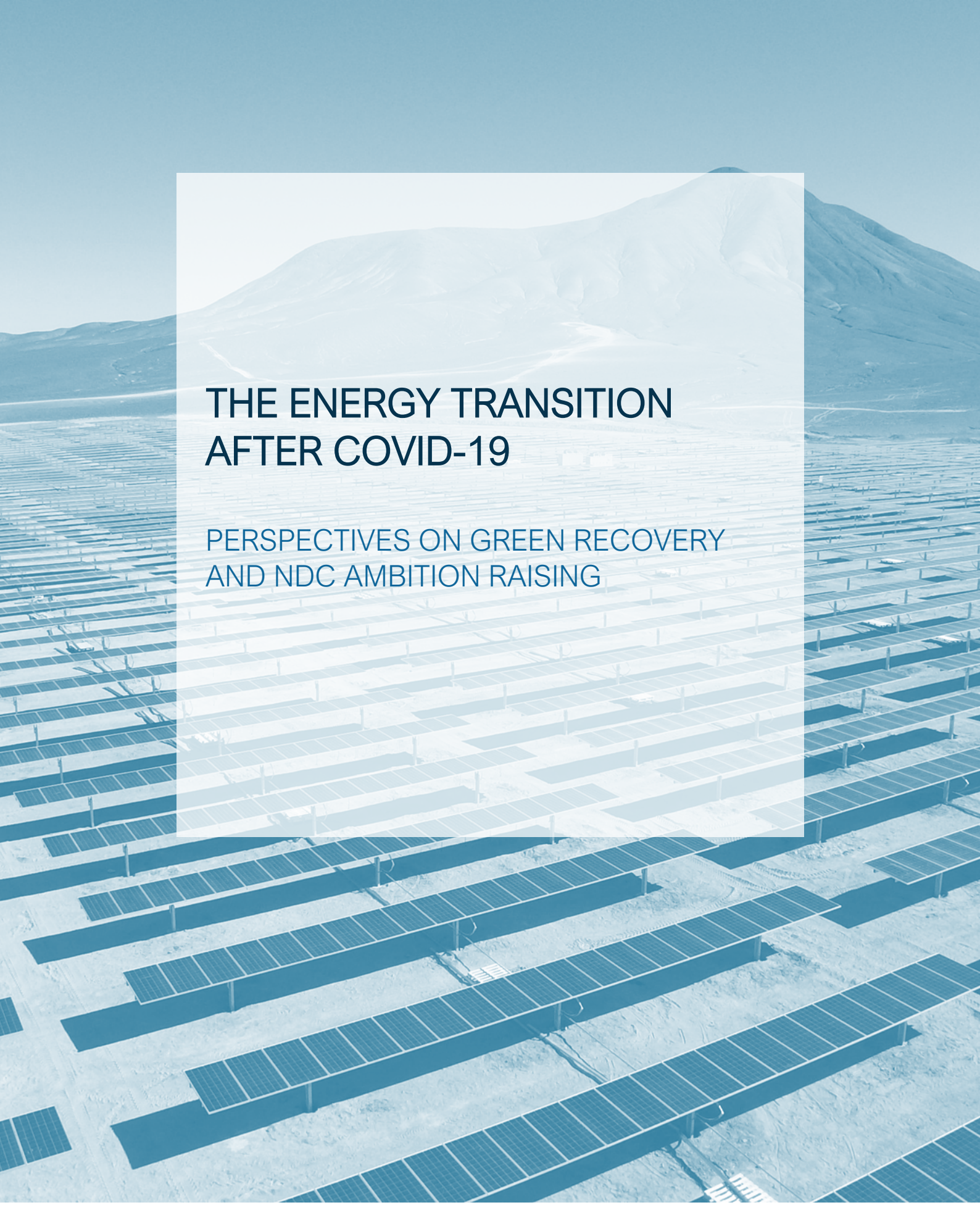

THE ENERGY TRANSITION AFTER COVID-19

PERSPECTIVES ON GREEN RECOVERY AND NDC AMBITION RAISING

Ambition to Action

NEW CLIMATE INSTITUTE

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KEY FINDINGS

The effects of the COVID-19 crisis on the energy sector are substantial and diverse: a decline in energy demand, shifts in energy use, and the risk of energy poverty as a result of reduced income. Without adequate policy responses, the crisis is bound to lead to more energy insecurity for vulnerable households and businesses.

The COVID-19 pandemic hits a world in transition. As governments are moving from crisis response to economic recovery, climate and development goals should be front and centre.

There is a convincing call to push for a 'green recovery' and take the opportunity to 'build back better'. In that regard, 2021 marks an important year for the Paris Agreement on climate change, and 2030 remains a steady beacon for the sustainable development goals (SDGs).

Here, we review energy-related government responses to the COVID-19 crisis in Indonesia, Kenya, Thailand, Mexico, and South Africa. While there is much variation between these countries, we observe a number of common challenges and responses:

- **Households** face sudden energy security concerns. Several countries offer free or discounted electricity, but often only for customers with entry-level connections.
- **Businesses**, especially in hard-hit sectors, experience cashflow problems; They see their income-generating activities reduce, but often cannot scale back energy expenses accordingly.
- **Utilities and operators** are receiving large capital injections to compensate for losses and more balance sheet stress is expected. State-owned utilities in poor financial shape are facing increased pressure to accept the prospect of accelerated fossil phase-out and reform.
- **Energy businesses** need short-term support to survive and long-term predictability to flourish.

A closer look at the power sector in Indonesia (as a case study) reveals that, like in many places, the crisis exaggerates and magnifies existing injustices and vulnerabilities in the energy system. Even though these weaknesses are often well known, the prospect of a green recovery makes discussions around "pre-existing conditions" more urgent than before.

Although COVID-19 crisis is still unfolding and for many countries the short-to-medium term outlook is unclear, it is of paramount importance that all countries submit an updated NDC that reflects their highest possible ambition and a long-term strategy that sets out a clear vision towards decarbonisation. We offer three considerations for governments to strengthen the energy aspect of their updated NDC pledge:

- Make **green recovery** a central tenet of the energy sector and integrate public support into NDC planning and implementation.
- Acknowledge that **full decarbonisation** is needed, and that the energy transition will need to accelerate significantly. Commit to realigning national and sector targets and strategies accordingly.
- Identify existing vulnerabilities and weaknesses in the energy system and commit to addressing these without delay to **avoid transition roadblocks** later on that cause or perpetuate social injustices.

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1 COVID-19 AND A WORLD IN TRANSITION

This paper discusses the impact of the COVID-19 crisis on the energy sector and frames it in the broader perspective of the climate crisis and development aspirations[1]. We draw on challenges and responses observed in several countries, reflecting on their relevance for NDC ambition raising and the prospect of using recovery measures as an opportunity to accelerate an inclusive, fair and clean energy transition. For governments to achieve these aims, COVID-19 responses need to go beyond individual projects and policies. Several fundamental questions require addressing head on, using their solutions to drive the energy transition, attract investments, and support a social agenda.

We start by placing the COVID-19 crisis in the broader perspective of the climate crisis and the need for rapid, fair, and inclusive energy transitions. Chapter 2 presents challenges and responses as observed in a selected number of developing countries and emerging economies, and discusses key patterns. Chapter 3 takes a closer look at the Indonesian power sector, the case for green recovery, and a number of pre-existing conditions that will need to be addressed to put Indonesia on an ambitious decarbonisation trajectory. Finally, Chapter 4 offers more general considerations on how to strengthen the NDC update and signal the highest possible ambition for the energy sector.

1.1 Energy: the full impact is not yet clear

At the time of writing, at the beginning of 2021, the COVID-19 pandemic dominates public life across the globe, and it is not slowing down yet. The impact on the economy is devastating: as a result of lockdowns and restrictions on economic activities, global GDP growth for 2020 is expected to be negative (-) 4.5% (OECD, 2020a). According to the ILO, labour income decline over 2020 is expected to be around 8-10% and the crisis has already wiped out as much as all new jobs created since the global financial crisis in 2008 (ILO, 2020).

Global energy investments are expected to drop by 400 bln USD (20%) in 2020 compared to pre-COVID projections. In particular, many fossil investments have been postponed or cancelled.[2] Whilst renewable energy investments continue to grow in absolute terms, they do so at a much slower rate than necessary to accelerate the clean energy transition. Wind and solar PV are the only energy investments that are still picking up, moving the share of clean energy investments in the total from 33% in previous years to 40% in 2020 (IEA, 2020).

The effects of the crisis on the energy sector are diverse and the full impact is not yet clear. The following four direct (general) effects can be observed, but there are variations across countries, sectors, businesses, and households according to their specific vulnerabilities. First, the crisis has caused a **decline in energy demand**. During various national lockdowns, global electricity demand fell by 20% and, according to the IEA, electricity demand for the full year of 2020 may have fallen by as much as 5% globally and 10% in some regions. Second, there are **shifts in energy use**: restrictions on travel and social distancing requirements have led to a significant reduction in transport services and fuel demand. On the other hand, with many countries encouraging ‘home-working’ where feasible, residential power use has grown significantly. Third, there is the challenge of energy insecurity **as a result of reduced income**: while households are losing labour income and businesses are forced to

[1] This note is based on analysis conducted for Bappenas in the perdiod Oct – Dec 2020.

[2] For example, a number of high-profile Chinese funded coal power plants in developing countries, as part of the Belt and Road Initiative, have been cancelled or postponed (The Economist, 2020).

scale back their activities, they may not be able to scale down their energy costs accordingly. Lastly, businesses in the power sector are confronted with **supply chain disruptions as well as uncertainty over access to capital,** affecting the development of new capacity as well as maintenance of existing infrastructure.

1.2 Climate change: three decades to net zero

All this happens against the backdrop of a global climate emergency. As was clear before the pandemic started in early 2020, mitigation ambition and action in the current five-year window (i.e., 2020-2024) will crucially determine whether the Paris Agreement goal of limiting global warming remains within reach. The 2015 Paris Agreement on climate change calls for keeping warming well below 2 degrees C, and according to the latest scientific assessment by the IPCC, this means global CO_2 emissions should be halved by 2030 and reduced to net-zero in, or shortly after, 2050 (IPCC, 2018). To achieve this most sectors will need to decarbonise fully in the coming three decades.

Electrification is the most suitable decarbonisation option in a number of end-use sectors, for example for transport, or for heating or cooling in buildings and industry. With many activities switching to electric, demand for power capacity will grow, and long-term development of power supply will need to take decarbonisation choices in other sectors into account[3]. In fact, electricity supply needs to lead the way and transform even faster (i.e., in less than three decades) to enable other sectors to decarbonise.

While the case for *green* recovery is overwhelmingly positive, lobbying power of fossil incumbents protecting and reinforcing their vested interests is strong. Analysis by Vivid Economics for The Guardian newspaper finds that (as of November 2020) in at least 18 of the world's biggest economies, environmentally harmful spending dominates pandemic rescue packages. Only four countries – France, Spain, UK, and Germany – and the EU have interventions that will produce a net environmental benefit (The Guardian, 2020)[4].

In order to drive ambition over time, the Paris Agreement contains an 'ambition mechanism' which invites countries to submit "long-term low greenhouse gas emission development strategies" (LTSs)[5] and requires them to submit an updated NDC every five years. Every iteration should be a progression from previous submissions (i.e., no backsliding), reflecting the highest possible ambition given their national circumstances. At the 26th Conference of the Parties to the UNFCCC (i.e., COP26), in November 2021, the first iteration of the ambition mechanism will be discussed. The combined pledges brought to the table there will be an indicator of whether the Paris Agreement temperature goals are still tenable or whether the renewed commitments are again inadequate. Countries whose pledges do not yet reflect their highest possible ambition, still have time this year to work on that – in parallel with detailing economic recovery efforts – which makes 2021 an important year for climate and energy[6].

1.3 Crisis response and building back better

Governments around the world are responding with a variety of policy instruments to buffer the impacts in the energy sector. These include public investments and support for ongoing projects; government

[3] See for a concise overview of options "Choices regarding net-zero emission sectors" in Van Tilburg *et al*, (2019)
[4] This finding is in line with the picture emerging from IISD's *G20 Scorecard of Fossil Fuel funding* (IISD, 2020).
[5] See 'NDC implementation and review cycle' and 'Development of LTSs'' in Roeser *et al.*, (2019)
[6] See 'Five years since Paris: time for serious action' in Emmrich *et al*, (2020)

loans and bailouts for (national and private) energy companies; targeted support for workers; purchasing of oil stocks; and measures to support energy access (IEA, 2020).

The short-term policy **crisis responses** aim to protect capital and labour. These include governments handing out large sums of money to households so they can maintain spending power and avoid defaulting on credit agreements (such as banks, but also power companies, or landlords); the initiation of work time restriction schemes to avoid lay-offs; and the provision of access to cheap(er) credit lines and grants for businesses to avoid bankruptcies.

In addition to direct alleviation of the impacts of the crisis, governments are stepping in with **recovery measures** in order to get their economies back on track as quickly as possible and with minimal structural damage. Unsurprisingly, interest groups are pushing for a recovery response that shifts towards (or preserves) a 'better' pathway, at least from their perspective. This could be a future with more independence from imports, or with fewer emissions, with affordable basic services, or with better labour conditions and more jobs, and so on. Prominent politicians, economists, scientists, and civil society groups have come out to argue that the crisis response must be taken as an opportunity to push and accelerate the energy transition and speed up the fossil fuel phase out (Sachs *et al*., 2020). In April 2020, G20 Finance Ministers committed to "support an environmentally sustainable and inclusive recovery". This ambition is increasingly referred to as **building back better** and brings to the fore a number of urgent decisions with long-term effects.

The OECD argues that *building back better* calls for a people-centred recovery that "focuses on well-being, improves inclusiveness, and reduces inequality" (OECD, 2020b), not least because otherwise progress on sustainable development and climate change could be compromised, and governments will struggle to maintain social and political support. For the energy sector, the International Energy Agency (IEA) has recently compiled sector-by-sector analysis of over 30 specific energy measures (see Table 1) that governments may wish to include in their economic recovery plans (IEA, 2020).

Electricity	**Industry**
Expand and modernise grids	Improve energy efficiency and increase electrification
Accelerate the growth of wind and solar PV	Expand waste and material recycling
Maintain the role of hydro and nuclear power	**Fuels**
Manage gas- and coal-fired power generation	Reduce methane emissions from oil and gas operations
Transport	Reform fossil fuel subsidies
New vehicles	Support and expand the use of biofuels
Expand high-speed rail networks	**Strategic opportunities in technology innovation**
Improve urban infrastructure	Hydrogen technologies
Buildings	Batteries
Retrofit existing buildings and more efficient new constructions	Small modular nuclear reactors
More efficient and connected household appliances	Carbon capture, utilisation and storage
Improve access to clean cooking	

Table 1: IEA Suggestions for including clean energy investments in recovery packages

Despite attractive calls to 'build back better', many developing countries face fragile supply chains, reduced liquidity, and increased debt. Our survey among over 80 policy makers and experts from across the world, for the 2020 NDC Update Report, shows that domestic support for climate ambition and action continues to grow. It goes on to show that many of the fundamental drivers behind this support remain

intact despite the unfolding economic crisis. Some countries, especially in the developed world, expect to be well-positioned and have the opportunity to buffer the shocks caused by the economic crisis, accelerate their clean economic transformations, and even become strong players in the new clean technology markets. Many developing countries, however, are more than ever dependent on international investments and support to come out of the crisis prosperously (Emmrich *et al.,* November 2020).

1.4 Promoting inclusion and fairness

It is easier to optimise recovery efforts based on headline indicators such as economic costs or emissions, than it is to target inclusiveness and fairness, simply because the latter are subjective and quantifying them is not straightforward. **Inclusion** (as opposed to exclusion) is used to indicate that everyone needs to have equal access to opportunities and resources, including vulnerable social groups, regardless of their background. **Fairness** on the other hand is used as a measure for distributive justice, or the perceived appropriateness of how rewards and costs are distributed across society, groups, or organisations. The terms 'inclusive' and 'fair', in the context of economic development, are not always clearly defined and there is a degree of overlap[7].

An important aspect of promoting inclusion and fairness is to identify (and recognise) who is vulnerable and who does not have access to basic services. In general, injustice occurs when people do not have access to the opportunities of the transition, or when they are experiencing a disproportionately high burden of the costs. In many countries, vulnerable groups typically include low-income households, remote communities, ethnic minorities, the disabled and elderly people. The COVID-19 crisis is disproportionately affecting specific groups that may not have been identified as vulnerable otherwise: workers with flexible contracts or who are self-employed, those employed in tourism, hospitality, trade, and (perhaps) those looking to enter, or re-enter the labour market, including women, who typically take more time away from their career for childcare, and younger generations.

Considering inclusion and fairness in energy transitions is not a new notion: it is a central theme in Agenda2030 (which refers to it as "**leave no one behind"**) and the importance of a '**just transition**' is explicitly recognised in the Paris Agreement. There is ample knowledge on how policy interventions can promote equity and justice in clean energy transitions, and good practices are emerging. Policies to address energy injustices generally fall into one of five categories (Carley and Konisky, 2020):

1. *Workforce and economic diversification programmes*: workforce training, job development, and regional economic transition for communities that relied on high-carbon industries. These can involve budget allocated in support funds and creation of special economic zones (where specific industries receive privileges such as subsidies and tax breaks, preferential infrastructure access, training facilities, etc.).
2. *Energy assistance and weatherisation*: assistance improves affordability of energy services, through bills or subsidies. Weatherisation programmes increase energy efficiency in buildings and are often implemented in public housing refurbishing schemes.
3. *Expansion of energy technology access*: build energy efficient and renewable energy infrastructure and extend these resources to marginalised communities. This typically involves small scale and prosumer type installations such as mini-grids, smart control equipment, and solar-PV systems.

[7] For example, The New Climate Economy uses inclusive "in the sense of distributing its rewards widely, particularly to the poorest" (NCE, 2018) and the OECD (2017) explains inclusive growth as growth "with benefits felt by the whole population".

4. *Collective action initiatives*: community education and awareness, and wide engagement with affected stakeholders in decision making processes.
5. *New business development*: energy innovations and business models that appeal to the profitability of clean energy investments. These typically focus on extending access to new and emerging technologies, jobs, and energy services.

Achieving an inclusive and fair energy transition requires more than replacing coal-, oil, and gas-based power production with clean alternatives. Direct stimulus includes incentives for households and businesses to invest in renewable energy supplies and energy efficiency measures, but also expanding decentralised, smart energy infrastructure, and preparation for the uptake of electric vehicles by rolling out EV charging stations and other connecting infrastructure. This would enable consumers to be part of their local and national energy transitions, for example by offering opportunities to invest in renewable energy supply and energy efficiency equipment and/or participate as smart consumers. Also, new entrants to the labour market should be equipped with future-proof skills. For the energy sector, this means focusing on providing opportunities to work within the supply chains of the technologies that will continue to be used in 15-20 years and not the ones that need to be phased out in the short term.

2 CHALLENGES AND RESPONSES

Several developed countries, including the European Union as a block, have proposed strong green stimulus measures, which are well-documented elsewhere. Here, we review countries with challenges and priorities common in emerging economies and developing countries: Indonesia with its fast response to protect vulnerable customers and state-owned energy companies; Thailand, as a strong regional economy with high growth expectations; South Africa, with a state-owned utility under pressure to reform and a basic energy safety net in place; Kenya, with a specific fund to protect the companies that promote energy access; and Mexico, where the COVID-19 crisis is used to further entrench parts of the fossil fuel industry.

A disclaimer is in order here: the pandemic is still ongoing, and the situation can change fast. This analysis is based on desk research and is far from exhaustive.

2.1 Selected countries

Table 2 shows some of the main responses that governments from selected countries have taken to address issues in the energy sector, broken down by different key stakeholder groups. The sections below provide a more detailed country-by-country description of the context and the main policy responses to date.

Categories	Indonesia	Thailand	South Africa	Kenya	Mexico
Households	Electricity Bill Relief Mechanism	3% bill reduction for all customers; additional 30-100% for small users	Basic energy support already in place	N/A	N/A
Businesses	Generic fiscal support; sector focus	Generic fiscal support; sector focus	Generic fiscal support; sector focus	Generic fiscal support; sector focus	Generic fiscal support; sector focus
Utilities/ operators	PLN Bailout	N/A	ESKOM restructuring is part of the recovery plan	N/A	Attributed disruptions and supply outages to renewable technologies
Energy supply businesses	Fast track projects	PPAs and other contracts under pressure	Fast track 2 GW renewable capacity; integrated resource plan	REACT East Africa Enterprise Fund	Aggressive push out of renewable IPPs

Table 2: COVID-19 crisis responses for the energy sector in selected countries

2.1.1 Indonesia

The pandemic reached Indonesia in March 2020 and after a short deliberation, President Joko Widodo and his cabinet enacted large-scale social restrictions implemented and enforced by local governments.

Indonesian GDP is expected to contract by 1.5% in real terms in 2020, with the prospect of returning to positive growth of 6% in 2021 (IMF, 2020b). Sectors in which households are experiencing loss of income include the informal sector, such as street stalls, but also formal employment in tourism, hospitality, food, entertainment, transportation, and retailing at shopping centres (with spill-over effects along the value chain of those industries; OCHA, 2020). A notable 120 thousand migrant workers returned from their employment overseas and may have difficulties reintegrating into the Indonesian workforce under current circumstances.

The government has established a National Economic Recovery Program (PEN) which currently stands at IDR 695.2 tln (40 bln euro, or around 4% of GDP) and comprises support for healthcare; social protection; micro, small, and medium-sized businesses; state-owned enterprises; and ministries and local governments. This includes 8 bln euro worth of compensation packages for state-owned enterprises, including the airline Garuda, the utility PLN, the rail operator Kereta Api, and the mining, oil, and gas company Pertamina.

The most prominent measure to protect vulnerable households is the Electricity Bill Relief Mechanism (ESDM 141.Pers / 04 / SJI / 2020), which is administered through PLN and provides short-term and time-limited relief in the form of a 100% discount on electricity bills for connections of 450 VA and a 50% discount for 900 VA connections – reaching over 33 mln prepaid and subscription customers. The Ministry of Energy and Mineral Resources (ESDM), which has been tasked to reallocate 200 bln. USD of their 2020 budget towards COVID-19 relief, has appealed to PLN to move their focus from expanding production capacity to servicing customers and expanding the grid (ESDM 220.Pers / 04 / SJI / 2020) and asked industry to absorb excess electricity supply in order to avoid idle capacity (ESDM 110.Pers / 04 / SJI / 2020). This does not necessarily invalidate the existing 35GW programme, but it does change the emphasis. Moreover, ESDM prioritises labour intensive projects (ESDM 163.Pers / 04 / SJI / 2020) and actively supports several solar-PV initiatives, including support for cold storage in the fishery sector (in Flores) and preparation for the Nusantara Energy program designed to roll out rooftop solar-PV installations (ESDM 290.Pers / 04 / SJI / 2020).

2.1.2 Thailand

Thailand started screening incoming visitors as early as January 2020 and imposing restrictions the following month. In March the government imposed a temporary lockdown of businesses and a curfew that lasted into June. Various travel restrictions are still in place. The economic impact is severe, placing Thailand among the worst in Asia with GDP contracting by 8.0% according to ADB projections (ADB, 2020). This is mainly due to reduced global demand for tourism, hospitality, and exporting (manufacturing) industries.

The Thai government has approved economic stimulus packages representing at least 9.6% of GDP covering, among others, a cash transfer of 135 euro per month to 24 mln farmers and workers outside the social system, and lower water and electricity bills and social security contributions. The (domestic) tourism sector is a key focus of the Thai recovery package.

Thailand’s state-owned utilities adopted a suite of measures to reduce the burden of energy costs on consumers, including bill reductions of 3% across all tariff classes, bill payment grace periods, refunding meter deposits for residential and small business users, and the provision of free electricity to users with power meters up to five amps (Bangkok Post 2020). The first 800 kWh is free, the next 2,200 kWh is charged at a 50% discount, and above 3,000 kWh the costs are reduced to 70% of ordinary prices.

The Electricity Generating Authority of Thailand (EGAT) was able to buffer the shift and fall in demand, and in fact managed to absorb more renewable energy supply within the system than before (The Nation, 2020). There are mixed signals with respect to Thai renewables development: the government and key stakeholders seem committed to the existing power planning in the Power Development Plan (PDP), and large independent power producers (IPPs) continue to develop renewables and natural gas power plants. The Ministry of Energy is looking into boosting solar PV by revising the specific policy conditions (without going into detail). At the same time, EGAT has considered delaying the commercial operation dates of small power producer plants with power purchase agreements (PPAs) due to existing overcapacity and project developers are invoking force majeure whenever they cannot meet their contracts (delays in work and scarcity of materials) which is harmful for the sector (Bangkok Post, 2020 a;b;c).

The COVID-19 crisis has brought a lingering discussion to the fore on whether the government can maintain the financial viability of the current setup of the electricity market, with a single-buyer state-owned utility and a rigid energy tariff scheme. Restructuring of the energy sector could be beneficial for renewables expansion and attract more players into the energy system.

2.1.3 Kenya

Kenya started imposing measures in March 2020, including international travel restrictions, school closures and working from home orders, even though there were only a few reported COVID-19 cases. The economic impact in the country is especially high for the tourism, hospitality, and flower industries.

The economic response included 100% tax relief for those earning up to 228 USD per month, reduction of the top pay-as you earn rate from 30 to 25 percent, reduction of the base corporate income tax rate from 30 to 25 percent, reduction of the turnover tax rate on small businesses from 3 to 1 percent, a reduction of the standard VAT rate from 16 to 14 percent, and 95 mln USD funding for vulnerable groups, and soft loans for Kenyans in distress [8]. In Kenya, no specific measures such as waiver of utility bills or suspension of bill payments were introduced (Akrofi and Antwi, 2020).

The REACT Kenya Relief Fund was established by AECF (Africa Enterprise Challenge Fund), with support from Sweden in order to protect companies that serve the underprivileged, low-income households with clean energy (Golga, 2020a). The fast-track facility provides emergency grants (50-200kUSD) to cover short-term (3-12 months) working capital and technical assistance for business continuity. The fund specifically targets domestic manufacturers with a turnover of more than 250kUSD including manufacturers, installers, and sellers of off-grid solar home systems, improved cookstoves, and clean fuels.

Power generation in Kenya is largely renewables-based but recently there have been controversial plans to develop a large coal fired power station in Lamu. In the face of tempered economic growth projections and the obvious need for flexibility rather than power expansion, the case for renewables-based growth instead of such a coal power station becomes even stronger (Kammen, Famau, and Odongo, 2020). In November 2020, as yet unconfirmed reports indicate that the Industrial and Commercial Bank of China (ICBC), one of the largest prospective funders with a stake of over a billion USD, has decided *not* to go ahead with financing the Lamu coal plant, citing environmental and social risks with the project (Save Lamu, 2020).

[8] IMF Covid19 Policy Tracker 20201030

2.1.4 South Africa

South Africa entered a national lockdown in March 2020 for five weeks. Since then, the restrictions were eased (and in some cases re-imposed) according to a stepwise strategy, reaching their lowest (least restrictive) level in late September. The impact of the COVID-19 pandemic on the economy is high: in the first month of lockdown 3 mln people lost their job and by July food shortages were reported across the country[9].

The economic stimulus package amounts to 4% of GDP in new spending and redirecting the spending of a further 6% of GDP. Much of the support is channelled through the Unemployment Insurance Fund (UIF), alongside cash transfers and food handouts. SMEs can gain access to emergency funds, intended for tourism, hospitality, and small-scale farming[10].

Already before the COVID-19 pandemic there was a so-called 'free basic electricity' offering. The free basic electricity (FBE) policy ensures that all poor households get 50 kWh per month free (51% of the country is covered by this support), and a tiered billing structure aims to subsidise poorer households (Joubert, 2016).

Preceding the COVID-19 crisis, the South African electricity system was already troubled by capacity shortages and power outages, in part driven by the financial problems of the state-owned utility ESKOM. During the lockdown, electricity demand dropped on average by 7.5 GW, or about a quarter of peak capacity, which temporarily resulted in fewer shortages (and improved energy security for consumers), but it also led ESKOM to curtail supply from wind farms and other energy producers through citing "force majeure" in contract agreements.

In October 2020, South Africa agreed an economic reconstruction and recovery plan, with power provision one of the key themes. This plan is based on the 2019 Integrated Resource Plan and calls for procurement of new electricity generation capacity: 6.8 GW solar PV or wind, 0.5 GW storage, 3 GW natural gas and 1.5 GW coal (NERSA, 2020), including fast tracking 2 GW of renewable energy projects that are already under development, for the middle of 2021. Restructuring of the power sector and splitting up ESKOM is also part of the plan. The end of the ESKOM monopoly may allow cities such as Johannesburg and Cape Town to start developing their own solar PV and waste-to-energy initiatives (Bloomberg, 2020).

2.1.5 Mexico

The IMF projects a 10.5% contraction in the Mexican economy in 2020, and the UN said 17 million Mexicans could be living in extreme poverty, up from a pre-COVID figure of 11 million (Bloomberg, 2020; Viscili et al, 2020).

The Mexican economy is dependent on oil exports, and the fall in oil demand and prices has led to a large income shortfall. President López Obrador has decided against any major stimulus spending beyond micro-loans to small businesses in order to keep the national debt manageable. He argues for low spending (3% of GDP), reallocating funds away from non-priority programmes (6%), along with several austerity measures. The main instrument is a loan scheme with optional repayments to 1 million SMEs that maintain employees on payroll, self-employed and domestic workers (1,000 euro per loan), and another 1 million loans to family businesses previously registered in the Welfare Census (1,000 euro per loan; KMPG, 2020).

[9] CRAM Survey (2020)
[10] IMF Covid19 Policy Tracker 20201030

In response to nationalist sentiments towards exploiting natural resources, the government has stepped up support for the fossil industry, rolling back efforts to move to a cleaner energy system. Recently, Mexico's energy ministry has 'rammed through' (Financial Times, 2020) sweeping new rules that make it more difficult for renewable energy IPPs (independent power producers) to feed into the grid. For example, the costs for IPPs to feed into the public transmission network (the "tarifa de porteo") were increased – under the guise of losing money from the low fees paid by IPPs. One particularly controversial move involves postponing scheduled tests of new solar and wind infrastructure 'for an indefinite period'. This concerns 44 renewable energy projects waiting to start operations, jeopardising investments involving billions of dollars from EU companies (Hidalgo, 2020).

To support the fossil industry, the Mexican government will reduce "Derecho de Utilidad Compartida (DUC)", the tax paid for extracting crude oil, effectively reducing the tax burden of the financially troubled state-owned PeMex by 2.6 bln euro. The three priority infrastructure projects, which should deliver two million jobs, include the "Maya" train in the Yucatan Peninsula, an oil refinery in the state of Tabasco, and a new airport in Mexico City-Santa Lucía (Hoyos, 2020), none of which contribute to accelerating the clean energy transition.

At the subnational level, green initiatives are emerging. These include the introduction of an emission tax for polluters of over 25 tonnes of carbon dioxide equivalent units per month (Tamaulipas state) and a fuel surcharge for energy consumers (Baja California state).

2.2 Emerging trends

Although the COVID-19 crisis is still unfolding, and the impacts and recovery prospects are to some extent still unclear, we do observe a number of trends in vulnerabilities and challenges that countries seem to have in common.

***Households** and **small businesses** are facing sudden energy security concerns. Several countries offer free or discounted electricity, but often only for customers with small connections.*

As people travel less and have reduced fuel/fare expenses, many will instead have to work-from-home, which leads to higher household electricity consumption. Without compensation from either employer or the government, this shift in itself can lead to decreased household energy security. For those confronted with a sudden loss of income, energy security risks can worsen when they are not able to scale back their energy use accordingly, resulting in a higher proportion of disposable income spent on energy bills. Direct bill support, as introduced in Indonesia[11] and Thailand, targets vulnerable households through the existing mechanism of energy billing[12]. This is quick and often covers a large share of vulnerable customers. Disconnection as a result of payment (customer cashflow) problems are costly for utilities, and hard to bounce back from for those affected. This is why several governments have introduced additional leniency (such as deferred payment schemes) to avoid such costly events. In view of the fact that the COVID-19 pandemic response involves restrictions in movement of people (and goods), the crisis disproportionately affects households and small businesses with economic ties to hospitality, tourism, transport, etc. For those households and small businesses that do not have entry-level connections, the energy compensation schemes currently offered by governments may not bring much, or any, relief.

[11] Free electricity for 24 million customers using 450 VA and 7 million customers using 900 VA.
[12] In South Africa such a scheme is in place, but it is volume-based (first 50 kWh) rather than connection-type-based.

***Businesses**, especially in hard-hit sectors, experience cashflow problems; They see their income-generating activities reduce, but often cannot scale back energy expenses accordingly.*

Businesses that are (temporarily) without income, or with reduced income, may not be able to scale down their energy use accordingly. They need to keep their goods stored and refrigerated, their buildings heated and secured, and some processes will need to continue even with reduced turnover. Examples include the tourism and hospitality industry (and the supply chains behind them), but also different types of manufacturing such as horticulture (e.g., in Kenya) or general export-oriented businesses. Small businesses may get energy bill breaks, but most government support consists of generic (non-energy) fiscal breaks and payment leniency to avoid cashflow problems. Nevertheless, and despite governments' efforts to buffer the impacts, this crisis is not without economic casualties and it is reasonable to expect many businesses to fail to pay their energy bills; disconnection looms as a possible 'point of no return' for enterprises in trouble, and we see governments and utilities are taking precautions to prevent this from happening.

***Utilities and operators** are receiving large capital injections to compensate for losses and more financial stress is expected. State-owned utilities in poor financial shape are facing increased pressure to reform.*

When the first wave of nation-wide lockdowns was imposed, with little advance notice, this resulted in a sudden drop in energy demand. In most countries, utilities and operators were able to buffer this sudden shock, at least technically. In fact in South Africa reduced demand led to an improvement in the balancing of the system where there is otherwise an excessive burden on sources of electricity supply. As the lockdowns moved into less stringent social distancing regimes, energy demand picked up again but not yet to pre-pandemic levels with supply reserve margins remaining high.

The (financial) fall-out of the crisis results in a number of relevant impacts for utilities and operators: First, the demand shock caused by the initial lock-down led to a drop in income from electricity sales, either because contractual obligations towards (independent) power producers meant that supply could not be scaled down, or because prices dropped in response to oversupply[13]. Governments have injected large amounts of financial capital into utilities and operators, to prevent a situation where their cashflow problems would lead to compromises in performance (i.e. threaten their customers' energy security). The alternative is to stop buying power from producers, breaking open existing contracts and invoking 'force majeure' as the reason. Understandably, this offers limited solace because it only moves the problem to a different part of the system.

Second, as the crisis unfolds, more and more households and businesses will get into financial trouble and will not be able to pay for their energy services, potentially propagating further cashflow problems in the energy sector. Governments are stepping in here with different types of fiscal measures and leniency on timing of payment, but with the understanding that this will only partly alleviate the problems.

Third, the crisis, and more specifically the huge amounts of public money spent to bail out often poorly performing (state-owned) utilities, have re-ignited calls for reform and a thorough review of energy pricing schemes. In South Africa, for example, reforming the public utility ESKOM is explicitly part of the government's green recovery package, which is aimed at making the utility financially sustainable and better equipped for the energy transition. Mexico is an example of the opposite response: the Mexican government is using the crisis as an opportunity to push through support for fossil fuels and taking active measures against renewable energy, in what is referred to as a 'power grab' by PeMex, the national utility.

[13] This depends on the organisation of the energy market. In Indonesia, prices are not determined by clearing of supply and demand, but rather set periodically by the government.

We expect that financial stress will force utilities and operators to focus on their core tasks, which are not necessarily promoting inclusiveness or clean energy, making it harder to pursue an ambitious low-carbon pathway that is endorsed by a wide cross-section of society.

Clean energy supply businesses *need short-term leniency to survive and long-term predictability to flourish.*

For some producers of renewable energy, the demand shock caused reduced income and associated cashflow problems, either because market prices dropped as a result of oversupply or because existing contracts are broken open and some of the electricity is not purchased by the off-taker[14]. Developers of new clean energy projects face supply chain disruptions, as important parts and components are sourced from abroad and may be cancelled or delayed; the crude reality of this crisis is that problems caused in one country or sector easily spill over into another.

In most developing countries and emerging economies, the domestic clean energy sector warrants special attention: markets are often still fragile (small pipelines and margins), underdeveloped (few actors), and policy dependent. Access to capital, both foreign or domestic, has always been hard for small scale renewables and energy efficiency projects, and this is likely to get even harder in the near future. In addition to limiting the *availability* of capital, the crisis is also likely to increase the *cost* of capital for new investments due to increased uncertainty across supply chains as well as risks to the predictability of revenue streams for operational projects, for example if governments retroactively adjust guaranteed purchase prices.

Mini-grids and stand-alone renewables-based systems are the least-cost way of providing power to more than half of those that lack access (IEA, 2019), but at the moment, as mentioned above, these sectors are at risk of disruptions in the supply chains and reduced access to capital for customers. Globally, this concerns over 1,000 firms in developing countries and 500,000 employees (IEA, 2020). Recognising that a small number of firms play a pivotal role in energy access programmes, the REACT Kenya Relief Fund showcases a policy response option which provides emergency grants to distributed energy service companies who are struggling to provide access to energy for their many thousands of (prospective and current) rural customers.

Fossil-based industries *receive short-term crisis-relief, but lack a clear vision towards the future.*

Policy support for ambitious increases in the development of clean energy needs to go hand-in-hand with the promise of a smooth transition for all those who currently benefit from and depend on the fossil industry. Experiences in Germany and other EU countries offer some insight to learn from their challenges, approaches, and considerations. Credible long-term plans for phasing-out fossil-based energy supplies and integrating clean energy sources are critical to managing the transition, ensuring the right condition for investors and offering a pathway for participants of the fossil industry to adapt. This needs to be facilitated through targeted labour market measures and possibly other forms of compensation to enable more net winners from the transition, rather than simply shifting the opportunities and benefits (as well as those that bear the costs) from one group to another.

[14] In Canada, a public utility has cancelled $20 million worth of electricity purchases from six private run-of-river hydro power facilities, citing the pandemic as a force majeure event (IFC, 2020:3)

3 A CLOSER LOOK AT THE INDONESIAN POWER SECTOR

3.1 A good time for a green push

Indonesia's power generation is currently dominated by coal, gas, and oil-based plants, while renewables contribute only 15% to the total capacity of 71 GW. Short term developments in the sector are driven by the "35 GW program", introduced in 2015 to support an aspirational 7% growth rate in supply. It calls for an additional 35 GW of production capacity in 4 years' time and consists mainly of coal and gas fired plant, as well as some renewables and infrastructure investments. In the years since its introduction, growth in power demand has not been fast enough to justify the rapid capacity expansion and the horizon of the program was extended from 2019 to 2024. The Ministry of Energy and Mineral Resources, ESDM, has recently signalled that the 35 GW program is still continuing but to avoid idle capacity, the state-owned utility, PLN, was asked to focus on the distribution side of the program, and industry was asked to absorb oversupply if needed[15].

Small and medium enterprises, as well as larger industrial companies, are the backbone of the Indonesian economy and their resilience and competitiveness are essential for recovering from the crisis and driving the country towards its goal of reaching middle income status. The government can support businesses in making clean energy investments, which has multiple payoffs: it supports the transition and reduces emissions (i.e., climate and environment); makes businesses more efficient and resilient; and supports the economic development of the clean energy industry, including opportunities for long-term employment. Examples of investments with such payoffs include upgrading energy intensive capital goods to the cleanest available technology (e.g., e-vehicles, efficient electric motors, fridges, air conditioners and coolers, pumps, buildings, etc.). The expansion of smart infrastructure allows businesses that are connected to optimise their energy use further, while providing much-needed flexibility to the grid as a whole, as well as better real-time information for system operators to understand evolving consumption patterns.

A closer look at the power sector in Indonesia reveals that, like in many places, the crisis exaggerates and magnifies existing injustices and vulnerabilities in the energy system. In order to use a green recovery strategy to come out of the COVID-19 driven economic downturn, a number of weaknesses and vulnerabilities will need to be addressed without delay. Each of these themes have been the topic of political discussion in the past years (i.e., they are 'pre-existing conditions', to use a healthcare metaphor), but the COVID-19 crisis and the need for a recovery stimulus mean that addressing these can no longer be postponed. Even though these weaknesses are often well known, the prospect of a green recovery makes discussions around "pre-existing conditions" more urgent than before.

For Indonesia there are a number of issues that need to be resolved in order to facilitate a successful recovery that supports necessary reform in the energy sector. These include the establishment of an energy safety net in combination with phase-out of consumer energy subsidies; a reform of the state-owned utility PLN in combination with reform of energy pricing and phase out of fossil fuel production subsidies; and clarity on the long-term pathway towards phasing out dependency on the use and exports

[15] For more information on recent developments in the power sector, see *Indonesia's Energy Policy Briefing* prepared by the Global Subsidies Initiative (IISD, 2020). For an analysis of the alignment between power sector plans and emissions pledges in the NDC, see van Tilburg and Donker (2018). For a brief discussion of structural and political economy factors driving energy sector transformation, see for example (Van Tilburg *et al*, 2017).

of fossil fuels altogether. A push for a green recovery would be the right moment to address such existing vulnerabilities and injustices, so that they are not left unresolved and become transition roadblocks later on.

3.2 Addressing pre-existing conditions

In the past two decades Indonesia has made significant progress on improving household electricity access and affordability. PLN has supported these developments through the expansion of grid infrastructure and generating capacity, as well as an ongoing reform of consumer subsidies from universal commodity-based support to a more refined and manageable 'energy safety net' approach. To date, fiscal pressure has mainly driven consumer subsidy reform in Indonesia (SE4ALL, 2020a), but the clean energy transition also presents a second strong argument to move away from universal subsidies on energy (IMF, 2020). The Indonesian *Electricity Bill Relief Mechanism,* by which consumers receive a discount of up to 100% of their electricity costs based on their connection type, is a pragmatic 'universal commodity-based' solution that can be quickly implemented and clearly communicated. However, it has many of the same limitations as the 'old' subsidy scheme Indonesia came from: it is costly to the public budget, not all people with small connections are vulnerable or poor, and those who need support as a result of the current crisis may not be the customers that qualify for assistance (with entry-level 450 or 900 VA connections to the grid). Reform of subsidies can be difficult politically, as is often observed when elections are approaching, but reform is well placed to promote fairness and inclusion. A recent Indonesia-specific analysis by SE4ALL identifies room for improvement in, for example, better identification of poor and vulnerable households, investing in electricity distribution infrastructure for low-access areas, and/or adding energy commodities to an integrated social protection scheme for poor and vulnerable households (SE4All, 2020b).

The Electricity Bill Relief Mechanism for small connections is quick but costly. Over time it will need to merge into a new comprehensive energy safety net for vulnerable households, as part of an accelerated ***phase out of subsidising energy consumption****.*

Various countries, including Indonesia, provide electricity bill discounts as short-term relief to vulnerable households based on their connection type. This is not necessarily the most effective or efficient approach, but it is quick and in addition avoids unnecessary disconnections and setbacks in energy access. Soon though, the group of households eligible for the discount scheme will need to be specified more narrowly to avoid creating an excessive burden on government budgets (which the COVID-19 crisis has further constrained). In the short- to medium-term, the existing universal subsidy scheme will need to (further) change into an energy safety net scheme that is more inclusive, more manageable, and encourages efficient use of energy.

In Indonesia, state-owned electricity company PLN owns most of the generating capacity and has a monopoly in electricity distribution. Electricity pricing is determined by the government, and the current scheme has three issues that make it difficult for PLN to pursue an inclusive and aggressive green transition: 1) generation costs are not covered by retail prices, so there is a bias towards the cheapest generating technologies. In Indonesia, with local availability of low-grade coal and lenient environmental standards, the cheapest power source is often coal, 2) contracts with suppliers are regulated and typically involve fixed term power purchase agreements with limited or no variation in offtake prices due to fluctuations in demand, and 3) health and climate external costs (such as greenhouse gas emissions) are not factored into prices, which presents a bias against clean energy. These fundamental issues preclude PLN from pursuing the greenest and most inclusive policies first. Moreover, PLN is financially

vulnerable, and this limits its ability to borrow to invest in new capacity and grid expansion. In the short term, PLN has been tasked by ESDM to move its focus from capacity expansion towards 'finding more customers' and increasing grid flexibility. Discussions around reforming PLN periodically come up, with calls for a financially healthy business model with less dependence on the state budget (without compromising their mandate to ensure stability and full access). Restructuring PLN and the pricing scheme will facilitate a more inclusive approach towards renewable independent power producers, prosumers (those that both produce and consume electricity, such as businesses with rooftop solar installations), and low-access communities. This is a discussion that plays out in other countries as well (for example, with EGAT in Thailand, and ESKOM in South Africa). PLN is much better positioned to lead the way to a clean, inclusive, and fair energy system if it becomes financially healthy. However, the energy transition cannot wait for that to happen and will have to accelerate regardless.

*Current bailout support for PLN needs to be a steppingstone to a comprehensive **revision of energy pricing** and a **structural reform** of the company.*

Across the world, the crisis has inflicted financial stress on utilities and operators; state-owned utilities have received capital injections, but this has also increased scrutiny on their financial viability - PLN is no exception. The recent focus on flexibility and expanding the customer base is potentially green, fair, and inclusive. PLN reform should focus on ensuring financial stability, reduced dependency on support from the Ministry of Finance, and more inclusiveness towards under-served stakeholders, such as households with limited access to capital or IPPs with renewable supply, without compromising their mandate to ensure stability and full access.

Indonesia's progress on mitigating energy-related emissions is limited to date (IISD, 2018; ESDM, 2020 press release). At the fifth anniversary of the Paris Agreement on climate change, progress on increasing renewable energy supply is slow: only 10 GW of clean energy capacity is in operation, leaving 97% of the massive 420 GW potential untapped[16]. ESDM indicates that challenges include access to financing for small-scale projects, high(er) levelized costs per kWh, and capturing added value so as to optimally benefit the Indonesian economy rather than relying on importing goods and services.

Despite a challenging target to deliver 23% of energy supply from renewables in 2025 the years prior to the COVID-19 crisis have been harsh for the sector. The pricing scheme[17] offered to IPPs since 2017 and hesitant attitude of PLN towards connecting variable renewables meant that only a small number of projects were able to come to fruition, while many other opportunities were not pursued. Recent announcements by ESDM signal that these conditions may change soon: new regulation on IPPs creates a more inclusive environment (ESDM, 2020/4), and a new pricing scheme[18] is expected to recognise that 'competitive pricing' is key to developing the market. The tariffs will now be based on economic aspects of the technology and the location, with the stated expectation that this will be attractive to foreign investors.

Indonesia's long term energy strategy, the 2014 KEN, is outdated as it sets Indonesia on a course to sourcing over 50% of its energy needs from fossil fuels in 2050, in stark contrast with the country's commitments to the Paris Agreement (as we note in section 1.2 above, economy-wide emissions need to reach net-zero by 2050, and even earlier in the electricity sector). The absence of an updated long-term energy strategy, almost five years on from signing the Agreement, combined with a history of

[16] Since signing the Paris Agreement in early 2016, more than 1.5 GW of new coal capacity has been installed, 8 times as much as new renewable power capacity.
[17] The price offered to renewable independent power producers is capped at 85% of the local average generation costs, which is scant in situations where coal power generation is dominant – the reality in many places across Indonesia (IISD, 2018).
[18] 299.Pers / 04 / SJI / 2, ESDM Press release October 10th 2020 [link]

changes in renewables support, is deterring investors in the (clean) energy sector because of policy uncertainty and regulatory risk.

*The energy sector needs **short-term protection** for their employees and **long-term clarity** in order to reorient their business models towards clean energy services, and away from fossil-based generation.*

An update of Indonesia's long-term energy strategy (KEN) is long overdue. Explicitly aligning with the Paris commitment of carbon neutrality around 2050 and putting in place credible policies to work towards halving emissions by 2030, will send credible and ambitious (long term) signals that are critical for attracting foreign investments and boosting domestic industry. That means updating the energy strategy, and consequently Indonesia's NDC, with a new set of Paris-compatible emission targets for the energy sector over the period to 2050.

With the aspiration to boost the market share of renewables, it makes sense to be extra careful to protect *current* clean energy businesses during the crisis. Failure to do so may lead to delays in achieving existing targets, let alone more ambitious targets that need to come forward to align with the Paris Agreement objectives, and loss of valuable Indonesia-specific knowledge and experience. Three subsectors that merit close attention are: 1) the solar-PV sector, because much of the near-term renewables market development will lean on this, 2) clean energy mini-grids and their operations, because of their importance to energy access, and because in Indonesia they are often managed by local governments that may not be able to buffer the financial burden created by consumers failing to pay in time, and 3) those organisations and companies involved in providing energy access to the poor, because stagnation[19] in that sector could compromise SDG target achievement directly (an example noted above is the REACT fund in Kenya, which addresses business protection).

[19] Has been observed around promoting access to clean fuels 287.Pers / 04 / SJI / 2020 [link]

4 NDC UPDATE: HIGHEST POSSIBLE AMBITION

The stakes will be high at COP26 in Glasgow in November 2021. The combined pledges brought to the table there can be seen as an indicator of whether averting dangerous climate change remains within reach or not. What could the 'highest possible ambition' for emission reduction look like in these times of almost universal economic crisis and uncertainty? As part of our analysis, we present the following three considerations for strengthening the NDC:

First, domestic **commitments to a green recovery** can be a significant part of an ambitious NDC implementation plan. In the aftermath of the COVID-19 crisis, governments around the world are mobilising large amounts of investments to revive their economies. There is a strong opportunity to direct these investments to better and cleaner technologies, support the energy transition, and strengthen economic resilience by encouraging households and businesses to be active participants in the energy transition.

Second, an ambitious NDC **acknowledges that full decarbonisation is needed** and that this requires an energy transition in a relatively short time span. The 2015 Paris Agreement is five years old, but only after the 2018 IPCC Special Report, the full extent of the implications for the energy sector became clear to a broad audience: decarbonise by 2050 and expect to ramp-up clean power generation even earlier to enable other sectors to eliminate emissions. The need for such rapid economy-wide decarbonisation is not yet reflected in most existing NDCs. National energy strategies and policies typically do not reflect the full extent of the transformation either. This misalignment needs addressing because it exacerbates the challenge of establishing consistent energy (recovery) planning, and because it is viewed as a policy risk by potential investors in the implementation phase. For these reasons, governments should not compare their updated NDC energy emission targets to those in the first NDC, but rather ask whether the targets are ambitious enough to prepare the energy sector for full decarbonisation in a matter of decades as well as the wider economy which it serves.

Lastly, an ambitious NDC acknowledges the need for an equitable and inclusive transition, and the need to **overcome existing vulnerabilities and weaknesses** that often lead to injustices. We observe that the crisis emphasises existing climate and development challenges and in the energy sector calls for reforms, often already looming in the background for years, are picking up speed. Issues identified in Indonesia are an illustration, but certainly no exception: since (long) before the crisis hit countries have held ongoing discussions on how to best provide affordable access to modern energy services for households and businesses, reforming the energy subsidy and pricing schemes, the direction of the longer-term fuel mix, and the role and financial health of the state-owned energy company. Pursuing an inclusive and fair energy transition in line with climate commitments and international standards (which are important for attracting foreign investments), requires governments to confront all these lingering topics with a clear, ambitious commitment, and without delay.

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