Targeted Research for a Southeast Asia Climate Finance Program

south pole group

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Overview

Introduction & Methodology

This research work was financially supported by the David and Lucile Packard Foundation (Packard Foundation). All opinions highlighted in this report are those of South Pole Group's.

In a first phase, the South Pole Group supported the Packard Foundation by assessing policy, finance and market barriers to the deployment and development of clean energy (renewable energy (RE), energy efficiency (EE), energy storage and sustainable transport) across Southeast Asia (SEA), focusing on five target countries: Indonesia, Myanmar, Philippines, Thailand and Vietnam.

The following slides represent the outcome of this assessment.

The insights of this study are derived from a comprehensive synthesis of secondary research and on the results of 40 structured and open interviews with various clean energy project developers, public and private equity, debt and impact investors, international and domestic financial institutions, government representatives, policy experts and clean energy professionals across the region.

Conclusion

“One of the biggest battles to save the climate from collapse needs to be fought in Southeast Asia” Ingo Puhl, Co-Founder South Pole Group

We agree with the President of the World Bank who said: “**Asia’s power plant plans are a disaster for the climate**”. We observe a convergence of forces that have created an almost ideal ecosystem for coal investments in Southeast Asia today.

An **unholy alliance** of **cheap financing** to fund and incentivize the export of Chinese, Japanese and South Korean **coal technology** coupled with the supply of **cheap coal** from Indonesia and the willingness of energy-policy makers in Myanmar, Thailand, Vietnam, the Philippines and Indonesia to **prioritize coal for short-term gains** puts big hurdles into the path to the low carbon transition and its potential economic, social and environmental benefits for the region.

The implementation of only 50% of the **planned fossil investment** of 400 GW of new capacity (adding a carbon footprint of another India to Earth) **will undo progress made elsewhere** and make it impossible to reach the Paris Agreement targets.

A **concerted, multi-dimensional effort** is required to face this final battle. We recommend catalyzing early and already existing energy transformation opportunities in RE, EE, energy storage and e-mobility in order to:

- showcase the vastness of the opportunity of transformation;
- strengthen the infrastructure that is required to deliver the transformation at the required scale, i.e. access to finance, de-risk clean technologies, and accelerate clean-tech startups;
- inform the policy making process, i.e. assess the risk of current policies and boost policy transformation efforts;
- engage the public through awareness raising and transparency about consequences of policies and influencers (such as leaders of influential, regional family conglomerates).

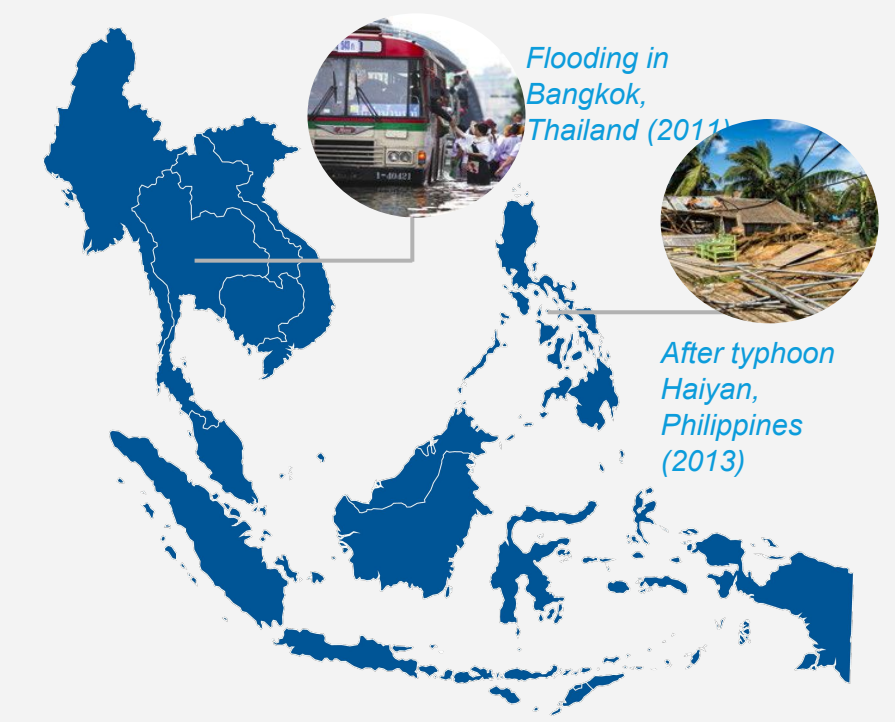
This research provides the evidence — based on a thorough analysis of the status-quo — and outlines key strategies to inform and empower those interested and motivated to join this battle for humanity and our planet earth.

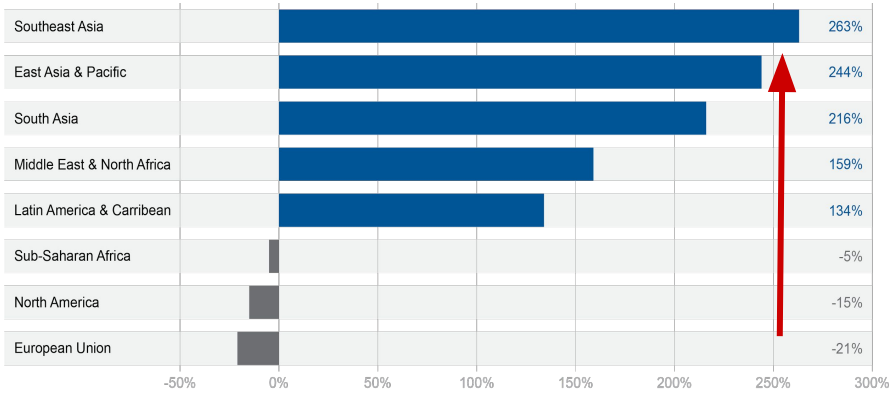
Executive Summary (1/6)

The Need for Change in Southeast Asia

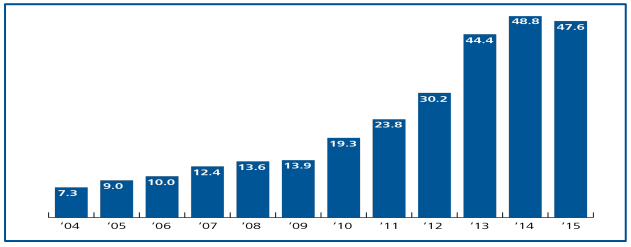
- The region has lead the world in CO_2 emission growth per capita (263% increase from 1990 to 2013).
- SEA expects a strong average GDP growth rate of over 6% throughout this decade.
- It requires substantial energy capacity additions to meet growing demand from growing populations.
- 90% of its population will suffer substantial loss and damage from climate change impacts.

A clean energy transition is the only way to create a better future for Southeast Asia: it will create enormous investment opportunities, sustainable growth, economic benefits & prosperity.





Target countries i.e. Indonesia, Myanmar, Philippines, Thailand and Vietnam with fastest growth in emissions in the world in 1990-2013



New RE Investments in SEA reached $48 BN in 2015; (for comparison: China: $102 BN, India: $10 BN)

Sources: World Bank, 2017 (graph above), Frankfurt School, 2017 (graph below); Wutthichai (photo above), Whitcombe (photo below) from Shutterstock.com

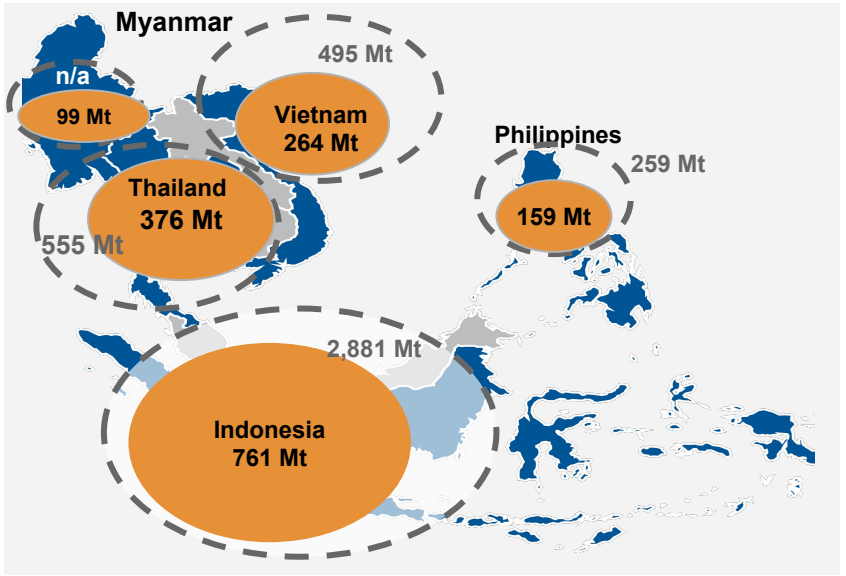
Executive Summary (2/6)

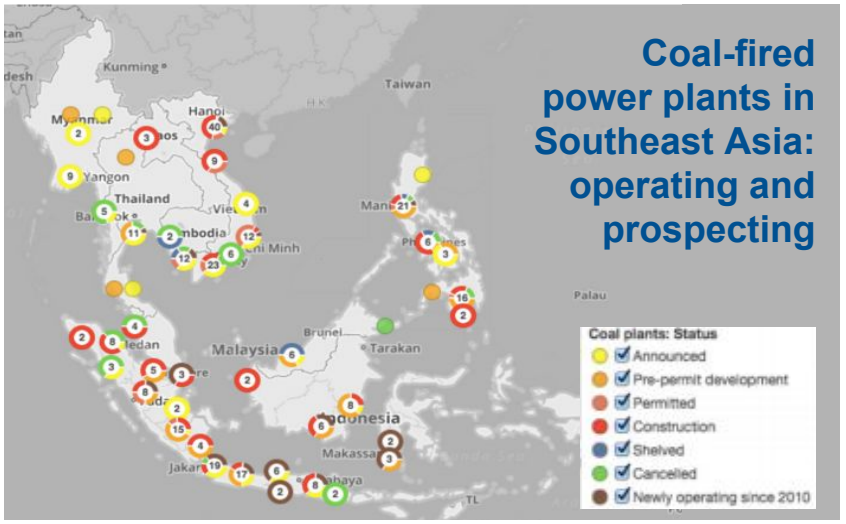
Current Trends Point In a Different Direction

The region has been experiencing carbon-intensive growth, driven by:

- the dominance of “cheap” subsidized coal as main source of power generation fuelled by massive availability of subsidized financing for coal investments from China, Japan and South Korea;
- the political power of (often family-owned) conglomerates in decision-making that are aligned with the current coal-interest-driven status-quo;
- an absence of hard environmental standards and safeguards in the investment/financing process of key financial players (e.g. One Belt, One Road Initiative);
- recent backpedaling on RE supporting policies across the region (RE FiT reduction in Indonesia, FiT caps in Thailand and Philippines, and overall policy shifts forcing RE to compete head-on with subsidized coal-fired power generation);
- a gap in early-stage project development finance for RE projects;
- a missing functioning system to support clean technology innovation and startup companies.

Carbon footprint in 2012 and BAU projections by 2030: + 2.750 Mt (for comparison: total GHG emission of India in 2012: 2400 Mt)





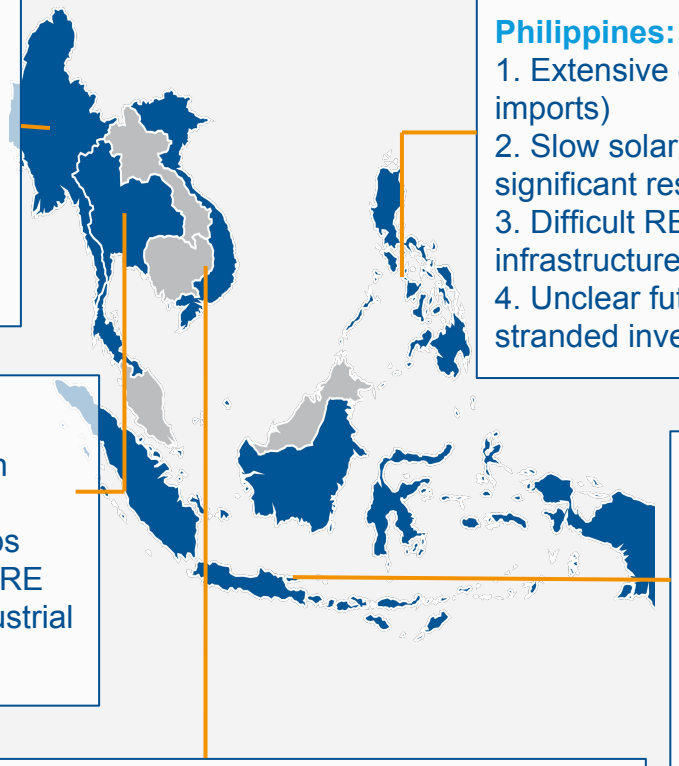
Sources: WRI CAIT (figure above); Shearer et al, 2016 (map below)

Executive Summary (3/6)

Country-Specific Barriers to Clean Energy Transformation

Myanmar:
1. Strong coal expansion plans for new on-grid capacity
2. Lack of early project development support for RE start-ups
3. Untapped off-grid RE potential, especially solar

Philippines:
1. Extensive coal expansion plans (Indonesian imports)
2. Slow solar and wind development despite significant resources
3. Difficult RE integration into existing grid infrastructure
4. Unclear future FiT scheme for solar and stranded investments



Thailand:
1. Plans to substitute gas w/ coal when Myanmar imports need to be replaced
2. Weak ecosystem for RE/EE start-ups
3. Weakened incentives for scaled-up RE (distributed solar, commercial and industrial rooftops; utility scale storage)

Indonesia:
1. Deeply entrenched coal interests (strong coal lobby, world leading coal producer and exporter & large expansion plans)
2. Power Utility (PLN) has weak balance sheet, not able to raise tariffs, thus resistant to change
3. RE projects are not bankable due to low power prices
4. Weak ecosystem for RE/EE start-ups

Vietnam:
1. Lack of smart financial instruments & start up support for RE and EE improvement
2. Large coal investments from China, Japan and South Korea
3. Insufficient market information
4. Difficult to secure PPAs

Sources: various sources and feedback from conducted interviews

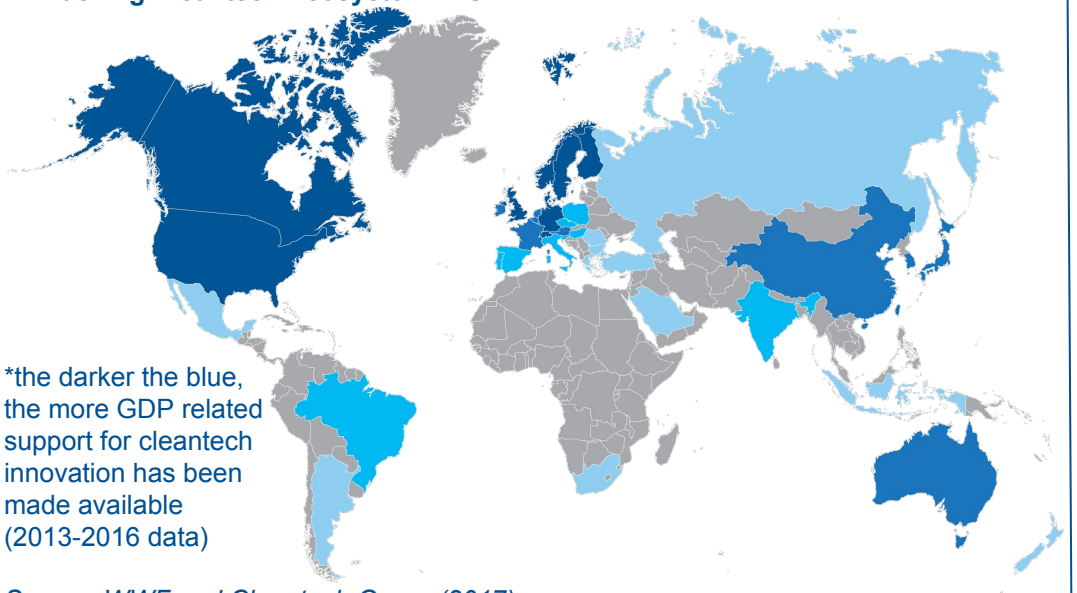
Executive Summary (4/6)

The Drivers of Southeast Asia's Future Energy Transformation

- Clean energy technologies — especially solar PV, wind, energy storage — will continue to experience an exponential drop in levelized cost of production (in many markets they are already replacing coal)
- Energy efficiency holds enormous emissions and cost reduction opportunities
- The take-up of e-mobility is accelerating globally

While these global trends have not yet converted into business development and investments at scale in Southeast Asia today, quickly decreasing clean energy costs will become competitive in the region on a wide scale, making existing and new coal plants obsolete within the next 3 to 5 years. This will create substantial financial risks for public and private owners of fossil generation assets.

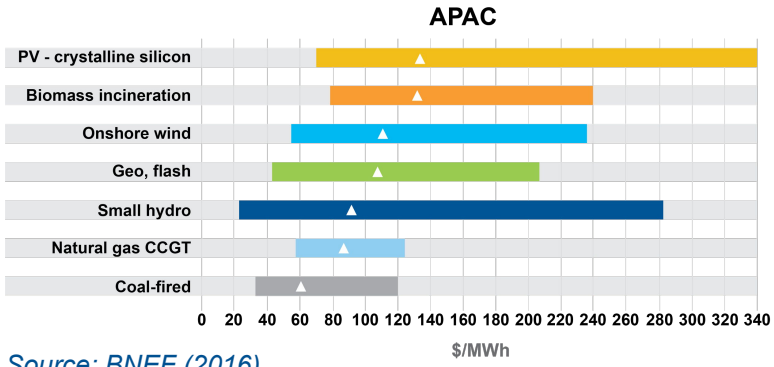
Lacking Cleantech Ecosystem in SEA



*the darker the blue, the more GDP related support for cleantech innovation has been made available (2013-2016 data)

Source: WWF and Cleantech Group (2017)

Levelized Costs of Energy (LCOE) in the Asia Pacific (APAC)



Source: BNEF (2016)

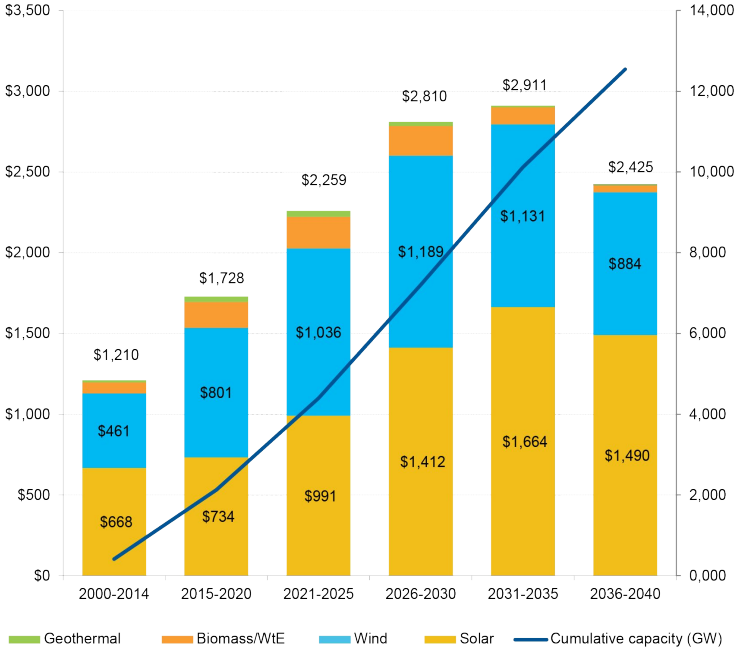
Executive Summary (5/6)

The Southeast Asian Clean Energy Transformation Opportunity

The Paris 2ºC objective represents a $12.1 trillion investment opportunity for new renewable electric power generation over 25 years, with a finance gap of $5.2 trillion, or $208 billion per year. A substantial low carbon investment potential exist in the target countries, offering engagement opportunities in several sectors such as various RE technologies, green buildings, sustainable transportation, and waste.

Several financing institutions and private equity funds have already spotted this opportunity and support clean energy deployment in the region to various degrees, with different priorities and the use of diverse instruments. However, lack of early stage finance persists.

Investment in new renewable power generation by technology under BNEF 2ºC scenario ($BN)



Country	NDC/Low Carbon Targets	Climate Smart Investment Potential (2016-2030)
Indonesia	Reduce GHG emission from BAU by 29% by 2030 with own resources, and 41% with additional support	**$274 BN**
Philippines	GHG emission reduction of 70% by 2030 compared to BAU	**$111 BN**
Vietnam	Reduce GHG emissions by 8% by 2030 compared to BAU, and up to 25% with international support	**$753 BN**
Thailand	Reduce GHG emissions by 20% by 2030 with own resources, and up to 25% with international support	**> $20 BN (RE alone)**
Myanmar	Achieve 15-18% share of RE in total generation capacity & 30% renewable sources for rural electrification by 2030	**n/a**

Sources: BNEF (2016) (left graph); IFC (2016), Climate scope (2016), SPG (2012) (right table)

Executive Summary (6/6)

Advanced Research Needed to Accelerate the Clean Energy Transformation

Actions to fuel and catalyse the clean energy transition must be made based on thorough analysis and understanding of relevant decision-making drivers. Six potential areas that require additional research have been identified, namely:

1) Understand the government risk exposure of signing long-term coal PPAs
2) Conduct critical analysis of RE transformation drivers
3) Improve disaggregated data sets around transport
4) Identify corporate actors and investment opportunity through the analysis of energy use in value-chains
5) Assess the impact of accounting for Internationally Transferred Mitigation Outcomes (ITMOs) in the context of financing coal-fired power generation
6) Identify pathways to influence Asian family conglomerates

Note: Further recommendations on specific intervention opportunities in each target country are included in an associated presentation with Matthew Sebonia from Global Climate Capital (GCC).

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