



Study4Insurance

ENGINEERING INSURANCE

FOR GIPSA OFFICER PROMOTION EXAM

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Acknowledgement and Disclaimer

This document has been prepared by the team at Study4Insurance. We extend our sincere gratitude to the Insurance Institute of India (III), as their official publications and exam books have served as the primary source for the content herein.

The primary objective of these notes is to provide a concise and effective resource for educational and training purposes only. This material is designed as a set of quick revision notes, meticulously crafted to aid candidates in their preparation for the III examinations.

While our team has made every effort to ensure the accuracy and clarity of the information presented, this document is intended to be a supplementary study aid and not a substitute for the official source material. For any doubts, discrepancies, or in case of any errors, readers are strongly advised to refer to the original III exam books. The source books should be considered the definitive and final authority on all topics.

We hope this revision notes prove to be a valuable tool in your study plan and help you achieve excellent marks in your examination.

Best of luck!



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1. ENGINEERING INSURANCE & RELEVANT LEGISLATION

History and Development

- **Origin: 19th Century** in Great Britain
- **Initial Need:** Protection against **explosions in steam boilers**, which caused heavy property losses and personal injury due to large-scale industrialization driven by James Watt's steam engine.
- **Manchester Steam Users Association (M.S.U.A.)**
 - **Founded:** 1854 by a group of engineers.
 - **Purpose:** **Inspection** and revision of steam engines and boilers.
 - **Activity:** Provided boiler inspectors and advice on prevention and economical plant use (principle maintained today: **inspection for advice/prevention**).
 - *Note: M.S.U.A. was **not** an insurance company.*
- **First Insurance Company: The Steam Boiler Assurance Company** formed in 1858, combining inspection with insurance.
- **Early Coverage:** Policies covered:
 - **Material damage.**
 - **Personal injury.**
 - **Third party liability** resulting from the explosion of boilers and other pressure vessels.
- **Legislation in U.K. (Compulsory Inspection):**
 - **Boiler Explosion Act (1882):** Provided for compulsory periodical inspections of steam boilers by Government authorities.
 - **Factory and Workshop Act (1901):** Made thorough inspection of all factory steam boilers compulsory once every 14 months by a competent person (later repealed by Factories Act 1961).
 - *Note: These Acts related only to compulsory **inspections**, **not** insurance.* Insurance companies tailored policies combining both.

- U.S.A. Development: **The Hartford Steam Boiler Inspection and Insurance Company** formed in 1867 for inspection service and insurance against boiler explosion.
- **Germany Development:** Statutory regulations for boilers enforced early (1856). First Boiler Inspection Authority (**DUV**) founded in 1866. Predecessor of the Association of the Technical Inspection Authorities (**TUV**) founded in 1884.
 - *Note: Contrary to U.K. and U.S.A. tradition, the German "TUV" was **never associated** with any insurance company.*
- **Expansion of Coverage (Late 19th - Early 20th Century):**
 - Extended from boilers to other pressure vessels.
 - **Engine Insurance** (now Machinery Breakdown insurance) began in 1872.
 - **Loss of profits** following machinery breakdown (first policies early 20th century).
 - **Erection Insurance** (named perils basis) appeared.
 - **Contractors' Policies** (for buildings/civil works) evolved into **Contractors' and Erection All Risks policies** (developed from 1920 to 1930).
 - **Post-WWII:** CAR and EAR gained present standing due to reconstruction and development.
 - **Advanced Covers:** Computer All Risks, Electronic Equipment All Risks, Deterioration of Stock following Machinery Breakdown, and Advance Loss of Profits / Delay In Start-Up (ALOP/DSU) developed later.

Engineering Insurance in India

- **Start Date:** Comparative recent origin; **The New India Assurance Co. Ltd.** started transacting in **1953**.
- **Key Early Players:**
 - **The New India Assurance Co. Ltd.:** Started in 1953 with technical assistance from **Munich Reinsurance Co.**
 - **The Oriental Fire and General Insurance Co. Ltd.:** Set up its engineering department around the same time.

- **Syndicate (1954):** Formed by five companies (**London and Lancashire, Concord, Atlas, Yorkshire, and British India General**) to pool resources/expertise for engineering and allied risks.
 - **Key Difference from U.K. Practice:**
 - **U.K.:** Policies offered **indemnification AND inspection service**.
 - **India:** Engineering insurance policy provides only for **insurance coverage**.
 - **Reason:** Inspections required under various enactments (e.g., Boiler Act, Factories Act) are carried out by **Government Inspectors**.
 - **Current Inspection Role (India):** Inspections by Indian Insurers are a "goodwill gesture only" and not obligatory under the contract. They are primarily for **risk assessment, underwriting**, and recommending **loss minimisation/risk improvement** measures.
-

Engineering Insurance - Statutes and Regulations (India)

- **Primary Insurance Legislation:**
 - The **Insurance Act 1938**.
 - The **Insurance Regulatory and Developing Authority Act 1999**.
- **Relevant Statutes (Imposing Obligations on Owners for Safety/Security):**
 - **Indian Factories Act 1948.**
 - **Inspectors' Powers:** Enter any factory; examine plant, machinery, and premises; request documents/information; and call for statements to ensure safety/security.
 - **Definition of 'Factory' [Sec 2(m)]:** Premises where **ten or more workers** are working, and a manufacturing process is carried on with or without the aid of power.
 - *Note: Mines do not fall under this definition.*
 - **Safety Rules of Plant and Machinery:** Covers safety for:
 - Hoists or lifts.
 - Lifting machines, chains/ropes, and lifting tackles.

- Revolving machinery.
- Pressure plant.
- **The Indian Boiler Act 1923.**
 - **Definition of 'Boiler':** Closed vessel exceeding **22.75 litres capacity** used for generating steam under pressure (includes fittings under pressure when steam is shut off).
 - **Requirement: Registration** of a Boiler before industrial use is mandatory.
 - **Certificate:** Issued by the **Chief Inspector of Boilers**.
 - **Maximum Period of Certificate:** Not exceeding **twenty-four months**.
 - **Accident Reporting: Compulsory reporting** of an accident to the Inspector within **24 hours**.
- **The Indian Mines Act 1952.**
 - **Objective:** To ensure **safety and security in Mines** through active supervision of Inspectors.
 - **Definition of 'Mines' [Sec 2(i)]:** Any excavation for searching for or obtaining minerals, including boring, shafts, levels, inclined planes, open cast workings, conveyors, ropeways, machinery, railways, workshops (used solely for the mine), and power stations (supplying solely for the mine).
- **De-tariffing of Engineering Insurance Business**
 - **Past Regulator: Tariff Advisory Committee (TAC)** controlled and regulated rates and terms (mandatory for all insurers).
 - **Liberalisation:** Necessitated **de-tariffing**.
 - **First Step (IRDA):** Abolished **rating tables** from tariffs. Policy wordings remain standard until further direction, with variations requiring **IRDA approval**.

Quick Facts / Exam Pointers

- Engineering Insurance in India → 1953 (New India Assurance).
- Inspection Service = not obligatory.
- Factories Act → safety + Inspector powers.
- Boiler registration → 24 months max.
- Mines Act → safety in excavations, drilling, etc.
- De-tariffing → IRDA abolished rate tables, 2007.

Likely Short Questions

- When did engineering insurance start in India? → 1953.
- Name the first engineering insurance company in the world → Steam Boiler Assurance Co (1858).
- Under which Act is a boiler registered? → Indian Boiler Act 1923.
- What is the maximum period of boiler certificate? → 24 months.
- Which Act ensures safety in mines? → Mines Act 1952.
- What is de-tariffing? → Abolition of compulsory tariff rates by IRDA.

C. Key Abbreviations

- **MSUA** – Manchester Steam Users' Association (UK, 1854)
- **DUV** – German Boiler Inspection Authority (Mannheim, 1866)
- **TUV** – Technical Inspection Authority, Germany (1884 onwards)
- **MB** – Machinery Breakdown Insurance (1872)
- **CAR** – Contractors' All Risks (1920s)
- **EAR** – Erection All Risks (1920s)
- **ALOP** – Advance Loss of Profits
- **DOS** – Deterioration of Stock
- **IRDAI** – Insurance Regulatory and Development Authority of India (1999)
- **TAC** – Tariff Advisory Committee (pre-liberalisation control body)

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2. Engineering Insurance: Classes of Business, Principles & Practices

Classes of Engineering Insurance

Engineering Insurance forms part of the **Miscellaneous branch** in the Indian market, often managed alongside Property Insurance.

Phase / Type	Nature of Policy	Examples / Coverage	Renewal
A. Construction Phase	One-time / period policies – valid for entire project duration	<ul style="list-style-type: none">• Contractor's All Risks (CAR)• Erection All Risks (EAR or Storage-cum-Erection SCE)• Marine-cum-Erection (MCE)• Contract Works (CW)• Contractor's Plant & Machinery (CPM)• Advance Loss of Profits (ALOP) / Delay in Start-Up (DSU)	No renewal – ends with project
B. Operational Phase	Annual policies – renewed every year	<ul style="list-style-type: none">• Machinery Breakdown (MI/MB)• Boiler & Pressure Plant (BPP)• Electronic Equipment (EEI)• Deterioration of Stocks (DOS)• Civil Engineering Completed Risks (CECR)• Machinery Loss of Profits (MLOP)	Renewable annually

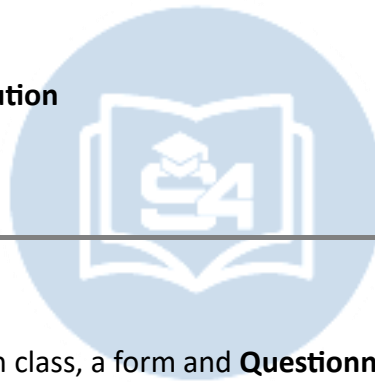
- **Note:** Policies combining both Construction and Operation Phase interests are **presently not allowed**.
- **Industrial All Risks (IAR) Policy:** Covers machinery breakdown and MLOP (optional) along with Fire, Fire LOP, and Burglary. It's an "**All Risk**" basis cover ("what is not excluded is covered").

Principles and Practices of Engineering Insurance

1. Principles Applicable

The basic principles of General Insurance apply to all classes of Engineering Insurance business:

- **Utmost good faith**
- **Insurable interest**
- **Indemnity**
- **Subrogation and contribution**
- **Proximate cause**



2. Practice and Procedures

- **Proposal Forms :** For each class, a form and **Questionnaire** must be filled and signed. Both form part of the insurance policy.
 - **Proposal Form** (Common Info): Name, Address, **Locational details**, Sum-insured, etc.
 - **Questionnaire** (Specific Info): Type of **project, Machinery, Plant and equipments**
- **Cover Notes :** Issued after satisfactory examination by engineers and premium payment. Operates for a limited period pending replacement by a proper policy. Issued only by an **authorised representative**.
- **Policies :** A stamped document that provides **evidence of the insurance contract**. Must be carefully drafted and issued in the appropriate form.
- **Sectionalised Policy Wordings:**

• Section	• What It Contains
• Heading	• Insurer's office & address
• Preamble / Recital	• Parties, terms, sum insured, liability limits
• Operative Clause	• Scope of insurance
• Schedule	• Policy No., Name & address, Sum Insured, Period, Excess, Premium
• Attestation	• Signature & seal of insurer
• Conditions	• General + Specific policy conditions

- **Endorsements** : Used when terms of an insurance contract are to be **varied**. Attached to the policy, and the two together constitute evidence of the contract. Issued at inception or during currency for alterations.

3. Claims Procedure

- **Requirements:** Policies prescribe procedures for:
 - Notification of claim.
 - Obligations of the insured.
 - Duties following an accident.
 - Position after a claim.
 - Arbitration procedure.
- **Loss Assessment:** Insurer appoints an independent **loss adjuster/surveyor**. Early visit is crucial. An important aspect is investigation into the **cause of failure**, leading to recommendations on loss prevention.
- **Basis of Indemnity:** Provided for partial, total, or constructive total loss claims.
- **Deductible or Excess (Self-Retention)** : A **common feature**.
 - **Applicability:** Specified in the Schedule for different perils or different property.

- **Consequential Loss:** Deductibles are expressed in terms of **time** (days/months) and termed **Time Excess** or **Time Exclusion**.

Summary for Quick Revision

- Engineering Insurance = Misc. branch; needs technical understanding.
- **Construction Phase** = **Project period policies**.
- **Operational Phase** = **Annual renewable policies**.
- **Proposal Form** → **general info**; **Questionnaire** → **technical info**.
- **Policy** = stamped legal contract.
- **Endorsement** = for changes in policy terms.
- **Deductible** = insured's share of loss.
- **Claims** require prompt notice + surveyor visit.

Likely Exam Questions

- Which policy is "one-time"? → **CAR / EAR**.
- Which document is proof of contract? → **Policy Document**.
- "Time Excess" applies to → **Consequential Loss policies**.
- Purpose of Endorsement → **Modify policy terms**.
- Information on "Exemptions" in policy → **Preamble**.

Comparison: Construction vs Operational Engineering Insurance

Aspect	Construction Phase Policies	Operational Phase Policies
Nature	One-time / Period-based (valid for project duration only).	Annual renewable (valid during operation, renewed yearly).

Aspect	Construction Phase Policies	Operational Phase Policies
Objective	Covers risks during construction/erection till handover of project.	Covers risks during operation/maintenance of completed plant/machinery.
Examples	CAR (Contractor's All Risks), EAR/SCE (Erection All Risks/Storage-cum-Erection), MCE (Marine-cum-Erection), CW (Contract Works), CPM (Contractor's Plant & Machinery), ALOP/DSU (Advance Loss of Profits/Delay in Start-Up).	MB/MI (Machinery Breakdown), BPP (Boiler & Pressure Plant), EEI (Electronic Equipment Insurance), DOS (Deterioration of Stock), CECR (Civil Engineering Completed Risks), MLOP (Machinery Loss of Profits), IAR (Industrial All Risks).
Insured Parties	Contractors, Sub-contractors, Project owners, Financiers.	Plant owners, Industrial enterprises, Factory management.
Cover Scope	Physical loss/damage to works, materials, machinery during construction + 3rd party liability.	Sudden accidental breakdown, explosion, deterioration of stock, consequential loss.
Duration	Co-terminus with project (may run for 6 months → 5 years).	Standard = 12 months (renewable annually).
Extensions	ALOP/DSU cover → financial losses due to project delays.	MLOP cover → profit loss due to machinery breakdown.
Key Features	Single policy covers full project risk (multi-party).	Separate policies for each risk type (machinery, boiler, electronic equipment, etc.).
Risk Period	Pre-commissioning (construction, transit, erection, testing).	Post-commissioning (production & commercial use).
Exclusions	War, wilful negligence, gradual wear, faulty design (unless add-on).	Normal wear & tear, corrosion, inherent defects, wilful negligence.
Claim Complexity	Involves multiple stakeholders (contractor, owner, bank).	Direct → insured vs insurer.

Aspect	Construction Phase Policies	Operational Phase Policies
Deductible Type	Monetary excess (per claim/item).	Monetary excess + Time Excess (for consequential loss).

D. Abbreviations (Quick Memory)

- **CAR** – Contractor's All Risks
- **EAR/SCE** – Erection All Risks / Storage-Cum-Erection
- **MCE** – Marine-Cum-Erection
- **CW** – Contract Works
- **CPM** – Contractor's Plant & Machinery
- **ALOP/DSU** – Advance Loss of Profits / Delay in Start-Up
- **MB/MI** – Machinery Breakdown / Machinery Insurance
- **BPP** – Boiler & Pressure Plant
- **EEI** – Electronic Equipment Insurance
- **DOS** – Deterioration of Stock
- **CECR** – Civil Engineering Completed Risks
- **MLOP** – Machinery Loss of Profits
- **IAR** – Industrial All Risks
- **TE** – Time Excess

3. Type of Plant, Machinery, Equipment & Associated Hazards

TYPES OF PLANT / MACHINERY & EQUIPMENT

Type	Used For	Main Hazards / Risks
Boilers & Associated Equipment	Generating steam under pressure	Explosion, collapse, overheating, corrosion, scale formation
Pressure Plant	Storing steam, liquids, or gases under pressure	Explosion due to internal pressure, collapse
Steam Turbines	Driving generators / pumps / compressors	Vibration, disintegration, centrifugal force damage
Engines (Steam, Gas, Diesel, Petrol)	Driving machines	Overheating, cracking of cylinder heads, seizure of pistons
Material Handling Machines (Cranes, Lifts, Conveyors)	Movement of material / men	Toppling, overloading, electrical or mechanical breakdown
Pumps	Conveying liquids / gases	Bearing failure, vibration, misalignment
Compressors	Compressing gas / liquid	Faulty design, impeller blade failure, overheating
Refrigeration / Air Conditioning Plants	Cooling process & air control	Compressor failure, motor burnout
Power Presses	Mass production of metal parts	Hydraulic pipe burst, defective casting
Electrical Equipment	Power generation & control	Insulation failure, overheating, short circuit

B. System for Generation, Transmission & Distribution of Power

Power = backbone of all industries
No industry can run without electricity.

Power System Components:

1. Generation → Power plants (thermal, hydro, nuclear etc.)
2. Transmission → Towers, lines, substations
3. Distribution → Transformers, cables, switches

Associated Hazards – Common Equipment

Equipment	Major Hazards / Causes of Failure
Electric Motors / Generators	Insulation breakdown (due to over-voltage, heat, moisture); bearing failure; poor ventilation
Transmission Towers / Lines	Windstorm, lightning, theft during construction
Transformers	Oil contamination, insulation failure, overheating → fire risk
Substations	Fire, faulty switchgear, short circuit
Switchgear / Circuit Breakers	Poor contact, bad oil insulation, improper maintenance
Control Panels / MCCs	Dust, oil, grease → flashover damage
Diesel Generators	Vibration, crankshaft breakage, lubrication failure
Cables & Switches	Overheating, insulation melt, loose contacts

Types of Power Plants (Sources of Energy)

Type	Energy Source	How it Works	Special Features
Conventional (Thermal)	Coal / Oil / Gas	Steam → Turbine → Generator	Commonest; boiler explosion risk

Type	Energy Source	How it Works	Special Features
Hydro-Electric	Water (potential energy)	Water drives turbine → Generator	Dam, tunnels, flood risk
Nuclear	Atomic reaction heat	Heat → Steam → Turbine	Only conventional part insurable; nuclear section via pools
Other (Non-conventional)	Solar, Wind, Biomass, Geothermal, Tidal	Convert natural energy → Electricity	Growing importance; small capacity

Power Plants – Hazards

A. During Construction / Erection

Risks:

- Transport of heavy / oversized machinery
- Fire, flood, inundation on site
- Accidents of cranes / equipment
- Poor storage → corrosion
- Natural perils (flood, earthquake)
- Third-party injury / property damage
- ALOP / DSU losses due to delay in completion

B. During Operation

Risks:

- Boiler explosion / pipe rupture
- Turbine failure due to centrifugal force
- Fire in cable galleries, transformers
- Natural perils (flood, earthquake, landslide)
- Long interruption → production loss

- Third-party liability due to leakage / pollution

Hydro-Electric Plant – Special Hazards

During Construction:

- Heavy civil works (dam, tunnel, underground)
- Floods, landslides, earthquakes
- Accidents to heavy plant / workers
- Fire / explosion at remote sites

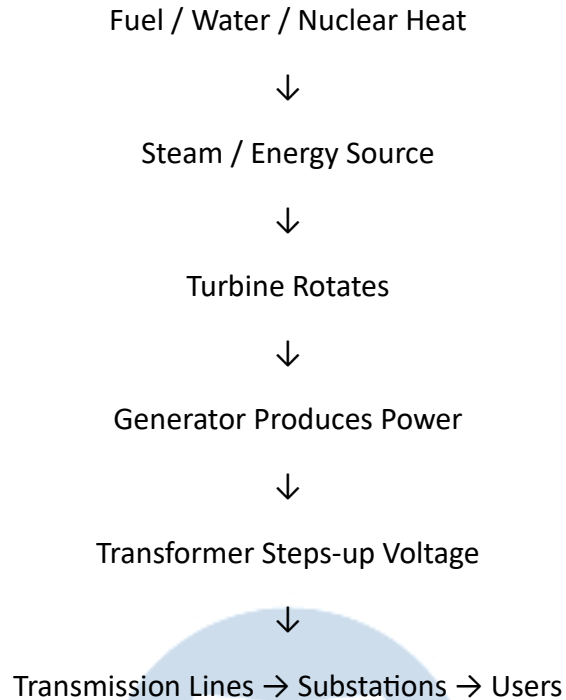
During Operation:

- Dam burst / tunnel collapse → catastrophic loss
- Landslides, rockslides, flood damage
- Breakdown of turbine / generator
- Fire in electrical rooms

Important Definitions (for Exams)

Term	Definition (Easy Memory Line)
Boiler	Closed vessel >22.75 litres generating steam under pressure.
Pressure Plant	Equipment storing gas/liquid under pressure for industrial use.
Turbine	Rotating prime mover converting steam/water energy into mechanical power.
Power Press	Machine using hydraulic / mechanical force for shaping metal parts.
Transformer Oil	Insulating & cooling medium — moisture causes breakdown/fire.

Concept Flow – How Industrial Power Works



Power Plant Hazards

Plant Type	Construction Hazards	Operation Hazards
Conventional (Coal/Oil/Gas, Cogeneration)	Heavy equipment transport/storage risk, fire/flash flood, corrosion, accidents, ALOP/DSU delays	Boiler explosion, turbine disintegration, pipe rupture, transformer fires, natural perils, pollution TPL, long downtime
Hydro-Electric (High/Medium/Low Head)	Remote site access issues, heavy-duty equipment accidents, flash floods, landslides, earthquake, fire, long accident delays	Dam burst, tunnel collapse, turbine disintegration, defective design/workmanship, landslides, fires, pollution TPL
Nuclear	(Insured by Nuclear Pool for reactor part)	Conventional steam plant insured by insurers; nuclear risks excluded

Plant Type	Construction Hazards	Operation Hazards
Other (Renewable – Wind, Solar, Tidal, Biomass, etc.)	Vary depending on source, lower exposure currently	Still emerging risk exposure

F. Laws & Regulatory Links

- **Indian Boiler Act 1923:** Boiler definition, registration, certification, accident reporting.
- **Factories Act 1948:** Inspector powers for machinery safety.
- **Mines Act 1952:** Mine safety → includes machinery & equipment.

Quick Memory Pointers

- **Boiler → Explosion risk**
- **Pressure Plant → Internal pressure collapse**
- **Turbine → Centrifugal force disintegration**
- **Compressor / Pump → Bearing & vibration failure**
- **Crane → Toppling & overload**
- **Transformer → Oil fire**
- **Hydro Plant → Flood / landslide risk**
- **Conventional Plant → Boiler explosion & turbine failure**

Exam Quickies

- Boilers generate **steam under pressure** → Explosion risk
- Pressure Plant stores gases → Collapse risk
- Turbine = **prime mover**, risk = vibration & speed
- India insures **conventional part** of nuclear plant only
- **Windstorm** = **main risk** for transmission towers
- **Transformer fire** = **due to oil / insulation failure**

- **Hydro plant construction** → landslide & flood risk

For 5-min last moment revision

Topic	Key Point to Remember
Nature of machines	Compact, automatic, high-risk
Role of underwriter	Must know machinery + hazards
Common hazards	Explosion, overheating, vibration
Power plant phases	Construction → Operation
Main risk in Hydro	Floods, landslides, dam burst
Main risk in Thermal	Boiler explosion, turbine damage
Non-conventional energy	Solar / Wind – small but growing
Key Acts for safety	Factories, Boilers, Mines

G. Abbreviations

- **DG Set** – Diesel Generator Set
- **MCC** – Motor Control Centre
- **TPL** – Third Party Liability
- **ALOP** – Advance Loss of Profits
- **DSU** – Delay in Start-Up

Course Name	Ideal For	Dedicated Community
PARA 13.2 PSGICs Promotions	Employees of Public Sector General Insurance Companies (PSGICs) preparing for promotions under Para 13.2.	Telegram Group: Join Group
GIPSA Promotion Course	Officers in GIPSA companies (NIACL, UIIC, OICL, NICL) seeking promotion from Scale I to V.	Telegram Group: Join Group
III Exam Course	Aspiring agents & employees seeking Licentiate, Associate, & Fellowship qualifications from the Insurance Institute of India.	Telegram Channel: Join III Exam Channel
Surveyor Exam Course	Individuals aiming to become licensed Insurance Surveyors and Loss Assessors.	Telegram Group: Join Group
LIC AAO (1B) Course	In-service LIC employees eligible for promotion to Assistant Administrative Officer (AAO) under the 1B category.	Exclusive Telegram Group: Join LIC AAO Group

4. Project Stages, Work Contract and Other Contracts

PROJECT STAGES – OVERVIEW FLOW



Stage	Purpose / Activities	Insurance / Risk Significance
1. Need for Project	Identify objective (new facility / expand capacity / infra development) — Govt & private both involved	Defines scale & type of risk (e.g., power, roads, telecom)

Stage	Purpose / Activities	Insurance / Risk Significance
2. Feasibility Study	Tests workability (physical, economic, environmental, political) with help of experts	Insurers can assist with risk analysis inputs
3. Detailed Project Planning	Layout, designs, materials, permits, land clearance	Fire-safety / loss-prevention advice reduces future premium
4. Call for Tender	Inviting bids (technical & commercial); tender docs = specifications + insurance clauses	Insurance cost included in project budget
5. Award of Contract	Compare bids → select contractor on price + experience + guarantee	Defines who bears risk during construction
6. Land Acquisition & Site Prep	Leveling, roads, storage, security	Risk of fire, flood, theft at site storage
7. Transportation of Project Property	Movement from supplier → site (incl. storage, ports, trans-shipment)	Marine / Transit risks to be covered
8. Site Activities	Storage, handling, construction, installation, testing, commissioning	Covered under CAR/EAR policies – biggest risk phase
9. Defects Liability / Maintenance Period	Starts after provisional completion; contractor responsible for defects (normally 12 months)	Separate maintenance cover available

Work Contract and Other Contracts

The contracts are vital as they define responsibilities and influence the insurance program.

1. The Works Contract (The Foundation)

- **Definition:** The **legal instrument** that divides the **financial risk and responsibilities** between the **principal** and the **contractor**.
- **Key Clauses (Insurance, Indemnity, and Liability):** Stipulates responsibilities for:

- Arranging different types of **insurances** for the project property.
- Liability for **people involved** in the project.
- **Third party liability** arising from project activities.
- **Importance for Insurer:** Provides details on **obligations to insure, risk assessment information** (specifications, time schedule, *force majeure*, expected risks), etc

STANDARD CONTRACT FORMS (Used Globally)

Institution	Abbreviation	Type of Contract Area
Federation Internationale des Ingenieurs Conseils	FIDIC	International construction contracts
Joint Contracts Tribunal	JCT	UK building contracts
Institution of Chemical Engineers	ICHEME	Process plant projects
Institution of Mechanical Engineers	IME	Mechanical works
Institution of Electrical Engineers	IEE	Electrical installations

Important Clauses in Work Contracts

- General Obligations – Principal & Contractor duties
- Insurance Requirements – Types of policies to be arranged
- Indemnity & Liability – Who pays for what loss
- Information for Risk Assessment – project schedule, design specs, force majeure risks
- Maintenance & Defects Period – responsibility after completion

OTHER CONTRACTS CONNECTED TO PROJECT

Contract Type	Parties Involved	Purpose / Relation to Insurance
Supply Contract	Principal & Machinery Supplier	Covers delivery terms, damage in transit → Marine policy

Contract Type	Parties Involved	Purpose / Relation to Insurance
Service Contract	Consultants, Architects, Engineers	Professional Liability Insurance
Shippers / Transporters Agreement	Principal & Transporter	Transit risk coverage needed
Power / Product Purchase Agreement	Project Owner & Buyer	Continuity depends on timely completion → ALOP/DSU cover
Fuel Supply Agreement	Fuel Supplier & Plant Owner	Risk of delay → Loss of Profit policies
Finance Agreement	Financier & Project Owner	Lenders insist on comprehensive project insurance

Why Contracts Matter for Insurers

Proper study of contracts helps insurer to:

1. Identify who is legally liable for losses.
2. Assess exposures (natural, technical, human).
3. Design insurance programme to match project needs.

Project Execution Overview (CAR/EAR Relevance)

This diagram shows the typical sequence of activities and insurance periods.

Flow:

- Studies → Purchase/Procurement
- Civil Works
- Erection
- Cold Testing (Functional check, no load)
- Hot Testing (Operational, full/partial load, hazardous)
- Mechanical Completion → Provisional Acceptance Certificate (PAC)

- Hand Over → Operation

Insurance Timeframes:

- Transport, Marine, Storage: Covered early.
- EAR, ALOP: Cover the Construction/Erection, Cold Testing, and Hot Testing periods.
- Maintenance (Defects Liability): Immediately after PAC (typically 12 months).
- MB (Machinery Breakdown), MLOP (Machinery Loss of Profits), Property, BI (Business Interruption): Operational policies begin upon/after Hand Over (at PAC).

Quick Memory Pointers

- Feasibility Study → tests economic & environmental viability.
- Detailed Planning → risk analysis by insurer possible.
- Tender → insurance cost included in bid.
- Award → best combination of price + experience wins.
- Defects Liability → contractor responsible ~ 12 months.
- Work Contract → divides risk between principal & contractor.
- Important forms → FIDIC, JCT, IChemE, IME, IEE.
- Other Contracts → supply, service, finance, fuel etc.

Exam Quickies

- Feasibility study conducted by experts / consultants.
- “Insurance cost” is part of tender budget.
- Work contract allocates risk & liability.
- “Defects liability period” ≈ 12 months (normally)
- FIDIC = international model contract used in India too.
- Financiers require project insurance as loan security.

Mini Summary Table

Step	Key Focus	Insurance Aspect
Need / Feasibility	Idea & study	Identify risk areas
Planning	Design & permits	Fire safety / loss prevention
Tender & Award	Bid & selection	Include premium cost
Construction	Work execution	CAR / EAR / TPL covers
Operation	Handover & maintenance	Annual MB / BPP covers

“A project insurance plan mirrors the project’s life-cycle —from concept to completion to maintenance —each stage has unique risks & needs specific insurance solutions.”

E. ABBREVIATIONS

- **CAR** – Contractors’ All Risks.
- **EAR** – Erection All Risks.
- **FIDIC** – Federation Internationale des Ingenieurs Conseils.
- **JCT** – Joint Contracts Tribunal.

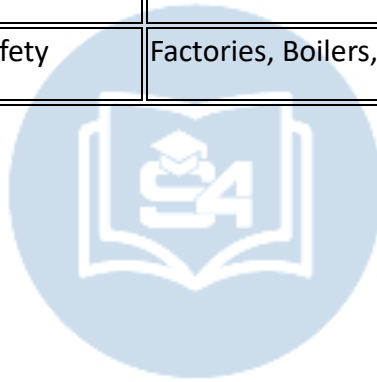
Mini Summary Table

Likely Short Questions

- When did engineering insurance start in India? → 1953.
- Name the first engineering insurance company in the world → Steam Boiler Assurance Co (1858).
- Under which Act is a boiler registered? → Indian Boiler Act 1923.
- What is the maximum period of boiler certificate? → 24 months.
- Which Act ensures safety in mines? → Mines Act 1952.
- What is de-tariffing? → Abolition of compulsory tariff rates by IRDA.

For 5-min last moment revision

Topic	Key Point to Remember
Nature of machines	Compact, automatic, high-risk
Role of underwriter	Must know machinery + hazards
Common hazards	Explosion, overheating, vibration
Power plant phases	Construction → Operation
Main risk in Hydro	Floods, landslides, dam burst
Main risk in Thermal	Boiler explosion, turbine damage
Non-conventional energy	Solar / Wind – small but growing
Key Acts for safety	Factories, Boilers, Mines



5. CONTRACTORS' ALL RISK (CAR) INSURANCE

A. INTRODUCTION

- CAR = **all-risk insurance for civil construction projects** → covers **Principal + Contractors**.
- Protects against **accidental, unforeseen loss/damage** during project execution.
- **Projects covered:** Buildings, hospitals, schools, bridges, dams, tunnels, roads, airports, pipelines, ports, jetties, warehouses, canals, sewerage, drainage, powerhouses.
- Historical Evolution:
 - First CAR policy in 1929 → Lambeth Bridge, London.
 - Germany (1934) → adopted CAR.
 - Spread worldwide post-WWII due to **large infrastructure demand**.
- Earlier reliance on Fire policy inadequate → CAR designed for **complex engineering risks**.
- **Exam Tip:** CAR = Broad "All Risk" policy for civil works from start till maintenance period.

Feature	Description
Purpose/Scope	Comprehensive cover for entire civil engineering projects. It covers sudden and unforeseen physical loss or damage on the construction site.
Eligible Projects	Residential/commercial buildings, roads, bridges, dams, tunnels, jetties, canals, power house buildings, etc..
Policy Period	From the arrival of the first consignment of materials at site or the commencement of work, whichever is earlier.
Termination	Remains in force until the date specified, or the construction work is completed/taken over by the principal, whichever is earlier.

Feature	Description
Basis of Cover	'All Risks' basis (i.e., every hazard is covered which is not specifically excluded ³).
Sum Insured	Must equal the estimated completely erected value of the contract works (includes materials, wages, supervision, freight, duties, etc.). Should represent the current new replacement value.
Under-insurance	If the Sum Insured is less than required, the recoverable amount is reduced proportionally (Average Clause applies).

B. CONTRACT WORKS COVERED

- Scope: All activities of contractor under the works contract.
- Includes: Excavation, leveling, grading, diversion works, protective dams, construction of civil structures.
- Covers **site materials** → **destined for incorporation into works**.
- Period: From **arrival of first material at site** → till **handover/maintenance completion**.
- **Basis:** All risks except exclusions.
- **Exam Tip:** Contract works = *everything at site from excavation to testing*.

C. SECTIONS OF CAR POLICY

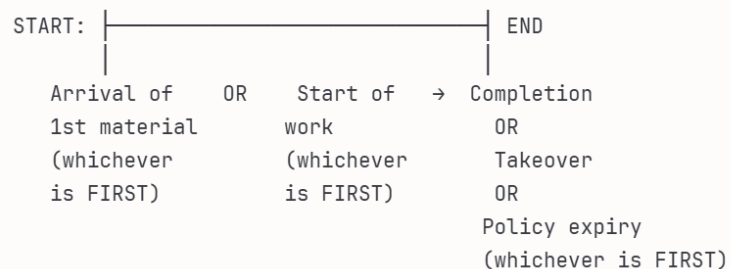
1. Section I – Material Damage (MD)

- Covers **sudden/unforeseen physical damage** to works, plant, equipment, site materials.
- **Perils covered:**
 - Fire & Allied perils (including lightning, explosion).

- Acts of God (EQ, flood, storm, cyclone, hurricane, tornado, landslide, tempest, rock fall).
- Collapse, subsidence, impact, collision.
- Accidental construction damage (falling, dropping, negligence, defective workmanship).
- Theft, burglary, malicious damage.
- **Exam Tip:** Section I = *Protects project property at site.*

2. Section II – Third Party Liability (TPL)

- Covers **legal liability** for:
 - Bodily injury / death to 3rd parties.
 - Damage to 3rd party property.
- Excludes liability for employees/family of insured, and property in insured's custody.
- **Exam Tip:** Section II = *TPL = death, injury, or property damage to outsiders.*
- **Period of Insurance**



D. EXCLUSIONS

1. General Exclusions (all sections)

- War, civil commotion, terrorism.
- Nuclear perils.
- Wilful act/gross negligence of insured.
- Cessation of work (strike, lockout, suspension).

- **Exam Tip:** General exclusion = *War + Nuclear + Wilful acts*.

2. Section I Exclusions

- Policy excess (deductible).
- Loss during inventory shortage.
- Normal wear/tear, corrosion, rust, deterioration.
- Faulty design.
- Defective material/workmanship (except resultant damage).
- Cost of correcting errors.
- Files, drawings, data, money, securities.
- Packing materials.
- Consequential loss, penalties, non-performance.
- Vehicles licensed for road use, aircraft, vessels, barges.
- **Exam Tip:** Section I exclusion = *Defects, deterioration, consequential loss*.

3. Section II Exclusions

- Policy excess for property damage claims.
- Re-doing, repairing, replacing defective works (already under Section I).
- Liability for injury/illness to insured's employees/family.
- Liability for property in insured's custody.
- Liability from vehicles/aircraft/vessels.
- Contractual liability (unless legally binding).
- **Exam Tip:** Section II exclusion = *Own employees + Own property + Vehicles/aircraft*.

E. PERIOD OF INSURANCE

- Starts: First arrival of materials at site OR start of works.
- Ends: Earliest of → completion date in policy OR handover to principal.
- **Partial handover:** cover ceases for that section.

- **Defects liability/maintenance period:** usually 12 months, extendable.
 - Extensions: Extra premium + insurer's investigation.
 - **Exam Tip:** Period = *Material arrival* → *Completion + Maintenance*.
-

F. SUM INSURED (SI)

- **For Material Damage:** Must = **full erected value** (materials, wages, freight, duties, customs, principal's items).
 - **For Plant & Machinery:** New replacement value.
 - **For TPL:** Limit chosen by insured.
 - **Condition of Average applies** → underinsurance = proportional claim reduction.
 - **Adjustment:** SI adjustable at project completion (though rare).
 - **Exam Tip:** SI = *Full replacement value incl. duties; underinsurance penalized*.
-

G. SUPPLEMENTARY COVERS (ENDORSEMENTS)

- Contractors' Plant & Machinery (cranes, winches, welding machines).
 - Debris removal.
 - Damage to insured's existing property at site.
 - Overtime/holiday work, express/air freight.
 - Escalation clause (inflation).
 - Temporary works/structures.
 - Additional customs duty.
 - Maintenance cover.
 - **Note:** All require **endorsement + extra premium**.
 - **Exam Tip:** Supplementary covers = *Debris + Plant + Escalation + Customs + Overtime*.
-

H. MAINTENANCE COVERS

- **Limited Maintenance (Visits Cover):** Loss/damage during contractor's periodic visits for rectification.
 - **Extended Maintenance:** Above + losses during maintenance period if arising from construction period.
 - **Exam Tip:** Limited = *visit only*; Extended = *latent damage included*.
-

I. INDEMNITY BASIS

- **Repairable loss:** Cost of repair/replacement (less salvage).
 - **Total loss:** Actual value before loss (less salvage).
 - **If repair \geq value \rightarrow treated as total loss.**
 - Provisional repairs \rightarrow reimbursable.
 - After claim settlement \rightarrow SI reduces unless reinstated with extra premium.
 - **Exam Tip:** Indemnity = *Repair cost OR market value before loss*.
-

J. EXCESS (DEDUCTIBLE)

- Applies separately for different perils:
 - Storage/Construction risks.
 - Act of God perils.
 - Fire risks.
 - Collapse/works in water.
 - Maintenance period losses.
 - Higher voluntary excess \rightarrow premium discount.
 - **Exam Tip:** Deductible = *Self-borne share; different by peril*.
-

K. RISK ASSESSMENT & QUESTIONNAIRES

- Proposal forms + technical questionnaires tailored to project type.

- **Examples:**

- **Tall buildings:** Deep foundations, scaffolding collapse, fire in upper floors.
- **Airports:** Landside (general structures), Airside (runways, aprons, refueling).
- **Underground works:** Geological studies crucial; risk = collapse/flooding.
- **Pipelines:** Terrain/geological surveys; hazards = excavation, welding, backfilling.
- **Tunnels:** Methods (bored, cut & cover, immersed tube); risks = collapse, flooding, dewatering failure, rock burst, gas ignition.
- **Reservoirs/Dams:** Major risk = seepage/erosion.
- **Roads:** Flash floods, frost/water damage to incomplete work.
- **Bridges:** Risk varies by design (suspension, box girder, cantilever, span).
- **Hydro-electric projects:** Remote access, landslides, flooding.
- **Offshore structures:** Risks governed by marine perils (storms, tides).

- **Exam Tip:** Risk assessment = *based on project type & terrain.*

L. PREMIUM & RATING

- Global experience → CAR = **higher losses vs EAR** → stricter underwriting.
- **Problem areas:** Roads, pipelines, tunneling, wet works, contractor's plant.
- Premium adequacy + warranties = critical.
- Large projects (> ₹2500 cr) → standard wording exemption → facultative reinsurer involvement.
- **Exam Tip:** CAR rating = *strict due to high losses; big projects need reinsurer approval.*

M. PREMIUM PAYMENT (INSTALLMENTS)

- Allowed if policy > 12 months (Insurance Act).
- CAR max period in India = **84 months (7 years, incl. maintenance)**.
- First installment = **5% higher**; last installment due ≥6 months before expiry.

- Cover begins only after **first installment paid**.
 - Premium schedule = via endorsement.
 - **Exam Tip:** Installments = *only if >12 months; first installment higher*.
-

N. CLAIMS CONTROL

- Losses may arise at **storage, transit, erection, maintenance**.
 - **Steps:**
 - Immediate intimation → insurer reserves claim.
 - Surveyor/engineer appointed → assess + recommend prevention.
 - Recovery pursued against negligent suppliers/manufacturers.
 - Theft claims → require police verification.
 - Salvage disposal → reduces claim liability.
 - Insurer not liable for **design unsuitability** or **improvement costs**.
 - Third party notices → must be forwarded without admission of liability.
 - Reinstatement of SI after claims (extra premium).
 - **Exam Tip:** Claims = *Prompt notice + survey + police for theft*.
-

O. ABBREVIATIONS

- **TPL** – Third Party Liability
- **MD** – Material Damage
- **ALOP** – Advance Loss of Profits
- **Facultative reinsurer** – reinsurer for large/special risks

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6. Erection All Risks (EAR) Insurance & Marine-Cum-Erection (MCE) Insurance

A. BACKGROUND & CONTEXT

- **Need for EAR:** CAR covers *civil works*, but erection/installation of **industrial plant, machinery, refineries, powerhouses, petrochemicals, turbines** requires specialized cover.
- **Earlier Name in India:** *Storage-Cum-Erection (SCE)* → renamed EAR for international alignment.
- **Marine-Cum-Erection (MCE):** Developed to integrate **marine transit + erection risk** into one seamless cover.
- **Contract Works (CW) Insurance:** Combines **CAR + EAR**, though rare in India.
- **Exam Tip:** CAR = *civil works*, EAR = *machinery erection*, MCE = *marine + erection seamless*.

B. OBJECTIVES & NATURE OF EAR INSURANCE

- Covers **all erection, installation, testing & commissioning activities** from **arrival of materials at site** → **handover + maintenance period**.

Scope of Cover (Sections)

Section	What it Covers	Examples / Notes
I. Material Damage	Physical loss or damage from any cause not excluded	Fire, lightning, explosion, storm, flood, landslide, collapse, negligence, human error etc.
II. Third Party Liability	Legal liability for injury/death & property damage to third parties	Excludes contractual liability & damage to property under insured's custody.

- **Basis:** All Risks (everything covered unless excluded).
- **Insured Parties:** Principal, Contractor, Subcontractors, Financiers (jointly insured).
- **Typical Projects Covered:** Thermal/Hydro/Nuclear power stations, Refineries, Cement plants, Fertilizer plants, Textile plants, Oil & gas projects, Petrochemicals, Heavy engineering units.
- **Exam Tip:** EAR = *All-risk for erection + testing + commissioning*.

C. SECTIONS OF EAR POLICY

1. Section I – Material Damage (MD)

- Covers:
 - **Fire & Allied Perils** – fire, lightning, explosion.
 - **Acts of God (AOG)** – earthquake, flood, cyclone, storm, tempest, landslide, rockfall, inundation, frost.
 - **Accidental site damage** – negligence, dropping, falling, carelessness, erection faults, collapse, subsidence, impact.
 - **Electrical/Mechanical failures** – centrifugal force, short circuit, explosion, arcing, failure of safety devices.
 - **Theft, burglary, malicious acts.**
- **Exam Tip:** Section I = *Property damage (works, machinery, materials).*

2. Section II – Third Party Liability (TPL)

- Covers **legal liability** for:
 - Death or bodily injury to third parties.
 - Damage to third party property caused by erection/testing works.
- Excludes → liability to employees of insured, property in insured's custody, contractual liability unless compulsory.
- **Exam Tip:** Section II = *TPL = injury/death/property damage to outsiders.*

D. EXCLUSIONS IN EAR

General Exclusions (All Sections)

- War, invasion, revolution, civil commotion.
- Nuclear perils.
- Wilful act/negligence of insured.
- Cessation of works (strike, lockout, stoppage).

Section I Exclusions

- Policy excess.
- Inventory shortage losses.
- Normal wear/tear, corrosion, deterioration, rust.
- Faulty design, bad workmanship/materials (but covers resultant damage).
- Rectification/replacement of defects themselves.
- Files, data, currency, stamps, securities.
- Packing material.
- Consequential loss (delay, penalties, performance guarantees).
- Vehicles, aircraft, vessels, barges.

Section II Exclusions

- Policy excess (property damage).
- Liability for → employees/family of insured, insured's own property, contractual liability, vehicles/aircraft/vessels.
- Redoing/replacing defective works.
- **Exam Tip:** EAR exclusions = *War + Nuclear + Wear/tear + Own property/employees + Consequential loss*.

E. PERIOD OF INSURANCE

- Starts → **first consignment arrival at site OR start of works.**
- Ends → earliest of: Completion date in policy / Handover to principal / Completion of erection, testing, commissioning.
- **Phased handover:** Cover ceases for handed-over part.
- **Maintenance / Defects Liability period:** Usually 12 months post-handover, extendable with extra premium.
- Must specify separately: **Storage period, Erection period, Testing period, Maintenance period.**

- **Exam Tip:** Period = *Storage → Erection → Testing → Maintenance → Handover*.
-

F. TESTING PERIOD (Critical Risk Phase)

- **Most hazardous stage in EAR policies.**
 - **Cold Testing:** Mechanical, electrical, hydrostatic trials – without load/feedstock.
 - **Hot Testing:** Full/partial load trials with feedstock/media (high fire/explosion hazard).
 - **Commissioning:** Under operating conditions to prove design guarantees before acceptance.
 - Insurers apply **higher premium, strict warranties, higher deductibles** during hot testing.
 - **Exam Tip:** Cold = *no load*; Hot = *full load with feedstock*; Commissioning = *acceptance trials*.
-

G. SUM INSURED (SI)

- SI must = **fully erected value** (site materials, erection cost, wages, freight, customs duty, supervision, principal's items).
 - Plant & machinery SI = **new replacement value**.
 - TPL SI = limit chosen by insured.
 - **Condition of Average applies** → underinsurance → proportionate claims.
 - **Adjustment:** Final SI adjustable at completion (actual values for freight/duties).
 - **Exam Tip:** SI = *Full erected value incl. duties/freight; underinsurance penalized*.
-

H. SUPPLEMENTARY COVERS (ENDORSEMENTS)

- Plant & machinery at site (cranes, compressors, welding).
- Debris removal.
- Damage to insured's existing property.
- Overtime/holiday work + express/air freight.
- Escalation clause (inflation effect).

- Temporary works/structures.
- Additional customs duty.
- Third Party Liability.
- **All need endorsements + extra premium; terminate at handover.**
- **Exam Tip:** Add-ons = *Debris + Plant + Escalation + Customs + Overtime.*

I. MAINTENANCE COVERS

- **Limited (Visits Cover):** Only during site visits for rectification.
- **Extended:** Includes above + damage during maintenance if originating in erection period.
- **Exam Tip:** Limited = *visit-based*; Extended = *latent damage included*.

Maintenance / Defects Liability Cover

Type	Coverage	Example
Visits Basis	Damage while contractor visits for inspection / adjustments	Alignment check visit
Extended Maintenance	Damage caused by contractor during maintenance operations	Fault during repair trial

J. EXTENSIONS OF PERIOD

- Allowed for storage/erection/testing if project delayed.
- Require: Justification + extra premium + underwriting approval.
- **Exam Tip:** Extensions = *possible, but costly.*

K. BASIS OF INDEMNITY

- Repairable → cost of repairs/replacement (less salvage).
- Total loss → value immediately before loss (less salvage).
- If repair cost > value → treat as total loss.

- Provisional repairs reimbursed if part of final.
 - After claim → SI reduces unless reinstated with extra premium.
 - **Exam Tip:** Indemnity = *Repair cost OR market value before loss.*
-

L. EXCESS (DEDUCTIBLE)

- Different deductibles for:
 - Storage/Erection.
 - Testing/Maintenance.
 - Fire.
 - Act of God.
 - Collapse/water works.
 - Voluntary higher excess = premium discount.
 - **Exam Tip:** Deductible = *per peril; higher excess = lower premium.*
-

M. POLICY STRUCTURE

- **Two Main Sections:** MD + TPL.
 - **Schedule:** Policy number, SI, premium, excess, duration.
 - **Conditions & Exclusions:** General + specific.
 - **Endorsements:** Maintenance, debris, escalation, customs, TPL.
 - **Exam Tip:** EAR = *2 sections + schedule + conditions + endorsements.*
-

N. RISK ASSESSMENT & UNDERWRITING CONTROLS

- Insurer studies:
 - Proposal + questionnaire.
 - Works contract clauses.
 - Testing method (cold/hot).

- Duration of storage, erection, testing.
 - Fire prevention, security, safety norms.
 - Contractor's experience & past loss history.
 - Value breakdown (imported vs indigenous, customs duty, erection costs).
- **Exam Tip:** Underwriting = *systematic evaluation of contract, risks, contractor experience.*
-

O. RATING & PREMIUM

- Based on: Project size, type, duration, location, terrain, contractor's experience, excess chosen.
 - Soft market = cheaper premiums; Hard market = higher premiums + stricter terms.
 - Large projects (>₹2500 crore) = **Mega Risks** → standard wording exempt → need facultative reinsurer approval.
 - **Exam Tip:** Large projects = *reinsurance approval compulsory.*
-

P. PREMIUM PAYMENT (INSTALLMENTS)

- Installments allowed if policy >12 months.
 - Max EAR period in India = **84 months (7 years incl. maintenance).**
 - First installment = 5% higher; last installment payable ≥6 months before expiry.
 - Cover starts only after **first installment paid.**
 - **Exam Tip:** Installments = *allowed >12 months; first installment highest.*
-

Q. CLAIMS PROCEDURE

- Losses may occur at **storage, transit, erection, testing, maintenance.**
- Procedure:
 - Immediate intimation.
 - Surveyor appointed → cause + quantum.

- Police verification in theft.
 - Salvage disposal → reduces loss.
 - Recovery rights from negligent suppliers/contractors.
 - Insurer not liable for *design flaws or improvements*.
 - Third party notices → forward immediately, no admission of liability.
 - SI reinstated post-claim (extra premium).
- **Exam Tip:** Claims = *Prompt intimation + survey + salvage disposal + police for theft*.
-

R. MARINE-CUM-ERECTION (MCE) INSURANCE

1. Scope

- Combines **Marine + EAR** → continuous cover:
 - Marine voyage (imports).
 - Port unloading & bonded warehouse storage.
 - Inland transit & off-site storage.
 - Site unloading, erection.
 - Testing & commissioning.
- Marine part → governed by **Institute Cargo Clauses (ICC – All Risks)**.
- **Exam Tip:** MCE = *Voyage → Erection → Testing = one policy*.

2. Marine Exclusions (ICC)

- Delay/inherent vice.
- Unseaworthy vessel, shipowner default.
- Ordinary leakage/contamination.
- Inadequate packing.
- War (covered separately), Nuclear excluded.
- **Exam Tip:** Marine exclusions = *Delay + Packing + Seaworthiness*.

3. Advantages over Separate Marine + EAR

- Seamless cover, avoids inspection gaps at port.
- No need for multiple policies (marine, transit, customs duty).
- Avoids disputes on delayed damage discovery.
- Lower combined premium.
- **Exam Tip:** MCE = *Simpler + Cheaper + Gap-free cover.*

4. Sum Insured

- Marine: CIF +10% + Customs duty.
- EAR: Full erected value.
- TPL: Separate limit.
- **Exam Tip:** Marine SI = *CIF +10% + Duty*; EAR SI = *erected value.*

5. Excess

- Marine: Nil/low excess.
- EAR: Usual EAR excess (peril-based).
- **Exam Tip:** MCE excess = *Marine (nil) + EAR (perils).*

6. Underwriting

- Marine factors: Country of origin, packaging, vessel class, inland transit risk, fragile cargo.
- EAR factors: Project type, erection complexity, testing method, terrain.
- Rates = combined Marine + EAR risk rating.
- **Exam Tip:** MCE underwriting = *Marine + EAR combined.*

FINAL REVISION TABLE (Quick Memory Grid)

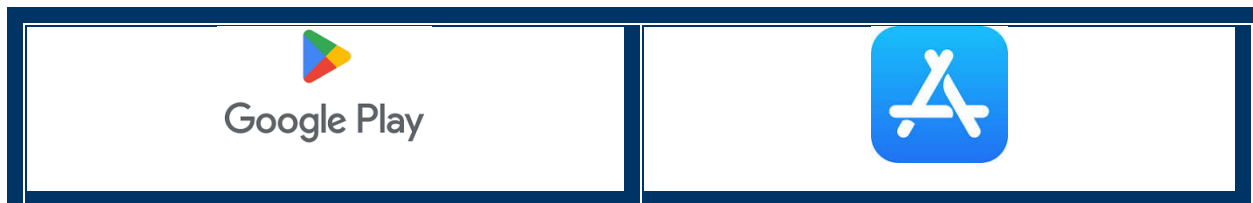
Feature	EAR Policy	MCE Policy
Nature	All-risk during erection	Combined marine + erection
Coverage	Material Damage + TPL	Transit + Erection + Testing

Start → End	Arrival → Commissioning	Dispatch → Commissioning
Users	Contractors / Principals	Importers / Large Projects
Add-ons	Debris, Escalation, Maintenance	Port Storage, Transit, TPL
Excludes	Wear & tear, design defects etc.	Same + marine specific exclusions

S. ABBREVIATIONS

- **EAR** – Erection All Risks
- **CAR** – Contractors' All Risks
- **MCE** – Marine-Cum-Erection
- **SCE** – Storage-Cum-Erection (old term for EAR)
- **CW** – Contract Works Insurance
- **ICC** – Institute Cargo Clauses
- **TPL** – Third Party Liability
- **SI** – Sum Insured
- **MD** – Material Damage

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7. Contract Works (CW) Insurance

A. INTRODUCTION

- CW Insurance = policy for **projects not adequately covered by CAR or EAR alone**.
 - Combines CAR (civil works) + EAR (machinery erection).
 - **Exam Tip:** CW = *Composite CAR + EAR* → avoids gaps & overlaps.
-

B. CONTRACT WORKS INSURANCE – DEFINITIONS IN MARKETS

- **British Market:** CW = **Annual Floater** for contractors with multiple similar works (dwellings, apartments, row houses, commercial complexes).
 - **European Market:** CW = **special composite cover** combining CAR + EAR for projects with significant **civil + machinery** portions.
 - **Indian Market:** Usually EAR policies are customized to include construction + testing portions.
 - **Exam Tip:** Britain = *Floater*, Europe = *Composite cover*.
-

C. NEED FOR CW INSURANCE

- Some projects require **civil + erection simultaneously** (e.g., hydro-electric projects).
 - CAR alone insufficient (civil part covered but machinery erection exposed).
 - EAR alone insufficient (machinery part covered but major civil works excluded).
 - Separate CAR & EAR → gaps & overlaps.
 - Solution = **CW Insurance = composite CAR + EAR in one contract**.
 - **Exam Tip:** CW = *Best for hydro-electric projects & mixed civil + machinery contracts*.
-

D. EXAMPLE OF CW INSURANCE PROJECT

- **Hydro-electric project** → requires both:
 - Civil works: dam, coffer dam, tunnels, penstocks, powerhouse.

- Machinery erection: turbines, generators, transformers, switchgear, control systems.
 - Both done **simultaneously**; parts like turbine casing embedded into civil works.
 - Neither CAR nor EAR alone adequate.
 - **Exam Tip:** Hydro project = *Classic CW insurance example*.
-

E. SALIENT FEATURES OF CW POLICY

1. **Title:** Contract Works Insurance Policy – Building/Civil + Machinery Erection.
 2. **Preamble.**
 3. **Policy Schedule** – project details, sums insured, premium, period.
 4. **General Conditions** – apply to all sections.
 5. **General Exclusions** – war, nuclear, wilful acts, wear/tear.
 6. **Material Damage Section – Civil Works**
 - Defines accidents, exclusions, period of cover, SI, loss settlement basis.
 7. **Material Damage Section – Machinery Erection**
 - Defines accidents, exclusions, period, SI, settlement basis.
 8. **Reinstatement of SI after claim.**
 9. **Premium adjustment at expiry** (based on actual values).
 10. **Third Party Liability Section** – accident scenario, exclusions, indemnity limits.
 11. **Special Conditions** – apply section-wise.
 12. **Premium** – subject to adjustment.
- **Exam Tip:** CW = *One policy, multiple sections – Civil + Machinery + TPL*.
-

F. QUESTIONNAIRE & PROPOSAL FORM (Underwriting Info)

- **Parties to contract:** Principal, Contractor, Subcontractors, Manufacturers, Supervisory firm, Consulting engineers.

- **Location:** Exact project site.
- **Project Title & Description:** Civil + Machinery scope.
- **Technical characteristics:** Design, specs, dimensions, capacities, operating pressures/temperatures.
- **Cost breakdown:** BOQ (civil) + machinery (with manufacturer).
- **Layout drawings, cross-sections, methods of construction.**
- **Progress chart/time schedule.**
- **Tender/contract conditions:** Insurance requirements, guarantees, maintenance clauses.
- **Insurance cover dates:** Storage, construction, erection, testing, maintenance, handover.
- **Extensions requested:** Existing property, contractors' plant, faulty design, expediting costs, airfreight, RSMD, maintenance (limited/extended).
- **Sum Insured breakdown:** Civil works, erection, debris, existing property, plant & equipment, camp facilities, architects/consultants fees.
- **Excesses:** Different for civil works, erection, hot testing, maintenance, AOG perils, plant, equipment, camp.
- **Project details:** Is it extension of existing facility? If yes → will existing remain operational? Distance to rivers/sea, flood level, storm frequency, EQ zone.
- **TPL info:** Existing TPL policies? Limits for BI/PD? Need inclusion in CW? Cross liability between parties? Surrounding exposures?
- **Exam Tip:** CW proposal = *Extensive info covering technical, financial, site & risk data.*

G. CW POLICY SCHEDULE – SAMPLE HEADINGS

- **Material Damage Section:**
 - Civil Works (permanent/temporary, principal's materials).
 - Erection Works (permanent/temporary, principal's materials).
 - Clearance of debris.
 - Existing property.
 - Contractor's plant/machinery.

- Contractor's camp facilities.
 - Architects/surveyors fees.
 - Total SI.
 - **Special Limits of Indemnity:**
 - AOG perils.
 - Testing/commissioning.
 - **TPL Section:**
 - Bodily injury (per person / per event).
 - Property damage (per event).
 - Combined single limit.
 - **Period of Insurance + Maintenance Period.**
 - **Premium + Adjustment Clause.**
 - **Endorsements attached.**
 - **Exam Tip:** CW schedule = *Civil + Machinery + Debris + Plant + TPL.*
-

H. ADVANTAGES OF CW POLICY

- Provides **seamless coverage** for projects with both civil & machinery.
 - Eliminates **gaps & overlaps** present in separate CAR & EAR.
 - Provides clarity with **separate sections** for civil works & erection.
 - Easier claims management (one insurer, one policy).
 - Flexible endorsements → tailor-made for projects.
 - **Exam Tip:** CW = *Gap-free + flexible composite cover.*
-

I. MARKET PRACTICE

- **Britain:** CW = Annual Floater for multiple projects.
- **Europe:** CW = Composite CAR + EAR policy.

- **India:** Not sold; practice is EAR customized to include construction/testing.
 - **Exam Tip:** *India = no CW; Europe = CAR+EAR composite; Britain = Floater.*
-

J. COMPARISON – CAR vs EAR vs CW

- **CAR:** For predominantly civil projects (dams, bridges, roads, housing).
 - **EAR:** For predominantly machinery erection projects (powerhouses, plants).
 - **CW:** For mixed projects (hydro-electric, refineries, large infra with embedded machinery).
 - **Exam Tip:** *CW = chosen when civil + machinery both substantial.*
-

K. ABBREVIATIONS

- **CAR** – Contractors' All Risks.
- **EAR** – Erection All Risks.
- **CW** – Contract Works.
- **MCE** – Marine-Cum-Erection.
- **BOQ** – Bill of Quantities.
- **TPL** – Third Party Liability.
- **AOG** – Act of God perils.



"Study4insurance special - A comparison sheet : CAR vs EAR vs CW vs MCE"

Aspect	CAR – Contractors' All Risks	EAR – Erection All Risks	CW – Contract Works	MCE – Marine-Cum-Erection
Scope	Civil engineering works (buildings, dams, roads, bridges, tunnels, ports, airports, sewerage, drainage).	Erection/installation of machinery & plant, incl. testing/commissioning.	Composite cover when civil + machinery erection are both significant (hydro projects).	Seamless cover combining Marine cargo + EAR (transit → erection → testing).
Origin	First CAR policy in 1929 (Lambeth Bridge, UK).	Developed from CAR; earlier called Storage-Cum-Erection (SCE) in India.	Used in Europe (composite CAR+EAR) & Britain (floater for multiple small contracts). Rare in India.	Developed to avoid gaps between Marine & EAR; Comprehensive Project policy by Munich Re.
Insured Parties	Principal, contractor, subcontractor, financiers.	Principal, contractor, subcontractor, financiers.	All project parties (civil + machinery).	Principal, contractor, subcontractor, financiers.
Sections	Section I – Material Damage (civil works, materials, site property). Section II – Third Party Liability (TPL).	Section I – Material Damage (machinery, erection, testing). Section II – TPL.	Section I – Civil works MD. Section II – Machinery erection MD. Section III – TPL.	Marine (Institute Cargo Clauses). EAR (Material Damage + TPL).
Period of Cover	From first material at site → completion + maintenance.	From material arrival → erection → testing + commissioning + maintenance.	Same as CAR/EAR, but unified for both civil + erection works.	From foreign supplier dispatch → voyage → port

Aspect	CAR – Contractors' All Risks	EAR – Erection All Risks	CW – Contract Works	MCE – Marine-Cum-Erection
				→ inland transport → erection → testing.
Testing Cover	Not relevant (civil works rarely tested).	Critical stage: Cold = no load, Hot = load/feedstock, Commissioning = acceptance trials.	Applicable for machinery part like EAR.	Included (same as EAR testing).
Exclusions (Key)	War, nuclear, wilful acts, wear/tear, consequential loss, own employees, vehicles, aircraft, vessels.	Same as CAR + additional erection risks.	Combines exclusions of CAR + EAR.	Marine ICC exclusions (delay, inherent vice, unseaworthiness, packing) + EAR exclusions.
Sum Insured (SI)	Civil works value + plant/equipment + wages + duties + freight + debris + consultants' fees.	Fully erected value (civil excluded).	Civil SI + Machinery SI + Plant + Debris + Fees + TPL limit.	Marine SI = CIF + 10% + customs duty. EAR SI = erected value. TPL separate.
Maintenance Cover	Limited / Extended (optional).	Limited / Extended (optional).	Same, applies to machinery erection portion.	Same as EAR.
Supplementary Covers	Plant & machinery, debris, existing property, overtime/airfreight	Similar to CAR + specific erection extensions.	Combines both → wide flexibility.	Marine + EAR add-ons combined (airfreight,

Aspect	CAR – Contractors' All Risks	EAR – Erection All Risks	CW – Contract Works	MCE – Marine-Cum-Erection
	t, escalation, customs duty, temporary works.			customs, debris).
Advantages	Broad civil works cover; widely accepted.	All-risk erection cover incl. testing; fills CAR gap.	Eliminates overlaps/gaps in civil + machinery; tailor-made.	Seamless cover → no gaps between marine & erection; cheaper than 2 policies.
Typical Projects	Civil: roads, dams, bridges, airports, hospitals, schools.	Powerhouses, refineries, cement/fertilizer plants, turbines, heavy industry.	Hydro projects, refineries, projects with civil + machinery combined.	Imported machinery erection (refineries, power plants, petrochemicals).
Market Practice (India)	Common.	Very common.	Not sold; EAR modified to cover civil portion.	Growing demand for large import projects.
Exam Tip	CAR = Civil works (all risk).	EAR = Erection + Testing (all risk).	CW = CAR+EAR composite (mixed projects).	MCE = Marine + EAR seamless cover.

FINAL REVISION TABLE

Aspect	Contract Works (CW) Policy
Coverage Type	All-risks during construction
Sections	Material Damage + Third Party Liability
Policy Period	From start till completion/hand-over
Add-ons	Debris removal, escalation, SRCC, maintenance
Exclusions	War, nuclear, defective design, wear & tear
Key Feature	Seamless protection for entire contract value



8. CONTRACTOR'S PLANT & MACHINERY (CPM) INSURANCE

A. Chapter Context & Scenario

- **CPM Insurance** protects **construction machinery, plant & tools** from **sudden, unforeseen, external physical damage**.
- **Global terminology:** CPM (India), PLEQ (Plant & Equipment), CPE (Contractor's Plant & Equipment – Swiss Re).
- **Why needed?** Machines = technologically complex, high cost, harsh working environments → accident frequency high, losses unpredictable.
- Contractors face **two main concerns:** (a) Limited fleet = no immediate replacement if one fails; (b) Cannot set aside reserves for major accidents beyond depreciation.
- **2007 Czech Republic Case:** Rail-bed service machine mishandled → 40m frame damaged → EUR 300,000 loss → highlights large-scale single accident exposure.
- **Exam Tip:** *CPM is insurance for machines-at-work, not for the under-construction structure.*

Types of Machinery Covered

Category	Examples / Description
Construction Equipment	Bulldozers • Road-rollers • Pavers • Transformers • Compressors • Mixing Plants • Site Power Generators
Material Handling Equipment	Forklifts • Cranes • Conveyors • Chain Pulley Blocks
Stationary Plant	Tower Cranes • Concrete Batching Plants • Asphalt Mixing Plants • Fixed Conveyor Systems
Mobile Plant	Excavators • Compactors • Tunnelling Machines • Power Generators (Mobile)
Tools & Tackles	Welding sets • Lifting tools • Temporary mechanical appliances

B. Object of CPM Insurance

- Protects against **fire, water, storm, natural perils, impact, accidental work damage**.
- Cover starts from **arrival at site** (after commissioning if shipped in knocked-down condition) and continues **throughout project use**.
- Can also cover as **item in CAR/EAR** if equipment value small (period = project period).
- **Annual CPM policy** best if: machinery used at multiple sites, or becomes permanent part of production facility after commissioning.
- **Exam Tip:** *Annual CPM = best when machines roam across sites or remain after project.*

C. Scope of Standard CPM Insurance

Peril Covered	Examples / Explanation
Fire & Lightning / Explosion	Damage from accidental ignition or explosion at site
Riot, Strike, Malicious Damage	Civil disturbances, strikes, vandalism
Burglary & Theft	While parked at site or yard
Natural Perils	Earthquake, Flood, Inundation, Landslide, Storm, Typhoon, Tornado
Accidental Damage	Faulty handling, dropping, collision, toppling, impact, collapse

- **Exam Tip:** *CPM scope mantra = Fire + Theft + AOG + Work accidents.*

D. Supplementary Covers

- **Third Party Liability (TPL):** injury/death/damage to property.
- **Expediting costs:** overtime, express/air freight, holiday wages.
- **Debris removal** after accident.
- **Damage to existing surrounding property.**

- **Additional customs duty.**
 - **Exam Tip:** *Add-ons = TPL + Debris + Expediting + Surrounding + Customs.*
-

E. Principal Exclusions

- **War, nuclear perils, wilful acts/negligence.**
 - **Internal breakdown, internal explosion, overload/test failure.**
 - **Exchangeable parts & consumables:** belts, ropes, blades, chains, conveyor belts.
 - **Vehicles licensed for road use.**
 - **Immersion in tidal water.**
 - **Hull/machinery of vessels/crafts** (but CPM valid for equipment mounted on such vessels for contract use).
 - **Transit between projects.**
 - **Working underground.**
 - **Boiler/pressure vessel explosion.**
 - **Inventory losses** (losses found at stock-taking).
 - **Consequential loss** (loss of use, penalties).
 - **Exam Tip:** *CPM excludes internal faults, road vehicles, transit, underground, inventory losses, consequential losses.*
-

F. Sum Insured (SI) & Average

- SI of each item must = **new replacement value**, including:
 - Transport to site.
 - Customs duties.
 - Installation costs.
- **Market value not suitable** due to volatility.
- **Condition of Average applies item-wise** → underinsurance → proportionate reduction of claim.

- **Inflation handling:** Review SI regularly; link to price index; annual revaluation recommended.
 - **Exam Tip:** *SI = replacement value incl. freight+duties; average applies per item.*
-

G. Basis of Indemnification

- **Repairable damage:** Pay cost of restoration (freight, erection, duties, taxes). No depreciation except limited-life parts; salvage deducted.
 - **Repairs in insured's workshop:** Materials + wages + reasonable overhead.
 - **Total/constructive total loss:** Market value before accident + removal cost – salvage.
 - **Total loss definition:** Repair cost \geq value before accident.
 - **Extras (overtime, express freight, air freight, holiday wages):** Payable only if specially covered (extra premium).
 - **Improvements/additions/alterations:** To insured's account only.
 - **Insurer's option:** Repair, replace, reinstate or pay cash.
 - **Exam Tip:** *Repair = restore; Total = pre-loss value – salvage; extras only if endorsed.*
-

H. Excess (Deductible)

- Two types of excess:
 1. Major perils (flood, EQ, storm, etc.).
 2. Other perils.
 - Purpose: Avoid small claims; reduce claim cost burden.
 - **Exam Tip:** *Split excess = major vs other perils.*
-

I. Machinery Classification

- **Mobile machinery:**
 - Earth-moving equipment.
 - Tunneling & mining machines.

- Road surface finishers/rollers/compactors.
 - Mobile cranes.
 - Mobile conveyors.
 - Mobile power generators.
 - **Stationary plant:**
 - Fixed conveyors.
 - Concrete batching plants.
 - Asphalt mixing plants.
 - Tower cranes.
 - **Tools & tackles:** Smaller support equipment.
 - **Exam Tip:** *Mobile vs stationary classification is an exam-favourite Q.*
-

J. Underwriting Considerations

- Insurer engineers visit sites → assess hazards, recommend risk minimisation.
 - Key factors:
 - **Operator's skill.**
 - **Terrain/geological features.**
 - **Exam Tip:** *Operator skill + terrain = main hazard determinants.*
-

K. Technical & Claims Control

- Claims may arise from fire, riot, flood, EQ, storm, theft, accidental damage.
- **Immediate intimation** needed to insurer → cause/circumstances verified.
- **Prospects of recovery:** Insured must pursue recovery from manufacturers/suppliers if applicable.
- **Theft claims:** Require police involvement.
- **Inventory-only discovered losses:** Not covered.

- **Salvage disposal:** Sell “as is, where is” to reduce loss.
 - **Third-party notices:** Forward to insurer immediately; no admission/compromise.
 - **Sum insured reinstatement:** Recommended at claim settlement.
 - **Exam Tip:** *Claims = notify fast + police for theft + salvage sale + no liability admissions.*
-

L. Rating Factors

- Rating depends on:
 - Type/value of machinery.
 - Site conditions & terrain.
 - Hazards of operation.
 - Operator’s skill.
 - Claims history.
 - Past maintenance records.
 - **Exam Tip:** *Pricing reflects machine type + site hazards + operator quality.*
-

M. Recent Trends & Developments

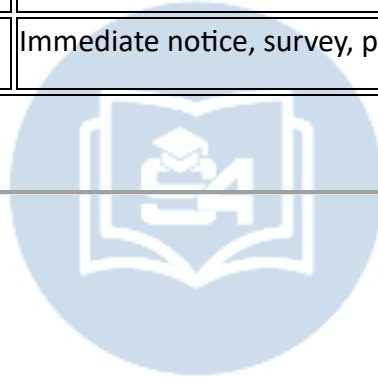
- Large contractors with big fleets → prefer **annual CPM policy on declaration basis**.
 - Policies with **specific per-loss limits** (normal or First-Loss basis).
 - Often **reinsurance-driven, case-by-case**, especially in international markets.
 - **Exam Tip:** *Big fleets → annual declaration CPM with per-loss cap.*
-

N. Abbreviations

- **CPM** – Contractor’s Plant & Machinery.
- **PLEQ** – Plant & Equipment.
- **CPE** – Contractor’s Plant & Equipment.
- **TPL** – Third Party Liability.

Quick Revision Table

Aspect	CPM Insurance
Nature of Cover	All-Risk policy for construction equipment
Duration	Annual policy
Sum Insured Basis	New replacement value
Indemnity Basis	Repair cost or market value (before loss)
Main Perils Covered	Fire, theft, accident, natural perils
Key Exclusions	Wear & tear, willful act, consequential loss
Underwriting Factors	Equipment condition, operator skill, site hazard
Claim Essentials	Immediate notice, survey, police report (for theft)



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9. ADVANCE LOSS OF PROFIT (ALOP) / DELAY IN START-UP (DSU) INSURANCE

A. Concept & Context

- **ALOP / DSU** = *Consequential Loss cover for new projects under construction.*
 - Protects **financial interests of principal/owner** if project start-up delayed by **material damage indemnifiable under CAR/EAR.**
 - Always an **extension of CAR/EAR** → never standalone.
 - **Terminology:** Europe → ALOP, Anglo-American → DSU.
 - **Why important?** Large infra projects = **high debt + heavy interest charges**; even short delays → huge financial stress.
 - **Exam Tip:** *ALOP = "Loss of profit before start-up" cover; MLOP = "Loss of profit after breakdown".*
-

B. Historical Development

- First demand in **UK chemical industry modernisation projects** in early 1960s.
 - Driven by **banking/financing institutions** → insisted on cover for loan repayment security.
 - Initially expensive & rarely bought; gradually expanded to infra, power, refineries, renewables.
 - Even today → remains *specialised, limited uptake, reinsurer-driven.*
 - **Exam Tip:** *ALOP demand is finance-driven, not contractor-driven.*
-

C. Why ALOP Cover is Needed

- **Consequences of project delay:**
 - Liquidity crunch (short-term cash flow issues).
 - Profitability reduction (delayed income).
 - Growth/expansion projects postponed.
 - Standing charges & wages continue.

- Debt servicing costs escalate.
 - **Real-world case:** Wind farm project in Canada hit by tornado → turbines destroyed → 1-year delay → owners claimed under ALOP.
 - **Exam Tip:** *Delay in COD (Commercial Operation Date) = direct hit to profits + debt service.*
-

D. What Can & Cannot Be Insured

- **Insurable delays:**
 - Caused by **material damage admissible under CAR/EAR MD section.**
 - Natural perils (EQ, flood, storm, fire).
 - Human failures (negligence, accidents).
 - Inherent defects (design/material faults) → if resulting damage covered in CAR/EAR.
 - **Non-insurable delays:**
 - Purely speculative risks (political, economic).
 - Management inefficiency or strikes.
 - Fund shortages or licensing issues.
 - **Exam Tip:** *ALOP is never stand-alone delay insurance; only material-damage-linked.*
-

E. Stakeholders & Insurable Interest

- **Principal/Owner:** Main beneficiary → suffers from revenue loss.
 - **Financiers/Banks:** Loan repayment delayed → named as co-insured/additional insured.
 - **Contractors/Sub-contractors/Suppliers:** No insurable interest (their penalties, liquidated damages excluded).
 - **Exam Tip:** *Only Principal + Financiers can claim ALOP; contractors cannot.*
-

F. ALOP vs Operational Loss of Profit (LOP)

- **Operational LOP (MLOP):** For running plants → past financial data, proven revenue, stable workforce.
- **ALOP (DSU):** For new projects → no trading history, only projections, often prototype machinery, inexperienced staff.
- **Exam Tip:** *ALOP = untested assumptions → underwriting more complex.*

G. Object of ALOP

- To indemnify **principal/owner** for **actual financial loss** from delay in achieving COD (Commercial Operation Date).
- Loss must stem directly from **material damage covered under CAR/EAR.**
- **Exam Tip:** *Object = "Would-have-been profit" insurance.*

Purpose	Explanation
To indemnify loss of anticipated profit or revenue	Due to delay in commercial operation after insured accident
To ensure cash-flow continuity for project financiers / lenders	Helps in servicing loan interest & repayment schedules
To cover standing charges & loss of gross profit	Includes fixed costs and unearned revenue
To protect financial viability of large infrastructure projects	Power plants, roads, refineries, steel projects etc.

H. Core Elements of ALOP Cover

1. The Insured

- Only **Principal/Owner** + financiers as co-insured.
- Contractors/engineers excluded.

2. Sum Insured (SI)

- Based on **projected financials**, since no operating history exists.

- May be:
 - Annual Gross Profit (Net Profit + Standing Charges).
 - Debt Service Charges (loan interest + principal).
 - Fixed Overheads (essential operating costs).
 - Interest Charges alone.
 - Loss of Rent (for real estate).
- **Exam Tip:** *SI = projected earnings model; often linked to financial closure documents.*

3. Period of Insurance

- Same as CAR/EAR policy (construction + testing), ends at COD.

4. Indemnity Period (IP)

- From **planned COD** to **actual COD after delay**.
- IP should equal **longest replacement time of critical equipment** (manufacture + shipping + erection + retesting).
- **Exam Tip:** *IP is not “fixed 12 months”—it is project-specific.*

5. Time Excess (TE)

- Waiting period (e.g., 30/60/90 days) before insurer pays.
- Absorbs minor/manageable delays.
- **Exam Tip:** *TE is to ALOP what deductible is to CAR/EAR.*

I. Basis of Indemnification

- Covers **actual sustained financial loss**.
- Components:
 - **Loss of Gross Profit** = Shortfall of Turnover × Rate of Gross Profit.
 - **Increased Cost of Working (ICOW):** Extra expenditure to reduce loss (limited to saved amount).
 - Less: Any savings (reduced charges, penalties recovered).

- If SI inadequate → **Condition of Average applies** (claim reduced proportionately).
 - **Exam Tip:** *Formula = Loss of Gross Profit + ICOW – Savings.*
-

J. Endorsement Conditions

- **Period of Insurance:** Until earliest of → Completion / Successful testing / Planned completion date.
 - **Indemnity Period:** From scheduled COD → to actual COD.
 - **Deductible (TE):** Insured bears initial delay period.
 - **Special Exclusions:**
 - Losses not covered in CAR/EAR.
 - EQ/tsunami/volcano unless agreed.
 - Damage to surrounding property, construction machinery, feedstock.
 - Govt. restrictions/funding delays.
 - Improvement costs/penalties/fines.
 - **Special Conditions:**
 - Insured to take all steps to complete project on schedule.
 - Must notify insurers of delays, progress changes, modifications.
 - Claims: immediate notice, protect damaged items, preserve evidence, allow inspection.
 - **Exam Tip:** *ALOP endorsements = strict obligations + exclusions.*
-

K. Risk Categories

- **India:** Mainly infra (power projects, roads, financed by banks).
- **International:**
 - Single-machine projects (power turbines).
 - Plant expansions.

- Greenfield new plants.
 - Civil projects (roads, dams).
 - Real estate (loss of rent/interest).
 - **Exam Tip:** *India's ALOP = finance-driven infra projects; globally wider usage.*
-

L. Underwriting Information Needed

- Full project details: parties, title, location, business.
 - Time schedule: construction, erection, testing, COD, indemnity period, TE.
 - Progress programme & milestones.
 - Detailed process flow diagram + bottlenecks.
 - List of critical items + lead times.
 - Spares availability.
 - Use of second-hand machinery (condition, spares).
 - Protective measures at site.
 - SI details (basis + breakdown).
 - Phased handover arrangements.
 - Import licence/foreign exchange position.
 - Repair/transport facilities.
 - Penalty clauses in sales agreements.
 - Underlying CAR/EAR wording with endorsements.
 - **Exam Tip:** *ALOP underwriting = hybrid of technical + financial scrutiny.*
-

M. Rating of ALOP

- No tariff/statistical base; rating always **case-to-case**.
- Depends on → project size, complexity, exposure, indemnity period, time excess, SI basis, contractor experience, reinsurers' appetite.

- Reinsurance support essential; global reinsurers drive terms & pricing.
 - **Exam Tip:** *ALOP rates are not tariff—always reinsurer-guided.*
-

N. Claims Management

- **Trigger:** Physical damage claim admitted under CAR/EAR MD → leads to delay.
 - **Process:**
 - Immediate intimation.
 - Establish cause of delay + link to material damage.
 - Calculate loss using projected financial model vs actual.
 - Deduct time excess.
 - Consider savings & ICOW.
 - **Complexities:** Proving causal link, calculating delay effect, reconciling with loan agreements.
 - **Exam Tip:** *Causation + delay quantification = biggest challenge in ALOP claims.*
-

O. Abbreviations

- **ALOP** – Advance Loss of Profit.
- **DSU** – Delay in Start-Up.
- **COD** – Commercial Operation Date.
- **IP** – Indemnity Period.
- **TE** – Time Excess.
- **ICOW** – Increased Cost of Working.
- **MLOP** – Machinery Loss of Profits.
- **CAR** – Contractors' All Risks.
- **EAR** – Erection All Risks.

Revision Table

Aspect	ALOP / DSU Insurance
Nature	Consequential Loss policy for construction projects
Insured Party	Principal / Owner only
Cause of Loss	Delay due to insured physical damage under CAR/EAR
Sum Insured Basis	Expected Gross Profit + Fixed Expenses
Key Exclusions	Political / Economic / Design / Inherent defects
Indemnity Limit	Time bounded (Indemnity Period)
Reinsurance	Required for large projects (mega risks)

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10. Endorsements & Framing Construction Phase Insurance Programme

ENDORSEMENTS & SUPPLEMENTARY COVERS

1. Civil Engineering Works (EAR & MCE)

- Extends cover to permanent civil works (buildings, foundations, earthwork) + temporary works (sheds, offices).
 - **Exclusions:** defective workmanship/design/material, mechanical breakdown, deterioration/obsolescence, disappearance discovered only by inventory, cessation of work.
 - **Exam Tip:** *Civil works extension = permanent + temporary works, but excludes defects, breakdown, obsolescence.*
-

2. Fire / Explosion Endorsement

- Insurer liable for fire/explosion loss only if:
 - Adequate fire-fighting equipment available.
 - Round-the-clock watch & ward.
 - Open storage divided into units $\geq 15\text{m}$ apart.
 - Liability per storage unit $\leq 10\%$ SI or ₹50 crores (lesser).
 - Site vegetation cleared; combustible/inflammable materials stored separately.
 - Deductible: 10% of claim amount (minimum as per testing period excess).
 - **Exam Tip:** *Fire endorsement = prevention measures mandatory + liability per storage unit capped.*
-

3. Cross Liability Endorsement

- TPL cover applies to each insured party as if separate policy issued.
- Excludes: property under Section I, employee injury/workmen's compensation.
- Insurer's aggregate liability limited to schedule limit.

- **Exam Tip:** *Cross liability = each insured treated separately for TPL.*
-

4. Escalation Endorsement

- Allows increase in SI by selected % for inflation/escalation.
 - Underinsurance applies only if replacement cost > escalated SI.
 - Premium collected for escalation non-refundable.
 - **Exam Tip:** *Escalation cover = automatic % increase, premium non-refundable.*
-

5. Air Freight Endorsement

- Policy indemnifies extra air freight incurred for replacement after indemnifiable loss.
 - Excess: 5% of admissible air freight (over & above normal policy excess).
 - Applies to both Marine and EAR portions of MCE policy (or separately if two policies).
 - **Exam Tip:** *Air freight = additional premium + 5% excess.*
-

6. Customs Duty Endorsement

- Covers additional customs duty incurred above SI.
 - Excess: 5% of admissible additional duty (in addition to normal excess).
 - Indemnity reduces post-claim unless reinstated with extra premium.
 - **Exam Tip:** *Customs duty = extra premium + 5% excess + reinstatement required.*
-

7. Test Run Definition (Thermal Power Stations)

- Test run deemed from date of synchronisation with grid/bus bar (if within 72 hrs of steam introduction).
- Otherwise from date of steam introduction.
- Test continues till 72 hrs full-load operation or expiry of policy test period.
- Max total test period \leq 12 months.

- **Exam Tip:** *Thermal test run = sync with grid or steam introduction; max 12 months.*
-

8. Test Run Definition (Gas Turbines in Combined Cycle Plants)

- Test run starts from fuel introduction in combustion chamber.
 - **Exam Tip:** *Gas turbine test run = fuel introduced → test starts.*
-

9. Hydrocarbon Endorsement (Testing & Commissioning)

- **Article 1:** Insured must give prior notice of initial start-up (date = first feedstock/hydrocarbon introduction). Cleaning/purging ≤ 2 weeks = erection phase. Deductible: 5% of claim (min ₹5 lakh).
 - **Article 2:** From hydrocarbon introduction → exclusions: catalysts (unless covered separately), reforming tube overheating/cracking, exothermic reaction failures, safety device bypass. Fire/explosion covered only if fire protection installed.
 - **Article 3:** Catalyst specifically insured during hot testing → deductible = 5% of catalyst value (min ₹2.5 lakh).
 - **Exam Tip:** *Hydrocarbon endorsement = strict fire protection + catalyst exclusion unless endorsed.*
-

10. Storage Endorsement

- Cover during storage valid only if:
 - Value per unit \leq specified limit.
 - Units ≥ 50 m apart or separated by fireproof walls.
 - **Exam Tip:** *Storage cover = max value per unit + 50m spacing/fireproof walls.*
-

11. Safety Measures Endorsement

- Flood/inundation cover valid only if project planned considering meteorological flood/rainfall data.
- **Exam Tip:** *Flood cover = only if adequate safety planning in design.*

12. Damage to Crops/Forests Exclusion

- Insurer not liable for loss/damage to crops, forests, cultures during contract execution.
 - **Exam Tip:** *Crops & forests = always excluded.*
-

13. Open Trenches Endorsement

- Covers loss to open trenches/pipes/cables due to storm, flood, silting, erosion, collapse.
 - Max trench length covered = as per policy; only one loss event.
 - Pipes must be plugged during idle periods.
 - **Exam Tip:** *Open trench cover = storm/flood + plugging requirement.*
-

14. Leak Search Costs (Pipelines)

- Covers costs of:
 - Leasing/testing apparatus for hydrostatic test.
 - Earthwork (excavation/backfilling) for leak repair.
 - Conditions: Leak due to insured peril; 100% welding seams X-rayed; faulty repairs excluded.
 - **Exam Tip:** *Leak search = apparatus + earthwork; only if weld seams inspected.*
-

15. Design Defect Exclusion (DE) Wordings

- **DE1:** Outright exclusion → no cover for defective property or consequential damage.
- **DE2:** Excludes defective property + dependent property; covers remainder.
- **DE3:** Excludes defective property; covers remainder (standard EAR).
- **DE4:** Excludes defective part only; covers rest (standard for erection).
- **DE5:** Excludes defective property but covers consequential damage, limited to improvement costs.

- **Illustration:** Steel building collapse due to defective bolts:
 - DE1 = nothing covered.
 - DE2 = wall covered, building excluded.
 - DE3 = wall + rest covered, bolts excluded.
 - DE4 = everything except bolts.
 - DE5 = excludes only design improvement costs.
- **Practice:** In India → CAR up to DE3; EAR up to DE4.
- **Exam Tip:** Know DE1–DE5 differences; India: CAR=DE3, EAR=DE4.

Endorsement Title	Key Purpose	Notes
Air Freight Endorsement	Covers extra freight expenses for air shipment of replacement items	Subject to limit per policy schedule
Customs Duty Endorsement	Pays additional custom duty over declared sum insured	Applies to imported equipment damage
Storage Risk Endorsement	Covers damage while items kept in storage before installation	Up to value per storage unit as declared
Damage to Crops / Forests Exclusion	Excludes liability for damage to agricultural property	Protects insurer from third-party nature claims
Test Run Definition (Gas Turbines)	Defines testing start as fuel entry into combustion chamber	Important for combined cycle power plants
Fire / Explosion Endorsement	Extends to cover fire or explosion loss beyond standard scope	Deductible 10 % or minimum ₹ ____ per claim

C. INFORMATION REQUIRED FOR CONSTRUCTION PHASE INSURANCE PROGRAMME

1. General Project Info

- Project title, site location.
- Principal's details, JV partners, lenders.

- Project scope (civil + erection).
 - Geological, hydrological, meteorological data.
 - Seismic features & EQ history.
 - Contracts with insurance clauses.
 - **Exam Tip:** *General info = technical + natural hazard + contracts.*
-

2. EAR Policy Info

- **Contract section:** Split of contract values, civil works, principal-supplied materials, activity schedule, erection/testing duration, phased handover, storage values, supplier list, site & plot plans, fire protection layout, process flow diagrams.
 - **TPL section:** Description of surrounding property + required liability limits.
 - **Plant & Machinery section:** List & value of items; criticality for project.
 - **Exam Tip:** *EAR underwriting = contract, TPL, plant details.*
-

3. ALOP/DSU Extension Info

- Scheduled completion date.
 - On-site fabrication details.
 - Repair facilities.
 - Alternative sourcing possibilities.
 - Critical items + lead time.
 - Dependencies (upstream/downstream, utilities).
 - Impact on throughput.
 - Type of consequential loss insured (profit/interest/charges).
 - SI calculation, indemnity period, contractor delay liability, penalties.
 - **Exam Tip:** *ALOP info = critical path items + dependencies + SI calc.*
-

4. Marine Cargo Insurance Info

- Cargo details: dimensions, weight.
- Origin of cargo (general & critical).
- SI for imports, critical & local items.
- Transportation to site.
- Limits per conveyance & location.
- **Exam Tip:** *Marine underwriting = cargo details + limits + transport.*

5. Marine Consequential Loss Info

- Shipping date, shipping time, installation time, testing/commissioning time of critical items.
- Required indemnity period.
- Type of consequential loss (profit, interest, charges).
- Partial operation possibility.
- COD date.
- **Exam Tip:** *Marine DSU = shipping + installation schedule + COD.*

Clause	Coverage / Exclusion Scope	Example – Collapse due to defective bolts in steel structure	Key Notes / Exam Tip
DE1	Absolute exclusion → No cover for defective property or consequential damage.	Neither bolts, wall, nor building covered.	<i>Most restrictive; rarely acceptable.</i>
DE2	Excludes defective property + dependent property ; covers rest.	Defective bolts + wall excluded; building excluded; only unrelated parts covered.	<i>Used sparingly; excludes dependent property too.</i>

Clause	Coverage / Exclusion Scope	Example – Collapse due to defective bolts in steel structure	Key Notes / Exam Tip
DE3	Excludes defective property itself ; covers remainder.	Bolts excluded; wall + building covered.	<i>Standard for CAR in India.</i>
DE4	Excludes only defective part itself ; covers all other damage.	Only bolts excluded; wall + building covered.	<i>Standard for EAR in India.</i>
DE5	Excludes defective part itself but covers consequential damage , including improvements (limited to cost if defect-free).	Bolts excluded, but consequential damage (wall + building) covered up to cost of defect-free bolts.	<i>Most liberal; insurer pays for consequential damage too.</i>

D. ABBREVIATIONS

- **CAR** – Contractors' All Risks.
- **EAR** – Erection All Risks.
- **CW** – Contract Works.
- **MCE** – Marine-Cum-Erection.
- **TPL** – Third Party Liability.
- **SI** – Sum Insured.
- **DE** – Defect Exclusion.
- **ALOP** – Advance Loss of Profit.
- **DSU** – Delay in Start-Up.
- **COD** – Commercial Operation Date.



Quick Revision Table

Aspect	Details
Chapter Focus	Endorsements & Construction Phase Insurance Data
Purpose of Endorsement	Modify / extend policy scope for specific risks
Common Add-ons	Air freight, Customs duty, Storage, Fire/Explosion
Design Defect Exclusion (DE)	DE 1–DE 5 standard wordings
Info Needed by Underwriter	Project value, schedule, machinery, TPL limit
Outcome	Risk-based pricing & comprehensive project coverage

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11. Machinery Insurance

A. Introduction & Context

- **Machinery Insurance (MB)** = Engineering policy covering **sudden, accidental, unforeseen physical damage** to machinery.
 - Developed as supplement to **Fire Insurance & Boiler Explosion**, because machinery has **unique electrical/mechanical hazards** not covered under Fire.
 - Frequency of MB losses > Fire/Boiler due to **complexity, high RPM, pressure, precision, automation**.
 - **Principle:** Based on **Indemnity** – restore insured to same financial position (no better, no worse).
 - **Exam Tip:** *MB = covers machinery itself, not consequential loss (unless MLOP added).*
-

B. Scope of Cover (Events Covered)

- **Policy protects machine itself** against accidents while:
 - At work, at rest, dismantled for cleaning, during maintenance/overhaul, being shifted, re-erected.
 - **Electrical causes:**
 - Short circuit, insulation failure, arcing, over-voltage, internal fire in winding.
 - **Mechanical causes:**
 - Design/casting defects, faulty material, abnormal stress, vibration, imbalance, misalignment, lubrication failure, centrifugal force, fatigue failure.
 - **External causes:**
 - Lack of skill, operator error, foreign body entry, collision, impact, sabotage.
 - **Exam Tip:** *Scope = Electrical + Mechanical + External accidental damages.*
-

C. Types of Machinery Insured

- **Boilers & auxiliaries:** feed pumps, blowers, fans.

- **Electrical equipment:** turbines, generators, alternators, transformers, switchgear, rectifiers, large cables.
 - **Mechanical equipment:** presses, pumps, compressors, process machinery (textiles, printing, paper, cold storage, rubber).
 - **Lifting equipment:** conveyors, elevators, fixed cranes.
 - **Not covered here:** Mobile cranes/earthmovers → CPM policy.
 - **Exam Tip:** MB = “stationary machinery”; CPM = “mobile machinery”.
-

D. Risk Classification (for Underwriting)

- **Driving Machinery (prime movers):** Turbines, engines, pumps → considered *good risks* (stable design, well-maintained).
 - **Process Machinery:** High hazard (unstable, corrosive environment, rapid wear, frequent modifications, experimental/prototype designs).
 - **Hazardous Machinery:** Brickworks, quarries, mines, earthmoving, underground/remote sites → often rejected or heavy-rated.
 - **Exam Tip:** Prime movers = good risks; Process = average; Hazardous = high risk/uninsurable.
-

E. Principal Exceptions

- **Fire & Special Perils excluded** → lightning, external fire, AOG (EQ, storm, flood, inundation, landslide), aircraft impact, collapse of building, theft. (Covered under Fire/IAR).
- **Electrical Fire:** Covers *internal fire/self-heating* in electricals, excludes external fire spread.
- **Explosion:** Covers *internal explosion/bursting* in turbines, compressors; excludes general explosion/chemical explosion.
- **Other exclusions:**
 - War, riot, strike, terrorism, nuclear.
 - Tests: Hydraulic, overspeed, overload experiments.

- Wear & tear, corrosion, depreciation.
 - Wilful negligence.
 - Consequential loss (loss of profits, penalties, loss of use).
 - Pre-existing defects.
 - Exchangeable parts & consumables (belts, ropes, knives, dies, rolls, non-metallics).
 - Manufacturer/supplier contractual liability.
 - **Exam Tip:** *MB exclusions = Fire perils + Tests + Wear/tear + Consequential loss + Consumables.*
-

F. Sum Insured (SI)

- **SI = New Replacement Value (NRV)** → includes cost of new machine, transport, customs duties, erection, installation.
 - Market value basis discouraged (fluctuates, leads to underinsurance).
 - **Condition of Average (per item):** If $SI < NRV$, claim reduced proportionately.
 - **Inflation adjustments:** Revaluation annually, link to index; escalation clauses possible.
 - **Exam Tip:** *SI must = NRV incl. freight+duties; average applies item-wise.*
-

G. Basis of Indemnity

- **Repairable loss:** Actual repair cost (parts, freight, duties, erection) – salvage value. No depreciation (except on limited-life parts like belts/ropes).
- **Repairs in insured's workshop:** Allowed – materials + wages + reasonable overhead.
- **Total/constructive total loss:** Market value immediately before accident + removal cost – salvage.
- **Definition of total:** If repair cost \geq pre-accident value.
- **Extras:** Overtime, air freight, holiday wages → payable only if endorsed (extra premium).
- **Improvement/alteration costs:** Always on insured's account.

- **Insurer's option:** Repair, replace, reinstate or cash.
 - **Exam Tip:** *Repair cost if repairable; pre-loss value if total; extras only with endorsement.*
-

H. Excess (Deductible)

- Each claim subject to compulsory deductible.
 - Deductible varies with machine type, SI, exposure.
 - Higher voluntary excess = premium discount.
 - Deductible reviewed annually for inflation.
 - **Exam Tip:** *Deductible = self-borne portion; encourages better risk discipline.*
-

I. Policy Provisions (Key Clauses)

- **Inspection clause:** Turbines must be overhauled after 32,000 hrs or 4 yrs; report to insurer; extension possible only with proof of safety.
 - **Maintenance clause:** Insured must maintain machinery per manufacturer's/Govt. norms; avoid overloading.
 - **Alteration clause:** Material changes in machinery/site must be notified; otherwise policy void.
 - **Duties after accident:** Immediate notice, minimise loss, preserve parts for surveyor, claim within 14 days.
 - **Position after claim:** No abandonment; SI reduces post-claim; must reinstate with extra premium.
 - **Inspection rights:** Insurers can inspect plant at inception/renewal.
 - **Exam Tip:** *Core clauses = Inspection, Maintenance, Notice, Reinstatement.*
-

J. Underwriting Considerations

- **Maker reputation** (Siemens vs local).
- **Repair facilities** available nearby.

- **Spare availability** at site.
 - **Obsolete models** → high CTL risk.
 - **Presence of standby units** reduces downtime.
 - **Operating environment:** Damp, dust, corrosive atmospheres increase risk.
 - **Past claim record & statutory inspection reports.**
 - **Insured's attitude:** Willingness to accept higher deductible = good sign.
 - **Exam Tip:** *Underwriter focuses on machine quality, maintenance, spares & claims history.*
-

K. Rating Factors

- Machine type & design (stable or experimental).
 - Age & condition.
 - Mode of operation (continuous vs intermittent).
 - Operator training & supervision.
 - Maintenance system (in-house vs outsourced).
 - Environment (clean plant vs corrosive).
 - Claims history.
 - **Exam Tip:** *Rating = Tech + Human + Environment + History.*
-

L. Claims Management

- **Notification:** Immediate to insurer → surveyor appointed.
- **Investigation:** Cause identified (mechanical/electrical/operator error).
- **Repairs:** Verified for necessity; improvements excluded.
- **Settlement:** Deductible, salvage, average applied.
- **Subrogation:** Recovery possible against negligent supplier/manufacturer.
- **Documentation:** Claim form, repair bills, inspection reports.

- **Exam Tip:** *Prompt notice + proof of loss + exclusion of improvements.*
-

M. Linkages with Other Covers

- MB + **MLOP (Machinery Loss of Profits)** → covers loss of profit due to MB delay.
 - MB + **IAR (Industrial All Risks)** → integrated cover for fire, burglary, MB, LOP.
 - MB + **CMI (Comprehensive Machinery Insurance)** → Munich Re's global "all risks" MB solution.
 - **Exam Tip:** *MB standalone = machinery only; add MLOP/IAR/CMI for completeness.*
-

N. Recent Trends

- Growing preference for **IAR/CMI** over standalone MB.
 - High-value projects → reinsurers insist on **facultative placement**.
 - MB cover often **packaged with Business Interruption** for lenders' comfort.
 - **Exam Tip:** *Trend = integrated covers, reinsurer-driven terms.*
-

O. Abbreviations

- **MB** – Machinery Breakdown.
- **MLOP** – Machinery Loss of Profits.
- **IAR** – Industrial All Risks.
- **CMI** – Comprehensive Machinery Insurance.
- **SI** – Sum Insured.
- **CTL** – Constructive Total Loss.

[Quick Revision Table](#)

Aspect	Machinery Insurance Highlights
Coverage Focus	Internal mechanical / electrical damage
Policy Type	Annual, renewable
Sum Insured Basis	New replacement value
Indemnity Basis	Repair cost or market value less salvage
Key Exclusions	Fire, AOG, external perils, theft
Notified Immediately	Essential for survey & claim admissibility
Target Users	Factories, power plants, manufacturing units
Complementary Policy	Fire & Special Perils Policy



12. Boiler & Pressure Plant Insurance (BPP)

A. Introduction

- **Boilers** generate **steam at pressure**; **pressure plants** = vessels under steam/gas/fluid pressure.
- Used in **process industries** (paper, cotton, fertilizers, petrochemicals) & **power plants** (turbines for electricity).
- **Explosion effects** = catastrophic → damage to boiler, surrounding property, personal injury, 3rd party damage.
- Historically: frequent **steam explosions** led to development of **Boiler Explosion Policy**, later evolved into **Boiler & Pressure Plant Insurance (BPP)**.
- Different titles: Boiler Explosion Policy, Boiler & Pressure Vessel Policy, BPP (India).
- **Exam Tip:** *Fire Policy covers chemical explosions; BPP covers own explosion/collapse of boilers.*

B. Scope of BPP Insurance

- Covers insured boilers & pressure vessels (fixed/unfixed) against **Explosion & Collapse**.
- Indemnifies:
 1. Damage to insured boiler/plant itself (other than fire).
 2. Damage to insured's surrounding property (other than fire).
 3. Liability for 3rd party property damage + fatal/non-fatal injury.
- **Surrounding property & TPL** → optional sections.
- Covers **explosion/collapse during ordinary working** only.
- Automatically includes **explosion by ignition of flue gases**.
- **Employee injury liability excluded** (covered by WC/EC policy).
- **Exam Tip:** *BPP = Explosion/collapse during working; Flue gas covered; Employee injury excluded.*

C. Key Definitions

- **Boiler:** Fired closed vessel or piping system generating steam under pressure.
- **Pressure Plant:** Unfired closed container under steam, gas, or fluid pressure.
- **Explosion:** Sudden violent tearing of structure by internal pressure + forcible ejection of contents.
- **Collapse:** Sudden distortion by bending/crushing due to pressure (not slow deformation).
- **Flue Gas Explosion:** Explosion of ignited gases in furnaces, flues, economisers, superheaters.
- **Chemical Explosion:** Explosion due to chemical reaction chain.
- **Exam Tip:** *Explosion = rupture; Collapse = distortion; Flue gas = furnace ignition.*

KEY DEFINITIONS

Term	Definition (as per policy)
Boiler	Fired closed vessel generating steam under pressure
Pressure Plant	Unfired closed container under gas, steam, or fluid pressure
Explosion	Sudden tearing apart of boiler/plant due to internal pressure with forcible ejection of contents
Collapse	Dangerous distortion due to steam/gas pressure (not gradual deformation)
Fuel Gas Explosion	Explosion of ignited gases in boiler furnaces/flues/superheaters
Chemical Explosion	Explosion arising from chemical reaction in any plant

D. Types of Explosions

- **Chemical Explosions:** From chemical reactions (gunpowder, gases, combustible dusts). Very rapid combustion → uncontrolled energy release. Covered under **Fire Policy**, not BPP.

- Fire Policy covers: (i) Fire from explosion, (ii) Domestic boiler explosion, (iii) Gas explosion for domestic lighting/heating.
 - **Physical Explosions:** Pressure variation in inert fluids (steam, water). Fire Policy **excludes steam boilers** own explosion → hence BPP needed.
 - **Exam Tip:** *Chemical = Fire Policy; Physical = BPP.*
-

E. Special Exceptions

- **Not covered under BPP:**
 - Fire & AOG perils (lightning, flood, storm, EQ, inundation, collapse of building, aircraft impact).
 - Theft.
 - Hydraulic/steam/other statutory tests.
 - Failure of individual tubes (unless causing explosion/collapse).
 - Chemical explosions (except flue gas).
 - Same exclusions as MB: wear/tear, overload, wilful negligence, existing defects, supplier liability, consequential loss, war/nuclear.
 - **Exam Tip:** *Fire/AOG = Fire Policy; Tube failure ≠ covered unless explosion occurs.*
-

F. Warranties (Compulsory)

- Boilers/pressure plants must be **inspected annually** by Govt. Inspectors (Indian Boiler Act, 1923) or competent authority if no statutory requirement.
 - Operated only by **certified attendants** under Boiler Act.
 - Insured must hold valid **written permission/license** from competent authority to operate.
 - If actual pressure/load > statutory permitted → no claim payable.
 - **Exam Tip:** *Valid inspection certificate + licensed operator = condition precedent to liability.*
-

G. Sum Insured (SI) & Average

- SI = **New Replacement Value** (cost of plant + freight + duties + erection).
- Each item subject to **average separately**.
- Economisers/superheaters (if not integral) → must be separately described in schedule.
- Steam & feed water piping → covered only if specifically listed.
- Surrounding property & TPL SI = fixed on **First Loss basis** (no average deduction).
- **Exam Tip:** *Each boiler & auxiliary separately described with NRV; First Loss basis for TPL/surroundings.*

Aspect	Description
Sum Insured Basis	New replacement value including freight, customs & erection cost
Average Clause	If underinsured → claim reduced proportionally
Applies Separately	For each insured item

H. Basis of Indemnity

- Same as Machinery Insurance:
 - **Repairable damage:** Cost of repairs/replacement – salvage.
 - **Total/Constructive Total Loss:** Market value before loss – salvage + removal cost.
 - **No depreciation** except on limited-life parts.
- **Exam Tip:** *Repair vs market value pre-loss; salvage deducted.*

I. Excess (Deductible)

- BPP policies are **not subject to excess** (unlike MB).
- **Exam Tip:** *Unique: No deductible under BPP.*

J. Policy Conditions

- **Pressure condition:** Working load \leq statutory permitted pressure.
 - **Fuel alteration:** Must notify insurer + pay extra premium if risk increases.
 - **Compliance:** Follow manufacturer's instructions + statutory/municipal regulations.
 - **Inspection rights:** Insurer can inspect plant anytime.
 - **Exam Tip:** *Over-pressure or unapproved fuel voids cover.*
-

K. Obligations of Insured

- Maintain boilers/plants in efficient working order.
 - No habitual/intended overloading.
 - Follow manufacturer's/Govt. instructions.
 - Allow insurer inspections.
 - Any material change in risk, alteration, or change in interest (sale, liquidation, receivership) \rightarrow policy void unless endorsed.
 - **Exam Tip:** *Insured must maintain + notify changes; else policy void.*
-

L. Duties After Accident

- Immediate intimation (tele/writing).
 - Minimise loss; preserve defective parts for survey.
 - Provide documents/evidence as required.
 - Claim form within 14 days.
 - Insurer not liable if plant operated unrepaired after accident.
 - **Exam Tip:** *Notify fast, preserve parts, file claim in 14 days.*
-

M. Position After Claim

- No abandonment to insurer.
- SI reduced by claim paid \rightarrow must be reinstated (pro-rata premium).

- Reinstated SI continues till policy expiry.
 - **Exam Tip:** *Reinstate SI after claim to avoid underinsurance.*
-

N. Underwriting & Rating

- Proposal requires: description, make, number, capacity, year, fuel type, working pressure, inspection records, attendant details.
 - Risk inspection by insurer's engineers → external + internal exam.
 - Factors: Type & age of boiler, fuel type, auxiliaries (economisers, superheaters), inspection arrangements, surrounding property/3rd party exposure, SI values.
 - **Rates:** Depend on type, fuel, age; additional premium for uncertified/over-age boilers. % surcharge for surrounding property & TPL.
 - **Exam Tip:** *Rates = Type + Fuel + Age; surcharges for uncertified/old boilers.*
-

O. Technical Control

- Cover only if valid **Govt. Boiler Inspectorate certificate** exists (Indian Boiler Act, 1923).
 - Certificate to operate boiler at specified pressure is **warranty/condition precedent**.
 - Non-Boiler Act plants → must be inspected by competent independent engineers.
 - **Exam Tip:** *No valid certificate = no cover under BPP.*
-

P. Claims & Claims Control

- **Special focus:** Whether loss = Explosion or Collapse (as per definition).
 - Check compliance with warranties (inspection, licensed operator, permitted pressure).
 - Verify accident occurred within validity of certificate.
 - Surveyor must be **qualified engineer** to determine cause + quantum.
 - For TPL claims: insured must not admit/settle without insurer consent.
 - **Exam Tip:** *Engineer surveyor essential; causation must meet policy definition.*
-

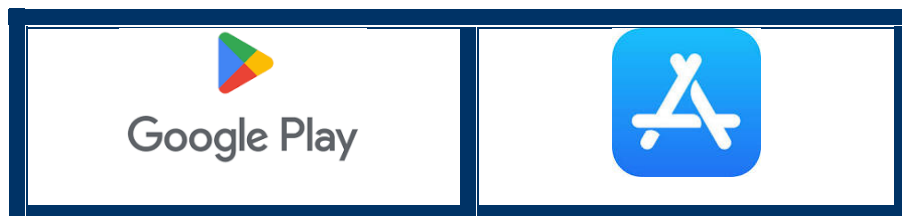
Q. Abbreviations

- **BPP** – Boiler & Pressure Plant.
- **NRV** – New Replacement Value.
- **SI** – Sum Insured.
- **TPL** – Third Party Liability.
- **MB** – Machinery Breakdown.

QUICK REVISION TABLE

Aspect	Details
Policy Covers	Explosion or collapse of boilers/pressure plants
Scope	Own damage + Surrounding property + Third-party
Exclusions	Fire, chemical explosion, gradual wear
Certificate Requirement	Mandatory under Indian Boiler Act 1923
Sum Insured	Replacement value (each item separately)
Key Clauses	Average Clause, Reinstatement post-claim
Premium Factors	Type, fuel, age, inspection, location

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13. Machinery Loss Of Profits (MLOP) Insurance

A. Introduction & Context

- **MLOP = Machinery Loss of Profits Insurance**, also known as: Consequential Loss Insurance, Loss of Profits Insurance, Business Interruption Insurance, Loss of Earnings Insurance.
- Protects against **financial consequences of interruption** due to **machinery breakdowns/accidents**.
- Complements **Machinery Insurance (MI) & Boiler & Pressure Plant (BPP)** by covering loss of **profits + standing charges + increased working costs**.
- **Exam Tip:** *Material Damage Policy (MI/BPP) = covers machinery; MLOP = covers business earnings.*

B. Need for MLOP

- Modern industries → machines are **large capacity, compact, automated, high value**.
- **Any breakdown = prolonged interruption** → heavy profit loss + expenses continue.
- **Standing Charges** (expenses continuing despite shutdown) drain finances.
- Owners may adopt **alternative arrangements at extra cost** → also covered.
- **Exam Tip:** *Small machine loss may cause huge business loss; MLOP bridges the gap*

Objective of MLOP Policy

Purpose	Explanation
Protect business from loss of gross profit due to interruption	Covers loss of turnover, standing charges, and net profit
Maintain financial stability during downtime	Helps meet fixed obligations (rent, wages, loan interest)
Complements Machinery Insurance	Extends protection from physical loss to economic loss

Purpose	Explanation
Ensures continuity of operations post-accident	Important for industries dependent on continuous production

C. Situations Where Needed

1. **ALOP** – delay in start-up due to accidents during construction (already covered separately).
 2. **Boiler explosion / collapse** → interruption of business.
 3. **Electrical/mechanical breakdown** of production machinery.
- **Exam Tip:** *MLOP = operational stage cover (after COD), unlike ALOP (before COD).*

D. Items Insured

- Not necessary to insure all plant & equipment.
- Only **key/vital items** selected, stoppage of which → serious business interruption.
- Examples: Boilers, Turbo-alternators, Transformers, Major process machinery.
- **Policy schedule** lists insured items.
- **Exam Tip:** *MLOP differs from Fire LOP → only key items insured, not all.*

E. Material Damage Proviso

- MLOP claim admissible **only if concurrent Material Damage Policy (MI/BPP) admits liability.**
- Exception: If no claim under MI/BPP solely because **loss < excess**, MLOP claim still payable.
- **Exam Tip:** *No MI/BPP claim = no MLOP claim (except excess-only cases).*

F. Scope of MLOP Policy

- If insured machinery suffers “**Accident**” (as defined in MI/BPP), causing **interruption to business**, insurer indemnifies:
 1. **Loss of Net Profit.**
 2. **Insured Standing Charges.**
 3. **Increased Cost of Working (ICOW).**
- Covers only **business at specified premises**; if multiple/diverse premises, must declare & agree.
- **Exam Tip:** *Scope = Net Profit + Standing Charges + ICOW.*

G. Key Definitions

- **Accident:** Sudden & unforeseen physical damage (as per MI/BPP).
- **Gross Profit:** Net Profit + Insured Standing Charges (or Standing Charges – proportionate trading loss, if no net profit).
- **Net Profit:** Trading profits before tax, after deducting all standing charges & depreciation.
- **Turnover:** Money receivable for goods/services (after discounts).
- **Output:** Units produced (e.g. tons of paper, number of TVs).
- **Indemnity Period (IP):** From date of accident → until production reaches pre-loss level OR expiry of selected period.
- **Time Exclusion (TE):** No liability for initial waiting days after accident (policy deductible).
- **Exam Tip:** *Know definitions by heart – commonly asked in exams.*
- **Table – Key Underwriting Inputs**

Parameter	Underwriter Checks
Process layout	Flow continuity, critical points
Importance of each machine	% of daily production affected
Stand-by availability	Can production continue temporarily?
Maintenance record	Preventive schedule followed?
Past breakdown record	Frequency & severity of failures

H. Insured Standing Charges

- Expenses that continue **despite stoppage**:
 - Interest on loans/debentures.
 - Bank charges & commissions.
 - Rent, rates & taxes (except tax on profit).
 - Licence/patent fees.
 - Directors' fees/remuneration.
 - Audit/legal/professional fees.
 - Insurance premium.
 - Advertising/publicity.
 - Travelling/motor car expenses.
 - Office expenses (stationery, postage, telecom, computer).
 - Regular R&D expenses.
 - Heating/cooling/lighting (non-production).
 - Depreciation on fixed assets.
 - Repairs/maintenance of capital assets.
 - Subscriptions/donations (regular).
 - Staff-related: Salaries, PF, gratuity, pensions, medical, leave benefits.
 - Miscellaneous: Water charges (non-production), Gardening, Guest house, Club.
- **Note:** Wages may be included fully/partially/separately.
- **Memo 2:** If some Standing Charges uninsured, ICOW admitted only proportionately (average applied).
- **Exam Tip:** *Standing charges list must match insured's accounts.*

I. Exclusions

- Willful act/negligence of insured.
- Exceptional events not insured under MI/BPP.
- Clients sourcing products elsewhere/import licences granted by Govt. to clients.
- Govt. restrictions/delays (licences, permits).
- Lack of capital to repair/replace damaged machinery.
- Alterations/improvements during repairs.
- Pre-existing defects.
- Underinsurance under MI/BPP.
- Spoilage/depreciation of stocks.
- Preparation/litigation costs.
- **Exam Tip:** *Exclusions = Willful + Govt. delays + Finance shortage + Stocks + Improvements.*

J. Sum Insured & Underinsurance

- **SI = Gross Profit = Net Profit + Insured Standing Charges.**
- Based on last year's financials + projected increase for insured year.
- Downward adjustment up to **50% refund** if actual Gross Profit < estimated SI (premium return).
- Condition of Average: If SI < required → claim reduced proportionately.
- **Exam Tip:** *SI = projected Gross Profit; 50% downward adjustment allowed in India.*

K. Increased Cost of Working (ICOW)

- Extra expenses to reduce loss, e.g.:
 - Sub-contracting production.
 - Expedited repairs (air freight, overtime).
 - Hiring temporary replacement machinery.

- Hiring extra labour.
 - **Limitations:**
 1. Pro-rata reduction if some Standing Charges not insured.
 2. Economic limit: $ICOW \leq \text{Gross Profit saved}$.
 - **Exam Tip:** *ICOW is recoverable only up to saved Gross Profit.*
-

L. Loss Assessment

- Formula-driven process:
 1. **Rate of GP** = $GP \div \text{Turnover}$.
 2. **Annual Turnover** = turnover in 12 months before accident.
 3. **Standard Turnover** = turnover during 12 months before accident corresponding with IP.
 4. **Reduction in Turnover** = **Standard** – **Actual turnover**.
 5. Apply **Rate of GP** \times Reduction = Loss of GP.
 6. Add admissible ICOW (economic limit applied).
 7. Deduct savings in insured standing charges.
 8. Apply Average clause if SI < required.
 - **Exam Tip:** *Loss = (Reduction in Turnover \times GP rate) + ICOW – Savings (adjust for underinsurance).*
-

M. Auditor's Fees

- Claims require auditor's certificate.
 - Extra charges for audit work \rightarrow insurable separately under Auditor's Fees extension.
 - **Exam Tip:** *Audit fees insurable separately, not automatic.*
-

N. Excess (Deductible)

- **Time Excess (TE):** Deductible expressed in **days** (e.g. 14, 30, 45 days).
 - No liability for losses in initial TE days of IP.
 - TE varies by industry & risk class.
 - **Exam Tip:** *TE = time deductible; loss grows with time, hence days not money.*
-

O. Premium Adjustment Clause

- Full annual premium charged upfront on declared SI.
 - Refund up to **50% of premium** if actual GP < declared SI at year-end.
 - **Exam Tip:** *Premium = advance full → refund later if GP lower.*
-

P. Risk Assessment & Underwriting

- **Inspection:** Pre-acceptance inspection mandatory by qualified engineer.
 - Proposal must include process description + flow diagram.
 - **Key underwriting factors:**
 - Importance of each machine to total output.
 - Standby facilities (extent, readiness).
 - Alternative production arrangements (other premises, outsourcing, hiring).
 - Spare parts availability.
 - Repair facilities at site/locally.
 - Age, origin, breakdown history.
 - Transportation/communication facilities.
 - Import/export & forex restrictions.
 - **Exam Tip:** *Underwriting = machine importance + alternatives + spares + repair facilities.*
-

Q. Claims Control

- Loss grows with time → **urgent survey essential.**

- Specialised **Engineer Surveyor + Chartered Accountant** often appointed.
 - Immediate action to minimise interruption = insured's duty.
 - Computation similar to Fire LOP → includes savings in expenses.
 - **Exam Tip:** *Claim = urgent survey, CA certificate, savings deducted, principle of indemnity preserved.*
-

R. Rating

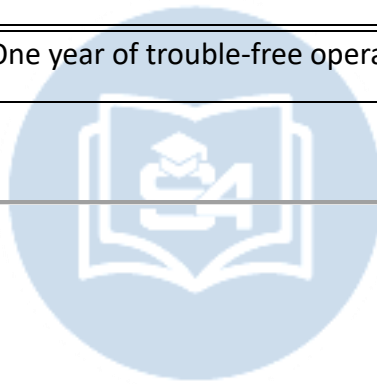
- MLOP granted only if:
 - Factory completed **≥ 1 year of trouble-free production.**
 - MI policy claims experience is satisfactory.
 - Deductibles: 14–45 days (standard), higher for customised covers.
 - Each case rated on **merit**; reinsurer input critical.
 - **Exam Tip:** *MLOP not offered for new/experimental plants without 1 yr record.*
-

S. Abbreviations

- **MLOP** – Machinery Loss of Profits.
- **MI** – Machinery Insurance.
- **BPP** – Boiler & Pressure Plant.
- **GP** – Gross Profit.
- **NP** – Net Profit.
- **ICOW** – Increased Cost of Working.
- **SI** – Sum Insured.
- **IP** – Indemnity Period.
- **TE** – Time Excess.

Quick Revision Table

Aspect	Details
Nature of Policy	Consequential loss following MB/BPP damage
Prerequisite	Concurrent MB/BPP policy
Covers	Loss of gross profit, standing charges, and net profit
Indemnity Period	From accident to full resumption of operations
Time Excess	Waiting period – no payment days
Sum Insured Basis	Gross Profit (Fixed Charges + Net Profit)
Underwriting Data	Process flow, stand-by machines, production impact
Claim Surveyor	Licensed Engineer / Chartered Accountant
Rating Condition	One year of trouble-free operation before issue



14. Electronic Equipment Insurance (EEI)

A. Introduction & Context

- Modern industries depend on **high-value electronic equipment** (computers, medical systems, telecom, research, robotics).
 - Even **minor damage** (water seepage, short-circuit, negligence) → **huge financial loss** due to downtime.
 - Example: Microchip plant → flood in basement → power failure → equipment damaged → **loss = USD 12m**.
 - EEI designed to cover **losses to equipment + data + costs of continuing operations**.
 - **Exam Tip:** *EEI = "electronic equivalent" of Machinery Insurance + Data + ICOW.*
-

B. What is "Equipment" under EEI?

- Complete computer system (CPU, monitors, printers, UPS, software).
 - Auxiliary systems: Air-conditioning, power supply units, heating.
 - Medical equipment, telecom systems, navigation systems.
 - Computer-controlled production & robotics.
 - **Exam Tip:** *Equipment = computer + peripherals + auxiliaries + process electronics.*
-

C. Scope of Cover

- Policy starts **after successful commissioning/acceptance tests**.
- Applies when machine at work, rest, dismantled for cleaning/overhaul, or shifted/re-erected at premises.
- **All-Risks basis** divided into 3 sections:
 1. **Section I – Material Damage (MD).**
 2. **Section II – External Data Media (EDM).**
 3. **Section III – Increased Cost of Working (ICOW).**
- **Exam Tip:** *EEI = 3 sections: MD + Data + ICOW.*

Scope & Structure of EEI Policy

The policy operates on an “All-Risks” basis and has **three main sections**:

Section	Coverage Focus
1. Material Damage	Physical loss or damage to equipment
2. External Data Media (EDM)	Loss or restoration cost of stored data
3. Increased Cost of Working (ICOW)	Additional costs to maintain operations on substitute equipment

D. Section I – Material Damage

- Covers **sudden, unforeseen physical loss/damage** (other than exclusions).
- **Perils covered:**
 - Fire, lightning.
 - Riot, strike, malicious, terrorism.
 - Theft & burglary.
 - AOG: EQ (fire & shock), flood, storm, tempest, cyclone, hurricane, tornado, typhoon, inundation, landslide, subsidence, rockslide.
 - Impact, collision, falling objects.
 - Short-circuit, arcing, electrical breakdown, failure of safety devices.
 - Faulty operation, carelessness, negligence.
 - Faulty design/material/manufacturing/assembly/erection.
 - Damage from water, humidity, moisture.
- **Exam Tip:** MD = “All-Risks” for electronics — fire + AOG + theft + breakdown + negligence.

E. Section II – External Data Media (EDM)

- Covers **expenses to restore lost/damaged data media** (tapes, discs, drives, cards).

- Includes **cost of reproducing lost information/data** if loss caused by Section I peril.
 - **Indemnity basis:** First Loss (no average).
 - **Sum Insured:** Cost to replace media + restore data.
 - **Exam Tip:** *EDM = restores media + information; first-loss basis.*
-

F. Section III – Increased Cost of Working (ICOW)

- Covers **extra costs to maintain data processing continuity** on substitute equipment after Section I damage.
 - Examples: Hiring/sub-contracting computing, renting hardware/software, special transport.
 - **Sum Insured:** Limits chosen by insured:
 - Indemnity per hour.
 - Indemnity per occurrence (weeks).
 - Aggregate indemnity limit.
 - Transport expenses for materials.
 - **Excess:** Time Excess (waiting period).
 - **Exam Tip:** *ICOW = hire substitutes + per hour/occurrence/aggregate limits; subject to Time Excess.*
-

G. Exclusions

1. General Exclusions (All Sections)

- War, civil commotion, terrorism.
- Nuclear/radiation.
- Wilful act/negligence.
- Cessation of work.
- Costs outside India (except replacement delivery).
- Derangement without actual damage.

- Equipment under maintenance agreement.
- Sonic/supersonic aircraft pressure waves.

2. Section I Exclusions

- Policy excess.
- Pre-existing defects.
- Failure/interruption of gas, water, electricity supply.
- Wear/tear, erosion, corrosion, deterioration.
- Losses covered by manufacturer/supplier contract.
- Rented/hired equipment where owner liable.
- Bulbs, valves, ribbons, belts, wires, tubes, chains.
- Consequential losses.

3. Section II Exclusions

- Policy excess.
- Errors: false programming, punching, accidental deletion.
- Consequential loss.



4. Section III Exclusions

- Govt. restrictions, authority orders.
- Lack of funds with insured.
- Costs incurred within time excess.
- **Exam Tip:** *General = war/nuclear; Section I = consumables/wear; Section II = programming errors; Section III = govt. restriction/fund shortage.*

H. Sum Insured (SI)

- **Section I (MD):** Replacement cost of equipment (same type & capacity) + freight, duties, erection cost. **Average applies.**
- **Section II (EDM):** Cost of replacing media + restoring information. **First Loss basis (no average).**

- **Section III (ICOW):** Indemnity limits selected (per hour, per occurrence, aggregate, transport). **Average applies if inadequate per hour limit.**
 - **Exam Tip:** MD = NRV (Average); EDM = First Loss; ICOW = limit-based (Average).
-

I. Maintenance Warranty

- Compulsory: Service contract with manufacturer. Must include:
 1. Regular servicing & maintenance.
 2. Maker to repair breakdown damage (except owner negligence).
 - Without valid maintenance contract → cover void.
 - **Exam Tip:** Maintenance contract = condition precedent to liability.
-

J. Basis of Indemnification

- **Section I:** Same as Machinery Insurance – repair cost if repairable; NRV if total loss; salvage deducted; no depreciation except limited-life parts.
 - **Section II:** Cost incurred within 12 months to restore data/media to pre-loss condition.
 - **Section III:** Extra costs during indemnity period to maintain operations → limited to chosen hourly/weekly/aggregate limit; average applies if insufficient.
 - **Exam Tip:** Basis = MI principles for MD; “proof of cost incurred” for EDM & ICOW.
-

K. Excess (Deductibles)

- **Section I & II:** Monetary excess (per claim).
 - **Section III:** Time Excess (waiting days/hours).
 - **Exam Tip:** MD & EDM = money excess; ICOW = time excess.
-

L. Technical Control & Underwriting

- EEI covers only **equipment with ≥3 months trouble-free operation.**
- Mandatory technical survey by inspecting engineer + special EEI questionnaire.

- Special focus on **fire, water, malicious damage hazards**.
 - For process-control computers → separate consideration.
 - No Loss of Profits cover in India (only ICOW allowed with limit).
 - **Exam Tip:** *Only commissioned, tested machines eligible; survey & questionnaire compulsory.*
-

M. Rating

- **Section I & II:** Flat rate (varies by equipment type, age, condition).
 - **Section III:** Rate linked to Time Exclusion & Indemnity Period.
 - Old tariff: 1% for equipment under manufacturer warranty; 2% for older equipment. Post-detariff → wide variation, case-to-case.
 - Factors: Claims history, maintenance quality, repair facilities, spares, adverse features.
 - Higher excess → premium credit.
 - **Exam Tip:** *ICOW premium depends on Time Excess & Indemnity Period; MD/EDM = flat rate.*
-

N. Claims Control

- Insured must:
 - Inform insurer immediately.
 - Take steps to minimise damage.
 - Provide repair bills, evidence of damage.
 - For EDM: Proof of cost incurred in restoring data/media.
 - For ICOW: Proof of hire/substitute costs.
 - **Exam Tip:** *Claim = evidence-driven; proof of cost essential.*
-

O. Abbreviations

- **EEI** – Electronic Equipment Insurance.

- **EDP** – Electronic Data Processing.
- **EDM** – External Data Media.
- **ICOW** – Increased Cost of Working.
- **SI** – Sum Insured.
- **NRV** – New Replacement Value.

Quick Revision Table

Aspect	Electronic Equipment Insurance (EEI)
Nature of Policy	All-Risks cover for electronic systems
Sections	1. Material Damage, 2. Data Media, 3. ICOW
Sum Insured Basis	Replacement cost + duties + erection
Average Clause	Applies to Sec. 1 & 3; not to Sec. 2
Maintenance Warranty	Mandatory service agreement
Rating	Separate for each section
Excess	Monetary (Sec.1–2), Time (Sec.3)
Key Feature	Protects both hardware and business continuity

15. DOS & CECR

A. DETERIORATION OF STOCKS (DOS) INSURANCE

1. Concept & Purpose

- DOS = **Stock Spoilage Insurance** for cold storage goods.
- Protects against **deterioration/putrefaction/contamination** due to **temperature change** in cold chambers caused by **Machinery Breakdown (MB) of refrigeration plant**.
- Always linked to a concurrent **Machinery Insurance Policy**.
- DOS + MB together = **Refrigeration Plant Insurance**.
- In India → 2 forms:
 - **Other than Potatoes** → fish, prawns, seafood, fruits, cheese, dairy/agri produce.
 - **Potato Policy** → exclusively for potato cold stores.
- **Exam Tip:** *DOS always piggybacks MB; no MB claim → no DOS claim.*

2. DOS (Other than Potatoes)

a) Scope of Cover

- Loss/damage by deterioration or putrefaction due to:
 - i. Breakdown of refrigeration plant.
 - ii. Damage to refrigeration plant by external cause.
 - iii. Escape of refrigerant fumes.
 - iv. Reasonable expenses to minimise loss (e.g., shifting goods).
 - v. Extension (extra premium): failure of public electricity supply (at terminal ends of feeder line).

b) Principal Exclusions

- Fire, lightning, theft, collapse of building, chemical explosion, water damage, flood, inundation, storm, tempest, EQ, AOG.
- War, riot, strike, nuclear.

- Consequential losses (loss of market, 3rd party poisoning claims).

c) Sum Insured & Average

- SI = **Maximum stock value at any time** during policy period.
- Subject to **average** → underinsurance detected via stock register.

d) Indemnity Basis

- Market value of commodities immediately before accident.
- Max liability = SI.
- Fish/meat claims → supported by **Govt. certificate of unfitness for consumption**.

e) Excess (Deductible)

- Each claim subject to compulsory deductible (reasonably high).

f) Technical Control

- Pre-acceptance & renewal inspection by qualified engineer.
- DOS follows MB → concurrent MB policy must be in force (preferably with same insurer).
- Extension for power supply → exclude rationing/load shedding/fuel shortage.
- Inspecting engineer checks **log books** (temperature readings, operations).

g) Underwriting Considerations

- Past experience of cold store.
- Age & condition of plant.
- Availability of standby repair/replacement.
- Nature of refrigerant gas used.
- Alternative storage facilities.
- Quality of maintenance & supervision.
- **Warranty:**
 - i. Maintenance contract compulsory.
 - ii. Log books to record temperature.

- iii. Stock registers to record daily stock movements.

h) Rating

- Company-specific rating; no uniform tariff.
 - World experience: adverse → requires caution.
 - Annual renewable basis.
 - **Exam Tip:** *DOS underwriting = very strict → high loss potential, no salvage possible.*
-

3. DOS (Potatoes)

a) Scope & Exclusions

- Covers potato stocks; exclusions same as general DOS.
- Extra warranties due to perishable nature.

b) Sum Insured

- $SI = \text{Cold store capacity} \times \text{average price at storage} \times \text{season storage charges}$.
- Pro-rata average clause applies.

c) Indemnity Basis

- Agreed value fixed at inception (per tonne).
- Claim = lower of agreed value or market price at loss time.
- Deductions: rottage, shrinkage, salvage, underinsurance, excess.

d) Excess

- Each claim subject to compulsory deductible.

e) Technical Control

- **Moral Hazard:** Very high → rigid acceptance.
- **Concurrent MB Policy** → compulsory.
- **Pre-insurance inspection:** Before every season (before 15 April).
- **Mid-term inspections:** Frequent checks by engineers → segregation of spoiled stock.

- **Log Book:** Records every 4 hrs → wet/dry bulb temperature, humidity, compressor pressures.
- **Stock Register:** Daily entries required.

f) Claims Control

- Engineer surveyor to be deputed within 48 hrs of MB claim.
- Surveyor duties: inspect damage, check log sheets, verify stock register, recommend loss minimisation, supervise salvage.
- Potato tolerance: Sprouting won't occur if breakdown < 72 hrs → claim not payable.

g) Underwriting

- Same as general DOS, but stricter due to moral hazard & seasonality.
- Policies may be on **declaration basis**.
- **Exam Tip:** *Potato DOS = strictest acceptance; pre-inspection before April 15 mandatory.*

B. CIVIL ENGINEERING COMPLETED RISKS (CECR) INSURANCE

1. Need

- Protects **civil engineering structures after construction completion** & handover.
- Fire risk negligible; natural hazards are key exposures.
- **Exam Tip:** *CECR fills post-construction cover gap where Fire Policy unsuitable.*

2. Suitable Structures

- Roads, runways, bridges, dams, irrigation systems, canals, reservoirs, tunnels, harbours, sewer systems, waterworks, overhead lines, transmission towers, dry docks.
- Pipelines → only if non-combustible substances.
- **Exam Tip:** *Typical CECR = roads, dams, tunnels, bridges.*

3. Scope of Cover

- **Named-perils policy** → covers sudden, unforeseen material damage requiring repair/replacement due to:
 - Impact (vehicles, ships, aircraft).
 - Earthquake, tsunami, volcanic eruption.
 - Storm \geq Beaufort Scale 8.
 - Flood, inundation.
 - Subsidence, landslide, rockslide, other earth movement.
 - Frost, snow, avalanche, ice.
 - Vandalism.
 - Fire, lightning, explosion (external).
 - Extra perils by endorsement (e.g., bush fire in Australia).
 - **Exam Tip:** *CECR = Named perils; list must be memorised.*
-

4. Exclusions

- Wilful acts/negligence of insured.
 - Inherent vice, wear & tear, gradual deterioration, expansion/contraction due to temperature.
 - Loss due to inadequate maintenance.
 - Consequential loss.
 - War, nuclear.
 - Riot, strike, civil commotion (can be added by endorsement).
 - **Exam Tip:** *Maintenance issues & inherent defects = excluded.*
-

5. Sum Insured

- Must = **New Replacement Value (NRV)**.
- $SI < NRV \rightarrow$ underinsurance applies.

- Separate amount to be indicated for **debris removal**.
 - **Exam Tip:** *Always insure CECR at NRV + debris removal.*
-

6. Basis of Indemnity

- **Partial loss:** Actual repair cost (no deduction new-for-old).
 - **Total loss:** Depreciated value considering service life & maintenance.
 - If 3rd party causes loss → insurer pays insured, but pursues recovery rights.
 - **Exam Tip:** *No new-for-old deduction for partial repair claims.*
-

7. Period of Insurance

- Annual renewable policy (max 1 year).
 - At each renewal → SI reviewed for inflation; property's age & condition reassessed.
 - **Exam Tip:** *CECR always annual, not long-term.*
-

8. Underwriting Assessment

- Factors assessed:
 - Geographical/topographical location.
 - Exposure to floods, storms, EQ, landslides, avalanches.
 - Type/age/condition of structure.
 - Maintenance arrangements.
 - Past damage history.
 - Construction methods & materials.
 - Inspection reports → adequacy of design for hazards; probable maximum loss estimate.
 - Operating risk: purpose/use, exposure to fire/blasting, personnel availability.

- Additional info: date/cost of original construction, photos of structure & surroundings.
 - **Exam Tip:** *Underwriting = Location + Hazards + Maintenance + History.*
-

C. ABBREVIATIONS

- **DOS** – Deterioration of Stocks.
- **CECR** – Civil Engineering Completed Risks.
- **MB** – Machinery Breakdown.
- **NRV** – New Replacement Value.
- **SI** – Sum Insured.



*“It does not matter how slowly you go as long as you do not stop.” - **Confucius***