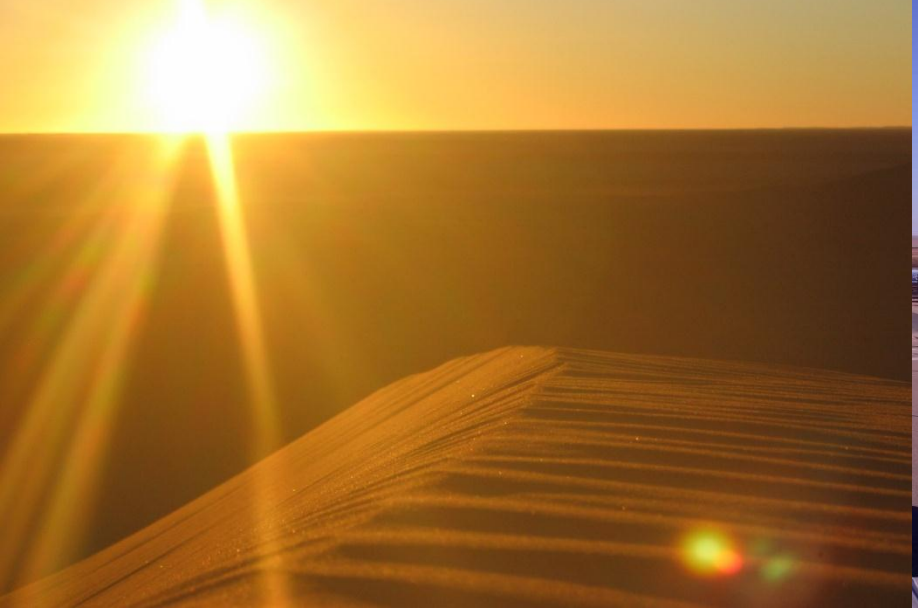


Ouarzazate I CSP Project

Silvia Pariente-David, World Bank

ESMAP/IFC Renewable Energy Training Program: Financing Renewable Energy Projects Module – PPP case study
Washington DC, October 11, 2012

Project Description: Technology

- 160 MW gross, 145 MW net
- Parabolic trough as result of technology-neutral prequalification process
- 3 hour storage as result of optimisation exercise by Masen and their technical adviser
- No transmission issue (66 kV line on site, 225 kV line and substation a few kilometers away)

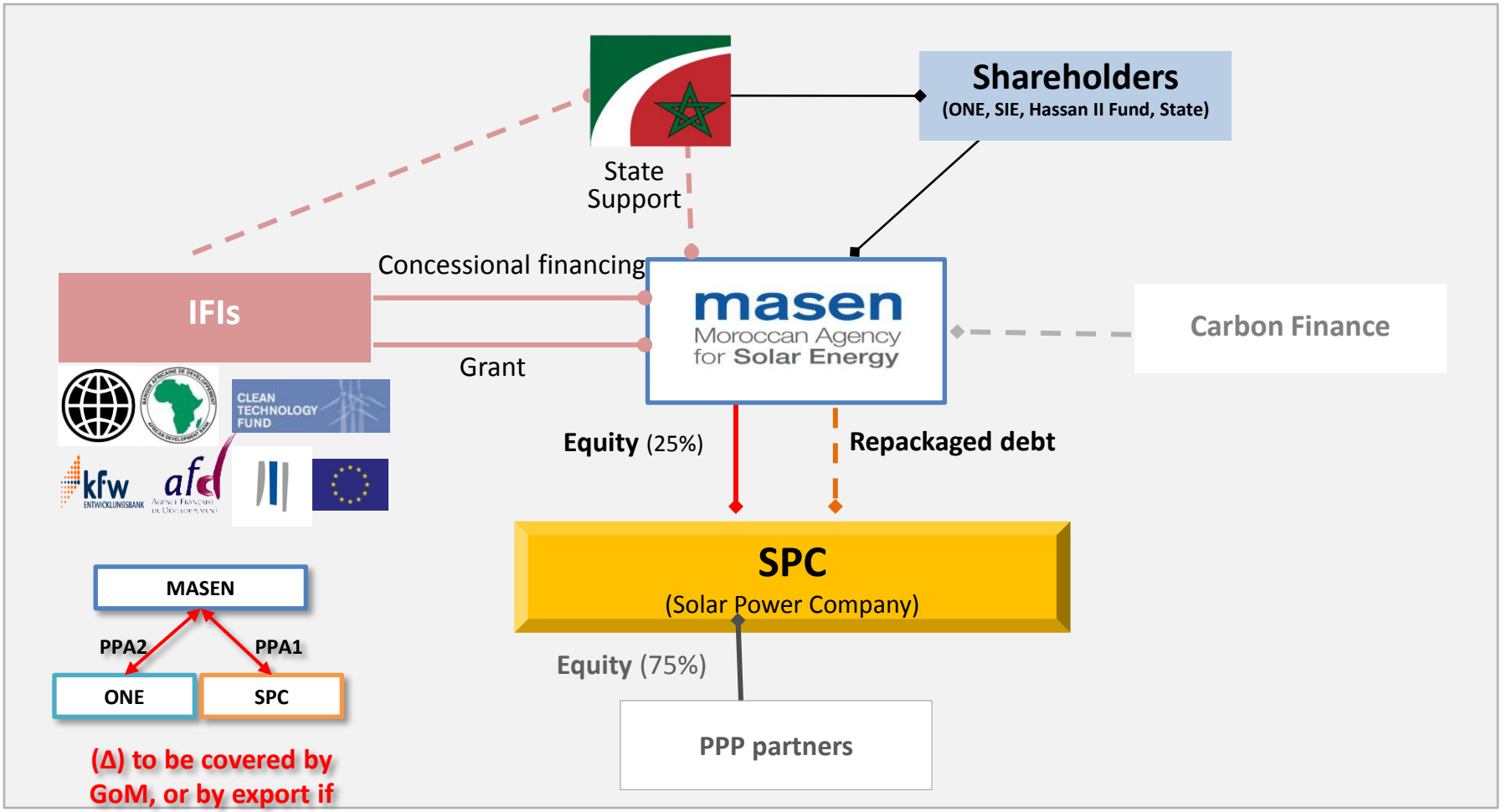
Project Description: Institutional

- ACWA consortium selected through international bidding process.
- Ad hoc Solar Power Company (SPC) to be created, 75% ACWA consortium/25% MASEN
- Financing
  - Structure: 80% debt/20% equity
  - 100% of debt to be provided by MASEN, through on-lending of funds from IFIs
  - Participating IFIs (loans): IBRD, AfDB, EIB, AFD, KfW + CTF through IBRD and AfDB
  - Grants: NIF (EC) $37 million and Germany $30 million
- Offtake
  - PPA1 between MASEN and SPC @ power plant's LCOE
  - PPA2 between MASEN and ONE @ ONE's high voltage tariff
  - Gap between PPA1 and PPA2 to be covered by GoM

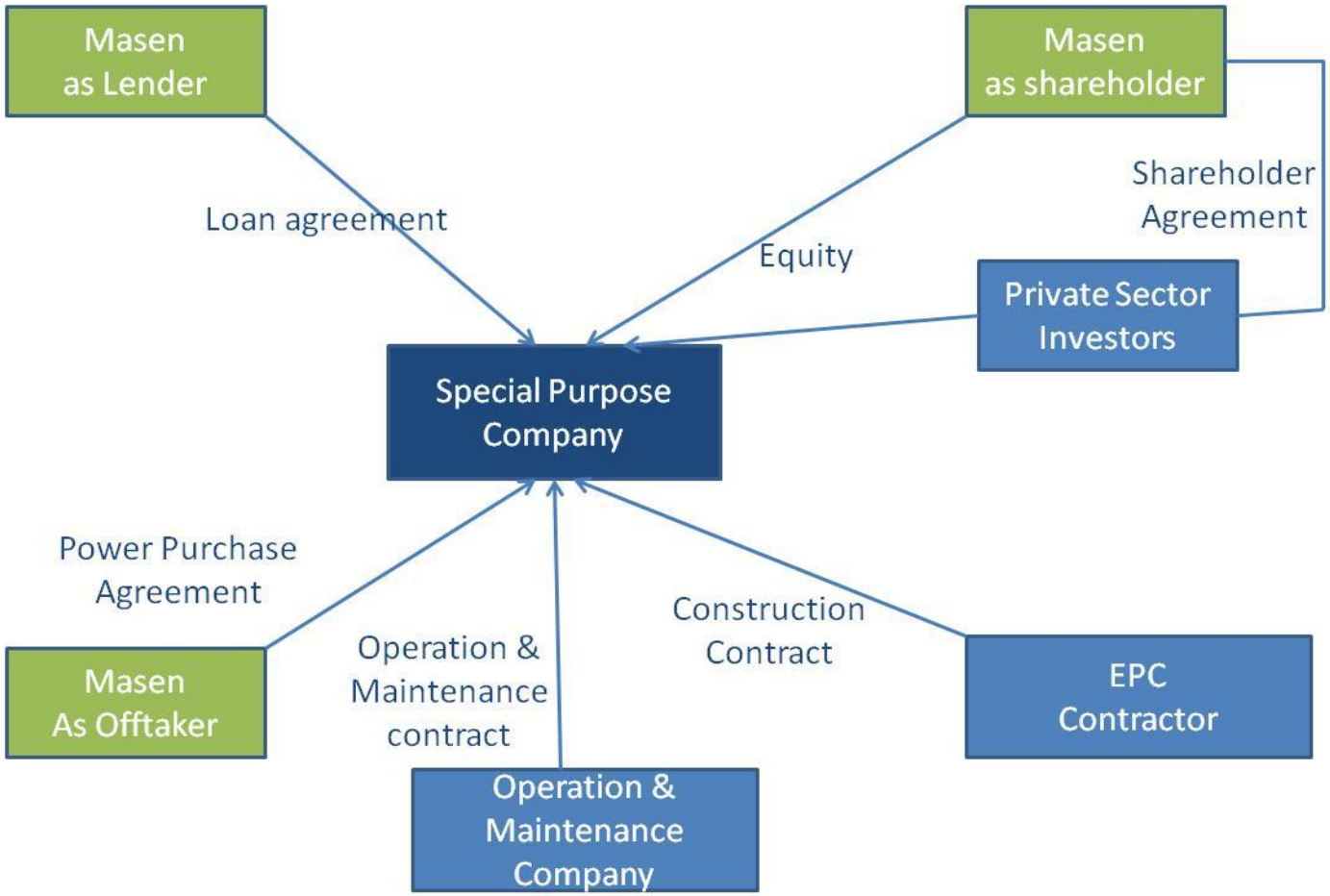
Project Description: World Bank Assistance

- Component 1 (US$ 97m, CTF): support construction of 160 MW CSP power plant
- Component 2 (US$ 200m, IBRD): provide liquidity support to MASEN to finance the difference between PPA1 and PPA2
  - Intended to ease burden on GoM's budget during first years of Moroccan Solar Plan
  - Will also provide risk mitigation to private sponsor, as secondary outcome
- IFC may finance debt or equity for the selected PPP partner

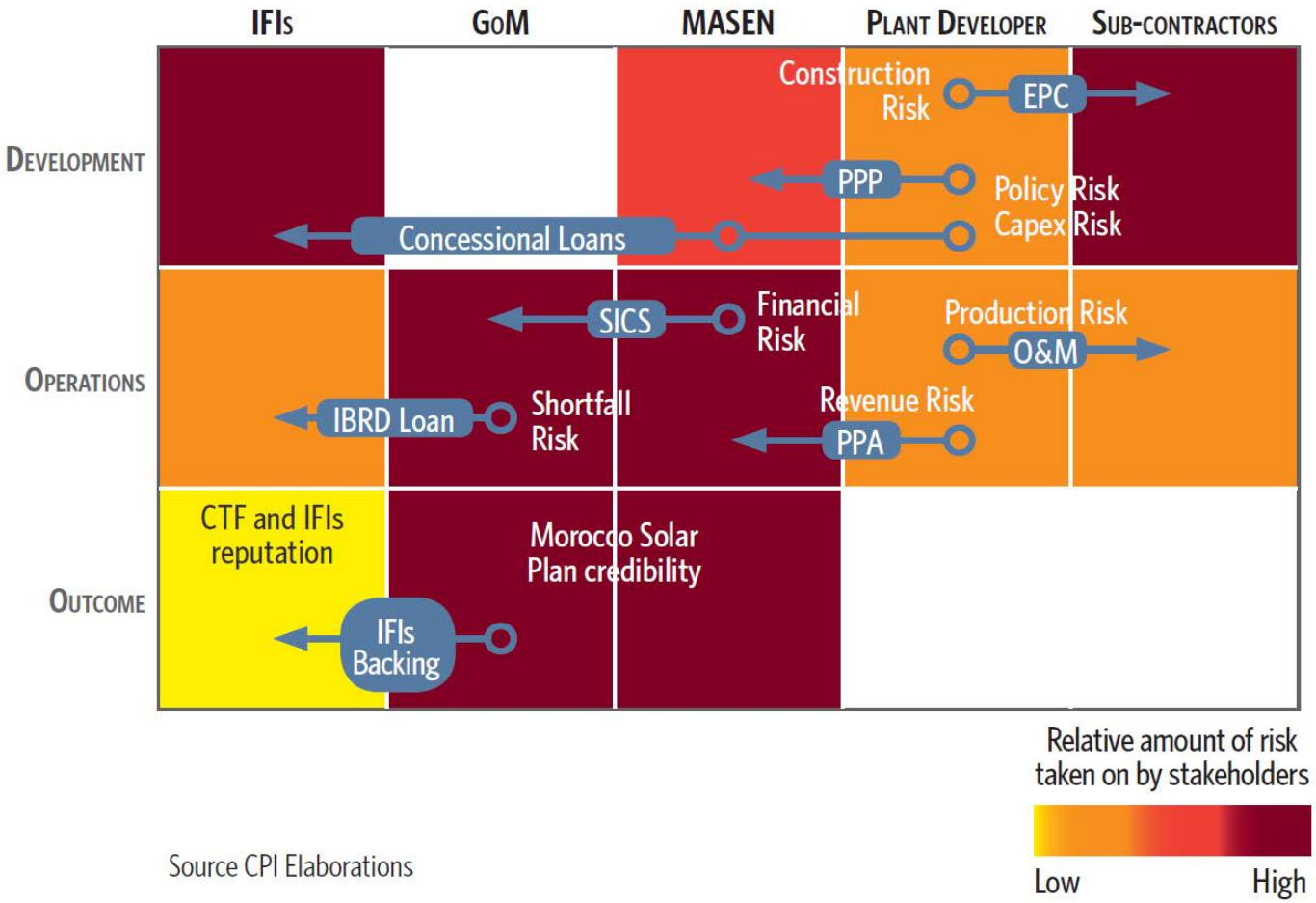
PPP Financing structure
for lowest cost and optimal risk allocation



Contractual arrangements



The PPP model aligns risk between public and private



Source CPI Elaborations

Key risks and mitigation measures

Risks	Mitigation measures
Implementation Weak implementation capacity of MASEN	- Regular support to MASEN by Bank staff - High caliber advisors hired by MASEN - Thorough list of effectiveness conditions
Bid Failure (Selection of financially or technically weak private partners to establish the PPP, or lack of bidders)	- High caliber advisor to MASEN during selection process
Technology	- Two-stage bidding process - Requirement to have project demonstrated implementation experience - Bonding requirements, liquidated damages, EPC Contract
Impact on Budget / Government support Excessive impact on national budget due to gap covered by government →Cessation of government support while exports not yet developped	- 2nd component of the operation offers flexibility to GoM to alleviate undue burden - WB assists GoM in export agreement with EU
IFI Coordination Insufficient and inadequate coordination among IFIs	- Regular coordination meetings with donors - Donors align with WB procedures
Schedule Tight schedule proposed by MASEN	- Right balance between speed and technical/procurement/environmental/social/fiduciary safeguards

Is Ouarzazate I scalable and replicable?

- **Key success factors**

  1. Location: vast resource close to markets with appetite for zero carbon energy
  2. Strong public support and close alignment of public partners and donors
  3. A dedicated agency, with backing from the government of Morocco, able to mobilise grants and concessional funds and able to manage a competitive tendering process to attract the right expertise and efficiently allocate risk
  4. Significant financial and technical contributions from IFIs
  5. Two-stage bidding process for design flexibility

- **Challenges for scaling-up**

  1. Transition to a CSP portfolio, from public support to commercial viability
  2. Reduced technology/project costs through economies of scale and replication
  3. Higher market revenues, such as from exports to EU
  4. More concessional funds in short –term, until exports and cost reductions materialise– **GREEN CLIMATE FUND** needed soon

Moving from predominantly public projects for local consumption to private for exports– Ouarzazate kickstarting

Accelerating factors:
Kick start Concessional funding
Opening of EU market
Fossil Fuel Subsidies Phasing-out

By 2050: ??

By 2030: between 3 and 5 GW

Ownership: MENA, Europe and global companies with long-term contracts, once the regulatory environment and market for green power matures in Europe

Financing: Similar to financing for other RE projects, with commercial financing playing a key role, export credit financing can be exploited

Risk sharing: More risks shifted towards the private sector as the green energy market in Europe matures and there is clarity on power export's framework

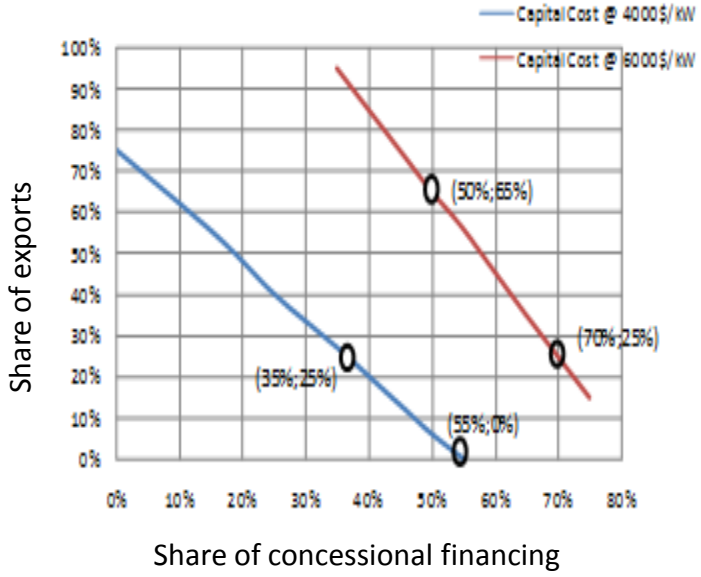
By 2020: up to 1 GW

Ownership: public or long-term contract-based PPPs

Financing: key role for concessional funding until 2015

Risk sharing: development risks and market risk; MENA Governments, part of the financing risk

Ouarzazate Phase I




SITE DU PROJET
N
W
E
S
Ouarzazate Lake City
N10
Ouarzazate
(Échelle : 1/70000)

Thank you!