



AFRICAN CARBON STANDARD

APPROVED METHODOLOGY

CC-M002-S

Renewable Energy and Energy Efficiency Projects

Solar PV, wind and hybrid renewable electricity generation, and energy efficiency measures, that displace or reduce fossil-fuel dependency.

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Draft for Consultation

Applicable to African Projects

Document Control

Field	Detail
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Status	Draft for Consultation
Scope of application	African renewable electricity, energy-efficiency and demand-side management projects that displace grid or fossil-fuel energy
Sectoral scope	Energy industries (renewable / non-renewable sources); energy demand
Guiding principle	AMPED — Additional, Measured, Permanent, Excellent Data

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1. Introduction and Scope

This methodology provides a practical framework for quantifying greenhouse gas emissions savings at energy projects seeking credits from the Credible Carbon Registry. It applies to projects involving renewable electricity generation, energy efficiency and demand-side management technologies and practices. Eligible activities include grid-connected solar PV or wind generation, behind-the-meter solar PV, portfolios of small rooftop systems, energy efficiency measures (such as insulation), demand-side management measures (such as solar water heaters) and behaviour-change programmes that reduce emissions.

The methodology is intended to support, not remove, Credible Carbon's insistence that all projects be **AMPED — Additional, Measured, Permanent and supported by Excellent Data**. The emphasis on excellent data to support project claims remains a hallmark of all Credible Carbon projects and supersedes narrow compliance with methodologies.

2. Applicability Conditions

A project is eligible under this methodology where all of the following conditions are satisfied.

Condition	Requirement
Eligible technologies	Any renewable energy technology with a documented life-cycle analysis or GHG footprint. This includes solar PV, wind, concentrated solar power, wave and tidal energy, sustainable biomass, and energy efficiency and demand-side management. Geothermal and small-scale, run-of-river hydropower are included where compliant with local legislation.
Displacement claim	The project must displace or reduce greenhouse gas emissions documented in grid emission factors or peer-reviewed life-cycle analyses. These emissions may be associated with grid electricity, municipal electricity supply, paraffin, diesel, coal, charcoal or unsustainable biomass burning on adjacent erven.
Operational evidence	Installed systems must be operational. Installed but non-functioning assets do not generate credits.
Data availability	Monthly generation data must be available from inverter exports, utility meters, smart meters, monitoring platforms or other auditable records. For demand-side management projects, monthly electricity or fuel consumption data must be available.
No double counting	The same electricity generation or reduction in electricity/fuel use must not also be claimed under another project claiming greenhouse gas reductions.

3. Physical Location and Project Boundary

The physical boundary includes each generation site listed in the PIN, the generation equipment, inverters, meters, local electrical infrastructure, and the point of consumption or grid connection. For

portfolios of energy technologies, each site must be accompanied by GPS coordinates or a physical address.

The boundary excludes the upstream manufacture of panels, turbines, batteries and balance-of-system components, and excludes downstream grid transmission and distribution losses. This exclusion is conservative because it does not increase the credited emissions reductions.

4. Baseline Scenario and Year

- The operational baseline is the electricity or fuel that would have been consumed by the project sites in the absence of the project. The project developer must identify, quantify and justify the relevant baseline in the PIN.
- A baseline year must be stipulated, noting that the baseline may not exceed three years prior to the date of project registration.
- A project may have a lifespan of a maximum of 21 years from its baseline year.
- The baseline must be appraised and adjusted at least every three years via the PIN submission prior to verification.

Project type	Default baseline	Evidence required
Grid-connected renewable electricity	Electricity from the applicable national or regional grid.	Grid connection details; recognised grid emission factor; generation/export records.
Captive-use / behind-the-meter solar PV	Grid or municipal electricity that the site would otherwise have purchased.	Off-taker electricity invoices; inverter generation data; net-metering or export records where applicable.
Diesel, petrol, coal, wood or paraffin displacement, or hybrid systems	Emissions from the default energy feedstock in the absence of the project.	Generator specifications; fuel records where available; diesel emission factor or CDM Tool 33 equivalent.
Portfolio rooftop projects	Apply the relevant baseline per site and aggregate.	Site register, carbon-ownership evidence, site-level generation records.
Demand-side management and behaviour change	Electricity or fuel consumption that would have taken place in the absence of the project.	Description of behaviour-change interventions; emission factor for fuel or electricity; evidence of reduced electricity or fuel consumption; control population not exposed to the interventions.

5. Additionality

The project must show that the energy innovation is not a regulatory requirement in the applicable jurisdiction. The case for regulatory surplus can be supported by one or more of the other proofs listed below.

Additionality test	Specific evidence for renewable energy and efficiency projects
Regulatory surplus	Regulatory surplus is the central proof of additionality under the Credible Carbon Standard. The project must show that activity is not required by law or bylaw in the project jurisdiction. Projects may apply an E+ principle, where laws or bylaws have been specifically introduced to reduce greenhouse gas emissions subsequent to the project country signing the Paris Accord. Similarly, the requirement for regulatory surplus should not eliminate projects that support the application of the laws or are listed in the country's Nationally Determined Contribution.
Financial barrier	The requirement of regulatory surplus may be supported by evidence of financial barriers to commencing or sustaining the project activity.
Common practice	The requirement of regulatory surplus may be supported by evidence that comparable renewable generation or energy-efficiency measures are not the norm in the relevant sector and geography. Common practice refers to practices adopted by more than 50% of a particular industry or sector.

6. Emission Reduction Quantification

Net emission reductions: **ER = BE – PE – LE**

For grid or captive-use renewable electricity: **BE = EG_PJ,y × EF_grid,y**

For fuel (wood, paraffin, diesel, coal, charcoal) displacement projects: **BE = EG_PJ,y × EF_fuel**

Parameter	Unit	Description / source
ER	tCO ₂ e	Net emission reductions issued as Credible Carbon credits.
EG_PJ,y	MWh	Net renewable electricity generated and consumed on-site or exported during year y. Use actual metered generation wherever available.
EF_grid,y	tCO ₂ /MWh	Recognised national, regional, UNFCCC IFI, CDM standardised baseline, or other auditable grid emission factor.
EF_fuel	tCO ₂ /MWh	Recognised diesel generator emission factor, preferably from CDM Tool 33 or a national source.
PE	tCO ₂ e	Material project emissions, such as maintenance fuel or auxiliary electricity, deducted where applicable.
LE	tCO ₂ e	Leakage. Normally zero for renewable electricity projects unless material off-site fossil-fuel use is created by the project.

Where project emissions are negligible for solar PV or wind operation, PE may be set to zero. If fuel continues to operate in a hybrid system, continued fuel use must be deducted as project emissions and must not be credited as displaced electricity.

7. Leakage and Conservativeness

Source	Treatment
Maintenance vehicle fuel	Include as project emissions where material; may be excluded where doing so is conservative or immaterial.
Auxiliary electricity use	Include if separately metered and material. If negligible, state this in the PIN.
Embodied emissions of equipment	Excluded from crediting-period calculations.
Transmission and distribution losses	Excluded; no uplift for avoided losses is permitted in the simplified method.
Overlapping REC or carbon claims	Not permitted. Must be checked at registration and verification.

8. Poverty Impact and Sustainable Development

The PIN must identify a discernible poverty impact and provide evidence suitable for verification. Relevant renewable energy poverty impacts include:

- reduced electricity costs for low-income households, schools, clinics, community facilities or small enterprises;
- local employment for installation, cleaning, maintenance, monitoring or administration;
- improved energy reliability for underserved users;
- carbon revenue sharing or dedicated social investment, with a stated percentage, mechanism and beneficiary group.

9. Source Data / Model Accepted

Data accepted	Preferred evidence
Generation data	Inverter or monitoring-platform exports; smart-meter data; utility export meters; metered generation logs.
Installed capacity and commissioning	Commissioning certificate, equipment list, panel/inverter specifications, photos, site inspection evidence.
Electricity displaced	Off-taker electricity invoices, grid connection agreement, diesel generator logs, fuel purchase records.
Emission factors	National grid factor, UNFCCC IFI harmonised grid factors, CDM standardised baseline, CDM Tool 33, DEFRA/EPA fuel factors where appropriate.
Calculation model	Simple annual spreadsheet: generation × emission factor – project emissions.

10. Monitoring and Verification

Parameter	Frequency	Method
Net renewable generation	Monthly minimum; annual summary for crediting	Download from inverter, monitoring platform, meter or utility record.
System status and installed capacity	At commissioning and each verification	Site visit, photos, equipment register, maintenance records.
Emission factor	At each baseline review, minimum every 3 years	Use latest recognised source and document version/date.
Fuel / electricity project emissions	Per purchase or monthly where material	Receipts, invoices, equipment logs, or conservative intensity ratio.

11. Minimum PIN Checklist

- Site address, GPS coordinates, technology, installed capacity and commissioning date provided.
- Baseline electricity source identified and justified.
- Generation data and emission factor source provided.
- Additionality and no-double-counting statements included.
- Poverty impact and community/stakeholder engagement evidence included.
- Calculation spreadsheet attached with EG, EF, BE, PE, LE and ER by year.

12. Data and Evidence Hierarchy

Credible Carbon applies an evidence hierarchy when assessing whether project data is sufficiently robust for credit issuance. The verifier should use the best available evidence and apply conservative exclusions or discounts where data quality is weak.

Tier	Evidence type	Project-specific examples
1	Primary metered generation records	Inverter exports with timestamps, monitoring-platform downloads, smart-meter records, utility export meter readings.
2	Corroborating records	Commissioning certificates, off-taker invoices, utility bills, maintenance records, annual yield summaries.
3	Documented estimates	Certified PV simulation or capacity-factor estimate for minor data gaps only, adjusted conservatively.
4	Operator declaration	Accepted only for isolated minor gaps where the overall generation claim is corroborated.

13. Community Engagement and Stakeholder Consultation

The project must demonstrate that adequate stakeholder engagement has been conducted before third-party verification, in line with the Credible Carbon Standard. The PIN should include a public notice or equivalent local communication, a comment period or consultation opportunity, a record of material issues raised, and a functioning grievance channel.

- Identify directly affected stakeholders, including workers, customers, off-takers, land users, neighbours and community organisations as relevant.
- Record the engagement method, date, participants, issues raised and project response.
- Keep evidence such as notices, attendance registers, photos, meeting notes, emails, messaging-app notices or letters of support.
- Explain how stakeholder feedback was addressed and how grievances can be submitted during the crediting period.

14. Verification Requirements

Third-party verification is required before credits are issued. The verifier must answer the Credible Carbon assessment questions and confirm that the project is real, operational, conservatively quantified, additional, monitored and poverty-positive.

Verification area	Minimum requirement
Site visit	Verifier confirms panels/turbines/inverters/meters are installed, operational and consistent with the PIN.
Generation data review	Verifier reconciles claimed generation to primary metered data or monitoring-platform exports.
Emission factor review	Verifier confirms source, version and value of the grid or diesel emission factor.
Ownership and double counting	Verifier confirms off-taker awareness and no overlapping REC or carbon claim.
Poverty impact	Verifier reviews evidence of tariff benefit, employment, revenue sharing or community benefit.