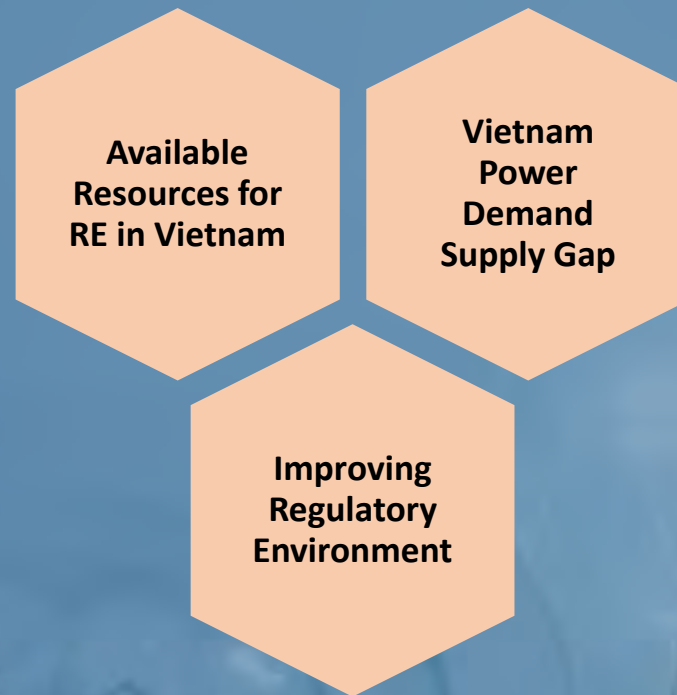




Opportunity in Vietnam's Renewable Energy Sector

Tien Nguyen - Infunde Development

Fundamental Conditions create Opportunity for RE Sector



Fundamental Conditions create Opportunity for RE Sector



Available Resources for RE in Vietnam

Diversified and abundant renewable resources ...



Small Hydropower

Potential capacity: 7,000
Present: 2,143 (~30%)



Wind

Potential capacity: 27,000
Present: 179 (~1%)



Biomass

Potential capacity: 2,000
Present: 150 (8%)



Geothermal

Potential capacity: 350
Present: 0 (0%)



Solar

Unit: MW

Potential capacity: 130,000
Present: ~6 (0%)



Solid Waste

Potential capacity: 400
Present: ~2 (~1%)



Biogas

Potential capacity: N/A
Present: N/A



Ocean energy

Potential capacity: N/A
Present: N/A

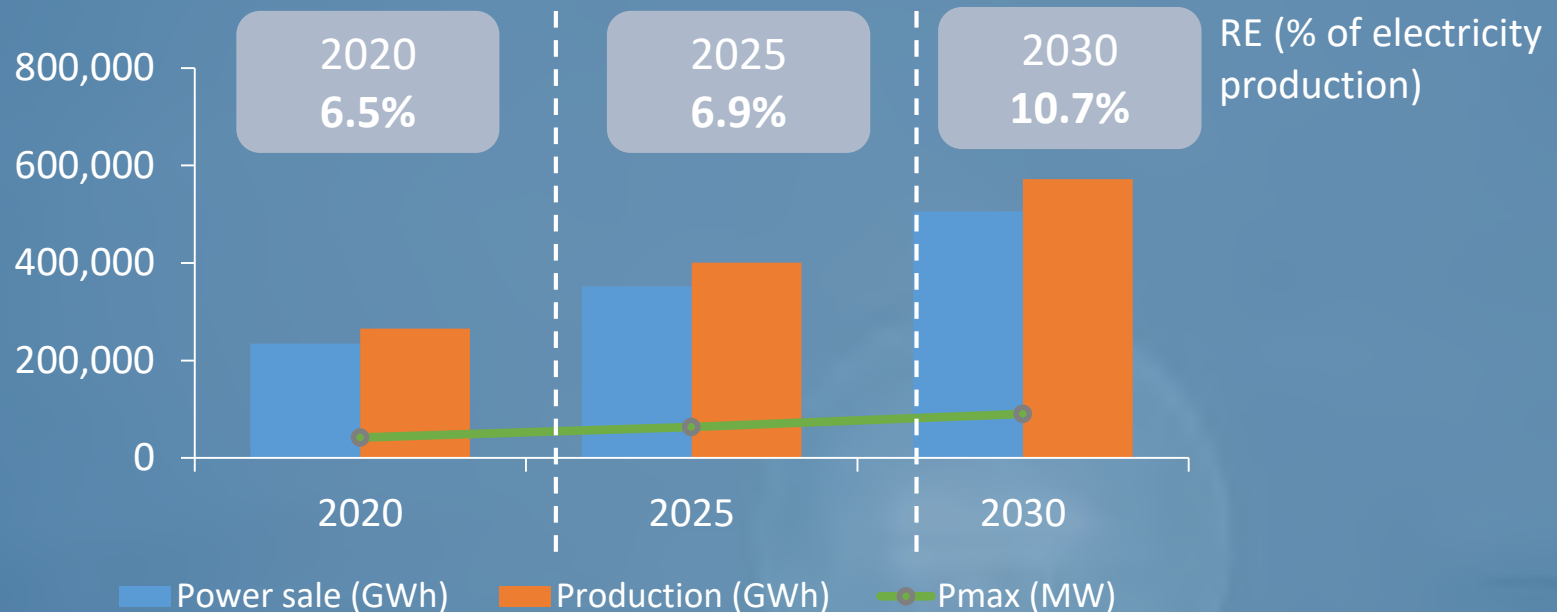
but almost unexploited except hydro

Fundamental Conditions create Opportunity for RE Sector



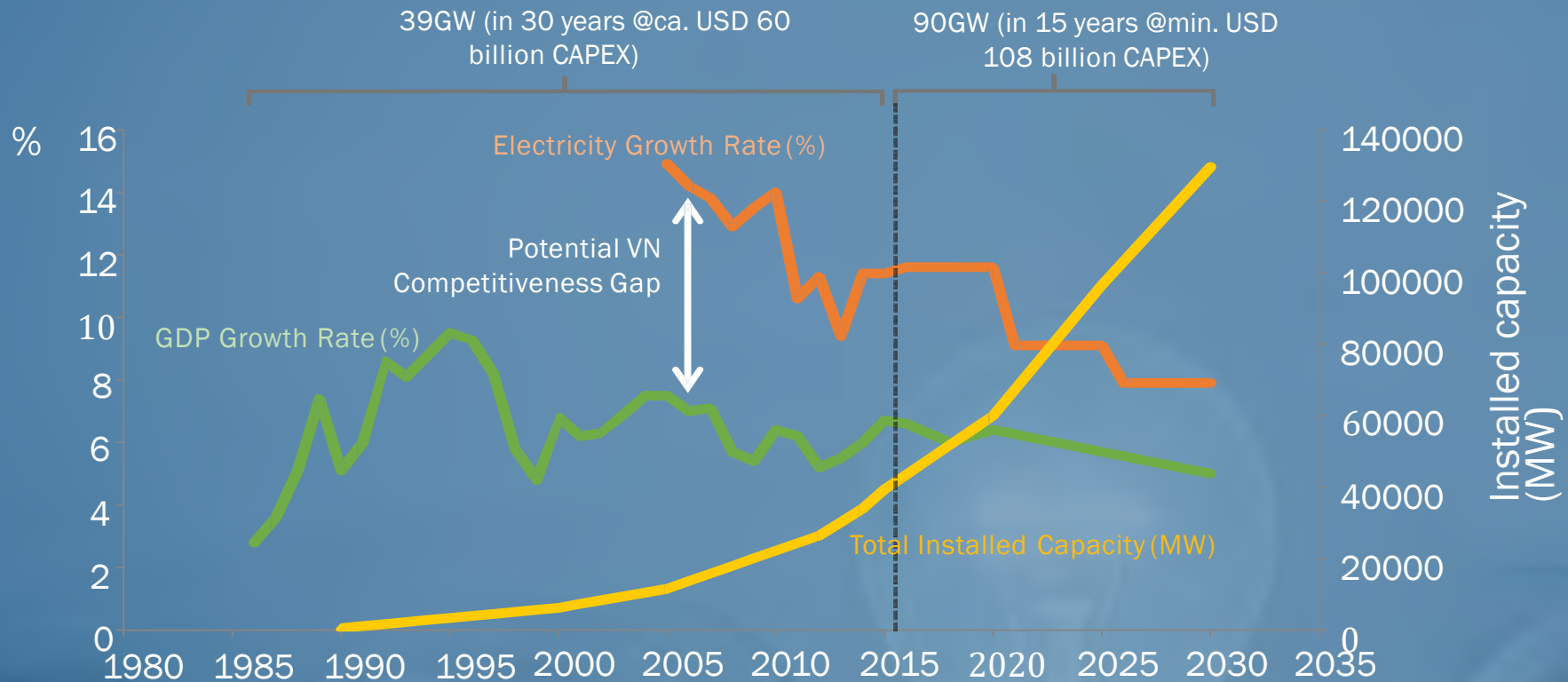
Power Demand Supply Gap

Strong Electricity Demand & Growth



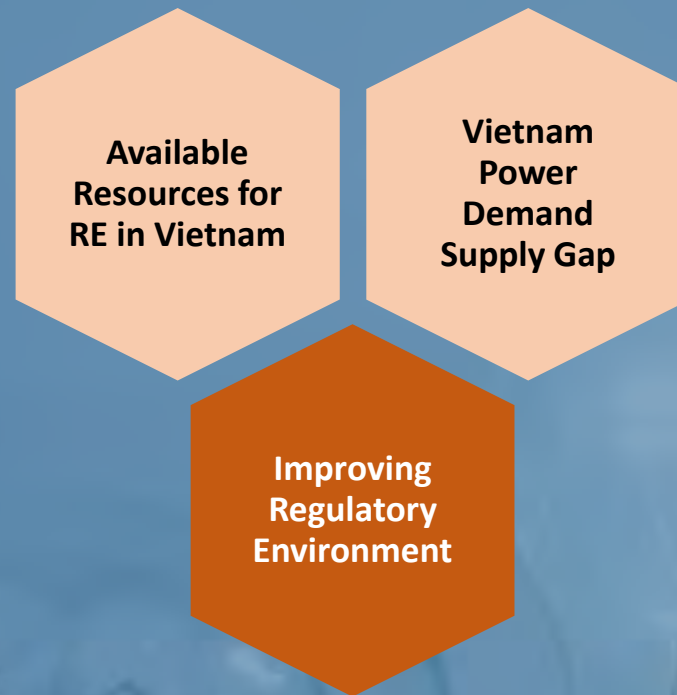
- Current consumption: 158,000 GWh in 2016
- Double digit electricity demand growth in the last decade (i.e. 10% - 15%)
- ...expected to continue until 2020 after slow down to 7.5% - 8.5% pa in the period of 2021-2030.

Power Demand Supply Gap



- Power import from China, Laos until 2020, 2030
- Is the Plan achievable? Hydro exploited; gas reach limitation; nuclear delayed; coal sources? pollution... → many delays already despite the recent revision in March 2016
→ **RE is the obvious solution/choice for Vietnam**

Fundamental Conditions create Opportunity for RE Sector



Improving Regulatory Environment

Vietnam's Competitive Power Market Roadmap

Level 1

2005-2014

Competitive Generation Market

(VGCM) - power generators will be allowed to enter the market and sell electricity to Vietnam Electricity (EVN), the only buyer, at competitive prices

Level 2

2015-2022

Competitive Wholesale Market

(VWEM) - power generators and wholesale power distributors will enter the market. Besides EVN, there will be other wholesale buyers

Level 3

2021-2030

Competitive Retail Market

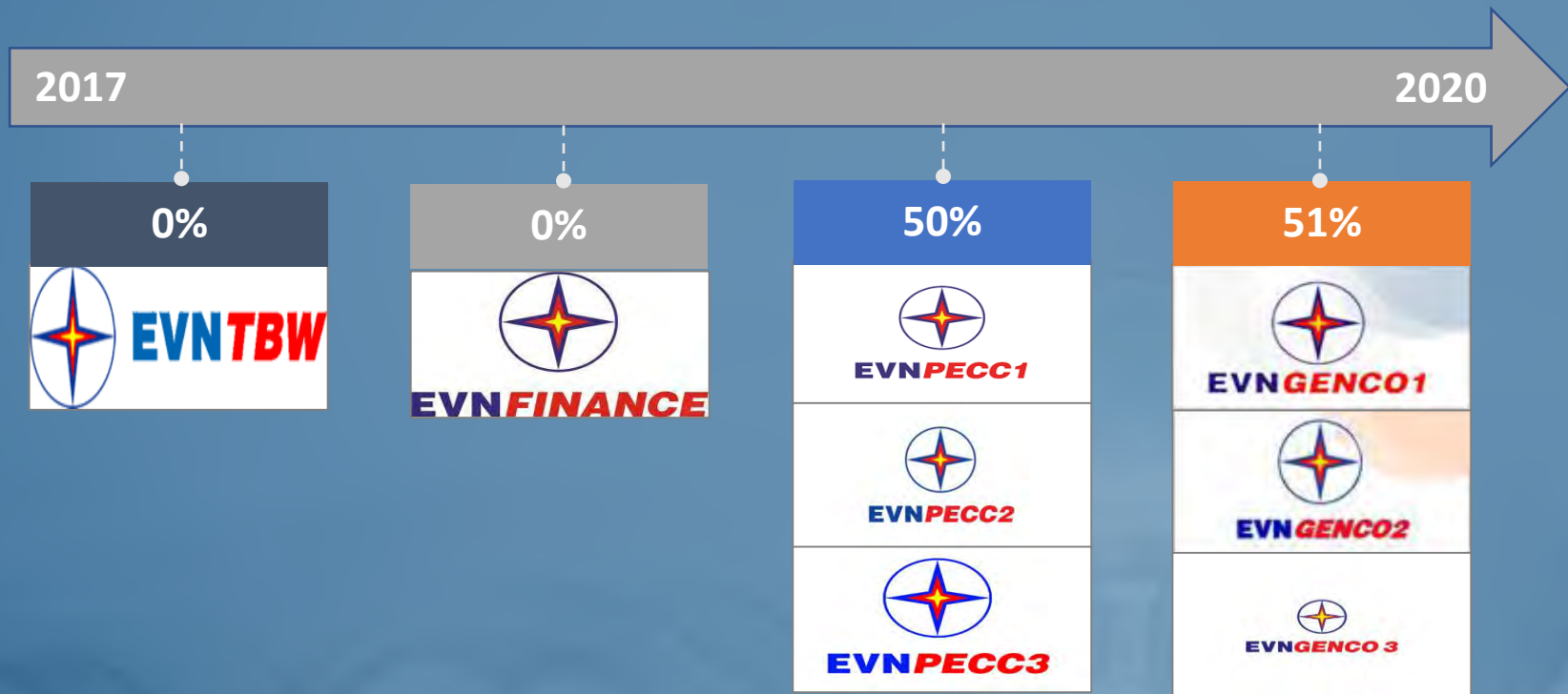
(VREM) - Vietnam retail electricity market - power generators, wholesale distributors and retail consumers will all enter the market

➔ Opening the power market; reducing monopoly and increasing competition and transparency

By the end 2016, Vietnam competitive electricity market is still at Level 01, but a trial of VWEM (Level 02) will be launched in 2017-2018 and the market will officially operate in 2019 (Decision No. 8266/QĐ-BCT)

Improving Regulatory Environment

Many EVN-owned power companies to be privatized



- Many power subsidiaries and projects invested by Vietnam Electricity (EVN) will be privatized, according to a plan for restructuring the group in 2017-2020
- Noting that after equitization of another major power generator - Vinacomin Power (35%), PV Power (49%) with ~4,200MW will also be planned to IPO this year.

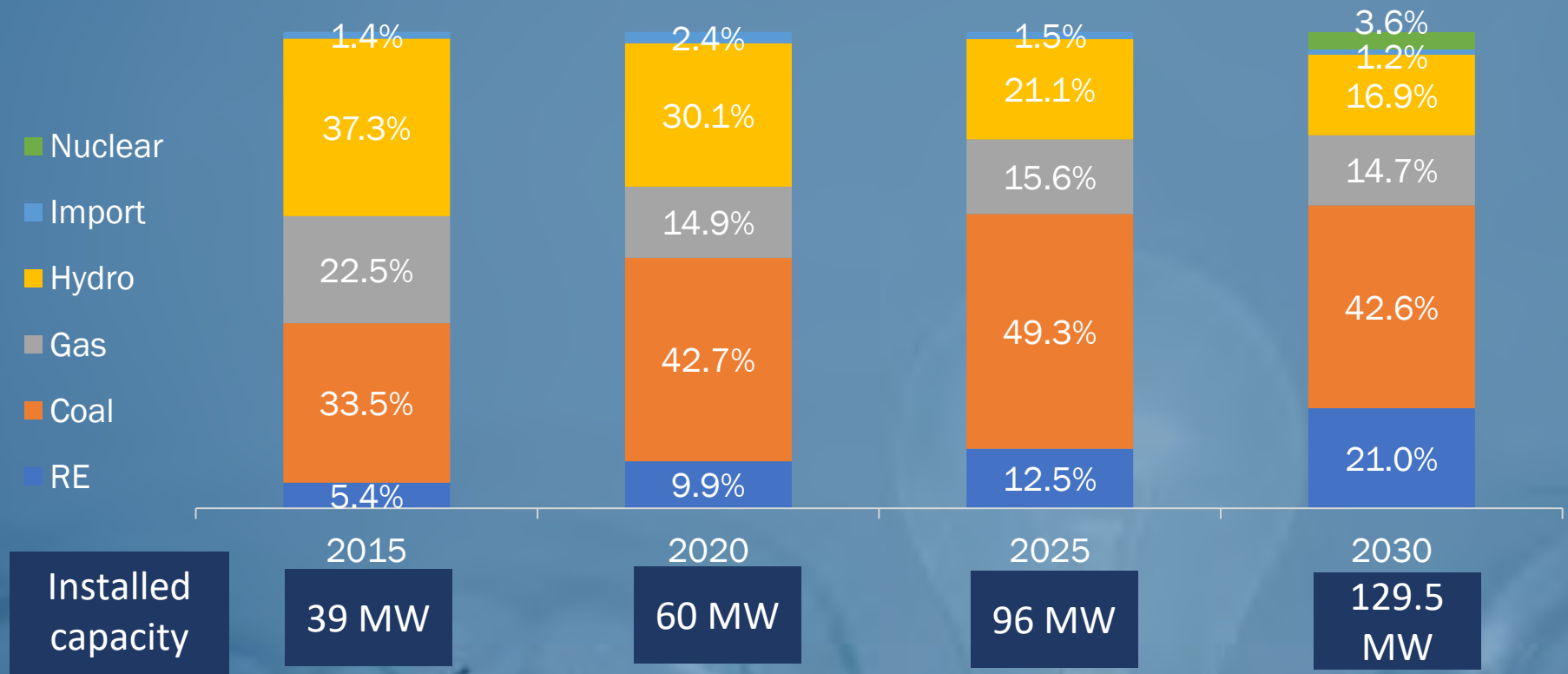
Improving Regulatory Environment

Regulation	Content	Major RE Target / Incentives
Decision No.1855/QD-TTg, dated 27 December 2007	Approving Vietnam Energy Development Strategy until 2020, vision 2050	3% - 2010; 5% - 2020; and 11% - 2050 within total primary energy sources.
Decision No.1208/QD-TTg, dated 21 July 2011	Approving National Power Development Plan 2010 – 2020, vision 2030 (Power Master Plan 7)	3.5% - 2010; 4.5% - 2020; and 6.0% - 2030 within total power generation mix.
Decision No.2068/QD-TTg, dated 25 November 2015	Approving Vietnam Renewable Energy Development Strategy until 2030, vision 2050	- Tax incentives: exempting or reducing Import duty & CIT - Land incentives: exempting or reducing land use/lease fee.
Decision No.428/QD-TTg, dated 18 March 2016	Approving Adjusted National Power Development Plan 2011 – 2020, vision 2030 (revised Power Master plan 7)	7% - 2020; and 10% - 2030 within total power generation mix.

- Determining supportive measures and specifying RE target during each period → creating foundation for implementation in detail later and at provincial level
- Emphasizing power diversify and increasingly important role of RE in the national power and energy system

Improving Regulatory Environment

National Development Plan 7 Revision



- Deployment of renewable energy as a priority for the future of the national electricity mix.
- Targets are set at 6.5% of the electricity production by 2020, 6.9% by 2025, and 10.7% by 2030.

Improving Regulatory Environment

Tariff Incentives Mechanism

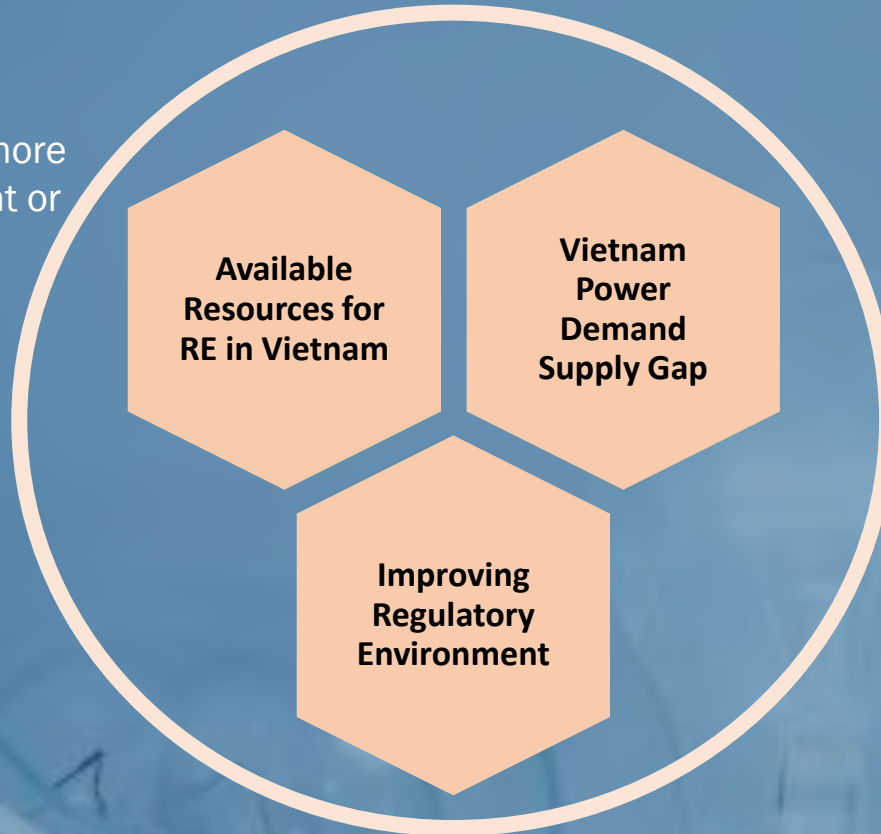
RE Sources	Supporting Mechanism	Price (US cents)
Solar PV	FIT	9.35c/kWh
Wind	FIT	7.8c/kWh
Small Hydro-power	Avoided cost Tariff (ACT)	~5c/kWh
Biomass	FIT	7.34 – 7.55c/kWh
Waste-to-Energy	FIT	7.28 – 10.05c/kWh

- FIT issued for both Wind and Solar
- Long term Standard Power Purchase Agreement (20yrs PPA)

Fundamental Conditions create Opportunity for RE Sector

External Conditions:

- Better technology: more efficiency equipment or improved material
- Capex reduction
- Climate Change



An aerial photograph of a tropical island with a bay and coral reefs. The island is covered in lush green vegetation and has a sandy beach. The water is a deep blue, and the coral reefs are visible in the foreground.

INFUNDE DEVELOPMENT

World Class
Development Capability

WHO WE ARE

INFRACO
ASIA

Stimulating greater private sector investment in infrastructure development in lower income countries of South and South East Asia

Infunde
DEVELOPMENT

Infunde has signed a developer services agreement with InfraCo Asia for its Southeast Asia developer services program

INFUNDE - INFRACO ASIA

Funding Sources



Australia



Switzerland



United Kingdom

InfraCo Asia receives funding from the governments of Australia, Switzerland and the United Kingdom

EXCLUSIVE INFRACO ASIA DEVELOPER

Infunde Development is responsible, on behalf of InfraCo Asia for project origination, pre-financial close project development, EPC management and financial structuring activities in Southeast Asia.

InfraCo Asia is a company of the Private Infrastructure Development Group a coalition of donors mobilising private sector investment to assist developing countries attain infrastructure vital to boosting their economic growth and combating poverty. InfraCo Asia is currently funded by three PIDG members - Australian Department of Foreign Affairs and Trade (DFAT), the Swiss State Secretariat for Economic Affairs (SECO), and the UK Department for International Development (UKAid).



@InfraCoAsia



InfraCo Asia

www.infracoasia.com



@pidgorg



Private Infrastructure Development Group

www.PIDG.org

A woman in traditional attire is balancing a large, round, woven basket on her head. The basket is filled with various food items, including what appear to be small, round, white dumplings or balls, and some darker, possibly fried or roasted items. The woman is looking down and to the side with a slight smile. The background is blurred, showing other people in similar traditional clothing.

WE SEEK PROJECTS THAT

Reduce poverty and provide social benefit

Complement, not compete, with the private sector

Are commercially viable

OUR MANDATE

Infunde Development



Aim to stimulate

Aim to stimulate greater private sector investment in infrastructure by providing capital and expertise



Fund early stage

Fund early stage, high-risk infrastructure development activities by taking an equity stake in projects



Seek partners

Seek partners committed to the highest project development standards



Seek projects

Seek projects where we add significant value through our technical, commercial, financial and sell-side expertise

INFUNDE Leadership

DEVELOPMENT EXPERTISE

- Successfully signed PPAs with all national utilities in the region, including EVN, EDC, PLN, EGAT, Meralco and PEA
- Experience in all infrastructure sections

- Negotiated more than US\$10 billion of completed EPC contracts
- Team experience with International Firms such as Poyry, Worley Parsons, RW Beck, GDF Suez, Coastal Power, Bechtel
- Infunde developers have successfully raised US\$ 20 billion of project finance debt

DEVELOPMENT FUNDING

ACCESS TO DEBT



the power of being global

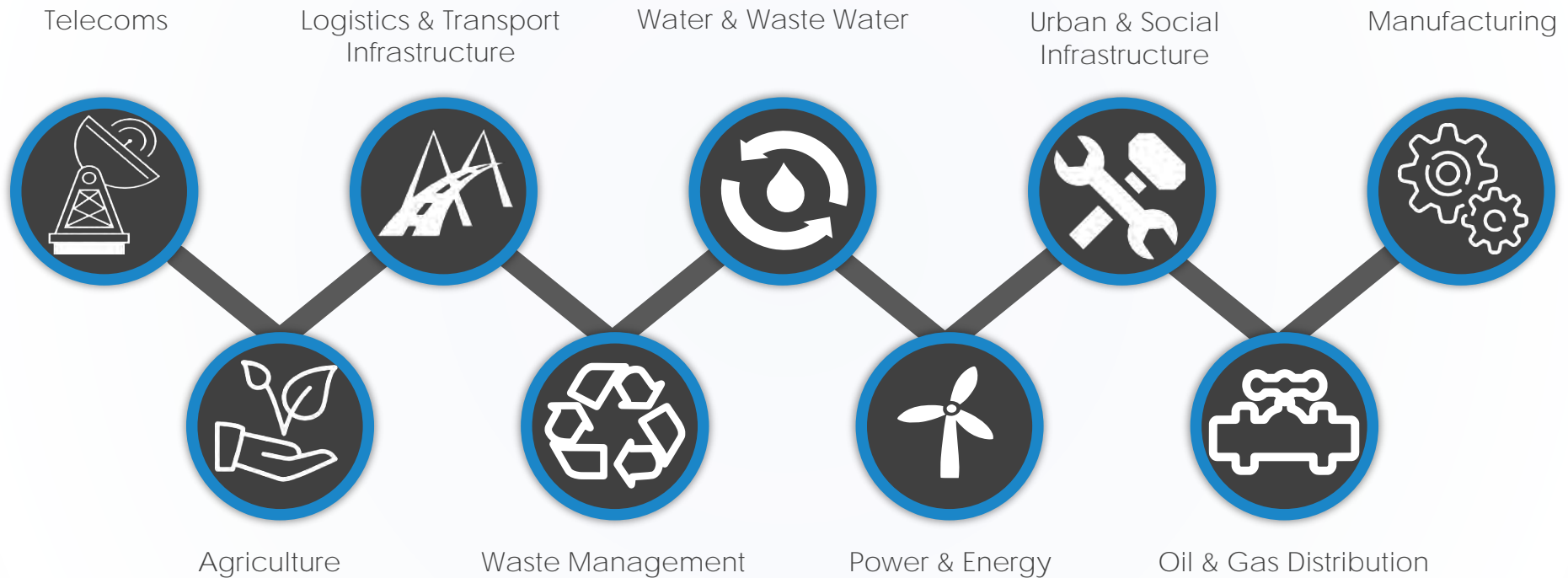
Full Development **Capability** & Skillsets

Technical
Commercial
Financing
Sell-side



AREAS OF POTENTIAL INVESTMENTS

Target Sectors





LAOS



VIETNAM



CAMBODIA

FOCUS COUNTRIES

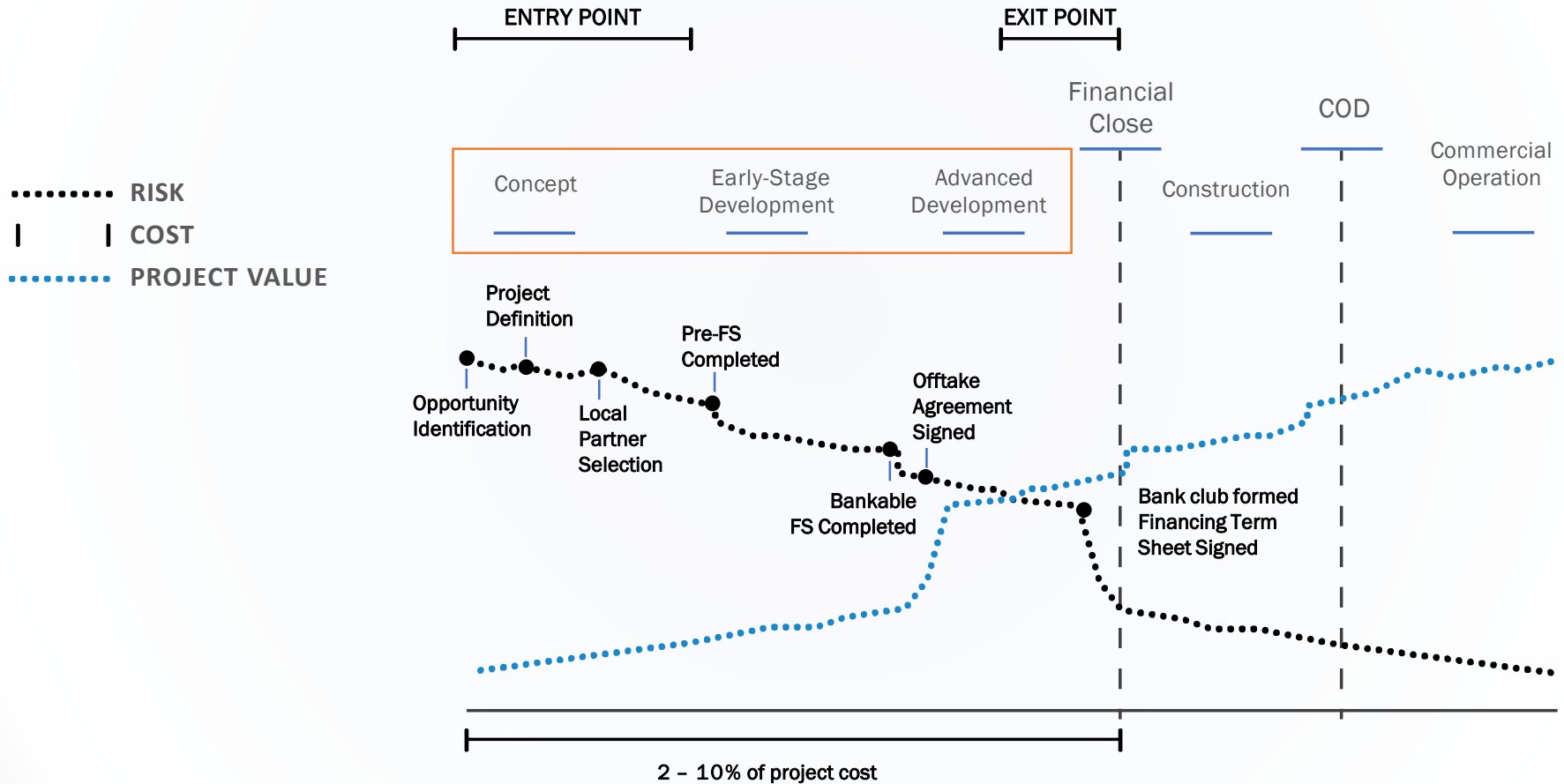


INDONESIA



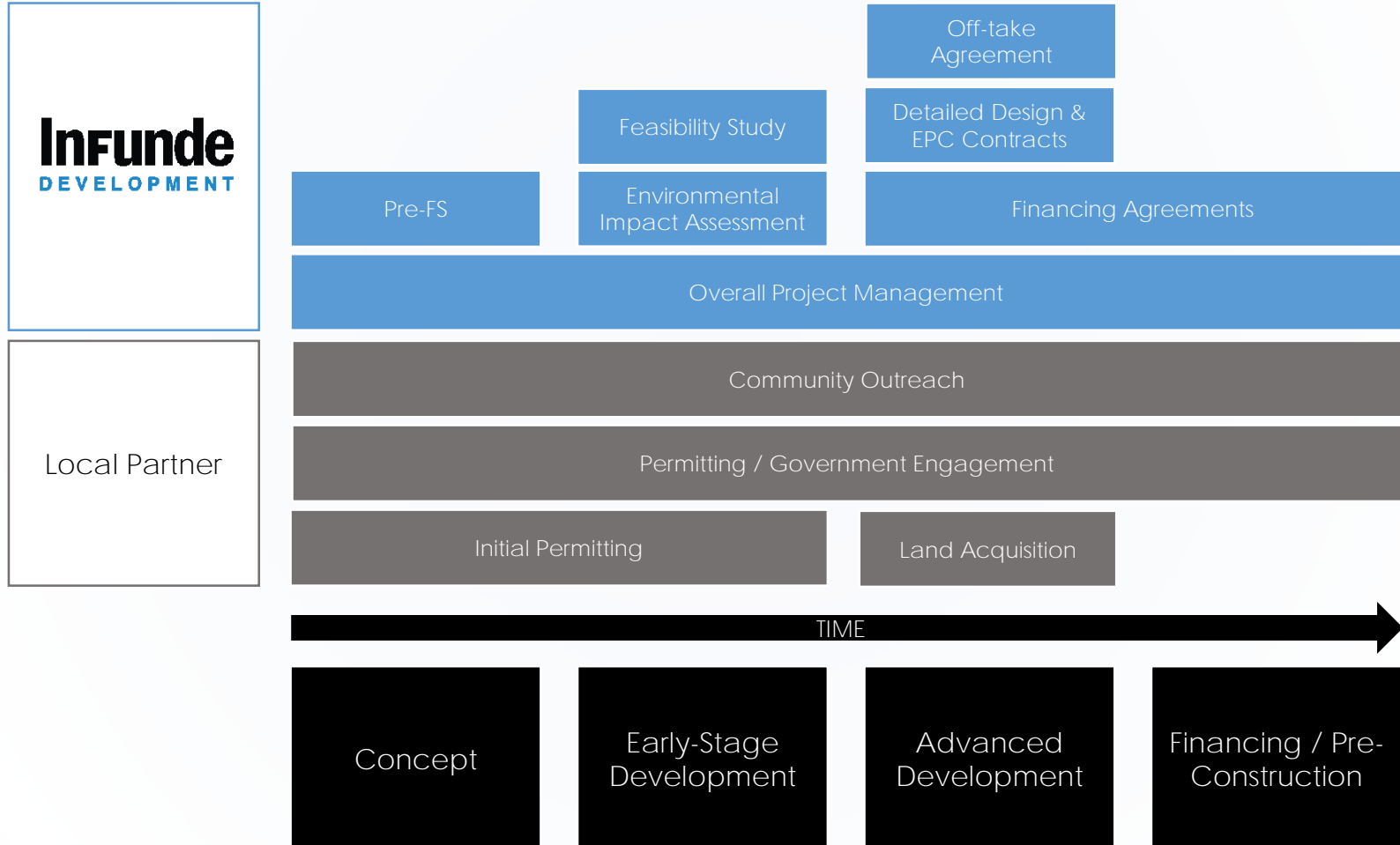
PHILIPPINES

OUR APPROACH



OUR APPROACH

Strong Local Partner(s) – Key to Success



NEXT STEPS

Pre-funding

2. REVIEW PROJECT INFO / DISCUSS CONCEPT

Infunde reviews an existing project or discuss with Local Partner on potential projects.

4. AGREE THE PLAN

Infunde prepares model, budget and schedule for agreement with Local Partner.

6. 3RD-PARTY STUDIES / DUE DILIGENCE

Infunde engages external advisors for DD or studies to better understand the opportunity (if required).

8. JDA

Prepare and execute the JDA and other transaction documents with help of counsel.

1

1. NDA

Agree and sign non-disclosure agreement (NDA).

2

3

3. MOU

Agree and sign a memorandum of understanding on partnership.

4

5

5. PRESENT TO IAD

Infunde presents to InfraCo Asia (IAD) for approval to incur third-party costs.

6

7

7. JDA TERM SHEET

Agree key commercial terms for Joint Development Agreement (JDA).

8

REGIONAL LOCATIONS

Local Offices



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