Risk Management Policy

1.1 Definitions

1.1.1 Risk

Risks are events or conditions that may occur, and whose occurrence has a harmful or negative impact on the achievement of the organisation's business objectives. The exposure to the consequences of uncertainty constitutes a risk.

1.1.2 Risk Management

Risk Management is the process of identifying, quantifying, and managing risks and opportunities that can affect achievement of a Company strategic and financial goals.

1.1.3 Risk Strategy

The Risk Strategy defines the company's standpoint towards dealing with various risks associated with the business. It includes the company's decision on the risk tolerance levels and acceptance, avoidance or transfer of risk(s).

1.1.4 Risk Tolerance/ Risk Appetite

Risk tolerance or Risk appetite indicates the maximum quantum of risk which the company is willing to take as determined from time to time in accordance with the Risk Strategy of the company.

1.1.5 Risk Description

A Risk Description is a comprehensive collection of information about a particular risk recorded in a structured manner.

1.1.6 Risk Register

A 'Risk Register' is a tool for recording the risks encountered at various locations and levels in a standardized format of Risk Description.

1.2 Objectives of the Policy

The specific objectives of the Risk Management Policy are :

a) ensure that all the current and future material risk exposures of the company are identified, assessed, quantified, appropriately mitigated and managed.
b) establish a framework for risk management process.
c) ensure systematic and uniform assessment of risks related with construction and operations of power projects
d) assure business growth with financial stability.

1.3 Risk Management Policy

In order to fulfill the objectives of this policy and lay a strong foundation for the development of an integrated risk management framework, the policy outlines the following guiding principles of Risk Management:-

i) All business decisions will be made with the prior information and acceptance of risk involved.
ii) All employees of the company shall be made aware of risks in their respective domains and their mitigation measures.
iii) The risk mitigation measures adopted by the company shall be effective in short/ long-term.
iv) The occurrence, progress and status of all risks will be promptly reported and appropriate actions be taken thereof.

1.4 Scope and extent of application

The policy guidelines are devised in the context of the future growth objectives, business profile envisaged and new business endeavours including new products including hedging of both interest and Principal against foreign exchange fluctuation in respect of FCL/ ECB/ FCCBs etc. and book forward cover for inward remittance of proceeds of FCL/ ECB/ FCCBs etc. and also for payments in foreign currency in respect of imported goods and services that may be necessary to achieve these goals and the emerging global standards and best practices amongst comparable organizations.

1.5 Risk Assessment

The process of Risk Assessment shall be as under:
a) Risk Identification and Categorisation
b) Risk Description
c) Risk Estimation

1.5.1 Categorisation of Risks

The risks are classified broadly into the following categories :
a) Strategic Risk : include the range of external events and trends (like Government policy, competition, court rulings, Regulatory Commission or a change in stakeholder requirements) that can adversely impact the company's strategic growth trajectory and destroy shareholder value.
b) Business Risk : include the risks associated specifically with the company and having an adverse impact on the company's capability to execute activities critical for business growth, thereby affecting its near-term performance, e.g. occurrence of a risk event delaying the timely completion of construction activity or stoppage of plant operations leading to the deferment of revenues expected from the project.
c) Operational Risk : are those risks which are associated with operation uncertainties like unpredictable changes in water levels, force majeure events like floods affecting operations, internal risks like attrition, etc.
d) Cyber Security Risk : To secure all computers, servers, networks and data from

cyber attacks and technological accidents so that there is robust IT system is in place.

e) Environmental, Social and Governance (ESG) Risk: includes efforts to identify uncertainity and surprises by assessing and prioritizing risk to environment, risk to health of public at large and safety risk to the work force as well as citizens of the locality.

f) Financial Risk: involves avoiding all possibilities of losing money, be price fluctuations, delays in recoveries, cost over runs, bad investment decisions and financial frauds.

1.5.2 Risk Description

Risk description helps in understanding the nature and quantum of risk and its likely impact and possible mitigation measures. Risk descriptions for each of the risks identified in the Risk Matrix are to be documented and recorded in a structured format in each area where the risk is identified. The format to be as under:

<u>Risk Description</u>

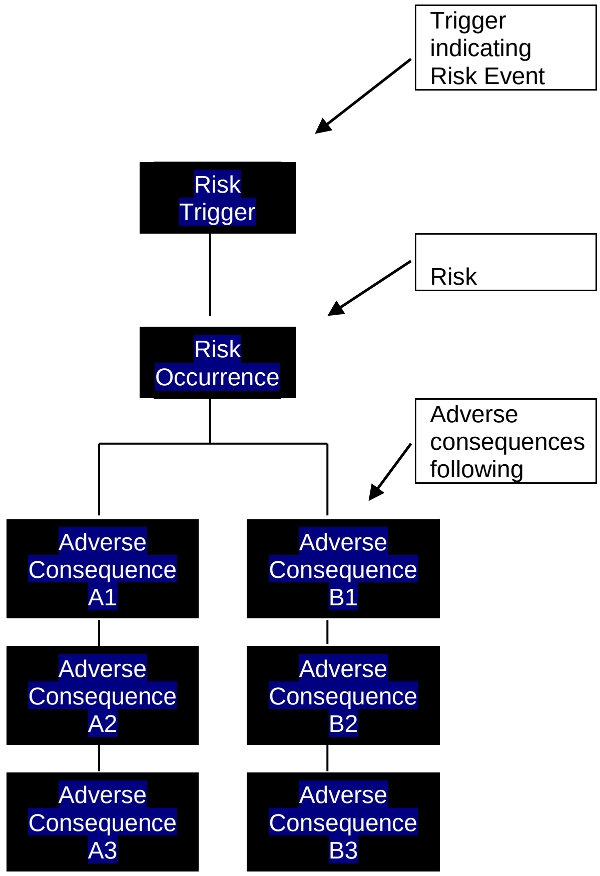
i).	Name of Risk	Short description by which the risk may be referred to
ii)	Scope of Risk	Qualitative description of the events by which the occurrence of the risk may be identified, any measurement indicating the size, type, number of the events and their related dependencies.
iii)	Nature of Risk	Strategic/ Business/ Operational/Financial/ ESG/ Cyber Security.
iv)	Stakeholders	List of stakeholders affected and impact on their expectations
v)	Quantification of Risk	Cost of impact, if risk materializes
vi	Risk Tolerance and Trigger	• Loss potential and Financial impact of risk on the business • Value at Risk • Desired level of performance to assimilate Risk Trigger.
vii)	Risk Treatment and Control Mechanisms	Primary means by which the risk is currently being managed/ levels of confidence in existing control system. Identification of protocols for monitoring, and review of the process of treatment & control.
viii)	Potential Action for Improvement	Recommendations to reduce the occurrence and/ or quantum of adverse impact of the risk.
ix)	Strategy and Policy Developments	Identification of function responsible for developing the strategy and policy for monitoring control and mitigation of the risk.

The various risks are identified in the Risk Matrix.

1.5.3 Risk Estimation

The consequences of the risk occurrences have to be quantified to the maximum extent possible, using quantitative, semi-quantitative or qualitative techniques :

Process of risk quantification has to be qualitative, supported by quantitative impact analysis. To apply this approach, the chain of adverse consequences (refer adjacent figure), which may occur in case the identified risk materializes, should be enlisted. For each of the chains of adverse consequences, the cost impact needs to be calculated and attributed to the particular risk. In such an exercise, actual cost impacts (like claims by contractor, loss of equipment value, etc.) as well as opportunity costs (like loss in realization of revenue, delay in commission of project etc.) must be captured to arrive at the total cost impact of materialization of the risk.



According to the adverse impact analysis for identified risks, an appropriate risk rating shall be determined for each risk identified as per the criteria below:

<u>Risk Estimation</u>

Consequence of Risk

Rating 4 (Devastating)	Significant stakeholder concern / Significant impact on strategy or operational activities / Cost of impact is likely to exceed Rs.100 crores p.a.
Rating 3 (Major)	Major stakeholder concern / Major impact on strategy or operational activities / Cost of impact is likely to be between Rs. 50 – 100 Crores p.a.
Rating 2 (Tolerable)	/ Moderate stakeholder concern /Moderate impact on strategy or operational activities / Cost of impact is likely to be between Rs. 5 – 50 Crores p.a.
Rating 1 (Minor)	/ Minor stakeholder concern / Minor impact on strategy or operational activities / Cost of impact is likely to be less than Rs. 5 Crores p.a.

1.6 Risk Matrix

Risk Matrix

Risk Rating 4 3 2 1

Risk Rating* - To be assigned for each project/ Risk category.
Risk Category – Nature of risk as controllable (C) or Uncontrollable (UC) or Partly Controllable (PC):

No.	Risk Head	Risk Description	Cate-gory	Risk Trigger	Risk Rating	Proposed Risk Mitigation Mechanism	Responsi-bility
A	**Strategic Risk**						
A1	Political	Unilateral policy changes on river water release	PC	Announce-ment of state policy review		✓ To keep a provision in the MoU with State Governments for ensuring minimum guaranteed discharge of water.	Projects Engg. Division
A2	Political	Possibility of losing projects due to state level exigencies	UC	Continuous		✓ Ensure transparency in award of projects. ✓ Have strong legally binding agreements with the state Governments / Department.	Contract Division
A3	Payment Security Mechanisms	• Adverse regulatory policy development • Financial conditions of Utilities.	PC	Release of draft policy document		✓ Closely monitor development of Regulatory Commissions and payment ✓ Get credit rating of the beneficiary assessed prior to signing the PPA to understand ability to pay. ✓ Adopt Escrow mechanism for power sale realization. ✓ PPAs to have a clause entitling the company to have third party sale of power in case of payment default. ✓ PPAs to be signed with a two-tier payment security mechanism of LC backed by escrow.	Commercial Division
A4	Market Dynamics	Absence of security mechanism for Unschedule	UC	CERC announce-ment		✓ Pursue the issue of security mechanism for UI charges with different regional Power Committees.	Commercial Division

		d Interchang (UI) charges				✓ Interact with CERC for this regulatory issue to emphasize the importance of developing a LC or Escrow backed effective payment safeguard mechanism for UI charges.	
A5	Market Mechanisms for award of contracts	Threat of competition – private and Government power generators like NHPC. NTPC.	C	Announcement of hydro policy review		✓ Participation in tariff-based bidding.	Commercial Division
A6	Force Majeure	a) Impact of natural calamity like floods, heavy rainfall. b) Earthquakes c) Land slide studies	UC	Continuous		✓ Indemnify the company against possible losses by proper insurance policy. ✓ Ensure that the company is adequately protected in the PPAs in such events. ✓ Carryout seismological studies and evaluate seismic parameters ✓ Take necessary design measures to mitigate the risk of earthquake ✓ Identify potential locations of land slide in the project area ✓ Assess their impact on the project and make necessary provisions	Finance Division Project Engg. Division Project Engg. Division Project Engg. Division Project Engg. Division Project Engg. Division
A7	Company	Foreign Currency risk	PC	Forex fluctuations beyond estimated range		✓ Continuously monitor and track changes in forex rate ✓ Hedge forex risk, if any, with	Finance Division

						appropriate instrument available in the market forwards, future, options derivates ✓ Strive to keep payment and expenditure currency same as far as possible.	
B	**Business Risk**	**General Category**					
B1	Market Dynamics	Time and cost overrun of power projects and its impact in a competitive bidding environment	C	Time and cost overrun		✓ PPAs to be framed so as to protect the company from adverse effects of time and cost overrun. ✓ Develop an internal mechanism for effecting proper assessment of project cost components and execution to avoid time or cost overruns. ✓ Formulate a mechanism to evaluate the loss of power sales realization due to delayed commissioning and take appropriate ALOP Policy . ✓ Carry out Process Benchmarking for key business processs and establish standard times for each activity to be completed.	Finance Deptt. Project Engg. Divison and Finance Division
B2	Financial	Contractor payment mis-managemen t	C	Cost overrun exceeding contingenc y fund		✓ Resolve delays in contractor payment and cost escalation, if any on account of force majeure event immediately to prevent project delays and cost implications. ✓ Develop a dispute resolution	Finance Division

						mechanism.	
B3	Company	Delays in decision making	C	Continuous		✓Enforce more accountability for the delays in decision making leading to financial impact ✓Develop an internal monitoring mechanism .	Commercial Division
B4	Company	Loss of skilled/ experienced manpower	C	Major impact on competitive strength		✓Adopt HR tools like employee satisfaction survey, exit interviews etc. to prevent loss of business skills and check attrition. ✓Adopt various mechanism viz Financial/ Non financial reward & recognition systems.	Human Resource Division

C	**Business Risk**	**Pre-construction Category**					
C1	Socio-political	Impact of Rehabilitation & Resettlement delays	PC	Impact on critical path time		✓Liaise with State Government's R&R department/ directorate and with District collector/ administration to abide with State procedures. ✓Effectively communicate the benefits of the project to the population in the project area. ✓Estimate the cost of social infrastructure and creating employment opportunities and include the same in cost of project.	Commercial Division/ Site
C2	Design and Development	Impact of geological surprises, land slide, ingress of water or	PC	Impact on critical path time, or cost overrun.		✓A comprehensive mechanism to be evolved at the project design stage. ✓Build a knowledge	Project Engineering Division

		debris, etc.				Management System.	
C3	Design and Development	Hydrological changes due to climate change	PC	Precipitation beyond design range any time during the life of the project.		✓ Use hydrological data only from authentic sources.	Project Engineering Division
C4	Political	Delays due to lack of Government support – Problems of Law & Order in the States Transportation, Delay in approvals etc.	PC	Continuous		✓ Enter into Bankable Implementation Agreement. ✓ Analyse the procedures involved in various clearances and interactions with the Government Deptts.	Commercial Division
C5	Contract Formulation	Delays in award of contract because of contract litigations	C	Impact on critical path time		✓ Develop a uniform tender approval procedure for avoiding contract litigations. ✓ Make standard and more detailed contracts covering minute points for avoiding loop holes.	Contract Division
D	**Business Risk**	**Construction Category**					
D1	Terrorism	Impact of terrorism on project lead time and cost overrun like in Dulhasti Power Station	PC	Continuous		✓ Liaison with Government authorities for adequate protection of project sites. ✓ Ensure that there are no penalty clauses in PPAs which are likely to be impacted by the acts of terrorism.	Commercial Division
D2	Operating environment	Extreme weather conditions leading to uncertain working	UC	Impact on critical path time		✓ Project timelines for such projects should be estimated taking into consideration the past weather	Commercial Division

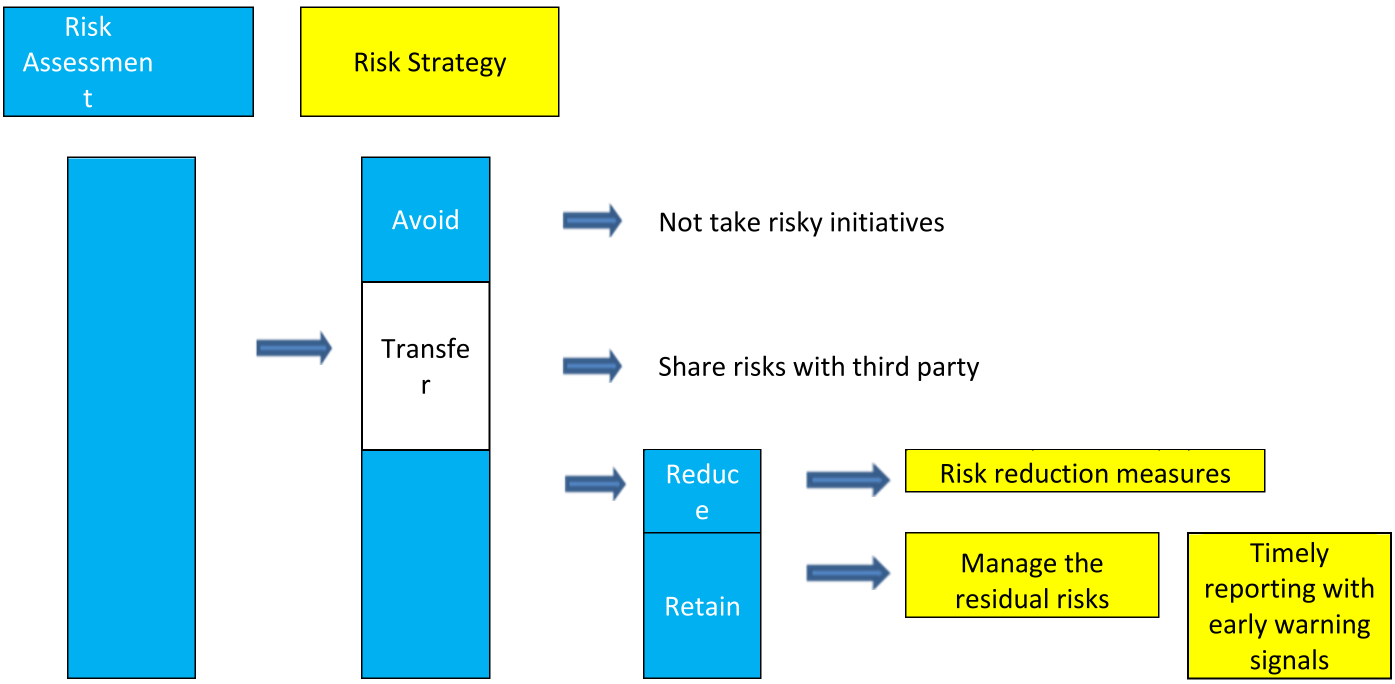
		environment for contractors and employees.				conditions data ✓ Provide special allowances for personnel to keep up their motivation towards work.	
D3	Business logistics	Non availability and/ or price hike of raw materials like cement, steel etc.	C	Cost overrun exceeding contingency fund		✓ Prescribe minimum inventory norms for critical raw material and monitor regularly its movement.	Project Engg.
D4	Contract or Manage ment	Contractor issues like equipment problems, construction, methodology labour unions, poor labour quality and scarcity of contractor labour.	C	Impact on critical path time or cost overrun exceeding contin-gency fund.		✓ Develop a screening filter for weeding out non-serious bidders. ✓ Build a Vendor Information and Rating System to allow evaluation of all vendors.	Contract Division
D5	Power equipme nts	Delay in Power equipment supply	C	Impact on critical path time		✓ Include suitable penalty clause in the power equipment purchase agreement for delay in delivery of critical power equipments. ✓ Consider foreign suppliers with proven technologies for supply of power equipments.	Contract Division
E	**Operational Risk**						
E1	Operating environ-ment	-Hydrological surprises like water freezing, inadequate rainfall etc. - Fuel Supply	PC	Loss of Power generation		✓ Ensure that the company is protected from loss in sales realization due to hydrological surprises through appropriate clauses in the PPA. ✓ Enter into bankable fuel supply Agent	Project Engineering Division
E2	IT & Communi	Insecure IT systems	C	Continuous		✓ IT and Communication	IT Division

	cation Security					Network deployed for operation of Power Stations are not connected / exposed to external networks. Adequate perimeter security in terms of Firewall, IDS/IPS etc. has been put in place.	

E3	Repair & Maintenance	Inadequate equipment and civil maintenance leading to loss of power generation	C	Frequent break down		✓Annual preventive maintenance and minimum inventory plan for spares to be ensured.	Project Engineering Division.
E4	Operating Environment	Problems of silt at bottom of dam leading to turbine damage	C	Continuous		✓Silt level at running power stations to be continuously monitored and silt flushing is carried out.	Projectt Engineering Division/site

1.7 Risk Strategy

The following framework shall be used for the implementation of the Risk Strategy:



The risk mitigation can be planned using the following key strategies:

a) Risk Avoidance: By not performing an activity that could carry risk. Avoidance may seem the answer to all risks, but avoiding risks also means losing out on the potential gain that accepting the risk may allow.
b) Risk Transfer: Mitigation by having another party to accept the risk, either partial or total, typically by contract or by hedging or insurance.
c) Risk Reduction: Employing methods/ solutions that reduce the severity of the loss.
d) Risk Retention: All risks that are not avoided or transferred are retained by default.

This includes risks that are so large or catastrophic that they either can not be insured or the premiums would be infeasible.

1.8 Areas for risk Mitigation

The following are the key areas for risk mitigation :

i) **Strengthening of Internal Processes**

a) Survey and Assessment

b) Contract Management
The complete processes should be studied and analysed to make the system more robust and free from any error which may be potential causes of risks. We should also aim to derive standards for each activity.

c) Knowledge Management System (KMS):
The KMS will provide benefits in terms of handling similar risks in other projects, providing better estimates of time and cost for specific activities, estimating occurrences of uncertain events and in capturing the tacit knowledge and experience the company's human resource.

d) Performance:

It is very important to link performance targets of individuals and functions/ departments with the expected outcomes so as to bring in more responsibility, accountability and drive into the personnel engaged in critical activities.

e) Integrated Project Monitoring System: A seamless integrated Project Monitoring System would help in prompt decision making as well as to bring to attention the areas of short-fall and for tracking delays.

ii) **Liasion with Govt. and Regulatory Authorities**

To be in constant touch with the State Regulatory Authority, CERC Regulatory authorities, State/ Central, Central/ Govt. to understand pro-actively the direction of policy reforms and take initiative to bring out favourable policies. Also to interact with the MoP and the MoEF to build strong relationship and favourable image of the company.

iii) **<u>Contractor Management:</u>**

a) **Comprehensive Contracting Strategy:**
To have clear Contracting Policy to outline guidelines addressing key contract management issues including incentives and penalties related with timely completion of contracted work, handling of unforeseen uncertainties, criteria for allowing contractors to bid etc. This policy should device preventive measures to avoid all contractor related issues.

b) **Vendor Rating and Information System (VRIS):**
The VRIS to contain the information about all vendors / contractor as well as limited information about contractors working for competitors. A vendor rating to be generated on the basis of credentials of the vendor as well as past performance on critical parameters like time and cost overruns.

c) **Dispute Resolution Mechanism:**
A dispute resolution mechanism for early and prompt settlement of contractors disputes.

iv) **<u>Preparation for Competition:</u>**

a) The Company to have a team which will focus on competitive biddings in the market and tracking of all bidding details for various players.

b) To prepare for competitive bids using accurate estimates of various cost components.

1.9 Risk Monitoring

Everyone in the company is responsible for the effective management of risk. All staff is responsible for identifying potential risks. Management is responsible for developing risk mitigation plans and implementing of risk reduction strategies.

- As the risk exposure of any business may undergo change from time to time due to continuously changing environment, the updation of the Risk Matrix to be done on a regular basis.

- The policy is the guiding document for risk management and to be reviewed as and when required due to the changes in the risk management regulations/ standards/ best practices as appropriate.

The overall monitoring of the Risk being done by Managing Director.