

# Skills Demand Assessment

## *Renewable Energy and Energy Efficiency*

*September 2020*



implemented by  
**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH



higher education  
& training

Department:  
Higher Education and Training  
REPUBLIC OF SOUTH AFRICA

## SD4GE II

GIZ Skills Development for a Green Economy (SD4GE) II is a German Technical Cooperation Programme implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

## Background

- SD4GE II shifting from supply side (TVET) approach to employment aligned, demand focused training
- Experience from supporting DHET with the DSPP indicates graduates struggle to find employment and require employment interventions

## Background

- SD4GE II responding to Presidential Youth Employment Intervention and green recovery programme
- All sectors in need to manage energy more efficiently especially in the built environment
- There is a need for skilled artisans in the green economy
- Research indicates that work readiness training linked to soft skills (problem solving) enables youth to transition to the world of work

“Demand-led training represents the convergence of the worlds of education and work, creating new intersections, pathways, and possibilities for advancement.

Deegan and Martin 2018

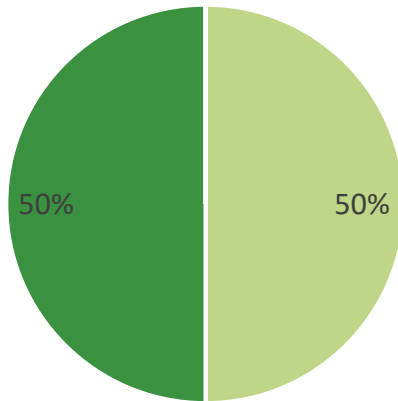
## Skills Demand Assessment

- Assessed companies' skills needs, recruitment requirements and employment outlook
- Structured questionnaires and semi-structured interviews were conducted with 16 companies and leading industry associations in the Renewable Energy and Energy Efficiency sectors

# A. Overview of business

## Energy Efficiency

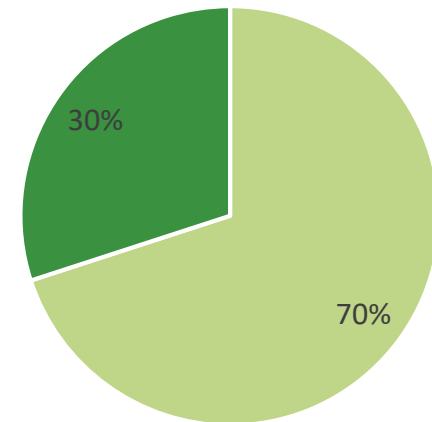
### 1. Type of business



- Corporate company
- SME
- Microenterprise (max. 5 staff)
- Non-Profit Organization
- Other

## Solar PV

### 1. Type of business

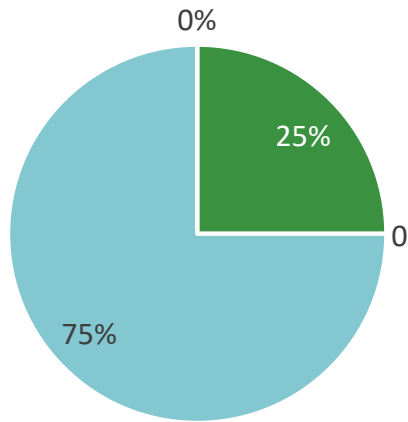


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## Energy Efficiency

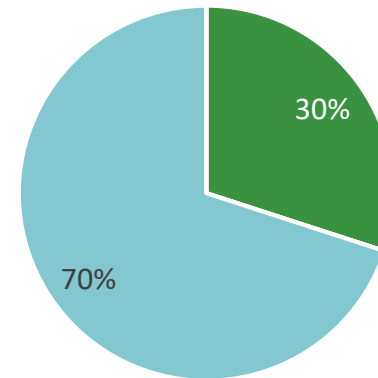
### 2. Field of activity



- Provision of products/materials
- Provision of services
- Both products & services
- Other

## Solar PV

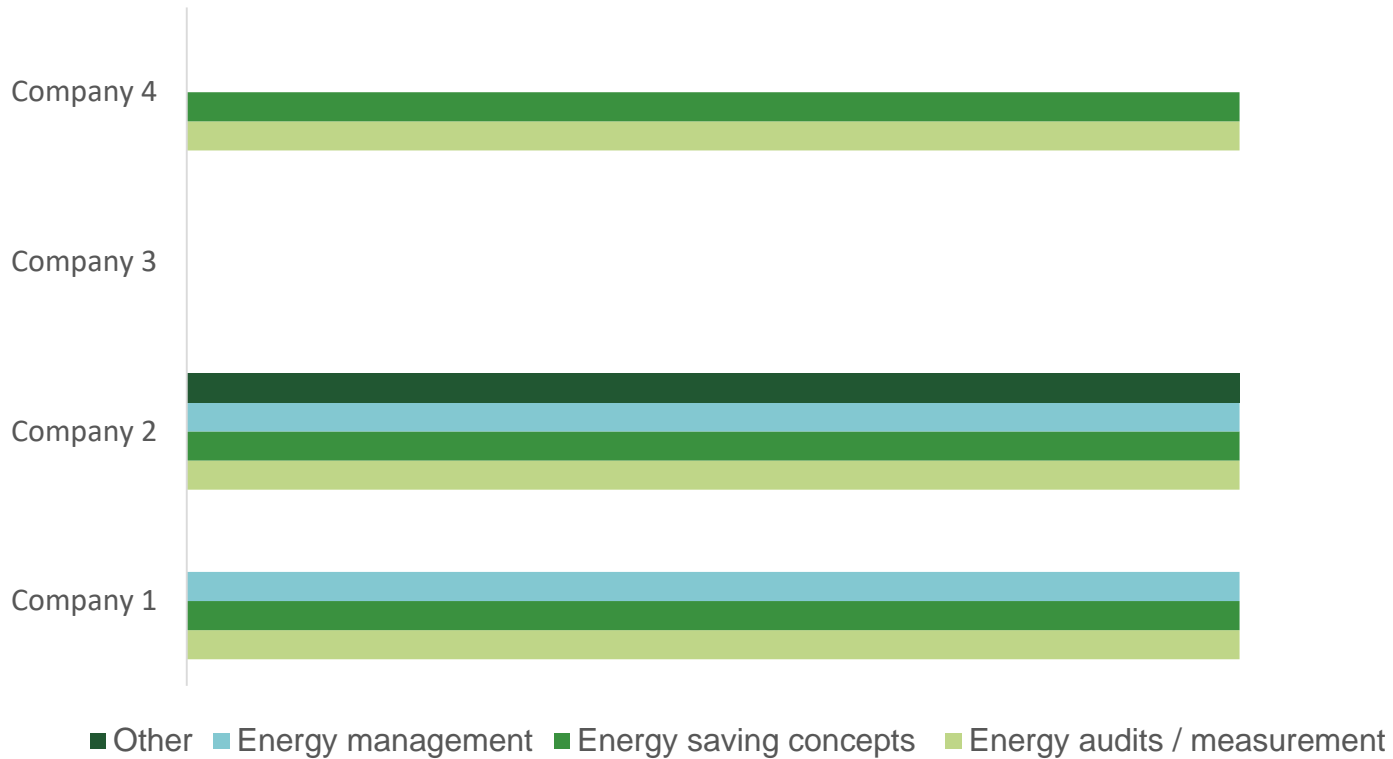
### 2. Field of activity



- Provision of products/materials
- Provision of services
- Both products & services
- Other

# Energy Efficiency

## 3. Type of services offered



### 3. Energy Efficiency: Type of services offered

	Company 1	Company 2	Company 3	Company 4
Energy audits / measurement	X	X		X
Energy saving concepts	X	X		X
Energy management	X	X		
Other – please specify		X	X	

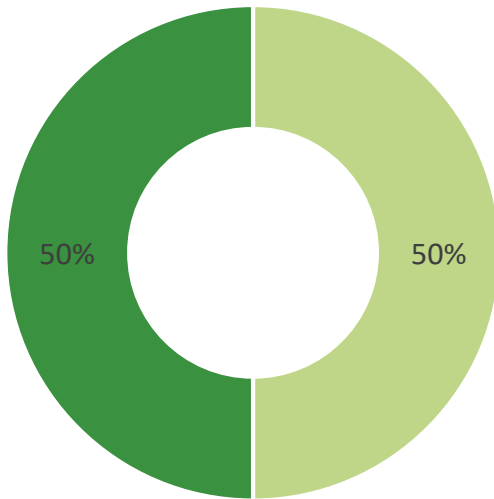
### 3. Solar PV: Type of services offered



- Other
- Installation & maintenance of PV hybrid installations
- Installation & maintenance of PV on-grid installations
- Wiring
- Installation & maintenance of PV pumping installations
- Installation & maintenance of PV off-grid installations
- Utility scale installations
- Basic electricity services

## Energy Efficiency

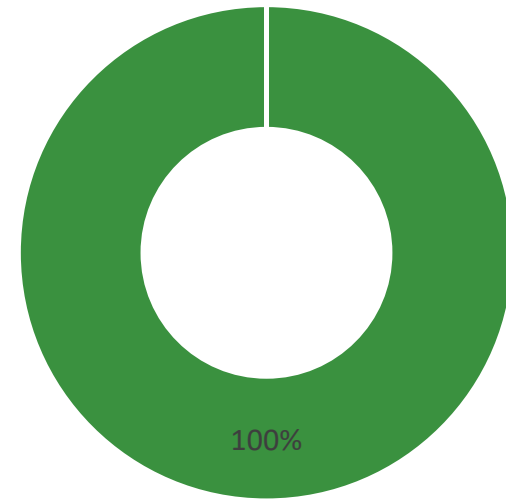
4. Number of staff



■ Employing less than 100 people ■ Employing more than 100 people

## Solar PV

4. Number of staff



■ Employing less than 100 people ■ Employing more than 100 people

# B. Economic outlook

## Economic Outlook: Energy Efficiency

75% companies strained due to COVID-19 /initial lockdown

Co1: Locally challenged while export market unaffected

Co2: Less private sector work for the company, more exports going forward. Looking at selling a percentage of the business

Co3: Regrouping after sales drop

25% positive economic outlook

Initial impact (L5) worst

Positive due to pan-African tender in 2021

## Economic Outlook: Solar PV

100% satisfactory/positive

Safeguarded due to long-term power purchase contracts. If utilities are paying IPP for power, there is an uninterrupted revenue stream. Vulnerable w.r.t construction projects during lockdown

Medium to long-term economic dependent on regulatory environment



# C. Consequences for employment

## Staff Retention: Energy Efficiency

- 75% retaining full staff complement
- 50% shortening staff salaries
- 25% no drastic measures/buffer in place/hire freeze
- 25% no comment

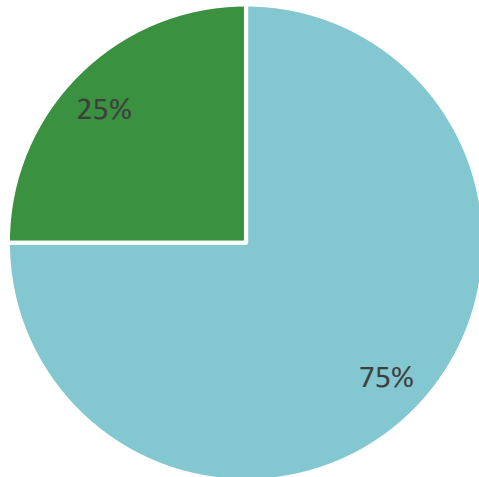
## Staff Retention Solar PV

50% retaining full staff complement  
50% no comment

# D. Possible effects of salary subsidies

## 1. Energy Efficiency

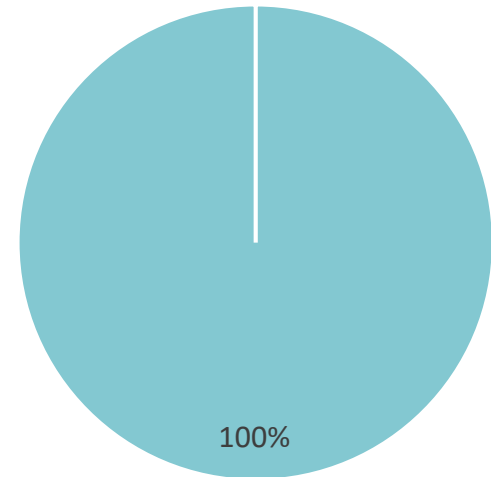
Which one of the following statements concerning salary subsidies do you agree more with?



- Salary subsidies would be helpful
- There is a minimum level of subsidies to be reached to make a difference
- In the long term, salary subsidies would not help at all

## 1. Solar PV

Which one of the following statements concerning salary subsidies do you agree more with?

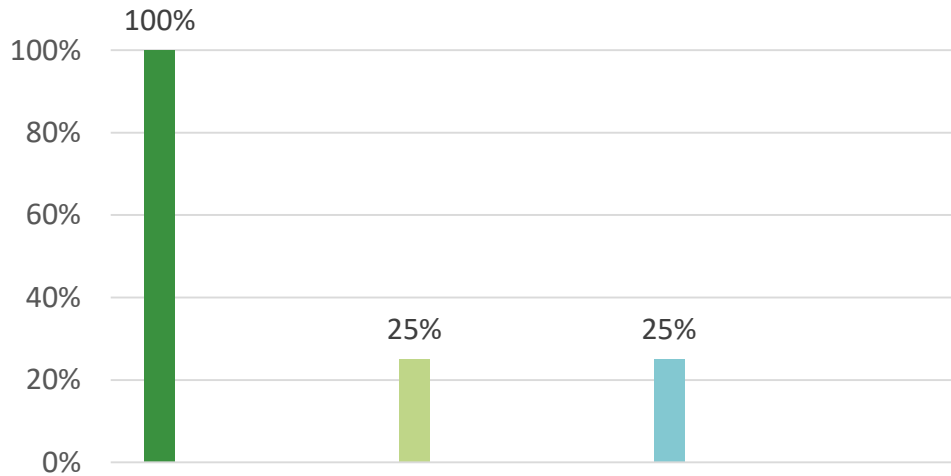


- Salary subsidies would be helpful
- Minimum level to make a difference
- In the long term, salary subsidies would not help at all

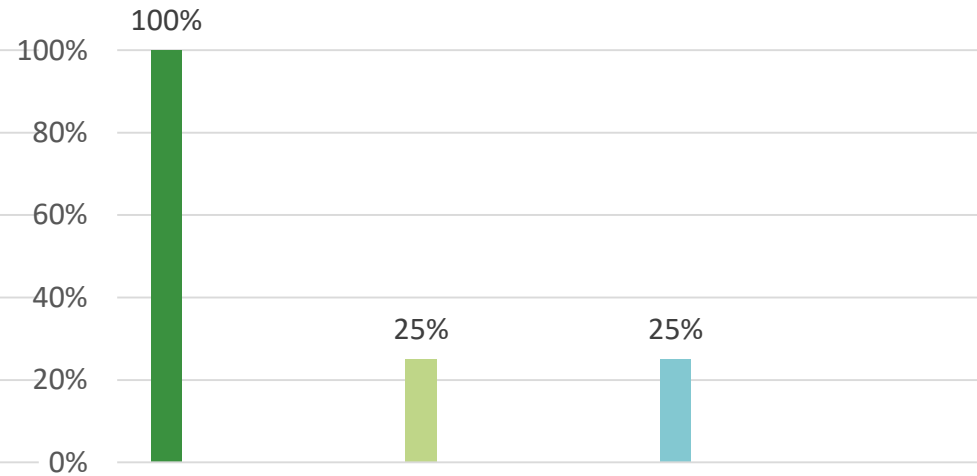
# E. Recruitment mechanisms

# 1. Energy Efficiency: Which type of technical positions / skill levels do you normally recruit?

Qualification type



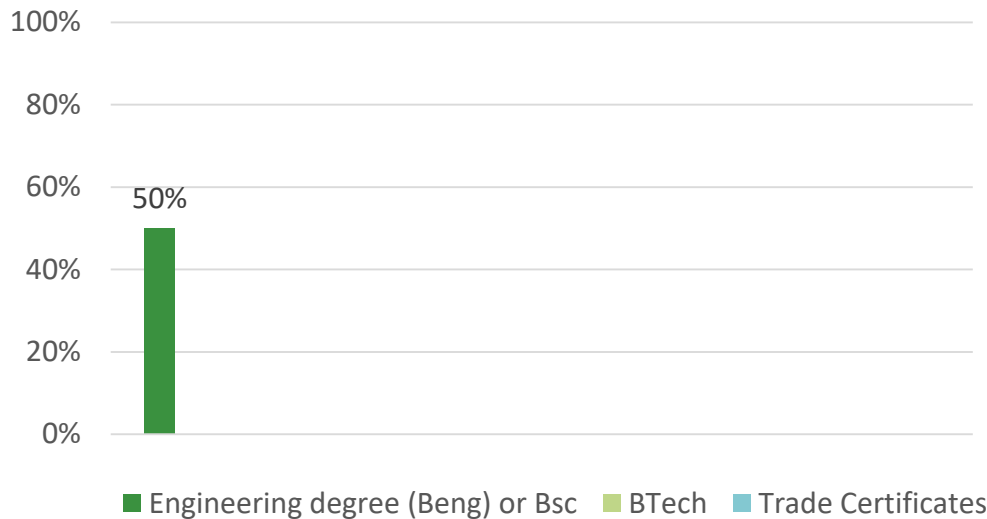
Technical positions/skills level



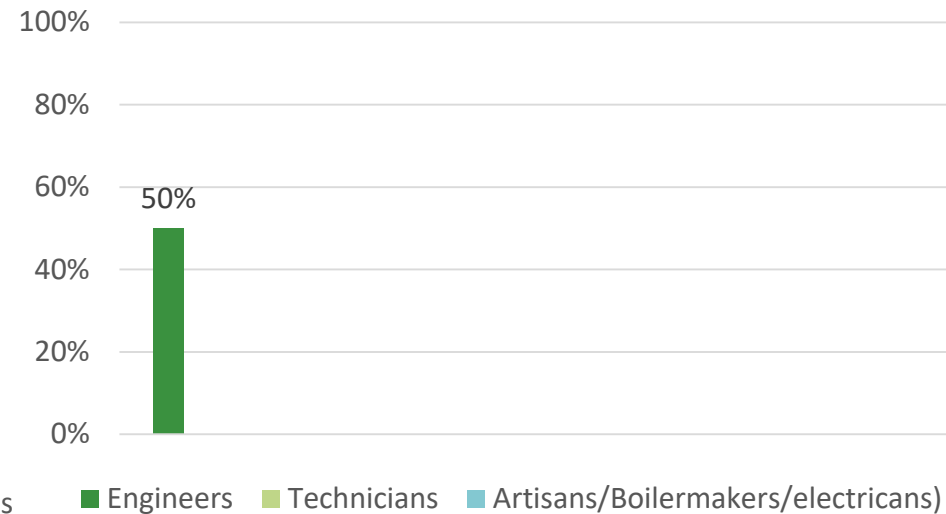
■ Engineering degree (Beng) or Bsc
 ■ BTech
 ■ Trade Certificates
 ■ Engineers
 ■ Technicians
 ■ Artisans (Boilermakers, electricians, etc)

# 1. Solar PV: Which type of technical positions / skill levels do you normally recruit?

Qualification type

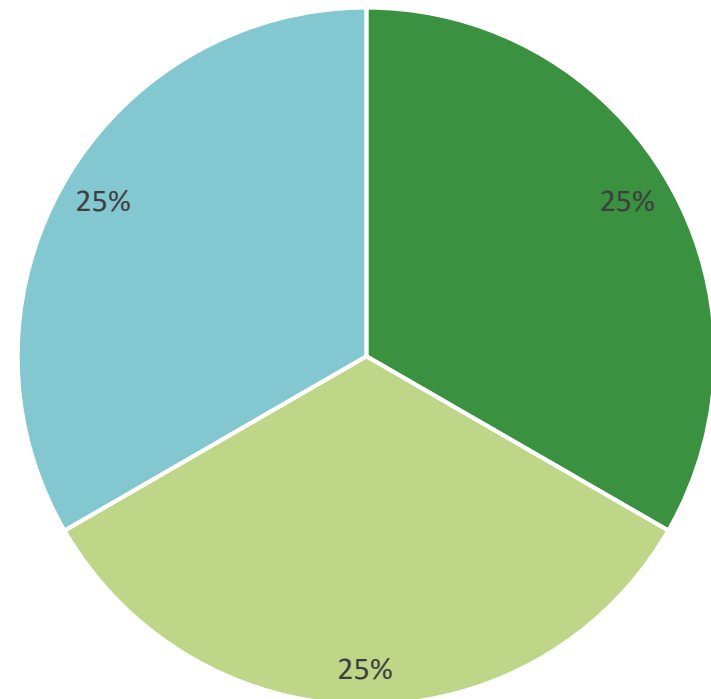


Technical positions/skills level



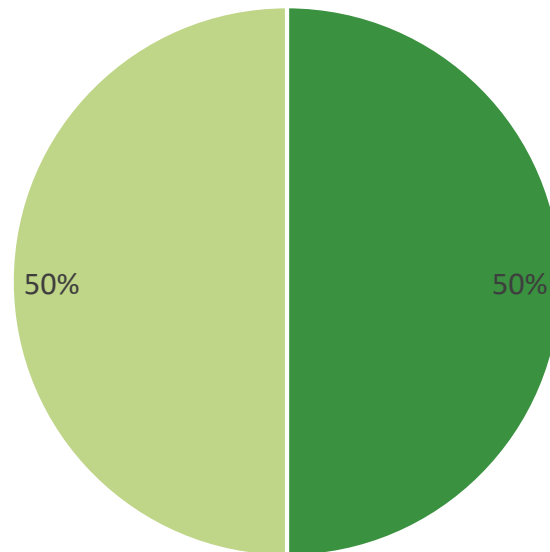


## 2. Energy Efficiency: Most important recruitment criteria



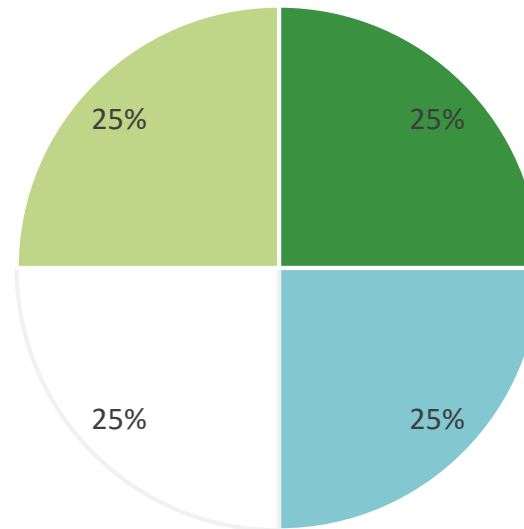
- Qualifications and screening of candidates during recruitment processes
- Track record of excellence
- Good attitude

## 2. Solar PV: Most important recruitment criteria



- Qualifications and screening of candidates during recruitment process
- Track record of excellence
- Good attitude
- Unkown

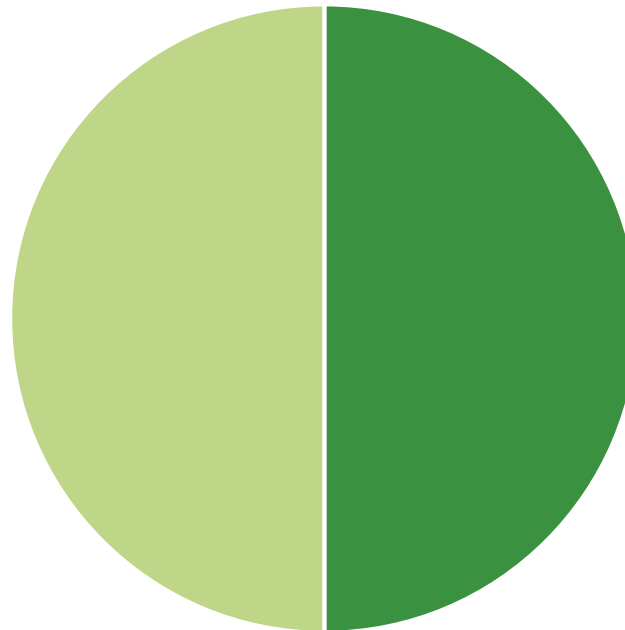
### 3. Energy Efficiency: How do you normally recruit staff?



- personal contacts
- ads
- professional associations
- College/university contacts
- Combination
- Other
- Recruitment agencies

### 3. Solar PV: How do you normally recruit staff?

Resources employed for recruitment of staff

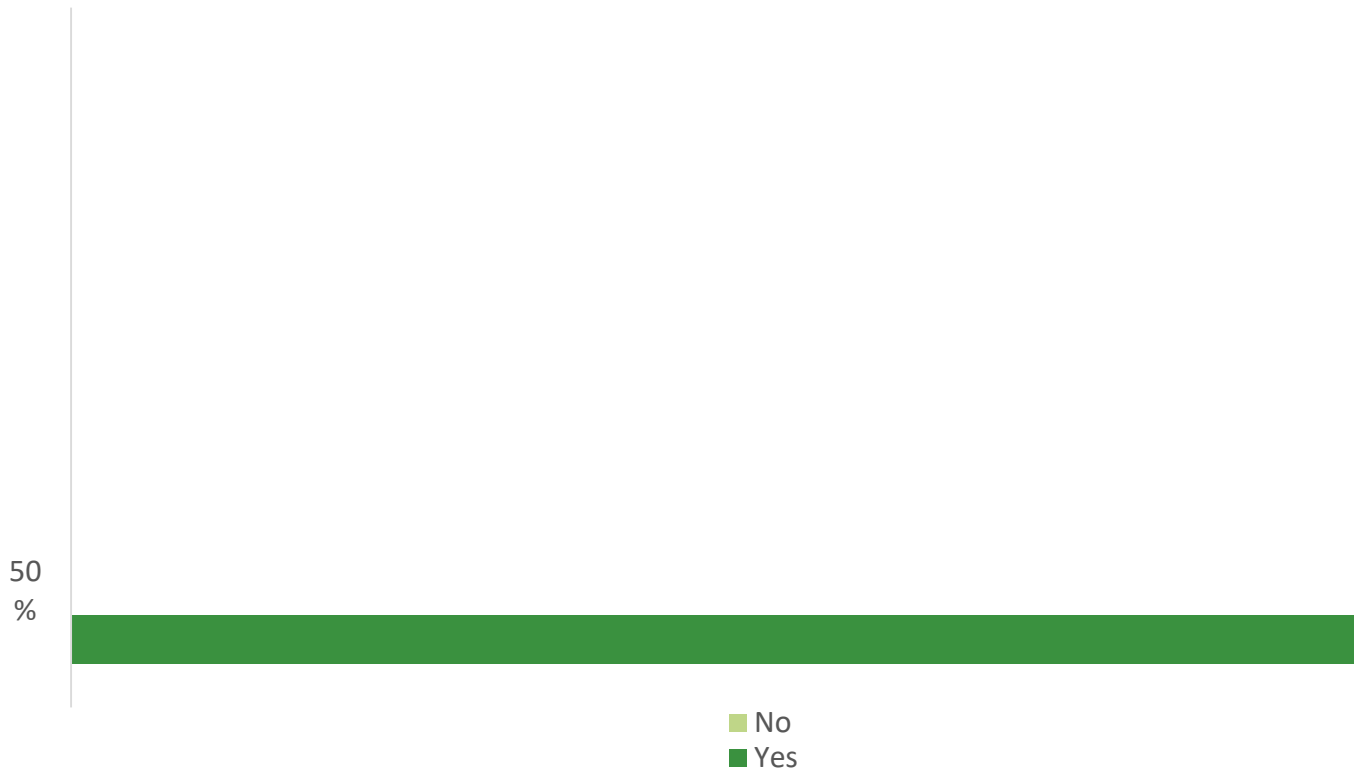


- personal contacts
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- professional associations
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- Unknown

## 4. Energy Efficiency: How important is a recommendation before hiring?

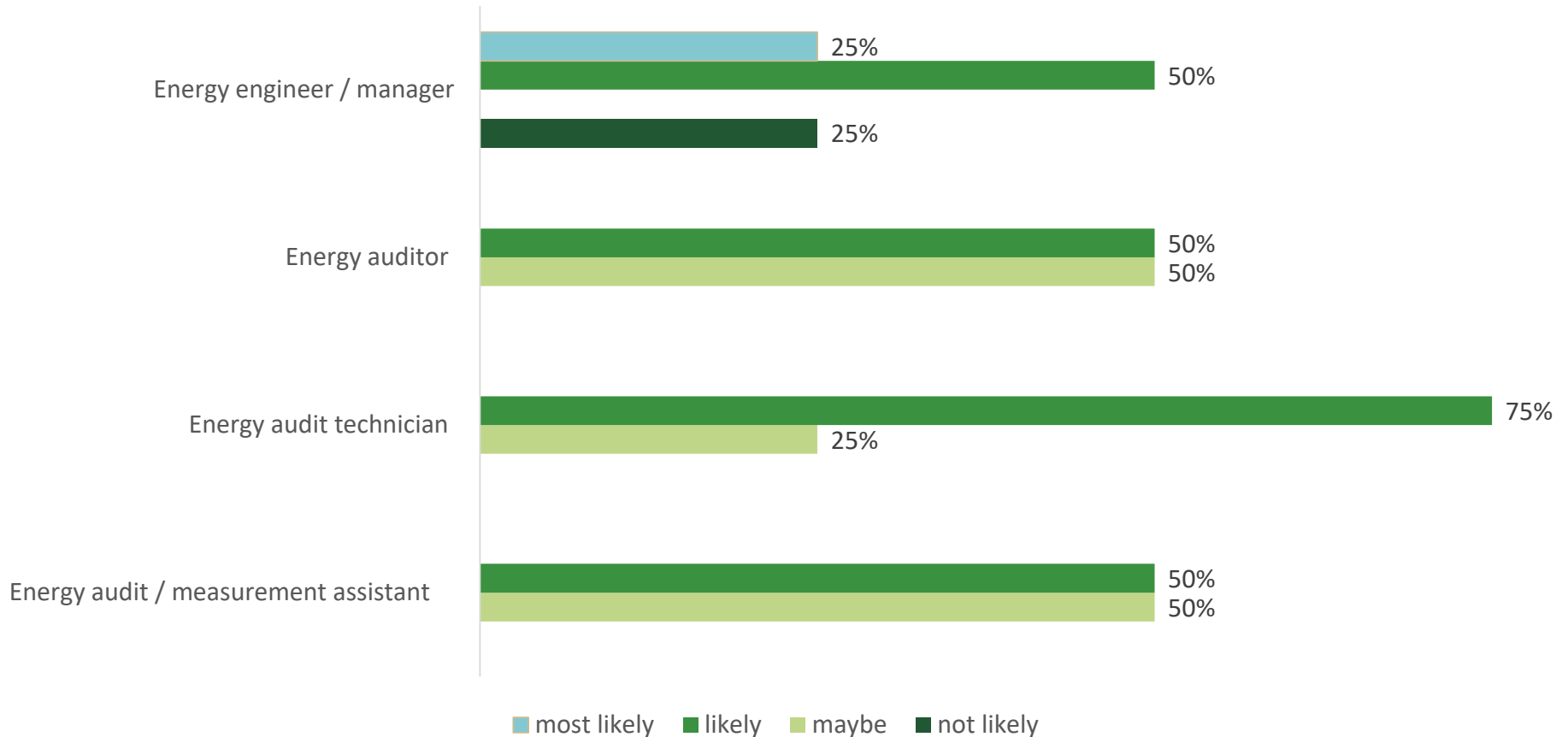


## 4. Solar PV: How important is a recommendation before hiring?



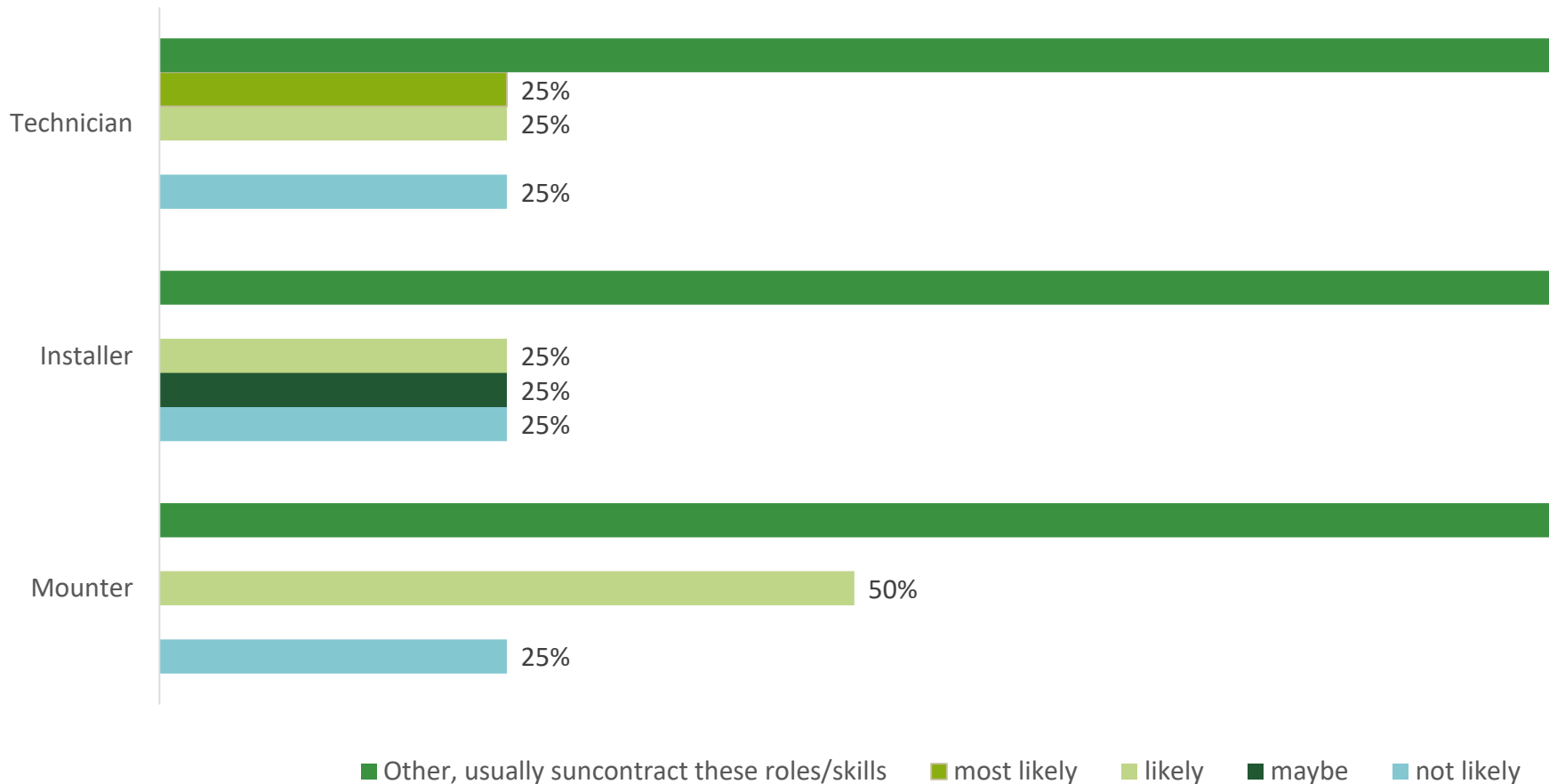
# F. Skills Needs

# 1. Energy Efficiency: Which types of skills levels / qualifications would you mainly employ?





# 1. Solar PV: Which types of skills levels / qualifications would you mainly employ?



## 2. Energy Efficiency: Main technologies/skills demanded

	Company 1	Company 2	Company 3	Company 4
Electricity /basics and measurement	X	X	X	X
Capacitor bank /load management				
Control systems		X	X	X
High-performance lighting				X
Motors, Pumps, Variable speed drives	X		X	
Pressurized air		X	X	
Steam and hot water			X	
Cogeneration / Trigeneration			X	
Thermal insulation of buildings		X	X	
Building energy management systems		X	X	
Air Conditioning systems		X	X	
Other	X (Mining)			

### 3. Energy Efficiency: Main methodological skills needed

	Co 1	Co2	Co 3	Co 4
Measurement / data analysis		X		X
Auditing				X
Energy Performance certificates				
Energy management (ISO 50001)		X		
Measurement & verification, monitoring		X		
Energy performance certificate				
Other				

# Skills Training Duration

Theory 3 months

Practical up to a year i.e. as long as possible

## 5. Which skills do you need independently from your trade

	Co 1	Co 2	Co 3	Co 4	Co 5	Co 6
Analytical skills		X				X
Communication/people skills	X				X	X
Creativity				X		X
Computer literacy (Excel/PPT)		X	X			X
Engineering skills	X					X
Negotiation skills			X			X
Presentation skills			X			X
Problem solving skills		X	X	X		X
Taking initiative	X		X			X
Willing to learn and commitment						

## 6. Are there skills that become more important e.g. digitalisation/in a challenging economy

	Co 1	Co 2	Co 3	Co 4	Co 5	Co 6
Automation skills			X			
System thinking	X					
Complex/problem solving	X					
Computer literacy/Digitally savvy		X	X	X	X	
IT Networking Technologies						X
Modelling/simulations	X					
PLCs		X				

## 7. Overall, which skills are required for upskilling your staff in the present situation?

- CA course
- Computer 3D design (using software like Google sketch up), energy storage space for PV, billing/costing are some of the skills the company encourages staff to acquire.
- Upskilling of conducting professional audits

# G. Conclusion



## Key Findings

- Duration of 1 year (3 months theory 9 months practical)
- Conceptual Territory
  - PV Installer/Technician (Mounter for school leavers)
  - EE Measurement/Energy Audit Technician/Auditor
- Skills: Soft Skills e.g. Attitude, Data Management/Excel skills, Entrepreneurship and Business Management
- Insight: Workplace experience = employability

## Key Findings

- Mentorship is key in workplace training
- Experience matters between 25% (EE) and 50% (PV)
- Combination of attitude and experience counts 50% (EE)
- Written references matters 75% (EE) and 50% (PV)
- Focus on battery storage (PV)
- Uptake in Operations & Maintenance (PV)
- Companies engineering based and often subcontract artisanal roles (focus on Engineering and BTech graduates)

## Employer Attitudes

“I know the dual system. I am an avid believer in it and a big supporter. As employers, we currently take the best students and develop them further, I believe it’s a good system.

“Employability all comes down to personal attitude”.

“If one gets the TVET route right, it would be the right thing to do. A student only becomes as good as their trainer”.

“We are interested in supporting our accredited installers with students from your programme. Could place them with our accredited installers that we have vetted. Have contemplated setting up our own center to ensure the quality of our installers”.

# Thank you