



68TH AMEU CONVENTION 2022

Durban International Convention Centre

2 – 5 October 2022

A JUST ENERGY TRANSITION (“JET”) FOR SOUTH AFRICA

Socio-economic benefits of renewable and storage technologies in South Africa

Presented by Aradhna Pandarum

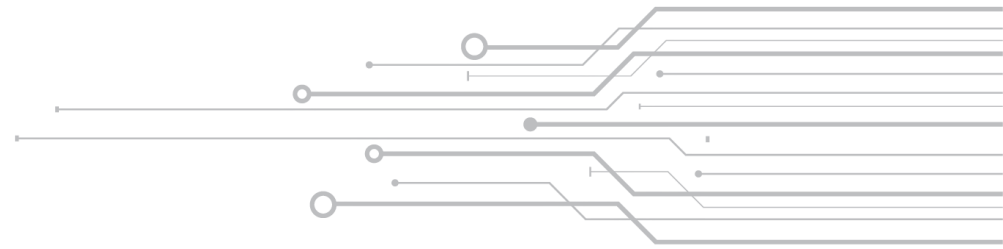
Acting Research Group Leader, Energy Industry

Council for Scientific and Industrial Research (CSIR)

Hosted by



Some facts.....



SA 12th largest GHG emitter

UN Study – 100m people in Africa exposed to climate change impacts by 2030

Africa warms at a rate twice faster than the rest of the world

COP – funding for JETP and Just Transition framework

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Just Transition Landscape

Environmental



- Greenhouse gas emissions,
- Water use,
- Land use/restoration,
- Air quality,
- Bio-diversity impacts.

Social



- Health impacts,
- Community participation,
- Quality of life,
- Ownership,
- Crime and social pathologies.

Economic



- Economic growth,
- Job creation,
- Government spending,
- Economic diversification,
- Skills development.

Technical



- Technology costs,
- Performance,
- Electricity tariffs,
- Grid impacts and stability.

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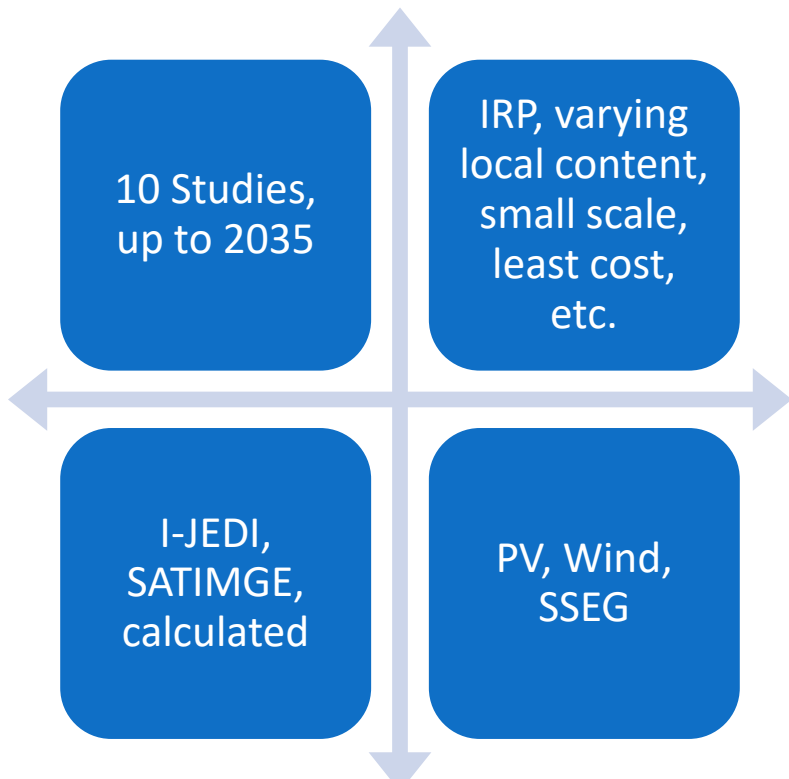
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Literature Review



Literature review – job creation and economic growth



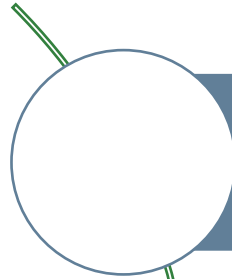
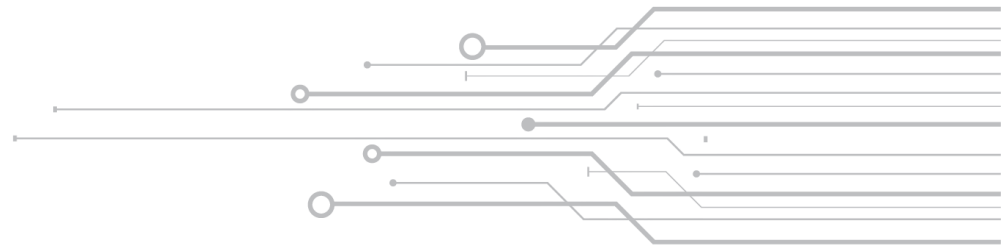
Findings (based on 45%-65% local content):

- Utility scale solar PV have the potential to create 2-7 FTE jobs/MW and R82k-R95k GDP per annum,
- SSEG has potential to create 3-8 FTE jobs/MW,
- Larger number of jobs created in construction period vs O&M,
- No standard for reporting job numbers and evaluating the benefits.

- International Jobs and Economic Development Impact model – developed by NREL but modified for local context
- SATIMGE is a linked energy-economic model for South Africa that combines the South African TIMES (SATIM) model and eSAGE model. SATIM model is a full sector energy systems optimization model and eSAGE model is an energy-hybridized recursive dynamic computable general equilibrium for South Africa
- FTE job is a unit to measure employed persons and accounts for part-time and full-time workers in a comparable way.



Literature review – other aspects



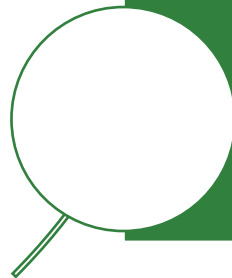
Gender inclusion

- Studies show increased female employment in renewables (10% > coal)



Health

- Improved air and water quality
- Reduced health costs for Eskom



Skills Development

- Lack of adequate skills for RE (embedded generation included)
- Cross-cutting skills that can be transferred from other value chains
- Increased investment in skills development



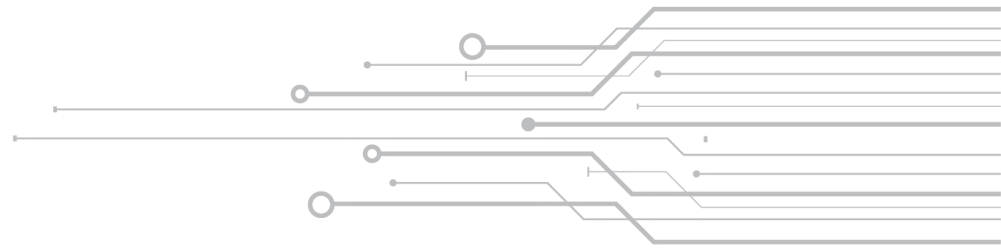
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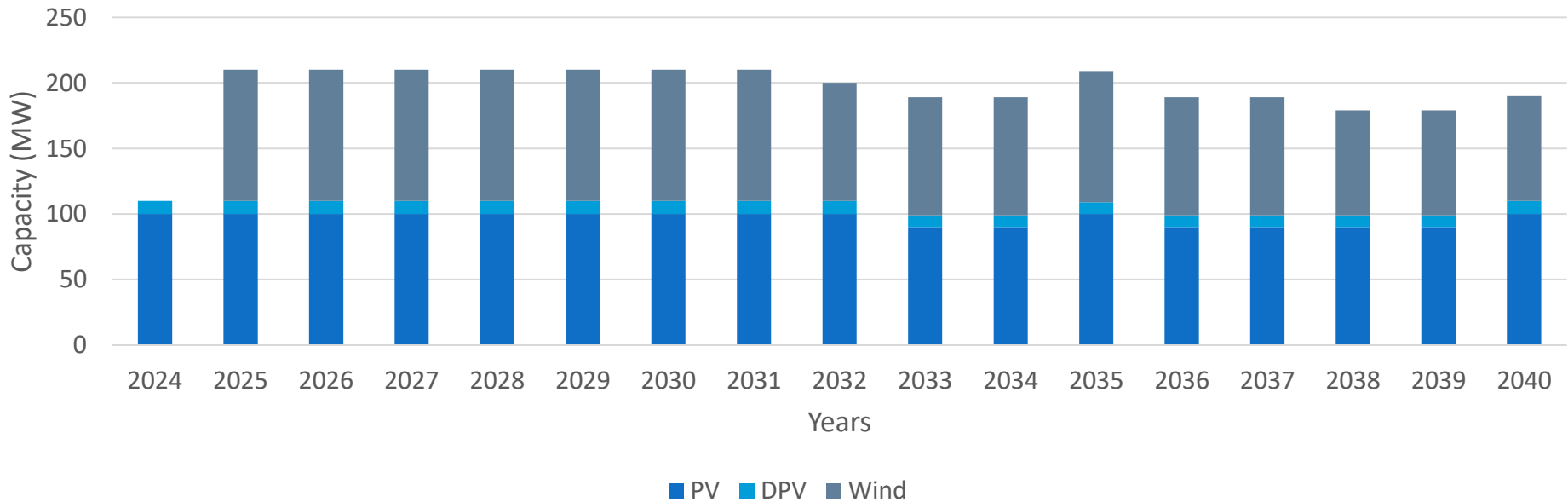
Case study results



Recommended RE deployment from CSIR modelling



Deployment plan for solar PV, distributed PV and wind

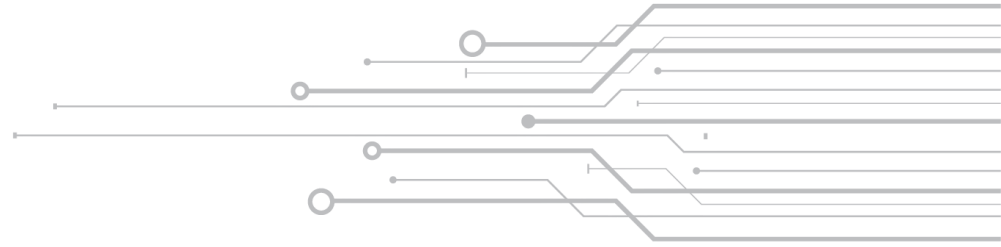


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International jobs and economic development impacts (NREL)



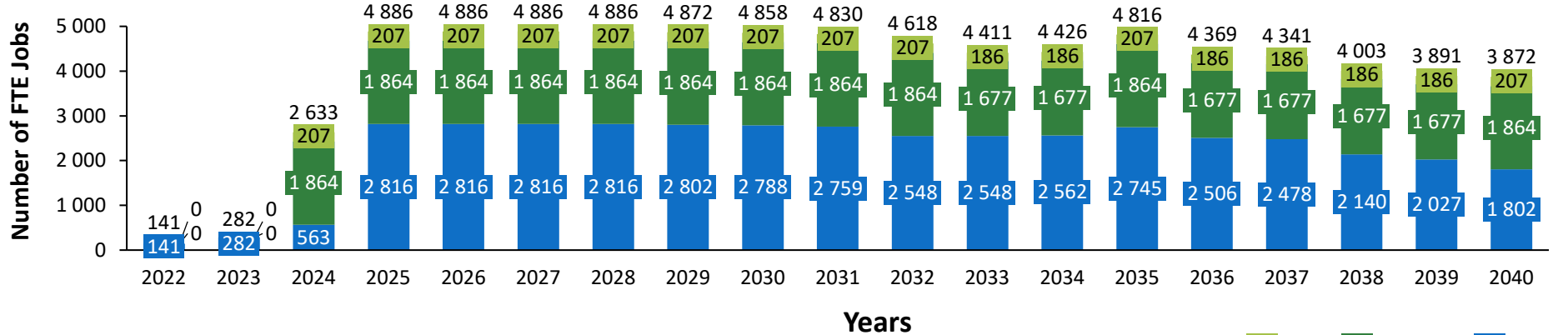
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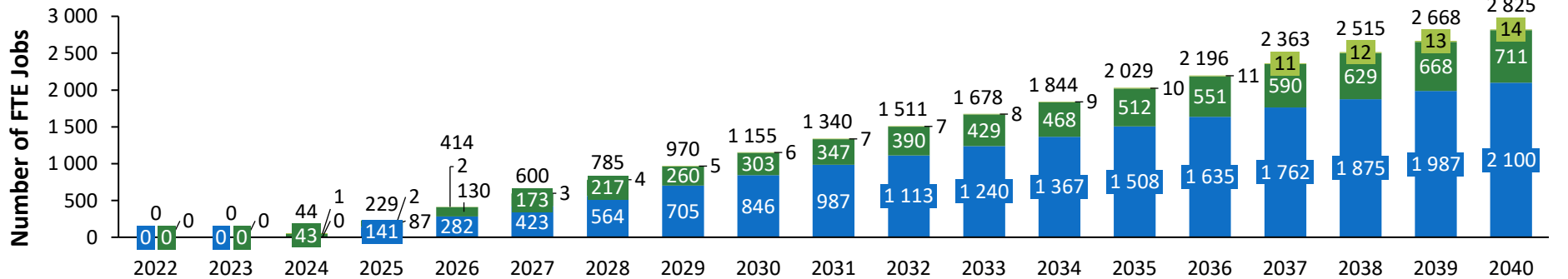
Job creation (PV and Wind)

Construction (direct, indirect & induced jobs)



O&M (direct, indirect & induced jobs)

DPV Solar PV Wind



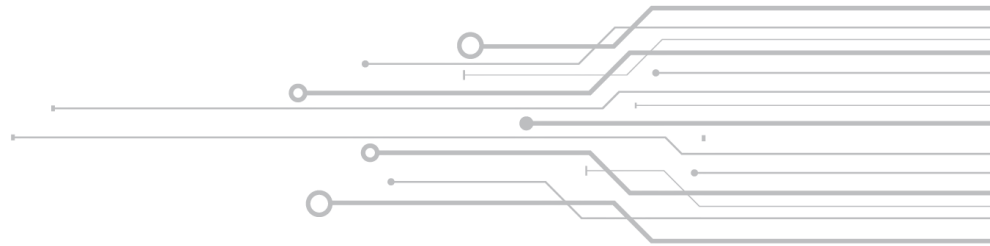
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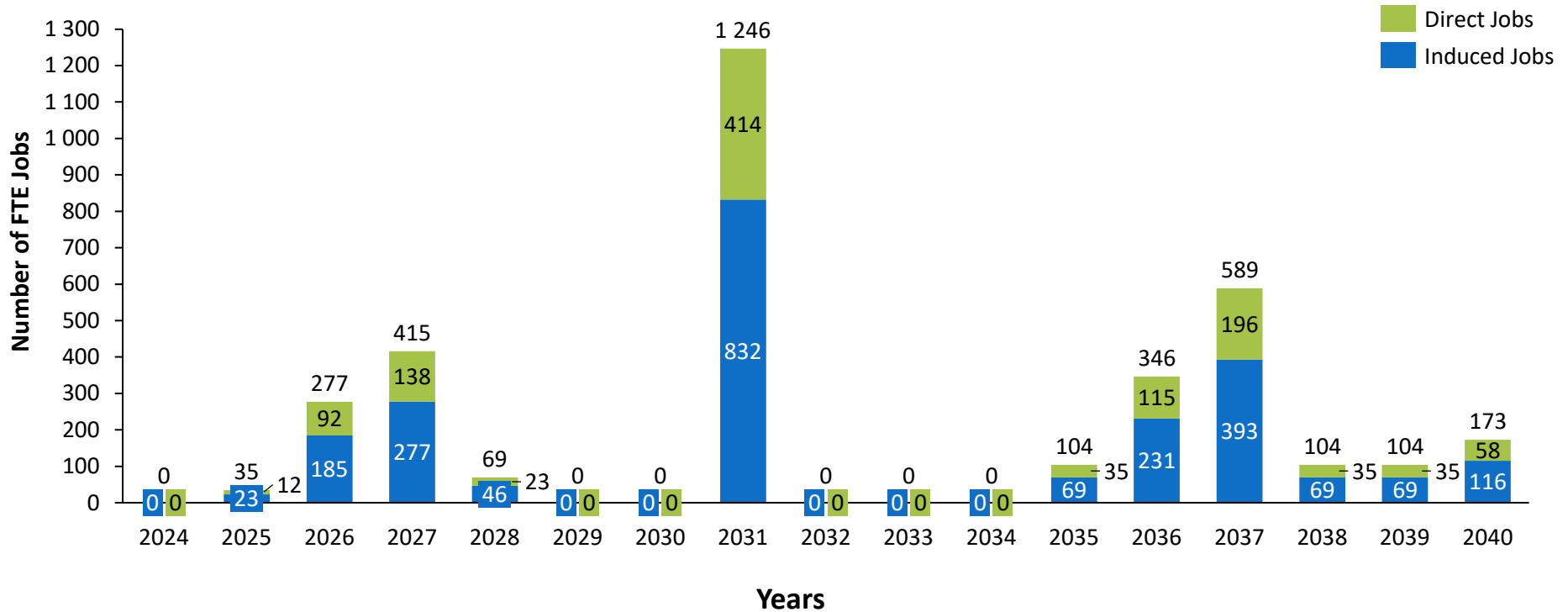


Years

Job creation (battery storage)



Construction (direct, indirect & induced jobs)



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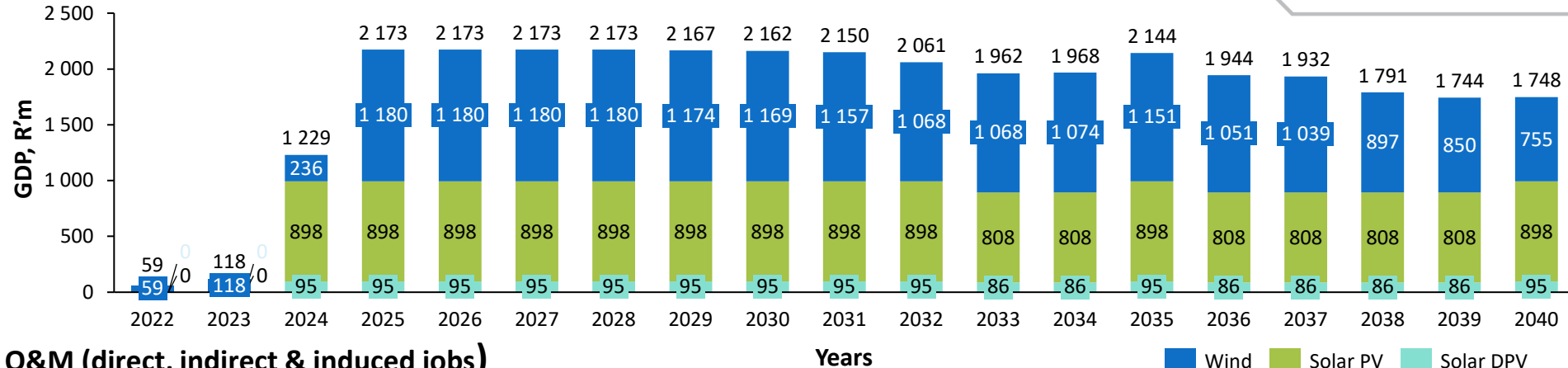
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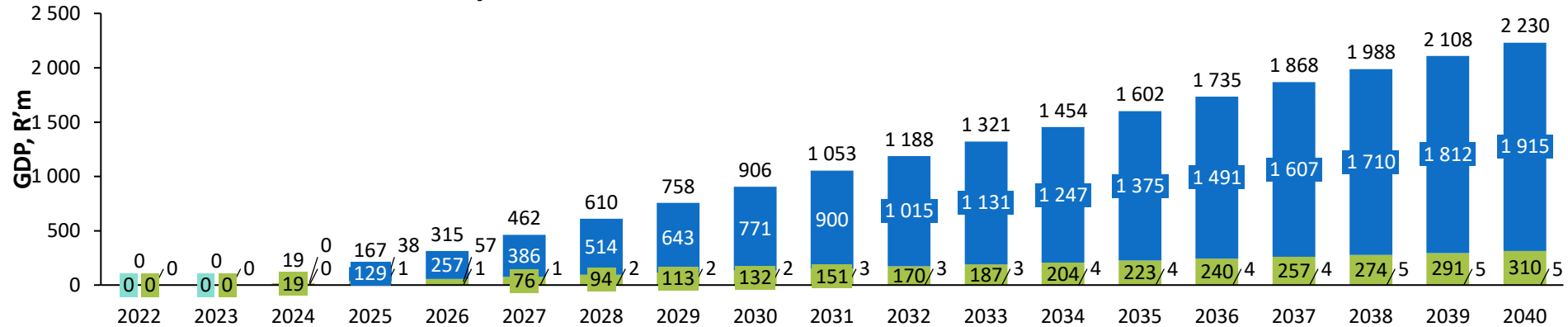
Years

Economic value add (GDP)

Construction (direct, indirect & induced jobs)



O&M (direct, indirect & induced jobs)

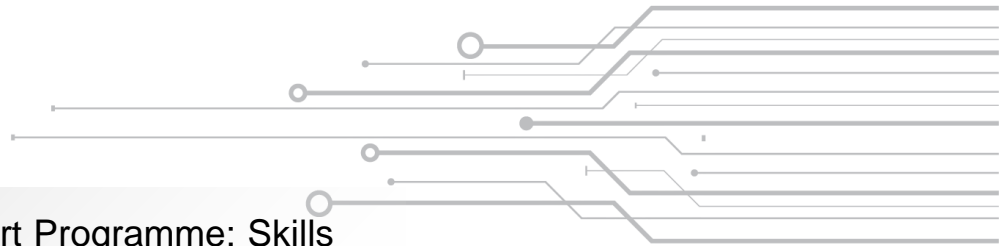


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Other considerations for JET



1

Energy Industry Support Programme; Skills Programmes; Capacity building Programmes

2

Presidents' announcements; SEZs, REDz – What does this mean for JET?

3

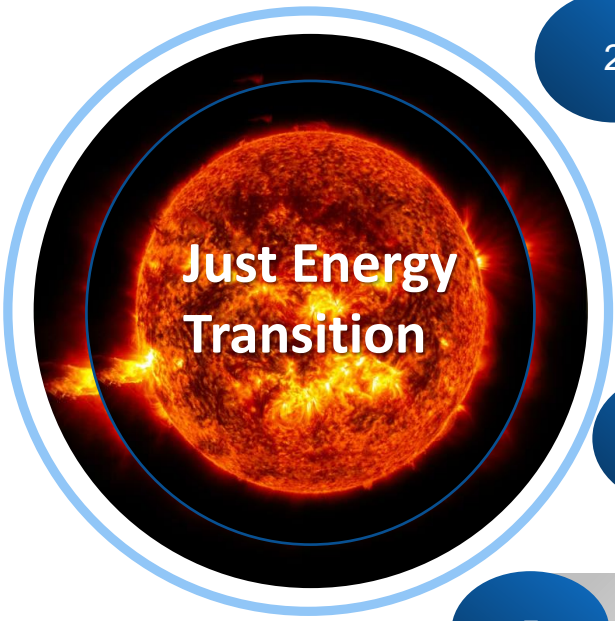
Economic diversification; Just Transition Fund

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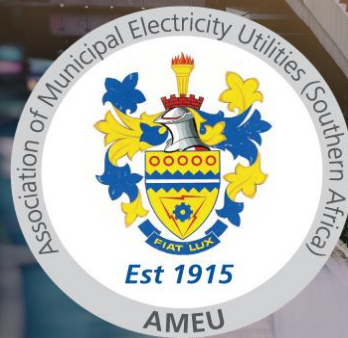
Green hydrogen; Circular economy

5

Customer Ownership; PPPs; Community Shares Business model



Just Energy Transition



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Thank you

