What is Africa GreenCo?

- An implementation tool for SDG7
- A catalyst to unlock private sector investment in renewable energy generation projects
- An efficient structure for the development community to enter into partnership and cooperation with Africa

Intermediary Creditworthy Offtaker  AND  Power Pool Participant (Trader)

- Reduce transaction time and cost
- Make more projects bankable
- Improve project finance terms
- Increase financial capacity for utilities and sovereigns
- Access point for better risk management
- Grow competition in markets
- Facilitate growth of cross-border and inter-regional power trading
- Increase market liquidity
- Reduce default and outage risk
- Regional resource optimisation
Overview of Need and Reality

- **Generation need:** AfDB: **160 GW by 2025** for universal access
- **Generation Goals:** COP 21 – AREI: **300 GW by 2030** of clean energy additions
- **Current Reality:** **1990 to 2013,** only **24.85 GW** in SSA (South Africa accounted for 9.2 GW)
- **SSA funding need:** AfDB: An additional **USD 40-70 bn** per year to achieve universal access
- **Current Funding:** estimated at **USD 4.6 billion** a year, 50% public funding
- **IPP/PPP Projects to date:** Only **59 IPP projects >5MW in SSA** (excluding South Africa), totalling **$11.12 bn** in investments and **6.8 GW** of installed generation capacity, of which only **7 IPPs in SADC** (excluding South Africa) (Eberhard 2015).
- **SAPP:** **USD 90bn** over next 2 decades (Deloitte)
- **Private sector investment required:** as neither the regional utilities nor governments have sufficient budgetary resources to fund
Many utilities are cash constrained / dependent on central government for budgetary support and customer bases are small

The shift towards cost-reflective tariffs and improvements in collection rates will take time

Without a creditworthy counterparty, developers and lenders require credit enhancement through sovereign and/or DFI/MFI guarantees

The current project-by-project approach to electrification is unsustainable:

- Support through existing instruments is not sufficient to address funding gap
- Credit enhancement of projects on a one-off basis adds cost and delays
- No single project is able to shift the attitude of commercial investors to bankability – a systemic/structural change is required
- Putting the burden on governments to provide explicit and implicit guarantees or counter-guarantees shifts the creditworthiness issue to the sovereign level
Support and complement global and continent wide drive towards universal access, green energy initiatives and programmes (NEPAD, PIDA, AfDB’s New Deal on Energy for Africa, Africa Renewable Energy Initiative, COP22, Power Africa)

Catalyse investment in generation by providing a creditworthy intermediary offtaker

Promote competitive electricity trade in regional markets by increasing liquidity

Foster regional integration, share benefits and improve security of supply

Start in one region/power pool and grow to cover the continent

Operate through an African led organisation to align interests and promote regional cooperation

Harness strong political, institutional and investor support

What has succeeded in other parts of the world can succeed in Africa
Precedent: Power Trading Corporation of India

- Created a power market in India and the neighbouring countries to optimally utilize the resources available to generate power and encourage private investments into the power sector.

- Initial equity participation by Power Grid Corporation of India Ltd (POWERGRID), NTPC, Power Finance Corporation (PFC), with NHPC joining later.

- Purchased power from private projects and sold to the State Electricity Boards, regional utilities and industrial consumers.

- Enable large-projects to negotiate with a single creditworthy buyer to eliminate payment risks for large (mega) projects and substantially reduce the tariff from such projects.

- Attract viable investments in the power sector on the strength of a multi-buyer model.

- Multi buyer model facilitates route to market for surplus power and in case of default.
Design Principles

Africa GreenCo structure driven by nine key priorities:

1. Legally and financially creditworthy
2. African owned and led
3. Complementing and collaborating with existing initiatives
4. Scalable
5. Operating at a regional level
6. Benefiting utilities and sovereigns
7. Benefiting project developers and investors
8. Incorporating blended capital from concessional and commercial sources
9. Financially sustainable
Intermediary & Creditworthy Offtaker

- Creditworthy offtaker under the PPA
- Reduces the perceived risk of the project for investors
- Improves the quantum and cost of capital
- Has technical and legal capacity and framework to execute transactions more efficiently
For more complex transactions, AGC will also act as an aggregator and diversifier of risks.

AGC reduces dependence on individual offtakers and attracts investment on the back of a multi-buyer model.
In addition to its role as an offtaker, AGC will also participate in the regional power markets, promoting cross border power transactions and a more dynamic and liquid short term power market.
AGC’s primary aim is to make more projects bankable and increase access to reliable, affordable electricity – but its secondary impacts include enhancing value for money, improving market efficiency and promoting sustainable economic development.

- **Project level impacts**
  - Reducing cost of capital
  - Simplifying and accelerating transaction execution
  - Broadening the pool of investors for both new projects and refinancings
  - Providing an efficient route to market for smaller projects through aggregation
  - Cushioning investors from regulatory change / power market unbundling
  - Acting as an entry point for third party credit mitigation on a portfolio basis

- **Utility level impacts**
  - Increasing installed capacity
  - Reducing average cost of power through lower tariffs and reduced reliance on expensive short term emergency power
  - Increasing revenues through more efficient use of existing assets
  - Releasing resources to focus on institutional capacity building, operational efficiency and improvements to transmission infrastructure
  - Facilitating the move towards local currency denominated PPAs
AGC’s primary aim is to make more projects bankable and increase access to reliable, affordable electricity – but its secondary impacts include enhancing value for money, improving market efficiency and promoting sustainable economic development

- **Sovereign level impacts**
  - Reduce the probability of sovereign PPA-related contingent liabilities crystallising
  - Help avoid the economic impact of outages and stimulate economic development

- **Regional impacts**
  - Support efforts to harmonise regional regulations
  - Catalyse more active regional trade and help develop the regional power pools
  - Promote regional resource optimisation
  - Help build the case for more investment in regional transmission, interconnection and grid management by increasing traded volumes

- **Socio-economic impacts**
  - Avoid emissions
  - Create employment
  - Improve access to basic services including health and education
### Impacts overview

<table>
<thead>
<tr>
<th>Impact Per USD Invested in AGC by yr 10</th>
<th>Total USD Impact</th>
<th>Investment</th>
<th>Contingent Liabilities</th>
<th>Tariff Savings</th>
<th>Trade</th>
<th>Power</th>
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<td>9.8</td>
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<td>136</td>
<td>14.7</td>
<td>20.3</td>
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<td>20.3</td>
<td>35</td>
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<tr>
<td><strong>33% Equity</strong></td>
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<td>90</td>
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<td>30.8</td>
<td>22.2</td>
<td>30.8</td>
<td>53</td>
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</table>

- **Power Output**
  - 9,535,260 GWh
  - 2,943,374 MWh
  - 7,800,087 tCO2e
  - 22,655 Jobs
  - 1,014 Jobs
Legal & Governance Structuring Options

- Legal entity, shareholding and/or membership in the company, will be structured:
  - for sovereign African countries to be members and have ownership;
  - to attract capital from the donor/DFIs and the private sector;
  - to allow different classes of investors with different risk appetites;
  - to minimise political interference in governance and operations;
  - to provide adequate international status and immunity
  - to ensure the business can be operated efficiently

- Four principal legal structure options

<table>
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<th>Example</th>
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<tr>
<td>1</td>
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<td>3</td>
<td>ARC</td>
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<td>4</td>
<td>AGF</td>
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</table>

1. Independent International Organization
2. An international treaty organisation
3. AU special agency / subsidiary with separate corporate entity
4. National company with potential for regional expansion via an intergovernmental agreement.
National, international or a combination?

**National**
- Established under national law
- Quick to establish
- Recognisable legal form
- Fits within existing frameworks (e.g. SAPP)
- Subject to national laws/regulations
- Closely identified with host country
- Possible to sell/float

**International**
- Established under treaty
- Lengthy establishment process
- Flexible structure – determined by signatories
- May operate above national laws/regulation
- Privileges and immunities
- Independent/regional/scalable
- May attract ODA/IDA

- Founder member(s)
- Subsequent members
- Entry / exit rules
Market Options

Africa GreenCo’s mandate is pan-African, but getting started requires focusing on a manageable area and selecting this starting point is critical to AGC’s success.

- **Main criteria for selection:**
  - Capacity for regional transmission and cross-border trading
  - Enabling environment for IPPs
  - Local political support for Renewable Energy

- **Coordination with parallel regional initiatives**

- **Complementarity with wider power sector reforms**

<table>
<thead>
<tr>
<th>Power Pool</th>
<th>East Africa</th>
<th>West Africa</th>
<th>Southern Africa</th>
<th>Southern Africa Ex RSA</th>
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<td>Data Year</td>
<td>2014/15</td>
<td>2013/14</td>
<td>2014/15</td>
<td>2014/2015</td>
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<tr>
<td>Installed capacity (MW)</td>
<td>53,296</td>
<td>9,912</td>
<td>61,363</td>
<td>14,876</td>
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<tr>
<td>Hydropower Share (%)</td>
<td>20%</td>
<td>34%</td>
<td>21%</td>
<td>78%</td>
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<tr>
<td>Thermal Share (%)</td>
<td>72.4%</td>
<td>66%</td>
<td>62%</td>
<td>22%</td>
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<tr>
<td>Other RE Share (%)</td>
<td>7%</td>
<td>0%</td>
<td>17%</td>
<td>0%</td>
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<tr>
<td>Target RE Share</td>
<td>N/A</td>
<td>N/A</td>
<td>32% (2020)</td>
<td>35% (2030)</td>
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<tr>
<td>Grid Interconnection</td>
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<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Trading platform</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Current IPPs</td>
<td>44 / High</td>
<td>24 / Low</td>
<td>74 / High</td>
<td>7 / Low</td>
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<tr>
<td>IPP Environment</td>
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<td>High</td>
<td>High</td>
<td>Medium</td>
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<tr>
<td>RE Policy Support</td>
<td>High</td>
<td>Medium</td>
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</table>
After considering the market dynamics in the 3 key African power pools, SADC / SAPP was determined to be the most appropriate region for proof of concept

- **SADC market features:**
  - Capacity for regional transmission and cross-border trading
  - Enabling environment for IPPs
  - Local political support for Renewable Energy

- **Alignment with regional initiatives**
  - RERA IPP Framework
  - REEESAP
  - RIDMP
  - SACREEE

- **Complementarity with wider power sector structures and reforms**
  - SAPP provides for ‘Service Provider’ members
  - Market unbundling

*AGC will continue to engage with the the other RECs and power pools with a view to subsequent rollout.*
SAPP has sufficiently robust interconnections and plans for greater grid integration that creates a suitable context for AGC implementation

- 20 active cross-border grid interconnections
- 11 planned additions – at least 6 may come online by 2020
- Congestion can be addressed through market splitting, counter flow trade / radial mode transactions
There is already substantial cross-border power trading activity through long term fixed contracts and short term competitive power markets

- Bilateral contracts dominate
  - 18+ contracts in 2015
  - 8 TWh traded in 2015
  - 94% market share in 2014-15, falling to 80-85% market share in 2016

- Active competitive market
  - DAM, IDM and now FPM
  - 50-100 GWh / $3.5-5m traded per month
  - Deficit: only 20% of buy orders, and 70% of supply orders transacted
  - SAPP forecast 10% growth y-o-y
- Renewable energy IPPs a core element of SADC energy plans
- Botswana, Zambia, Mozambique, Namibia proposed pilot countries for Africa GreenCo due to:
  - Active trading partners in SAPP
  - RE potential
  - Investor friendliness
- Botswana, Zambia, Namibia also pilot countries for RERA IPP Framework – collaboration to facility implementation
- Near term focus on financial pragmatism: small-medium projects in order to build a diversified portfolio
- Initial target project size 5MW – 100MW
- Scalable – once concept proven, can support larger projects
Africa GreenCo Operating Mode Risks

- Risk: Offtaker default
- Objective: Keep IPP whole and prevent PPA termination
- Mitigation: Ability to secure alternative purchaser
- Technical constraint: Wheeling capacity
- Regulatory support
Offtaker Default and Wheeling Rights

Example – Project with 2 offtakers and some capacity sold on DAM
Example – Project with 2 offtakers and some capacity sold on DAM
Business as usual - NO DEFAULT

Offtaker Default and Wheeling Rights
Example – Project with 2 offtakers and some capacity sold on DAM
Business as usual – OFFTAKER 1 DEFAULT

IPPAbbreviation: IPP, TSO: Transmission System Operator

- IPP/TSO Point of interconnection
- AGC, Offtakers 1 & 2 Point of Delivery
- 200MW
- 0MW
- 180MW
- 180MW
- 180MW
- 180MW
- 200MW
- 20MW - DAM
- To SAPP

Offtaker 2
- Offtaker 2 Captive Load
- Offtaker 2 Point of Delivery for TSO power

TSO

TSO/Offtaker 1 Load

TSO
Offtaker Default and Wheeling Rights

Example – Project with 2 offtakers and some capacity sold on DAM
Business as usual – OFFTAKER 1 and 2 DEFAULT

AGC to supply nominated captive load (with price incentive) – i.e. same end user supplied direct by AGC
Oftakers 1 & 2 to guarantee wheeling to nominated captive load
May need ESCROW account
Example – Project with 2 offtakers and some capacity sold on DAM
Business as usual – OFFTAKER 1 and 2 DEFAULT and NO CAPTIVE LOAD OFFTAKE

AGC to find bilateral offtaker(s) in SAPP or sell on DAM in the interim
Wheeling based on SAPP Rules (Prioritisation)
DAM trades paid according to SAPP rules, Bilateral trades paid as negotiated
Current Status

Feasibility Study
- COMPLETE
- Based upon hypothetical portfolio of projects
- Incorporates technical analysis
- Includes financial structuring
- Broad industry support obtained (including SAPP, RERA, KfW, DBSA)

Implementation Plan
- Establish a concrete pipeline of projects within SADC
- Detailed technical and regulatory review
- Further develop legal and regulatory structure
- Prepare financial structure & business plan

Proof of Concept
- Proof of concept expected in Zambia
- Leverage existing market infrastructure
- Complement parallel initiatives

Scale
- Expand capital base to support growing portfolio
- Replicate initial transaction, tailoring strategy to new markets
Next Steps Timeline

- Endorsement at multi-lateral level from AU/NEPAD and/or AfDB
- Endorsement at regional level from SADC/SAPP/RERA
- National political support from 1-2 countries to pilot the concept on an appropriate RE project
- Finalisation of business and implementation plan
- Commitment of support from an anchor donor, DFI or MLA
- Technical DD on pipeline projects
- Draft transaction documents
- Incorporation of initial implementation vehicle
- Commence operations
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