

South Asia Regional Energy Partnership (SAREP)

Theme Presentation

on

Mobilizing Investments in Cross Border Electricity Trade (CBET) in South Asia: Strategies for Successful Regional Transactions

Presented by
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Session-6, South Asia Clean Energy Forum (SACEF) 2023-Catalyzing Partnership for Clean Energy Transition, 11:15 AM - 12:30 PM, Day 3: Thursday, (May 4, 2023)- Main Forum | May 2-4, 2023, | The Lalit, New Delhi, India

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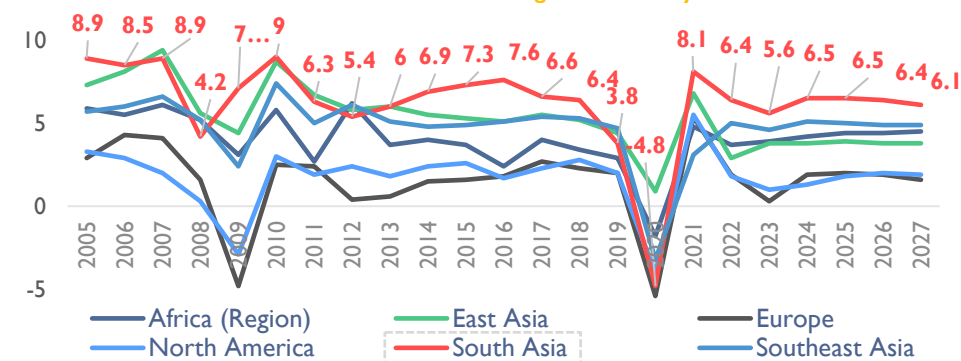
- 01 South Asian (SA) Macroeconomic Situation, Integration and Investment
- 02 SA Electricity, Cross Border Electricity Trade (CBET) and Climate Scenario
- 03 Investment Opportunity, Regional Energy, CBET Project- Uniqueness & Risks
- 04 International Experience-Facilitating Regional Energy, CBET Projects
- 05 Strategies and Way forward



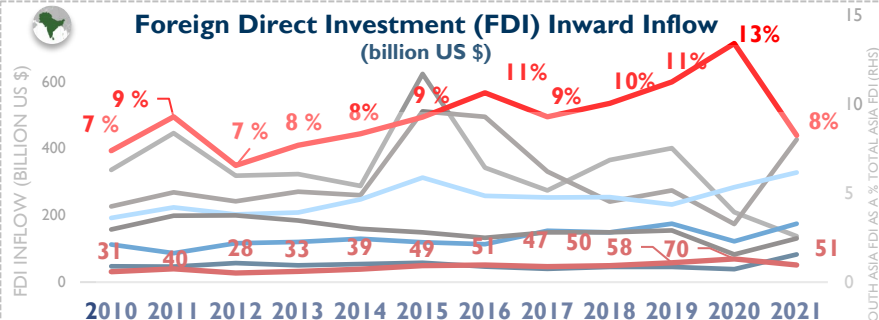
South Asian Macroeconomic Situation, Integration and Investment

Real GDP Growth Annual Percent Change

A Vibrant and Resilient Regional Economy



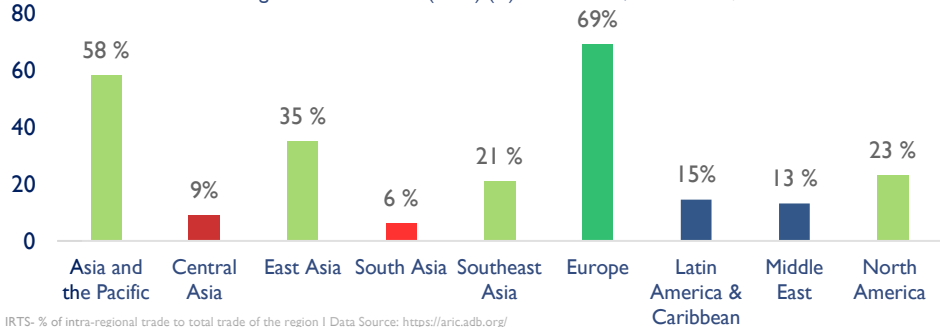
-10 Source: IMF World Economic Outlook (October, 2022)



Source: World Investment Report 2022, UNCTAD

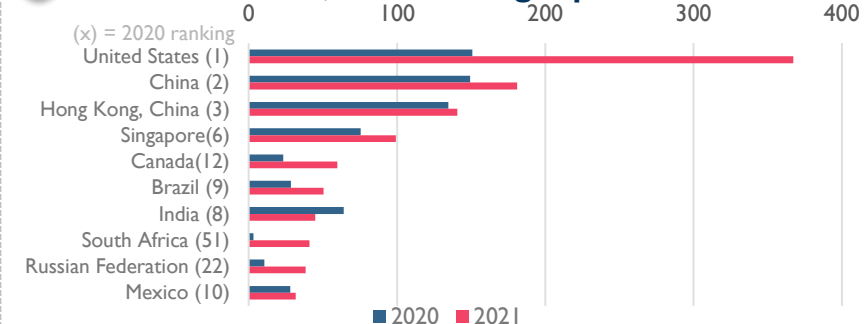
Least Integrated, Scope for Deepening Integration

Intra-Regional Trade Share (IRTS) (%) in 1990- 3%, 2015- 5.60 %, 2021-6.13%



IRTS- % of intra-regional trade to total trade of the region | Data Source: <https://aricadb.org/>

FDI Inflows, India among Top 10 Economies



Source: World Investment Report 2022, UNCTAD

Fastest Growing Region | 1.9 Billion Population | 1105 KWh/Capita Electricity Consumption | SA FDI - 51 Billion US \$ (8% Asia) | 2021 Outflows -15.9 Billion US \$

02

South Asian Electricity Sector, Cross Border Electricity Trade and Climate Scenario

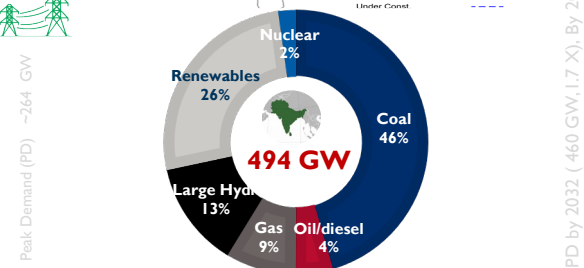
Project

Pathway

Pathway

Pathway B

Power Sector

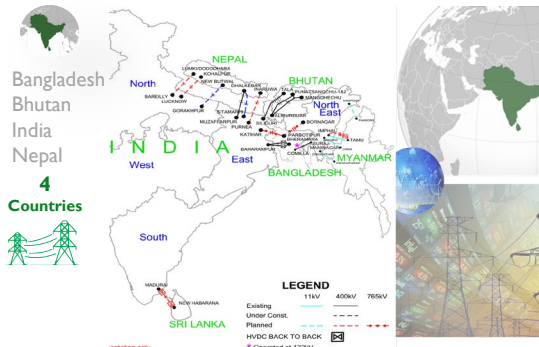


Installed Capacity- 494 GW(2023) | Fossil Dominance-289 GW(~60%) | Coal Dominated-225 GW(45%) | Natural gas (9%), Oil (4%) based IRE-190 GW (38%) | RE-Hydro:129 GW (26%)

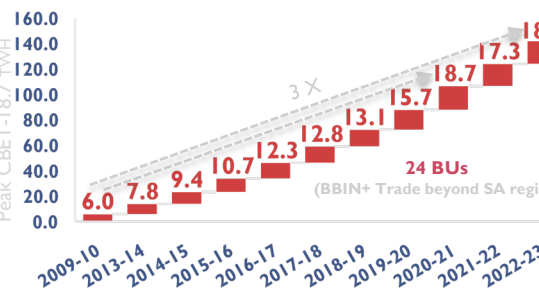
I~4.5 GW of x Border Interconnection | ~ 10 X increase in xBI | Total 43.8 GW of xBI by 2036/2040

Fossil Domination | Diverse Fuel Mix | 44% Co2 from power sector | Rapid Expansion in X Border Interconnection Planned

CBET



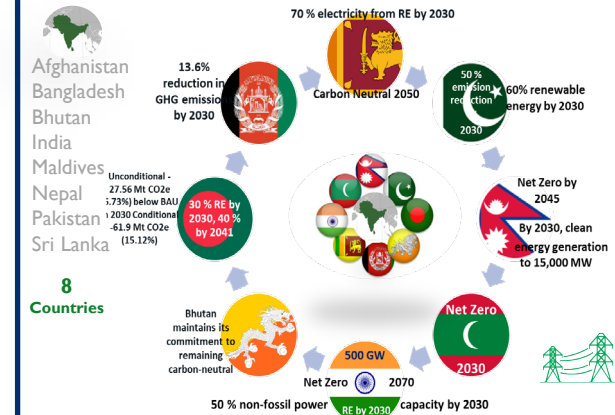
South Asia (BBIN) CBET BUs (TWH)



Bilateral, Mix of G-G & Commercial, CBET Through PX (Only in Asia), Bidirectional, Trilateral CBET Upcoming

Large CBET Potential | CBET low compared to other regions | ASEAN 49 TWH | EU 240 TWH | South Asia 24 TWH

Climate-Induced Energy Sector Transformation



- World's 1st Carbon Neutral Country-Bhutan**
- Net Zero by 2030-Maldives**
- Net Zero by 2045-Nepal**
- Carbon Neutral by 2050-Sri Lanka**
- 30% RE by 2030 and 40 % RE by 2041-Bangladesh**
- 15 GW clean energy by 2030-Nepal**
- Net Zero by 2070-India**
- 500 GW RE Installed Capacity by 2030-India**

OSOWOG initiative will also accelerate the rapid deployment of Solar in South Asia and Beyond

Large-scale clean energy transition | Regional approach will be optimal | Opportunity for developing regional energy projects

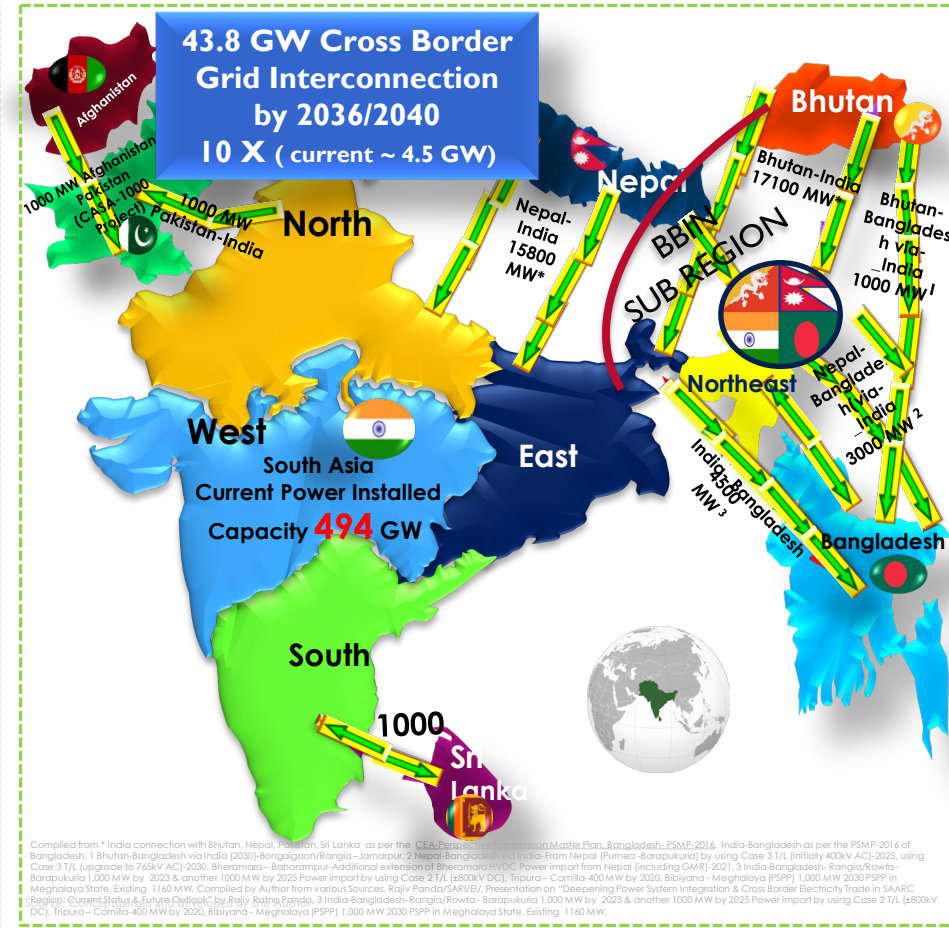
03

Investment Opportunities, Regional Energy, CBET Project- Uniqueness & Risks



- ❑ Decarbonisation Goals will **require significant additional investment.**
- ❑ **3.4 Trillion** Climate Smart Investment opportunities by 2030 in South Asia *
- ❑ South Asia would spend **1.39 trillion US\$** to add ~750 GW of electricity generation capacity and **29 billion US\$** for planned inter-grid connection by 2040 **.
- ❑ **43.8 GW** of Cross Border Interconnection by 2040
- ❑ BIMSTEC region needs **958 billion US\$** for generation and **122 billion US\$** for Transmission*** by 2035.

* Source: Climate Investment Opportunities in South Asia An IFC Analysis ** World Bank-WP52341 *** BIMSTEC Energy Outlook – 2035



Nature of Regional Energy and CBET Project – Uniqueness and Risks



Long Term

Political and
Country Risk

Financing
Risks

Off-taker Risk
(Including
payment Risk)

Irreversible



Policy &
Regulatory
Risk

Construction
/ Operation
Risk

Expropriation
and breach of
Contract



Multiple Jurisdiction

Dispute
Resolution
Risk

Security Risk

Pricing Risks

An Ecosystem Approach: A combination of *de-risking strategies, risk mitigation instruments, innovative financing instruments, and regional forums* can create the needed ecosystem. USAID is implementing South Asia Forum on Energy Investment (SAFEI)



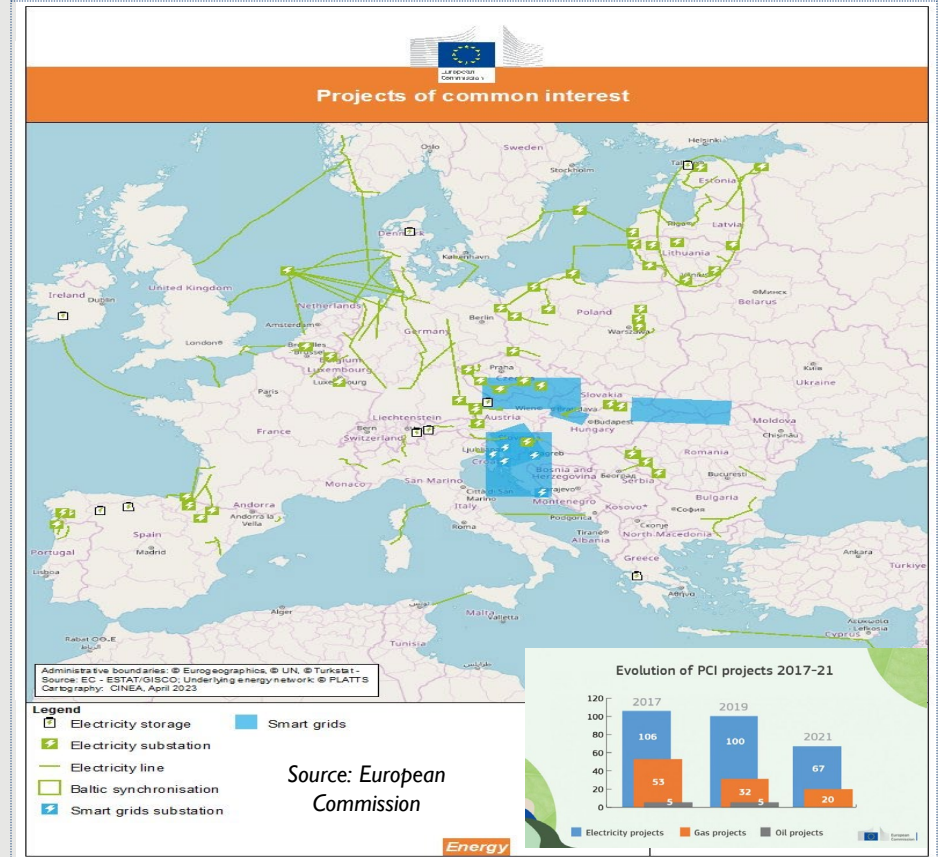
04

International Experience-Facilitating Investment in Regional Energy and CBET Projects

#EnergyUnion



- Projects of Common Interest (PCIs) aim to support EU to achieve its energy policy and climate objectives - affordable, secure, and sustainable energy for all citizens, and the long-term decarbonisation of the economy.
- These are the key cross border high risk infrastructure projects that link the energy systems of EU countries.
- PCIs benefit from accelerated permitting procedures and funding.
- PCIs can take funding from the **Connecting Europe Facility (CEF)**, the EU fund for boosting energy, transport, and digital infrastructure.
- CEF support comes in the form of grants. €5.8 billion budget for CEF, for 2021-2027.**
- Being assessed in the ENTSOe's Ten Year Network Development Plan (TYNDP) is a pre-condition for a project to be granted PCI Status.





05 → Strategies and Way forward



- 1** Create Level Playing Field-Enhance Market Access based on Principle of **Competition & Rule of Market**
{Cooperation Sprit with Competition Principle}



- 2** Recognise & Develop one/two Trilateral/Multilateral CBET Project as “**Regional Pride Project**”
{Demonstrating Regional Political Commitment}



- 3** Developing a Regional Energy & CBET Projects **Investment Pipeline (RECBIP)**
{Providing Long term signal to Investor Community}

Country Governments & Policy makers



- 4** Creation of South Asia **Regional Grid Integration Fund (SARGIF)**
{Supporting High Risk Projects with regional benefits}



- 5** Develop a **Regional Strategy & Advocacy** to tap into International Climate Finance/Funds (CFs)
{Mobilising CFs for Regional Energy & CBET Projects with Climate Benefits}



- 6** Develop/Mainstreaming **Innovative Business/PPP Models & Insurance Instruments**
{De-Risking & Enhance Bankability for Regional Energy & CBET Projects}

MDBs, CFS, Country Governments, Policy makers, Private Sector, Regulators, Developers



- 7** **Common Principle** for Equitable Sharing of **Cost & Benefits** of Regional Energy, CBET Projects
{Setting the expectations}



- 8** **Investment Facilitation**
“**Creation of South Asia Forum on Energy Investment (SAFEI)**”
{Dedicated Facilitation on a Sustained basis for Regional Energy & CBET Projects}



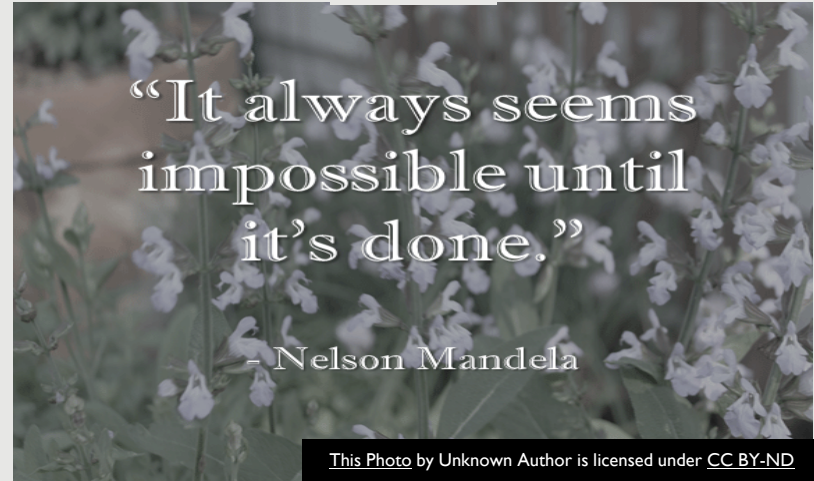
- 9** **Data & Information Transparency**
SA Investment Outlook, Investment Data portal
{Enhance investment data and information ecosystem of Regional Energy & CBET Projects}

Country Governments, Policy makers, Donors, MDBs, Private Sector, Researchers , Academia



JOIN SAFEI

Thank You

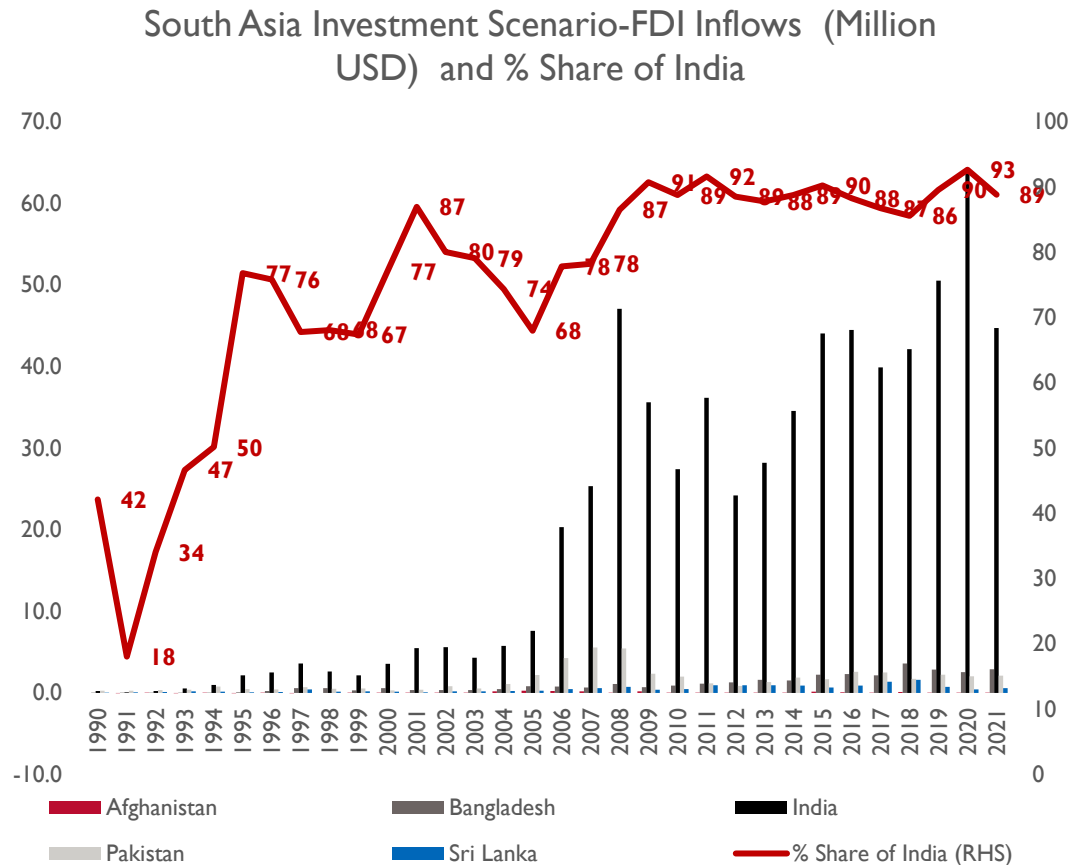
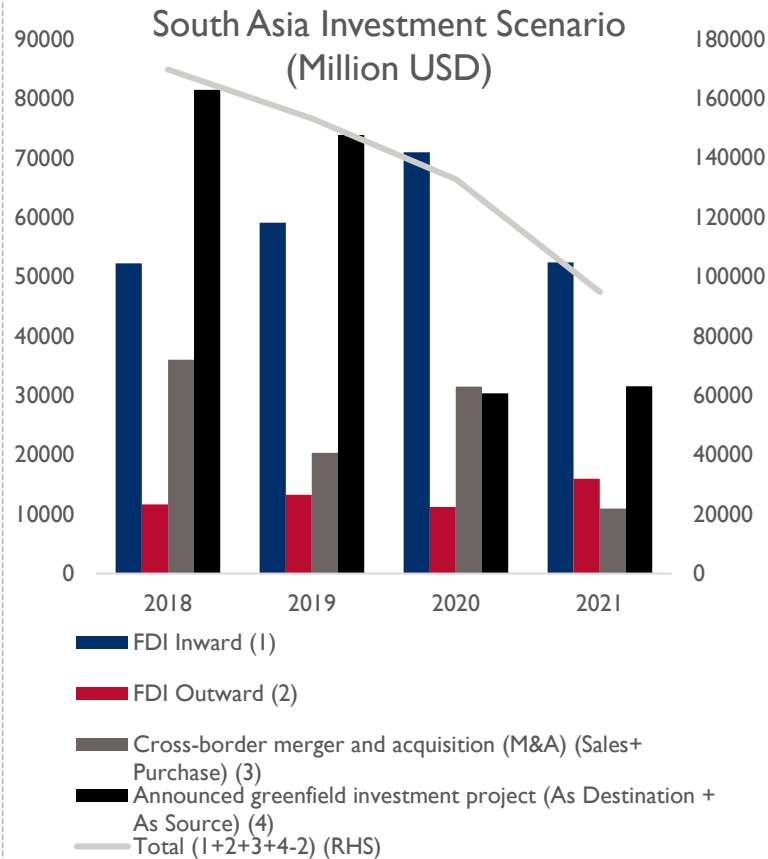


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Disclaimer

The data, information and assumptions (hereinafter ‘data-set’) used in this document are in good faith and from the source to the best of SAREP (the program) knowledge. The program does not represent or warrant that any data-set used will be error-free or provide specific results. The results and the findings are delivered on “as-is” and “as-available” data-set. All data-set provided are subject to change without notice and vary the outcomes, recommendations, and results. The program disclaims any responsibility for the accuracy or correctness of the data-set. The burden of fitness of the data-set lies completely with the user. In using the data-set data source, timelines, the users and the readers of the report further agree to indemnify, defend, and hold harmless the program and the entities involved for all liability of any nature.

South Asia Investment Scenario-FDI

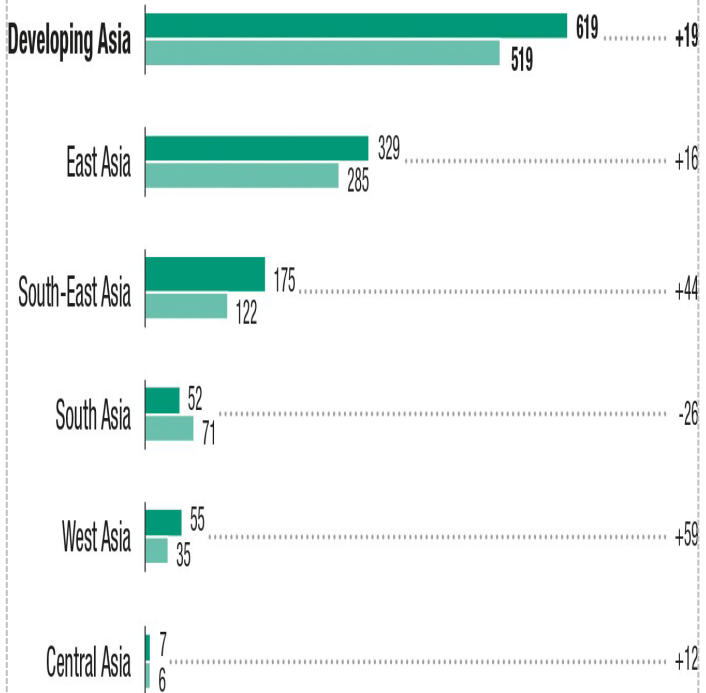


Source: World Investment Report 2022, UNCTAD

Source: World Investment Report 2022, UNCTAD

South Asia Investment Scenario-FDI Inflows, Intra-Regional FDI

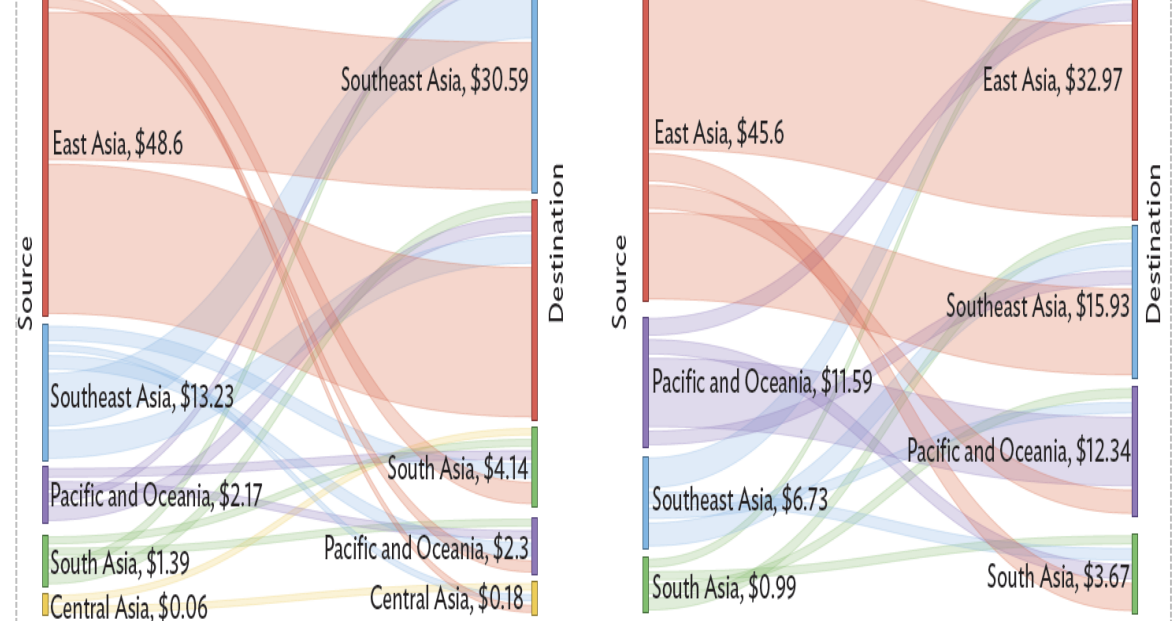
■ 2021 ■ 2020
 FDI flows to developing countries in Asia and subregions, 2020-2021 (Billions of dollars)



Source: World Investment Report 2022, UNCTAD

(a) Greenfield FDI

Intraregional Foreign Direct Investment—Asia and the Pacific, Firm-Level, by Mode of Entry (\$ billion)

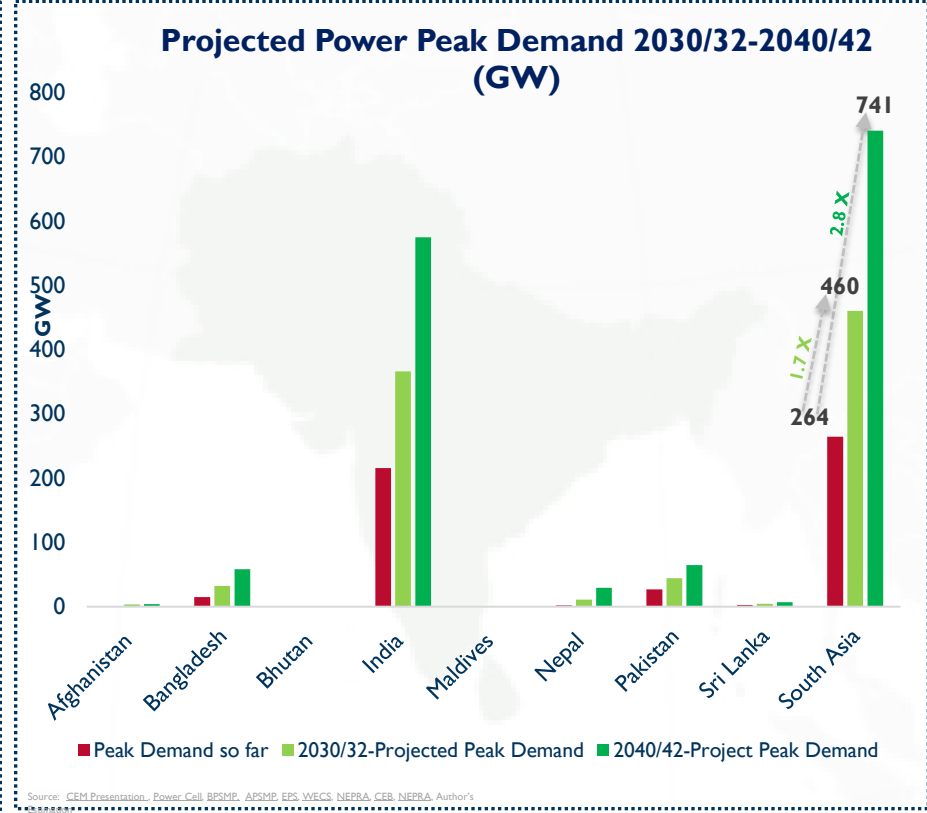
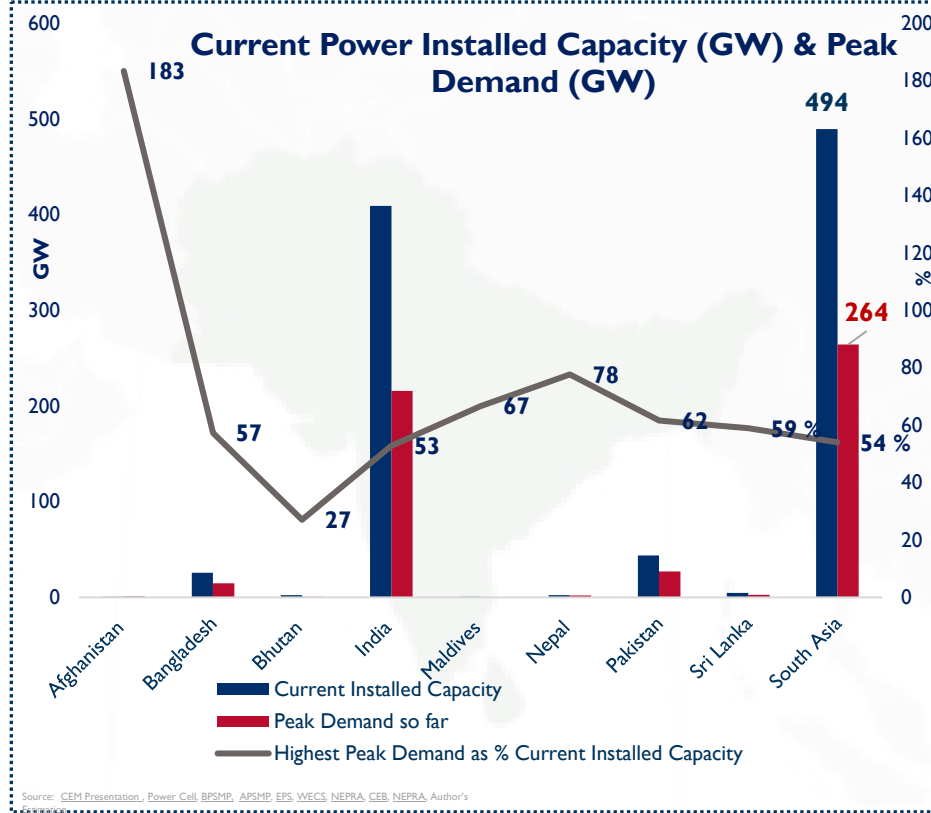


FDI = foreign direct investment, M&A = merger and acquisition.

Sources: ADB calculations using data from Bureau van Dijk, Zephyr M&A Database; and Financial Times. fDi Markets.

Source: ASIAN ECONOMIC INTEGRATION REPORT 2023

Overview of South Asia Power Sector-A Snapshot



Opportunity for Generation Capacity Optimization | Massive demand growth in future | Significant Capacity addition will be needed

Summary of learnings from review of international examples

	Project preparation and analytical studies	Assistance in financial closure	Project implementation/monitoring support	Regional investment strategy	Regional investment fund	Discussions, knowledge sharing
PAU in SAPP 	✓	✓	✓		✓	✓
CAREC EIF 	✓			✓		✓
CEF in EU 					✓	
Sustainable Energy Investment Forum Europe  	✓					✓
Heads of ASEAN Power Utilities Working Group 	✓			✓		✓
Regional Power Trade Coordination Committee (RPTCC) in GMS 	✓			✓		✓

Vision and Mission-South Asia Forum on Energy Investment (SAFEI)



Vision



VISION

To become the **regional centre of excellence** for creating an **investor friendly ecosystem** for the development of **sustainable regional energy projects** and **advancing cross border energy trade** in South Asia.

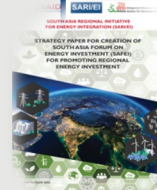


Mission



MISSION

To **facilitate, support and promote regional energy investments** in South Asia in a **sustainable and cost-effective manner**.



Objectives of SAFEI

1. Facilitate the development of a conducive and investor friendly ecosystem for creating a sustainable market for energy investment.
2. Advocate for the development of coordinated and harmonious policy, investment and commercial framework across countries of South Asia for accelerating the investments in CBET and regional energy projects.
3. Facilitate the mobilisation of financing and investment avenues with increased private sector participation in regional energy projects.
4. Promote sustainable regional energy projects and the adoption of associated frontier technologies and best practices.
5. Act as a credible source of all investment related information in respect of regional energy projects and help dissemination of such information for investor community in taking prudent investment decision.
6. Undertake cross cutting analysis and research and commission regional studies on regional energy investment opportunities with special emphasis on international best practices.
7. Serve as a regional platform to facilitate networking, information and knowledge exchange, including stakeholder outreach.

Objectives of South Asia Forum on Energy Investment (SAFEI)

1



Facilitate Development of conducive and investor friendly ecosystem

2



Advocate for development of regional policy, regulatory, legal & commercial framework

3



Facilitate the mobilization of financing with increased private sector participation

4



Promote the adoption of sustainable and new technologies, best practices

5



Act as a credible source of all investment related information, and its dissemination for investor community for prudent investment decision

6



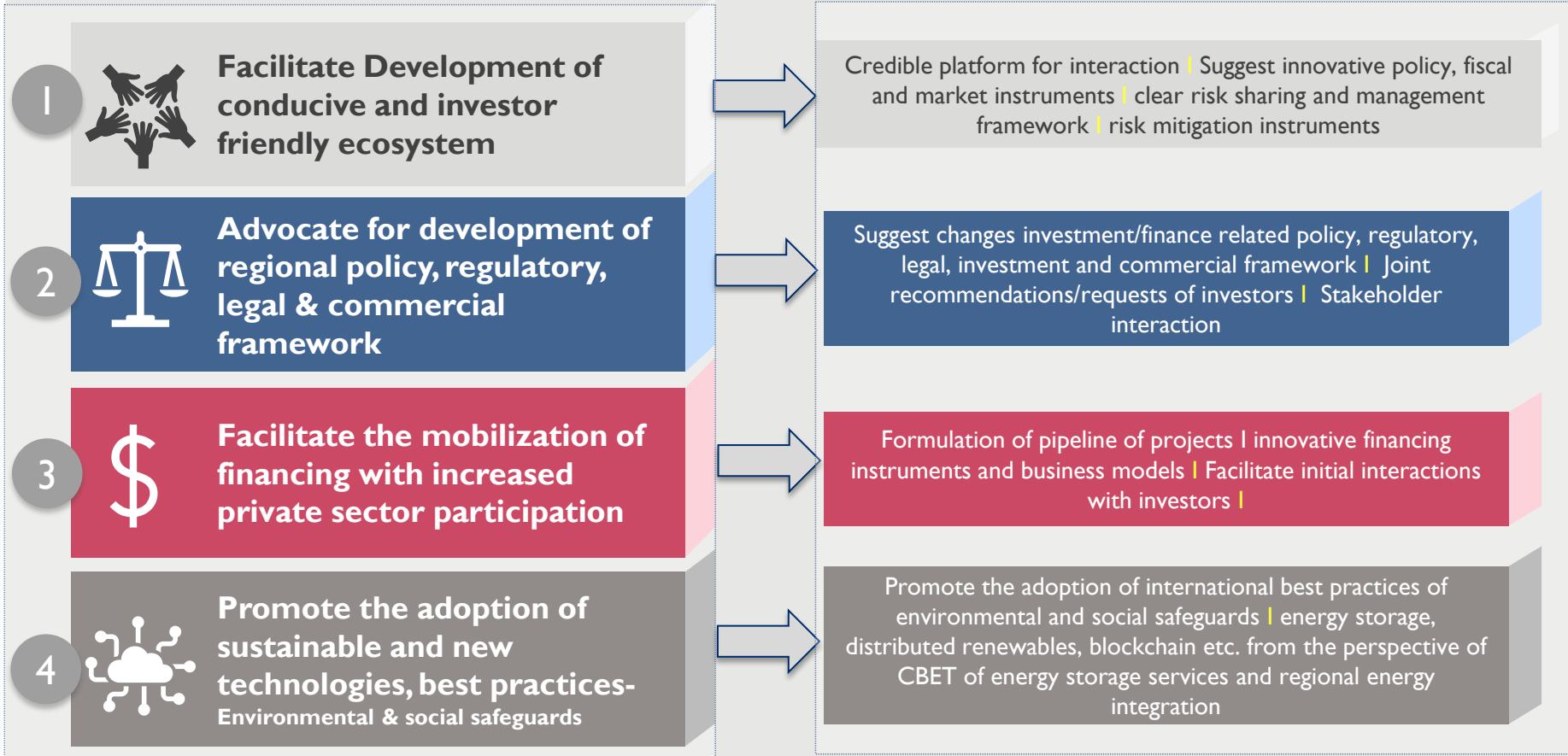
Undertake cross cutting analysis, research and commission studies on regional energy investment opportunities- South Asia Regional Energy Investment Outlook

7

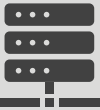


Serve as a regional platform to facilitate networking and outreach


Objectives of South Asia Forum on Energy Investment (SAFEI)



Objectives of South Asia Forum on Energy Investment (SAFEI)

5  **Act as a credible source of all investment related information, and its dissemination for investor community for prudent investment decision**

Develop an information repository covering new and proposed regional energy investments | Project success stories | Standard templates and quick reference guides

6  **Undertake cross cutting analysis, research and commission studies on regional energy investment opportunities**

Development and updating of investment templates | Undertake project specific analysis in initial stages of project preparation | South Asia Regional Energy Investment Outlook

7  **Serve as a regional platform to facilitate networking and outreach**

Platform for networking, knowledge exchange, capacity building and consultations | SAFEI Quarterly Newsletters | high-level investment delegations | Regional Investment Summit

Functions of SAFEI (1/2)



**Development of
conductive and investor
friendly ecosystem**

- Provide platform for interaction
- Suggest innovative policy, fiscal and market instruments
- Undertake proactive studies
- Identification of broad solutions for risk mitigation



**Advocate for
development of regional
policy, regulatory, legal &
commercial framework**

- Analyse the need for changes in country level frameworks/provisions
- Initiate dialogues with policy makers on solutions to investment barriers
- Facilitate development of joint recommendations/requests of investors
- Provide support to policy makers to promote regional investments.



**Facilitate the
mobilization of financing
with increased private
sector participation**

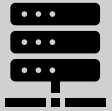
- Identification of financing sources and regional investment opportunities
- Identification of a list of regional energy investment projects to explore opportunities of investment
- Facilitate initial interactions between multiple financing sources & investors



**Promote the adoption of
sustainable and new
technologies**

- Promote the adoption of environmental and social safeguards in development of sustainable energy infrastructure
- Facilitate adoption of such new technologies such as energy storage, distributed renewable etc.

Functions of SAFEI (2/2)



Act as a credible source of all investment related information, and help in its dissemination

- Highlight the importance of regional projects, commercial aspects and their advantages
- Develop an information repository covering new and proposed regional energy investments
- Development of standard templates and quick reference guides



Undertake cross cutting analysis and commission studies on regional energy investment opportunities

- Undertake detailed analysis and research on investment opportunities
- Develop common toolkits and frameworks for opportunity analysis
- Develop and update investment templates
- South Asia Regional Energy Investment Outlook
- South Asia Regional Energy Investment Forum



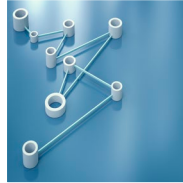
Serve as a regional platform to facilitate networking and outreach

- Identification of financing sources and regional investment opportunities
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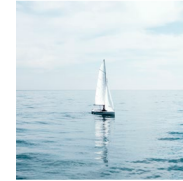
Attracting Investment in CBET Project & Risk Mitigation Needs an Ecosystem Approach



Mapping the Green
CBET Projects for
tapping in to Climate
Finance.



Adequate and Reasonable
Return on Investments

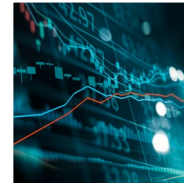


Regulatory Power and
Institutional Capacity

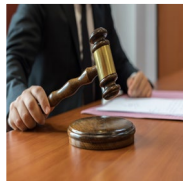
Managing Policy and
Regulatory uncertainty
amidst Transformational
Clean Energy Transition



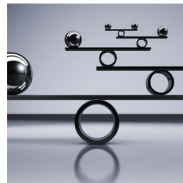
Level playing field and
rule of the market



Trust and Confidence



Adequate conducive legal
framework



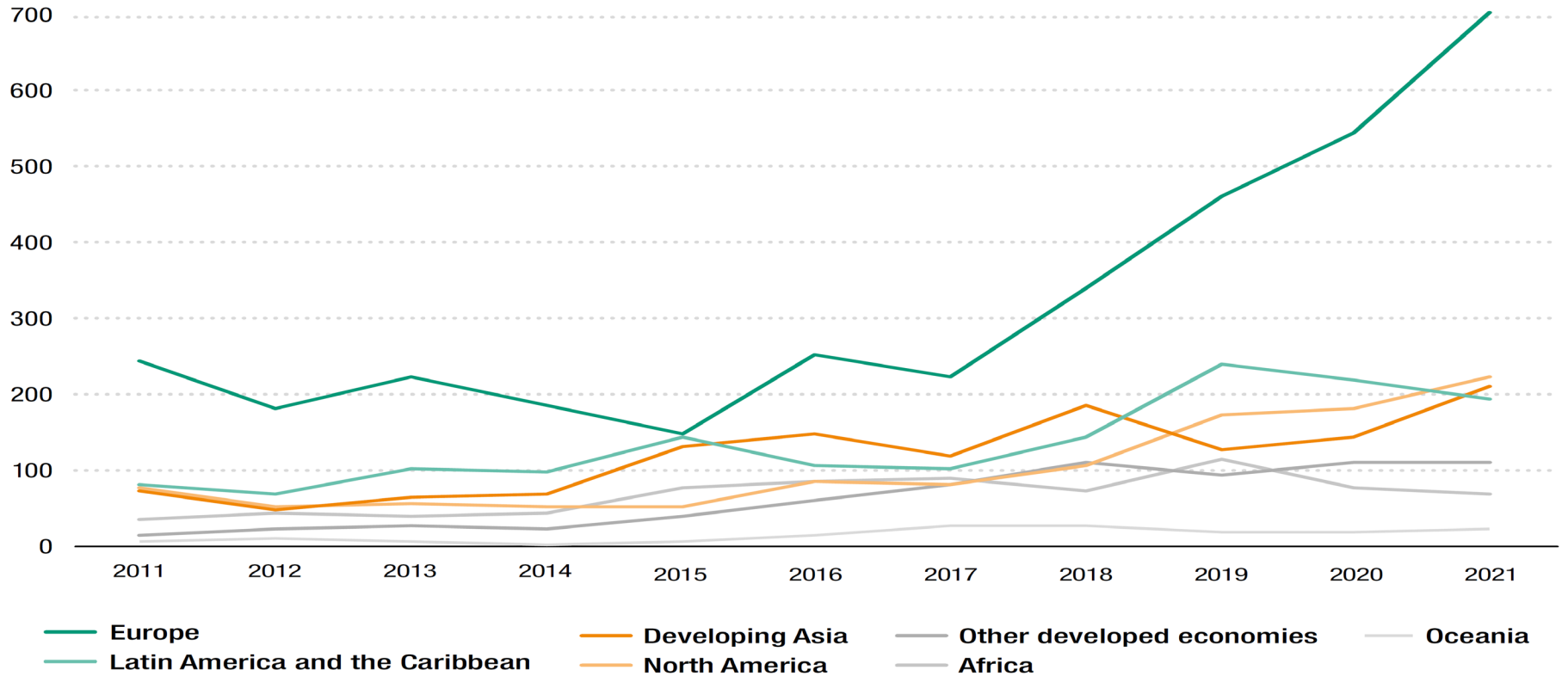
Balancing the interest of
all stakeholders,



Regional Institution
South Asia Forum on
Energy Investment
(SAFEI)

A combination of de-risking strategies, risk mitigation instruments, innovative financing instruments and regional forums can create the needed ecosystem

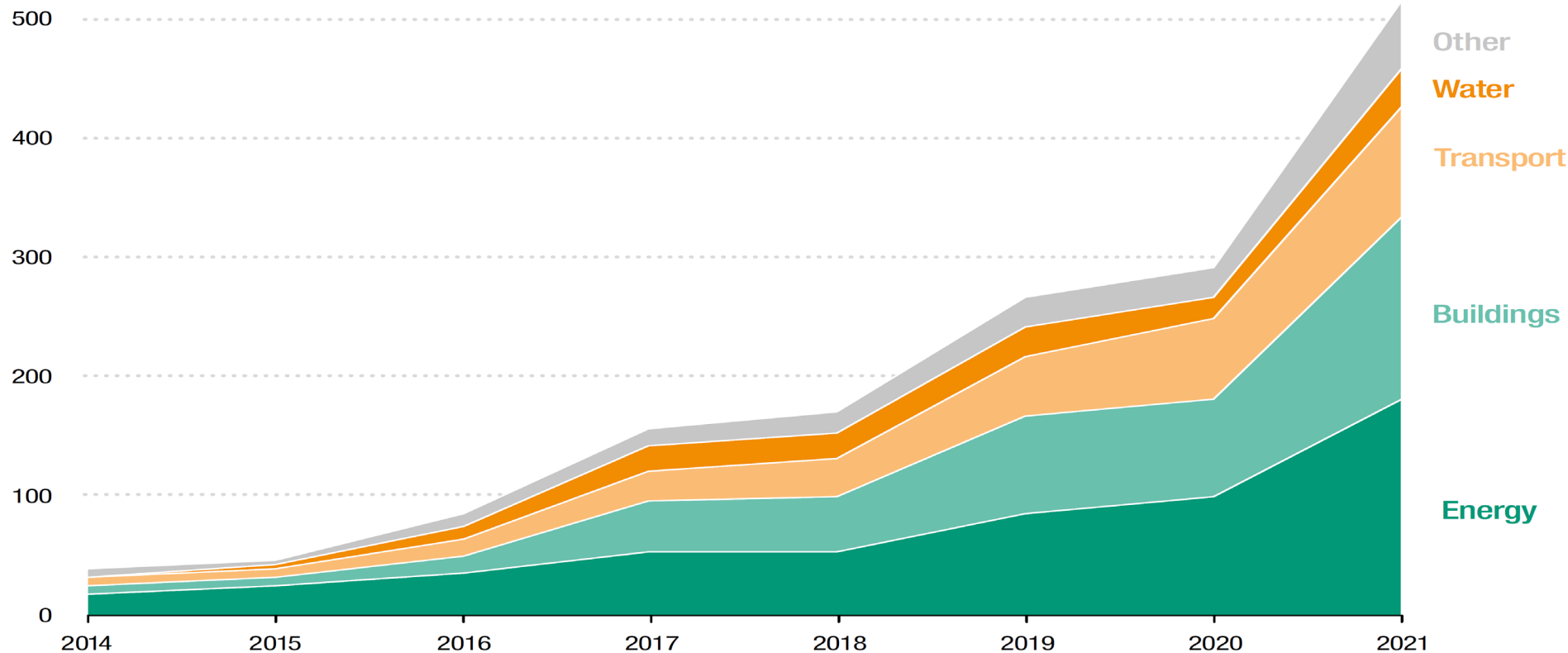
International investments in renewables, by region, 2011–2021 (Number of projects)



Source: [World Investment Report 2022](#), UNCTAD

Source: UNCTAD, based on information from Financial Times Ltd, fDi Markets (www.fdimarkets.com) for greenfield projects and Refinitiv SA for international project finance deals.

Green bond market size by industries Financed, 2014–2021 (Billions of dollars)



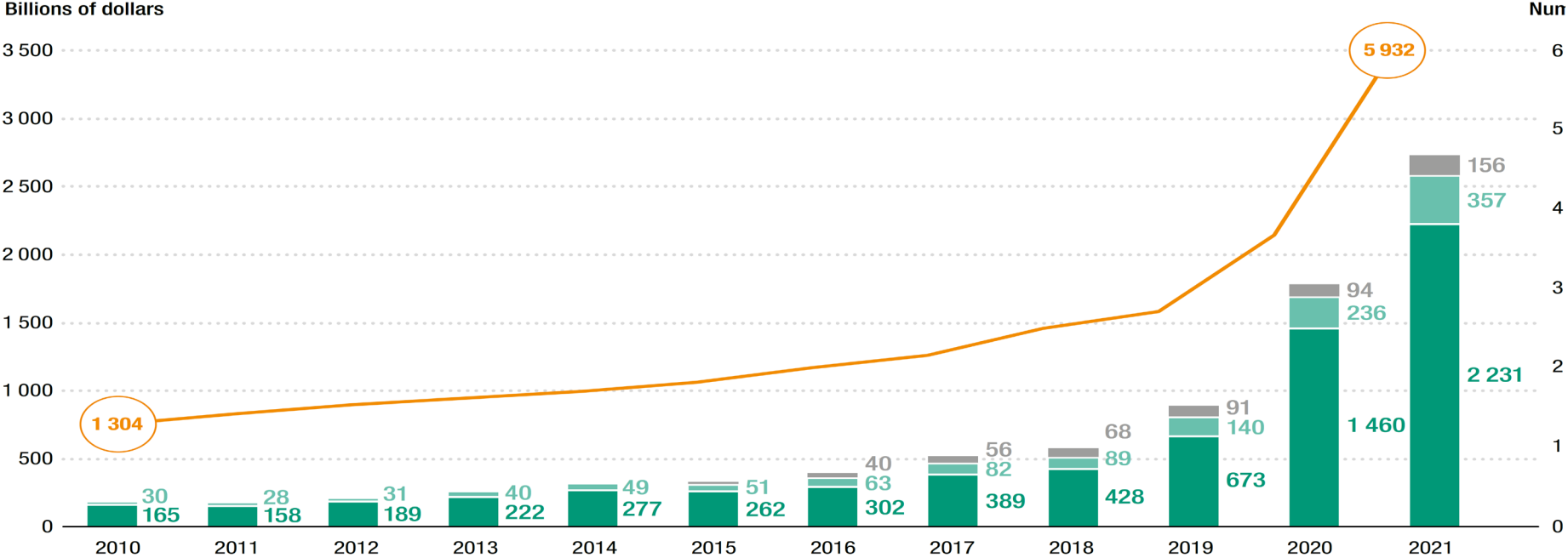
Source: UNCTAD, based on information from Climate Bonds Initiative.

Source: World Investment Report 2022, UNCTAD

Sustainable funds and assets under management, 2010–2021

(Billions of dollars and number)

■ Europe
 ■ United States
 ■ Rest of the world

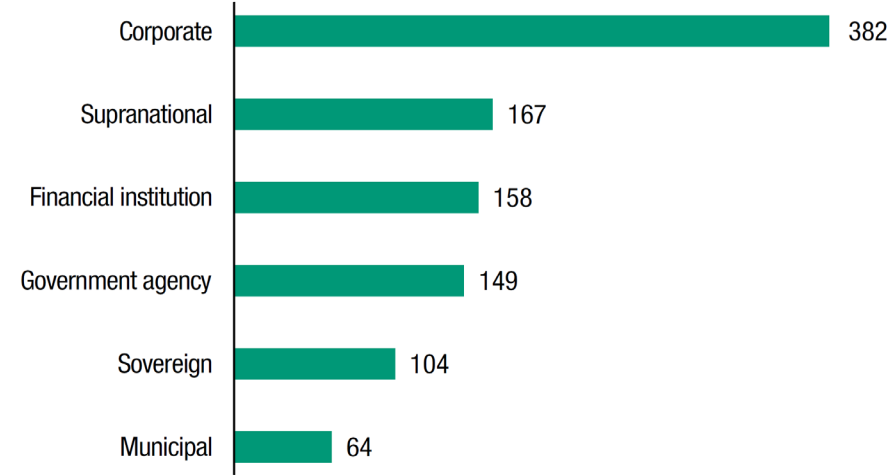
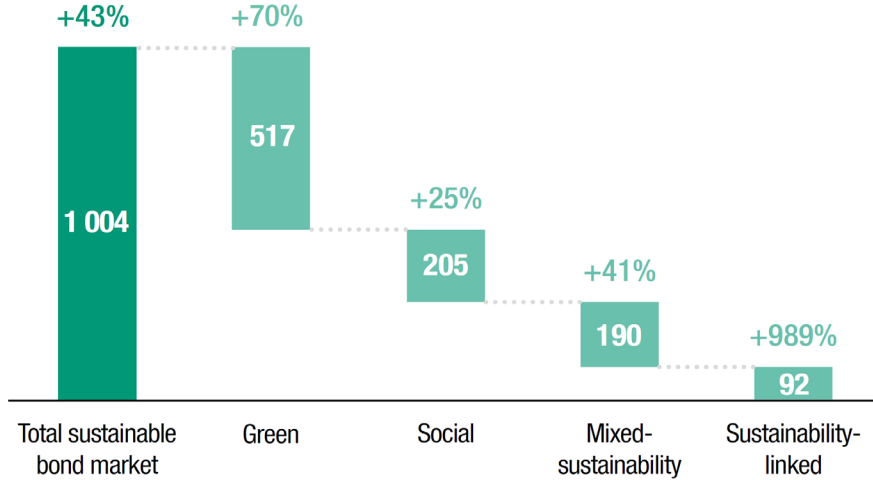


Source: World Investment Report 2022, UNCTAD

Source: UNCTAD, based on Morningstar data.

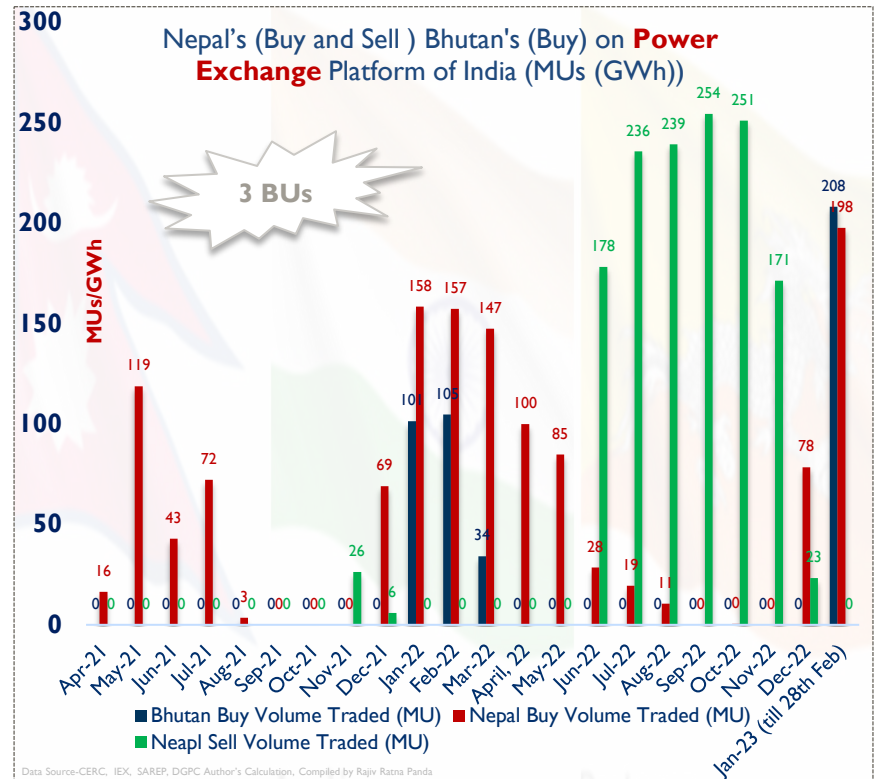
Note: The numbers for 2020 were updated based on the latest data.

Global sustainable bond issuance by bond category, sector and region, 2021 (Billions of dollars and per cent year-on-year growth)



Source: World Investment Report 2022, UNCTAD

Market (Power Exchange) form of CBET (South Asia) & Multilateral CBET (South-East Asia): A Beginning of a new Renaissance



Data Source-CERC, IEX, SAREP, DGPC Author's Calculation, Compiled by Rajiv Ratna Panda

Nepal has earned over Nepalese Rs 11 billion (6.87 billion INR) by selling excess power to India from early June 2022 through December 2022

January 1 and March 16, 2022, Bhutan imported 240MU of electricity from India through the energy exchange at a cost of Nu 798 M.

Lao PDR, Thailand, Malaysia, Singapore (LTMS) Multi Lateral Trade Project

Phase-I
100 MW
Trilateral
Lao-Thailand
Malaysia
32.8 GWh
traded between
2018-21

Phase-II
100 MW
Multilateral
Lao-Thailand
Malaysia-
Singapore
23 June 2022

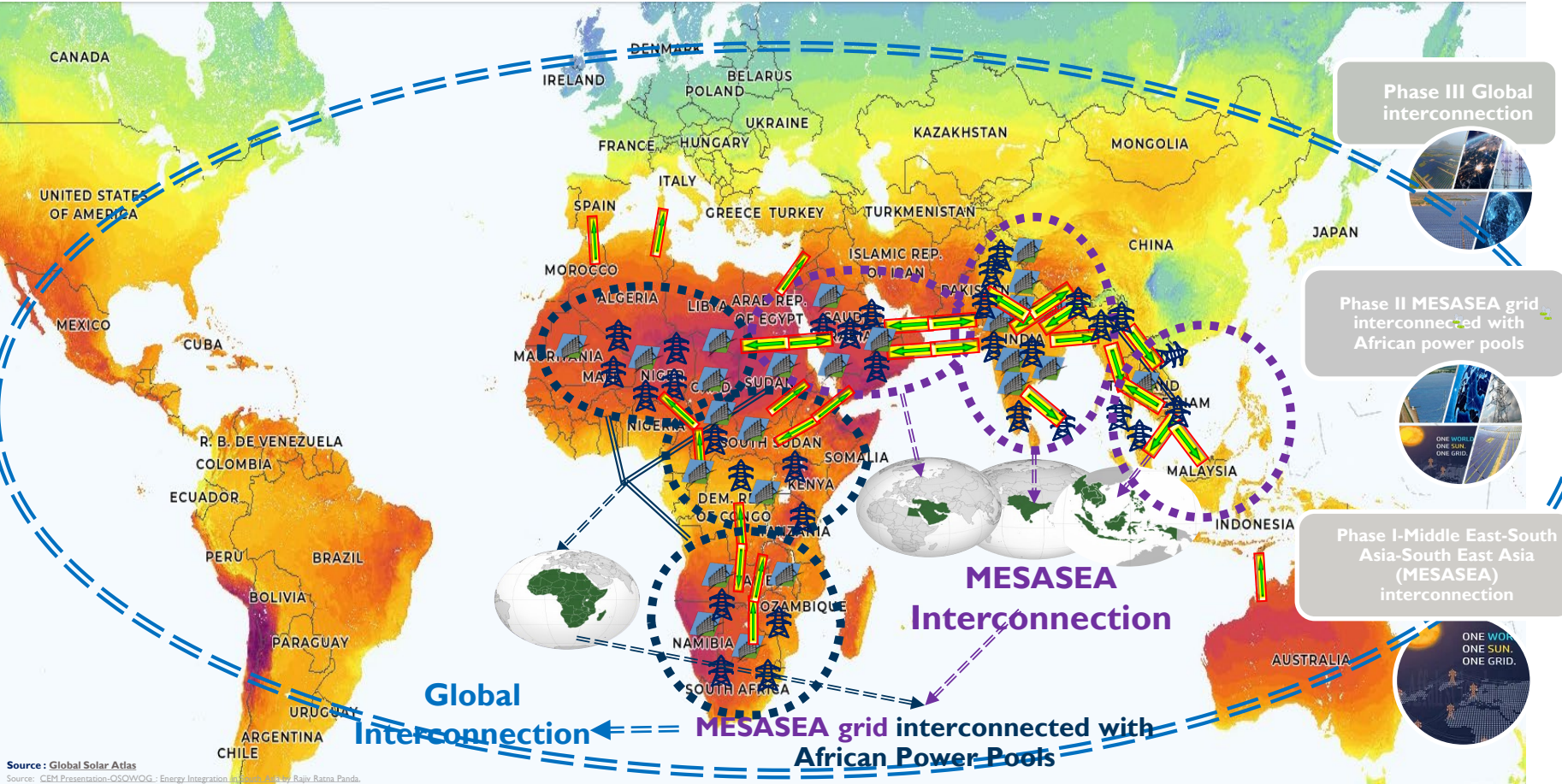
Singapore-fully liberalised power market
4 GW import
Plan by Singapore

As of 31 July 2022, **72 GWh of electricity** traded.

Data Source- Regional electricity trade in ASEAN, Author's Presentation on Bilateral and Trilateral, Compiled by Rajiv Ratna Panda

One Sun One World One Grid (OSOWOG)-3 Phase Approach

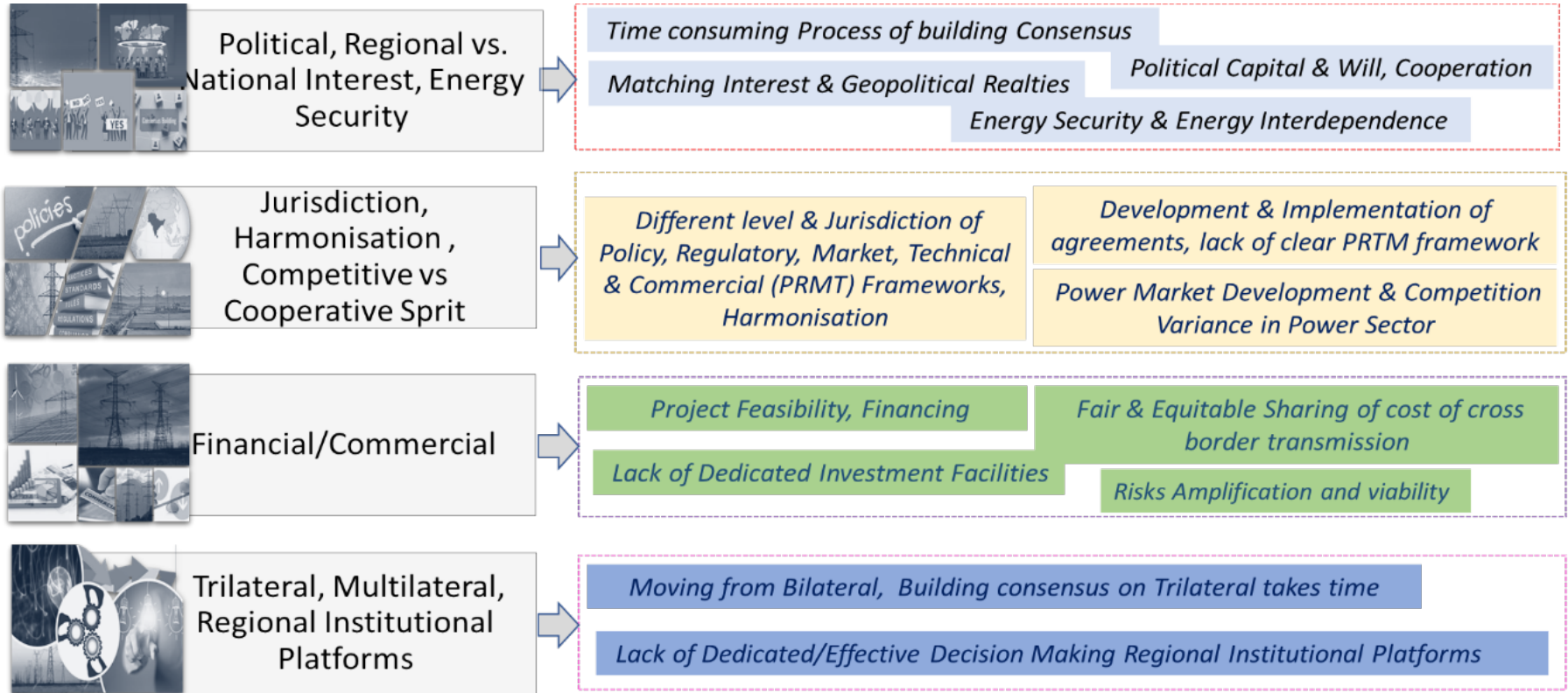
*Artistic representation only. Map not to scale. do not represent any identified location/point of interconnection or direction of power flows, purpose is simply to illustrate graphically for easier understanding of OSOWOG & its 3 phase approach in graphical manner



Source : Global Solar Atlas
 Source : CEM Presentation-OSOWOG - Energy Integration
 by Rajiv Rama Pandu

Building Regional, Sub-Regional, Continental and Global Consensus on Interconnections will be the key

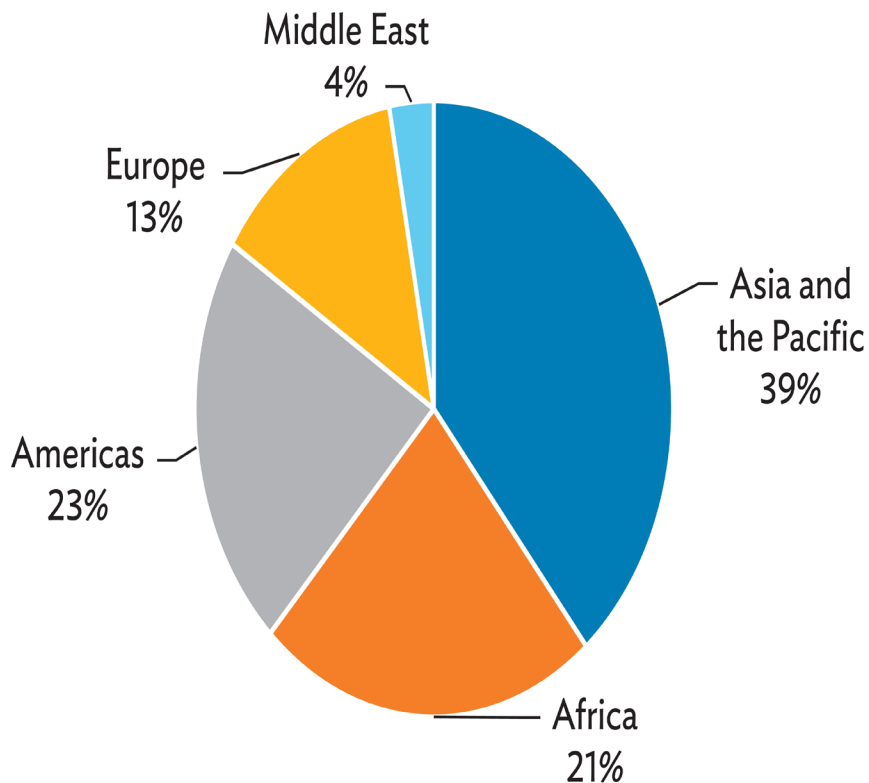
Investment Challenges Faced in Mobilising Finance for CBET Projects in SA Region



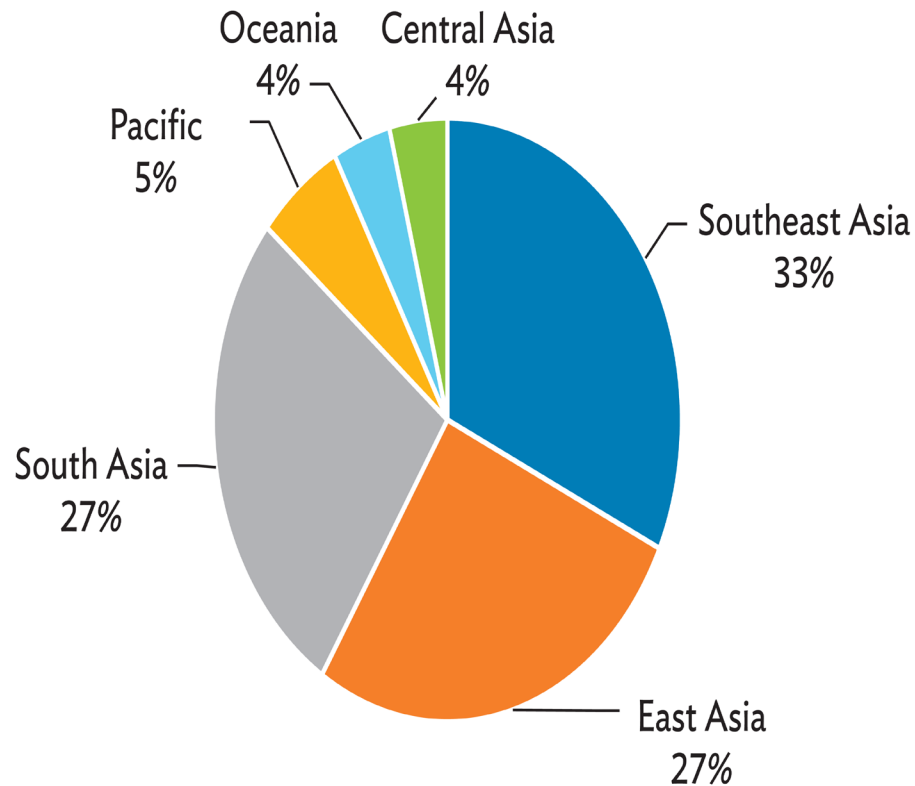
Source: Developed, Modified , Adjusted by referring to the SAARC Energy Center-Video Conference Presentation by Rajiv Ratna Panda's presentation <https://www.saarcenergy.org/video-conference-on-roadmap-for-the-implementation-of-saarc-framework-agreement-on-energy-cooperation-electricity/>

Climate Change Vulnerabilities : Number of Disasters, 2000–2021

(a) By region



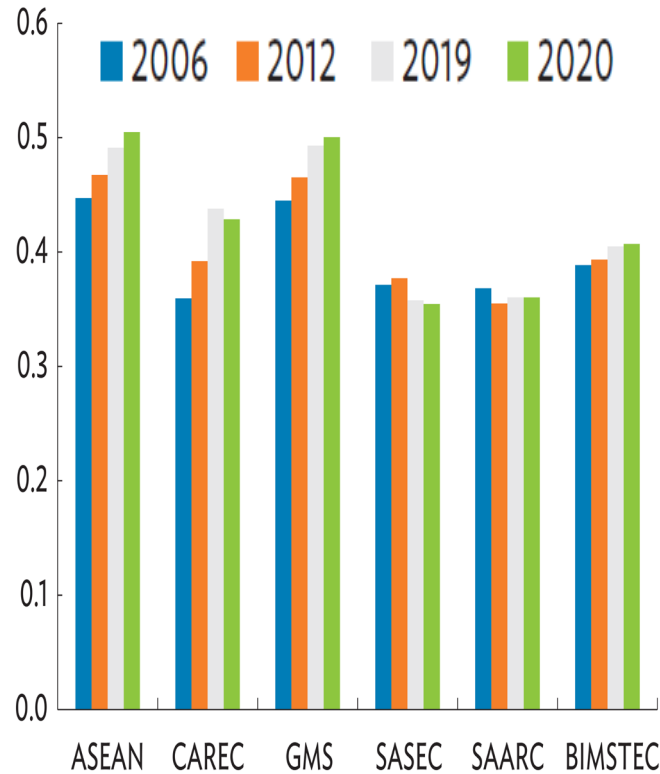
(b) By Asian subregion



Notes: Disaster includes natural occurrences like animal accident, drought, earthquake, epidemic, extreme temperature, flood, glacial lake outburst, insect infestation, landslide, mass movement (dry), storm, volcanic activity, and wildfire. Americas include Latin America and North America. Source: ADB calculations using data from Centre for Research on the Epidemiology of Disasters - CRED, EM-DAT The International Disaster Database. <http://www.emdat.be> (accessed January 2023), [Asian Economic Integration Report 2023](#)

South Asia: Regional Integration

Overall Integration Indexes, by Subregional Initiative



Selected Economic Indicators, 2021—South Asia

Member states	Population (million)	Nominal GDP (\$ billion)	GDP Growth (%; 2017–2021, average)	GDP per Capita (current prices, \$)	Trade Openness (total trade, % of GDP)
Afghanistan	40.1	20.1	1.3	502.2	31.1
Bangladesh	169.4	416.3	6.4	2,457.9	25.6
Bhutan	0.8	2.4	1.5	3,140.9	170.4
India	1,407.6	3,176.3	3.8	2,256.6	30.4
Maldives	0.5	5.2	6.1	9,979.7	52.4
Nepal	30.0	35.8	5.0	1,193.5	49.2
Pakistan	231.4	348.2	3.7	1,504.9	29.0
Sri Lanka	21.8	89.0	1.8	4,086.6	30.1
SAARC	1,901.5	4,093.4	4.0	2,152.7	30.0

Notes: (ARCI) estimates. The bars reflect intra-subregional integration. Source: ADB, Asia Regional Integration Centre. ARCI Database. <https://aric.adb.org/database/arci/> (accessed December 2022), [Asian Economic Integration Report 2023](#)

Notes: Average GDP growth rate for Afghanistan covers until 2020. SAARC average GDP growth rate is weighted using nominal GDP. Nominal GDP figures are based on International Monetary Fund staff estimates. ADB placed on hold its assistance in Afghanistan, effective 15 August 2021 (ADB, 2021f, ADB Statement on Afghanistan, News release, 10 November, <https://www.adb.org/news/adb-statement-afghanistan>). The data and information on Afghanistan were collected from international sources. Sources: ADB calculations using data from ADB, Asian Development Outlook database for GDP growth; and Haver Analytics, Inc. for nominal GDP, population, and trade. [Asian Economic Integration Report 2023](#)