

THE RECOVER BETTER WITH SUSTAINABLE ENERGY GUIDE FOR SOUTHEAST ASIAN NATIONS

—



Special Representative
of the Secretary-General for
Sustainable Energy for All



The Recover Better with Sustainable Energy Guide for Southeast Asian Nations

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The Recover Better with Sustainable Energy Guide for Southeast Asian Nations¹

SETTING THE SCENE

The post-COVID-19 global economic environment will be defined by a prolonged recession and high levels of unemployment as countries worldwide seek to re-ignite their economies. In the midst of the COVID-19 pandemic and ensuing economic recovery, governments have a unique, once-in-a-generation opportunity to re-set their economies and address the underlying structures that enable development and competitiveness. Leaders with both the vision and political courage needed can help their countries recover better during the economic stimulus that will take place.

While Asia has made significant progress in recent years providing access to electricity, there are countries, primarily in South Asia, that have large populations without access. Overall, it is estimated that 218 million people in Asia still lack access to electricity. Without electricity, they lack a basic necessity for poverty alleviation and the ability to build resilience to the global health crisis. To achieve universal electricity access in Asia by 2030, we estimate that an annual investment of about USD 11 billion in electricity infrastructure is required, both for on-grid and off-grid access.

There are an estimated 1.8 billion people in Asia without access to solutions for clean cooking. The health impact of cooking with polluting fuels means increased risk of respiratory disease and vulnerability to COVID-19, and increased exposure to the virus through the collection of firewood and other fuels. An estimated annual investment of about USD 3 billion in clean cooking solutions is required.

COVID-19 has brought Southeast Asia's booming economy to a grinding halt in 2020. According to the International Monetary Fund (IMF), the region is expected to have its worst economic performance in last 60 years². The Southeast Asian economies that are dependent on tourism, oil/energy exports, small and medium-sized enterprises (SMEs) and deep global value chains are expected to experience the most impacts. For instance, 6 million job losses are expected in Thailand's tourism industry which accounts for 21% of the country's GDP³. In addition, the region has a dynamic portfolio of trade

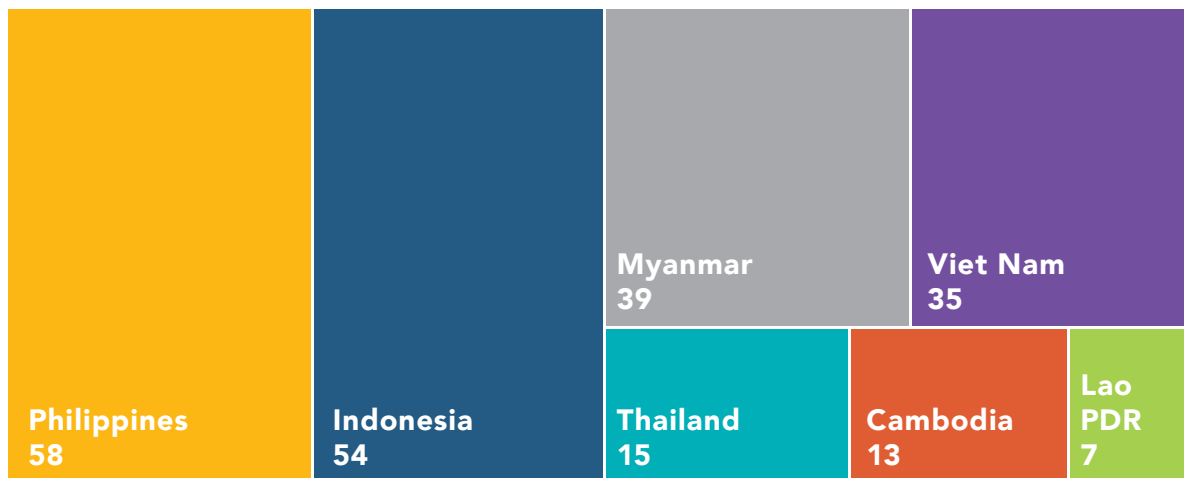
¹ Southeast Asia Nations for this paper is defined as members states of ASEAN (Association of Southeast Asian Nations), which are: Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

² <https://blogs.imf.org/2020/04/15/covid-19-pandemic-and-the-asia-pacific-region-lowest-growth-since-the-1960s/>

³ <https://www.khaosodenglish.com/news/business/2020/04/29/mass-unemployment-looms-for-thai-tourism-sector-un/>

FIGURE 1

Clean Cooking Access gaps in Southeast Asian countries in 2018⁴ (million)



and investment which has been severely disrupted and would need to be jumpstarted with new, more resilient business models⁵. From textile industries in Cambodia to components manufacturing in Malaysia, Vietnam and Philippines, there is a need to promote and invest in energy efficiency and renewable energy to realize the untapped potential of the region’s economy and simultaneously support greater energy security.

This sustainable energy guide highlights the opportunities, benefits and enablers that will help leaders guide their countries onto a more long-term sustainable and resilient development trajectory. As Southeast Asian countries recover better, they can also lead by example by translating their recovery actions into updated Nationally Determined Contributions (NDCs) under the Paris Agreement.

⁴ Based on 2020 SDG7 Tracking report, the graph shows ASEAN countries having less than 95% clean cooking access.

⁵ <https://www.csis.org/analysis/economic-toll-covid-19-southeast-asia-recession-looms-growth-prospects-dim>

THE OPPORTUNITY

The global economy of the future will be based on increasingly renewable sources of energy and more efficient uses of energy. Countries that take advantage of this moment to re-think their energy supplies will develop a competitive advantage. Countries should pursue significant investments in renewable energy, energy efficiency and clean cooking as well as in diversifying local economic activities that support these:

i. Energy Efficiency as the first and cheapest fuel to drive growth

- There is significant untapped potential that can be realized for energy efficiency in the region which will create new jobs, build more competitive businesses and lower costs for consumers. It is estimated that a USD 400 billion energy efficiency investment potential in Southeast Asia yet to be realized, out of which USD 152 billion represents untapped potential in the buildings sector⁶.
- The cooling sector in Southeast Asia has significant importance and will be expected to account for 30% of the peak power demand by 2030⁷. Meeting this high demand for cooling will require more energy efficient and climate friendly solutions while also recognizing the need for access to cooling by the rural and urban poor.
- Access to functioning cold chains will also require focused attention in order to improve food security and reduce food loss. Functioning cold chains will also be needed for vaccine effectiveness and improvements to healthcare.
- Stimulus packages that drive investments in energy efficiency would enable the tourism industry to reduce a substantial aspect of their energy costs, and enable a faster, more resilient and sustainable recovery.

ii. Shifting Investments towards Renewable Energy

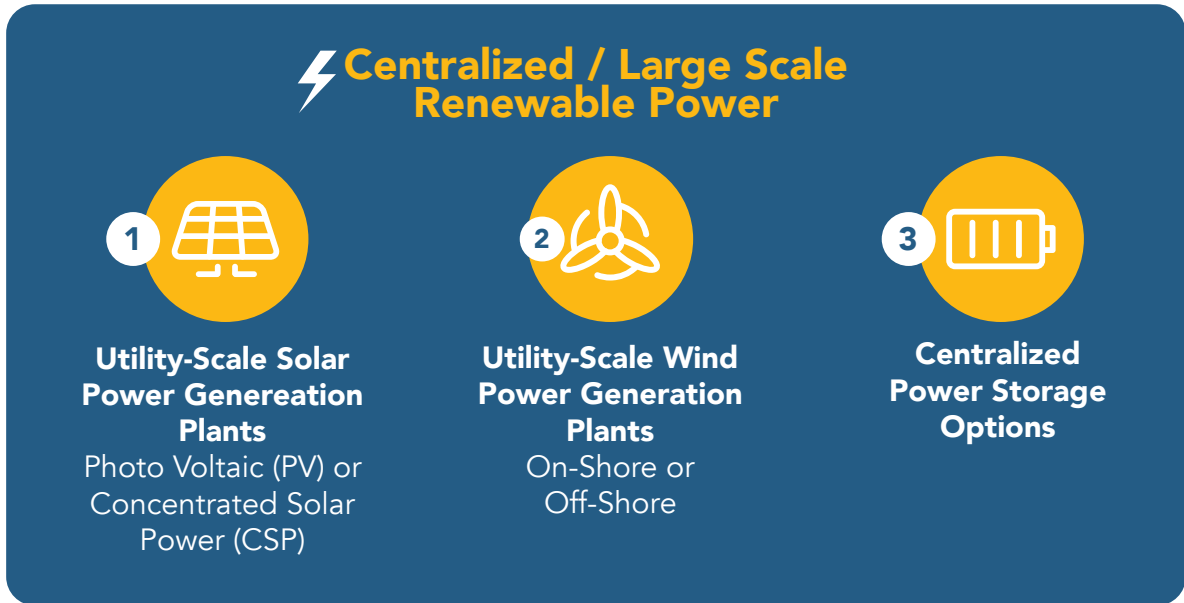
- Southeast Asian countries should pursue large-scale investments in renewable energy to increase their share in the energy supply mix of the region. We could imagine countries aspiring to invest 25% of their stimulus budgets for on-grid and off-grid renewable energy (a combination of solar, hydro, geothermal and wind) (Figure 2).

⁶ Angairankumar Ghanasagar, Making the region's buildings energy efficient, The ASEAN post, 15 December 2018, [Link](#)

⁷ IEA, the future of cooling in Southeast Asia [Link](#)

FIGURE 2

Opportunities in centralized and decentralized renewables



GOAL
25%
of stimulus to
renewables

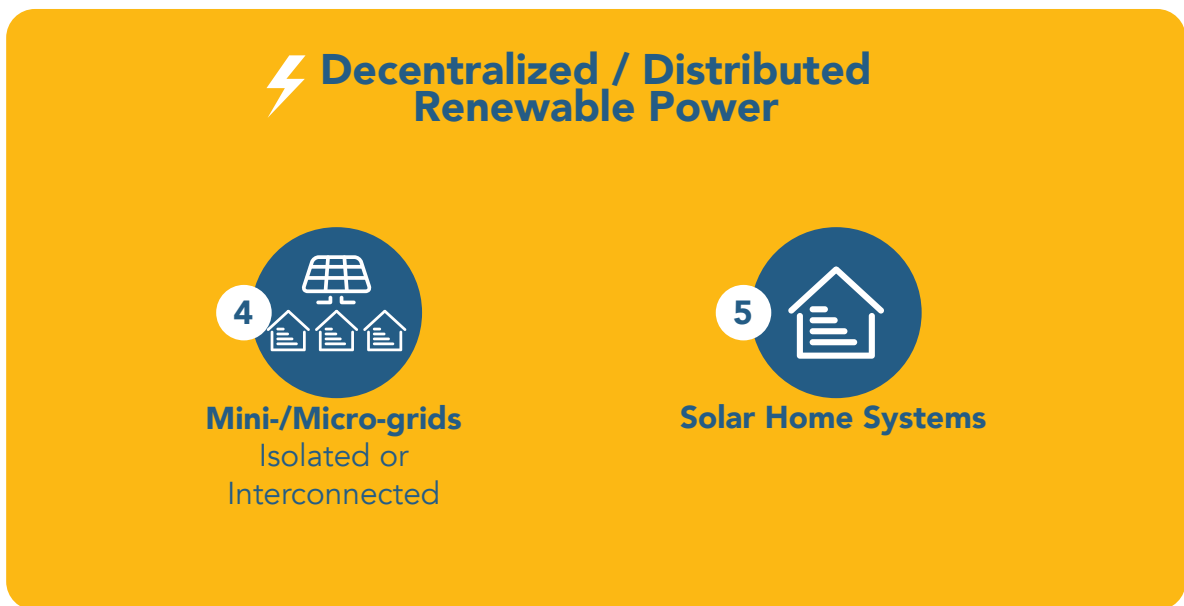
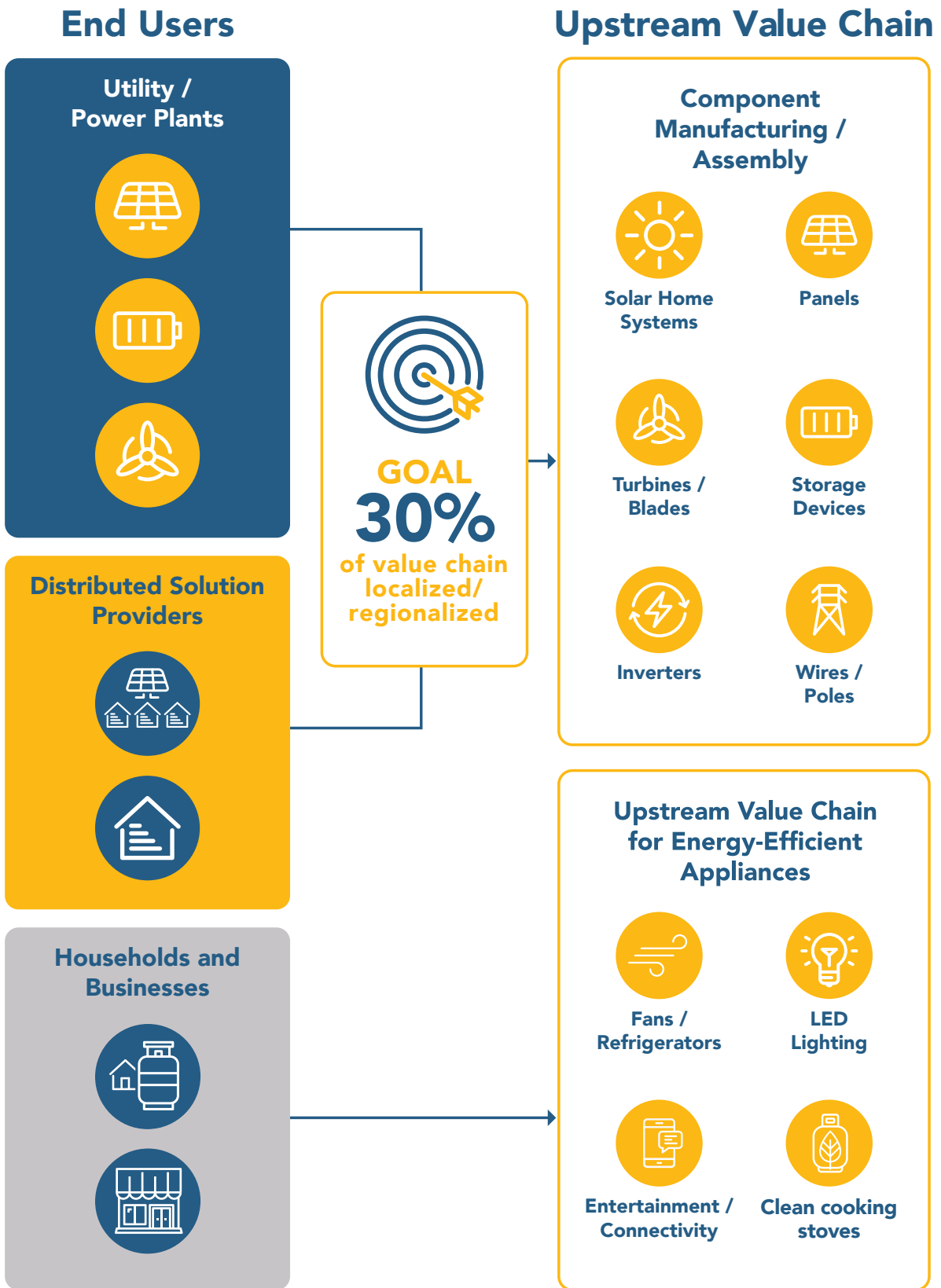


FIGURE 3

Opportunities in the upstream value chain



- Shifting investment towards centralized and decentralized renewable energy in the region will not only help to close electricity access gaps but develop energy security and avoid stranded assets based on fossil fuel infrastructure.

iii. Prioritizing Clean Cooking

- The region should also include support for clean cooking in their stimulus budgets, targeting cleaner fuels and the supply chains needed to support the distribution of fuels and stoves as well as public education to increase uptake.

iv. Investing in the Local Value Chain

- These investments should also drive the development of the up-stream value chains in the Southeast Asia region, so that countries build local manufacturing or assembly of equipment and associated appliances used in renewables, efficiency and clean cooking. We could imagine countries targeting the localization (or regionalization in the case of ASEAN) of 30 percent of their associated value chain and simultaneously developing greater energy security (Figure 3).
- Noting the competitive advantages of the region's existing manufacturing capacity and the growing strategic importance of renewable energy technology, governments should target direct and indirect investments to operationalize assembly plants and make Southeast Asia a hub for renewable energy technology supply. Encourage private sector through off-take agreements and reducing or eliminating import duties and value-added taxes (VAT) on components.

THE BENEFITS

Countries that pursue the opportunities of recovering better with sustainable energy will achieve a range of key benefits:

i. GDP multiplier. Investments in energy have a significant GDP multiplier that will benefit the country and its economy.

- For every US dollar invested in the transition towards renewable energy, an additional USD 0.93 of GDP growth above business as usual is expected to occur⁸.
- Investments in the Southeast Asian region to achieve the ASEAN target of 23% renewable energy share by 2025 can provide an annual additional GDP growth of USD 25 billion⁹.
- Providing modern clean cooking access to 30 percent of the currently unserved population is estimated to result in a macroeconomic benefit (economic, health and environment) of USD 15 for every dollar spent¹⁰.

ii. Job creation: There is significant job creation potential from both investing in renewable energy and investing in the local supply chain associated with renewable energy. Further, introducing (and enforcing) improved energy efficiency standards for buildings (including retrofitting existing buildings) will trigger the construction industry and cost less than large infrastructure investments.

- For every USD 10 million investment in renewable energy and energy efficiency, approximately 2 to 2.5 times more jobs are created than investing the same amount into the fossil fuel industry¹¹.
- It is estimated that the present renewable energy policies and target if achieved in Southeast Asia can generate 1.7 million jobs by 2030¹².

⁸ Global Energy Transformation – A Roadmap to 2050, IRENA 2019 Edition. [Link](#)

⁹ Estimated from data of IRENA 2018, Renewable Energy Market Analysis – Southeast Asia, [Link](#), January 2018

¹⁰ Copenhagen Consensus Network, Galiana Sopinka, Post-2015 Consensus: Energy Assessment, [Link](#)

¹¹ Heidi Garette Peltier. "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using I-O model", Economic Modelling pp434-47, 2017

¹² IRENA 2018, Renewable Energy Market Analysis – Southeast Asia, [Link](#), January 2018

FIGURE 4

Estimated GDP impact



- Implementing energy efficiency improvement in industries and buildings will trigger competitive manufacturing and stimulate the construction sector.
- For every USD 1 million invested in retrofitting buildings, 16-21 jobs are created¹³.

iii. Cheaper energy provision. Increasingly, renewable technologies cost the same or less than fossil fuel alternatives.

- Levelized cost per unit of electricity from new utility-scale solar photovoltaic (PV) power plants has dropped about 90 percent over the last decade¹⁴.
- Renewables are now the most cost-effective source of electricity in almost every country in the world¹⁵.
- Between 2006-2016, the Southeast Asian region saw investment of USD 27 billion in the renewable power sectors of Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam¹⁶. The levelized cost of electricity for hydropower and biomass is now cheaper than conventional energy in the region, and the rapidly falling cost of solar PV is making it a highly feasible option¹⁷.

iv. Improved health and agricultural outcomes. Energy investments should be targeted at countries that have not yet achieved universal energy access as well as at specific sectors within those countries, namely health and agriculture. These countries will see significant secondary benefits from more reliable access to energy in the health and agriculture sectors.

¹³ McKinsey & Company, How a post-pandemic stimulus can both create jobs and help the climate” [Link](#), May 27, 2020.

¹⁴ Lazard: Levelized Cost of Energy and Levelized Cost of Storage 2018.

¹⁵ Carbon Tracker, COVID-19 and the Energy Transition. [Link](#), 7 April 2020.

¹⁶ IRENA 2018, Renewable Energy Market Analysis – Southeast Asia, [Link](#), January 2018

¹⁷ ASEAN Centre for Energy (ACE) 2019, LCOE for selected renewable energy technologies in ASEAN member states II, [Link](#), February 2019

- Every USD spent by governments on health between 2008 and 2010 in 25 EU countries had a multiplier effect of adding USD 3.61 to GDP¹⁸ and resulted in a significant reduction in morbidity and mortality.
- Electrified primary healthcare facilities have access to lighting and enable the use of critical medical equipment as well as safe storage for vaccines. There is a 50 percent increase in patient admittance when clinics are powered and a 26 percent increase in vaccine coverage.
- Access to just one piece of electrical processing equipment can increase agricultural yields for small hold farmers by 30%. Access to energy also enables access to information for farmers to guide planting decisions and improve their agricultural productivity. By delivering access to energy and sustainable cold chains, a quarter of the food loss can be avoided¹⁹.

v. Improved gender outcomes. Investing in sustainable energy and energy access can ensure benefits to women that have been impacted the worst by the pandemic.

- Wages for women with access to energy are 59 percent higher than those without, a gain that puts women on equal footing with men in terms of remuneration²⁰.
- Women represent about 32% of the renewable energy workforce versus just 22% for the oil and gas industry, and the renewable industry is more appealing to women²¹.
- Switching to clean cooking solutions can free up time for more productive activities and foster female entrepreneurship. In Kenya, evidence shows women entrepreneurs in the clean-cooking value chain outsold men by nearly 3:1 and women who purchased clean stoves from women entrepreneurs were more likely to report consistent and correct use of their stoves²².

¹⁸ Reeves et al. Globalization and Health 2013, 9:43 PG. 11.

¹⁹ Institute for Mechanical Engineers (2014). A tank of cold: Cleantech leapfrog to a more food secure world, London, England.

²⁰ Rewald, Rebecca, "Energy and Women and Girls: Analyzing the Needs, Uses, and Impacts of Energy on Women and Girls in the Developing World," Oxfam Research Backgrounder series (2017).

²¹ IRENA 2019. Renewable Energy Jobs Report. [Link](#)

²² ESMAP (2019) Clean Cooking Fund Business Plan FY 2021–2024.

THE ENABLERS

As countries seek to recover better, there are eight key dimensions that need to be established in order to ensure a successful transition and execution:

i. Ease of doing business. Several measures can be put in place to ensure that investments in sustainable energy and energy access are driven as fast as possible. This includes simplifying procedures, ensuring uniform and transparent policies, reducing the number of permits and the time it takes to get them for renewable energy and clean cooking equipment and appliances.

- Countries that make it easier to do business increase entrepreneurship and generate jobs, incomes and government revenue²³.
- The Southeast Asian region has improved its performance in its ease of doing business, including for the electricity sector. Countries such as Singapore (2), Malaysia (12), Thailand (21) have high rankings in the ease of doing business index in 2020. However, challenges remain across the region for different factors such as enforcing contracts, resolving insolvency and cross-border trade²⁴.

ii. Robust policies and institutions in support of renewables, electrification, clean cooking and energy efficiency. In order to effectively deliver this approach, governments need to work to establish or empower institutions such as regulators and rural electrification agencies and ensure the right frameworks are in place to successfully drive the development of renewables, energy efficiency, increased electrification and increased access to clean cooking.

- ASEAN has set a regional target of securing 23% of their primary energy from modern, sustainable, renewable sources by 2025. To achieve this, an annual investment of USD 27 billion would be required in the region²⁵.

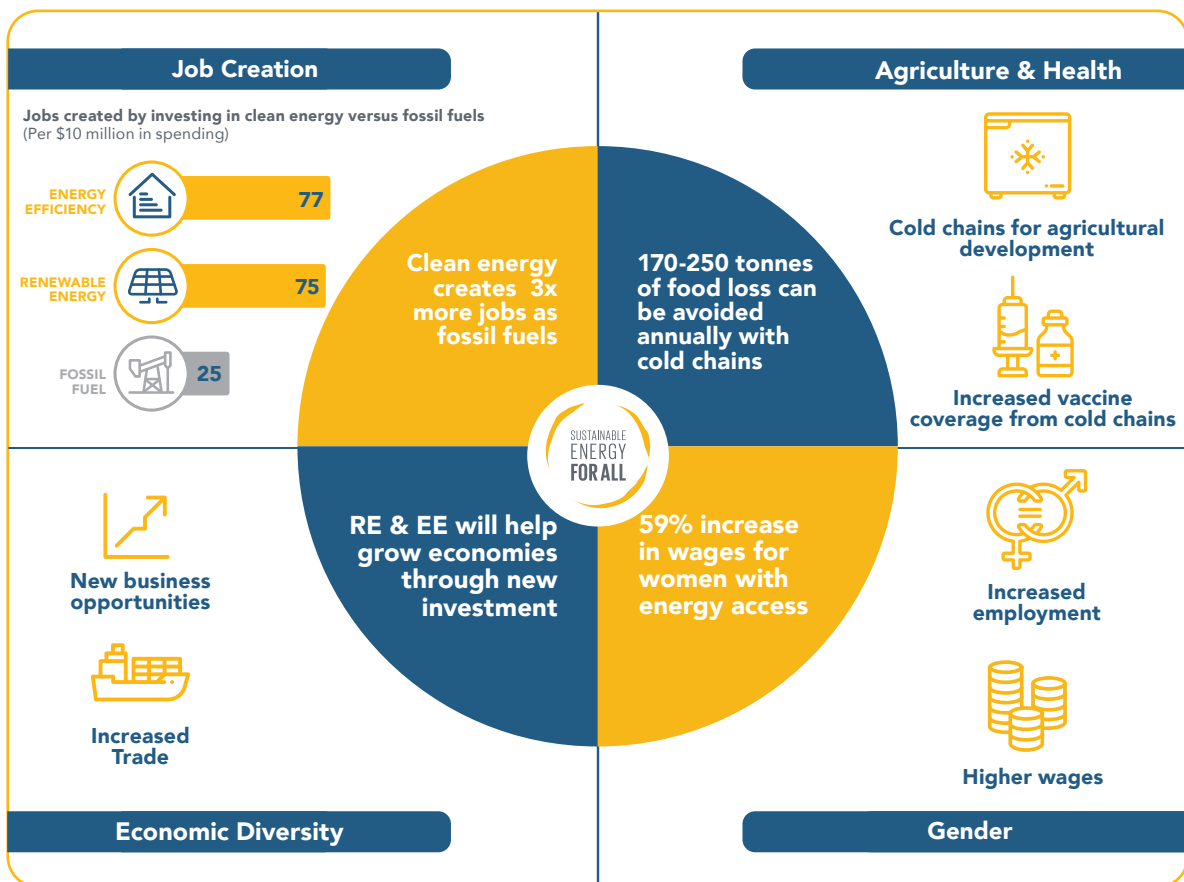
²³ World Bank (2019). Doing Business 2020: Sustaining the pace of reforms. [Link](#)

²⁴ World Bank (2020). Doing Business 2020. Factsheet: East Asia and Pacific [Link](#)

²⁵ IRENA – ASEAN Center for Energy (ACE), Renewable Energy outlook for ASEAN, [Link](#), 2016

FIGURE 5

Benefits of sustainable energy for all



- It is estimated that 250 million households in Southeast Asia use solid biomass for cooking and use of improved cookstoves could result in significant carbon emission savings. For instance, 60 million households with clean cooking could result in annual savings of 310 million tonnes of CO₂ emissions²⁶.
- Coordination amongst governments at the regional and international level continues to be an important pathway towards a successful energy transition. The harmonization of policies and standards reduce costs and unlock investments at larger scale; cross-border power trade provides a range of technical, economic, and environmental benefits; while the sharing of data, learnings and experiences reduces risk and encourages ambition.

iii. Investment in energy efficiency. Investment in energy efficiency creates jobs, reduces the need to build more power plants and is the cheapest way to reduce emissions.

- The energy efficiency interventions for existing and new buildings could create about 2.4 million jobs in Southeast Asia alone²⁷.

²⁶ IRENA 2018, Renewable Energy Market Analysis – Southeast Asia, [Link](#), January 2018

²⁷ Estimations from the ASEAN post new, December 2018 [Link](#)

- Green Technology Financing Scheme (GTFS) was launched by the Malaysian government in 2010 to provide loan guarantees and increase access to finance for energy efficiency projects. The scheme has engaged 52 banks to provide finance to project developers and implementors. Until 2017, GTFS scheme has provided support to 319 projects to leverage USD 1.7 billion investment in Malaysia²⁸.

iv. Investment in Data. Countries can support rapid investments in renewables, electrification and clean cooking through the effective provision and availability of data. This includes information on optimal renewable sites, communities that are optimally positioned for commercial investments in electrification and adoption and impact of clean cooking solutions.

- Investment in better data that can facilitate all market actors to utilize will pay dividends over the long run. Clear indications on least-cost solutions for energy access will help pave the way for private sector developers and financiers.

v. Move towards cost-reflective tariffs. There are political incentives in many countries that favor reducing the cost of electricity to the consumer, but this should be avoided at all costs. Electricity is largely consumed by wealthier residential or industrial/commercial clients. There are ways that the poor can be protected from tariff increases, without reducing the tariff for all customers.

- Governments should move towards cost-reflective tariffs. Allowing cost-reflective tariffs also allows utilities to perform better and increases investments in energy access and clean energy.

vi. Elimination of fossil fuel subsidies. Governments should take the opportunity to eliminate fossil fuel subsidies. With the price of oil the lowest it has been for 18 years, now is the time to float liquid fuel prices, which, if anything, will result in an immediate benefit for consumers²⁹. When the price of fossil fuels rises again, governments should refrain from re-introducing the subsidy.

- With a 1.2 percent global increase in green investment and a mere 0.4 percent decrease in fossil fuel investments, valuable jobs can be created, and the world can be on track to achieve the Paris Agreement³⁰.
- Total direct subsidies for all energy sources reached at least USD 634 billion globally in 2017, with 70 percent of those directed towards fossil fuels. The supply-side subsidies for renewable energy (both power generation and transport) were estimated at just USD 167 billion in 2017.³¹ Countries could take this moment to remove subsidies from the fossil fuel sector and use those funds for green recovery packages.

²⁸ ASEAN Center for Energy (ACE) 2019, Mapping of Energy Efficiency Financing in ASEAN, [Link](#), April 2019

²⁹ Bloomberg News, 30 March 2020. [Link](#)

³⁰ Climate Analytics (2020). Climate Action Tracker: Update, April 2020.

³¹ IRENA 2020 ENERGY SUBSIDIES Evolution in the Global Energy Transformation to 2050

vii. Declare a moratorium on new coal-fired power. For power generation, over half of all coal plants currently in operation cost more to run than building new renewables³³. New investments in renewables are more economical than new investments in coal, which would make future coal-based power plants stranded assets.

- According to new global analysis, the health and environmental benefits of exiting coal vastly outweigh the costs. By 2050, a coal exit can save 1.5 percent of global economic output, equivalent to USD 370 for every person on earth³⁴. In China, 70 percent of the operating coal fleet costs more to run than building new onshore wind or utility-scale PV³⁵.
- South Korea recently declared a target of 40% renewable energy share by 2034. The preliminary Green New Deal also called for curtailing new coal power plants, an end to financing coal and closing 30 out of the 60 existing plants³⁵.

viii. Investment in people to ensure access to jobs. As governments seek to take advantage of the job creation potential of recovering better, concurrent investments in human capital will be required in order to ensure that there is a talent pool that can meet the needs as local industries are established. Technical, business and entrepreneurship training are all necessary to localize industry and meet the needs of what could be a sizeable domestic market. Governments also need to invest in the people within their institutions tasked with developing and implementing energy programs. This includes but is not limited to regulators, state-owned utilities, and implementing agencies and ministries.

³² Carbon Brief, Tracking how the world's 'green recovery' plans aim to cut emissions [Link](#).

³³ Carbon Tracker: How to waste over half a trillion dollars: The economic implications of deflationary renewable energy for coal power investments. [Link](#)

³⁴ Potsdam Institute for Climate Impact Research. Coal Exit Benefits Outweigh its Costs. [Link](#)

³⁵ Carbon Tracker: How to waste over half a trillion dollars: The economic implications of deflationary renewable energy for coal power investments.

FIGURE 6

Proposed USD 10.5 billion green initiatives in "The Korean New Deal"³²



Green Building Infrastructure

USD 4.56 Billion investment by 2022 to create 89,000 jobs

- Transition state run public facilities to green buildings
- Replace fossil fuel based utilities with efficient and green technologies
- Install 100 new IT based systems to assist in low carbon vehicle manufacturing and air quality improvement



Green Energy Systems

USD 4.52 Billion investment to create 33,000 jobs

- Financing and research for solar, wind and hydrogen infrastructure and deployment
- Smart grid systems for energy efficient management
- Encourage early transition to cleaner cars and ships



Green Industry Revival

USD 1.42 Billion investment by 2022 to create 11,000 jobs

- Financing 100 SMEs with green and sustainable business models
- Low carbon industrial complexes

³⁵ Bloombergquint News, 13 May 2020 [Link](#)

TAKING THE RIGHT NEXT STEPS

The benefits of recovering better with sustainable energy for all are clear: a demonstrable return on investment, a more resilient economy, healthier people and a cleaner environment.

Governments across Southeast Asia are taking unprecedented steps to respond to the immediate health and economic impacts of COVID-19. Today's decisions will impact tomorrow's ability to recover better over the long term. There are important measures governments can take to recover better by delivering sustainable energy for all while also growing resilient economies and creating new green jobs. Moreover, every investment to recover better reflects greater ambition towards the Paris Agreement that can be reflected in the 2020 review of Nationally Determined Contributions (NDCs). The ASEAN cooperation framework is already a well-established platform to promote sustainable energy strategies and investment in the region. The strengthening of institutional cooperation between the governments of Southeast Asia through this framework would be an important factor to build back towards resilient and greener economies.

These ideas can be turned into action with committed leadership and drive towards greater long-term competitiveness and can be started by providing a whole-of-government mandate to prioritize and implement the enabling measures necessary to recover better. This includes empowering Ministries of Finance, Budget and Planning to make the necessary investments in sustainable energy projects that create jobs and that can jump-start their economies.

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