Verified Carbon Standard

Draft VCS Methodology

M0233

ACCELERATED RETIREMENT OF COAL-FIRED POWER PLANTS USING A JUST TRANSITION

Draft Version 1.0

17 October 2024

Sectoral Scope 1: Energy (renewable/non-renewable)

This draft methodology was developed by the Rockefeller Foundation led Coal to Clean Credit Initiative.

CONTENTS

1 SUMMARY DESCRIPTION

Additionality and Crediting Method	
Additionality	Project Method
Crediting Baseline	Project Method
Mitigation Outcome	Reductions

This methodology determines net greenhouse gas (GHG) emission reductions resulting from the accelerated retirement of grid connected Coal Fired Power Plants (CFPPs) paired with the addition of renewable electricity (RE) to partially or fully replace the lost electricity capacity.

This methodology ensures that accelerated retirement of the CFPP is accompanied by a comprehensive Just Transition (JT) plan and its implementation. The JT plan mitigates negative impacts from accelerated retirement of CFPP such as loss of livelihoods of workers, their households, contractors, and communities.

2 SOURCES

This methodology uses the most recent versions of the following VCS Program module:

- *VMD00XX: Combined Baseline and Additionality Assessment for the Accelerated Retirement of a Coal-fired Power Plant*[1]

This methodology is based on the following methodologies:

- *Clean Development Mechanism (2006) AM0019: Renewable energy projects replacing part of the electricity production of one single fossil fuel fired power plant that stands alone or supplies to a grid, excluding biomass projects, Version 2.0*

- *Clean Development Mechanism (2022) ACM0002: Grid-connected electricity generation from renewable sources, Version 21.0*

[1] Under development

This methodology uses the most recent versions of the following methodologies and tools:

- *VT0010: Emission factors for Electricity Systems (under development)*
- *VT0011: Emission factors for Electricity Systems (under development)*
- *CDM ACM0001: Flaring or use of landfill gas*
- *CDM ACM0002: Grid-connected electricity generation from renewable sources*
- *CDM ACM0006: Electricity and heat generation from biomass*
- *CDM ACM0014: Treatment of wastewater*
- *CDM ACM0022: Alternative waste treatment processes*
- *CDM Tool 05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation*
- *CDM Tool 07: Tool to calculate the emission factor for an electricity system.*

The following have also informed the development of the methodology:

- *RMI (2022): Guidelines for Financing a Credible Coal Transition*

3 DEFINITIONS

In addition to the definitions set out in the *VCS Program Definitions*, the following definitions apply to this methodology.

Accelerated Retirement

The ceasing of operations, decommissioning of equipment, and remediation of a site earlier than what would have happened in the absence of the project activities.

Baseline emissions

GHG emissions from the operation of the CFPP between the accelerated retirement date and the baseline retirement date.

Baseline Retirement Date

The date on which the CFPP would have been retired due to technical, regulatory, or economic drivers, in the absence of the project activities.

Coal Fired Power Plant (CFPP)

An installation that generates electric power from coal combustion. Several power units at one site may comprise one power plant, whereas a power unit is characterized by the fact that it can operate independently from other power units at the same site. A single unit of the power plant may also be referred to as CFPP. Plants operating as combined heat and power plants, and plants with mixed fuels (biomass, waste, etc.) are not included in the definition of a CFPP.

Coal Transition Mechanism (CTM)

The financial products and services that aim to accelerate a managed transition of a CFPP that has a remaining fair value to their owners. This is done by changing the underlying cost of capital of a CFPP or its required revenues to deliver necessary returns. Voluntary Carbon Market (VCM) and Article 6 is excluded from the definition of a coal transition mechanism. Carbon pricing policy instruments such as Emission Trading System (ETS), Carbon Tax, etc., are also excluded from the CTM definition

Deactivated power plant

A CFPP that is not currently operating but could return to operation.

Deregulated electricity Market

An electricity market where market participants other than the system operator own the power plants (Independent Power Producers) and the transmission lines. In a deregulated market the IPPs may sell the electricity to the wholesale market or to an off-taker or retail energy suppliers providing electricity to the end customers. Such markets allow for competitions on prices and choice of electricity supplier. This may also be referred to as the liberalized electricity market.

Independent Power Producer (IPP)

A legal entity or instrumentality that owns facilities for the generation of electricity and sells electricity to an electric utility under a power purchase agreement.

Grid

The electricity system that connects the project CFPP to other power plants and consumers through transmission and distribution lines. The electricity system extent is limited to that which is managed by a single balancing pool operator or system operator. It does not extend beyond the national jurisdictional border in which the project activity occurs.

Mine-mouth power plant

A CFPP that is constructed and is being operated near to a coal mine, where the CFPP is the anchor buyer of the coal from the mine and the coal is transported directly to the CFPP (e.g., via a conveyor belt).

Off-taker

Off-taker refers to an entity who has a Power Purchase Agreement (PPA) with the Independent Power Producer (IPP) for all or part of the electricity produced, for self-consumption or sale to another consumer. In the case of a regulated market, only the system operator acts as the Off-taker.

Power Purchase Agreement (PPA)

A contract between an independent power producer and an off taker. In this methodology, PPAs refer to agreements in which the off taker is a utility or electricity system operator or a distribution company or power trader. For this methodology, a PPA is considered as long-term if the term is at least 20 years.

Regulated electricity market

An electricity market with an integrated utility company that is the system operator, owns the power system transmission and distribution (including all associated infrastructure), and generates, and or purchases wholesale electricity from IPPs to sell to customers. The market is overseen by a public regulator with the authority and mandate to ensure consumers have access to reliable electricity at a reasonable cost.

Regulated utility (electricity)

An integrated utility company that is the system operator, owns the power system transmission and distribution (including all associated infrastructure), generates, and purchases wholesale electricity from IPPs to sell to customers. A regulated utility is overseen by a public regulator with rate-making authority, mandated to provide consumers with access to reliable electricity at a reasonable cost.

System operator

The system operator is the entity that manages the day-to-day electricity grid management and operations, including scheduling and dispatching electricity from power plants while coordinating the use of the transmission system. Irrespective of the nature and structure of the electricity market, the system operator remains independent. In the case of a regulated market, the system operator acts as the single buyer (off-taker) of the electricity from IPPs and provides electricity to different consumers. In case of a deregulated market, the system operator ensures non-discriminatory access to the transmission system to the IPPs to provide electricity to their

respective off-takers and consumers. company that balances the power system and in a regulated electricity market is the single buyer of electricity from IPPs.

4 APPLICABILITY CONDITIONS

This methodology is globally applicable to project activities that reduce GHG emissions through the accelerated retirement of grid connected CFPPs and pairing with renewable electricity. This methodology is applicable under the following conditions.

4.1 CFPP Retirement

1) Construction began prior to Dec 31, 2021 for the CFPP.
2) The CFPP is connected to the grid.
3) In a regulated electricity market, the CFPP must be owned by either a regulated utility or an Independent Power Producer (IPP)
4) The CFPP has a single long-term Power Purchase Agreement (PPA):
    a. In a regulated electricity market, the PPA must be with a system operator or a regulated utility off-taker
    b. In a deregulated market, the PPA must be with an eligible counterparty with obligations as a load-serving entity, such as a distribution company, power trader, government agency, or power retailer.
5) The CFPP has demonstrated utilization (i.e., positive capacity factor) for the five most recent years at the time of validation and prior to the accelerated retirement of the CFPP. Where the CFPP has been operating for fewer than five years, it must have demonstrated utilization each year since its commercial operation date
6) The CFPP has demonstrated positive free cash flows to equity each year over the last three years at the time of project validation and prior to the accelerated retirement of the CFPP, and has demonstrated positive fair value at the time of project validation using a methodology that meets International Financial Reporting Standards for accounting (e.g., - IFRS 13 Fair Value Measurement).
7) Where the CFPP is owned by:
    i. A state-owned utility company, both the utility and the host country have a commitment to no new coal power plants. The commitment must be publicly available at the time of validation.

ii. An IPP, the IPP has a commitment to not build any new coal power plants. This includes all members of an IPP consortium and their parent or holding companies. The commitment must be publicly available at the time of validation.

8) The system operator or regulated utility has conducted an assessment on the implications of the accelerated retirement, including a rate impact analysis and reliability assessment, and has confirmed that the accelerated retirement will not have a material negative effect on consumer prices and energy access.

9) Major plant equipment is adequately disposed of to prevent their reuse to build a new CFPP or extend the life of existing ones. Plant equipment to be disposed of includes the coal pulverizer and any other equipment that is specifically designed to be used for operations of a CFPP. Disposal may include recycling of material or retooling of equipment to repurpose the CFPP site for non-fossil fuel combustion activities, such as utilizing the plant for on-site RE pairing or energy storage.

10) As part of accelerated retirement, the proponent conducts site reclamation and remediation. This includes at a minimum the removal of any toxic chemicals like asbestos, and the cleanup and proper disposal of coal ash. Proper disposal of coal ash includes its removal from the site and disposal in designated landfills that adhere to the relevant host country standards; or with relevant available technical standards, such as under the US EPA under Subtitle D of the Resource Conservation and Recovery Act (RCRA).

11) This methodology is not applicable under the following conditions:

a. The CFPP is mothballed or repurposed to continue to combust fossil fuels, including co-firing biomass with coal or gas.

b. The CFPP is a mine-mouth power plant.

c. The CFPP is a captive power plant.

This methodology does not result in emission lock-in and no assessment on the matter is needed for eligibility.

4.2 Paired Renewable Energy

12) The project proponent must have a plan for pairing the retired CFPP generation capacity fully or partially with new RE generation

13) The paired RE generation capacity available at the project start date represents at least 10% of the retired CFPP generation capacity.

14) The project proponent must have a plan for pairing a minimum of 40% of the retired CFPP generation capacity with new RE generation by the end of the initial crediting period

prepared in accordance with the requirements in Appendix 1 and available at the time of validation.

15) The RE pairing plan must include the following.

i. A list of RE generation plants that are paired to the accelerated retirement and the following:

   a. Name, type, capacity and location of each RE power plant, and

   b. Planned commercial operations start date.

ii. The paired RE generation capacity must include one or a combination of the following RE types:

   a. Solar power plant with or without battery energy storage systems (BESS)

   b. On-shore and/or offshore wind power plant with or without BESS

   c. Hydro power plant

   d. Geothermal power plant

   e. Tidal/wave power plant

   f. Landfill gas power plant

   g. Biogas power plant, including those from wastewater treatment

   h. Waste-to-energy (WtE) power plant

   i. Biomass-fired power plant

iii. Paired biomass-fired power plants must also demonstrate compliance with the requirements and procedures established for biomass in the most recent version of CDM ACM0006: Electricity and heat generation from biomass[2]

iv. Pairing of RE generation must be established through one or a combination of the following pathways:

   a. Contractual pairing - a new or revised existing CFPP Power Purchase Agreement (PPAs) that covers new RE generation capacity

   b. Financial pairing - the conditions for refinancing a CFPP for retirement require new RE generation capacity.

   c. On-site pairing - new RE generation capacity is developed at the CFPP site and utilizes existing grid connection or balance of plant components.

   d. Regulatory pairing - a regulator approves new RE generation capacity as an explicit replacement for the retired CFPP generation capacity.

[2] Note – Verra is consulting program-level rules for the use of biomass that will apply once implemented

e. Counterfactual plans pairing – new RE generation comes online earlier or at a greater capacity then projected in the currently approved regulatory resource plan of the system operators.

4.3 Just Transition

The criteria and procedures established in this subsection relate to JT for stakeholders directly or indirectly impacted by the accelerated retirement of the CFPP. The requirements of stakeholder engagement and safeguards established in the latest version of the VCS Standard shall also apply for paired RE power plants.

16) The project proponent must develop and implement a Just Transition (JT) plan for the project, and this plan must be available at the time of validation.

17) At each verification, the project proponent must demonstrate progress on the JT .

18) The JT plan is fully funded (irrespective of the carbon revenues generated from the sale of credits).

19) A project announcement is made that:

a. Includes all relevant project information,
b. Reaches all stakeholders identified in the stakeholder mapping process, and
c. Occurs no less than six months before the start of accelerated retirement activities.

20) The JT plan must include all of the following:

i. A stakeholder mapping process to:

a. identify the relevant local stakeholders that would be impacted by the project, and

b. categorize the stakeholders (groups or individuals) as directly or indirectly impacted by the project.

c. The stakeholder mapping process must at least include the following stakeholder categories:

d. Employees including both permanent and contract workers directly engaged in management, operations, and maintenance of the CFPP.

e. Other formal or informal sector workers working at the CFPP site (e.g., daily wage workers cleaning the office building of the CFPP).

f. Contractors with whom the CFPP has short- or long-term contracts (e.g., contractor providing coal to the CFPP, contractor providing plumbing services, or logistics service provider responsible for transportation of coal).

g. Businesses, especially local micro, and small enterprises, that provide products/services or receive products/services from the CFPP or its employees (e.g., a tea stall near the CFPP providing tea to employees of CFPP).

h. Communities and other local groups, especially vulnerable groups that depend on the CFPP (e.g., communities living in the vicinity of the CFPP that would have collected discarded bottom ash to be utilized for self-consumption or sold to the market).

i. Local and/or regional (state/provincial) and/or national governmental ministries and/or departments.

j. Non-governmental and/or non-profit organizations, (women) Self Help Groups (SHG) working for upliftment of the individuals and communities in the vicinity of and/or impacted by the accelerated retirement of CFPP.

ii. The results of the stakeholder mapping process i.e., a comprehensive stakeholder list based on categories established above and including a disaggregation of groups based on their:

a. influence on decision to decommission CFPP;

b. influence in negotiating components of JT;

c. degree of being affected by accelerated CFPP decommissioning on their livelihood;

d. level of interest (if applicable) in participating in various elements of JT plan;

e. if observed amongst or within stakeholder categories, opinion on accelerated CFPP decommissioning (for/against).

iii. A process to assess vulnerability of the identified stakeholders. The vulnerability assessment must be carried out according to the relevant national/regional/local laws, policies, or guidelines. In absence of such national/local laws, policies or guidelines, the vulnerability assessment must be carried out according to relevant international or national guidelines or scientific peer reviewed literature or relevant assessment frameworks by reputed organizations such as the World Bank. The

vulnerability assessment must be done alongside the assessment of environmental and socio-economic impacts. The process must at least assess vulnerability considering at least the following:

a. sex and gender expression
b. physical and/or mental disability
c. age
d. tribe and/or ethnicity
e. economic status
f. social status (e.g., single parents, women headed household, etc.)
g. religion and/or caste
h. informality of available facilities, e.g. of employment, land access / ownership, access to public services (e.g. CFPP workers and their families may have had informal access to education, energy and other utilities while the mine operated, which they would lose upon closure).

iv. The results of the vulnerability assessment.

v. A communication strategy for ongoing information dissemination (including raising and maintaining awareness of the Just Transition), dialogue and seeking feedback (hereinafter together referred as communication) with identified stakeholders. The objectives of the communication strategy must be timely, and culturally sensitive communication of appropriate and adequate information pertaining to the project, including elements of JT.

vi. The communication strategy must include at least all of the following:

vii. Identification of modes and procedures for initial and continued communication. The modes and procedures include but are not limited to physical communication, focus group discussions, digital communication (e.g., SMS, WhatsApp, emails, as relevant), letters, newspaper, calls (audio and/or video) while considering the local relevant languages, dialect, literacy levels, culture, accessibility to modes and procedures of communication, and any other regional and local customs of the communities.

viii. Justification of the appropriateness and adequacy of communication modes and procedures for each stakeholder group and stage at which communication and engagement is planned.

ix. Communication of timelines for all the activities associated with the project and JT plan, including tentative milestones.

x. Communication of timelines related to cessation of job, termination, or modification of contracts for products and services, and other potential impacts on the livelihood of the relevant stakeholders.

xi. Communication of rights of different identified stakeholders.

xii. Communication of options, provisions and mechanisms, and their respective timelines for compensation, job assistance, reskilling, etc.

xiii. A process to identify and implement options, provisions, and mechanisms to mitigate the loss of work of identified stakeholders due to the project. The process must prioritize transition of employees, (permanent and contractual) and other formal and informal sector workers working on CFPP site, within the organizational structure of the IPP directly or via upskilling and training. The options, provisions and mechanism for each stakeholder of each stakeholder category must include one or combination of the following:

a. Severance package, minimum of six (6) months of salary.

b. Early retirement/voluntary retirement benefits, especially for the employees that are nearing retirement age.

c. Similar employment or any other similarly compensated alternative livelihood opportunity within the organizational structure of the IPP that may be at any other CFPP or other power plant owned by the project proponent or in any other relevant functions of the organization. Where CFPP is replaced by a new RE capacity at the same site, the CFPP employees and CFPP contract workers must be preferred, especially where the skills required are similar (e.g., managing transmission of electricity) or skills can be developed via structured trainings, trainings and/or skill development programs (e.g., operations of wind power plant). Similar employment or any other similarly compensated alternative livelihood opportunity at or near the directly paired RE capacity. Where the employees cannot be provided with direct employment opportunities, the IPP must provide justification of the barriers hindering this option.

d. Social security and/or unemployment benefits and payments by the national, regional, or local governments.

e. Further education and/or conducting training for skill development. This can be through partnered organizations/institutes, existing government programs, on the job learning and development opportunities. Preferably, skill development should lead to similar employment opportunities within the organizational structure of the IPP.

f. Support for job seeking. This includes but is not limited to options for networking, assistance in interview preparation, connecting to relevant/similar employment providers. Support for job seeking itself without any combination with other options, provision or mechanism is not sufficient for employees, both permanent and contractual.

g. Lump sum compensation or staggered compensation package to businesses and/or contractors (workers and organizations) affected by the CFPP's accelerated retirement.

h. Support to business, especially local micro and small enterprises that depend on providing products/services or receiving products/services from the CFPP or its employees. The support can include but is not limited to one or more of the following:

    i. Lump sum or staggered compensation.

    ii. Financial and/or technical support to set up alternate business or enterprise.

    iii. Financial and/or technical support to set up similar business or enterprises (especially those supported by employees of the CFPP) at other CFPP or facilities of the project proponent or at sites of directly paired RE capacity.

    iv. Other provision/option/mechanism relevant for the stakeholders.

ii. A justification of the appropriateness and adequacy of the:

a. option/provision/mechanism to mitigate the loss of work, or any combination communicated and made available to the stakeholders identified, and

b. the timeframe for proposed implementation of the option/provision/mechanism, including Key Performance Indicators (KPIs) associated with achievement of intermediate implementation milestones relevant for each stakeholder. The timeframe of implementation must prioritize directly impacted stakeholders.

iii. A process to build consensus amongst identified stakeholders. The process to build consensus must:

a. Allow both the project proponent and stakeholders to appropriately utilize modes and procedures of communication described above.

b. Allow stakeholders adequate time to group and discuss amongst themselves and/or with the project proponent the potential impact of the project and JT plan, options, and proposed alternate livelihoods.

c. Allow for informed decision making by the impacted stakeholders (e.g., employees being laid-off must be allowed sufficient time to discuss and decide amongst the options provided for severance package and training are appropriate.

d. Appropriate and adequate procedures to allow stakeholders to put forth their interests, preferences and concerns associated with the JT plan, in their local language or dialect. This must consider gender-based challenges, vulnerability of different stakeholders, access to resources to communicate by different stakeholders, and any relevant preferred and/or prevalent methods of communication (e.g., local community might not have access to digital media such as phones, hence would give feedback verbally).

e. Communicate all the types of options, provisions and mechanisms as per the methodology and relevant detail under JT plan, including any updates. Allow project proponents to present alternative options, provisions, and mechanisms to mitigate the loss of work and ensure continued livelihood where the stakeholders do not agree or express concerns.

f. Allow neutral third-party mediation/arbitration where a consensus is not reached directly between the project proponent and stakeholders (or stakeholder category).

iv. A description of third-party elements on which the JT plan relies. The description must include identification, intended utilization, and other relevant details. Third party elements may include policies (national, regional or local), programs (either operated, supported or funded by governmental agencies, developmental organizations, philanthropy, etc.), or grants (e.g., Existing programs by national or state governments for skill development). The third parties may include organizations (governmental and non-governmental), groups/cooperatives and individuals.

v. An estimate of the cost (budget) to implement the JT plan and a procedure to review it annually during implementation to ensure its appropriateness and effectiveness. The annual review procedure must include feedback received from stakeholders during consensus building process, recognizing that many costs may need to be disbursed years prior to decommissioning of the CFPP. The cost estimate must include at minimum the following:

    a. Cost associated with continued communication and consultations, including consensus building with the identified stakeholders.

    b. Cost associated with options, provisions and mechanisms associated with providing compensation, opportunities, skill development, etc. to individuals, business, and communities whose livelihood is directly impacted by accelerated retirement of the CFPP.

    c. Costs associated with operations and management of JT plan implementation.

vi. A description of funding sources during implementation of the JT plan. The description must include:

    a. A description of funding provisions or mechanisms, including:

    b. Loans, funds and/or grants received or to be received from government owned/funded organizations, schemes and/or policies. (e.g., The Just Transition Fund in European Union).

    c. Funds and/or grants received or to be received from non-governmental organizations, corporations (e.g., through their corporate social responsibility funds), philanthropies, etc.

    d. Dedicated JT funds established by project proponents through savings, investments, bonds (e.g., green bonds, sovereign bonds), equity, etc.

    e. Loans or any other debt financing through financing institutions such as national or private banks.

    f. Part of carbon revenue received from sales of carbon credits. A minimum of 2% of the net revenues expected from the sales of carbon credits must be allocated to implementation of the JT plan. The net revenues from sales of carbon credits correspond to revenues for which the carbon credits are sold while deducting cost associated with certification and any cost associated with advisory and brokerage. This

expected revenue must be estimated based on the financial gap between the project and the baseline retirement scenarios. The methodology does not set an upper limit of percentage of revenue from sales of carbon credits to be diverted towards JT plan implementation as monetary requirements may vary from country to country, asset to asset, etc.

g. Any other financial mechanism or source deemed relevant and necessary.

vii. Identification and assessment of risks associated with different sources of funding for JT implementation, including risk mitigation options and strategies.

viii. Procedures to identify and pursue means of alternative and/or additional finance during JT plan implementation.

ix. A procedure for periodic review and audit of financial transactions associated with different components of the JT plan and implementation. The procedure must include at least the following:

a. Where deemed required, creation of a separate financial account for the JT funding and disbursements, owned and controlled by the project proponent(s)

b. Provision to internally prepare and review financial statements at least twice in a year and report any material deviations from the JT plan.

c. Annual auditing by an independent third party of financial statements associated with JT plan and its implementation, ensuring that overall materiality levels are set at overall JT financing, following internationally accepted risk-based accounting procedures, with emphasis on options, provisions and mechanisms implemented to ensure continued work.

d. Identification and annual reassessment of risks and their potential impact on finances linked to JT plan implementation.

e. Identification and review of any uncertainties.

f. Review of present and planned financial risk mitigation options and strategies.

x. A description of the operational and management system for JT plan implementation. At minimum, it must include the following:

a. Clear definition of roles and responsibilities of personnel and organizations (including any external organizations, where applicable) involved in the operation and management of activities of JT.

b. Clearly documented and agreed governance mechanism for taking decisions and reviewing decisions associated with JT plan and its implementation.

c. Financial management structure, including personnel(s) responsible for overall management of finances. This must also include procurement policies for the approval of expenses and procedure for approval by personnel(s) with appropriate level of authority.

d. Standard operating procedures for periodic internal review of JT plan and where required its revision, its implementation, including provisions for corrective actions and continuous improvement. This includes revisions required to JT plan based on continuous consensus making process and feedback received from identified stakeholders.

e. Maintenance of records (including version control) associated with JT plan and its implementation.

5 PROJECT BOUNDARY

The spatial extent of the project boundary encompasses the following:

1) The CFPP to be retired.
2) Where applicable, the emissions from operation of paired RE capacity.

The significant sources of leakage included in the quantification are:

3) All the power plants/units connected to the electricity system (i.e., grid) that would compensate for electricity generation that is not produced by retired CFPP and is not covered by paired RE capacity.

The greenhouse gases included in or excluded from the project boundary are shown in Table 1.

Table 1: GHG Sources Included In or Excluded From the Project Boundary

Source		Gas	Included?	Justification/explanation
Baseline		CO_2	Yes	Major Source
		CH_4	No	Conservative

Source		Gas	Included?	Justification/explanation
	Emissions from electricity generation from CFPP	N_2O	No	Conservative
		Other	No	N/A
	Emissions from CFPP decommissioning	CO_2	No	Decommissioning of CFPP same in baseline and project scenario
		CH_4	No	Decommissioning of CFPP same in baseline and project scenario
		N_2O	No	Decommissioning of CFPP same in baseline and project scenario
		Other	No	Decommissioning of CFPP same in baseline and project scenario
Project	Emissions from electricity production from new RE	CO_2	Yes	To be considered for landfill gas, geothermal, hydro, biomass thermal, wastewater and waste to energy plants. Not to be considered for other eligible RE sources.
		CH_4	Yes	To be considered for landfill gas, geothermal, hydro, biomass thermal, wastewater and waste to energy plants. Not to be considered for other eligible RE sources.
		N_2O	No	De minimis
		Other	No	N/A
	Emissions from RE plant construction	CO_2	No	De minimis
		CH_4	No	De minimis
		N_2O	No	De minimis
		Other	No	De minimis
	Emissions from CFPP decommissioning	CO_2	No	Decommissioning emissions of CFPP same in baseline and project scenario but at different times
		CH4	No	Decommissioning emissions of CFPP same in baseline and project scenario but at different times
		N2O	No	Decommissioning emissions of CFPP same in baseline and project scenario but at different times
		Other	No	Decommissioning emissions of CFPP same in baseline and project scenario but at different times
Leakage	Emissions from electricity sourced from the grid	CO_2	Yes	Major source
		CH_4	Yes	Upstream methane emissions considered for gas fired power plants where incremental gas is burned to compensate for retired CFPP electricity generation

Source	Gas	Included?	Justification/explanation
	N_2O	No	De minimis
	Other	No	De minimis

6 BASELINE SCENARIO

The methodology uses the project method to determine the eligible crediting baseline scenario. The baseline scenario is the continued operation of the CFPP until it would have been retired, in the absence of carbon revenues generated through the project activities (i.e., until the baseline retirement date).

The total project crediting period ends at the earliest of the following:

1) The maximum crediting period length permissible in the most recent version of the *VCS Standard*, measured from the project start date,
2) The baseline retirement date, as determined by the latest version of the module *VMD00XX: Combined Baseline and Additionality Assessment for the Accelerated Retirement of a Coal-fired Power Plant,*
3) Where CFPP is owned by a utility, the date the jurisdiction reneges on its no new coal commitment, either explicitly through an announcement, or implicitly through the permitting of a new coal plant, or
4) Where CFPP is owned by IPP, the date the IPP reneges on its no new coal commitment, either explicitly through an announcement, or implicitly through the application for permits for a new coal plant anywhere globally.

7 ADDITIONALITY

Additionality is demonstrated using the project method in the most recent version of VMD00XX: *Combined Baseline and Additionality Assessment for the Accelerated Retirement of a Coal-fired Power Plant.*

8 QUANTIFICATION OF REDUCTIONS AND REMOVALS

8.1 Baseline Emissions

The baseline emissions in any year *y* of the crediting period are determined by:

$$BE_y = EG_{BL\,CFPP_y} \times EF_{BL_y} \quad (1)$$

Where:

BE_y	=	Baseline emissions in year y (tCO_2)
$EG_{BL\,CFPPy}$	=	Baseline net electricity generation in year *y* i.e., the amount of electricity that would have been generated in year *y* of the crediting period had the CFPP not been retired (MWh)
EF_{BLy}	=	Baseline Emission Factor in year y, i.e., the amount of CO_2e per MWh of electricity that would have been generated in any year y of the crediting period if the CFPP had not been retired (tCO_2/MWh)

Baseline net electricity production ($EG_{BL\,CFPPy}$) in any year y of the crediting period must be determined as follows:

$$EG_{BL\,CFPP_y} = CFPPBL_{Gencap} \times CFPPBL_{CFPP_y} \times 8760 \quad (2)$$

Where:

$CFPPBL_{Gencap}$	=	Net installed generating capacity of the CFPP being retired (MW)
$CFPPBL_{CFPPy}$	=	Lesser of the baseline CFPP's historical capacity factor ($CFPP_{BLCFhis}$) and the Average Capacity Factor ($CFPP_{REFCFave,y}$) of at least two reference CFPPs.
8760	=	Number of hours in one year

The baseline emission factor (EF_{BLy}) is determined using the equation below.

$$EF_{BL_y} = (FC_c \times NCV_c \times EF_{CO2C}) / EG_{CFPP} \quad (3)$$

Where:

FC_c	=	Quantity of coal fired in the CFPP in the five most recent years (mass unit)
NCV_c	=	Average net calorific value of coal used in the CFPP (GJ/ mass unit)
EF_{CO2C}	=	CO_2 emission factor of coal used in the CFPP (tCO_2/GJ)
EG_{CFPP}	=	Quantity of electricity generated and supplied to the grid by the CFPP in five years immediately preceding project registration (MWh)

8.2 Project Emissions

Project emissions are those that are emitted from RE capacity that can be demonstrated to be paired with the accelerated retirement of the CFPP. Project emissions are calculated as follows:

$$PE_y = \sum PE_{RE_{i,y}} \quad (4)$$

Where:

PE_y = Project emissions in year y (tCO_2e)

$PE_{REi,y}$ = Project emission from operations of renewable energy power plant *i* in the year *y* (tCO_2e). Generation of electricity from the following RE types does not have project emissions to account (solar PV, wind (onshore/offshore), tidal, wave). The following RE types emit GHGs, and the GHG emissions must be quantified as per the latest version of the following CDM methodologies:

- Project emissions from electricity generation from landfill gas: *ACM0001: Flaring or use of landfill gas*
- Project emissions from Geothermal and Hydropower: *ACM0002: Grid-connected electricity generation from renewable sources*
- Project emissions from biomass fired power plant: *ACM0006: Electricity and heat generation from biomass*
- Project emissions from wastewater treatment: *ACM0014: Treatment of wastewater*
- Project emissions from waste to energy power plant: *ACM0022: Alternative waste treatment processes*

8.3 Leakage Emissions

Leakage emissions are calculated as follows:

$$LE_y = ((EG_{Grid_y} - EG_{RE_{i,y}}) \times EF_y) + LE_{RE_{i,y}} \quad (5)$$

Where:

LE_y = Leakage emissions in year y (tCO_2e)

EG_{Gridy} = Incremental output from grid connected power plants in year y (MWh)

$EG_{REi,y}$ = Net electricity generated and supplied to the grid by the paired RE capacity *i*. (MWh)

EF_y = Emission factor associated with the production of $EG_{Grid,y}$ in the year *y* (tCO_2e/MWh)

$LE_{REi,y}$ = Leakage emissions from paired RE source *i* in the year *y* (tCO2e/MWh)

8.3.1 Electricity Generation from Grid ($EG_{Grid,y}$)

Determine the additional amount of electricity required from the grid connected power plants after the CFPP has been retired. This quantity is equal to the electricity that the CFPP would have generated had it not been retired before its planned retirement date. The additional electricity required from the grid must be the higher of the following:

- Average annual electricity generated by the CFPP over the five most recent years prior to the project being registered with the VCS (EG_{CFPP}); or
- Baseline scenario electricity generated in any year y of the crediting period ($EG_{BL\ CFPP_y}$).

8.3.2 Electricity Generation from Paired RE ($EG_{REi,y}$)

Determine the total electricity generated from the paired RE plant(s) in each the year of the crediting period. It represents the sum of electricity supplied to the grid by eligible RE power plants. Eligible RE power plants used for pairing must be described in the project description with their start dates. Supporting documentation must substantiate that additional RE generating capacity would be integrated into the grid in response to the CFPP being retired. For RE power plants that are eligible due to counterfactual pairing (see Section **Error! Reference source not found.**), the RE generation shall be assumed to directly replace retired coal generation only for the period of time between the date the RE project was brought online, and the date it would have been brought online in the absence of the project. For reporting periods after, any grid generation replacing the coal generation should be treated as leakage and accounted for accordingly.

8.3.3 Grid Emission Factor ($EF_{CM,y}$)

Determine the emission factor of the grid supplying electricity when the paired RE is not able to fully replace the electricity that would have been supplied by the CFPP in the year. The grid emission factor to be applied is the Combined Margin (CM) that combines the Operating Margin (OM) and Build Margin (BM) emissions factor.

$$EF_{CM,y} = (0.4 \times OM) + (0.6 \times BM) \quad (6)$$

Where:

$EF_{CM,y}$	=	Combined margin emission factor associated with the production of $EG_{grid,y}$ in year *y* (tCO_2e/MWh)
OM	=	Operating Margin (tCO_2e/MWh)
BM	=	Build Margin (tCO_2e/MWh)

8.3.3.1 Operating Margin (OM) emission factor

For the OM emissions factor, determine whether a deactivated CFPP could replace the grid capacity of the retired CFPP. If the deactivated plant has sufficient capacity, it represents the baseline scenario and impacts the OM calculation. The OM EF shall then be determined using either:

1) A default emission factor for subcritical coal must be applied if either of the following conditions are met:
    a. The generating capacity of the deactivated coal power plant connected to the grid is greater than or equal to the retired CFPP generating capacity in the project.
    b. The reserve margin is greater than or equal to the regulatory-determined reserve margin target plus 10%, and the unused capacity in the reserve margin is more than 50% coal.
2) The Simple OM, is calculated as the generation weighted average of all power plants connected to the grid, excluding low-cost/must-run (LCMR) electricity sources, using the latest version of CDM Tool 7. LCMR electricity sources include renewables and nuclear. Coal fired power plants must not be included as LCMR in the Simple OM calculation.

Where there are other coal-to-clean/power sector crediting projects, the operating margin calculation must include those CFPPs, assuming the same generation projected in the baseline retirement case. This should be estimated ex-ante and presented in the project description of the CFPP being retired.

8.3.3.2 Build Margin (BM) emissions factor

The BM is determined using the most recent version of CDM Tool 7, exclude all other paired RE in the jurisdiction from other accelerated retirement projects.

8.3.4 Inclusion of upstream methane leakage in gas fired power plants (GFPP)

The emissions factor must account for the upstream methane leakage emissions associated with power generation, using one of the following two options:

Option (A): A default global emission factor of 8.3 tCO_2e/TJ. The emissions factor must be multiplied by the GFPP heat rate (e.g., TJ/MWh); or

Option (B): Detailed approach based on granular, region-specific emissions analysis using one of the following:

- The emission rate from reputable country-specific and industry-specific emission inventories developed using an IPCC Tier 2 or Tier 3 approach.
- Provide evidence of MiQ asset-level certification demonstrating methane leakage rates for each GFPP below 1.6% and apply the respective emission factor.

8.3.5 Leakage emissions from paired RE ($LE_{RE,I,y}$)

Leakage emissions must be quantified for the following RE sources as per the most recent version of the following CDM methodologies:

- Leakage emissions from biomass fired power plant: ACM0006: Electricity and heat generation from biomass
- Leakage emissions from wastewater treatment: ACM0014: Treatment of wastewater
- Leakage emissions from waste to energy power plant: ACM0022: Alternative waste treatment processes

Leakage emissions from the following RE sources are considered de minimis:

- Solar power plant with or without Battery Energy Storage Systems (BESS)
- On-shore and/or offshore wind power plant with or without BESS
- Hydro power plant
- Geothermal power plant
- Tidal/wave power plant
- Landfill gas power plant

8.4 Estimated GHG Emission Reductions and Carbon Dioxide Removals

The GHG emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_{,y} \quad (7)$$

Where:

ER_y	=	GHG emissions reductions in year y (tCO_2e)
BE_y	=	Baseline emissions in year y (tCO_2e)
PE_y	=	Project emissions in year y (tCO_2e)
LE_y	=	Leakage emissions in year y (tCO2e)

9 MONITORING

9.1 Data and Parameters Available at Validation

Data / Parameter	$CFPPBL_{Gencap}$
Data unit	MW

Description	Net Installed Generating Capacity of the CFPP being retired (MW)
Equations	2
Source of data	Project proponent records
Value applied	As per project proponent and CFPP records
Justification of choice of data or description of measurement methods and procedures applied	Project proponent (IPP or utility) will have the correct data
Purpose of Data	Calculation of Baseline Emissions
Comments	To Determine the Installed Generating Capacity of the CFPP being retired.

Data / Parameter	$CFPPBL_{CFhis}$
Data unit	Dimensionless
Description	CFPP historical capacity factor
Equations	2
Source of data	Project proponent records
Value applied	Lowest value of the following: • CFPP BL $_{CF\ val,\ 5\text{-}average}$: the average capacity factor of the baseline plant over the five most recent years at the time of validation of the PDD; OR • CFPP BL $_{CF\ val,\ 3\text{-}average}$: the average capacity factor of the baseline plant over the three most recent years at the time of validation of the PDD; OR • CFPP BL $_{CF,\ pre\text{-}decom,\ 5\text{-}average}$: the average capacity factor of the baseline plant over the five years before the CFPP's actual retirement; OR • CFPP BL $_{CF,\ pre\text{-}decom,\ 3\text{-}average}$: the average capacity factor of the baseline plant over the three years before the CFPP's actual retirement.
Justification of choice of data or description	Lowest value selected for the purpose of conservativeness

of measurement methods and procedures applied	
Purpose of Data	Calculations of Baseline Emissions
Comments	-

Data / Parameter	$CFPPREF_{CFave,y}$
Data unit	Dimensionless
Description	Average capacity factor of at least two reference CF
Equations	2
Source of data	System operator records
Value applied	Average value of capacity factors of the reference CFPPs.
Justification of choice of data or description of measurement methods and procedures applied	Average of reference plants considered to ensure appropriateness and conservativeness.
Purpose of data	Calculations of baseline emissions
Comments	Reference plants used to determine must meet all of the following criteria: ● Unabated CFPPs combusting at least 90% coal on a thermal input basis. CFPP shall not be a CHP plant. ● No contracted power offtake outside of the system operator. ● Equal or greater nameplate capacity than the CFPP being retired. ● Equal or greater long-run marginal cost than the CFPP being retired, defined as the sum of fuel costs, fixed and variable O&M costs, and carbon costs (where applicable) per unit of electricity produced. A reference plant may be selected based on the following criteria if the data needed to determine the long-run marginal cost is not available: ○ The reference CFPP has a similar or lower efficiency technology than the CFPP being retired, in order of less efficient to more efficient: subcritical, supercritical,

	ultra-supercritical for conservativeness, CFPP should use subcritical CFPPs as a reference CFPP if no other suitable CFB Plants are connected to the grid. ○ The reference CFPP uses a similar grade of coal and the CFPP being retired does. In order of lower to higher grade coal: lignite, subbituminous, bituminous, anthracite. If there are no CFPPs that meet the above criteria, then the value to be applied for CFPP REF CF ave,y shall be obtained as follows: ● if CFPP BL CF val, ave is greater than or equal to 60%, then the capacity factor is assumed to decline linearly to 30% over the baseline retirement date ● if CFPP BL CF val. is greater than 60% and the baseline retirement date is greater than 10 years from project decommissioning, then assume CFPP BL CF val, ave. declines linearly to 30% over its remaining technical life.

Data / Parameter	NCV_c
Data unit	GJ/Mass unit
Description	Average net calorific value of Average net calorific value of coal used in the CFPP
Equations	3
Source of data	The following data sources are to be used:

Data Source	Conditions
(i) Values provided by the supplier of coal	Preferred source of data
(ii) Measurement by project proponent	If (i) is not available
(iii) Regional or national default values	if (i) is not available and is referred to reliable national sources
(iv) IPCC default values at the upper or lower limit – whatever is more conservative – of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of	if (i) and (iii) are not available

	the 2006 IPCC Guidelines on National GHG Inventories
Value applied	As per source of data
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of Baseline Emissions
Comments	For (i) and (ii) the NCV must be obtained for each fuel delivery, from which weighted average values for the three most years must be calculated

Data / Parameter	EF_{CO2c}
Data unit	tCO_2/GJ
Description	CO_2 emission factor of coal used in the CFPP
Equations	3
Source of data	The following data sources are to be used:

Data Source	Conditions
(i) Values provided by the supplier of coal	Preferred source of data
(ii) Measurement by project proponent	If (i) is not available
(iii) Regional or national default values	if (i) is not available and is referred to reliable national sources
(iv) IPCC default values at the upper or lower limit – whatever is more conservative – of the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (Energy) of	if (i) and (iii) are not available

	the 2006 IPCC Guidelines on National GHG Inventories
Value applied	As per source of data
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of Baseline Emissions
Comments	For (i) and (ii) the CO_2 emission factor must be obtained for each fuel delivery, from which weighted average values for the three most years must be calculated period t should be calculated

Data / Parameter	EG_{CFPP}
Data unit	MWh
Description	Quantity of electricity generated and supplied to the grid by the CFPP in the five most recent years
Equations	3
Source of data	Direct measurements using electricity meter, project proponent records
Value applied	Net annual average generation applied over the monitoring period
Justification of choice of data or description of measurement methods and procedures applied	Most accurate
Purpose of Data	Calculations of Baseline Emissions
Comments	Use electricity meters installed at the grid interface for electricity export to grid. The electricity meter must have been subject to regular maintenance and testing in accordance with the stipulation of the meter supplier and/or as per the requirements set by the system operators or national requirements. The calibration of meters, including the frequency of calibration, must have been done in accordance with national

	standards or requirements set by the meter supplier or requirements set by the system operator. The accuracy class of the meters must be in accordance with the requirements set by the grid operators or national requirements.

9.2 Data and Parameters Monitored

Data / Parameter:	The total installed paired RE generating capacity
Data unit:	Percentage
Description:	Total installed paired RE generating capacity in the year y
Equations	N/A
Source of data:	Onsite measurement, contractual evidence and project proponent records
Description of measurement methods and procedures to be applied:	As per records of installed RE generating capacity.
Frequency of monitoring/recording:	Continuous
QA/QC procedures to be applied:	Cross-check the relevant pairing scenario of the RE as per 4.2.6
Purpose of data:	Monitoring of applicability condition 4.2.3 and 4.2.4
Calculation method:	Calculate the percentage of RE capacity to the installed generating capacity of the CFPP
Comments:	-

Data / Parameter:	$EGGrid_y$
Data unit:	MWh
Description:	Incremental output from grid connected power plants in year y
Equations	5
Source of data:	Project proponent records
Description of measurement methods and procedures to be applied:	Higher of the two values must be applied: • the average electricity generated by the CFPP over the five most recent years prior to the project being registered with the carbon standard; • the baseline scenario electricity generated in any year y of the crediting period.

Frequency of monitoring/recording:	Yearly
QA/QC procedures to be applied:	-
Purpose of data:	Calculation of Leakage Emissions
Calculation method:	-
Comments:	-

Data / Parameter:	$EG_{REy,\,i}$
Data unit:	MWh
Description:	Quantity of electricity generated and supplied to the grid by any RE source *i* that can be demonstrated to be paired with the retirement of the CFPP in any year y
Equations	5
Source of data:	Measurements using electricity meters at the paired RE generating plant.
Description of measurement methods and procedures to be applied:	Use calibrated electricity meters from the grid supplier
Frequency of monitoring/recording:	Data must be monitored continuously and recorded at least monthly or with the frequency applicable according to the grid supplier.
QA/QC procedures to be applied:	• The consistency of metered electricity consumption must be cross-checked with receipts from electricity bills where applicable • The meters must be calibrated as per manufacturer's specification or as per industrial specifications • Check contracts or other legal binding agreements such as PPA to ensure RE is paired and is generated before it would have been in the baseline scenario.
Purpose of data:	Calculation of leakage emissions
Calculation method:	For each paired RE, this parameter must be either monitored using bi-directional energy meter or calculated as difference between (a) the quantity of electricity supplied by the project plant/unit to the grid; and (b) the quantity of electricity the project plant/unit from the grid. In case it is calculated then the following parameters shall be measured:

	(a) The quantity of electricity supplied by the project plant/unit to the grid; and (b) The quantity of electricity delivered to the project plant/unit from the grid
Comments:	To be reported from the date the CFPP is retired until the earliest of the following dates: a) the baseline scenario CFPP retirement date b) date when the renewable energy generated would no longer be considered to be "paired" with the CFPP retirement, i.e. date from which it is assumed the renewable electricity would have been generated anyway

Data / Parameter:	OM
Data unit:	tCO2e/MWh
Description:	Operating Margin
Equations	6
Source of data:	If a subcritical coal default emission factor is applied. Use following sources: Data source / Condition (i) Regional or national default values — Preferred option when values are well documented and available in reputed sources of information. (ii) Global average default — when (i) is not available. Use of reputed sources such as IEA, IPCC, UNFCCC. If Simple OM is applied, it must be calculated as per the latest version of CDM Tool 7: Tool to calculate the emission factor for an electricity system
Description of measurement methods and	-

procedures to be applied:	
Frequency of monitoring/recording:	If Simple OM is applied, OM must be estimated ex ante and thereafter simple OM is calculated annually
QA/QC procedures to be applied:	-
Purpose of data:	Calculation of Leakage Emissions
Calculation method:	Simple OM - calculated as per the latest version of CDM Tool 7: Tool to calculate the emission factor for an electricity system. If Simple OM is applied, the OM for any given crediting year y, shall be the greater value between the ex-ante simple OM and year y simple OM .
Comments:	Upstream methane leakage pursuant to GFPP to be determined when Simple OM is applied is applied as per criteria and procedures established under section 8.3, Step 4. Separate upstream methane leakage pursuant to GFPP is not considered when the OM value applied is as subcritical coal default emission factor as this is already conservative.

Data / Parameter:	BM
Data unit:	tCO2e/MWh
Description:	Build Margin
Equations	6
Source of data:	Calculated as per the latest version of CDM Tool 7: Tool to calculate the emission factor for an electricity system
Description of measurement methods and procedures to be applied:	-
Frequency of monitoring/recording:	Estimated ex-ante and after that BM is calculated annually

QA/QC procedures to be applied:	The paired renewable energy sources must be excluded from the build margin calculations for all future coal-to-clean/power sector crediting projects
Purpose of data:	Calculation of Leakage Emissions
Calculation method:	Calculated as per the latest version of CDM Tool 7: Tool to calculate the emission factor for an electricity system. For any given crediting year y, the greater value between the ex-ante simple BM and year y simple BM must be used.
Comments:	Consideration of upstream methane leakage pursuant to GFPP to be done when option 2 is selected as per criteria and procedures established under section 8.3, Step 4

Just Transition

Data / Parameter:	Details of direct and indirect stakeholders
Data unit:	Details of person, local business organizations, business, etc
Description:	Details of identified directly impacted stakeholders and indirectly impacted stakeholders. Directly impacted stakeholders must be listed openly with complete personnel identification with minimum of full name, citizen ID number, address, date of birth. Disclosure of this data is under FPIC principles. Indirectly impacted stakeholders must be listed and finalized after the agreement of list after stakeholder consultation
Equations	N/A
Source of data:	Project proponent.
Description of measurement methods and procedures to be applied:	As per the registered stakeholder mapping process in the registered JT plan.
Frequency of monitoring/recording:	Stakeholders must be identified first as per registered stakeholder identification process in the JT plan and must be updated based on any revision to the JT plan implementation or identification of new stakeholders.

QA/QC procedures to be applied:	Stakeholders must be categorized as per stakeholder categories as established in 4.3.2 a)
Purpose of data:	To monitor compliance with validated JT implementation plan and monitoring of compliance of applicability condition 4.3.2
Calculation method:	N/A
Comments:	Details of directly and indirectly impacted stakeholders must be published in the JT plan.

Data / Parameter:	Stakeholder consultation and consensus building sessions
Data unit:	Number and details of stakeholder consultation and consensus building sessions
Description:	A report for each stakeholder consultation and consensus building session with direct and indirect impacted stakeholders. The report must include: list of attendees points of discussion minutes of the meeting queries raised by the stakeholders and response of project proponent, including grievances addressed.
Equations	N/A
Source of data:	Prepared and provided by the project proponent.
Description of measurement methods and procedures to be applied:	Sessions must be as per criteria and procedures of stakeholder consultation, following process of continued communication and process of consensus building as per the registered JT plan.
Frequency of monitoring/recording:	As and when sessions are held.
QA/QC procedures to be applied:	Representation and attendance of direct and indirect stakeholders meeting the minimum quorum (>50% of the invited stakeholders/their representatives).

Purpose of data:	To monitor compliance with validated JT implementation plan and monitoring of compliance of applicability 4.3.2 i)
Calculation method:	N/A
Comments:	After each session, the project proponent must describe how feedback received from each consultation session has been considered and, where relevant, accommodated.

Data / Parameter:	JT plan budget
Data unit:	Host country currency unit or any other currency deemed appropriate (e.g., INR, IDP, USD, EUR, CHF)
Description:	Detailed annual financial estimates pertaining to implementation of the JT plan
Equations	N/A
Source of data:	Prepared and provided by project proponent.
Description of measurement methods and procedures to be applied:	Financial estimates are based on inflow and outflow of funds. Inflow is based on the funding sources identified for JT plan implementation. Outflow is based on components of JT plan that require disbursement of funds and/or are considered expenses. All cash inflow and cash outflow must be explicitly mentioned.
Frequency of monitoring/recording:	Available at time of project registration, updated annually. Updating must be based on the revised JT plan implementation and any changes envisioned in financial flows.
QA/QC procedures to be applied:	When incoming finances (such as funds/grants) differ from the local currency, estimates must consider the exchange rate appropriately. The reporting period must be consistent without any gaps or overlaps.
Purpose of data:	Monitoring of compliance of applicability 4.3.2 k) and 4.3.2 l)
Calculation method:	N/A
Comments:	Financial estimates must be provided for each of the activities planned throughout the year. It should consider activities continued from previous years (if applicable) such as continuous communication.

Data / Parameter:	Severance package

Data unit:	Number of people given severance package: Whole number (Dimensionless)
Description:	Amount of compensation provided to each person: In the currency of the host country in which the project is located or any other currency deemed relevant (e.g., INR, IDP, USD, EUR, CHF)
Equations	Financial compensation provided by the employer to the employee upon termination of employment.
Source of data:	Financial transaction receipt/records, bank records.
Description of measurement methods and procedures to be applied:	As per agreed-upon terms and conditions, and justified in JT implementation plan
Frequency of monitoring/recording:	Continuous. Records updated when financial compensation is provided.
QA/QC procedures to be applied:	When a severance package is provided to an employee in a different currency than that of the host country (e.g., in a situation where an employee works from another country), the exchange rate must be considered appropriately For employees (permanent and contract) and other formal and informal workers, for each person the project proponent must have a signed agreement that they accept the amount of severance offered and provided.
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Calculation method:	The severity package is as agreed between employee and employer (project proponent) and listed terms and conditions.
Comments:	N/A

Data / Parameter:	Early retirement/voluntary retirement benefits
Data unit:	Number of people accepted early retirement/voluntary retirement: Whole number (Dimensionless)

	Amount of compensation provided to each person: Whole number (dimensionless). In the currency of the host country in which the project is located or any other currency deemed relevant (e.g., INR, IDP, USD, EUR, CHF)
Description:	Option provided to the employee who is in his/her/their 40s or 50s and before retirement age and has worked in the same organization for a significant time (usually ten or more years but depends on local laws/regulations or as defined by the company itself) to retire early by terminating the employment and receiving a compensation (either lump sum or staggered or continuous). The option to accept early retirement/voluntary retirement is with the employee.
Equations	N/A
Source of data:	Financial transaction receipt/records, bank records.
Description of measurement methods and procedures to be applied:	Compensation is to be per relevant national/local laws or guidelines, agreed-upon terms and conditions and justified in the JT implementation plan.
Frequency of monitoring/recording:	Continuous. Records updated when financial compensation is provided.
QA/QC procedures to be applied:	When early retirement/voluntary retirement is staggered or continuous, spanning multiple periods over years, accounting of such disbursements must be appropriately accounted to ensure that total finances have been provided to the employee. For employees (permanent and contract) and other formal and informal workers, for each person the project proponent must have a signed agreement that they accept the early retirement/voluntary retirement terms and conditions and the associated compensation.
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Calculation method:	The severity package is as agreed between employee and employer (project proponent) and listed terms and conditions.
Comments:	N/A

Data / Parameter:	Social security and/or unemployment benefits
Data unit:	Number of people getting social security or unemployment benefits: Whole number (Dimensionless) Financial Compensation provided to each person: Whole number (dimensionless) - should be in currency of the host country. E.g., INR, IDP, etc.)
Description:	A minimum and periodic financial compensation provided by the national, regional or local government to the employees to lose their job with no fault of their own.
Equations	N/A
Source of data:	As prescribed in relevant national/regional/local law and/or policy. Bank account statement of the employee receiving benefits. Records of the project proponent
Description of measurement methods and procedures to be applied:	Compensation to be as per relevant national/local laws or guidelines, agreed upon terms and conditions and justified in the JT implementation plan.
Frequency of monitoring/recording:	Continuously - check periodically with the people if they are getting the benefits
QA/QC procedures to be applied:	Ensure that the financial compensation received is not less than prescribed by the government law/policy and that it continues for the stipulated period.
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Calculation method:	N/A
Comments:	-

Data / Parameter:	Similar employment or similarly compensated employment
Data unit:	Number of people provided with employment: Whole number (Dimensionless)

Description:	Employment opportunities with the same or similar work profile and other relevant employment opportunities with similar compensation provided to permanent and contract workers by the project proponent in place of their current employment/livelihood being threatened at the project CFPP.
Equations	N/A
Source of data:	Records of the project proponent.
Description of measurement methods and procedures to be applied:	Employment opportunities provided based on similar work profile, experience, professional expertise and/or compensation in recent or relevant professional years.
Frequency of monitoring/recording:	Continuous
QA/QC procedures to be applied:	Cross check records of the facility/organization where employee has been provided with employment
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Calculation method:	N/A
Comments:	-

Data / Parameter:	Further education support and conducting training
Data unit:	Whole number: Dimensionless
Description:	Support for further education and training for skill development ensures impacted employees find a source of continuing livelihood.
Equations	N/A
Source of data:	Records of the project proponent.
Description of measurement methods and	The records training must include at least the following: - Type of training provided. - Institution/organization/individual is responsible for providing training.

procedures to be applied:	- Schedule and timings of training provided - Number of people trained - Evidence of completion of training The records for support of education must include - Type of education supported - course/degree supported. - Institution/organization partnered or institution/university in which the employee is enrolled. - Support provided - e.g., financial support (paying the fee of education), time off without reduction in salary (if during employment), reduced workload without reduction in salary (if during employment), etc.
Frequency of monitoring/recording:	Continuous
QA/QC procedures to be applied:	Training provided/conducted, and the education supported must be as per skills required to gain a new job or alternately ensure livelihood. Supporting education and providing training that do not lead to a tangible skill development is not eligible.
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g and 4.3.2 h)
Calculation method:	N/A
Comments:	N/A

Data / Parameter:	Support for job seeking
Data unit:	For number of people provided with job seeking support: Whole number (dimensionless)
Description:	Support provided with project proponent to employees before, during and after decommissioning of the CFPP.
Equations	N/A
Source of data:	Records of the project proponent.
Description of measurement methods and	Description of support provided must be accurate and evidence must be provided. Description must include at least:

procedures to be applied:	- Type of support provided (e.g., networking, assistance in interview preparation, etc) - Mode of support provided (e.g., 1-1 sessions improving interview skills, list same/similar job) - Frequency of support provided - Number of people provided with job seeking support - Details of individuals (e.g., name, job profile) that was provided support for job seeking
Frequency of monitoring/recording:	Continuous
QA/QC procedures to be applied:	Where evidence is complete, it can be complemented by signed testimonials of the employees. VVB can cross-check with the people who were provided with support.
Purpose of data:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2g and 4.3.2 h)
Calculation method:	-
Comments:	-

Data / Parameter:	Compensation to contract workers and/contracted organization
Data unit:	For number of contract workers and contracted organizations: Whole number (dimensionless) Amount of compensation provided to each contract worker and/or contracted organization. Whole number (dimensionless). In the currency of the host country in which the project is located or any other currency deemed relevant (e.g., INR, IDP, USD, EUR, CHF)
Description:	Financial compensation provided to contract worker and/or contracted organization whole contract is being terminated earlier than stipulated contractual period and/or or services reduced.
Equations	N/A
Source of data:	Records of project proponent

Description of measurement methods and procedures to be applied:	Compensation to be as per contract clauses. Where, there is no mention of early contract termination compensation, compensation must be agreed upon terms and conditions and justified in JT implementation plan.
Frequency of monitoring/recording:	Continuous.
QA/QC procedures to be applied:	Cross-check financial receipts with contract clause and agreed-upon terms of the JT. Check if the appropriate compensation is provided within the specified time and periodicity. For employees and organization contracted) and other formal and informal workers, for each person/organization the project proponent must have a signed agreement that they accept the compensation provided. .
Purpose of data:	Where compensation is provided in a currency other than that of the host country, ensure exchange rates are considered appropriately.
Calculation method:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Comments:	N/A

Data / Parameter:	Support to local business dependent on CFPP or its employees
Data unit:	For number of local business and enterprises supported: Whole number (dimensionless) If business and/or enterprises are supported financially: Whole number (dimensionless). In the currency of the host country in which the project is located or any other currency deemed relevant (e.g., INR, IDP, USD, EUR, CHF
Description:	Support provided to local business especially micro and small business that could be impacted by early decommissioning of the CFPP.
Equations	N/A
Source of data:	Records of project proponent
Description of measurement methods and	Description of support provided must be accurate and evidence must be provided. Description must include at least:

procedures to be applied:	- Details of business and enterprises supported (e.g., name, type of business, etc) - Number of business and enterprises supported - Support provided - financial support, technical support, legal support, etc - Frequency of support provided – e.g., one time financial support to enterprise A, continuous technical support to enterprise B.
Frequency of monitoring/recording:	Continuous
QA/QC procedures to be applied:	For financial support, cross-check financial receipts with bank statements.
Purpose of data:	Check appropriate evidence for other types of support. Interview business owners for support provided.
Calculation method:	To monitor compliance with validated JT implementation plan and applicability condition 4.3.2 g) and 4.3.2 h)
Comments:	-

9.3 Description of the Monitoring Plan

1) The project proponent must design and implement a comprehensive and robust monitoring plan. The monitoring plan must contain the following information:

- Types of data and information to be reported;
- Units of measurement;
- Origin and/or source of the data;
- Monitoring methodologies (e.g., estimation, modeling, measurement, and calculation
- Type of equipment used;
- Monitoring times and frequencies;
- QA/QC procedures;
- Monitoring roles and responsibilities, including experience and training requirements;
- GHG information management systems, including the location, backup, and retention of stored data;

- Where measurement and monitoring equipment is used, the project proponent must ensure the equipment is calibrated according to current good practice (e.g., relevant industry standards, manufacturer's specification, etc).
- Roles and responsibilities of the team and if parts of monitoring are being outsourced, a mechanism to ensure compliance to criteria and procedures of monitoring.

2) The QA/QC procedures must include, but are not limited to:
   - Data gathering, input, and handling measures;
   - Input data checked for typical errors, including inconsistent physical units, unit conversion errors;
   - Typographical errors caused by data transcription from one document to another, and missing data for specific time periods or physical units;
   - Input time series data checked for unexpected variations (e.g., orders of magnitude) that could indicate input errors;
   - All electronic files to use version control to ensure consistency;
   - Physical protection of monitoring equipment;
   - Physical protection of records of monitored data (e.g., hard copy and electronic records);
   - Input data units checked and documented;
   - All sources of data, assumptions, and emission factors are documented.
3) All necessary documents must be collected and centrally stored by the project proponent and be available for verification at any time. Documents and records must be stored in a secure and retrievable manner for at least two years after the end of the project crediting period.
4) The monitoring plan must include procedures to ensure competence of teams or team members engaged in technical tasks such as monitoring of data, transmission of renewable electricity. This can be via appropriate and adequate education, demonstrated experience, trainings, etc.
5) The plan must include monitoring of RE capacity directly paired to the accelerated decommissioning of CFPP. This must include but is not limited the following:
   - Details of each RE capacity being directly paired.
   - Status of each directly paired RE. E.g., RE power plant has started construction.
   - Update on the date of commissioning and any material change in the date of commissioning as compared to the proposed date at the start of validation.

- Where there is material change in date of commissioning, the procedures to identify underpinning rationale and reasons and subsequently procedures to mitigate any negative impacts associated with delayed commissioning.

6) The monitoring plan must establish procedures for at least the following as per the JT plan:

- Continuous updates to:
    a) communication pertaining to JT
    b) consensus building among identified stakeholders and project proponents.
    c) identified JT relevant policies, programs, grants, etc. and their utilization.
- Implementation and updates for options, provisions and mechanisms to mitigate loss of and ensuring continued livelihood.
- Continuous updates for financial transactions associated with JT plan implementation.
- Updates and changes to the operational and management system

10 REFERENCES

Heffron, R. J., & Heffron, R. J. (2021). The Elements of the Just Transition within International Institutions. Achieving a Just Transition to a Low-Carbon Economy, 125-149.

ILO, 'Guidelines for a just transition towards environmentally sustainable economies and societies for all' (Inter-American Development Bank and International Labour Organization, 2015). https://www.ilo.org/wcmsp5/groups/public/%2D%2D-ed_emp/%2D%2D-emp_ent/documents/publication/wcms_432859.pdf (last accessed 12 September 2023)

KCI. 2022. Implementation of just transition and economic diversification strategies: a compilation of best practices from different countries. Bonn: UNFCCC

Luna, F. (2019). Identifying and evaluating layers of vulnerability–a way forward. developing world bioethics, 19(2), 86-95. https://doi.org/10.1111/dewb.12206

APPENDIX A: UNCERTAINTY ASSESSMENT

Project proponents must estimate the inherent uncertainty in the assumptions, measurements and calculations used to determine baseline, project, and leakage emissions for the project activities covered by this methodology.

For the project activities covered by the methodology, the primary sources of uncertainty arise from measurement error for fuel combustion at CFPPs and paired RE plants (project emissions) and measurement error related to net electricity supplied to the grid by the CPPP and paired RE plants. Uncertainty related to error in measurement of net electricity supplied to the grid by RE plants is considered de minimis if the project proponent demonstrates that energy meters are calibrated as per manufacturer's specifications or national/regional standards, as applicable.

The project proponent must undertake an uncertainty analysis at the project level by applying error propagation for each measured parameter. Uncertainty related to measurement of the quantity of fuel combustion at the paired RE plants is considered *de minimis* if the resulting emissions are less than 2% of the baseline emissions.

For all other values, models, assumptions and measurement, uncertainty assessment is not required as the methodology prescribes conservative defaults, i.e, project and/or leakage emissions are overestimated, while baseline emissions are underestimated.

APPENDIX B: GUIDANCE ON VCS REQUIREMENTS

The section provides guidance on requirements of the VCS Standard in context of the project developed using this methodology.

1) **Start date**: As per VCS Standard, the start date for non-AFOLU projects corresponds to the date on which the project starts to generate emission reductions and/or removals. For this methodology, the start date corresponds to the date on which the CFPP completely ceases its activities of electricity production and has started the decommissioning and dismantling process. This may also be considered at the accelerated retirement date or early retirement date of the CFPP.

2) **Crediting Period**: At the time of registration, the project proponent may choose either of the crediting period options established in the latest version of the VCS Standard. However, actual VCUs can only be issued during the period between the CFPPs accelerated retirement date, i.e date by which the CFPP has been decommissioned and the baseline retirement date or length of the crediting period, whichever is less.

   E.g. 1: The project proponent chooses the crediting period of seven (7) years, and the difference between the accelerated retirement date and the baseline retirement date is five (5) years. In such a scenario, the project is eligible to be issued VCUs for 5 years and not 7 years.
   E.g. 2: The project proponent chooses the crediting period of 10 years fixed, and the difference between the accelerated retirement date and the baseline retirement date is 12 years. In such a scenario, the project is eligible to be issued VCUs for 10 years and not 12 years.

3) **Sustainable Development Contributions**: The impacts of Just Transition implementation in the context of accelerated decommissioning of CFPP must not be reported as Sustainable Development Contributions. E.g. Voluntary retirement benefits given to employees of CFPP nearing the age of retirement or training provided to the existing employees. These represent minimizing the impacts of accelerated decommissioning of the CFPP on their respective livelihoods under the principle of no net harm. Additional benefits generated for the environment and community through paired RE or using revenue from sales of carbon credits may be claimed as sustainable development contributions. E.g., additional jobs created due to RE deployment or setting up a new local healthcare facility for the nearby communities using revenue from sales of carbon credits.

4) **Stakeholder Consultation**: The project must demonstrate compliance to the requirements of stakeholder consultation as per the latest version of the VCS Standard for both CFPP site and

paired Renewable Energy (RE) site(s). Where all paired location RE is yet to be finalized, the stakeholder consultation must include at least 1 paired RE location. The requirements for Just Transition as established in section 4.3 of this methodology are additional to the stakeholder consultation requirements of the VCS Standard and are limited in the context of the CFPP.

5) **Safeguards**: The project must demonstrate compliance to the requirements of safeguards as per the latest version of the VCS Standard for both CFPP site and paired RE sites. The requirements for Just Transition as established in section 4.3 of this methodology are additional to the requirements of safeguards of the VCS Standard and are limited in the context of the CFPP.

6) **No Double Claiming with Other Forms of Environmental Credit**: The RE paired with the accelerated decommissioning of the CFPP is ineligible to claim other forms of environmental credits or certificates such Renewable Energy Certificates (RECs) for the duration of the crediting period.

DOCUMENT HISTORY

Version	Date	Comment
v1.0 (draft)	17 Oct 2024	Draft version of new methodology for public consultation