainability considerations into practice	The authors observe that, "With a few noticeable exceptions, the influence of neo/liberal thinking continues to flourish in the contemporary career literature where there has been little deep critical engagement with the discourse of capitalist economics and how these impact human and environmental well-being." The author challenges this norm: "we seek to disrupt dominant discourses ... by identifying how an ecojustice perspective provides a forward looking and equitable foundation for educational and career guidance"
Međugorac, V., Šverko, I., & Babarović, T. (2020). Careers in sustainability: an application of Social Cognitive Career Theory. <i>International Journal for Educational and Vocational Guidance</i> , 20, 477-499. (Link)(Paid)	U	Understanding motivations and influences on green career interests and motivations Using grounded evaluation tools with clients to gain insight into green career motivations	The paper reports on a survey of n=582 Croatian secondary students to examine their career motivations. The research instrument was based on Social Cognitive Career Theory, which was validated as a useful tool for the exercise of better understanding green career interests and motivations.
Plant, P. (2020). Paradigms under pressure: Green guidance. <i>Nordic journal of transitions, careers</i>	P C E	Considering the different aspects of green guidance and	The authors talk of the need for careers guidance to move to new paradigms in light of the sustainability programme: "Guidance philosophies of our times need to envisage a shift towards a greener and sustainable

and guidance, 1(1), 1-9. (Link)		the required adaptations to careers guidance policies, programmes and practices	future. Green Guidance puts a wider perspective to career choices and career development. Guidance needs a re-orientation, a new approach: a genuine paradigm shift." The paper covers some of the implications for "green guidance" e.g. "the present role of career guidance is often depicted in terms of older paradigms in policy documents. For example, in the European Union Resolutions on Lifelong Guidance (European Commission, 2004; Council of the European Union, 2008), guidance is seen as a vehicle for economic growth in a global race for better competitiveness among the so-called 'Competition States'". However, examples of roles of other cultures are described, such as in India where careers have four steps, and include consideration for family, personal care. serving society and serving humanity. The role of social justice is described, where the focus shifts from an "individual-now" focus to a "society-future" focus.
Euroguidance (2021), Green guidance focussing on green educational and career pathways. OEAD Erasmus (Link)	P C E	Considering the different aspects of green guidance and the required adaptations to careers guidance policies, programmes and practices	This is a collection of research papers with expert viewpoints, discussing the concept of "green guidance": the collection of papers provides discussion topics, practices and case studies. The collection provides a rounded view of what green guidance is and entails
Friends of the Earth (2021),An emergency plan for green jobs for young people. (Link)	C	Making the case for more careers education in schools related to green jobs	This Friends of the Earth report, commissioned with notable partners like the NUS, called for (and described) an emergency plan for green jobs that simultaneously addressed the crisis in employment for young people and NEETs. The opportunity is quantified for different jobs across different parts of the labour market. From the CEIAG perspective, the case establishes the basis to lobby for more sustainable vocational opportunities and also more career education directed at at-risk students during compulsory education.
Speakers for Schools (2021), Latest Green Skills survey reveals that more than half of young people lack guidance on	U C	Understanding the perceptions and attitudes of young people	A survey carried out by our charity of 1,200 young people aged 15-18 who attend state secondary schools and colleges throughout the UK has revealed that more than half (57%) have not been given guidance on green job options at school. (The research

green job options at school. (Link)		towards climate change and their future careers	was conducted as part of Green Skills Week, which we note as a case study below)
World Economic Forum (2021), These are the skills young people will need for the green jobs of the future (Link)	C	Identifying new skills requirements for students	The World Economic Forum (WEF) have carried out a number of studies that describe future skills requirements. This article describes six skills categories. Transferable skills are also described. (The source references other work by the WEF in this area).
Guichard, J. (2022). From career guidance to designing lives acting for fair and sustainable development. International Journal for Educational and Vocational Guidance, 22(3), 581-601. (Link)	P E T	Considering principles of how CEIAG could evolve to contribute towards sustainable development	The author revisits the topic of the 2013 paper (above) to address how career and life design interventions can support a more equitable and sustainable world. To the author, the challenge “implies an in-depth renewal of interventions for life- and career-construction so that they become sources of action towards equitable and sustainable development”. The author illustrates how the principles and implemented into practice, with two intervention projects for the CEIAG sector: 1) This remodelling of “career education”, and 2) Constructing active lives that minimize the ecological footprint.
White, Y., Bradley, T., Packer, B., and Jones, E. (2022), Skills for a net-zero economy: Insights from employers and young people. Report by the Learning and Work Institute for Worldskills UK and Learning and Work Institute (Link)	U C E	Understanding skill demands, gaps and the understanding of current students of career opportunities	The Learning and Work Institute (L&W) conducted this research study on behalf of WorldSkills UK on how UK skills systems can help young people acquire the technical skills needed to support the UK’s transition to net zero carbon emissions. Findings in the report offer career development professionals insights into the current levels of understanding and awareness of career options. Young people, particularly young women, lack awareness on green jobs and careers available.
Stanef-Puică M.R., Badea L., Șerban-Oprescu G.L., Șerban-Oprescu A.T., Frâncu L.G., Crețu A.. Green Jobs-A. Literature Review. Int J Environ Res Public Health. 2022 Jun 29;19(13):7998. (Link)	T	Understanding the landscape of studies into green jobs, and green careers to map the relationship between different concepts.	The paper notes the high degree of variability between studies that discuss the idea of green jobs. This literature review analyses scientific literature from the previous five years to identify definitions, meanings and associated concepts: “There is no uniformity in the definition of the concept, there is still a convergence towards the initial meaning offered by the UNEP/ILO/IOE/ITUC Report of 2008....{The term} “green jobs” is most linked with {the concepts of} sustainable development, the

			green economy, the circular economy, the welfare economy, the European Green Pact, energy, renewable energy, economic development, and employment.”
Crowhurst, M. and Taylor, A. (2023), Generation green jobs? Exploring young people's readiness for the Net Zero skills revolution. Report by Public First for The Prince's Trust (Link)	U	Adapting communication and education material to the nuanced perceptions of younger people towards green careers	This research study sought to understand young people's understanding of the green economy, their perceptions of the jobs that will see the greatest growth up to 2030 and how these relate to their views on Net Zero and their own careers. Some attitudinal barriers were found (e.g. many young people perceived green careers to be just an academic/professional pathway) and some counter-intuitive results were found, where the importance of the green agenda did not always directly reflect the attractiveness of a green career.
Green Alliance (2023), Green shoots: growing the green workforce (Link)	U C E	Defining the challenges and opportunities to account for when providing green guidance, and using to support disadvantaged younger people	The UK-based report examines the green transition from the perspective of challenges and opportunities for the workforce, and particularly for younger people. Particular emphasis is placed on how green jobs can provide better opportunities for disadvantaged young people who are at risk of becoming NEET. This report also contains some notable statistics to describe the current status of awareness and interest, such as that 94% of job seekers are looking for green work.
Mowforth, S. (2023). Climate and ecological reality: A blind spot in our practice?. Journal of the National Institute for Career Education and Counselling, 50(1), 64-74. (Link)	C E	Addressing climate issues more prominently and directly through CEIAG	The author proposes that “stark implications of the crisis risks {are} diminishing {the profession's} capacity to practise inclusivity and core guidance principles for certain clients.” A literature review found “limited explicit discourse around these issues” and that “research informed practice would benefit from increased attention to the implications of the stark realities of the crisis” to define implications for CEIAG.
Apostel, A., & Barslund, M. (2024). Measuring and characterising green jobs: A literature review. Energy Research & Social Science, 111, 103477. (Link)(Paid)	U	Covers the definitions and scope of green jobs, and how they are measured.	A literature review of the concepts, definitions and scope of “green jobs” - for which the definition is sometimes ambiguous. Different international systems of measurement are described.
Blair, N., Lehmann, T., & Nichols, G. (2024), Climate-Informed Counselling in the 21st Century–A Living Document. Canadian	P	Adapting guidance to address client challenges	This paper was written by/for the Canadian Counselling and Psychotherapy Association, to address the growing need of counsellors to work with clients on climate related issues. Drawing on the vast, far-ranging, and quickly growing body of literature in the field of

Counselling and Psychotherapy Association (Link)			climate psychotherapy (including ecopsychology/ecopsychotherapy), the authors (all of whom are practising counsellors/psychotherapists within the CCPA) describe sources that they find useful.
Chang, Young, and Anthony Mann. Enhancing green career guidance systems for sustainable futures. OECD Publishing, 2024. (Link)	P E	How to build career systems for green guidance. Evidence from 87 school programmes	This working paper was realised by the Career Readiness team at the OECD with the support of the JPMorgan Chase Foundation. This study examined 87 programmes within primary and secondary education across 20 OECD countries, aimed at enhancing students' understanding of and progression towards green careers. These programmes, though not exhaustive, provide valuable insights into the conceptualisation and implementation of green guidance programmes, which are expected to become increasingly important in the future.
Grant, K. (2024). How green is your practice? A process for auditing and reimagining career guidance practice for a greener world. Journal of the National Institute for Career Education and Counselling, 53(1), 89-104. (Link)	P	Auditing career practices	The paper describes a workshop process which career practitioners can be facilitated to undertake to embed ethical sustainability considerations into their practice.
Hooley, T., Lucas Casanova, M., & Šprlák, T. (2024). Practitioners' perspectives on green guidance: An international survey (pp. 1-33). Exploring Green Guidance.	U	Understanding practitioner perspectives	This paper sets out the findings of a survey of 674 career guidance practitioners conducted in late 2023 and early 2024 about green guidance. The survey reports that the clients of career guidance need help with a range of sustainability issues and that a minority raise issues of environmental sustainability during career guidance interventions.
Kavková, Eva, and Tomáš Šprlák. "Reflections on ethical challenges in green guidance." Journal of the National Institute for Career Education and Counselling 53.1 (2024): 80-88. (Link)	P	Ethical consideration in green guidance	This article discusses diverse perspectives on the ethical implications, particularly the balance between impartiality and socio-political responsibilities. Despite some concerns about neutrality, the article argues that career guidance should evolve to prioritise environmental sustainability and client well being.
Mann, A., & Chang, Y. (2024). Enhancing green career guidance systems for sustainable futures. JP Morgan report for the OECD (Link)	U	Consideration how career systems adapt to sustainability in education	Education systems need to adapt to sustainable futures. This study examined 87 programmes within primary and secondary education across 20 OECD countries, aimed at enhancing students' understanding of and progression towards green careers.

Case studies are described in the section below, also denoting studies where theory has been applied to the design of a service, to generate particular outcomes.

Case studies

Selected publications that describe practices and outcomes for different challenges are listed below, with links in the title column. We have mostly included open access sources, but where the sources requires payment, it is noted next to the link by “(Paid)”.

Title	Themes	Brief description	Location
Climate Change Coaches (Link)	Developing a model of dedicated coaches	The green agenda has spurred a new (informal) type of coach, badged (generally) as a climate change coach. The services offer both individuals and organisations approaches to navigate and tackle climate change challenges.	UK
Climate Schools Programme / Neon Futures (Link)	Integrating careers into the climate education programme for schools	The Climate Schools programme is - at the time of writing - “is a pilot programme aimed at helping students explore solutions to tackling climate change and discover skills they didn’t know they had.” It provides Consisting of lesson plans, resources and activities aimed at 11 to 14 year-olds in England, Wales, Scotland, and Northern Ireland. It is run by Engineering UK and contributes to a series of other climate related events, particularly Neon Futures which helps teachers to introduce students to STEM careers.	UK
Green Careers Hubs (n.d.) (Link)	Providing an information portal Creating videos to promote opportunities	A resource of video case studies and other web resources, such as sector profiles. Videos each featured an organisation that offered green careers, was created through a partnership between the Institute of Environmental Management and Assessment (IEMA) and Content With Purpose (CWP).	UK
Now Press Play (n.d), St Fidelis Catholic Primary School: National Grid and now>press>play partnership (Link)	Using a social enterprise model to extend career learning opportunities	Now Press Play are an example of a social enterprise and a social innovation, working internationally: providing a range of different education activities aimed at primary aged pupils which include but transcend careers learning. Interventions use sound, story and movement. In this case study, the school engage primary school children in National Grid’s programme to reduce CO2 and learn about renewable energy and net zero.	England / International
STEM Learning, Green careers case studies (Link)	Providing case studies on green careers	This resource shows an example of a way of presenting green career case studies.	UK

Murray, P. E., & Murray, S. A. (2007). Promoting sustainability values within career-oriented degree programmes: A case study analysis. <i>International Journal of Sustainability in Higher Education</i> , 8(3), 285-300. (Link)(Paid)	Creating an intervention to reflect on sustainability values within a course curriculum in higher education.	An international literature review relating values and behaviour to the sustainability agenda led to the development of "sustainability training" workshop activities for construction students at the University of Plymouth. This paper describes its creation, delivery and evaluation. The feedback showed that the workshops were well received, and that open-ended enquiry-based learning techniques are useful for promoting sustainability values within educational programmes.	UK
Tjalla, A., & Kustandi, C. (2015). Green education-based model online career counseling "ACIS-Q" to enhance career maturity of vocational schools students. <i>International Journal of Research</i> , 4(1), 37-43. (Link)	Using a website to provide green career information to enhance career maturity.	The paper describes a review of career maturity amongst high school students and examines the efficacy of using a website to provide green education. The website is discussed and the results shown.	Indonesia
Rochat, S., & Masdonati, J. (2019). Sustainable career cards Sort (SCCS): Linking career choices to the world needs. <i>Handbook of innovative career counselling</i> , 505-520. (Link)(Paid)	A (card sort) exercise to engage students in sustainable career options.	The aim of this chapter is to propose a career counselling intervention that help counselees to design their career pathway in ways that can contribute to a fair and sustainable human and global development. The chapter presents the development and the initial validation of the Sustainable Career Cards Sort (SCCS), an innovative cards sort tool aiming at connecting the clients' current career concerns with those of the world. The suggested intervention comprises reflective activities on pictures representing the most important world's crises. Implications for research and practice are discussed.	Not applicable
Pinto, R. S., & Grove-White, S. (2020, July).	Setting up a climate action group at a	This article presents the perspectives and experiences of parents of primary school children who have been reflecting	UK

From climate anxiety to resilient active citizenship: when primary schools, parents and environmental groups work together to catalyse Change. In FORUM (Vol. 62, No. 2, pp. 251-266). Lawrence and Wishart. (Link)	(primary) school to develop climate awareness amongst children	on the role of primary schools and actively engaging in their children's school by piloting a climate change action initiative in close collaboration with environmental organisations. The paper reflects on the role of primary schools and then reflects on the personal experiences of the author, who set up the parents' Climate Action Group.	
Santilli S, di Maggio I, Ginevra MC, Nota L, Soresi S. 'Looking to the Future and the University in an Inclusive and Sustainable Way': A Career Intervention for High School Students. Sustainability. 2020; 12(21):9048. (Link)	Educating about global citizenship as a way to engage students in climate related career actions.	The study described a career intervention with high school students in Italy (n=75, with a average age of 17). Students were given a set of pre- and post-test attitudinal questions to answer about their hopes for the future, career adaptability, and willingness to invest in the future amongst other factors. Interventions that were tested included two educational classes on career guidance and the nature of global citizenship. The results showed shifts in attitudes towards pro-environmental intentions.	Italy
OECD (2021), Green Guidance. Focusing on Green Educational and Career Pathways (Link)	Overview of practices and practical considerations in green career guidance	Proceedings from the Euroguidance conference in Austria, where the focus was on green guidance. The proceedings provided a series of papers highlighting different practices.	Various
Agcas (2023), Sustainability, Phoenix (Link)(Paid)	Preparing a career guidance service to support clients (in higher education)	This issue of Phoenix profiles the role university careers services are playing in preparing students and graduates for sustainable career opportunities to meet the challenges of climate change. Roles involve raising awareness amongst students and carrying out challenge projects, where students develop their skills, as well as initiatives where the career service contributes to culture.	UK

Saliba, C. (2024). Green guidance: enhancing the role of career guidance in Maltese state secondary schools (Master's thesis, University of Malta). (Link)	Analysis of current guidance system and gaps	<p>The study investigated the intersections of climate change, sustainability, and career guidance in state secondary schools in Malta, and how career guidance practitioners perceived and implemented sustainability. The investigations showed factors supporting or hindering the integration of eco-friendly principles into career guidance work.</p> <p>There was found to be “a critical need” to enhance integration between careers work and environmental education, and a “paradigm shift” in mindset.</p>	Malta
Green Skills Week (Link)	Running a programme to promote green careers with students	Run in November, Green Careers Week is a careers programme that drives awareness and showcases the opportunities that young people can find if working in sustainability areas.	UK
Ho, Candy TY. "Embedding the United Nations Sustainable Development Goals into the Career Curricula." Journal of the National Institute for Career Education and Counselling 53.1 (2024): 24-35. (Link)	Embedding sustainable goals into careers education programmes	This article explores how embedding the SDGs into career development can enhance career exploration and contribute to a sustainable future. Drawing on experiences from teaching a senior career capstone course, it highlights strategies for integrating the SDGs into career interventions.	Canada
Grant, Korin. "How green is your practice? A process for auditing and reimagining career guidance practice for a greener world." Journal of the National Institute for Career Education and Counselling 53.1 (2024): 89-104. (Link)	Auditing practices and embedding green practices	The article presents a three stage practice to embed sustainable activities into career practices. The result is a facilitated process which supports practitioners to collectively reflect on current practice, acknowledge existing positions, discuss concerns and imagine new, 'greener' practice.	UK

Rochat, S. (2024). "Green guidance": which interventions for which problems?. International Journal for Educational and Vocational Guidance, 1-22. (Link)	Issues and proposed solutions within career counselling	<p>This article introduces a typology of issues associated with the consideration of ecological and human factors in career counseling.</p> <p>For each category of difficulty, examples are provided and practical suggestions are proposed.</p>	Various
Wood, N. (2024). Green Skills and Careers: A Workshop Promoting (Doctoral dissertation, Worcester Polytechnic Institute). (Link)	Running a workshop in secondary schools to increase knowledge of green careers.	A workshop was developed and piloted to secondary school students in the UK, to improve their knowledge and interest in green skills and careers. Findings revealed significant increases in participants' familiarity with green skills and careers, with notable variations observed between different participating cohorts and schools. From these findings, the paper concludes with recommendations for the future use of the workshop and advocacy for policy reform.	UK

Future research questions

The CDI discusses research questions and gaps with expert academics. Amongst the common topics that have been proposed for future research studies, to close gaps in our knowledge, include:

- Helping the career guidance professional to deal with the range of scenarios that are now being presented by their clients as a result of climate change, ranging from climate anxiety to a desire to work in the sector.
- Methods to update career guidance professionals with the latest information on careers when the sector is moving so quickly, and many jobs are relatively new.

Some research agendas in adjacent disciplines, with possible synergies, include:

- Understanding of green jobs and careers ([Bradley et al, 2025](#))
- Organisations, learning and sustainability ([Feeney et al. 2023](#))
- Green human resource management ([Pham et al, 2020](#))
- Human dimensions of energy transitions ([Steg et al. 2021](#))
- Nature based learning ([Jordan et al, 2020](#))

Relevant institutions

Climate change is already a factor considered across all parts of government, education, public service institutions and organisations that support careers services at different career stages, which we have cited in those sections of this website. Below, we have identified several further organisations who are active in research and produce reports, articles or data that contribute more specifically to this topic of sustainability, particularly from the perspective of careers, jobs and educations, which are relevant to CEIAG practice.

Title	Brief description
Centrica (British Gas) (Link)	British Gas (Centrica) are the UK's largest utility. They frequently conduct and publish public research into attitudes, behaviours, consumer or employee needs and wants via their media centre.
Cedefop (Link)	Publish European studies that track changes in jobs and economies, and the associated impact on career and vocational education requirements.
Climate Change Committee (Link)	The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008. It advises the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing emissions as well as developing the ecosystem to deliver the transition..They produce both publication studies that cover, from time to time, labour market and skills factors as well as news and insights into ongoing developments.
Eco-schools (Link)	The Eco-Schools programme provides schools with a framework and resources to help schools offer education in sustainability issues at all ages. Projects are proposed that offer schools opportunities to work in the local community and beyond. The annual impact report shows progress from the initiative.
Friends of the Earth (Link)	UK's biggest grassroots environmental organisation. Provide commentary on challenges and issues.
Green Alliance (Link)	The Green Alliance is an independent think tank and charity focused on leadership for the environment. Since 1979, it has been working with business leaders, NGOs and politicians to accelerate political action. The Green Alliance publishes both studies and ongoing news articles.
Green Careers Hub (Link)	A green career information sites that provides periodic research into the state of green careers.
Green Education Foundation (Link)	The Green Education Foundation (GEF) is US based a non-profit organisation committed to creating a sustainable future through education.
Green Jobs (Link)	This is an extensive job board for green jobs, also serving to provide insight and some LMI into the range of green jobs available . It is part of a network of job sites and has grown since formation in 2008. They also run career events.
Institute of Environmental Management and Assessment (IEMA) (Link)	The global professional body for anyone working in environment and sustainability. Provides latest industry insight, trends, news stories and comment relating to jobs, training and careers.
National Grid (Link)	A British multinational electricity and gas utility company, the National Grid are probably best known for running the UK's

	electricity and gas networks. They also play an active role in future studies, planning, and sector policy.
STEM Learning (Link)	Case studies into green careers.
Sustainable Economies Research Group (UK) (Link)	Many universities have sustainability departments or faculties, This is an example by way of the University of the West of England research group. Their programme develops whole system analyses on economies and areas within it.
Sustainability Exchange (Link)	Leading (UK centric) resource for producing materials for sustainability and related careers in education. Show numerous other stakeholder bodies. Also provide the latest programmes.
UK Energy Research Centre (Link)	The UK Energy Research Centre (UKERC) carries out world-class, interdisciplinary research into sustainable future energy systems. Reports frequently discuss job/labour force needs.
UK's Green Jobs Taskforce	The Green Jobs Taskforce launched in 2020 to set the direction for the job market as we transition to a high-skill, low carbon economy, and their work concluded in summer 2021. It was convened by ministers from the Department for Business, Energy and Industrial Strategy (BEIS) and Department for Education (DfE), and was made up of members from industry, trade unions, the skills sector: Their main output was the Green Jobs Taskforce report .
UN FCC (Link)	The UNFCCC secretariat (UN Climate Change) is the United Nations entity tasked with supporting the global response to the threat of climate change. The website gives an through set of documents, reports and meetings covering the global challenges, issues and status of climate change mitigation programmes.
World Economic Forum (Link)	The World Economic forum produces a stream of reports and articles describing and analysing the global transition to net zero, covering policy, economics, labour markets, education and technology. Much of this information and content is housed in a portal under their "Energy Transition" theme. WEF data is often presented at a country level to benchmark progress,
Yale Program on Climate Change Communication (Link)	Yale have research for over two decades into facets of communications about climate change to different audiences, to inform policymakers and educators. Though its US based, the resource provides extensive insights into engaging audiences.

Publications

Green jobs is already considered by career guidance has been the topic of intermittent papers in both the main careers guidance and development journals, as well from papers for government and supranational bodies like the OECD. The following publications are offer further and more-specific research into the specific green/sustainability agenda, with papers that could contribute to understanding other perspectives on career development and/or guidance related factors:

Title	Brief description
Business Green (Link)	This is a news and information website on the green agenda with a focus on business and employers. It frequently reports public research conducted in the sector, and provides commentary on events or public policy debates..
International Journal of Sustainability in Higher Education (Link)	The journal provides a medium for publications from global higher education institutions to share their learning on contributing to sustainability. (Over 600 universities worldwide have committed themselves towards sustainability by signing international agreements like the Bologna Charter, The Halifax Declaration, Talloires Declaration and the Copernicus Charter for Sustainable Development.)
International Journal of Sustainable Economy (Link)	Topics include the mutual impact of sustainability agendas and economic performance, including market cycles and fluctuations and market development.
Journal of Business Ethics (Link)	This journal publishes original articles focused on ethical issues related to business, with an aim to improve the human condition by promoting ethical discussion and debate in business.
Journal of Cleaner Production (Link)	The Journal of Cleaner Production is an international, transdisciplinary journal focusing on Cleaner Production, Environmental, and Sustainability research and practice, and supports open access.
Journal of Education for Sustainable Development (Link)	The journal offers a forum for academics and practitioners to share and critique innovations in thinking and practice in the emerging field of Education for Sustainable Development.
Journal of Environmental Education (Link)	Publishes pedagogical research in environmental and sustainability education, formal and informal, from early childhood to higher and vocational education.
Sustainability (Link)	An international, open-access journal on environmental, cultural, economic, and social sustainability. Covers wide ranging topics that are often interdisciplinary in nature
Sustainable Economies (Link)	Open access journal discussing the intersection of the sustainability agenda and economies (including labour market topics).

Data sources

Reputable data sources that provide context into this area are noted below. These may be useful for measuring effect sizes, studying trends over time or comparing different groups or geographies.

Title	Brief description
Cedefop (2024) Tracking the Green Transition in Labour Markets (Link)	Cedefop conduct tracking and evaluation research into a range of topics, including the diffusion of green jobs in EU countries.
Indicators of Global Climate Change (IGCC) (Link)	The IGCC, who are formed of scientific specialists, created this initiative in 2023 to plot reliable indicators of climate change from across the globe. The resource provides highlights of developments, datasets, and code. (Other similar dashboards are produced by a range of other institutions such as the International Monetary Fund (IMF) and World Meteorological Office (WMO))
Linkedin (2023), Global Green Jobs report (Link)	Linkedin now produce an annual report for the supply and demand of green jobs.
Borgonovi, F., et al. (2023), "The effects of the EU Fit for 55 package on labour markets and the demand for skills", OECD Social, Employment and Migration Working Papers, No. 297, OECD Publishing, Paris, (Link)	This OECD report "quantifies changes in employment and the demand for skills in the European Union following the implementation of Fit for 55 policies." It provides an example of a study that relates policy changes to labour market changes and gives an outlook for both sectors and different types of job.
International Labour Organisation: Green jobs (Link)	Provides extensive research and data on the international job and career field, with sections dedicated to green jobs and the sustainability-related economy.
OECD (2023), International attitudes to climate change policies (Link)	The OECD and The Social Economics Lab at Harvard published their results from surveying n=40k respondents across 20 of the world's most carbon-emitting countries (representing 72% of global CO2 emissions) to understand attitudes to carbon policies. Results provide barometers on absolute and relative national sentiments towards the climate agenda..
ONS, Estimates of green jobs (Link)	The ONS provides experimental estimates of green jobs in the UK using the industry, occupation and firm approaches.
PWC, Green jobs barometer (Link)	Measures the importance of green jobs in the UK economy.
Scottish Government (2020), Update to the Climate Change Plan 2018-2032 (Link)	The report provides the Scottish scenarios for development of the green economy and the impact on skills needs across different sectors.
UN Sustainable Development Goals:	Provides measurements on the global metrics related to sustainability and decarbonisation.

Statistical division (Link)	
WEF (2023), Fostering energy transition report (Link)	The WEF publishes data sets and several reports a year on the international progress towards net zero, including the performance of building a skilled labour force. In this 2023 version of an annual report, profiles are described in the performance of different nations.