



RISKS MANAGEMENT FOR THE POWER GENERATION INDUSTRY

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TALK SEQUENCE



- 1. Setting The Stage**
- 2. Risk Associated with PGI**
 - 1. Critical Success Factors of PGI**
 - 1. Managing and Mitigating Risks**



INDUSTRY OVERVIEW





NATIONAL ENERGY POLICY

3 Objectives

- **Supply** : ensure adequate, secure, cost-effective energy supply, both renewable and non-renewable;
- **Utilization** : promote efficient utilization, discourage wasteful non-productive patterns of energy consumption; and
- **Environment** : minimize negative environmental impacts of energy supply chain.



PECULIARITIES OF ELECTRICITY INDUSTRY

- Historical Monopoly/Continuing Government Intervention
- High Capital/Investment Cost
- Balancing needs of developing economies - attracting investments and capacity building



PRIVATIZATION - WHY

3 Objectives

- Relieve financial and administrative burden of government;
- Improve efficiency and productivity; and
- Reduce size and presence of public sector in the economy.



RISKS ASSOCIATED WITH PGI



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PROJECT RISKS





BROAD RISKS IN POWER PROJECT

Credit Risks

- Basically a lenders risks.
- Project sponsors need to convince lenders that the project is technically sound and commercially viable.
- Due diligence by lenders including credit analysis of the project parties during pre-project stage will be the determinant of lenders desire to assume credit risks i.e. to finance the project



BROAD RISKS IN POWER PROJECT

Technology Risks

- The financing structure is critical such as the establishment of retention account to cover potential costs arising from latent technological defects.
- Ideally, untested technology should be avoided.
- In normal circumstances, the full design defect liability should be passed on to the EPC/OEM.



BROAD RISKS IN POWER PROJECT

Legal Risks

- Inadequate laws
- Dispute resolution
- Basically most legal risks are non insurable item except for environmental risks.



BROAD RISKS IN POWER PROJECT

Financial Risks

- Risks of initial costs overrun
 - Foreign exchange fluctuation
 - Wrong cost estimates

- Risks of operational cost overrun
 - Shortages of raw material that lead to increase of raw material costs.
 - Maintenance costs

- Most financial risks are not insurable except for revenue protection via the Loss of Profits policy.



BROAD RISKS IN POWER PROJECT

Force Majeure Risks

- Essentially these refer to risks which are outside the control of the contracting party.
- Whilst mitigation through insurance may be available for Acts of Nature but may not be the case of Act of Man or Act of Government.
- Most of the expected insurance coverage for the project will be able to cover some part of (but not all) of the Force Majeure items.



CRITICAL SUCCESS FACTORS IN POWER PROJECT



MAIN PARTIES TO A PROJECT





THE CRITICAL AGREEMENTS INVLOVED

- Power Purchase Agreement (**PPA**)
- Engineering, Procurement, Construction Agreement (**EPCC**)
- Operation & Maintenance Agreement (**OMA**)
- Long Term Service Agreement (**LTSA**)
- Fuel Supply Agreement (**FSA**)
- Financing Agreement (**FA**)
- Land Lease Agreement (**LLA**)
- ETC

CRITICAL SUCCESS FACTORS

Capable and Reliable Partners



CRITICAL SUCCESS FACTORS

Water Tight / Solid Project Documents





CRITICAL SUCCESS FACTORS

The Main Objectives

- The main objectives are:
 1. To produce a bankable document
 - ❖ Good financial rating
 - ❖ Good project rating
 2. To achieve targeted financial close
 3. To achieve targeted COD



BANKABLE DOCUMENTS

- Lenders are the biggest risks takers.
- By virtue of them financing the majority of the project costs.
- Lenders are especially focused upon risks management philosophy and security instruments of the Sponsors during the Construction Phase of the Project.
- The Lenders' goals are to ensure that:
 - The Project is completed on time and on budget
 - the Project remains economically viable
 - the Lenders are fully repaid



BANKABLE DOCUMENTS

Principal Risks For Lenders

- Construction Risks - Can the project be technically completed and pass its performance tests on time and within budget?
- Operating Risks - Can the project, once built, meet the required business plan within the projected operating budget?
- Revenue/Price Risks - Is there a predictable or guaranteed revenue stream over the term of the debt?
- Financial/Economic Risks - Will revenues from all sources be adequate to cover both operating costs and debt service over the period of the loan ?
- Legal/Contractual Risks - Are the project contracts legal, valid and enforceable under the laws of the jurisdiction in question?



BANKABLE DOCUMENTS

Principal Risks For Lenders

- Regulatory/Environment Risks - Is there an existing regulatory framework governing the construction and operation of the project and have all permits, approvals and concessions been properly obtained?
- Currency Risks – If the project revenue is in a different currency to the loan, is the local currency readily convertible to hard currency for the repayment of debt and what is the long term exchange rate risks of such local currency?
- Force Majeure Risks - Who bears the risks of accidents and other unexpected events and is there adequate insurance coverage by reputable insurance companies?



CRITICAL SUCCESS FACTORS

On Time Financial Close

- On time Financial Close
 - On time appointment of consultants.
 - Sufficient time for due diligence by due diligence working group
 - Realistic time line

HOW TO MANAGE RISKS





RISKS IN PROJECT FINANCING

- Success or failure of project depend on proper identification, analysis and allocation of risks

- The stakes are higher in non-recourse project financing
 - ❑ Considerable amounts involved
 - ❑ Post completion resource to only one income-bearing assets
 - ❑ Potential volatility in political and economic environment



RISKS ALLOCATION PROCESS

- Crucial point to note, often risks allocation is a moving target throughout the project, from project conception, through document negotiation, disbursement, completion and then operational phase
- Simply because, in practice some risks will not be apparent at term sheet stage. It will only arise during negotiation of project documentation or more often than not during project construction and operation
- Several factors will influence the risks allocation at any stage of the project
 - ❑ financial strength of the parties
 - ❑ project sponsors appetite for profit – robust attitude towards forecast and projections
 - ❑ lenders taking equity in the project – conflict of interest

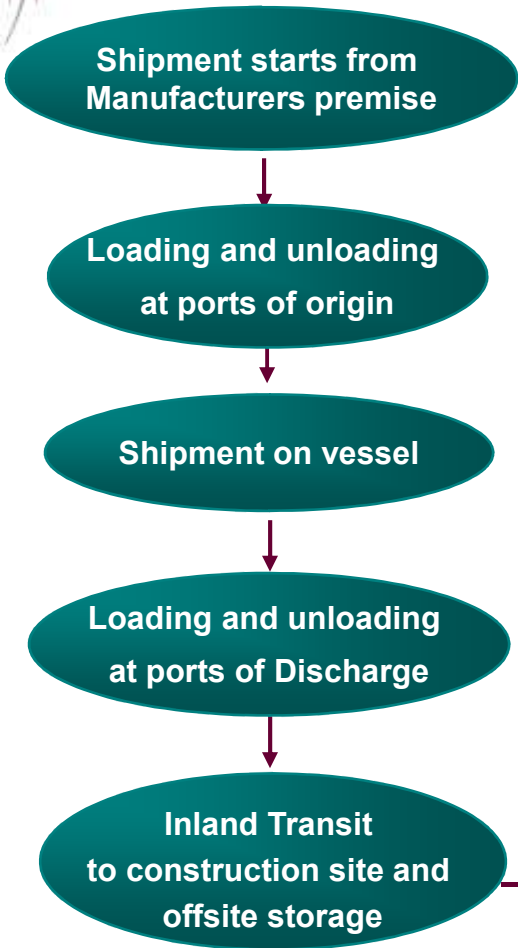


RISKS ALLOCATION PROCESS

- host government
- developed country with a recognized legal system or developing country where legal concepts may not yet be clearly established
- control over the project – who has the most significant role
- experience of the contractor
- role of the off-taker

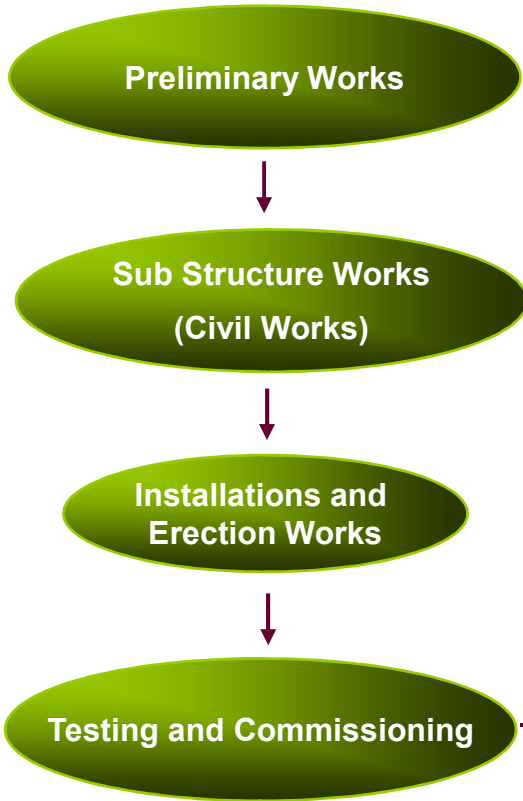
RISKS AT VARIOUS PROJECT STAGES (INSURABLE)

Pre Construction Stage



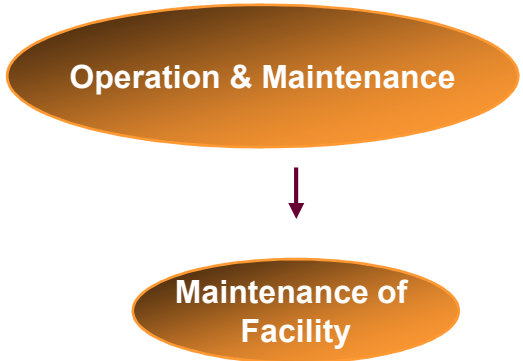
Marine Cargo
Delay in Start Up

Construction Stage



EAR, TPL, ALOP
WC

Commercial Operation Stage (Operational)



IAR, MB, LOR, PL

HAVING SAID ALL THAT,
DON'T HESITATE TO ASK ...

