

Non Recourse Finance for Solar PV Projects

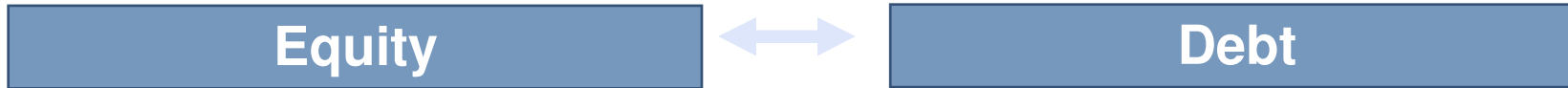
EPIA

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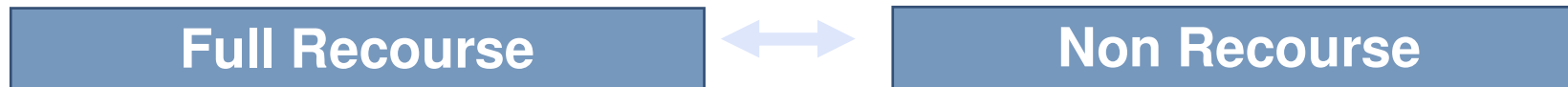
Frankfurt am Main, 20.02.2008



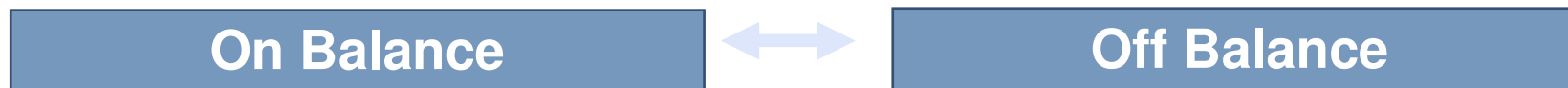
- 1. Key Financing Considerations**
2. Project Finance
3. Evaluation of Risks
4. Structuring
5. HSH Nordbank Energy
6. Benefits and Considerations for Project Sponsors
7. Success Factors



- availability
- costs of capital
- business related control
- forms of hybrid capital (mezzanine, participating capital etc.)



- limitation of risks for sponsor(s)
- splitting of risks between joint venture partners



- assignment of the economic ownership
- control of rating key data
- targets of accounting
- tax effects
- (non-)assignment to core business

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What is project finance ?

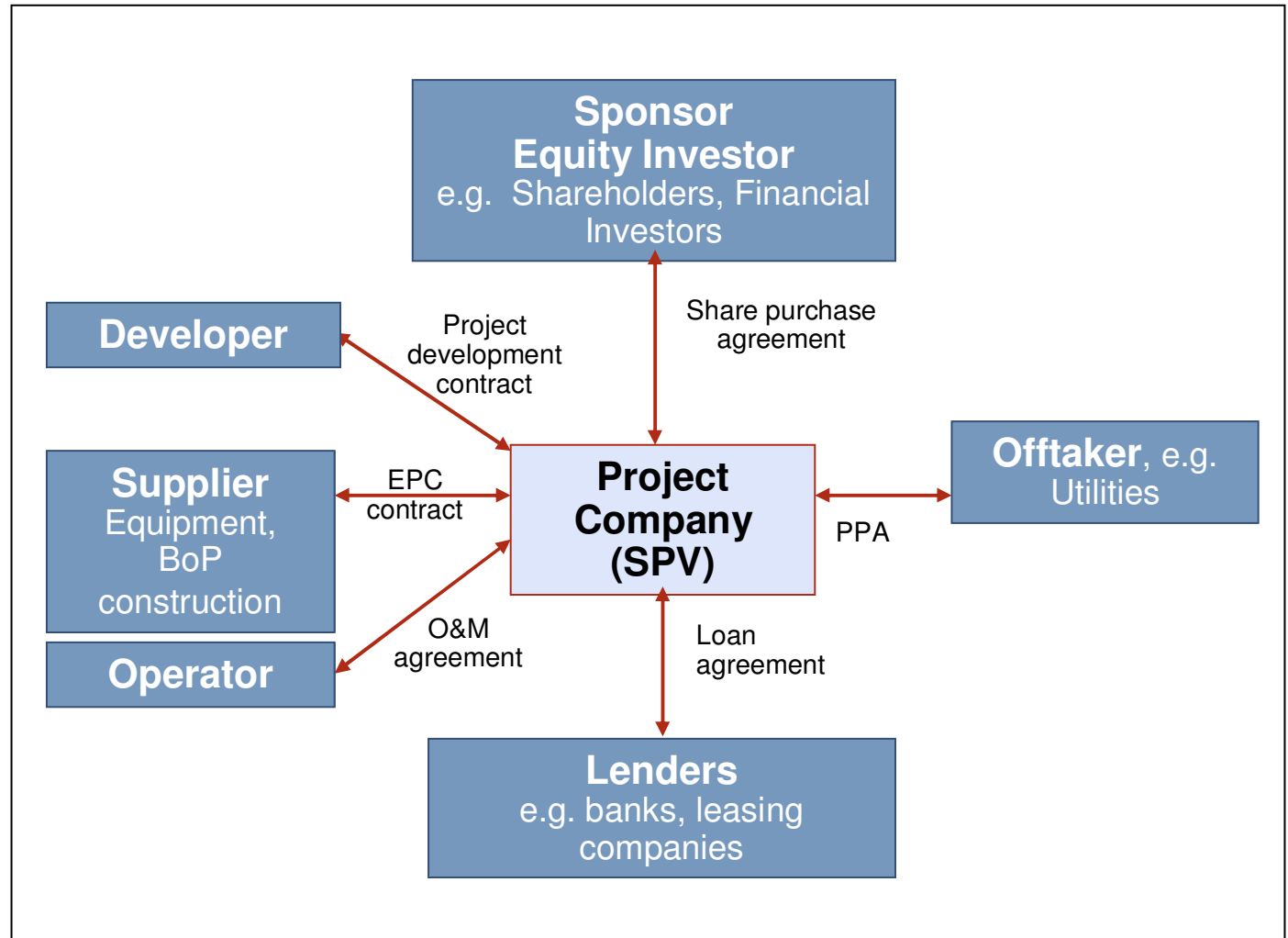
Project finance is a form of structured finance where all costs (operations & debt service) are covered only by the cash flow that is produced by the project itself. Except for their equity contribution, no recourse exists to the shareholders of the project company (**non recourse** financing).

Why project finance ?

By **merging the interests** of different project participants (stakeholders) - e.g. sponsors, developers, suppliers, offtakers, public authorities, financiers – **economic advantages** will be realized and allocated, that no party would have been able to realize on its own (creation of a “win-win-win-...”-situation).

Project Finance – Basic Structure

- Borrower is the project company in the form of a **Special Purpose Vehicle (SPV)**
- Repayment of loans from future **project cash flow**
- Hedging cash flow by (long-term) contractual agreements
- All tangible and intangible assets of the SPV and the shares of the SPV secure the loan
- **Non / limited recourse** to assets or cash flow of the project initiator (sponsor) beyond contribution of equity



Cash Flow (level & predictability) determines debt capacity

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Projection of all important project data:

- Income from power-production
- Operating costs: operation, maintenance, insurance, management
- Financial costs: interest and repayments
- Result: „Base Case“ as most likely scenario

Calculation of financial ratios to assess ability to service debt:

- DSCR – Debt Service Cover Ratio
(„How big is the buffer for debt service in each project period?“)
- LLCR – Loan Life Cover Ratio
(„How much bigger is the discounted project cash flow compared to the outstanding loan amount?“)

Minimum DSCR / LLCR requirements depend on:

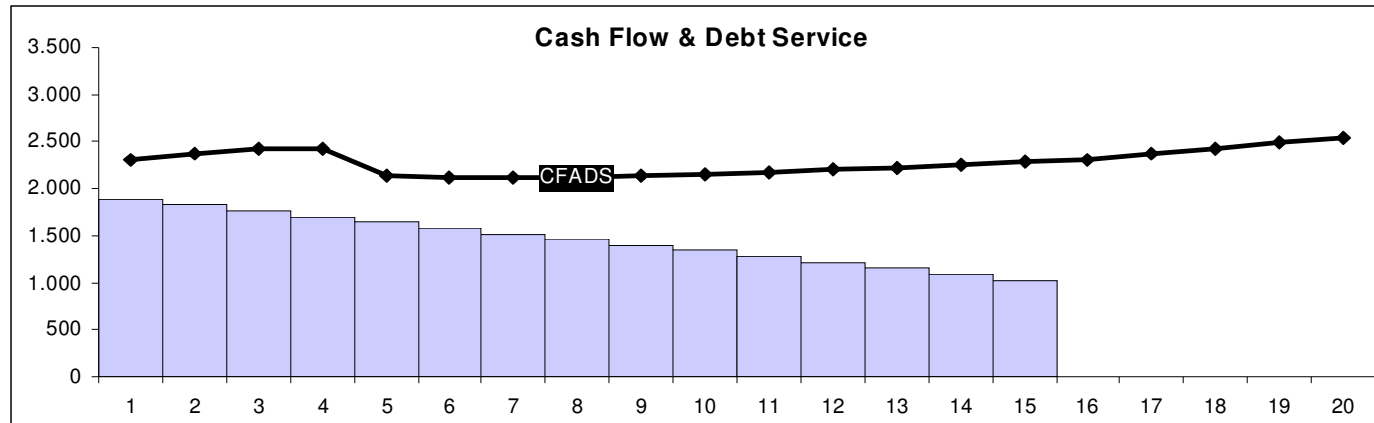
- Long-term predictability of the project cash flow

Evaluation of Risks – Cash Flow Model (2)

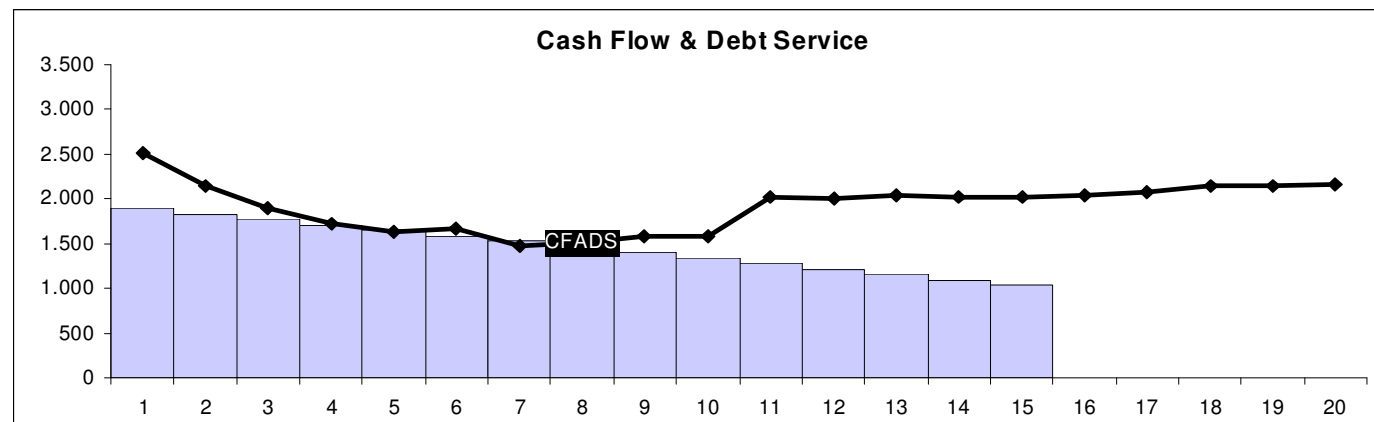
Sensitivity analysis of stress scenarios:

- e.g.:
 - reduction of solar energy produced
 - lower availability
 - higher maintenance costs
- Cash flow before interest and repayments in the **worst case** scenario has to be at least at a level where the debt service is guaranteed ($DSCR > 1,0$)

Base Case:



Stress-Scenario:



Technical:

- Project design / engineering (panels, inverters, controlling unit, etc.)
- Operating costs: operation, maintenance, servicing
- Solar radiation study / Energy forecast

Legal:

- Corporate documents
- Permits and licenses
- Project agreements (EPC contract, PPA, land lease agreements, easements, grid connection & usage, operating agreements)

Insurance:

- Insurance concept

Market:

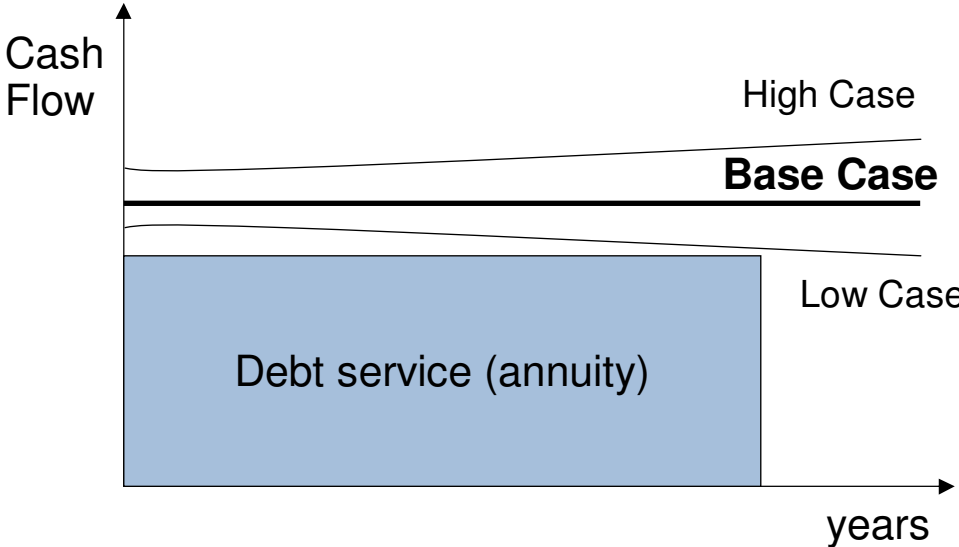
- Market prices
- Offtake volume

Model Audit:

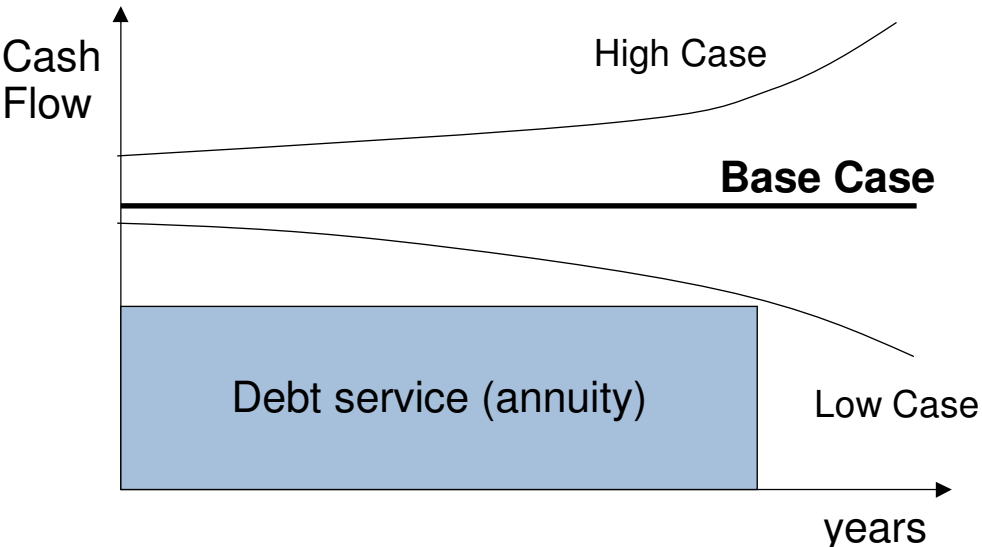
- Cash flow model: assumptions, connection of formulas, consistency

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Robustness of cash flow determines debt capacity

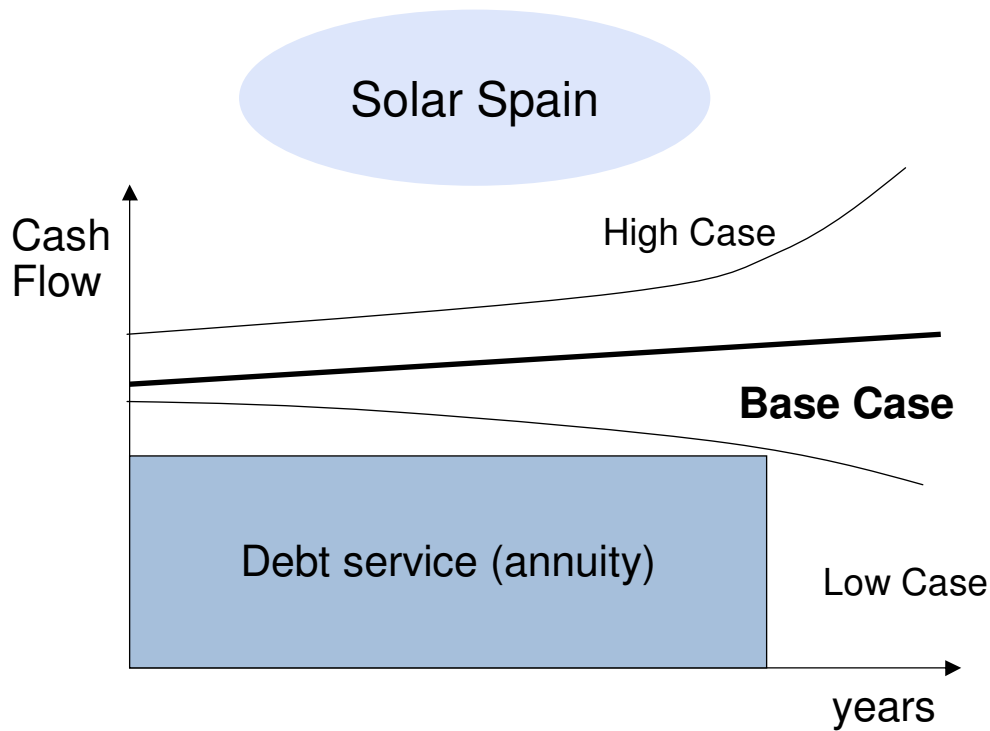


Solar PV Project

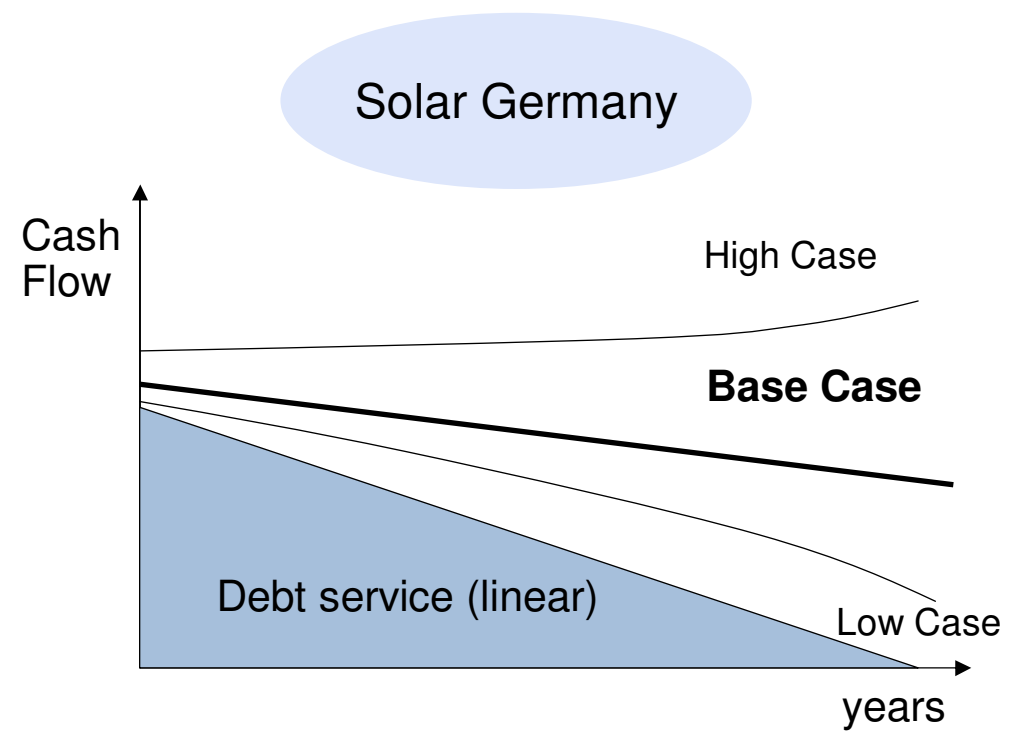


Windfarm Project

Cash flow profile over time drives advisable repayment profile



Inflation indexed tariff



Non inflation indexed tariff

Structuring - Principle Terms for Solar PV

- **Senior Debt Sizing:**
 - Minimum 1.00 DSCR at projected solar energy yield – 15 %
- **Junior Debt / Mezzanine Debt:**
 - subordinated to senior debt
 - allowing more flexible repayment (e.g. partial roll-over of repayments)
 - margins to reflect higher risk
 - usually including equity kicker
- **Support facilities** possible, e.g.
 - VAT bridge loan
 - Decommissioning L/C
 - Equity bridge loan
- **Tenor:** up to max. 20 years, subject to
 - duration of PPA / Feed-in tariff leaving at least three years of tail
 - overall risk profile (e.g. extent of market price risk; country risk)
- **Debt Service Reserve Account:** usually 6 months
- Integration of **ECA guaranteed** tranches, if applicable and economically sensible
- **Hedging** of interest rate risk

Structuring - Collateral Package for Solar PV

- **Pledge** of / **mortgage** over all tangible assets of the Borrower, e.g.
 - solar power plant & equipment
 - buildings
 - land

- **Assignment** of all intangible assets, esp. rights from material project agreements, e.g.
 - Share purchase agreement
 - EPC contract incl. warranties
 - Operations & maintenance contract
 - PPA / Feed-in tariff
 - grid connection agreements
 - insurance proceeds
 - land lease agreements
 - permits / licenses

Project agreements to provide for **step-in rights** in favour of the bank or its nominee in case of a default.

- **Pledge** of the shares in the Borrower
- **Pledge** of all project accounts

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A strong financing partner in Energy

- Track record of more than 20 years in the energy industry in Germany, as our home market
- Many years of experience, strong business and teams in the US and Europe
- One of the world's leading financiers in the renewable energy sector
- We are currently extending our focus to selected parts of Asia and Australia
- In 2007, HSH Nordbank has lead arranged over USD 3.0 billion of project finance in renewable energy
- Numerous cross-border acquisitions
- Deep understanding of the asset classes allows us to move fast as we rely on highly evolved risk models
- Over 50 experienced experts worldwide; Energy team to grow to approx. 90 specialists

Our Clients

- Our clients include developers, operators of energy producing projects, manufacturers, suppliers and utilities (as sponsors of power generation projects).
- As our client, you can rely on our experience, entrepreneurial approach, flexibility and responsiveness to individual challenges. We meet our clients' objectives by providing innovative financing solutions that are tailored to their needs.

Our Goals

- Supporting our clients as active arrangers, providers and innovators across the entire capital structure
 - We target high quality, complex transactions with strong sponsorship
 - We understand our client's motivation and objectives to add significant value
 - We develop innovative solutions and execute them with precision
- Becoming financial partners of our clients and solidify long-term client relationships
 - We offer timely results, honor commitments and close transactions
 - We demonstrate transaction expertise and customize transactions to meet our client's objectives

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Project Finance – Benefits for the project sponsor

- Realization of larger investment projects may only be permitted by separation of the project from the credit-risk of sponsors (**limitation of liability**).
- Reduce equity need and thereby increase the **IRR** for the sponsor by integration of additional credit-worthy stakeholders as risk takers, like equipment suppliers / general contractors (completion guarantee) or suppliers / offtakers (long-term supply or offtake agreements).
- Possibility for the sponsors to avoid full consolidation if SPV is erected as a joint venture without majority owner. Alternatively achievable with integration of financiers or leasing-structures.
- Access to (very) **long-term credit** at risk adequate conditions.

- **Complex project and credit documentation** with comparatively restrictive contract terms; usually regular adjustments needed during lifetime of project
- In-depth economic, legal, technical and insurance **due diligence** by the lender at the beginning of the transaction
- Higher costs for **monitoring-** and **documentation** purposes
- Therefore generally only economically reasonable for **investment volumes** of EUR 20 m and more

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- Stability and reliability of **legal-** and **regulation environment**
- **Proven technology**: rather a „workhorse“ than a „racehorse“
- **Skilled**, in relation to their project commitments financially **sound project participants**
- **Sustainable project structure**: well-balanced diversification of risk in order to incentivise the main project parties
- In market competition the project is amongst the **cost leaders**.

Contact

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The logo consists of a blue crosshair symbol, with a vertical line extending upwards and a horizontal line extending to the right, intersecting at a point above the letter 'D'.

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