

# Malaysia speaker: Mr. Austin Lim

## Working Experience

- Green Building Consultant, IEN Consultants Sdn Bhd
- Certified GreenRE Manager
- Area of Interest: Solar photovoltaic & thermal design, passive building design, building thermal transfer, etc.
- LEED (US), GBI (Malaysia), GreenRE (Malaysia) & Green Mark (Singapore)

## Education background

- University Malaya, Master's degree (Renewable Energy)
- University Malaysia Pahang, Bachelor's degree (Energy & Environmental Engineering Technology)

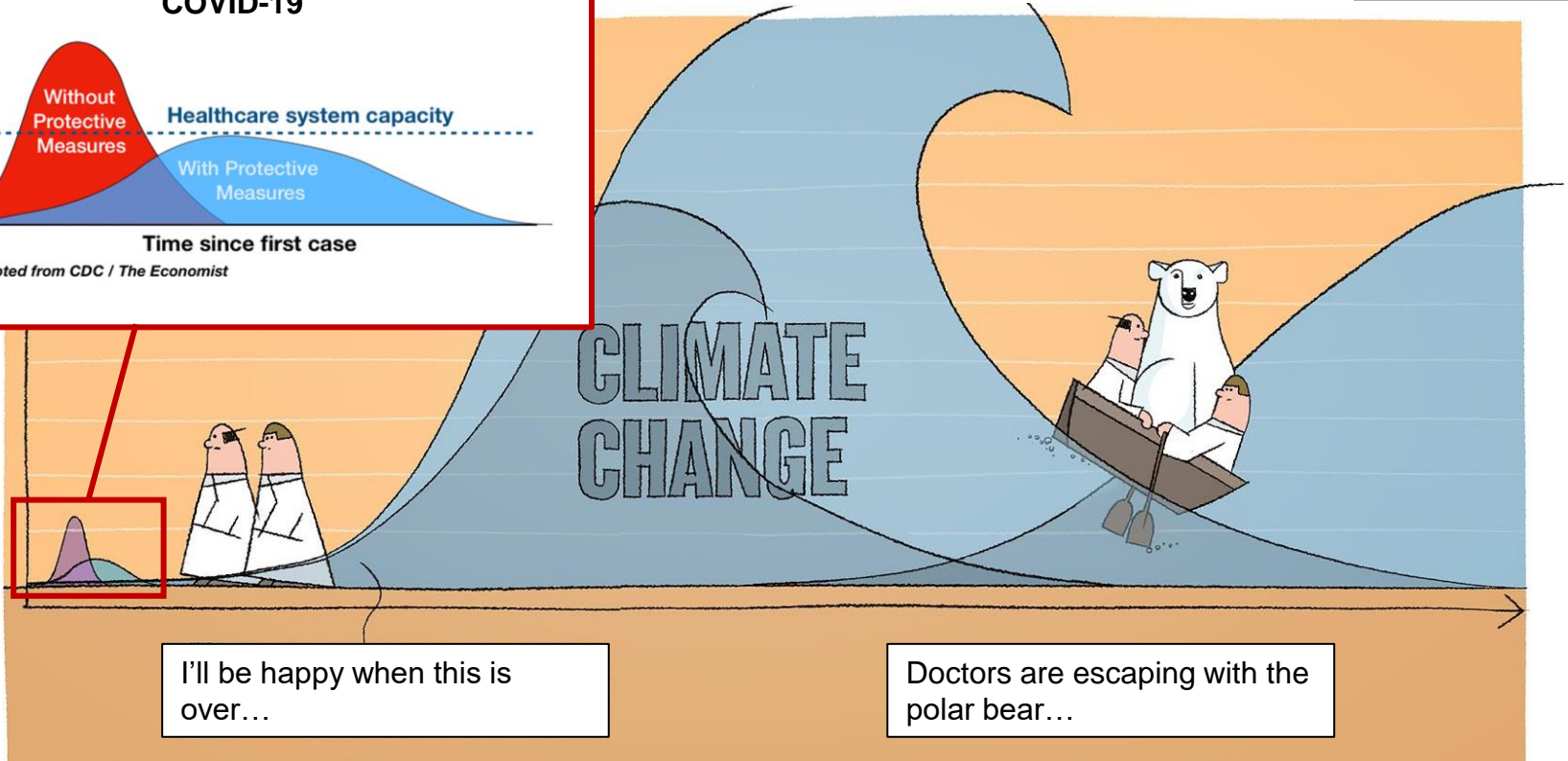
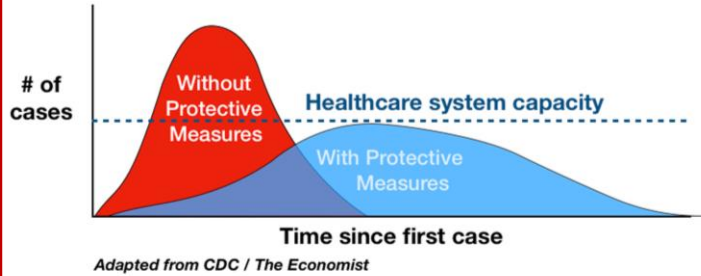


# Transition to Renewable Energy

AUSTIN LIM

## WHAT WILL HAPPEN NEXT?

### COVID-19



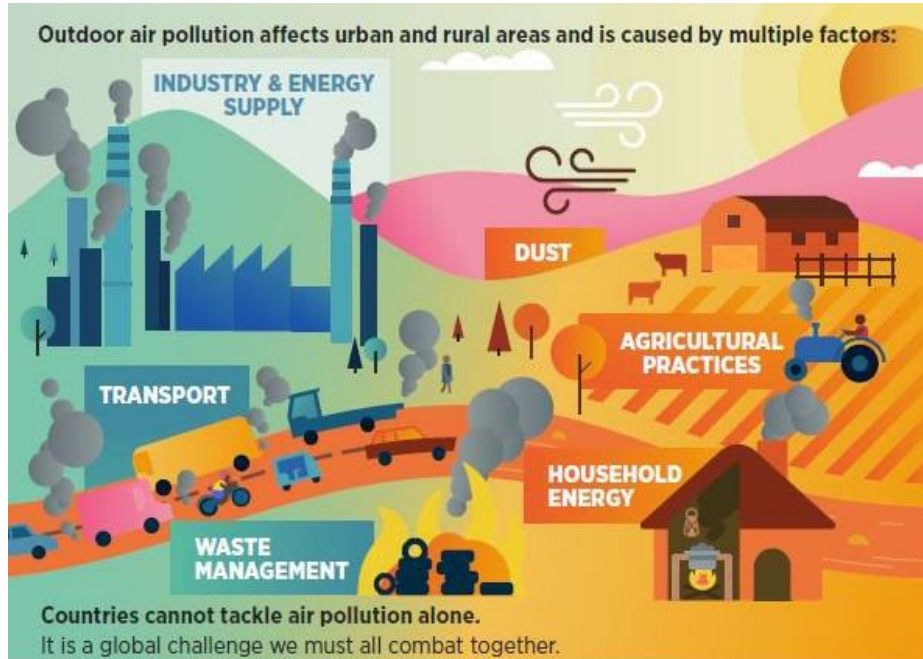
Are we able to handle the curve?

How about this?

Are you ready for bigger trouble?

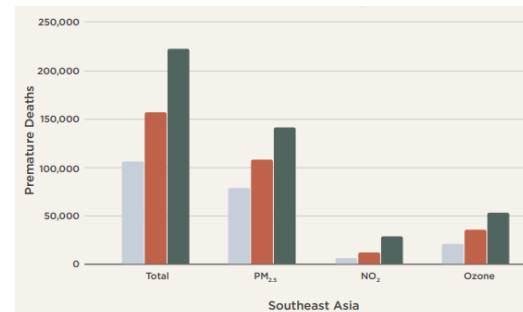
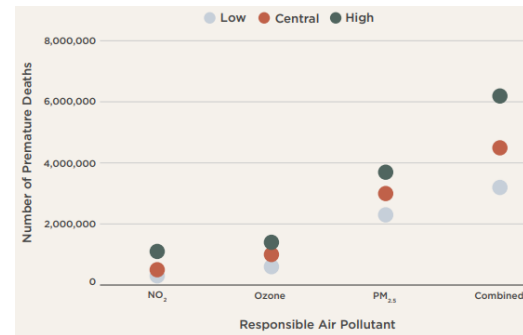
## According to researchers of Harvard University,

- Air pollution linked to COVID-19 mortality
- 1  $\mu\text{g}/\text{m}^3$  increase in  $\text{PM}_{2.5}$  is associated with an 8% increase in COVID-19 death rates



Source: World Health Organization (WHO)

## Estimated Number of Premature Deaths in 2018

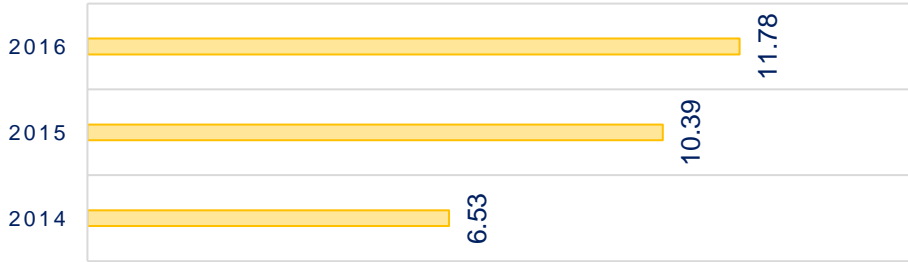


Estimated **4 million** premature deaths each year contributed to cardiovascular disease, respiratory disease & lung cancer through exposure to  $\text{PM}_{2.5}$ .

(Source: Greenpeace)

# TRUE COST OF FOSSIL FUEL

## MALAYSIA FOSSIL FUEL SUBSIDIES IN BILLION U.S. DOLLARS



Source: International Energy Agency

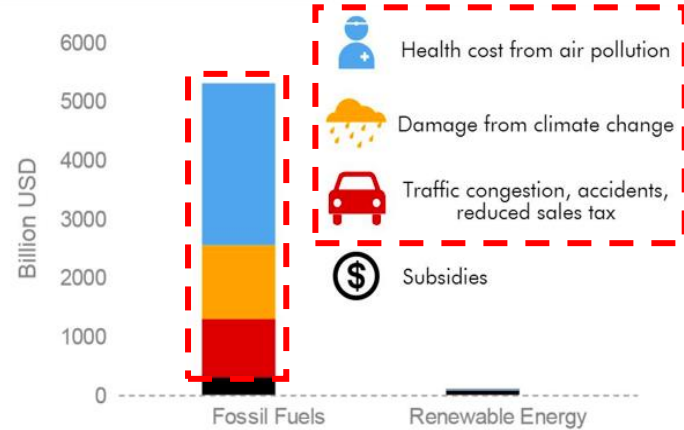
The real price: Cost of **damage to health & environment** is not reflected in current price of fossil fuel.

An IMF study from 2013 showed that annual cost to Malaysian society from **domestic fossil fuel use is RM 88 billion**, which makes the **RM 800 million cost in severe haze** years look miniscule in comparison.

(Source: IEN's article in The Star Malaysia)

## THE TRUE COST

USD333 billion globally in subsidies annually translates to USD5.3 trillion in total cost, after factoring in externalities.



True Cost of Fossil Fuels are  
**USD 5.3 TRILLION per year**  
(6.5% of GLOBAL GDP)

Source: International Monetary Fund (IMF)

**NO ONE IS PAYING**



## LEVELING THE PLAYING FIELD

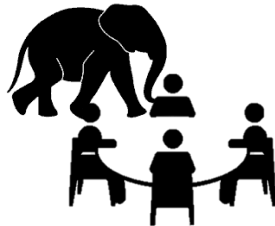
### Energy pricing



"I have no comment on it."

"Let's move on to next topic."

"I think we have an **elephant in the room**."



### Fossil fuels are **subsidized & underpriced**



LEVEL PLAYING FIELD?

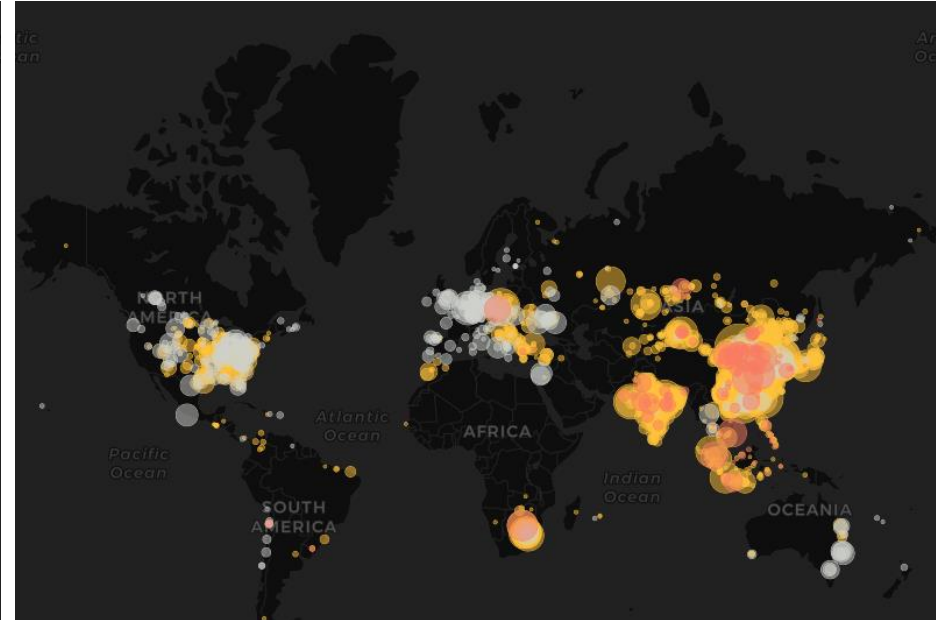
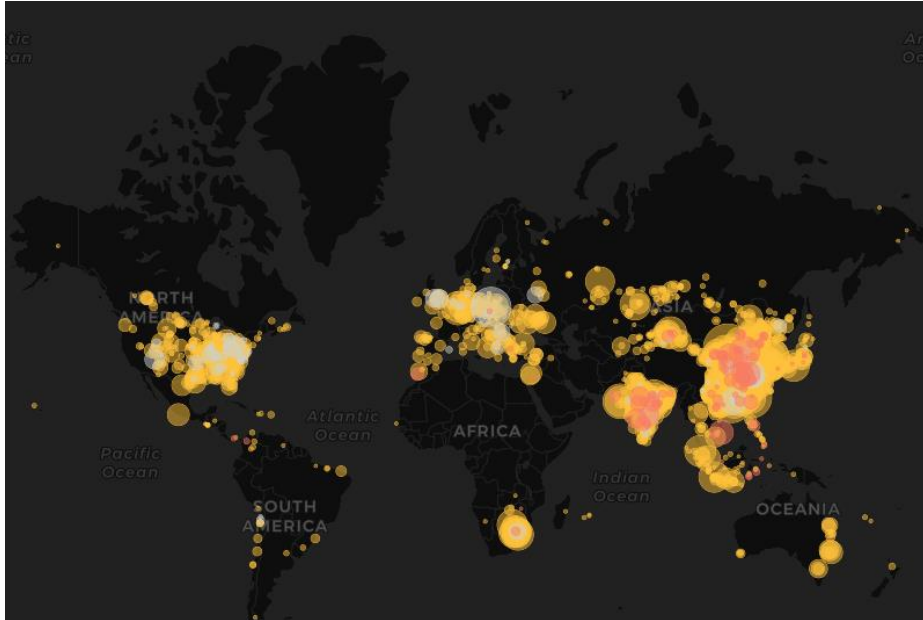


# GLOBAL COAL POWER PLANT STATUS

2018

● Closing ● Operating ● New ● Under construction

2019



Source: Carbon Brief

Belgium quits coal power with Langerlo plant closure

**Austria's last coal power plant shuts down**

**Sweden Shuts Down Its Last Coal Plant Two Years Early**

Portugal ends coal burning two years ahead of schedule

U.S. coal-fired power plants closing fast despite Trump's pledge of support for industry

# ENERGY MAJORS' TRANSITION STRATEGIES



## MW of Total Renewable Energy



## MW of Wind Energy



## MW of Solar Energy

### Total

Large focus on solar, with interests in batteries, wind, retail

**Targets:**  
Goal of 25 GW of renewables installed by 2025.  
Goal to reduce Scope 1 and 2 GHG emissions from 46 million mt in 2015 to less than 40 million tons of carbon dioxide equivalent by 2025 across oil and gas operations.

**Power Plays 2020 ranking: 1**  
**Ambition ranking: 1**

**3000**  
MW total renewable capacity installed\*



No breakdown of wind & solar



No breakdown of wind & solar

Downstream energy retail CCUS Sustainable transport Battery storage

### Shell

Inroads into retail power and sustainable transport

**Targets:**  
Aims to cut net CO2 footprint by 20% by 2035 and 50% by 2050.  
Capex guidance for 2021-2025 is average of \$2 billion-\$3 billion/year on power. No specific renewables target.

**Power Plays 2020 ranking: 2**  
**Ambition ranking: 4**

**704**  
MW total renewable capacity installed\*



MW wind installed capacity

**414**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### BP

Existing focus on solar, wind and EV charging, ambitious emissions targets from new CEO

**Targets:**  
Net-zero CO2 emissions by 2050, including Scope 3.  
10 GW globally by 2023 for Lightsources BP.

**Power Plays 2020 ranking: 3**  
**Ambition ranking: 2**

**2000**  
MW total renewable capacity installed\*



MW wind installed capacity

**1000**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### Repsol

Betting big on gas as transition fuel

**Targets:**  
Net-zero emissions by 2050, including scope 3. Interim target of 40% reduction by 2040. Low carbon electricity generation capacity target of 7.5 GW by 2025. Includes existing CCGT and co-generation, but all new capacity will be renewable.

**Power Plays 2020 ranking: 4**  
**Ambition ranking: 6**

**698.6**  
MW total renewable capacity installed\*



MW wind installed capacity

**0**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### Eni

Large biofuels producer, with ambitions in solar and wind

**Targets:**  
80% cut in net GHG emissions by 2050.  
Potential installed capacity of 1.6 GW by 2022 and 5 GW in 2025, with ambition of 10 GW by 2030.

**Power Plays 2020 ranking: 5**  
**Ambition ranking: 5**

**139**  
MW total renewable capacity installed\*



MW wind installed capacity

**139**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### Equinor

Aims to become global offshore wind major

**Targets:**  
"Near 0" GHG emissions from operations by 2050 (40% reduction by 2030, 70% by 2040).  
Aims for 12-16 GW renewables installed by 2035.

**Power Plays 2020 ranking: 6**  
**Ambition ranking: 3**

**500**  
MW total renewable capacity installed\*



MW wind installed capacity

**65**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### Chevron

Leveraging downstream networks for low-carbon liquid fuels

**Targets:**  
Aims to cut net GHG emission intensity in upstream oil business by 5%-10% and upstream gas by 2%-5% from 2016-2023.  
Hasn't disclosed specific targets for renewables investments.

**Power Plays 2020 ranking: 7**  
**Ambition ranking: 7**

**65.5**  
MW total renewable capacity installed\*



MW wind installed capacity

**0**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

### ExxonMobil

Focus on CCS and R&D on low-carbon technologies

**Targets:**  
No CO2 reduction or renewables targets.  
Reduce corporate-wide methane emissions by 15% by 2020, compared with 2016. Reduce flaring by 25% by 2020 compared with 2016.

**Power Plays 2020 ranking: 8**  
**Ambition ranking: 8**

**0**  
MW total renewable capacity installed\*



MW wind installed capacity

**0**  
MW solar installed capacity

Downstream energy retail CCUS Sustainable transport Battery storage

## Power Plays Ranking

- Existing footprint in renewable power generation
- Downstream energy retail
- Carbon capture, utilization & storage (CCUS)
- Sustainable transport
- Battery storage

## Ambition Ranking

- Targets for scale of renewable power capacity
- Speed of further development
- CO<sub>2</sub> emissions target

Large footprint Moderate footprint Minimal or no footprint

Source: S&P Global Platts Power Plays Database

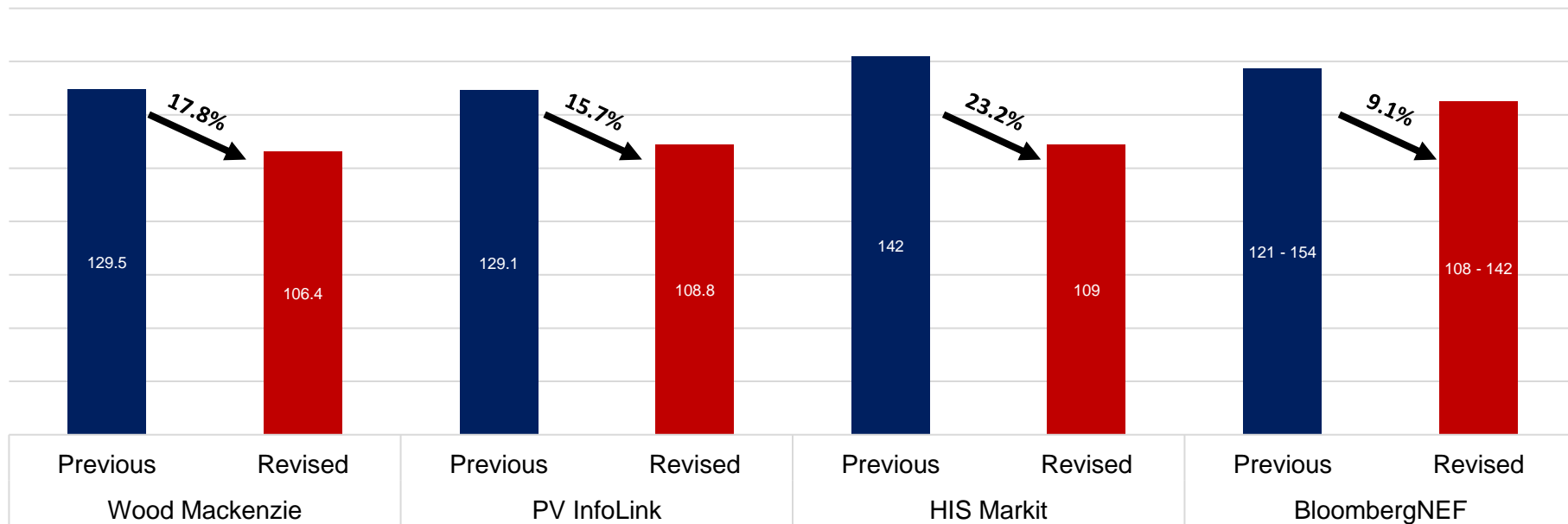
## IMPACT OF COVID-19 ON RENEWABLE ENERGY GROWTH

- Project delays & cancellations
- Cutback in capital spending
- Complete or partial lockdowns - trigger supply chain disruption & commissioning works
- Restrictions on business activities, travel & border – Reduce energy demand in transport & industry

Country	Policy change	Impact year
Austria	Extension of the construction period for wind farms by 6 months	2020-2021
Denmark	3-5-month extension of commissioning deadlines for household wind turbines; 2-month extension for subsidy applications for biogas projects	2020
France	Extension of commissioning deadlines by 2-6 months	2020-2021
Germany	Federal network agency announced flexibility in project commissioning for previously auctioned projects	2020-2021
Greece	6-month extension for projects due to come online in mid-2020	2020-2021
India	30-day extension of commissioning deadlines for renewable projects after the lockdown	2020-2021
United Kingdom	6-month extension of the FIT completion deadline for community solar projects	2020
United States	Extension of PTC/ITC safe harbour provision proposal	2020-2021

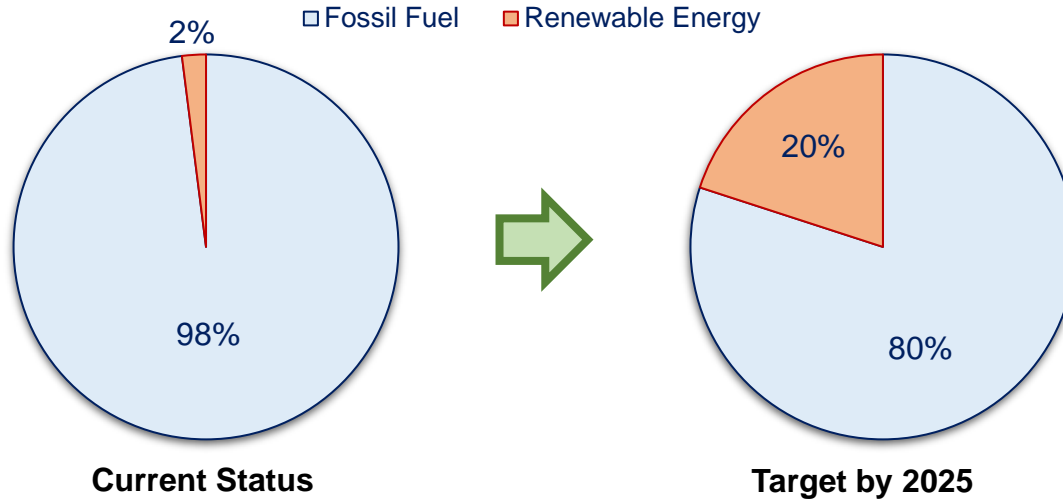
Source: International Energy Agency

## Latest Solar Market Estimates of Leading Analyst (GW)



Source: Taiyang News

## CAPACITY MIX TARGET



### Think Deeply, Today Onwards

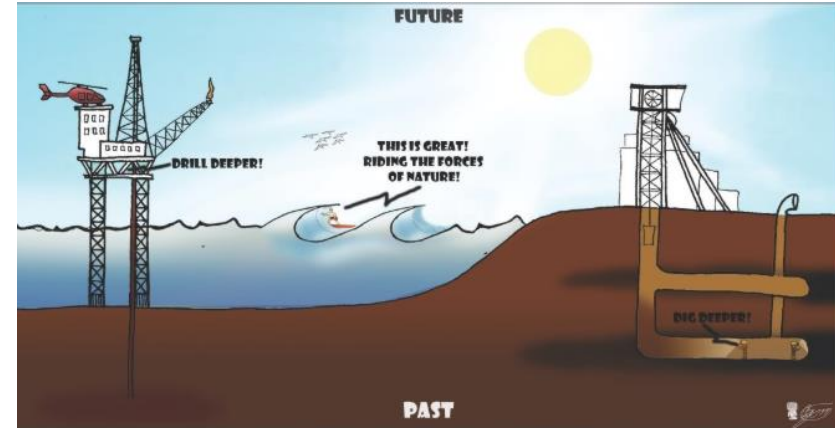
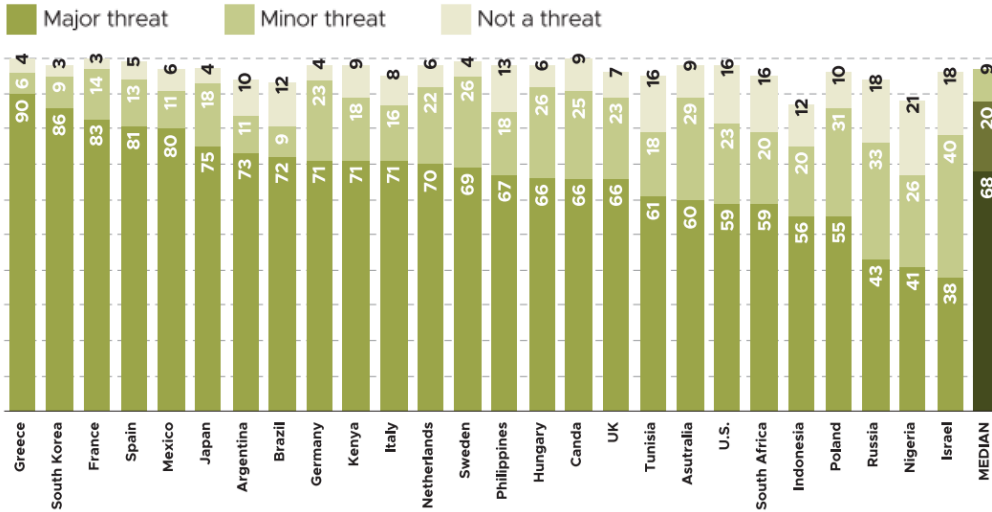
- Stop Fossil Fuel Subsidy programme?
- Less road congestion?
- More developed public transit?
- Reduce carbon emissions?
- More fund for economic stimulus package & RE growth?
- Improve rural electrification?



## GREEN WAVE IS COMING

In most surveyed countries, majorities see climate change as a major threat

Global climate changes is a \_\_\_\_\_ to our country



The energy solutions of tomorrow are no longer found below the ground. Time to utilize renewable energy like wind and sun – and to ride the Green Wave!

Source: IEN's article in Green Plus Magazine

Climate change is an "**existential threat**" to humanity (António Guterres, UN Secretary-General, Viennea, 2018)

The climate crisis is our "**third world war**" and needs a bold response because we **cannot afford not to act**, as our **civilization is at stake**" (Joseph Stiglitz, Chief Economist of the World Bank, 2019)

**Thank you.**

**Questions?**

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