

LIMA Programme

Delay in Start Up Insurance

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NOT IF, BUT HOW



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The cover

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mitigation

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The cover

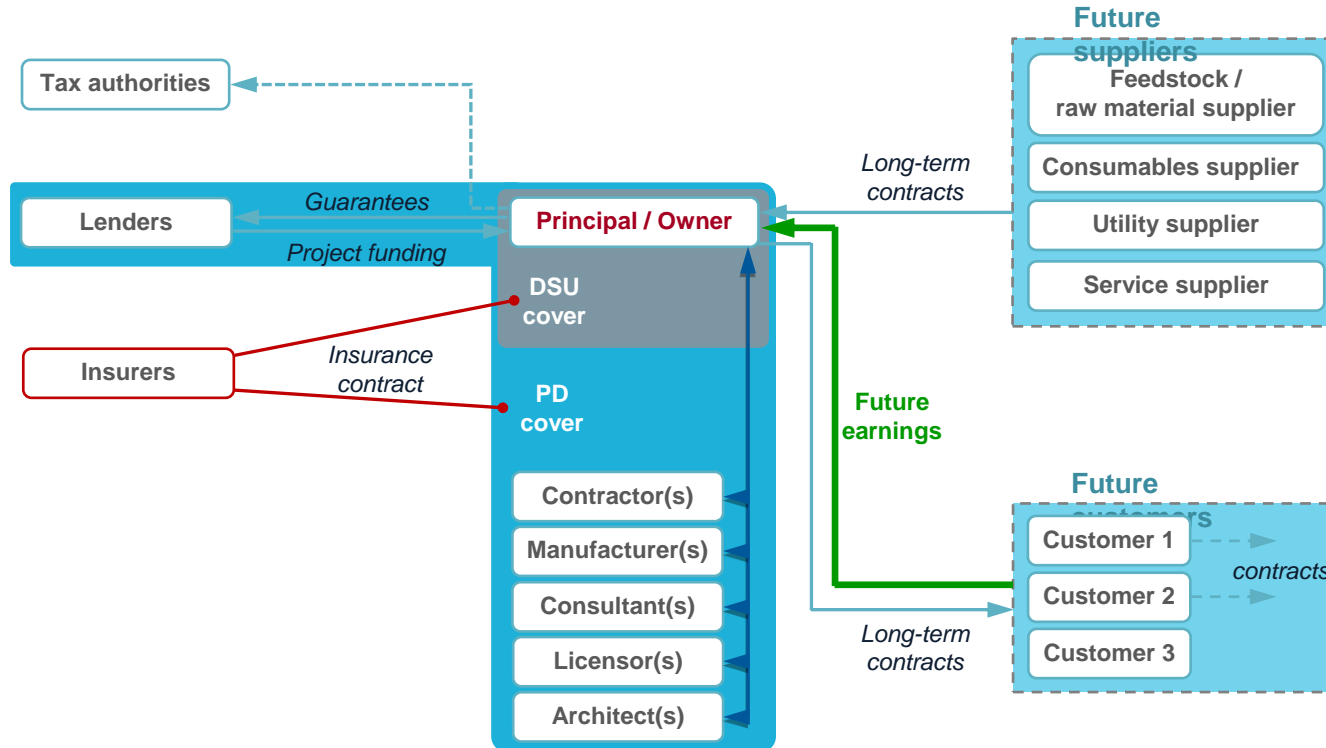
01



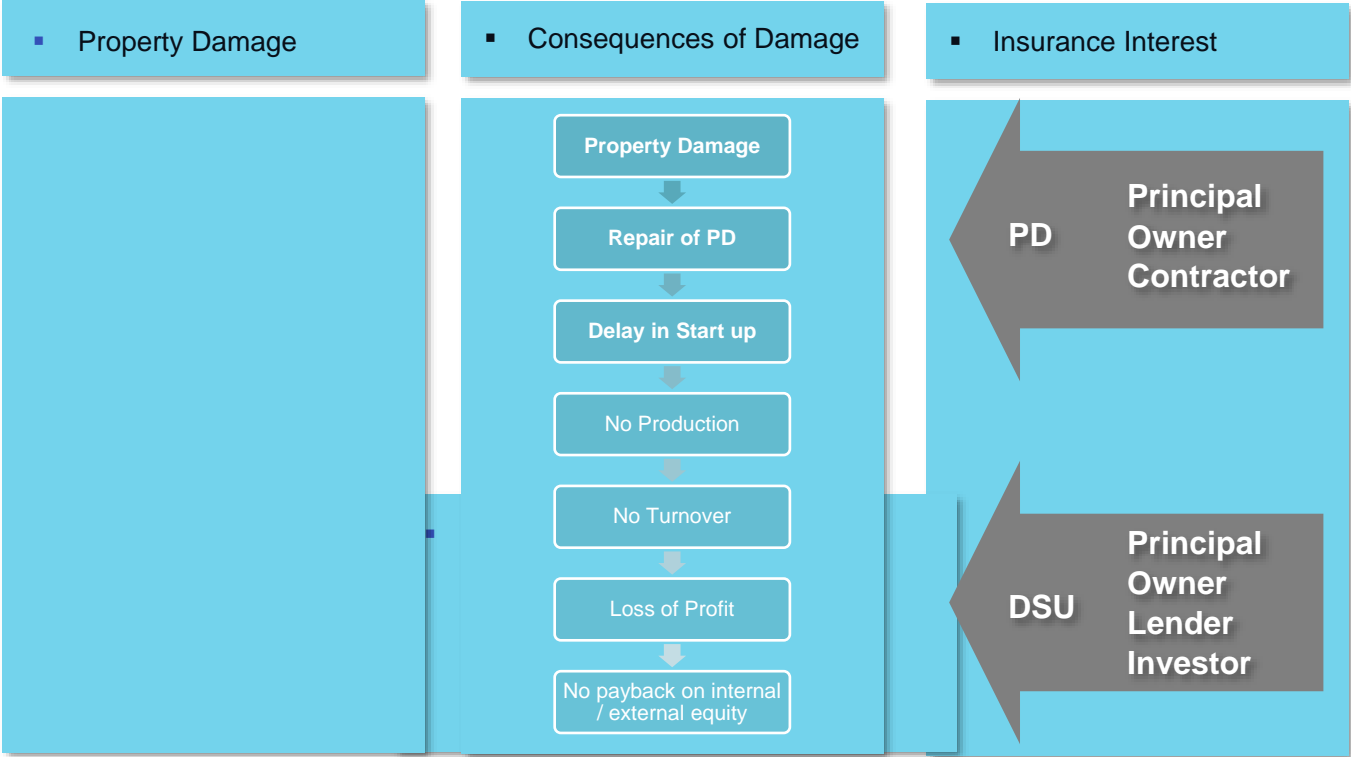
The Cover Insurance clause

The Insurers shall indemnify the **Insured** in respect of **loss of gross profit actually sustained** due to the reduction in turnover and the **increased cost of working** if at any time during **the period of insurance** the insured contract works suffer **loss or damage covered under Section 1** thereby causing an interference in the construction work resulting in a **delay** of commencement of the insured business.

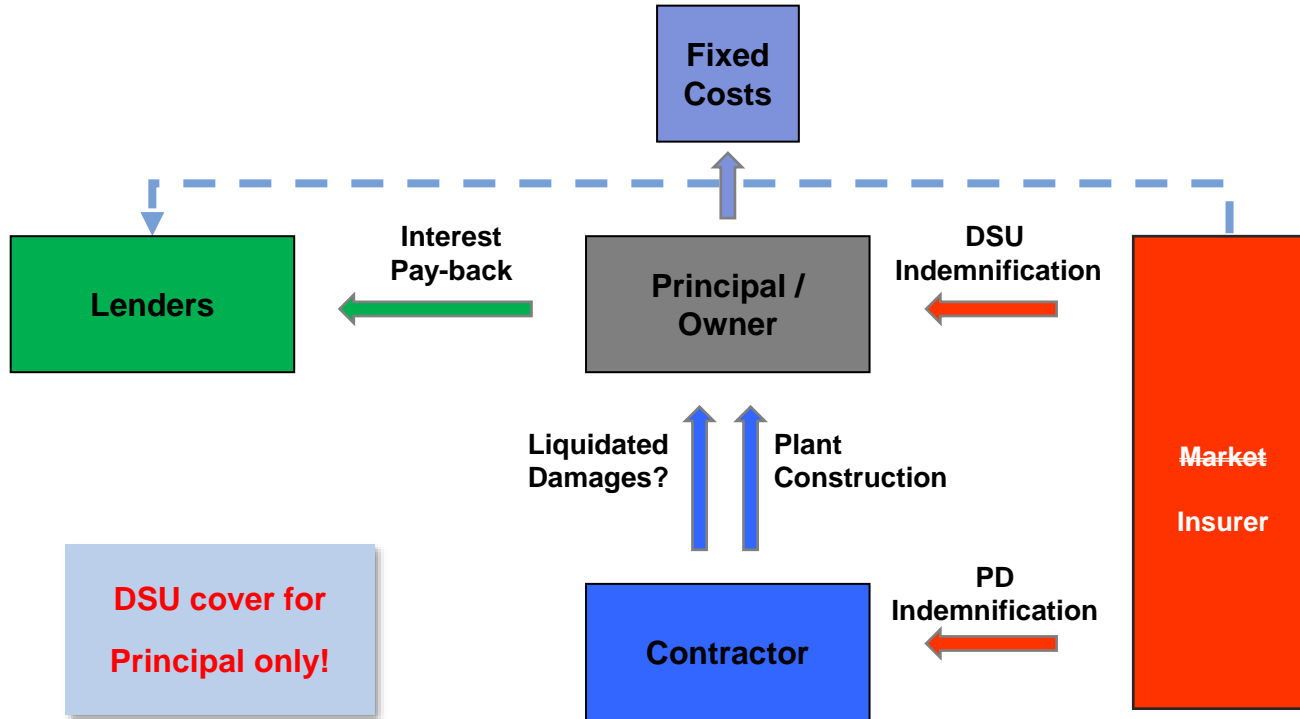
The Cover The Insured



Physical Damage and Loss of Profits Basics



The Cover The Insured



The Cover

DSU and PD Cover

Insured Property under DSU

- In general the same as under the corresponding PD cover
- Extension for Contractors' Equipment (e.g. special cranes, vessels)

Insured Perils under DSU

- In general the same as under the corresponding PD cover
- Are extension for additional perils insured under the PD-part automatically insured under DSU?

The Cover

DSU and PD Cover

- No DSU claim without property Damage
- PD requires 'cheap' repair, DSU-damage requires fast repair
→ in general fast repair is expensive repair!
- PD insurance and DSU insurance has to be in one hand
- Optimization of overall indemnification in claims handling

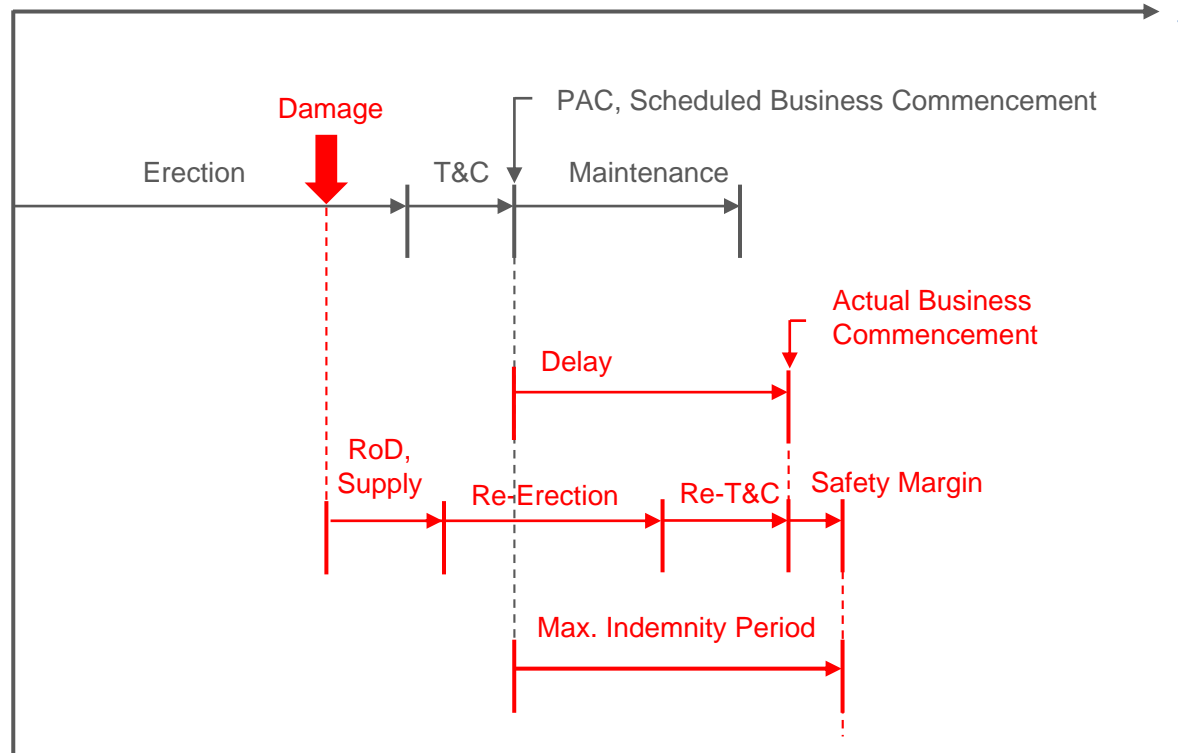
DSU cover..

- either forms part of a overall project insurance policy
- or stipulates a PD cover given by the same insurer 'combined policy'

The Cover

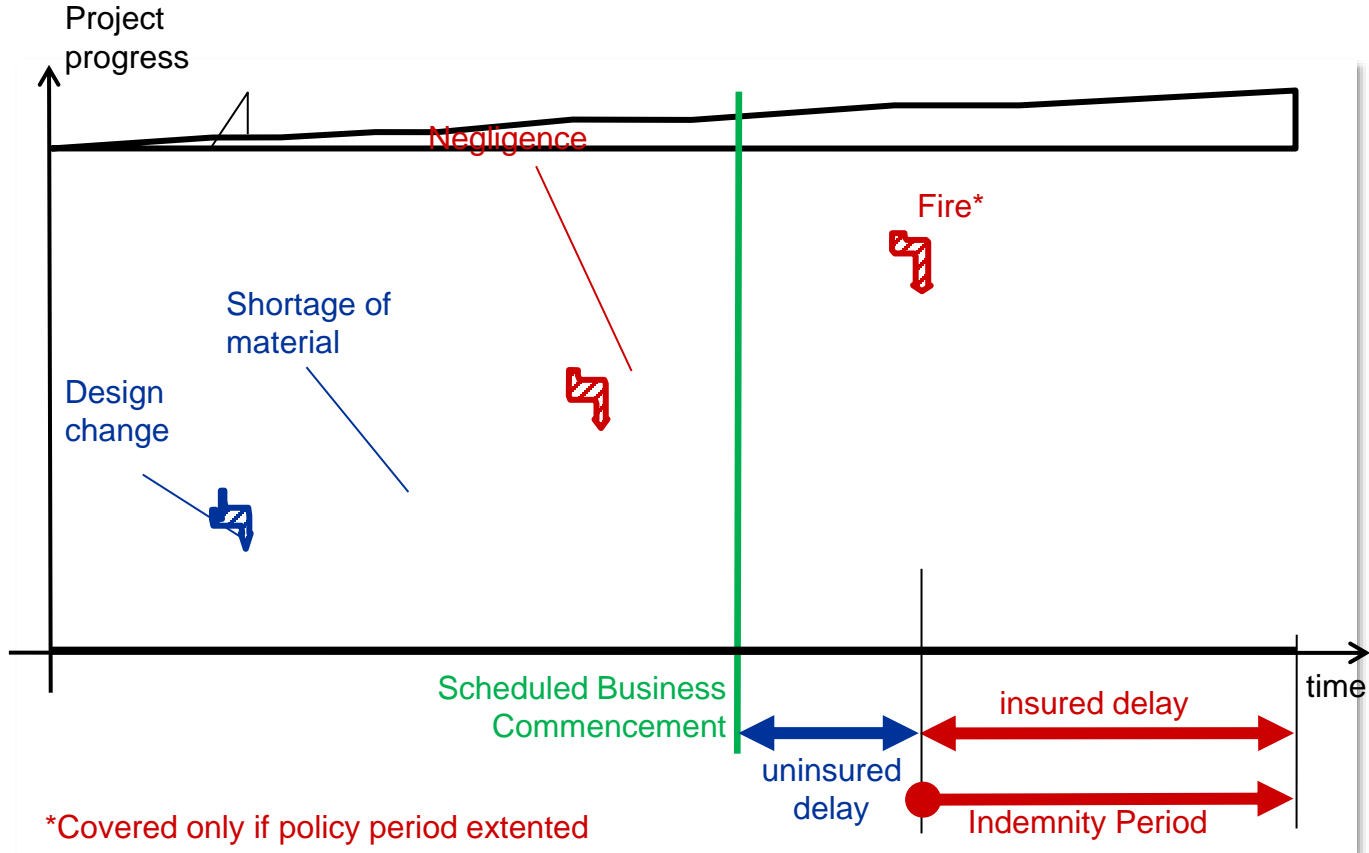
Project Periods and Insurance Periods

Estimation of the Maximum Indemnity Period in DSU



The Cover

Insured and uninsured Delays



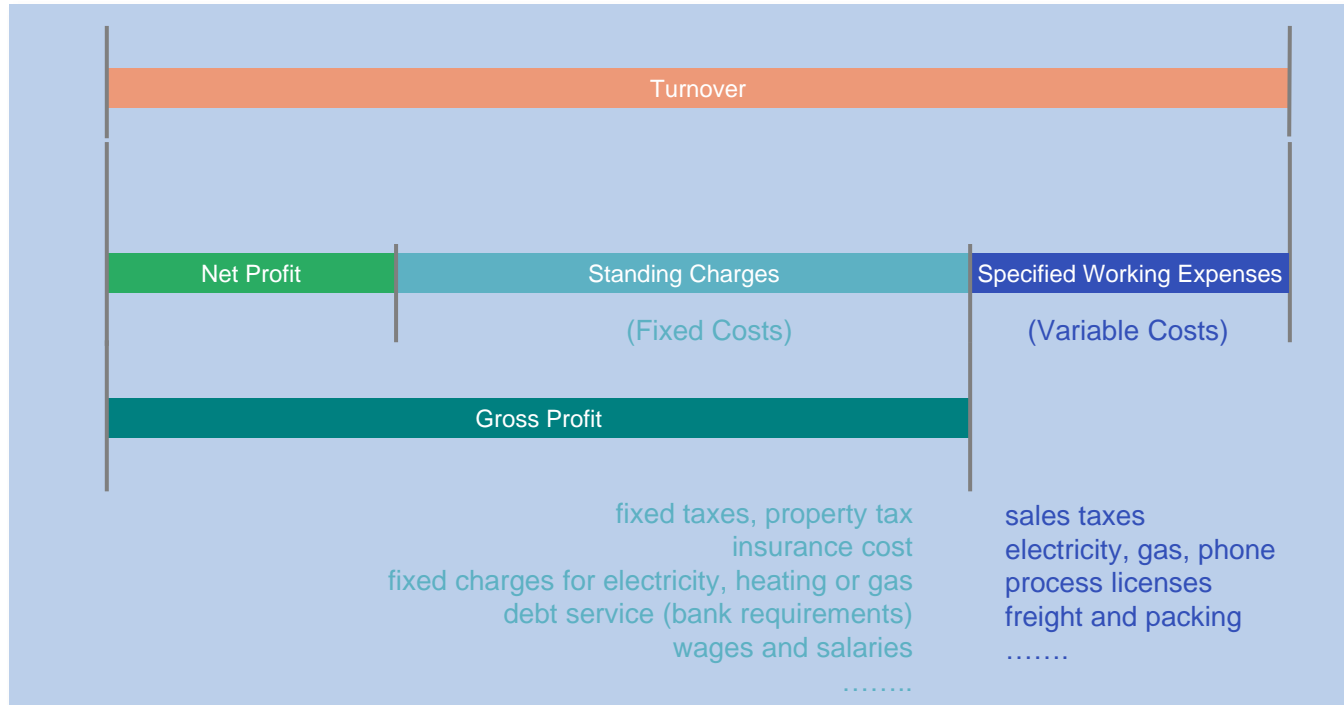
The Cover Gross Profit

In respect of **loss of gross profit**:

The sum obtained by applying the **rate of gross profit** to the amount by which the **actual turnover** falls short of the turnover which would have been achieved had the delay not occurred.

The Cover Gross Profit

Standard case: Indemnification of standing charges and net profit – on “as if” basis



Forecast of Gross Profit required

- Forecast horizon is necessarily longer than the project duration
- Insurance of the actual loss sustained
- Consider
 - Price for feed
 - Price for interim products
 - Price for finished products
 - Seasonal fluctuations
 - Ramp-up time
 - Does the loss impacts the market prices?

The Cover

Insurance of actual loss sustained

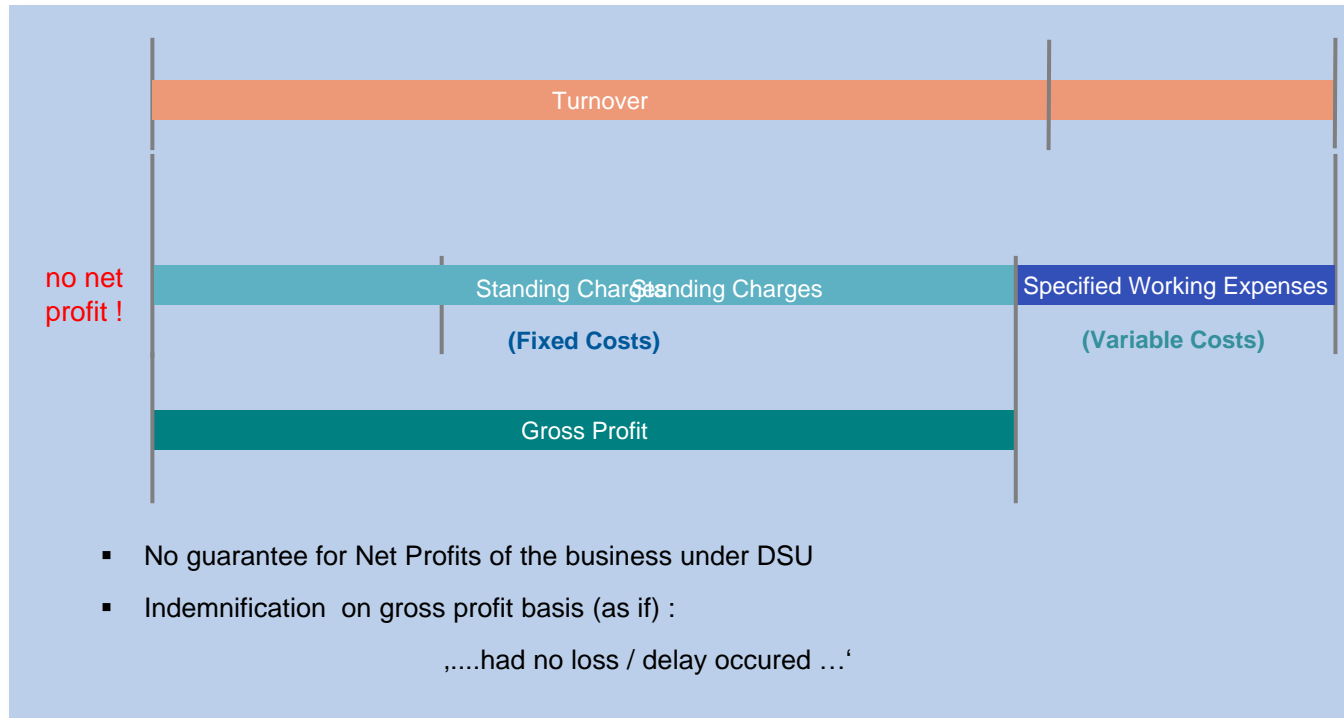
Feed Price: Crude Oil



The Cover

Insurance of actual loss sustained

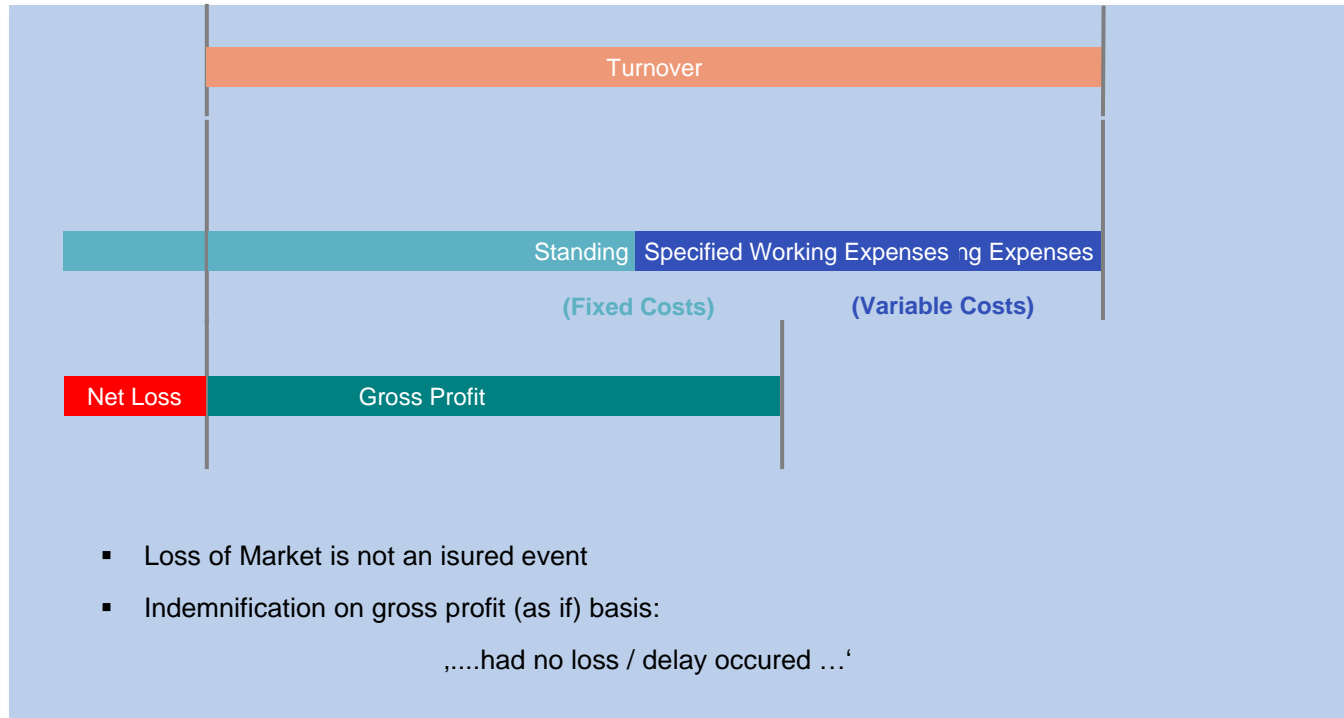
... a change of economic situation: decrease of product price



The Cover

Insurance of actual loss sustained

... further drastical product price decrease



The Cover

Increased cost of working

Increased cost of working

- Expenditure in order to avoid or reduce loss of gross profit
- Insurance of mitigation measures
 - Additional workforce
 - Purchasing interim products
 - Renting of equipment
 - Renting of alternative premises
 - Change in method of working (contractor)
- Increased cost of working is limited to the loss of gross profit thereby avoided

The Cover

Summary Indemnification

Loss of Gross Profit

Loss of Gross Profit =

Rate of Gross Profit x (theoretical Turnover without delay – actual Turnover during Indemnity Period)

All circumstances affecting the insured business shall be taken into consideration to represent a situation 'as if' had the delay not occurred

Increased Cost of Working

Increased Cost of Working =

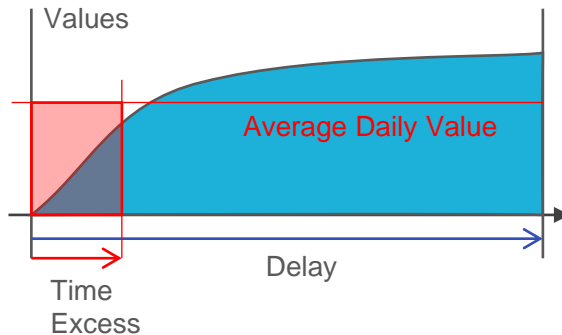
Additional expenditure necessarily and reasonably incurred to avoid or diminish the reduction in turnover limited to the reduction in Loss of Gross Profit avoided by these expenditure

The Cover

Time Deductible

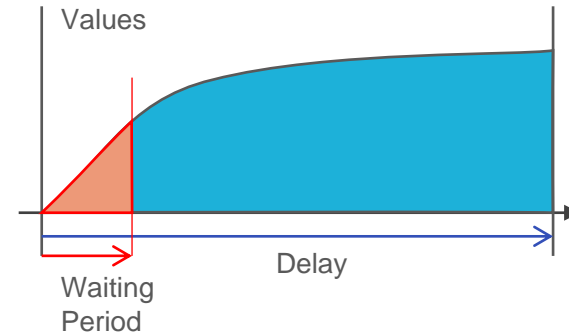
Time Excess

- Period...for which the Insurers are not liable. The amount shall be calculated by multiplying the average daily value of loss sustained ...by the number of days.



Waiting Period

- Period...for which the Insurers are not liable



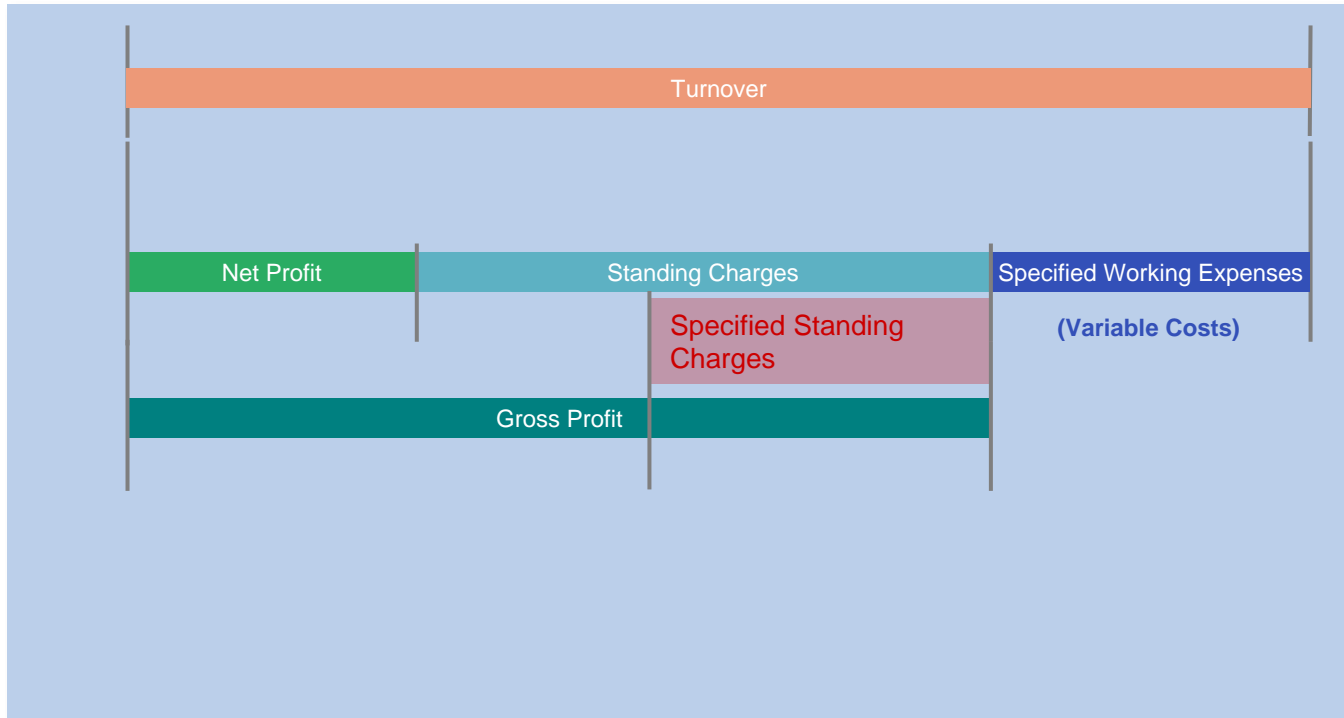
Alternative Covers

- Loss of gross profit
- ICOW
- Specified standing charges
- Loss of rent
- Loss of toll
- Holding costs
- Fixed amount

The Cover

Insurance of Specified Standing Charges

Specified Standing Charges

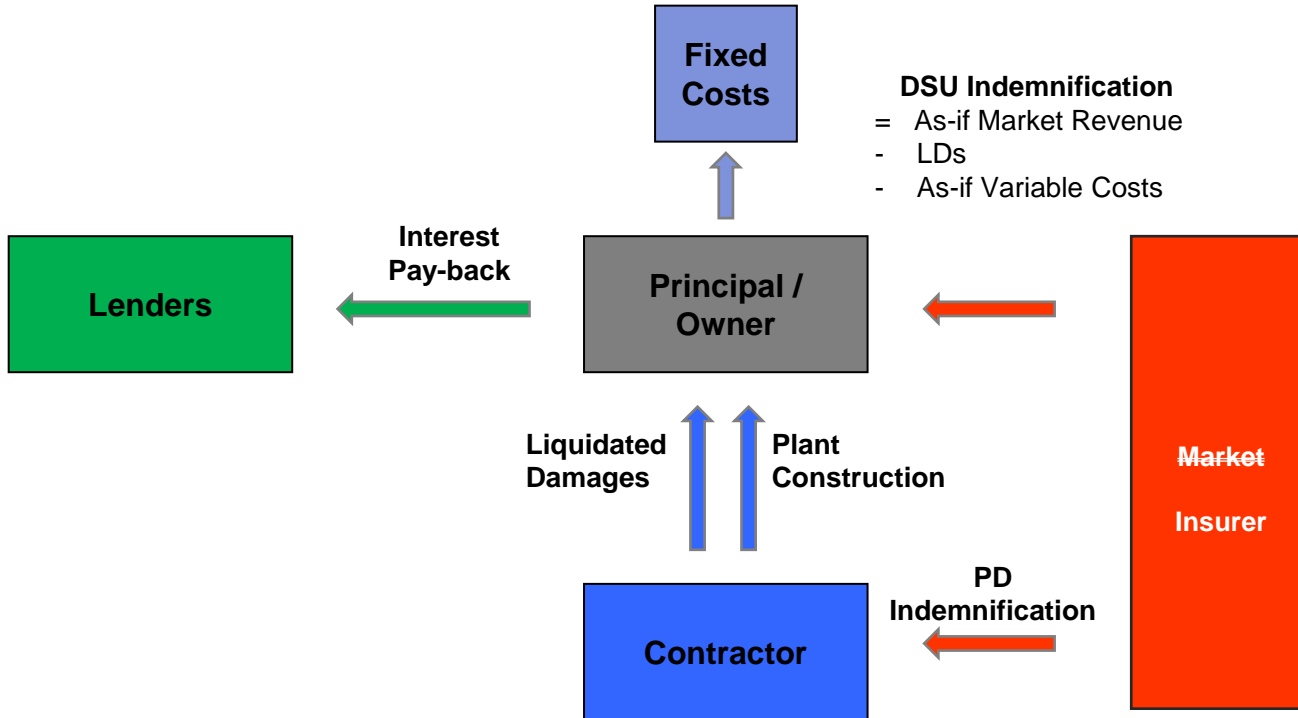


Exclusions commonly used in DSU wordings

- Extensions of PD cover which are not specifically agreed upon for DSU
- Loss of or damage to contractors' plant and equipment
- Loss to or shortage of material, feedstock, operating media
- Restrictions imposed by public authorities
- Substantial alterations in risk
- Non-availability of funds
- Loss of business due to causes such as suspension, lapse or cancellation of lease, licenses, order other than incurred during the delay
- Loss to prototypical work
- Additional delays from improvements or betterments
- Fines, penalties, liquidated damages

The Cover

Liquidated damages



The Cover

Liquidated Damages

Liquidated damages

- Liquidated damages are to be paid in case the project is delayed due to bad performance of the contractor
- Principal is not obliged to demonstrate a financial loss.
- Independent of the as-if market loss
- Offset the DSU claim by the amount of liquidated damages
- Contractor should be encouraged to improve performance

What might be requested?

- Additional increased cost of working
- Construction of plant and equipment (insured or not insured under Section 1)
- Professional fees and claims preparation costs
- Public utilities
- (Specified) suppliers' and / or manufacturers' premises
- Customers' premises
- Prevention of access
- Premises in the vicinity
- Infectious or contagious disease
- Port Blockage.....

Period Extension

- Multitude of causes can trigger a delay of a project
- Any problems leading to the extension necessarily hit the critical path:
 - Buffers are consumed
 - Long lead items are installed
- **No automatic extension of insurance period for DSU**
- Premium was calculated on basis of the “first schedule”, AP cannot be calculated simply on pro-rata basis

Exposures

02



Physical Damage and Loss of Profits Basics

Criteria for the DSU exposure

Main Criteria for the DSU-exposure

- Can the entire site (major part of the site) be damaged by one event (fire, flood, earthquake...)?
- Time required for reconstruction, repair or installation of a new machine (improvement of design necessary?)
- Is there any bottleneck machines? (amount/percentage of the lost production)
- Can the delay be made (partially) good by loss minimization?

Time = Money

Physical Damage and Loss of Profits Basics

Criteria for the DSU Damage

Lead times of some typical DSU risks (months)

Risk	Lead time (months)
mid size Gas turbine PP	18
major tunnel projects	36
petrochemical plant	24

What has an impact on the lead time

- Actual demand, e.g. strong investment activities for power plants increase the lead time for all relevant components
- Highly customized products / components with restricted number of suppliers
- Site conditions
- Availability of contractors, workers

... and: the clock keeps ticking !

Physical Damage and Loss of Profits Basics

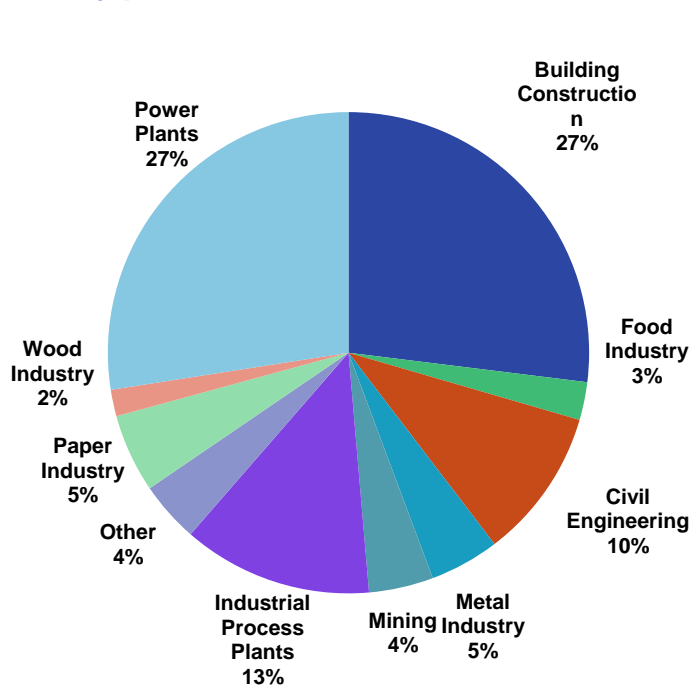
Delay vs. Burning Costs

Delay	vs	Share of annual turnover (= burning cost for DSU insurer)		
1 day	=	1 / 365	= 0.00274	= 0.27 %
1 week	=	1 / 52	= 0.01923	= 1.92 %
1 month	=	1 / 12	= 0.08333	= 8.33 %

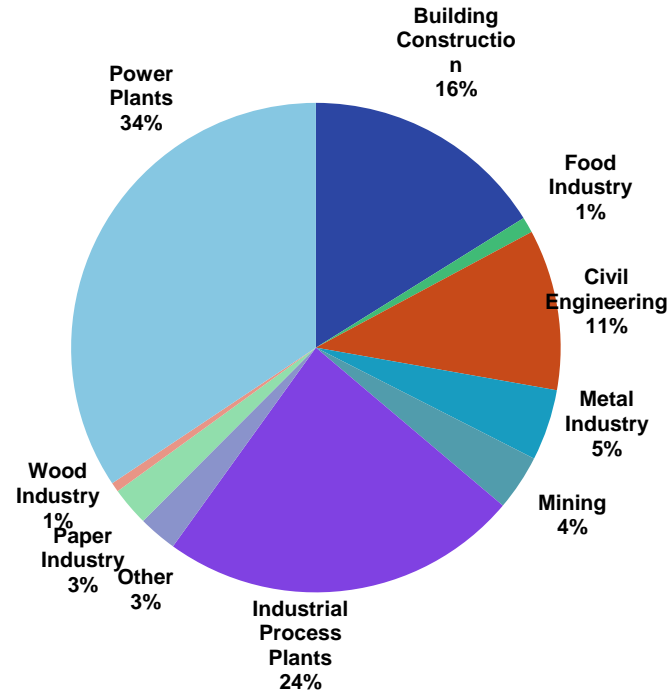
- An average indemnifiable delay of 1 week requires a technical premium of 2%
- For construction periods of several years, an overall delay of one week is comparatively short → need for adequate time deductibles!

Physical Damage and Loss of Profits Basics

A typical DSU Risk Portfolio



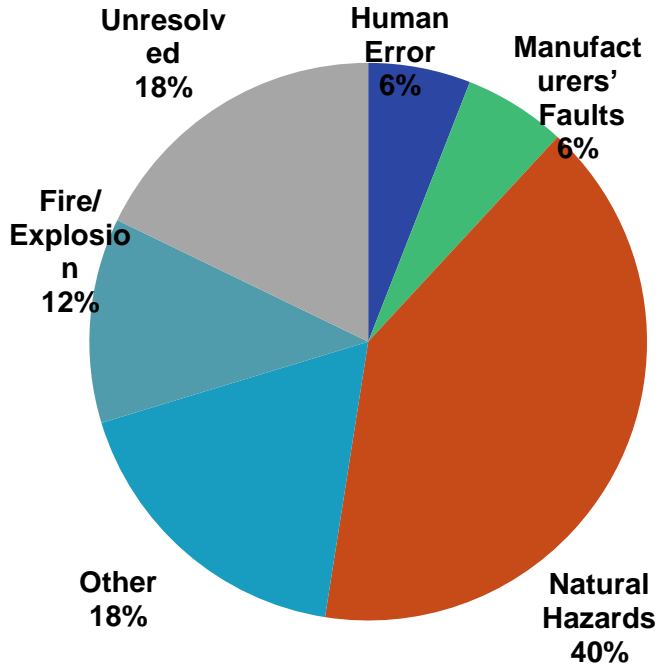
Total number of risks 1176



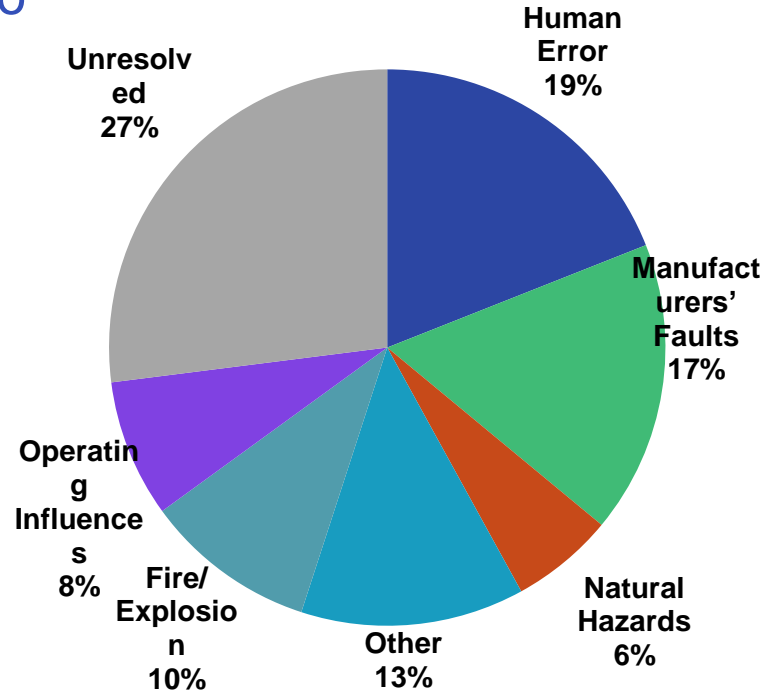
Total sum insured € 91bn
average sum insured per risk € 77mio

Physical Damage and Loss of Profits Basics

A typical DSU Risk Portfolio



Cause of loss - CAR



Cause of loss - EAR

Physical Damage and Loss of Profits Basics

Increasing Demand and Exposures for DSU

Industry

- Size and complexity of projects driven by “economy of scale” and technical development
- Dense time schedules for projects with little or no financial buffer
- Reduction in numbers of suppliers of key components → even smaller PD losses may trigger considerable delay
- Just in time supply chain -> no time buffers

Funding

- Tightening public spending budget vs. increasing demand for infrastructure, energy etc.
- About 80% of the projects funded by bank loans
- Alternative funding: BOT, PPP, ...
- Lenders agreement different from insurance interest
- Steadily increasing DSU sums insured

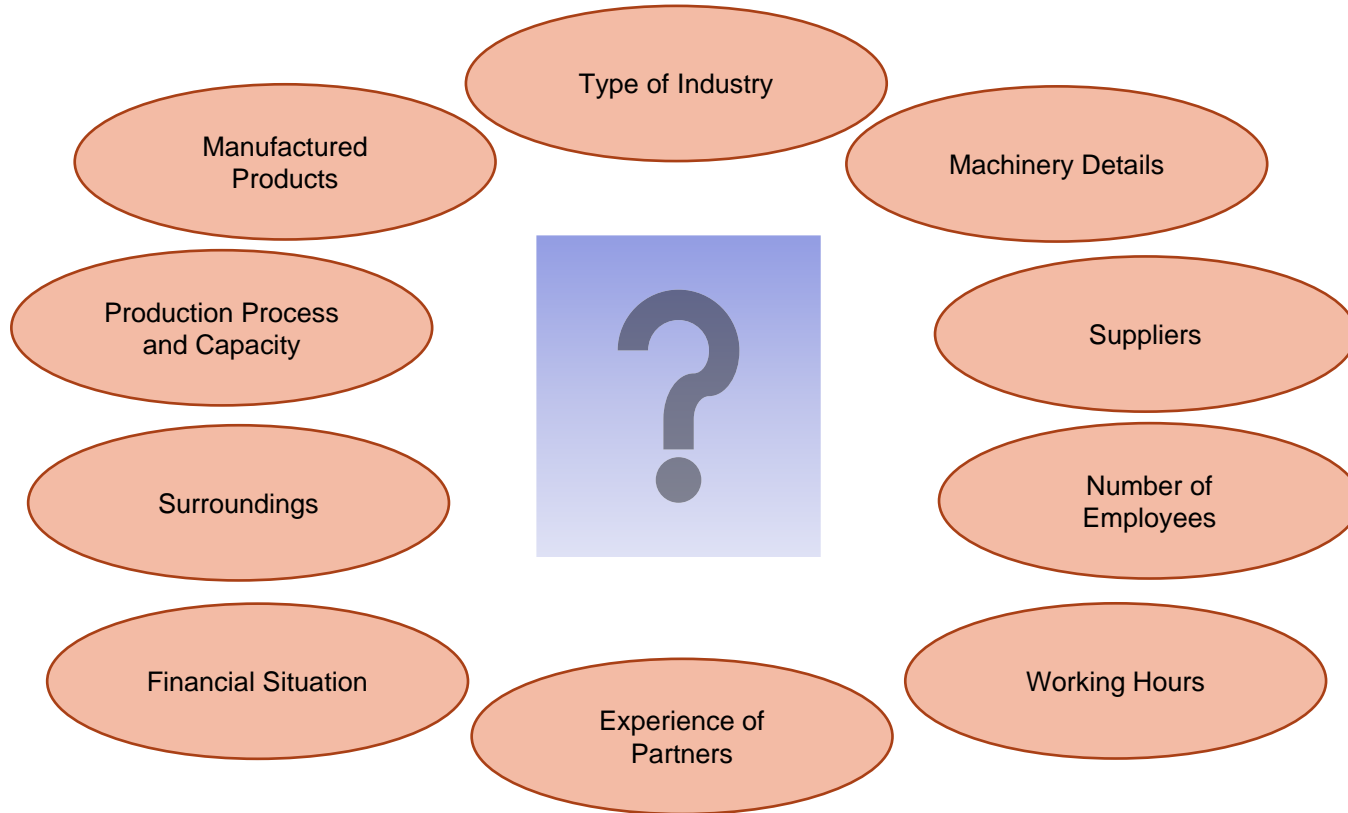
Underwriting

03



Essential Information for Risk Assessment: Information

General Project



Risk Evaluation:

Technical Information

- Cost breakdown.
- Layout, Plan and Drawings.
- Method Statements.
- Site Organisation.
- Materials and spare part orders.
- Risk Management.
- Permanent Access to site.
- Second Hand Machinery??.

Risk Evaluation:

Financial Information

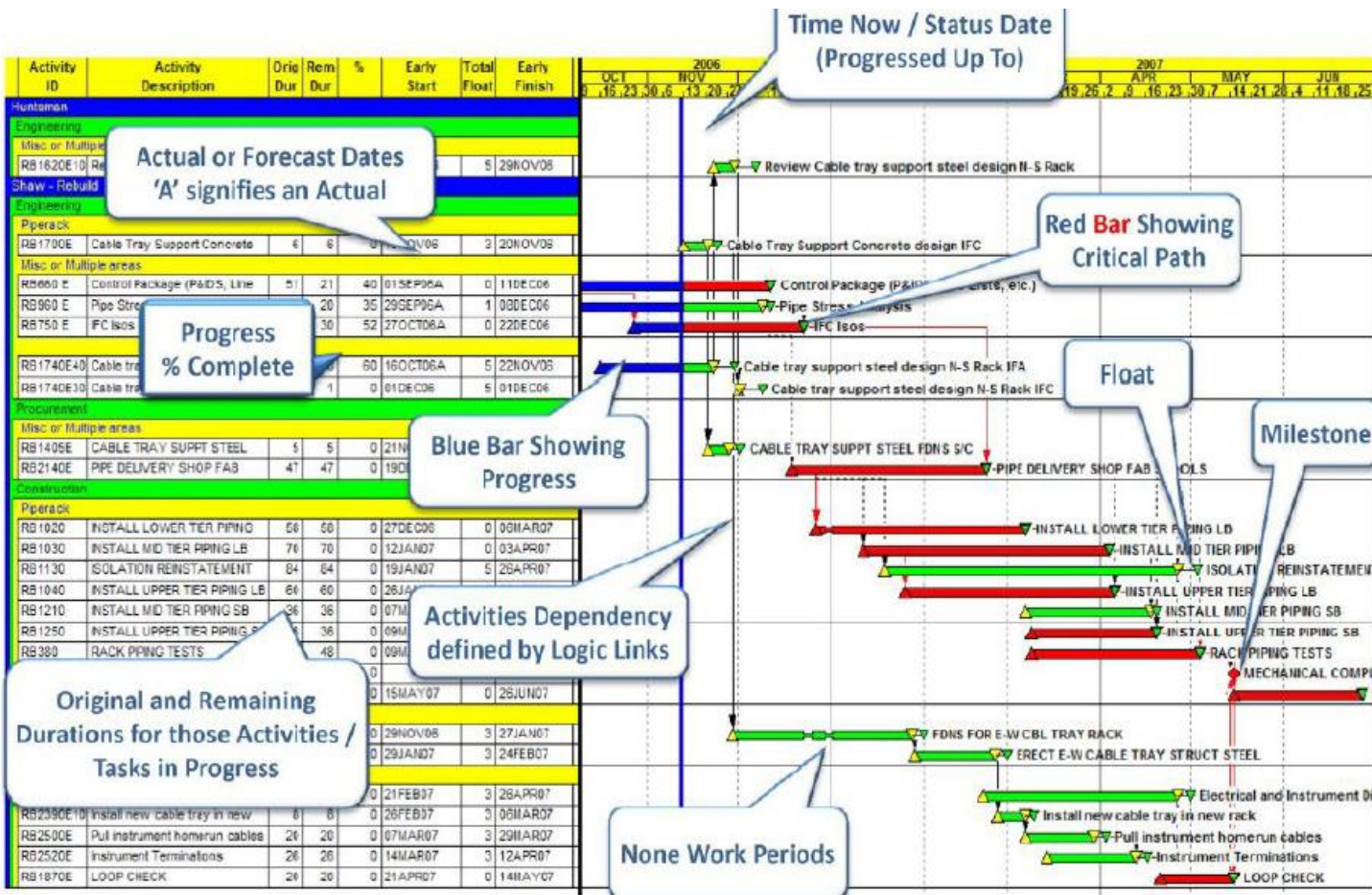
- Fair and transparent figures.
- Demonstration of figures, \$/Mwh, \$/day, \$/m² (for steady output e.g. Power).
- Plausibility Test of business figures.
- Costs.
- Detailed schedule with contractual milestones.

What Can We Do During Underwriting?

Consider the Perils that may cause PD loss and their potential impacts on DSU

Statistics show ~ 66% MD claims occur in last 2 to 3 months of construction and first 2 to 3 months of T&C.

Gantt Chart Example



- **Logic** - effects of insured events (links/dependencies, anomalies, opportunities, minimise liability, ensure workability)
- **Work Breakdown Structure** – hierarchy of project, manageable packages
- **Activities** – work within the WBS inc start/finish dates, duration
- **Key Milestones** – timely completion measures success of project
- **Float** – is time buffered in? Each task or overall?
- **Sequence** – how are tasks interconnected? Dependencies
- **Critical Path** – key tasks for earliest possible completion, **red lines** Delay in Start Up

Interruption Study

- Evaluate the consequences of a particular event occurring on site.
- Determine cost-effective remedial action to reduce delay.
- Process diagram
- Lead times for replacement and overview of spare parts.
- Cost of operating plant/units
- Contingency plans
- Bottle Necks

Contractor Experience

- Successful completion of prior projects within designated time frame.
- Ideally cover should only be provided once contractors and suppliers finalised.
- Location of the project and availability of skilled labour.
- Knowledge of Suppliers and Manufacturers.
- Has contractor been involved in developing the program?

General Information Required

- Location of the premises.
- Territorial Limits.
- All risks or FLEXA only? Exposure?
- Application of sub-limit.
- Accumulation of extensions.
- Application of separate time excess.

Risk Evaluation: Risk Handling

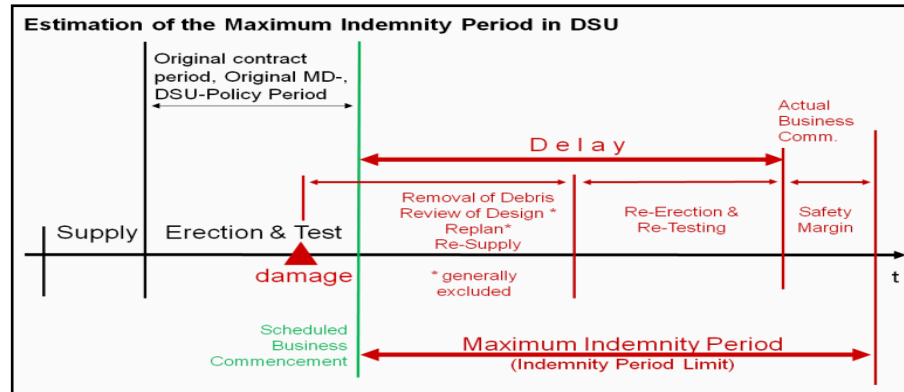
Request regularly updated construction schedules throughout project

Request monthly contractors Progress Report

Agreement to regularly monitor project implementation.

Agreement to record progress on site by underwriters with site visits.

Allow recommendations from Insurers to Insured's throughout period



if Maximum Indemnity Period was calculated reasonably then the delay is likely to take this full period. Only the Time Deductible should be deducted.
(some markets / policies don't do!)

$$PML_{DSU} = (\text{Annual S.I.}) \times (\text{Max. Indemnity Period (years)} - \text{Time Deductible (years)})$$

but: combined PML to be considered

$$PML_{\text{combined}} = PML_{PD} + PML_{DSU}$$

Characteristics	<ul style="list-style-type: none">➤ Linear construction - Values are spread out over a certain distance➤ Geology and terrain have a substantial influence on the costs per m / km / m²➤ The values of the sections vary and depend heavily on the number and size of engineered structures i.e. tunnels, bridges➤ Very machinery intensive construction - dependent on availability➤ Construction very dependent on weather and climatic conditions➤ Brownfield construction - working under traffic!➤ Material and / or design errors impact the complete structure
DSU - Exposure	medium - high
PML scenario triggering DSU	<ul style="list-style-type: none">➤ Collapse / failure of an artificial structure along the alignment ie bridge, tunnel, gallery➤ Heavy rainfalls eroding the subbase and causing landslides➤ Faulty asphalt mix without a section clause
Partial operation	<p>Partial operation is in most cases possible as a loss is seldomly affecting the whole structure but only parts or a certain portion of it. In case critical crossings ie. Bridges or tunnels are affected a by pass must be implemented.</p> <p>In case the crossing is the key element the complete section will be affected. I.E. Oresund crossing</p>
"Bottleneck" elements / products impacting the lead time	Structures such as bridges and tunnels Availability of certain key plant i.e. soil mixer
Other challenges	Weather and climatic conditions

Monitoring and risk mitigation

04



Special conditions concerning risk and loss control:

- Insured provides progress reports at adequate intervals
→ identification and documentation of deviations from the schedule
- Facilitate access to the site to the Insurer or persons authorized by the Insurer
- Obligation to loss minimization activities
- Immediate notification of claims that might cause a delay
- Provide claims information
 - Technical information on the claim
 - Information concerning the business affected

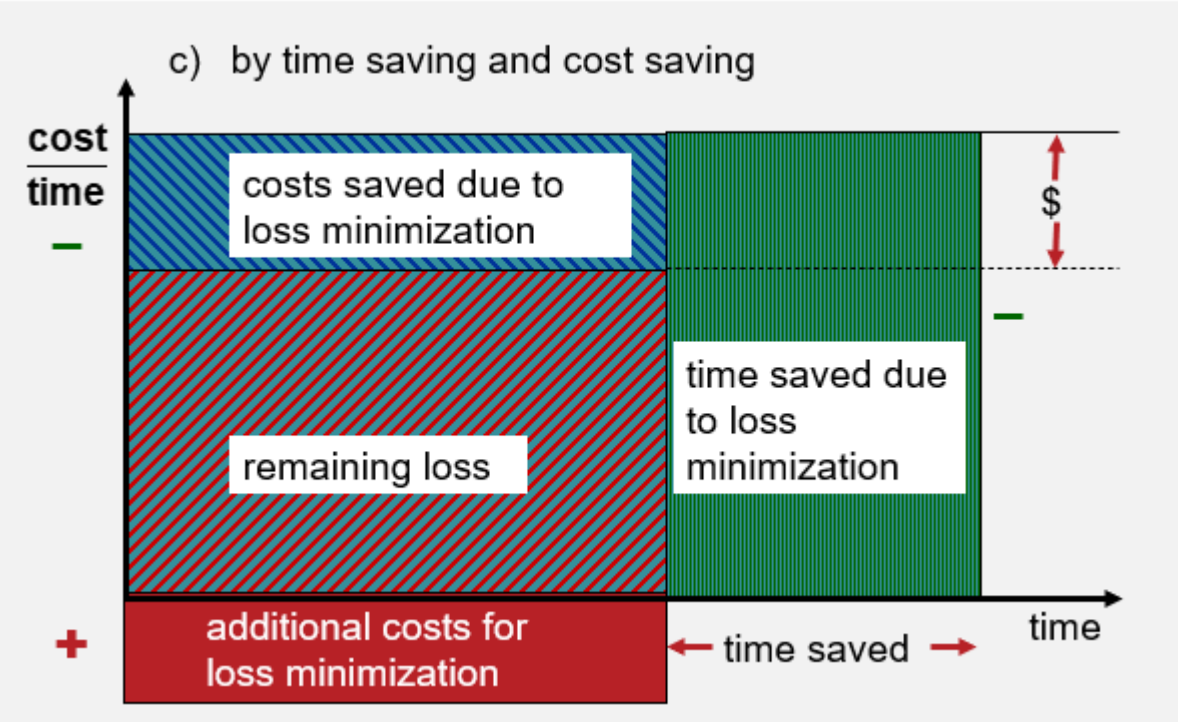
Monitoring

- Monitoring of progress by engineers / independent consultants
 - Changes in the schedule as work progresses
 - Progress reports and schedules
 - Desk top reviews and site visits
 - Monitoring of uninsured delays (very difficult)

Loss mitigation

- Loss mitigation measures (examples):
 - Use of additional labour, construction machinery, subcontractors
 - Introduction of night shift or overtime
 - Redesign works
 - Use of alternative premises
 - Subcontracted manufacture
 - Purchase of alternative products

Loss Minimization



Thank you for your attention!

Philani Mbatha

NOT IF, BUT HOW

