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Power plant

Power Generation Module

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Module 2 of the Annex in Asset Recycling.

This module sets out sector-specific asset recycling guidelines for power generation sector, including sector-specific due diligence requirements, sample risk allocation matrix and sample terms of reference (TOR) for selection of transaction advisors. *Find more below, or visit the Guidelines for Implementing Asset Recycling Transactions section and Content Outline, or Download the Full Report*

Due Diligence for Power Generation

The Relevant Authority should undertake a due diligence study of the power generation asset that is considered for asset recycling. This should form part of the asset recycling transaction preparation process. The due diligence process for a power generation asset should include:

- Technical due diligence
- Commercial structuring and feasibility assessment
- Legal due diligence
- E&S and climate resilience due diligence

Technical Due Diligence

The objective of the technical due diligence is to identify potential technical issues with respect to the Asset Recycling Asset. This exercise should form the basis for determining the scope for management, maintenance and refurbishment of the Asset Recycling Asset that the Concessionaire may need to invest in to ensure required performance specifications can be met.

The Relevant Authority should carry out the following steps in conducting technical due diligence of the Asset Recycling Asset.

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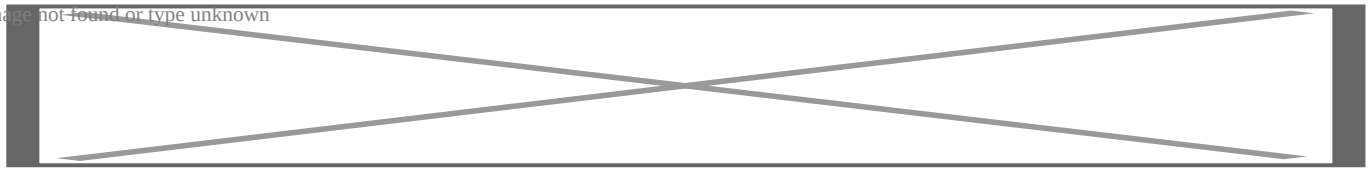

- **Availability and accessibility of technical data**:
  - Review relevant documentation: Review available data and documentation with respect to the Asset Recycling Asset, including but not limited to previous feasibility studies, technical reports

(engineering drawings and design), financial statements, existing commercial agreements.
    - Organization of data: Data collected should then be organized according to categories – collation and categorization helps to minimize accessibility issues for bidders when data is made available during the bidding process.

- **Asset performance and condition**: The assessment should include a study on the existing asset condition, understanding of any major technical or operation issues, and identification of potential plant process and equipment improvement alternatives:

  Historical – review period: past (3 to 5) years

    - Undertake an assessment of the general condition of the Asset Recycling Asset;
        - site layout
        - power generation units
        - electrical and control system
        - auxiliary systems
        - emission monitoring system
        - supporting facilities (such as workshops / warehouse, etc.)
        - emission factor (if the Asset Recycling Asset is a thermal generation asset)
    - Identify any deficiencies in the asset's functions and operations, including staffing plan, sufficiency of experts and manpower;
    - Assess annual operational costs of the asset (fixed cost, variable cost and fuel cost);
    - Assess annual maintenance costs of the asset (pro-active, preventive, and corrective), maintenance schedule compliance, major maintenance outages and assets upgrades;
    - Assess potential replacement / overhaul / major maintenance required;
    - Assess remaining useful life of the assets;
    - Assess detailed historical performance data and overall performance (i.e. power generation rate, auxiliary consumption rate, constraints on dispatch or curtailment, [fuel consumption & heat rate – for thermal plants] against benchmark KPIs – local and international as well as downtime incidents assessment) and capacity of the assets (asset reliability and asset availability), including performance in relation to safety systems (near-misses, incidents and fatalities);
    - (If applicable,) assessment of historical fuel (supply) data (for thermal power plants) and hydrology data (for hydro power plants);
    - Environmental and social and climate change impact assessment, including assessing emission factors and identifying (if applicable) asset refurbishment or upgrades required to comply with international standards (e.g. WBG-EHS guidelines);

  Future / Forecast

    - Define service specifications required to meet the future needs;
    - Identify any change required in technology (including identify potential risks related to obsolescence of that technology (e.g. due to carbon transition, climate policy)) used and assess costs required for implementation;
    - Gap Analysis, including sufficiency of fuel supply with generation plan
    - Assess if asset condition is sufficient to provide satisfactory service levels; document any gaps (gap analysis) where the efficiencies of private sector can be leveraged.
- **Capital, operational and life-cycle expenditure plan**s:
    - Assess expenditure plan (for improvement of service levels, technological upgrade or increasing capacity) to meet expected growing demand/offtake and service level of the asset over the contemplated concession/power purchase agreement;
    - Assess any proposed timeline/ implementation plan and phasing of the expenditure plan.

The outcome of the technical due diligence should be provided as a report. As a minimum, it should report on the overall performance and conditions of the Asset Recycling Asset, assess future capital, operational, and life-cycle expenditure plans.

Commercial Structuring and Feasibility Assessment

Financial feasibility assessment

- Review initial forecast / budgeted revenue, capex and opex, tax, capital structure, funding schedule and conduct adjustment to the assumptions based on the latest available information, key project documents or term sheets, and benchmarking
- Review existing debt funding facilities
- Develop a project financial feasibility model based the updated assumptions, parameters and value to identify project IRR, NPV, payback period and other relevant investment feasibility indicators.

Commercial parameters

- Identify the key objectives and key commercial drivers for the implementation of Asset Recycling
- Identify key project risks and risk mitigation action plans in place
- Prepare a preliminary asset recycling commercial structure for the transaction considering key bankability requirements including:
    - Offtake structure
    - Service obligation
    - Key performance indicators
    - Concession period
    - Asset ownership
    - Capital funding structure
    - Payment scheme to GCA
    - Fuel supply arrangement (if applicable)
    - Tariff structure and tariff adjustment provision
    - Termination regime
    - Other project bankability structuring considerations
- Identify any VGF or government support (if required) to achieve financial feasibility

Legal Due Diligence

The Relevant Authority should consider the following points when conducting its legal due diligence of assets in the power generation sector (assuming IPP model):

- Corporate documents
    - Shareholder agreements among IPP developer shareholders (shareholding structure, governance of IPP company, reserved matters, shareholder’s exit and transfer of shares provisions) and share certificates
    - Legality of IPP company including members of board of commissioners and board of directors
    - Adequacy and validity of key business operation permits and licenses, including from external technology or intellectual property providers
    - Legality of IPP developer ownership over the Asset Recycling Assets
- Key Project Agreements, i.e.
    - Power Purchase Agreement

        - Power generation requirements (minimum generation, curtailment, dispatch credits, penalty)
        - Offtake mechanism
        - Tariff provision (base tariff and adjustments)
        - Consider applicable arrangements in terms of feedstock supply fuel or other primary energy source (such as steam or hydrology resource) to the Operator (if relevant to the asset) including risk allocation in case of fuel supply issues.
        - Liquidated damages
        - Termination regime
        - Metering arrangement calibration
        - Payment regime
        - Assets transfer requirements
        - Dispute resolution
    - Fuel supply agreement (if applicable)
    - Financing Agreement (restrictions to asset recycling implementation)
    - Land ownership / utilization permit or agreement
    - Workforce arrangement and agreement
    - Insurance agreements (insurance coverage, premium, etc.)
- Adequacy of permits related to Health Safety and Environment ("HSE") for the operation of the existing assets and compliance of HSE reporting to Relevant Authority
- Historical environmental issues and litigation against IPP company
- Good corporate governance policy and standard operating procedures
- Termination rights of the parties and consequences of termination.
- Any other contingent liabilities

E&S and Climate Resilience Due Diligence

The Relevant Authority should consider the following points when conducting its E&S due diligence of a power generation asset:

- identify gaps between national applicable law and GIIP/Lenders requirements and way to bridge them with related timeline for implementation;
- key E&S risks may include, but not limited to: land acquisition and/or clearing, resettlement, impact on livelihood, presence of sensitive receptors in the project area of influence with potential limitation in access to residential and commercial activities and increase in noise levels, air emissions, pollution, dust, wastewater and storm water management, waste management, and hazardous material/waste handling, presence and close proximity of the alignment with key biodiversity areas, legacy issue (if any);
- applicable E&S permitting and E&S studies to be developed and to be considered in the risks allocation between the government contracting party and the private sector.

The Climate Resilience Due Diligence should include at least

- assessment of GHG emissions baseline of the power generation asset;
- historical climate data and natural disaster events affecting the power generation asset;
- review of climate and natural disasters risks of the power generation asset (e.g. insufficient cooling water; temperature of cooling water before and after use; floods risks, particularly in coastal infrastructure; reduced efficiency of solar energy; drought and/or reduced average precipitations affecting output from hydropower generation);
- assessment of the Disaster Risk Management plan or Emergency Preparedness and Response plan (if any in place); and

- assessment of integration of climate resilience concepts in maintenances regimes.

TOR for Transaction Advisors for Power Generation Development

*This document has been prepared as part of the annex of the section on **Guidelines in Implementing Asset Recycling** in the **PPP Legal Resource Center (PPPLRC)** for contracts, laws and regulations. It is for general guidance purposes only and should not be used as a substitute for specific legal advice for a project.*

Introduction

Project Background

The **[Relevant Authority's]** Board of Directors is engaging the integrated consultant services (either as a single firm or consortium, referred to as 'the consultant') for the transaction advisory services for [operations, maintenance and management] of the [xxx] power plant for the next [] years under the Asset Recycling Scheme ("the Project").

Objective and Purpose of the Project

The Consultant will directly support the **[Relevant Authority]** with the provision of advisory and transaction services for this Project. The key project objective is to carry out the technical and financial feasibility studies, develop technical specifications and standards, draft legal contractual framework and assist in the administration of asset recycling partner selection from inception to the financial close.

During the tender support process, the consultant will assist the **[Relevant Authority]** in implementing a competitive tender, consistent with the best international practices and local laws.

Legal Basis

The legal basis for the framework of the preparation and selection of a partner for [XXX] power plant (XXX MW) under the Asset Recycling Scheme refers to [.] Laws and Regulations including but not limited to:

1. [XXX]
2. [XXX]

Scope of Work

Introduction

The Consultant scope of work involves multi-disciplinary capabilities and expertise involving demand forecasting, power plant development, and power plant financing, economics and investment, commercial, business case planning, stakeholders and risk management. In addition, the experience of drawing legal and regulatory framework is needed for this project. The study's scope of services forms a part of the following deliverables/tasks:

a. Feasibility Study (technical and financial) for transaction structuring;
b. Tender Process for Partner Selection;
c. Post-transaction award assistance (up to financial close);

Consultant Governance Structure

It is expected that consultant team will be comprised of a Financial, Technical, Legal and/or Project Management advisory team. The Financial Consultant will be the lead consultant and work closely with others as an integrated team under **[Relevant Authority's]** guidance, particularly during the feasibility and tender process.

The role of the Lead Consultant (as a financial) is to work with technical and legal consultant team to develop the feasibility study and support the tender process for project, including post-evaluation report.

Scope of Works

The below Scope of Services reflects the minimum requirements which **[Relevant Authority]** envisages will be necessary to conduct the consultancy advisory services.

- Stakeholders Management Discussion
- Technical Analysis and Capex Estimation
- Legal and Risk Assessment
- E&S and Climate Resilience Assessment
- Preparation of financial model, business and financial analysis
- Project structuring and transaction advisory
- Transaction process management

Project Duration and Reporting

It is expected that the consultant will be appointed and commence its services no later than [xxx]. The entire project scope is expected to be completed within **[xxx] weeks** with the following indicative timeline allotted to the following:

- Final Feasibility Study- **[XXX weeks]**;
- Report on final project structure - **[XXX weeks]**;
- RFQ and RFP documents including supporting tender documents
- Tender Selection Process for Partner Selection (including negotiations & contract signing) - **[XXX weeks]**;
- Post-award assistance (till financial close) - **[XXX weeks]**;

Expert Requirements

Composition of Consultant's Expert Team

The project is scheduled to be delivered within **[XXX]** months, including **[XXX]** weeks for the completion of monitoring and evaluation report after the project financial close. Under the project requirements, the consultant will mobilize the following experts:

- Team Leader / Project Manager
- Deputy Team Leader / Deputy Project Manager
- Technical Team
    - Senior Electrical Engineer
    - Civil Engineer

    - Mechanical Engineer
    - Control and Instrumentation Engineer
    - Thermal Modelling Expert (assuming thermal power plant)
- Legal and Compliance
    - Power Regulatory and Policy Expert
    - Health Safety and Environmental Expert
    - Social Expert
    - Environmental/Climate Resilience Expert
    - Insurance Due Diligence Expert
- Financial and Commercial
    - Power Commercial / Business Expert
    - Power Finance and Investment Expert
    - Financial Model Specialist
    - Tax Expert (if tax structuring is required)
    - Procurement Expert / Transaction Specialist

The Consultant will determine the number, effort and the nature of experts/support staff they will require to achieve the objectives of the project, in accordance with their proposed approach and methodology. However, the **[Relevant Authority]** requires a minimum of **[XXX]** key experts for proposal evaluation purposes. Any changes in the team composition post award have to be agreed with the **[Relevant Authority]**.

Project Deliverables

The deliverables of this project addressed to [**Relevant Authority**] are as follows:

1. A report covering technical, social, environmental, climate resilience, financial and legal assessment, including incorporation of feedback from the [Relevant Authority] (final technical and financial feasibility study with tender selection and draft legal contract documents: due in [12-16] weeks):
    a. An overview of the project implementation schedule aligned with agreed dates during kick-off meeting
    b. Assets technicalities study after asset recycling implementation (gross and net capacity, availability factor and degradation, load profile by month, routine and major overhaul maintenance schedule, all in O&M expenses and its breakdown, replacement capex if any)
    c. Financial and commercial analysis covering a financial and commercial viability analysis for the Project with reference to key parameters such as project cost, funding, operating expenses and revenues.
    d. Legal and Regulatory Framework Assessment and legal structure recommendation for asset recycling transaction
2. Existing Assets Due Diligence Report (Financial, Tax, Technical, Legal, Insurance, HSE, Climate Resilience)
3. Tender selection process: (Approximately [24-32] weeks)
    a. Market sounding Report
    b. Public Consultation Report (if required)
    c. Request for Qualification and its supporting documents
    d. Request for Proposal and its supporting documents (draft Asset Recycling Agreement / term sheet, Feasibility Study, Due Diligence Report)
    e. Statement of Qualification (“SOQ”) and Proposal evaluation framework (evaluation parameter, mechanism, threshold)
    f. SOQ and Proposal clarifications to applicants
    g. SOQ and Proposal Evaluation Report

    h. Award to Preferred Bidder
4. Post-transaction Award [12-24 weeks]
    a. Asset Recycling Agreement closing progress report
    b. Signed Asset Recycling Agreement (and other supporting documents as required, i.e. PPA)

Indicative Payment Schedule

- Professional fees: Fees shall be proposed as a lump sum contract value, inclusive of air travel, visa, accommodation and per-diem of the professional consultants' team, and exclusive of withholding tax and other applicable taxes and inclusive of consultant's country GST and Taxes;
- Payment terms: Terms of payment are proposed are as follows:
    - Inception report submission - **XX**% of the lump sum contract;
    - Draft Feasibility report submission - **XX**% of the lump sum contract;
    - Final Feasibility report submission - **XX**% of the lump sum contract;
    - Report on final project structure -**XX**% of the lump sum contract;
    - Completion of Tender Selection Process, Negotiation, & Award Signing - **XX**% of the lump sum contract;
    - Post-award assistance (till financial close) - **XX**% of the lump sum contract;
- Schedule of consultant hourly rates

Project Evaluation Criteria

Form of Proposal

The Consultant's proposal must be submitted in Bilingual (both in English and [.]), duly signed by the authorized signatory of the Lead Consultant and must include supporting unincorporated JV or sub consultancy agreements.

The following criteria will be used as guidance in comparing and evaluating the different proposals submitted by the Consultants. The proposal should include a technical and financial proposal comprised of the following:

- Organization Experience
- Experience of team members
- Consultant's Project Experience
- Comments on Terms of Reference
- Description of Approach, Methodology, and Scope of Work Plan for Performing the Project:
    - Technical Approach and Methodology
    - Work Plan
    - Organization and Experts
    - Curriculum vitae of each expert and supporting staff
- Financial Proposal as proposed lump sum fee (with a breakdown of fixed professional fee, expenses, contingencies); consultants are also requested to submit discounted hourly rates.

Instruction to Consultants

Notice of Receipt and Queries and/or Clarification

Consultants shall acknowledge receipt of this RFP immediately upon receipt. Consultants shall also advise of their intention to submit a Proposal no later than XXXX202Y.

Consultants may request clarifications and/or raise queries in writing, during the period of submission, with respect to any aspect of this RFP. The final date for requesting any query and/or clarification or further information is XXXX. No queries and/or clarifications will be responded to after this date.

Should the **[Relevant Authority]** provide additional information or responses to a Consultant, it reserves the right to issue a copy of such information to all Consultants and all additional information or responses will form part of this RFP.

All correspondence including notification of receipt, confirmation of intention to submit a Proposal raising queries and/or clarifications shall be delivered directly to {Procurement Unit of **Relevant Authority**}

Submission of Proposal

Consultant proposals are to be submitted no later than XXX 202Y (the “Submission Date”) and delivered directly to: [Procurement Unit of **Relevant Authority**]

Validity of Proposal

Proposals shall remain valid and binding upon the Consultants for a period of ninety (90) calendar days from the Submission Date ("Period of Validity"). Proposals valid for a shorter period may be rejected by **[Relevant Authority]** as failing to be deemed substantially responsive pursuant to this TOR. Proposals may be accepted at any time before the expiration of the Period of Validity.

[Relevant Authority] may, not later than fourteen (14) calendar days prior to the expiration of the Period of Validity, request the Consultant's consent to an extension of the Period of Validity. Both the request for extension and the response shall be made in writing.

Reservation of Rights

[Relevant Authority] reserves the right to, at its absolute discretion:

- Amend this TOR and/or the TOR process;
- Amend the indicative timetable as outlined in the earlier sections;
- Suspend, cancel or vary the intended selection process;
- Reject any and/or all Proposals;
- Award the engagement to whichever Consultant best satisfies the TOR requirements, such successful Consultant not necessarily being the Consultant with the lowest fees; and

Cost of Preparation of Proposals

All costs incurred by the Consultant in the preparation and lodgement of their Proposal or otherwise in the course of the evaluation of their Proposal shall be borne by the Consultant. **[Relevant Authority]** will not be responsible for and will not pay for, any expense or loss that may be incurred by the Consultant in the preparation, evaluation or negotiation of their Proposal.

Acknowledgement

Submission of a Proposal by the Consultant will constitute and evidence acknowledgement by the Consultant that it has:

- Examined this TOR (including any amendments or addenda); and

- Satisfied itself as to the correctness and sufficiency of its Proposal and that the fees submitted cover the cost of complying with all matters and things necessary for the due and proper performance of the Services and any other elements deemed necessary by the Consultant for a Project of this nature.

Confidentiality – Consultant's Obligations

Form of Agreement

The successful agreement should form the basis of client-consultant model services agreement as defined in the draft **[to be drafted at the transaction stage]**.

Risk Matrix for Power Generation

Checklists of issues to consider when preparing or reviewing sector-specific asset recycling guidelines for power generation risk sector

- Operating Risk
- Demand / Revenue Risks
- Financial
- Political Force Majeure (Change in Law and Government (In-)Actions
- Force Majeure
- E&S Risks
- Climate Risks

Sample risk matrix – Power Generation

Risk		Description	Public	Private	Shared	Mitigation
OPERATING RISKS	**O&M costs overrun**	**Risk of O&M costs being higher than forecast or budgeted.**		**x**		**Evaluation of O&M cost assumption and the adequacy of tari component for the recovery of O&M co is critical in ensurin the selection of priva sector with credible and robust business plan; specifying the requirement of a lon term O&M (e.g. LTSA) contract as part of IPP bid submission can also a mitigation strategy**

Fuel price risk	**Risk of fuel price fluctuation.**	**x**			**Typically borne by the off taker. Tariff component for fuel cost recovery will typically allow for fuel price pass-through/indexation.**
Plant efficiency	**Risk of plant operation not in accordance to design standard (e.g. thermal efficiency below contracted efficiency due to operational issue).**		**x**		**Borne by the private sector operator as efficiency is under the control and responsibility of asset owner. Therefore, only fuel price is a typically pass-through component.**

DEMAND / REVENUE RISKS	**Demand risk**	**Output of the plant subject to dispatch order by utility.**	**x**			**For non-renewable plant, typically tariff payment will be structured into availability payment and output payment or a Take or Pay wil be provided by off-taker.** **IPP will be neutral o demand risk as it wi typically structure it debt servicing and capital repayment requirement based o availability payment (or Take or Pay), which is a factor unc their control. Outpu payment will be structured on cost recovery/cost pass through basis.** **For renewable plant where resource availability is a constraint, typically will be structure on “must take” basis by the off-taker, with further compensatio from off-taker in the event of risk event caused by the off-tak (e.g. curtailment beyond cap).**

	Failure to achieve financial close	**Inability to achieve financial close due to market uncertainty or the project capital structure is not optimal.**		**x**		**For IPP tender, evaluation of the comprehensiveness and robustness of IP participant debt financing plan as pa of bid submission is way to mitigate financial close risk. A part of qualification process, typically shortlisted bidder wi go through a screeni process of financial strength and debt raising experience in ensuring credible IP participants are selected for bid submission.**
FINANCIAL	**Foreign exchange rate risk**	**Fluctuation of foreign exchange rate.**	**x**			**Tariff components w allow for the allocati between foreign and local components, where foreign component is indexe to an agreed FX rate Hence, private secto will be shielded from FX fluctuation risk i the allocation is done in accordance to the foreign-local component split of th cost component.**

Inflation risk	**Increase of inflation rate used for estimating operating cost.**	**x**				**Same as above, tariff components will typically allow for indexation of foreign and local cost component to the relevant CPI indices. This is applicable only to tariff components meant for the recovery of cost components that are subject to inflation indexation (e.g. O&M cost, but not capital recovery and not fuel cost).**

Interest rate risk	**Increase in interest rate (base interest rate).**		**x**		**Typically borne by private sector (IPP), who is responsible for arrange for debt financing for the capital investment. Mitigation strategy shall be to enter into hedge/swap to mitigate base interest rate fluctuation risk, or to even consider fixed interest rate.**

POLITICAL FORCE MAJEURE (CHANGE IN LAW AND GOVERNMENT (IN-)ACTIONS	**General change in law**	**Change in law such as taxation which impacts all businesses and industries.**	**x**	**(x)**		**Typically to be born by the government/o taker, usually with a threshold to be defin (material adverse change).** **For bownfield assets (in the context of ass recycling transaction the allocation of change in law risk ca be split where the Relevant Authority/governme side party assumes discriminatory and certain specific changes in law.**
	Natural disasters	**The occurrence of natural disasters disrupting operations.**			**x**	**Insurance, to extent possible. In extended FM, parties will hav the right to terminat** **Climate adaptation plan.** **Emergency Preparedness and Response plan (EPR plan) / Disaster Risk Management plan (DRM plan).** **Incorporate Qualifie Climate Risk Events**
FORCE MAJEURE	**Other Force Majeure**	**Other force majeure events such as war, earthquakes, etc.**			**x**	**Insurance, to extent possible; termination with compensation i settlement cannot be reached.**

Prolonged force majeure	**If above prolongs for 6 to 12 months, may cause economic problems to the affected party (esp. if insurance does not exist).**			**x**	**Either party should be able to terminate the contract and trigger an early termination.**

		Power gen plant development and operation create many E&S impacts and risks, which if not appropriately managed, can result in impact on the social and natural environment. **Impact of discharged water temperature on fish populations.** **High chlorine content in the air.** **Marine biofouling and/or microplastics affecting cooling systems.** **Noise pollution affecting plant employees and nearby communities.**		**x**		**The party in charge for construction and Operation and Maintenance (O&M should have undertaken E&S Studies prepared management plans t mitigate any adverse impacts and risks an consistent with applicable laws.** **Convert to Closed-cycle cooling system or implementing Cooling ponds or reservoirs.** **Install noise control equipment (acoustic enclosure, baffles, exhaust silencers, absorptive panels, du silencers, etc).** **Cogeneration or Combined Heat & Power (CHP) faciliti** **Install flue gas desulfurization equipment.** **Install electric bag filters.**
E&S Risks and Climate Risk	**E&S risks management**	**Risk of noncompliance on the E&S aspect of the concession agreement.**			**x**	**The parties to review compliance of the E& aspect of the Concession Agreement, during construction and O&M.**

					Integrate climate resilience in maintenance regimes and materials and equipment design specifications. **Improve emergency repair procedures.** **Temporary shutdowns during heat waves.** **Increase efficiency of cooling systems. Redesign cooling facilities (water recovery from condenser and heat exchangers, reduction of evaporative losses, secondary or wastewater usage, construction of dry cooling towers).** **Install a demineralized**

*Based on "WB (2016) - *Emerging Trends in Mainstreaming Climate Resilience in Large Scale, Multi-sector Infrastructure PPPs*" and based on "ADB (2013) - *Guidelines for Climate Proofing Investment in the Energy Sector*"

Key variables to monitor on climate risks and its impacts, for power generation assets:

- Temperature of cooling water before and after use (in °C)
- Cooling water availability (in m3)
- Maximum temperature and deviation vs. average monthly max temperature (in °C)
- Flooding (power gen area affected)
- Sea level rise (in meters)
- Intense precipitation events (in milimeters)
- Drought events (area affected)
- Wind speed (in km/hour)
- Storm surge (# events and intensity)
- Turbine efficiency (in %)
- Solar panel efficiency (in %)
- Moisture content in coal (in %)
- Airport unavailability (hours per year)
- GHG emissions (tons CO2 e.g., per year)

Related Content

- **Guidelines for Implementing Asset Recycling Transactions (Download PDF version)**

Additional Resources

- Power and Renewable Energy PPPs
- Energy Laws and Regulations
- Energy Agreements

This section has not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the content will be reviewed and adapted for specific transactions.

This is a new section of the website and is currently in draft form. For feedback on the content of this section or to suggest additional links or materials, please contact the PPP Resource Center using the feedback form.

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