IRENA

International Renewable Energy Agency

Risks in renewable energy projects

Risk is in the eye of the beholder

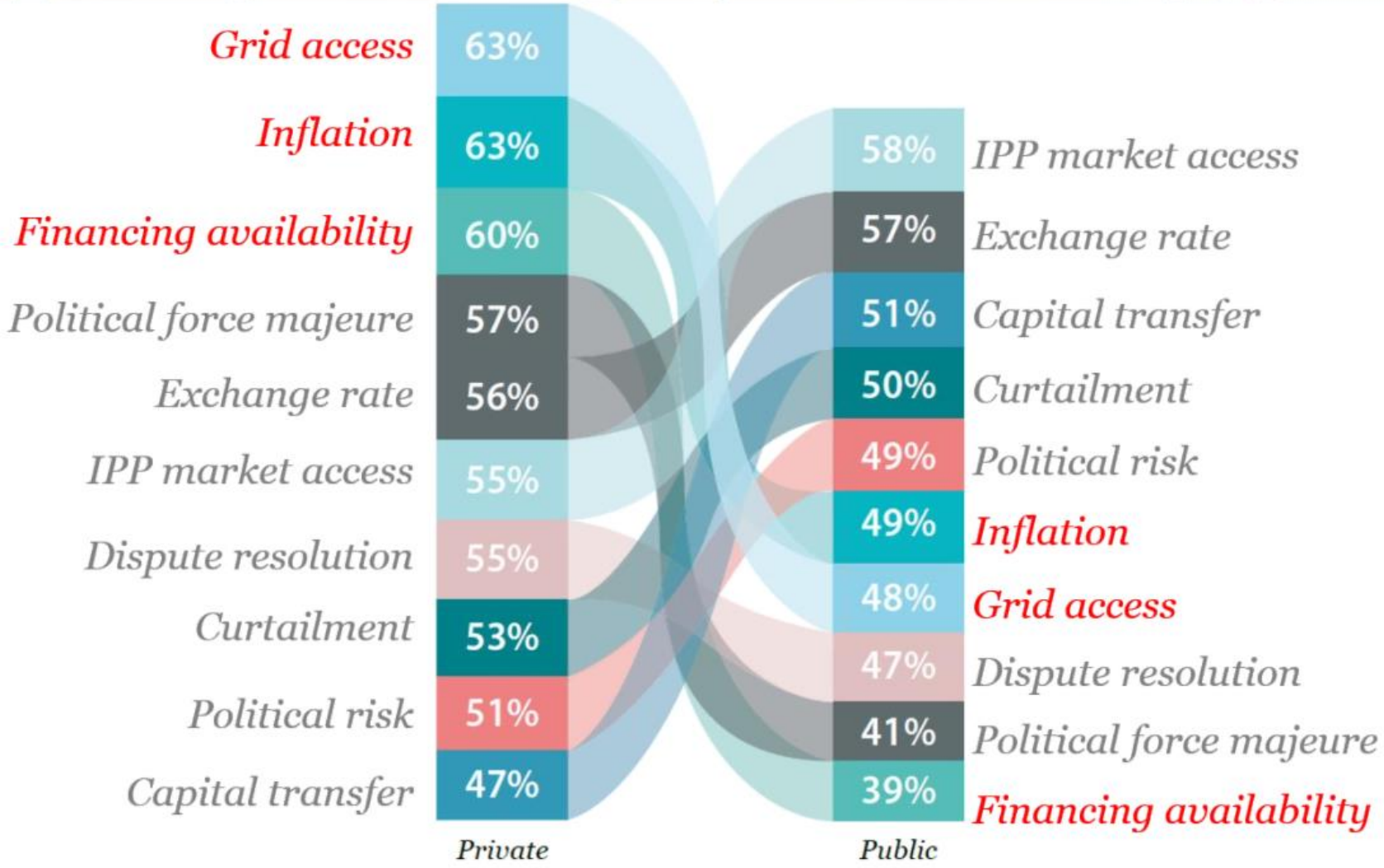
There is nothing objective or tangible about risk.
The perception of risk depends on culture and on the role that one plays in the development of a RE project.

The banker looks at the developer as a risk and the developer looks at the bank as a risk
And none of them would have looked at social and environmental impact as a risk 70 years ago.

The next slide shows the perception of risk in 6 MENA countries by representatives of the private sector (left) and public sector representatives

Grid access and financial cost risks are of high concern… though public and private sectors views don't fully coincide

Top 10 risks according to private stakeholders (left side) and public stakeholders (right side)



Agenda

1. The risks that projects face and hurdles to financial close: a sample
2. The risks that projects face: focus on credit, political and regulatory risks
3. Risk mitigation of renewable energy projects

The risks that projects face and hurdles to financial close: a sample

1. Lack of experience of the developer with the technology and in developing projects

- Each new power production facility is different, and the development of a project never goes entirely according to the book. Especially in the renewable energy space, the technologies evolve very rapidly and the natural resources do not always behave as intended. The level of risk varies greatly according to the technology, with geothermal and large hydropower being among the most challenging and small-scale solar being the easiest. However, there is always risk, and it is important that the developer understands how to manage unexpected problems.

- The same applies to the management of the project and with respect to timelines. Time is money, and as a project gets delayed for whatever reason the viability of the entire business plan can be challenged.

- In many cases, inexperienced developers, which are relatively common when deploying small-scale humanitarian projects, face many problems that likely could have been anticipated and mitigated upfront, but that can drive the project to a dead end.

2. Lack of experience of the developer in a particular country or region

- The experience from Europe or the US cannot necessarily be transferred elsewhere. On average it takes at least one year longer for a project to achieve financial close in sub-Saharan African countries than in developed economies. Many developing countries have limited experience with IPPs, and the regulatory and legal framework is not mature. It can be difficult to find experienced, competent professionals to engage with in the ministries, and a lack of communication often exists.

- At times, competition persists between different governmental institutions within a country, as officials may prioritise personal relations and regional and even tribal issues. Many countries have a culture of bribery and corruption at many levels, with individuals asking to be paid for tasks that they should be doing anyway. Without the right experience and know-how, projects can stall indefinitely.

3. Not the right local partner

- Many developers opt to work with local partners, who have the right connections at the national and local levels and/or who own the land or other assets that are needed for the project. Alternatively, a local company that has some of the resources may try to attract a foreign shareholder with the technical experience and cheaper funding.

- It is important to assess the track record and professionalism of the local partner and to understand the added value that the partner will bring.

- In many cases, the interests are not aligned and the local partner may try to take control over the project even if it is a minority shareholder. The problem-solving ability of the local partner is often less impressive than thought.

4. The Project return is not attractive enough

- The financial viability of a project is important, and the financial model must contain sufficient buffers against adverse events, otherwise it will be difficult to find funding or resources to complete the project. The risk is likely higher in countries where the feed-in tariff is replaced by an auction system and the prices are driven down to very low levels.

- If financial strains cause delays or problems in completing a project, or if unplanned changes in the project design occur, contractual obligations with off-takers and governments can lapse. This can generate disputes and strained relationships with contractual partners on the government side. Many of the disputes that have occurred reveal a complicated exchange of claims and counterclaims, and in the end arbitration has been the only way to resolve them.

5. The equity investor falls off

- Most lenders will insist on roughly 30% equity. Small developers will spend most of their initial investment on feasibility studies, land acquisition, licensing, negotiating the power purchase agreement (PPA), etc. If the positive result does not come as rapidly or is not as positive as expected, it may be a problem to find additional capital.
- When small developers approach insurers for coverage at this stage, they can confirm their interest in principle, but commitments can only be made once the project set-up is finalised. Very often the availability of insurance or guarantees is seen (and used) as an argument to convince potential investors about the quality of the project, when this is not really the case. Insurers will also set numerous conditions on their coverage that are not easy to meet at the beginning of the project.

6. Conditions Precedent ("CPs") can't be met

- Many developers find it difficult to find funding at the level that they expect, and this phase can trigger significant delays. Most banks also will set "conditions precedent" that are hard to meet, and "chicken and egg" stalemates can occur where the PPA will be signed only if the financing is assured and the banks will lend only if the PPA is signed. This type of problem can delay the financial close significantly, while other contracts (for example, with suppliers, contractors, leasing companies) that may have been signed can have deadlines and cancellation options. For these reasons an insurer will prefer to move beyond an initial non-binding indication only if the complete funding is in place.

- Many financiers invest in infrastructure projects in developing countries because they expect extremely high returns. Disproportionally high interest rates, acceleration clauses and other conditions can affect the resilience of the project.

7. Business plan not robust and thought through

- A business plan typically must anticipate all the factors that can change over the time of the project and develop reasonable buffers or risk mitigants. This includes liquidity risks, currency exchange risks, performance risks, environmental and social risks, transmission risks, logistic issues, political risks, etc. Less-experienced investors may overlook or underestimate some of the risks. If these risk factors go unnoticed, problems may arise at any point during the life span of the venture. If they are discovered before financial close they can cause significant delays. One single problem can trigger many others. For that reason an experienced party will carefully review the business plan and test it according to its own criteria.

8. The off-taker is not creditworthy

- Eventually the cash flow and the profit of an IPP comes from the money it gets from its (usually unique) client. The client is usually a public utility that will enter into a PPA with the IPP. Most off-takers have a weak credit rating. Very often they are forced to sell power to the end-users at subsidised prices. Many off-takers do not have the capital to upgrade their infrastructure or to cope with illegal tapping, and/or have problems being paid by their larger end-users (often other government entities). Therefore, there is a real risk that they will not be able to pay their suppliers on time, and in some countries the delays exceed one year. This is one of the risks that an insurer or guarantor can cover, and it will be a main point of concern since it is a direct trigger of claims.
- The same applies if the offtaker is a corporate with a weak balance sheet. The Corporate PPA will run over many years and the visibility over the creditworthiness usually does not exceed 5 years, so that loans with a longer tenor will be hard to get.
- If the offtaker is a community of households the establishment of the creditworthiness and the willingness to pay of a group of families is even more difficult to establish, especially if cheaper alternatives become available. Prepaid meters resolve a part of the problem, but not everything.

9. The project is too complex, the technical layout has flaws

- Each technology comes with its own challenges, and these will affect the time that the IPP needs before it can start operating. Projects such as large hydropower and geothermal IPPs are extremely challenging, whereas small-scale solar projects are often very straightforward. The technologies and the price for solar PV change so fast that the initial design may be obsolete by the time that the developer reaches out for funding.
- Other technical risk components include planning risk, risk of cost overruns, risk of process technology, and environmental and transport risk.

10. Technical layout is not defined

- At the time that an investor or lender starts his due diligence, it is expected that all technical problems have been identified and addressed, that the permits have been issued, that the insurances are in place, that the land has been secured, that the site is accessible, that the equipment will be available, etc.
- The risk is that if some of these have not been finalized and the potential stakeholder asks for more, the developer runs out of cash to fund the remaining work and the projects gets stranded.
- Especially with technologies that evolve rapidly and for which the prices go down on a regular basis, the choices that have been made when the project started may have become obsolete by the time that the developer starts to engage potential stakeholders.

11. The grid impact assessment is not completed

- The first concern of the investor will be the availability of the transmission line to connect the IPP to the grid. If the transmission requires rights of way, expropriations, identification of the rightful owners and subsequent negotiation, the delays can be significant. When the transmission line has to be built by a different entity than the off-taker, a lack of synchronisation of the projects can occur. In all cases the budget for the construction of the transmission line can be an issue, even if it is donor funded.

- Another concern is the capacity of the infrastructure. The type of renewable energy can require the investments in the electricity network that are needed to maintain safe operations, and also affects the levelised costs of electricity.

12. The resource assessment is not thorough

- Ideally the availability of water, sun, wind or steam has been measured over several years and verified by an independent consultant, and guaranteed at 95% at least. Even then the business plan must foresee a buffer that ensures the viability of the project if the resource is below expected levels for a significant period.
- Potential investors may request resource measurements on the ground for solar PV whereas the developer only consulted solar maps. For wind they may request measurements at the height of the turbine ("wind against the blade") for several years.
- The impact of climate change must be considered as well, and not only for hydropower. Human-induced changes in the natural environment can also have an impact.

13. The engineering, procurement and construction (EPC) contractor / equipment supplier is not procured or is not good enough

- Roughly 30% to 50% of IPPs face technical and financial problems during the design and construction period, and the experience of the contractor can greatly increase or reduce the problems mentioned elsewhere in this document. This is a competitive market, and large projects have been jeopardised because of the financial problems and even bankruptcy of the contractor (or subcontractor).
- Contractors with liquidity problems may be very aggressive in their bids because they need the advance payments to continue their operations. An additional problem in many countries is the scarcity of skilled labor, and inexperienced contractors may not anticipate this sufficiently.

14. Logistics (including transport) are not well planned

- Because many renewable energy projects are located in remote areas, the implications of this for recruitment, the housing and catering of staff, the transport of materials, the availability of water and power, etc. must be well understood. In several countries the clearing of imported materials and equipment at the port of entry can be a problem.

15. Insufficient assessment of the environmental risk

- Most renewable energy IPPs intend to manage the environmental impact carefully. Unfortunately, the consultants who typically prepare the assessment and mitigation measures are not always up to standard. Especially when development financial institutions are involved in the financing, the assessment may be complicated and cause delays. Different financial institutions may have different standards, and combining and accommodating them will complicate the life of the IPP.

- Most insurers follow broadly the standards of the International Finance Corporation and will carefully review the studies that have been made without adding another layer of due diligence.

16. The social impact risk is not well managed

- Significant problems, delays and even the complete failure of good projects have occurred due to unforeseen social issues. These are not always “fair” outcomes. Political motives and the personal interests of local leaders can play a role, as do the actions of some non-governmental organisations. Again, the quality of the consultants used can make a difference.

- The impact of a big construction project on the local population and their perception of the differences in treatment between the workforce and their own living conditions can cause major problems.

- Communities that cannot imagine the impact of the project on their daily life will cause problems once the works start, even if a binding agreement had been reached before.

17. The developer underestimates E&S issues

- Some investors see the environmental and social impact assessment more as an expense and a formality. Most initial assessment reports will mention mitigation measures and recommendations for further monitoring, and the insurers will follow up on these. Negligence can result in the withdrawal of coverage and in strong responses from development financial institutions and the banks that adhere to the Equator Principles.
- For many projects it is advised to have a local mediator who manages the relationship between the project and the community and who can react swiftly before a problem escalates.

18. The PPA does not get signed

- The finalisation of the PPA is an important milestone for every IPP, and it is often a condition to unlock funding and attract investors. The negotiations can be very protracted. In some cases authorities may delay the signature because they are unsure of the utilisation of the power that is generated. For any lender or investor it will be difficult to do a full assessment of a project if the PPA is not finalised.
- It happens regularly that offtakers (public and private) have last minute thoughts about a nearly finalized PPA In view of the drops in price, the new procurement techniques, the improvements in technology.

19. The PPA has unacceptable clauses

- A number of pitfalls must be avoided to make the PPA bankable and insurable. These pitfalls include
  - the law that is applicable,
  - the definition of force majeure,
  - the “take or pay” clauses,
  - the settlement of disputes,
  - the termination agreement,
  - the mechanism for future price adjustments and
  - the management of currency exchange rates.
- An investor will look at these in detail, as he wants to avoid events where the developer is not able to generate the expected return or to repay the loan

20. The way the project was procured is not acceptable

- Single sourcing and direct negotiation will always trigger the suspicion of corruption
- Feed-in tariffs have too often been changed unilaterally and make many stakeholders uncomfortable
- Open tenders with clear allocation of the risks and comprehensive documentation are always preferred.
- The more transparent the process for deciding the tariff, the better. Especially in the case of direct negotiation the risk always exists that after a change in government the new authorities will claim that the deal was rigged and that therefore they can change or cancel the agreement unilaterally. The investors and lenders will be very careful in their assessment of the business plan and the justification of the agreed tariff.

21. The track record of the country with IPPs is not convincing

- Countries that have recently embarked on the privatisation process are at risk of working with an inconsistent or ambiguous legal and regulatory environment that can lead to future disputes and potential claims.

- In a period of rapid technological developments that drive down the cost of production, there is a high probability that future tariffs will go down. The future government, five years down the road, can then ask why it should still pay an excessive price. The track record of the country is also important in order to assess how the country will manage existing contracts with relatively high tariffs that have been committed for a long period of time.

22. There are cracks in the legal framework (and its implementation)

- An investor will assess the legal environment in which an IPP operates and the potential impact of anticipated changes on the viability of the company. Many legal issues can affect the long-term sustainability of an IPP, in addition to those already mentioned. They include the tax regime (and exemptions), the status of the off-taker (and the potential impact of privatisation or unbundling), the (changing) rights of local and regional authorities, restrictions on foreign ownership and transfer of hard currencies outside the country, land ownership and even the legality of generating power as a private company.
- The number of permits, contracts and licenses that an IPP has to obtain can be surprising. Very often the order in which the permits have to be procured is unclear and developers can be sent forth and back between different authorities and departments.
- The way the tariffs for end-users are set is extremely important, as many utilities are forced to sell the power at tariffs below cost, and this can be a direct trigger for default.
- Rules and laws are not always enforceable, in many countries the judges lack technical expertise or may have a cultural bias.

23. The tariff is not right

- If the IPP makes too much profit, it will tempt the authorities to reduce the tariffs.
- If the IPP struggles to make a profit, there is a risk that the production will be affected and that the terms of the PPA will be breached. This in turn can lead to disputes and eventually claims.
- Or The IPP can not service the debt and the bank takes the actions that are foreseen in the loan agreement.

24. There is a discrepancy between Country tariffs and the PPA

- This is a slight variation on the previous paragraph. Countries that have a very low cost of power because the initial investments have been completely written off – as can be the case with large hydropower projects – or because the domestic fossil resources (natural gas, oil) are factored in at subsidised rates, will be more reluctant to accept a higher tariff even if it is cost reflective.

- Since the cost of renewable energy is expected to go down, and very large infrastructure projects potentially will generate exports of cheap power to neighbouring countries, PPAs that are “generous” will inevitably come under scrutiny.

25. The overall country risk is too high

- Besides the power-specific considerations, the status of the country as a whole is an important factor. This includes
  - the country's political stability,
  - the amount of foreign exchange reserves and the related inconvertibility risk,
  - currency exchange fluctuations (especially if the utility is paid in local currency and has to pay the IPP in hard currency),
  - risks of terrorist attacks,
  - the sustainability of the national debt,
  - the dependency of the country on donor funding for its budget, etc.

26. Supply and demand are not balanced

- Developing countries often have problems estimating the evolution of their power demand, as many factors influence this demand. In periods of undersupply, countries will attract investments with favourable PPAs ("take or pay" clauses, etc.). If the investments come in and the demand does not reach the expected levels, the off-taker (and indirectly the government) may face a situation where it has to pay for energy that is not sold. The resulting cash problem will generate financial and political pressure to reduce the "waste of money", and this can result in early termination, unilateral changes in the PPA and delayed payments.
- In the case of minigrids that are not connected to the grid and that serve a specific community, the consumption below the expectations will result in a shortage of income so that the maintenance and customer services are no longer affordable. The installation then collapses within 2 years after its launch. Many minigrids are funded by donations that were exhausted with the installation of the infrastructure, and there is no buffer to address operational difficulties.

27. The Ministry of Finance does not formally support the project

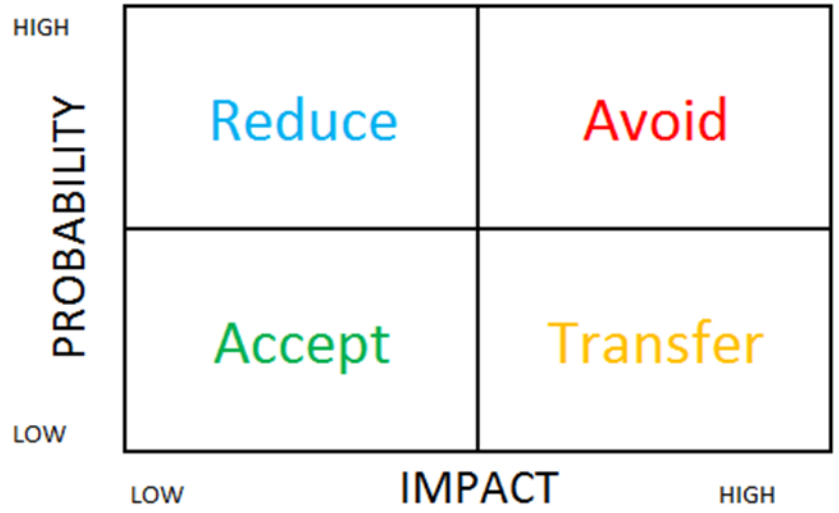
- Many insurers will expect that the IPP gets a guarantee from the Ministry of Finance. This was the standard in most African countries. In recent years governments have become more reluctant to provide such guarantees, as they add to the national debt that is closely monitored by the International Monetary Fund. A strong letter of comfort can be an acceptable alternative, depending on the country and the wording used.

- Independently from the comfort that the IPP will get, a multilateral institution will also engage the Ministry of Finance, which is its contractual counterpart. The minimum requirements will vary from case to case but can include:
  - A direct reference to the role of the multilateral in the PPA
  - A separate letter of comfort given to the multilateral
  - A letter of "no objection" with a specific reference to the obligations of the government towards the multilateral
  - Etc.
- The weaker the project scores on the factors described above, the stronger the commitment must be.

Conclusion: the many faces of risk

- Each and every renewable energy project in a developing country will face some of the risks that were highlighted
  - Technology risk
  - Performance risk
  - Resource risk
  - Foreign exchange risk
  - Credit risk
  - Political risk
  - Regulatory risk
  - Environmental risk
  - Social risk
  - Risk of natural disasters (hurricanes, flooding, earthquakes etc.)

- Each risk has to be assessed and the developer has to make a decision:
  - Eliminate the risk
  - Mitigate the risk
  - Accept the risk
  - Transfer the risk to another party



The risks that projects face: focus on credit, political and regulatory risks

Credit risk

The risk that the offtaker (national utility, corporate offtaker, household or SME) is unable or unwilling to pay.

- National utility: Many offtakers in developing countries are structurally nor creditworthy
  - ✓ Not well managed
  - ✓ Loss of income through transmission losses, theft and inability to collect receivables (mainly government and other public buyers)
  - ✓ End-user tariffs too low for political reasons
  - ✓ End-use tariffs so high so that large corporates switch to self-generation

  Late payments by the offtaker can create problems to service the debt if the DSRA is not sufficient, and affect the capacity to operate and maintain the installation.
- Corporate offtaker:
  - ✓ Insolvency: the company goes bankrupt and there is no revenue left
  - ✓ Protracted Default: the company does not give a priority to payment to his (captive) supplier
- Multiple small offtakers: lack of prepaid meters, social unrest, economic downturn affecting the community, poor service provided by the minigrid, natural catastrphy impacting the installation or the community… make that the revenues fall.

Political risks

The term “political risk” covers a number of different scenarios

1. Confiscation, Expropriation, Nationalisation (“CEN”)
   Can also be “creeping”, like withdrawal of an essential license to operate
2. Currency Inconvertibility
   Incapacity to convert local currency in the hard currency, either because the government blocks the conversion, or because the banks don’t have the hard currency.
3. Currency transfer restrictions
   Even if the hard currency is in the bank account, the government can object to the transfer outside the country
4. Non honouring of sovereign obligations (including sovereign guarantees)
   The Government is unable or unwilling to respect its contractual obligations. This can be a payment, but also the non-respect of a termination clause (non respect of a put option…)

Political risks (Continued)

5. Non honouring of subsovereign obligations
   Besides the public offtaker there can be many other state owned entities (ex. transmission line operator…) that fail to meet their commitments.
6. Unfair calling of bonds
   Especially during the construction phase the developer may have to provide performance bonds. These are unconditional and callable at first demand, so that the guarantor has no other choice dan to pay.
7. Arbitration Award Default
   This is in fact the outcome of a non-honouring of obligation by a public entity, where the private party (IPP) triggers the termination clause that foresees an arbitration; the arbitration is awarded to the IPP; and the Government refuses to honour its obligations descried in the award.

Regulatory risks

- Regulatory risk is the risk of a change in regulations and law that might affect an industry or a business.

- A PPA usually covers 20 to 25 years and will cross 4 to 5 elections. There will be major shifts in demand and supply, in technology and the financial standing of the country. The laws and regulations of the country will change and it is likely that some of these will impact the project, whether this is intended or not.

- Regulatory risks include the regulation of the power sector, taxes, forex exchange rates, licensing, privatization and nationalisation, employment regulations, environmental regulations. Some of them can be anticipated and the various contractual agreements with the Government can protect the project from the adverse effect of some changes, but never from all of them.

- The next slides will present some of the main drivers of regulatory changes.

Overcapacity

- Causes
  - Unrealistic demand projections
  - Long term contracts for emergency power
  - Tariffs policy
  - Grid
  - Power export
  - Vested interests
  - Power Pools
- Consequences
  - Pressure to decrease the tariffs in order to increase consumption
  - Delaying approvals and signatures for additional capacity
  - Changing permits under negotiation
  - Less favorable contracts (PPA, guarantees…)
  - Payment delays

From Take or Pay to Take and Pay

- Causes
  - Pressure from international lenders and the MoF
  - Treasury of the offtakers
  - Overcapacity
  - Copying the neighbors

- Consequences
  - Pressure to accept changes in the PPA
  - Changes in the standard wording of PPA
  - Litigation?
  - Increase of the risk premium

Lack of national sector development planning

- Causes
  - Lack of coordination between unbundled SOEs
  - Political agendas
  - Governments have challenges to retain their most experienced staff

- Consequences
  - Projects get stuck halfway their development
  - Increase of the risk premium

Other trends

- Increase in taxes as the national debt increases
- Sovereign Guarantees disappear
- From FiT to Auctions to Corporate PPAs
- Continued subsidization of the consumer tariffs prevents the utilities from investing in their infrastructure

Risk mitigation of renewable energy projects

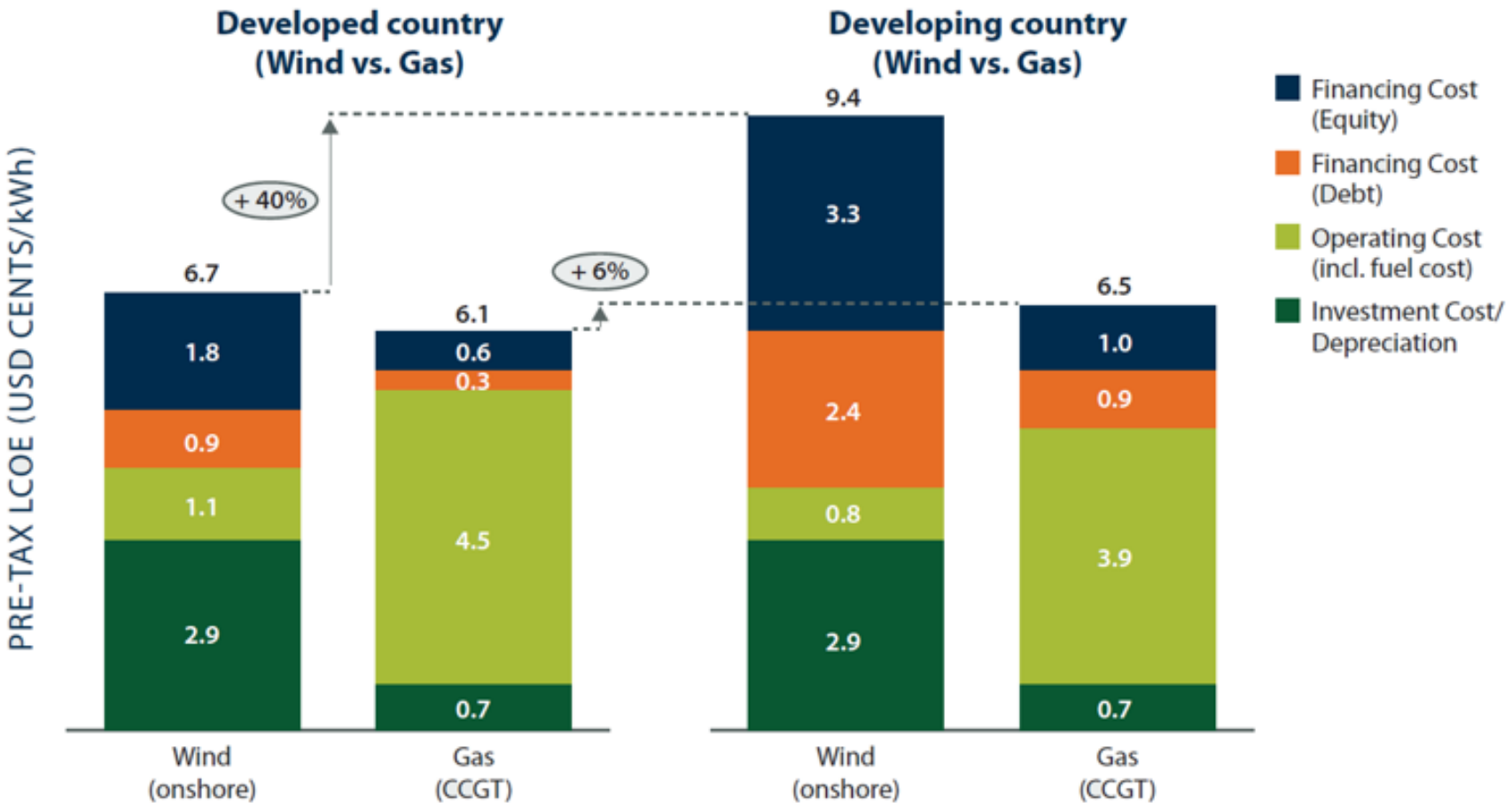
The renewable energy sector requires unique solutions

- The risks are more difficult to understand
- Usually there are several providers of risk mitigation involved in one single transaction
- The amounts are important
- The commitments cover periods up to 20 years
- There is a complex political, regulatory, legal and regional context
- The technology changes fast
- There are many actors involved

De-risking is critical for renewable energy projects

- If the risk is very high, nobody will want to invest or lend
- If the risk is high, investors and lenders will ask for a “risk premium” on top of their normal cost of funds. The premium will compensate them for the probability that their money will be lost at some point in time.
- The cost structure of a renewable energy project is fundamentally different from a fossil fuel generation: the upfront CAPEX is high, operational costs are very low.
- As a consequence, even small changes in interest rate and the dividends have a much bigger impact on the financial costs, seen over the entire life span of the project. A project that carries a high risk premium may not be competitive compared to a traditional generation source. The cost of capital represent 40 to 60% of the total project costs in emerging markets.
- Equity investors ask 15 to 20% return on investment, commercial lenders ask minimum 13% interest rate due to the development time, the development costs and the high risk perception.

Impact of High Financing Costs on Renewable Energy



Source: UNDP, Derisking Renewable Energy Investment (2013)

There are many Risk Mitigation Instruments for RE but they are

- Hard to understand
- Hard to compare
- Hard to combine and customise
- Not always available
- Slow to access
- Not always cheap
- Not always satisfactory

De-Risking Renewable Energy Projects – Mitigation Levels

Reducing the risk of investment in renewable energy projects can happen at different levels

Institutional Level

Legal and Regulatory Framework

Contractual Level – Allocation of Structural Risk

Open Solar Contracts, Scaling Solar, GET FiT, ONE OFF

Transaction Level – Managing Residual Risk

Insurance and Guarantee Products

In a perfect world, there is no need for insurance or guarantees.

Risk mitigation instruments can be used at transaction and at aggregation levels.

Stand-alone project	Shareholders Lenders Derivative products (swaps, etc.) SPV as a whole
Aggregation	Asset-backed securities (receivables) Corporate bonds, Government bonds Government guarantees (RenovAr program) Bank (portfolio of loans)

Our role

As the global voice for renewable energy, IRENA:

- Understands the renewable energy sector
- Is mandated to develop solutions
- Has the resources to invest in a solution
- Has a global mandate
- Is connected to the private sector and to governments
- Has no conflict of interest

As part of its mandate, IRENA seeks to facilitate investments in the RE sector by:

- Improving the transparency of the risk mitigation universe
- Contributing to the improvement of the offer
- Sharing best practices and success stories

Thank You

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Back-up slides

- b

Risk mitigation instruments available depend on the level of risk

no insurance needed	private insurance	blended risk mitigation	risk mitigation instruments with recourse to the Government	no risk mitigation available
	- Commercial insurers - Export Credit Agencies	- Coinsurance - Reinsurance	- Multilateral banks - DFIs - Multilateral insurers - Export Credit Agencies	

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Assessing policy & regulatory environment at project development stage - stakeholders

- Who are the public stakeholders, how do they relate and are the processes aligned?
- What is the relationship between local, regional and central authorities?
- What is the capacity of the local institutions?
- Are there Political Exposed People involved in the project?
- Which DFIs and multilateral institutions are active in the country?

Risk mitigation

- Avoid multiple iterations in the negotiation of the permits and contractual documents
- Ensure a fair allocation of the risks between the parties
- Have a thorough Environmental and Social Impact Assessment and ensure the implementation of the mitigation initiatives
- Get comfort from the Government for key risks
- Map the options that you have to transfer residual risks

Risk Assessment and Mitigation Platform (RAMP)

The scope - Risks that may require mitigation

Offtake Risk

- Public buyers
- Commercial buyers

Political Risk

- Currency inconvertibility and transfer restrictions
- Expropriation, confiscation, nationalization
- War and civil war
- Political violence, terrorism and sabotage

Currency Risk

Resource Risk

Force Majeure

Risk Assessment and Mitigation Platform (RAMP)

The risk mitigation universe is complex and largely uncoordinated. Through RAMP, providers of risk mitigation share information about their company, products and processes.

- ❑Insurers
  - Export Credit Agencies (ECA)
  - Multilateral insurers
  - Private insurers
  - Lloyds of London
  - Reinsurers
- ❑Guarantors
  - Development Finance Institutions, Multilateral/Bilateral Development Banks
  - Specialised guarantee funds
- ❑Currency risk mitigation (hedging) providers
- ❑Brokers and other intermediaries
- ❑Donors

What is IRENA doing?

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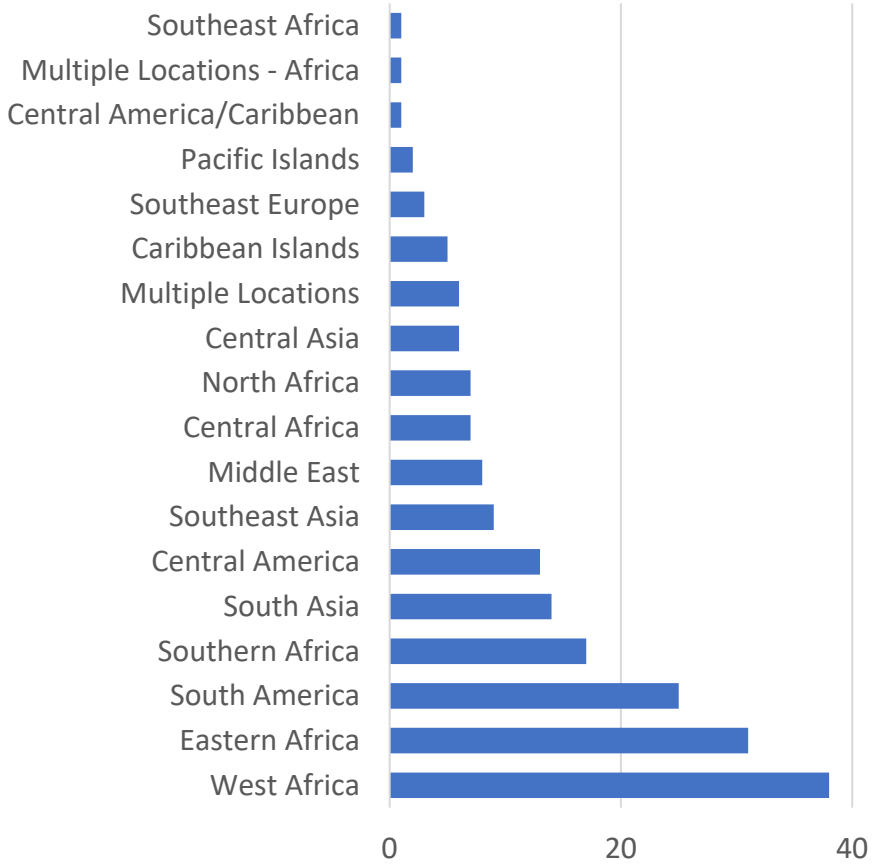
1. Open Solar Contracts
2. RAMP
3. Climate Investment Platform
4. RRA

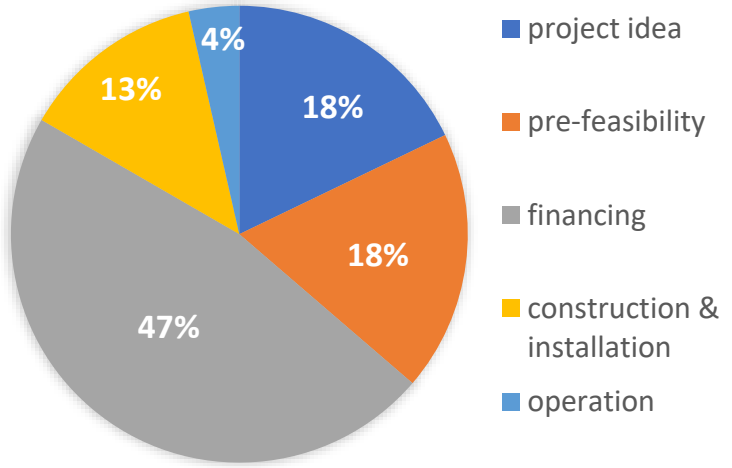
CIP – Impact in Emerging Economies

218 Registered Projects

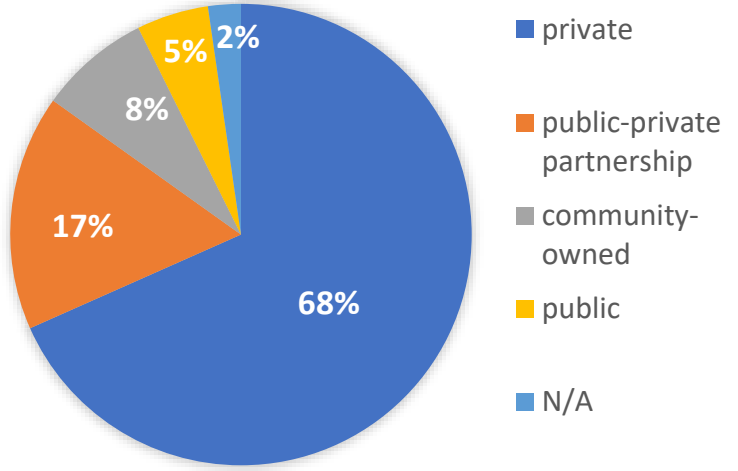
Geographical distribution



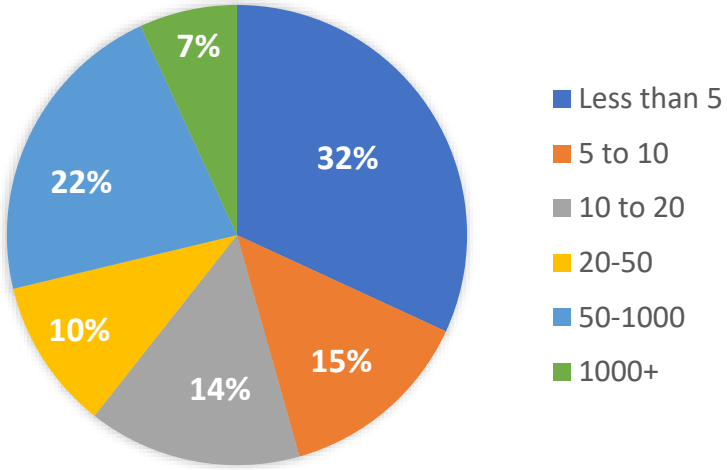
Project' Life Cycle Status



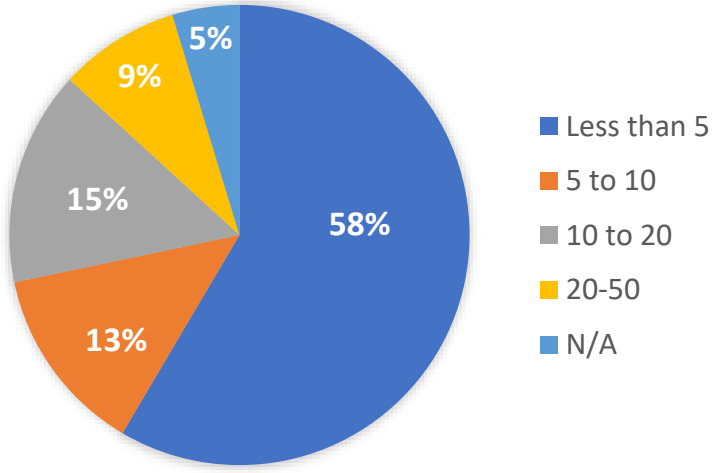
Project Ownership



Estimated Total Investment (USD mio)



Estimated Total Capacity (MW)

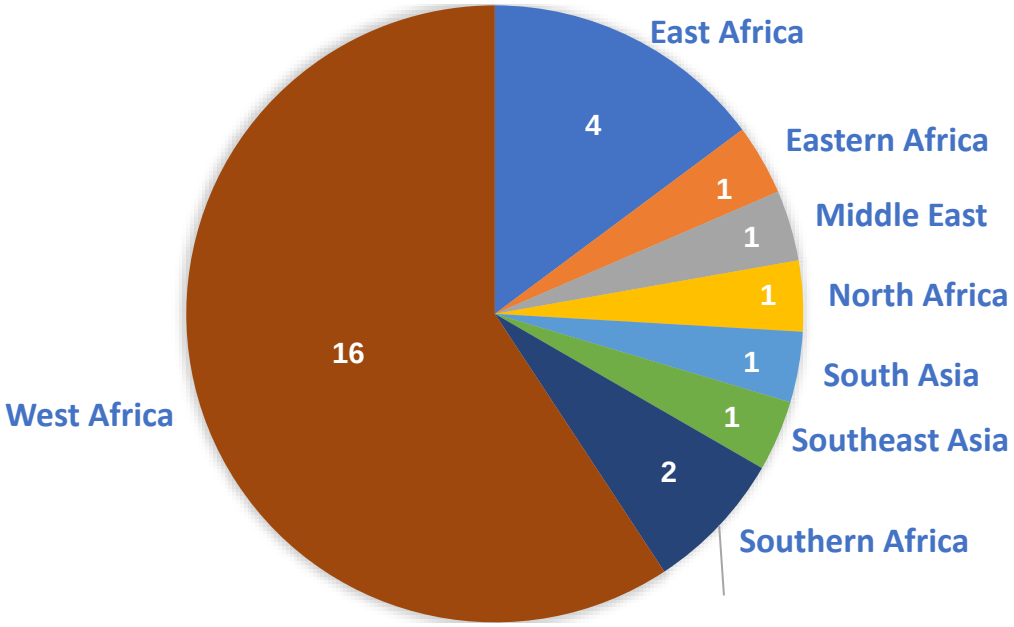


* The project data is extracted from analysis of CIP project application documents

CIP – RE Impact Investing

# Projects Submitted	# Projects Eligible for Technical Assistance*	# Projects Supported by PFS*	# Projects for Financing Matchmaking
218	50	32	15

Geographic Coverage of Projects Supported (total: 32)



Projected Total Installed Capacity

464 MW

Projected Total Capital Mobilization

1.1 USD billion

Projected Total GHG Emission Reduced

5 tCO2e million

* Support via Voluntary Contributions of IRENA Member Countries