



ACETTNA Summary Findings

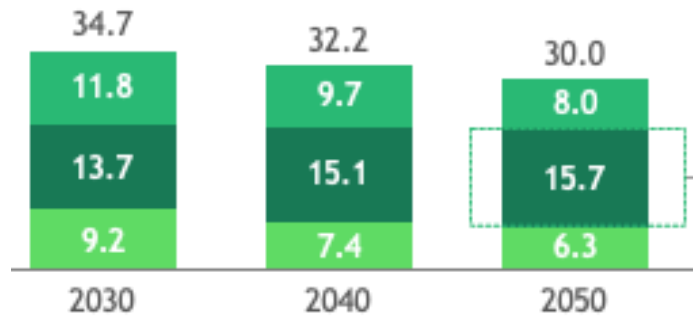
India and Southeast Asia focus

October 26th 2023

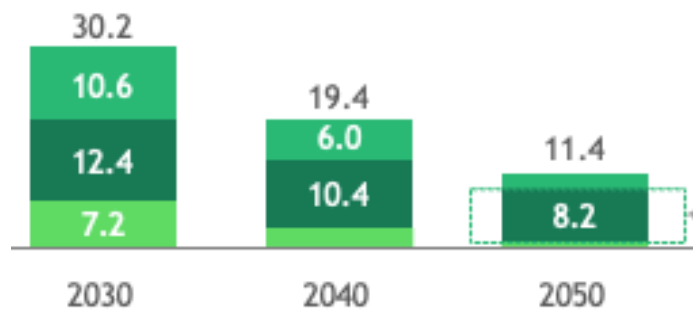


Accelerating emerging market decarbonization is key to reducing energy-related emissions

"Business as usual" forecast
(Gt CO₂¹, IEA Stated Policies Scenario)



Announced pledges forecast
(Gt CO₂, IEA Announced Pledges Scenario)



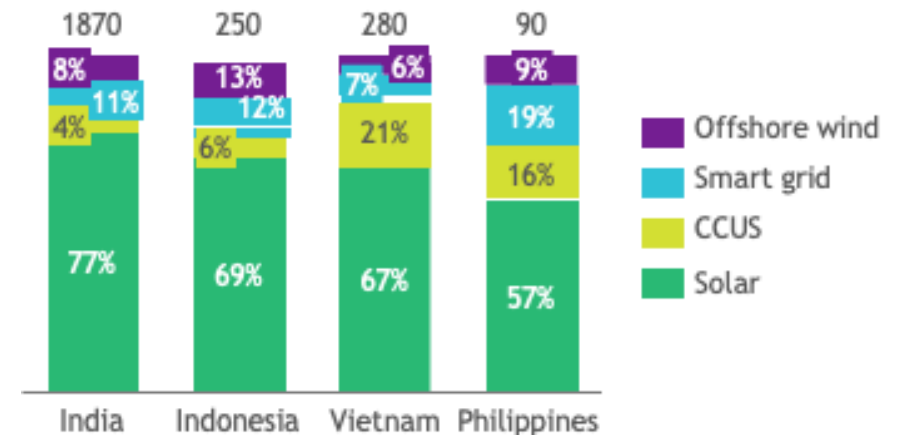
Meeting emerging market climate targets can reduce energy-related emissions -7.5Gt, -25% of 2020 global energy-related emissions

■ Advanced economies ■ Emerging market and developing economies ■ China

3 out of 4 countries have announced net zero pledges

| Country | Net-zero climate pledges |
|-------------|--------------------------|
| Philippines | ✗ No net-zero pledge |
| Vietnam | ✓ Net-zero by 2050 |
| Indonesia | ✓ Net-zero by 2060 |
| India | ✓ Net-zero by 2070 |

Solar to provide 60-80% of emissions abatement²



1. Includes emissions from industrial processes, fossil fuel combustion, and flaring
2. Total CO₂ abatement (MtCO₂e/yr) for each market and relative abatement by technology in 2040
Source: IEA World Energy Outlook 2022

Similar challenges across multiple emerging markets which inhibit ability to deploy required levels of clean technologies



Lack of supporting policies & regulations

- Lack of clear regulations reduce investment certainty (e.g., CO₂ liability, offshore leases)
- Local content requirements limit supply and increase costs
- State monopolies limit participation of private clean energy developers



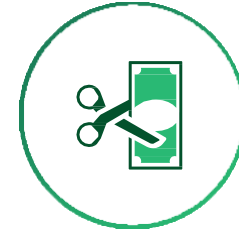
Lack of supporting infrastructure

- Limited energy access reduces prioritization of decarbonization
- Insufficient power grid infrastructure limits interconnections
- Lack of pipeline networks or depleted oil wells limits potential for CO₂ transport/storage



Lack of access to low-cost capital

- ~\$750B gap to financing needs limits project development
- Lack of quality project pipelines limits financing deployment
- High cost of financing increases project cost, hurting economics



Green premium for clean technologies

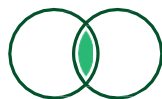
- Limited incentives / penalties do not account for carbon externalities
- Continued subsidies for fossil fuels and legacy state-owned players reduces clean tech competitiveness

Combining technical expertise with low-cost financing to create an attractive "full-service package" for emerging economies is a potential for U.S. export



Technical expertise

Leverage U.S. leading expertise in technologies such as CCUS and smart grids to secure local partnerships



Blended finance

Use blended finance to attract private capital and offer compelling financing options for development projects



Local Partnerships

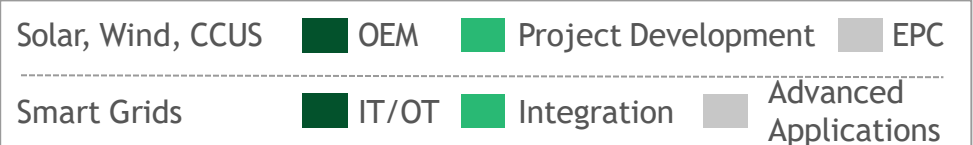
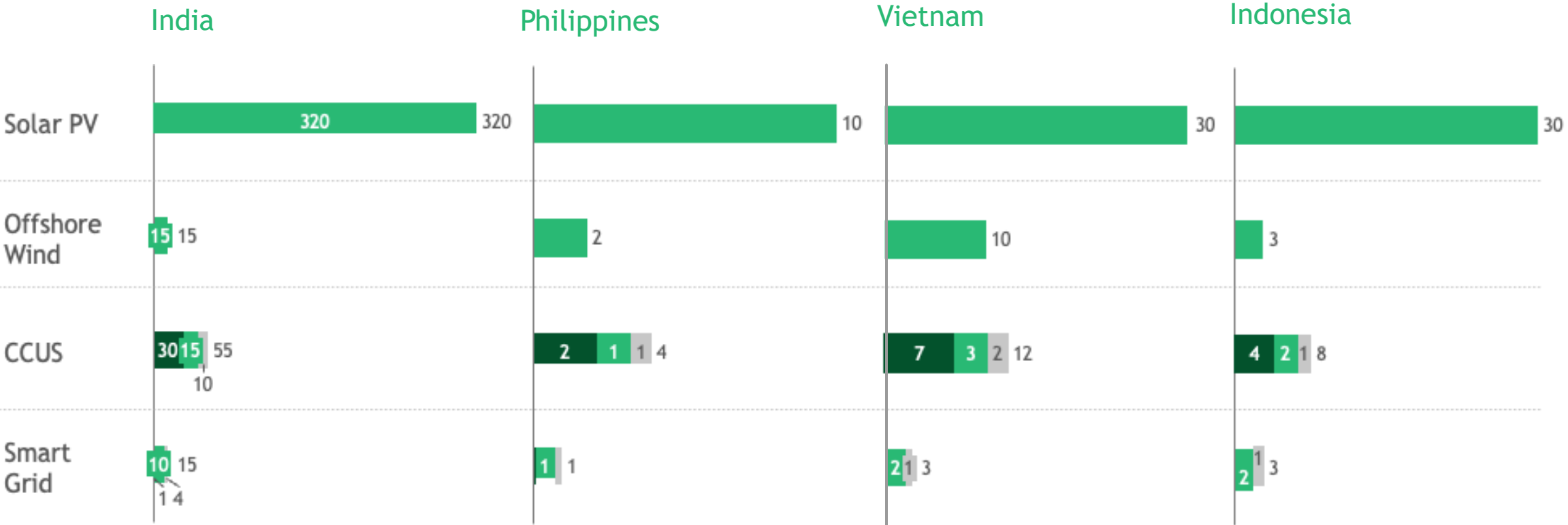
Partner with local players to leverage knowledge of local markets, regulations, and vendors



Full-service package

India dominates the export market potential, opportunities in SEA fragmented

Export Market Potential by Technology (2022 - 2040, \$B)



India | India presents a sizable market opportunity, but domestic competitiveness and business complexity complicate exports



Clear clean energy targets

+ Opportunities

- To meet ambitious goals to deploy 500 GW of RE by 2030 and reach net zero by 2070, India must install ~45 GW of renewables yearly, creating a substantial opportunity
- Policy measures, such as reverse auctions, RECs, RPOs, tax exemptions, and subsidies, create competitive and attractive RE market¹

- Challenges

- Inaccurate reporting / data creates discrepancies between what has been accomplished on paper and what is reality



Competitiveness of domestic players

+ Opportunities

- India builds assets at scale faster than other markets, providing U.S. OEMs (e.g., GE, First Solar) opportunity to quickly deploy mfg. plants

- Challenges

- Due to low labor and energy costs, domestic manufacturing is cheaper than imports (e.g., smart meter hardware is 2-3x cheaper than in the U.S.)
- Domestic manufacturing incentives (e.g., PLI² schemes) and basic customs duties further disadvantage foreign manufacturers, particularly in solar PV



Complex business environment

+ Opportunities

- India has lower policy restrictions on foreign entrants within development and financing, with no local presence requirements

- Challenges

- Since each state acts as its own regulatory and investment entity with varying languages, customs, and regulations, local players are better-positioned to navigate the complex environment
- Land acquisition requires local negotiations and presence due to fragmented holdings and poor land records



Capital needs and infrastructure

+ Opportunities

- India is among the most attractive emerging markets for foreign investors, with opportunity for the U.S. to support India's investment needs (~\$223B in investment needed to meet 2030 targets)

- Challenges

- Low financial health of DISCOMs³ and low utility tariffs on RE have led to PPA renegotiation requests and payment delays, exposing renewable energy assets to high risk

Southeast Asia¹ | Despite clean-energy potential, insufficient capital, trading barriers, and monopolies create challenges for U.S. exports



Large potential but limited focus and ambition

- + Opportunities**
 - Large solar and wind potential across the region creates opportunity for multinational cooperation to seize potential that countries can't capture alone
- Challenges**
 - Loose climate targets hinder prioritization of clean tech
 - Oil, gas, and coal impose powerful influence slowing down other energy sources
 - Energy security and geopolitical concerns cause reemphasis on coal



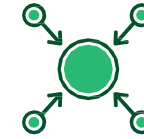
Cost sensitivity and insufficient infrastructure

- + Opportunities**
 - Capital needs may open doors for U.S. project financing, including through multilateral agencies
- Challenges**
 - Limited grid capacity has stymied renewable growth as some grids cannot easily support additional input from renewables
 - Financing remains a limitation due to unattractive government incentives



Relationship with Asia and other trading barriers

- + Opportunities**
 - Among non-Asian countries, the U.S. leads commerce relationship with the region
- Challenges**
 - Strong Chinese presence
 - High tariffs and preferential treatment to regional partners (e.g., Japan and Korea) complicates U.S. imports
 - Lack of policies to incentivize green energy and/or penalize fossil-fuel
 - Local content, low cost labor and manufacturing expertise



Strong presence of state-owned monopolies

- + Opportunities**
 - Virtual monopolies on energy allow the U.S. to make focused bets to win the markets
- Challenges**
 - Concentrated markets create dependency on partnerships with dominant players
 - Power asymmetry may hinder U.S. potential
 - Population needs put pressure on Governments to prioritize development

Note: 1. Indonesia, Philippines, Vietnam

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