



# World Clean Energy

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## Investment & Projects: The Wave of Utility Scale Projects in Philippines

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# outline

- Brief background of the Philippine Energy Sector on the point of view of the private sector participant
- The regulatory frameworks
- The industry structure and stakeholders
- The future: the Renewable Energy, the scaling up, economies of scale,





# background



History of the Philippine  
Energy Sector



Geographic area franchise  
re: electric utilities



**□ ELECTRIC POWER INDUSTRY REFORM  
ACT ( Republic Act 9136)**

- Ensure quality, security, reliability and affordability of supply of electric power**

# Stakeholders

The restructured electric power industry is composed of four sectors:

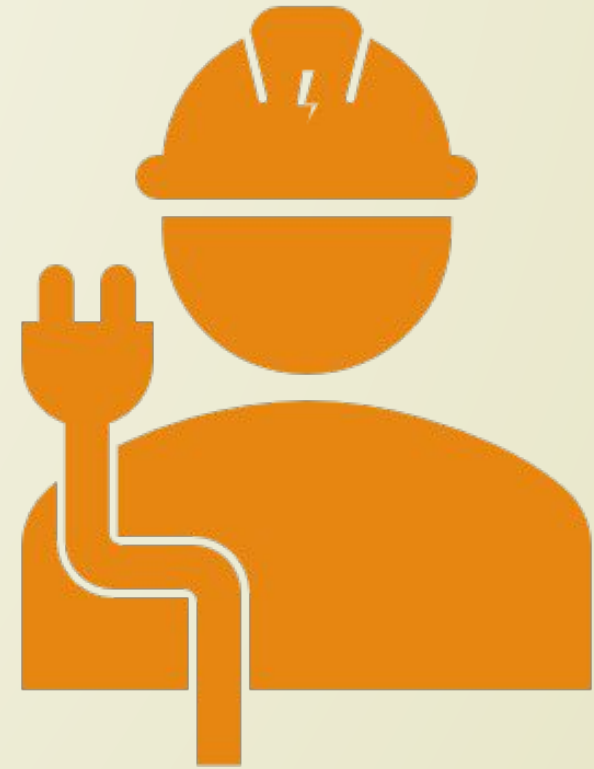
- generation
- transmission
- distribution
- supply



# Regulatory frameworks for Electricity Utilities in the Philippines

The electric power industry is subject to:

- number of laws ( EPIRA, Renewable Energy Law...etc.)
- policies,
- administrative rules and regulations governing entry and ownership,
- electricity pricing,
- technical and financial standards,
- customer service standards, access to inputs,
- fiscal treatment of electric utilities



# THE CONCEPT

**GOAL 35% BY 2030 AND 50% BY 2050  
OF THE ENERGY MIX**

LAWS GOVERNING THE PHILIPPINE  
POWER INDUSTRY

- Republic Act No 9513 -Renewable Energy Law
- Republic Act No.9136- Electric Power Industry Reform Act
- Republic Act No.10531- National Electrification Act
- Philippine Energy Plan
- Executive Order No. 226-Omnibus Foreign Investment Code of 1987
- Republic Act No. 7042- Foreign Investment Code of 1991
- Republic Act No.7721- Foreign Banks Act
- Republic Act No.7652 – Investors Lease Act
- Republic Act No. 7718- Build- Operate- Transfer Law
- Investment Priority Projects of 2019
- Philippine Millennium Development Goals
- Republic Act No. 9729- Climate Change Act
- Republic Act 8749 or the Clean Air Act of 1999



Department  
of ENERGY

# PHILIPPINE ENERGY PLAN

Towards a  
Sustainable and  
Clean Energy  
Future

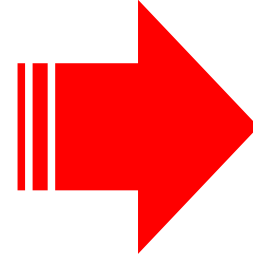
2020 - 2040

## The Philippine energy plan

- The **Philippine Energy Plan (PEP) 2020-2040** is the second comprehensive energy blueprint supporting the government's long-term vision known as **Ambisyon Natin 2040**.



OPPORTUNITIES FOR THE  
UTILITY RENEWABLE  
ENERGY DEVELOPMENT  
IN THE PHILIPPINES UNTIL  
2030 UNTIL 2050



RE targets of 30% and 50%  
are **achievable** in 2030

HOWEVER

TARGETTING  
50% RE GRID  
PENETRATION

- Involve changes to how the power system is operated;
- System flexibility will contribute to cost-effective integration of variable RE;
- Require coordinated planning of generation and transmission development;
- Strategic, economic curtailments of solar and wind energy can enhance system flexibility;
- Reserve provision may become an issue regardless of RE penetration.
- Additional qualified reserve-providing facilities (QFs), including from solar and wind generators;
- Enhanced sharing of ancillary services between the Luzon and Visayas interconnections will likely be needed.

Source: USAID/DOE

As of the end of 2020, the Philippines had an installed capacity:

- 3 779 megawatts (MW) of hydropower,
- 1 928 MW of geothermal power,
- 1 019 MW of solar power,
- 443 MW of wind power, and
- 483 MW biomass.

Renewable energy only makes up about a fifth of the country's power generation mix, with the remaining being accounted for by coal and natural gas.



# MARKET OPPORTUNITIES

The renewable energy (RE) sector is comprised of RE resources coming from

- geothermal resources (1,200MW),
- solar energy (average potential 5kWh/m<sup>2</sup>/day),
- hydropower (10,500 MW),
- wind resources (76,600),
- and potential biomass (bagasse, potential of 4,000 MW)
- and ocean energy (170,000 MW).



# ROAD MAP



**CONCEPT DEVELOPMENT  
AND SITE IDENTIFICATION**



**PRE-FEASIBILITY STUDY,  
FEASIBILITY STUDY**



**PERMITTING, FINANCING,  
AND CONTRACTS**

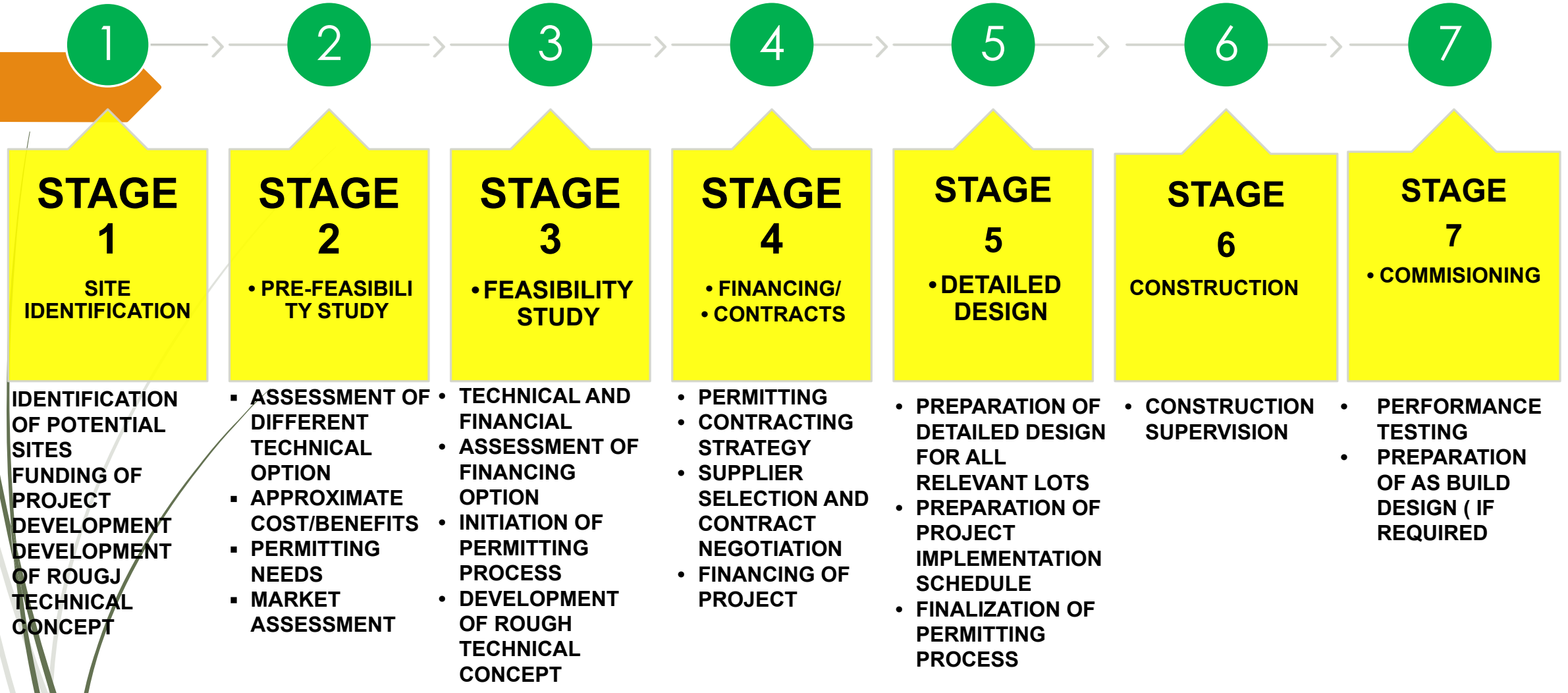


**ENGINEERING,  
CONSTRUCTION AND  
COMMERCIAL OPERATION**



## **DEVELOPMENT PHASES UNDER THE RENEWABLE ENERGY LAW OF 2008**

- PHASE 1: PROJECT PREPARATION ( SELECTION OF SITE & BUSINESS MODEL)
- PHASE 2: PRE-DEVELOPMENT
- PHASE 3: DEVELOPMENT AND COMMERCIALIZATION
- PHASE 4: REGISTRATION AND CONNECTION
- PHASE 5. OPERATION & MAINTENANCE



# UTILITY RE PROJECT DEVELOPMENT STAGES

# THE PROJECT COMPANY STRUCTURE ROADMAP

## A DEVELOPMENT PROJECT COMPANY:

I. ALREADY ORGANIZED

II. TO BE CREATED FOR THE PROJECT TO BE REGISTERED AT SECURITIES AND EXCHANGE COMMISSION:

- SECURE AN INDORSEMENT FROM DOE AS ENERGY DEVELOPER
- SUBMIT ALL REQUIREMENTS AT SEC VIA ONLINE

- **MERGER** - must comply with the legal requirements under the Corporation Code and the Philippine constitution;
- **ACQUISITION** - must comply with Section 40 of the Corporation Code and subject to the restrictions regarding foreign equity ownership under the 1987 Constitution;
- **MANAGEMENT CONTRACT** - must comply with Section 44 of the Corporation Code;
- **JOINT VENTURE** - may be entered into without legal restriction on registration unless the parties thereto form another business organization requiring registration such as a corporation or partnership

REQUIREMENTS  
UNDER THE  
PHILIPPINE  
CONSTITUTION  
RE: NATURAL  
RESOURCES AND  
UTILITY  
BUSINESS

- ONE HUNDRED PERCENT FILIPINOS;
- 60 PERCENT FILIPINO & 40 PERCENT FOREIGNERS



## OFF-TAKER MATTERS

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### **FOUR BUSINESS MODELS FOR RE PROJECT IN THE PHILIPPINES UNDER THE RENEWABLE ENERGY LAW:**

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Feed-in-Tariff projects under Sec. 7 of RE law

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Power Supply Agreements with distribution utilities in on-grid areas Sec. 6 of RE law;

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Wholesale Electricity Spot Market

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Power Supply agreements with combined bulk consumers, Sec.9 of RE Law, and Section 31c of the EPIRA Law

# FINANCING UTILITY RE POWER PROJECTS

INVESTMENTS NEED TO  
TARGET 35% RENEWABLE  
ENERGY IN 2030 IN THE  
ENERGY MIX

## SOURCES AND MANNER OF FINANCING

- **Public Sector Loans** – Government Banks ( Land Bank of the Philippines, Development Bank of the Philippines)
- **Private Sector Loans** ( World Bank, International Financing Corporation, Asian Development Bank)
- **Short Term Loans**
- **Domestic Borrowings** – local banks
- **Other Financing Institutions** – international and local
- **Equity**, from one or more investors, injected directly or via SPV/project company
- **No limited recourse debt** from one or more lenders, secured against the assets owned by the project company

## KEY DRIVERS IN PROJECT FINANCE

- Project Analysis — Completion Risk
- Contractors
- Manufacturers
- Transmission
- Construction Contract Terms
- Construction Technology Risk
- Project Analysis — Operation Risk
- Operator
- Operating Costs



**PROCESS THAT  
REQUIRES  
MULTIDISCIPLINARY  
TEAM OF EXPERTS;**



**START BY IDENTIFYING  
A POWER MARKET  
THAT OFFERS  
ADEQUATE RISK-  
REWARD  
OPPORTUNITIES;**



**IDENTIFY SUITABLE  
SITE; SECURE LAND-  
USE RIGHTS FOR THE  
SITE;**



**CARRIES TWO  
SEPARATE  
ROUNDS OF  
TECHNICAL-  
FINANCIAL  
ASSESSMENTS (  
PRE-FS AND FS);**



**OBTAINING OF  
PERMITS AND  
LICENSES;**



**SECURES POWER  
PURCHASE  
AGREEMENT AND  
INTERCONNECTIO  
N AGREEMENT;  
ARRANGE  
FINANCING;**



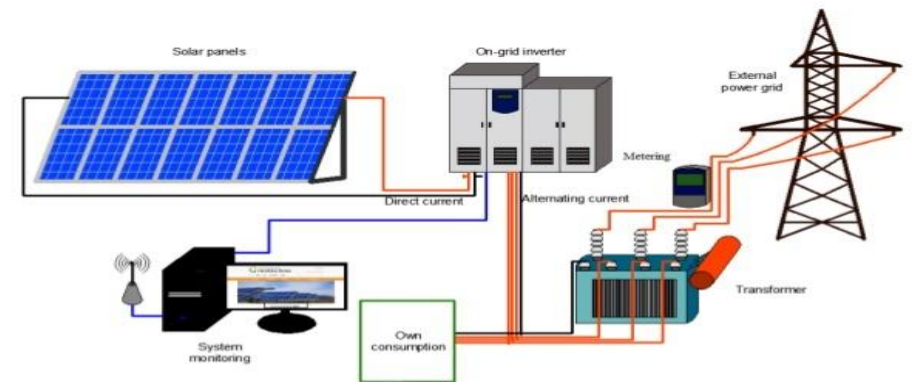
**SELECT A TEAM TO  
DESIGN AND  
CONSTRUCT THE  
PROJECT ( EPC  
CONTRACTOR);  
SUPERVISES PLANT  
AND CONSTRUCTION  
CARRIES TESTING  
AND START UP**


**Project  
development:  
privately financed  
utility scale solar  
power project**



## The Utility RE Power investment bankability challenge

- **Technology:** is it proven?
- **Can the EPC provide references and has capability to deliver the project on time?**
- **What is the anticipated ROI?**
- **Is the tariff rate viable commercially?**
- **When is the facility generate a good return?**





The Philippines' Department of Energy (DOE) has published its national renewable energy programme (NREP) for the period 2020 to 2040, setting out its goals of 35% renewable energy generation by 2030 and 50% by 2040.

## The country will need to install by 2040

- another 102 gigawatts (GW)
- 27GW solar,
- 17GW wind, 6GW hydro,
- 2.5GW geothermal
- 364MW biomass

As of 31 December 2021, a total of 901MW committed renewable power generation projects are expected to be operational from 2022-2027. Among these, 54% of projects are solar and 26% are hydro.

# RENEWABLE ENERGY UTILITY PROJECTS



**Facility that generates clean power and feeds it into the grid**



supplying a utility with energy



has a power purchase Agreement (PPA) with a utility



guaranteeing a market for its energy for a fixed term of time.



installations that are interconnected in and around rural areas and communities and provide local benefits of resilience and renewable energy.

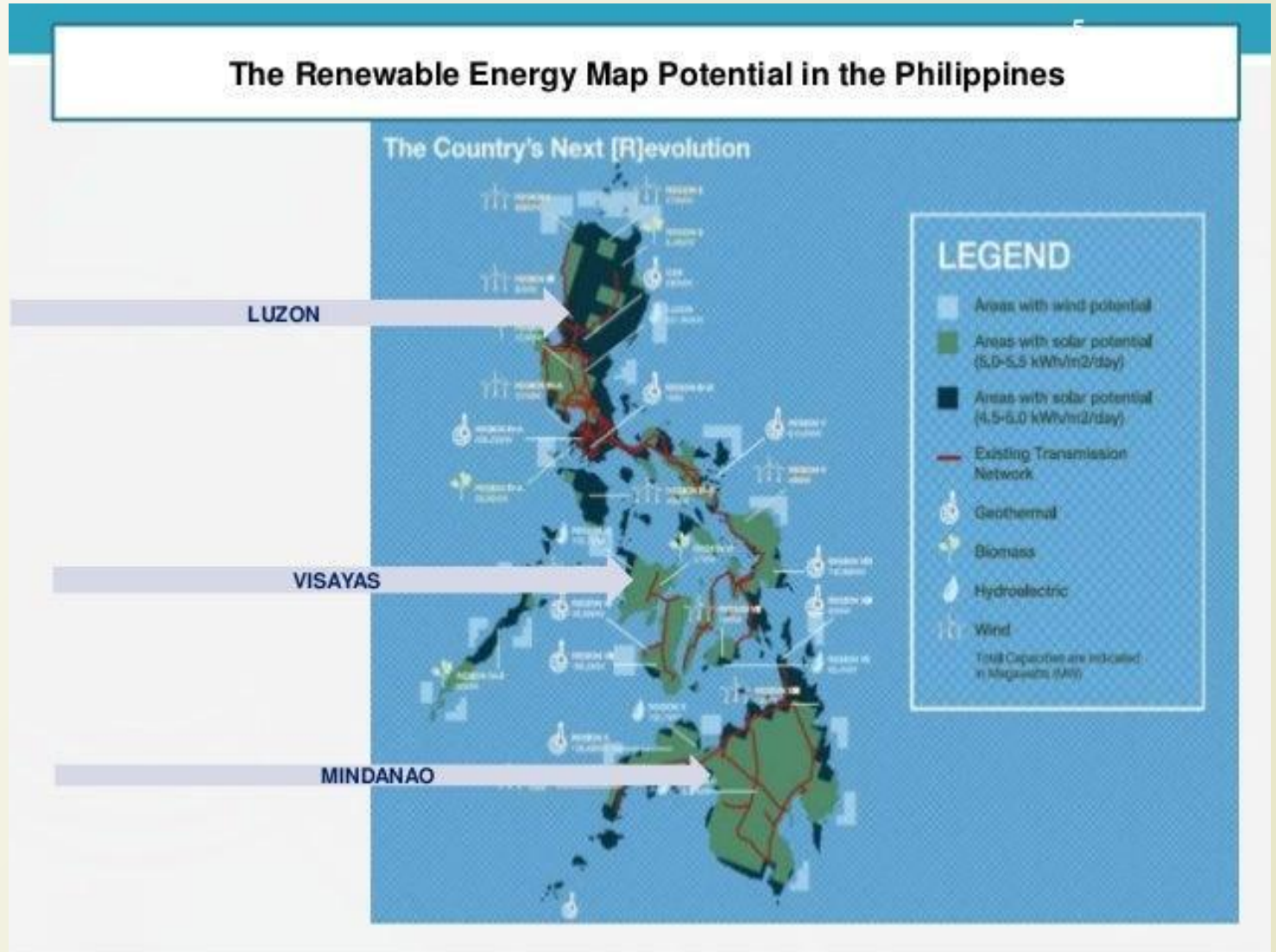
Size of a utility scale energy generation plant: 10 MW or larger

# The direction---

THE UTILITY SCALE  
PROJECTS – PERTAINS TO  
RENEWABLE ENERGY

SCALING UP

ECONOMIES OF SCALE





**UTILITY SCALE  
RENEWABLES**

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COMPETING FOR CAPITAL...

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ABILITY TO ATTRACT SUBSTANTIAL  
FINANCIAL CAPITAL REQUIRED SUPPORT  
IN THE DEVELOPMENT OF RENEWABLES  
IN THE COUNTRY

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CLEAN ENERGY FUND GRANTS TO  
ENCOURAGE AND SUPPORT  
DEVELOPMENT OF LARGE-SCALE  
PROJECTS WITHIN THEIR BORDERS.




Renewable Energy utility-scale installations will account for about more than two thirds of capacity in 2050 up to 2080 in the Philippines



## Economy of Scale: Doing Better Than “Bigger” in Renewable Energy

- Geopolitics are exacerbating cost pressures while distributed renewable generation, new digital technologies and changing consumer expectations are creating a new energy world that is more complex, competitive and challenging.
- Survival for utilities depends on their ability to develop new capabilities, different business models and a mindset centered around agility and collaboration.



# The Business Model: the wave of utility scale projects in the Philippines

Meet rising demand that will support strong balance sheets.

With financial strength, utility retained earnings served as the primary financing source for the electricity sector.

Utilities are reliable purchasers of power

Facilitating investments

Financial incentives

Priority in transmission access and dispatch




# Utility scale business model in the electricity sector

- Supports the growing economy
- Technology innovation
- Creates new opportunities
- The government will simultaneously prioritize energy security and transition to sustainable energy use
- Investment decisions

The economic performance of utilities --- will have crucial impacts on financing for investments required in the transition.. How utility scale model interact with the Philippine EPIRA law, Renewable Energy law and other related energy laws will have strong implications



Philippine energy roadmap



**RENEWABLE  
ENERGY IS  
EXPERIENCING A  
SCALE-UP OF  
UNPRECEDENTED  
PROPORTIONS**

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In the past five years, wind and solar production has nearly tripled in larger capacity, from 1.0 MW scale to more than 500 MW scale;

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Philippine government have enacted renewable energy standards to guarantee further increases;

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and, as production capacity has increased, costs have dropped.

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**BUT BIGGER CAPACITY ISN'T ALWAYS BETTER.**



# MOTIVATION ON FOR THE DEVELOPMENT OF A UTILITY SOLAR PV POWER PROJECT

PRELIMINARY  
CONCEPTUAL  
DESIGN MUST BE  
DEVELOPED

BASIS FOR  
ESTIMATE  
INSTALLED  
CAPACITY OR  
MEGAWATTS

EXPECTATIONS

APPROXIMATE  
INVESTMENT  
REQUIREMENTS

ENERGY YIELD

EXPECTED TARIFF

ASSOCIATED  
REVENUE





# ENERGY POLICY:

- Regulatory environment
- Prevailing power prices
- Structure of the power market
- Credit-worthiness of the potential off-takers
- Financial incentives

# THE BUILT OPERATE TRANSFER (BOT) LAW

- i. Republic Act No. 6957 as amended by Republic Act No.7718 was enacted and in effect as of 1987;
- ii. Biggest single catalyst of Philippine economic miracle during the financial turmoil in Asia;
- iii. Responded to the power crisis (1990s);
- iv. Forty (40) Power Plants were built under the Built and Operate Transfer (BOT) scheme ending the power crisis in 1995;
- v. Was adopted to finance much-needed infrastructure projects;
- vi. The private sector were invited to participate in the financing, construction, operations which traditionally handled by the government;
- vii. 1988- the National Power Corporation signed the first BOT contract with Hopewell Energy Management Ltd of Hong Kong for the two 110-MW turbine power plants in Luzon.

# DID THE BOT/PPP LAW SOLVED THE POWER CRISIS?

- ❑ 1994: more than 40 contracts under BOT (IPPs);
- ❑ Generation capacity increased by 70% to 5,000.0 MW between 1992 to 1998

- **Most of the power plants under BOT were combustion turbines and diesel engine technologies with low capital costs;**
- **Constructed in one year and operational in one year.**

**AMENDMENTS  
TO THE  
PRESENT  
BOT/PPP LAW  
BILL PENDING IN  
CONGRESS**

**Purpose:** to strengthen the framework and to firm up the standing of the Public-Private-Partnership Center and to eliminate hindrances to the implementation of critical public interest.

- Promote the country as good business destination;
- To allow joint venture agreements scheme;
- Exemption of PPP projects in paying real property and local taxes, capital gain tax and documentary stamp taxes;
- More fiscal incentives and privileges and shortening the bureaucratic procedures in the approval of regulatory permits.

# AGREEMENTS FOR POWER PPP PROJECTS



CONCESSION  
AGREEMENT :



LOAN AGREEMENT



SHAREHOLDERS  
AGREEMENT



CONSTRUCTION  
CONTRACT OR  
ENGINEERING,  
PROCUREMENT  
AND  
CONSTRUCTION  
(EPC) CONTRACT



OPERATION AND  
MAINTENANCE  
CONTRACT



POWER PURCHASE  
AGREEMENT



LAND AGREEMENT



GRID  
CONNECTION  
AGREEMENT



# THE PPP 33 APPROACH

## THE PRIVATE SECTOR

### LONG TERM CONCESSION FOR A GOVERNMENT FUNCTION:

- i. Development
- ii. Operation of public facility

The development consists of the financing, design and construction of the facility, managing and maintaining the facility adequately and making it sufficiently profitable;

The concessionaire secures return of investment by operating the facility and, during the concession period, the concessionaire acts as owner;

At the end of the concession period, the concessionaire transfers the ownership of the facility free of liens to the principal at no cost.

# CHALLENGES AND BARRIERS TO UTILITY RE DEVELOPMENT

- ❑ **The country still preferred coal power;**
- ❑ **Political and regulatory barriers:** market needs clear policies and legal procedures to increase the interest of investors;
- ❑ **Technical barriers;** lack of physical facilities for transmission and distribution networks, as well as equipment and services necessary for solar power companies; inadequate connectivity to the grid,
- ❑ **Socio-Cultural barrier:** households' unwillingness to adopt renewable energy for fear of unreliability ; lack of knowledge and awareness of renewable energy technologies and systems amongst rural communities is another challenge encountered in renewable energy development;
- ❑ **Financial and economic barriers:** Initial capital cost of renewable energy is relatively high when compared to conventional sources of energy, which in turn raises the cost of renewable energy generation.
- ❑ **Market related barriers:** Initial investment costs for renewable energy systems are usually high. Consequently, market prices for these systems remain high and unaffordable to many potential customers;
- ❑ **Geographical and ecological barriers:** the incidence of RE resources on the surface of the earth is dependent on geographic location



THANK YOU..

IN PASSING...

The transition to a carbonless future pushes the private sector slowly shift toward sustainability goals and ensures value chains can withstand the threats posed by climate change.