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# **"INOGATE Technical Secretariat & Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives" Project**

**BUILDING PARTNERSHIPS FOR  
ENERGY SECURITY**

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# INOGATE Workshop

## Energy Efficiency & Renewable Energy Sources



### **EE/RES project structures, part I:**

**Risk identification and management, bank guarantees, main evaluation tools & indicators; Introduction to Erste Group**

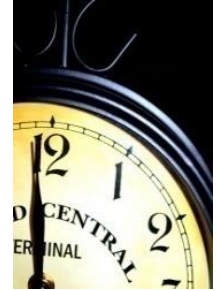
**Converse Bank  
05-09 November 2013, Yerevan, ARMENIA**

Werner Weihs-Raabl, Head of Group Infrastructure (GIF), Erste Bank



# 1. EE& RES Financing & Project Structures

## 2. Internal Workflows



# EE/ RES Financing & Project Structures

## Corporate Finance vs. Project Finance (Technical Differences)



PF vs. CF

Structure

Phases

Feasibility

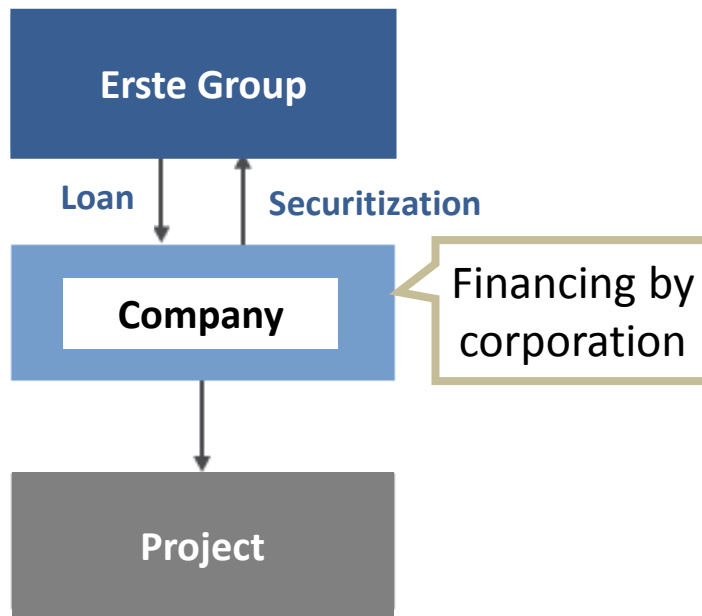
Due Diligence

Risks

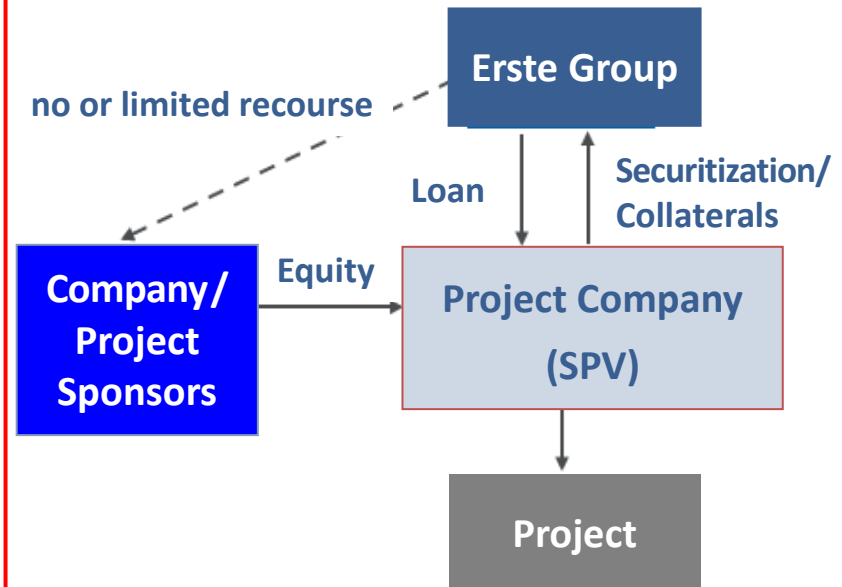
Financial Engineering

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 is setup and dissolved once the project is completed.

#### Cash Flows

- Usually 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 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.

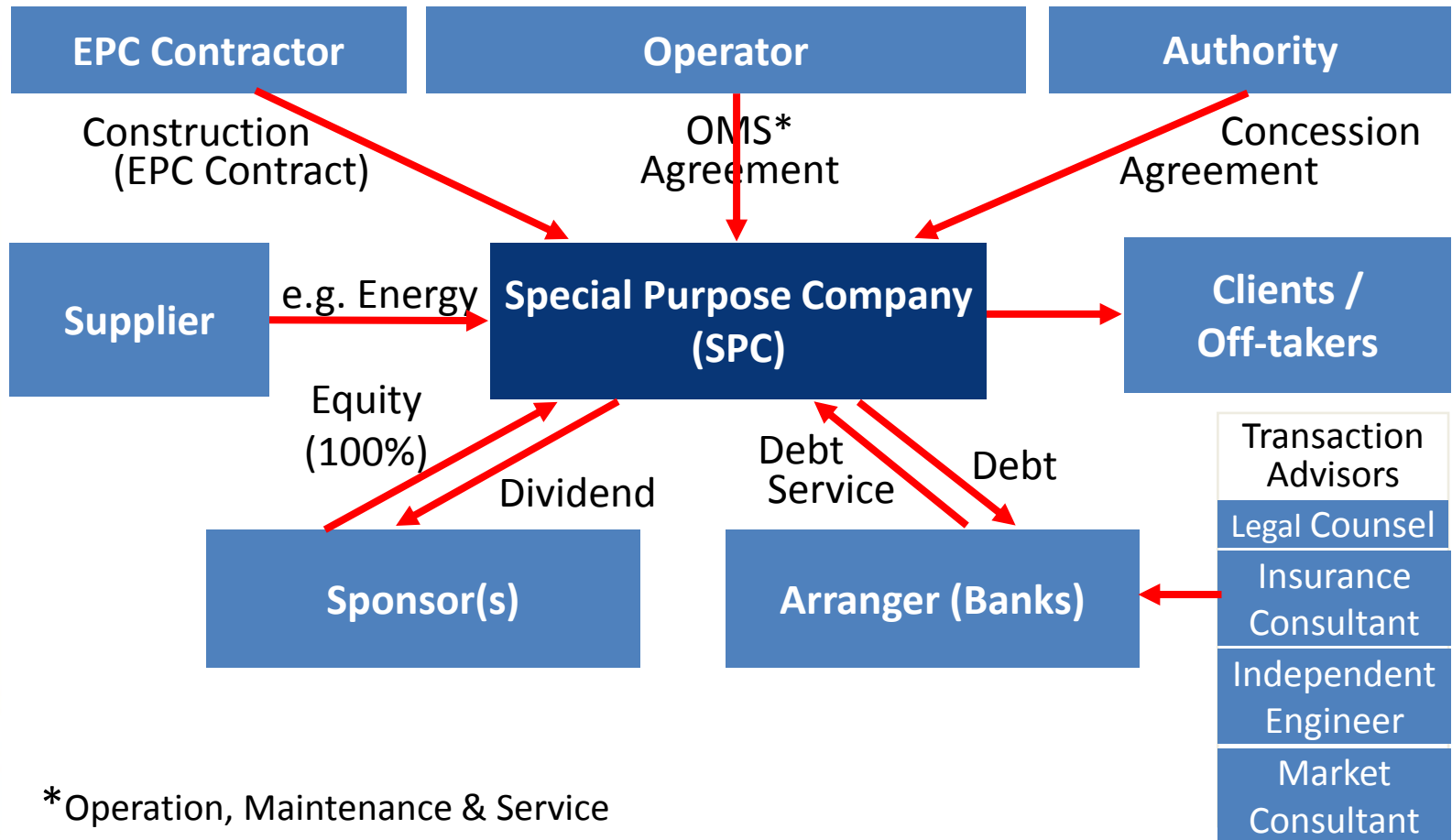


# EE/ RES Financing & Project Structures

## Transaction Structure



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



\*Operation, Maintenance & Service



# EE/ RES Financing & Project Structures

## Key Aspects - Phases



PF vs. CF

Structure

**Phases**

Feasibility

Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

## Project Finance Phases

Two phases can be distinguished:

- **Construction phase:**
  - 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**
  - 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

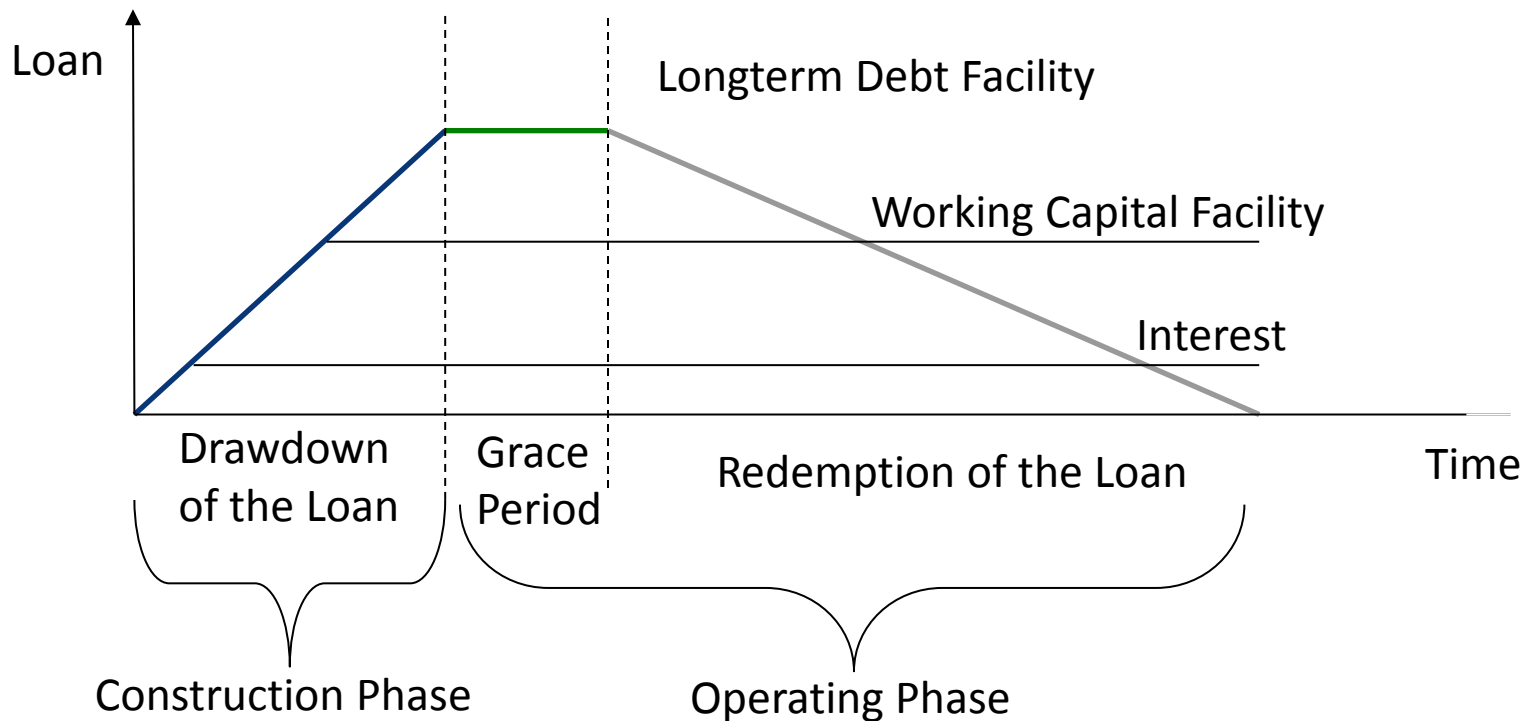
Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

## Term Loan Facility: Drawdown and Repayment Profile





# EE/ RES Financing & Project Structures

## Key Aspects – Feasibility



PF vs. CF

Structure

Phases

**Feasibility**

Due Diligence

Risks

Financial Engineering

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

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# EE/ RES Financing & Project Structures

## Key Aspects – DD



PF vs. CF

Structure

Phases

Feasibility

**Due Diligence**

Risks

Financial Engineering

Cash Flow Analysis

## Due Diligence

- A **comprehensive plausibility check of main project** parameters based on
  - ✓ a business plan
  - ✓ a possible feasibility study
  - ✓ other information and documents required
- identified risk can **lead to**
  - ✓ 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 extends **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

Structure

Phases

Feasibility

Due Diligence

Risks

**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



PF vs. CF

Structure

Phases

Feasibility

Due Diligence

Risks

Financial Engineering

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

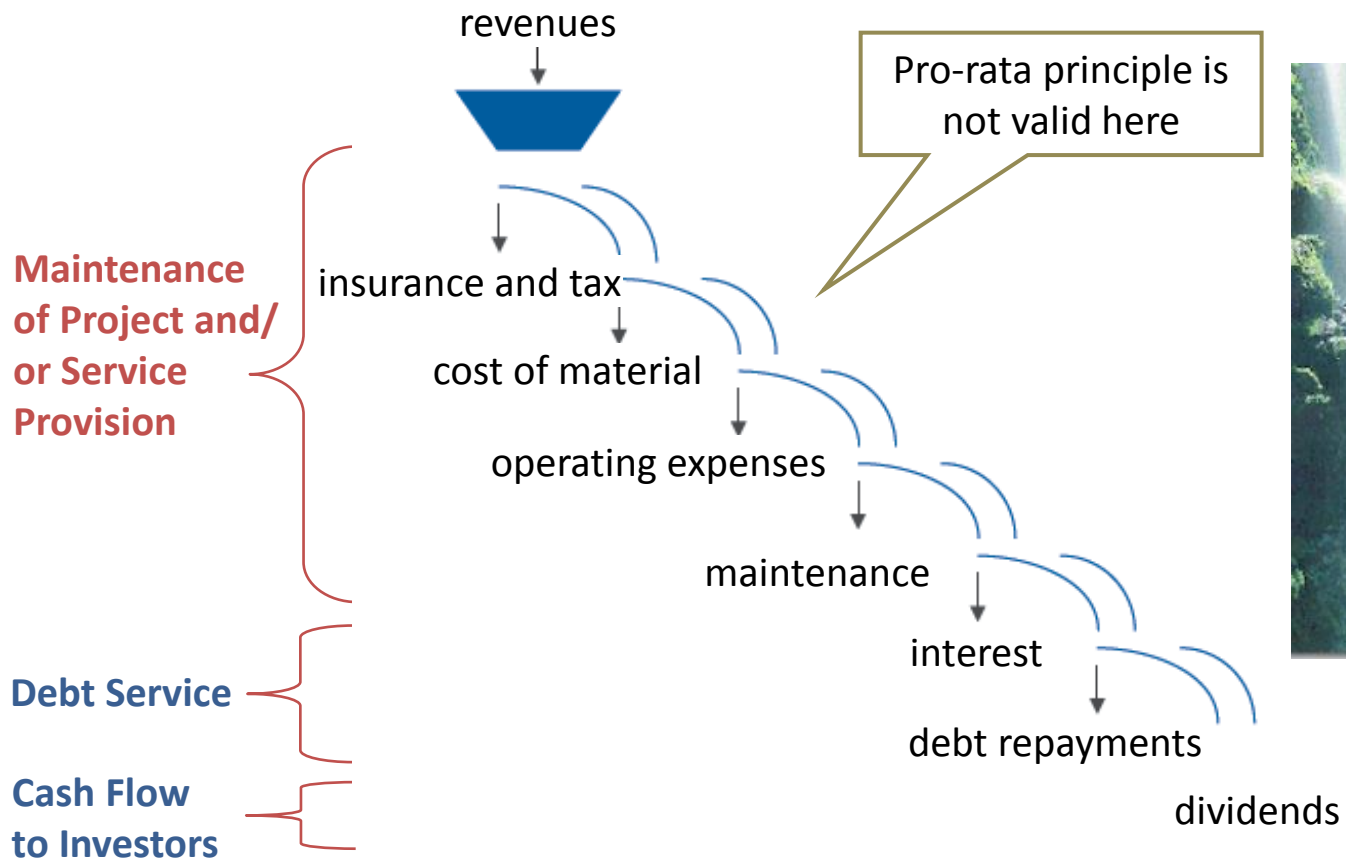
- Completion delay
- Cost overrun
- Interest rate level
- Exchange rates
- Reduction of off-take price and/or quantity
- Cost increase
- Combined Downside Case,

# EE/ RES Financing & Project Structures

## Cash Flow Analysis – Cash Flow Waterfall



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



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# EE/ RES Financing & Project Structures

## Cash Flow Analysis – Key Ratios



PF vs. CF

Structure

Phases

Feasibility

Due Diligence

Risks

Financial Engineering

Cash Flow Analysis

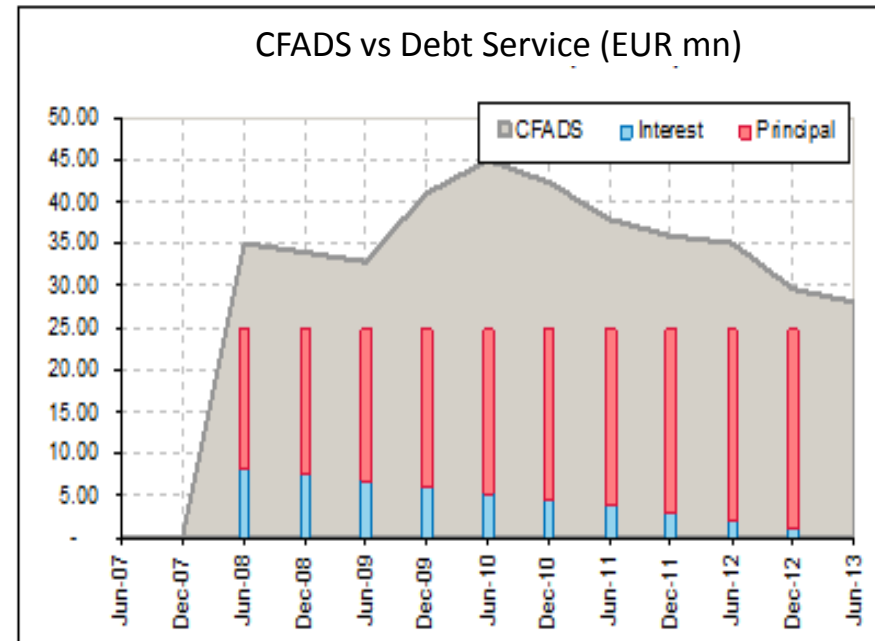
### (Annual) Debt Service Cover Ratio

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

**Definitions** Amount of cash flow available to meet annual interest and principal payments on debt.

#### Application

- Key Project Finance Ratio
- DSCR measures how many times the CFADS can repay the Scheduled Debt Service
- A **DSCR < 1x** demonstrates insufficient CF
- 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.
- If 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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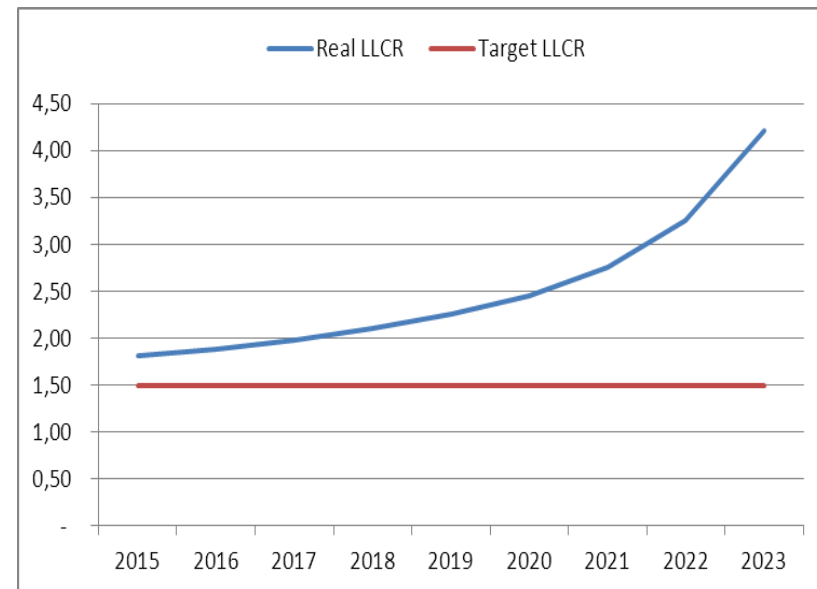
### Loan Live Coverage Ratio

**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

- Calculated during the term loan, in every period.
- Depends on industry, risk coverage, project phase and the relation between the 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.



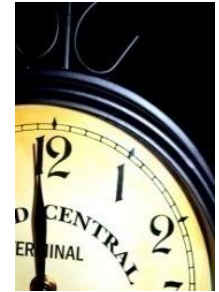
**Practice** ▪ Min LLCR ~ average DSCR (1.20 – 1.40x)





# 1. EE& RES Financing & Project Structures

## 2. Internal Workflows



# ERSTE Group - Internal Workflows

Documents

**Workflows**

Due Diligence

Bankability

Risks & Mitigants



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# Glossary of Key Terms

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



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