



**Myanmar: A Strategic Nexus for  
Regional Grid Interconnection and**

**High Renewable Energy Potential**

Hang Dal  
Head of Climate and Energy  
WWF Myanmar

# CURRENT STATUS OF POWER GENERATION IN MYANMAR

- Only 50.9% of Myanmar people access electricity and target to meet 100% in year 2030
- Private sector investment and role of Independent Power Producer is essential to support the government plan of 100% energy access by 2030.
- High resources of renewable energy especially solar and wind has the potential to meet the demand in a shorter time
- 192 MW Solar (3%) of the power generation mix
- Neighbouring to Thailand Laos makes Myanmar a good position in regional grid interconnection

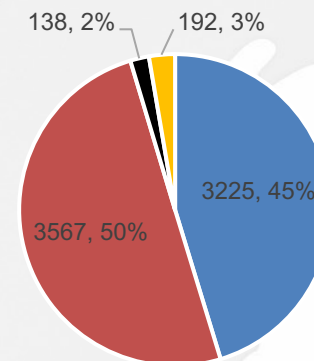


Figure 1: Power generation mix of Myanmar  
Source: MOEE

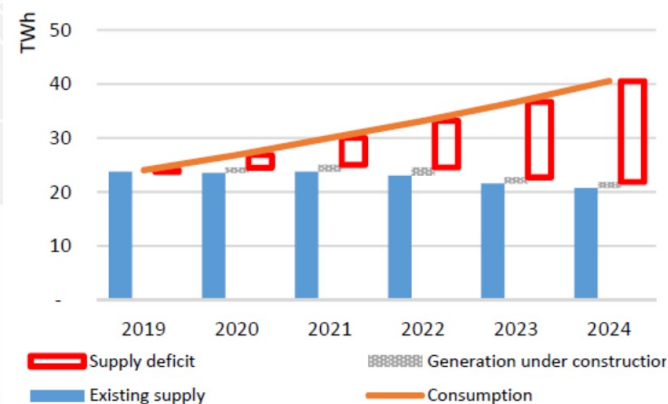


Figure 2: Forecasted supply-demand gap  
Source: World Bank (2023)

# RENEWABLE ENERGY RESOURCES (WIND)

## Wind resource potential and challenges

- Medium wind speed (4~6 m/s average) but new turbine technology up to 150m hub height are available
- Potential sites are far from substations and need to build long transmission lines
- Transportation of turbine components is big issue especially for low wind speed turbine (blade length is about 70-75m)
- Enforcement required for substation, road, bridges and jetty

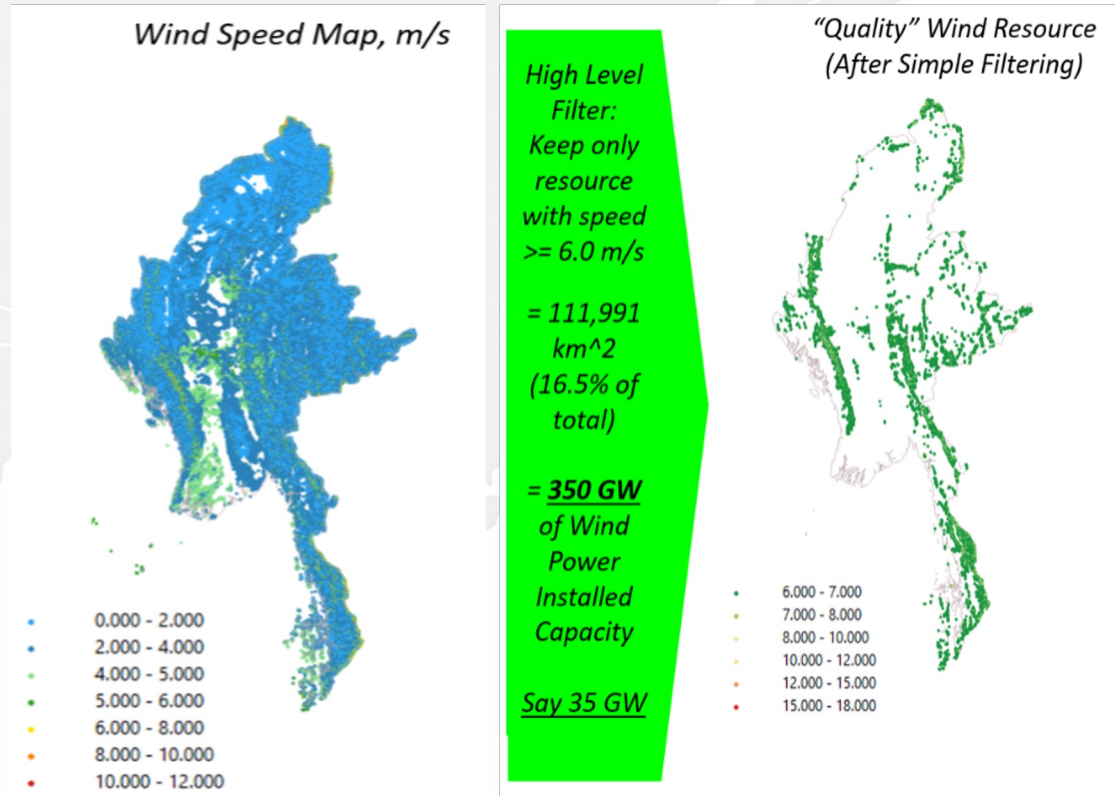


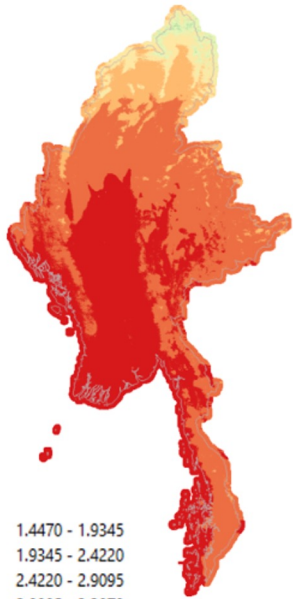
Figure 4: Wind resource in Myanmar  
Source: IES Analysis

# RENEWABLE ENERGY RESOURCES (SOLAR)

## Solar resource potential and challenges

- Average solar irradiative levels range from 4-5.5 kWh/m<sup>2</sup>/day
- Land availability and land cost is big issue
- Commercially viability is key issue for both wind and solar energy

Global Horizontal Irradiation Map  
GHI, KWh/m<sup>2</sup>



- 1.4470 - 1.9345
- 1.9345 - 2.4220
- 2.4220 - 2.9095
- 2.9095 - 3.3970
- 3.3970 - 3.8845
- 3.8845 - 4.3720
- 4.3720 - 4.8595
- 4.8595 - 5.3470

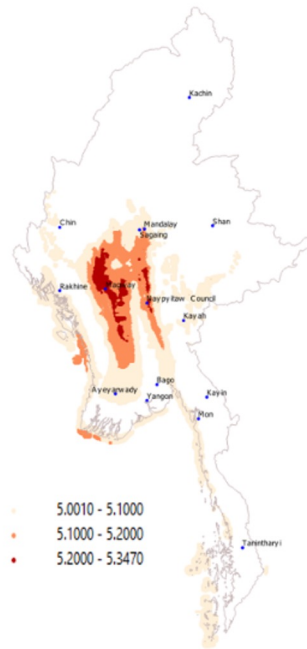
High Level Filter:  
Keep only resource with GHI  $\geq 5.0$  kWh/m<sup>2</sup>

= 120,307 km<sup>2</sup> area (18% of total)

= 400 GW of Solar Power Installed Capacity

Say 40 GW

"Quality" Solar Resource (After Simple Filtering)



- 5.0010 - 5.1000
- 5.1000 - 5.2000
- 5.2000 - 5.3470

SOLAR RESOURCE MAP

GLOBAL HORIZONTAL IRRADIATION  
MYANMAR

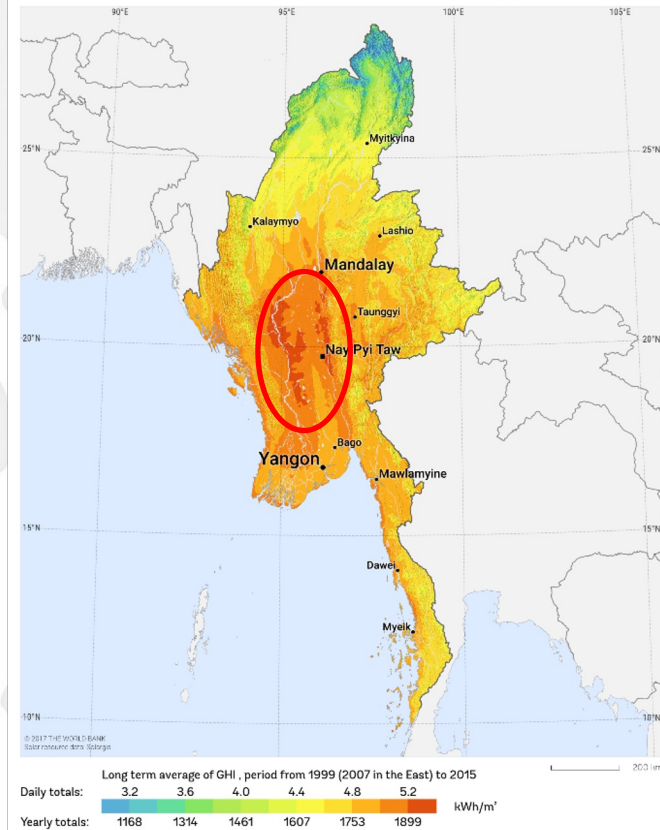


Figure 5: SOLAR resource in Myanmar  
Source: IES Analysis

## CURRENT STATUS OF SOLAR PV MARKET (UTILITY SCALE) IN MYANMAR

The current contribution of renewable energy (solar energy) in energy mix of Myanmar is 3 percent (190.28 MW) that is mainly utility-scale power plants. No wind power plant is implemented till today.

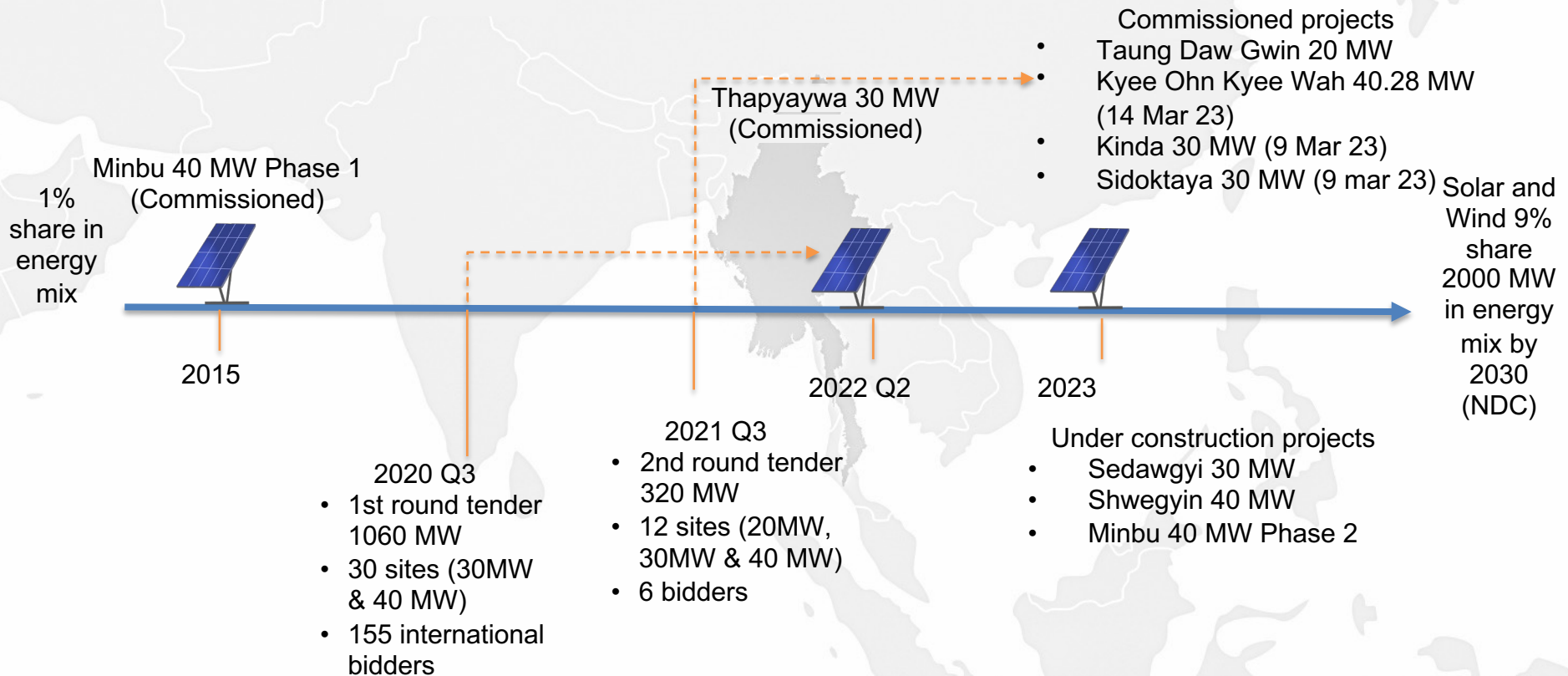


Figure 3: Solar Energy development in Myanmar  
Source: MOEE (2023), NDC (2019)

# RENEWABLE ENERGY CAPACITY OUTLOOK

## Base scenario (BASE)

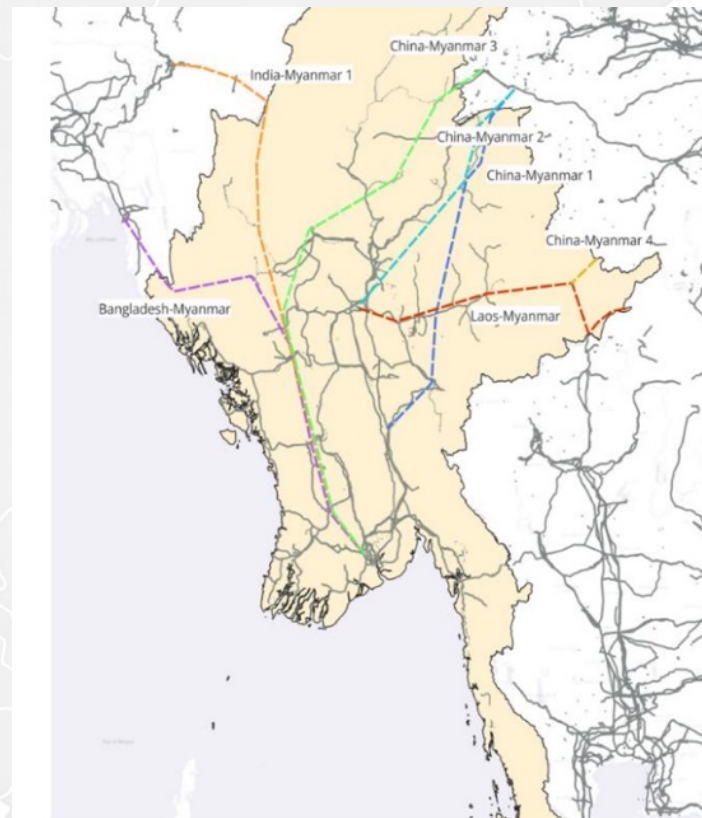
- Based on current NDC (December 2020 draft) baseline, period to 2050 is extrapolated from the NC 2030 targets.
- Propose for no more coal developments after 2030, with any Internal Combustion Engines (ICE) and Combined Cycle Gas Turbines (CCGT) older than 30 years lifetime on domestic gas to be replaced by LNG over time.

## Increased Renewable Scenario (IRS)

- Increased development of Myanmar's RE potential.
- Restrained development of hydro (to what is committed).

## Advanced Renewable Scenario (ARS):

- Takes a more ambitious view on RE adoption with a 100% generation target by 2050.
- Considers new emerging technologies (and includes demand side initiatives).



# RENEWABLE ENERGY CAPACITY OUTLOOK

**Capacity outlook in 2050:** There is no coal in IRS and ARS, it having been replaced with other baseload generation technologies. The ARS leverages 23GW of hydrogen generation from 2030 and 4GW battery energy storage which avoids the need to build gas generation. The IRS relies on less hydrogen capacity but requires 8GW of gas capacity by 2050 and 8GW of storage capacity.

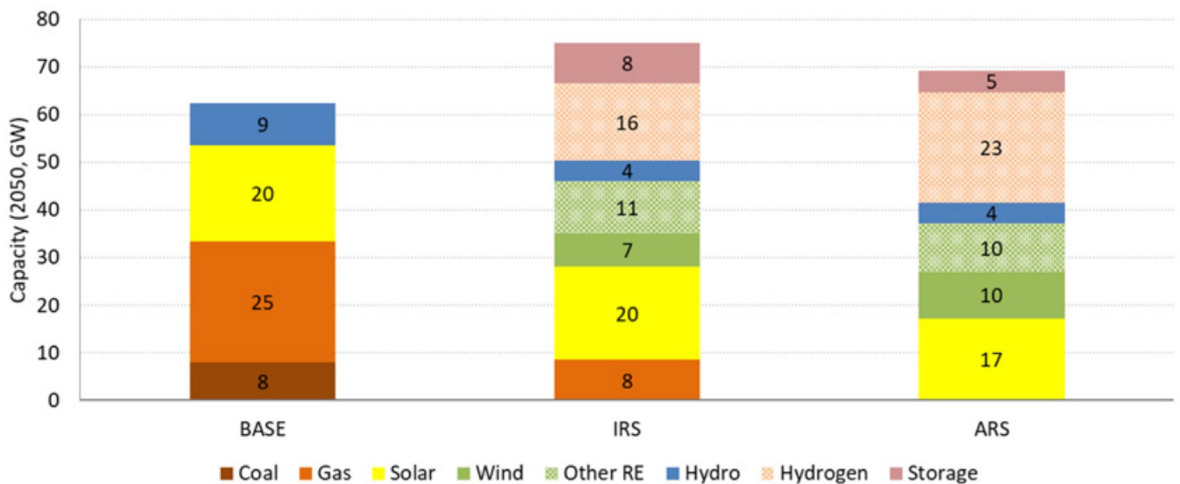
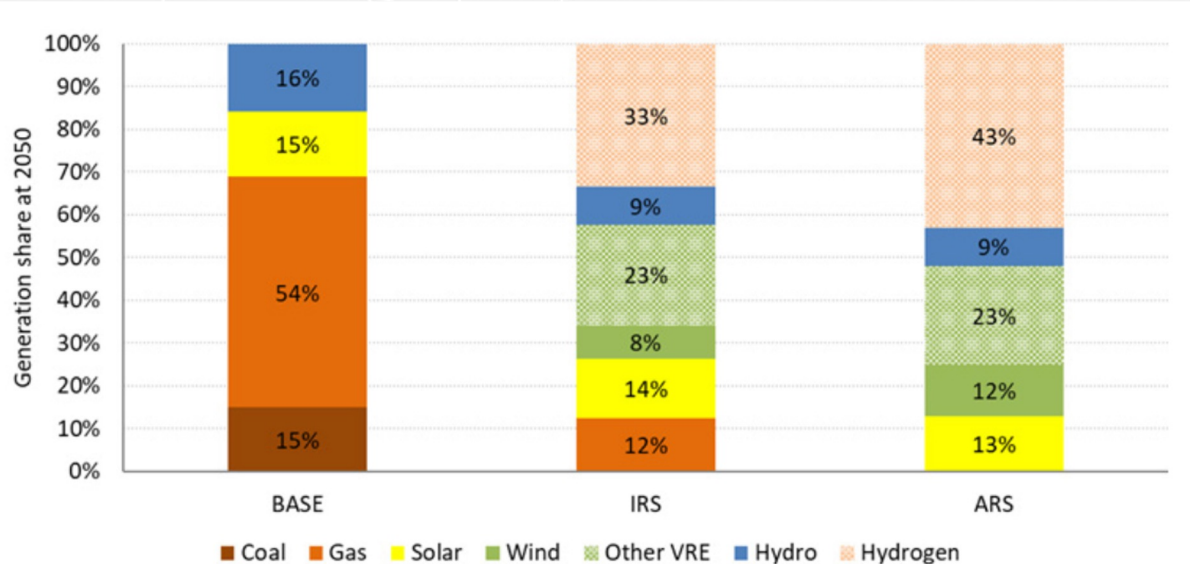


Figure 6: Capacity outlook in 2050 for Myanmar

- The high variable renewable generation (non-dispatchable) displacing traditional coal, gas and hydro generation is supported by battery energy storage and hydrogen generation.
- Hydrogen generation type represents new emerging low-emissions baseload generation and is assumed to be 100% green hydrogen.

# RENEWABLE ENERGY CAPACITY OUTLOOK

**Generation outlook in 2050:** Outlook is consistent with the capacity mix in 2050. The IRS and ARS have significantly less coal and gas generation which is instead replaced with significant wind, other RE including biomass, ocean energy and offshore wind.

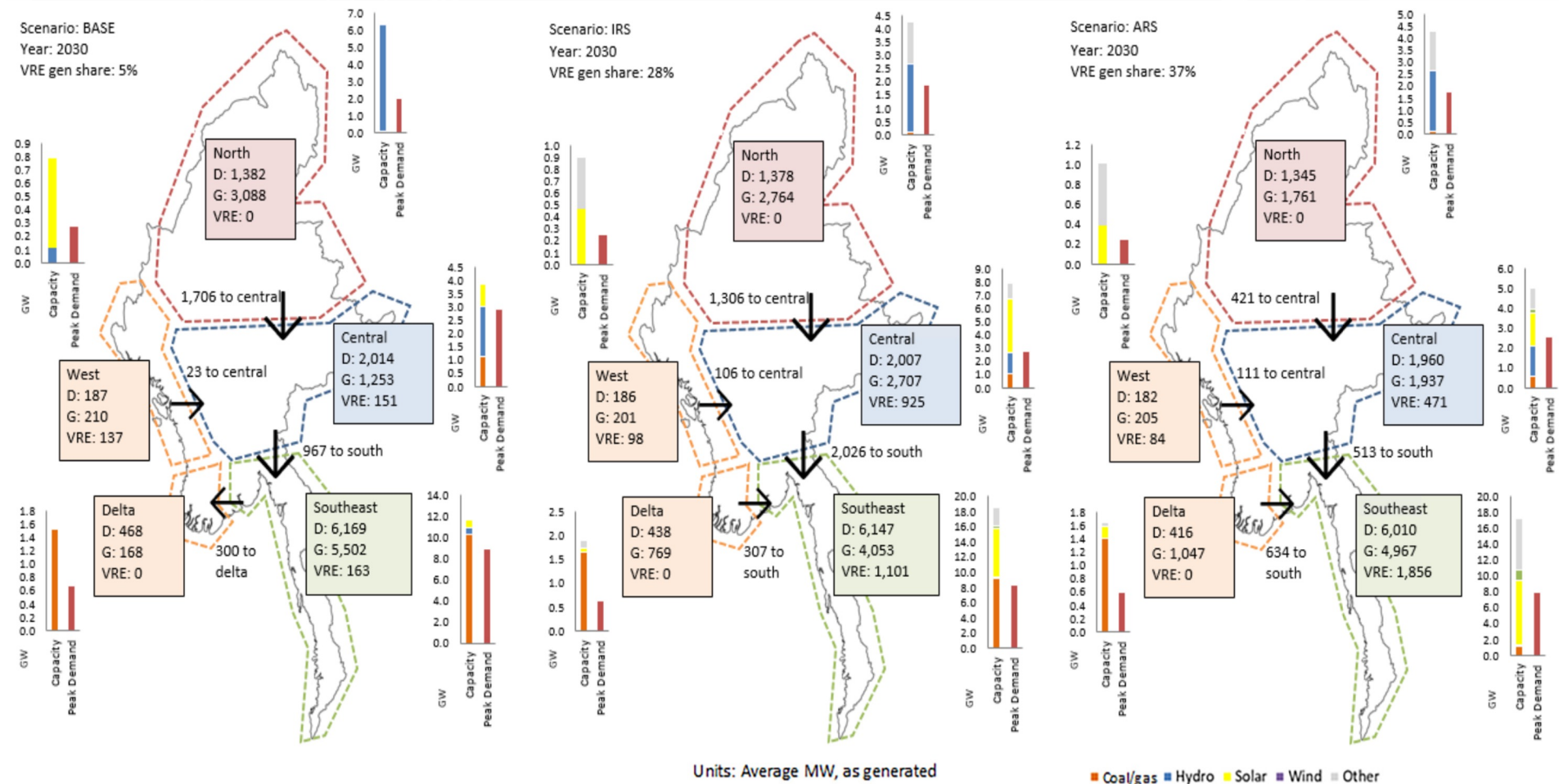


- The IRS and ARS reaches 88% and 100% renewable energy generation (including hydro) compared to 15% in the Base case.
- Solar penetration in IRS and ARS is limited due to keeping a minimum level of dispatchable generation (10 to 20%).

Figure 7: Generation Outlook in 2050 for Myanmar



# REGIONAL SUPPLY AND FLOW IN 2030



Note: D = Demand, G = Generation. Figures in the boxes are in GWh terms.

Figure 8: Regional Supply Flow in 2030



---

**THANK YOU FOR  
LISTENING**