



Nepal Power Investment Summit 2016

Kathmandu, 31 May 2016

Nepal: The Energy and Infrastructure Investment Challenges

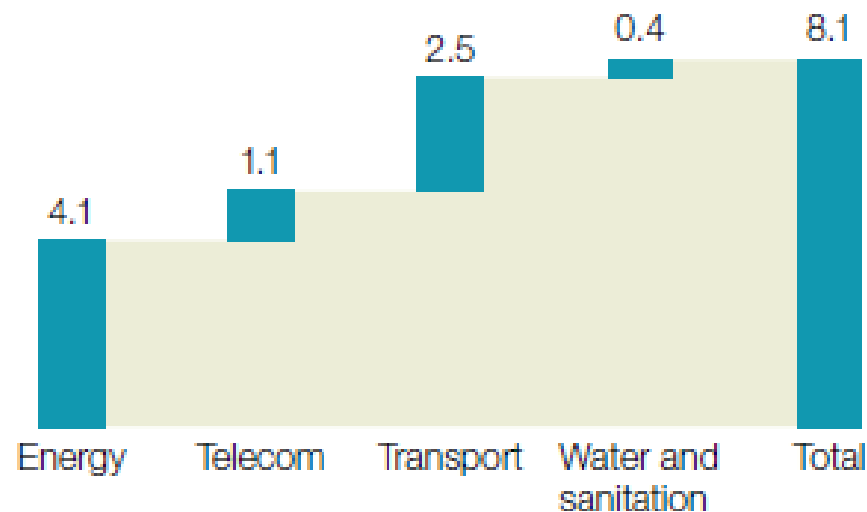
Allard Nooy, CEO, InfraCo Asia

Agenda

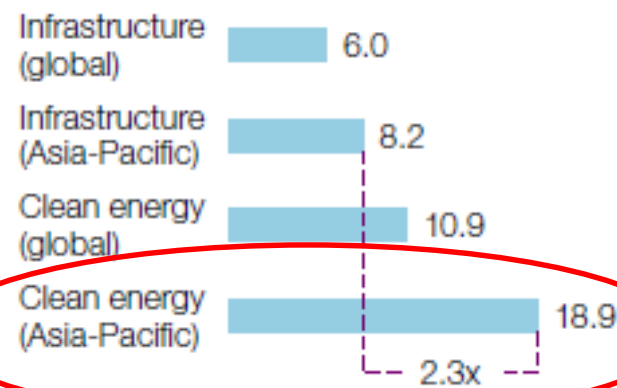
- 1 Market Context in which InfraCo Asia operates
- 2 InfraCo Asia's role
- 3 Energy sector in Nepal – policy & challenges
- 4 Comparative regional position

There is significant demand for infrastructure in Asia, especially in Energy

Investment needs for Asia's identified and pipeline infrastructure projects, 2010–20, \$ trillion

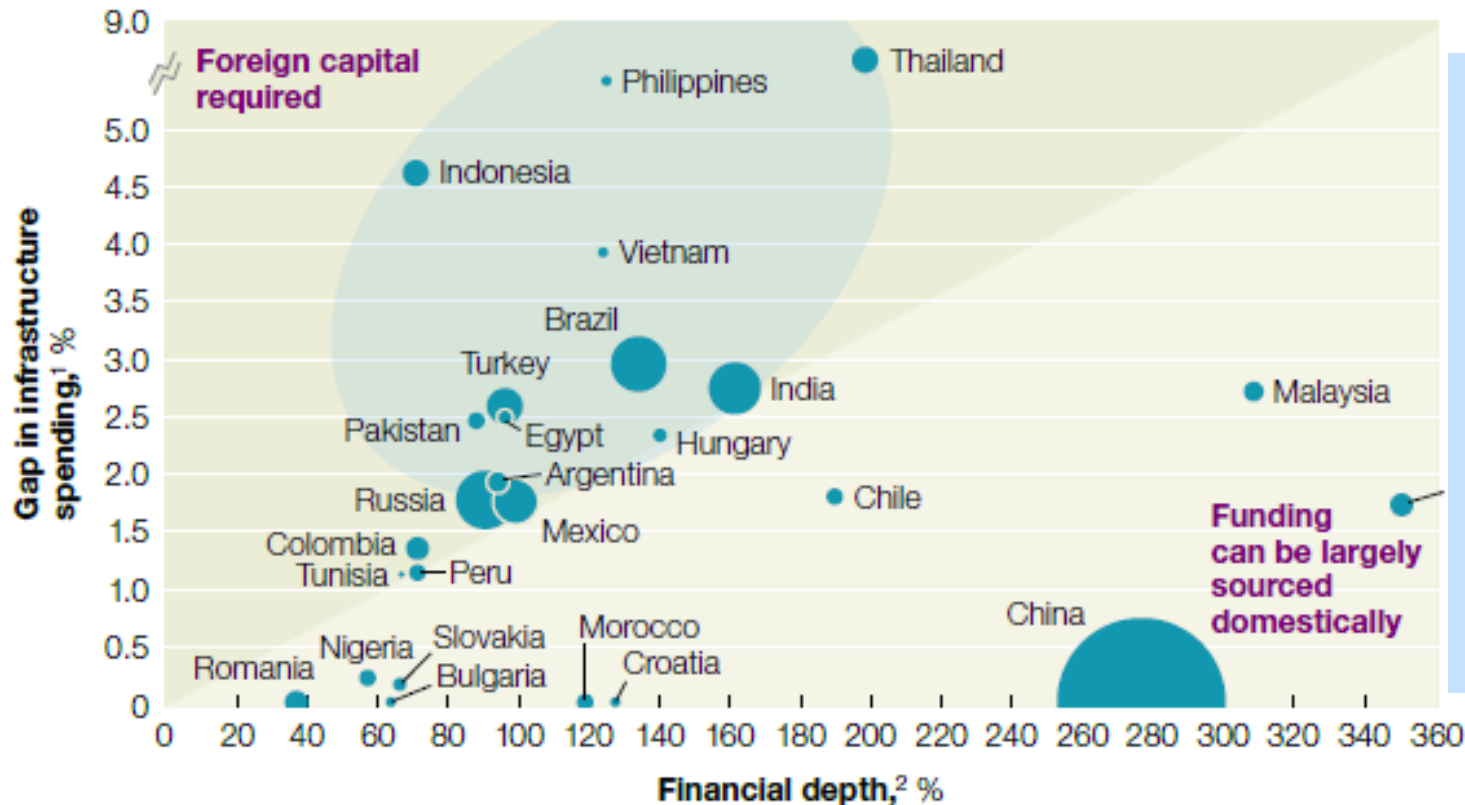


Annual growth rate in investment spending, 2008–18, %



- \$8 Trillion worth of projects in Asia identified between 2010 and 2020
- Energy and transport sectors drive much of the demand
 - Within Energy, growth of **renewable energy** is expected to be the highest

In much of Asia, demand outstrips financing



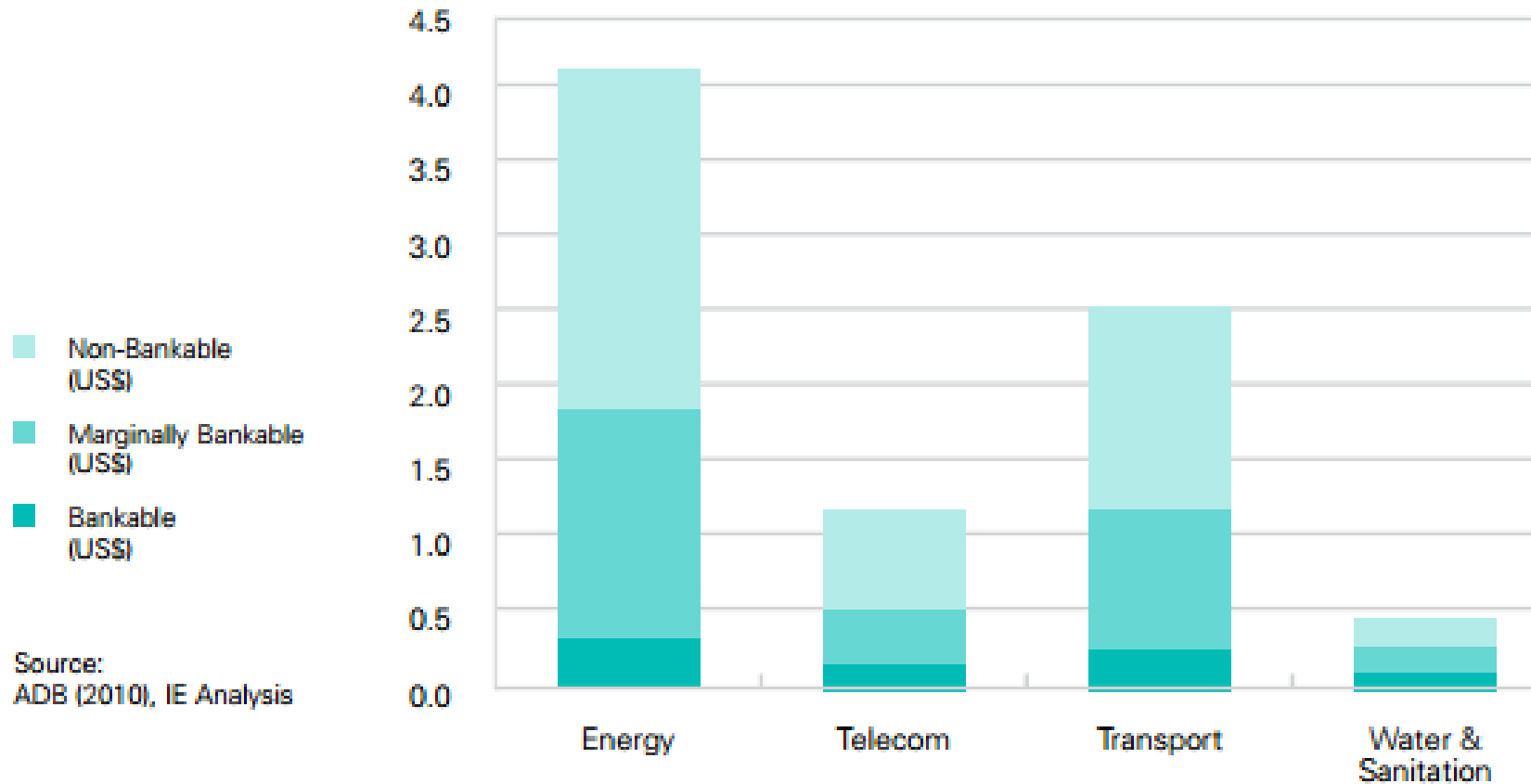
- Private Sector Investment (PSI) is key to meeting this gap
- Institutional investors have raised up to \$200 Billion in funds globally to meet this demand

¹Gap in needed vs actual infrastructure spend as % of GDP, 2009.

²Value of bank deposits, bonds, and equity as % of GDP, 2009.

Source: McKinsey Global Institute

Yet, available private funds not fully used due to lack of bankable projects in Asia



- Only 5-10% of demand in Asia is currently bankable (US\$ 40 to 80 Billion per year)
- 30-45% of demand in Asia is marginally bankable (US\$ 240 to 360 Billion per year)

Why is there a lack of bankable projects and how can it be addressed?

- Developing infrastructure projects to international standards is the key to creating bankable projects
- The amount of capital required for project development is between 2 to 10% of overall project costs
- However, the project development stage carries high risk for investors
- Not enough players in the market that invest in the project development stage
- **InfraCo Asia** is mandated to fill this critical gap in the market

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Introduction to InfraCo Asia (1/2)

- Commercially managed infrastructure development and investment company headquartered in Singapore
- Aims to stimulate greater private sector investment in infrastructure
- Funds early stage, high-risk infrastructure development activities by taking an equity stake in projects
- Seeks commercially viable infrastructure projects that contribute to economic growth and social development
- Focusses on risk management and mitigation and funding successful implementation of sustainable infrastructure projects
- Committed to tackling the major institutional market obstacles hindering private participation in infrastructure development in poorer countries

Introduction to InfraCo Asia (2/2)

Developer Services and Co-Development / Co-Investments

InfraCo Asia has:

- An outsourced developer services program
- A Co-Development / Co-Investment program

Under the outsourced developer services program, project origination; development; EPC management and financial structuring activities are outsourced to three teams of Project Developers

- South Asia – Equicap Asia Pte. Ltd.
- South-East Asia – Infunde Development Pte. Ltd.
- Myanmar – Infra Capital Myanmar Pte. Ltd.

The Co-Development program invests in third party projects, and is managed by InfraCo Asia's Management Team

Supported by PIDG

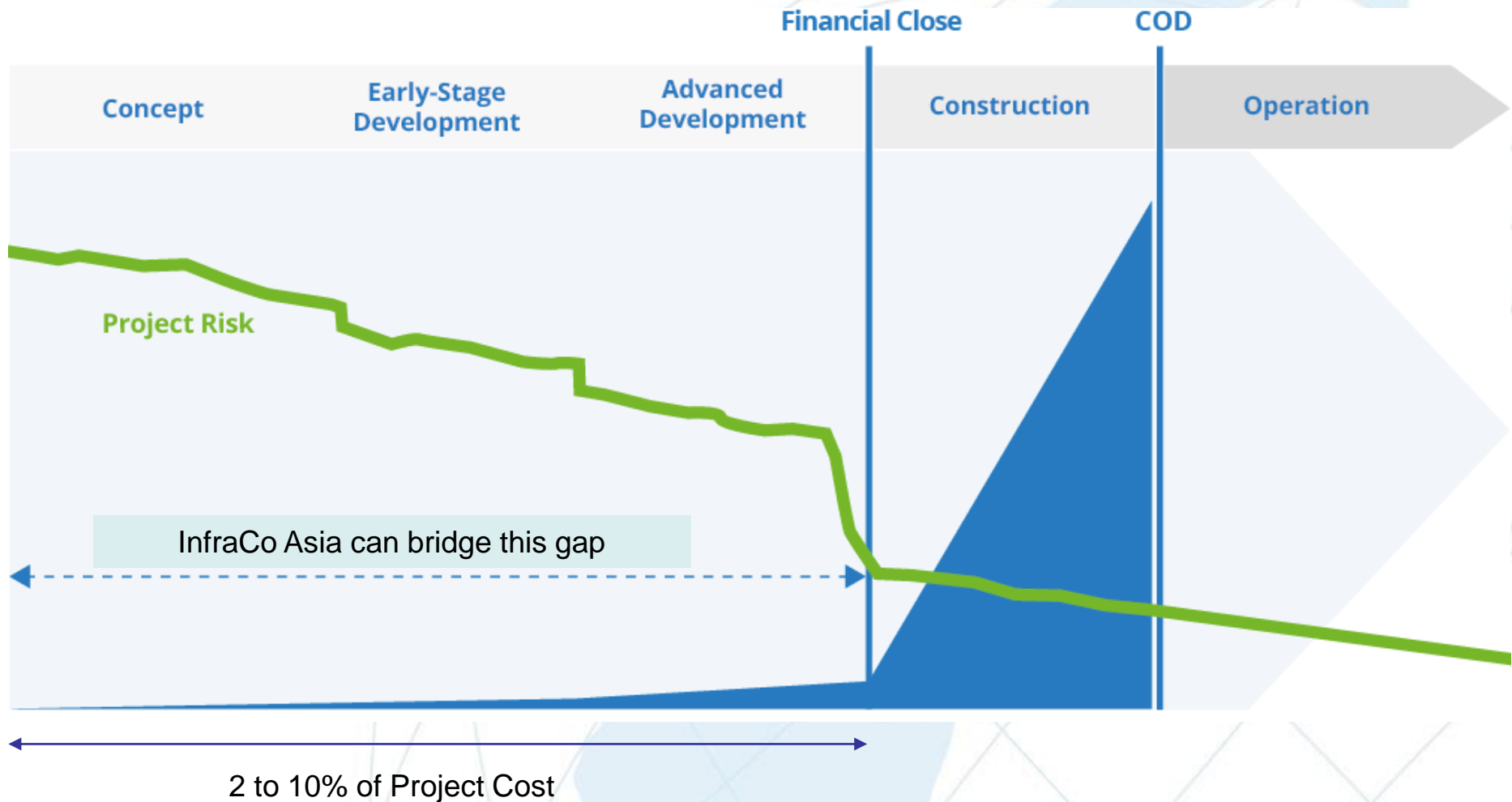
InfraCo Asia is backed by the Private Infrastructure Development Group (PIDG) a multi-donor organisation that promotes private infrastructure investment in developing countries through a range of specialised financing and project development facilities and programmes



Private Infrastructure Development Group (PIDG)



InfraCo Asia funds the high risk development stage of infrastructure projects



In doing so, InfraCo Asia fills a critical gap in the market

Stages of Infrastructure Project Development



Relatively few peers in the market are focused on the development stage

- Investment at this stage only \$2 to \$8 Million (2 to 10% of the total cost depending on project size)
- However, riskiest stage of investment
- Lack of sources of early stage financing in industry

- IFC Infra Ventures
- Global Infrastructure Facility
 - Recent World Bank initiative
 - Supported by Australian government, European institutions and Swiss firms

Most institutional investors focus on Stage 3 and Stage 4 projects as a way to diversify their portfolios

- Commercial Banks
- Multi-laterals
- Private Equity
- Pension Funds
- Sovereign Wealth Funds
- Infrastructure focused government sponsored funds such as AIF, AIIB

Investment Criteria geared to find a balance between economic and social returns

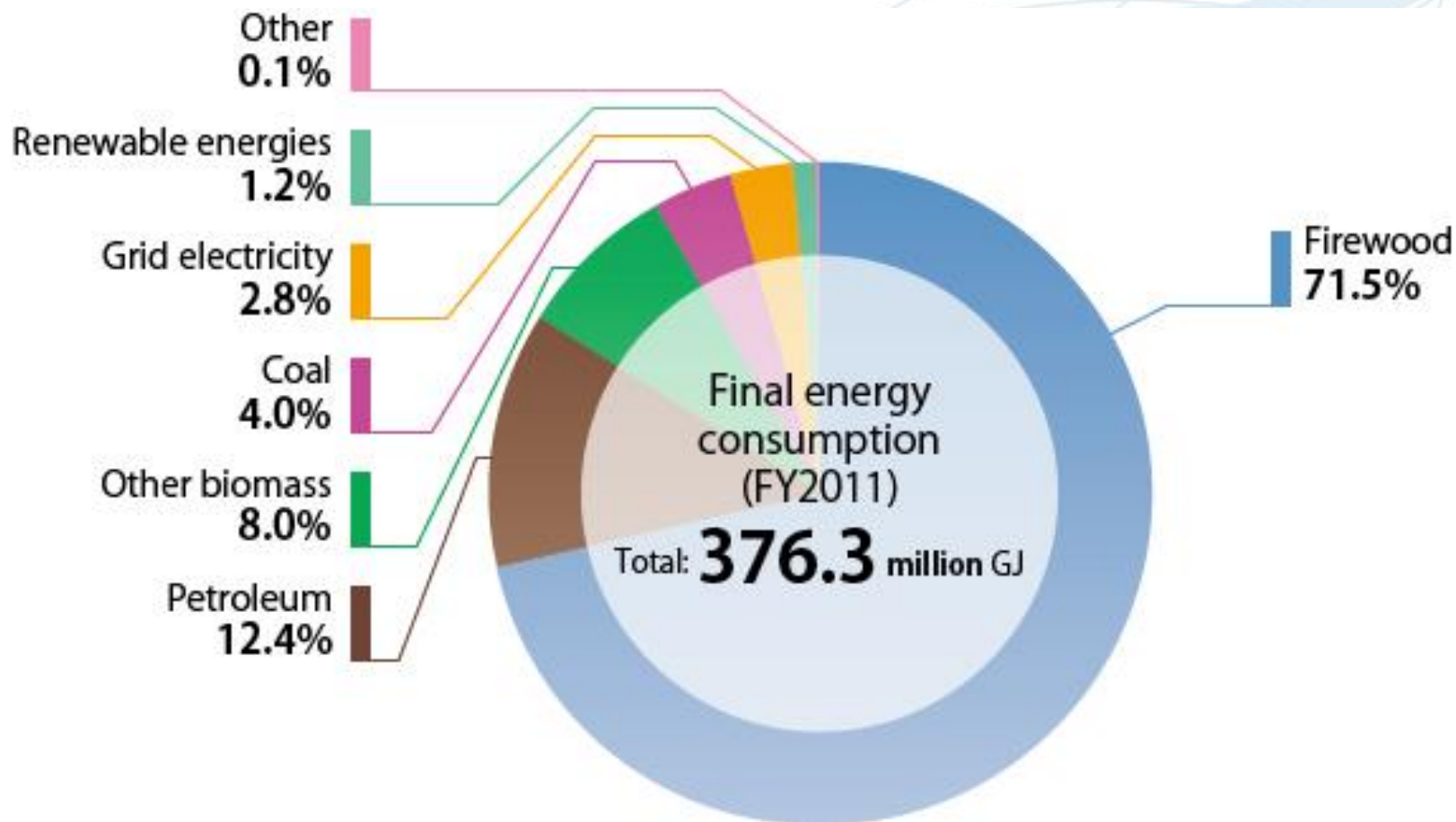
- Projects must satisfy three criteria for investment:
 - ❖ **Additional** – projects where private sector developers are unwilling or unable to take on the upfront costs and risks on their own
 - ❖ **Development impact** – projects must deliver development benefits for the poor and meet social and environmental best practice
 - ❖ **Commercial viability** – projects must be commercially viable (to attract private investment and ensure a return on the sale of InfraCo Asia's ownership rights)
- “Balanced portfolio” approach - InfraCo Asia pursues a mix of larger, more commercial projects (e.g. power plants) and some smaller, more directly “pro-poor” projects (e.g. agriculture-supporting infrastructure)

InfraCo Asia strives to find the right balance between these criteria when assessing projects

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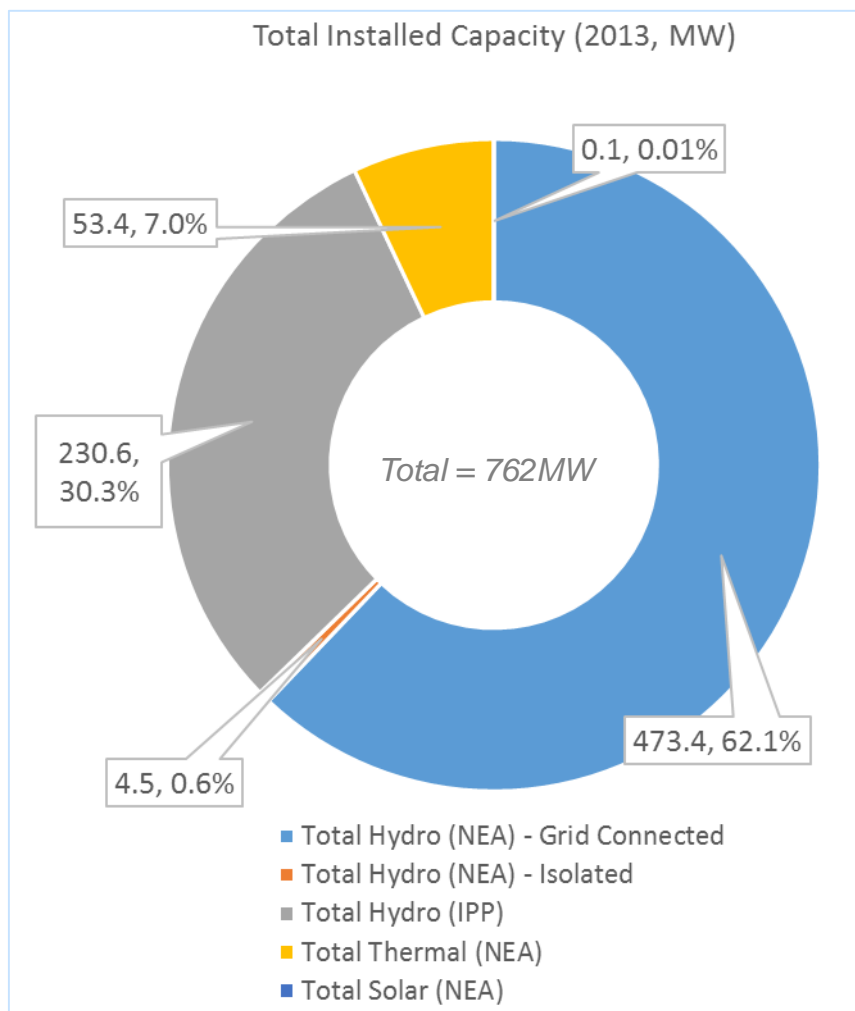
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Electricity accounts for a very low percentage of energy source in Nepal



Policy Document states that by 2030 Nepal is targeting 10% generation based on renewables (non-hydro)

Hydro power accounts for the majority of the electricity source



- >90% of total electricity generated by either Nepal Electricity Authority (NEA) owned or private hydro power plants
- Imports from India have become more important in the last decade or so
- Between 2001 and 2013, state owned and private hydropower capacity grew by 2x but imports from India increased by 4x
- Country's hydrology is a major technical barrier to harnessing the full hydro power potential

There is potential to further develop the renewable energy (non-hydro) sector

Solar

- Nepal receives ample solar radiation
 - 3.6 – 6.2 kWh/m²/day
 - 300 days of sun per year
- Commercial potential of solar power for grid connection is 2,100 MW
 - Baseline as per 2008 Alternative Energy Promotion Center study
 - Solar Water Heaters have been fully commercialized
 - Solar Dryers and Solar Cookers being commercialized

Wind

- Considerable wind potential
 - 200 MW of wind potential identified
 - Wind speeds of 46.7m/s recorded
- Potential sites for wind power identified
- Wind/Solar hybrid models trialed for rural electrification

Biomass

- Biomass dominates the energy mix in Nepal
- Potential for family sized biogas plants estimated at 200,000 units

Geothermal

- Various hot water spring sites identified with temperatures over 50°C

Policy Document states that by 2030 Nepal is targeting 10% generation based on renewables (non-hydro)

Energy Policy in Nepal currently not conducive to attracting foreign investment

Lack of Energy Regulator

- There is no utility or energy regulator
- Electricity Tariff Fixation Commission has been established through Electricity Act 2009 – review/approve NEA tariff filings
- Hydro Power Development Policy 2010 recommends that the Tariff Fixation Commission be developed as regulatory body
- National Electricity Regulatory Commission (NERC) under formulation with the following objectives:
 - Balance Supply and Demand
 - Set the electricity tariff
 - Encourage competition and transparency
 - Protect the rights of the consumers

Recent cessation of incentives

- Power projects no longer denominated in USD
- Projects no longer backed by government guarantees

The above notwithstanding there are some favorable circumstances as well:

- Availability of Foreign Exchange in the country due to remittances of Nepalese workers overseas
- Primary and Secondary markets exist to offer relatively attractive exit opportunities for investors

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In certain key aspects, Nepal is at par or ahead of its peers

Country	Dedicated PPP Unit	FDI Restrictions
Bangladesh	Yes	• Upto 100% with restrictions in certain sectors
Bhutan	No	• Upto 100%
Cambodia	No	• All sectors of economy open to FDI • 100% ownership allowed in most sectors
India	Yes	• Upto 100% but varies sector by sector
Indonesia	Yes	• Full ownership of PPP based power plants • Transfer of certain % to government at project end
Lao PDR	No	• 100% ownership allowed via 2009 Law • In practice, required to give up partial stake
Nepal	Yes*	• Upto 100% with restrictions in certain industries
Pakistan	Yes	• Upto 100% in most sectors
Philippines	Yes	• Blanket 40% limitation for all sectors • Electric Power Industry Reform Act allows 100% ownership of power assets
Sri Lanka	Yes	• Restrictions in oil, mining, gas and electricity
Vietnam	No	• Investment Law allows upto 100% • Infrastructure is an encouraged sector
Myanmar	No	• 100% ownership of Myanmar based entities

Recent regulatory changes

- liberalised FDI in telco, real estate in Aug 2013
- Automatic approval for certain sectors

- re-introduced levy on gas consumers to fund infrastructure
- raised power tariffs for non-industrial users.

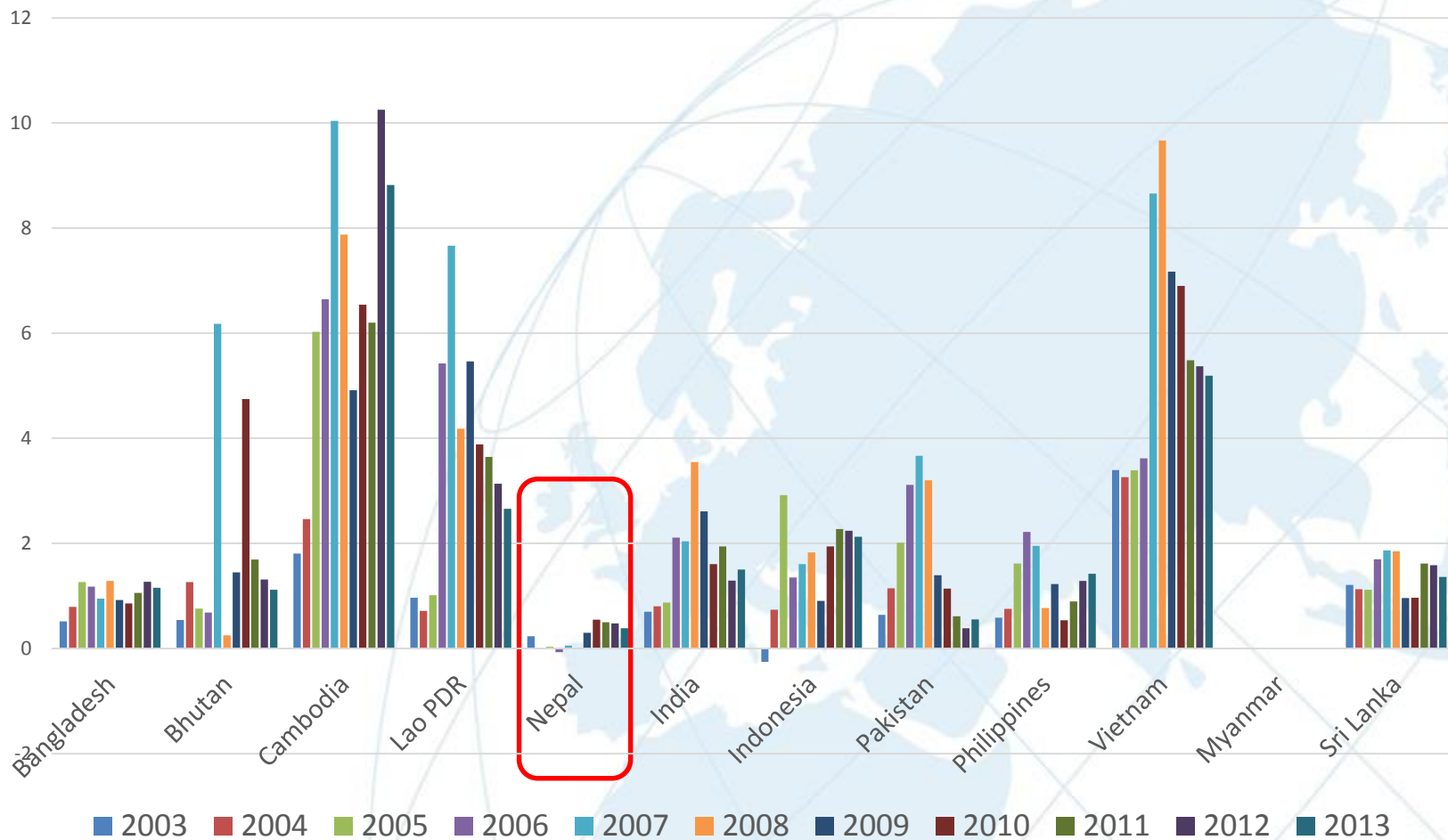
- launched open-access to let market forces to determine power rates

- Foreign-equity limit in domestic banks at 30%

*As per PPP Policy introduced in October 2015 a PPP Centre to be set up at the National Planning Commission

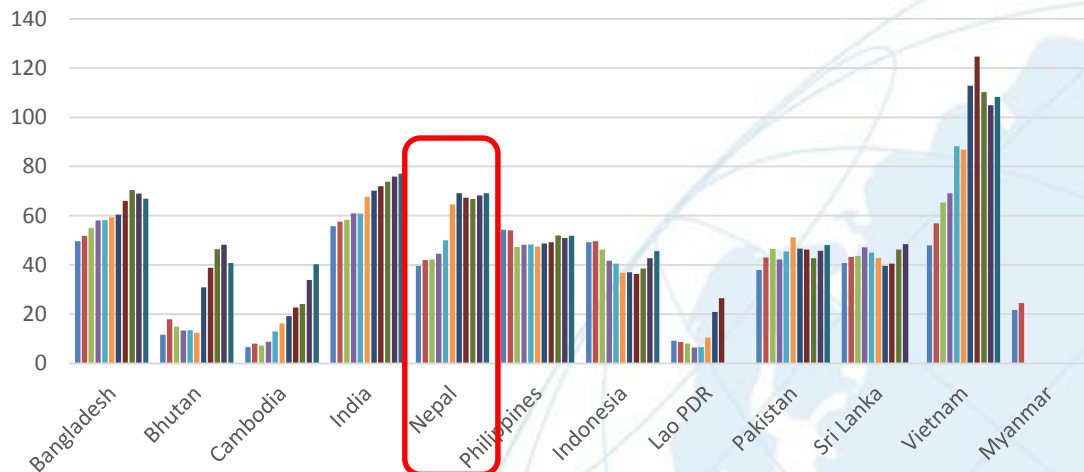
In spite of limited restrictions, FDI lower than peers due to lack of clear regulation

FDI inflows (as % of GDP)

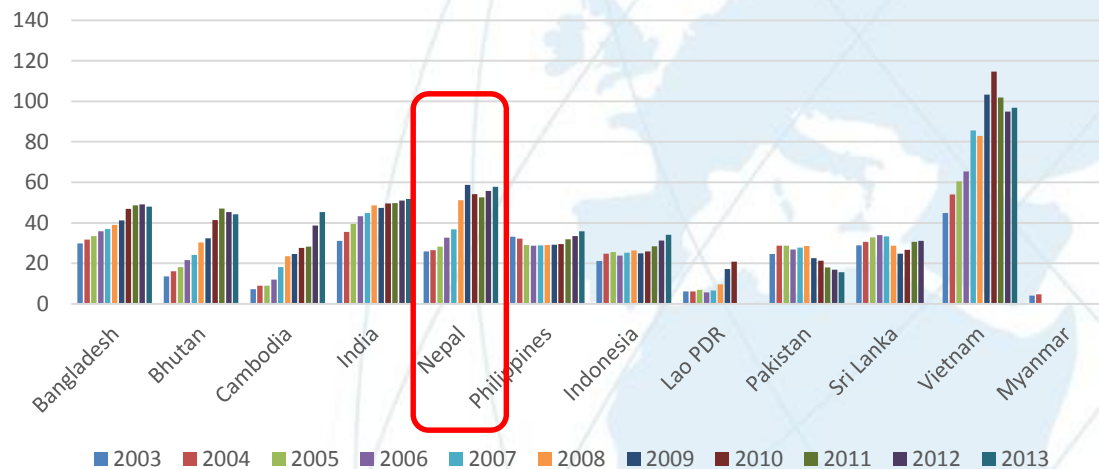


Financial depth of domestic markets is, however, comparable to peers

Domestic Credit provided by Financial Sector (% of GDP)



Domestic Credit to Private Sector by Banks (% of GDP)

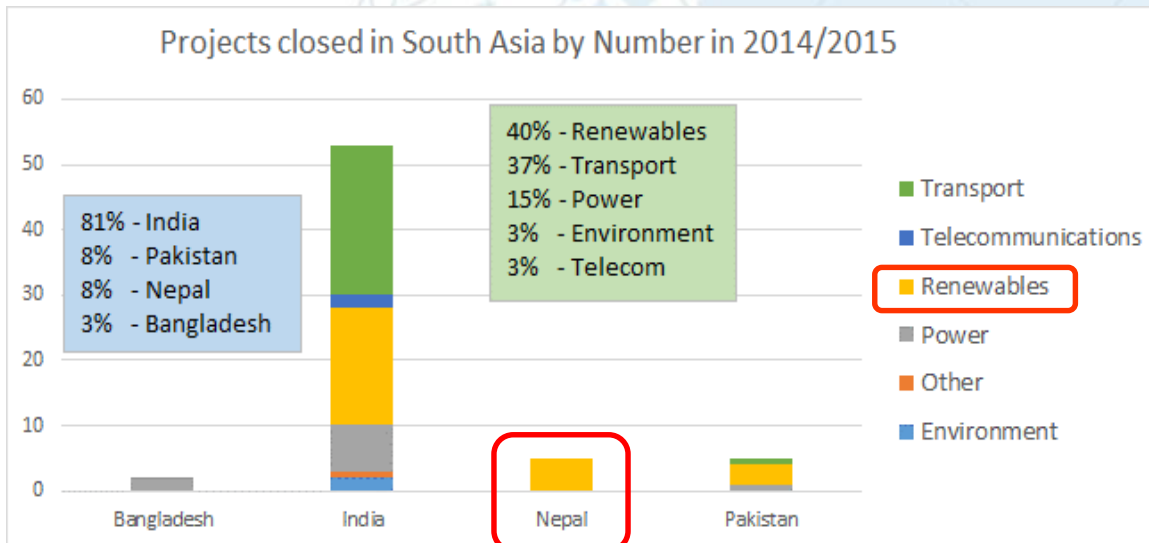
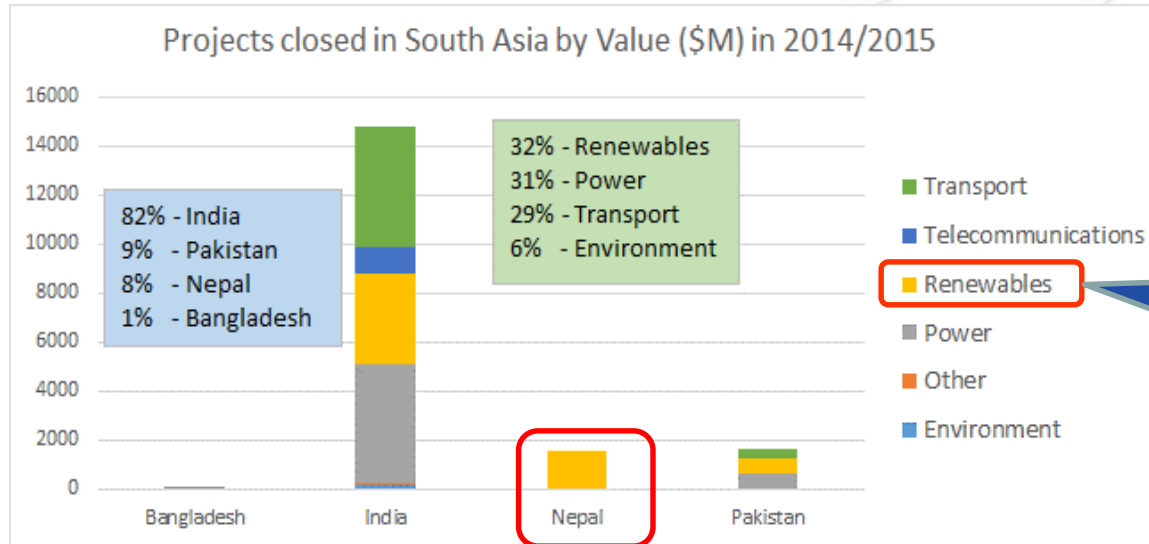


- Relatively large provision of credit to non-private sector indicative of large scale infrastructure projects undertaken by state owned enterprises
- Also observed in in Bangladesh, India, Philippines, Indonesia, Pakistan, Sri Lanka

Nepal commitments to RE in Asia lagging behind some of its peers

Country	Renewable Target	Main support scheme	Tax Incentives
Thailand	20% by 2036	Feed in Premium	Various
Malaysia	24% by 2050	Feed in Tariff	None
Indonesia	15 % by 2025	Feed in Tariff	For geothermal
Philippines	50 to 60% self sufficiency thru renewable	Feed in Tariff	For renewables
Vietnam	4.5% by 2020, 6% by 2030	Feed in Tariff for particular sectors	Import duty incentive
Cambodia	30% rural electrification by 2030 through renewable energy	Dedicated fund	None
Myanmar	None but policy intent to promote	Only policy document	None
Laos	30% by 2025, 10% of transport	Only policy document	None
India	9% by 2018 (excluding hydro); recent policy announcement: 175GW by 2022	Accelerated depreciation tax benefit	Fiscal incentives
Pakistan	10% by 2015; no further announcements	Tax Relief	Fiscal incentives
Banladesh	5% by 2015 and 10% by 2020	Tax Relief	N/A
Nepal	10% by 2030 (non-hydro)	Only policy document	None
Bhutan	Minimum of 20MW by 2025	Only policy document	None
Sri Lanka	20% by 2020; considering 100% by 2030	Feed in tariffs	Tax breaks

Recent Nepal transactions mostly in the Hydro power sector



Details of Recent Deals (closed & open)

Transaction	Type	Status	Date	Amount (USD M)
Arun-3 900MW Hydro Electric Project	Greenfield	Preferred Proponent	30-Jun-08	1100
Kabeli A 37.6MW Hydro Power Project	Greenfield	Preferred Proponent	15-May-14	88
Nyadi 30MW Hydropower Project	Greenfield	Preferred Proponent	27-Dec-06	74
Khare Khola 24.1MW Hydropower Project	Greenfield	Financial Close	22-Oct-14	40
Lower Solu 82MW Hydropower	Greenfield	Financial Close	30-Dec-14	180
Marsyangdi 600MW Hydro-Power Plant	Greenfield	Preferred Proponent	10-Dec-12	n/a
Tila 1 440MW Hydroelectric Plant	Greenfield	Preferred Proponent	1-Sep-15	649
Tila 2 420MW Hydroelectric Plant	Greenfield	Preferred Proponent	1-Sep-15	555
Upper Karnali 900MW Hydro-Power Plant	Greenfield	Preferred Proponent	24-Jan-08	n/a
Upper Marsyangdi-2 600MW Hydro Electric Project	Greenfield	Preferred Proponent	21-Jun-12	n/a

IAD
Projects

Thank you

For further information please visit:

www.infracoasia.com

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