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ENERGY SECURITY**

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INOGATE Study Tour/Workshop

Energy Efficiency & Renewable Energy Sources



EE/RES project structures, part I: Risk identification and management, bank guarantees, main evaluation tools & indicators; Erste Group

Vienna, Austria

May 14, 2013

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Finance, Erste**

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1. EE& RES Financing & Project Structures

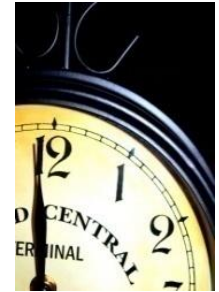
2. Internal Workflows

3. Risks & Risk Mitigants

4. Financial Modelling in Practice

5. ERSTE Group – An Introduction

6. Case Study



EE/ RES Financing & Project Structures

Corporate Finance vs. Project Finance (Technical Differences)



PF vs. CF

Structure

Phases

Feasibility

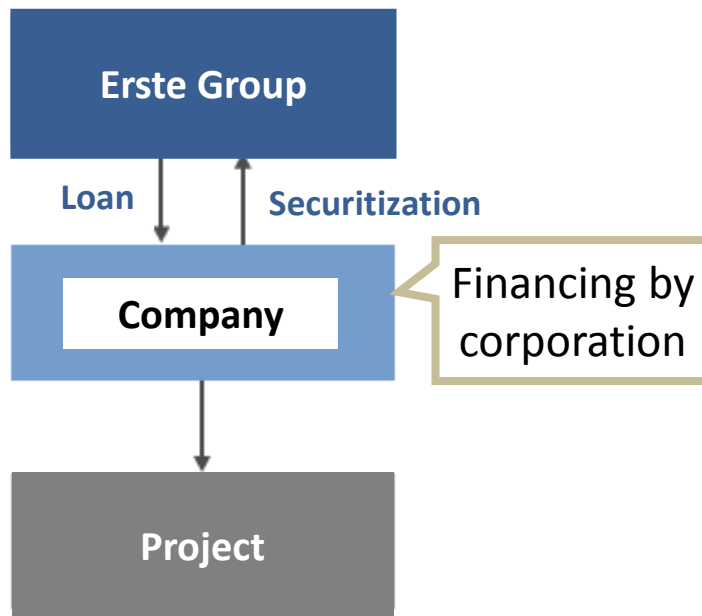
Due Diligence

Risks

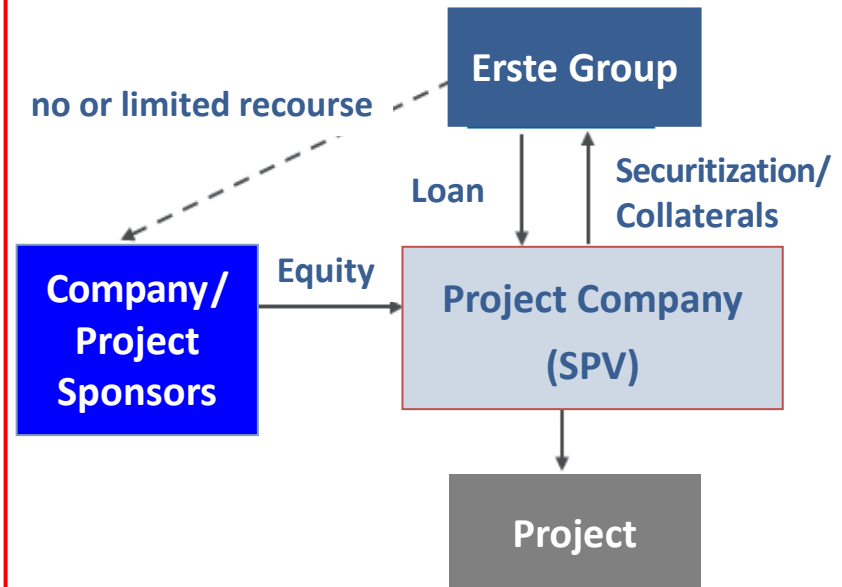
Financial Engineering

Cash Flow Analysis

Corporate Finance Asset based Retrospective



Project Finance Cash Flow based Forward-looking



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EE/ RES Financing & Project Structures

Corporate Finance vs. Project Finance (Technical Differences)



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Corporate finance

Project finance

Definition

- A company engages in various commercial activities.

- A single purpose capital asset, usually a long-term illiquid asset.
- The project company is dissolved once the project is completed.
- No growth opportunities.

Cash Flows

- Usually the investment is financed as part of the company's existing balance sheet.
- The lenders can rely on the cash flows and assets of the sponsor company apart from the project itself.
- Lenders have a larger pool of cash flows from which to get paid.
- Cash flows and assets are cross-collateralized.

- The project company does not have access to the internally-generated cash flows of the sponsoring firm and vice versa.
- The SPV is a legally independent unit
- The investment is financed with non-recourse or limited debt (off-balance sheet financing).
- All interest and loan repayments come from the cash flows generated from the project.

Leverage

- Publicly traded firms have typical leverage ratios of 20% to 30%.

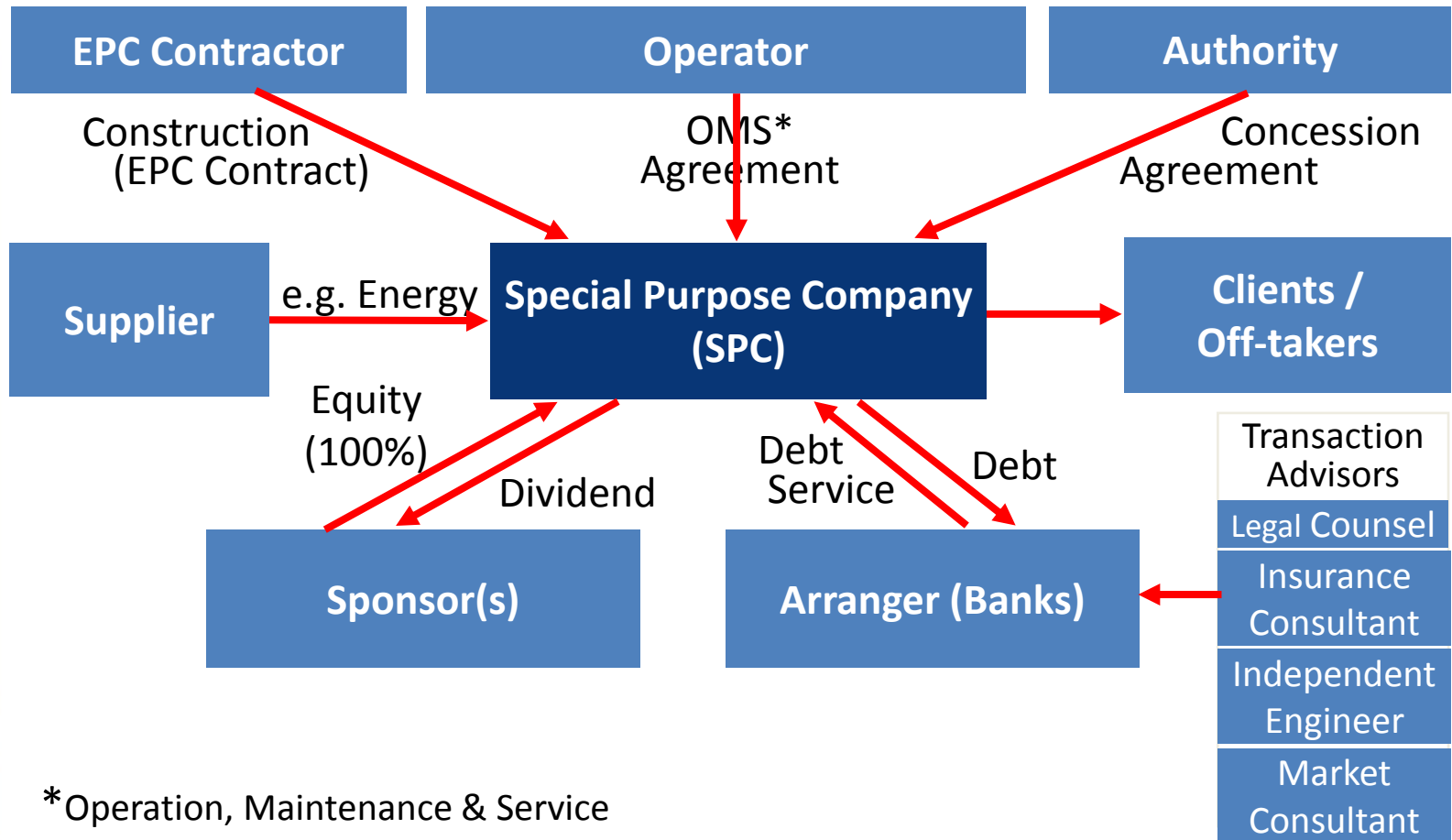
- Project companies have very high leverage ratios, with the majority of debt coming from bank loans.

EE/ RES Financing & Project Structures

Transaction Structure



- PF vs. CF
- Structure**
- Phases
- Feasibility
- Due Diligence
- Risks
- Financial Engineering
- Cash Flow Analysis



*Operation, Maintenance & Service

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EE/ RES Financing & Project Structures

Key Aspects - Phases



PF vs. CF

Structure

Phases

Feasibility

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Risks

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Cash Flow Analysis

Project Finance Phases

Two phases can be distinguished:

▪ Construction phase:

- Project related assets are **designed, engineered** and **constructed**.
- This phase generates **no cash inflows**.
- Drawdown of the loan facility is synchronous with the payment schedule of the construction contract (**progress-orientated**).

▪ Operating phase:

- Project starts business and generates cash flows.
 - Cash flow used for redemption of the loan facility.
- The transition between these two phases is characterised by an **interim phase** (some days up to several months).
- A pilot operation generates first revenues.
 - Plant construction is not finished for lack of turn key delivery or final settlement.

EE/ RES Financing & Project Structures

Key Aspects – Debt Profile



PF vs. CF

Structure

Phases

Feasibility

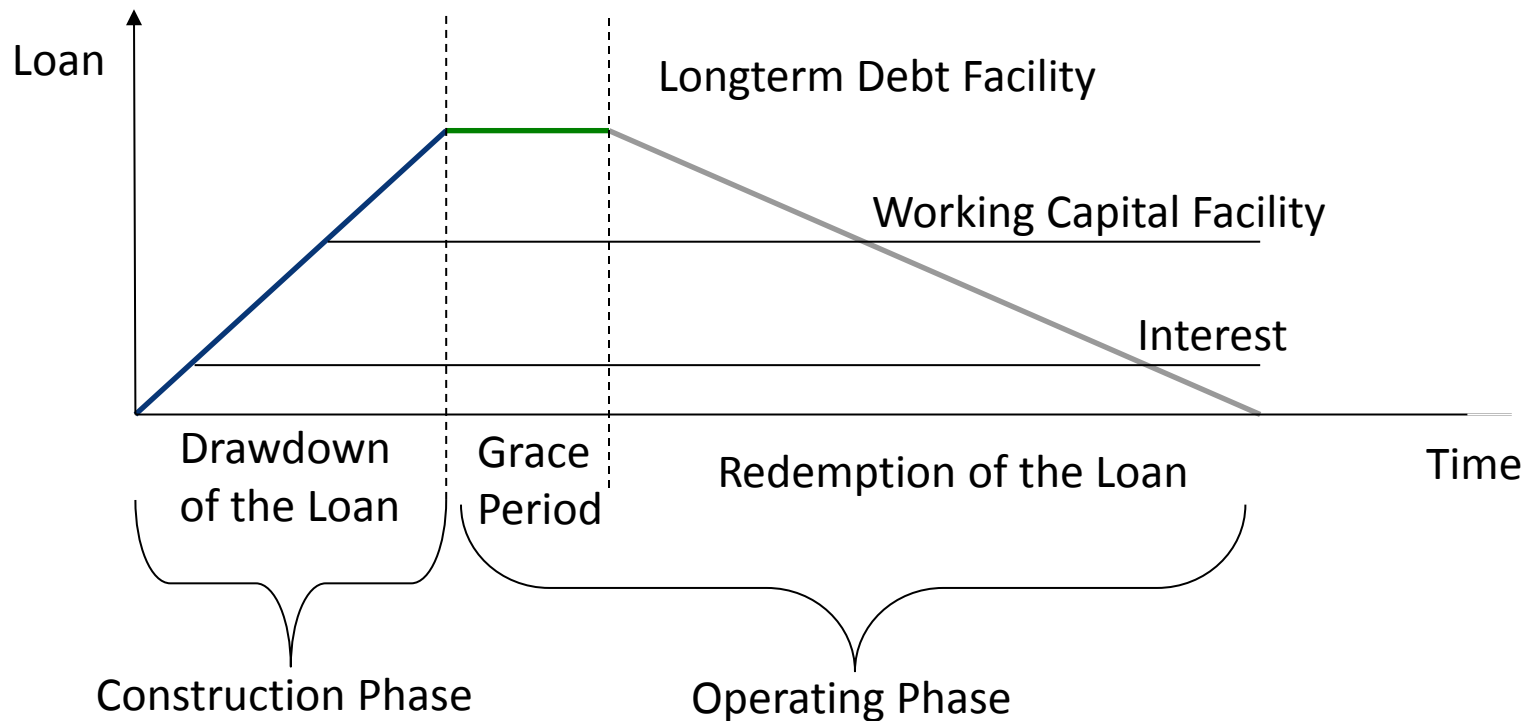
Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

Term Loan Facility: Drawdown and Repayment Profile



EE/ RES Financing & Project Structures

Key Aspects – Feasibility



PF vs. CF

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Cash Flow Analysis

Feasibility Study

- done by a technical or industrial expert
- **independent** of the project parties
- **accepted** by the lender
- goal: to **prove** that the cash flows cover the requirements of the project facility even in a worst case scenario
- an instrument to support the decision making process of
 - the lender
 - the sponsor

EE/ RES Financing & Project Structures

Key Aspects – DD



PF vs. CF

Structure

Phases

Feasibility

Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

Due Diligence

- DD is an abbreviation for a **comprehensive and substantial plausibility check of main project** parameters based on
 - a business plan
 - a possible feasibility study
 - other information and documents required
- especially lenders look closely for **deal breakers** (facts or circumstances which conflict with Project Finance)
- identified risk can **lead to**
 - stronger commitment by sponsor(s)
 - optimization of risk allocation
 - introduction of additional risk mitigation strategies
 - consideration in pricing
- **based on provisions in the mandate agreement**
 - appropriate term
 - disclosed information
 - break up fee
- due diligence goes far **beyond the scope of banking know how**;
 - cooperation with experts, lawyers, auditors
- goal of due diligence: **best possible transparency in respect of the risk profile of a project**

EE/ RES Financing & Project Structures

Key Aspects – Risks & Mitigants



PF vs. CF

Structure

Phases

Feasibility

Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

Risks

Mitigants

Completion Risk

Contractual guarantees from general contractor (EPC contract)

Market Risk

Guarantees, off-take agreements

Resource Risk

Keeping adequate cushion in assessment.

Operating Risks

Reliable operator

Technology Risk

Expert evaluation and retention accounts

Insolvency Risk

Credit strength of sponsor, competence of management, good corporate governance

Interest Rate Risk

Swaps and hedging

Currency Risk

Hedging

Political and Sovereign Risk

- Export credit guarantees
- Contractual sharing of political risk between lenders and external project sponsors
- External guarantees or quasi guarantees

EE/ RES Financing & Project Structures

Key Aspects – Financial Engineering



PF vs. CF

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Financial Engineering

Cash Flow Analysis

Financial Engineering

Steps

1. **definition** of relevant **sources** of finance
2. **analysis** of the identified sources of finance
3. identification and evaluation of **securities**
4. **analysis and evaluation of risk allocation** and narrowing down **the risk adequate pricing** of a project facility
5. adapt **debt finance potential** to the cash flow
6. adapt **redemption structure** according to the annual cash flow
7. analysis of the impact of the finance structure on the **solvency** and creditworthiness of the project company
8. specifications in respect of the **excess cash flow**
9. determinations of the **financial covenants**

EE/ RES Financing & Project Structures

Cash Flow Analysis



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Cash Flow Analysis

Financial Model

Purpose of a financial model

- Assessment of the financial feasibility
- Development of the financial structure
- Support in negotiations
- Support for developing the term sheet
- Analysis of downside scenarios
- Risk analysis
- Testing the risk mitigants
- Stress-testing of the repayment capacities

Typical Downside Scenarios

- Completion delay
- Cost overrun
- Interest rate level
- Exchange rates
- Reduction of off-take price and/or quantity
- Cost increase
- Combined Downside Case,

EE/ RES Financing & Project Structures

Cash Flow Analysis – Cash Flow Waterfall



PF vs. CF

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Cash Flow Analysis

Maintenance of Project and/or Service Provision

Debt Service

Cash Flow to Investors

revenues



insurance and tax

cost of material

operating expenses

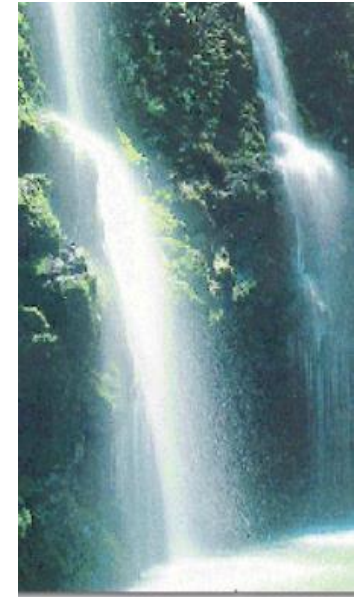
maintenance

interest

debt repayments

dividends

Pro-rata principle is not valid here



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EE/ RES Financing & Project Structures

Cash Flow Analysis – Key Ratios



PF vs. CF

Structure

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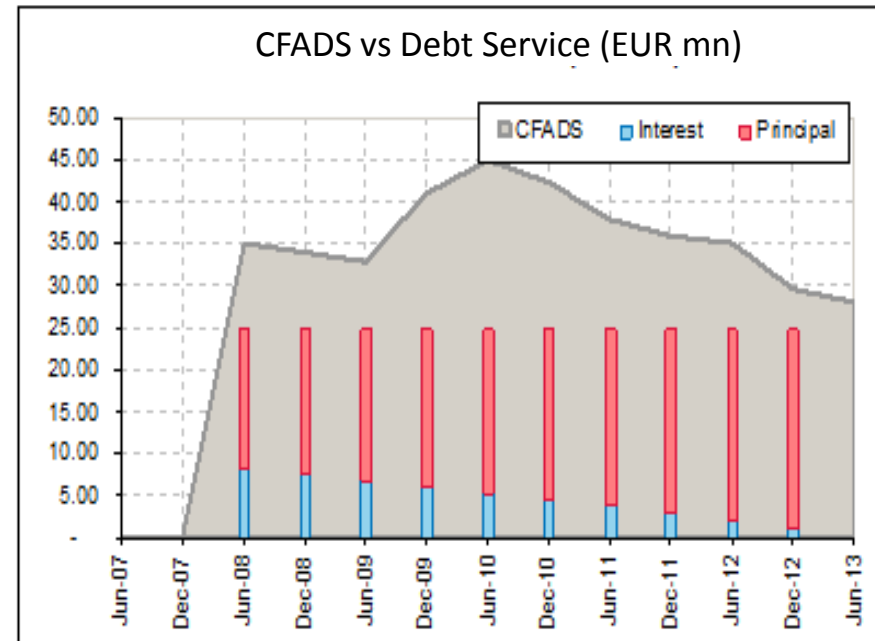
(Annual) Debt Service Cover Ratio

Calculation $ADSCR = \text{Cash flow Available for Debt Service (CFADS)} / \text{Debt Service (I+P)}$

Definitions It refers to the amount of cash flow available to meet annual interest and principal payments on debt.

Application

- It is a key Project Finance Ratio which is calculated during the term loan
- DSCR measures how many times the CFADS can repay the Scheduled Debt Service
- **DSCR < 1x** means that CF from the project is not sufficient to support the level of debt
- Usually DSCR is calculated in every period
- Identification of the **Minimum ADSCR** is the primary method to identify a period of weak CFADS to service the debt obligations.
- However, when ADSCR is measured in every period, the DSCR can be a volatile measure and may fluctuate from period to period.



Practice ▪ Min ADSCR > 1.20x – 1.30x

EE/ RES Financing & Project Structures

Cash Flow Analysis – Key Ratios



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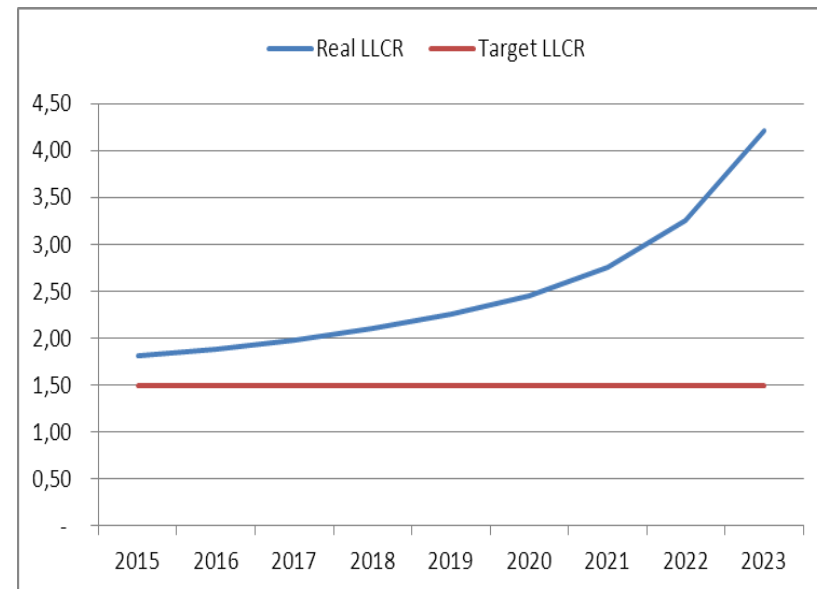
Loan Live Coverage Ratio

Calculation $LLCR = \text{Net Present Value (NPV) of available CFADS over loan life} / \text{Senior Debt outstanding at the end of the period}$

Definitions A financial ratio used to estimate the ability of the borrowing company to repay an outstanding loan.

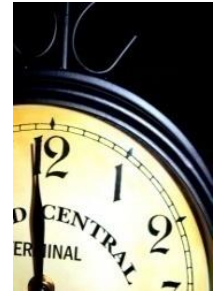
Application

- LLCR is calculated during the term loan, in every period.
- LLCR depends on industry, risk coverage, project phase and the relation between loan term and project life time.
- Unlike period-on-period measures such as the DSCR, it provides an analyst with a **measure of the number of times** the cash flow over the scheduled life of the loan can repay the outstanding debt balance.
- The **discount rate** used in the NPV calculation is usually the Cost of Debt, also known as the Weighted Average Cost of Debt.



Practice ▪ Min LLCR ~ average DSCR (1.20 – 1.40x)

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EE/ RES Financing & Project Structures

Erste's View: Required Documents for Analysis



Documents

Workflows

Due Diligence

Bankability

Risks & Mitigants

Mandatory documents

- Business Plan
 - Cash Flow forecast
 - Sources and uses of funds
 - Asset cost split
 - Financing Parameters
 - Financial Model on Cash Flow basis
 - hard and soft costs and detailed exit year calculations
 - a development budget
- Project Information Memorandum:
 - Key project stake- and shareholder, initiators
 - Asset description, capacities, technical data
 - Regulatory framework and market description
 - Risk analysis
 - Project economics and financial plan
- Feasibility Study
 - Macro and micro environmental assessment
 - Technical assessment of equipment used
 - Demand and growth potential assessment
 - Benchmark and competition analysis
- Financials
 - CF Statement, P&L Statement
 - Annual Report of Sponsors (if available)

Supplementary documents

- An initial outline architectural master plan;
- An environmental and a social impact assessment;
- Local and government authority permits to allow the construction and operation of the project
- Project Contracts
 - EPC
 - Operation & Maintenance ... ect.
- Concession Deed
- Shareholders Agreement
- Off-take Agreement
- Contracts with relevant advisers
 - legal
 - tax
 - technical

ERSTE Group - Internal Workflows

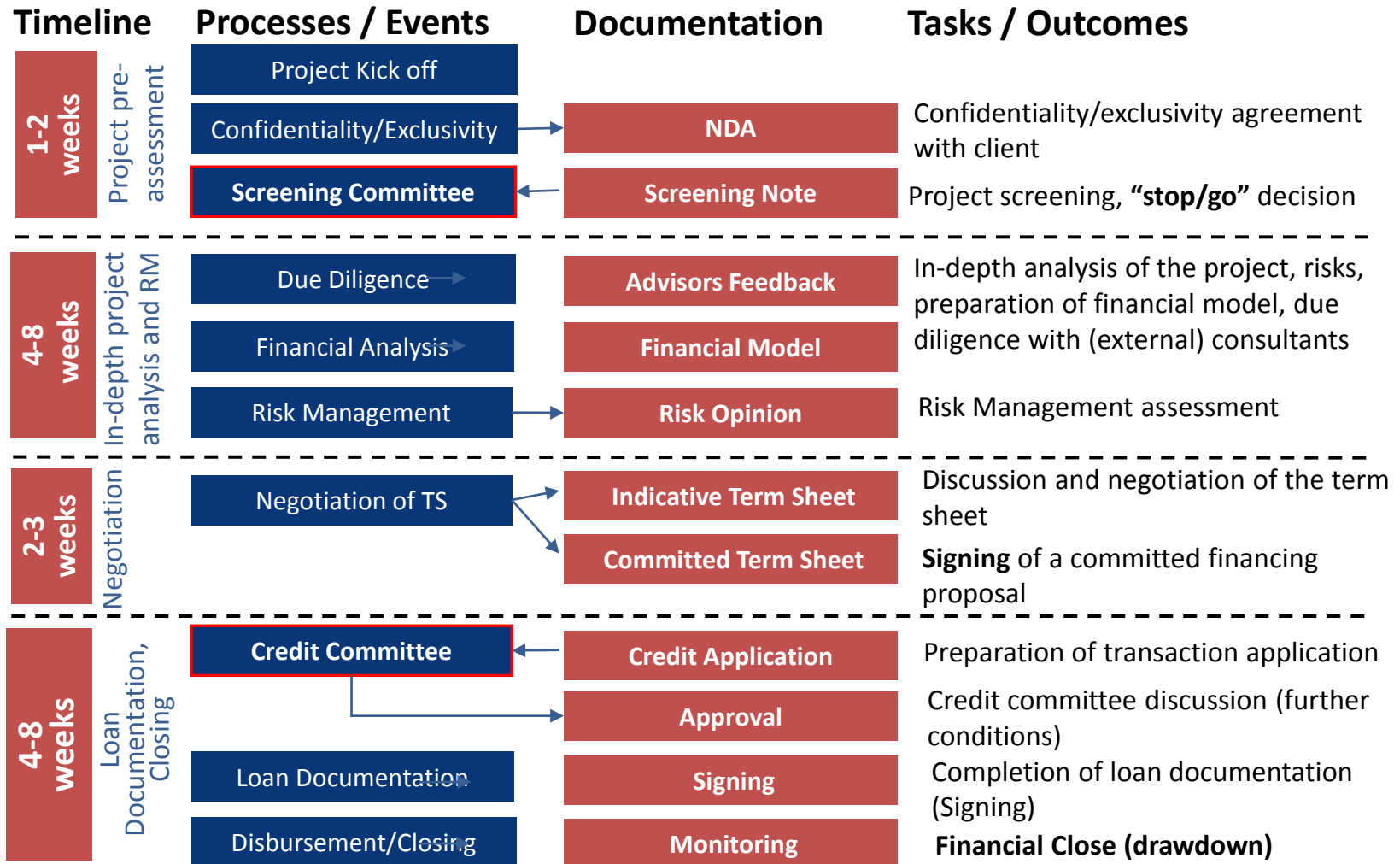
Documents

Workflows

Due Diligence

Bankability

Risks & Mitigants



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EE/ RES Financing & Project Structures

Typical DD Process for Infrastructure Transactions*

* covers, but is not limited to following areas



Documents

Workflows

Due Diligence

Bankability

Risks & Mitigants

- **Pre Screening:**
 - project information memorandum (PIM)
 - ownership structure
- **Pre Term Sheet/ Loan Documentation:**
 - financial analysis/ financial model
 - project structure/ parties involved
 - DD by external advisers (feasibility study, legal, tax, technical, environmental assessment, valuation)
- **Pre Credit Committee:**
 - risk management opinion
- **Pre Signing/ Pre Disbursement :**
 - check on conditions precedent
- **During Construction :**
 - execution and performance assessments
- **During Loan Term:**
 - performance assessments
 - payment check
 - annual reports

- Typical DD Process usually includes, but is not limited to:**
- Feasibility study
 - Technical facility assessment: technology, design
 - Site assessment: safety conditions, environmental issues
 - Permits, licences, building permit
 - Asset valuation
 - Project execution and performance assessment: “zero-report”, construction progress, commissioning and testing
 - Capital and operating cost assessment
 - Contracts with related parties:
 - project monitoring
 - consultants/advisers (tax, legal, financial, technical)
 - construction,
 - operation,
 - services/ off-take agreements

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Glossary of Key Terms

Short	Description
(A)DSCR	<i>Annual debt service cover ratio</i>
LTV	<i>Loan to Value</i>
CFADS	<i>Cash flow available for debt service</i>
D/E Ratio	<i>Debt/Equity ratio</i>
CAPEX	<i>Capital expenditure</i>
OPEX	<i>Operational cost</i>
SPC / SPV	<i>Special purpose company / Special purpose vehicle</i>
EPC	<i>Engineering, procurement, construction</i>
P90, P75, P50	<i>Probability cases (wind measurements)</i>
PPA	<i>Power purchase agreement</i>
EIB	<i>European Investment Bank</i>
EBRD	<i>European Bank for Reconstruction and Development</i>
GCs	<i>Green certificates</i>
IFI	<i>International Financial Institutions</i>
TA/LTA	<i>Technical advisor/ traffic adviser/ lenders technical adviser</i>
DBFO / DBOM	<i>Design, build, finance and operate (and maintain)</i>



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