NHPC LIMITED

# ENTERPRISE RISK MANAGEMENT POLICY

2024

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## ABBREVIATIONS

| | |
|---|---|
| APTEL | Appellate Tribunal for Electricity |
| BRO | Border Roads Organisation |
| CEA | Central Electricity Authority |
| CERC | Central Electricity Regulatory Commission |
| CWC | Central Water Commission |
| CRO | Chief Risk Officer |
| DISCOMS | Distribution Companies |
| DPE | Department of Public Enterprise |
| EDM | Environment and Diversity Management |
| EHS | Environment, Health and Safety |
| ERM | Enterprise Risk Management |
| ESI | Employees' State Insurance |
| GPR | Ground Penetrating Radar |
| HM | Hydro Mechanical |
| HRT/TRT | Head/Tail Race Tunnel |
| ISO | International Organisation for Standardization |
| LC | Letter of Credit |
| MOU | Memorandum of Understanding |
| OEM | Original Equipment Manufacturer |
| O&M | Operations and Maintenance |
| PMSG | Project Monitoring and Services Group |
| PPA | Power Purchase Agreement |
| R&R | Rehabilitation and Resettlement |
| RFCTLARR | Right to Fair Compensation and Transparency in Land Acquisition |
| RRA | Rehabilitation and Resettlement Act |
| RLDC | Regional Load Despatch Centre |
| SEBI | Securities and Exchange Board of India |
| SBD&C | Strategy Business Development & Consultancy |
| SOP | Standard Operating Procedure |
| T&HRD | Training and Human Resources Development |

# 1. INTRODUCTION

Risk Management is an increasingly important business driver and stakeholders have become much more concerned about risk. Risk may be a driver of strategic decisions or it may be a cause of an uncertainty in the organisation or it may simply be embedded in the activities of the organisation. An enterprise-wide approach to risk management enables an organisation to consider the potential impact of all types of risks across all processes, activities, stakeholders, products and services. Implementing a comprehensive approach will result in an organisation benefiting from what is often referred to as the 'upside of risk'.

Risk affects all organisations. It can have far-reaching consequences in terms of economic performance, environmental and safety outcomes, and professional reputation. Managing risk effectively and risk optimisation, therefore, will help enterprises of all sizes and in all business sectors to perform well in an increasingly uncertain environment.

Today's international best practice is to take a more systematic and disciplined approach; through better management and governance, organisations adopting risk management processes are more likely to survive and grow. It reviews the risk management cycle, including measurement and documentation, together with key risk concepts. Most importantly, effective Enterprise Risk Management not only helps prevent loss and protect reputation but also enables better decision-making, thereby increasing the chances of meeting the business's objectives. Risk is an intrinsic part of doing business. A ERM framework involves identification, assessment prioritisation, management, mitigation, communication and reporting of risks. Some of the enterprise risks have the potential to disrupt achievement of the NHPC's strategic and operational objectives.

Hence, NHPC aims to review its current Enterprise Risk Management Policy to make informed decisions and to improve the probability of achieving its strategic and operational objectives.

## 2. OBJECTIVE

The main objective of this policy is to ensure a sustainable business growth with stability and to promote a pro-active approach in reporting, evaluating and resolving enterprise risks. To achieve its key objectives, the policy establishes a structured and disciplined approach to guide decision on Enterprise Risk Management.

## 3. REGULATORY REQUIRMENTS

NHPC's Enterprise Risk Management Policy is reviewed as per the following regulatory requirements:

### 3.1.1 Companies Act 2013

#### a. Provisions of the Section 134(3)(n)

There shall be attached to statements laid before a Company in General Meeting, a report by its Board of Directors, which shall include –

(n) A statement indicating development and implementation of a Risk Management Policy for the Company including identification therein of elements of risk, if any, which in the opinion of the Board may threaten the existence of the company.

#### b. Section 177(4) stipulates:

Every Audit Committee shall act in accordance with the terms of reference specified in writing by the Board which shall, inter- alia, include, -

(vii) evaluation of internal financial controls and risk management systems.

#### c. Section 149(8) stipulates:

The Company and independent directors shall abide by the provisions specified in Schedule IV.

#### d. SCHEDULE IV of Companies Act, 2013 (CODE FOR INDEPENDENT DIRECTORS)

##### II. Role and functions:

The independent directors shall:

Help in bringing an independent judgment to bear on the Board's deliberations especially on issues of strategy, performance, risk management, resources, key appointments and standards of conduct;

Satisfy them on the integrity of financial information and that financial control and the systems of risk management are robust and defensible;

e. **Role of Audit Committee**

The role of the Audit Committee shall include the following: Evaluation of internal financial controls and risk management systems;

### 3.1.2 Risk Management

Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015

a. The company shall lay down procedures to inform Board members about the risk assessment and minimization procedures.

b. The Board shall be responsible for framing, implementing and monitoring the risk management plan for the company.

c. The Board of Directors shall define the role and responsibility of the Risk Management Committee and may delegate monitoring and reviewing of the risk management plan to the committee and such other functions as it may deem fit and such function shall specifically cover cyber security.

**DPE guidelines for central public sector enterprise states that**

- The Board should ensure the integration and alignment of the risk management system with the corporate and operational objectives. And that risk management is undertaken as a part of normal business practice and not as a separate task at set times.

### 3.1.3 Corporate Governance Voluntary Guidelines, 2009

The Ministry of Corporate Affairs, Government of India has also accepted the concept of Risk Management and its relevance to the smooth functioning of the corporate sector in India and has therefore introduced a specific provision on Risk Management under paragraph (II) (C) of Corporate Governance voluntary guidelines, 2009.

**Responsibilities to the Board**

i. **Risk Management**

- The Board, its Audit Committee and its executive management should collectively identify the risks impacting the company business and document their process of risk identification, risk minimization, risk optimization as a part of a Risk Management Policy or strategy.

- The Board should also affirm and disclose in its report to members that it has put in place critical risk management framework across the company, which is overseen once every six months by the Board. The disclosure should also include a statement of those elements of risk, that the Board feels, may threaten the existence of the company.

#### ii. Board to place Systems to ensure Compliance with Laws

In order to safeguard shareholders' investment and the company's assets, the Board should, at least annually, conduct a review of the effectiveness of the company's system of internal controls and should report to shareholders that they have done so. The review should cover all material controls, including financial, operational and compliance controls and risk management systems.

### 3.1.4 Operational Regulation Guidelines

Several operational regulations were also considered as a part of enterprise risk assessment of various departments.

### 3.1.5 Scope of Policy

The policy guidelines are reviewed in context of the NHPC's growth objectives, current business profile and new business endeavours including new projects that may be necessary to achieve its strategic objectives, financial goals, local & global compliances and industry best practices.

The scope of the policy covers:

- All functions and departments of NHPC across all offices and locations
- All Projects (Under Construction and Investigation) of NHPC within and outside the country
- All Operational Power Stations of NHPC
- All events, both external and internal which shall have an impact on the business objectives of the organization

The Risk Management Policy is applicable to the Corporate Office, Regional Offices & Liaison Offices, Power Stations and Projects of NHPC.

## 4. ENTERPRISE RISK MANAGEMENT POLICY STATEMENT

Enterprise Risk Management is mandatory according to the Companies Act 2013 and SEBI's listing disclosures. There are additional Voluntary Guidelines or specific industry requirements that NHPC needs to comply with. This statement lays down the framework of Enterprise Risk Management at the NHPC. This document shall be under the authority of the Board of Directors of the NHPC. It seeks to identify risks inherent across all business operations and provides guidelines to **define, measure, report, control** and **mitigate** the identified risks.
This policy specifies about ongoing management and maintenance of the risk management capability, including:

- To assign accountabilities and responsibilities at appropriate levels
- To ensure necessary resources allocation to mitigate enterprise risks
- To communicate effectively for embedding a risk culture across NHPC
- To ensure regulatory compliances for managing enterprise risks

NHPC acknowledges that it is exposed to number of uncertainties, which are inherent for the power sector that it operates in. NHPC has developed Risk Management Policy to increase confidence in the achievement of organisation's and shareholder's objectives and to remain a competitive and a sustainable organisation while enhancing its operational effectiveness.

## 5. SPECIFIC OBJECTIVES OF POLICY

The main objective of Risk Management Policy is to ensure sustainable business growth with stability and to promote a pro-active approach in identifying, evaluating, reporting and managing risks associated with the business.

To achieve the key business objectives the policy establishes a structured and disciplined approach to Risk Management, including the development of the Risk Register to guide decisions on risk related issues.

The specific objectives of the Risk Management Policy are:

1. To ensure that all the current and future material risk exposures of the company are identified, assessed, mitigated, monitored and reported.
2. To establish a framework for the company's risk management process and to ensure companywide implementation.
3. To ensure systematic and uniform assessment of risks related with construction projects and operational power stations.
4. To enable compliance with appropriate regulations, wherever applicable, through the adoption of best practices.
5. To assure business growth with financial stability.
6. The effectiveness of Risk Mitigation Plans shall be ensured through proper monitoring, evaluation of outcomes of mitigation plans and to look for the scope of its applicability in other areas in order to achieve overall objective of this policy.

## 6. ENTERPRISE RISK MANAGEMENT FRAMEWORK

The five components of Enterprise Risk Management framework are supported by a set of principles. These principles cover everything from governance to monitoring.


Adhering to these principles can provide management and the Board with a reasonable expectation that NHPC understands and strives to manage the risks associated with its strategy and business objectives.

The Framework itself is a set of principles organized into five interrelated components:

### 6.1 Governance and Culture:

Governance sets the organization's tone, reinforcing the importance of, and establishing oversight responsibilities for, Enterprise Risk Management. Culture pertains to ethical values, desired behaviours, and understanding of risk in the entity.

### 6.2 Strategy and Objective-Setting:

Enterprise Risk Management, strategy, and objective-setting work together in the strategic-planning process. A risk appetite is established and aligned with strategy; business objectives put strategy into practice while serving as a basis for identifying, assessing, and responding to risk.

### 6.3 Performance:

Risks that may impact the achievement of strategy and business objectives need to be identified and assessed. Risks are prioritized by severity in the context of risk appetite. The organization then selects risk responses and takes a portfolio view of the amount of risk it has assumed. The results of this process are reported to key risk stakeholders.

### 6.4 Review and Revision:

By reviewing entity performance, an organization can consider how well the Enterprise Risk Management components are functioning over time and considering substantial changes, and what revisions are needed.

### 6.5 Information, Communication, and Reporting:

Enterprise Risk Management requires a continual process of obtaining and sharing necessary information, from both internal and external sources, which flows up, down, and across NHPC.

## 7. RISK GOVERNANCE MANAGEMENT

Well-defined risk governance serves to communicate the approach of risk management throughout the organization.

To perform risk governance, a Risk Management Committee, a Risk Assessment Committee, and a Risk Cell has been constituted.

### 7.1 Risk Management Committee

a) The composition of Risk Management Committee shall be as per provision of SEBI (LODR), 2015 and any subsequent amendment thereon.

b) The minimum frequency of holding the meeting of Risk Management Committee shall be as per provision of SEBI (LODR), 2015 and any subsequent amendment thereon.

### Role and Responsibilities of the Risk Management Committee:

- Assist the Board in fulfilling its corporate governance in overseeing the responsibilities with regards to the identification, evaluation and mitigation of operational, strategic, financial, compliance and external risks.

- Monitor, approve and review the risk policies/ plans and associated practices of the company and present to the Board.

- Review and approve risk disclosure statements in any public documents or disclosures.

- Carry out any other function as required by the provisions of the Companies Act, 2013, SEBI (LODR), 2015 and Corporate Governance Guidelines issued by DPE.

- Ensure that appropriate systems are in place to manage the identified risks, so that the organizations assets and reputation are suitably protected.

- Ensure that responsibilities and authorities are clearly defined and adequate resources are assigned to implement the Risk Management Policy.

- Review the reports from the Risk Assessment Committee and take remedial action.

To formulate a detailed risk Management Policy which shall include:

- A framework for identification of internal and external risks specifically faced by the listed entity, in-particular including financial, operational, sectoral, sustainability (particularly, ESG related risks), information, cyber security risks or any other risk as may be determined by the Committee.

- Measures for risk mitigation including system and processes for internal control of identified risks.

- Business continuity plan.

- To ensure that appropriate methodology, processes, and systems are in place to monitor and evaluate risks associated with the business of the company.

- To monitor and oversee implementation of the risk management policy, including evaluating the adequacy of risk management systems.

- To periodically review the risk management policy, at least once in two years, including by considering the changing industry dynamics and evolving complexity.

- To keep the board of directors informed about the nature and content of its discussions, recommendations, and actions to be taken.

- The appointment, removal, and terms of remuneration of the Chief Risk Officer (if any) shall be subject to review by the Risk Management Committee.

### 7.2 Risk Assessment Committee

Constitution of Risk Assessment Committee:

- The Chief Risk Officer (CRO) - Department Head (R&D)

- Department/Regional Heads (Finance, O&M, Planning, Strategy Business Development & Consultancy, PMSG, Others)

### Role and Responsibilities of Risk Assessment Committee:

- The Risk Assessment Committee shall have the key role of identifying the key risks, suggest mitigation measures, monitoring and supervising the implementation of the Risk Management

- Ensure Policy compliance and maintain enterprise wide view of the key risks faced by the organization.

- Identify, evaluate and assess the key risks anticipated for the organization and suggest mitigation measures to the risk coordinators.

- Ensure that effective Risk Mitigation Plans are in place and the results are evaluated and acted upon.

- Report the key risks faced by the organization and their mitigation plans to the Risk Management Committee.

- Ensure that the Risk Management Committee is informed about any new/emerging risks faced by the organization in case of exigencies/emergent conditions.

- Assist the Risk Management Committee in overseeing and monitoring the development and implementation of the Risk Management Policy.

- Prioritize the risks reported according to their risk ratings and assist the risk management committee in decision making for risk management responses for identified key risks.

## 7.3 Chief Risk Officer

The Chief Risk Officer (CRO) shall be the Department Head (R&D) who works with the Risk Coordinators to ensure effective implementation of enterprise wide risk management process. The CRO shall be the convenor of the Risk Assessment Committee meeting.

### Roles and Responsibilities of the CRO:

- Communicating and managing the establishment and ongoing maintenance of Risk Management Policy pursuant to the organization's Risk Management vision.

- Designing and reviewing processes for Risk Management.

- Communicating with the Risk Management Committee regarding the status of risk management and reporting the key risks faced by the organization.

- Coordinate with all the Risk Coordinators to compile the status of risks and mitigation measures taken.

- Convene the Risk Assessment Committee meeting and facilitate discussions among the committee to fulfil its responsibilities.

## 7.4 Risk Cell

The Risk Cell located at corporate office shall be a team of dedicated members comprising of one General Manager/Deputy General Manager, one Senior Manager/Manager and one Deputy/Assistant Manager/Engineer who shall report directly to the CRO.

### Roles and Responsibilities of the Risk Cell:

- Assist the CRO in organizing Risk Assessment Committee meetings.
- Compile the status of risks and mitigation measures taken as reported by Risk Coordinators.
- Record the key risks and their mitigation plans in the risk register as agreed by the Risk Assessment Committee. The risk register shall contain:
- Function/ department wise record of key risks.
- Risk category wise record of key risks.
- Treatment plans for the key risks.

### 7.5 Risk Coordinators

The Risk Coordinators shall be the head of respective departments of Contracts, Design & Engineering, Security, PMSG, Geology, Finance, O&M, HR, IT&C, Commercial, Planning, Strategy Business Development & Consultancy, Company Secretary etc. as mentioned in the responsibility column of the Risk Register.

The Risk Coordinators shall have the key role of reviewing and assessing the risks identified by the associated Department/Regional/Project/Power Station.

Heads and to develop and monitor the mitigation measures for the identified risks.

### Roles and Responsibilities of Risk Coordinators:

- Review and assess the risks reported by the Department/ Regional Office/ Project/ Power Station Heads
- Identify any new risks relevant to their respective areas
- Develop mitigation measures and action plan for all the identified risks
- Ensure implementation of mitigation plans by coordinating with respective departments
- Provide status of risks and mitigation measures taken to the CRO for reporting in the Risk Assessment Committee

## Roles and Responsibilities of Risk Officers:

- Identification of new risks.
- Reporting new risks or failures of existing control measures with remedial action to Chief Risk Officer/Risk Co-ordinator.
- Ensure that periodic inspection, testing, monitoring and maintenance of all plant equipment are carried out.
- Keeping the risk registers and related action plans updated.
- Consolidating the quarterly risk register and database review reports and timely reporting to the Office of Chief Risk Officer/Risk Co-ordinator.
- Educating employees dealing with key activities in their unit of the risk management process.
- Ensuring Management Action Plans developed in response to audit and evaluation recommendations adequately address the risks identified.
- Providing management with information about the organization's controls and determining which controls should be in place to adequately lower the overall risk profile of various critical processes.

## 7.6 Risk Reporting Structure

The following risk reporting structure shall be followed by the organization:

- **First Line of Reporting**

The Department/ Regional Office/ Project/ Power Station Heads shall send the report quarterly on status of risks to the respective Risk Coordinators as per format provided in annexures.

Risk Coordinators shall send the report quarterly on risks status and mitigation measures to the CRO for reporting in the Risk Assessment Committee.

- **Second Line of Reporting**

The Chief Risk Officer along with the other members of the Risk Assessment Committee shall review the risks with their mitigation measures and decide upon the key risks which shall be reported to the Risk Management Committee on quarterly basis.

After the Risk Assessment Committee approves the risks and their mitigation measures, Risk Cell shall record it in the risk register and handover the risks with their mitigation plans to the CRO who in turn shall inform the concerned Risk Coordinators for the implementation of the mitigation plans on quarterly basis.

Upon deciding and implementing the mitigation plan the Risk Assessment Committee through the CRO shall present it to the Risk Management Committee on quarterly basis.

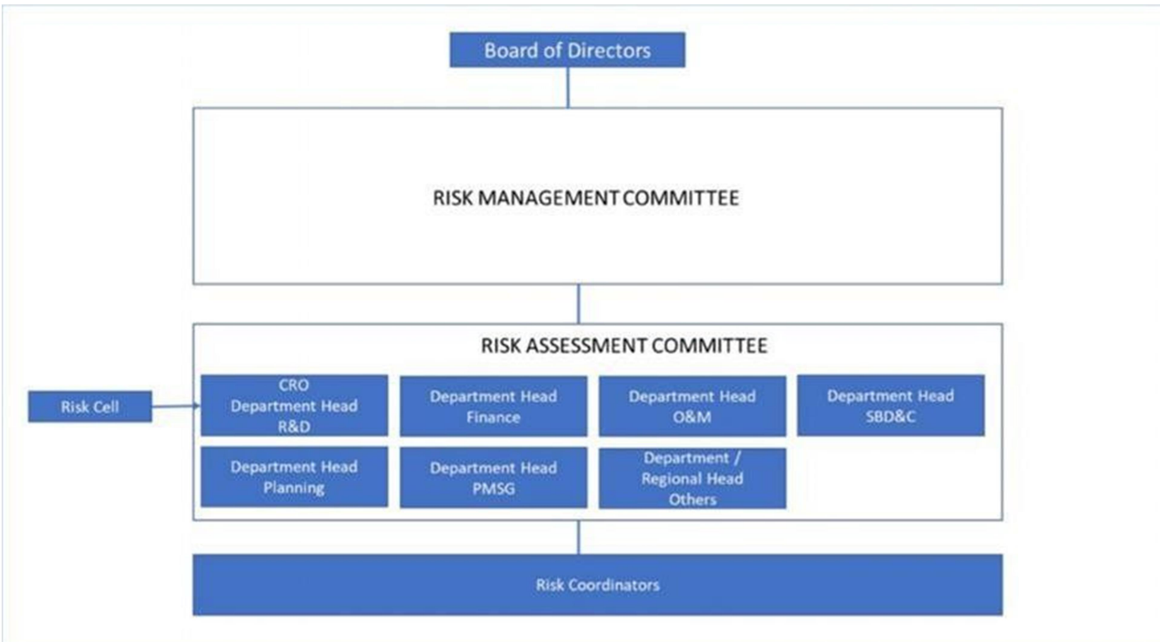
- **Third Line of Reporting**

The Risk Management Committee shall apprise the Board on the key risks faced by the organization and the mitigation measures taken on quarterly basis.

The Risk Management Committee shall also apprise the Board for decision on any new/emerging risks faced by the organization in case of exigencies/emergent conditions.

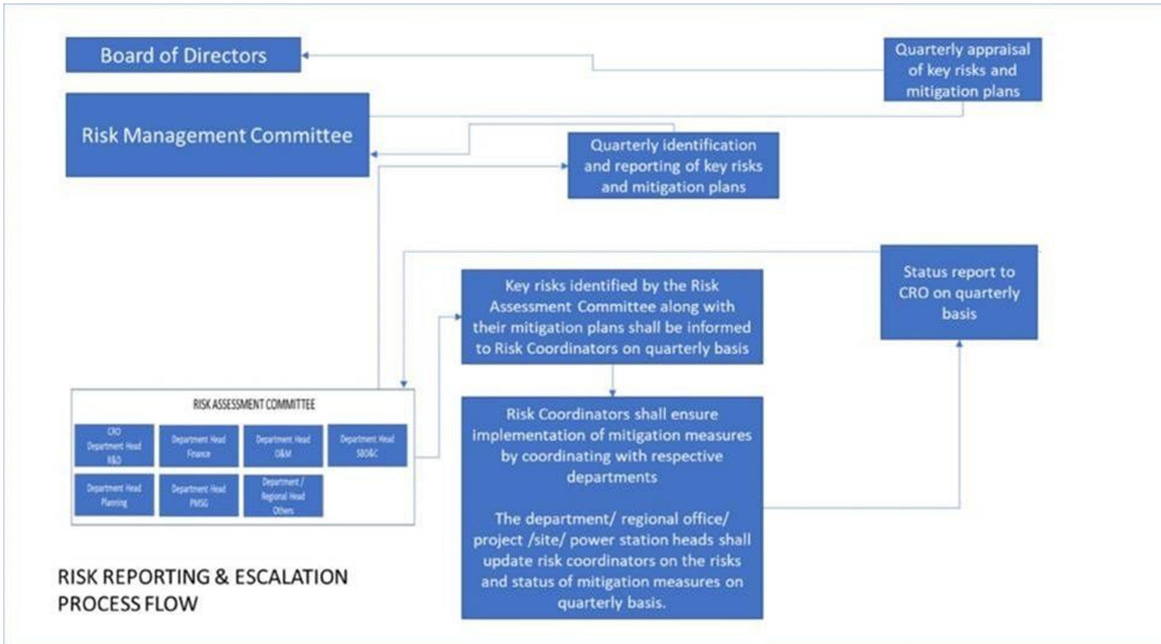
### 7.7 Risk Organogram

Risk reporting process shall be as per following risk management organogram.




Note: The CRO shall be the convenor and shall decide the other members of the Risk Assessment Committee as and when the requirement for more departments' representation arises for implementation of the Risk Management Policy. The senior most Department Head present in the Risk Assessment Committee meeting will chair the Risk Assessment Committee meeting.

## 7.8 Risk Reporting and Escalation Process Flow




## 8. ENTERPRISE RISK MANAGEMENT ACCOUNTABILITY

Designated individuals must accept accountability, be appropriately skilled and have adequate resources to check controls, monitor risks, improve controls and communicate effectively about risks and their management to stakeholders. This can be facilitated by:

- Identifying risk coordinators that have the accountability and authority to manage risks
- Identifying who is accountable for the development, implementation and maintenance of the framework for managing risk
- Identifying other responsibilities of people at all levels in the organisation for the risk management process
- Establishing performance measurement and external and/or internal reporting and escalation processes, and
- Ensuring appropriate levels of recognition

Risk accountability should be recorded in Job/Position Descriptions, Databases or Information Systems.

## 9. RISK MANAGEMENT PROCESS

The goal of the risk management processes is to ensure that:

- Risks faced by NHPC shall be identified and recorded in the Risk Register, enabling the top management to take a comprehensive view of the same.

- Identified risks are continuously assessed, mitigated, monitored and reviewed.

- Risk Appetite is defined. It refers to the tolerance limit set by NHPC for making strategic and operational decisions. Appetite or Tolerance for risk will vary with strategy, evolving conditions in the industry and markets and organisational culture.

- NHPC establishes a coherent framework to deal with risk, based on the governance, strategy, performance, review and communication.

Risk Management processes involves identification, assessment and treatment.

All the risks that have been identified shall be classified under the following risk categories - Strategic, Financial, Operational and Compliance risk.

**Strategic -** Risk of loss resulting from business factors. These risks adversely affect the achievement of strategic objectives and may impair overall value.

**Financial -** Risk directly impacting the balance sheet and access to capital.

**Operational -** Risk of loss resulting from inadequate or failed processes, people and information systems.

**Compliance -** Risk arising out of non-compliance with/ non-fulfilment of legal, regulatory and statutory requirements.

### 9.1 Risk Identification

Risk identification sets out to identify NHPC's exposure to uncertainty. This requires an in-depth knowledge of the organisation, the market in which it operates, the Economic, Legal, Regulatory, Social, Political, Technological and Cultural environment in which it exists, as well as the development of a sound understanding of its strategic and operational objectives, including factors critical to its success and the threats and opportunities related to the achievement of these objectives.

Risk identification shall be approached in a methodical way to ensure that all significant activities within NHPC have been identified and all the risks flowing from these activities defined.

The following methodologies can be used to identify risks:

- Brainstorming
- Surveys /Interviews/Working groups
- Experiential or Documented Knowledge
- Risk Lists - Lessons Learned
- Historical risk event information

## 9.2 Risk Assessment

Risk assessment is often performed as a two-stage process. An initial screening of the risks and opportunities is performed using qualitative techniques followed by a more quantitative treatment of the most important risks and opportunities lending themselves to quantification (not all risks are meaningfully quantifiable). Qualitative assessment consists of assessing each risk and opportunity according to descriptive scales as described in the previous section.

Quantitative analysis requires numerical values for both impact and likelihood using data from a variety of sources. The quality of the analysis depends on the accuracy and completeness of the numerical values and the validity of the models used. Model assumptions and uncertainty should be clearly communicated and evaluated using techniques such as sensitivity analysis.

Both qualitative and quantitative techniques have advantages and disadvantages. Most enterprises begin with qualitative assessments and develop quantitative capabilities over time as their decision-making needs dictate.

Risk quantification refers to the impact of risks to determine its potential severity and the probability of occurrence of the risk to determine its potential frequency. The objective of risk assessment exercise is to measure relative importance of risks to enable decision making on priorities.

Assessed risks may fall into strategic, financial, operational and compliance category.

| Risk Measurement Techniques Comparison | | |
|---|---|---|
| **Technique** | **Advantages** | **Disadvantages** |
| **Quantitative** | Allows numerical aggregationinto risk interactions.<br><br>Permits cost benefit analysis ofrisk response options.<br><br>Enables risk-based capitalallocation to business activities<br><br>Helps compute capital requirements to maintain solvency under extreme conditions | Can be time consuming and costly, especially during model development.<br><br>Units of measure e.g.Currency and Annual Frequency may result in qualitative impacts being Overlooked<br><br>Use of numbers may imply greater precision than theuncertainty of input warrants<br><br>Assumptions may not be apparent |
| **Qualitative** | Is relatively quick and easy<br><br>Provides rich information beyond financial impact and likelihood such asvulnerability, speed of onset and non-financial impacts such as EHS or Reputation.<br><br>Easily understood by most employs who may not be Trained in Sophisticated quantification techniques | Gives limited differentiationbetween levels of risk (i.e.High, Medium, Low)<br><br>Is imprecise – risk events that plot within the same risk level can represent substantially different amount of risk<br><br>Cannot numerically aggregately provides limited ability to Perform cost benefits analysis |

### 9.2.1 Rating Criteria – Likelihood Scales

| | | |
|---|---|---|
| **5**<br>**Almost Certain** | >75%<br>(Chances of happening multiple times in next one year) | Happened few times within a year for past 1-3 years |
| **4**<br>**Likely** | 50-75%<br>(Chances of happening multiple times in next one year) | Happened more than twotimes within last one year |
| **3**<br>**Moderate** | 10 – 50%<br>(Chances of happening at one or more times in next 1-2 years) | Happened once or twicewithin last 1-2 years. |
| **2**<br>**Unlikely** | 5-10%<br>(May happen once within next 3-5 years) | Happened once or twicesince inception |
| **1**<br>**Rare** | Less than 5%<br>(Extremely less chances of happening within next 5 years) | Never happened in the past |

### 9.2.2 Rating Criteria – Impact Scales

| | Consequence Category | | | | |
|---|---|---|---|---|---|
| | 1 Insignificant | 2 Minor | 3 Moderate | 4 Major | 5 Critical |
| Total Financial Impact | < ₹ 10 Crores per annum | ₹ 10-75 Crores per annum | ₹ 75-150 Crores per annum | < ₹ 150-200 Crores perannum | > ₹ 200 Crores per annum |
| Likely Impacton Annual Profit | < 1% | 1% - 3 % | 4% - 5% | 5% - 10% | Over 10% |
| Loss of talent | Separation not impacting operations | Separation impacting operations but gaps can be filled up easily | Separation of skilled persons effecting operation in short term | Separation of skilled persons effecting operation in long run | Separation of key individuals at senior management level. |
| EHS | Minor injury / environmental damage | Serious injury /environmental damage | Multiple injuries / environmental damage | Single fatality / major environmental damage including prosecution | Multiple fatalities / major environmental damage including prosecution |
| Regulatory | Routine issues raised by ministry / regulatory | Caution / instruction from Ministry | Penalties /intensive scrutiny | Heavy penalties / restriction on activities | Loss of rights to operate. |
| Reputational | Minor, Adverse First-time local public and media attention | Repeated Attention from media; heightened concern by local community | Criticism by national government | Significant adverse national media or public or national government | Serious public or media outcry; international coverage |

### 9.2.3 Impact Likelihood Framework

Risk Impact / Likelihood provide a useful framework that helps the management to decide which risks need immediate attention.
The Risk Impact/Likelihood Chart is based on the principle that a risk has two primary dimensions:

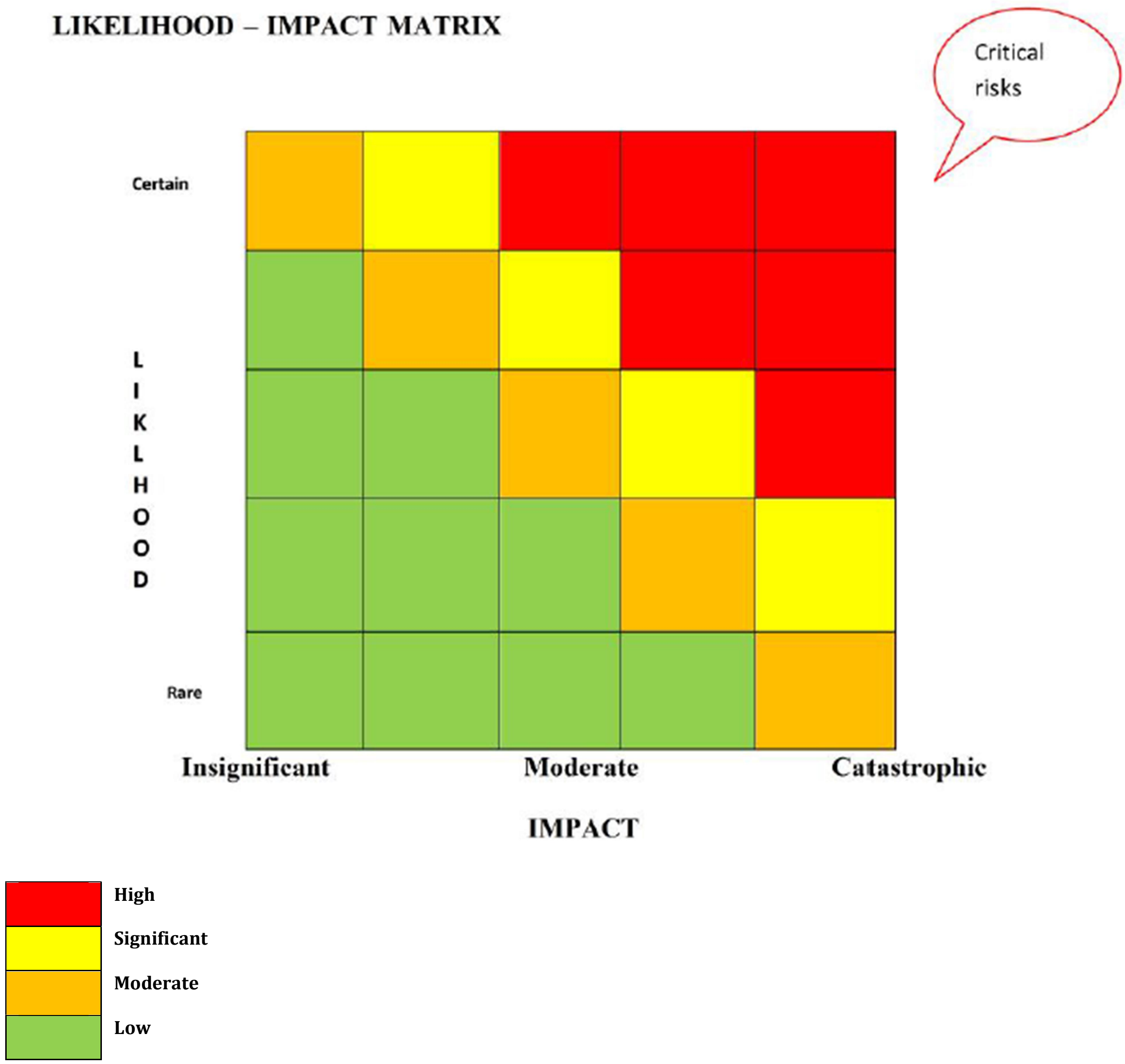
- Likelihood – A risk is an event that "may" occur. The probability of it occurring can range anywhere from just above 0% to just below 100%.

- Impact – A risk, by its very nature, always has a negative impact. However, the size of the impact varies in terms of cost and impact on health, human life, operational factor or some other critical factor.

The chart helps to rate potential risks on these two dimensions. The probability that a risk will occur is represented on one axis of the chart – and the impact of the risk, if it occurs, on the other. These two measures are used to plot the risk on the chart. This gives a quick, clear view of the priority that needs to be given to each risk. Management can then decide the resources to be allocated to managing that particular risk. Once the risk has been assessed on a 5-point scale based on the above criteria, it is plotted on the chart and resources assigned as per risk rating.

Impact Assessed + Likelihood Assessed = Risk Score

## LIKELHOOD- IMPACT MATRIX



The most common way to prioritize risks is by designating a risk level for each area of the graph such as very high, high, medium, or low, where the higher the combined impact and likelihood ratings, the higher the overall risk level. The boundaries between levels vary from entity to entity depending on risk appetite. For example, an entity with a greater risk appetite will have boundaries between risk levels shifted toward the upper right, and an entity with greater risk aversion will have boundaries between risk levels shifted toward the bottom left.

Also, some entities adopt asymmetric boundaries placing a somewhat greater emphasis on impact than on likelihood. For example, a risk having an impact rating of moderate and likelihood rating of frequent has an assigned risk level of high, whereas a risk having an impact rating of extreme and a likelihood rating of possible has an assigned risk level of very high.

After plotting on the heat map, risks are then ranked from highest to lowest in terms of risk level. These rankings may then be adjusted based on other considerations such as vulnerability, speed of onset, or detailed knowledge of the nature of the impact. For example, within a group of risks having a designation of very high, those risks having extreme health and safety, or reputational impacts may be prioritized over risks having extreme financial impacts but lesser health and safety or reputational impacts. When using numerical ratings in a qualitative environment, it's important to remember that the numbers are labels and not suitable for mathematical manipulation although some entities do multiply the ratings, such as for impact and likelihood, to develop a preliminary ranking.

The future is inherently "Unknown", it is often necessary to make qualitative assessment of impact and likelihood of risk using the best available information. For some risks it is very difficult to perform a quantitative analysis / measurement because the related event occurs very infrequently and, if they do occur, they are subject to a wide range of possible outcome in terms of severity and hence very difficult to measure.

### 9.2.4 Risk Hierarchies and Rolling Up and Down

The simplest way to aggregate risks is to organize them according to a hierarchy. This is often done in risk management systems where risks can be organized by organisational unit, risk type, geography, or strategic objective. The better systems allow users to roll up and drill down for analysis and reporting. This provides a complete listing of the assessed risks but does not help with prioritizing.

The Risk Coordinators will assess and review the risk information provided to them and escalate the risk in line with the requirements set out in the below table.

| Risk Level | Escalation Recipient | Turn-around time |
|---|---|---|
| High | | |
| Significant | | |
| Medium | | |
| Low | | |

## 9.3 Risk Treatment

There are four common strategies for treating risk. There is no single “best” response strategy, and each risk must be considered on its own merits. Some risks may require a combination of strategies and multiple responses, whereas others may need only one strategy with a single response.

### 9.3.1 Risk Avoidance/Termination

This involves doing things differently and thus removing the risk. This is particularly important in terms of project risk, market risk or customer risk but often wishful thinking in terms of the strategic risks.

### 9.3.2 Risk Reduction or Mitigation

Reduce or Treat the risk. This is the most widely used approach. The purpose of treating a risk is to continue with the activity which gives rise to the risk but to bring the risk to an acceptable level by taking an action to control it in some way through either:

Containment actions (lessen the likelihood or consequences and applied before the risk materializes) or Contingent actions (put into action after the risk has happened, i.e. reducing the impact. Must be pre-planned).

### 9.3.3 Risk Acceptance or Retention

Accept and tolerate the risk. Risk Management does not necessarily mean risk reduction and there could be certain risks within the organisation that it might be willing to accept and continue with its operational activities.

The Risk Assessment Committee shall take a decision to tolerate a risk as a mitigation measure, and when such a decision is taken, the rationale behind it shall be fully documented. In addition, the risk shall continue to be monitored and contingency plans shall be in place in the event of the risk occurring.

### 9.3.4 Risk Transfer

Transfer some aspects of the risk to a third party. Examples of risk transfer include insurance and hedging. This option is particularly good for mitigating financial risks or risks to assets.

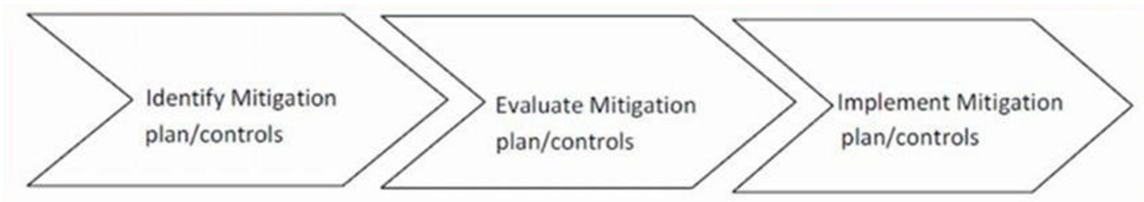
- The following aspects shall be considered for the transfer of identified risks to the transferring party:

Internal processes of the organisation for managing and mitigating the identified risks. Cost benefits analysis of transferring the risk to the third party

- Insurance can be used as one of the instruments for transferring risk.

Risk mitigation is an exercise aiming to reduce the loss or injury arising out of various risk exposures. NHPC adopts systematic approach to mitigate risks associated with accomplishment of objectives, operations, revenues and regulations.

The risks are identified and if the risk treatment mechanism selected is risk mitigation or risk transfer, the next step shall be to review and revise existing controls to mitigate the risks falling beyond the risk appetite and to identify new and improved controls.




### 9.3.5 Identify Controls

New control activities are designed in addition to existing controls post assessment of risk exposure at current level to ensure that the risks are within the accepted risk appetite. Control activities are categorized into preventive or detective based on their nature and timing:

Preventive controls – focus on preventing an error or irregularity. Detective controls – focus on identifying when an error or irregularity has occurred. It
also focuses on recovering from, repairing the damage from, or minimizing the cost of an error or irregularity.

### 9.3.6 Evaluate Controls

The controls identified for each risk event shall be evaluated to assess their effectiveness in mitigating the risks falling beyond the risk appetite.

### 9.3.7 Implement Controls

It is the responsibility of the Risk Assessment Committee to ensure that the Risk Mitigation Plan for each Function/Department is in place and is reviewed regularly. Risk mitigation measure is specific to individual risks as identified in Risk Register.

## 10. DIFFERENT TYPES OF ENTERPRISE RISKS

### 10.1 Business Operations Risks

These risks relate broadly to the NHPC's organisation and management, such as planning, monitoring and reporting systems in the day to day management process namely:

- Organisation and management risks
- Production, process and productivity risks
- Business interruption risks
- Profitability

Risk Mitigation Measures:

- A well-defined organisational structure.
- Flow of information is well defined to avoid any conflict or communication gap between two or more Departments.
- Continuous efforts are being made for creation of the second level positions in each Department to continue the work without any interruption in case of non-availability of functional heads.
- Proper policies are followed in relation to maintenance of inventories of raw materials and consumables to ensure their availability for the productions.
- Effective steps are being taken to reduce cost of production on a continuing basis taking various changing scenarios in the market.

### 10.2 Liquidity Risks

Following are the liquidity risks:

- Financial solvency and liquidity risks
- Borrowing limits
- Cash management risks

Risk Mitigation Measures:

- Proper financial planning is put in place with detailed Annual Business Plans discussed at appropriate levels within NHPC.
- Annual and Quarterly budgets are prepared and put up to management for detailed discussion and an analysis of the nature and quality of the assumptions, parameters.
- Daily and Monthly cash flows are prepared, followed and monitored at senior levels to prevent undue loss of interest and utilise cash in an effective manner.
- Exposures to Foreign Exchange transactions are supported by LCs and Bank Guarantees and steps to protect undue fluctuations in rates etc.

### 10.3 Credit Risks

- Risks in settlement of dues by customers
- Provision for bad and doubtful debts

Risk Mitigation Measures:

- Systems put in place for assessment of creditworthiness of customers.
- Provision for bad and doubtful debts made to arrive at correct financial position of the Company.
- Appropriate recovery management and follow up.

### 10.4 Logistics Risks

- Use of outside transport sources.

Risk Mitigation Measures:

- Possibilities to optimize the operations, by having a combination of transportation through road/ rail and sea/air are explored.
- Company works with third party transport groups to handle all requirements relating to movement of goods, domestic and imported, as and when necessary with a well-defined system of allocation of vehicles based on priorities and time aspects.

### 10.5 Market Risks

- Demand and Supply Risks
- Quantities, Qualities, Suppliers, lead time, interest rate risks
- Raw material rates or spares availability
- Interruption in the supply of Raw material/spares

Risk Mitigation Measures:

- Raw materials/Spares are procured from different sources at competitive prices.
- Alternative sources are developed for uninterrupted supply of raw materials and spares.
- Demand and supply are external factors on which NHPC has no control, but however NHPC plans its production and sales from the experience gained in the past and an on-going study and appraisal of the market dynamics, movement by competition, economic policies and growth patterns of different segments of products.
- NHPC takes specific steps to reduce the gap between demand and supply by expanding its customer base, improvement in its product profile, delivery mechanisms, technical input and advice on various aspects of de- bottlenecking procedures
- Proper inventory control systems have been put in place.

### 10.6 Human Resources Risks

- Labour Turnover risks, involving Replacement risks, Training risks, Skill risks, etc.
- Unrest Risks due to Strikes and Lockouts.

Risk Mitigation Measures:

- Company has proper recruitment policy for recruitment of personnel at various levels
- Proper appraisal system for revision of compensation on a periodical basis has been evolved and followed. Employees are trained at regular intervals to upgrade skills.
- Labour problems are obviated by negotiations and conciliation.
- Activities relating to the Welfare of employees are undertaken.
- Employees are encouraged to make suggestions and discuss problems with their Superiors

### 10. 7 Disaster Risks

- Natural risks like Fire, Floods, Earthquakes, etc

Risk Mitigation Measures:

- The properties of the company are insured against natural risks, like fire, flood, earthquakes, etc. with a periodical review of adequacy, rates and risks covered under professional advice.
- Different types of automatic fire detection and suppression system like CO2 system, water spray system and fire hydrant system, etc. have already been placed at fire sensitive locations like Generator barrels, Generator Transformer, Cable Gallery and Control Room etc.
- In addition to above, Fire extinguishers have also been placed at fire sensitive locations.
- First aid training is given to watch and ward staff and safety personnel.
- Workmen of the company are covered under ESI, EPF, etc.
- Workmen Compensation Fund has been set up by the Company
- Mediclaim and Cover for all the employees has been taken and monitored by the company from time to time.

### 10.8 System Risks

- System capability
- System reliability
- Data integrity risks
- Coordinating and interfacing risks

Risk Mitigation Measures:

- IT department maintains repairs and upgrades the systems on a continuous basis with personnel who are trained in software and hardware.
- Password protection is provided at different levels to ensure data integrity.
- Licensed software is being used in the systems.
- The Company ensures "Data Security", by having access control/ restrictions.

### 10.9 Sensitive Operations Area Risks

- NHPC has several sensitive operations areas like powerhouse, switchyard and dam/barrage.
- Asset integrity is a critical risk in all of these areas to ensure that all operational compliances are met at all times.

Risk Mitigation Measures:

- Maintaining measures to ensure proactive asset integrity
- Use of data & analytics to perform simulations to understand behaviour of stressed assets.
- Proactive reporting and timely maintenance measures
- Predictive and prescriptive maintenance schedules

### 10.10 Legal Risks

These risks relate to the following:

- Contract Risks
- Contractual Liability
- Frauds
- Judicial Risks
- Insurance Risks

Risk Mitigation Measures:

- A study of contracts with focus on contractual liabilities, deductions, penalties and interest conditions is undertaken on a regular basis.
- Contracts are finalized as per the advice from legal professionals and Advocates.
- Timely payment of insurance and full coverage of properties of the Company under insurance.
- Internal control systems for proper control on the operations of the Company and to detect any frauds

## 11. FACTORS AFFECTING ENTERPRISE RISKS

The Risk Management Committee shall work on an ongoing basis within the Risk Management framework outlined in this policy to mitigate the risks to the NHPC's business as it may evolve over time. In the management of risks, the likelihood of risk is estimated with available data and information and appropriate risk treatments worked out for continuous monitoring and review. Some of the key considerations are as follows:

### 11.1 Black Swan Events

NHPC power generation output depends on timely completion of restoration activities and on free movement to allow plants to operate at desired capacity. However certain once in a life-time kind of events (e.g. Covid pandemic) may pose significant impact on power generation targets and may affect revenues. It may also result in shortage of labour.

NHPC is continuously working to identifying best ways to optimise workforce allocation to minimize impact due to such events. NHPC has business continuity planning mechanism to simulate these situations.

### 11.2 Regulatory Regimes and Market Conditions

NHPC is focused on power generation segment. Government's regulations, policies and market dynamics may pose a risk to revenue growth.

Historically, the strength of NHPC relationships has resulted in significant recurring revenue from existing installations. NHPC is continuously working on operational efficiency and on taking initiatives towards cost reduction and control.

### 11.3 Political Environment

NHPC has established its plants across entire India. Any adverse change in the political environment may have an impact on the growth strategies of NHPC.

However, India is also an emerging economy and due to compulsions of global competitive forces, are stabilising its industrial policy with considerable reforms to attract foreign investment in various spheres. Considering its basic political philosophy, NHPC is continuously reviewing its existing and future investment strategies on a continuous basis. Risks that are likely to emanate are managed by constant engagement with the current government, reviewing and monitoring the country's industrial, labour and related policies and involvement in representative industry-bodies.

### 11.4 Competition

The power sector is continuously evolving and is highly competitive and we expect that competition will continue to intensify due to establishment of new capacities, expansion of existing capacities and consolidation of operations across the sector.

NHPC is strongly positioned in designated market commanding a market share. However, with focus on renewable energy, NHPC business strategies are continuously evolving.

## 11.5 Revenue Concentration

High concentration in any single business segment or in a single geography exposes the company to the risks inherent in that segment. NHPC has adopted prudent norms to monitor and prevent undesirable concentration in a geography.

Concentration of revenue from certain business segments or specific geography is sought to be optimized over the long term by diversifying revenue basket and by establishing a diversified business strategy. e.g. NHPC is expanding into renewable sector including floating solar.

## 11.6 Equipment Behaviour

The revenue sustainability is assured by optimal utilization of plants. And in order to ensure optimal plant operations its critical to ensure the right behaviour of equipment to avoid loss of generation and revenue.

NHPC controls equipment behaviour through having thorough preventive maintenance schedules and regular internal and external audits are also performed to ensure this.

## 11.7 Technological Obsolescence

Technological obsolescence is a practical reality. Technological obsolescence is evaluated on a continual basis and the necessary investments are made to bring in the best of the prevailing technology. NHPC is working continuously with licensors and establishing contacts with other leaders in technology, particularly in the areas of the operations, to reap dividends in by having access to newer and evolving processes and their applications in power generation.

## 11.8 Geology

Geological investigations are of paramount importance in hydroelectric and infrastructure projects for stability and sustainability of engineering structures. It is extremely critical to continuously update the existing theories and practices of understanding the behaviour of rock mass based on progressive knowledge gathered over the years at challenging ground conditions.

NHPC minimizes geological surprises through deployment of scientific methods and advanced technologies.

## 11.9 Risk of Corporate Accounting Fraud

Accounting fraud or corporate accounting fraud are business scandals arising out of misusing or misdirecting of funds, overstating revenues, understating expenses etc. NHPC mitigates this risk by:

- Understanding the applicable laws and regulations
- Conducting risk assessments
- Enforcing and monitoring code of conduct for key executives
- Instituting Whistle Blower mechanisms
- Deploying a strategy and process for implementing the new controls
- Adhering to internal controls that prevent collusion and concentration of authority
- Mechanisms for multiple authorisations of key transactions with cross checks
- Scrutinising of management information data
- Creating a favourable atmosphere for internal auditors in reporting and highlighting any instances of even minor non-adherence to procedures and manuals
- Whistle Blower Policy

## 11.10 Legal Risk

Legal risk is the risk in which the NHPC is exposed to legal action. NHPC has access to experienced team of professionals, advisors who focus on evaluating the risks involved in a contract, ascertaining responsibilities under the applicable law of the contract, restricting liabilities under the contract and covering the risks involved so that they can ensure adherence to all contractual commitments.

NHPC management places and encourages employees to place full reliance on professional guidance and opinion and discuss impact of all laws and regulations to ensure total compliance. Advisories and suggestions from professional agencies and industry bodies, etc. are carefully studied and acted upon where relevant.

## 11.11 Quality and Project Management

NHPC Commitment towards total Quality Management is to forge the Human Resources of organisation into a team that promotes continual improvement in quality of products and services.

Considerable focus is given to adherence of commitment towards maintaining grid stability and to support grid network. Customer feedback is taken accordingly from RLDCs. NHPC is continuously working on various ISO and other quality certifications.

## 11.12 Environmental Risk Management

NHPC endeavours to protect the environment in all its activities, as a social responsibility. The legal exposure in this regard is when polluting materials are discharged into the environment by causing danger to fragile environmental surrounding is an offence.

To control of water pollution the NHPC suitably treats the effluents at its facilities. Similarly, there is a strategy in place for hazardous waste management.

NHPC has suitable project management controls to monitor delay in start of construction due to lack of adequate/ timely clearances/ approvals from the respective ministries.

NHPC also has adequate mechanisms in place for Rehabilitation & Resettlement (R&R) to avoid agitations in the local area leading to delays in commencement of the project.

### 11.13 Human Resource Management

NHPC growth has been driven by ability to attract top quality talent especially Gen-Y and effectively engage them in right jobs.

Risk in matters of human resources are sought to be minimised and contained by following a policy of providing equal opportunity to every employee, inculcate in them a sense of belonging and commitment and effectively train them in spheres other than their own specialisation.

Employees are encouraged to make suggestions on innovations, cost saving procedures, free exchange of other positive ideas relating to manufacturing procedures etc. It is believed that a satisfied and committed employee will give of his best and create an atmosphere that cannot be conducive to risk exposure.

Employee compensation is always subjected to fair appraisal systems with the participation of the employee and is consistent with job content, peer comparison and individual performance.

### 11.14 Business Continuity Planning

It is critical for NHPC that all its plants operate at optimal capacity to reduce unplanned downtime. And in case it happens, how NHPC can incorporate lessons from past or industry peers to reduce the impact.

The risk assessment committee shall work with the risk management committee to ensure that risk coordinators are assigned responsibility for specific operational risks and every stakeholder provides his or her valuable feedback to mitigate, control or transfer operational risks across different units.

## 12. KEY ENTERPRISE RISKS IDENTIFIED IN NHPC

Here are the key enterprise risks identified during the process of interaction and risk assessment with stakeholders. These will be dynamically maintained and continuously monitored using Risk Register. Here these are provided just for guidance purposes. Risk Register covers the respective enterprise risks business unit-wise updated regularly after approval of Risk Management Committee.

Please refer to Annexure 15.3 for Enterprise Risk Register.

## 13. OPERATION OF RISK MANAGEMENT POLICY

### 13.1 Approval

NHPC Board shall be final approving authority for the company's overall Risk Management Policy through recommendation of Risk Management Committee.

The Risk Management Committee shall monitor the compliance of the Risk Management Policy and any amendments there to from time to time. Risk Management Committee shall present all its findings to the Board as per risk reporting process.

### 13.2 Review

The Risk Management Policy shall be reviewed as per recommendations of Risk Management Committee or at least once in two years based on changes in the business environment/ regulations/ standards/ best practices in the industry. The Risk Management Policy shall be reviewed in-house.

### 13.3 Maintenance of Risk Register

Risk Register is a centralized repository of all key enterprise risks assigned department wise. All mitigation plans shall be reviewed and updated as per the policy guidelines.

## 14. RISK TRAINING

### 14.1 Training of Risk Coordinators

All risk coordinators shall be provided training of 3-5 (three to five) days in a year to know the latest developments in the field of risk management.

### 14.2 Risk Management Awareness among Employees

Risk awareness among all employees shall be done on continuous basis. Risk coordinators shall conduct regular risk awareness sessions and trainings for employees so that all stakeholders have a basic awareness of risk management and policy.

## 15. ANNEXURES

15.1 Risk Register Template
15.2 Risk Assessment Template
15.3 Enterprise Risk Register
15.4 Risk Register Abstract

NOTE:- Risk Register is an Internal document of NHPC Ltd. Complete Risk Register is available at the NHPC Intranet Portal.