Tentative
Roadmap to affordable finance at scale in solar power generation
Acknowledgements

AUTHORS
Fabrice Mosneron-Dupin (TWI/Total), Lead-Author, Thierry Mouky (Societe Generale) and Christophe Tardy (Societe Generale), Co-Lead-Authors, with the strong support of Karine Merere (Engie Solar), Yasine Idras (TWI), Amandine Carreira-Neves (TWI/Total), Simon Thebault (TWI/Total) and Adèle Leprêtre (TWI/Total).

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Acronyms

AFD  Agence Française de Développement
AM  Asset Management
AML  Anti Money Laundering
CFT  Counter Financing of Terrorism
DD  Due Diligence
DFI  Development Finance Institutions
E&S  Environmental and Social
EP  Equator Principle
EPC  Engineering, procurement, and construction
EPRG  Extended Political Risk Guarantee
ESG  Environmental and Social Governance
ESIA  Environmental and Social Impact Assessment
ESMP  Environmental and Social Management Plan
ESMS  Environmental and Social Management System
F, T&L  Financial, Technical and Legal
FX  Foreign Exchange
GSR  Global Sanctions Regime
IFC  International Finance Corporation
IRENA  International Renewable Energy Agency
ISA  International Solar Alliance
KPI  Key Performance Indicators
KYC  Know Your Customer
O&M  Operations and Maintenance
OFAC  Office of Foreign Assets Control
PPA  Power Purchase Agreement
PS  Performance Standard
TW  Terrawatt
TWI  Terrawatt Initiative
WB  World Bank
“How to shift the trillions?” was the head title of the first Climate Finance Day that took place in Paris on May 22nd, 2015, on the road to COP 21 to promote and discuss the multiple innovative financial solutions to steer our economies towards a more sustainable model.

As the 2014 New Climate Economy Report highlighted, the world needs to build around **USD 94 trillion in new infrastructure out to 2030** with over two-thirds built in developing countries.

The whole financial community is working very hard and with a genuine desire to shift the trillions to green economy in a responsible manner by developing financial disclosure obligations, taxonomies and green financing instruments and principles.

In the current efforts, very little has been done so far to address one very specific bottleneck to financing clean assets: **granularity**. Indeed, transition will require the deployment of millions of small infrastructure assets, solar power generation assets, windmills, mini grids ... and traditional financing instruments can’t be used for these small assets because they come with transaction costs that make assets uneconomical. This is a very practical question.

Aggregating small assets, and in particular small assets debt, is necessary but will require a collective **transformative work** in business practices and a ramp up phase from traditional project lending to securitization — which is probably the end-game — including standardized structured finance, export finance, and asset management.

To walk the talk and initiate this discussion, TWI and Societe Generale decided early 2018 to innovate and **break walls and silos**, not only between bankers like Societe Generale and clients like Total and Engie, but also within the organizations, uniting in very lively workshops very different persons coming from different perspectives with one goal: how to make it work for everyone?

We hope you will find in this tentative “Roadmap to affordable finance at scale in solar power generation” food for thoughts and **collective innovation**, and that you, internally and maybe at financial center level, will have as much fun as all teams had to work together.

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Jean-Pascal PHAM-BÁ

Secretary General
and Spokesperson

TERRAWATT INITIATIVE

Hacina PY

Global Head of Export Finance
and of Positive Impact Solutions

SOCIÉTÉ GÉNÉRALE
Study context and objectives
1. How to achieve the Sustainable Development Goals?

Article 2, section 1 of the Paris Agreement on Climate Change adopted on December 12th 2015 provides:

“This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and,

c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

Three months earlier, on September 25th, 2015, the General Assembly of the United Nations adopted the resolution A.70/1. Transforming our world: the 2030 Agenda for Sustainable Development, setting 17 Sustainable Development Goals and in particular, the 7th, “Ensure access to affordable, reliable, sustainable and modern energy for all”.

The combination of these two objectives: providing energy to all, while limiting the temperature increase well below 2°C implies to reach by 2050 a level of emissions equivalent to the one existing in the 1950s with a population that tripled, and a global GDP multiplied by 10. It necessarily implies a massive deployment by 2030 of renewable power generation, an acceleration of the deployment rate by a factor from 3 to 20 depending on geographies, and tripling the energy efficiency improvement rate.
In solar power generation only, the 30 October 2015 declaration of the International Solar Alliance (ISA), a joint initiative of the Indian and French governments called for USD 1 Tn of investment in new solar power generation by 2030 between the tropics, precisely where the acceleration of the installation rate needs to be the quicker both for development and climate reasons.

Such acceleration to scale is challenging under the current market conditions and the transition is not only a matter of what we need to do, but how to do it. And if we all knew what to do on the eve of December 12th, 2015, we need to admit collectively that, we didn’t really know how to do it.

As an open platform of all good willing doers working on a non-for-profit basis to address this “how” question, Terrawatt Initiative (TWI) was officially launched by the private sector at COP 21, and immediately focused on the USD 1Tn objective of the International Solar Alliance, as a proxy for all decentralized renewables.

The TWI identified in 2017 that five areas of evolution in the market which need to happen concomitantly:

- **Frameworks**: Governments need to set clear public policies and negotiate with businesses (public and private), financiers (public and private) efficient business models supported by adequate regulatory frameworks;

- **Risk mutualization**: Developed countries, development finance and climate finance institutions, insurers, reinsurers, and donors need to support the development of efficient and straightforward international, mutualized de-risking instruments;

- **Streamlined practices**: Stakeholders need to cut transaction costs radically by using fair and free contractual templates and applying standardized practices;

- **Aggregative tools**: Financiers need to develop aggregative financing techniques to be able to finance large portfolios of small size assets;

- **Digital processes**: Stakeholders need to secure asset data and transactions on a global, safe and cost-efficient digital platform.

Applied to solar power generation, this led to a “new solar market”, described in Appendix 1.
During the inaugural conference of the International Solar Alliance (Delhi, 11 March 2018), President Macron and Prime Minister Modi called to first concrete actions. One year later, several concrete actions are going in the right direction:

- Six west African countries member of the International Solar Alliance launched the Lomé Initiative (One Planet Summit, NYC, 26 September 2018) to build an efficient and balanced regulatory framework setting out attractive conditions for investors while respecting the host country interests;

- Launch of the Open Solar Contracts on 13 June 2019 in Lisbon which were presented at the IRENA 5th policy day on 28 June 2019 (www.opensolarcontracts.org). following the launch by IRENA and TWI of the Solar Energy Standardization Initiative (Munich, 23 June 2016) to offer solar power generation standardized contracts to reduce the time and cost of contract negotiation.

- Discussion on a mutualized guarantee tools to de-risk solar such as the Solar Risk Mitigation Initiative (SRMI) developed by the World Bank and AFD (Katowice, December 2018);

- A general digital platform to support all transactions and processes amongst all stakeholders takes shape as per the initiative the “Climate Investment Platform” jointly launched by the GCF, UNDP, SEforALL and IRENA on 2 July 2019 in Abu Dhabi in view of the UN Climate Summit of 23 September 2019.

- Workshops between Societe Generale, Total and Engie on how to optimize financing processes which conclusions are summarized in this document.

The five pillars are interrelated, and at some point, will need to be assembled, once mature enough. These works lead to the development of the concepts required to remove the obstacles and unleash the potential of the global solar energy market. They lay the groundwork for coordinated action by all categories of stakeholders to implement the first transformation actions to allow the financing of solar power projects of all size at a reasonable cost on a large scale basis.
2. Objectives

Experience and records show that the financing of solar projects in emerging countries faces significant challenges and barriers that prevent them from reaching the scale required to reach the ISA target. These barriers are well-known: high transaction time and costs, small project sizes, perception of risks (including inter alia country risks, ESG, counterparty risk of the off-taker), and lengthy processes, such as due diligence, which are too heavy for the size of these solar assets.

In addition to these barriers, one of the main issues to reach the 1 TW target is to mobilize sufficient financial resources. The required volume of financing far outweighs the Development Finance Institutions (DFIs) and commercial banks’ capacities. The proposed schemes will, therefore, have to be able to attract, in the long run, other funding from private sources to institutional investors.

The main objective of the workshops was to identify and propose solutions to:

- **Increase the bankability** of small size solar projects that currently fail to attract financing
- **Streamline processes**, in particular, due diligence, to reduce the transaction time and costs
- **Investigate aggregation solutions**
- **Attract sufficient flows of funding** to finance the targeted volume of solar projects

An implementation process of these recommendations is described in more details in Appendix 2. While our recommendations are presented in this document independently from the other new solar market pillars, it is evident that the five components work together and contribute to the overarching objective. Effective regulations, standardized contracts, adapted guarantee instruments and digital tools all facilitate the development and financing of solar projects in developing and emerging economies along with the mechanisms proposed below.
3. Targeted business models

It is necessary first to define the type of projects that this study is considering.

**Large Utility PV Power Plants** (UPPs) generally find their financing and de-risking tools at an affordable cost. We do not exclude them from our scope, as they may well be interested in the aggregation phase, but they do not constitute the core target of our study at this stage.

Developing and emerging economies, with their constraints, need to build several small to medium-size PV farms, around 5 to 50 MW, adapted to power local needs and constraints. These constitute the main target of the study. Unlike large PV farms, they are individually too small to withstand the same development and transaction costs and cannot access project financing and de-risking tools at a reasonable cost.

Developing countries have to rely upon a significant share of off-grid power generation, mini-grids, micro-grids, and solar home systems. These assets present specific features and challenges, notably the lack of robust business model and track record, and the size of the project companies. However, understanding the request from their governments in this regard, we keep these segments in the scope of our joint study.

The design of the mechanism targets projects based upon a **Power Purchase Agreement (PPA) with government-owned (or -backed) off-takers**. This is by far the most common case in emerging countries, where the public utility is the buyer and distributor of electricity. In a second stage, and once the mechanism has been successfully implemented on these public utilities, we should also consider dealing with private customers. It would undoubtedly require some adaptations of the core tools and procedures.

**In summary, the tools described in this document are particularly designed for small to medium solar power plants (either grid-connected or off-grid) with a PPA with a public utility. PPA with private customers could be targeted as well, with some adaptations.**

The conclusions of our work are described here below. They will be shared with other stakeholders involved in the development and the financing of solar projects and with countries’ authorities, as a key contribution to the scale up of solar power generation financing, and beyond, of granular assets financing, discussion.
This section describes the various tools, instruments, and procedures that can contribute to the simplification of the overall financing process and therefore reduce the transaction time and cost. These “building blocks” are designed to increase the bankability of small projects. Although they are being developed through separate workflows, they are complementary, and it is essential to show an overall picture of how they work together.

After a short reminder on the common regulatory framework and the standardized contract workflows, the rest of the section describes the measures proposed to simplify the Due Diligence processes and to achieve a sufficient level of de-risking for projects to be bankable.
1. Common Regulatory Framework

One of the key conditions to attract investments in solar power generation in emerging countries is the establishment of robust, transparent and balanced regulations protecting the interest of investors and the host country, and more generally all stakeholders. A large number of countries have started a regulatory process within the International Renewable Energy Agency (IRENA) and/or the International Solar Alliance (ISA) context.

The harmonization of regulatory frameworks throughout several countries would, in addition, reduce the transaction time and cost, simplify the due diligence processes, and facilitate the cross-border aggregation of projects.

The role of the Governments is paramount here. As an example, governments of six ISA member countries have initiated the structuring of an international protocol (known as the “Lomé Initiative”) defining a collective legal framework relating to (i) conditions for the development, construction and operation of photovoltaic electricity generation assets; (ii) protection of the corresponding investments and securities; and (iii) a common guarantee mechanism. This protocol would apply to assets that each country will voluntarily register, without prejudice to existing national provisions.

2. Standardized Contracts

Today, the energy sector comes from a legacy of large, centralized power generation systems, relying upon heavy, tailor-made contractual frameworks. This is not adapted to small/medium size solar power generation projects, which require more flexible and swift development processes.

To help simplify the legal architecture, IRENA and TWI jointly identified the need for a simplified and streamlined legal approach and launched the Open Solar Contracts initiative. The initiative focuses on six core contracts, provided on an open-source basis:

- Implementation Agreement
- Power Purchase Agreement
- Supply Agreement
- Installation Agreement
- O&M Agreement
- Financing Term Sheet

1 An implementation agreement provides for direct contractual obligations and undertakings between the Government and the project company. It will typically include undertakings from the government in the form of assistance in obtaining required consents and permits to develop, build and operate the plant, undertakings to ensure that the off-taker performs its obligations (sometimes in the form of a guarantee) and risk allocation in case of early termination in the form of a secured sale and purchase option mechanism. It also includes undertakings by the project company to the government regarding, for example, compliance with environmental laws, etc. From a functional perspective, the implementation agreement is a contractual enabler where the regulatory framework is not strong enough by international standards or unclear. With the development of high-quality regulations, the implementation agreements will not be necessary any longer. In the meantime, using standard Implementation Agreements is an efficient and cost-efficient solution.
The initiative is expected to greatly reduce the project development timeline, set out a clear contractual framework recognized by the industry, based upon a balanced risk allocation. It will also provide the basis for the simplification of due-diligence processes.

3. Due Diligence

Before financing or investing in a project, all stakeholders have to conduct due diligence (DD) to ensure that the project makes technical and economic sense and complies with their standards and obligations as well as with all applicable regulations. These processes are embodied in the Environmental and Social (E&S), Financial, Technical & Legal (F, T&L), Insurance and Know Your Customer (KYC) Due Diligences. While necessary, these Due Diligences are often unreasonably costly and time-consuming considering the small size of these solar projects and affect their overall economics. Besides, they are often redundant as numerous stakeholders perform separately the same queries and checks.

The objective of the Due Diligence sections hereunder is to identify ways to simplify and mutualize part or all these processes, to the largest extent possible, without relieving in any manner the stakeholders of their obligations and responsibilities. This would greatly facilitate the financing of small projects; whose assessment is currently too costly and time-consuming to process for financial institutions.

A summary of the simplification proposals is provided in Appendix 3.

3.1. Due Diligence Procedures

Before going into the details of the simplification proposals, it seems necessary to define the role and responsibilities of the main stakeholders in this process, as well as some critical instruments of the simplification.

A large part of the simplification measures detailed in the following sections involves the sharing and mutualization of Due Diligence data and documents, to avoid redundancies. It seems necessary to use a digital tool (the Platform) for this purpose and to develop clear utilization procedures, agreed by all stakeholders. The Platform would include appropriate confidentiality rules, providing access for the various stakeholders to project data and documentation, and the mutualization of some of the Due Diligence reports, as described in the following sections. The Platform and the procedures may be relatively simple at the beginning and evolve in time.
The **main parties** involved in the due diligence processes are:

- **Government**: At the heart of ambitious energy policies, governments give both the direction and the framework without which no large electrification scheme can exist. Whether on or off grid – the off-grid terminology still to be tighten up – governments decide the expected topology of the energy system of the country they are responsible for. They also decide what economic models are the most appropriate to achieve the target in their specific context – basically deciding who manages the process, who provides electricity to whom, who provides the generation assets to whom and who finances the assets and how.

- **Developer**: A developer is an individual or a company that shepherds a project from an idea to reality. It is responsible for the development of the project compliance with all local regulations and generally accepted industry practices. It provides the documents and reports listed in the **Standard Information Package**, as required by the **Due Diligence Procedure**. A Developer can employ just a few employees or thousands. Some developers specialize in certain sizes of projects or in specific regions. The role of the developer is absolutely central as the actual driver of the project, and as such it will be responsible for organizing a strong cooperation and coordination between the participants to the project. In project finance schemes, it is very common that the project itself is held by a special purpose vehicle (SPV or Project Company), the capital of which is held by the sponsors of the project, that provide equity for the development. One or more sponsors (Sponsor) can be involved at the early development stage and further in the development process, assuming an equity risk / return on the investment. Developers may be sponsors as well and, in such case, Developer and Sponsor can be used as synonyms;

- **Lenders and Investors** can either be senior debt providers (DFIs or local/international commercial banks) or junior/mezzanine debt providers or capital market debt providers (through bonds, securitization, funds…). They are in charge of the debt financing of solar projects if any. They need to ensure that the projects comply with the stringent rules and regulations they are subject to. In the early stage of the new solar market, before the aggregation phases, this role will be mainly endorsed by the **traditional lenders** (i.e., DFIs and commercial banks). Subsequently, once aggregating entities are set up (see section 3.3 and 3.4), a coordinating role may be entrusted to implementing entities which will represent the investors in the investment process: collection of the financial resources, project assessment, and selection (including due diligence), financing, marketing, monitoring, etc. The implementing entity could be an asset manager, a bank or any other relevant market participant;

- **Guarantee providers** offer de-risking tools. Without getting into the details of different forms of de-risking first loss, subordinated debt, guarantees, insurance …) we will consider here any form of de-risking from the Lenders’ point of view. The cost of it can make necessary to add de-risking layers such as first loss tranches, third party guarantees and insurances to secure the repayment of the senior debt at a level compatible with its cost.

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2 For more details on the roles of each stakeholder, please see TWI who’s who on https://terrawatt.org.
• **The Platform Manager** is an independent entity in charge of managing a digital advanced market space (the Platform), ensuring that the procedures approved by the Stakeholders (as defined below) are complied with. The selection, business model, legal status and governance of the Platform Manager will have to be determined in agreement between the Stakeholders.

All the stakeholders listed above are referred herein to as the “Stakeholders”. Their schematic interactions are illustrated in Appendix 1. They all contribute to the governance of the system.

The main Procedures that will have to be defined and agreed among Stakeholders to govern the sharing of information and the simplification of due diligence processes are the following:

• The **Standard Information Package**, which consists of a list of information and documents required to conduct due diligence. This list would be defined in agreement with all Stakeholders. It would not prevent some of them to ask additional documents to the developer if their procedures so require;

• An **Information Access Policy** defining how access to the information posted on the Platform is provided and controlled;

• **E&S, FT&L and KYC Due Diligence Procedures** defining the roles and responsibilities of the various Stakeholders and the standardized due diligence processes, documents and data;

• A list of **technical and E&S advisors** accredited by Stakeholders to carry out due diligence tasks as defined by the Due Diligence Procedures.

The purpose of these procedures would be to ease the Due Diligence processes, give comfort to all Stakeholders in the quality and robustness of these processes and therefore limit duplications of tasks as much as possible. It should be clear that in this process, the Platform acts as a facilitator of the due diligence processes, without relieving in any manner Stakeholders from their responsibility. (Due diligence usually requested by the Lenders should prevail and serve as single Due diligence to avoid piling due diligence costs.)
3.2. Environmental and Social Due diligence (E&S)

3.2.1. Scope

The E&S Due Diligence aims at ensuring that a project complies with the standards enforced in the country and throughout the industry with regards to E&S issues. It encompasses a large variety of potential impacts and risks from the pollution of surface and groundwater to community health and safety, during the entirety of the solar PV project lifecycle. The banking industry has mainly adopted, as a best practice, two E&S assessment and management frameworks: the Equator Principles (EP) and the IFC Performance Standards (PS) that are applied on a voluntary basis. These two frameworks are detailed in Appendix 4 and 5.

Current analysis and mitigation factors include E&S evaluation and monitoring frameworks such as E&S Impact Assessment (ESIA), E&S Management system (ESMS), E&S Management Plan (ESMP) as well as the establishment of a decommissioning plan, grievance mechanism and covenants in the financial documentation.

3.2.2. Proposition

The EP and the IFC PS, are widely recognized as E&S references by the financing industry. They are generic, applicable to all types of industries and therefore their recommendations need to be adapted to the specific features of solar farms.

The extent of the due diligence, categories: The Developer should first categorize its project based on the magnitude of its potential E&S risks and impacts. Such screening is based on the environmental and social categorization process of the International Finance Corporation (IFC).

E&S due diligence is then commensurate with the nature, scale and stage of the project, as well as with the level of E&S risks and impacts, based on its categorisation. For category A projects the due diligence should evaluate compliance with the applicable IFC PS. For category B and C projects, simplified due diligences relying more broadly on local E&S standards could be acceptable, provided that no material impact risk are ignored (e.g. impact on a high biodiversity area, physical or economic resettlement). It is expected that most small and medium-scale solar projects would fall under category B and C and could, therefore, benefit from simplified procedures.

Simplification: a simplification could be envisaged in the process by using the central role and the functions of the Platform. The Developer would remain responsible for the ESIA, ESMS, ESMP and local E&S permitting process. However, these diligences would be performed by consultants selected among a list and according to a procedure, both previously approved by Stakeholders. The reports would be shared on the Platform. Parties to a specific project would still have the possibility to carry out limited additional verifications on topics where their procedures are more stringent
than the general one. The mutualization of the E&S due diligence avoids duplications and reduces the transaction cost and time.

Regulatory and contractual frameworks: It is essential that the regulations and standardized contracts clearly define the respective obligations of each party with regards to E&S compliance, including the EP and IFC PS. The exact wording and places to mention these standards remain to be defined.

Additionally, the E&S due diligence could be facilitated if developers were provided access to national registers on cultural heritage and biodiversity records.

IFC/EP E&S categories:

**Category A** – Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented;

**Category B** – Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; and

**Category C** – Projects with minimal or no adverse environmental and social risks and/or impacts.

### 3.3. Financial, Technical and Legal Due Diligence (FT&L)

#### 3.3.1. Scope

The purpose of the FT&L due diligence is to enable Lenders to assess the technical and financial sustainability of a project and its capacity to generate sufficient cash flow to repay the project debt. The FT&L DD covers the assessment of various project risks including country and political environment, counterparty and project risk assessment as well as financial requirements and modeling.

The different sections of the FT&L due diligence are further detailed in Appendix 6 and 8.

Current analysis and mitigation factors include, when available, the country regulations on energy and environment code, clear permitting procedures, reliable contractual package as well as solar technology and stakeholders track records, covenant package, and cover ratios.

The country’s medium- and long-term electrification plans are also essential tools to assess some of these risks.
3.3.2. Proposition

The main recommendations to ease the FT&L due diligence process are the following:

3.3.2.1. Legal Due Diligence and Documentation

This is often the most time consuming and expensive part of the due diligence process. However the assessment of the legal and contractual environment of a project should be simplified by the use of standardized contracts and sound regulatory frameworks. This should be provided by the Open Solar Contracts and the policy and regulatory frameworks resulting from the political processes led by ISA and/or IRENA.

3.3.2.2. Country assessment

The assessment of a country political foreign exchange and fiscal environments should be facilitated by the use of standardized contracts and sound regulatory frameworks.

In addition, a “Country Information Database” could be made available through the Platform, using tools already available on the market, including from the World Bank, IRENA, and extra-financial agencies (ESG alerts for instance).

Essential information would be the country’s electrification plans indicating the short, medium and long term plans for on-grid and off-grid solar power generation, and the intended bundling of projects for future contracts awards. Delays in the Governments providing this information will have to be carefully managed.

The assessment should also take into account the protection against political risks provided by the guarantee mechanism.

3.3.2.3. Counterparty assessment

Solar projects involve several counterparties during the development, construction, and operation. Project contracts (PPA, Supply, Installation, O&M, ...) allocate the risks and obligations between these counterparties.

The due diligences on these counterparties would, therefore, be significantly facilitated by the use of the standardized contracts. However, the gain in terms of counterparty risk analysis should not be overestimated and entire corporate analysis will still remain to be done.
3.3.2.4. Technical assessment

Site selection and permitting: In the early stage of a project, site selection and permitting are among the most critical and complex issues the Developer needs to deal with. To facilitate the process, the Government could provide access to an E&S compliant site in the pre-tender phase, help with obtaining the necessary permits as well as ensure proximity and connection to the grid in the case of on-grid projects. This action by the Government would greatly facilitate the process upfront.

Moreover, countries could post on the Platform the current and planned grid capacity and development.

Technical Design: the standardization of a project design would be difficult because they are all different and specific.

Key suppliers: a closed list of critical suppliers for the main equipment (modules, inverters, etc.) could be built in and updated on the Platform, with specific market manufacturing standards to comply with (e.g., module size). Also, measuring solar resources could be facilitated by the use of shared data while accepting a certain error margin.

3.3.2.5. Shared FT&L due diligence

The main simplification proposed is to give access to the FT&L due diligence to all relevant stakeholders on the Platform. The FT&L due diligence would be carried out by an external consulting firm, accredited by Stakeholders and appointed by the Developer. The consulting firm would follow the Due Diligence procedures approved by Stakeholders. Using accredited consulting firms and approved procedures should build stakeholders confidence in the due diligence results and avoid duplication. It should, therefore, contribute to reducing the due diligence time and cost.

3.3.2.6. Distributed Generation

The deployment of solar energy in developing countries will undoubtedly rely upon distributed power generation through mini-grid and off-grid solar plants. In that respect, to be financially viable, off-grid and mini-grid projects should be aggregated at the tendering level in batches of projects, and then at the financing stage. The simplification and streamlining of the technical due diligence are further supported by the use of a common regulatory framework and standardized contracts.

Additionally, information on future grid development is of utmost importance for off-grid projects and should be made available by governments on the Platform.
3.4. Schematic of the E&S and F, T&L Due Diligence processes

Access projects’ data under the information Access Policy

Lenders
Investors

Implementation Entity and the Guarantee Provider verify the E&S and Financial, Technical and Legal Due Diligences for the investors

Digital Platform

Stores:
- E&S Due Diligence
- F, T&L Due Diligence

Consultants and Procedures approved by stakeholders

Technical and E&S due diligence performed under the responsibility of the developer

3.5. Compliance Due Diligence

3.5.1. Scope and objectives

Compliance processes are meant to address significant compliance risks (See Appendix 7) and to prevent potentially critical sanctions for stakeholders involved in a transaction. Given the magnitude and potential impact of these risks, each stakeholder shall remain responsible for this process. The objective of this section is, therefore, to seek how the procedures and particularly the Platform may facilitate the compliance due diligence processes, but without relieving stakeholders from their responsibilities in this respect.

Current analysis and mitigation factors include extensive compliance processes and time-consuming collection of up-to-date and reliable information on stakeholders.
3.5.2. Proposition

Standard Information Package: The Platform can significantly facilitate the compliance process by simplifying the collection and sharing of documents and information. To ease this process, Stakeholders should define a list of materials and information they would need to consult on the Platform for their compliance processes (part of the “Standard Information Package” see section 2.3.1). This would not prevent Stakeholders from requiring additional documents if required by their procedure.

The Platform constitutes one of the key pillars enabling trust between Stakeholders. Therefore, the Platform needs to set out the most robust protections against risks affecting its credibility and reputation. This implies, amongst others the following measures:

• Procedures, in particular concerning the roles, responsibilities, and interactions of the Platform shall be designed so that each party has a clear and unambiguous understanding of its responsibilities and on the support it can obtain from others, particularly from the Platform. They should also help identify the parties liable in case of fraud or negligence and thus avoid negative reputational spillovers;

• Ensure that the Platform will be compliant with the local regulations in terms of banking secrecy, personal data protection (such as GDPR obligations in Europe), and other relevant regulations;

• Ensure the highest level of data protection in terms of information technology;

• The Platform should be able to maintain a dynamic compliance program to provide up-to-date information on sanctions and embargoes and to keep track of changes in the regulatory landscape. This should prevent non-compliant projects to be sponsored through the Platform.

• The Platform should provide for remediation and exit measures for projects becoming non-compliant after their acceptance on the Platform.

• A project shall have access to the financing stream only once it has provided the Standard Information Package in compliance with the applicable compliance procedures. Henceforth, stakeholders have sufficient comfort that the project is compliant with the commonly defined platform procedure, which should help speeding-up the due diligence process.

It is important to note that AML and CFT regulations could complicate the integration of local companies in the early stage, especially in the absence of track record. This specific issue will need to be addressed with a particular care as concrete projects are considered.
4. Guarantee

4.1. Objectives

To be bankable, infrastructure projects in developing and emerging economies usually require to be backed by suitable de-risking instruments. These instruments usually rely upon a sovereign guarantee in last resort. However, sovereign guarantees bear their constraints, take time to negotiate, and Governments are increasingly reluctant to provide them. In this context, other guarantee mechanisms need to be looked at to ensure a sufficient level of de-risking for the project to be bankable.

Key risks to be covered include inconvertibility, transferability, expropriation, political violence (together: political risk), commercial risk as well as default by a public entity. To a certain extent, these risks could be covered by a
range of existing instruments among which Political, Extended Political Risk Guarantees, Comprehensive Cover and Partial Guarantee (first demand). The level of protection varies depending on several parameters among which the percentage cover, the period covered, the waiting period, the claim and indemnification process, etc.

The guarantee schemes will take into account the first layers of de-risking such as:

- Harmonized Regulatory Framework;
- Standardized contracts;
- Efficient Due Diligence procedures; and, when needed,
- First Loss Tranche.

**The guarantee objective is to secure cash flow continuity to the Lenders.**

Usual guarantee’s providers are DFI (such as World Bank Group institutions, Regional or National Development Banks), Export Credit Agencies and Private Insurers. Specific scope and terms of the Guarantee will depend on each provider’s policy.

First demand Partial Guarantee can also be combined with other Guarantee schemes and could offer many benefits as shown in precedent transactions in the EU (EIB Project Bonds Credit Enhancement) and emerging markets (e.g., Latin America, in particular, Colombia leading to investment grade long term bond issuance in USD and local currency). The main benefit of a partial vs. full guarantee is the possibility to adjust the level of credit enhancement to the optimal level required by the investor base targeted.

Following the Common Risk Mitigation Mechanism (CRMM) study commissioned by 16 ISA member countries, the Agence Française de Développement (AFD) and the World Bank (WB) worked on guarantee schemes (Solar Risk Mitigation Initiative – SRMI) especially adapted to the de-risking of solar power generation projects in emerging countries. Various other initiatives are taking place on this topic (Risk Assessment and Mitigation Platform by IRENA, Climate Investment Platform, by Green Climate Fund, UNDP, IRENA and SEforALL for instance).

The development of a common mutualized risk mitigation mechanism that provides one-stop shop guarantees for solar projects in developing and emerging countries remains a long-term objective.

The guarantee should follow existing standards, includes the construction period, avoid premium pay- ment risk and secure cash flow continuity to the Lenders, and, in due course to the aggregating entity. **The design of the guarantee tool may differ for each of the aggregation schemes since investors’ needs and requirements are different in each of these schemes.**
5. Foreign Exchange (FX) Risks

FX risks raise several complex issues. Current hedging solutions are inherently costly and fail to provide a systemic answer at a global scale. Other mitigation tools include sovereign entity guarantees as well as transferability and convertibility clauses in guarantees.

In the short run, the FX risk should be mitigated through a mix of partial measures like the use of local currency financing and conventional FX hedging tools, while a fair share of the FX risk will potentially be assumed by the off-taker (through tariff formulas in the PPA).

Forward-looking, the FX challenge will have to be commonly discussed by all Stakeholders, both public and private, local and foreign, to work toward a new standardized, systemic approach and to enable the domestic financing of infrastructure in developing countries. Potential leads include the use of diaspora funds, comprehensive guarantees, the involvement of local banks as well as the establishment of a stabilization fund. National or regional institutions could finance such fund and serve as a cushion against FX fluctuations, or the use of new monetary instruments like stable coins. Developed countries could participate in the financing of the fund, as part of their climate commitments, providing a useful source of empowerment for ISA member countries.
The building blocks described above aim at streamlining the financing processes and reduce the transaction time and cost. They can be used on their own, within the framework of usual project financing schemes.

However, they are not sufficient to address some of the main barriers identified to scale up the development of solar projects in developing and emerging economies and reach the ISA target: 1000GW of solar energy capacity by 2030 across its member countries. For this, we need to develop appropriate mechanisms to aggregate projects together and to attract new financial sources to fund them. The following sections describe proposed financing mechanisms which could be structured during the subsequent phases.
1. Phased approach

A **phased approach** would be necessary. The ultimate stage whereby solar project debts are aggregated to attract institutional investors will not be reached in a first stance. Investors will have to see a decent track record to get sufficiently confident to invest in these projects. **The faster the data is available, the faster the scale up.**

First, pilot projects shall be undertaken and financed through traditional project finance structures by both DFIs and commercial banks to test the proposed mechanisms (in particular as far as guarantees are concerned) and also to identify any potential barriers (sovereignty, fiscal and technical issues, etc.) before developing the structure on a larger scale.

Subsequently, during the **initial ramp-up phase the financing of a pipeline of projects will be efficiently organized to build trust in the mechanism.** DFIs, and possibly local banks, will most likely play a key role in the financing and de-risking of the projects during this phase. Once enough track record is reached and an adequate amount of relevant data is collected, institutional investors are expected to gradually participate in the financing of these projects.

Then, the upscaling **phase** will be launched, capitalizing on this experience. This phase entails a combination of fund structures and alternative financing schemes, namely securitization and bond issuance, to reach a much larger number of investors (from local and/or international sources).

In parallel, and particularly during the ramp-up phase, common regulatory and contractual frameworks along with the simplification of project assessment procedures described in section 2 of this document, should also be openly available to stakeholders interested in **direct project financing**, independently of the aggregation mechanism.

2. Ramp-up phase

During the initial ramp-up phase, projects are likely going to be financed by DFIs and local banks, who will be able to test the mechanisms in place and create enough track record and historical data necessary attract institutional investors.

Institutional investors could participate independently or through an aggregating entity (e.g. a fund) which could be structured as a segregated vehicle that pools resources on the model of the asset management industry. This entity would be managed by a single agent, endowed with the necessary expertise to evaluate projects (e.g. an asset manager). Resources would have to be collected upfront by the asset manager during the structuring of the fund; therefore, no warehousing is required.
Such aggregating entity could be funded by a wide range of investors – philanthropic, public and private entities, who would provide a blend of grants, concessional and commercial resources. It is expected that DFIs and philanthropic investors contribute to a large part of a first loss tranche and de-risking tools, providing adequate protection to private investors. At the market grows and its track record is built, the share of concessional resources is expected to decrease. This is, for instance, the purpose of the Climate Finance Partnership launched at the One Planet Summit 2018, in New York City.

Through this structure, and on top of the harmonized regulatory framework and standardized contracts, which constitute the first layer of de-risking, investors would be protected by:

- The level of equity capital provided by sponsors in the projects
- The constitution of a first loss tranche in the fund
- The guarantee instruments covering cash flows at the project level
- The level of diversification of projects in the fund
This structure has the following advantages:

- It is regulated and trusted;
- It allows to aggregate projects with different features, owners, maturities, and, to a certain extent, from different host countries, as long as the projects comply with the established investment policy. The use of harmonized regulations and standardized contracts would undoubtedly facilitate this aggregation process;
- It relies on risk management systems that have been tested and proven in the asset management industry;
- It should be more attractive to investors, as they would have greater ease in indirectly financing solar projects through the acquisition of shares in a fund, a relatively more liquid and recognized instrument compared to direct financing;
- It is flexible enough to accompany the growth of the mechanism within a clear and well-defined risk framework;
- This structure is easily replicable;
- For developers, it sets a clear framework of conditions required for rapid and secured financing of the projects. These conditions will have to be described in the investment policy.

Regarding the de-risking tools, they should provide a high but modular level of protection to investors, by covering both political (i.e., transfer, convertibility and political risk) and commercial (i.e., public off-taker risk) aspects. This can be achieved at a minimum by an Extended Political Risk Guarantee (EPRG) with a modular cover rate. Performance risk remains but in the case of solar energy this risk can be deemed minimal considering the maturity of the industry and the proven technology.
3. Up-scaling phase

The asset management structure is designed to build a compelling track record and establish trust. However, to reach scale and attract more significant volumes of financing at a lower cost, other financing solutions will have to be considered in a subsequent phase (e.g. the creation of additional funds, securitization structure, bond issuance, etc.)

These options are not exclusive and could be deployed in parallel providing access to various typologies of investors.

Common regulatory frameworks, standardized contracts, de-risking tools and the use of the digital Plat- form would create sufficient transparency in the process which is one of the conditions precedents to attract a broader scope of investors and ensure the required level of liquidity.

Under a securitization scheme, initial lenders are required to finance the portfolio building period. During this period, project debt facilities are warehoused until a minimum volume is reached. Securitization of the loans then substitutes capital markets to the initial lenders who might be a mix of DFIs and local and/or international banks.

With bonds, the funding from final investors can be collected ex-ante or ex-post the portfolio building, requiring or not warehousing by the aggregating entity. However, given that the portfolio building period bears the highest risks, it is likely that the project’s debts will be warehoused in a first stance before bonds are issued.

In the up-scaling phase, the guarantee mechanism should be able to offer additional de-risking options, better suited to securitization and bond issuance. Typically, first demand/partial guarantees\(^4\) are commonly used as a mean of credit enhancement in the issuance of bonds or asset-backed securities designed for capital markets. The level of the cover rate will depend on investors’ risk appetite. The more data is available (at no or marginal cost), the less will be the need for guarantees.

\(^4\) The flexibility offered by such Partial Guarantees include their revolving nature “swing line”). Debtors under the guaranteed loan/bond can draw on the guarantee to prevent a payment default when cash-flows from the project(s) are expected to be insufficient, and be repaid in following periods when cash-flows are improved, thereby restoring the full availability under the Partial Guarantee for future use if any. Partial guarantees can be offered during the whole life of the project, from the construction period where it can cover interest payment default linked to delays in completion or provide funding for potential cost overruns if any, to the operational phase in case of underperformance of the project and/or unexpected events disturbing cash-flow generation. Last but not least, Partial Guarantees could be structured to be «evolutive», i.e. the percentage of underlying debt covered could be reduced over time as projects’ performance is proven, e.g., Guarantee reducing from \([x]\) to \([y]\)% if the project delivers during \(X\) consecutive periods with DSCRs materially higher than \(Y\) i.e. the level initially anticipated in the base case at Closing).
4. The digital platform

A digital Platform could be used to facilitate the process and ensure a high level of transparency.

The Platform would mainly play a role in the storing and sharing of data and documents for the due diligence, as described in section 2. This tool should significantly contribute to the process simplification and reducing the transaction time and cost. The Platform may also be one of the means to collect and share the technical, financial and impacts track record of the projects.

The role of the Platform might, in time, be further developed to gradually support more tasks such as tenders, project, and stakeholders monitoring as well as data collection. This will have to be defined in agreement with all Stakeholders, including Governments, implementing entities, investors, local utilities, local communities, and developers. The involvement of local communities is essential since they are the ultimate beneficiaries of the positive impacts resulting from the solar projects as well as potentially affected by the negative effects, even if they are mitigated, hence their involvement through consultation and/or crowdfunding or otherwise is key to ensure immediate and long-term acceptability of the projects.

The governance of the Platform will be a key issue.
Preliminary findings
The study carried out in cooperation between TWI and Société Générale has identified several instruments that should allow for streamlining the financing process of solar projects, facilitating the bankability of small projects, reduce transaction time and costs and eventually attract massive investment.

These instruments should be deployed gradually. It is critical that the first phases demonstrate the robustness of these instruments to attract the level of funding required to reach the ISA target. The proposed tools are also complementary; they all contribute to the final objective and support each other. The fundamental building blocks are the harmonized and efficient regulatory framework and the standardized contracts. Streamlined due diligence processes are instrumental in reducing transaction time and costs. The guarantee tools are necessary to make the risks acceptable to the investors. Finally, the aggregation process will gradually provide solutions to attract the required funding sources beyond the usual DFIs and commercial banks.

These findings should now be discussed by all Stakeholders (Government representatives, developers lenders, DFIs, investors, guarantee providers, local communities, civil society).

Then, the new schemes should be developed pragmatically through an in-depth review and analysis of future pilot projects.
Appendix 1: New solar market

To rapidly reduce the cost of production of solar electricity, to converge towards the most affordable prices for people in all countries, and to accelerate investments at scale, a 2017 study conducted by the international Solar Alliance (ISA) and a Task Force led by Terrawatt Initiative and composed of CEEW, CII and TCX, calls for building a new solar market at scale.

It outlines five key transformations: (i) adoption of a collective legal framework; (ii) standardization of the key contracts; (iii) establishment of a universal guarantee entity; (iv) development of an aggregation-securitization industry; and (v) establishment of a digital market platform.

For it to succeed, the future energy market will have to rely on a large number of small to mid-sized, decentralized units of production. This further puts pressure to optimize and industrialize the processes of development and management of such projects, as opposed to the current “tailor-made” high transaction time and cost model – also known as “business-as-usual model” (BAU).
Appendix 2: Illustrative process

The functional timeline below describes the mechanism development. The order of the sequences is provisional and could be subject to modifications depending on the progress of related steps.
### Appendix 3: Simplification and de-risking matrix

<table>
<thead>
<tr>
<th>ITEM (by section)</th>
<th>INSTRUMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common Regulatory Frameworks</strong></td>
<td></td>
</tr>
<tr>
<td>Legal regime for the development and exploitation of solar projects</td>
<td>Protocol by States</td>
</tr>
<tr>
<td>Legal regime for investments made for the implementation of solar projects</td>
<td></td>
</tr>
<tr>
<td>Legal regime for guarantees</td>
<td></td>
</tr>
<tr>
<td><strong>Standardized Contracts</strong></td>
<td></td>
</tr>
<tr>
<td>PPA</td>
<td></td>
</tr>
<tr>
<td>Implementation Agreement</td>
<td></td>
</tr>
<tr>
<td>Supply Agreement</td>
<td></td>
</tr>
<tr>
<td>Installation Agreement</td>
<td></td>
</tr>
<tr>
<td>O&amp;M Agreement</td>
<td></td>
</tr>
<tr>
<td>Financing term sheet</td>
<td></td>
</tr>
<tr>
<td><strong>E&amp;S Due Diligence</strong></td>
<td></td>
</tr>
<tr>
<td>Site Selection and permitting by the States</td>
<td>Provided by States</td>
</tr>
<tr>
<td>Access to national registers (Cultural heritage, Biodiversity, Populations, Social)</td>
<td>Provided by States</td>
</tr>
<tr>
<td>E&amp;S clauses (based on IFC PS and Equator Principles) adapted to solar projects</td>
<td></td>
</tr>
<tr>
<td>Simplified procedures for ESIA, ESMS and ESMP for small solar projects</td>
<td>E&amp;S procedure</td>
</tr>
<tr>
<td>List of Agreed E&amp;S consultants / experts</td>
<td></td>
</tr>
<tr>
<td>ESIA, ESMS, ESMP performed by the agreed consultants / experts</td>
<td>Digital platform</td>
</tr>
<tr>
<td>E&amp;S due diligence results shared through a digital tool</td>
<td>Platform future development</td>
</tr>
<tr>
<td>Questionnaire to evaluate developers and suppliers (track records, certifications)</td>
<td></td>
</tr>
<tr>
<td><strong>F, T&amp;L Due Diligence</strong></td>
<td></td>
</tr>
<tr>
<td>Common regulations and procurement rules</td>
<td>Protocol by States</td>
</tr>
<tr>
<td>Access to national registers (Grid infrastructure and development, planification, real estate)</td>
<td>Provided by States</td>
</tr>
<tr>
<td>Solar resources databases</td>
<td>Provided by multiple sources</td>
</tr>
<tr>
<td>Country databases</td>
<td></td>
</tr>
<tr>
<td>Eased Legal Due Diligence</td>
<td>Standardized contracts and common regulations</td>
</tr>
<tr>
<td>F, T&amp;L due diligence results and performance data shared through a digital tool</td>
<td>Digital platform</td>
</tr>
<tr>
<td>Stakeholder database or common assessment process (EPC, O&amp;M, providers...)</td>
<td>Platform future development</td>
</tr>
<tr>
<td>Material database or common assessment process (pannels, inverters...)</td>
<td></td>
</tr>
<tr>
<td><strong>KYC Due Diligence</strong></td>
<td></td>
</tr>
<tr>
<td>KYC due diligence results shared through a digital tool</td>
<td>Digital Platform</td>
</tr>
<tr>
<td>Mutualized data and documentation collection and sharing</td>
<td>Dataroom managed by the platform</td>
</tr>
<tr>
<td>KYC performed by the Asset manager on behalf of the final investors</td>
<td>Enabled by the mecanism</td>
</tr>
<tr>
<td>Periodic KYC updates and checks</td>
<td>Platform future development</td>
</tr>
<tr>
<td><strong>FX Hedging</strong></td>
<td></td>
</tr>
<tr>
<td>Conventional hedging</td>
<td>Very limited</td>
</tr>
<tr>
<td>PPA partly in local currency to cover OPEX</td>
<td>To be discussed with States and stakeholders</td>
</tr>
<tr>
<td>Comprehensive guarantee</td>
<td>To be discussed with guarantee provider</td>
</tr>
<tr>
<td>Diaspora Fund</td>
<td>To be considered by Asset manager</td>
</tr>
<tr>
<td>Involvement of local commercial banks</td>
<td>To be discussed with DFIs, States and local banks</td>
</tr>
<tr>
<td>Stabilization Fund</td>
<td>To be discussed at a political level with States</td>
</tr>
<tr>
<td><strong>Guarantees</strong></td>
<td></td>
</tr>
<tr>
<td>Extended Political Risk Guarantee at minima</td>
<td>Available to be discussed by provider</td>
</tr>
<tr>
<td>Construction period covered</td>
<td>To be discussed with Asset manager and guarantee provider</td>
</tr>
<tr>
<td>First demand guarantee</td>
<td>To be discussed with guarantee provider</td>
</tr>
<tr>
<td>One stop shop for guarantee instruments</td>
<td>Platform future development</td>
</tr>
<tr>
<td>Long term solution: Common Risk Mitigation Mechanism</td>
<td>To be discussed with States and stakeholders</td>
</tr>
</tbody>
</table>
Appendix 4: IFC Performance Standards

The Performance Standards (PS) are a set of environmental and social standards developed by IFC that have primarily been adopted by most international commercial banks – and are not only restricted to the World Bank and its agencies.

List of PSs:

PS1: Assessment and Management of Environmental and Social Risks and Impacts
PS2: Labor and Working Conditions
PS3: Resource Efficiency and Pollution Prevention
PS4: Community Health, Safety, and Security
PS5: Land Acquisition and Involuntary Resettlement
PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
PS7: Indigenous Peoples
PS 8: Cultural Heritage

A detailed description of these PSs is enclosed in the link below:

https://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES

PSs are generic and cover all sorts of infrastructure investments. More detailed protocols need to be defined for each type of infrastructure.
Appendix 5: Equator Principles

The Equator Principles (EPs) is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence and monitoring to support responsible risk decision-making. The EPFI will only provide Project Finance and Project-Related Corporate Loans to Projects that meet the requirements of Principles 1-10.

The EPs apply globally, to all industry sectors and to four financial products:

1. Project Finance Advisory Services
2. Project Finance
3. Project-Related Corporate Loans and
4. Bridge Loans.

The relevant thresholds and criteria for application is described in detail in the Scope section of the EPs.

Currently 96 Equator Principles Financial Institutions (EPFIs) in 37 countries have officially adopted the EPs, covering the majority of international project finance debt within developed and emerging markets.

When a Project is proposed for financing, the EPFI will, as part of its internal environmental and social review and due diligence, categorise it based on the magnitude of its potential environmental and social risks and impacts. Such screening is based on the environmental and social categorisation process of the International Finance Corporation (IFC).

Using categorisation, the EPFI’s environmental and social due diligence is commensurate with the nature, scale and stage of the Project, and with the level of environmental and social risks and impacts.
Appendix 6: Financial, Technical and Legal sections

The F, T&L due diligence reviews a series of quantitative and qualitative parameters to identify the main drivers of uncertainty. It must cover the project in its geographical from the land site to the country level (temporal from construction to operation), financial and legal aspects. Each section of the F, T&L due diligence lists the main points of attention on which the developer must provide information:

The Country/Political Environment section reviews the Government-level risks (political, regulatory, fiscal, financial risks currency, interest rate) and the risks specific to the country’s electricity infrastructure (volume, PPA, operators landscape, etc.).

The feasibility of the project on the basis of the site selection and the development concept topography, site access, grid connection, permitting, etc. but also solar resources, expected yields, tenders, and relevant insurances.

The construction phase, by assessing the quality of the installation on criteria such as the experience of the EPC contractor, the design of the facility or the technical quality of the equipment.

The operational phase of the project by evaluating the operator and sub-contractors track record, operation, maintenance, and monitoring procedures.

The financial model and financial requirements that can be used to assess the project’s performance and financial sustainability.

While the F, T&L Due Diligence has to be completed before financial close, thorough monitoring is required during the lifetime of the project to track construction progress, budget, performance, maintenance, etc. Monitoring procedures should be implemented during the procurement, construction and operation phases to ensure that the project respects all the criteria agreed upon at the financial close.
Appendix 7: Compliance Risks

All companies are subject to increasingly stringent international and national regulations regarding compliance covering such topics as Anti-Money Laundering (AML), Counter Financing of Terrorism, Global Sanctions Regime (GSR) and corruption. These regulations include the Financial Action Task Force (FATF) recommendations, EU 5th Anti-Money Laundering Directive (AMLD), the US FCPA and Dodd-Frank Act, as well as national regulations. They evolve regularly. It is recognized that Banks are subject to the most stringent regulations and are the most exposed to sanctions, as shown in several recent examples.

Particularly, Banks are required to perform a KYC on the beneficial owners of all transactions, i.e., each physical person and government-linked to each transaction. To do so, the transaction chain and ownership structure have to be fully transparent with no ambiguity. In case of suspicious structure, banks usually do not proceed to the financing of the project. Additionally, the KYC has to be updated throughout the lifetime of the project and performed each time a new beneficial owner is involved.

Large groups are also particularly exposed to GSRs. These embargoes can concern the whole country or only a specific activity within the country as mentioned earlier. In addition, the GSR landscape evolves rapidly. It is necessary to update the KYC due diligence on this topic regularly. An active and extensive compliance program is crucial for avoiding regulatory penalties, censure, and subsequent reputational damage.

It is essential to keep track of the evolving risk landscape through careful monitoring and strict compliance procedures. The monitoring of regulatory changes across all regions, the identification of sanctioned parties through not-straight-forward ownership structures and the implementation of remediation procedures may be a burdensome task. Nevertheless, an agile and extensive compliance program is crucial for avoiding regulatory penalties, censure, and subsequent reputational damage.

Similarly, Corruption risk mitigation measures are typically included in KYC procedures by clearly identifying all stakeholders and performing increased due diligence in case of high-risk stakeholders at all stages of the transaction.
### Appendix 8: Leads for a simplified F,T&L Due Diligence Assessment

#### PF DUE DILIGENCE ITEMS

<table>
<thead>
<tr>
<th>Category</th>
<th>Topic</th>
<th>Value proposition for solar PV projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COUNTRY/ POLITICAL ENVIRONMENT</strong></td>
<td></td>
<td></td>
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<tr>
<td>Country Political Environment</td>
<td>Legal and regulatory frame work</td>
<td>Common Regulatory Framework + country information database</td>
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<tr>
<td></td>
<td>Permitting and licences policy (Local Authorities/ private parties)</td>
<td></td>
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<tr>
<td></td>
<td>Support mechanism of policy for solar PV</td>
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<td></td>
<td>Fiscal policy</td>
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<tr>
<td></td>
<td>Political risks</td>
<td>Guarantee provider + Common Regulatory Framework</td>
</tr>
<tr>
<td>Market Risks</td>
<td>Currency risk</td>
<td>Country information database</td>
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<tr>
<td></td>
<td>Interest rate risk</td>
<td></td>
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<tr>
<td><strong>Electricity Infrastructure Availability</strong></td>
<td>Network operators landscape (private/public, competition, etc.)</td>
<td>Country information database</td>
</tr>
<tr>
<td></td>
<td>Obligation to take (PPA)</td>
<td></td>
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<tr>
<td></td>
<td>Electricity Distribution (metering)</td>
<td>Common Regulatory Framework</td>
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<tr>
<td></td>
<td>Priority of dispatch</td>
<td></td>
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<tr>
<td></td>
<td>Maturity (tail vs financing)</td>
<td></td>
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<tr>
<td></td>
<td>Electricity Grid existence</td>
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<tr>
<td></td>
<td>Curtailment</td>
<td>No standardization, nor mitigation</td>
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<td></td>
<td>Volume and network availability</td>
<td></td>
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<tr>
<td></td>
<td>Access to grid (ensure access to grid in the long run)</td>
<td></td>
</tr>
<tr>
<td><strong>PROJECT FEASIBILITY ASSESSMENT</strong></td>
<td>Topographic/Geotechnics/soiling analysis</td>
<td>For mid-large projects, the land could be provided by the government.</td>
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<tr>
<td></td>
<td>Site access routes,</td>
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<td></td>
<td>Water access,</td>
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<td></td>
<td>Grid connection form validated/completed</td>
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<tr>
<td></td>
<td>Electric grid (distance, compatibility, curtailment, ...) + energy</td>
<td></td>
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<tr>
<td></td>
<td>Licence and permitting</td>
<td>Common Regulatory Framework</td>
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<tr>
<td></td>
<td>Health and safety requirement</td>
<td>Respect of HSE criteria</td>
</tr>
<tr>
<td>Resources</td>
<td>Solar resources quantification (measure, dataset,...)</td>
<td>Use of satellite data (taking into account a certain error margin) or just solar databases (e.g. Global Solar Atlas) for small projects. A rapid site visit and topography will remain necessary (not for small projects). The developer can take the average results of multiple databases (or the minimum) to minimize the risks</td>
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<tr>
<td></td>
<td>Solar resources assessment</td>
<td></td>
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<tr>
<td></td>
<td>Energy Yield assessment &amp; algorithm availability (P50/P90/P95)</td>
<td></td>
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<tr>
<td>Sponsors and expertise</td>
<td>Tender</td>
<td>Standard pre-qualification criteria</td>
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<tr>
<td></td>
<td>technical proved experience</td>
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<tr>
<td></td>
<td>Experience in comparable transactions (in term of project size)</td>
<td>KYC + Platform database (track record)</td>
</tr>
<tr>
<td>Insurances</td>
<td>Scope</td>
<td>List of accredited insurance providers and use of a global and common contract</td>
</tr>
<tr>
<td></td>
<td>Insurance contract review</td>
<td></td>
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<tr>
<td></td>
<td>Insurance provider</td>
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</tbody>
</table>
## PF DUE DILIGENCE ITEMS

<table>
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</thead>
</table>

### CONSTRUCTION PHASE ASSESSMENT

- **EPC track record and expertise**
  - Existing comparable
  - Technical proved experience
- **Standard EPC contract**
- **Contract strategy**
- **EPC Design (incl. Contractor, subcontractor, local contents, …)**
- **General Design checklist (tilt angle, orientation, …)**
- **PV design**
  - Solar technology
    - Description
    - Performance
- **Inverters (efficiency, certification, performance)**
- **Transformers**
- **Trackers (if any)**
- **Cables**
- **Consents/Permits, Civils works, security…**
- **Monitoring/Benchmarking**

### OPERATING PHASE ASSESSMENT

- **Operator and subcontractor track records**
- **Schedule/preventive maintenance**
- **Connection grid integrity**
- **Module cleaning**
- **Spare parts management**
- **Performance monitoring, evaluation, optimisation (remote control)**
- **Insurance**
- **Standard O&M contract**

### FINANCIAL REQUIREMENT & MODELLING

- **Financial Model**
- **Equity Agreement (D/E ratio, equity injection)**
- **Intercreditor Agreement**
- **Standard Finance Facility Agreement**

#### Input Model

- **Energy Yield**
- **Off-take price**
- **Capacity factors**
- **Capex costs/capex delays**
- **Opex costs**
- **Taxes**
- **DSRA**

#### Output Items

- **E/D**
- **DSCR**
- **LLCR**
- **PLCR**
- **Sensitivity Analysis**