



REGIONAL CONFERENCE

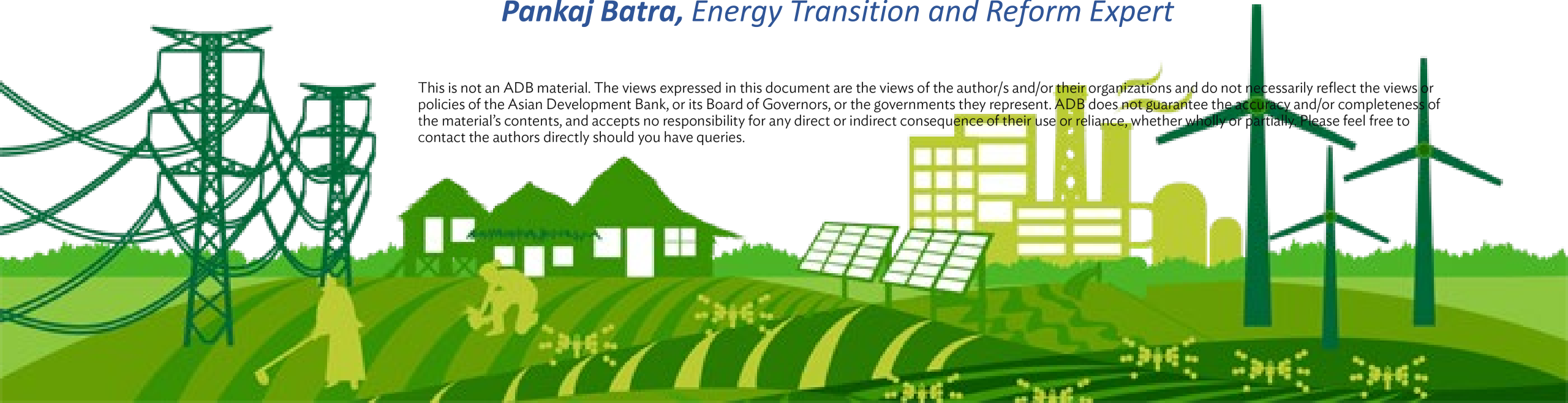
# INCLUSIVE ENERGY TRANSITION IN SOUTH ASIA AND BEYOND

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**Grid integration, energy trade and sustainability**

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- Grid integration is the fastest and cheapest way of energy access to all.
- Possibility of transfer of power from surplus to deficit areas.
- Since electric power has to be consumed as and when produced, and there is not enough storage capacity to store power over months, it would be an opportunity lost, if the surplus power of one area is not used in another area that is in deficit.
- If the power is generated from solar, wind and run-of-river hydro plant, then that is free power not being utilized. For coal based power, the opportunity lost is at the cost of only the marginal cost of generating power.
- This grid integration can be within the country as the first step, across countries in a Region as the next step, and across Regions as the final step (the Indian Prime Minister's initiative of One Sun One World, One Grid (OSOWOG), in the first Assembly of the International Solar Alliance (ISA) in October 2018, and the joint initiative of Green Grid Initiative by the Prime Ministers' of India and the UK, launched at COP 26 in 2021).
- Power markets optimize utilization of power resources in the country, Region, world through trade in the market, due to reflection of surplus and shortage through market prices.
- Any opportunity for trade of power not lost results in reduction of carbon emissions, and consequently sustainability.

- Bangladesh grid got connected to the Indian grid and is getting 1160 MW out of a total demand of about 16000 MW. Its 15% shortage was reduced to zero, and its industry started flourishing, achieving the highest growth rate in Asia, i.e. 8%. The cost of purchase of power from India was lesser than the cost of internal generation through oil and diesel.
- Nepal grid got connected to the Indian grid through a major 400 kV D/C Dhalkebar-Muzaffarpur transmission line in 2016, and power import by Nepal started, increasing to about 550 MW at present. In addition, it is importing power through other smaller lines, leading to a total import of about 750 MW. Its shortage reduced to zero, except for areas in Nepal not connected to the internal grid or connected through a grid with transmission constraints. The capital city of Nepal, Kathmandu, which experienced frequent interruptions and voltage fluctuations, started having a stable grid. Energy access increased from 82% to 92%. From 2021 onwards, there was beneficial import/export from both sides, Nepal exporting in the monsoon season and importing during the remaining part of the year. Nepal is exporting power presently to India to the extent of about 650 MW during the monsoon season, gaining valuable revenue for the country. Nepal has a plan to export 10,000 MW in the next 10 years.
- Seeing the benefits of trade, Sri Lanka is also expected to connect its grid to the India grid, thereby having access to the South Asian power market.

# Conclusion, Next Steps

- India is also looking East to interconnect its grid to Myanmar, Thailand and Singapore, and looking West to interconnect its grid to Oman in the Middle East.
- This would lead to a larger interconnected grid, in line with the vision of OSOWOG, and better utilization of renewable sources of energy, leading to reduced emissions and reduced cost of supply.
- The manpower would need to be retrained for shifting to renewable sources of energy, and for using smart grids for integration of renewable sources of energy to the grid.
- Workforce for implementing Renewable sources of energy and for smart grid design and implementation would be more suited to women, which will result in increase in gender ratio in this area.
- Change management would be a useful tool towards this end.