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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 Study Tour/Workshop

## Energy Efficiency & Renewable Energy Sources

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

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

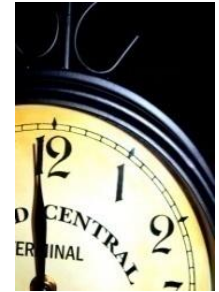
**Converse Bank  
05-09 November 2013, Yerevan, ARMENIA**

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# 1. Risks & Risk Mitigants

## 2. Financial Modelling in Practice



# EE/ RES Financing & Project Structures

## Main Risks & Mitigants (I)



Documents

Workflows

Due Diligence

Bankability

Risks & Mitigants

### Risks

### Mitigants

#### Cost Overrun Risk

- Direct sponsor support (ie. equity injection undertaking)
- Cash Deficiency Guarantees

#### Construction/ Completion Risk

- Sponsor's guarantee, completion guarantee and progress reports; warranties
- Equity in advance and penalty payments; contingent equity; liquidated damages
- Fixed-time turnkey contracts (EPC contracts)
- Independent experts' reports on design and construction

#### Environmental Risk

- Environmental assessment or audit as part of feasibility or DD
- Warranties and covenants

#### Technological Risk

- Involvement of advisors during planning, construction, operation
- Use of suitable and proven technology

#### Force Majeur

- Insurance

# EE/ RES Financing & Project Structures

## Main Risks & Mitigants (II)



Documents  
**Risks**

Workflows

Due Diligence

Bankability

**Risks & Mitigants**

**Mitigants**

### **Operational Risk**

- Performance warranty, insurance, operating & maintenance agreement
- Project covenants, performance standards
- Incentive based O&M contracts

### **Technological Risk**

- Involvement of advisors during planning, construction, operation
- Use of suitable and proven technology

### **Market / Demand Risk**

- Occupancy guarantees
- Long term sale contracts at agreed (adjustable) prices;
- Take or pay contracts; put or pay contracts; pass-through agreements; cash traps

### **Political Risks/ Regulatory Risk**

- Export Credit Guarantees
- Involvement of International Financing Institutions/ Multilaterals
- Involving public partners, cooperate with local official bodies
- Legal opinions as to the applicable laws and the enforceability of contracts with government entities

# EE/ RES Financing & Project Structures

## Main Risks & Mitigants (III)



Documents

Workflows

Due Diligence

Bankability

Risks & Mitigants

### Risks

### Mitigants

#### Credit Base/ Financial Standing of Project Investors

- In-depth assessment of sponsor (competences and industry knowledge);
- Agreement of completion criteria between construction and operating companies;
- Lending against ready to build and fully permitted project

#### Credit Risk

- Well functioning risk management; accurate CF and BS analysis
- Cash buffers as Debt Service Reserve Accounts
- Cash Sweep
- Collaterals and guarantees

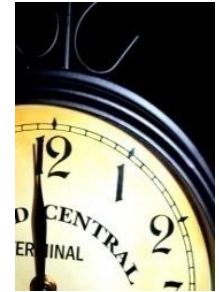
#### Financial Risks

- Hedging
- FX-indexing in project contracts
- EPC-contract currency matches revenue currency (construction phase)
- Revenue currency matches supply/ debt currency



# 1. Risks & Risk Mitigants

# 2. Financial Modelling in Practice



# Financial Modelling in Practice

Why is Financial Modelling important?

## Financial Modelling is important because:

- Only if investors and banks trust in the figures projects get built
- Projects compete with other investments for funding
- Decision support for development and financial structuring

## Therefore the fundamental basis has to be clarified before any results can usefully be looked at:

- Using the right assumptions
- Using the correct tool
- Looking at the right ratios and returns





# Financial Modelling in Practice

## What is it for?

### Guidelines

- 1) Calculating the project's **cash flow available for debt service (CFADS) / cash flow waterfall** and derive
  - financial covenants (ADSCR, LLCR)
  - Investors return etc.
- 2) Structure various different **(debt) repayment schemes** and **types**:
  - annuities, level repayments, sculpted instalments, bullet repayments
  - senior debt, junior debt, equity (bridge) tranches
  - Maturities, repayment free (grace) periods
- 3) Run different **scenarios** (scenario analysis) → **what IF ...**
  - revenues decrease / cost increase
  - interest / loan life change
  - changes in leverage/gearing set up (debt/equity ratio)
- 4) Run various **sensitivities** (sort of stress testing)
  - to what extent can revenues drop to maintain **min. debt service cover ratios** (min. ADSCR) or default ratios



# Financial Modelling in Practice



## Guidelines

### Typical Set-up of a model

#### 1) Input Parameters / Assumptions

- Time (project time)
- Revenues/ Cost (MWh produced)
- Financing (margins, hedging)
- Asset details (CAPEX)
- Tax/ Inflation

→ **Hard codes (no formulas)!**

→ „Data Quality“/ Sources

*If you put crap in – you will get crap out ☺*

#### 2) Calculation Sheets

- Operating Revenues / Cost
- Cash Flow/ Balance Sheet / P&L
- Financing/
- Sensitivities

→ **Periodical demonstration**

→ **NO hardcodes – only formulas**

→ **Check on “circular references” and “formula quality”**

**Avoid “over-complicated” formulas – others shall also be able to read and work with your model**

→ ***Its not a “who is the smartest excel guy contest” ☺***

#### 3) Output Sheets

- Executive Summary
- Charts and Graphs

→ **Presentation / Print out Purposes**

→ **No calculations/ No hardcodes**

→ **Only links from existing sheets**

→ **Make sure nice/ easy presentation**

→ **Not to be overloaded**

**Remember: the simpler the better – your boss / client want to see a rather “self-explanatory” sheet**

# 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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