ACCESS TO ENERGY

1. Analysis of business models
2. Electrification Finance Initiative (ElectriFI)

A joint initiative elaborated by industry experts, financial institutions and EU consultants.

Subordinated debt funding by the European Commission, through convertible grants, into sustainable private sector (off-grid) energy projects in developing countries.

Content

Private Sector Involvement in Electricity Supply is at a turning Point

Four major events in the market are creating momentum:

1) Renewable energy markets in OECD countries faced decreasing governmental support (Germany, Spain, Netherlands, Italy);

2) South Africa embarked on a large scale renewable energy program (3.725MW by 2016) which it designed very smartly and attracting many developers;

3) more long term funding is available: a) at DFIs through directives to become ‘green’, from the private sector b) crowd-funding; and, most importantly,

4) prices have come down for solar energy solutions tremendously.

One further event is SE4ALL + SDGS + major donors into energy.

Access to Energy in Developing Countries

The combination of project developers seeking other markets in Africa and the decreasing cost for solar energy creates many opportunities which are foreseen at large scale in mostly three areas:

1) Grid-connected (un)solicited solar-PV inputs;

2) Replacement of diesel by solar, by corporate or social entities (breweries, mines, hospitals, schools, etc.), including mini-grids where the corporates provide for an anchor load, and,

3) Off-grid PV solutions.

Expectations and 'Obstacles'

All studies on what are the market imperfections for smaller scale renewable energy projects in developing countries:

- Lack of equity
- Lack of skilled developers (in bankability and manage more than technical)
- Lack of scale to cover transaction cost
- Lack of affordable long term debt
- Lack of local currency
- Lack of interactions between CSOs and private investors

ElectriFI

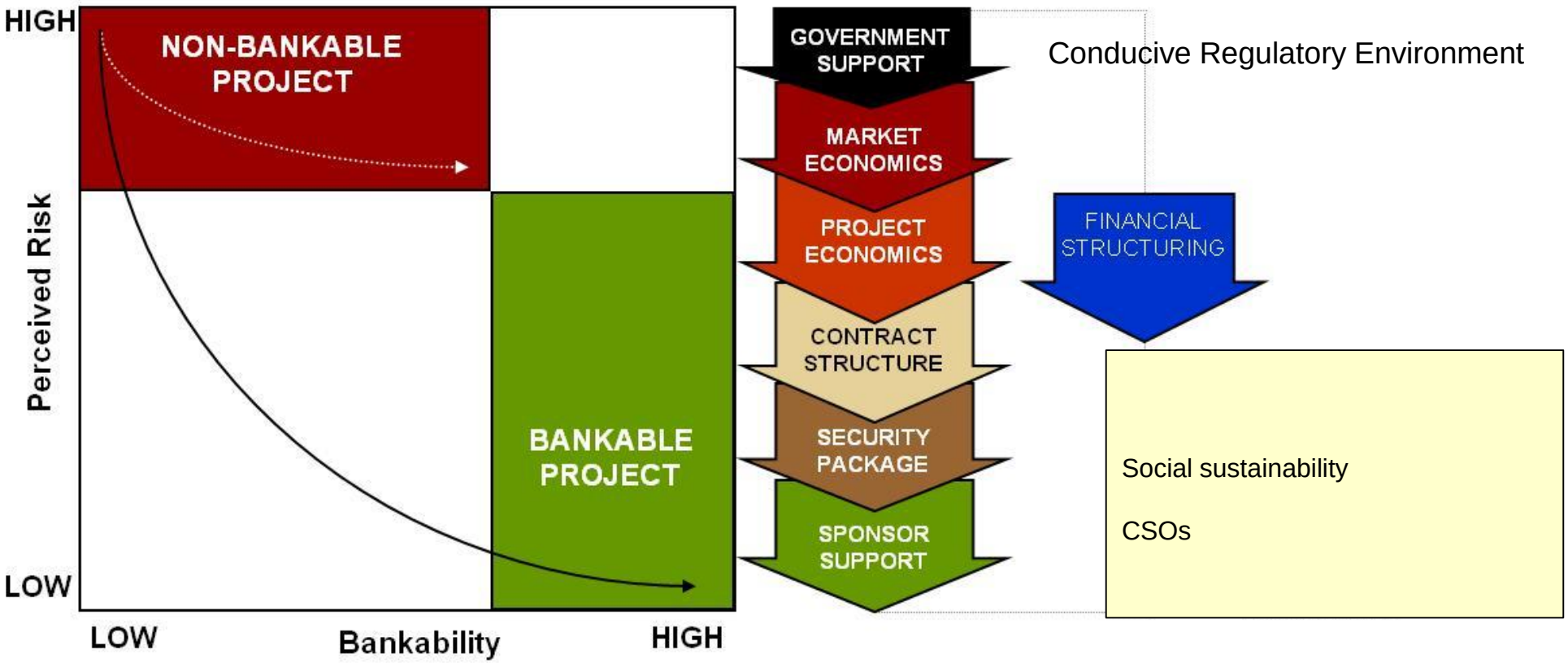
ElectriFI is an EUR initiative to accelerate electrification in developing countries by the private sector through making available (convertible grants that convert into) subordinated debt in addition to the creation of a centre of excellence for access.

The intervention can be classified as early stage development risk capital in principle the monies will need to flow back to ElectriFI.

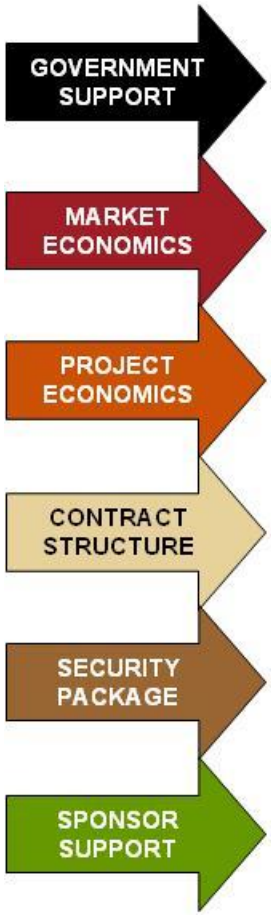
ElectriFI will perform tasks and make available Technical Assistance that assists in making electrification ventures bankable (reaching financial close).

This comes reinforced by the workshop with around 300 stakeholders in Bruxelles, held on 29-30 September 2014.

As close as possible to markets



Structuring Elements of the Business Model



- Acceptable country risk?
- Regulatory framework Independent Power Projects (IPPs) bankable?
- Kyoto signed (Carbon credits possible)? What scheme to support renewables?

- Electricity shortages? Base load opportunity? Supportive industry?
- Specific sources (such as hydro) available that make other RES less-bankable?
- How does specific renewable energy project compare to other renewable projects?

- Technology to be used, efficiencies and track record (turbines)? Costs per MW?
- Use of carbon credits and subsidies from support scheme?
- Financing options?

- Long term Power Purchase Agreement (PPA) possible exceeding longest debt tenor?
- Turnkey contractor under lump sum, fixed price and date certain contract?
- Reputable O&M contractor? (in windparks often equipment vendor)

- Product warranties? (in windparks generally a minimum of 5 years)
- Comprehensive risk coverage available from equipment vendors' export agency?
- Mortage possible on land or other assets?

- Reputable and experienced sponsor?
- Level of equity investment?
- Level of contingent equity available for completion?

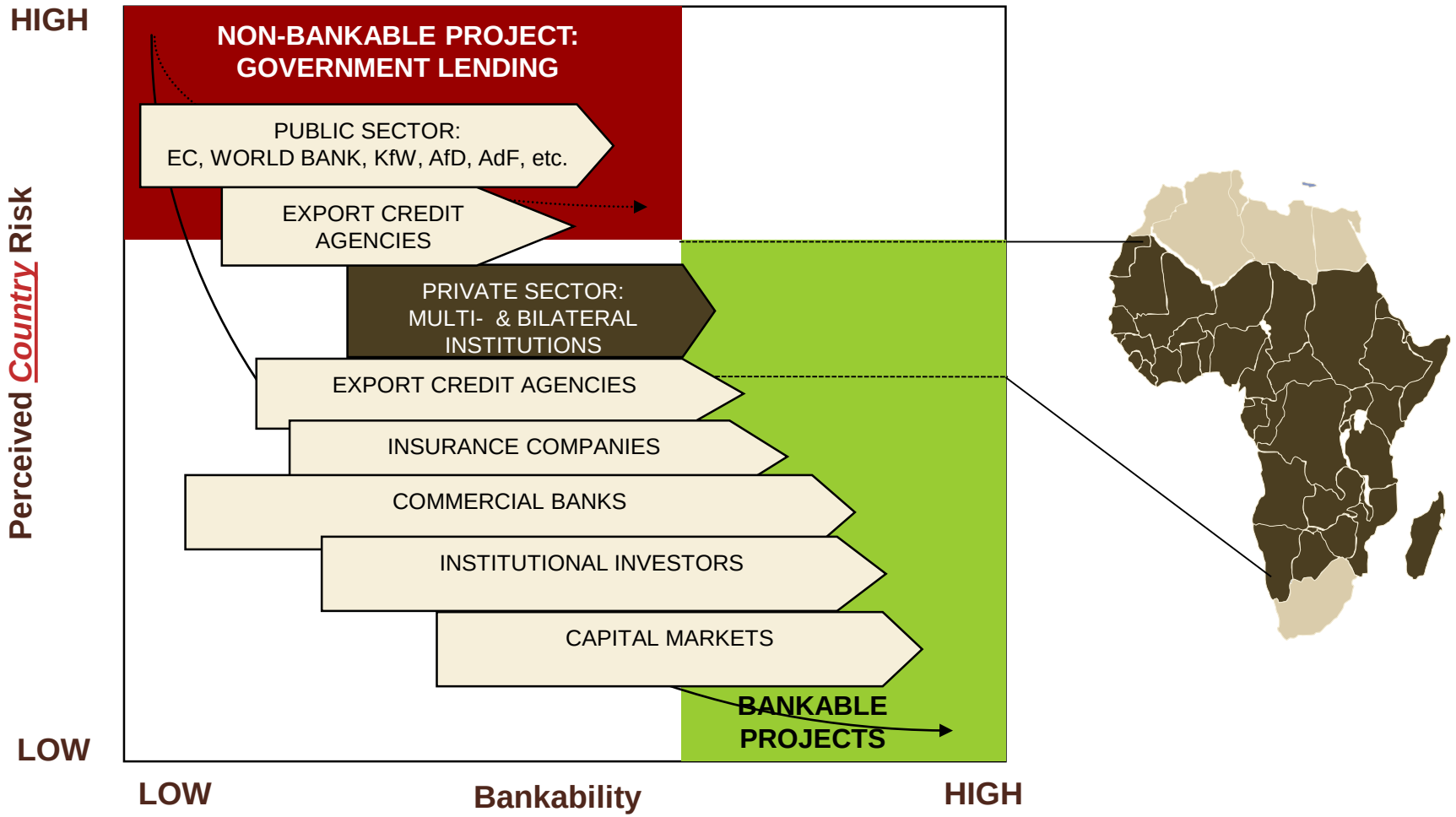
Sustainability dynamics

- Users demand – civil society should be involved
- Affordability
- Gradual market penetration/usage

GOVERNMENT SUPPORT

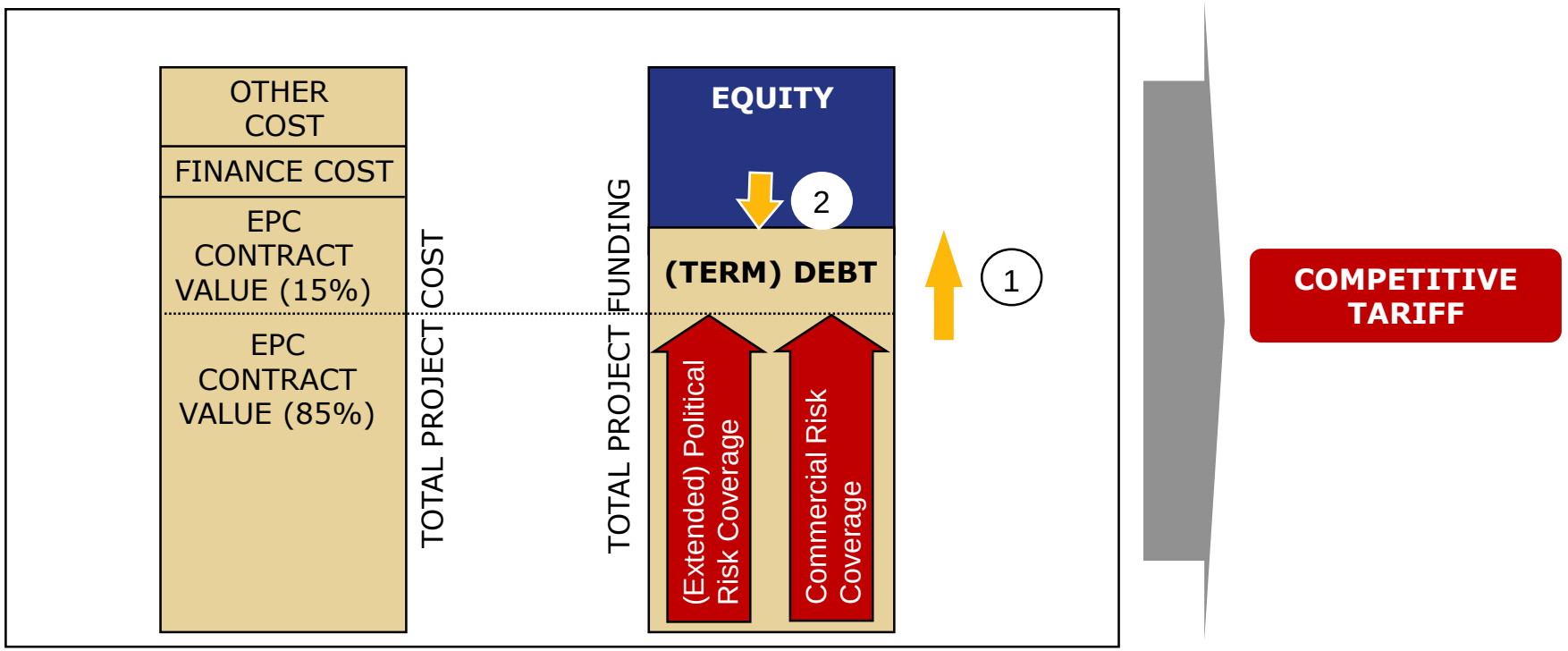
‘Country’ Risk limits Finance Possibilities

Sub-Sahara Africa has today a very narrow Private Sector Finance Window



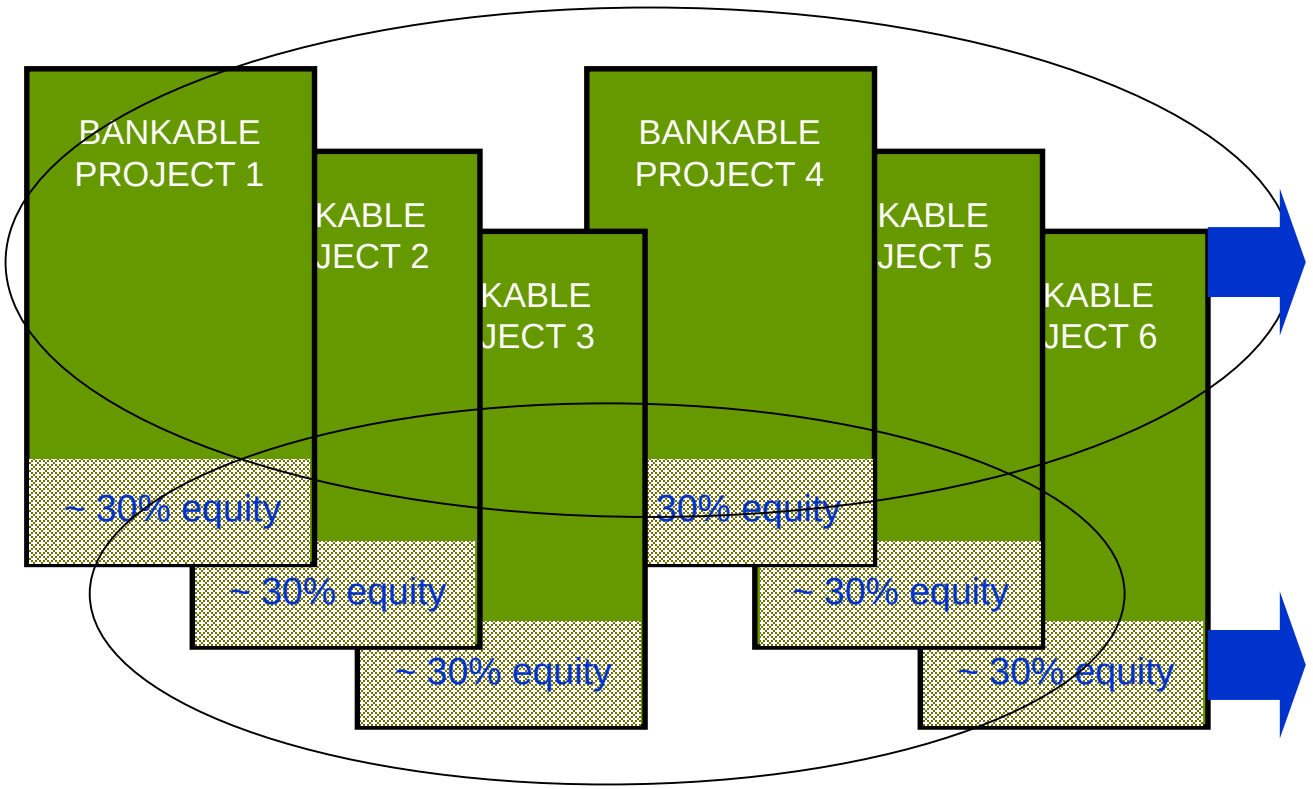
Reduce Risks and Costs!

1. Sufficient coverage of political/commercial risks through Export Credit Agencies / or other, and suffiient debt service capacity
2. Sufficient (contingent, i.e. sponsor support) equity contribution
3. Bankable project documentation (incl. framework & concession documents)
4. Public actor to cover the shortcomings of the model



Standardisation is possible

Renewable energy projects are very suitable for standardisation (as proven by the S.A. initiative) and can maximize catalisation of funds:

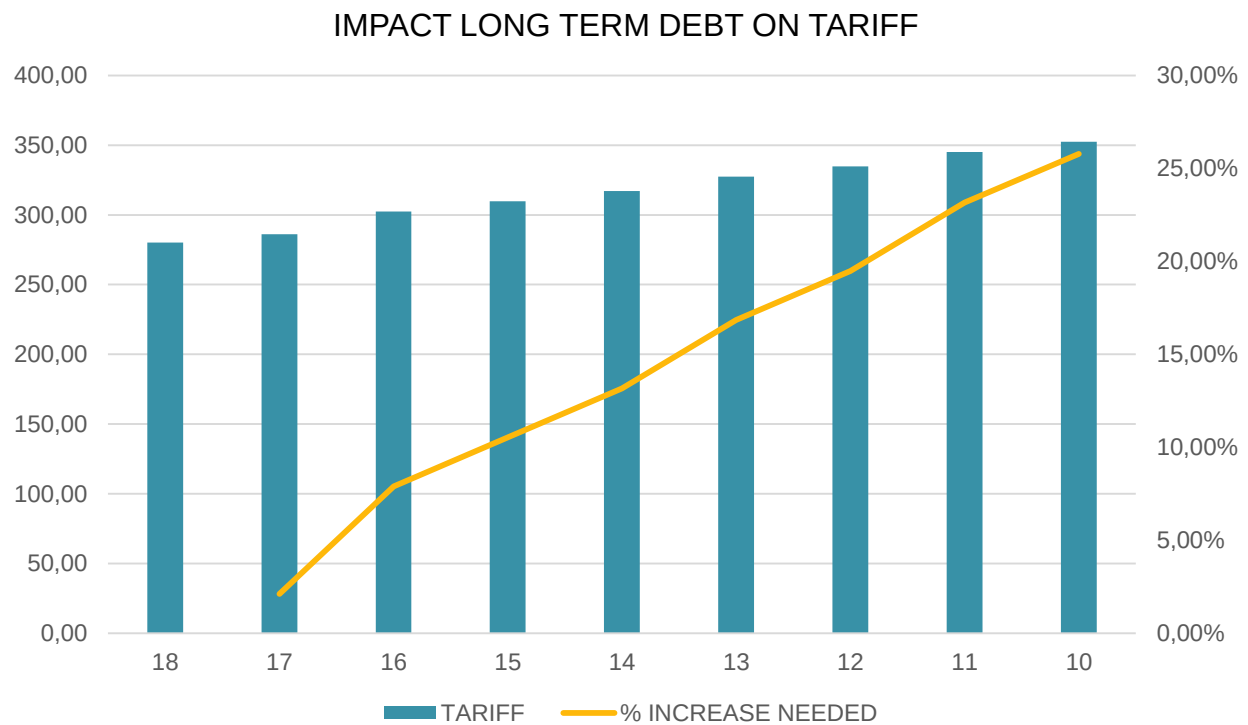


- Bundle future debt service obligations of all projects and issue bonds against some 70% of these rights
- Use proceeds for new investments
- Original debt investment of 70% reduced to some 21%

- Bundle future dividend rights of all projects and issue bonds against some 70% of these rights
- Use proceeds for new investments
- Original equity investment of 30% reduced to some 9%

Long Term Debt and Impact on Tariffs

Least-Cost requires Long Term Debt: a tariff benefitting from 18 yrs debt funding can be 20% lower as from the start compared to 10 year funding.



Offgrid Solutions: Many Business Models

Business Models
One Hand: finance, installation and after-sales by MFI
Two Hand: finance by MFI, installation & after-sales by third party
Fee for Service
Lease/Hire Purchase
Utility based
Community based
Private O&M Contractor
Private Concessionaire
Private Generator – IPP Model
Private Distributor
A-B-C Business Model with Anchor Loads

The Original IPP Model serves as Starting Point

One Borrower, often a Special Purpose Company

Limited number of banks (long term debt) and equity suppliers / developers

One off-taker for the electricity, the national utility under one contract in hard currency (obligation)

One guarantor for the obligations of the utility, the government

Beneficiaries being those grid-connected users

Offgrid Business Models:
The Load Replacement Business Model

The Load Replacement Business Model

The load replacement business model is an existing company (brewery, mine, hospitals, etc.) investing in for example a solar energy solution, biogas installation, etc. to offset diesel-generated electricity.

Bankability:

Borrower is 1 existing corporate private public structure (allows for ‘credit analysis’).

Limited number of long term debt providers / equity sources.

Off-taker of the electricity is the Borrower.

1 beneficiary.

The Anchor Load Business Model

The Anchor ‘off-taker’ is an existing company (brewery, mine, etc.) investing in for example a solar energy solution. The company is capable to contract for example 70-80% (mirroring the debt amount) and the remainder is coming from a mini-grid to be built by the company, hence, an oversized investment.

Bankability:

Borrower is 1 existing corporate (allows for ‘credit analysis’).

Limited number of long term debt providers / equity sources.

Off-taker of the electricity is the Borrower.

From 1 beneficiary to ‘m’ through the mini-grid.

Offgrid Business Models:
The Energy Service Company Model

The Energy Service Company Model

The ESCO-model represents a new company investing in for example a solar energy or hybrid power solution. Electricity is sold through a mini-grid to a village / community. Pre-payment of electricity is often accompanying the model to mitigate to some extent non-payment risks. The model is based on a regional license / concession and has ongoing investment obligations associated.

Bankability:

Borrower is 1 new corporate (no track record though for ‘credit analysis’).

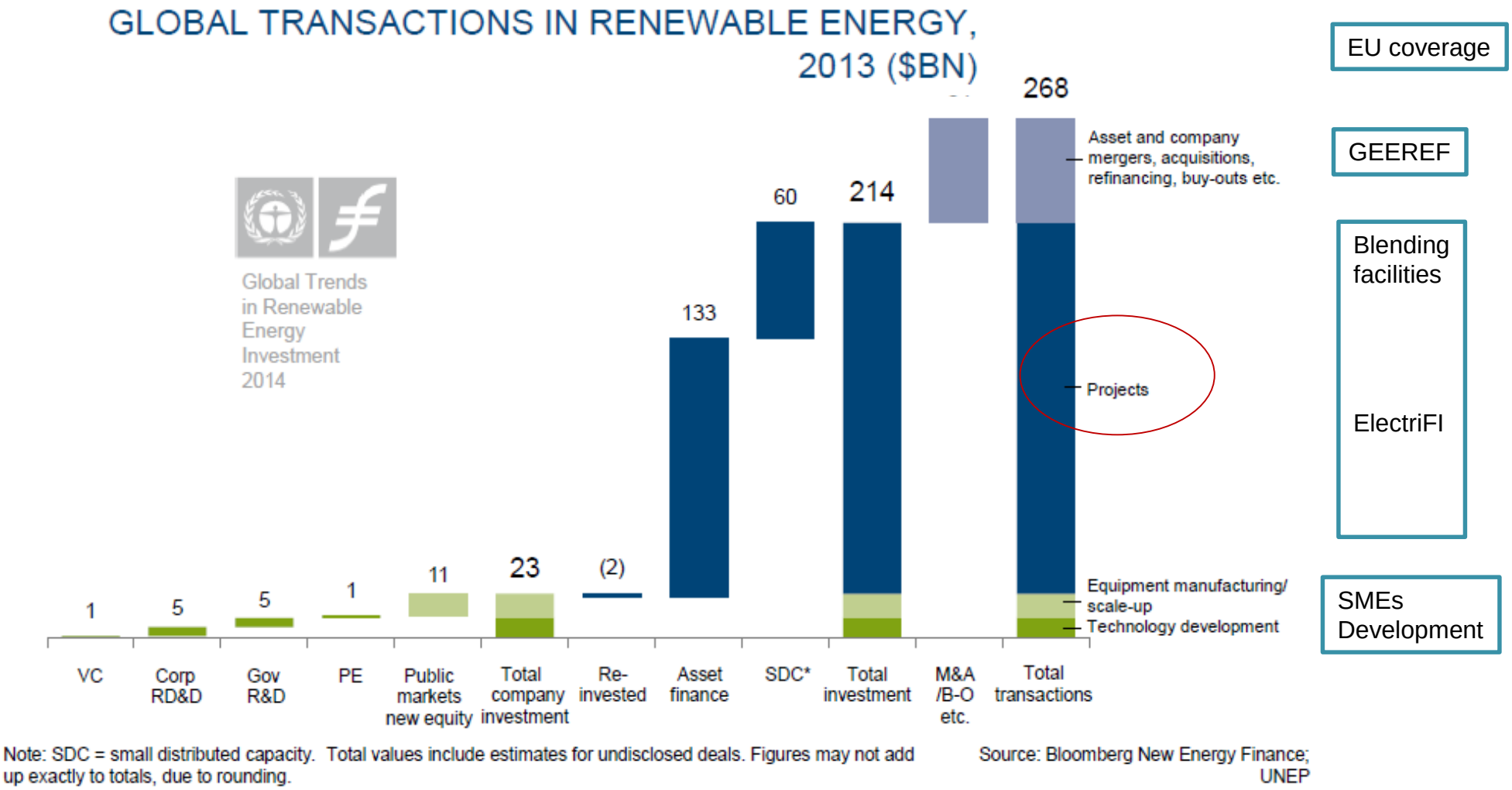
Limited number of long term debt providers / equity sources.

Off-taker are ‘m’ (pre-paying) civilians of for example a village.

From 0 beneficiaries to ‘m’ through the mini-grid.

Beneficiaries:

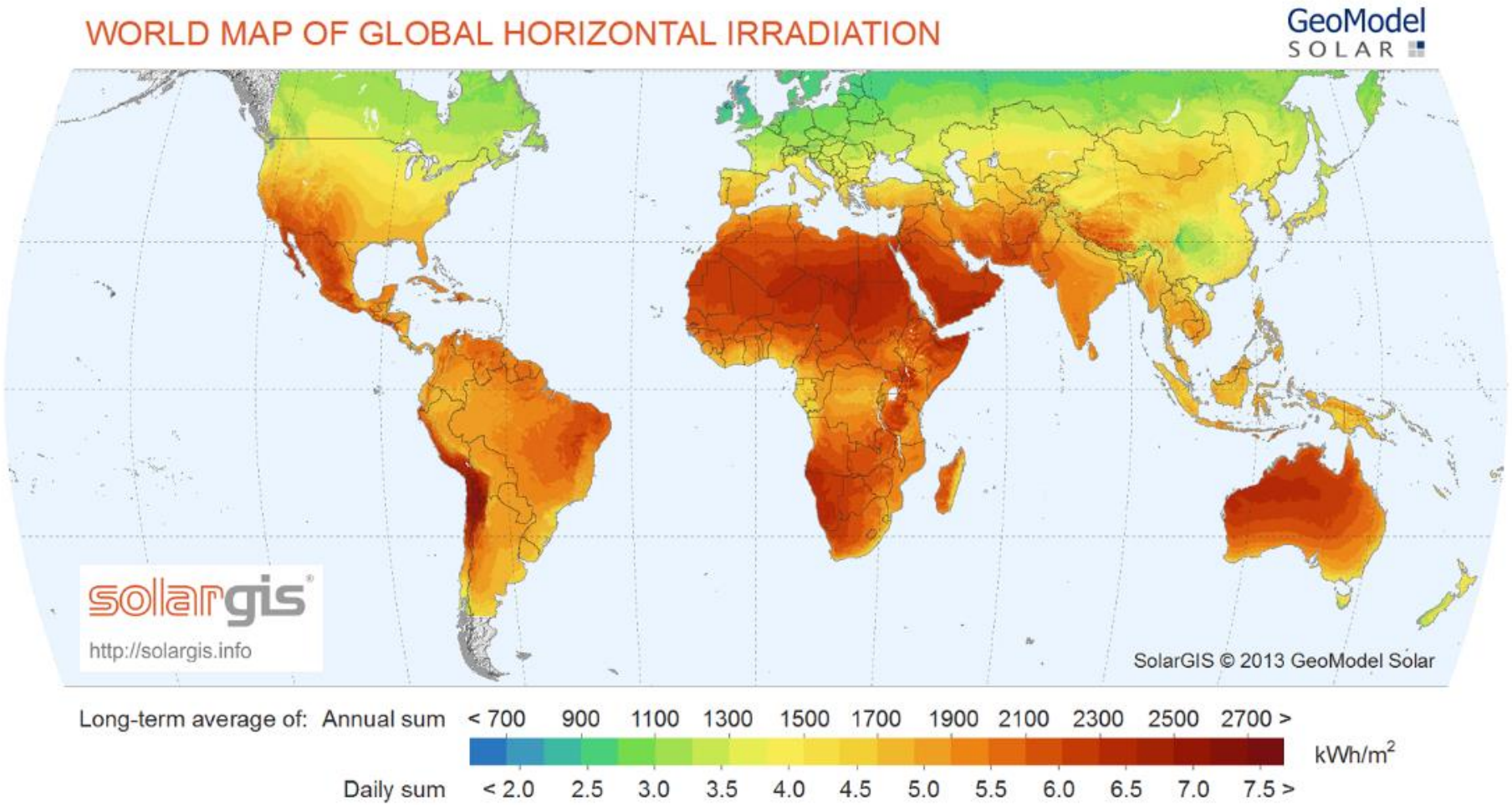
Projects and Corporates, although ‘Projects’ are more likely



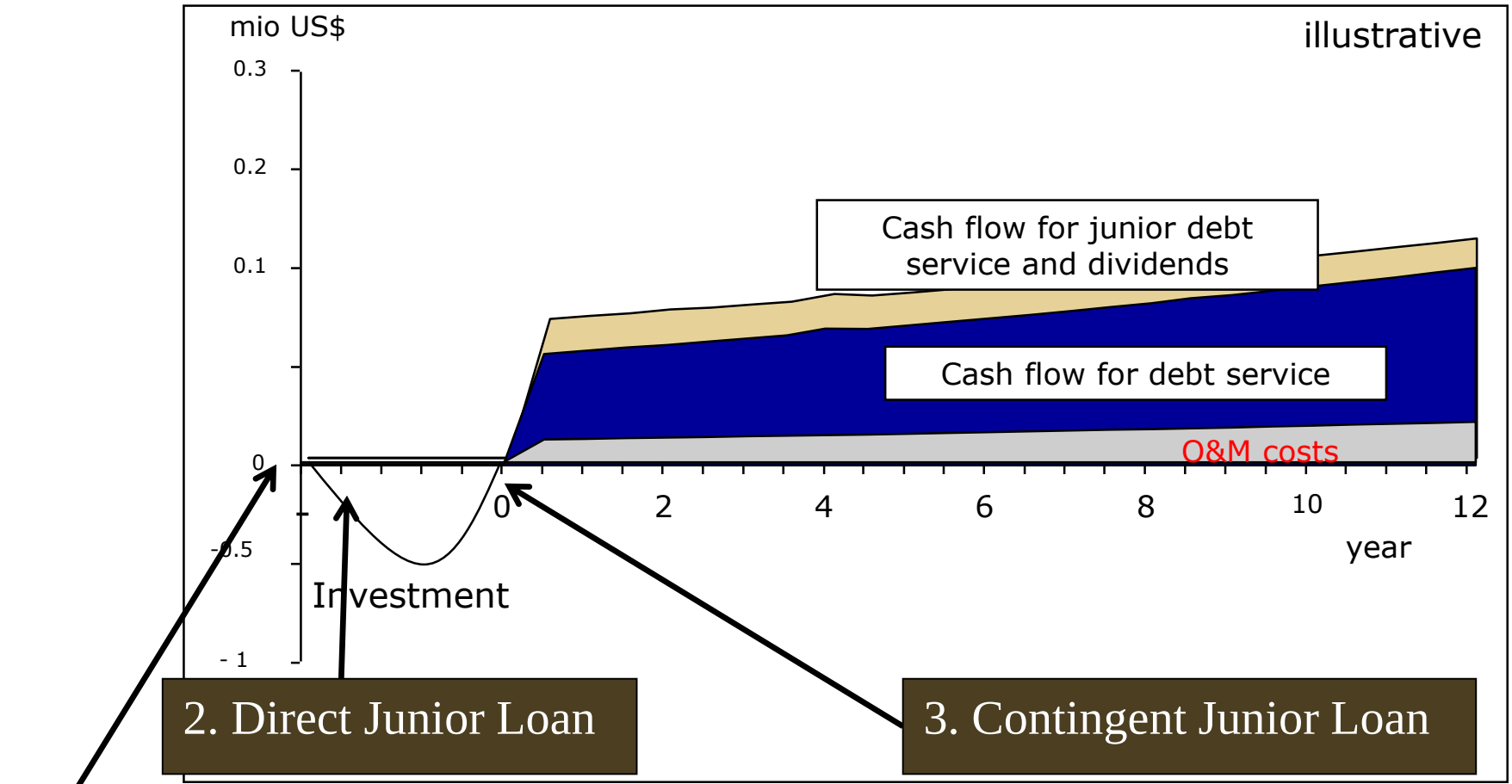
Note: SDC = small distributed capacity. Total values include estimates for undisclosed deals. Figures may not add up exactly to totals, due to rounding.

Source: Bloomberg New Energy Finance; UNEP

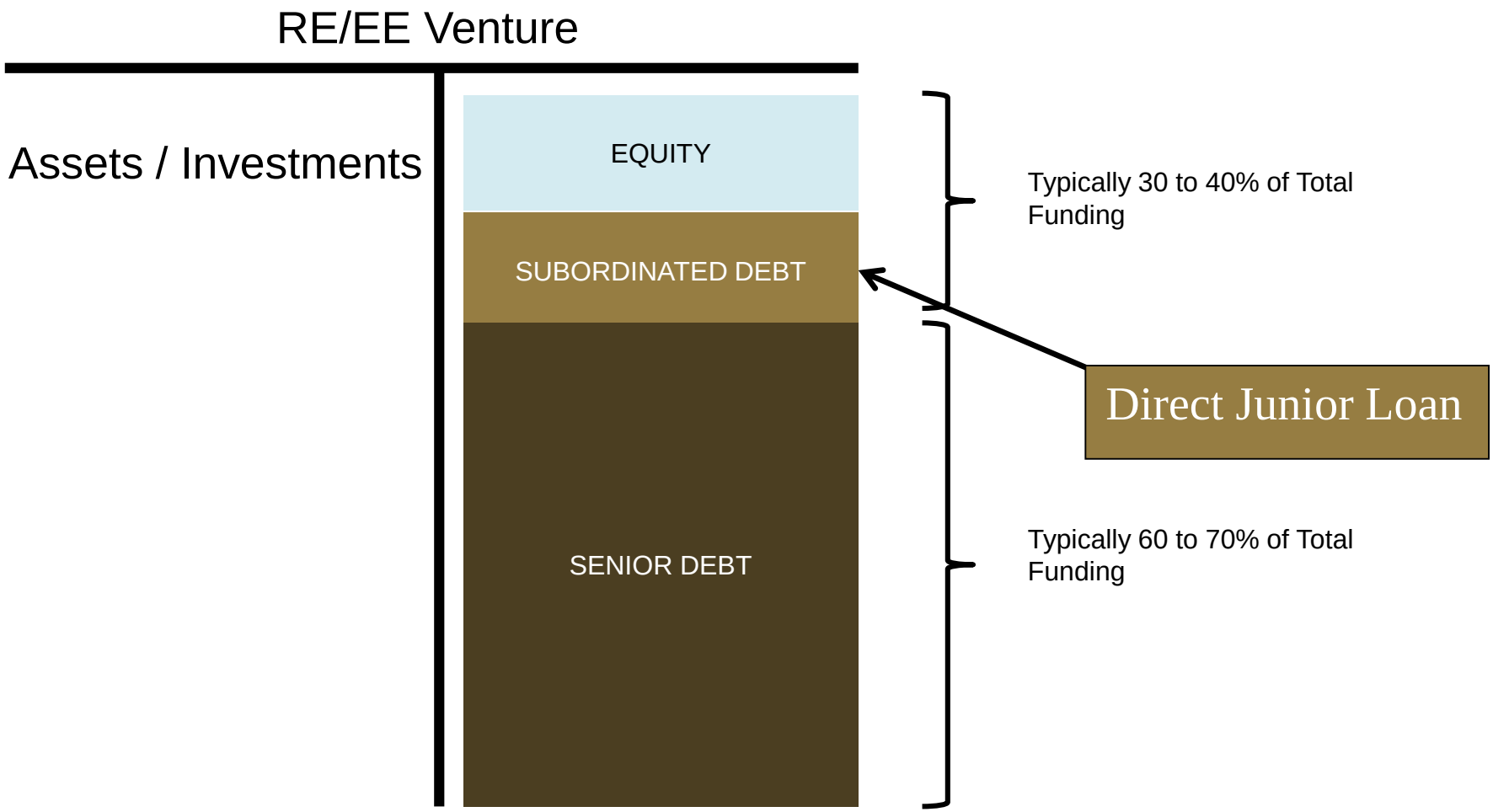
Technologies: Open platform approach – mini hydro very promissing. High potential for Solar Energy



ElectriFI: Early Stage Development Capital for 'Projects'



Product:
Risk Capital for Corporates



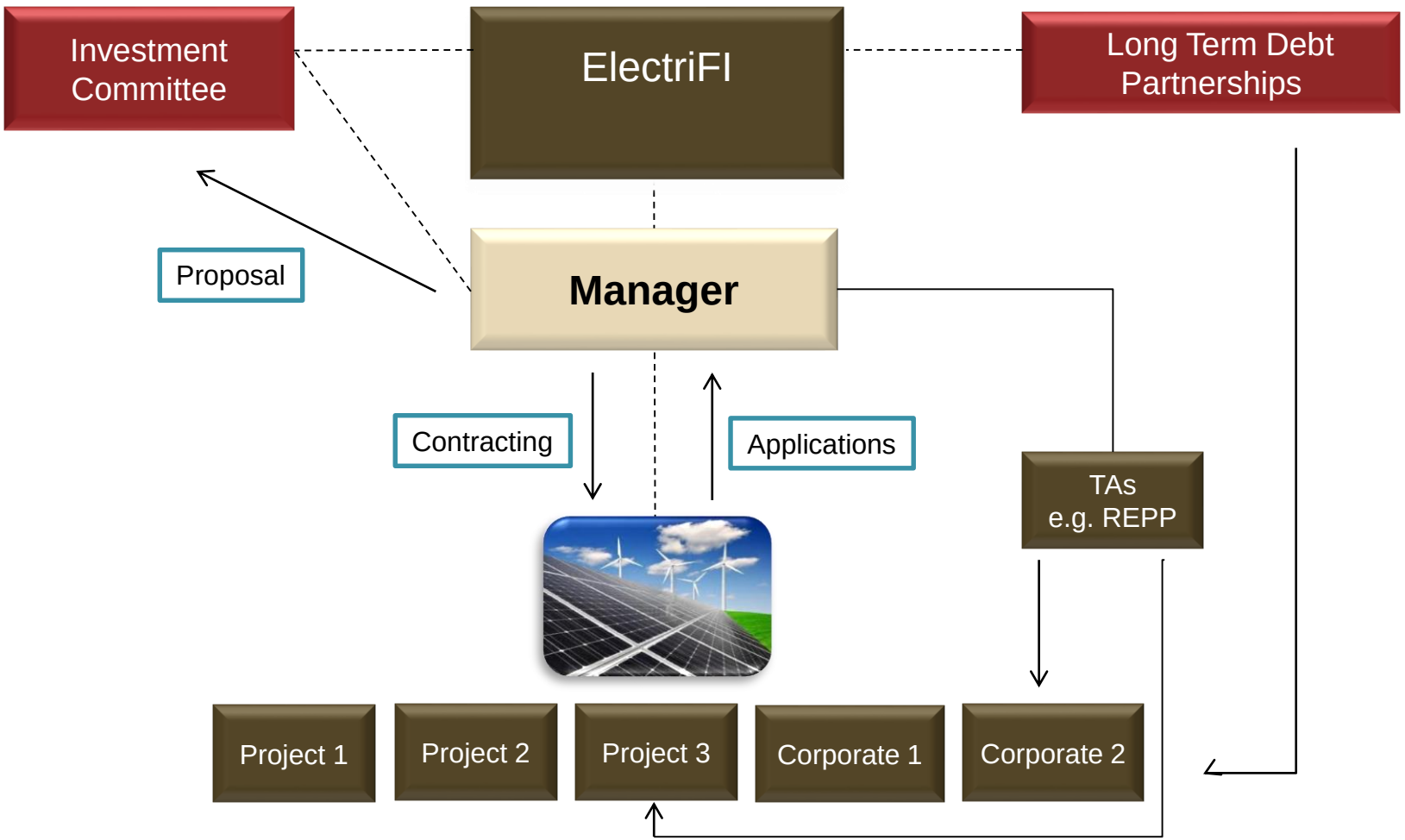
Product:
Pro's and Con's 'Risk Capital' Intervention

	Convertible Grant	**Direct Equity**	**Contingent Equity**	**Junior Debt**
Applicability	Projects	Projects and Corporates	Projects	Projects and Corporates
Reputational Risk	Very high	High	Very high	Low
Complexity	Low	High	Moderate	Moderate
Yield	High	High	Less High	Much less High
Exit Possibility	Strong	Strong	Less strong	Very strong
Catalisation	High	High	Very high	High

Product:
Terms & Conditions

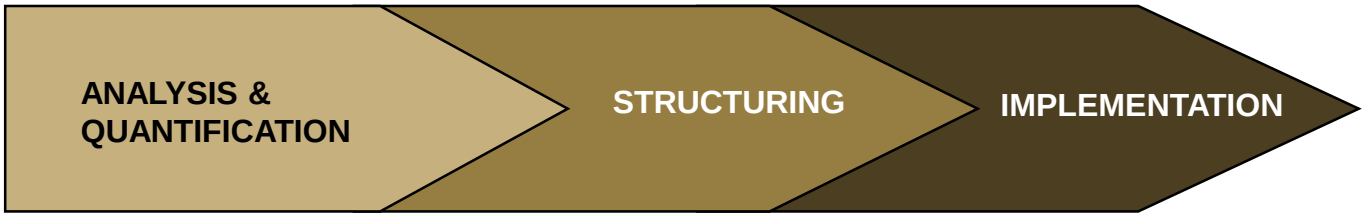
Overview	
Start-up	Second quarter of 2015
Strategy	Long term subordinated debt through convertible grants to electrification ventures in developing countries
Currency Investments	EUR
Returns	Market-conform which is as a rule of thumb roughly 2/3 of the expected equity returns of a specific venture, but In case the investment case requires ElectriFI can decide: • not to convert the grant into subordinated debt • to convert only partially the grant into subordinated debt • to (partial) convert but forgo (partially) on returns which can be zero interest
Initiative Size	EUR 75 million initially
Conversion	To be decided by the Investment Committee upon recommendation of the MANAGER, although milestones envisioned are: - Upon reaching financial close for projects - Upon reaching certain solvency ratios for corporates
Options:	Until conversion in projects ElectriFI preferably will finance external parties directly and will retain ownership of the material obtained from these external parties.

Organisational Set-Up



Specific technical assistance

The Manager will be responsible for creating a centre of excellence in providing structuring / advisory / arranging skills …..



MANAGER's ACTIVITIES	• Review Objectives & Feasibility • Macro/Project Risk Analysis • Review of Contracts • Review Ownership • Review Procurement EPC	• Allocation of Risk: - by sounding out Financial Institutions with PDL - (Contract) Negotiation support • Optimising Financial Structures • Implementation Plan	• Road Show and Selection Syndicate of Banks • Support Negotation Best Terms & Conditions
MANAGER's PRODUCTS	• Financial Feasibility Report including Macro/Project Risks • Contract Review Memoranda • Project Description Letter ("PDL")	• Bankable Model • Financial Plan with Preliminary Letters of Interest • Security Package (Degree of Recourse determined) • Information Memorandum	• Final Terms & Conditions • Selected Syndicate of Banks / Underwriters

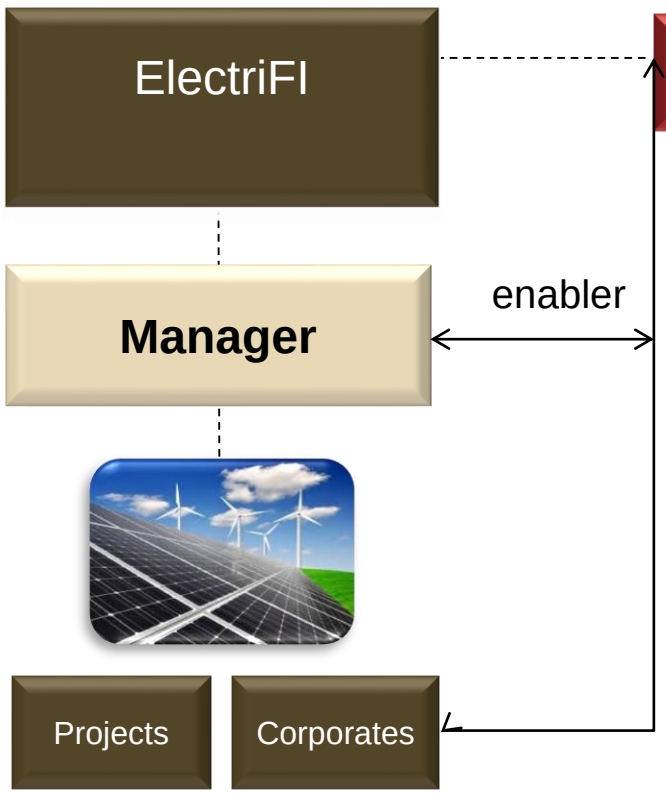
Specific TAs

….. in addition to a set of ‘deliverables’ in a template-manner in order to standardize financing of smaller-scale projects to the extend possible.

UPDATE MODEL / UPDATE MODEL WITH SCULPTING / UPDATE SENSITIVITIES		PROJECT NUMBER: (USE MACRO-BUTTON)	SELECT PROJECT	SELECT PROJECT	SELECT PROJECT	SELECT PROJECT	SELECT PROJECT	SELECT PROJECT	SELECT PROJECT
	ACTIVE PROJECT #	3	BENIN	BENIN	NIGERIA	NIGERIA	SENEGAL	SIERRA LEONE	CHAD
		SPONSOR C	SPONSOR A	SPONSOR B	SPONSOR C	SPONSOR D	SPONSOR E	SPONSOR F	SPONSOR G
PROJECT NUMBER FOR RUNNING SENSITIVITIES:	3	150MWp PROJECTNAME	6MWp PROJECTNAME	30MWp PROJECTNAME	150MWp PROJECTNAME	80MWp PROJECTNAME	20Wp PROJECTNAME	15MW PROJECTNAME	60MWp PROJECTNAME
		NIGERIA	P90	P90	P90	P90	P90	P50	P50
TOTAL PROJECT COST	USD MILLION	**462.09**							
TOTAL PROJECT COST AS PER CLIENT MODEL (DIFFERENCE)	-45.06	417.03	8.79	45.41	417.03	225.17	25.02	69.00	84.75
INCLUDE CONTINGENCIES FOR FULL FUNDING VERSION? (YES=1; NO=0)		1	0	0	1	0	0	0	0
OUTPUT CURRENCY OF PROJECT CHOSEN		USD MILLION							
TIMING									
MACRO ECONOMIC INDICES									
EXCHANGE RATES TODAY									
LOCAL CURRENCY SYMBOL	LCY	NAIRA	FCFA	FCFA	NAIRA	NAIRA	FCFA	SLL	FCFA
1 EUR / LOCAL CURRENCY		**225.52**	**656.00**	**656.00**	**225.52**	**225.52**	**656.00**	**4,343.48**	**656.00**
1 LOCAL CURRENCY / EUR		**0.0044**	0.0015	0.0015	0.0044	0.0044	0.0015	0.000230230	0.0015
1 EUR / USD		**1.3607**	**1.3607**	1.3607	1.3607	1.3607	1.3607	1.3607	1.3607
1 LOCAL CURRENCY / USD		**0.0060**	0.0021	0.0021	0.0060	0.0060	0.0021	0.00031327	0.0021
1 USD / LOCAL CURRENCY		**165.74**	482.11	482.11	165.74	165.74	482.11	3,192.12	482.11
MINIMIZATION LCY FOR REPORTING PURPOSES? (1=/000's TO BILLIONS, 2=/000,000 TO TRILLIONS)	1	**0**	**1**	**1**	**0**	**0**	**1**	**1**	**1**
INPUT CURRENCY OF THIS MODEL IF ALL INPUT IS IN 1 CURRENCY (1=LCY, 2=EUR, 3=USD)	USD	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**2**
OUTPUT CURRENCY OF THIS MODEL (1=EUR, 2=USD, 3=LCY)	USD	**2**	**1**	**1**	**2**	**2**	**1**	**2**	**1**

Long Term Debt

The Manager will be responsible to secure the necessary access to long term debt providers …..



Long Term Debt Partnerships

- (E)DFIs
- (Local) Commercial Banks (Global Climate Partnership Fund for example)
- Other

Other Electrification Initiatives

….. taking into account other initiatives to the extent possible.

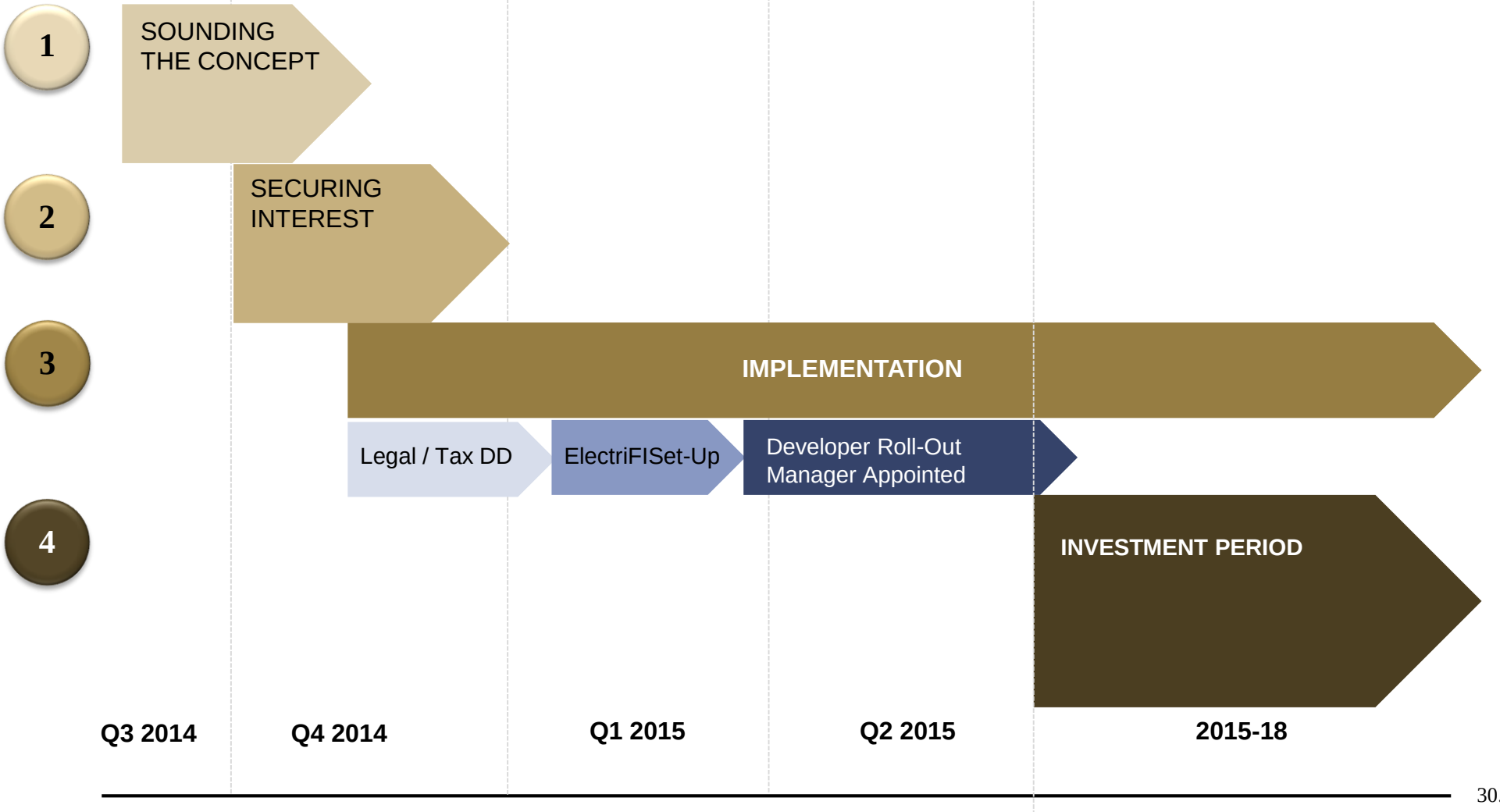
- Renewable Energy Cooperation Program
- EnDev
- EUEI-PDF
- Lighting Africa
- Greening Tea Industry in East Africa (GTIEA) by UNEP;
- COGEN in Kenya by UNEP
- Africa Enterprise Challenge Fund (AECF) and Renewable Energy and Applied Climate Technology (REACT) funding window supported by DFID and Danida;
- Technology Needs Assessment (TNA) by UNEP;
- African Climate Technology and Finance Centre and Network (AfDB)
- Facility Implementation for Readiness for Mitigation (FIRM) by RISO
- ARGeo by UNEP/KfW
- RTAP I and II by AFD
- Southern Africa Climate Change Network by UNEP
- En.Lighten by UNEP
- Climate Innovation Centre (CIC) supported by World Bank – Infodev and DFID;
- DANIDA Fast Start Climate Change Programme;
- GIZ and KfW programmes;
- UNEP/FS: SCAF (Seed Capital Assistance Facility);
- CSO highly valuable chosen projects (below 300,000 €);
- And many more.

- **Do not do semi commercially what can be done commercially**
- **Do not do with loans what can what cannot afford to be paid back**

ElectriFI aims at addressing a number of market imperfections in combination with other interventions by the EU:

- Increase in risk capital addressing the lack of equity
- Increase of long term debt and number of players
- Through standardization increase scale-possibilities
- Through structuring / arranging / advising the number of projects reaching financial close is increased
- Through other programs the regulatory context for electrification is improved and access to capital is enlarged (Citizenergy for example)
- Through partnership with CSO address AFFORDABILITY and social impacts
- This is coupled with what EU is doing/launching (TAF, GEEREF, SMEs development, etc.)

Steps to Realisation



Manager's Responsibilities

1. Source Additional Junior Debt
2. Source Addtitional (Innovative) Long Term Funding Options

1. Junior Debt

ElectriFI will start with EUR 75 million from the EU and anticipates increasing funding in the next years. Beneficiaries next to the end-users are companies active in off-grid lighting, mobile phones, computers. The Manager will explore co-operation with those industries also in enlarging ElectriFI's resources.

2. The Crowd-funding Route

To explore other venues to attract long term debt funding. Part of the Terms of Reference is investigating the possibility of crowd-funding (example: Co-operation of US and EU crowd-funding platforms for energy projects to overcome regulatory issues).