

# HARNESSING PUBLIC FINANCE POTENTIAL TO CREATE RENEWABLE ENERGY ECONOMIES

Methodology to assess World Bank Group progress in supporting the transition to sustainable, renewable economies

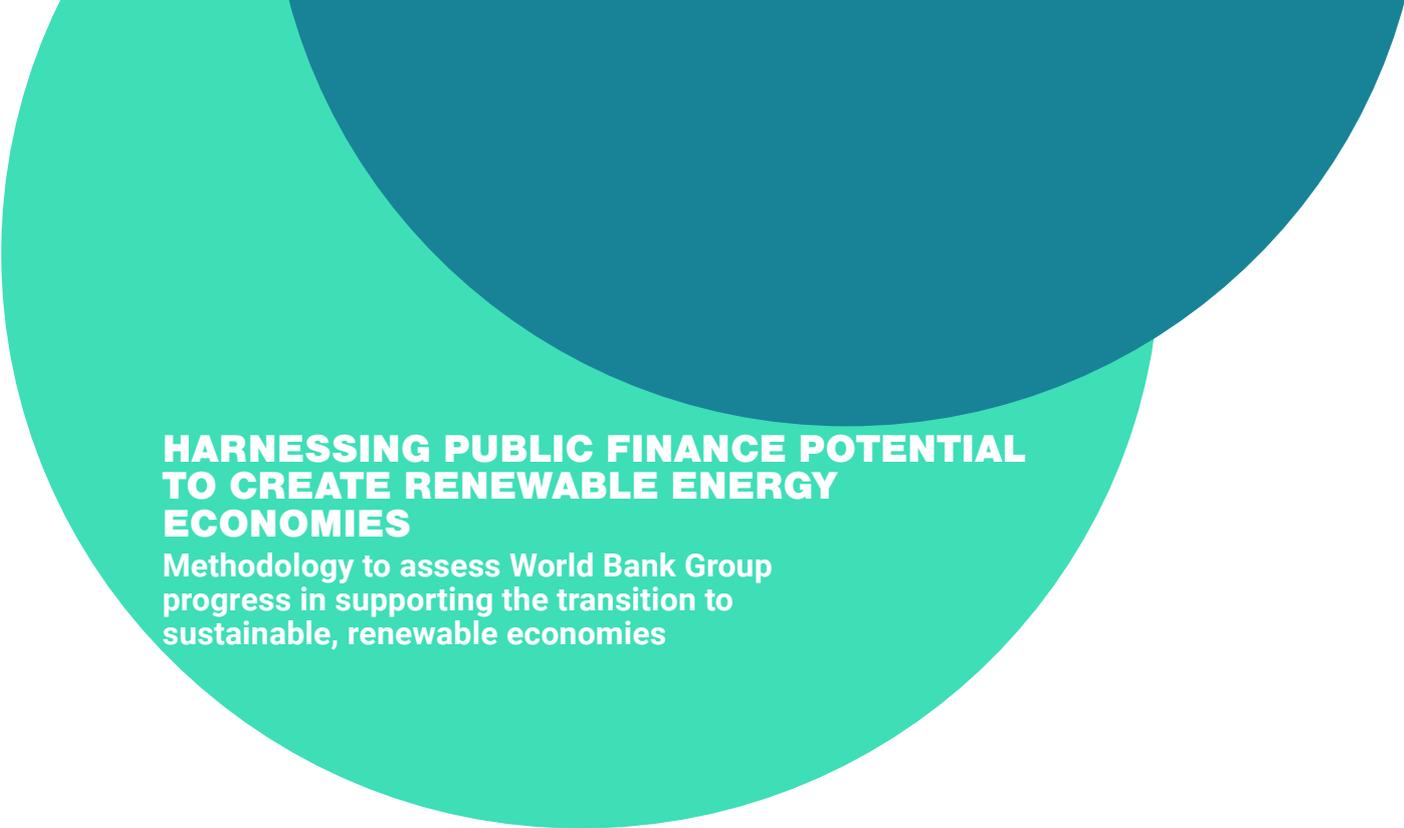


**RECOURSE**  
Making finance accountable to people and planet



CENTER for INTERNATIONAL ENVIRONMENTAL LAW





## **HARNESSING PUBLIC FINANCE POTENTIAL TO CREATE RENEWABLE ENERGY ECONOMIES**

Methodology to assess World Bank Group  
progress in supporting the transition to  
sustainable, renewable economies

## **HARNESSING PUBLIC FINANCE POTENTIAL TO CREATE RENEWABLE ENERGY ECONOMIES**

Methodology to assess World Bank Group progress in supporting the transition to  
sustainable, renewable economies

Published by: Recourse

Written by: Alison Doig

Cover photo by: Ollivier Girard/CIFOR

March 2023

For further information on the issues raised in this report please contact:

Recourse  
Kraijenhoffstraat 137A  
1018 RG, Amsterdam  
The Netherlands

Recourse campaigns for a world where people and planet are at the heart of development.  
For more information, please visit [www.re-course.org](http://www.re-course.org).

This publication may be used free of charge for the purposes of advocacy, campaigning, education, and research, provided that the source is acknowledged in full. We request that all such use be registered with us for impact assessment purposes.

## **ACKNOWLEDGEMENTS**

Lead author Alison Doig. Contributions also from Recourse staff, Mark Moreno Pascual, Nezir Sinani, Fran Witt, Petra Kjell-Wright and Kate Geary. This methodology was written with wide consultation and contributions from individuals and civil society organisations. Much appreciation goes to following people for individual contributions: Martin Baker, Andri Prasetyo, Claire O'Manique, Nadia Saracini, Grace Ronoh, Hussain Jarwar, Kala Constantino, Bronwen Tucker, Tanya Lee Roberts-Davis and Sophie Richmond. We also thank additional inputs and comments from organisations including TrendAsia, E3G, ACCESS Coalition, Big Shift Campaign, Center for International Environmental Law, Oil Change International, Oxfam, Bretton Woods Project, Christian Aid, Friends of the Earth, and Bank Information Center.

## **ABOUT THIS METHODOLOGY**

This methodology was written in consultation with a wide range of civil society organisations from around the world, including partners from the Global South, who are engaged in holding the World Bank Group to account over its policies and use of public money to deliver its mission and its investments in lower- and middle-income countries in a way that upholds human rights, dignity and environmental integrity.

Using a rights-based approach, its starting point is that it is currently the poorest and most vulnerable who are suffering the most from climate change, despite doing the least to cause it. The transition should happen in a way that does not further place the burden and costs on those same communities - women, indigenous, marginalised - for example when land is used for renewable energy projects, extracting the minerals necessary for the transition or when sources of livelihood and access to basic needs are put at risk because of irresponsibly implemented greenfield renewable energy projects. It should not further burden low-income countries with increased debt and hardship. Rather the energy transition should benefit these groups through increased energy access, decent work, enhanced natural environment and thriving local and national economy.

## CONTENTS

<b>Glossary</b>	5
<b>Executive Summary</b>	6
<b>Harnessing public finance potential to create renewable energy economies: Methodology to assess World Bank Group progress in supporting the transition to sustainable, renewable economies</b>	12
<b>Section 1: Trajectories for delivering Paris alignment keeping on course for 1.5°C</b>	13
Delivering Nationally Determined Contributions (NDCs) and Long-Term Strategies (LTS)	17
Avoiding high carbon lock-in	18
Just Energy Transition	18
<b>Section 2: Taxonomy with social and environmental accountability: definitions for zero carbon, renewable economies</b>	20
<b>2.1 Exclusions from a renewable energy taxonomy</b>	23
Fossil gas is not Paris Aligned	24
False solutions	24
Clean Cooking – Liquefied Petroleum Gas (LPG) is not a magic bullet solution	25
<b>2.2 Inclusion in the renewable energy taxonomy</b>	25
Sustainable renewable energy	25
Sectoral energy projects, delivering energy services and energy efficiency	27
Minerals mining, batteries, and waste- considering the full cycle impacts of the renewable energy transition	28
<b>Section 3: Delivering ‘whole economy’ just transition across all WBG investments</b>	30
Ensuring a policy and finance environment for renewable energy transition	30
Coherence across WBG policy and practice	31
<b>Recommendations for WBG implementation of this framework</b>	33
Paris Alignment	33
Climate Change Development Reports	34
Innovation in financial support for renewable energy transition	34
Private sector finance	35
Glasgow Statement	35
Just Energy Transition Partnerships	36
<b>Annex 1 Renewable energy transition taxonomy table</b>	37

## GLOSSARY

CCAP	Climate Change Action Plan
CCDR	Country Climate and Development Report
CPF	Country Partnership Framework
CCUS	Carbon Capture Usage and Storage
ERBD	European Bank for Reconstruction and Development
FPIC	Free, prior, and informed consent
GRS	Grievance Redress Service
IEA	International Energy Agency
IEA WEO	International Energy Agency World Energy Outlook
IFI	International Financial Institution
IFC	International Finance Corporation
IPCC	Inter-governmental Panel on Climate Change
IPCC AR6	Inter-governmental Panel on Climate Change Assessment Report six
JET	Just Energy Transition
JETP	Just Energy Transition Partnership
LPG	Liquified Petroleum Gas
LTS	Long-term Strategy
NDC	Nationally Determined Contribution
MDB	Multilateral Development Bank
MIGA	Multilateral Investment Guarantee Agency
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
UNFCCC	United Nations Framework Convention on Climate Change
WBG	World Bank Group
WCD	World Commission on Dams



Photo by Morgana Wingard

## EXECUTIVE SUMMARY

**I**nternational Energy Agency, *World Energy Outlook 2021*: “The path to net-zero emissions is narrow: staying on it requires immediate and massive deployment of all available clean and efficient energy technologies.”

The Multilateral Development Banks (MDBs) including the World Bank Group (WBG) have committed to aligning their policies, practice and investments with the Paris Agreement. At COP27 in Sharm el Sheikh the MDBs were told to reform in a way that can deliver the transformation needed to address a climate emergency in a way that does not further burden already indebted lower- and middle-income countries.

In this context, civil society groups are proposing a methodology, based on current science and international commitments, to hold the WBG to account on delivery and implementation of its Paris alignment by harnessing public finance potential to create renewable energy economies. Our recommended approach should help drive the scale of energy systems transformation needed to end the climate crisis, while supporting lower income people and countries to thrive. It presents a comprehensive taxonomy of sustainable renewable energy technologies which should be used to transform the whole economy. This will require a just energy transition while delivering the 2030 sustainable development goals (SDGs), protecting human rights and dignity, and safeguarding the natural world.

This methodological approach is clear on three points:

- ▶ The World Bank must align its investment, policy advice and capacity building with the Paris agreement to tackle climate change effectively.
- ▶ The answer is a fully sustainable renewable energy powered economy. There is no room for fossil fuels (fossil gas, oil, coal) and false solutions – such as carbon capture, usage and storage and storage (CCUS), blue hydrogen, nuclear, large hydro - if we are to keep global temperature rise within the 1.5C trajectory.
- ▶ The energy transition should happen in a way that does not further place the burden and cost of the transition on communities who had done least to cause climate change, including women and indigenous peoples.

## METHODOLOGY

This methodology for driving and monitoring the WBG Paris alignment methodologies is in three parts: trajectory, taxonomy and a whole economy approach. Each section sets a fundamental element that is needed to drive the scale and urgency of transition, while building a thriving renewable energy economy for all.

### Section 1: Trajectory for delivering Paris alignment keeping on course for 1.5°C

Global authorities give no ambiguity in the trajectories needed for carbon emissions and the energy sector to become Paris aligned. The Inter-governmental Panel on Climate Change (**IPCC**) **assessment report six (AR6)** says “we assessed, limiting warming to around 1.5°C requires global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by 43% by 2030” and “achieving net zero carbon dioxide emissions globally in the early 2050s.”

The International Energy Agency (IEA) states that achieving net zero requires:

- ▶ A huge decline in the use of fossil fuels.
- ▶ Immediate and massive deployment of all available clean and efficient energy technologies.
- ▶ No new oil and gas fields approved, and no new coal mines or mine extensions are required.

We propose that the energy solutions, especially those supported with public finance, should be aimed at ‘real zero’ (deliver zero carbon greenhouse gas emissions across the full energy cycle) rather than net zero, to avoid the dependence on unproven technologies, false solutions or unsustainable carbon offsets.

Delivering Nationally Determined Contributions (NDCs) and Long-Term Strategies (LTS) that countries have pledged under the Paris Agreement must be viewed as the minimum criteria for Paris alignment, as the current national targets will take us on a trajectory well beyond 2°C of warming. Delivering the 1.5°C goal of the Paris Agreement will need much higher ambition.

A transformation of the energy system at this scale will require a just energy transition (JET) approach which helps fossil fuel-dependent countries to hold open discussions

and consultations on the phase out of fossil fuel sectors, and the establishment of new renewable energy economies. Consultation and implementation of JET strategies should include workers, impacted people and consumers, including those living in energy poverty. They must promote gender equality, to ensure the transition benefits all and leaves no one behind.

**Section 2: Taxonomy with social and environmental accountability: definitions for zero carbon, renewable economies**

The WBG requires a clear science-based taxonomy of technologies which will guide policy reform and investment decision. This is a clear definition of the technologies which can be included and excluded from consideration for investment.

The trajectories in section 1 show there is no room in a 1.5°C aligned transition for fossil gas, oil or coal, and this means a clear definition for and exclusion project which will provide fossil fuel lock-in. In addition, there is no time to place hope in untested and false solutions to divert resources from delivering a 1.5°C aligned trajectory.

**Renewable energy transition taxonomy table** (see Annex 1 for full version)

<b>EXCLUSIONS</b>	<b>INCLUSIONS/INCLUSION WITH CAUTIONS</b>
 <b>Coal extraction, transport and use</b>	 <b>Clean cooking options, non-fossil fuel</b>
 <b>Oil – extraction, transportation, and use</b>	 <b>On and offshore wind power</b>
 <b>Fossil Gas – extraction, transportation, and use</b>	 <b>Solar photovoltaic, on shore or floating</b>
 <b>LNG infrastructure</b>	 <b>Solar thermal</b>
 <b>Carbon capture, use, and storage (CCUS)</b>	 <b>Mini-hydro</b>
 <b>Blue Hydrogen</b>	 <b>Renewable mini-grid</b>
 <b>Nuclear power</b>	 <b>Sustainable wave and tidal power</b>
 <b>Large hydropower</b>	 <b>Geothermal</b>
 <b>Industrial biofuels</b>	 <b>Green hydrogen (from renewables)</b>
 <b>Waste-to-energy (WtE)</b>	 <b>Energy system stability</b>
 <b>Unsustainable renewable technologies</b>	 <b>Sectoral initiatives</b>

### Scientific, environmental, social and rights-based criteria

Science based taxonomy must ensure<sup>43</sup> environmental integrity by delivering:

1. Climate change mitigation, Paris aligned to a 1.5°C trajectory
2. Resilient to the impact of climate change
3. Sustainable use and protection of water, marine, and forest resources
4. Pollution prevention and control
5. Protection of healthy ecosystems

In addition, it must meet social and human rights criteria:

- a. Safeguards compliance
- b. Respects the needs and concerns of local communities, centering them in the development of energy options and prioritising the voices of women, vulnerable and marginalised people and indigenous communities.
- c. Free, prior, and informed consent (FPIC) of Indigenous Peoples
- d. Upholds human rights, decent work principles, and land rights of impacted communities
- e. Access to functioning grievance redress mechanisms

This taxonomy must be driven by a clear set of scientific, environmental, social and rights-based criteria.

A sectoral approach to delivering energy services will allow for much greater opportunity to address and manage the whole energy system. In many cases a sector or city-wide energy systems approach can optimise delivery of energy services, through increased focus on delivering the activity (mobility, cooking, lighting, communications, education, health provision). Doing this will ensure a focus on the development outcome rather than the supply of energy or electricity.

The WBG estimates that demand for critical minerals could rise by 500% by 2050. Mining and waste management of precious metals and minerals for batteries and renewable technology electronics must protect people and planet. A focus on efficient, well managed energy systems can minimise demand for and consumption of these minerals. The WBG should consider what role its investments play in mineral extraction, battery technology and electronic waste recycling so it is fully part of a just transition approach, with highest possible social and environmental safeguards throughout the life cycle of the technology.

### Section 3: Delivering ‘whole economy’ just transition across all WBG investments

World Bank Climate Change Action Plan (CCAP) 2021-2025<sup>1</sup>: “We will support a “whole of economy” approach that focuses on policies and plans to create the right enabling environment for climate action and deliver transformative change, including private sector led growth. Beyond greening projects, the WBG will focus on the greening of entire economies, while supporting a just transition.”

Whole economy alignment with the Paris Agreement will require the WBG to use all its tools and investments to drive the transition, including project grants, financial intermediaries, policy, planning and capacity building. Alongside project investments, it is critical to get the policy and financing structures in place at national and sub-national levels to drive the transition.

Coherence of Paris Alignment methodologies must be across all the WBG funding including:

- ▶ Direct finance project funding
- ▶ Development policy finance
- ▶ Indirect investments including through financial intermediaries.
- ▶ All technical and policy support
- ▶ Guarantees through Multilateral Investment Guarantee Agency (MIGA)

Client countries need consistent and coherent advice and investment that will drive Paris alignment and energy transition across their whole economy. The WBG should ensure the CCAP is aligned to the Paris 1.5°C goal and support countries in setting a rapid decarbonisation trajectory through their Country Climate and Development Reports (CCDRs)<sup>2</sup>. The Paris aligned CCDR should then be directly integrated across the Country Partnership Framework (CPFs), the central tool for reviewing and guiding the WBG's country programs and gauging their effectiveness.

At a national level the WBG should support national policy targets and financing which:

- ▶ Enhance renewable expansion and uptake, including energy market regulation and policy to encourage for on and off-grid renewable deployment.
- ▶ Develop training and skills development to building national technical and policy capacity for public sector workers and energy sector workforce to support the transition, ensuring women and marginalised groups are included.
- ▶ Support small renewable energy entrepreneurship and small off-grid and mini-grid power production.

This will lay the foundation for delivery of effective transition across the whole national economy.

## RECOMMENDATIONS FOR THE WORLD BANK GROUP

The following are recommendations for the WBG to refresh its policy and practice so that it is using a whole economy approach towards supporting countries to establish renewable energy economies.

These are entry points where WBG practice can be implemented quickly:

- ▶ **Paris Alignment should ensure** that the WBG Paris Alignment aims to deliver a 1.5°C trajectory, with clear milestones and targets for investment; and establish a rights- and science-based taxonomy of energy technologies to guide investments within the Paris Aligned strategy, importantly removing natural gas from its list of acceptable energy technologies.

- ▶ **Climate Change Development Reports (CCDR) should be reviewed against the 1.5°C trajectories, introduce a rights- and science-based taxonomy and involve civil society groups in extensive consultations to ensure the CCDR responds to local needs, opportunities, and safeguards.**
- ▶ **Innovation in financial support for renewable energy transition** that prioritises investments in renewable-ready grid and energy management infrastructure, bundling of small-scale renewable technologies including small, decentralised projects, and investing in energy efficient urban infrastructure.
- ▶ **The International Finance Corporation's (IFC's) work with the private sector and private banks and funds should immediately stop financing new coal, oil and gas projects**, and close loopholes, and ramp up support for sustainable renewable energy investments.
- ▶ **The WBG should sign on to the Glasgow Statement on International Public Support for the Clean Energy Transition** on phasing out fossil fuel investments and ramping up renewable energy and efficiency investments in low- and middle-income countries.
- ▶ **The WBG's role in JETPs moving forward should ensure an equitable process** for the selection of countries receiving JETP support, not support the development of any fossil fuels and other false solutions, establish clear lines of accountability that provide affected communities with access to grievance redress mechanisms and uphold the highest standards of transparency.

## **HARNESSING PUBLIC FINANCE POTENTIAL TO CREATE RENEWABLE ENERGY ECONOMIES: METHODOLOGY TO ASSESS WORLD BANK GROUP PROGRESS IN SUPPORTING THE TRANSITION TO SUSTAINABLE, RENEWABLE ECONOMIES**

In the context of climate change, it is critical for countries to set a clear and rapid pathway for transition to a sustainable renewable energy future. This will require a combination of short-term investment to meet the current needs to deliver 2030 targets, while planning for investment in long term deep decarbonisation of the economy over the following decades. Faced with the urgent climate crisis there can be no ambiguity or delay.

The World Bank Group (WBG) has financed and incentivised an estimated \$15 billion<sup>3</sup> in fossil fuel investments since the Paris Agreement was signed. However, a combination of global scientific consensus and international political agreements now requires the WBG (and other financial institutions) to take action towards the rapid transition to a renewable energy economy. WBG has a critical role in this context and must channel its resources, capacity building and policy guidance to renewable energy investments. This should be consistent with global climate objectives as well as social and human rights safeguards. Low- and middle-income countries will require affordable finance sourced from public, private and multilateral institutions, to take them on this trajectory.

This report sets out a methodology for the WBG to align its investments, policy advice and capacity building with the Paris Agreement, to lead the way on investing in a thriving renewable economy for the countries it invests in. At the same time the WBG and other International Finance Institutions (IFIs) should be supporting client countries to deliver Sustainable Development Goals (SDGs). While this methodology is focused on delivery of SDG7 to provide universal sustainable energy access by 2030 and SDG13 on climate action, the methodology also recognises the need to address SDG5 on gender equality, SDG 12 targets for sustainable consumption and SDG 15 targets on sustainable use of terrestrial ecosystems.

Ideally a coherent approach across IFIs using this methodology aligned with science-based targets, and national energy transition plans can provide countries with the confidence, capacities, and resourcing to transition their energy sector to renewable and zero carbon energy security while providing access for all.

This methodology is presented in three sections:

- ▶ **Section 1: Trajectories for 1.5°C – delivering Paris alignment**
- ▶ **Section 2: Taxonomy with social and environmental accountability: definitions for zero carbon, renewable economies**
- ▶ **Section 3: Delivering ‘whole economy’ just transition across all WBG investments and advice**

Finally, there are recommendations for the WBG to integrate this approach to their policies, practice and lending.



Photo by Los Muertos Crew

## SECTION 1: TRAJECTORIES FOR DELIVERING PARIS ALIGNMENT KEEPING ON COURSE FOR 1.5°C

**R**ecent expert advice and global agreements agree that Paris alignment requires a 1.5°C pathway for all countries. While developed countries must take the lead, the 1.5°C trajectory will require massive transition in the 2020s, leaving no room for investment in new fossil fuel infrastructure this decade and beyond in all countries. Energy systems should aim to reach ‘real zero’ emissions rapidly.

In delivering Paris alignment and investments in an energy sector needed to deliver the level of transformation the Paris Agreement demands, the WBG cannot just assess ‘greenness’ on a project-by-project basis, but instead must ensure its whole investment portfolio and country level advice is driving an urgent just energy transition in line with trajectories set by international agreements and the highest level of expert advice.

Along with other multilateral banks, the WBG has committed to aligning its investments with the Paris Agreement. In its Climate Change Action Plan (CCAP), WBG commits to align with the Paris Agreement goals and recognises a closing “window of opportunity” for action. The WBG has committed to align all new operations by July 2023 (for IFC and MIGA 85% by this date), with the aim of being 100% aligned two years later, starting July 2025.

For this alignment to be effective, it must follow the most up to date science, human rights standards and Paris Agreement commitments. The urgency of keeping global

temperature rise below 1.5°C of warming has been starkly recognised by both science and global leaders in the past years. This urgency of transformation cannot be delivered on a project-by-project level but will require transformation and accountability across the full range of policy, advice and investment of the WBG. This will require a systemic transformation of ways of working by the WBG.

Science and global commitments converging on a 1.5°C climate target

- ▶ The **Paris Agreement** commits signatories to make *“finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”*<sup>44</sup>
- ▶ The Paris agreement commits to upholding common but differentiated responsibility and respective capabilities, meaning there is a commitment for wealthy nations to take the lead on decarbonisation and to support rapid transition in low-income countries.
- ▶ The **COP27 agreement**<sup>45</sup> *“encourages multilateral development banks to define a new vision and commensurate operational model, channels and instruments that are fit for the purpose of adequately addressing the global climate emergency.”*
- ▶ **IPCC AR6**<sup>46</sup> says *“The world faces unavoidable multiple climate hazards over the next two decades with global warming of 1.5°C. Even temporarily exceeding this warming level will result in additional severe impacts, some of which will be irreversible.”*
- ▶ **COP26 decision**, which affirms the Paris agreement text, commits countries to: *“[recognize] that the impacts of climate change will be much lower at the temperature increase of 1.5 °C compared with 2 °C, and resolves to pursue efforts to limit the temperature increase to 1.5 °C.”*
- ▶ **G7 Leaders statement in June 2022 states**<sup>47</sup>: *“We also commit to keep a limit of 1.5 °C temperature rise within reach.”*

The implications for the energy sector transformation have been laid out very clearly by the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA):

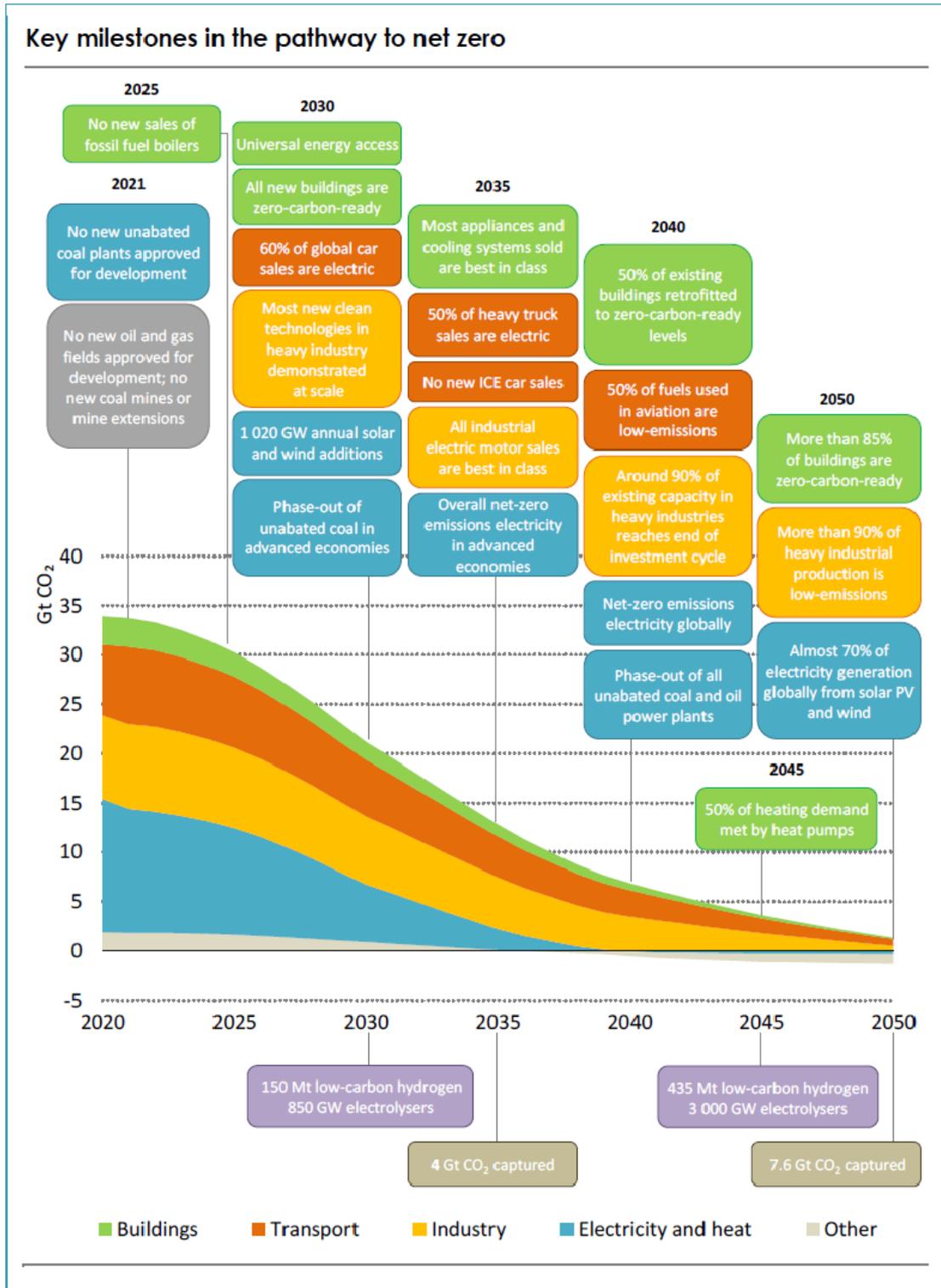
- ▶ **IPCC AR6**: *“we assessed, limiting warming to around 1.5°C requires global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by 43% by 2030” and “achieving net zero carbon dioxide emissions globally in the early 2050s.”*
- ▶ **IEA WEO 2021**: *“The path to net-zero emissions is narrow: staying on it requires immediate and massive deployment of all available clean and efficient energy technologies.” And “Net zero means a huge decline in the use of fossil fuels.” And “Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our [net zero] pathway, and no new coal mines or mine extensions are required.”*
- ▶ **IEA Electricity Market Report 2022**: *“Strong capacity additions are set to push up global renewable power generation by more than 10% in 2022, displacing some fossil fuel generation.”*<sup>4</sup>

In the context of global conflict and fossil fuel price instability, the UN Secretary General, Antonio Guterres<sup>5</sup> is very clear that *“Renewable energy is the guarantor of peace in the 21st century...The only solution for ensuring energy security for all is to abandon polluting fossil fuels and accelerate the energy transition.”* National energy and economic security and stability need to be an integral part of energy sector planning in the 21<sup>st</sup> century.

Therefore science, global agreements and global authorities on climate and energy agree that delivering the Paris Agreement and ensuring a safe global climate for all, means keeping global temperatures below 1.5°C of warming. This in turn requires a rapid decrease in fossil fuel use, no new fossil fuel development and a rapid ramp up of renewable energy technology. The IEA has proposed an energy sector trajectory which takes us on this pathway.

The IEA net zero pathway (Figure 1) demonstrates that countries will require active investment in new technologies and new renewable infrastructure to deliver thriving renewable economies for all. Other trajectories are available<sup>6</sup>, but we have highlighted this one from the world leading authority on energy which is supported by OECD (Organisation for Economic Co-operation and Development) countries.

Figure 1: IEA Energy Pathway for 1.5°C<sup>7</sup>



The graph shows the speed and scale of carbon reduction needed to ensure a zero-carbon energy system by 2050. It presents a recommended pathway for the different sectors: industry, electricity and heat, transport, and buildings, showing which sectors should take the fastest decarbonisation pathway and showing milestones required to deliver this pathway. The power and heat sectors are modelled to be zero carbon by 2040 as there are a number of existing technologies ready to be implemented. However, industry has a longer pathway to zero at 2050, with recommendations for planned new technology development in the 2020s and 2030s ready for scale up in the 2040s.

A caution in this model is the dependence on carbon capture, use and storage (CCUS) and blue hydrogen with CCUS. Though this trajectory allows for it, there is no room for false solutions as they primarily allow perpetuation of the fossil fuel economy. These technologies are unproven at scale, with economic and technical constraints, which put them in the class of 'false solutions' in our taxonomy in section 2. The IPCC Sixth Assessment Report (AR6) warns that overreliance on unproven technologies at scale such as carbon direct capture to remove CO<sub>2</sub> from the atmosphere or CCUS to remove it from fossil fuel combustion processes constitutes a major risk to the achievability of the Paris goals.<sup>8</sup>

**We propose that the energy solutions, especially those supported with public finance, should be aimed at 'real zero', not 'net zero' and that high quality natural carbon storage, in line with human rights, should be implemented in addition to delivering zero carbon energy development to ensure the 1.5°C temperature goal is kept in sight. There must be zero tolerance for greenwashing of energy or fuel sector actions. Any net-zero strategies by private companies or countries should aim to meet the highest integrity science-based commitments in line with the UN High Level Expert Group recommendations<sup>9</sup>, where emissions reductions are maximised on a rapid and transparent trajectory, and people, planet, and the rights of communities are adequately protected.**

The energy transition also implies a concerning growth in demand for critical minerals mining. According to the IEA in 2021, the use of minerals and rare earth metals will have to grow exponentially if the targets set by the Paris Agreement are to be achieved. A large proportion of the minerals and metals needed for a renewable energy transition will come from the Global South. There is growing evidence<sup>10</sup> that this new rush for critical minerals is already putting a double burden on many communities who face the impacts of a heating planet while also facing the social conflicts and environmental destruction caused by mining operations that replicate the same extractive approaches used by the fossil fuel industry. As the use of renewable energy expands, it is essential that the highest social and environmental integrity is applied when sourcing and extracting these precious minerals.

## **DELIVERING NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) AND LONG-TERM STRATEGIES (LTS)**

NDCs set the minimum criteria for Paris alignment. A focus on NDC delivery alone will mean overshooting the 1.5°C target. Commitments for the 2020s should build a foundation for much more rapid emissions reduction in the 2030s and 2040s towards zero emission energy systems by 2050 (LTS targets).

The WBG CCAP says: “Country Climate and Development Reports (CCDRs) that address the interplay between climate and development ... will support the preparation and implementation of our client countries’ Nationally Determined Contributions (NDCs) and Long-Term Strategies (LTSs).”<sup>11</sup>

The UNEP Emissions Gap Report 2021<sup>12</sup> shows NDCs only take 7.5% off predicted 2030 emissions, while 55% is needed to meet the 1.5°C Paris goal. The latest climate promises for 2030 put the world on track for a temperature rise this century of at least 2.7°C. Net-zero mid-century commitments could shave off another 0.5°C, if these pledges are delivered robustly. These predicted outcomes assume the NDC and LTS commitments are fully implemented. It is worth noting that many low-income countries have made their commitments conditional on receiving finance to deliver their NDC targets.

Therefore, the current NDC 2030 targets are not ambitious enough and should serve only as the starting point for countries’ transition to net zero, with much more to be delivered in the 2030s. In addition, the technology, policy, and finance shifts made in the 2020s have to set the stage for much more rapid transition to zero carbon in the 2030s and 2040s.

## **AVOIDING HIGH CARBON LOCK-IN**

**WBG must not invest in lock-in to high emitting technologies or fuels in the 2020s that will hinder rapid decarbonisation trajectories beyond 2030, including infrastructure for fossil fuel production, transport, terminals, power plants and downstream markets for households and business users.**

Based on the above trajectories, it is essential to avoid any lock-in to high carbon technology in the 2020s to make the achievement of net zero goals attainable.

The WB CCAP rightly says it should avoid any lock-in for oil and gas infrastructure, but this needs a very clear definition. All energy investments in the 2020s need to ensure that all countries can rapidly decarbonise in the 2030s and 2040s and that none are locked in to ongoing reliance on fossil fuel production. However, currently the CCAP is unclear on its approach to avoiding lock-in across upstream, midstream and downstream oil and gas infrastructure and processes.

Importantly, inclusion of all market dependencies is essential in testing for lock-in criteria. The European Bank for Reconstruction and Development’s (ERBD) Methodology on Paris Aligned Projects<sup>13</sup> clarifies the scope of lock-in as follows: “*The scope of the lock-in tests will extend to the relevant markets in which the project may create a risk of lock-in...it will be important to consider the impacts of the gas pipeline in the downstream markets, such as residential or commercial heating and industrial use, and determine whether the pipeline might lead to investments in other markets that caused carbon lock-in.*”

## **JUST ENERGY TRANSITION**

**JET approaches must help fossil fuel-dependent countries hold open discussions and consultations with all stakeholders, including workers, impacted people and consumers, including those living in energy poverty. They must promote gender equality, to ensure the transition benefits all and leaves no one behind.**

The Glasgow COP26 package initiated the first Just Energy Transition Partnerships with South Africa to help the country phase out of fossil fuels in a way that supports fossil fuel workers' transition to decent jobs while ensuring effective economic transition. COP27 saw the announcement of JETP agreements with Indonesia, with negotiations underway for JETPs with India, Senegal and Vietnam. As the G7 looks to extend similar partnerships to other middle-income countries, it is important to define what JET means, and ensure that the transition to a renewable energy economy does not undermine employees, and that the benefits of transition are shared with the wider population of the country. JETPs should be open to all countries making this energy transition and should be led by national priorities for development rather than external private sector actors. Any JETP process must also be transparent, and accountable, and must ensure meaningful consultation with civil society and other stakeholders.

Just Transition should include:<sup>14</sup>

- (1) Sound investments in zero-emission and job-rich sectors and technologies.
- (2) Social dialogue and democratic consultation of social partners, including Trade Unions, women, Indigenous Peoples, and young people.
- (3) Research and early assessment of the social and employment impacts of climate policies.
- (4) Training and skills development, which are key to support the deployment of new technologies and foster industrial change.
- (5) Social protection, including income support and healthcare.
- (6) Local economic diversification plans that support decent work, including for women and young people, and provide communities stability during the transition.

As an example, the IEA World Energy Outlook 2021 offers a clear definition:

*“The purpose of the transformation of the energy sector is to improve lives and livelihoods. Alongside the benefits of avoiding the worst of climate change, this means enabling citizens to seize the opportunities and navigate the disruptions caused by the shift to clean energy technologies. It means eradicating energy poverty: no system is sustainable if it continues to exclude large parts of the global population from access to modern energy. And it means putting considerations of employment, equity, inclusion, affordability, access and sustainable economic development at the centre of the process.”<sup>15</sup>*



*Photo by Amol Mande*

## **SECTION 2: TAXONOMY WITH SOCIAL AND ENVIRONMENTAL ACCOUNTABILITY: DEFINITIONS FOR ZERO CARBON, RENEWABLE ECONOMIES**

**Paris alignment requires a robust, science-based taxonomy for a sustainable renewable economic transition, with transparent and accountable social, human rights and environmental safeguarding as well as a rights-based approach that places people and planet at the heart of development decision-making.**

With the urgency of the climate crisis, it is no longer appropriate to continue to use vague, loosely defined terms like ‘low-carbon’, ‘transition fuel’, or ‘greening’ in energy planning. The taxonomy of low carbon pathways – a classification system which establishes which economic activities are considered Paris aligned and sustainable - has recently become a critical part of defining the energy transition, with the European Union (EU), South Korea, Indonesia and other countries developing their own sustainable investment taxonomies.

The EU consultation on its taxonomy of sustainable investments has received considerable opposition from climate experts for the inclusion of nuclear power and fossil gas as acceptable for sustainable investments<sup>16</sup>, with concern that their inclusion represent a political rather than a science-based decision.<sup>17</sup> Market mechanisms are already advanced in defining taxonomy for investment, with the Climate Bonds taxonomy excluding all fossil fuels, nuclear and unsustainable energy forms<sup>18</sup>, and focusing on sustainable renewable energy and preparing infrastructure and sectors (transport, industry, etc) to transition to renewable economies.

It is very important in setting a Paris-aligned taxonomy that there is a clear, science-based definition of what is not included in investments, as well as what can be included. In addition, renewable energy in the taxonomy must meet key environmental, social, and rights-based criteria. See Box 1.

**Box 1: Scientific, environmental, social and rights-based criteria**

All renewable energy and energy efficiency initiatives, including policy reform and financial provisions, must be driven by scientific and social, rights-based criteria as follows:

Science based taxonomy must ensure<sup>48</sup> environmental integrity by delivering:

1. Climate change mitigation, Paris aligned to a 1.5°C trajectory
2. Resilient to the impact of climate change
3. Sustainable use and protection of water, marine, and forest resources
4. Pollution prevention and control
5. Protection of healthy ecosystems

Social and human rights criteria:

- a) Safeguards compliance
- b) Respects the needs and concerns of local communities, centering them in the development of energy options and prioritising the voices of women, vulnerable and marginalised people and indigenous communities.
- c) Free, prior, and informed consent (FPIC) of Indigenous Peoples
- d) Upholds human rights, decent work principles<sup>49</sup> and land rights of impacted communities
- e) Access to functioning grievance redress mechanisms

It is vital that public finance, such as that channelled through the World Bank lays a strong foundation for future expansion of a renewable economy, including investing in the modernisation of grid and energy infrastructure of the future, community owned distributed renewables, and in electric grids and energy systems which can transition to be fully renewable. This includes ensuring policy reforms deliver sustainable renewable energy systems guided by the taxonomy criteria above.

See taxonomy table in annex 1.

**Box 2: The imperative for safeguarding people, human rights, land rights and the environment**

There is a long legacy of fossil fuel extraction and use damaging the lives, health<sup>50</sup>, land and environment. The head of the World Health Organisation has recently called the world's addiction to fossil fuels an act of "self-sabotage."<sup>51</sup>

While renewable energy technologies do not have the climate impacts of fossil fuels, badly implemented renewable energy technologies can lead to devastating impacts. For renewable energy projects to meet their potential for positive sustainable development, they must be implemented with the communities, respecting people's rights and compliant with strong safeguards to prevent harm and do good.

Initially in 2000, the World Bank was among those promoting the establishment of the ground-breaking, multi-stakeholder World Commission on Dams (WCD)<sup>52</sup> to study the impacts of large-scale hydro projects which devastated land and communities in the 1990s. The WCD recommended high standards of social and environmental safeguarding required for hydro projects to be acceptable. However, the WCD outcome was not endorsed or implemented by the WBG, and subsequent hydro projects have continued to cause severe harms. For example, the World Bank has supported the development of in the Karabagh dam on the Indus River in Pakistan<sup>53</sup> which has caused long-term dispute and conflict over water resources along the river, and the Nam Theun 2 dam in Laos which has devastated forests and indigenous communities.<sup>54</sup>

Recent WBG support for geothermal development in Indonesia has resulted in alarming and devastating impacts for local people and their environment. In June 2012, the WB provided a \$300 million investment to Pertamina Geothermal Energy (PGE) to finance and develop 150 MW geothermal power plants in Sumatra and Sulawesi.<sup>55</sup> In 2013 however, subsequent drilling operations triggered two separate landslide incidents leaving at least 11 people dead and several others injured. Geothermal developments in the country have since seen violations of basic performance standards, with documented deaths, gas leaks, mudslides, and the destruction of farmlands and the local environment.<sup>56</sup>

The Indonesia case raised the question from community members of: *"If our environment (land, water sources, air and livelihoods) is being destroyed and polluted by geothermal exploration and exploitation, how can this energy be called "clean"? "Clean" for whom? And why are we not being heard at all in this process?"*<sup>57</sup>

As the WBG looks to rapidly scale up investment in renewable energy, it is imperative that social, human rights-based, and environmental safeguards are implemented in developing, implementing, and decommissioning all fossil fuel-based energy projects, and these projects must involve the locally impacted people at every project stage, ensuring free, prior and informed consent for indigenous peoples. Transparent and accessible processes for submitting complaints and obtaining recourse are essential to ensure compliance with its own social and environmental safeguarding processes, as well as to ensure respect for human rights.

## 2.1 EXCLUSIONS FROM A RENEWABLE ENERGY TAXONOMY

### Fossil gas is not Paris Aligned

#### Fossil gas must be excluded from all Paris Aligned strategies

Combustion of gas is sometimes referred to as cleaner than coal or oil, but it still produces huge amounts of CO<sub>2</sub> on combustion. In addition, leakage in the gas system is a major contributor to methane emissions, which has a higher greenhouse gas effect than CO<sub>2</sub>.<sup>19</sup>

There is significant leakage of methane from the processing, transport, and consumption of gas. Methane is 83 to 86 times stronger over 20 years than CO<sub>2</sub> as a greenhouse gas. Methane emissions are specifically highlighted for concern by the IPCC AR6 report, and there is a specific Glasgow initiative<sup>20</sup> on reduction of methane emissions – with leakage from oil and gas being the highest source. Including methane losses in production and gas pipelines means gas emits up to 60 to 70% of the emissions from the dirtiest fuel coal power, therefore it is a very high carbon emitter.<sup>21</sup>

Additionally, fossil gas affects air quality with hazardous air pollutants resulting in harmful effects on health and the environment. Fossil gas infrastructure, including pipelines, leaks harmful chemicals into the environment and water supplies.

IFIs continue to prioritise gas as a viable transition fuel. This use of public funds not only locks in countries into a high-carbon and polluting energy model, but it also drains investments that could otherwise be used for a renewable energy transformation. Of the MDBs, only the European Investment Bank (EIB) has excluded fossil gas from its investments, along with seven countries<sup>22</sup> who have ruled out gas at their direct financing and export credits (with some limited gas power exemptions) in line with the Glasgow Statement on International Public Support for the Clean Energy Transition.

It is important that coal power retirement projects where the coal infrastructure is replaced with gas power, or any other fossil fuel-based technology or unsustainable biomass technology, are not considered sustainable or Paris aligned.

It must be noted that several lower income countries are either already dependent on fossil gas or have the potential to develop fossil gas production for domestic and export purposes. With its role in giving policy advice to developing countries, and its budget support through development policy finance, the WBG is in an influential position. It should use this influence to lead discussion on just transition away from fossil gas and towards zero carbon renewable options. This will not just help us meet global climate goals but will also help avoid future stranded assets and stranded jobs, communities, and clean-up costs they often leave behind. Discussions and support for transition should include whole economy support to consider decent jobs, economic alternatives, appropriate policy and finance and energy access for all.

## False solutions

**False solutions that are economically, socially, and environmentally unsound will not deliver Paris alignment and sustainable development, and as such should be excluded from Paris aligned investment.**

The following should be excluded from Paris aligned, sustainable renewable investments as they do not meet the criteria set above for environmental and social sustainability.

### **Unsustainable and uneconomic solutions**

- ▶ Carbon capture, usage and storage<sup>23</sup> (CCUS), and CCUS Ready<sup>24</sup>, is unproven technology with no projects yet developed at scale. It not only prolongs dependence on unsustainable fossil fuels at risk of carbon leakage, it also gives new life to plants that were supposed to be retired. CCUS is only economic if it is used to 'enhance extraction' for oil and gas production, which will add to the global carbon emissions.

CCUS is often discussed as a way of prolonging current fossil fuel use, despite its economic and environmental risks, rather than a last resort technology for those carbon emissions that are hardest to eradicate. Distractions such as CCUS should be avoided as it delays urgent action to transition to zero carbon energy.

- ▶ Fossil fuel-based Hydrogen<sup>25</sup> with or without CCUS, this converts fossil gas into hydrogen with carbon dioxide waste product which carries the same problems as CCUS.
- ▶ Nuclear power<sup>26 27</sup> is highly unsustainable and has disposal issues which can last for tens of thousands of years and is not economically viable without long-term subsidy.

### **Unsustainable 'renewable' energy**

- ▶ Industrial biofuels<sup>28</sup> have a legacy of deforestation for plantation growth and in some cases takes the place of food crops on productive arable land. Life cycle carbon emissions are often very high for biofuels. Biofuels blended with conventional petrol or diesel fuels will prolong the use of fossil-based fuels and hinder the transition to fully sustainable fuels.
- ▶ Large scale hydro power<sup>29</sup> has a well-documented reputation for environmental and social damage, as well as undermining human and indigenous rights. Large dams can cause significant carbon emissions due to the decomposition of flooding forest ecosystems.
- ▶ Waste to energy projects are fundamentally unsustainable as it incentivizes waste production, and cause toxic ash and air pollution damaging to human health and the environment. Also noting that plastic fuel stock is fossil-based feedstock and therefore not Paris compliant.
- ▶ Any renewable energy project that does not meet environmental and social standards, does not meaningfully consult affected communities, including women, young people and indigenous groups, or undermines human rights and land rights.

## **Clean Cooking – Liquefied Petroleum Gas (LPG) is not a magic bullet solution**

**In a world that is moving beyond fossil fuel emissions, clean cooking solutions will be met through extension of ultra clean wood or charcoal stoves, renewable biogas, and innovations in affordable electric cooking. Achieving clean cooking for all will require concerted programmes to deliver affordable, accessible clean solutions to families living in poverty in both urban and rural settings.**

The most neglected of the SDG7 sustainable energy goals is the delivery of universal access to clean cooking technologies and fuels.<sup>30</sup> The number of families who cook on dirty, polluting fuels such as wood, dung and charcoal remain extremely high at over 2.4 billion, and 3.8 million people die prematurely each year because of indoor air pollution predominantly from these cookstoves.<sup>31</sup> Often governments provide insufficient support to provide clean, affordable and accessible alternatives or to run education campaigns.

However, clean cooking will not be solved by the expansion of large-scale LPG infrastructure in a country, which is most often focused on export markets or large-scale use such as power production. Clean cooking for people living in energy poverty requires additional resources and efforts to make the fuel accessible and affordable to people living in energy poverty. There is evidence that fuel price volatility of recent years for LPG, heightened by the recent war in Ukraine, has pushed many people, from low- and middle-income families, back into using dirty solid fuels.<sup>32</sup>

There are a number of cooking solutions beyond LPG that are more appropriate and affordable for both urban and rural communities. These include ultra clean wood or charcoal stoves such as the rocket stove, solar cooking, renewable biogas, and innovations in affordable electric cooking. Any cooking option must be appropriate to the social and cultural cooking needs of the communities.

Addressing the urgent need for access to clean cooking will require nations and MDBs to recognise the levels of economic poverty that keeps people in extreme energy poverty and the non-economic barriers to accessing clean, renewable cooking options.

## **2.2 INCLUSION IN THE RENEWABLE ENERGY TAXONOMY**

### **SUSTAINABLE RENEWABLE ENERGY**

**For Paris aligned investment, it is essential to make sustainable renewable energy the easiest and most attractive energy investment pathway, including for investments in energy systems (grid upgrade, demand management, storage, decentralised energy, and maintenance) to make renewable energy economies possible. Implementation of these technologies must comply with environment, social and rights-based criteria.**

The sustainability of any technology depends in part on the context in which it is deployed (social, governance and geographic factors being important) and the scale of development, which in turn will define the scale of impact on the local area and people. The overall impact and benefit of a scheme will be dependent on where it is deployed, who makes the decision and who benefits, and the effectiveness of on-going management of a project.

A sustainable renewable economy will require a range of renewables technologies which, if implemented using the taxonomy science, environment, social and rights-based criteria listed above, and meet the Paris alignment criteria will include:

- ▶ On and offshore wind power
- ▶ Solar photovoltaic on land or floating – domestic, mini-grid and grid
- ▶ Solar thermal
- ▶ Mini-hydro (under 10 megawatts)<sup>33</sup> – run of the river community and grid connected
- ▶ Sustainably developed geothermal
- ▶ Sustainable wave and tidal power
- ▶ Green hydrogen, using socially and environmentally sustainable renewable energy, to produce hydrogen for energy intensive industry and some heavy transport uses. Also using sustainable water sources with no conflict with local water needs. Caution that green hydrogen production for export should not undermine renewable energy use for domestic needs or energy access. Green hydrogen should not be blended with unsustainable blue hydrogen or fossil gas as it prolongs the use of fossil gas-based energy systems.
- ▶ Energy storage, including through improved battery storage (ensuring a sustainable lifecycle of the battery from mineral extraction to battery waste disposal)
- ▶ Building energy system stability - Combination of grid modernisation, extension and enhanced grid capacity, renewable energy hubs, mini-grids, and household systems, integrating storage systems, and demand management to stabilise energy supply.
- ▶ Clean cooking options, including ultra clean wood or charcoal stoves, renewable biogas, and innovations in affordable electric cooking.

Cases of poorly implemented renewable energy have undermined the case for renewable energy by damaging nature, undermining land rights, and violating human rights (see box 2, page 22).

**Box 3: Kenya Off-Grid Solar Access Project (KOSAP)<sup>58</sup>**

In 2018, the World Bank invested \$150 million to the Kenya Off-Grid Solar Access Project (KOSAP) which is a flagship initiative of the Kenyan government implemented by the Ministry of Energy, Kenya Power and Lighting Company (KPLC), and the Rural Electrification and Renewable Energy Corporation (REREC). The project aims to construct 137 solar mini grids in remote communities in Kenya. The mini grids aim to support the electrification of at least 14 counties (Garissa, Isiolo, Kilifi, Kwale, Lamu, Mandera, Marsabit, Narok, Samburu, Taita Taveta, Tana River, Turkana, Wajir, and West Pokot) representing 72 percent of Kenya’s total land area and 20 percent of its population.

In addition to solar mini-grid construction, the project includes the building of stand-alone solar systems for households (i.e., rooftop solar), clean-cooking initiatives, solar water pumps for community use, as well as capacity building support in the form of consumer education and citizen engagement. KOSAP aims to connect 54,589 households to renewable energy power covering 567 public facilities such as schools, health clinics and administrative offices.

The KOSAP project can be considered a good example of a WB investment in decentralized sustainable renewables because of its ability to reach last-mile consumers especially in remote areas in the country. The construction of off-grid solar mini-grids and solar home systems (SHS) in these remote counties will replace kerosene, firewood and dry cells typically used by communities for lighting and cooking, significantly bringing down costs and reducing emissions overall. In 2017, KOSAP also went through extensive consultations with affected communities to identify potential risks and advantages, including discussions on how they can access the WBG’s Grievance Redress Service (GRS) for project-related concerns.

**SECTORAL ENERGY PROJECTS, DELIVERING ENERGY SERVICES AND ENERGY EFFICIENCY**

**It is essential to focus on energy services, sectors, efficiency and systems (not just energy supply).**

In many cases a sector or city-wide energy systems approach can optimise delivery of energy services, through increased focus on delivering the activity (mobility, cooking, lighting, communications, education, health provision). Doing this will ensure a focus on the development outcome rather than the supply of energy, and additionally can:

- ▶ optimise energy efficiency, in domestic, industrial and transport options, aiming to reduce the overall demand for energy in the new economic system.
- ▶ deliver alternative service supply, such as architecture for passive cooling, increased home working, or shifting from cars to active or public transport.
- ▶ integrated renewable energy technologies to deliver targeted energy needs.

A sectoral approach to delivering energy services will allow for much greater opportunity to address and manage the whole energy system. It will also optimise efficiency of sectors, manage energy demand, and develop the most effective energy solutions,

including on and off grid, passive heating and cooling and service delivery alternatives. City or sector scale (including transport, industry, public services, or household) can provide the economy of scale to implement such an approach. Co-benefits such as improved air quality can also be tracked through a targeted services approach.

The CCAP for example states that it will step up support to cities, taking a systemic approach rather than focus on energy supply: *“This means supporting policies, regulations, and investments to improve urban air quality; decarbonize urban energy systems; promote green and resource-efficient buildings and infrastructure; promote integrated solid-waste management and circular-economy approaches; improve urban transportation; and improve the coverage, efficiency, and resilience of urban water supply, sanitation, and wastewater treatment.”*

### **MINERALS MINING, BATTERIES, AND WASTE- CONSIDERING THE FULL CYCLE IMPACTS OF THE RENEWABLE ENERGY TRANSITION**

**With the WBG estimating that demand for critical minerals could rise by 500% by 2050, mining and waste management of precious metals and minerals for batteries and renewable technology electronics must protect people and planet. A focus on efficient, well managed energy systems can minimise demand for and consumption of these minerals. The WBG should consider what role its investment plays in mineral extraction, battery technology and electronic waste recycling so it is fully part of a just transition approach, with highest possible social and environmental safeguards throughout the life cycle of the technology.**

An important aspect of ensuring energy efficiency and targeted delivery is the need for sustainable extraction of minerals currently needed for renewable technology and battery storage and eradicate destructive practices.<sup>34</sup> The use of minerals and rare earth metals will have to grow exponentially if the targets set by the Paris Climate Agreement are to be achieved. For instance, to keep up with the demand for electric vehicle manufacturing, a 40-fold increase in the use of lithium is projected by 2040, while the use of copper will double, mainly for electric cables. And three times the minerals will be needed for renewable energy generation from wind, solar power, and energy storage.

A recent WBG report<sup>35</sup> on the increased demand for critical minerals as a result of rising demand due to the renewable energy transition recognises the impacts this could have on sustainability: *“Ambitious climate action will bring significant demand for minerals. Limiting global warming to at or below 1.5°C–2°C, to realize a low-carbon future, requires a large-scale transition to clean energy. Manufacturing solar panels, wind turbines, and batteries will shape the supply and demand for critical minerals for the foreseeable future. Doing so will have significant implications for a wide variety of industries and for mineral-rich developing countries. These countries stand to benefit from the rise in demand for minerals but also need to manage the material and climate footprints associated with increased mining activities.”*

Current mining practices however consume unsustainably high quantities of energy, water and in many cases include human rights violations. In addition, a large portion of the minerals and metals needed for a renewable energy transition will come from the Global South which puts a double burden on communities as they face the impacts of

a heating planet while also facing the social conflicts and environmental destruction caused by this new gold rush for critical minerals.

Battery recycling as a broader aspect of energy systems management is also important. Currently less than five percent of total lithium-ion battery supplies globally are being recycled<sup>36</sup>. This is not sustainable. Therefore, it is essential to have recycling of batteries and electronic equipment, but also to minimise the demand for energy. This must be a focus in particular when switching to electric vehicles and grid power storage which will put high demand on battery technologies.

The best strategy will be to ensure high efficiency energy systems that reduce overall consumption, and demand management to minimise need for battery storage and therefore mineral consumption. For example, a shift from individual car ownership to electrified public transport would reduce overall demand for materials including rare minerals.<sup>37</sup> Also, power system approaches can minimise storage need, including interconnecting grids to source power from a wider geographical area with different weather conditions, and co-locating renewable sources (say, wind and solar) to ensure diverse renewable energy sourcing can also reduce demand for battery storage. Investment in innovations in storage that reduce dependence on mineral extraction will also be important as use for renewable energy technologies expand.

The WBG should further consider their role in battery technology and related mineral extraction to ensure it is well integrated into a just transition approach to energy systems transformation. It will be essential to set the highest possible standards on human and environmental safeguards and human rights protection throughout the full life cycle of technologies including waste disposal.



Photo by Trinh Trần

### **SECTION 3: DELIVERING ‘WHOLE ECONOMY’ JUST TRANSITION ACROSS ALL WBG INVESTMENTS**

Whole economy alignment with the Paris Agreement will require the WBG to use all its tools and investments to drive the transition, including project grants, financial intermediaries, policy, planning and capacity building.

World Bank Climate Change Action Plan (2021-2025):

*“We will support a “whole of economy” approach that focuses on policies and plans to create the right enabling environment for climate action and deliver transformative change, including private sector led growth. Beyond greening projects, the WBG will focus on the greening of entire economies, while supporting a just transition.”*

#### **ENSURING A POLICY AND FINANCE ENVIRONMENT FOR RENEWABLE ENERGY TRANSITION**

**Alongside project investments, it is critical to get the policy and financing structures in place at national and sub-national levels to drive the transition.**

The WBG has committed to working with countries to develop Country Climate and Development Reports (CCDRs)<sup>38</sup> to “support countries through strong analytics and policy advice to help connect multi-sectoral issues, strengthen institutions, build capacity, make strategic investments, and help attract the private sector.”

A critical component of effective transition of the energy sector is establishing the policy and finance setting that is conducive for renewable energy transition that can deliver a long-term stable environment to establish and grow new energy markets.

CCDRs should support countries to:

- ▶ Develop national policy that enhances renewable expansion and uptake, including energy market regulation and policy to encourage for off grid.
- ▶ Set targets for renewable energy, energy efficiency, energy access and carbon emissions that promote the renewable energy transition.
- ▶ Establish taxation systems that are preferable to renewable energy, and not undermined by taxation regimes for fossil fuels.
- ▶ Review all energy subsidies to remove fossil fuel production subsidies, and transition fuel consumption subsidies from fossil fuel options and towards renewable and sustainable alternatives. Safeguards should be in place for transitioning more energy vulnerable communities.
- ▶ Offer feed in tariffs for renewable energy, supporting the introduction of new technologies as they build competitive economies of scale.
- ▶ Provide training and skills development to building national technical and policy capacity for public sector workers and energy sector workforce to support the transition, ensuring women and marginalised groups are included.
- ▶ Ensure sub-national planning and capacity to ensure municipalities, states and local councils are in a strong position to ramp up renewable energy.
- ▶ Develop policies for small renewable energy entrepreneurship and small off-grid and mini-grid power production.

## COHERENCE ACROSS WBG POLICY AND PRACTICE

**The WBG should revise the CCAP to be aligned to the Paris 1.5°C goal and should use its CCDRs to support countries in setting a rapid decarbonisation trajectory. The objective of establishing a sustainable renewable economy must be integral across the WBG portfolio, all sectors, and all investment routes.**

The Climate Change Action Plan 2021-2025 sets WBG strategy for supporting “*green, resilient, and inclusive development*” for the coming years. As a priority, the WBG should update this strategy for Paris alignment, using current science and global commitments to keep within the Paris 1.5°C target trajectory as laid out earlier in this report.

In light of the CCAP, the WBG consults with its client countries to develop CCDRs, diagnostic tools to set climate and development priorities for the client countries, and therefore inform WBG priorities for action in that country. These diagnostic tools should be government-wide that integrate climate and development considerations. The CCDRs should support the delivery of country NDCs, and to be Paris aligned these should increase ambition by setting the potential for countries to go much further in delivering long term climate goals. For low-income countries this will require support to leapfrog to a renewable energy economy, avoiding risky fossil fuel lock-in pathways.

The World Bank has also embraced what it calls a green, resilient, inclusive development—the GRID approach – to Covid recovery plans, which aim to promote economic growth

that goes hand in hand with environmental goals and social inclusion.<sup>39</sup> However, there are concerns that this Covid response approach overly prioritises private sector development and problematic public-private partnerships (PPPs) for delivering infrastructure and social services, despite evidence that these are high cost and risky, and don't necessarily deliver the required development outcome.<sup>40</sup>

To be effective, a Paris Aligned CCAP must be coherently applied across all WBG investments, guidance, and advice, meaning:

- ▶ Putting 1.5°C aligned CCDRs at the heart of national strategy and investment, and Country Partnership Framework (CPFs).
- ▶ Coherence across all WBG funding including:
  - Direct finance project funding
  - Development policy finance
  - Indirect investments including through financial intermediaries
  - All technical and policy support, and
  - Guarantees through MIGA

Client countries need consistent and coherent advice and investment that will drive Paris alignment and energy transition. Any ambiguity or incoherence of approach across the Bretton Woods institutions and across MDBs will undermine progress and increase the risk for investors.



## RECOMMENDATIONS FOR WORLD BANK IMPLEMENTATION OF THIS FRAMEWORK

The following are recommendations for the WBG to refresh its policy and practice so that it is using a whole economy approach towards supporting countries to establish renewable energy economies. These are entry points where WBG practice can be implemented quickly.

### PARIS ALIGNMENT

WBG Paris Alignment methodologies must:

- ▶ Ensure that the WBG Paris Alignment methodologies **aims to deliver a 1.5°C trajectory**, with clear milestones and targets for investment and their resulting emissions for short (2025), medium (2030) and long term (2040 and 2050).
- ▶ Establish a **rights- and science-based taxonomy of energy technologies** to guide investments within the Paris Aligned strategy, importantly removing fossil gas from its list of acceptable energy technologies. Further, any Paris Alignment methodology must also stop the financing of new coal, oil or gas projects or any
- ▶ other new financing that supports fossil fuels.  
**Remove loopholes in various lending instruments**, including through
- ▶ financial intermediaries, that allow continued fossil fuel finance to flow.  
**Greater transparency and accountability** on climate and renewable energy spending which includes ensuring meaningful public consultation of Paris
- ▶ Alignment methodology.  
**Conduct a public review of Paris alignment methodologies.** The IFC must open up

their Paris alignment methodology for public review to allow stakeholders, including civil society and project-affected communities to provide input. Like the EBRD, the IFC should hold public consultations, meetings, allow for written submissions and roundtable discussion with experts and project-affected communities - on their methodologies.

- ▶ Ensure **its policy-based lending are aligned to deliver a 1.5°C trajectory** and create opportunities for green and inclusive growth, phasing out fossil fuels and promoting access to sustainable renewable energy sources.
- ▶ WBG should set targets to **increase the financing available for sustainable renewable energy and energy efficiency projects** and provide incentives to enhance investment in just energy transition across the countries where it operates, recognising the different investment and return structures that renewable energy delivers.

### CLIMATE CHANGE DEVELOPMENT REPORTS – CCDR

The WBG is already developing CCDRs in a number of countries. It will be important to introduce the renewable energy economy methodology into the CCDR process behind these reports, especially around issues of false solutions, and closing the fossil fuel loopholes.

We recommend all CCDRs should:

- ▶ **Review the energy and emissions trajectory for each country against a 1.5°C pathway.**
- ▶ Include quantitative **energy and emissions milestones** for the NDC time frame to 2030, and also how this can establish a foundation for rapid transition to the long-term goal for 2040 and 2050.
- ▶ **Introduce the science-based taxonomy** to ensure the country investments only include socially and environmentally appropriate investments, ensuring no false solutions or high carbon lock-in.
- ▶ **Sectoral guidance notes providing guidance** and best practice for transitioning to zero carbon energy service delivery.
- ▶ **Involve civil society groups in extensive consultations to ensure** the CCDR responds to local needs, opportunities, and safeguards.

Currently the CCDRs will inform Country Partnership Frameworks (CPFs) which function as a central tool of the WBG for reviewing and guiding investments at the country-level consistent with nationally determined development objectives, but there is no formal requirement for countries or WBG investments to re-direct efforts towards implementing recommendations set out in CCDRs. While the WBG cannot deliver the full scope of the CCDRs, its policy advice and recommendations should be required to support a foundation for delivery of the recommendations.

## INNOVATION IN FINANCIAL SUPPORT FOR RENEWABLE ENERGY TRANSITION

In accelerating the transition to renewable energy economies, the WBG will have to look at the types of finance and policy support it provides to ensure that it is suitable for the more diverse investments a renewable economy will require. We recommend a shift towards innovative approaches to funding that prioritises investments in renewable-ready grid and energy management infrastructure, bundling of small-scale renewable technologies including small, decentralised projects, and investing in energy efficient urban infrastructure.

Given the urgency of the Paris aligned energy transition it is essential that the types of finance provided focus on grants and concessional loans to ensure countries are not going into more debt as part of the energy transition<sup>41</sup>.

## PRIVATE SECTOR FINANCE

The Green Bond taxonomy<sup>42</sup> for green assets is science based and sets a high standard for private sector green investment. The World Bank's private sector arm, the International Finance Corporation, currently plays an influential role, not only as an investor but also a standard-setter for the private sector and private finance.

To accelerate the shift out of fossil fuels towards sustainable renewable energy, the IFC should support its clients to:

- ▶ **End financing for new coal, oil and gas projects, whether directly or indirectly through intermediaries.** The IFC can play a catalytic role in supporting intermediary clients to exit coal, oil and gas investments and shift to greener portfolio. The IFC's forthcoming Paris alignment methodology must explicitly rule out new fossil fuel support and detail how it will support existing clients to phase out fossil fuel exposure.
- ▶ **Ramp up support for sustainable renewable energy investments.** Rapidly scaling up public finance for renewables must complement efforts to rapidly phase out fossil fuel energy sources.
- ▶ **Support innovative financing models that bundle small-scale renewable energy solutions.** The potential benefits of using financial intermediaries to aggregate smaller energy access or renewable energy projects, or to achieve portfolio-level shifts in client financing from fossil fuels to clean, are significant.
- ▶ **Ensure the forthcoming review of the IFC's Performance Standards seeks to upgrade the safeguards to meet the challenges of a renewable energy economy, including protections in the critical mineral supply chain.** This should include aligning the Performance Standards with international human rights standards, such as the UN Guiding Principles on Business and Human Rights.
- ▶ **Ensure timely disclosure in line with highest standards of transparency and accountability.** The IFC's Paris alignment methodology must explicitly commit the IFC to publishing the name, sector and location of fossil fuel exposures among subprojects it supports through intermediaries, to enable public tracking and assessment of IFC's fossil fuel phaseout commitments.

## GLASGOW STATEMENT ON INTERNATIONAL PUBLIC SUPPORT FOR THE CLEAN ENERGY TRANSITION

The WBG should sign on to the Glasgow Statement on International Public Support for the Clean Energy Transition on phasing out fossil fuel investments and ramping up renewable energy and efficiency investments in low- and middle-income countries. The WBG should not allow any exemptions to the statement commitments to end all direct public support for the international fossil fuel energy sector from the start of 2023, and ensure that all investments comply with human rights standards, and meet the 1.5°C, Paris Aligned trajectories.

All investments should meet the criteria in the taxonomy with social and environmental safeguards as recommended in this methodology.

## JUST ENERGY TRANSITION PARTNERSHIPS

JETPs appeared to offer an opportunity to pilot transformative approaches to address aspects of the energy transition including early coal retirement. However, as this initiative unfolds in South Africa, Indonesia, Vietnam, Senegal, and India, we are concerned by several elements that signal a harmful rather than encouraging direction. In the context of the WBG's role in JETPs moving forward, we recommend:

- ▶ An **equitable process for the selection of countries receiving JETP support** that does not bypass existing multilateral commitments for climate finance such as the Green Climate Fund (GCF) and Adaptation Fund, which are all currently starved of financing.
- ▶ Establishing the credibility of JETPs must also involve **addressing odious debts**. For example, South Africa is still paying off loans to the World Bank for the Medupi coal fired power plant, which was heavily opposed by civil society from the start. As a demonstration of good faith in negotiating JETPs, odious climate-related debts must be cancelled. This debt relief must not count towards climate finance, which must be additional.
- ▶ JETPs should **not support the development of any fossil fuels and other false solutions** like carbon capture utilisation and storage (CCUS), hydrogen, co-firing biomass or ammonia, and others.
- ▶ JETPs must **establish clear lines of accountability** that provide affected communities with access to grievance redress mechanisms. In addition, agreements being negotiated must be upheld to the highest standards of transparency.

A just energy transition must be a part of a larger just transition that is fundamentally about making a more equal global order and societies. JETPs should not be just concerned about phasing out coal and labour and worker retraining, but about a broad transition addressing economic and governance fundamentals. JETPs must contribute towards and be situated in a broader just transition agenda, and the WBG must make this explicit and intentional in their plans and communications in relation to JETPs.

JETP investments in all countries should deliver a transition to a fully renewable energy system, in line with the taxonomy and with social and environmental safeguards recommended here, and with transformation across the whole energy economy.

## ANNEX 1 RENEWABLE ENERGY TRANSITION TAXONOMY TABLE

### Scientific, environmental, social and rights-based criteria

All renewable energy and energy efficiency initiatives, including policy reform and financial provisions, must be driven by scientific and social, rights-based criteria as follows:

1. Science based taxonomy must ensure<sup>59</sup> environmental integrity by delivering:
  1. Climate change mitigation, Paris aligned to a 1.5°C trajectory
  2. Resilient to the impact of climate change
  3. Sustainable use and protection of water, marine, and forest resources
  4. Pollution prevention and control
  5. Protection of healthy ecosystems

In addition, it must meet social and human rights criteria:

- a) Safeguards compliance
- b) Respects the needs and concerns of local communities, centering them in the development of energy options and prioritising the voices of women, vulnerable and marginalised people and indigenous communities.
- c) Free, prior, and informed consent (FPIC) of Indigenous Peoples
- d) Upholds human rights, decent work principles, and land rights of impacted communities
- e) Access to functioning grievance redress mechanisms

### Exclusions

Technology	Comment	Inclusion/exclusion
Coal – mining, transport, and use for power, industry, and domestic uses	Exclusion includes expansion of existing coal mines for whatever purpose, and plant rehabilitation	Excluded
Coal power retirement with replacement by gas or other fossil fuel-based development, or replacement of fuel with unsustainable biofuels	While coal retirement is urgently needed, replacement with unsustainable energy systems excluded from the taxonomy is not considered sustainable	Excluded
Nuclear	The limited supply of fuel, potential for radioactive accidents, and waste that lasts for tens of thousands of years make nuclear energy sources unsustainable.	Excluded

Oil – extraction, transportation and use for power, transport sector, domestic and industry		Excluded
Fossil Gas – extraction, transportation, use in domestic, power, and industrial use		Excluded
LNG infrastructure	Exclusion should include terminals for export or import of LNG or technologies dependent on using LNG. LNG infrastructure leads to long term lock-in to high carbon infrastructure	Excluded
Carbon capture, use and storage (CCUS)	Unproven technology with unclear costing. Does not remove the production and transportation emissions of the fossil fuel burned and has risk of carbon leakage.	Excluded
Blue Hydrogen	Fossil based with carbon dioxide waste product	Excluded
Large hydro power	Does not meet social or environmental sustainability criteria; potential land rights conflicts	Excluded
Industrial biofuels	Does not meet social or environmental sustainability criteria; potential land rights conflicts	Excluded
Waste-to-energy (WtE)	Waste-to-energy projects are fundamentally unsustainable as it incentivizes waste production, also noting that plastic fuel stock is fossil-based feedstock and therefore not Paris compliant.	Excluded
Unsustainable renewable technologies (any technology type)	Any renewable energy project that does not meet environmental standards, does not consult affected communities, or undermines land rights.	Excluded

**Inclusion**

These technologies can be applied where they meet environmental standards, projects consult with affected communities, does not undermine land rights or rights of indigenous peoples as detailed in the taxonomy section above.

Technology	Comment	Inclusion/exclusion
Clean cooking options, including ultra clean wood or charcoal stoves, renewable biogas, and innovations in affordable electric cooking	Focus on delivering affordable, accessible, and appropriate cooking to the target populations.	Included
On and offshore wind power	Ensuring this meets human rights, environmental and social standards.	Included
Solar photovoltaic, on shore or floating	Ensuring this meets human rights, environmental and social standards.	Included
Solar thermal	Ensuring this meets human rights, environmental and social standards.	Included
Mini-hydro	Ensuring this meets human rights, environmental and social standards.	Included
Renewable mini-grid	Ensuring this meets human rights, environmental and social standards.	Included
Sustainable wave and tidal power	Ensuring this meets human rights, environmental and social standards.	included
Geothermal	Ensuring this meets environmental and social standards, including land rights of affected communities.	Included with caution
Green hydrogen (from renewables)	The renewable energy source must be socially and environmentally sustainable and water source sustainable	Included with caution
Energy system stability	Combination of <ul style="list-style-type: none"> <li>▶ grid modernisation to maximise renewable energy integration</li> <li>▶ extension renewable energy hubs,</li> <li>▶ mini-grids and household systems;</li> <li>▶ energy storage and</li> <li>▶ demand management to stabilise energy supply</li> </ul>	Included
Sectoral initiatives	Including: <ul style="list-style-type: none"> <li>▶ Public and active transport</li> <li>▶ Home insulation</li> <li>▶ Passive cooling</li> <li>▶ Renewable schools, clinics</li> <li>▶ Industrial innovations such as zero carbon steel</li> <li>▶ Zero carbon building materials</li> </ul> Looking for clustering and city-wider or sector-wide economies of scale	Included



- 13 European Bank of Reconstruction and Development, EBRD Paris Agreement alignment methodology, 21 June 2021. <https://www.ebrd.com/news/events/ebrd-paris-agreement-alignment-methodology.html>
- 14 Oil Change International, Sky's the limit Africa Report, October 2021. <https://priceofoil.org/content/uploads/2021/10/Skys-Limit-Africa-Report-2021.pdf>
- 15 IEA WEO 2021, Mobilising investment and finance, 2021. <https://www.iea.org/reports/world-energy-outlook-2021/mobilising-investment-and-finance>
- 16 Chris Seekings, EU to classify gas and nuclear as 'green' investments, The Actuary, 12th July 2022. <https://www.theactuary.com/news/2022/07/12/eu-classify-gas-and-nuclear-green-investments>
- 17 Tsvetelina Kuzmanova et al, Align the EU's green taxonomy with the new geopolitical reality, E3G, 23 Mat 2022. <https://www.e3g.org/publications/align-the-eu-s-green-taxonomy-with-the-new-geopolitical-reality/> and WWF, 10 ways the Commission is greenwashing gas and nuclear in the EU Taxonomy, 13 January 2022 [10 ways the Commission is greenwashing gas and nuclear in the EU Taxonomy | WWF](https://www.wwf.org.uk/news-and-views/10-ways-the-commission-is-greenwashing-gas-and-nuclear-in-the-eu-taxonomy)
- 18 Climate Bonds Initiative, Climate Bonds Taxonomy, September 2021. [https://www.climatebonds.net/files/files/Taxonomy/CBI\\_Taxonomy\\_Tables-08A%20%281%29.pdf](https://www.climatebonds.net/files/files/Taxonomy/CBI_Taxonomy_Tables-08A%20%281%29.pdf)
- 19 IPCC AR6 WGIII: Global methane emissions from energy supply, primarily fugitive emissions from production and transport of fossil fuels, accounted for about 18% [13–23%] of global GHG emissions from energy supply  
Also <https://www.iea.org/reports/global-methane-tracker-2022/estimating-methane-emissions>
- 20 The White House, Joint US-EU Press Release on the Global Methane Pledge, 18 September 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/18/joint-us-eu-press-release-on-the-global-methane-pledge/>
- 21 Volker Quaschnig und Bernhard Siegel, Specific Carbon Dioxide Emissions of Various Fuels, November 2022. [https://www.volker-quaschnig.de/datserv/CO2-spez/index\\_e.php](https://www.volker-quaschnig.de/datserv/CO2-spez/index_e.php)
- 22 Oil Change International, Leaders & Laggards: Tracking implementation of the COP26 commitment to end international public finance for fossil fuels by the end of 2022, 7 October 2022. <https://priceofoil.org/2022/10/07/leaders-laggards/>
- 23 Center for International Environmental Law, Over 500 Organizations Call on Policymakers to Reject Carbon Capture and Storage as a False Solution. <https://www.ciel.org/organizations-demand-policymakers-reject-carbon-capture-and-storage>
- 24 CCUS ready refers to fossil fuel plant which provides space and initial infrastructure for CCUS to be installed when the technology and storage sights are available. This potentially could be used to say that the project is avoiding high carbon lock-in but it depends on an technically and economically unproven technology.

- 25 Cara Bottorff, Hydrogen: Future of Clean Energy or a False Solution?, Sierra Club, 4 January 2022. <https://www.sierraclub.org/articles/2022/01/hydrogen-future-clean-energy-or-false-solution>
- 26 Jim Green, Nuclear power's economic failure, The Ecologist, 13 December 2021 <https://theecologist.org/2021/dec/13/nuclear-powers-economic-failure>
- 27 U.S. Energy Information Administration, Nuclear explained Nuclear power and the environment. <https://www.eia.gov/energyexplained/nuclear/nuclear-power-and-the-environment.php>
- 28 Fred Pearce, 80% of British biofuels are unsustainable, New Scientist, 12 August 2021. <https://www.newscientist.com/article/dn14518-80-of-british-biofuels-are-unsustainable> and Oxfam, Don't Burn Biofuels, October 2022. <https://www.oxfam.org.nz/wp-content/uploads/2022/10/Dont-Burn-Food-Policy-Briefing.pdf>
- 29 Nick Ferris, Why hydropower's human rights problem may be insurmountable, Energy Monitor, 11 July 2022. <https://www.energymonitor.ai/policy/just-transition/why-hydropowers-human-rights-problem-may-be-insurmountable>
- 30 Yabei Zhang, Accelerating Access to Clean Cooking Will Require a Heart-Head-and-Hands Approach, Springer Link 19 July 2021. <https://link.springer.com/article/10.1057/s41301-021-00297-x>
- 31 WHO, Household air pollution and health, 28 November 2022. <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>
- 32 Universit of Liverpool, Use of clean cooking fuel in Kenya falls following reintroduction of VAT, 7 February 2022. <https://news.liverpool.ac.uk/2022/02/07/use-of-clean-cooking-fuel-in-kenya-falls-following-reintroduction-of-vat/>
- 33 U.S. Department of Energy, Types of Hydropower Plants. <https://www.energy.gov/eere/water/types-hydropower-plants>
- 34 Amit Katwala, The spiralling environmental cost of our lithium battery addiction, Wired, 2018. <https://www.wired.co.uk/article/lithium-batteries-environment-impact> and <https://kr-asia.com/indonesias-ev-battery-aspirations-uneart-mining-waste-problems>
- 35 Ursula Florene, Indonesia's EV battery aspirations unearth mining waste problems, KrAsia, January 2021. <https://kr-asia.com/indonesias-ev-battery-aspirations-uneart-mining-waste-problems>
- 36 Siena Hacker, How Green are Home Batteries? The Environmental Impact of Lithium-Ion, solar.com June 2022 <https://www.solar.com/learn/how-green-are-home-batteries-the-environmental-impact-of-lithium-ion/>
- 37 Thea Riofrancos et al, Achieving Zero Emissions with More Mobility and Less Mining, Climate and Community Project, January 2023. <https://www.climateandcommunity.org/more-mobility-less-mining>

- 38 World Bank COP26 Climate Brief, Country Climate and Development Reports (CCDRs). [COP26-ClimateBriefs-CCDRs-Final-2610.pdf \(worldbank.org\)](#)
- 39 World Bank Group, Green, Resilient, and Inclusive Development, 2021, <https://openknowledge.worldbank.org/handle/10986/36322>
- 40 Eurodad, Spring Meetings 2021: Yet another insufficient response to the Covid-19 crisis?, 13 April 2021. [https://www.eurodad.org/spring\\_meetings\\_2021](https://www.eurodad.org/spring_meetings_2021)
- 41 Tess Woolfenden et al, The debt and climate crises: Why climate justice must include debt justice, Debt Justice, October 2022. <https://debtjustice.org.uk/wp-content/uploads/2022/10/Debt-and-the-Climate-Crisis-Briefing-October-2022-UPDATED.pdf>
- 42 Green Bonds Initiative, Growing green bond markets: The development of taxonomies to identify green assets. [https://www.climatebonds.net/files/reports/policy\\_taxonomy\\_briefing\\_conference.pdf](https://www.climatebonds.net/files/reports/policy_taxonomy_briefing_conference.pdf)
- 43 Climate Bonds Initiative, Growing green bond markets: The development of taxonomies to identify green assets, March 2019. [https://www.climatebonds.net/files/reports/policy\\_taxonomy\\_briefing\\_conference.pdf](https://www.climatebonds.net/files/reports/policy_taxonomy_briefing_conference.pdf)
- 44 UNFCCC, What is the Paris Agreement? <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- 45 UNFCCC, Sharm el-Sheikh Implementation Plan, 20 November 2022. [https://unfccc.int/sites/default/files/resource/cp2022\\_L19\\_adv.pdf](https://unfccc.int/sites/default/files/resource/cp2022_L19_adv.pdf)
- 46 IPCC Sixth Assessment Report, Press Release, 28 February 2022. [Press release | Climate Change 2022: Impacts, Adaptation and Vulnerability \(ipcc.ch\)](#)
- 47 G7 Leaders' Communique, Elmau, Germany, 28 June 2022. <https://pm.gc.ca/en/news/statements/2022/06/28/g7-leaders-communique>
- 48 Climate Bonds Initiative, March 2019, Growing green bond markets: The development of taxonomies to identify green assets [https://www.climatebonds.net/files/reports/policy\\_taxonomy\\_briefing\\_conference.pdf](https://www.climatebonds.net/files/reports/policy_taxonomy_briefing_conference.pdf)
- 49 International Labour Organisation, Declaration on Fundamental Principles and Rights at Work, 2022 <https://www.ilo.org/global/topics/decent-work/lang-en/index.htm>
- 50 Global Climate and Health Alliance, Cradle to grave: The health harms of fossil fuel dependence and the case for a just phase-out, July 2022. <https://climateandhealthalliance.org/wp-content/uploads/2022/07/Cradle-To-Grave-Fossil-Fuels-Brief.pdf>
- 51 [WHO Director-General's opening remarks at the dialogue on climate and health – 5 September 2022](#)
- 52 Future Dams, The World Commission on Dams: then and now November 2020. <https://www.futuredams.org/the-world-commission-on-dams-then-and-now/>

53 Dawn Report, Protests against Kalabagh dam plan continue, September 2018. <https://www.dawn.com/news/1433708> and Nadia Ahmad, Reassessing Climate Justice and Energy Security Between India and Pakistan: Curious Case of Kalabagh Dam. <https://vjel.vermontlaw.edu/reassessing-climate-justice-energy-security-india-pakistan-curious-case-kalabagh-dam-part-2>

54 Bruce Shoemaker, Dead in the Water, University of Wisconsin Press. <https://uwpress.wisc.edu/blog/?p=3791>

55 World Bank, Pertamina Geothermal Energy (PGE) prepares a globally unprecedented expansion of geothermal renewable energy with assistance from the World Bank and the Government of New Zealand, June 2012. <https://www.worldbank.org/en/news/press-release/2012/06/18/pertamina-geothermal-energy-prepares-a-globally-unprecedented-expansion-of-geothermal-renewable-energy>

56 BBC, Indonesia landslides leave several dead, 27 January 2013 <https://www.bbc.com/news/world-asia-21218836>

Jakarta Global, Death Toll From Pangalengan Landslide Hits Five, 7 May 2015 <https://www.upstreamonline.com/safety/fatal-incident-at-indonesian-geothermal-plant/2-1-1185978>

[Death Toll From Pangalengan Landslide Hits Five \(jakartaglobe.id\)](http://jakartaglobe.id)

World Rainforest Movement, Indonesia. The Gloomy Truth Behind Geothermal Energy: A misleading Narrative of “Clean Energy”, July 2019. <https://www.wrm.org.uy/bulletin-articles/indonesia-the-gloomy-truth-behind-geothermal-energy-a-misleading-narrative-of-clean-energy>

57 World Rainforest Movement, Indonesia. The Gloomy Truth Behind Geothermal Energy: A misleading Narrative of “Clean Energy”, July 2019. <https://www.wrm.org.uy/bulletin-articles/indonesia-the-gloomy-truth-behind-geothermal-energy-a-misleading-narrative-of-clean-energy>

58 Lighting Global, Kenya Off-Grid Solar Access Project for Underserved Counties. <https://www.lightingglobal.org/wp-content/uploads/2018/12/KOSAP-1-pager.pdf>

World Bank, Kenya: Off-grid Solar Access Project for Underserved Counties. <https://projects.worldbank.org/pt/projects-operations/project-detail/P160009>

Sun Conect, KOSAP kicks off clean cooking technologies testing in Samburu, May 2021. <https://sun-connect.org/kosap-kicks-off-clean-cooking-technologies-testing-in-samburu/>

Initiative for Climate Action Transparency, Kenya KOSAP SD assessment report. [https://climateactiontransparency.org/wp-content/uploads/2021/07/3D\\_Kenya-KOSAP-SD-assessment-report\\_Final.pdf](https://climateactiontransparency.org/wp-content/uploads/2021/07/3D_Kenya-KOSAP-SD-assessment-report_Final.pdf)

<https://documents1.worldbank.org/curated/en/212451501293669530/pdf/Kenya-off-grid-PAD-07072017.pdf>

Kenya Power, Kenya off-grid solar access project, March 2017. [https://www.rerec.co.ke/images/projects/K-OSAP/K-OSAP\\_Safeguard\\_Instruments/KOSAP-VMGF-revised\\_22-3-17.pdf](https://www.rerec.co.ke/images/projects/K-OSAP/K-OSAP_Safeguard_Instruments/KOSAP-VMGF-revised_22-3-17.pdf)

59 [policy\\_taxonomy\\_briefing\\_conference.pdf](#) (climatebonds.net)



Kraijenhoffstraat 137A  
1018 RG, Amsterdam  
The Netherlands