

# The Global Renewable Energy Company



WELCOMING ENERGY TRANSITION IN INDONESIA



A WORLD ELECTRIFIED BY  
RENEWABLE ENERGY



# About Mainstream



- > Develop, construct and operate renewable energy projects in APAC, Africa, LATAM and North America.
- > Unique and diversified technology platforms – solar PV, onshore wind, and offshore wind including incorporating storage systems with large-scale batteries.
- > Commercialising emerging technologies – green hydrogen and low-cost ammonia.
- > Track record in renewable asset project delivery globally.
- > Mainstream's in-house 'Global Development Standard' ensures delivery of renewable energy projects to the highest international standards and is aligned to benchmarks such as the IFC Sustainability Framework, the Equator Principles, and the World Bank HSE Guidelines.



# Our Vision, Mission and Values



## OUR VISION

Is of a world electrified by renewable energy.

## OUR MISSION

is to lead the global transition to renewable energy by delivering economically efficient, utility scale, renewable energy for customers globally.

## OUR VALUES

We share a common set of values across the globe and chief among them is our commitment to safety. It's the value we put first in our day-to-day work.

## INNOVATION



## SAFETY

## INTEGRITY

## SUSTAINABILITY



## TEAMWORK



## RESPECT

## ENTREPRENEURSHIP

# Embarking on a new phase of growth



- On May 11, 2021, Aker Horizons a planet-positive investment company, headquartered in Norway closed a transaction to acquire a 75% equity stake in Mainstream, valuing Mainstream at EUR 1 billion.
- In March 2022, Mainstream announced the investment of EUR €575 million by Mitsui & Co. representing an investment stake in Mainstream of 27.5% and valuing the company at EUR€2bn. Mitsui will take a long-term active role in the growth of Mainstream alongside Aker Horizons, which will own 54.4% following the transaction.
- Mainstream will continue to operate under its existing brand, with its current CEO and management teams.



*Kristian Røkke, Chief Executive Officer, Aker Horizons and Chairman of Mainstream is thrilled to partner with Mainstream 'as we accelerate our journey of what we call planet-positive investing'.*



*Mitsui COO Kazumasa Nakai said 'We are delighted to participate in Mainstream jointly with Aker Horizons to boost growth and expansion of development and construction/operation activities of Mainstream.'*



*Mainstream's Chief Executive Officer, Mary Quaney said 'We are delighted to welcome Mitsui as our new strategic partner alongside Aker Horizons. Together we are fully focused on expediting our ambitious growth plans and leveraging our collective expertise and resources to transform Mainstream into a global renewable energy major this decade.'*



# About Mainstream



## Global Leader

Development pipeline of Renewable Energy Assets  
– Onshore Wind, Offshore Wind And Solar

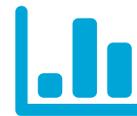
**~14.87 GW (net)**



## Competitive Auctions

Won competitive auctions in the US, UK, South Africa and Chile

**7+ GW**



## Development Experience

Global Development experience – bringing projects from development to Financial close-ready

**6.5+ GW**



## Finance Ability

Key relationships with international banks and lenders. Project Finance raised to date:

**€3 billion**



## Constantly Expanding

Actively expanding our networks and capabilities to tap global markets

**13 offices  
11 countries  
450 employees**

# 16.6 GW portfolio of projects



## DEVELOPMENT

> 14.87 GW Net Capacity

- > 9 GW early to late-stage wind and solar development projects – SA
- > 1.7 GW offshore wind and solar projects – APAC
- > 5.5 GW onshore wind and solar projects - LatAm

## CONSTRUCTION

> 1.28 GW Net Capacity

- > 1.28 GW projects in construction – LatAm

## OPERATIONAL

> 0.31 GW Net Capacity

- > Two projects reached commercial operation date in Q4, 2021; Alena (LatAm) and West Bakr (Egypt).

# MAINSTREAM RENEWABLES



## RENEWABLES IN G20 COUNTRIES



# 50+ Year G20 Energy History

- **Fossil Fuel Dependence 1965 -1999.**



At first, there was oil and coal.

Country (Energy Mix - 1965)	Oil	Coal	Other
Argentina	83%	3%	14%
Australia	45%	50%	5%
Brazil	66%	8%	26%
Canada	47%	13%	40%
China	8%	87%	5%
EU	47%	45%	8%
France	49%	37%	14%
Germany	34%	63%	3%
India	24%	67%	9%
Indonesia	86%	2%	12%

Country (Energy Mix - 1965)	Oil	Coal	Other
Italy	66%	11%	23%
Japan	56%	31%	13%
Mexico	61%	3%	36%
Russia	29%	50%	21%
Saudi Arabia	98%	0%	2%
South Africa	19%	81%	0%
South Korea	20%	77%	3%
Turkey	46%	47%	7%
UK	38%	59%	3%
U.S.	45%	22%	33%

From the 1960s to the 1980s, energy consumption in the G20 countries relied almost entirely on these two fossil fuels. They were the cheapest and most efficient sources of energy for most, though some countries also used a lot of natural gas, like the United States, Mexico, and Russia

But the use of oil for energy started to decrease, beginning most notably in the 1980s. Rocketing oil prices forced many utilities to turn to coal and natural gas (which were becoming cheaper), while others in countries like France, Japan, and the U.S. embraced the rise of nuclear power.

This is most notable in countries with high historic oil consumption, like Argentina and **Indonesia**. In 1965, these three countries relied on oil for more than 83% of energy, but by 1999, oil made up just 55% of Indonesia's energy mix and 36% of Argentina's.

Even Saudi Arabia, the world's largest oil exporter, began to utilize oil less. By 1999, oil was used for 65% of energy in the country, down from a 1965 high of 97%.

# 50+ Year G20 Energy History

## G20's Energy Mix: Gas and Renewables Climb (2000–2019)



Climate change was already on everyone's radar. The UN Framework Convention on Climate Change was signed in 1992, and the resulting Kyoto Protocol aimed at reducing greenhouse gas emissions was signed in 1997.

Country (Energy Mix - 2019)	Natural Gas	Nuclear	Hydroelectric	Renewables	Other
Argentina	49%	2%	10%	4%	35%
Australia	30%	0%	2%	7%	61%
Brazil	10%	1%	29%	16%	44%
Canada	31%	6%	24%	4%	35%
China	8%	2%	8%	5%	77%
EU	22%	11%	4%	10%	53%
France	16%	37%	5%	6%	36%
Germany	24%	5%	1%	16%	54%
India	6%	1%	4%	4%	85%
Indonesia	18%	0%	2%	4%	76%

Country (Energy Mix - 2019)	Natural Gas	Nuclear	Hydroelectric	Renewables	Other
Italy	40%	0%	6%	10%	44%
Japan	21%	3%	4%	6%	66%
Mexico	42%	1%	3%	5%	49%
Russia	54%	6%	6%	0%	34%
Saudi Arabia	37%	0%	0%	0%	63%
South Africa	3%	2%	0%	2%	93%
South Korea	16%	11%	0%	2%	71%
Turkey	24%	0%	12%	6%	58%
UK	36%	6%	1%	14%	43%
U.S.	32%	8%	3%	6%	51%

But when the Kyoto Protocol went into effect in 2005, countries had very different options available to them. Some started to lean more heavily on hydroelectricity, though countries that already utilized them like Canada and Brazil had to look elsewhere. Others turned to nuclear power, but the 2011 Fukushima nuclear disaster in Japan turned many away.

This is the period of time that renewables started to pick up steam, primarily in the form of wind power at first. By 2019, the G20 members that relied on renewables the most were Brazil (16%), Germany (16%), and the UK (14%).

# Renewables offer G20 countries the best opportunity to achieve climate goals

The G20 group of countries, whose members represent nearly four-fifths of global energy consumption and a similar share of installed renewable power generation capacity, are well positioned to lead the global energy transformation. IRENA analysis estimates that G20 countries hold 75% of the global renewable's deployment potential by 2030.

This imperative has been reflected prominently on the G20 agenda in the past few years, and a number of actions have been identified to accelerate deployment of renewables in G20 countries.

Some of the key measures that are advancing the energy transformation include:

- Large-scale power generation installations are increasingly being supported by auctions with record breaking (low) prices and innovative policy design.
- Feed-in-tariffs have been successful in driving the solar PV and onshore wind sector in countries such as China, Germany and Japan.
- Fiscal and financial incentives have played a significant role in driving large-scale renewable deployment in several G20 countries.
- Biofuel mandates (especially in the EU-27) and fiscal incentives to advance electric vehicle use in the G20 are supporting an expansion of renewables in the transportation sector.

# Current Climate Conditions



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# G20 Resilient cities:



- Just over half of the world's population (4.8 billion people in 2018) now lives in cities. By 2050, this number is expected to nearly double. Cities, engines of the economy and migration magnets, already account for 65% of global energy use and 70% of human-made carbon emissions. Urban-level energy planning and decision-making are critical to the success of the overall energy transformation.
- The global energy transition must be accelerated in order to decarbonize the energy sector by the middle of this century and meet the climate objectives of the Paris Agreement. To make the transition a reality, the deployment of renewable energy technologies combined with energy efficiency improvement and enhanced electrification needs to be scaled up through innovative policies, strategic energy planning and modernized energy infrastructure for every end-use sector, at national but also local level.

# G20 Collateral Event Resilient cities:



We need to limit  
global warming to

**1.5°C**

Least climate  
change worsen



**100 M**

People in South  
East Asia lack  
access to safe &  
clean water



**480 M**

Internet users in  
South East Asia  
impact energy  
footprint



**2.5 B**

More people by 2050,  
Mostly in Asia and Africa



## A. The Current State of the Climate

- A.1** It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.
- A.2** The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years.
- A.3** Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since the Fifth Assessment Report (AR5).
- A.4** Improved knowledge of climate processes, paleoclimate evidence and the response of the climate system to increasing radiative forcing gives a best estimate of equilibrium climate sensitivity of 3°C, with a narrower range compared to AR5.

# IPCC Sixth Assessment Report 2021

## B. Possible Climate Futures

- B.1** Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in carbon dioxide (CO<sub>2</sub>) and other greenhouse gas emissions occur in the coming decades.
- B.2** Many changes in the climate system become larger in direct relation to increasing global warming. They include increases in the frequency and intensity of hot extremes, marine heatwaves, and heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover and permafrost.
- B.3** Continued global warming is projected to further intensify the global water cycle, including its variability, global monsoon precipitation and the severity of wet and dry events.
- B.4** Under scenarios with increasing CO<sub>2</sub> emissions, the ocean and land carbon sinks are projected to be less effective at slowing the accumulation of CO<sub>2</sub> in the atmosphere.
- B.5** Many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level.



Imagine a Ice Free Artic and how devastating that is,

but based on 6<sup>th</sup> annual report from (2021) [IPCC](#) for [United Nations](#) this is one of the likely scenario that the artic will be ice free once in September sometime before 2050 in all their scenarios.

To Summarize one of the most awaited climate report in 2021 in one sentence

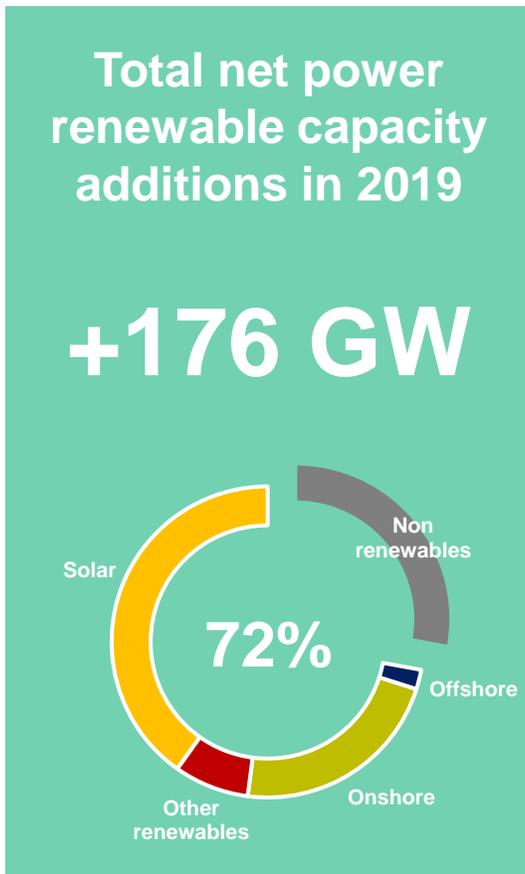
**"It Is a Code Red for Humanity".**

# Indonesia RE & Climate Change



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> In 2019, 72% of world capacity additions is renewable



Onshore wind

**+54 GW**

+10% yoy

China +26 GW  
Europe +11 GW  
USA +9 GW



Offshore wind

**+5 GW**

+20% yoy

Europe +3.2 GW  
China +1.3 GW



Solar\*

**+98 GW**

+20% yoy

China +30 GW  
Europe +19 GW  
USA +9 GW  
India +8 GW



Other

**+19 GW**

+1% yoy

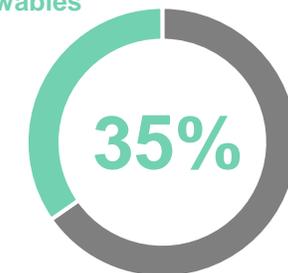
Hydro +12 GW  
Bioenergy +6 GW

Hydro, bioenergy, geothermal...

World power renewable installed capacity end of 2019

**2,537 GW**

Renewables

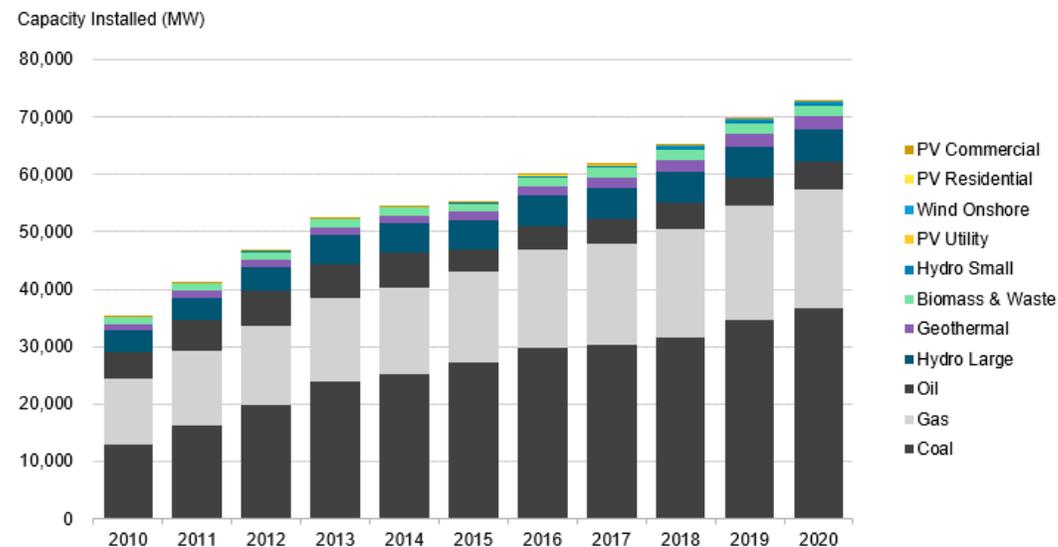
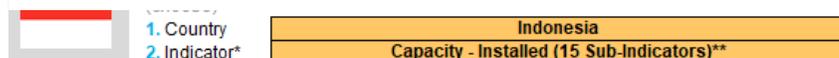


# In Indonesia The transition is taking place gradually



## LCOEs by financing year (\$/MWh, 2020 real)

Region	Technology	Scenario	2021	2022	2023	2024	2025
Indonesia	Fixed-axis PV	Low	65.2	50.7	43.8	39.0	35.5
Indonesia	Onshore wind	Low	89.8	81.8	74.8	70.0	66.3
Indonesia	Coal	Low	57.2	56.8	56.8	56.3	56.5
Indonesia	CCGT	Low	80.0	78.8	78.5	78.0	77.8



Source: BloombergNEF

At current pace, Indonesia will need to accelerate to meet its 2025 renewables energy mix target of 23%

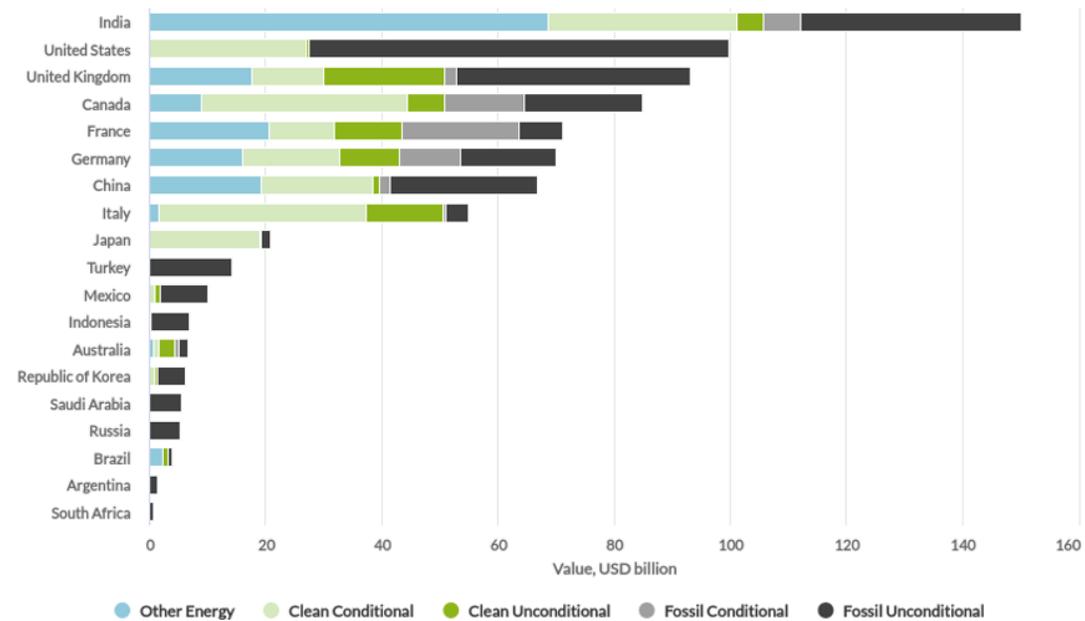
Faster-to-develop type of renewables (wind and solar) penetration is still rife with potential;

# G20 Public Money Commitment

- Indonesia Commits USD 6.54 Billion for Fossil fuel subsidy compared to USD 0.24 Billion committed to clean energy conditional subsidy (3.6% from total subsidy)

energypolicytracker.org

Public money commitments to fossil fuels, clean and other energy in G20 countries recovery packages since January 2020, USD billion, as of Apr 13 2022



Source: energypolicytracker.org, Apr 13 2022

# TRIPLE BOTTOM LINE



*“We've all been carried away by a model that does not take social and environmental performance into account”*

*Isabelle Kocher at the Forum of the Americas November 2019*

*The Triple Bottom Line (People, Planet, Profit) framework (or the TBL or 3BL) devised by John Elkington in 1994 has never been more relevant to be implemented*

*3P should be Indonesia interpretation of the three mainstays of sustainable development: environmental, social and financial considerations. its social and ecological performance are just as important as its traditional financial performance. and we need to placed this belief at the core of G20 recover together recover stronger strategy.*

# Indonesia NDC Target



Indonesia Must Quadruple its Annual Renewable Investment Target to Reach its Climate Objectives  
To meet its 23% renewable energy target by 2025, the government can use resources from its state budget and public funding institutions to attract private investment in renewable energy.

Indonesia should quadruple its annual investment target for new and renewable energy to over USD 8 billion by 2025, The country needs to take concrete measures to attract private investments in low-carbon energy and meet its net-zero climate goals, the report finds.

The country spent USD 1.51\* billion on renewable energy in 2021, just 20% of what it needs to invest each year from 2021–2025 to reach 23% of new and renewable energy in the energy mix by 2025

Indonesia must act now to incentivize private investments and reverse the current trend, especially because supporting renewable energy development can significantly contribute to post-COVID-19 recovery and green transition

Indonesia should take advantage of its G20 Presidency to lead by example and mark a real shift towards clean energy that will benefit the local economy and help the country achieve its net-zero goals



# Closing Remarks



# Closing Remarks



history shows that simply adding generation capacity is not enough to facilitate an energy transition. Coal required mines, canals, and railroads; oil required wells, pipelines, and refineries; electricity required generators and an intricate grid.

Similarly, a complete shift to low-carbon sources requires massive investments in natural resources, infrastructure, and grid storage, along with changes in our energy consumption habits.

Indonesia is the largest energy consumer in the Association of Southeast Asian Nations (ASEAN), accounting for nearly 40 per cent of ASEAN's total energy use. With significant solar, geothermal, wind and hydropower resource potential as well as strong bioenergy industry, Indonesia is well placed to thrive in a low-carbon energy system. The country aims to achieve a 23 per cent share of renewables in total energy by 2025 and plans for no new coal plants after 2030 unless those have been contracted or under construction.

Yet, there is no doubt this transition is hard, and it presents policy makers with complex choices that will shape both immediate and longer-term outcomes for people. Indonesia is a key player in achieving 1.5°C and we should work closely together between all stakeholders to identify a national roadmap that delivers growth and climate safety.

# Closing Remarks



The era of half measures and hollow promises must end, We Need to be clear in Our actions, and we need to come with with bold, time-bound, front-loaded plans to reach net zero.

Our options are simple – make the safe choices that lead us to uncertainty and this climate crisis, or the bold choices that offer universally positive outcomes. The world is looking at Indonesia for this actions.

There is only 8 years left on our carbon budget to hold the raising global warming below 1.5 Celsius Degree.

**what we need to do now is :**

**Demand Green Energy & Energy Transition,  
Demand Climate Crisis Mitigation  
Demand it from your Politicians,  
Demand it from the companies you buy from,  
Demand it from your Local Energy Suppliers,  
Demand it for your neighbours,  
and most importantly Demand it for Yourself.**