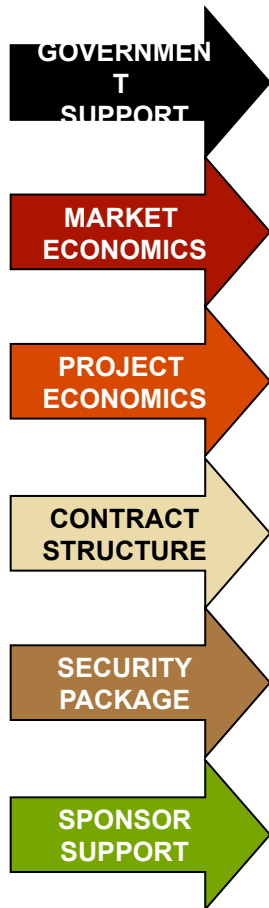


**MAIN ISSUES RELATED TO PROJECT  
FINANCE  
and  
BANKABLE RENEWABLE ENERGY  
PROJECTS**

# Energy Efficiency and Renewables: Main Banking Risks

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- Acceptable country risk?
  - Regulatory framework for energy savings and IPP's bankable?
  - Carbon credits possible? What scheme to support efficiency and renewables?
- Electricity shortages? Base load opportunity? Supportive industry?
  - Specific sources (such as hydro) available that make other RES less-bankable?
  - How does specific efficiency project compare to other projects?
- Technology to be used, efficiencies and track record of equipment? Costs per MW?
  - Use of carbon credits and subsidies from support schemes?
  - Financing options?
- Long term PPA possible with validity exceeding longest debt tenor?
  - Turnkey contractor under fixed price date certain contract?
  - Reputable O&M contractor?
- Product warranties?
  - Comprehensive risk coverage available from equipment vendors?
  - Mortgage possible on land or other assets?
- Reputable and experienced sponsor?
  - Level of equity investment?
  - Level of contingent equity available for completion?

# Renewable Energy Support

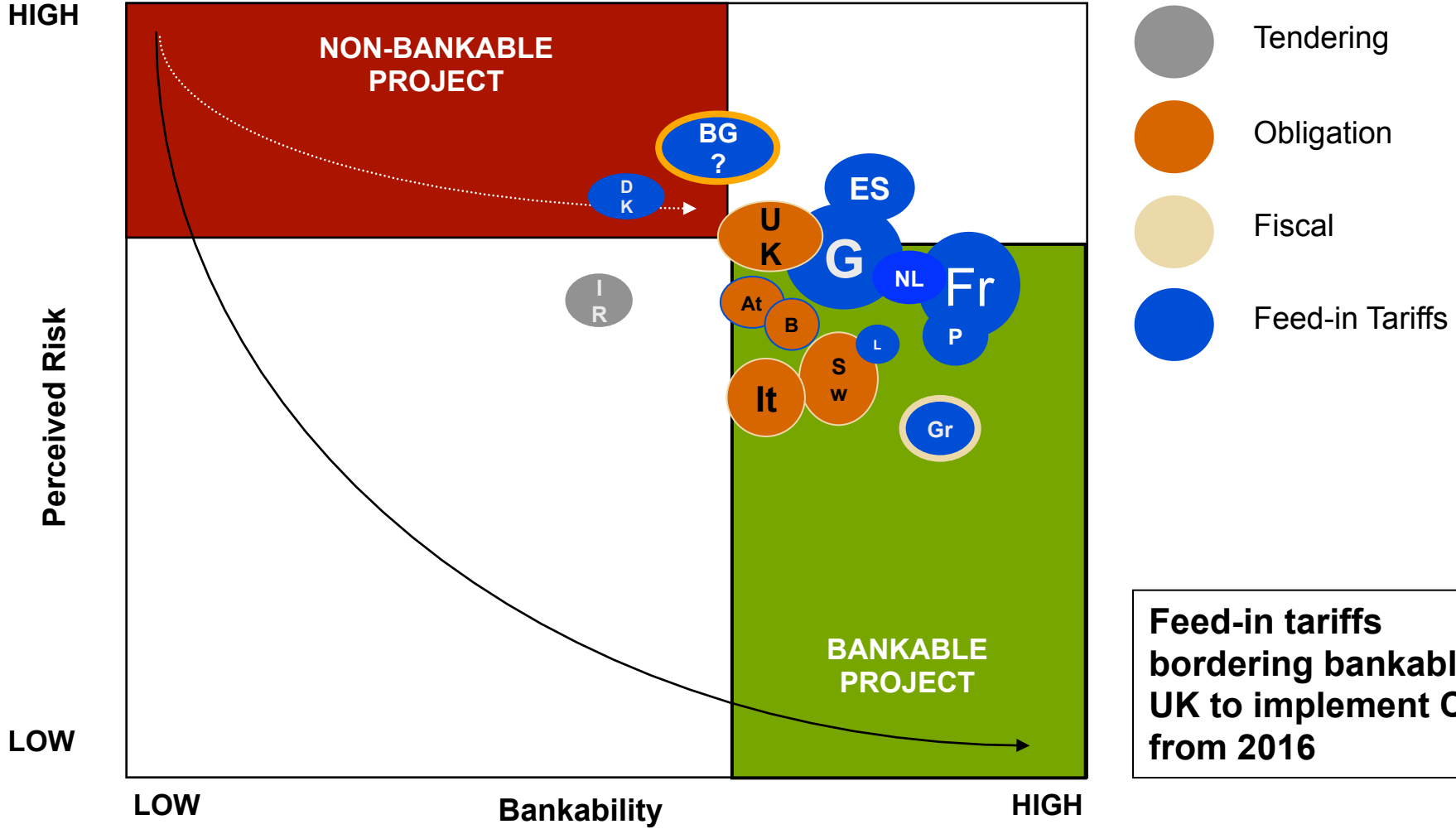
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A black downward-pointing arrow with the text "GOVERNMENT SUPPORT" inside it.

GOVERNMENT  
SUPPORT

- Legal and institutional framework for renewable energy.
- Availability of financial infrastructure and fiscal mechanisms to allow investments in renewables projects.
- Mechanisms to provide incentives or requirements for support to the implementation of renewable projects.
- Clear legal regime for contracting, land ownership, taxation, licensing, permitting, connection.

# Renewables and Government Support



# Renewable Situation

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MARKET  
ECONOMICS

- Varying potential for renewable energy country by country.
- By its nature and available potential wind/solar/small hydro power will not provide a secure base load electricity supply.
- It is unclear whether feed-in tariffs regime is viable in long term and that the wind and solar renewable energy projects represents the most cost effective way to curb carbon emissions.
- Licenses for windparks/solar have been awarded sometimes too liberally.
- Large intermittent installed capacity in some countries creates problems for the grid.
- In less developed countries, limited installed capacity also indicates limited experience with offtake of unsecure power generation.
- Limited installed capacity also indicates a supporting financial sector with limited exposure and experience in less developed markets, compounded by political uncertainties and economic downturn.

# The Main Issues in Project Economics

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PROJECT  
ECONOMICS

- Verifiable feasibility studies, confirming the availability of renewable resource or savings.
- Strong track record and/or guaranteed performance of the equipment.
- Cost of technology/equipment, which allows economic generation – LCOE, given the price of energy or incentives (cost per kWh).
- Sufficient level of price of energy or tariff to provide comfortable Returns on Equity and Debt Service Coverage Ratios.

# Contractual Situation

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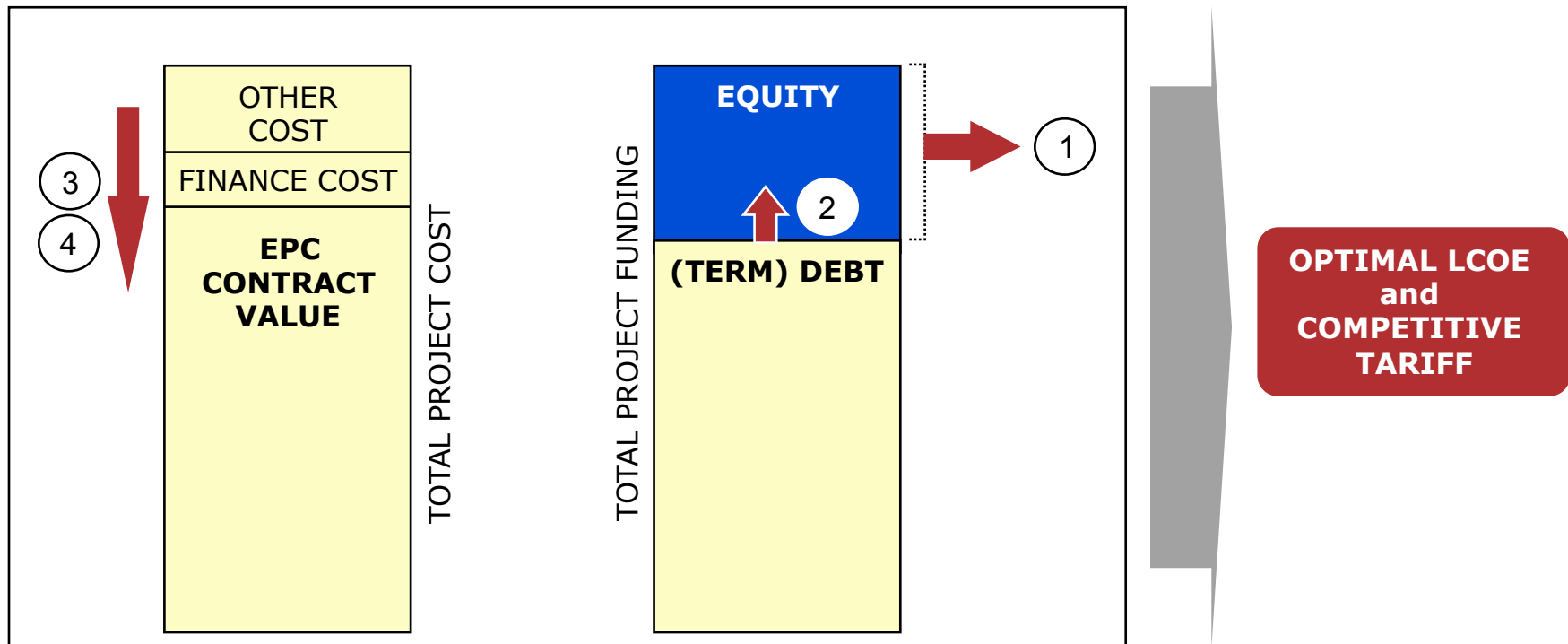
CONTRACT  
STRUCTURE

- Build, *operate* and/or transfer concession models often face quite strong legal problems.
- Connection to the electricity networks faces a lot of challenges and obstacles.
- The construction and equipment contracts are not likely to be signed with one party.
- A power purchase agreements are difficult to be applied in liberalised electricity markets.
- Need for enforceable PPA, Turn-key contracts, Supply contracts, O&M and Connection contract.

# Sponsor's Requirements: Main Structuring Issues

1. Acceptable equity return in relation to equity risk at lowest 'recourse' possible
2. Lowest level of (contingent) equity contribution within bankable Debt Service Cover Ratios and D/E ratios
3. Acceptable (EPC) cost with (extensive) recourse to EPC contractors
4. Minimising finance cost of the debt

SPONSOR SUPPORT

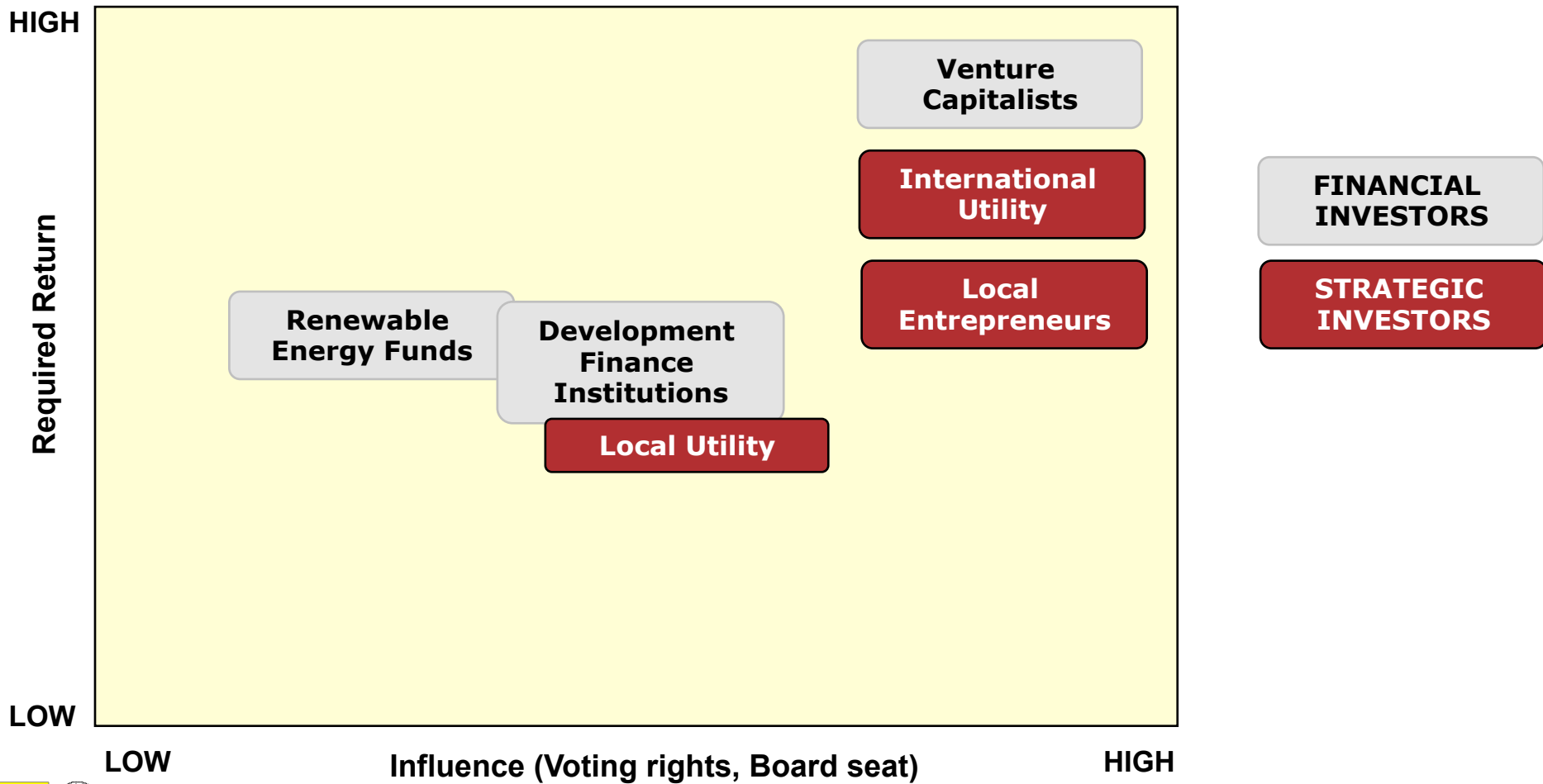




# Ad 1. Acceptable Equity Return



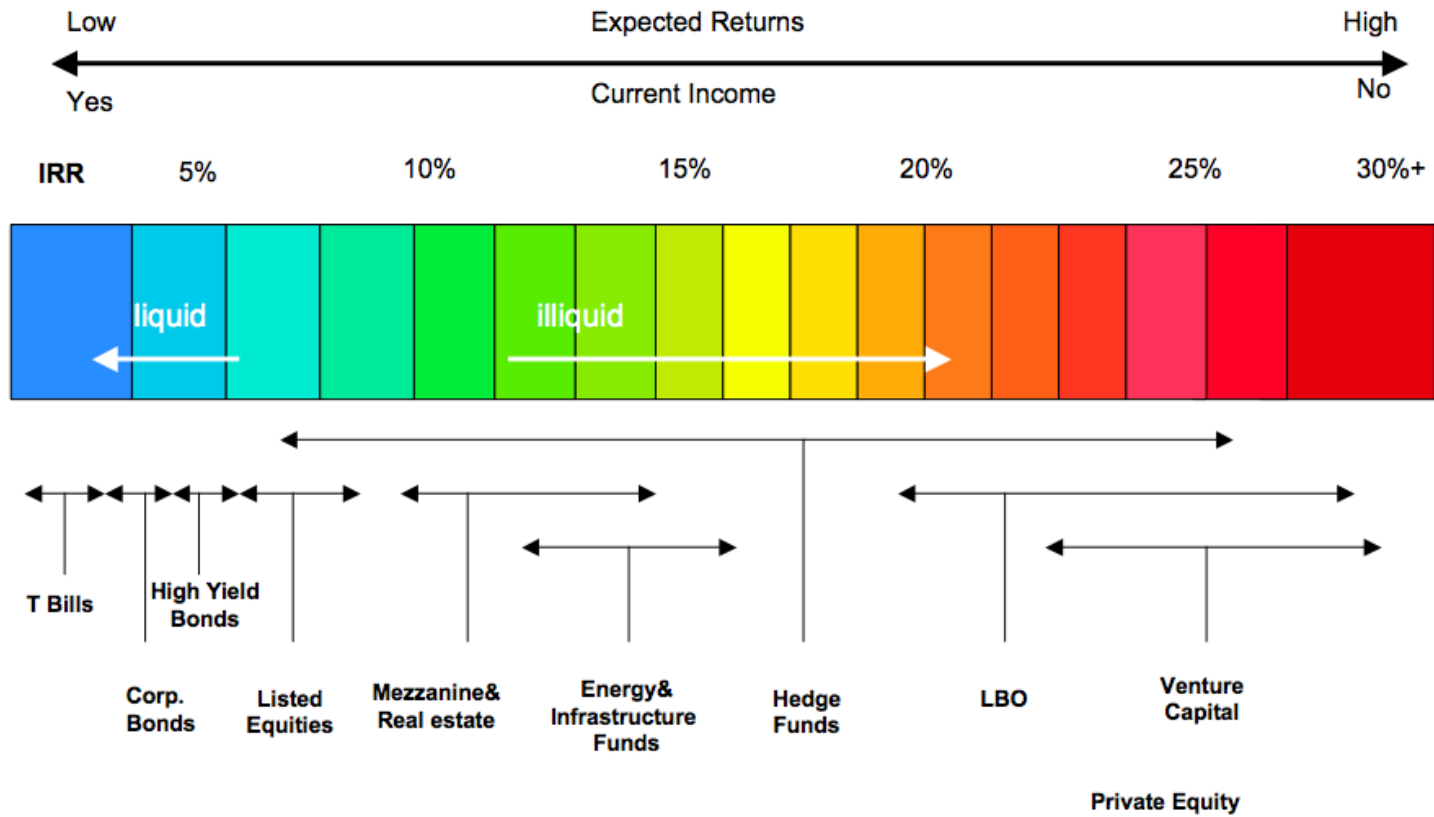
Return requirements differ per investor categories.



# Ad 2. Acceptable Equity Return



Return requirements differ per investor categories.



# Equity Considerations

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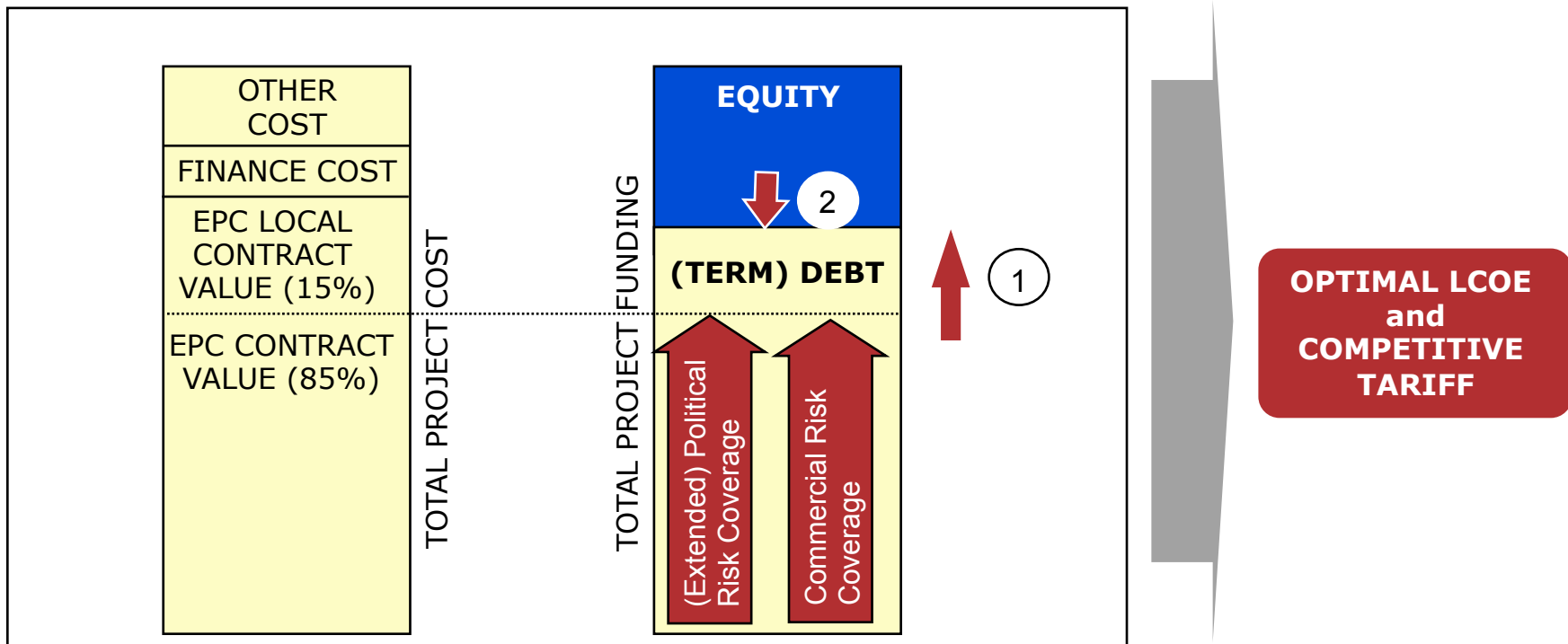
SPONSOR  
SUPPORT

- Banks would like to see a reputable sponsor in a transaction.
- The practice shows that 25% to 40% of project cost might be required in equity which depends on uncertainties related to the project.
- Contingent equity requirements in general amount to some 30% to 40% of the equity in a project. Such element needs to be addressed in the project's funding plan.
- Lower percentages of equity are generally only possible through lease schemes. These schemes require a counterparty purchasing the equipment at the end of the lease period.
- Using of mezzanine debt instruments usually alleviates this issue.

# Lenders' Requirements: Main Structuring Issues

FINANCIAL STRUCTURING

1. Sufficient coverage of political/commercial risks through Export Credit Agencies / or other, and sufficient debt service capacity
2. Sufficient (contingent, i.e. sponsor support) equity contribution
3. Bankable project documentation (incl. framework & concession documents)



# Lenders' Security Issues

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SECURITY  
PACKAGE

- Lenders do not assume completion risks. These risks are allocated with EPC contractors (through retention of construction contract payments and liquidated damages on performance) and with equity providers (through contingent equity for cost overruns).
- For example, wind turbine manufacturers provide for a 5 to 10 year product warranty including a defects liability period as from commissioning. A supplier of technology to renewable or energy efficiency project with longer repayment period should be able to provide product warranties on its balance sheet.
- The legal regime should allow the land to be owned by the sponsor and used as a security.
- The suppliers of equipment should be able to attract comprehensive cover for the benefit of potential lenders (Export Credit Agency's cover). Without such coverage it is very unlikely to tap the commercial banks market.

# Bankability

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FINANCIAL  
STRUCTURING

Many uncertainties accompany a project.

The project will only attract sufficient finance if to a large extent:

1. Uncertainties are reduced
2. Risks are mitigated

# What the banks often actually face

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FINANCIAL  
STRUCTURING

## Main issues:

- complicated regime for support of renewables;
- unclear legal regime;
- opposition from local energy companies;
- contractual and implementation issues;
- inexperienced developers

## As a result:

- few and incomplete applications
- small, and often non-bankable projects

# Bankability: Uncertainty Reduction



	<b>Uncertainties</b>	<b>Capacity Building</b>
<b>Government Support</b>	Working of RES framework Level of feed-in tariffs next years	Support to establish/implement Support to review/analyse
<b>Market Economics</b>	Carbon credits Industry support	Incorporate in Business Plan Facilitate information exchange
<b>Project Economics</b>	Cost per kWh O&M cost per kWh	Comparative analysis in BP Comparative analysis in BP
<b>Contract Structure</b>	Legal structure of venture Status PPA Separate O&M contract	Assistance to Sponsor Assistance to Sponsor Assistance to Sponsor/EPC
<b>Security Package</b>	Ownership Availability comprehensive cover	Assistance to Sponsor Assistance to Sponsor / ECAs
<b>Sponsor Support</b>	Availability (contingent) equity	Assistance to Sponsor / Fund



# Bankability: Risk Mitigation

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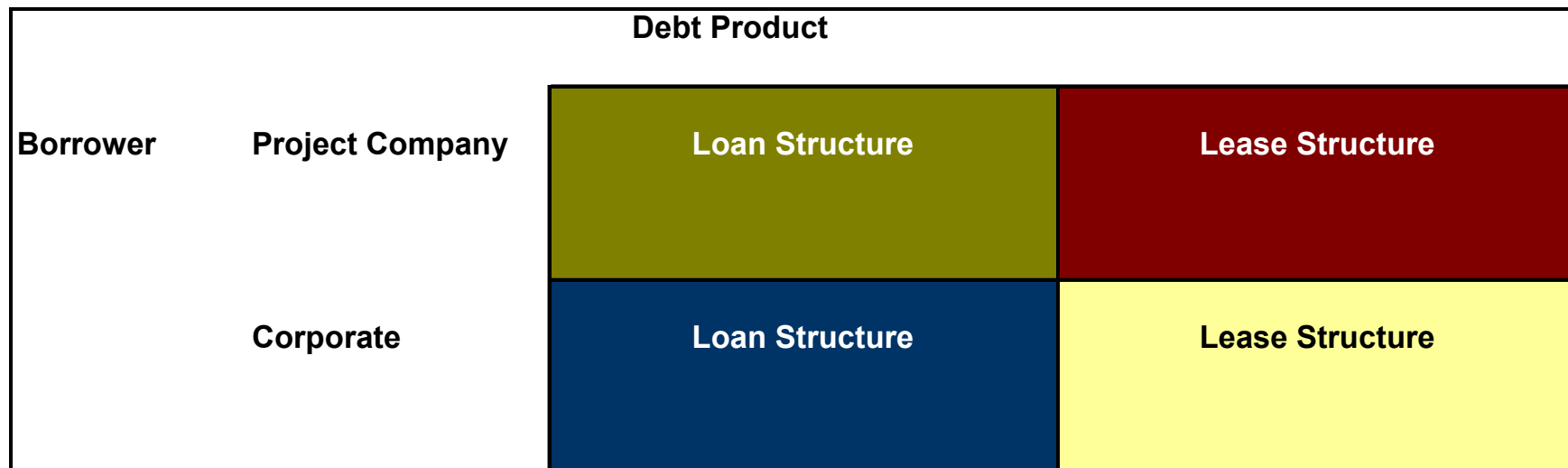


	<b>Risks</b>	<b>Risk Mitigation</b>
<b>Government Support</b>	Legal framework	Comprehensive insurance cover
<b>Market Economics</b>	Place renewable energy in loadcurve Lack of experience	Legal opinions on working supportive legislation Higher contingencies
<b>Project Economics</b>	Equipment supplier's reputation	Higher contingencies / product warranties
<b>Contract Structure</b>	Not one EPC contractor Creditworthiness offtaker	Other similar arrangements Debt service reserve levels
<b>Security Package</b>	Completion Product warranties	Sponsor and contractor support Insurance
<b>Sponsor Support</b>	Inexperienced sponsor	Attract experienced co-sponsor?

# Financing of Energy Efficiency and Renewable

FINANCIAL  
STRUCTURING

Dependent on how uncertainties are addressed and risks are allocated / mitigated different types of financial structures might be assessed:



# Conventional Project Finance



Project finance is the most likely route for financing of the renewables.

The following table summarizes the options\*:

Project Company	Debt Product		Commercial Banks + ECAs	Development Banks
	Loan Structure			
	<b>Senior Debt</b>			
		Availability	Yes (origin of equipment)	Yes
		Pricing	12% - 15% upfront + CIRR	Libor + 4.5 – 4%
	<b>Subordinated Debt</b>			
		Availability	No	Yes
		Pricing		Libor +, or 2/3 return on equity

1. Commercial banks are only likely interested in case they can obtain comprehensive cover from an Export Credit Agency (ECA). Such ECA charges an upfront premium and commercial banks charge a so-called Commercial Interest Reference Rate - CIRR rate thereafter per annum. This official rate for renewables in Euro is currently around 2%\*\*.  
Subordinated debt – functioning as equity - is not likely to be obtained through commercial banks.
2. In the present market situation development banks and specialised funds are the most relevant option. These banks will likely mobilize local banks to some extent. Subordinated debt might be available.

\* Availability and level of pricing are for indicative purposes only. There will be associated fees and costs payable.

# Conventional Corporate Borrowing

Corporate borrowing is an option in financing energy efficiency projects in large companies. Such financing route makes only sense if the borrower is of such credit quality that it will beat project finance on margins substantially and the borrower has a balance sheet that can bear the risks related to the projects. The following table summarizes the options\*:

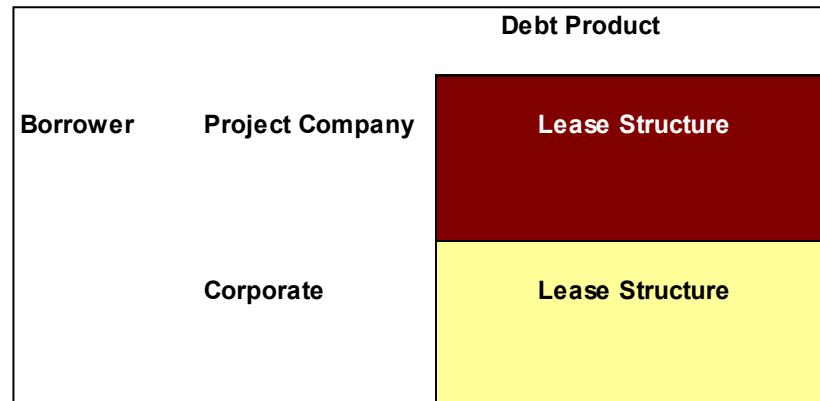
	Debt Product	Commercial Banks + ECAs	Development Banks
<b>Corporate</b>	<b>Loan Structure</b>	<b>Senior Debt</b>	
		Availability	Yes (origin of equipment)
	Pricing	12% - 15% upfront + CIRR	Yes
			Libor + 3.5 – 5%
	<b>Subordinated Debt</b>		
	Availability	No	Yes
Pricing		Libor +, or 2/3 return on equity	

1. Commercial banks are only likely interested in case they can obtain comprehensive cover from an Export Credit Agency (ECA) under a *suppliers credit* (on Sponsor's balance sheet). Pricing much similar to the project finance option.
2. Development banks might be an option provided that the borrower is of good creditworthiness and that the facilities are only a certain percentage of its balance sheet (< 20%).

# Lease Options



In some European countries lease schemes to finance renewables (windparks) are popular. Features of such schemes are: 1) generally a favourable depreciation scheme that allows playing around with economic (end)value of the assets and fiscal depreciation, 2) lessors willing to purchase the turbines after a number of years, and 3) creditworthy entities that act as counterparty. In the Netherlands for example accelerated depreciation was allowed for a number of years, turbines received a grant and government-owned public utilities acted as counterparties. This way windparks have been financed with virtually no equity investment.



In order to investigate possibilities of lease in the proposed windparks more details need to be known about depreciation and willingness of the purchaser to enter into a lease. Financial terms and conditions will be based on purchaser's creditworthiness.

# Project Finance Issues

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- To make the regulatory framework for energy savings and IPP's bankable
- To make Carbon credits possible
- To implement schemes to support efficiency and renewables



- To prepare long term strategies integrating renewables and efficiency
- Capacity of the financial institutions to appraise a renewable or efficiency project
- Capacity in the local industry to offer equipment and services



- Capacity to prepare and present viable business plan, including costs, revenues etc.
- Capacity to request, finance, prepare, evaluate and verify feasibility studies
- Capacity to consider different technical and financing options

# Project Finance Issues cont.

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Capacity to prepare and negotiate PPA, Supply, Turn-key, O&M contracts  
Capacity to evaluate the technical and financial strength of a contractor  
Capacity to enforce a contract



Capacity to build strong security package  
Capacity to arrange comprehensive risk coverage (ECAs, vendors)  
Capacity to arrange mortgage on land or other assets



Capacity to have knowledgeable developers/sponsors  
Capacity to structure proper equity package  
Capacity to structure proper level of contingent equity available for completion



CAPACITY TO STRUCTURE THE RIGHT FINANCIAL PACKAGE?

# Contact

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