



## Track-1 : Session 1.3

# Implementing NDC & SDG-7 in Asia: Low Carbon Technology Development Pathways

ADB TA: 9690

Anindya Bhattacharya PhD  
June 2020



# Outline

Status of SDG-7 & NDC target achievement

Scope of the study

Regional baseline of energy and technology mix

National baselines

Initial assessments of progress on NDC and SDG-7 in the region

Focusing on balanced approach of target achievement / Post pandemic readjustment

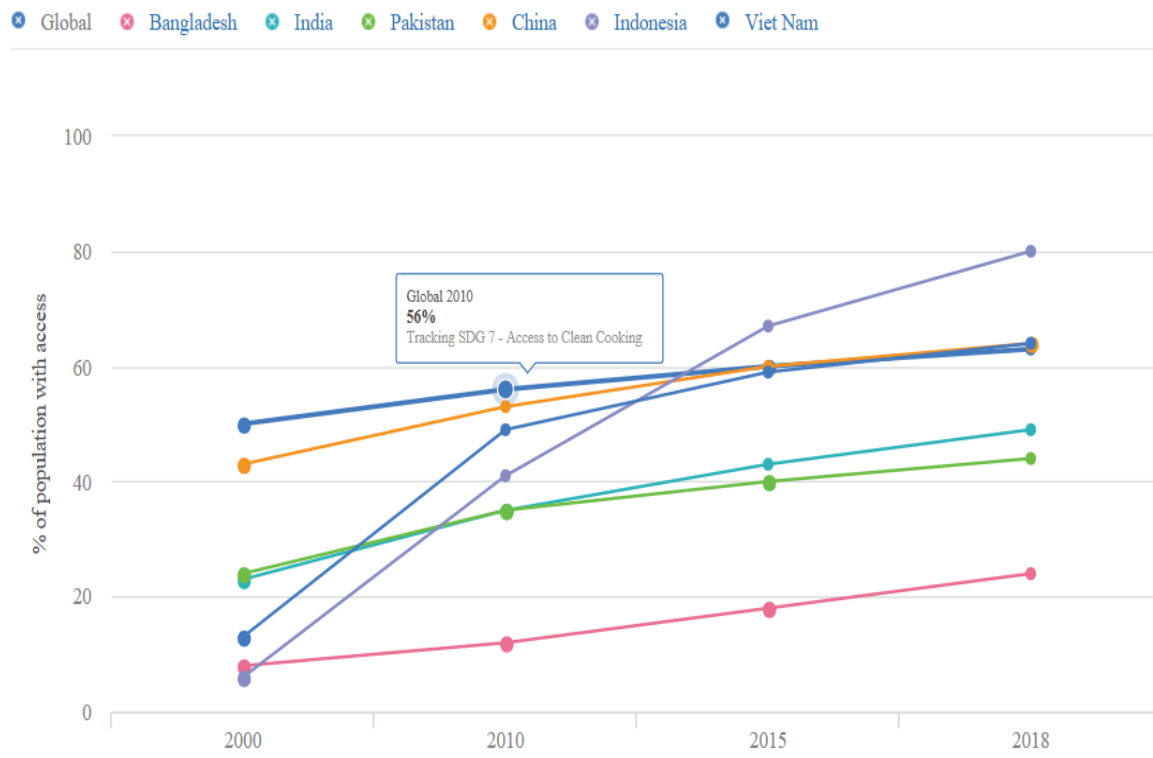
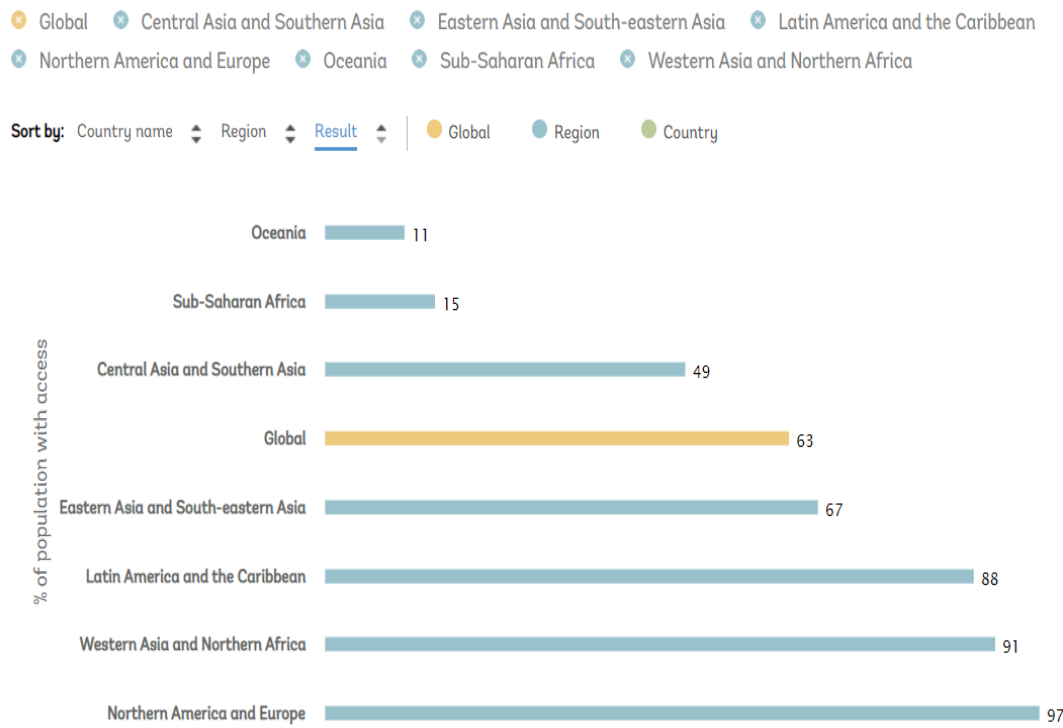
Way forward

# 1

Status of SDG-7 & NDC  
target achievement

# Status of SDG-7 target achievement

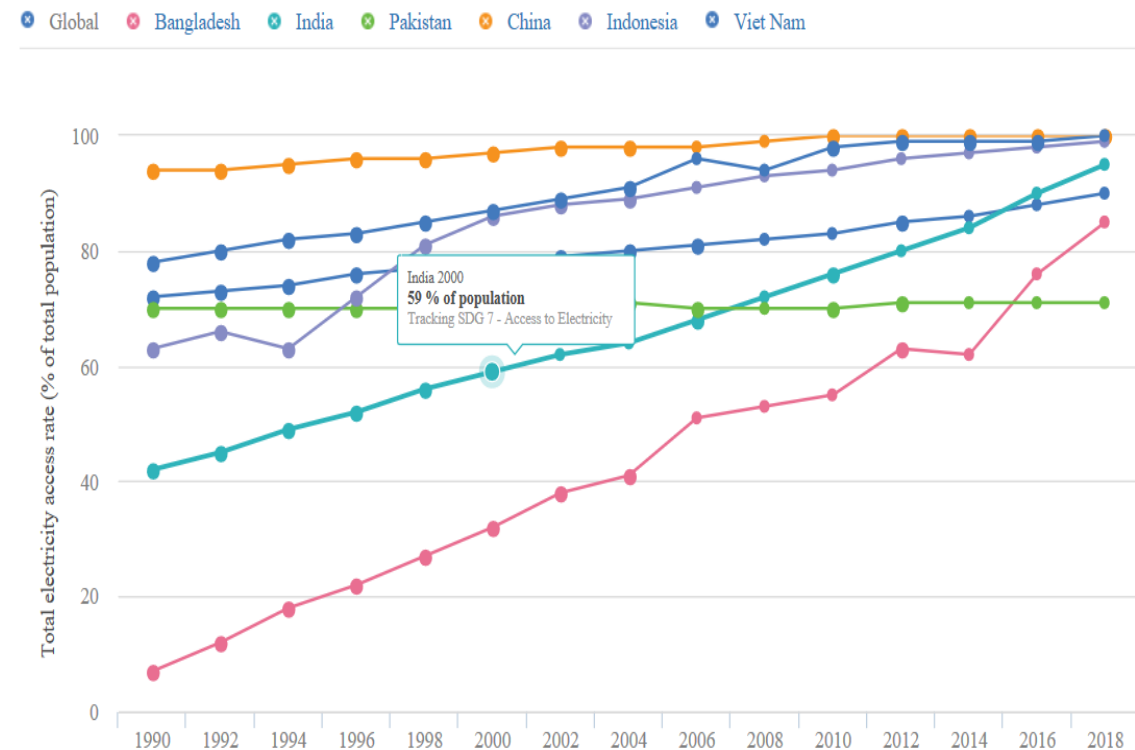
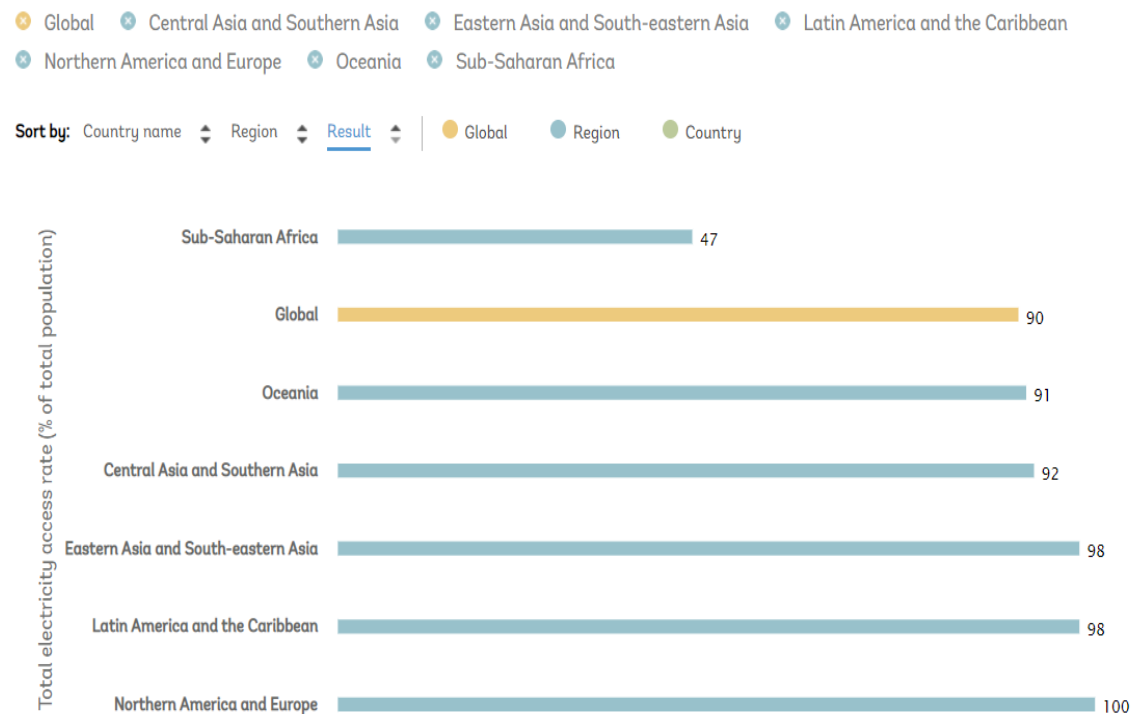
## Access to clean cooking



Source: Climate Action Tracker, ESMAP, 2018

# Status of SDG-7 target achievement

## Access to electricity



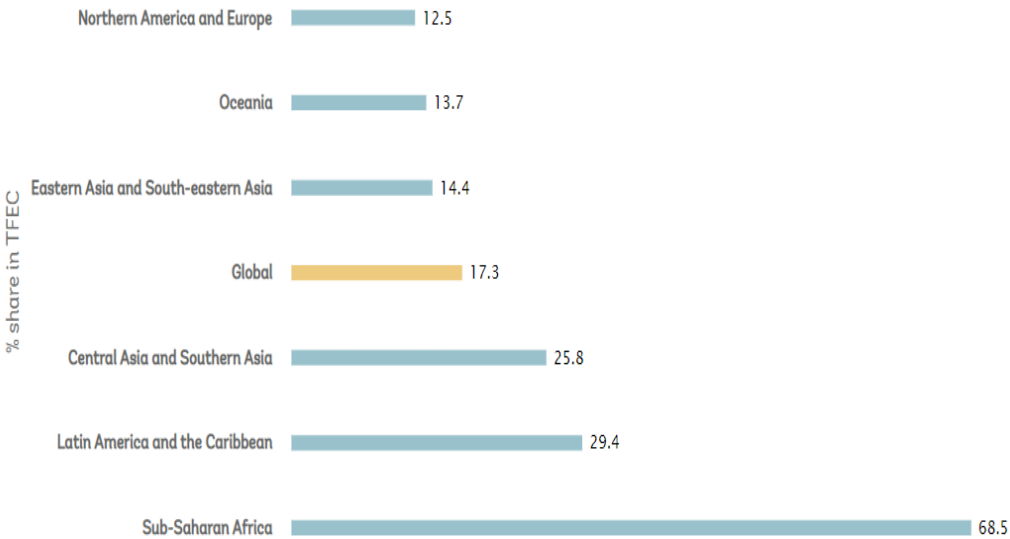
Source: Climate Action Tracker, ESMAP, 2018

# Status of SDG-7 target achievement

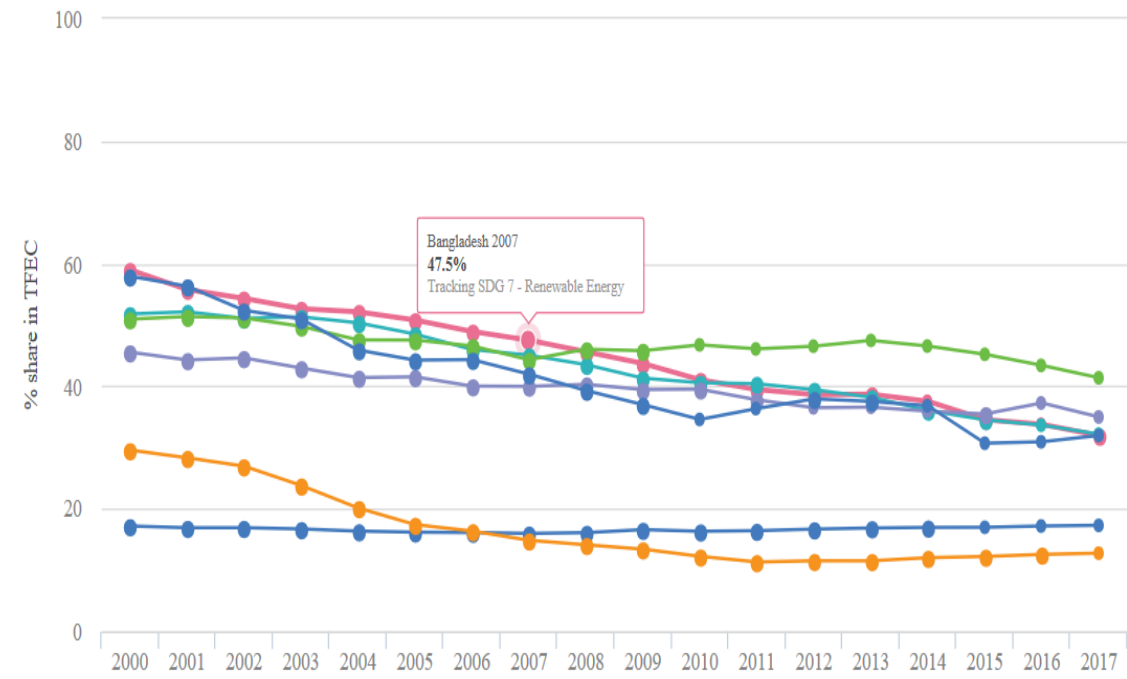
## Renewable energy penetration

Global Central Asia and Southern Asia Eastern Asia and South-eastern Asia Latin America and the Caribbean  
Northern America and Europe Oceania Sub-Saharan Africa

Sort by: Country name Region Result Global Region Country



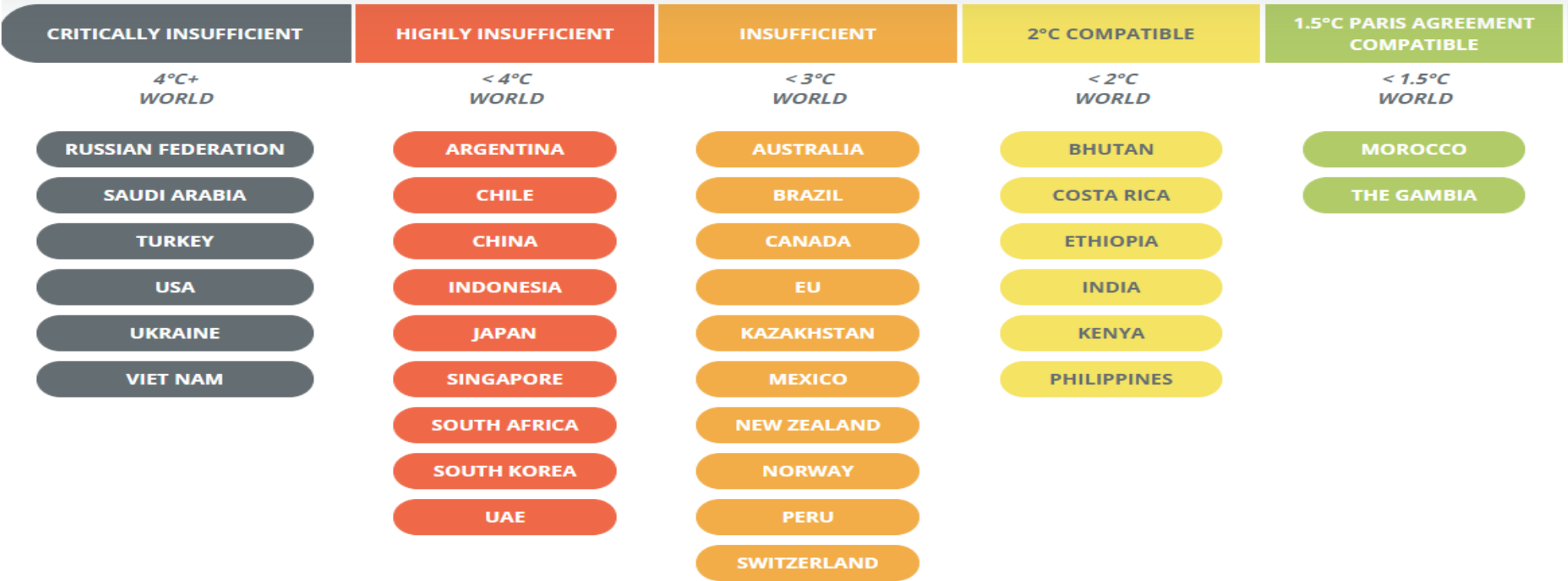
Global Bangladesh India Pakistan China Indonesia Viet Nam



Source: Climate Action Tracker, ESMAP, 2018

# Status of NDC Target Achievement

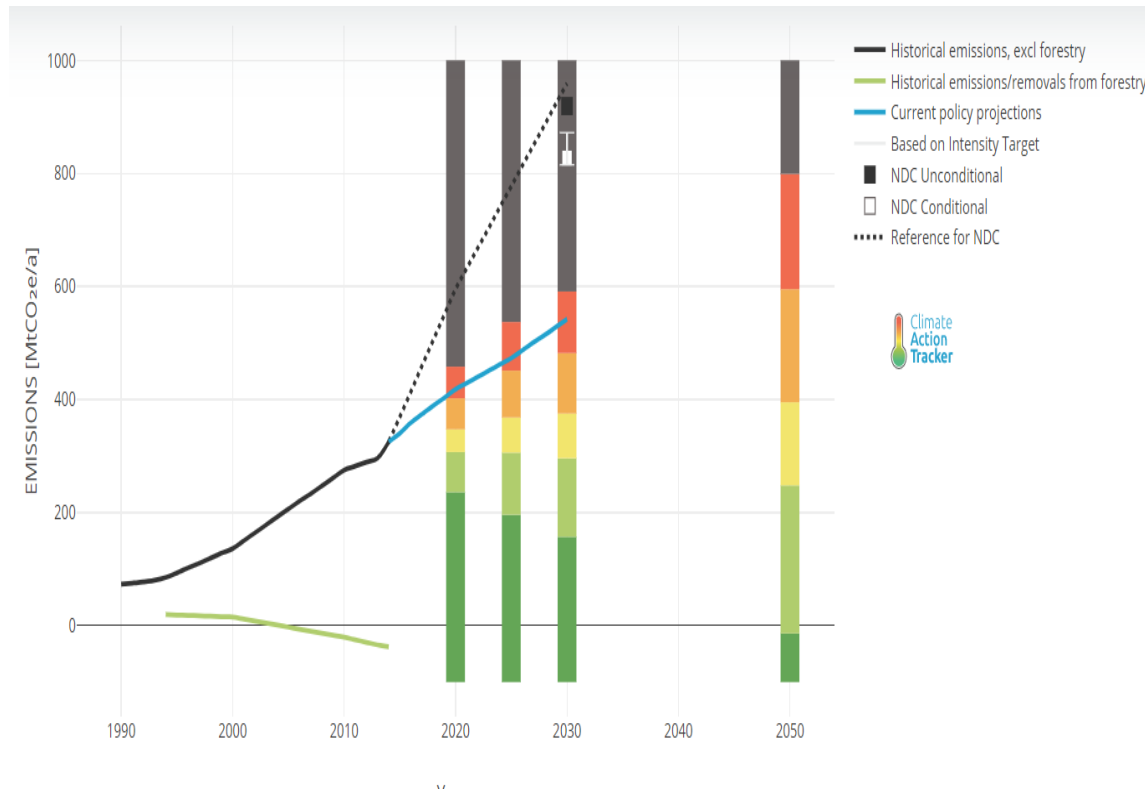
## Global status of NDC targets



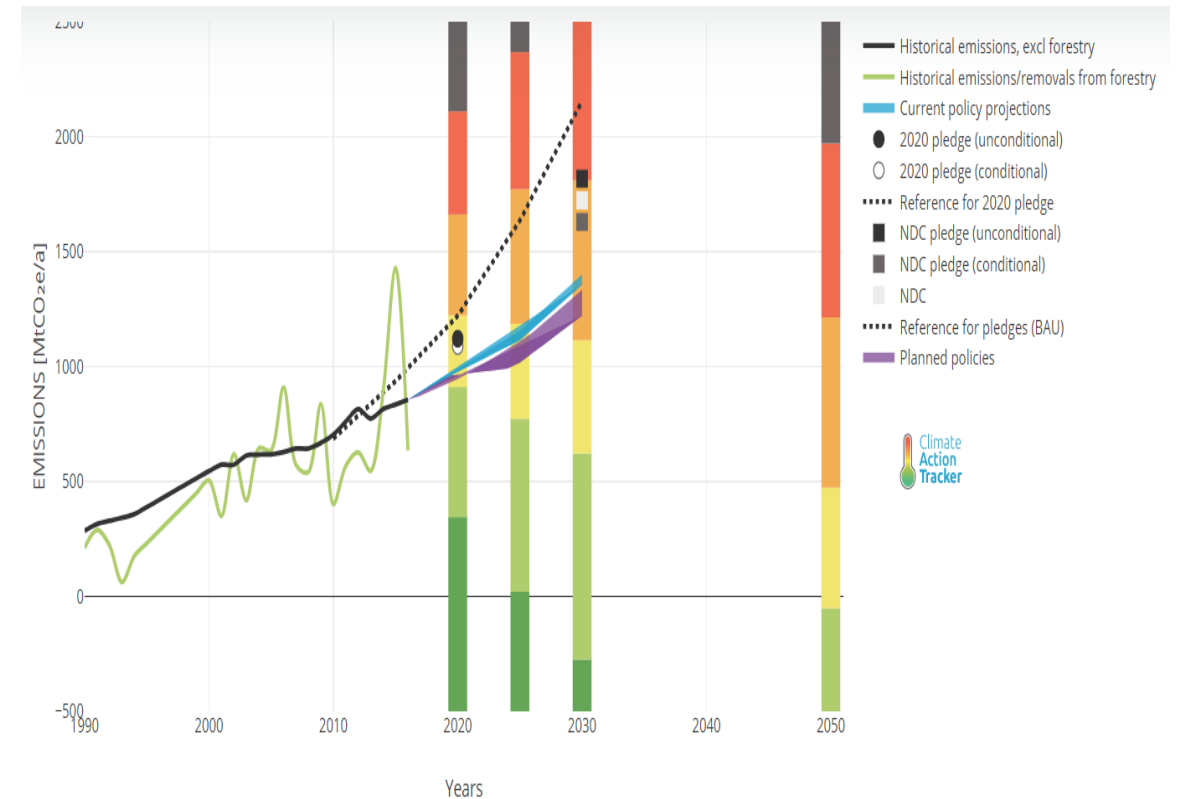
Source: Climate Action Tracker, ESMAP, 2018

# Status of NDC Targets in Case Study Countries

## Viet Nam



## Indonesia

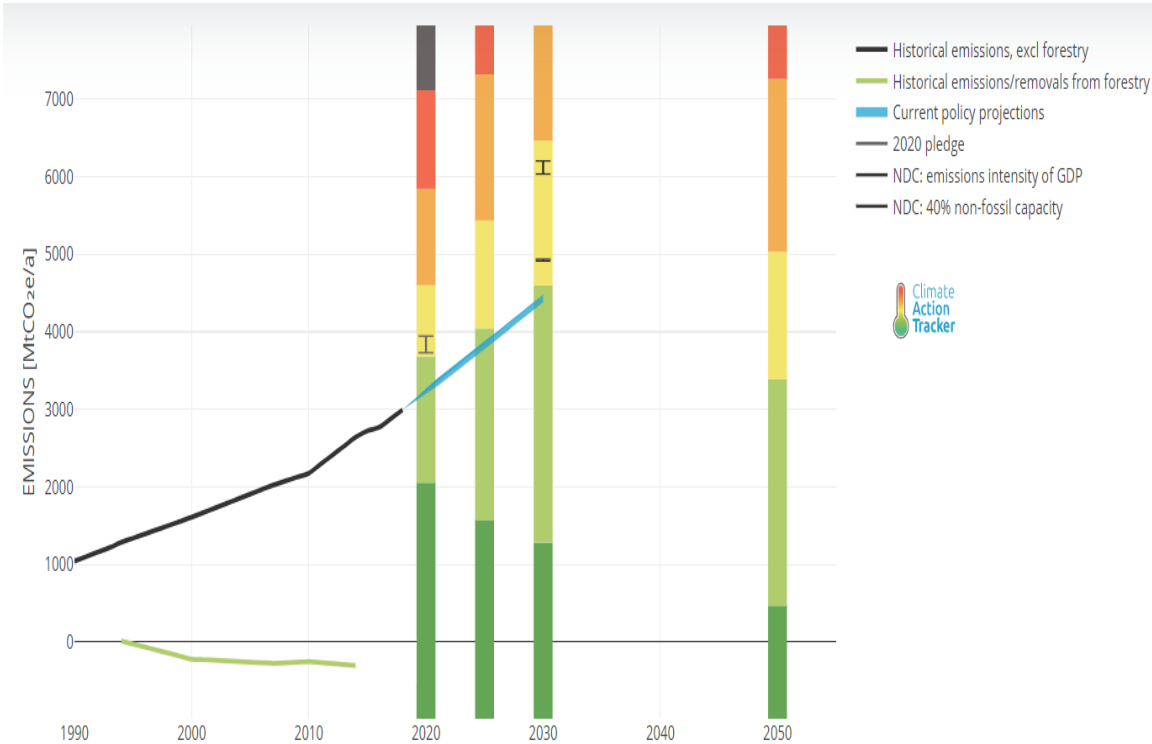


Source: Climate Action Tracker, ESMAP, 2018

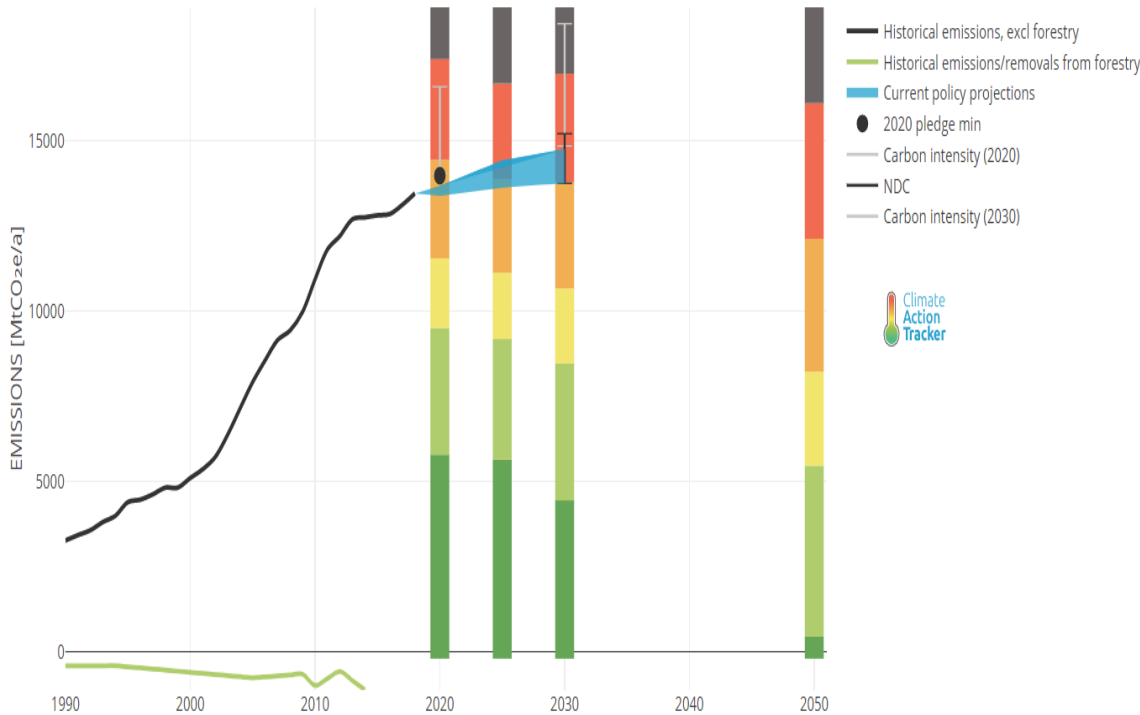


# Status of NDC Targets in Case Study Countries

## India



## China



Source: Climate Action Tracker, ESMAP, 2018

# Steps to be taken to accelerate activities



## **Advancing SDG-7 Implementation**

- Top priority for clean cooking
- Enhanced electricity access
- Accelerated RE penetration
- Doubling the SDG-7 financing
- Investment in data collection system and data analysis



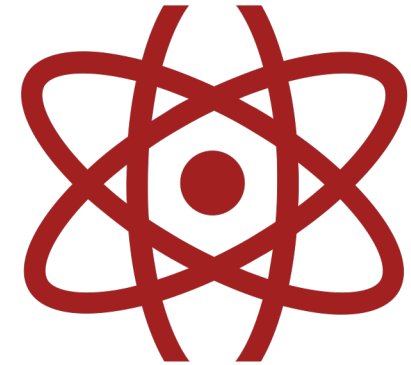
## **Strengthening interlinkages between SDG7 & other SDGs**

- Harness the cross sectoral interlinkages
- Gender equality and women empowerment
- Promoting low carbon cities



## **Addressing regional priorities**

- Strengthening regional cooperation
- Ending energy poverty



## **Transition towards sustainable inclusive and equitable energy future**

- Promoting transformational investment through inclusive energy system and decentralized RE integration
- Life style change for sustainable living
- Strengthening decision making process by improving energy data collection, analysis and monitoring

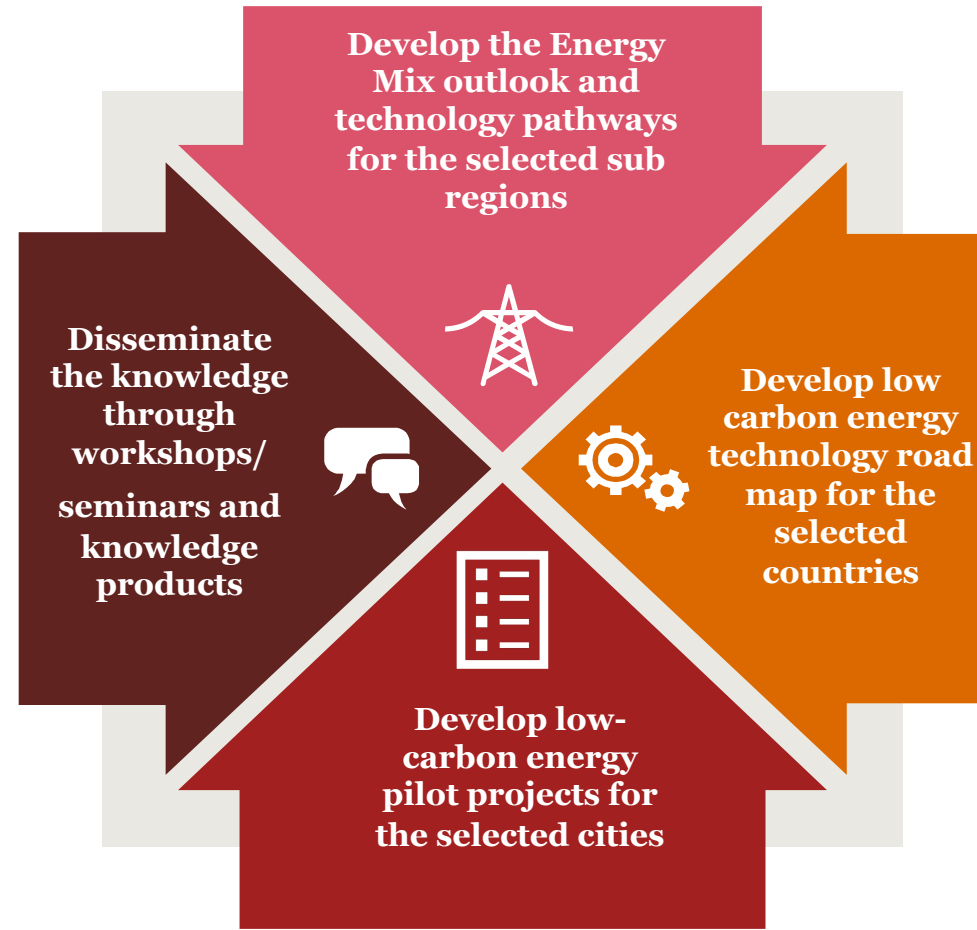
2

Scope of the TA

# Goals and objectives

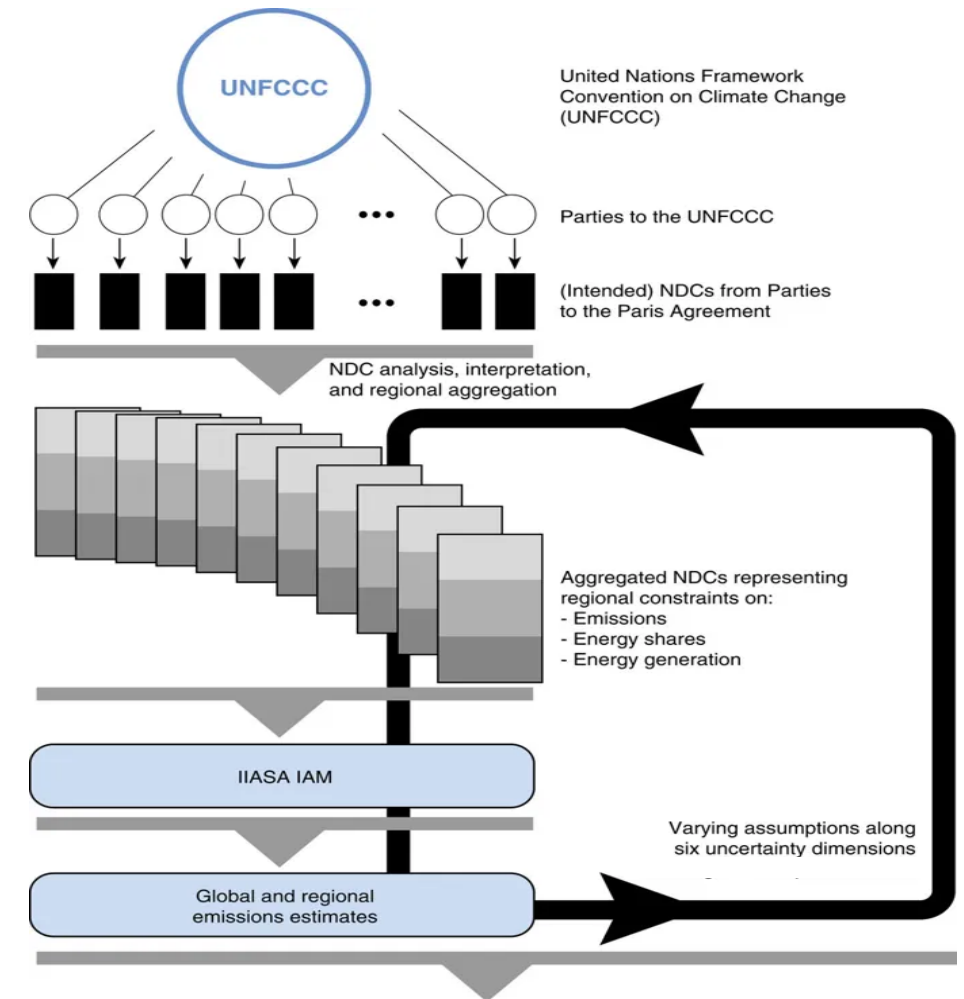
## GOALS

Developing implementable action plans for NDCs and SDG7 in the region including technology roadmap and finance



# Methodology for integrating NDC and SDG-7 policies

SDG7 Target	SDG7 Indicator	Model Implementation
<b>7.1</b> By 2030, ensure universal access to affordable, reliable and modern energy services	<b>7.1.1</b> Proportion of population with access to electricity  <b>7.1.2</b> Proportion of population with primary reliance on clean fuels and technology	<ul style="list-style-type: none"> <li>Electricity demand projections incorporating universal access assumptions</li> <li>Transition to clean technologies for cooking, transportation and buildings</li> <li>Subsidies for transitions to modern fuels.</li> </ul>
<b>7.2</b> By 2030, increase substantially the share of renewable energy in the global energy mix	<b>7.2.1</b> Renewable energy share in the total final energy consumption	<ul style="list-style-type: none"> <li>Constraint on renewable energy share in each region</li> <li>Combined with long-term emission constraints aligned with the Paris Agreement to reflect the important role of clean energy in achieving climate targets.</li> </ul>
<b>7.3</b> By 2030, double the global rate of improvement in energy efficiency	<b>7.3.1</b> Energy intensity measured in terms of primary energy and GDP	<ul style="list-style-type: none"> <li>Increased investment into demand-side measures</li> <li>Global convergence towards energy efficient lifestyles</li> </ul>



**Sub-region energy mix and investment pathways**

3

Regional baseline  
assessment

# Regional baseline assessment of energy supply and technology mix

## Primary energy

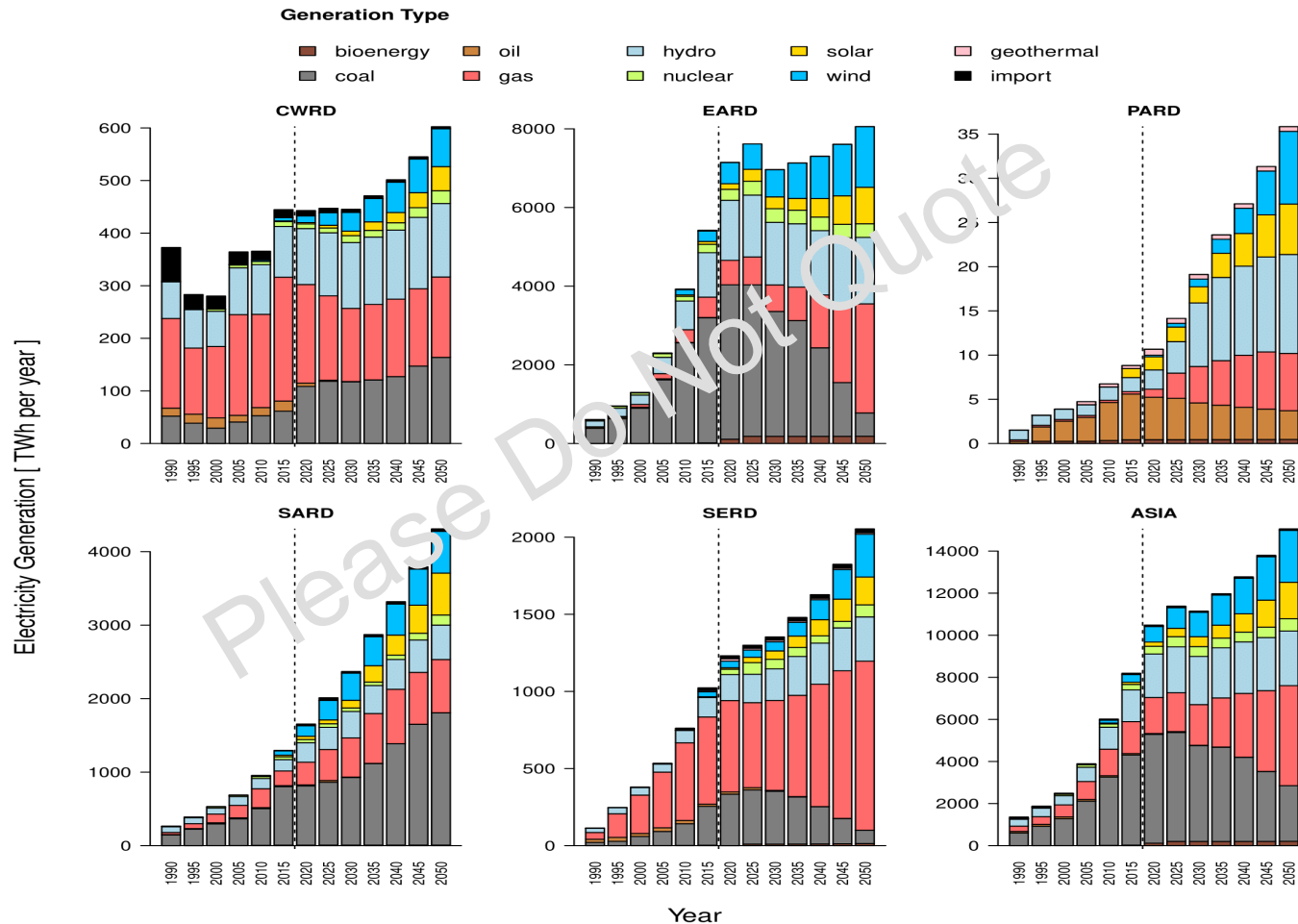


- Fossil fuels ( coal, oil and gas) are the predominant fuels until foreseeable future in the regions.
- Coal as a resource is expected to lose its importance in the mix.
- Oil is the single largest energy source of many regions in Asia
- Renewable is far behind the expected level of use in the region.
- Except Central and South East Asia growth of gas use is limited in the other regions
- East Asia region is expected to get its energy peak by 2040

Source: TA 9690 baseline results ( Results are indicative and subject to change )

# Regional baseline assessment of energy supply and technology mix

## Electricity generation



Source: TA 9690 baseline results ( Results are indicative and subject to change )

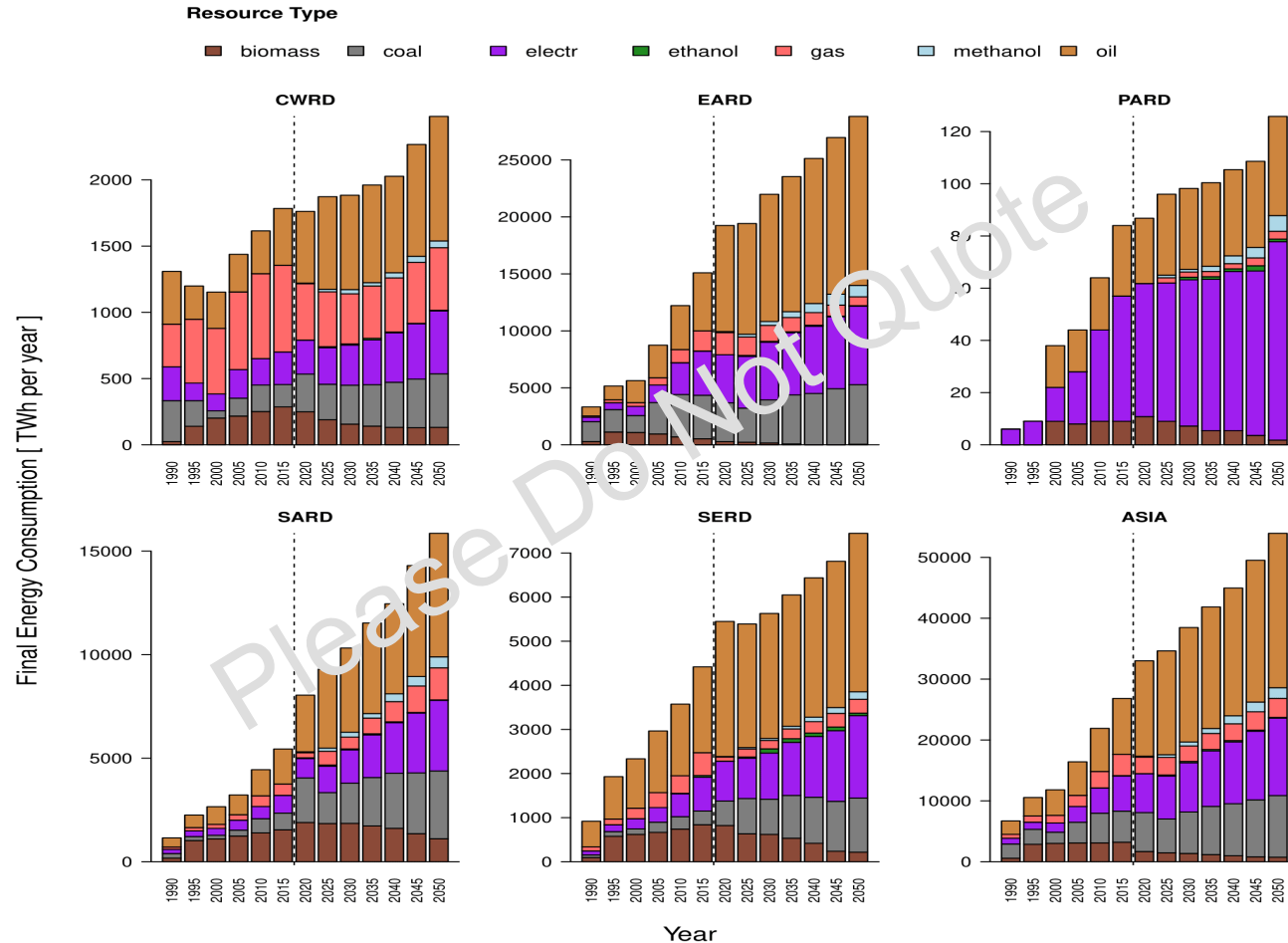


- Fossil fuels ( coal and gas) are the predominant fuels for power generation until foreseeable future in the regions
- Coal based electricity is expected to lose its importance in the mix
- Gas based generation is expected to be significant in many regions especially in South East Asia region
- Renewable is far behind the expected level of share mix in the region. However, excluding hydro RE share is even dismal in many regions.
- Wind energy is expected to have a larger share in the generation mix compared to solar
- On average renewable energy share is expected to be around 20% until 2050



# Regional baseline assessment of energy supply and technology mix

## Final energy consumption



- Oil remains the major source of final energy in the region which is mostly consumed by the transport sector
- Pacific region has the highest share of electricity consumption compared to all other regions
- Electricity share in overall final energy consumption is well below 20% in all major regions
- Access to electricity in the region might be limited
- Growth of transport sector and its corresponding consumption of energy has out performed all other sectoral growth and energy consumption

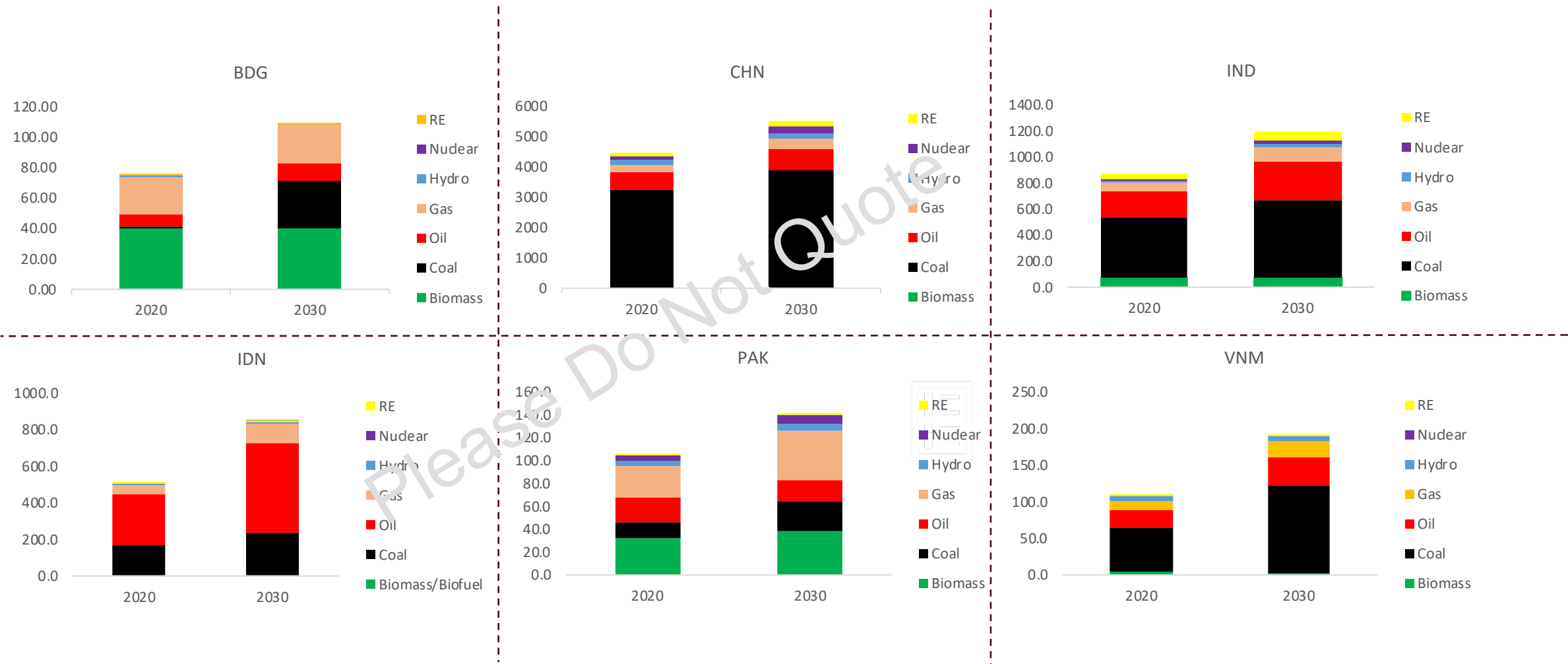
Source: TA 9690 baseline results ( Results are indicative and subject to change )

# 4

National baseline  
assessment

# National baseline assessment of energy supply and technology mix

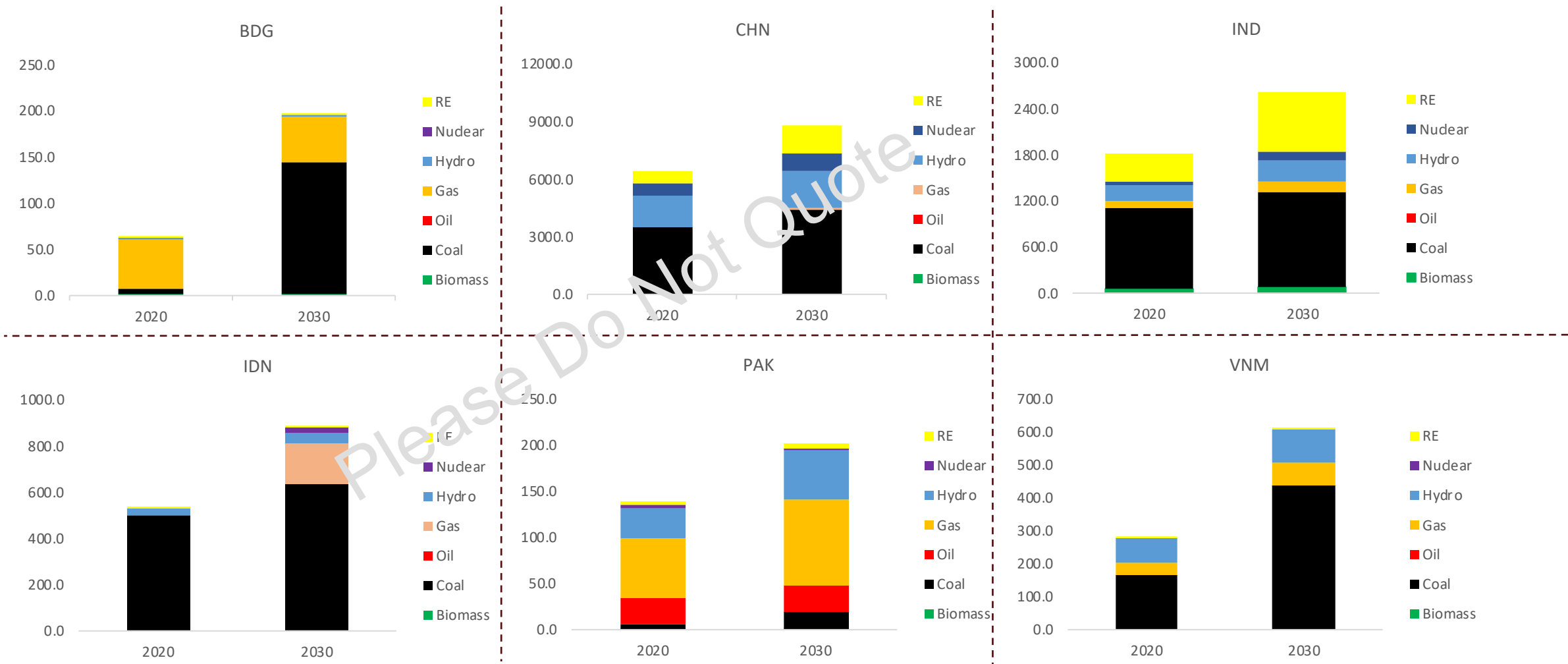
## Primary energy (MTOE)



Source: TA 9690 baseline results ( Results are indicative and subject to change )

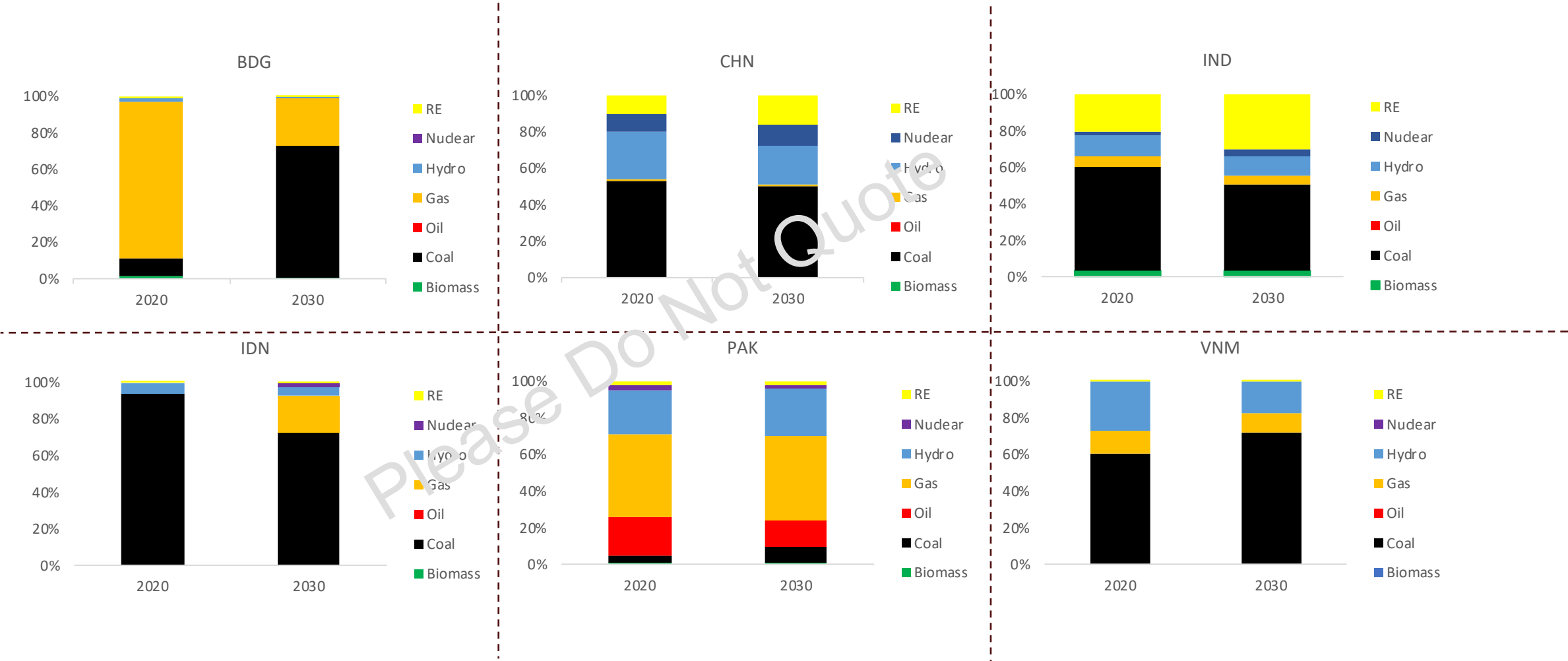
# National baseline assessment of energy supply and technology mix

## Electricity generation mix (TWh)



# National baseline assessment of energy supply and technology mix

## Electricity generation mix (%)

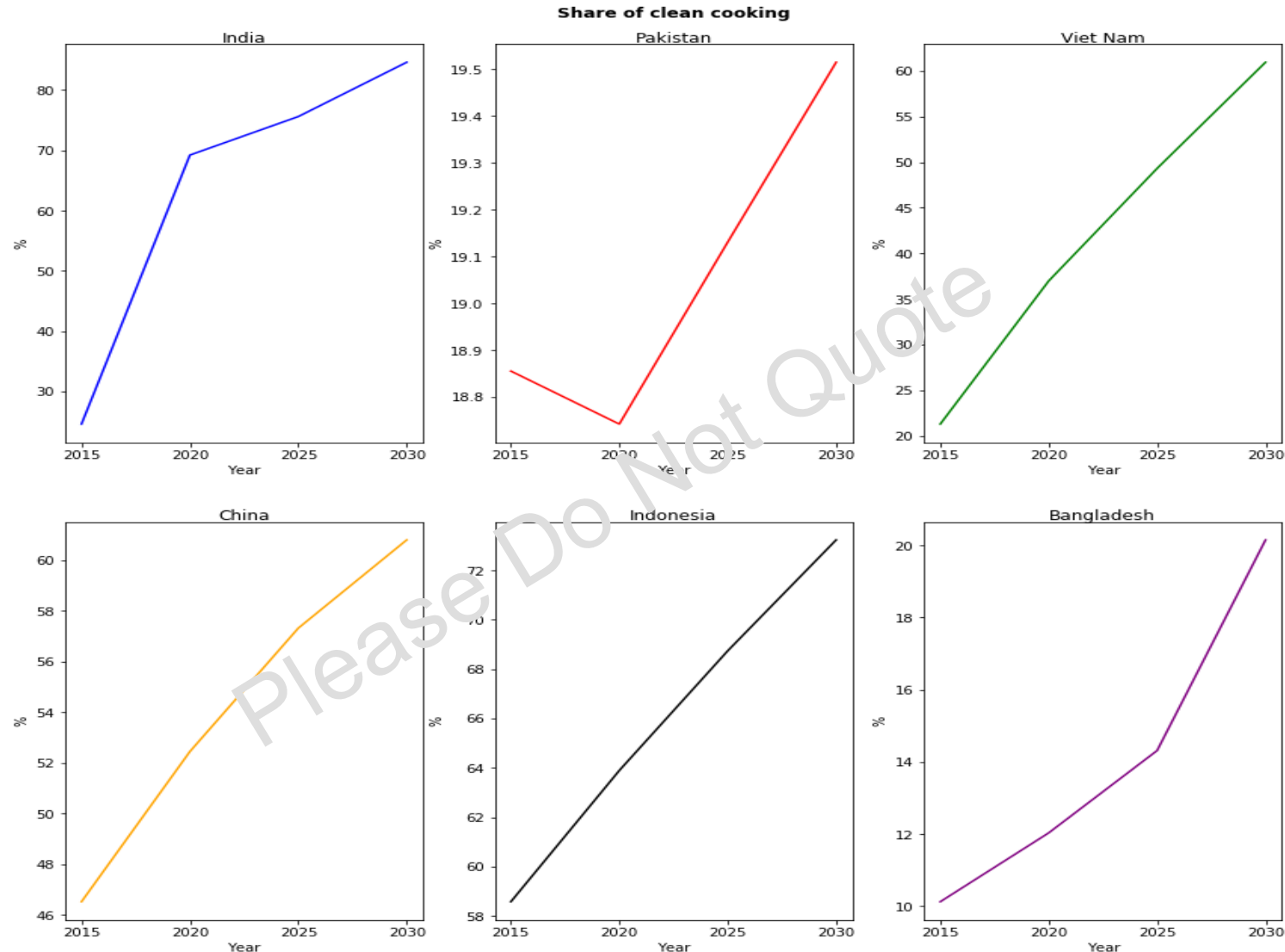


Source: TA 9690 baseline results ( Results are indicative and subject to change )

5

Initial assessments  
of progress on NDC  
and SDG-7 in the  
region

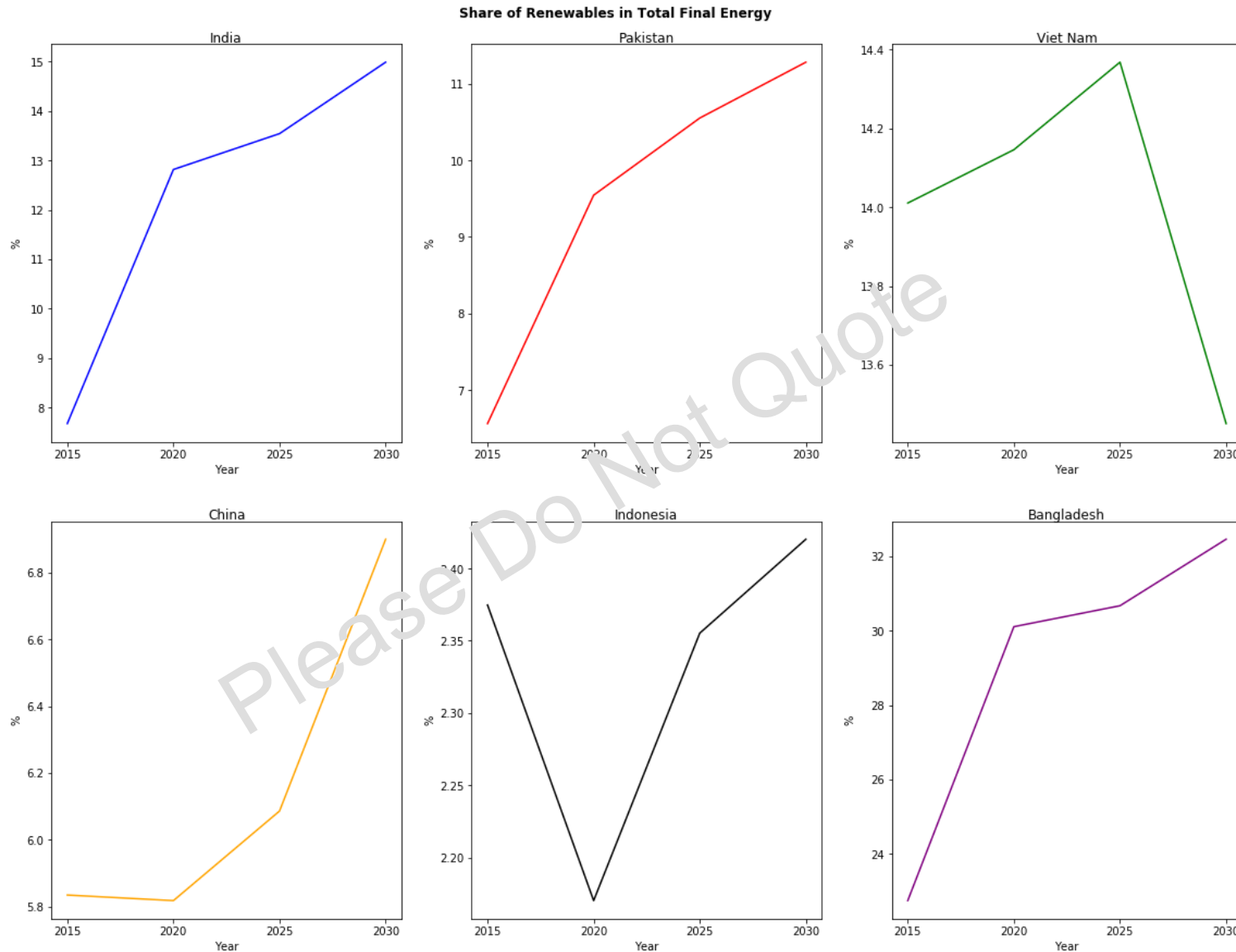
# NDC & SDG-7 Performance Indicators @ baseline (Clean cooking)



- Clean Cooking share ( use of LPG, PNG, Elec. etc.) is increasing in all the countries in the region
- Percentage share of clean cooking widely varies among countries
- Share of clean cooking in Bangladesh and Pakistan are the lowest

Source: TA 9690 baseline results ( Results are indicative and subject to change )

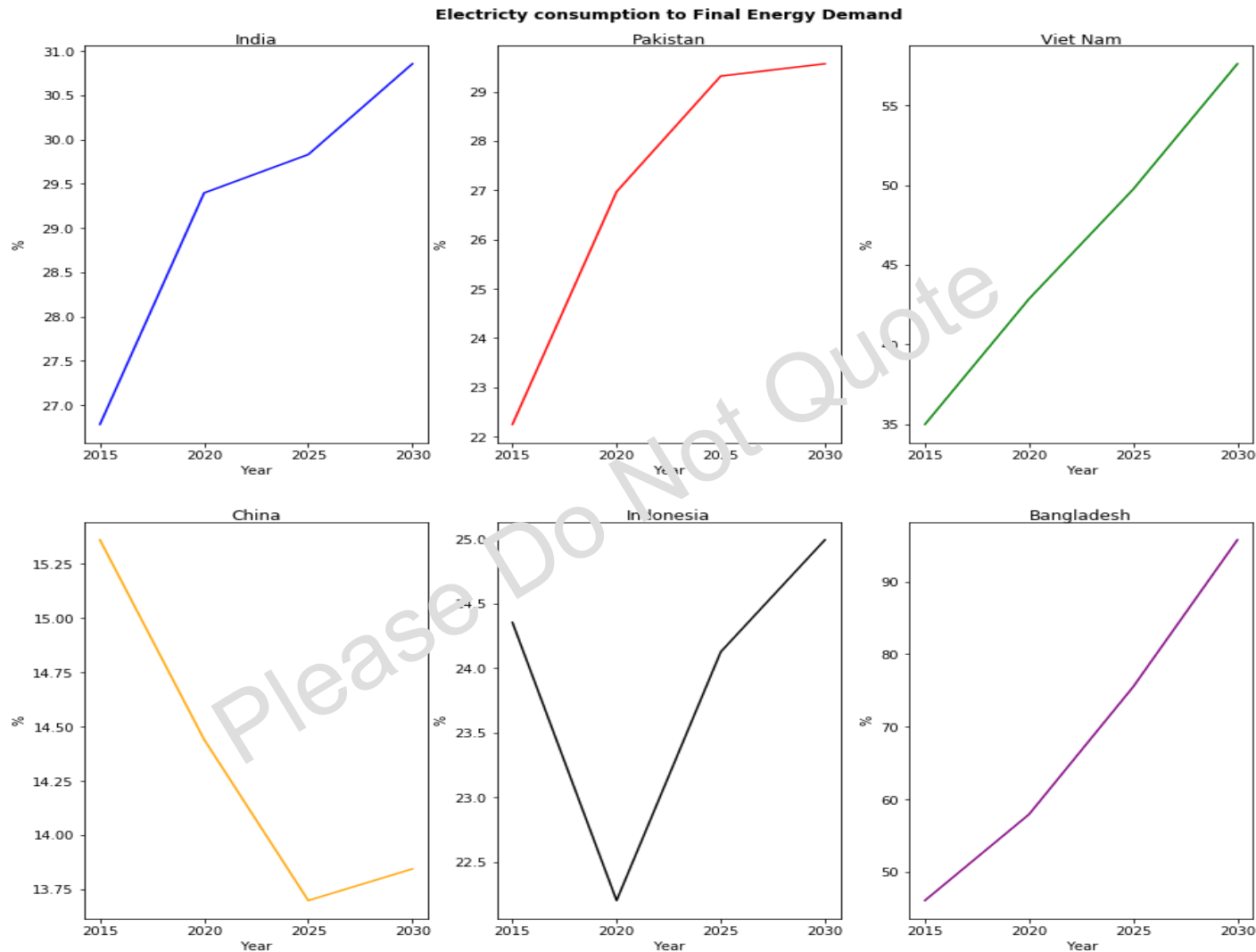
# NDC & SDG-7 Performance Indicators @ baseline (RE Share)



- Renewable energy (solar, wind, biomass, geothermal, small hydro etc.) share to FEC is increasing for almost all countries in the region
- Certain decrease in share indicates slower growth of RE compared to increasing energy consumption



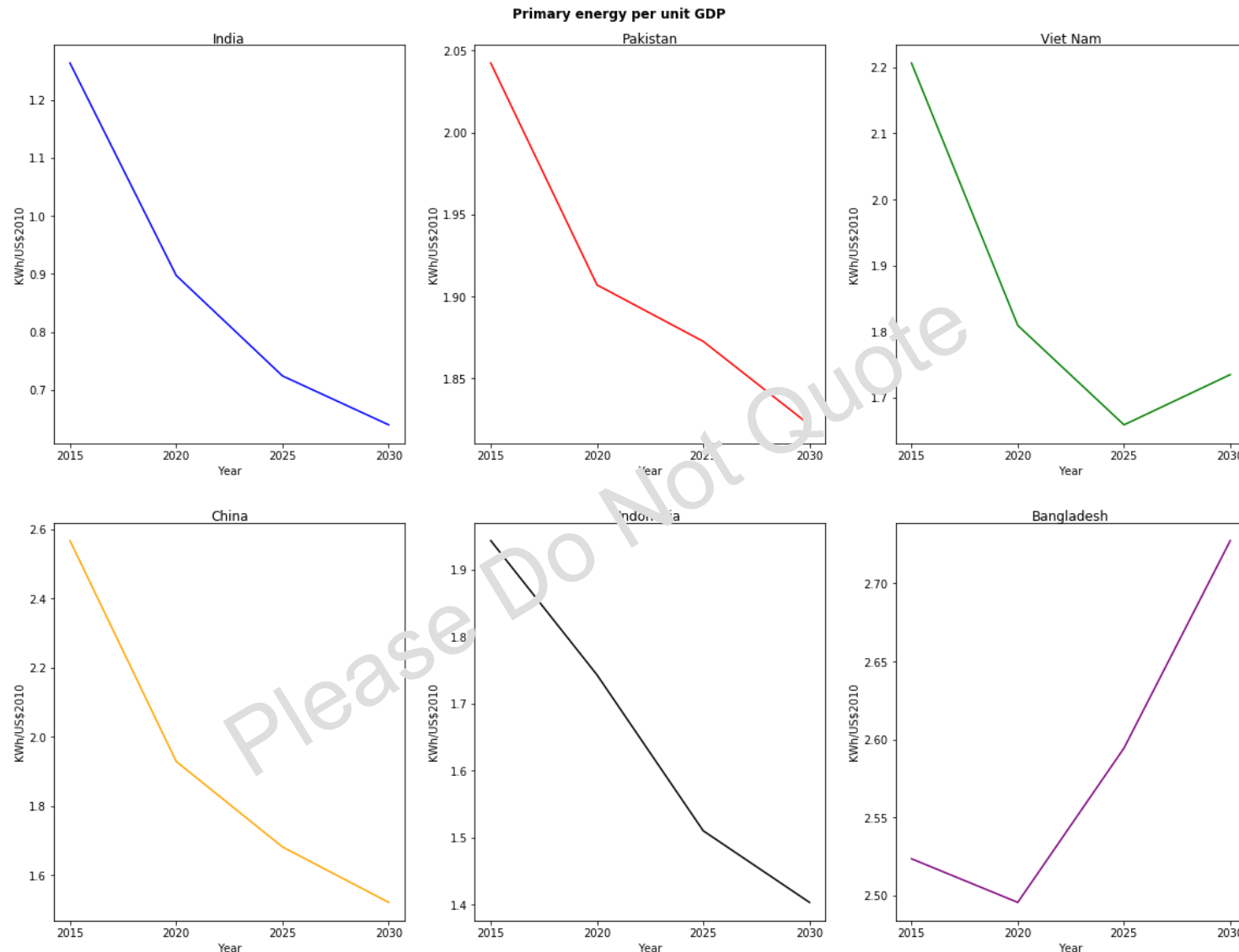
# NDC & SDG-7 Performance Indicators @ baseline (Electricity Share)



- Share of electricity in FEC is increasing rapidly in most of the countries
- Increasing share of electricity indicates cleaner consumption of energy and less emissions
- High electricity share in FEC in Bangladesh indicates less industrial activities which requires thermal energy (mostly heavy industries)

Source: TA 9690 baseline results ( Results are indicative and subject to change )

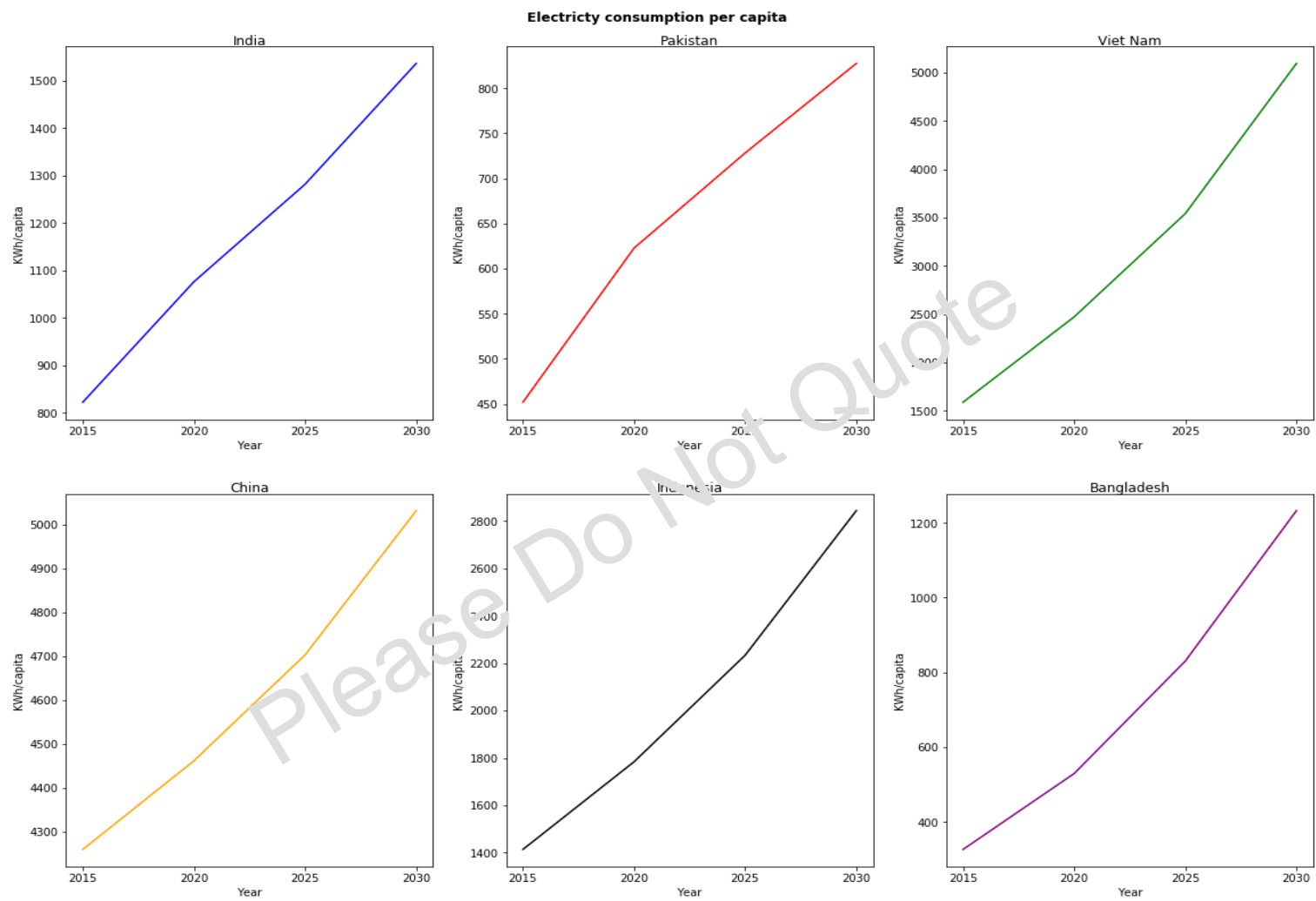
# NDC & SDG-7 Performance Indicators @ baseline (Energy Efficiency)



- Energy consumption per unit of GDP is decreasing for all countries
- Energy consumption per unit of GDP is expected to grow in Bangladesh (Likely reason could be shifting from biomass to modern fuels)

Source: TA 9690 baseline results ( Results are indicative and subject to change )

# NDC & SDG-7 Performance Indicators @ baseline (Access to electricity)



- Per capita electricity consumption is increasing in all countries in the region ensuring improving access to modern energy

Source: TA 9690 baseline results ( Results are indicative and subject to change )

# Emissions performance in the baseline projection

## Emissions from energy use

Country	2020 (MtCO <sub>2</sub> e)	2030 (MtCO <sub>2</sub> e)	NDC Target by 2030 (MtCO <sub>2</sub> e)	Remarks
Bangladesh	70	216	200	Easily Achievable Target revision margin is low
China	12,500	13,400	15,000	Easily Achievable Target revision margin is low
India	3,140	4,426	6,000	Easily Achievable Target revision margin is low
Indonesia	1,470	2,130	1,750	Additional effort required to meet the existing target
Pakistan	200	310	700	Easily Achievable Target revision margin is high
Vietnam	300	520	815	Easily Achievable Target revision margin is high

Source: NDC Targets by 2030 referred from the respective country NDC submissions, available at <https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx>

Source: TA 9690 baseline results ( Results are indicative and subject to change )

# 6

Focusing on  
balanced approach  
of target  
achievement / Post  
pandemic  
readjustment

# Balanced approach for NDC/SDG achievement

Region has set the ball rolling towards low carbon development. Some of the indicators are performing well towards target achievement like access to electricity and clean cooking.

Renewable energy share is not increasing in the region as it was expected. It is evident that additional support is required.

NDC targets in the region are often achievable and thus can be revised with higher emissions reduction.

Post COVID-19 pandemic, regional economy will be very weak and thus the initial target achievement might be affected. Thus, cost base priority of mitigation actions will be important.

Demand side mitigation measure are often less expensive but less important in NDC activity list. Under current situation, countries should reconsider those activities like industrial EE and decarbonization, building energy efficiency, non-motorized transportation, use of inland water ways as suitable options.

Demand side target based NDC could be low cost mitigation options for the countries.

Renewable energy requires continuous policy support for its advancement. However, storage technologies could be the game changer that can fast-track the implementation of RE.

# Thank you

**Anindya Bhattacharya PhD**  
anindya.b@thecelestialearth.org

**Manoj Bansal**  
manoj.bansal@pwc.com

pwc.com

© 2020 PwC. All rights reserved. Not for further distribution without the permission of PwC. “PwC” refers to the network of member firms of PricewaterhouseCoopers International Limited (PwCIL), or, as the context requires, individual member firms of the PwC network. Each member firm is a separate legal entity and does not act as agent of PwCIL or any other member firm. PwCIL does not provide any services to clients. PwCIL is not responsible or liable for the acts or omissions of any of its member firms nor can it control the exercise of their professional judgment or bind them in any way. No member firm is responsible or liable for the acts or omissions of any other member firm nor can it control the exercise of another member firm’s professional judgment or bind another member firm or PwCIL in any way.