



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

**BUILDING PARTNERSHIPS FOR
ENERGY SECURITY**

www.inogate.org



INOGATE Study Tour/Workshop

Energy Efficiency & Renewable Energy Sources



EE/RES project structures, part II:

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

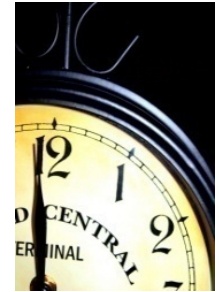
**Bank BelVEB OJSC
09-13 December 2013 / Minsk, Belarus**

Source: Werner Weihs-Raabl - Head of Group Infrastructure Finance, Erste Group



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	<ul style="list-style-type: none">▪ Direct sponsor support (ie. equity injection undertaking)▪ Cash Deficiency Guarantees
Construction/ Completion Risk	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ Environmental assessment or audit as part of feasibility or DD▪ Warranties and covenants
Technological Risk	<ul style="list-style-type: none">▪ Involvement of advisors during planning, construction, operation▪ Use of suitable and proven technology
Force Majeur	<ul style="list-style-type: none">▪ 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

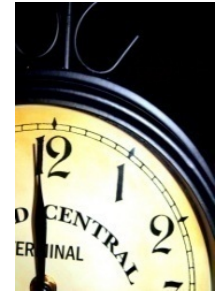
Financial Risks

- 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
(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>



www.inogate.org

