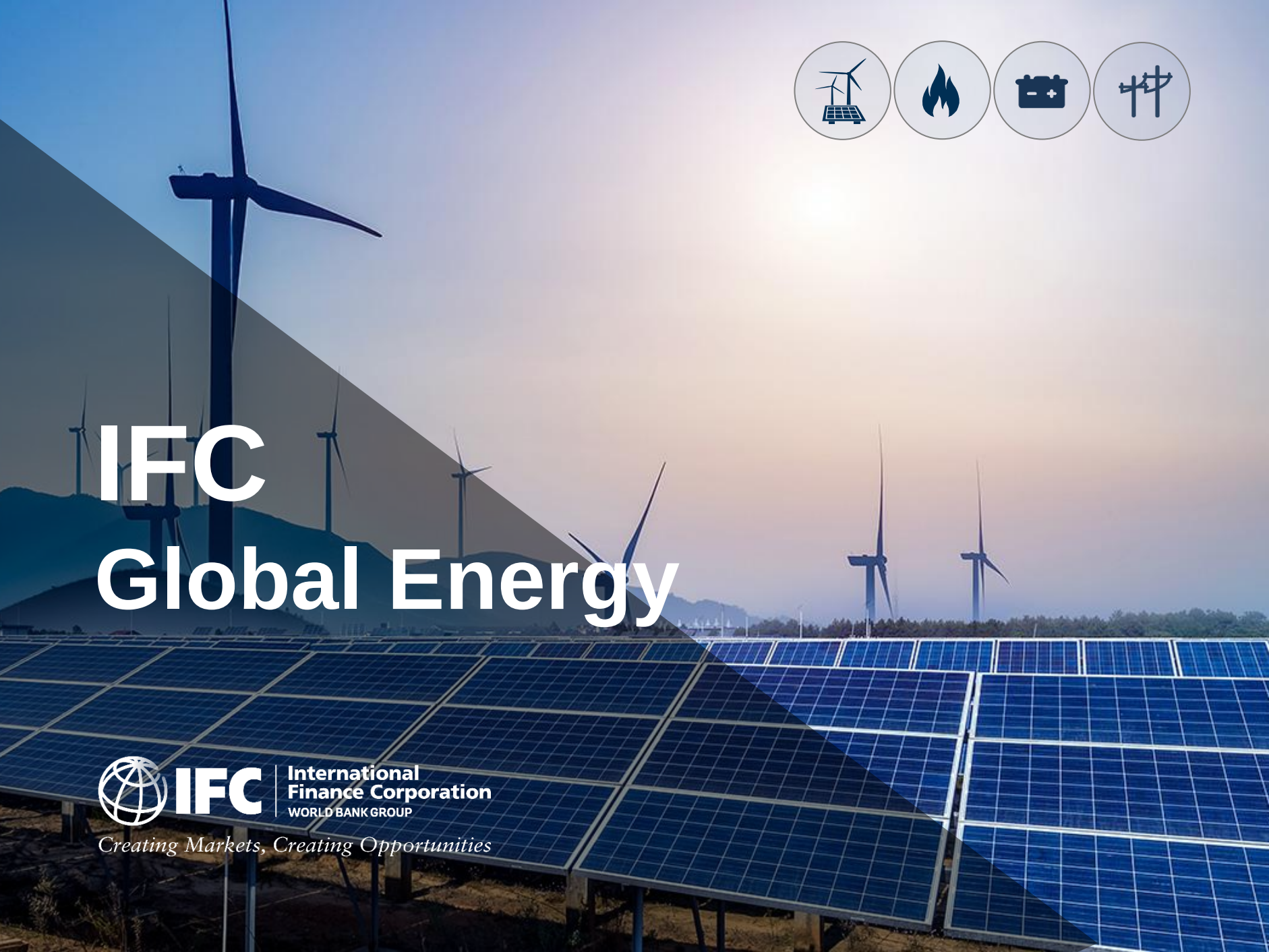


IFC
Global Energy

IFC
International Finance Corporation
WORLD BANK GROUP

Creating Markets, Creating Opportunities

IFC: A Member of the World Bank Group

SIX DECADES OF CREATING OPPORTUNITIES IN EMERGING MARKETS

WORLD BANK GROUP

THE WORLD BANK IBRD • IDA | IFC International Finance Corporation | MIGA Multilateral Investment Guarantee Agency

IFC catalyzes the full range of the World Bank Group's capabilities to advance private sector financing solutions.

Largest DFI focused on private sector AAA Rating

- **Local presence** in 94 countries
- **Know-how:** Financial products and industry expertise creating markets and catalyze private sector development..
- **Neutral Broker:** Coordinated approach across WBG to create enabling investment conditions.

More than US$285 billion invested since founding

- **Investment Track Record:** US$57 billion in patient equity and long-term debt, covering over 2,000 projects.
- **Managed Co-lending Portfolio Program:** Over 60 co-financiers to further diversify clients' traditional funding sources and currency options.

Pioneer in sustainable investment and climate change abatement

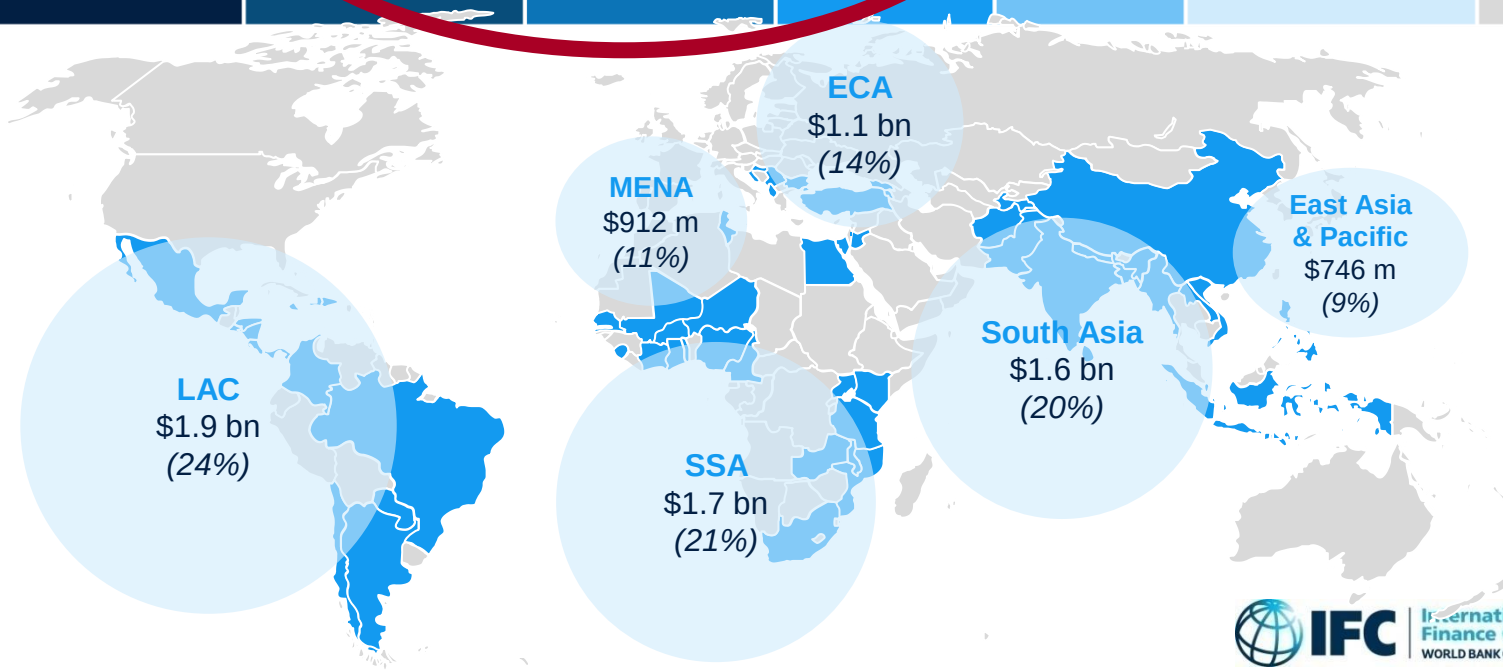
- **Sustainable Infrastructure Advisory:** Design and implement local benefit-sharing initiatives for community development and client risk mitigation.
- **Performance Standards:** ESG guidelines widely adopted as the market gold standard and blueprint for Equator Principles.

IFC International Finance Corporation WORLD BANK GROUP

Snapshot of IFC's Energy Business

$8 billion committed energy portfolio as of June 30, 2020--52% renewables

Gas-to-power	Hydro	Solar	Wind	Upstream O&G	Other power excl. RE	T&D
$1.6 bn *(20%)*	$1.3 bn *(17%)*	$1.2 bn *(15%)*	$1.0 bn *(13%)*	$896 m *(11%)*	$730 m *(9%)*	$307 m *(4%)*
					Other RE $630 m *(8%)*	**Midstream O&G** $268 m *(3%)*



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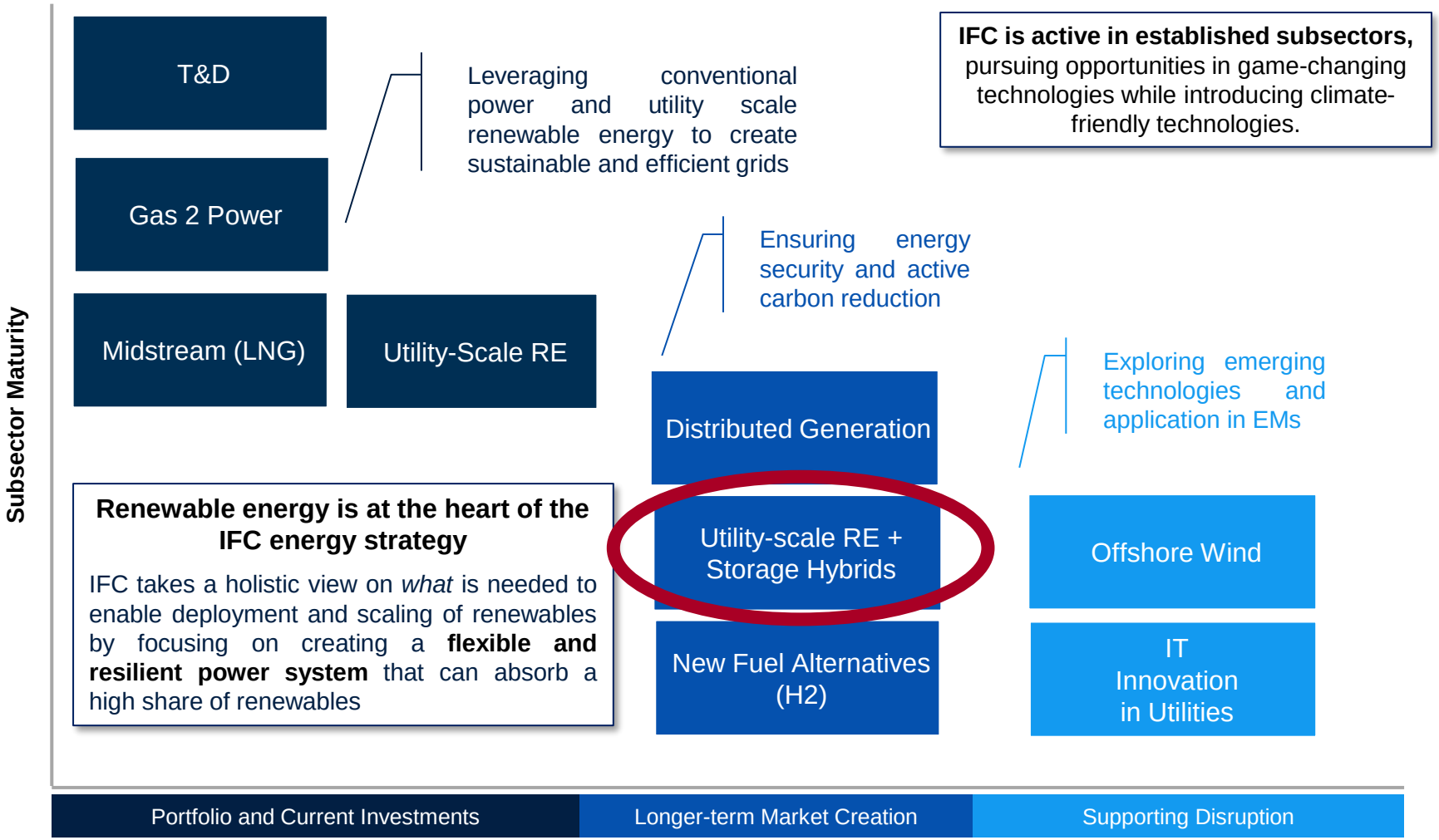
Our Energy Business

IFC's Energy Strategy is based on country-level approaches that focus on supporting client countries' energy needs, energy security, and climate transition through universal access to affordable, reliable, and clean energy.



IFC is active in established subsectors, pursuing opportunities in game-changing technologies while introducing climate-friendly technologies.

Renewable energy is at the heart of the IFC energy strategy

IFC takes a holistic view on *what* is needed to enable deployment and scaling of renewables by focusing on creating a **flexible and resilient power system** that can absorb a high share of renewables

IFC International Finance Corporation WORLD BANK GROUP

IFC: What We Offer

Through our financial products and advisory services, we seek to enhance private sector involvement in emerging countries

1 Financial Solutions for the Private Sector	• IFC invests in the form of **debt** (Sub-loans, corporate facilities, project finance…) and **equity** in private investments in emerging economies that promote growth and development • In addition, IFC **mobilizes co-investors** (DFI's and commercial financial institutions) through A/B loan structures
2 Financial Solutions for Innovation & Sustainability	• As the only DFI with an **in-house Sustainable Infrastructure Advisory team**, IFC has proved to be a pioneer in helping clients mitigate ESG risks • Moreover, IFC is the global leader in **Green Bonds and Green Loans** and offers **SDG-linked instruments** to its clients
3 Sustainability Advisory	• IFC **designs benefit sharing initiatives** that help clients engage in their local communities, increasing their impact and transparency
4 Client Focus	• By building **long-term partnerships with strategic multinational players**, IFC seeks to redefine the energy business, increasing their commitment to sustainability • In addition, IFC **supports local companies** investing in their "home" countries, enabling innovation across the energy value chain

How IFC Implements Solutions for Energy Investments

	CREATING MARKETS	PROJECT DEVELOPMENT	ADVISORY
OBJECTIVES	Improve enabling environments Lay foundation for future transactions Pre-investment work	Country risk mitigation Investment in early stage ventures Innovative Solutions	Enhance stakeholder value Mitigating E&S risks Local benefit-sharing
SOLUTIONS	**Upstream** Technical Support, Capacity-Building Early Stage Ventures Global Delivery Platforms	**Mainstream** Country Risk Mitigation From Long Term Debt to Equity Sustainability/Green Products E&S Risk Mitigation	**Sustainable Infra Advisory** Strategic Community Investments Revenue Management Stakeholder Engagement Sustainability Toolkits

UNLOCKING STAKEHOLDER VALUE

UPSTREAM IN ACTION

Scaling Solar

This “one stop shop” program aims to make privately-funded grid-connected solar projects operational within two years and at competitive tariffs. Scaling Solar brings together a suite of World Bank Group services and customizable tools under one platform. Four projects have been completed in Zambia and Senegal (150 MW total) and active transactions are being pursued in other promising markets.

Africa / Mozambique Experience

Cote D'Ivoire

CIPREL 5 IPP
390MW CCGT

US$91mn loan
US$213mn mob.

IFC
2020

Egypt

Lekela Wind 1
252MW

US$30 mn loan
US$53 mn mob.

IFC
2019

Zambia

Scaling Solar I & II
88MW Solar PV

US$28 mn loan
US$50 mn mob.

IFC
2018

Cameroon

Nachtigal
420 MW run-of-river
EUR60 mn equity
EUR110 mn loan
EUR806 mn mob

IFC
2018

Egypt

Egypt FIT
752 MW Solar PV

US$203 mn loan
US$596 mn mob.

IFC
2018

Kenya

Kipeto
100MW

US$233 mn mob.

IFC
2018

Mozambique

CTRG
175MW Gas Fired

US$60mn loan
US$140mn mob.

IFC
2017

Uganda

Umeme

US$20 mn loan
US$ 7 mn mob.

IFC
2016

Nigeria

Azura Edo IPP
450MW OCGT

US$80mn loan
US$215mn mob.

IFC
2015

South Africa

Abengoa Xina
100MW CSP

US$43 mn loan

IFC
2014

Kenya

Kenya Power
KPLC

US$50 mn loan

IFC
2013

Mozambique

Central Termica de Temane (CTT)
450 MW CCGT

$100,000,000 Loan
$317,500,000 Mobilization

MLA
2021

Mozambique

Mocuba Solar
40.5 MWp Solar PV

$19,000,000 Loan
$36,000,000 Mobilization

MLA
2018

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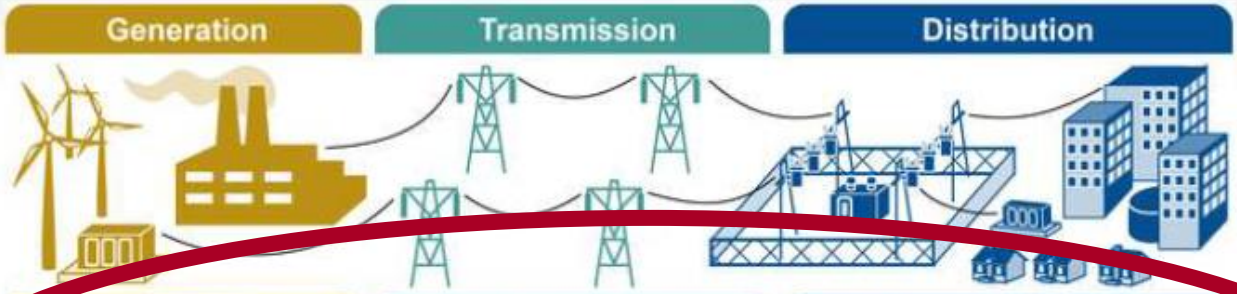
Situation Today: Applications exist for storage throughout the industry, including addressing variability of renewables and transmission & distribution



Storage applications
- Address supply disruptions
- Address variability of renewable resources
- Provide peaking capacity

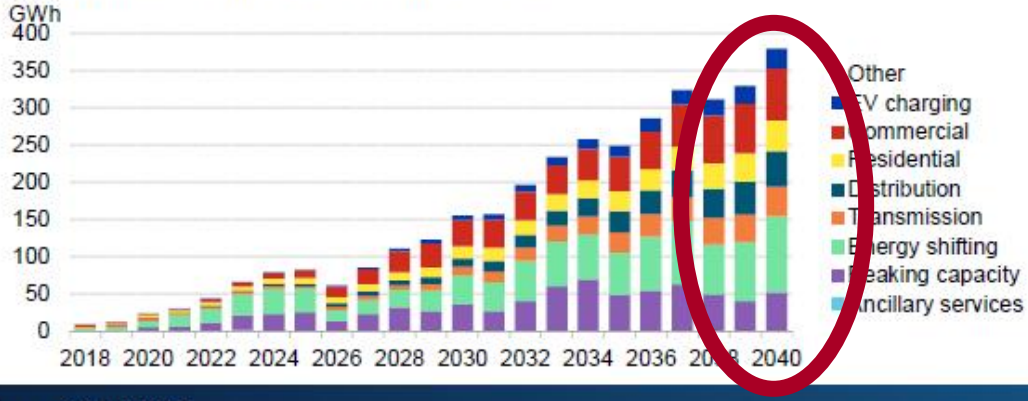
Storage applications
- Defer transmission upgrades
- Relieve transmission congestion
- Provide grid (ancillary) services

Storage applications
- Defer distribution upgrades
- Provide backup power during outages
- Support microgrids
- Reduce demand charges

Many of these issues tend to be more pronounced in emerging markets

T&D accounts for 8% of annual storage new build by power output; expected to reach 23% in 2040

Battery storage: annual new build forecast, 2018-2040



What is driving growth?

- Necessity to smooth variable output of renewables and control the rapid ramping up and down of solar and wind generation
- Need for the grid to have new sources of inertia to maintain stability and resilience
- Need for new infrastructure to modernize and expand the grid

Sources: US GAO, BNEF
More detail on use cases in Annex 1

While cheap renewable energy has profoundly changed the power sector, energy storage will enable the utility of the future

Evolution of the Utilities Sector

The power sector as we know it, i.e. "business as usual"

Utilities used to base their business models on large, scarce, expensive supply with vertically integrated models and centralized distribution to meet peak demand

Growing renewable generation

Now smaller, abundant, and flexible generation is quickly becoming widespread, with technologies that allow real time adjustments of supply and demand

Emergence of the utility of the future

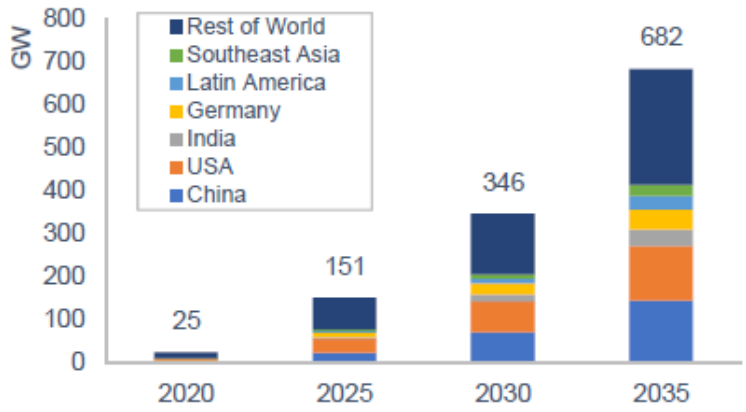
Demand for flexible, balanced and reliable supply

Energy Storage

Storage technologies will be key to delivering flexibility, balancing, and reliability by providing capacity and ancillary services at a potentially lower cost than utilities' traditional investment options

Storage deployed so far is dwarfed by expected market growth

Global cumulative energy storage installations (GW), 2020-35



Market Signals

- Costs have come down over the past decade. Battery storage is **cheaper than peaking diesel** and **recently cheaper than gas-fired power for peaking** in many parts of the world
- McKinsey estimates that the global opportunity for storage could reach **1,000 GW** in the next 20 years.
- BNEF expects investment to approach **$400bn** between 2020-2035. Larger projects are now attracting triple digit $bn of available subsidized funding for climate projects.

Sources: BNEF, McKinsey

IFC can accelerate storage deployment in EMs though upstream engagements focused on policy, technology and financing solutions

Policy

- **Regulation** should be top priority for upstream initiatives, to bridge viability gap in EMs
- IFC can supplement traditional investment work with initiatives that **transfer best practices** and facilitate scale. Promote **standardized approaches** when possible (PPAs, auctions, procurement, etc.)
- IFC Upstream serves as "honest broker" in identifying and analyzing opportunities in a holistic manner.

Technology

Remain **technology agnostic**:

- Lithium ion batteries
- Flow batteries
- Green hydrogen
- Gravity
- Heat

Emerging markets need **long-duration, robust, resilient, non-toxic** storage systems

Trajectory of opportunities

As policy and technology matures, **new use cases and business models** will emerge

1
- Address <4hrs, currently best served by li-ion batteries
- Move towards standalone storage projects

2
- Compete with new gas peakers & diesel
- Storage >4 hours
- Baseload storage

3
- **Reach 100% RE baseload**

New use cases and business models will require **innovative financing solutions**

More detail on technology suitability in Annex 3

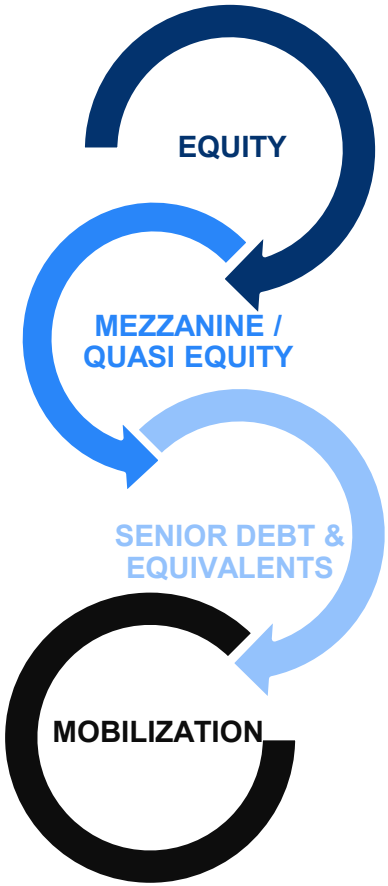
BESS Systems: Key Points and Financing Considerations

Use BESS (Central/Co-Loc): RE Grid Support vs. Load Shifting	Grid Support
Proven Technology (+20 years track record)	Lio-Ion
Cell Supplier vs. Integrator (Tesla, Watsila vs. BYD, Samsung)	Tier 1 Suppliers
Longevity of BESS systems (PPA obligations, warranties)	Cycles vs. Years
Tariff Structure of the BESS component	IPP, Capacity
Cost of BESS (Competitive against gas mid/merit)	Price Reduction

Annex I

IFC Financial Solutions for Infrastructure and Energy

IFC Boasts a Comprehensive Range of Financial Instruments to Execute Global Energy Investments



- 6-8 Year investment
- Common or preferred equity
- Minority shareholder

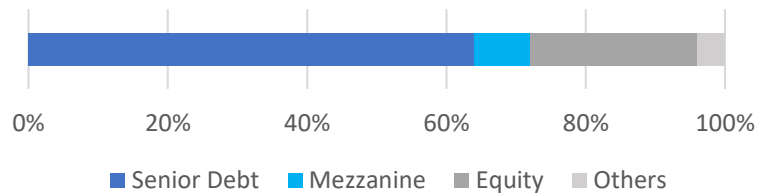
- Subordinated loans
- Income participating loans
- Convertible loans

- Cov-lite, corporate facilities
- Long-term PF A/B loans
- Sustainable/SDG/Green loans, bonds
- Partial credit guarantees for bonds

- Debt mobilization from other lenders through A/B Loan structure
- Equity mobilization through self-managed funds and other co-investors
- Over 60-cofinanciers

- **WBG Public-Private Solutions:** Tools for bankability include Partial Risk Guarantee (PRG), Political Risk Insurance (PRI), Technical Cooperation (TC).
- **Structuring Products**: From equity to long maturities, fixed or floating rates, local currencies and flexible amortization profiles.
- **Global knowledge, local Insights**: WBG's 120 Country offices, ~10,000 employees bring country depth, global breadth, and multisector knowledge.

Infrastructure Financing Product Mix



Data June 2020

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IFC Finance Solutions for Innovation & Sustainability

Traditional Sustainable Financing

- Global leader in Green Bonds and Green Loans. Since 2010:
  - 148 Green Bonds issued in 18 currencies
  - Proceeds of $9.2 billion in 18 currencies
  - Commitments support over US$7.7 bn in 200+ projects
- Only DFI with in-house Sustainable Infrastructure Advisory team, help clients address sustainability challenges by tailoring solutions to mitigate ESG risk
- Globally recognized as benchmark for E&S risk management in private sector

SDG-Linked Instruments

IFC's green financing program is:

Expected to reduce:

greenhouse gas emissions by **18.4 million metric tons** of CO_2-equivalent per year,

equal to taking **3.9 million passenger cars** off the road for one year

Expected to reduce:

721,223 megawatt hours in energy consumption per year, sufficient to power 89,000 homes **(the size of the Isle of Man, UK)**[3] for one year

Expected to generate:

20,468,892 megawatt hours of renewable energy in one year, equivalent to the energy use of a country the size of Ireland[4]

Expected to construct:

7,558 megawatts in renewable energy capacity

PARIS 2015

Iraq

Basrah Gas Co. Green Loan

US$400 mn
Gas Processing

IFC
2019

Mexico

IENOVA Corp Green Loan

US$200 mn
376 MW Capacity

IFC
2019

Vietnam

ACE Green Bond

US$75 mn
360 MW Capacity

IFC
2019

Colombia

DCM EPSA Green Bond

US$71.2 mn
178 MW Capacity

IFC
2019

China

BGE Green Bond

US$60 mn
Waste to Energy

IFC
2019

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IFC Sustainability Advisory (SI)

SI Advisory designs and implements local benefit sharing initiatives, helping clients protect the environment, engage with affected communities, and increase impact and transparency.

Knowledge & Thought Leadership

- Local Benefit Sharing in Large-Scale Wind and Solar Projects
- Guide to Community Engagement for Public-Private Partnerships (Draft for Discussion)
- Data for a Stronger Social License
- Toolkit: Unlocking Opportunities for Women and Business
- Sustainability Exchange: Gathering of industry, government, civil society, and community
- **CommDev.org:** Publications, videos, articles, blogs

Selected SI Advisory Engagements

WORLD BANK GROUP
THE WORLD BANK | IFC | MIGA

With support from Canada Norway

Nachtigal Hydro Power Company, Cameroon | *Strategic Comunity Investment*

Ongoing collaboration to strengthen Nachtigal's community engagement efforts, particularly with women, and building capacity of local partners to deliver effective community programs. Strengthening local content strategy and procedures to source goods and services from community and national suppliers, including women-owned businesses. Promoting a workplace environment supportive of both male and female employees. Over 50 women were interviewed and their perspectives incorporated into the ongoing advisory engagement.

Apurimac, Peru | *Revenue Management*

Helped seven municipalities improve their investment management to better respond to the local population's needs. Promoted participatory planning and accountability and enhanced the capacity of local leaders to participate in municipal investment decisions. $11 million of additional investment enabled in key sectors such as water, education, and roads.

City of Bogota, Colombia | *Stakeholder Engagement*

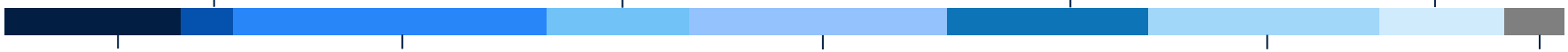
Developed a community engagement strategy based on identified risks during construction and operation of a cable car system in an underdeveloped city area. Strengthened existing protocols to help the city engage with communities more effectively and improve interinstitutional coordination. The city has since applied the revised engagement protocols for other community-facing projects.

IFC International Finance Corporation WORLD BANK GROUP

IFC's Energy Portfolio at a Glance

$8.0 billion Energy Portfolio as of June 30, 2020

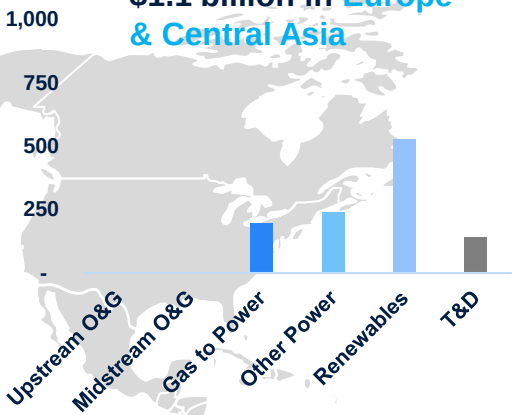
By sector



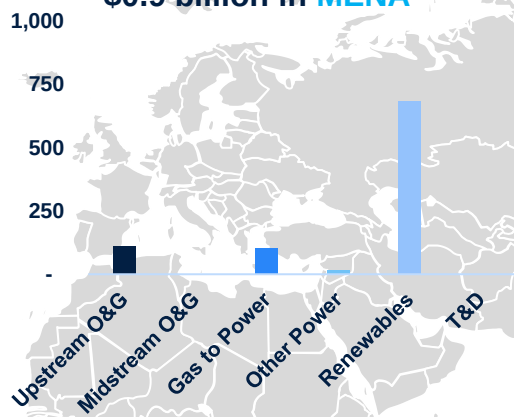
Midstream O&G **3%** | Other Power **9%** | Wind **13%** | Other Renewables **8%**

Upstream O&G[1] **11%** | Gas-to-Power **20%** | Hydro **17%** | Solar **15%** | T&D **4%**

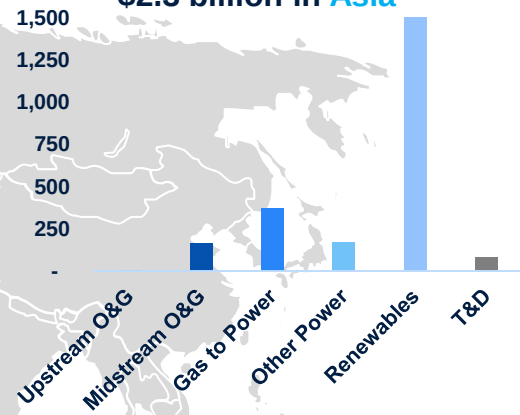
$1.1 billion in Europe & Central Asia



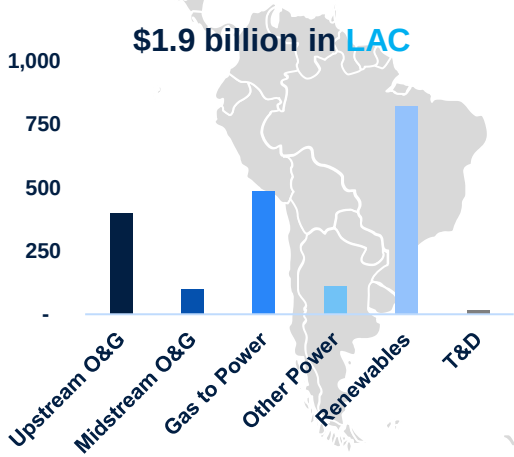
$0.9 billion in MENA



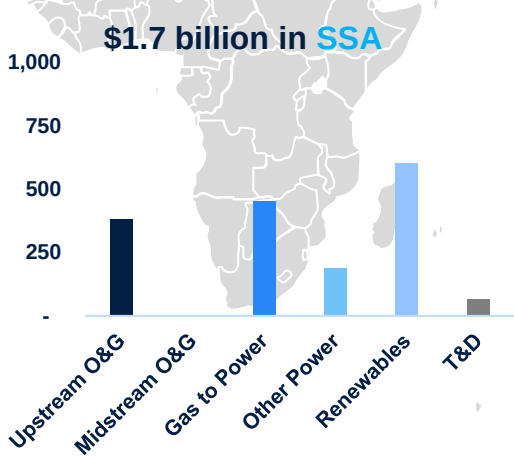
$2.3 billion in Asia



$1.9 billion in LAC



$1.7 billion in SSA



- Decades of experience financing, structuring, and leading energy projects in emerging markets
- More than 50GW of power generation across the globe financed to-date
- IFC's portfolio spans the energy spectrum – with increasing focus on low carbon energy sources

[1]IFC no longer makes new investments in upstream oil and gas other than on an exceptional basis

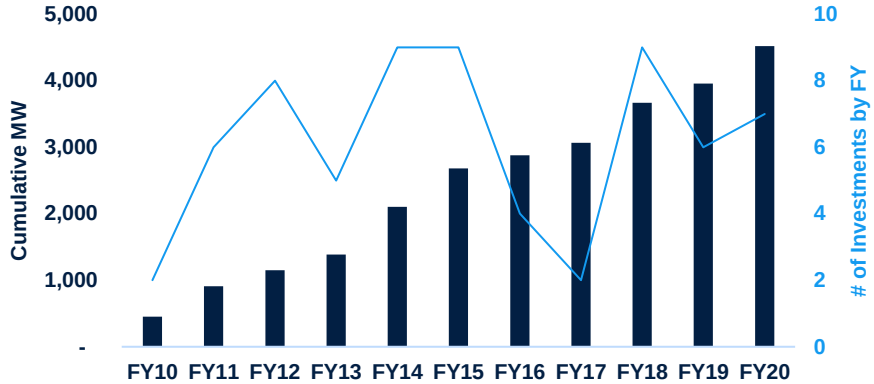
IFC International Finance Corporation WORLD BANK GROUP

Leading Investor in Wind Power in Emerging Markets

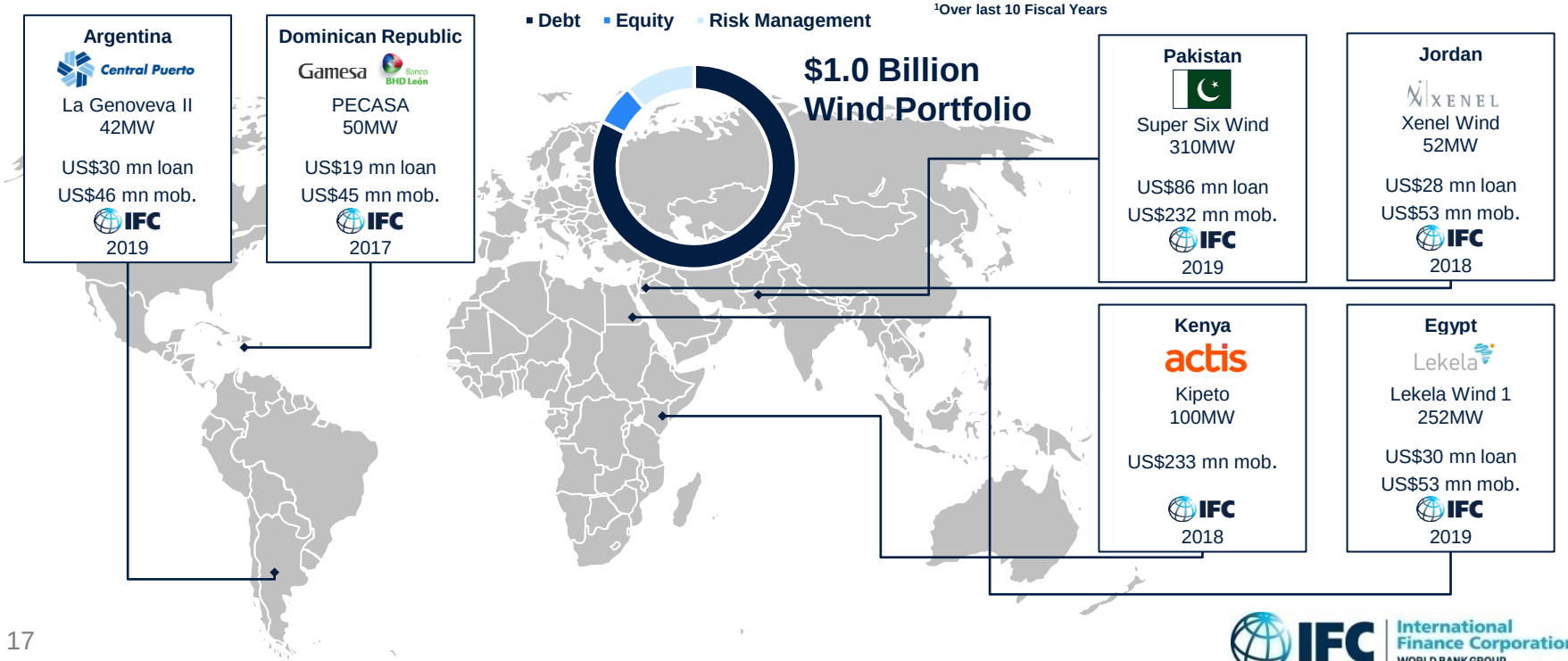
IFC'S APPROACH

- Focus on **cost-competitive utility-scale plants**
- **Experienced developers**
- Can **mobilize concessional financing** where appropriate
- Deep understanding of **regulatory regimes and risks**
- Assisting with E&S risk management / issues (e.g. bird migration)
- Selective engagement in **merchant markets**
- Supporting the adaption of **offshore wind**

67 Investments in over 4.5GW of Wind Power[1]



[1]Over last 10 Fiscal Years



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IFC's Strategy in Wind Power / WBG collaboration

Wind along with solar are at the heart of IFC's energy strategy

Increasing climate pressure

Soaring power demand and untapped potential

Now one of the lowest cost options in many systems

Continuous technological improvement

Offshore Wind – big potential in medium to long term

ESMAP – IFC / WB collaboration: 5-year program started in April 2019 to accelerate introduction of offshore wind to EMs

→ Target results:

- *Engage with ≥ 10 countries to integrate 20 GW of offshore wind into their policies and plans*
- *Develop a pipeline of investable projects, with at least 5 GW receiving WB/IFC finance*

IFC Upstream Offshore Wind Study: focus on bankability and structuring considerations for offshore wind in emerging markets

Case Study in Wind Power

SUPER SIX WIND, PAKISTAN

- **Six wind projects totaling 310 MW** financed through a standardized financing program that treated individual projects as "one large" project.
- Five local sponsor groups.
- In **FY20**, IFC invested **US$84 million** of its own account and mobilized **US$232 million** from international and local financial institutions.

PROJECT OVERVIEW

PROJECT HIGHLIGHTS

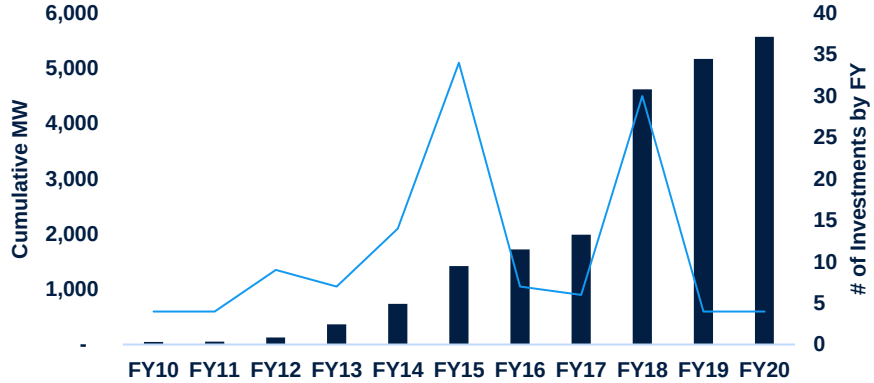
- The project will contribute to Pakistan's goal of **30 percent power** generation from renewables by 2030, while reducing the average cost of electricity.
- **650,000 tons of GHG emissions** to be displaced per year.

Critical Focus on Solar Power Generation

IFC'S APPROACH

- Focus on **cost-competitive utility-scale plants**
- **Experienced developers**
- Can **mobilize concessional financing** where appropriate
- Deep understanding of **regulatory regimes** and risks
- Selective engagement in **merchant markets**
- **Exploring new technologies**: ie bi-facial panels and floating PV

123 Investments in 5.6GW of Solar Power[1]



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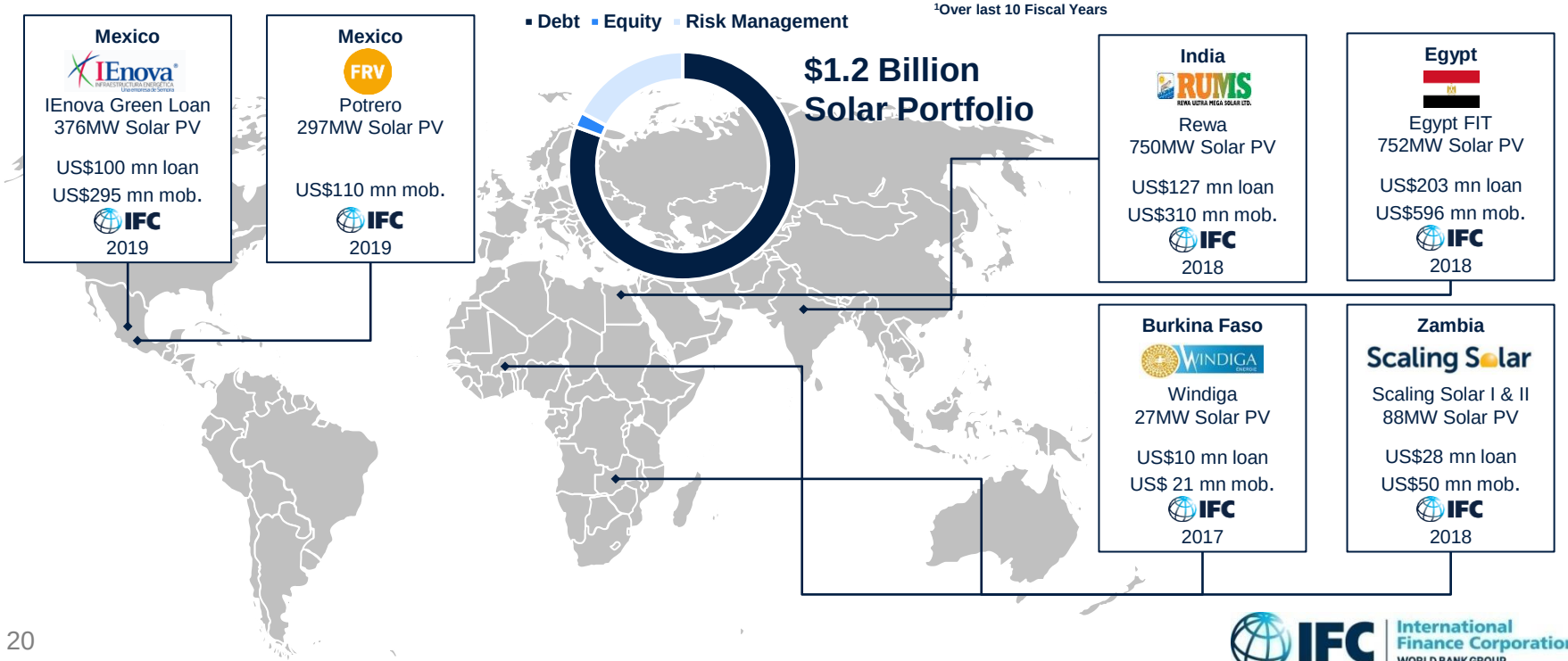

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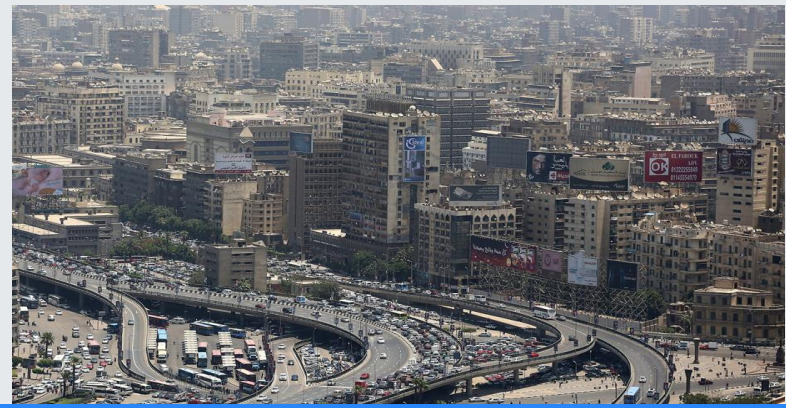
Case Study in Solar Power

NUBIAN SUNS SOLAR, EGYPT

- **13 solar Photovoltaic (PV) projects totaling 752 MWp** financed through a standardized financing program that treated individual projects as "one large" project.
- Part of the larger **1,800 MWp Benban Solar Park**.
- In **FY17**, IFC invested **US$202 million** of its own account and mobilized **US$451 million**.
- Builds on the World Bank's subsidy and sector sustainability reform program.



PROJECT OVERVIEW

PROJECT HIGHLIGHTS

- Benban Solar Park will be the **largest solar power plant in the world**, employing up to **5,000 people** during construction and provide training for long-term operation roles.
- **580,000 tons of Greenhouse Gas (GHG) emissions** to be reduced per year.

Extensive Track Record in Hydro Power Generation

IFC'S APPROACH

Support **cost-competitive** and **high development impact hydro power** with managed E&S and technical risks

Long maturities to match asset life

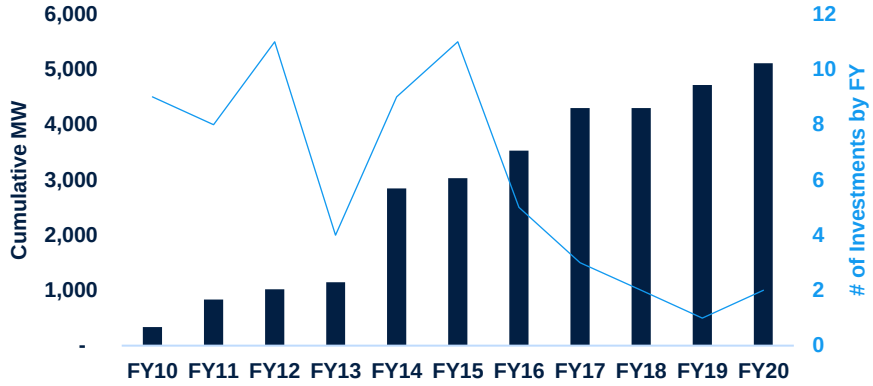
Comfort with full or partial **merchant risk**

Assist with **E&S risk** management / issues

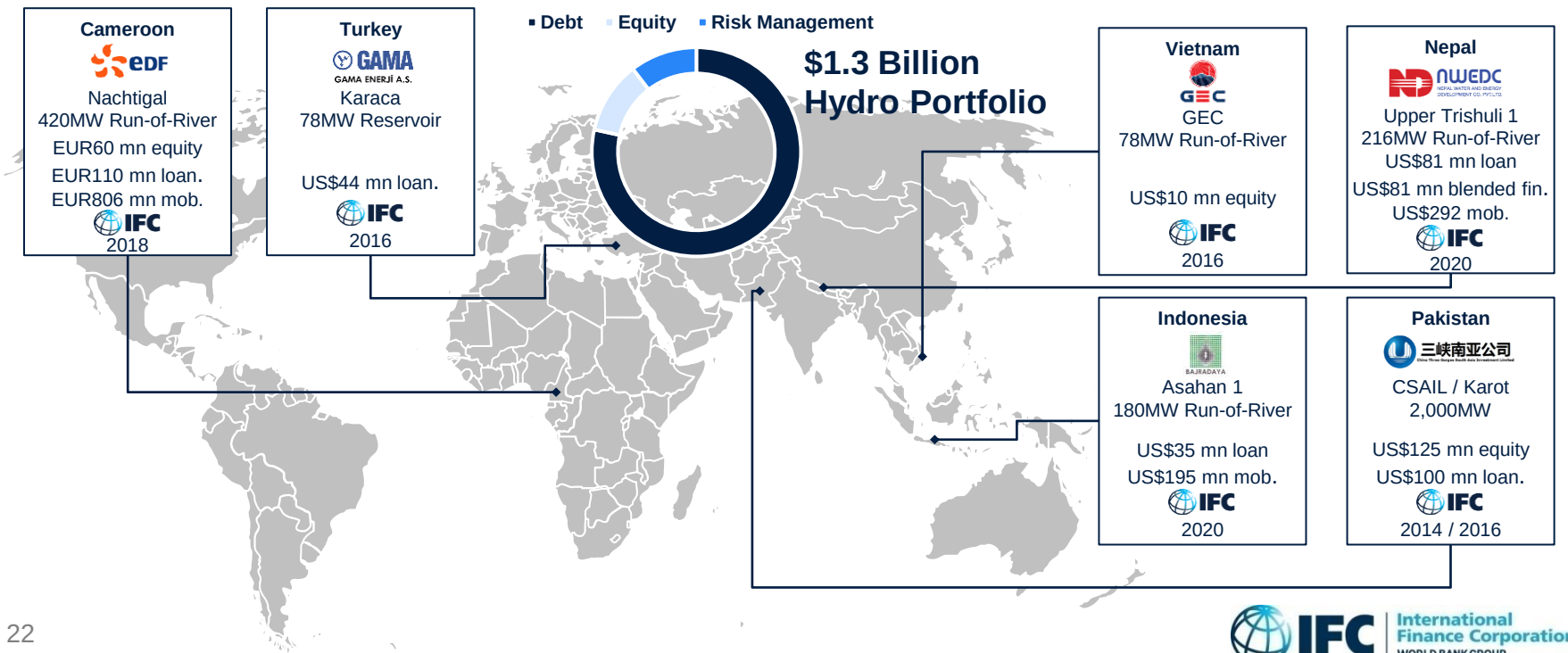
Take **construction risk**

Innovative bundling of small run-of-river hydro power

65 Investments in 5.1GW of Hydro Power[1]



[1]Over last 10 Fiscal Years



IFC International Finance Corporation WORLD BANK GROUP

Case Study in Hydro Power

NACHTIGAL, CAMEROON

- Nachtigal is a **420 MW run-of-the-river hydro plant**. The total project cost is **€1.2 billion**.
- Co-developed by IFC's global infrastructure development fund, InfraVentures, EDF and the government of Cameroon.
- In **FY19**, IFC invested **€60 million** in equity, lent up to **€110 million** for its own account**,** and mobilized an additional **€806 million** from 11 development finance institutions and four commercial banks.

PROJECT OVERVIEW

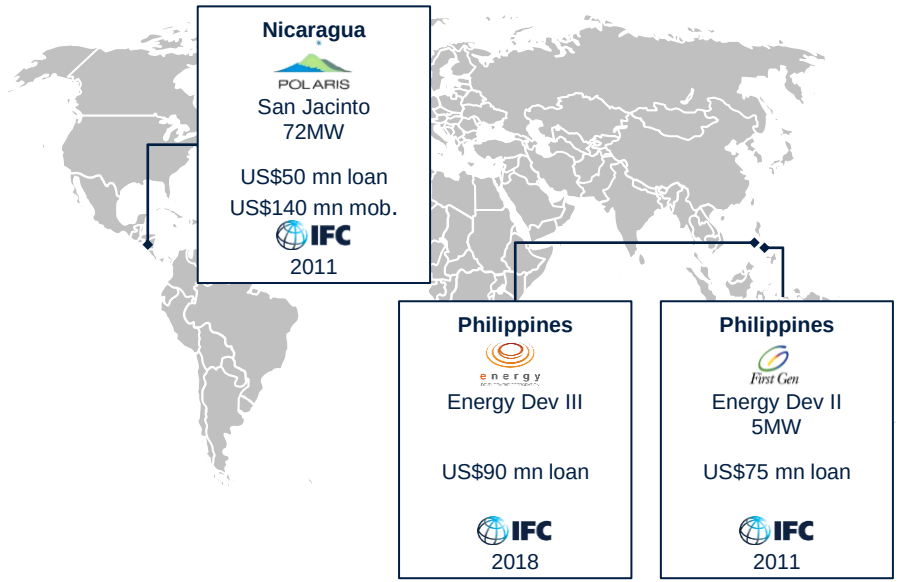
PROJECT HIGHLIGHTS

- The plant will increase Cameroon's power generation capacity by **30 percent**.
- Once operational, it will **save the country $100 million** in generation costs annually.
- Due to be commissioned in 2023, it will create up to **1,500 direct jobs** during peak construction, of which **65 percent** will be locally sourced.

Experience in Geothermal Power Generation

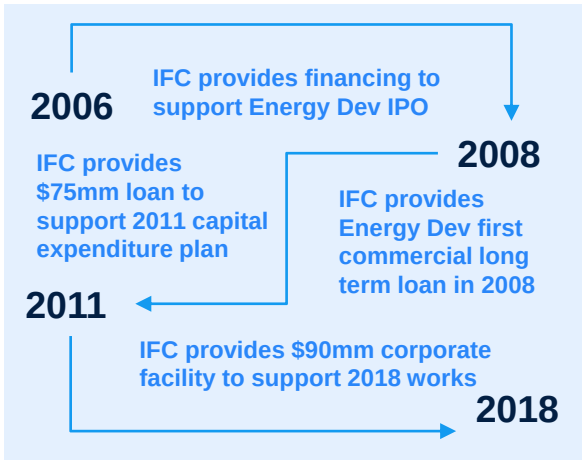
IFC'S APPROACH

- Understand the **sector-specific challenges of resource risk and long project cycle**
- **Innovative structuring** allowing for stage disbursement to full resource completion
- Exploring ways to finance **resource development**
- In-house **technical expertise**
- **Mobilization of concessional financing** where appropriate
- **Corporate finance** and **Project finance** of integrated (steam + plant) and plant-only projects
- Experience with both **equity** and **debt financing**



CASE STUDY: ENERGY DEVELOPMENT CORPORATION, PHILIPPINES

- Energy Development Corporation (EDC) is the **world's largest vertically integrated geothermal company**
- EDC provides the Philippines with **1,473 MW of clean and renewable energy**, which is 37% of the country's renewable energy capacity
- IFC's relationship with EDC dates back to 2006 when IFC provided a **cornerstone $49 million investment** during the company's **2006 IPO**
- Since its first investment in 2006, IFC has supported EDC's continued growth through **three follow-on financings** with cumulative proceeds of **$251 million**



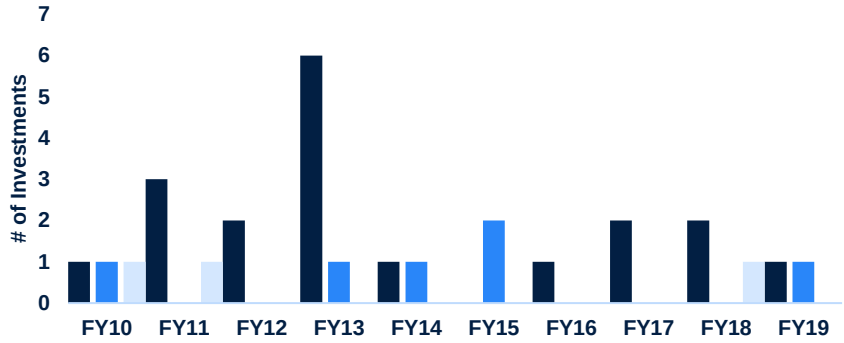
IFC International Finance Corporation WORLD BANK GROUP

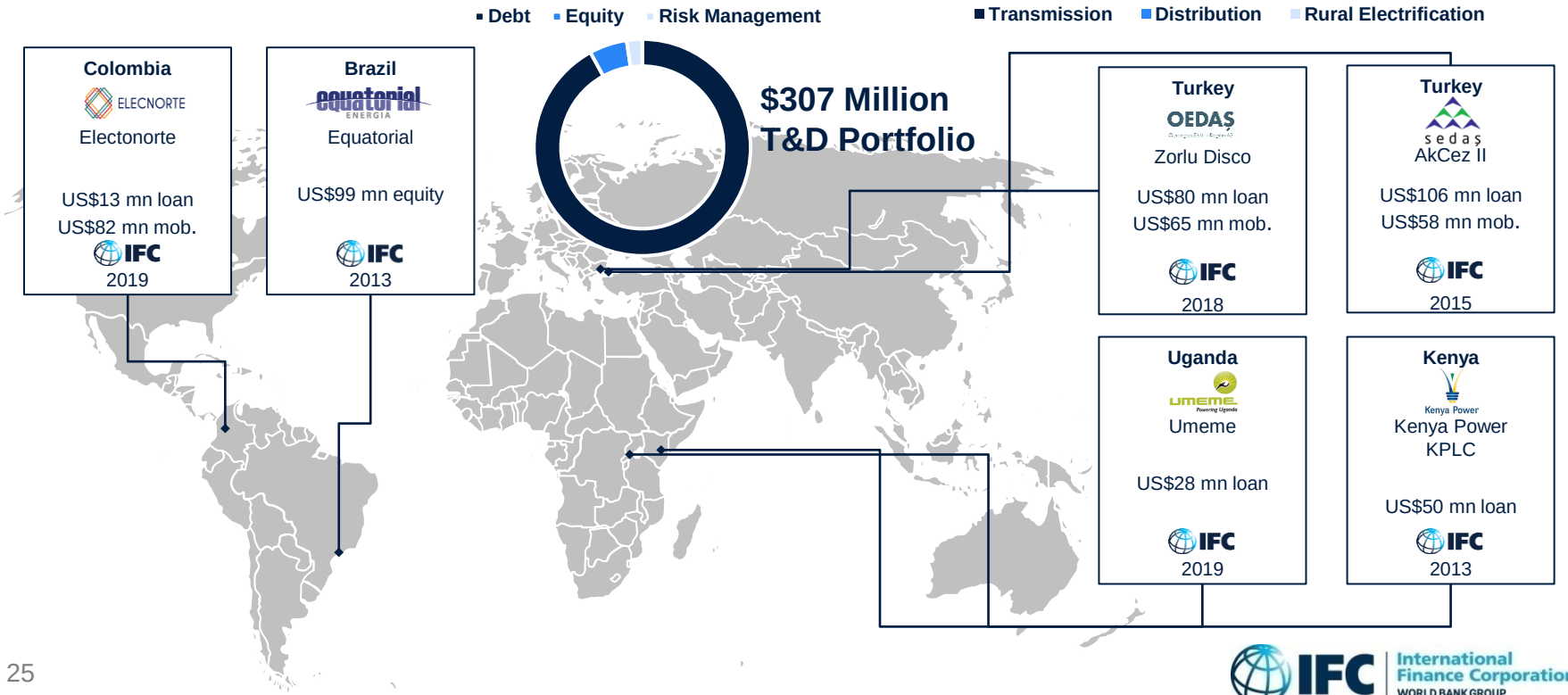
An Experienced Transmission & Distribution Lender and Investor

IFC'S APPROACH

- Finance **capital expenditure programs** for distribution companies
- Support **recently privatized T&D companies**
- Help enable **rural electrification concessions**
- Finance **greenfield private transmission assets**
- Familiarity with **regulatory risks and project bankability**

57 Investments in T&D and Rural Electrification





IFC International Finance Corporation WORLD BANK GROUP

Growing Experience in Distributed Generation (DG) & Storage

IFC'S APPROACH

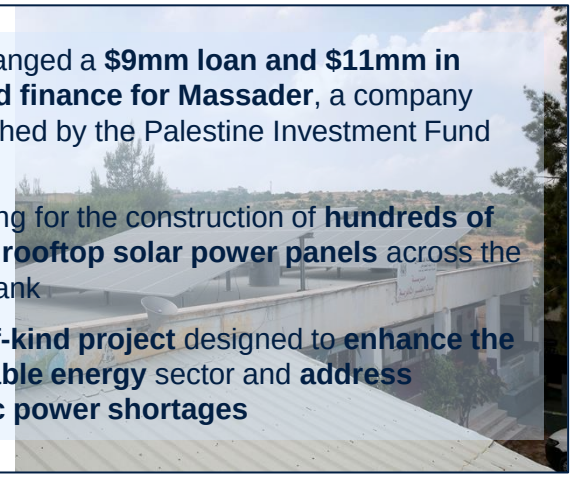
IFC invests in developers active in **Commercial & Industrial (C&I) solar**, **captive DG projects,** and **microgrid opportunities**

Focus on the **C&I** segment where deployment is driven by **cost savings and grid reliability** issues

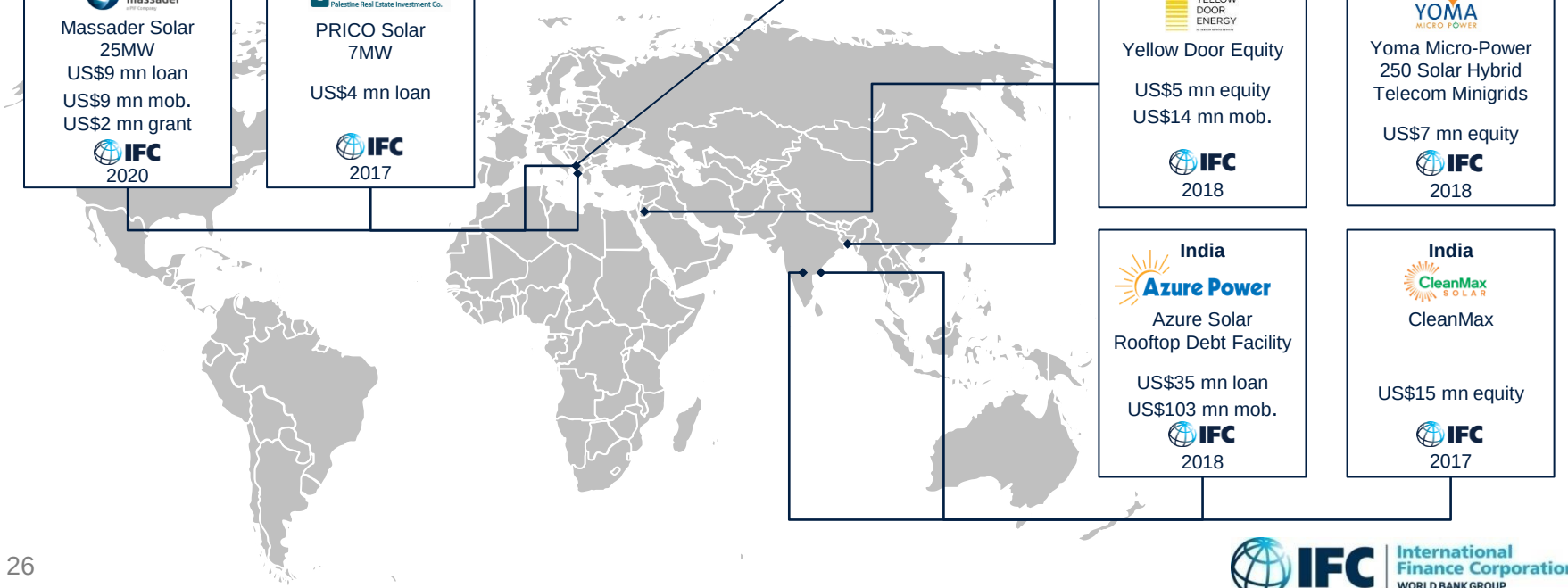
Partner with leading companies in the DG space

Benefit from scale and growth by providing **debt or equity to support DG platforms**

DG IN WEST BANK



- IFC arranged a **$9mm loan and $11mm in blended finance for Massader**, a company established by the Palestine Investment Fund (PIF)
- Financing for the construction of **hundreds of school rooftop solar power panels** across the West Bank
- **First-of-kind project** designed to **enhance the renewable energy** sector and **address chronic power shortages**



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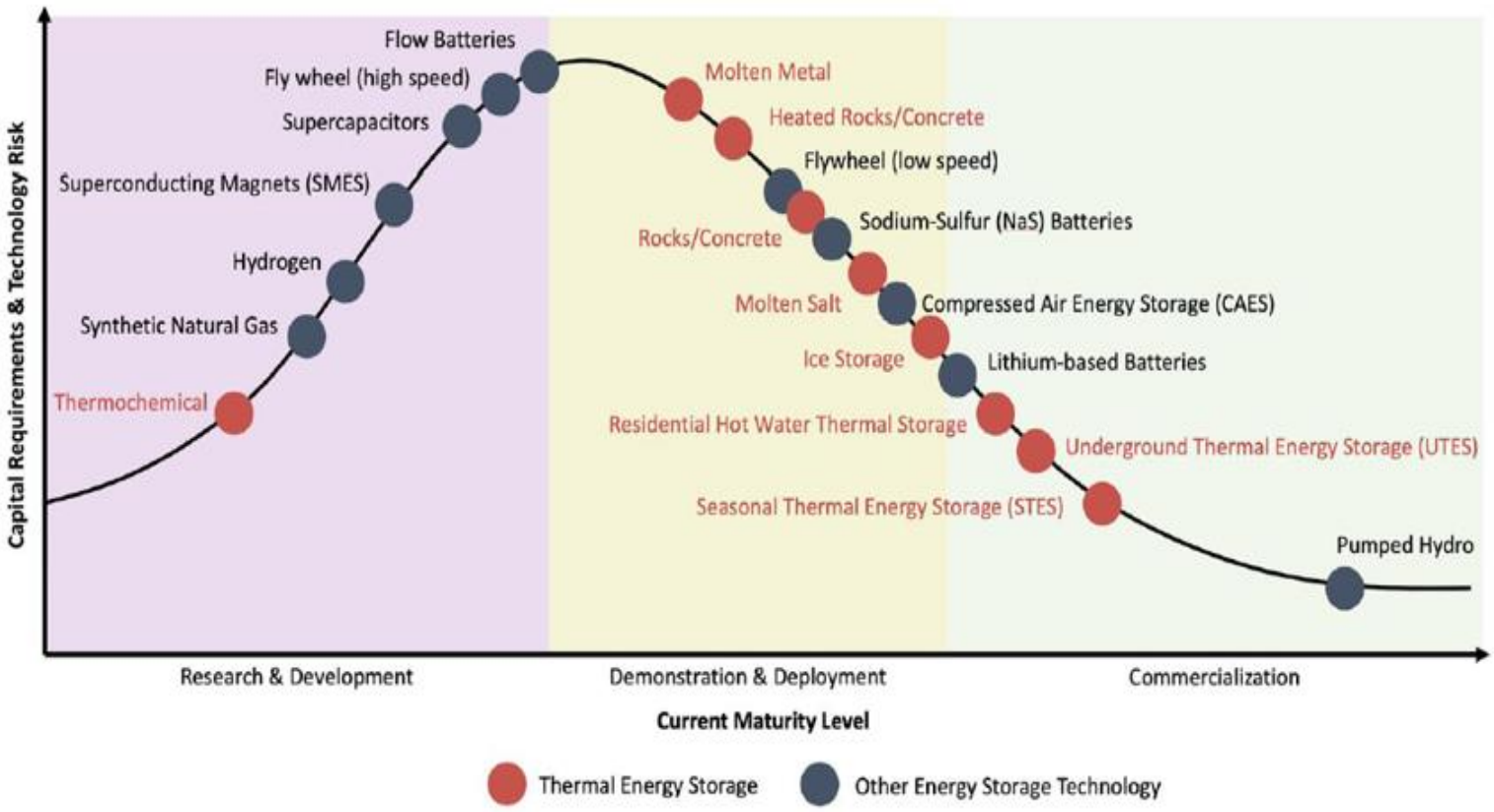
Technology Maturity

Maturity level of Energy Storage



Source: Palomba, V. (2019). Comparative analysis of thermal energy storage technologies through the definition of suitable key performance indicators. Energy and Buildings, 185, 88 102.