

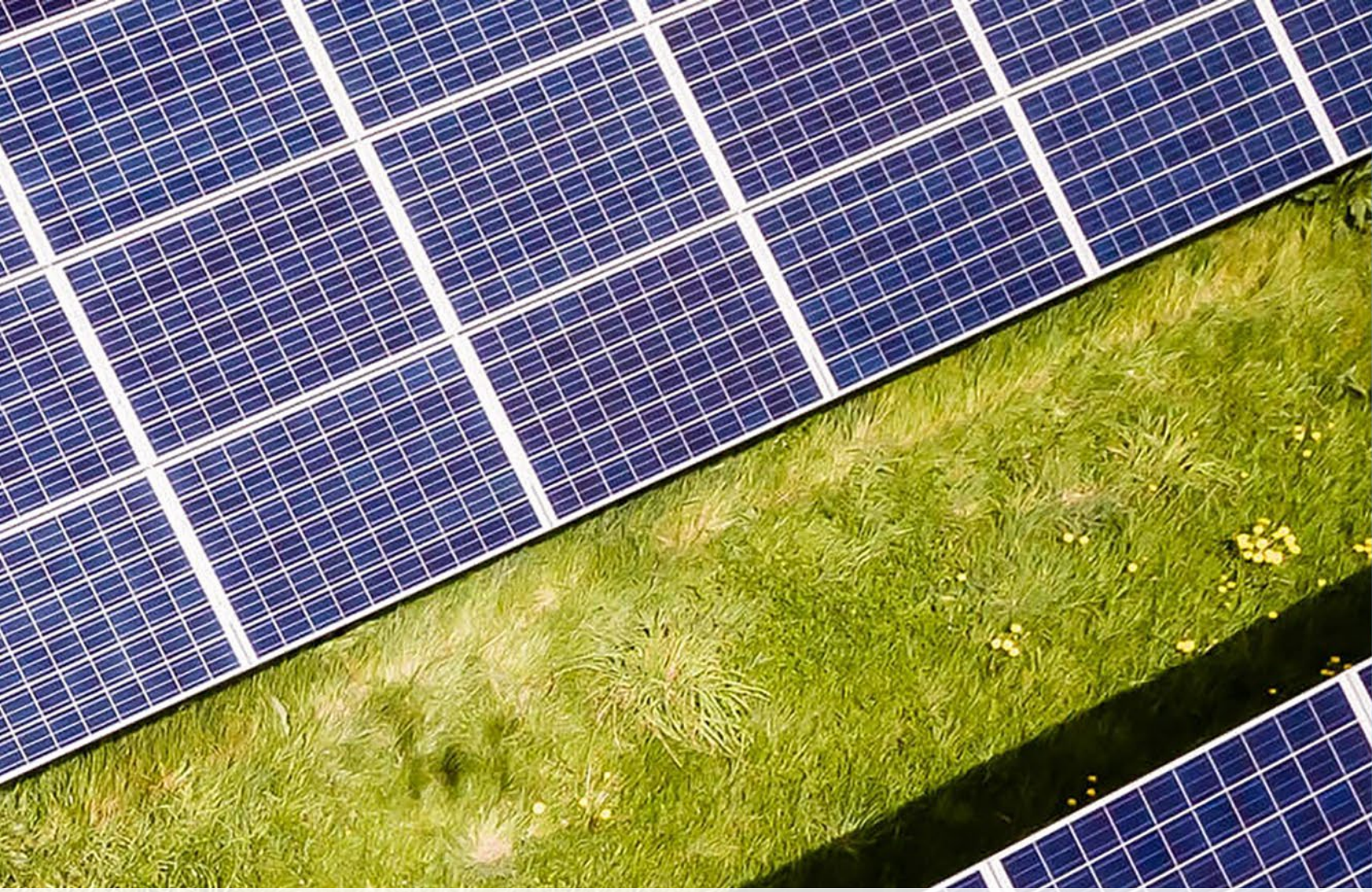


THE GREEN H₂ WORKFORCE CHALLENGE

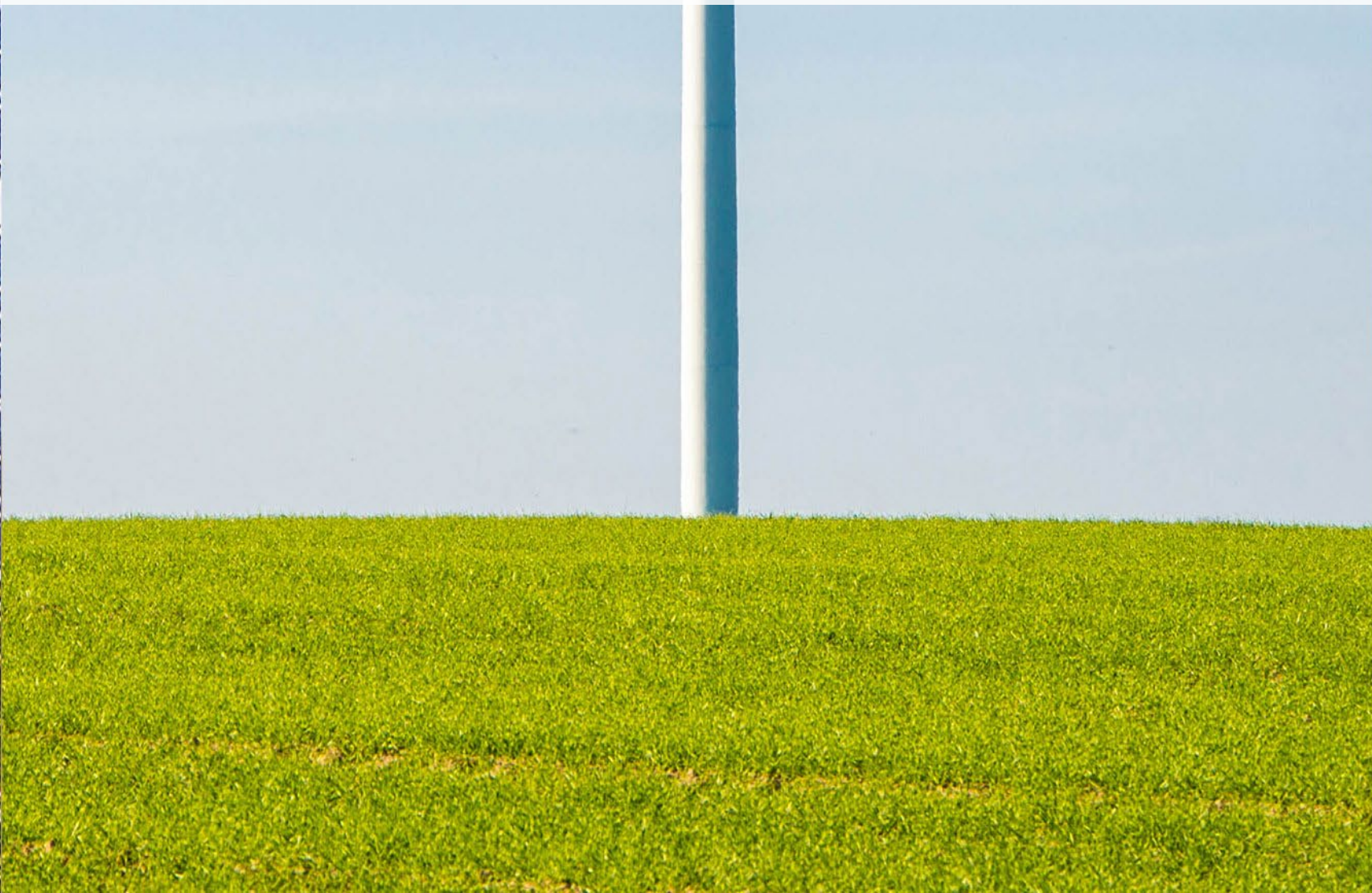
Dr Anita Talberg

POLICY DIRECTOR –
WORKFORCE DEVELOPMENT,
CEC

September 2022



THE PEAK BODY FOR THE RENEWABLE ENERGY INDUSTRY IN AUSTRALIA





CLEAN ENERGY AT WORK

June 2020



cleanenergycouncil.org.au



EMPOWERING EVERYONE

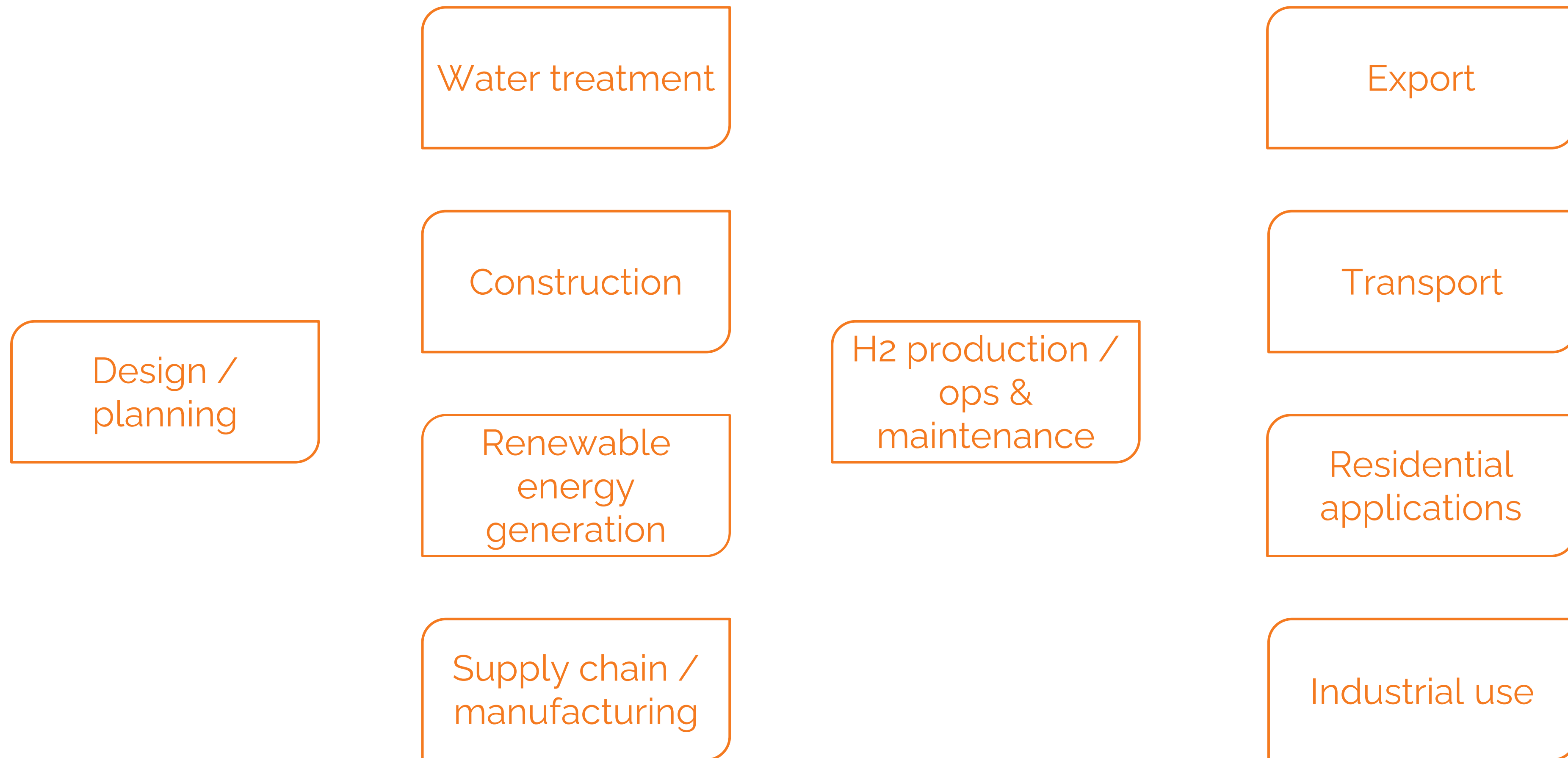
DIVERSITY IN THE AUSTRALIAN CLEAN ENERGY SECTOR



SKILLING THE ENERGY TRANSITION

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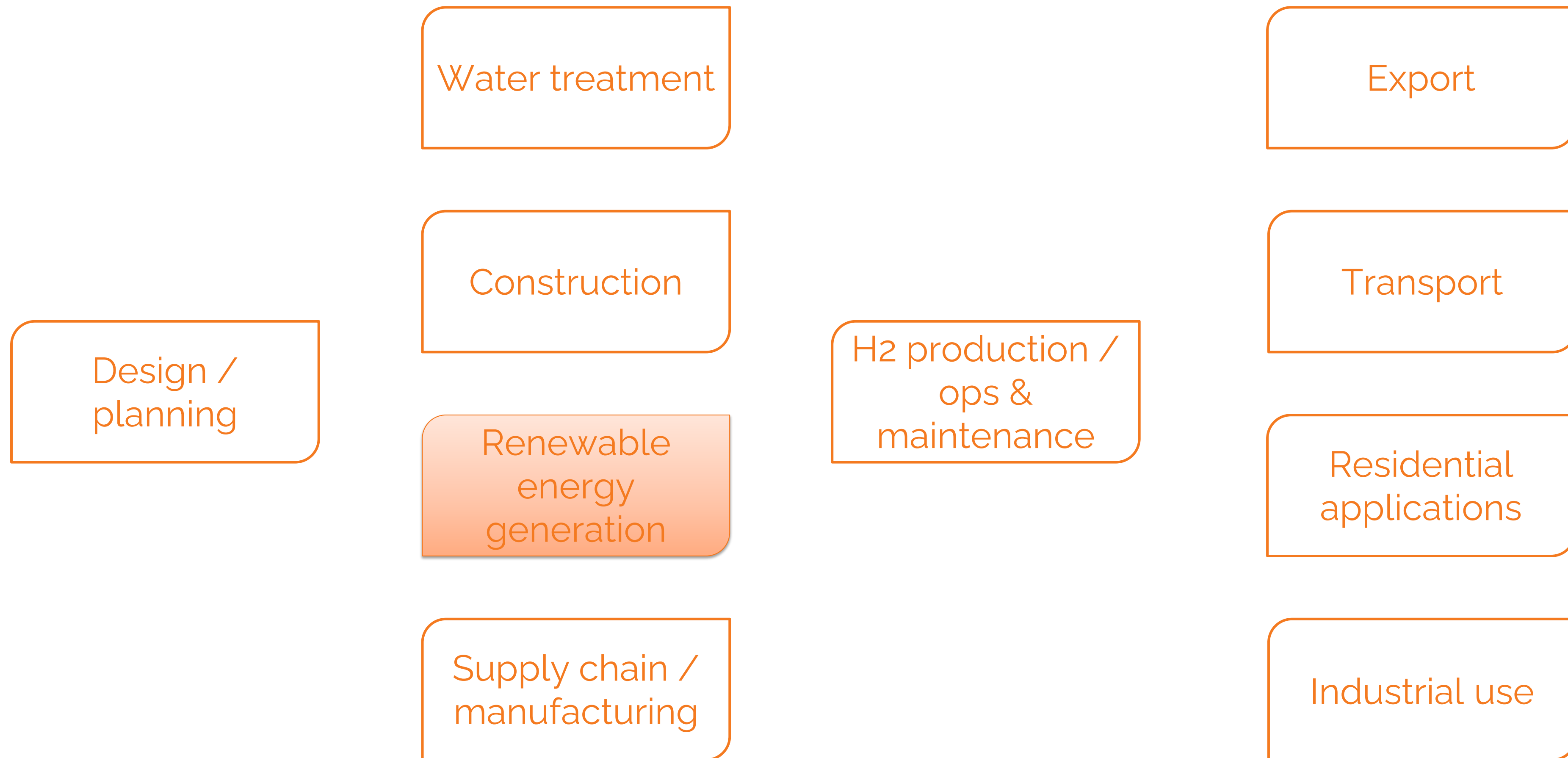
THE GREEN H₂ WORKFORCE COMPONENTS



- Where?
- When?
- How many?
- For how long?

Project/industry development

THE GREEN H₂ WORKFORCE CLUSTERS



Project/industry development 

MASSIVE JOBS GROWTH

Currently around 30,000 people employed, and this is set to grow:

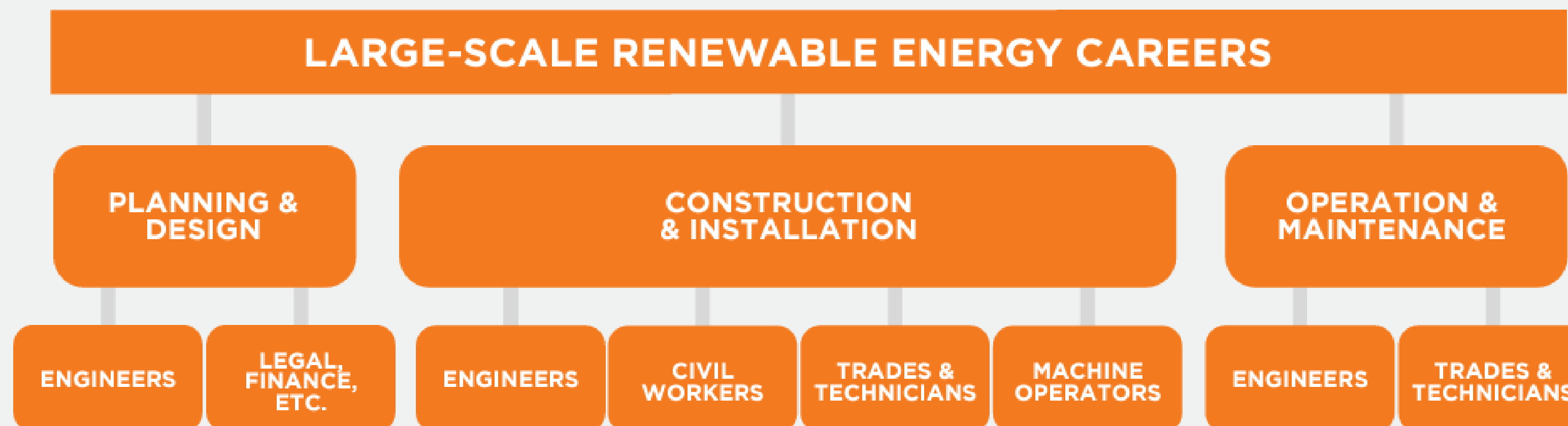
- **141 GW of large-scale** wind and solar capacity, **63 GW of storage & hydro** and **69 GW of small-scale solar & household batteries** by 2050 (ISP)
- Strengthening **local supply chain & manufacturing**
- 10,000km of **transmission**
- Australian **industry leveraging low cost & reliable clean power**
- Hundreds of thousands of **indirect jobs**





























CAREERS IN LARGE-SCALE RENEWABLE ENERGY





























There are several categories of work in the large-scale renewable sector, but they can be crudely distinguished as:






























- jobs running the business of renewable energy, including planning and design
- jobs in the physical construction of solar, wind, pumped hydro or battery projects
- jobs in the operation and maintenance of energy generation (and related) technology.



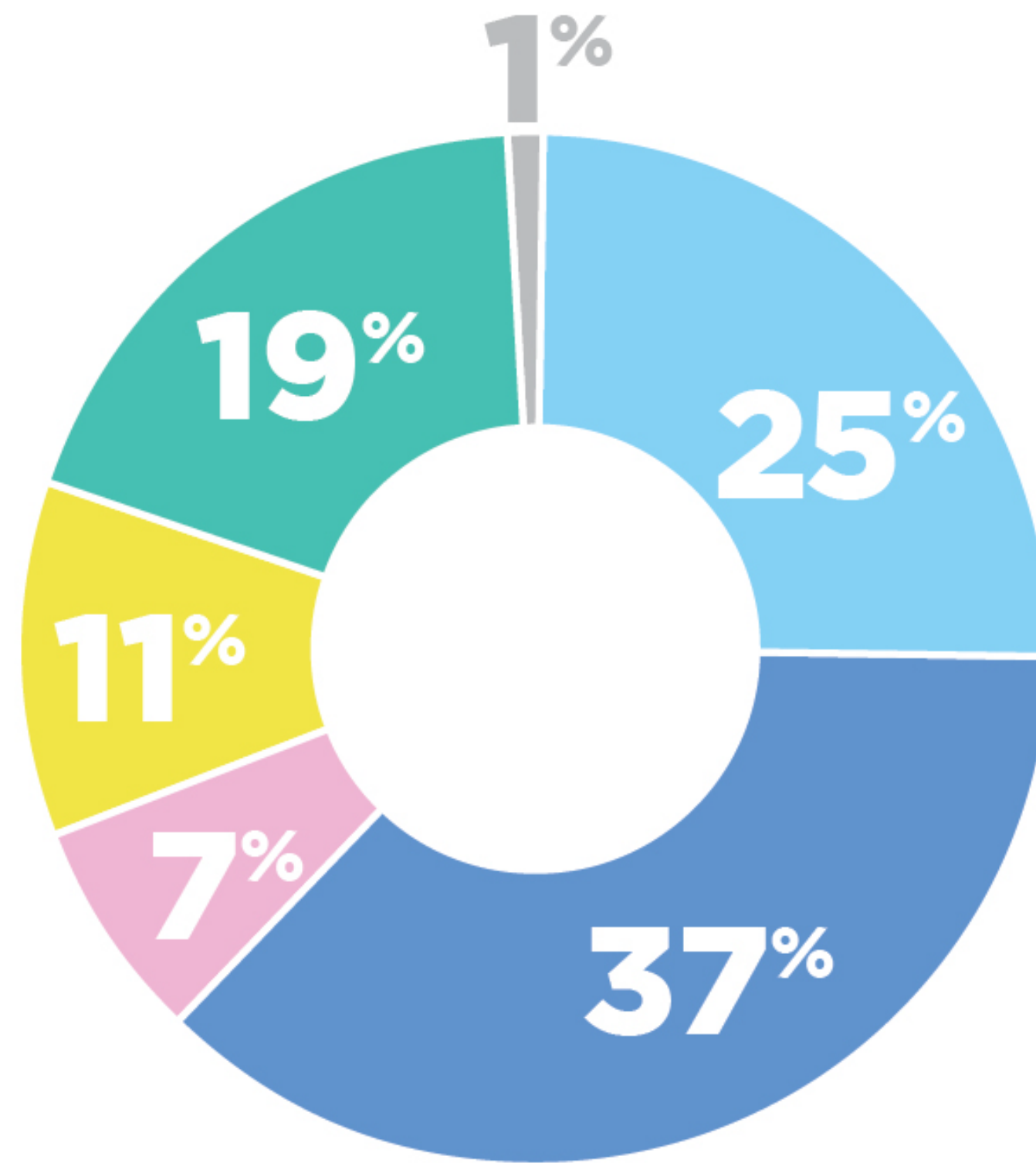
THE SKILLS GAPS

					
		WIND	SOLAR	HYDRO	BATTERY
Asset manager		●	●	●	●
Battery deployment manager					●
Battery design specialist - residential	 				●
Battery design specialist - utility scale	 				●
Battery installation operations specialist					●
Bids and proposals manager		●	●		
Blade technician		●			
Blade engineer		●			
Civil/civil design engineer		●	●		
Commercial manager					●
Commercial sales operation and analysis				●	
Community liaison manager		●	●		
Construction manager				●	
Control room operator		●	●	●	●
Contracts manager		●	●		
Development manager		●	●		
Electrical engineer		●	●	●	
Electrical power systems technician				●	
Electrical superintendent		●	●		
Electrician - solar rooftop accredited			●		

					
		WIND	SOLAR	HYDRO	BATTERY
Engineering, procurement, construction (EPC) manager					●
Environmental scientist				●	
Field service technician - electrical					●
Field support engineer					●
Geomatics engineer				●	
Geotechnical engineer / geologist				●	
Grid connection engineer / manager		●	●		●
High voltage operator - power generation		●	●	●	●
HV engineer		●	●	●	●
HSQE manager/officer		●	●		
Hydropower - electrical technician				●	
Hydrographer	 			●	
Hydrologist				●	
Hydropower civil/civil design engineer				●	
Hydropower engineer				●	
Leading hand		●			
Logistics coordinator		●	●		
Maintenance technician - electrical				●	
Maintenance technician - mechanical				●	
Material and procurement specialist	 	●	●	●	●
Mechanical / mechatronics engineer		●	●	●	
Mechanical technician				●	

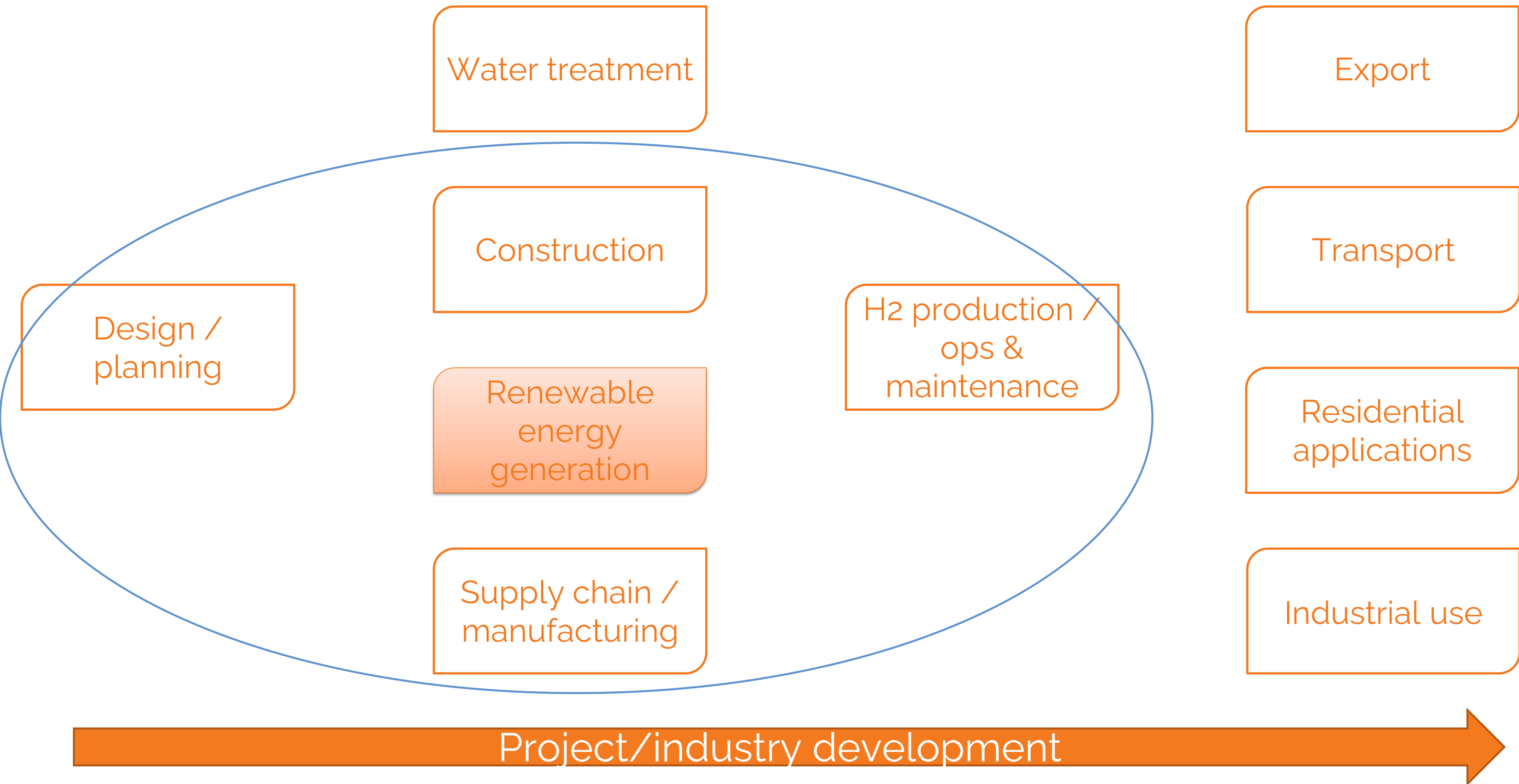
					
		WIND	SOLAR	HYDRO	BATTERY
Operation and maintenance (O&M) manager	 	●	●		●
Portfolio manager		●	●		
Power systems engineer		●	●	●	
Project manager / coordinator / engineer		●	●	●	●
Quality manager/engineer		●	●		
Reliability engineer		●	●	●	●
Renewable energy engineer		●	●	●	●
Sales manager		●	●		●
SCADA engineer		●	●	●	●
Site administrator / manager		●	●	●	●
Site installation supervisor		●			
Site safety manager				●	
Solar farm technician - electrical			●		
Solar farm technician - mechanical			●		
Structural engineer		●	●	●	
Surveyor	 			●	
Talent acquisition specialist		●	●	●	●
Technical support engineer					●
Technical support specialist - electrical					●
Trade assistant			●		
Wholesale and trading operations and analysis				●	
Wind technician - electrical		●			
Wind technician - mechanical		●			

CAUSES OF RECRUITMENT DIFFICULTIES FOR WIND AND LARGE-SCALE SOLAR (%)

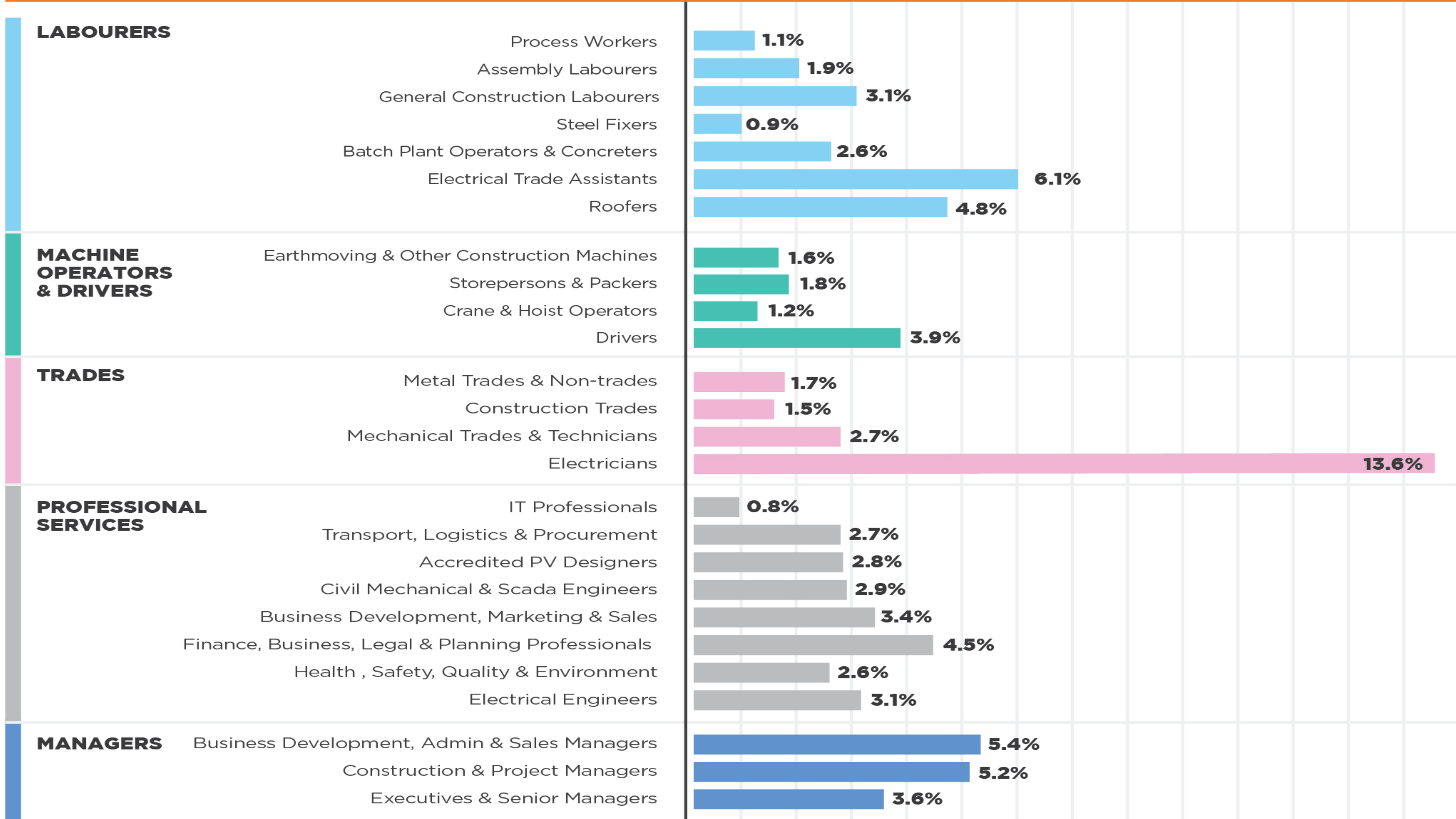


- NOT ENOUGH CANDIDATES WITH SPECIFIC EXPERIENCE IN RENEWABLE ENERGY
- SUITABLE CANDIDATES BUT THEY WANTED HIGHER PAY
- DIFFICULTY ATTRACTING SUITABLE CANDIDATES FOR PROJECTS IN REGIONAL OR REMOTE LOCATIONS
- NOT ENOUGH CANDIDATES WITH GENERAL EXPERIENCE
- NOT ENOUGH CANDIDATES WITH THE RIGHT QUALIFICATION/LICENSES
- SUITABLE CANDIDATES BUT THEY WANTED LONGER TERM EMPLOYMENT

THE GREEN H₂ WORKFORCE CLUSTERS



RENEWABLE ENERGY TECHNOLOGIES: OCCUPATIONAL COMPOSITION - COMPOSITE (%)



RECOMMENDATIONS FOR SKILLING THE ENERGY TRANSITION

Calibrate higher education to meet clean energy industries' interests

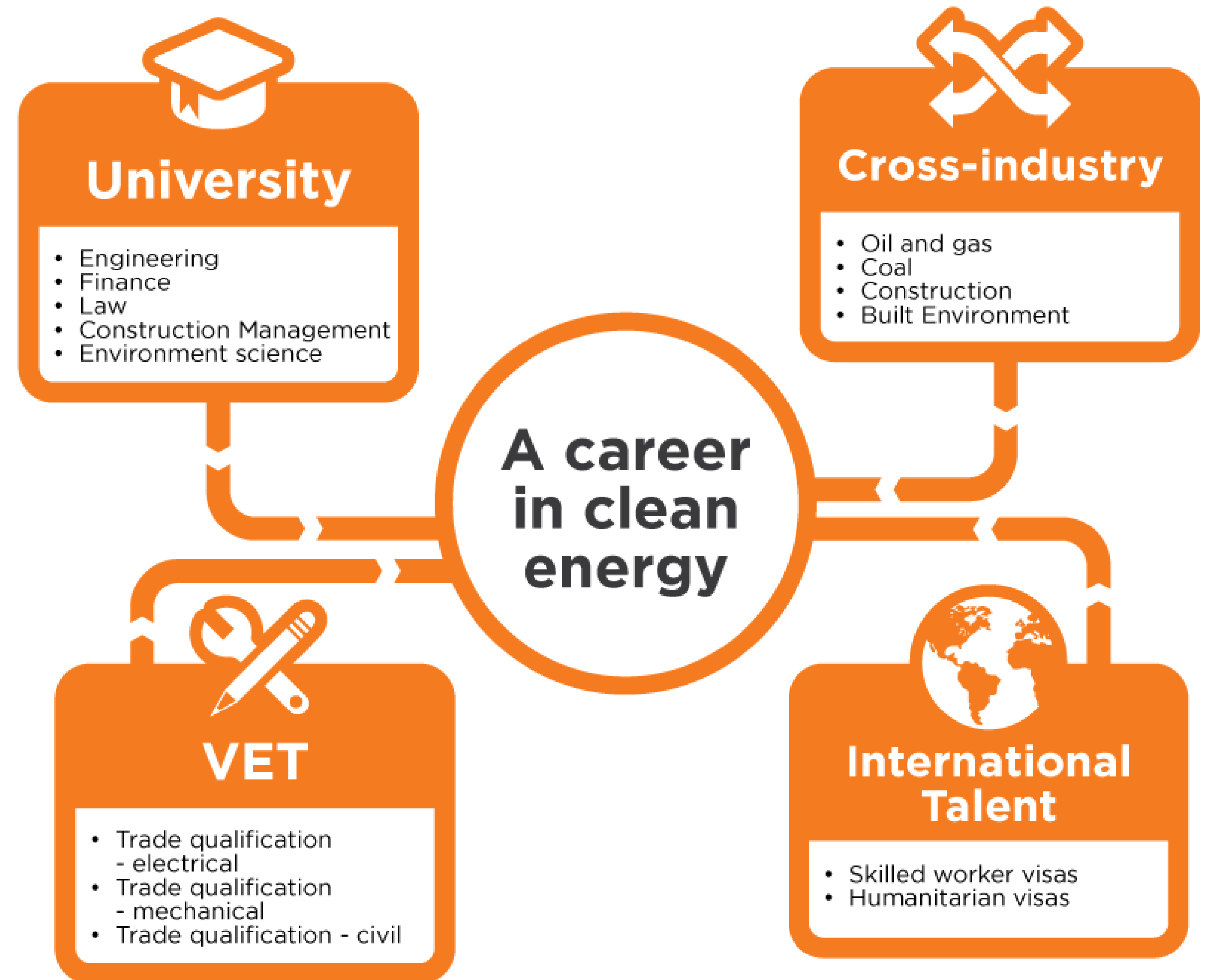
Anticipate (modeled in ISP) clean energy workforce needs

Raise the profile of working in clean energy (awareness campaign)

Establish a Transition Authority

Enhance the VET sector's capacity to understand and meet the demands of industry

Raise the international profile of Australia as a hub of clean energy expertise to attract skilled workers and talented students



INDIGENOUS PARTICIPATION



0.8%

of the Australian clean energy workforce



3.3%

of the Australian population¹⁰

BORN IN AUSTRALIA



68%

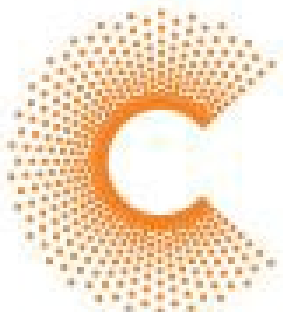
of the Australian clean energy workforce



67%

of the Australian population¹³

PEOPLE WITH A DISABILITY IN THE WORKFORCE



3%

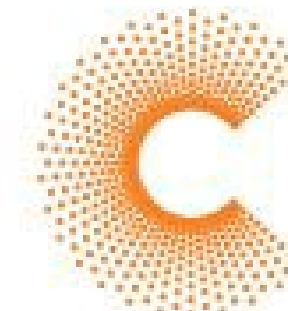
of the Australian clean energy workforce



18%

of the Australian population¹⁴

FEMALE REPRESENTATION



39%

of the Australian clean energy workforce



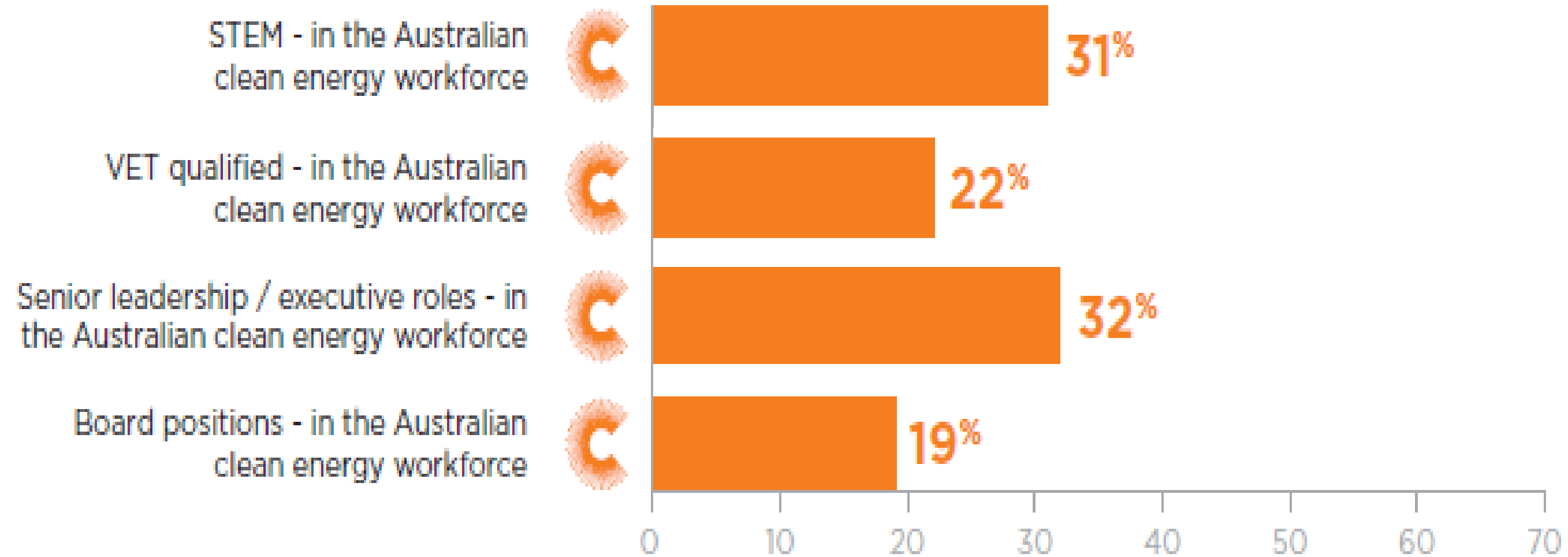
50%

Australian workforce 2021²

FEMALE REPRESENTATION



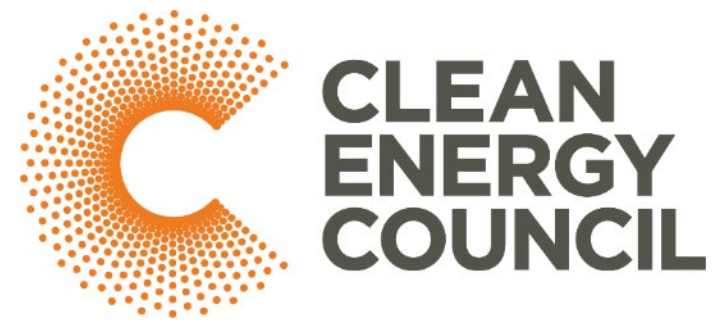
FEMALE REPRESENTATION ACROSS CATEGORIES



STEM: Science, technology, environment and mathematics
VET: Vocational education and training

THE H₂ WORKFORCE CHALLENGE – NEXT STEPS

- ⇒ **Data / projections - state & national level with granularity to occupational level**
- ⇒ **A good story – Australians need to believe in a H₂ economy & the career opportunities (incl. supply chain)**
- ⇒ **Direct, easy, and wide pathways – Higher ed, VET, migration, and transition**
- ⇒ **A deliberate focus on equity and inclusion from the start**



THANK YOU

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