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Sustainable Energy
Fund for Africa



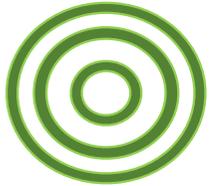
AFRICA ENERGY TRANSITION CATALYST (AETC) PROGRAM

MEGA SOLAR REGIONAL MARKET STUDY

Annual RERA Conference
Swakopmund, Namibia
April 2025



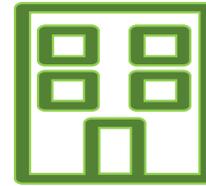
Mega Solar Regional Market Study (RMS) – *brief*



To assess the most viable and sustainable regional power off-take markets for 2 - 5GW of RE generation capacity in Botswana and Namibia - including associated storage and grid infrastructure.



Comprehensive, based on rigorous analysis, stakeholder consultations and coordination with existing initiatives.



AfDB responsible for the procurement of consulting services and contract administration.

Close collaboration in project governance structures led by Botswana and Namibia.

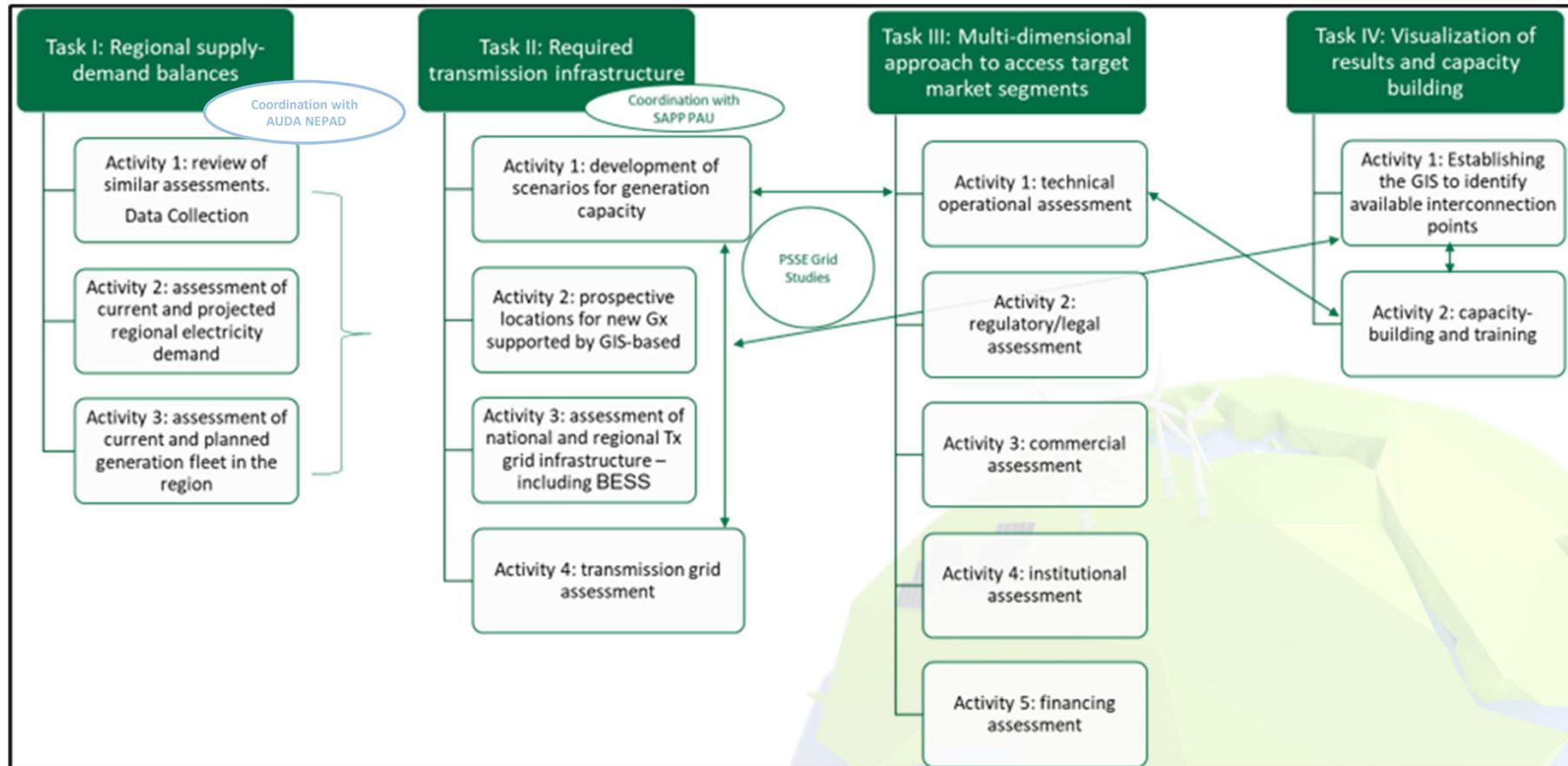


- ❖ Regional electricity supply/demand profiles.
- ❖ Profiles of regional electricity generation and prospective off-taker markets.
- ❖ *In-country and cross-border transmission infrastructure.
- ❖ Key regulatory and institutional frameworks in exporting and importing countries.
- ❖ Multi-dimensional approach to access target off-taker market segments.

***Generation Connection Capacity Assessment**



Mega Solar Regional Market Study (RMS) – execution



Additional activities

Modelling of additional scenarios | Development of Public Report



Mega Solar Regional Market Study - key outcomes

01 Electricity export potential

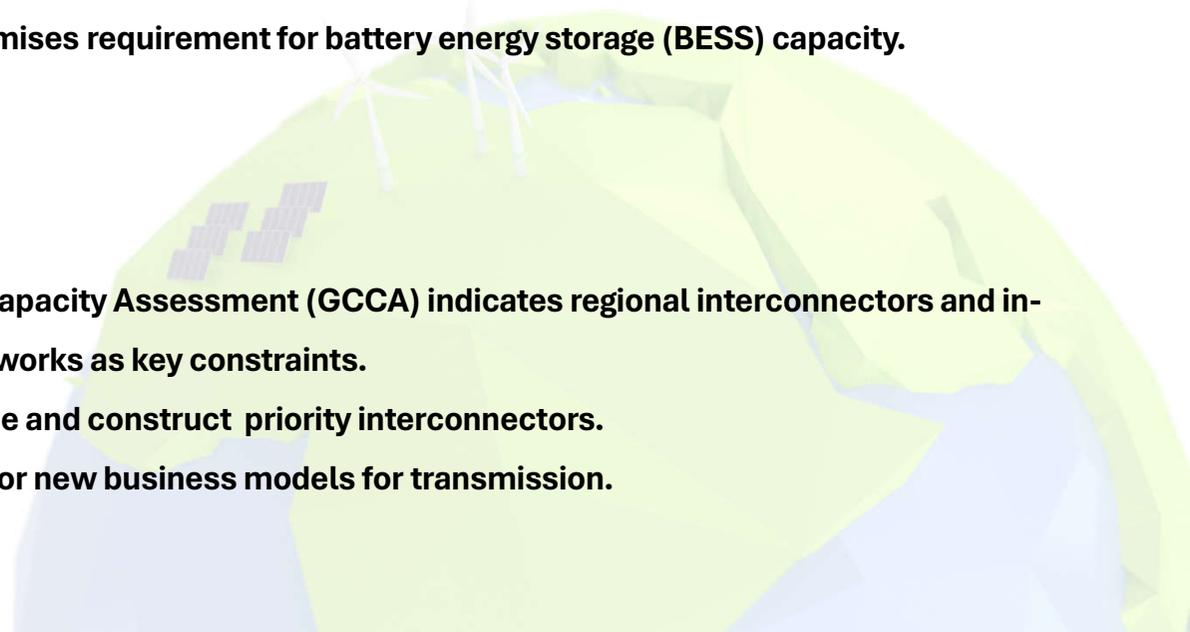
- Net-export potential within anticipated GW range.
- Depends on the two countries' generation mix.
- Transmission infrastructure capacity is a key factor.

02 Regional electricity exchanges

- Net-export position incorporates underlying import-export balances.
- Exports-imports on 'own account' and as part of wheeling.
- Regional integration minimises requirement for battery energy storage (BESS) capacity.

03 Transmission infrastructure

- Generation Connection Capacity Assessment (GCCA) indicates regional interconnectors and in-country transmission networks as key constraints.
- Crucial to develop, finance and construct priority interconnectors.
- Wheeling creates scope for new business models for transmission.





Mega Solar Regional Market Study - key outcomes

04 Electricity market design

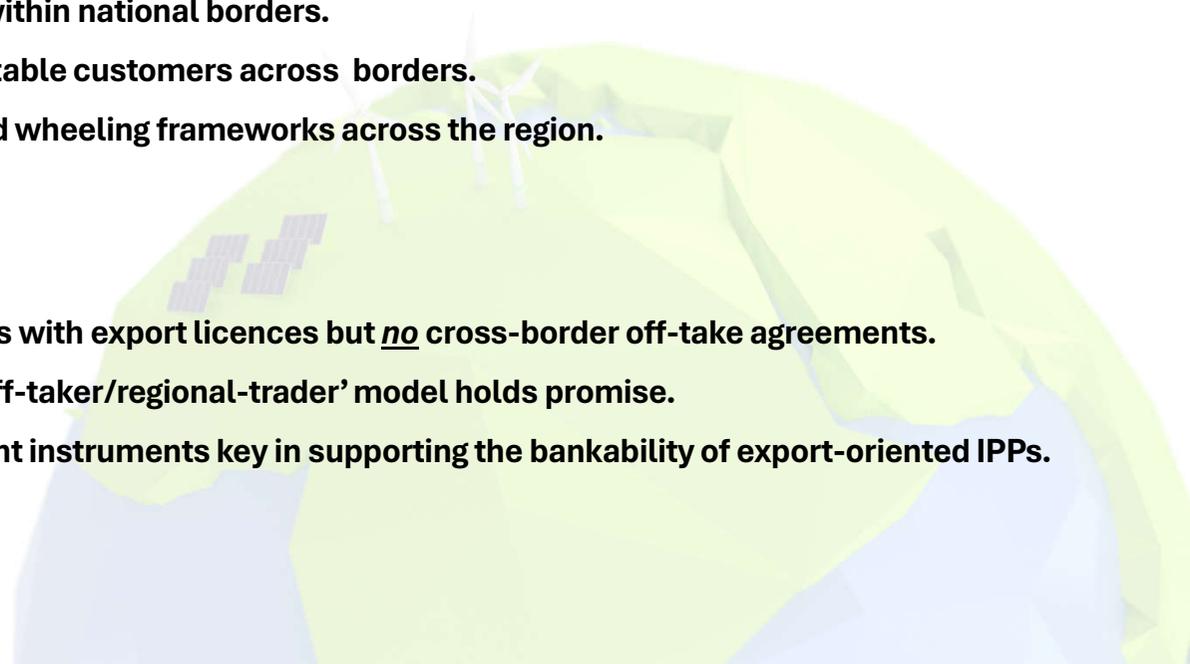
- Some countries in the region allow access to contestable customers within national borders.
- If imports through one entity only, market for cross-border off-takers is limited.
- Open-access transmission is a key enabler.

05 Enabling frameworks

- Independent System and Market Operators.
- Contestable customers within national borders.
- Phased access to contestable customers across borders.
- Harmonise grid codes and wheeling frameworks across the region.

06 Financing of RE IPPs

- Difficulty of financing IPPs with export licences but no cross-border off-take agreements.
- Emerging intermediary ‘off-taker/regional-trader’ model holds promise.
- Financial risk management instruments key in supporting the bankability of export-oriented IPPs.





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Mega Solar Regional Market Study – recommendations



Enabling frameworks

Harmonised grid codes, licensing and wheeling tariff structures.

Market rules for exports and imports.

Engagements with regional institutions about aspects relevant for further dissemination/investigation.



Technical/operational

Strengthen transmission capacity within and across national borders.

Deploy BESS for system reliability.

Utilise hydro basins to complement variable solar and wind power.



Financing

Support the scale up of innovative financing models for export-oriented RE IPPs.

Develop and implement financial risk management instruments.

Support the development and implementation of new transmission business models.