

Vance Center Virtual Workshop: How to Structure Successful Renewable Energy Projects Under the IPP Model



Welcome, Introductions and Agenda

- Welcome and Introductions
- **Agenda:**
 1. Independent Power Producer (IPP) Model and Role in Renewable Energy Sector
 2. Critical Elements of Successful IPP Projects
 3. Case Study and Analysis from Ethiopia, Kenya and Nigeria
 4. Q&A and Discussion

IPP MODEL IN RENEWABLES SECTOR

Role of Independent Power Producers (IPPs) in Global Energy Generation

- **The Basics**

- Non-utility private energy generators that are not owned by a national electricity company or a public utility
- IPPs generate electricity for sale to the national or state electricity network or grid sometimes through a feed-in-tariff or
- IPPs can also sell power to a third-party customer via a power purchase agreement (PPA)
- IPPs use the national or local electricity distribution system if permitted or sometimes use a private transmission line direct to the customer where permitted

Role of Independent Power Producers (IPPs) in Global Energy Generation

- Prevalence of IPPs varies from country to country around the world.
- IPPs are common in many nations, and include private energy companies, cooperatives, and industrial facilities which sell excess power to the utilities they work with.
- In other regions, IPPs play a small role or no role at all.
- IPPs range from small local companies to global companies with energy projects on multiple continents.

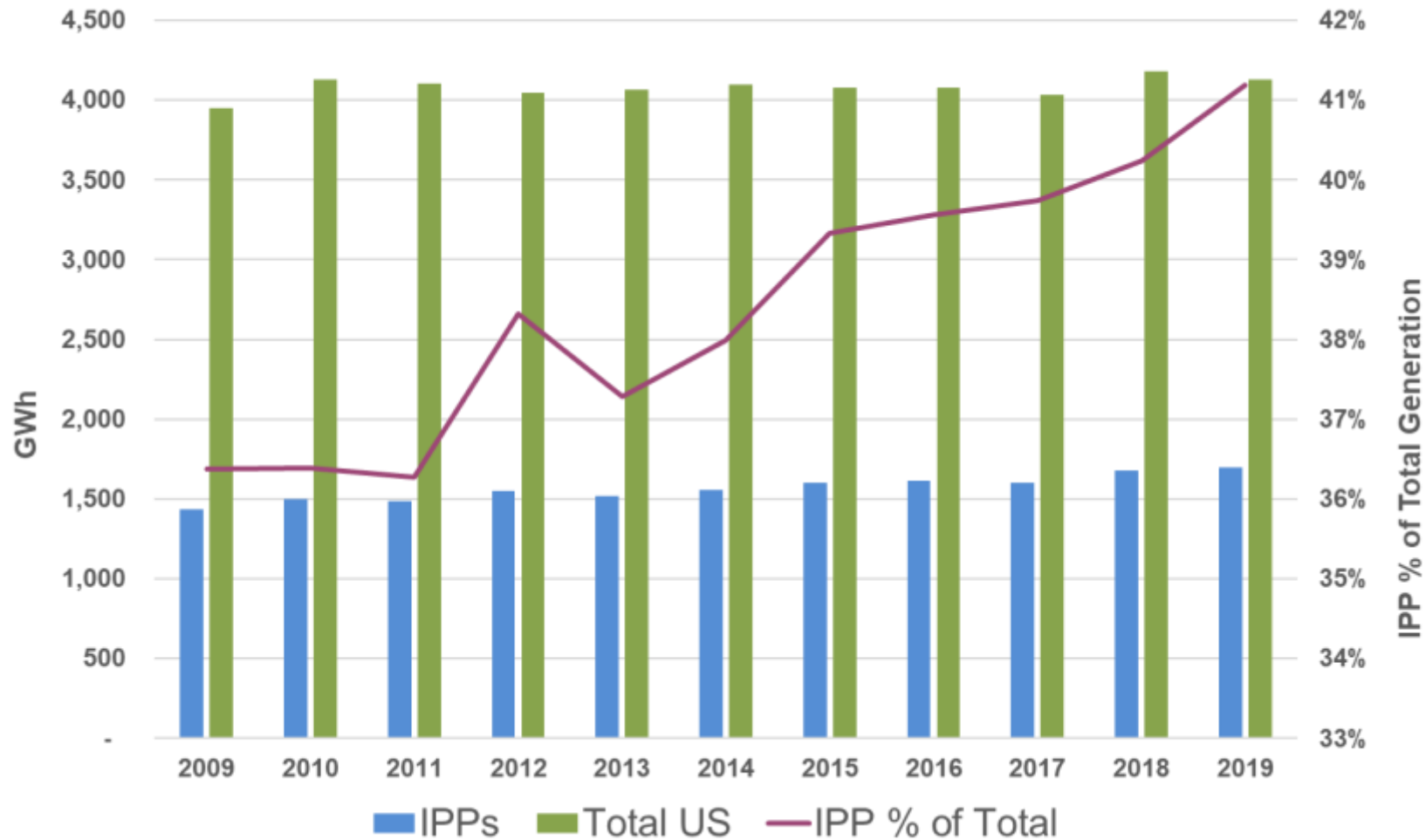
Why IPPs?

- IPPs increase net generation capacity and complement existing government-funded power projects
 - Reduces the number of government-funded projects necessary to meet excess demand and projected future demand for electricity
- IPPs conserve/augment state financial resources while still achieving energy policy goals
 - Government-funded projects create long-term debts and new recurring management costs
 - IPPs create long-term tax revenue while still achieving goals of increased national commercialization
 - Conserve needed foreign exchange earnings for settlement of debts and for other national development programs

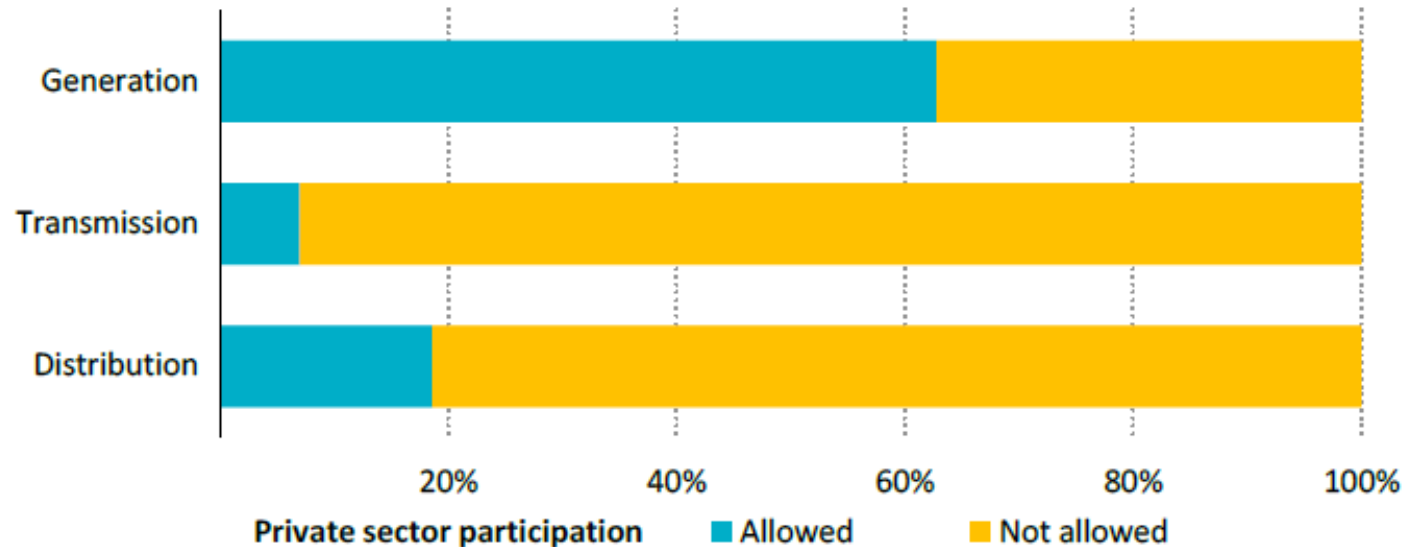
Why IPPs? (cont.)

- Enhance marginal efficiency of existing investments, increase the total volume of national investment, and create new jobs in the country
 - Energy pricing competition lowers consumer costs, increases energy reliability, and improves cost recovery
 - IPPs provide more choices to consumers, driving economic growth
 - Create new job opportunities during construction and operation periods
- Private financing of project funding requirements
 - Helps governments implement energy policies and frameworks to achieve their economic goals without significant upfront government spending
- IPP projects often bring cutting-edge technologies and international standards

IPP Trends: Total Market Share in the United States



IPP Trends: Snapshot of Allowable / Legal IPP Participation (2019)



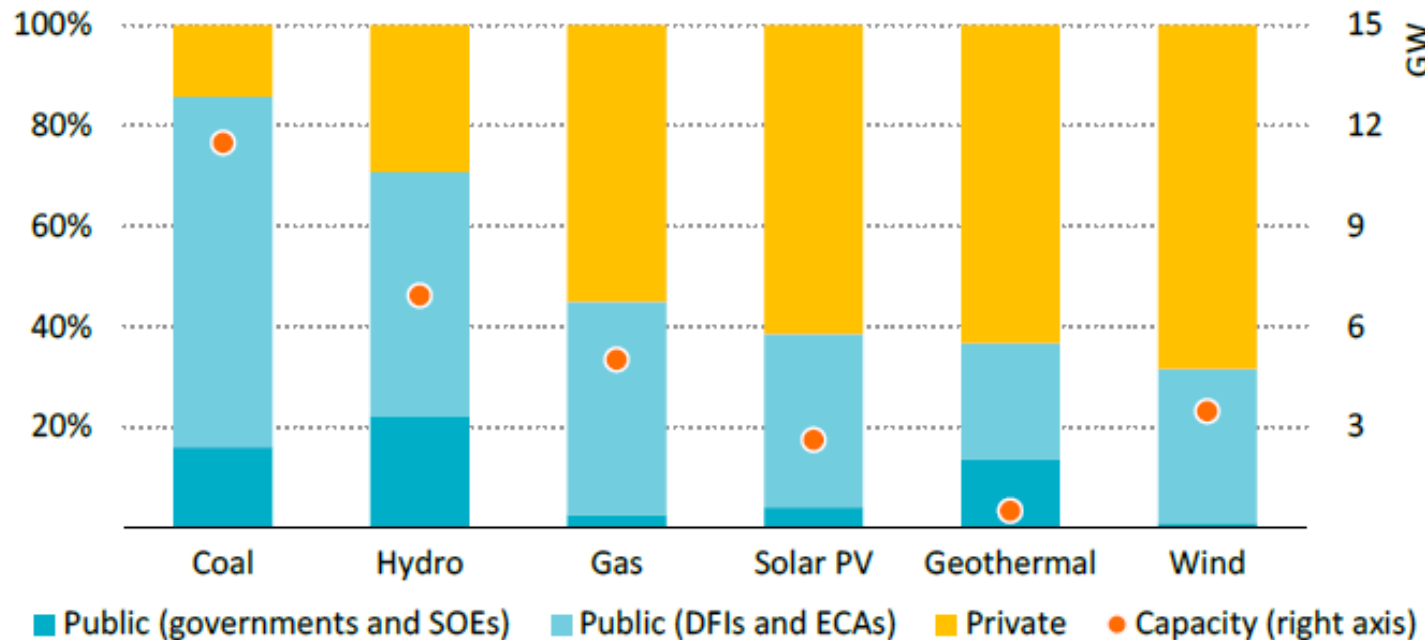
*In many countries there is no private sector participation allowed.
Where it is allowed, it is mainly in the generation activity.*

Notes: In the distribution category, decentralised solutions are not included. Based on 43 countries in sub-Saharan Africa.

Sub-Saharan African:

- 16 of 43 countries did not allow for private sector participation in electricity generation or networks
- 18 of 43 only allowed it in power generation

IPP Trends: Investment in sub-Saharan Africa*



New energy projects with final investment decisions (2014-2018)

- Two-thirds of new generation capacity was publicly funded
- One-third of new generation capacity came from standalone commitments made by the private sector

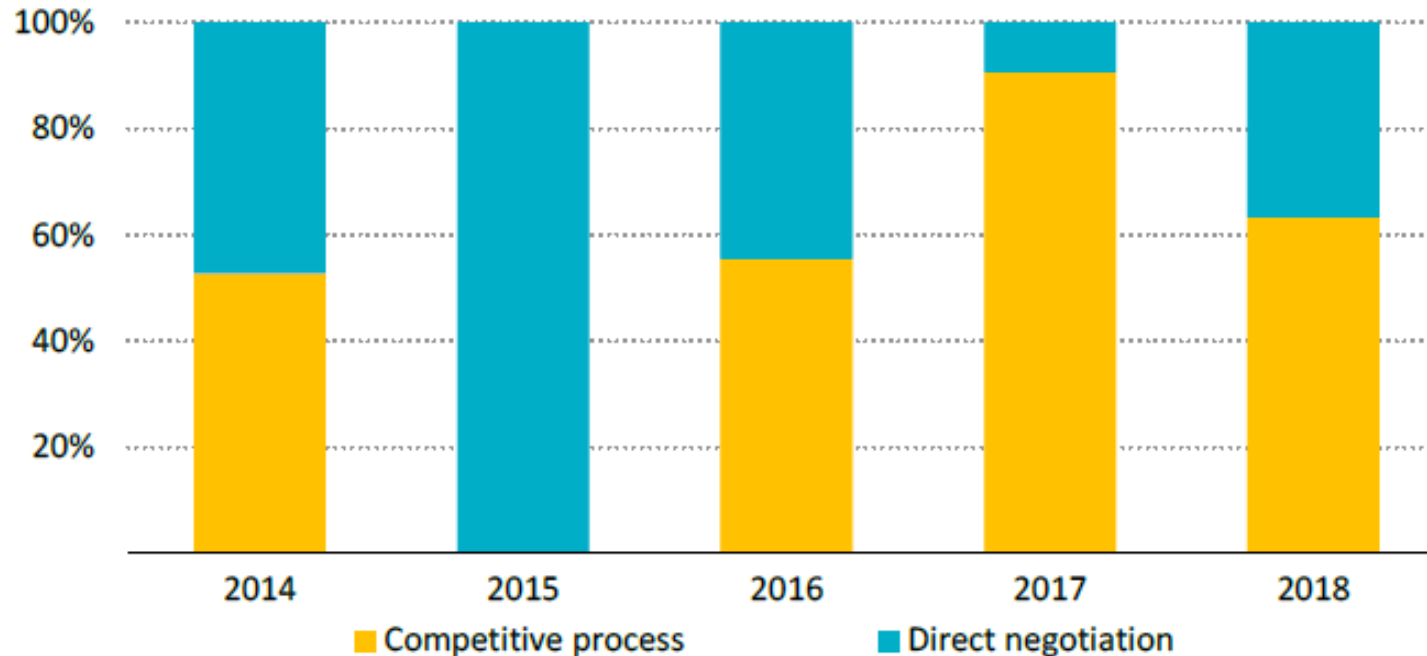
Large-scale generation projects have been more reliant on public sources of finance, while renewables were financed more with private finances

Notes: DFIs = development finance institutions; ECAs = export credit agencies; SOEs = state-owned enterprises. Based on utility-scale projects that reached financial close between 2014 and 2018.

Sources: IEA analysis based on World Bank (2019) and IJ Global (2019).

**Data excludes South Africa*

IPP Trends: Competitive IPP Award Process vs. Direct Negotiation*



Competitive procurement is increasing in sub-Saharan African countries, though almost half of privately-financed capacity was awarded by direct negotiation

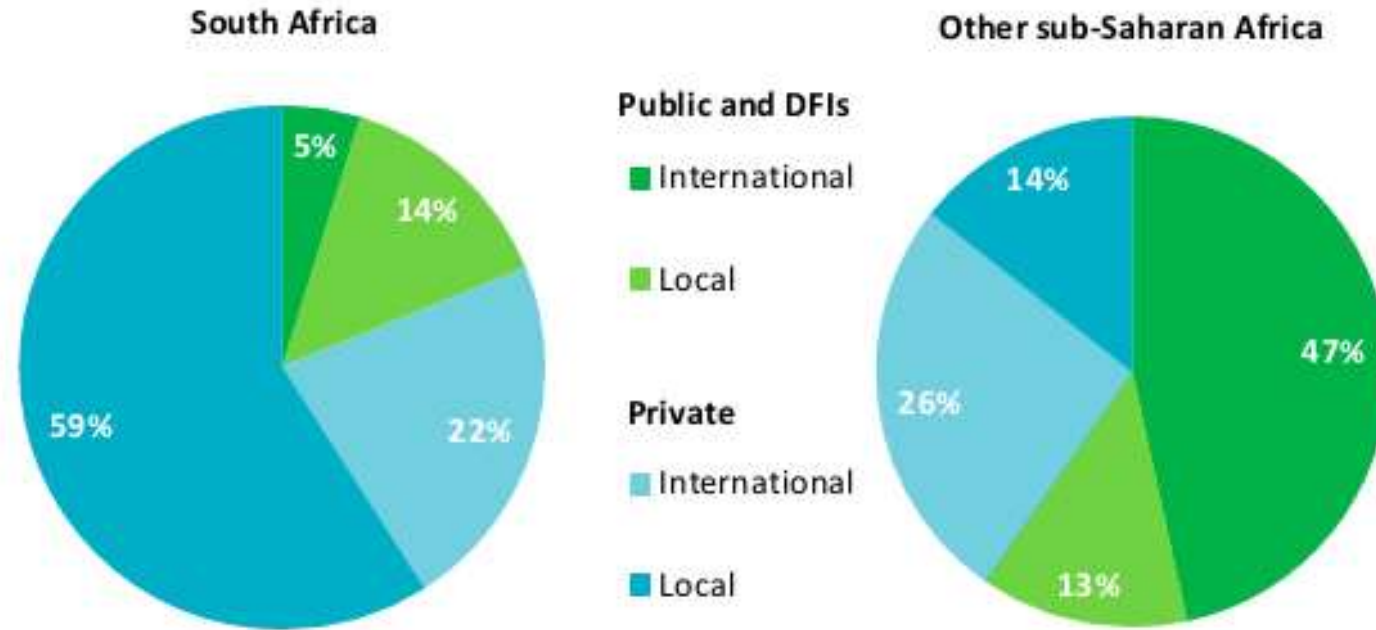
Sources: IEA analysis based on World Bank (2019a).

IPP capacity awarded by type in sub-Saharan Africa

- Competitive award process may lower the overall cost per KWh to consumers
- As local regulations and priorities shift to allow more private investment and participation in the energy sector, the use of competitive award processes may increase

**Data excludes South Africa*

IPP Trends: Investment Sources in sub-Saharan Africa (2014-2018)



Policy frameworks to underpin IPP projects are less developed in sub-Saharan Africa, other than South Africa, which limits the ability of public and development finance to catalyse private investment

Note: DFIs = development finance institutions; IPP = independent power producers.

Sources: IEA analysis based on World Bank (2019a) and IJ Global (2019).

Contributing Factors to IPP Success in Africa:

Enhance policy and regulatory frameworks to improve bankability

- Competitive procurement in sub-Saharan Africa is accelerating
 - Half of the privately-financed IPP projects that reached financing in 2014-2018 were competitively awarded rather than directly negotiated (excluding South Africa)
 - Robust procurement frameworks and well-designed contracts are crucial to success
- PPAs that clearly define risks and responsibilities
 - Credit enhancement mechanisms to ensure financeability
 - Mitigates payment risks and increases utilities' creditworthiness
- Maintain predictable, clear policies throughout the IPP procurement process
 - Long term certainty preserves interest from investors and lenders

Contributing Factors to IPP Success in Africa:

Create supportive and enabling environments for rural electricity access

- Revenue uncertainty presents a major challenge to rural electrification
- Strong, well-articulated regulatory framework addressing the most important issues:
 1. Tariffs levels
 2. Subsidies and tariff setting
 3. Regulation of entry
 4. Grid infrastructure, including in decentralized rural areas

Contributing Factors to IPP Success in Africa:

Strengthen provision of long-term finance

- Development Finance Institutions (DFIs) often catalyze access to long-term financing
- Availability of domestic and international funding to finance investment
- Implementing domestic policies that improve the overall regulatory environment and regulatory framework for financing parties
 - (e.g.) Repatriation of funds, tax incentives, tariff exemptions, PPP regulation

ENERGY LANDSCAPE: INTRODUCTION

FOCUS ON ETHIOPIA, NIGERIA & KENYA



Energy Landscape: Introduction

High-Level Introductory Background Covering:

- Selected Key Institutions & Actors
- Generation
- Transmission & Distribution
- Noteworthy Trends

ENERGY LANDSCAPE: ETHIOPIA

Energy Landscape: Ethiopia

Selected Key Institutions & Actors

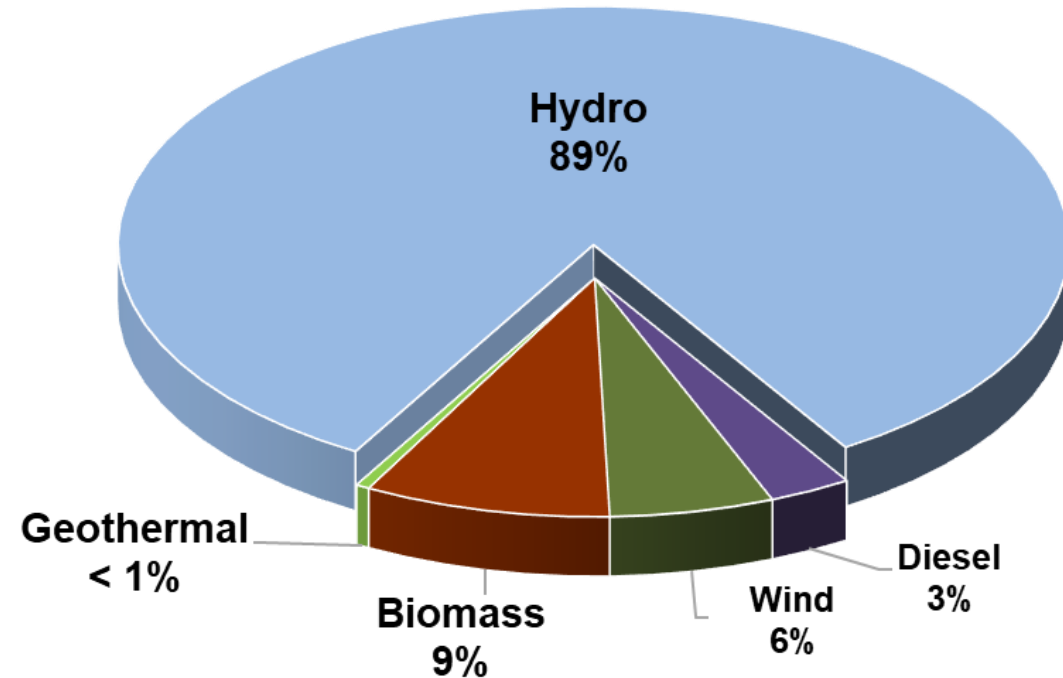
- Ministry of Water, Irrigation and Electricity
- Ministry of Environment, Forest and Climate Change
 - Ethiopia Energy Authority
 - Ethiopian Electric Utility
 - Ethiopian Electric Power Corporation
 - Ethiopian Rural Electrification Development and Promotion Agency
 - Ethiopian Alternative Energy Development and Promotion Center

Energy Landscape: Ethiopia

Generation

- 4,965 MW Installed Capacity
 - Hydro: 4,418 MW
 - Diesel: 148 MW
 - Wind: 280 MW
 - Biomass: 447 MW
 - Geothermal: < 50 MW
- Ethiopian Electric Power Corporation maintains:
 - 14+ hydropower
 - 3 wind power plants

Installed Capacity (MW) JUNE 2020



Energy Landscape: Ethiopia

Transmission & Distribution

- Ethiopian Electric Power Corporation (EEP) is the only entity that operates and owns transmission lines on the national grid
 - Prices for generation of electricity and transmission by EEP are determined and regulated by the PPA between IPPs and the EEP
 - Over a year ago a directive was issued by the Ethiopian Electric Authority (EEA) for tariff determination and for calculation methodology. Accordingly, proposals submitted by IPPs will need to be approved by the government. The energy regulation outlines requirements and general principles which must guide EEA when reviewing and recommending grid or off-grid tariffs.
 - Cost of fuel, cost of production, rate of inflation or deflation and foreign currency fluctuation.
 - EEP is the main off-taker for IPPs

Energy Landscape: Ethiopia

Noteworthy Trends

- Goal: ~21,200 MW by 2030 (+480% increase from today)
 - At least 25% of this additional supply, by 2030, is expected to come from IPPs
- New power sector reform roadmap expected in 2021
 - Goal: strengthen regulatory frameworks and further unbundle state utilities
- Government focus on PPPs will open the door to more IPP investment long-term
 - First PPP reached commercial close in December 2019
- Ethiopian Electric Power Corporation shifting focus to management of existing power plants and related assets
 - All new power generation projects expected to be developed as IPPs or PPPs
- Shift away from reliance on hydropower, due to output impacts caused by persistent drought

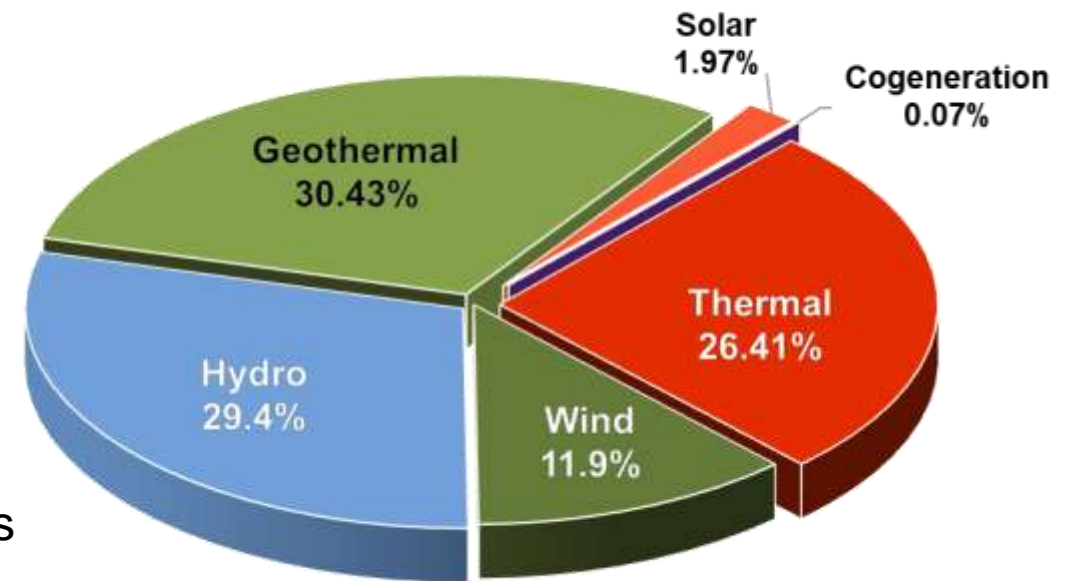
ENERGY LANDSCAPE: KENYA

Energy Landscape: Kenya

Generation

- 2,819 MW Installed Capacity
 - Hydro: 826 MW
 - Geothermal: 828 MW
 - Thermal (MSD & GT): 749 MW
 - Wind: 331 MW
 - Solar: 51 MW
 - Biomass: 28 MW
- 2,000 MW peak demand
- ~30% of installed capacity is owned and operated by IPPs
- ~70% of installed capacity is owned and operated by Kenya Electricity Generating Co. (KenGen, which is 70% state owned)
- 85% of electricity consumed in Kenya is from renewable energy sources as of 2020

Installed Capacity (MW) JUNE 2020





Energy Landscape: Kenya

Transmission & Distribution

- **Kenya Electricity Transmission Company (KETRACO)** is the sole transmission entity (Fully state-owned corporation)
- The transmission system comprises 220kV, 132kV and 66kV lines
 - Stock and transmission lines increased 5% from 2018 to 2019 → 236,134KM
- **Kenya Power and Lighting Company** is the sole offtaker in Kenya, as well as the sole distribution entity. Energy Act 2019 now allows for the licensing of multiple distributors, generators, transmitters and retailers of electricity.
- Retail prices are proposed by KPLC, then EPRA reviews and approves them
- Household connectivity was at 76.49% in 2020, the highest in East Africa
- Growing **distributed energy** and **captive power** generation market

Energy Landscape: Kenya

Noteworthy Trends

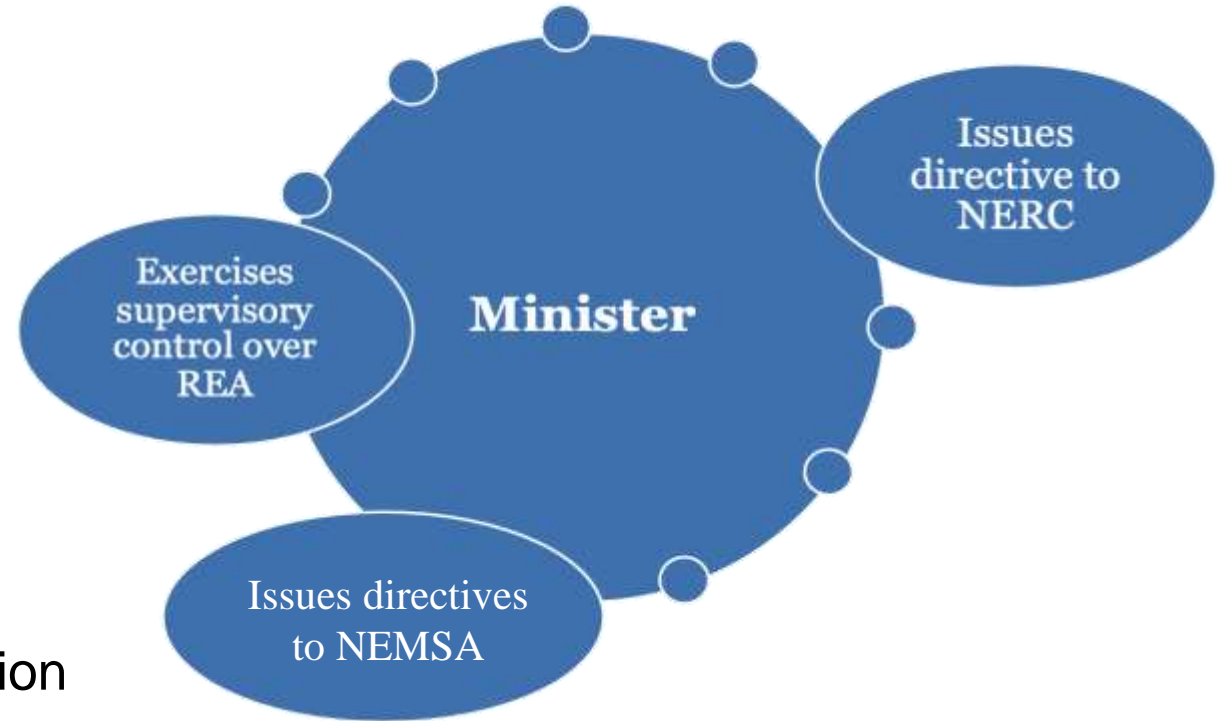
- Goal: increase generation capacity by ~5,000 MW by 2030 (2,000 MW from RE)
- Introduction of the **Renewable Energy Auction Policy**
- Introduction of the **2021 Feed-in-Tariffs Policy**
- Finance Act 2020 and the Tax Amendment Act 2020 removed significant tax incentives:
 - The two acts introduced 14% Value Added Tax on imported supplies related to construction of power plants and off-grid solar equipment
- Imminent formal recognition and regulation of corporate PPAs...regulations are pending
- The President set up a taskforce to review all existing PPAs
 - **Moratoriums on the renewal of any PPAs** while the taskforce is in place
- Move away from the Take or Pay model to **Take and Pay** PPAs

ENERGY LANDSCAPE: NIGERIA

Energy Landscape: Nigeria

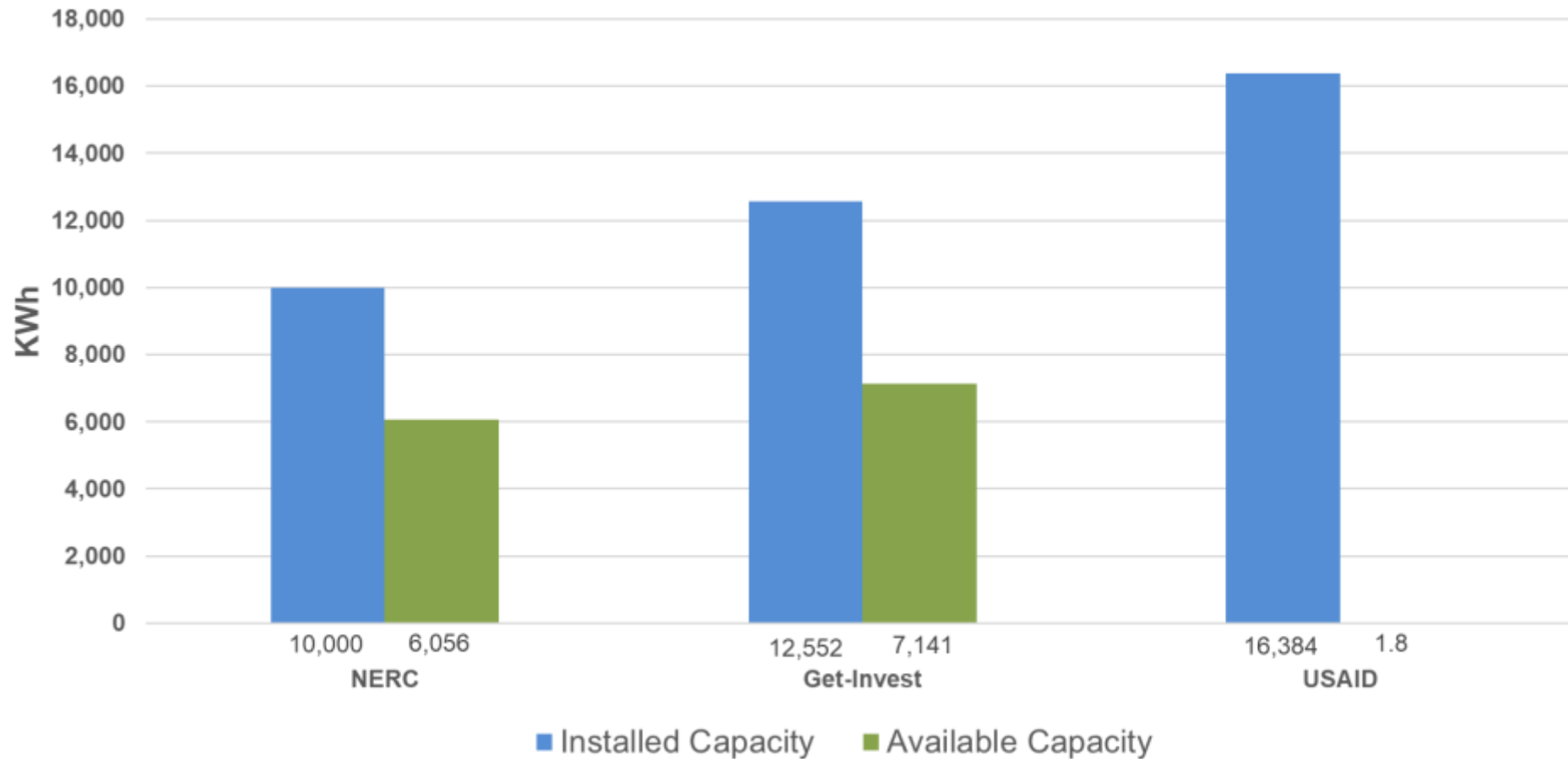
Selected Key Institutions & Actors

- Bureau of Public Enterprises
- Federal Ministry of Power
- Federal Ministry of Environment
- Federal Ministry of Water Resources
 - Energy Commission of Nigeria
 - Nigerian Electricity Regulatory Commission
 - Rural Electrification Agency
 - Hydroelectric Power Producing Areas Development Commission
 - National Environmental Standards and Regulations Enforcement Agency
 - Nigeria Bulk Electricity Trader
 - Transmission Company of Nigeria



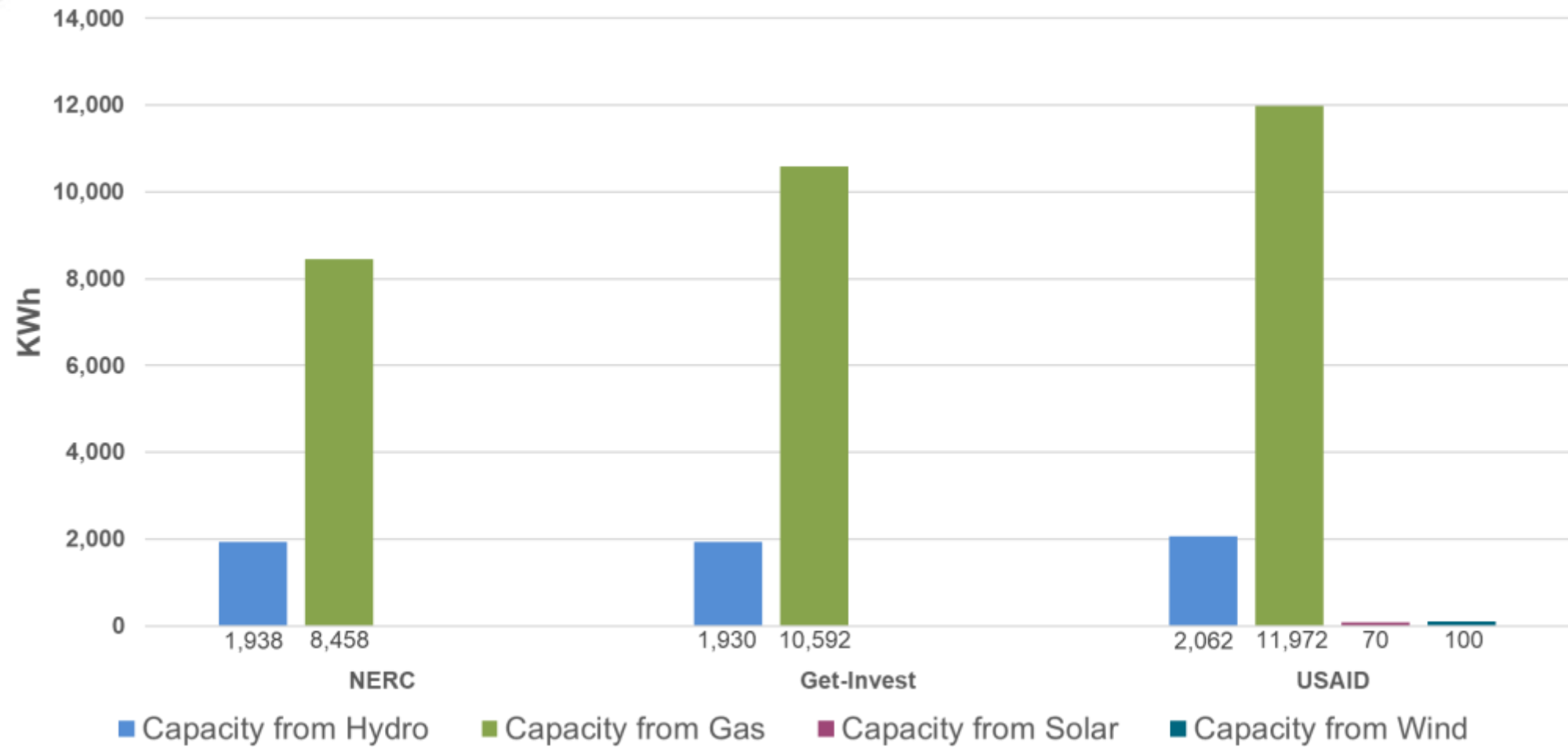
Energy Landscape: Nigeria

Generation



Energy Landscape: Nigeria

Generation



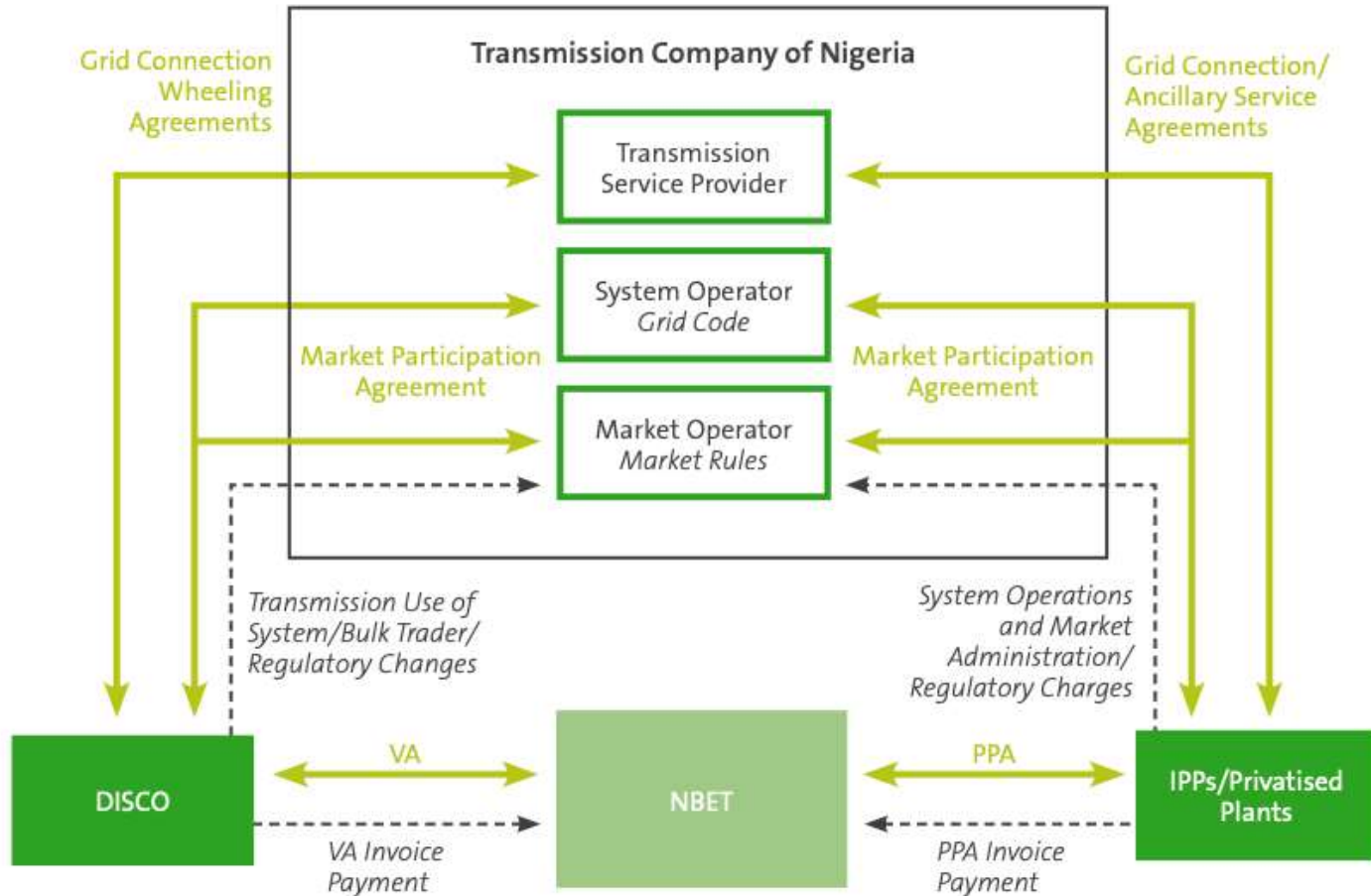
Energy Landscape: Nigeria

Transmission & Distribution

- **Transmission Company of Nigeria**
 - State-owned, monopoly
 - Acts as a transmission services provider, system operator, and market operator
- **Nigeria Bulk Electricity Trader**
 - State-owned, public liability company
 - Purchases electricity from generation companies under long-term PPAs and resells it to electricity distribution companies
- **Electricity Distribution Companies (DISCOs)**
 - National Council on Privatization approved the sale of 60% equity in 11 DISCOs (2013)
- **Off-grid** sales directly to consumers via bilateral contract
- **Independent Electricity Distribution Companies (IEDNs)**

Energy Landscape: Nigeria

Transmission & Distribution



- "GenCos" (Generation companies) are contractually obligated to supply to the grid
- IPPs are free to decide whether to have either an embedded or captive (off-grid) structure.

DISCO: Distribution Company
 VA: Vesting Agreement
 NBET: Nigerian Bulk Electricity Trader
 IPP: Independent Power Producer
 PPA: Power Purchase Agreement



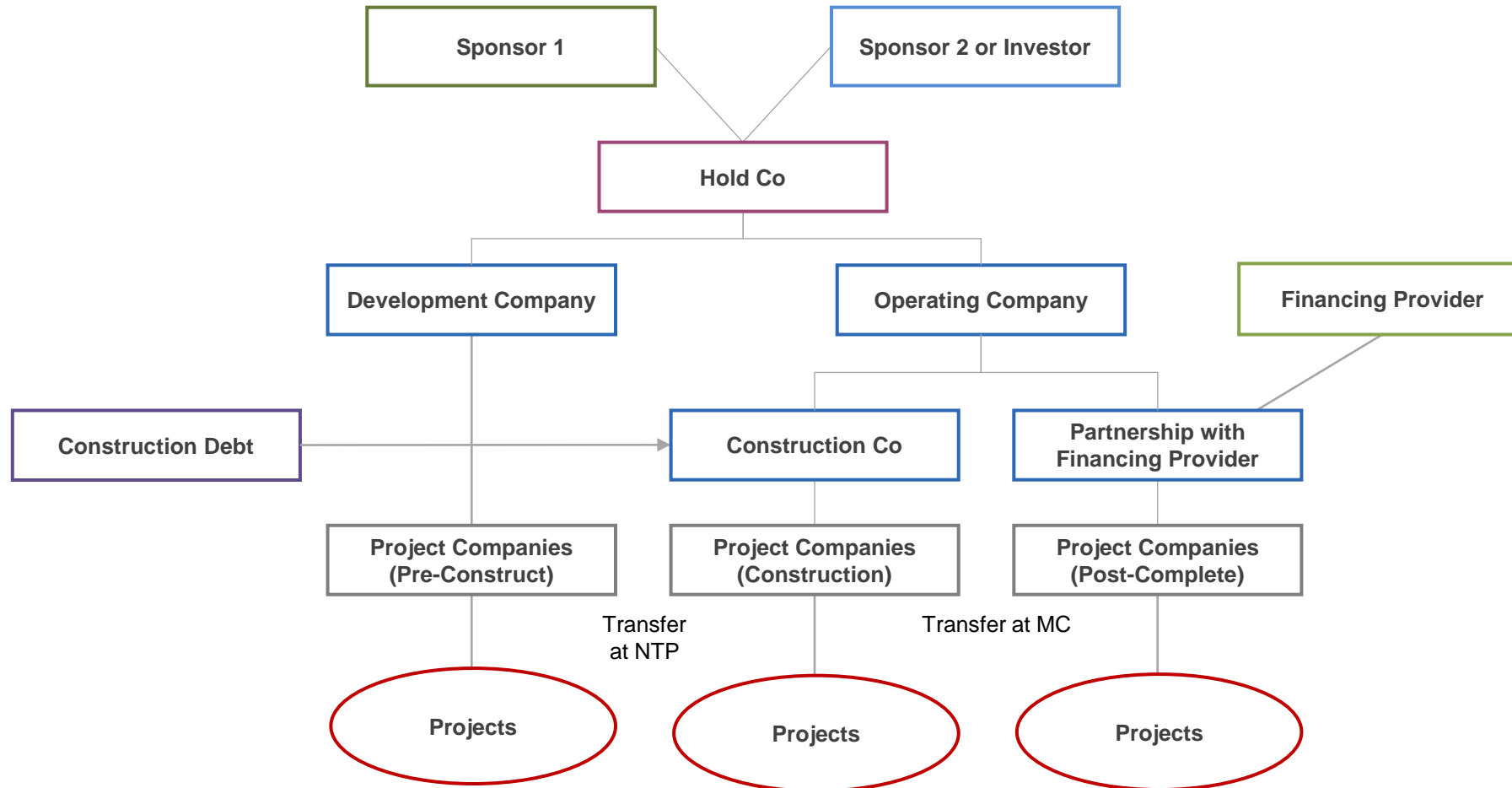
Energy Landscape: Nigeria

Noteworthy Trends

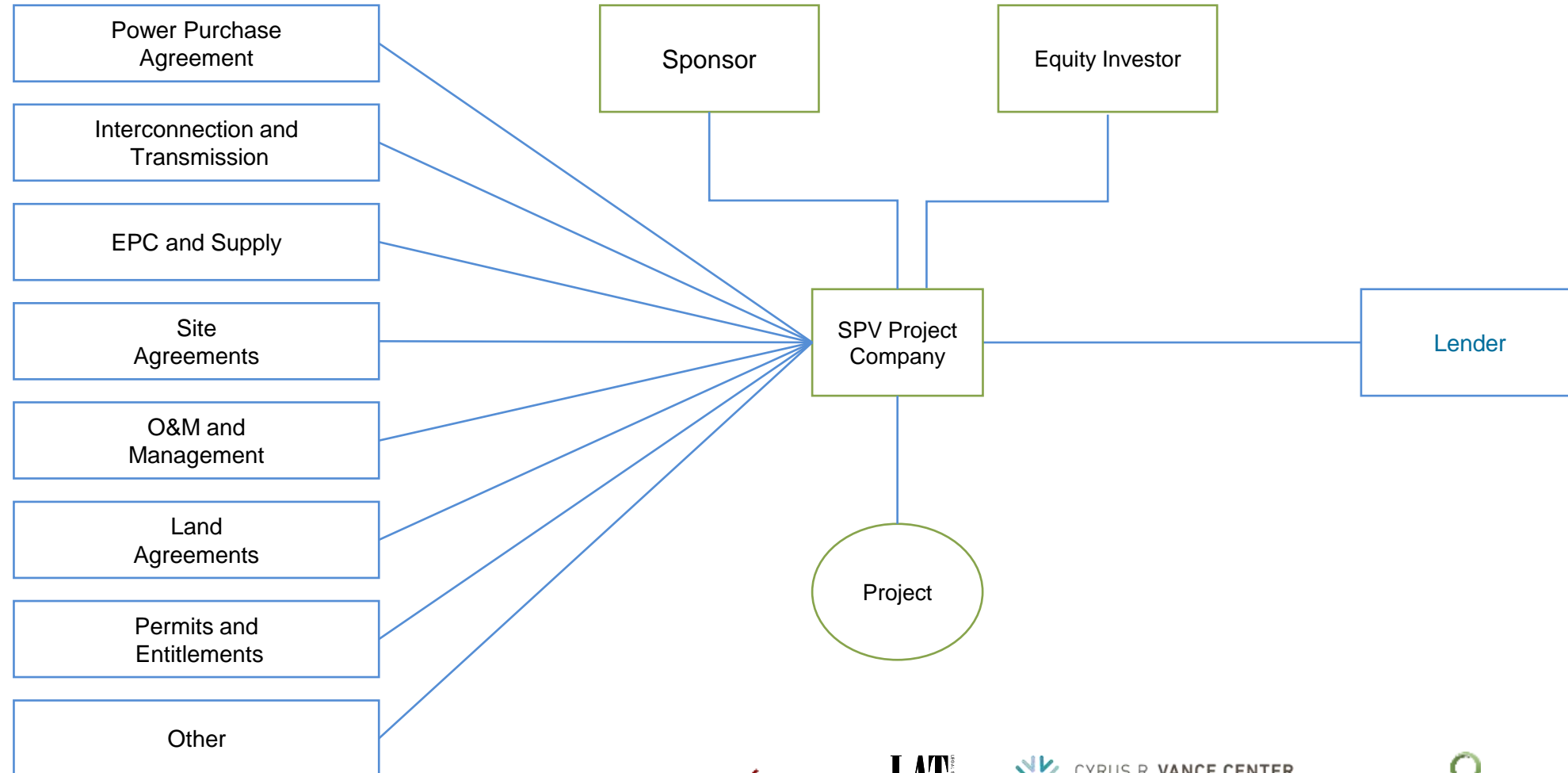
- Favorable state-policies that may stimulate IPP growth
- Continued transition to unbundled and deregulated energy market
 - As part of wide sector reforms, Nigeria privatized 11 electricity distribution companies and 6 generation companies in 2013
 - Retained 100% ownership of the Transmission Company of Nigeria
 - NERC declared a "Transitional Electricity Market" in January 2015, thus moving into the second-stage of Nigeria's phased power sector reform program
 - Shift toward a contract based, private sector driven competitive market

IPP: STRUCTURAL ELEMENTS

Example Structure For an Independent Power Producer



Example Structure of Individual IPP Project



CRITICAL ELEMENTS OF SUCCESSFUL IPP PROJECTS



IPP Power Project fundamentals

- Regulatory regime and permitting
- Project siting
- Environmental considerations
- Revenue contract (PPA or Feed-in-Tariff)
- Transmission and Interconnection
- Construction agreements and equipment procurement
- Financing & equity investment
- Operations over project life

Financing & Equity Investment Considerations

Project owners must consider the following aspects, to attract finance or equity investors:

Construction & development risks

The tariff and collection structure under the PPA or Feed-in-Tariff

Land rights issues: right of way, satisfactory site control

License and permit validity & tenures

Bankability of the PPA or Feed-in-Tariff

Payment guarantees

Environmental liabilities

CASE STUDIES AND OBSERVATIONS

UTILITY SCALE SOLAR PROJECT

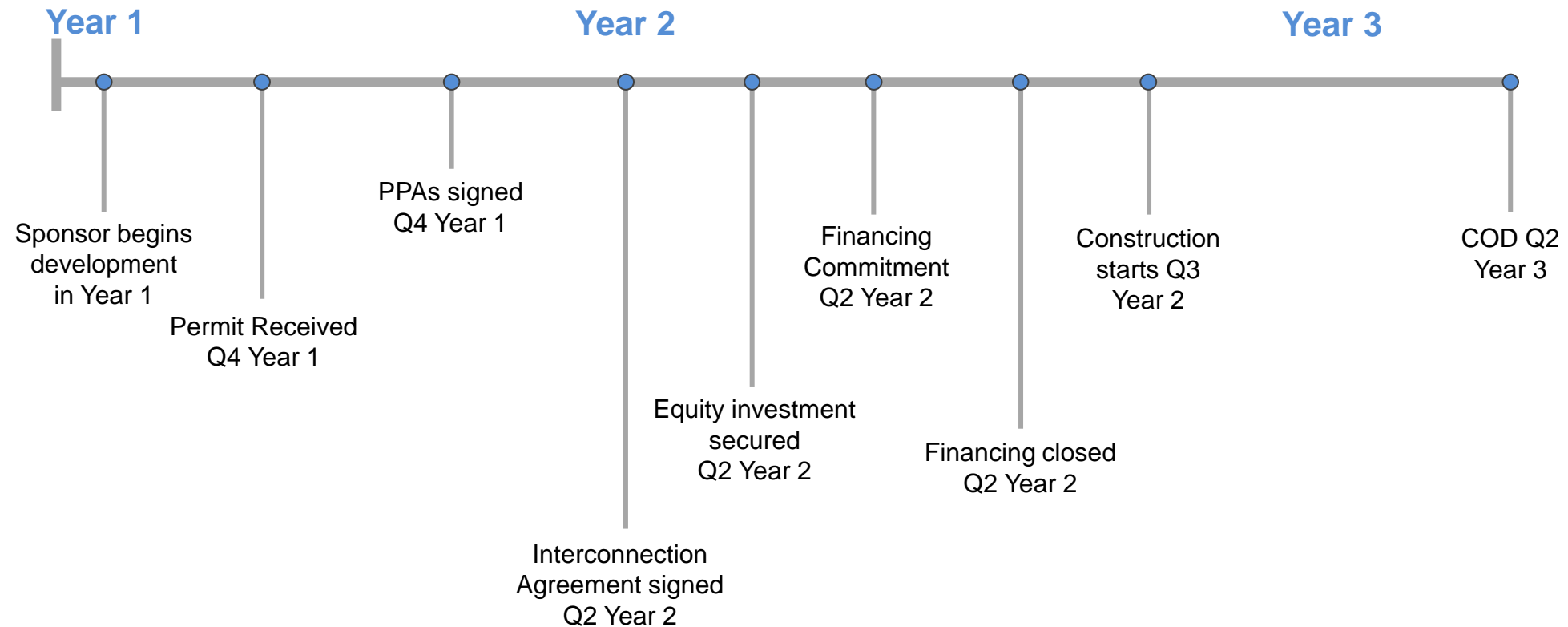


Case Study: Utility Scale Solar Photovoltaic Power Project

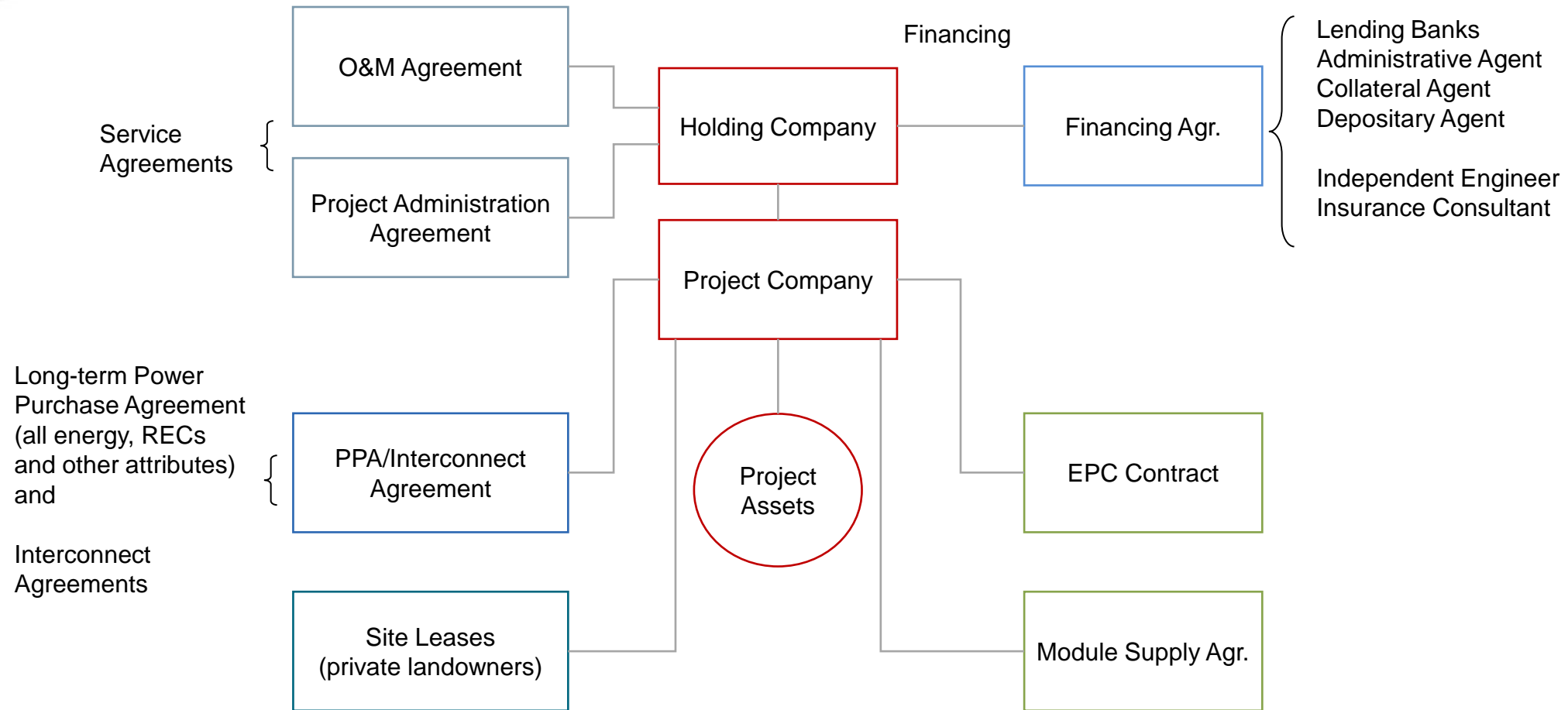
- Size: 20+ MW
- Country: United States
- Land: Leases on agricultural land
- Key Suppliers:
 - (1) PV Solar Panel Supplier, (2) EPC Contractor, (3) Inverter Supplier
- PPA: Utility Buyer
- Independent Engineer
- Financing: Nonrecourse construction and term debt provided by syndicate of international banks experienced in project finance

Case Study: Utility Scale Solar Photovoltaic Power Project

Project Timeline



Case Study: Utility Scale Solar Photovoltaic Power Project





Case Study: Utility Scale Solar Photovoltaic Power Project

- Overview of Pre-Construction Development and Permitting
- Real Estate: Focus on land selection to facilitate permitting and allow for fast-track execution
- Jurisdiction: Select for common goals – solar farming as a source of jobs and revenues
- Utility Considerations: Proximity to transmission and within Buyer's service territory



Case Study: Utility Scale Solar Photovoltaic Power Project

- Overview of PPAs
 - Term: 20+ year PPA entered into with local utility
 - Product: PPA for all energy, renewable energy credits and other attributes
 - Contract: Typical PPA provisions covering regulatory approval, development milestones, scheduling, metering, force majeure, etc.



Case Study: Utility Scale Solar Photovoltaic Power Project

- Project Design – Technology Choices
 - Consideration of land constraints
 - Nature of the solar resource
 - Pricing and availability for delivery of panels
- Warranty terms and creditworthiness of counterparties
 - Process of optimization for Project specifics



Case Study: Utility Scale Solar Photovoltaic Power Project

- **Financing**

- **Borrowing Structure:** Nonrecourse debt raised at holding company level
- **Banks:** International syndicate of banks experienced in renewables IPP financing
- **Loan Facility:**
 - Construction loan facility converting to long-term fully amortizing term loan
 - Letter of Credit Facility to provide collateral required as security under various project agreements
 - Interest rate swaps to cover term loan interest rate exposure
 - Tax equity financing (U.S. feature to take advantage of federal government tax credits)



Case Study: Utility Scale Solar Photovoltaic Power Project

- **Keys to Financing Success**

- Deal structured to be “project finance ready.” Project contracts did not contain terms that were not financeable and met lender requirements
- Experienced deal team to facilitate structuring and execution of financing
- Structure and approach similar to other successful projects, wherever possible
- Favorable market conditions (permitting, transmission)
- Appropriate Project siting
- Experienced development team and project participants

PERSPECTIVES AND DIFFERENCES:

KENYA, NIGERIA & ETHIOPIA

KENYA PERSPECTIVES

Kenyan Legal and Regulatory Framework

1. Constitution of Kenya, 2010

- Natural resources vest in the people of Kenya
- The government regulates and administers natural resources on behalf of the people of Kenya
- Fourth Schedule: MoEP is responsible for establishing energy policy

2. Energy Act, 2019

- Regulates all energy activities in Kenya through EPRA
- Establishes energy sector entities
- Provides for the promotion of renewable energy in Kenya
- Exploration, recovery and commercial utilization of geothermal energy

3. Public Private Partnerships Act, 2013

- PPP legal framework to be overhauled
- PPP Bill has been published and public consultation conducted

4. Public Procurement and Asset Disposal Act, 2015

- Provides for the procurement of all public sector projects, which invariably tends to include REPs in Kenya given the government's involvement in the generation, transmission and distribution of electricity



Kenyan Legal and Regulatory Framework: Policies

Selected Key Institutions & Actors

- Ministry of Energy & Petroleum
 - Energy & Petroleum Regulatory Authority
 - Kenya Electricity Generating Company
 - 70% State-owned
 - Geothermal Development Company
 - State-owned
 - Kenya Electricity Transmission Company
 - State-owned
 - Rural Electrification & Renewable Energy Corporation
 - State-owned
 - Kenya Power and Lighting Company
 - 50.1% State-owned

Kenyan Legal and Regulatory Framework: Policies

1. Vision 2030

- The government seeks to promote development of renewable energy as an alternative source of energy. This includes generation of energy from solar, wind, biogas and development of bioenergy including bio-ethanol and diesel value chains.

2. Policy on Licensing of Geothermal Greenfields

- To provide for procurement of geothermal projects. Yet to be formulated by MoE.

3. The Renewable Energy Auctions Policy, January 2021

- All solar and wind projects plus all other REP projects above 20MW to be procured through this policy.

4. Feed-in-Tariffs Policy, 2012

- Promotes the generation of electricity from renewable energy sources by enabling power producers to sell electricity at a pre-determined tariff. Applies to wind power, biomass, small-hydro, geothermal and solar.

5. The Feed in Tariffs Policy on Renewable Energy Resource Generated Electricity (Small-Hydro, Biomass and Biogas), January 2021 (2021 FiT Policy)

- Limits Feed in Tariffs to small scale biomass, biogas and small hydro projects of up to 20 MW.



Ministry of Energy



Feed-in-Tariffs – Perspectives from Kenya

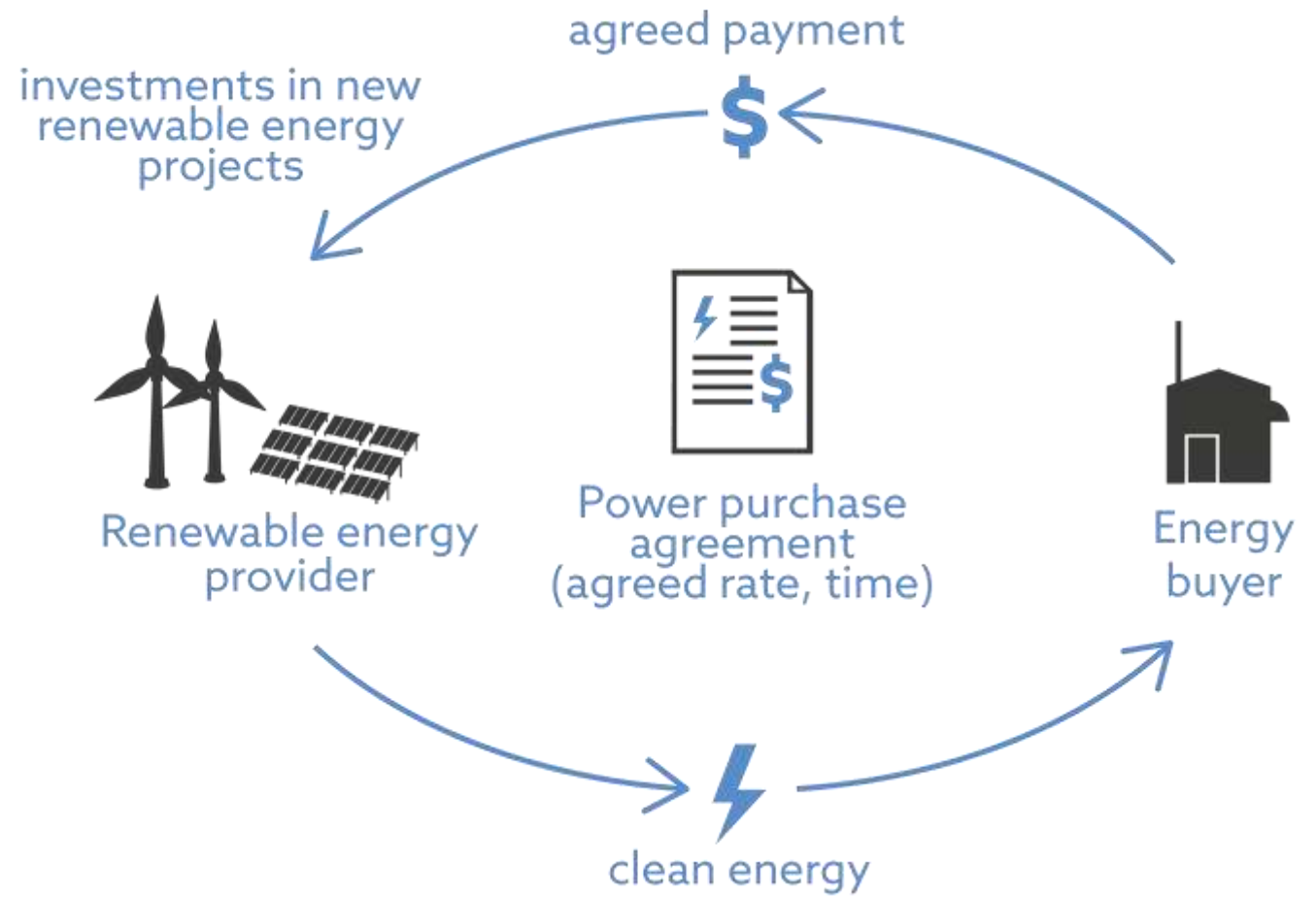
- Kenya's **FiT policy** is meant to encourage investment in generation of electricity from RE sources through pre-determined tariffs for up to 20 years.
- Relevant policy: **2021 FiT Policy** applying to all solar and wind projects up to 20MW
- Standardized PPAs to be used in the procurement of projects under the 2021 FiT Policy.
- No security or guarantee from the government for these projects; consistent with **Government Support Measures Policy**.
- All >20MW solar and wind approved projects under the previous (2012) model that have unsigned PPAs are to be transitioned under the **Renewable Energy Auction Policy** framework.
- **Policy on Licensing of Geothermal Greenfields** (yet to be formulated by MoE) to apply geothermal projects.

Renewable Energy Auction Policy 2021

- Applies to **all solar and wind power projects**, as well as other renewable energy projects larger than 20MW.
- The auction mechanism will comprise of a **two – stage bidding process** i.e., a prequalification stage; and a detailed technical and financial evaluation.
- Auctions to be announced by the Ministry of Energy on advice by the LCPDP Committee.
- All approved solar and wind Expression of Interests granted under the 2012 FiT policy to be transitioned to the 2021 REAP framework.
- It is unclear whether existing solar and wind FiT projects will be prioritized under the auctions to be carried out under the REAP framework.

Corporate Structuring – Perspectives from Kenya

- Requirement for project companies to be legally incorporated in Kenya.
- Under the 2021 FiT Policy, where equity partners are incorporated into the project company, the initially approved developer must retain at least 30% shareholding.
- Previously, a developer could cede 100% shareholding.
- Restrictions on foreign shareholding of listed companies no longer exist.



Environmental Considerations

- RE provides 85% of Kenya's electricity needs. Vision 2030 is aiming for 100%.
- Environmental and Social Impact Assessment
 - Mitigation Measures to Avoid or Minimize Impacts
 - Environmental and Social Management Plans
 - Community Consultation and Disclosure Process
- Reduction of reliance on hydropower due to climate change.
- LCPDP 2021 – 2030 focus on environmental concerns such as adherence of the sector to Nationally Agreed Targets in Green House Gas.



NIGERIA PERSPECTIVES

The Role of IPPs in Energy Generation

Renewable IPPs (Hydro)

- Current operational large scale renewable projects are hydro dams. (e.g., Shiroro, Kainji & Jebba).
- NESCO also operates small scale hydro schemes around Jos amounting to 19 MW.
- Other hydro projects in the pipeline include Mambila and Zungeru hydro dams.

The Role of IPPs in Energy Generation

Renewable IPPs (Solar)

- There have been several large scale solar projects, with 14 PPAs signed for solar PV plants intended to supply power to the national grid.
- These projects have been stalled. But the combined capacity of the plants is 1,125MW, with project value amounting to about \$2.5 billion.
- The main reason for the delay is disagreement between the government and the IPPS over acceptable tariffs (\$0.115/kWh) and payment guarantee.

Regulatory Regime – Federal Legislation

- Laws

- Constitution of the Federal Republic Nigeria, 1999
 - Paragraph 13 and 14 of the concurrent legislative list
- Electric Power Sector Reform Act
- Nigerian Electricity Management Services Agency Act
- Environmental Impact Assessment Act

- Codes, Rules & Regulations

- Market Rules
- Metering Code
- NERC Renewable Energy Feed-in Tariff Regulations
- NERC Mini-grid Regulations

Project Siting

- Renewable Energy Project Siting in Nigeria:
 - Solar projects are typically situated in the northern region where there is high solar radiation.
 - In terms of hydro, the projects are situated in the north and south-west regions where there is abundance of rivers and natural falls.
- Land Issues – General
 - Renewable energy projects such as solar and hydro require huge project sites.
 - The acquisition of land, and payment of compensation in Nigeria is governed by the Land Use Act, and the NERC (Acquisition of Land and Access Rights for Electricity Projects) Regulations

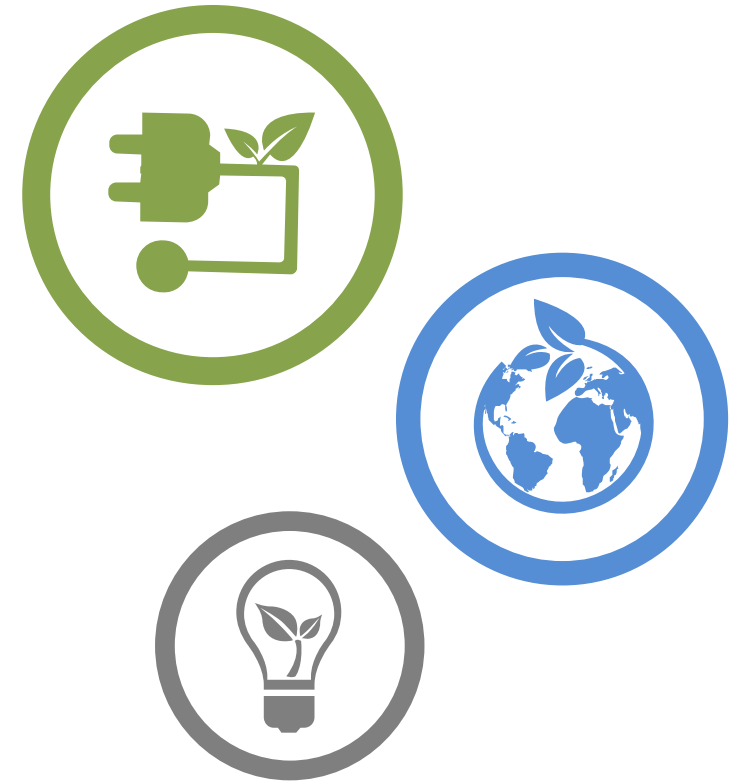


Project Siting (cont.)

- Land Issues – Compensation
 - The Project owner is required to negotiate an acceptable compensation with the landowners/Project Affected Persons (PAPs).
 - Compensation occurs after the land has been appraised, and a fair market value has been obtained and certified by a NERC appointed appraiser.
- Land Issues – Tenure system in Nigeria
 - Customary land tenure:
 - Customary law: ownership of land is usually vested in the village, community or family.
 - Individual rights are limited to use and enjoyment of a portion.
 - Negotiations for acquisition of such lands is required to be done with the head of the village, community or land.

Environmental Considerations

- Renewable energy projects have considerably less carbon footprint on the environment.
- To ascertain the likely effect of the project on the environment, an Environmental Impact Assessment is conducted.
- For hydro projects, EIAs are required for dams over 15 meters high and/or reservoirs with a surface area in excess of 400 hectares.
- The completion of an EIA is a requirement for obtaining a generation licence from NERC.



ETHIOPIA PERSPECTIVES

Why Does Ethiopia Need Power Project Procurement?

- Access to energy accelerates industrial production, commerce, construction & public works, education, household activities, transport and countless other activities.
- Lack of sufficient power generation capacity, poor transmission and distribution infrastructure, high costs of supply to remote areas, or simply lack of affordability of electricity, are among the biggest hurdles for achieving socio-economic developments.
- Access to affordable and reliable electricity plays a critical role in economic development, employment creation and investments.
- In Ethiopia, power projects seek to supply renewable and sustainable energy. Power projects play a multitude of roles in the energy sector, and more importantly, in improving the renewable energy sector of the country through PPPs and IPPs.

Opportunities for Power Projects (cont.)

2. IPPs and PPPs

- In order to meet the growing demand for infrastructure and public service delivery, most Ethiopian projects have been financed by the government through the national budget, commercial loans and development assistance.
- Previously, the Government was solely responsible for providing public services, without help from private sectors partnership.
- However, to meet the required investment, technology, skill and demand, the Ethiopian Government envisions a future where the private sector plays a large role in the majority of its infrastructure projects, via Public Private Partnerships (PPP).
- PPP is an efficient and effective method of delivering large government infrastructure projects. PPP is a tool to attract necessary FDIs to support the implementation of government development plans and policy goals.

Opportunities for Power Projects (cont.)

2. IPPs and PPPs (cont.)

- The current structure of power projects in Ethiopia are based on the IPP and PP models.
 - PPP model is the government's preferred, regulated and dominant form of structuring power projects.
 - Prior to the 2018 enactment of Ethiopia's PPP law, IPP was the leading structure.
- The IPP model continues to play a role as a gap filling structure.
- The renewable energy sector was a leading influence on Ethiopia's move to a PPP model.
- 8 solar projects, 5 wind and 5 hydro electric projects were selected under the PPP model.
 - From those 8 solar projects, 2 of them won the tender stage and have moved to commercial close *i.e.*, signed Power Purchase Agreement (PPA) and Implementation Agreement (IA)
 - Implementation of these 2 solar projects is imminent.
- Ethiopia expects to benefit from the PPP model's speed, efficiency & effectiveness in delivery, transparent and competitive procurement, efficient use of resources, innovation, customer care, increasing cash flows, and use of private capital to complement public budget resources.

Opportunities for Power Projects (cont.)

2. IPPs and PPPs (cont.)

- Over the last decade, Ethiopia's power sector has far from fulfilled its vital role in attracting FDI. Power projects have been implemented under the government's budget.
- There was no involvement of the private sector and IPPs were not encouraged.
- Some of the challenges that resulted in inadequate service delivery and customer satisfaction from the power sector are:
 - Traditional procurement systems
 - Government as a sole risk taker
 - Limited time for project procurement

Renewable Energy Project Procurements

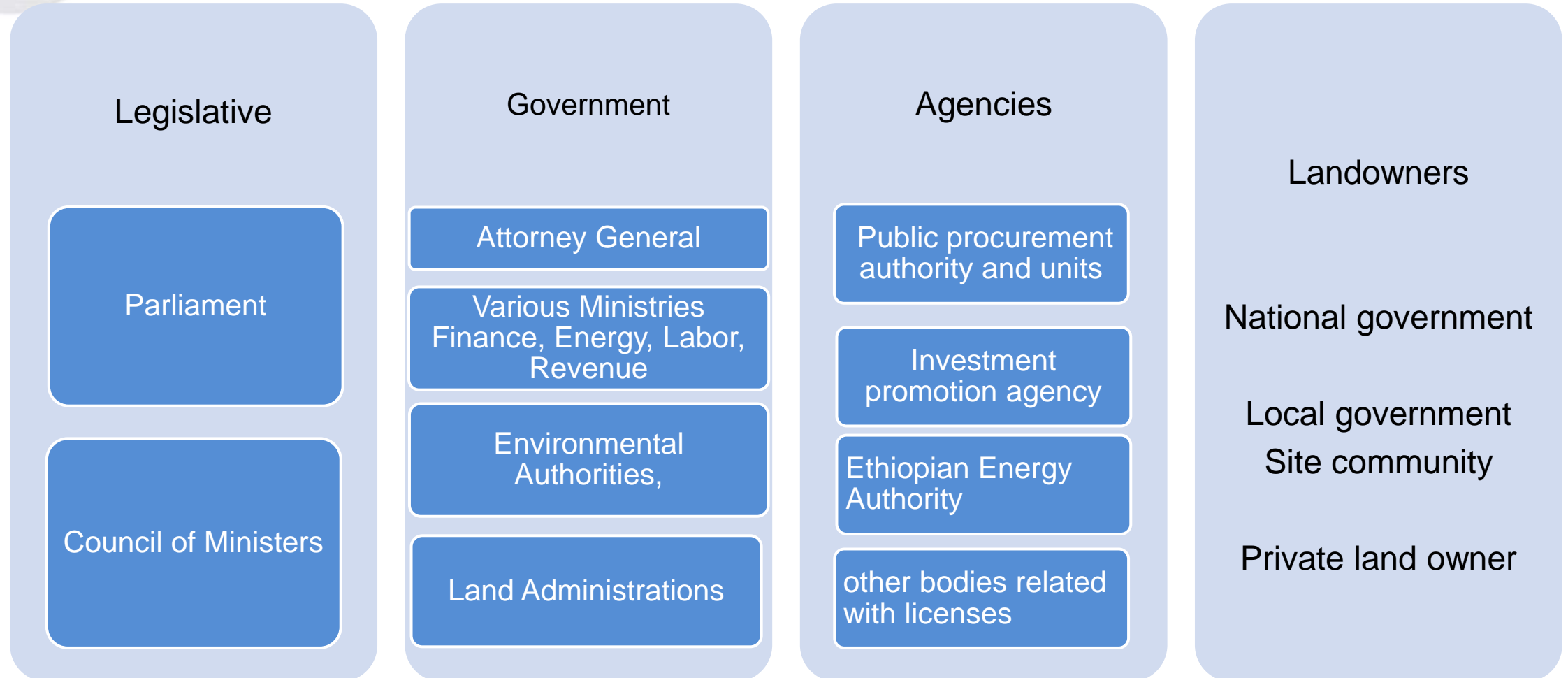
- Ethiopia has the second largest hydropower potential in Africa, potentially covering 90% of the nation's electricity demand, yet only 10% has been developed to date.
- Currently, more than 14 installed hydroelectric power plants are operating and with an installed capacity around 4,330 MW of hydro.
 - However, more than 6,600 MW are still under construction.
- Hydropower plants are expensive, have limited reserves and can have negative environmental consequences. To address these issues, Ethiopia's energy sector should diversify itself and adopt more intermittent sources such as solar, wind, and geothermal energy to deal with the population's demand.
- Although there is increasing public, government and private investor interest in renewable energy projects, hurdles still exist that impede structuring and implementation of new power projects.

Procurement

- Procurement strategies play an important role in all successful power projects. Success requires strategic consideration of all important elements through all potential stages.
- Procuring authorities must effectively plan, process, and administer all processes.
- Starting from identifying the project, to screening, prioritizing, administering the tender and awarding stages, there must be clear and well-organized studies and time schedules.
 - They must be structured in a way to minimize costs and time constraints.
- Procurement processes are like due diligence, where the potential investor or bidder gets clear and precise information about the proposed project. Therefore, the procurement process should give the bidder security and certainty to continue with the proposal.
- Procurement processes are often overlooked, with investors simply expected to submit a proposal. This results in withdrawal of bidders which negatively impacts competitive bidding.

Key Stakeholders in PPPs

1. Public Sector Stakeholders



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