

RENEWABLE ENERGY MARKETS PANEL DISCUSSION

# PROGRESS TOWARD INTERNATIONAL INTERCONNECTIONS IN EMERGING RENEWABLE ENERGY MARKETS



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Manager, Corporate Strategy and Program Management, Independent Electricity Market Operator of the Philippines (IEMOP)

Wednesday, Sept. 20 • 11:00 AM-12:00 PM



**Renewable Energy Markets™ 2023**

# GLOBAL ENVIRONMENTAL CONSULTING FIRM



Climate, Resiliency & Sustainability



Impact Assessment & Planning



Geotechnical/Ground Engineering



Site Assessment & Remediation



Natural Resources Management



Waste Management



Environmental Management & Compliance



Mining



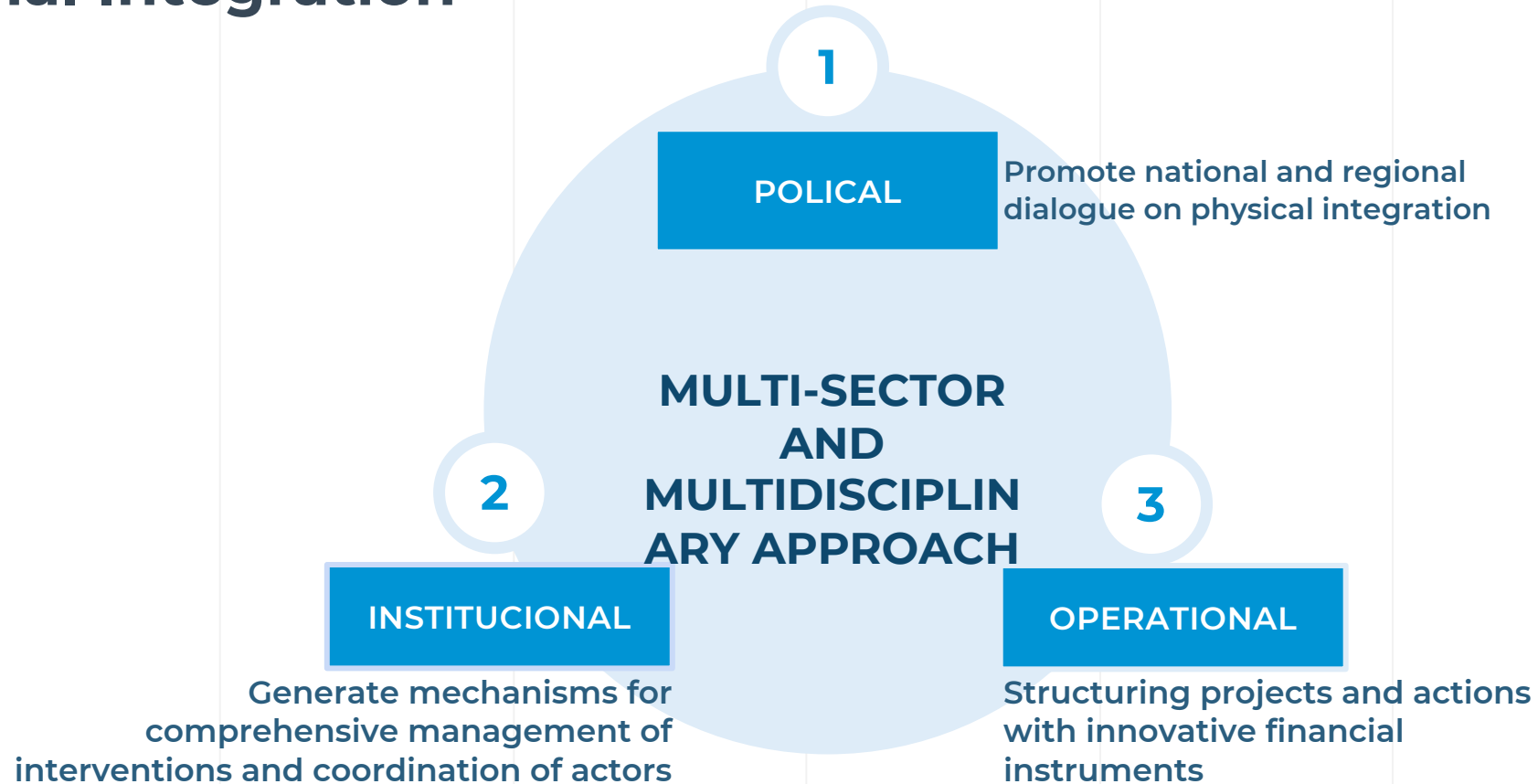
Strategic Advisory


# REGIONAL INTEGRATION IN LATIN AMERICA AND THE CARIBBEAN

## INTER-AMERICAN DEVELOPMENT BANK

Odile Johnson,  
Infrastructure and Energy Sector

# 3 levels for an effective intervention in Regional Integration



 **IDB Group as a regional strategic partner**  
guaranteeing technical quality, resources, and continuity over time  
and articulation of dialogue and consensus



# Towards the electrical integration of the continent

## SIEPAC

- Beneficiaries: 6 countries
- Private participation: +300 market agents
- Increase in exchanges: +5 times in 8 years
- Wholesale price reduction: 2.5 times
- Rate reduction: up to 19% in Costa Rica

## ARCO NORTE

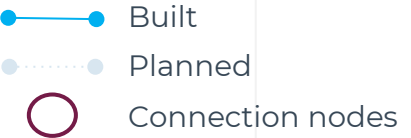
- Beneficiaries in the interconnection process: 4 countries
- In the process of designing architecture and connectivity infrastructure
- High potential for complementarity of renewable resources

## SINEA

- Beneficiaries: 5 countries in the process of interconnection
- Interconnected countries: 2 countries CO, EC
- Cost reduction in Colombia in emergency: up to 60%
- Mostly renewable energy exchanges

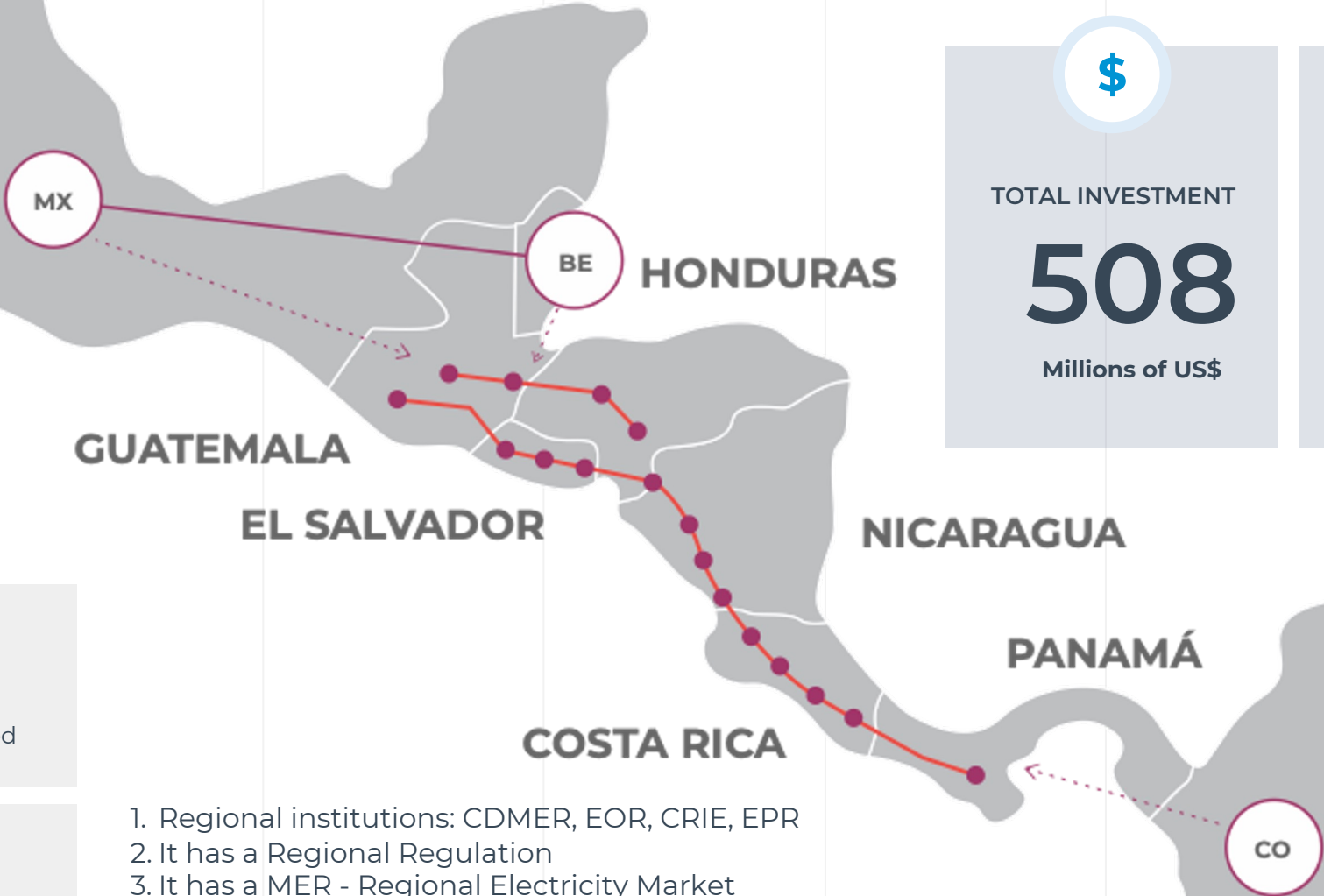
## SIESUR

- Beneficiaries 5 countries
- Interconnected countries: 4 countries BR, AR, PR, UR
- Exchange growth in 5 years: up to 3 times
- Exchanges with Renewable Energies: 70%
- Roadmap for actions at the level of regulations, standards, and mitigation of exchange risk



Estimated additional investment required: (US\$2.200M)

# SIEPAC



TOTAL INVESTMENT

**508**

Millions of US\$



CONTRIBUTION

**254**

Millions of US\$

<b>1,800</b> kilometers	<b>6</b> Countries interconnected
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<b>&gt;300</b> market agents	<b>5</b> times more exchanges
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- 1. Regional institutions: CDMER, EOR, CRIE, EPR
- 2. It has a Regional Regulation
- 3. It has a MER - Regional Electricity Market
- 4. Gives rise to the Central American Telecommunications Network (REDCA) with the installation of fiber optic cable
- 5. Supplies ~6% of regional demand
- 6. The Northern Triangle is the most active in the use of SIEPAC



# INTEGRATING RENEWABLE ENERGY MARKETS INTO THE PHILIPPINE WHOLESALE AND RETAIL ELECTRICITY MARKETS

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Presentation to REM 2023

18-20 SEPTEMBER 2023 | Capitol Hilton, Washington D.C.



# INDEPENDENT ELECTRICITY MARKET OPERATOR OF THE PHILIPPINES

## ROLES AND RESPONSIBILITIES





# MARKET OPERATIONS MAP OF THE PHILIPPINE ELECTRIC POWER INDUSTRY

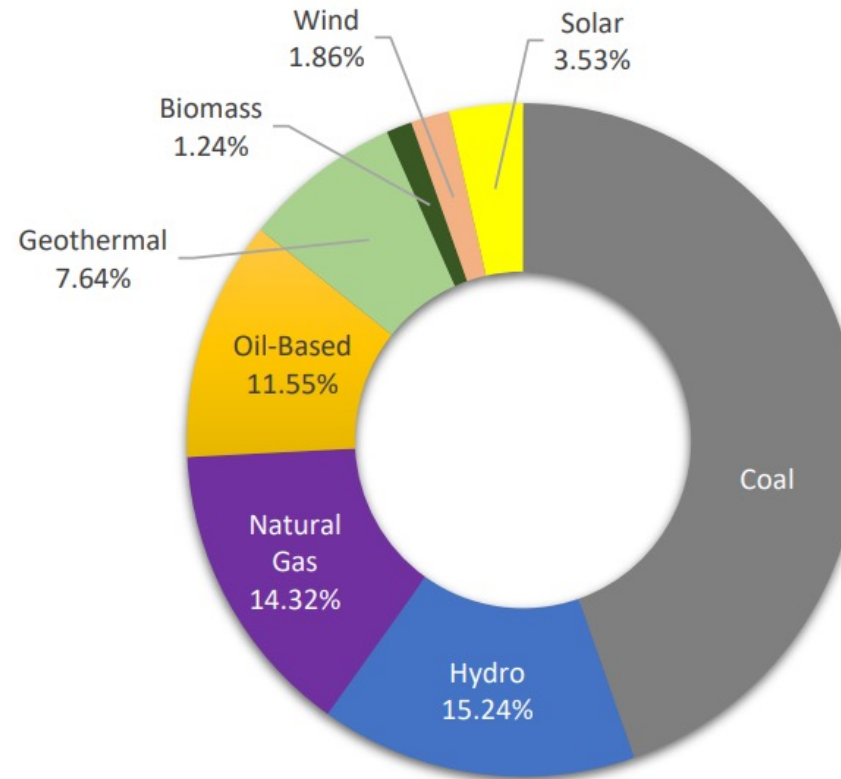
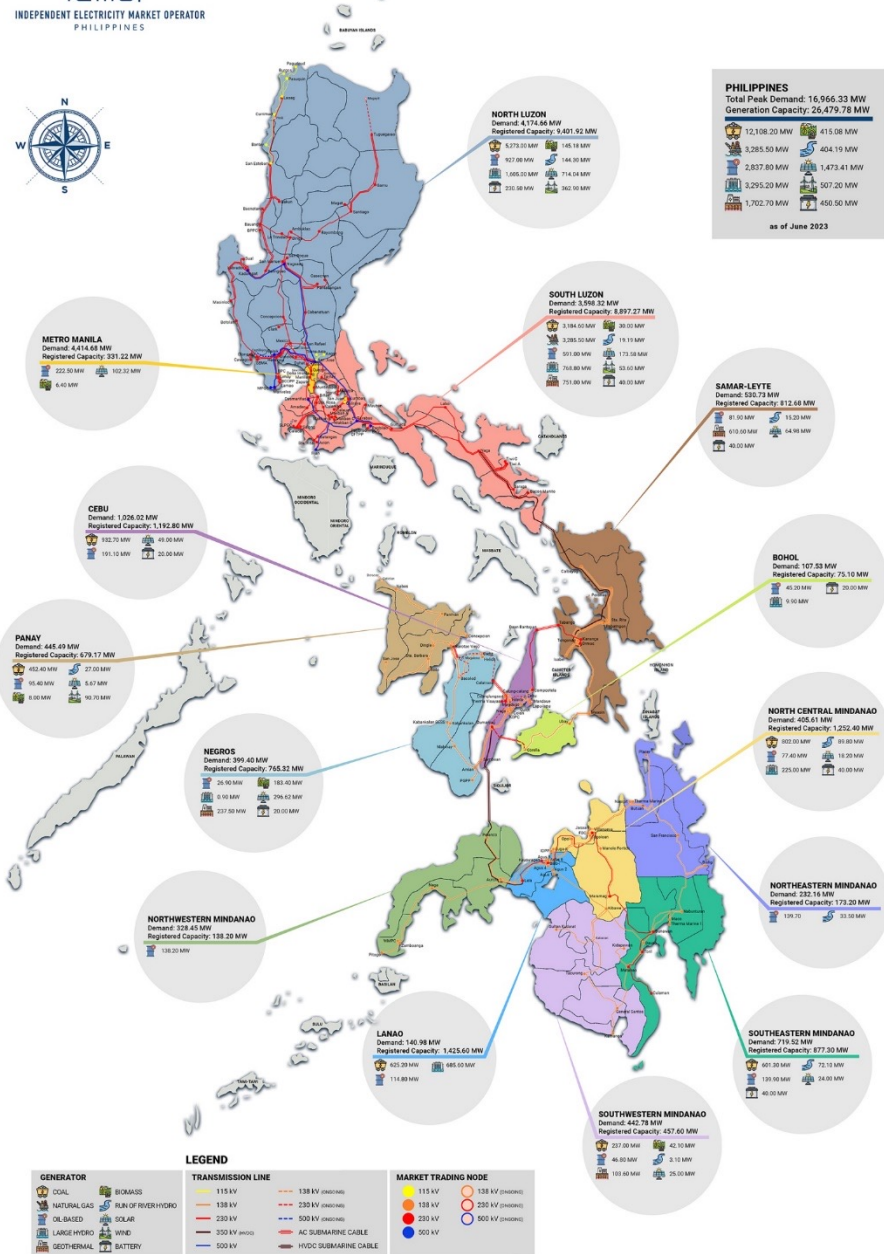


Figure 2.1: Philippine Dependable Capacity Mix (Grid-connected)



Figure 2.2: Luzon Transmission Network



Figure 2.4 South Luzon Transmission Corridor

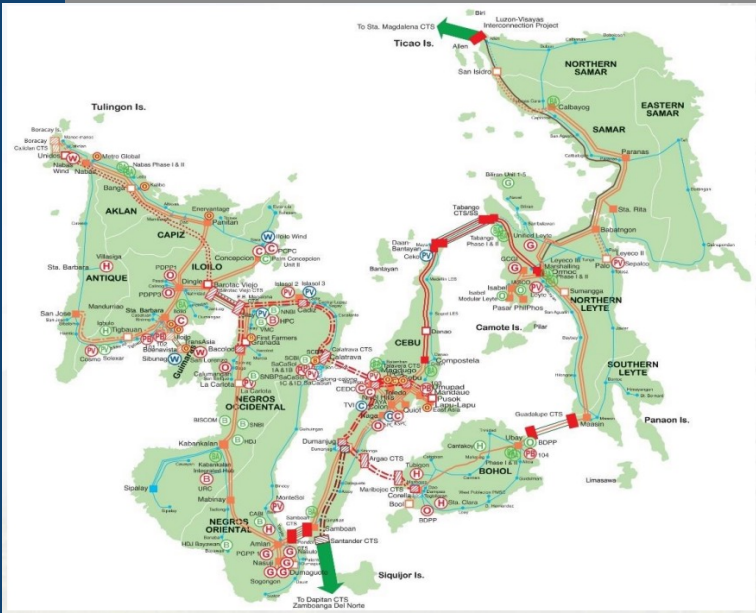


Figure 2.5: Visayas Transmission Network

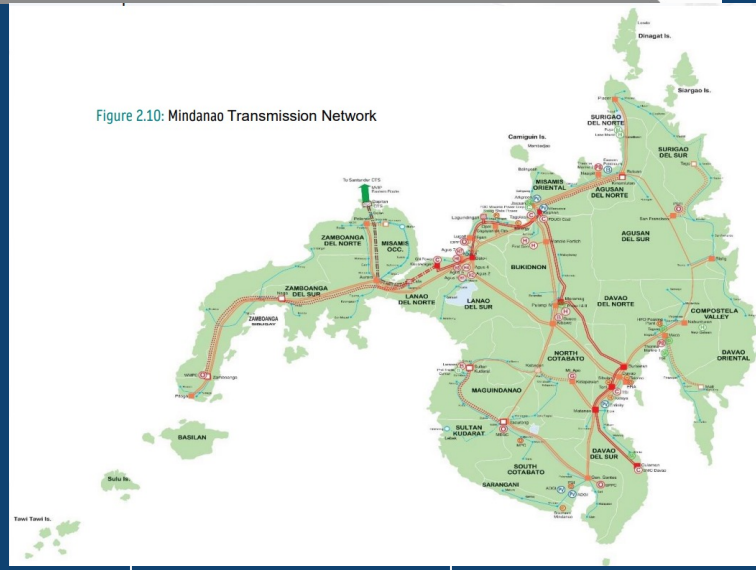


Figure 2.10: Mindanao Transmission Network

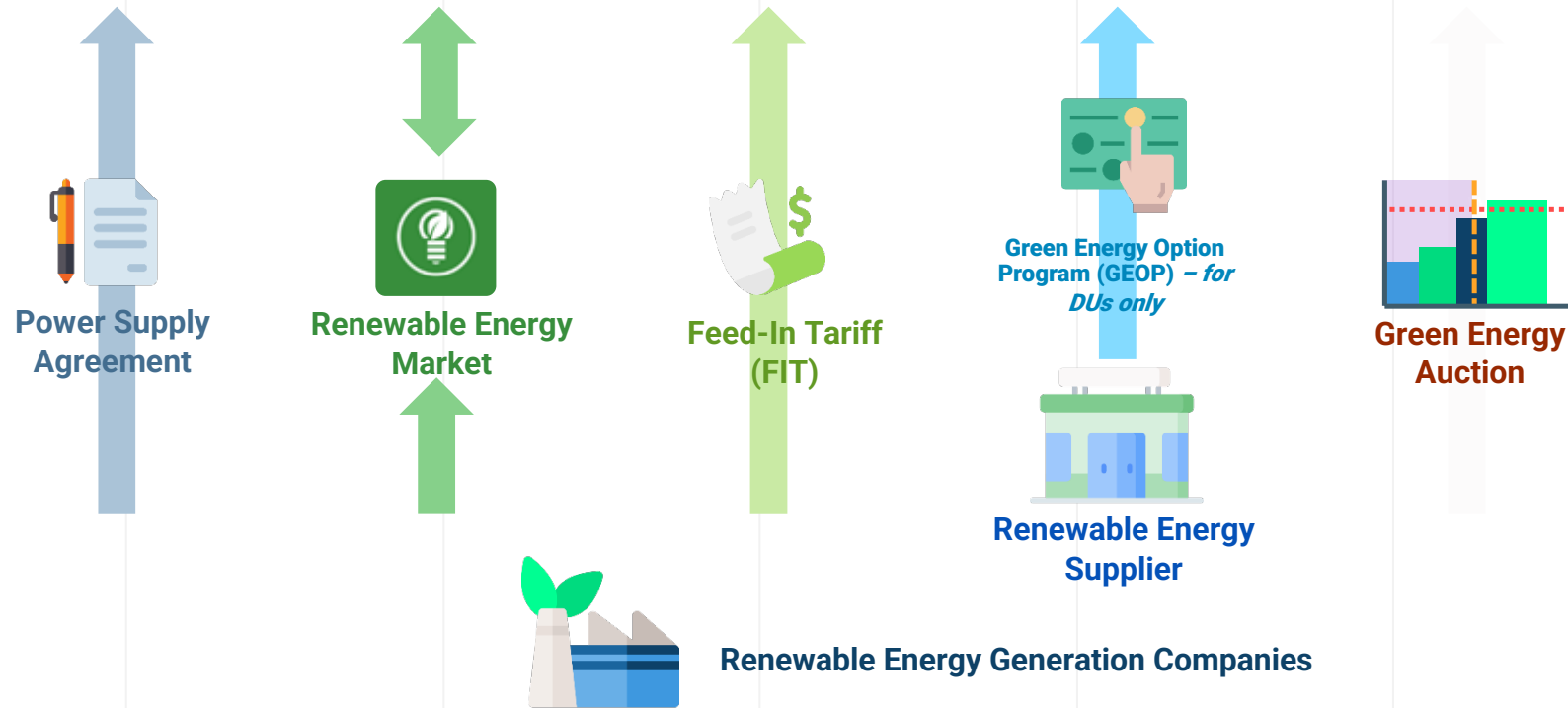
Source: National Grid Corporation of the Philippines Transmission Development Plan 2022-2040

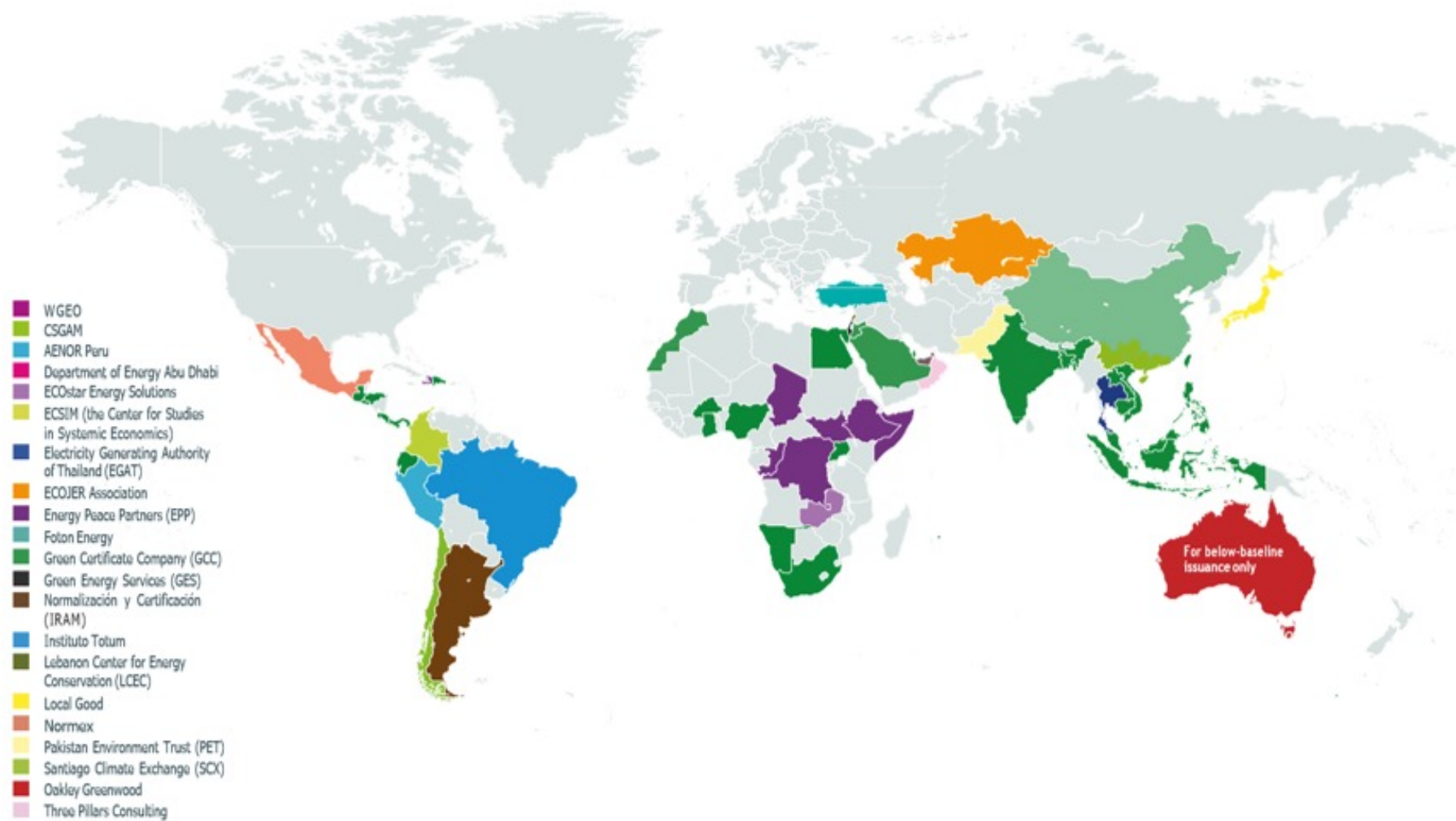
# RENEWABLE ENERGY PROGRAMS IN THE PHILIPPINES



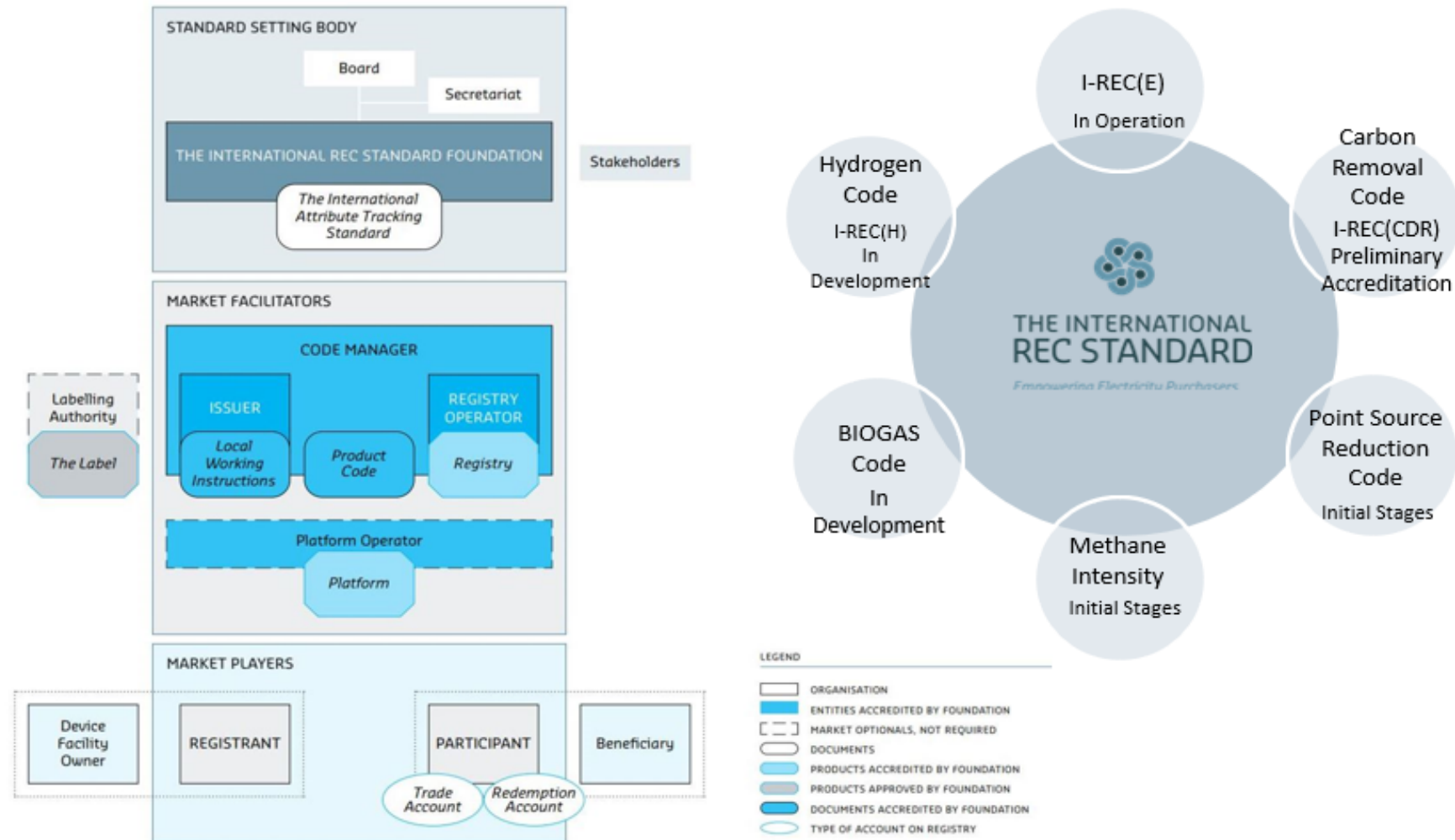
**Renewable Portfolio Standards:**  
**+1% RE starting 2020; +2.52% Starting 2023**

Mandated Participants





## I-REC Governance structure





## **Regional Activities Related to Interconnection:**

- **Regional I-REC Working Group Launched this Month**
  - Focused on developing MOUs that meet RE100 best practices for governments
- **ACE Framework for RECs in BIMP**
  - Brunei, Indonesia, Malaysia, and the Philippines (BIMP)
  - Collecting national inputs (government and private sector) and could define regional preferences, similar to EU systems
- **ACEC** represents private sector (supply/demand) perspectives
  - Recent paper on APG highlights EAC cross-border movement needs for encouraging increased cross-border procurement and infrastructure

## **What Can Countries do to Facilitate interconnection?**

- **Bilateral MOUs and implementation agreements** can drive reporting frameworks to accept transactions if:
  - Country expresses interest directly via MOU, and demonstrate:
    - Physical power movement takes place (and can be shown)
    - There are uniform EAC instruments between countries (e.g I-REC)
    - Grid mix and residual mix calculations harmonized and countries agree on how imports/exports are treated

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