



# Skills and jobs for the green transformation

## Implications for VET

Stelina Chatzichristou, Expert

Cedefop virtual get-together *“Greening VET - What does it mean and what does it take?”*

25 January, 2024



# Using skills intelligence to build up Cedefop Green Observatory ([Cedefop GO](#))



# The green transition **creates many more jobs than it destroys**

## European Green Deal skill forecast scenario

- Substantial job opportunities are possible
- Employment benefits in most sectors, some negatively affected (e.g., coal mining)
- Indirect employment benefits mainly for service-based sectors (e.g. ICT, real estate)

## Up-/reskilling for all workers:

- Targeted policy for 'key' and 'thyroid' occupations
- VET for workers' transitions in 'brown' sectors (e.g. conventional electricity)
- IVET to prepare future workers for green(er) jobs



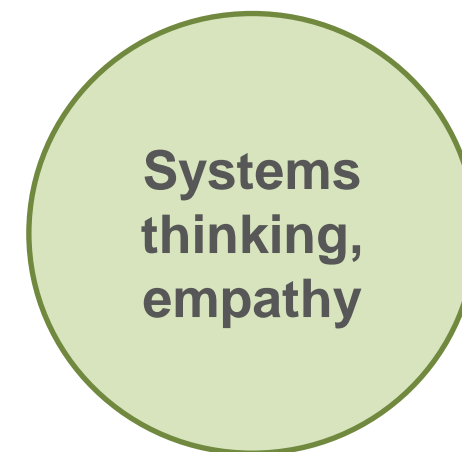
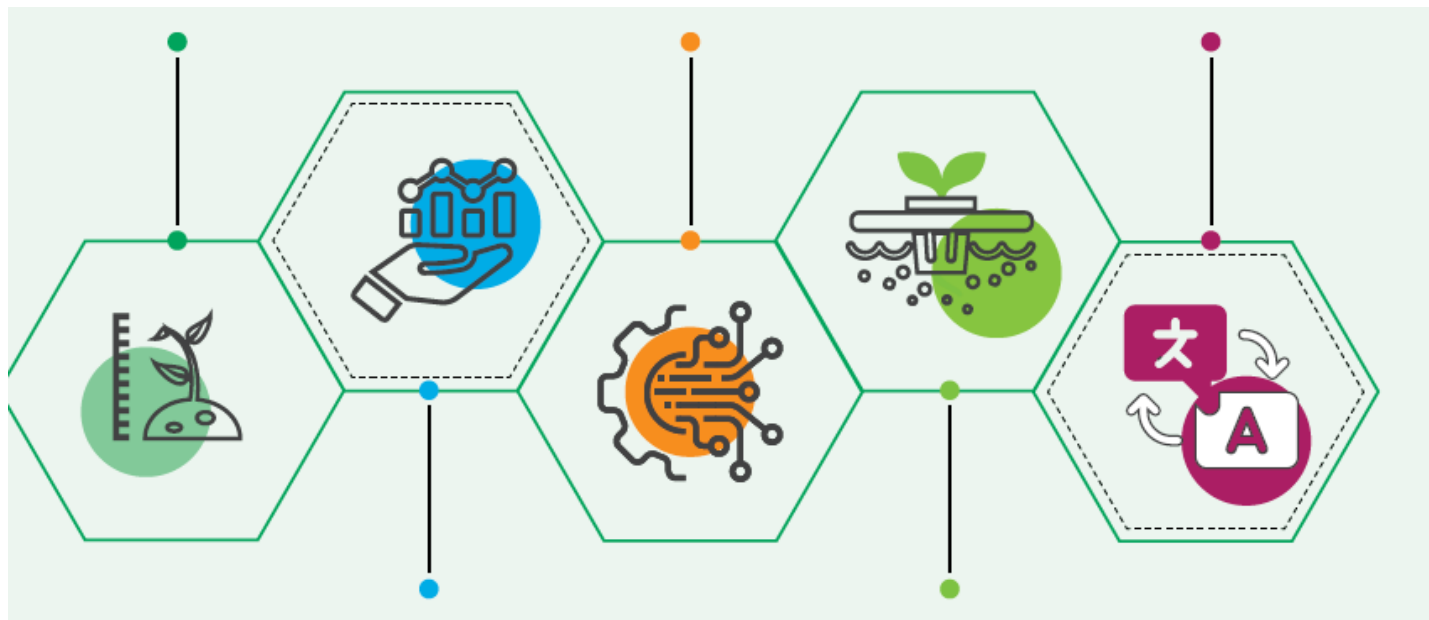


# Strategic, technical and soft skills foster the green transition

Strategic skills

Production skills

Marketing/communication skills



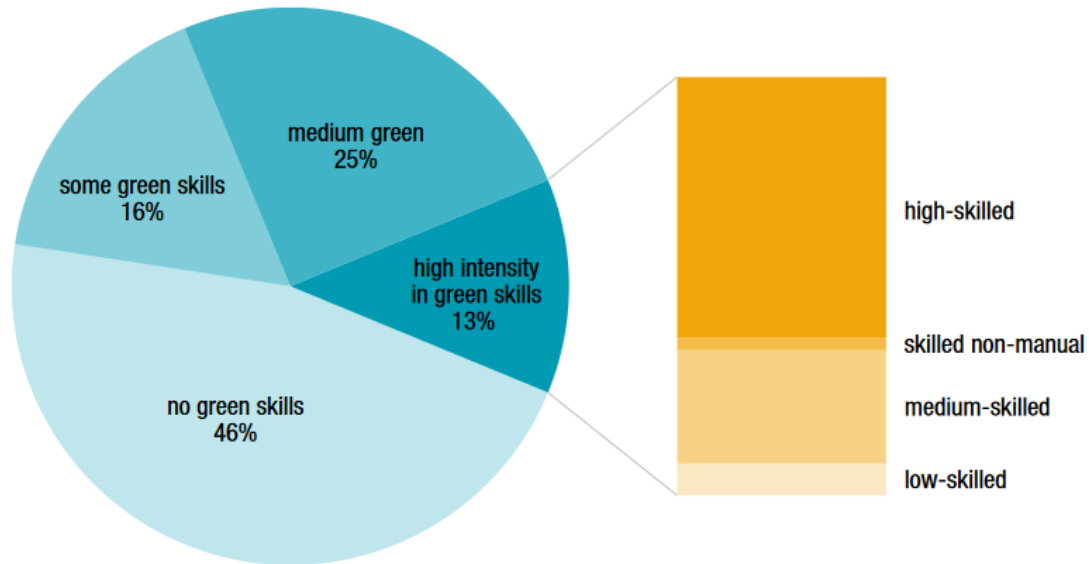
**Digital skills:** digital and data analysis skills

**Enabling skills:** product and process design skills



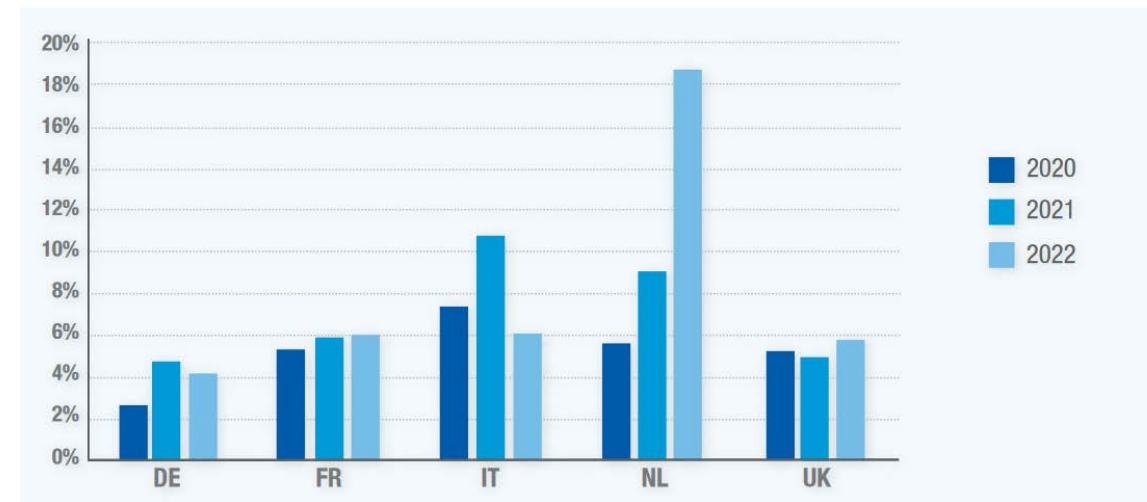
# Identifying 'green' occupations is not always straightforward

Online job adv. by greenness and required skill level (averages for Q1 2020- Q4 2022)



Source: WIH-OJA database. Figure available at Cedefop (2023). [Skills in transition](#)

Pervasiveness of 'green' terms in online job advertisements for financial analysts



Source: WIH-OJA. Figure available at Cedefop (2023). [From 'greenovators' to 'green' minds: key occupations for the green transition](#)

# Green jobs in the future of work and VET's role in accelerating transition



## Frontline green jobs

Construction professional  
Repair specialist  
Energy professional  
Material extraction/recycling/reuse expert  
Material and process engineers  
Circular product designers  
Transport and mobility specialist  
Environmental protection specialist

## Greentech specialists

Industrial problem analysts  
Industrial symbiosis facilitators  
Hydrogen specialists  
Urban space specialist  
Energy expert  
Circular economy plant designer  
Agronomists



## Green management

Green/smart city manager  
Logistics manager  
(Strategic) waste manager  
Waste valorisation professional  
Renewable energy managers

## Digital specialists

ICT professional  
Data scientists and data analysts  
E-commerce specialists  
GPS experts (precision agriculture)  
Waste sorting optimisation professional

## Green hearts and minds

HR specialists  
Consumer behaviour specialists  
Sustainability trainers  
Waste management trainer  
Citizen engagement specialist

Source: Cedefop green skills foresights in [cities](#), [waste management](#), [agri-food](#) and [circular economy](#)

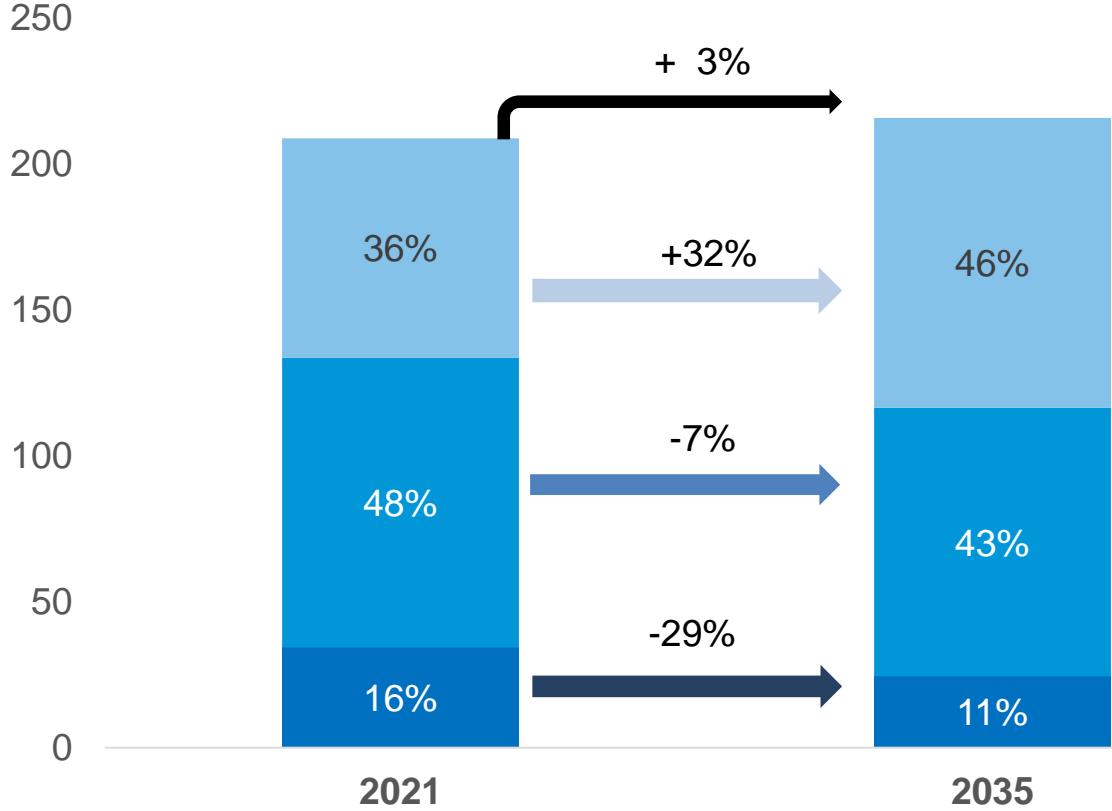
# Main occupations driving change in smart and green cities

 <p><b>SMART AND GREEN CITY MANAGEMENT PROFESSIONALS</b></p> <ul style="list-style-type: none"><li>▪ sustainability/climate officers</li><li>▪ innovation managers</li><li>▪ citizen engagement specialists</li><li>▪ analysts and researchers</li><li>▪ legal experts</li></ul>	 <p><b>ICT PROFESSIONALS</b></p>	 <p><b>ENERGY PROFESSIONALS</b> Design, Installation and maintenance of environmentally friendly energy systems</p>
<p><b>URBAN SPACE SPECIALISTS</b></p> <ul style="list-style-type: none"><li>▪ horticulturalists</li><li>▪ gardeners</li></ul> <p><b>DESIGNERS</b></p> <ul style="list-style-type: none"><li>▪ urban planners</li></ul> <p><b>PROFESSIONALS IN CHARGE OF PROTECTING URBAN SPACE</b></p> <ul style="list-style-type: none"><li>▪ waste management</li><li>▪ sanitation</li></ul> 	 <p><b>TRANSPORT AND MOBILITY SPECIALISTS</b> Design, manufacture, Installation, and maintenance of smart mobility systems</p>	 <p><b>ENVIRONMENTAL PROTECTION SPECIALISTS</b></p> <ul style="list-style-type: none"><li>▪ environmental engineers</li><li>▪ biodiversity protection professionals</li></ul>
<p><b>SPECIALISTS TO BOOST CITIZEN ENGAGEMENT AND IMPROVE THE AMBIANCE OF URBAN SPACE</b></p> <ul style="list-style-type: none"><li>▪ communication specialists</li><li>▪ psychologists</li><li>▪ artists</li></ul>		 <p><b>CONSTRUCTION AND BUILDING SPECIALISTS</b></p> <ul style="list-style-type: none"><li>▪ Involved in retrofitting</li><li>▪ better use of materials</li><li>▪ design of buildings</li></ul>

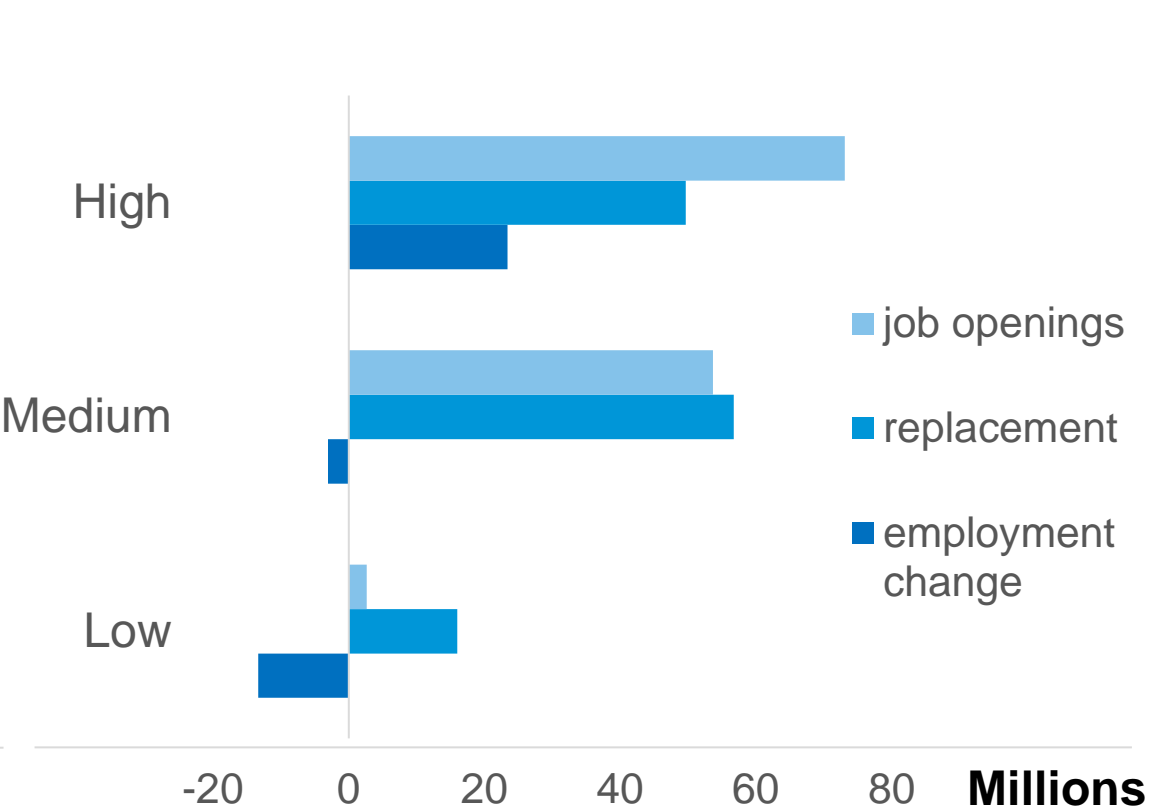
# Up to 2035 jobs will rapidly become much more skills intensive

Millions

Jobs by skill level



Job openings in 2021-35



Source: Cedefop skills forecast 2021-35

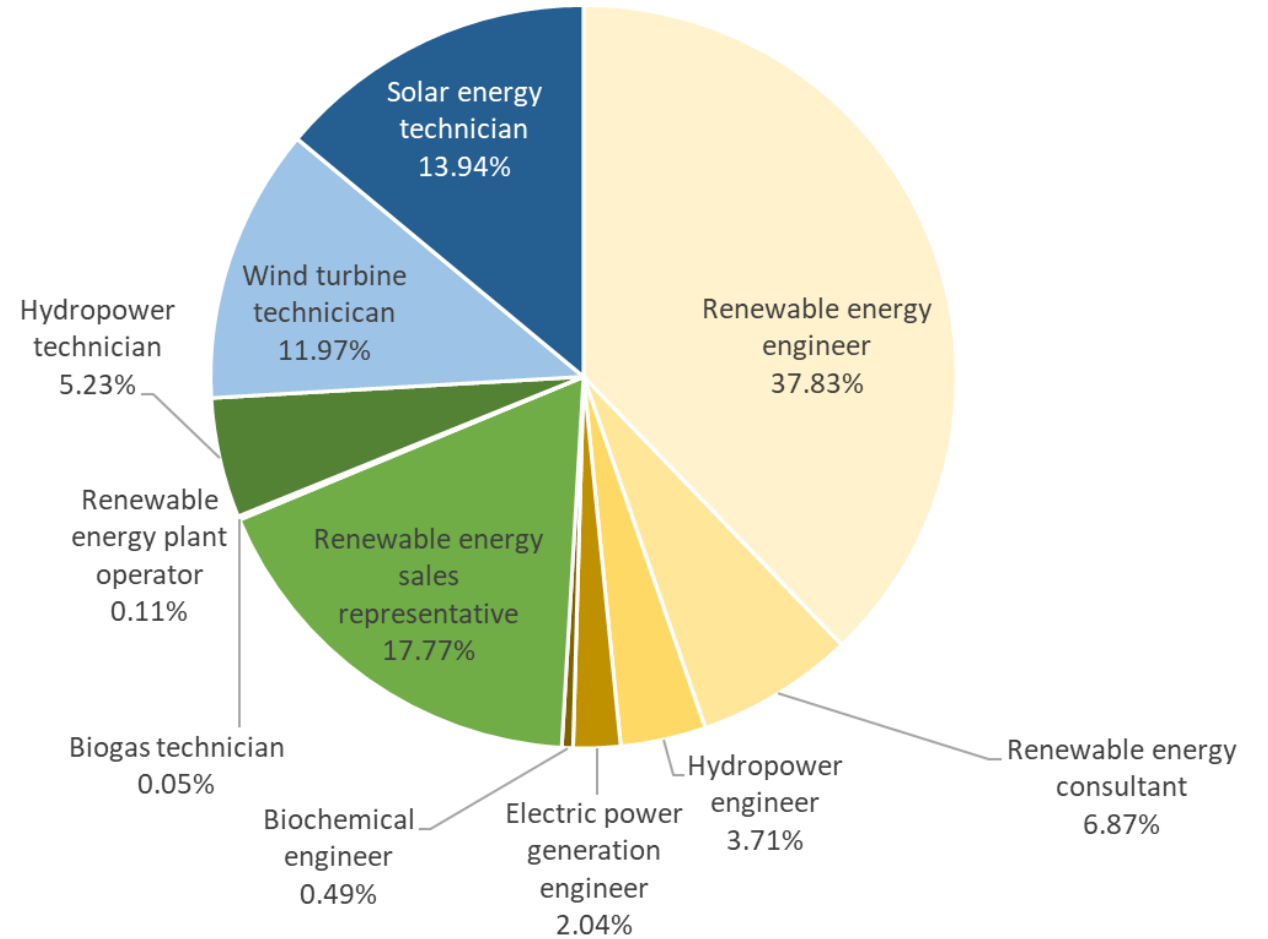


# High and mid-level trained people **make greening happen**

Growth in online job ads for renewable energy occupations (Q1 2020 = 100)



Demand for renewable occupations, Q1 2023, EU27



- Highly and medium-skilled
- Tasks change rapidly (emerging “greentech”)

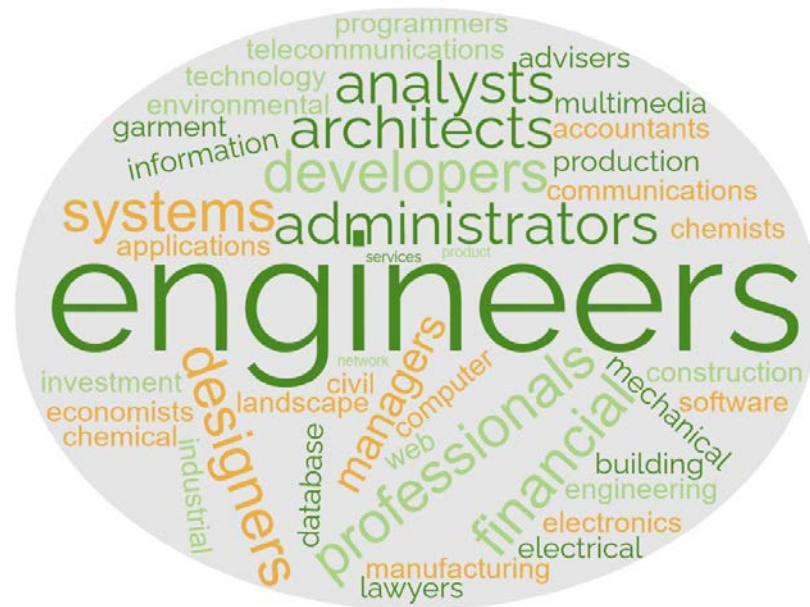
➤ Inventing, designing, conceptualising green transition solutions:

- Engineers, process designers, scientists/R&D

*and* implementing it:

- Managers, lawyers, renewable energy technicians, construction technicians, communication specialists

## No green transition without all hands (& minds) on deck



- expanding employment
- shifting skill profiles:
  - **technical** skills linked to quick technology developments
  - **transversal** skills, such as problem solving, communication, attention to detail and adaptability

# Middle and low-skilled workers **have a role in the green economy**

- *Technical profiles*, e.g., builders/construction workers
- Decreased demand for *low-skilled jobs*, but still relevant for frontline green jobs: e.g., in waste management
- *Social innovation*: jobs relevant to retrofitting can enable the transition for vulnerable groups (e.g., early education leavers, migrants)



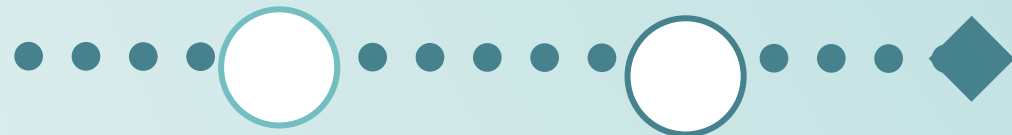
# VET is a powerful **twin transition enabler**

Short-term (*sprint*)



Accompany change

Long-term (*marathon*)



Trigger change

- Recalibrating VET
- Targeted CVET: Adjust training to learners' needs (e.g., short-training modules; microcredentials)
- Work-based learning/apprenticeships
- Shaping circular economy citizenship
- Technical and digital skills; but also *empathy*
- “Green” skills anticipation







# Thank you

For more information on Cedefop's green work, visit [Cedefop Green Observatory](#)

[www.cedefop.europa.eu](http://www.cedefop.europa.eu)

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