RES4Africa Foundation
Knowledge Platform

Project Finance in Renewable Energy investments

Cassa Depositi e Prestiti - CDP
The RES4Africa Knowledge Platform offers a set of content-driven, technical-functional training

The aim of the **RES4Africa Knowledge Platform** is to establish a public platform of technical training content, usable by third parties in accordance with the Foundation’s core principles of a think tank and open hub for knowledge sharing.

The purpose of the Platform is to **offer a set of technical-functional content**, organized in sharp modules covering renewable energy and more in general the key topics part of the energy transition.

The modules will be also delivered to on-request **professionals of the energy sector** (e.g., Energy Ministries, Regulatory Authority, vertically integrated incumbents, Associations, other relevant parties).
The Platform covers all the key areas of energy transition, with a comprehensive perspective across the value chain.

The Platform covers the following thematic areas:

**Technologies**: a comprehensive understanding of different technological options and features/potential is a pre-requisite for a successful planning and implementation of fully functioning energy systems.

**Policies and regulations**: must go hand in hand with measures ensuring that industrial and other economic capabilities are aligned with sustainable development and climate priorities.

**Access to market**: Successful deployment of RES and flexibility technologies depends on how effectively MWh produced can be sold on the market and to what extent risk is properly hedged.

**Permitting**: one of the key hurdles that developers face, especially for utility-scale RES projects. Key common issues can be identified, and proper management principles can be set up.

**Financing**: bankability is one of the highest impact factors to ensure that utility-scale RES projects are successfully deployed. Compliance with requirements from international funding entities is fundamental.

**Operation**: considering the level of maturity reached by RES technologies, a significant share of the value that can be extracted by RES projects stems from an advanced asset management approach.

**Sustainability**: is progressively becoming a top priority for investors and energy industry stakeholders in assessing investment opportunities. A more comprehensive evaluation approach must be adopted.
The Platform covers the following thematic areas:

- Technologies
- Policies and regulations
- Access to market
- Permitting
- Financing
- Operation
- Sustainability

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**Project Finance in Renewable Energy investments**

**What is the context:** Africa’s growing demand for energy requires massive investment that can only be secured from the Private Sector. In order to support private actors in developing countries, CDP Cooperation mobilizes resources in the form of Project Finance to promote investment projects with a high economic, social and environmental impact.

**Why is this relevant:** the only way to bridge the investment gap in Africa’s energy sector is to engage and support the Private Sector, especially through financial instruments and solutions such as those provided by CDP.

**What are the key questions:**

- How can CDP support private actors in developing countries?
- What is Project Finance?
- How does it work?
- Which are the main risks associated with projects in RE?
- How can they be tackled and mitigated?
CDP is the financial institution for International Development Cooperation

International Development Cooperation is an integral and qualifying part of Italian foreign policy towards developing countries.

2014

Law 125/2014 assigns to CDP the role of Financial Institution for International Development Cooperation.

Key factors for CDP

- Long-term approach ("patient investor")
- Expertise in blending public and private financial resources
- Ability to catalyze private resources on projects with positive economic and social impacts

2016

CDP manages the Revolving Fund for Development Cooperation (FRCS)\(^1\)

Role of CDP Cooperation

Contribute to increasing official aid flows (Official Development Assistance – ODA) of the Italian Cooperation system, to achieve Italy’s 2030 targets (ODA/GNI ratio equal to 0.7%)

Increase CDP Cooperation’s support to the private sector in developing countries, by mobilizing resources to promote investment projects with a high economic, social and environmental impact

2017

CDP is authorized to use its own resources for cooperation and development finance\(^2\)

1. The use of the FRCS by the Ministry of Foreign Affairs and International Cooperation (MAECI) takes place under the supervision of the Ministry of Economy and Finance (MEF). The FRCS is mainly used for long-term concessional financing addressed to sovereign counterparts and aimed at supporting international cooperation initiatives in favor of developing countries;

2. Up to 1 billion euros per year
Project finance at a glance

Structure and investors key expectations

- Financing through equity and debt of a special purpose company (SPC) created for the development, construction and operation of an economically and financially viable project, in which fund providers would look essentially at the project cash flow for:
  - servicing the debt in a timely manner
  - getting an adequate return on the equity invested
  - operate profitably a set of assets as an independent economic unit

Reliability of cash flows

- If adequate and reliable cash flow projections are obtainable then the project can be financed on a project finance basis, using equity and debt (amortized over time with the proceeds from project operating cash flow)

The SPC is incorporated in the country where the project is going to be developed and is the Borrower of the debt. Usually, project finance transactions envisage high level of debt, provided the cash flow projection of the projects show the ability to serve the lenders, leaving a safety margin
Key Features

Project financing does not depend on the creditworthiness of the sponsors, but from the capacity of the project to generate a sufficient cash flow stream to repay the financial debt and remunerate the capital invested by the sponsors.

1. **SPC**
   - The borrower is an SPC created by the sponsors, incorporated in the country where the asset is located and operated. To be noted that the SPC is a stand-alone entity.

2. **Security package**
   - Customary security package includes: pledge of shares, assignments of receivables arising from project contracts, mortgage on the assets, pledge on the bank accounts...

3. **Recourse**
   - Usually, the lenders have no recourse against the sponsors. In some cases, there is a limited recourse for a limited time (construction phase) and/or limited amount (linked to certain triggering events – covenants).

4. **Cash flow**
   - The cash flow waterfall ensures an orderly application of the payments. Operating expenses and loan repayments come first. If funds will be available at the end of the waterfall dividend can be paid.
Different degrees of recourse

Recourse financing gives lenders full recourse to the assets or cash flow of the sponsors for repayment of the loan in the case of default by the SPV. If the project or SPV fails to provide the lenders with the repayments required, the lenders will then have recourse to the assets and cash flow of the sponsors.

Project financing, by contrast is “limited” or “non-recourse” to the sponsors. In the case of non-recourse financing, the project company is generally a limited liability special purpose project vehicle, and so the lenders' recourse will be limited primarily or entirely to the project assets (including completion and performance guarantees and bonds) in the case of default of the project company.

Depending on how the transaction is structured, there are three different degrees of recourse over the sponsors:

1. **Non recourse**
   - Any recourse to the sponsors of the project is excluded. Lenders have to rely exclusively on the cash flow from the project.

2. **Limited recourse**
   - Recourse to the sponsors is limited:
     - Until a certain deadline (during construction phase)
     - Up to a certain amount
     - Only in case certain events are triggered, i.e. in case of default or if certain ratios are in breach

3. **Total recourse**
   - Project finance transactions with total recourse to the shareholders of the SPV. In this case lenders benefit from a corporate guarantee from the sponsors and rely on their creditworthiness. However, this type of transactions have to be classified as corporate finance rather than project financing.
Main actors involved in PF transaction

Project structures may differ depending on industry, country etc. What we present here is a typical framework for a renewable energy project finance transaction.
The Project Company’s legal structure can be split into three main clusters of contracts and agreements:

1. **Security documents**
   - Pledge of shares
   - Off-take assignment
   - Direct agreements
   - Mortgage
   - Account pledge

2. **Project agreements**
   - Concession Agreement
   - EPC Contract
   - Off-take Agreement
   - O&M Agreement
   - Insurances
   - Shareholder Agreement
   - Land transfer / lease

3. **Finance documents**
   - Common terms Agreement
   - Facility Agreements
   - Inter-creditor Agreements
Cash waterfall

**Allocation**

- Project revenues received
- Project revenues account
- Operating account
- Debt payment account
- Debt service reserve account
- Subordinated debt account
- Distribution Account

**Description**

- Project operating expenses
- Fees, interest & scheduled principal repayments
- Maintain required debt service reserve level
- Payment of subordinated debt (if any)
- Remaining amount distributed to equity holders (1)

1. Assuming no defaults and financial tests are met
## Main Financial Indicators

<table>
<thead>
<tr>
<th>Financial indicators</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt-equity (D/E) Ratio</td>
<td>Long term debt/shareholders’ equity</td>
</tr>
<tr>
<td>Loan life Cover Ratio (LLCR)</td>
<td>Net present value of available cash for debt service up to the maturity of the loan plus DSRA divided by the principal outstanding</td>
</tr>
<tr>
<td>Debt Service Cover Ratio (DSCR)</td>
<td>Total amount of cash flow available for debt service during the interest period compared to the amount of debt service owed</td>
</tr>
<tr>
<td>Return on Equity (ROE)</td>
<td>The amount of net income returned as a percentage of shareholders’ equity</td>
</tr>
<tr>
<td>Payback period</td>
<td>Time required to recover the cost of an investment</td>
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</tbody>
</table>
Successful project financiers understand the risks involved in project finance and know how to successfully allocate them to the best parties capable of dealing with them, through specific agreements with the project vehicle.
Risk evolution during the project phases

Generally, each phase of a project finance transaction is prone to specific risks. As such is paramount to implement a proper risk management approach since the beginning.

Three different project risk phases

1. Risks during engineering and construction
   - Engineering
   - Costs overrun
   - Contractor default
   - Concession negotiations
   - Delays
   - Technology
   - Political risk

2. Risks during testing phase / completion
   - Risk that tested technical specs don’t match with contractual specs
   - Risk of delays during the testing phase

3. Risks during operational phase
   - Performance
   - Cost variation
   - Default of offtaker
   - Default O&M contractor
   - Technology
   - Political risk

![Project value/Risk vs. Time](chart.png)
Classification of risk types

1. **Environmental risk**
   - The plant/infrastructure can cause a potential threat of adverse effects on population, landscape and living organisms.

2. **Credit risk**
   - The risk faced by the various actors involved in the project, to honor the respective contractual obligations.

3. **Political / Country risk**
   - Political risk is a type of risk faced by investors, corporations, and governments that political decisions, events, or conditions will significantly affect the profitability of a project. This category includes dispossession, confiscation, currency instability, riots and wars.

4. **Financing risk**
   - Risk related to: (i) an increase of interest rates (ii) FX risk (iii) inflation risk.

5. **Force majeure**
   - This point includes natural and unavoidable catastrophes that interrupt the expected course of events and restrict participants from fulfilling obligations.
Off-take risk mitigation

**Off-take risk** is the risk that the project will not generate the expected revenues or, at least, sufficient revenues to service the debt and pay the project company’s expenses. This risk is usually mitigated by entering into a long term off-take contract aiming at mitigating the market risk by reducing the volatility of the expected cash flows from the operation of the project.

An off-take agreement should **cover the following risks**

<table>
<thead>
<tr>
<th>Risk covered by the agreement</th>
<th>Key concern</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-take</td>
<td>Cover fixed costs of the plant, return on investment of the project sponsors and debt services</td>
<td>Off-taking obligations on a take-or-pay</td>
</tr>
<tr>
<td>Foreign exchange</td>
<td>Hedging of cash flows</td>
<td>Off-taker’s payment obligations denominated in or linked to the exchange rate of the same currency of the debt service and operating expenses</td>
</tr>
<tr>
<td>Change in law (including tax)</td>
<td>Protect the cash flow of the project from change in law that may reduce it</td>
<td>Allocate to the off-taker any change in law (including tax)</td>
</tr>
<tr>
<td>Termination</td>
<td>Inability to repay the financial debt in case of termination/ revocation of the PPA</td>
<td>Termination payment at least equal to the outstanding amount of the project financing and cover return on equity</td>
</tr>
</tbody>
</table>
## Risk mitigation 1/2

Certain considerations have to be made about risk mitigation. Usually, a project is **bankable if the pre completion phase** (construction) and the **post completion phase** (operational) **risks have been appropriately allocated to the various actors**, in form and substance satisfactory to the lenders.

<table>
<thead>
<tr>
<th>1</th>
<th>Equity</th>
<th>2</th>
<th>Completion</th>
<th>3</th>
<th>Operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Risk of non or late equity injection in the SPC by the Sponsors.</td>
<td>• Risk of delays and additional costs during the construction phase.</td>
<td>• Risk of cost overruns and performance during the operational phase.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Managed through financial support and equity injection’s timing.</td>
<td>• Managed in the EPC contract. Possible risk mitigation:</td>
<td>• Managed in the O&amp;M contract. Possible risk mitigation:</td>
<td></td>
<td></td>
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<tr>
<td>• Possible risk mitigation:</td>
<td>(i) EPC contractor experience and reputation, proven technology;</td>
<td>(i) O&amp;M contractor experience, proven technology;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Sponsors experience and reputation,</td>
<td>(ii) &quot;delay liquidated damages&quot; in EPC contract (daily amounts equal to additional expenses resulting from delayed operational phase);</td>
<td>(ii) fixed price O&amp;M contract,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) early equity injection</td>
<td>(iii) &quot;performance bond&quot;: guarantee to cover EPC contractor’s obligations (normally issued by a bank)</td>
<td>(ii) “warranty bond”: guarantee to cover plant faults and defects (normally issued by a bank),</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(iii) &quot;performance liquidated damages&quot; in O&amp;M contracts to cover cash flow shortfall,</td>
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<tr>
<td></td>
<td></td>
<td>(iv) maintenance reserve,</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(v) insurance coverage</td>
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Risk mitigation 1/2

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<table>
<thead>
<tr>
<th>4</th>
<th>Supply</th>
<th>5</th>
<th>Market</th>
<th>6</th>
<th>Environmental</th>
<th>7</th>
<th>Forex and Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Risk of adverse changes on quantity/quality/price of raw material, supplier default.</td>
<td>• Risk of insufficient sales of products/services, low prices, buyers’s insolvency.</td>
<td>• Risk of environmental impact of the initiative.</td>
<td>• Risk of uncertainty about interest rates and exchange rates.</td>
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<td></td>
</tr>
<tr>
<td>• Managed in the Supply agreements.</td>
<td>• Managed in in project contracts, for example in energy projects in PPAs.</td>
<td>• Managed in the Environmental management plan.</td>
<td>• Managed through hedging and reserves.</td>
<td></td>
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<tr>
<td>• Possible risk mitigation: &quot;put or pay&quot; contracts with prederminated conditions in terms of quantity, price and time (in case of default, the supplier undertakes to pay the supply by third parties)</td>
<td>• Possible risk mitigation: “take or pay” contracts with prederminated conditions in terms of quantity, price and time</td>
<td>• Possible risk mitigation: (i) preliminary technical analysis performed by a technical advisor on environmental impact,</td>
<td>• Possible risk mitigation: swaps or other hedging instruments</td>
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</table>
Risk mitigation (2/2)

In the table below, are shown some project finance risks borne by the SPV and potential mitigants:

- **O&M Contract with fixed price**
- **Insurance providing indemnity for accidental unintended loss or damage**
- **Warranty Bond: guarantee to cover plant faults and defects**
- **Performance Bond: guarantee to cover O&M contractor’s obligations**
- **Turnkey EPC: contract in which the EPC contractor is given full responsibility to design and build the project, at the end of which the SPV must be able to use it without any further work**
- **Delay Liquidated Damages: daily amounts equal to additional expenses resulting from delayed operational phase**
- **Performance Bond: guarantee to cover EPC contractor’s obligations**
- **Money Retention: amount held back from the contractor’s payments to ensure that it performs all its obligations and is then released on practical completion of the work**

- **Political Risk Insurance (PRI) that protects against non-payment due to political force majeure events, including acts of terrorism, wars and possible actions by a foreign government**
- **International Institutions involved in the project**

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**Risks borne by the SPV**

- **Performance and management risks**
- **Delays/Construction risk**
- **Financial risks**
- **Political Risks**
- **Demand/supply risks**
- **Legal risks**

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**Accurately drafted legal documentation**

**Accurate Legal Due Diligence**

**Take or pay/put or pay contracts between the SPV and the supplier/buyer with prederminated conditions in terms of quantity, price and/or time**

**Derivative instruments as swaps or other hedging instruments to cover currency/interest/inflation risk**