Low-Carbon Energy Sector Transformation in Asia : Asian Development Bank Perspectives

- ***How Can the 2015 Agreement Drive Energy Sector Transformation and Climate Technology Transfer and Development?***
- COP 21 IEA-ADB Official Side Event
- 9 December 2015 (16:45 – 18:15)

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Asia's Energy Challenge

4.2 Billion
Population in Asia

1.8 Billion
People without access to clean cooking

600 Million
People without access to electricity

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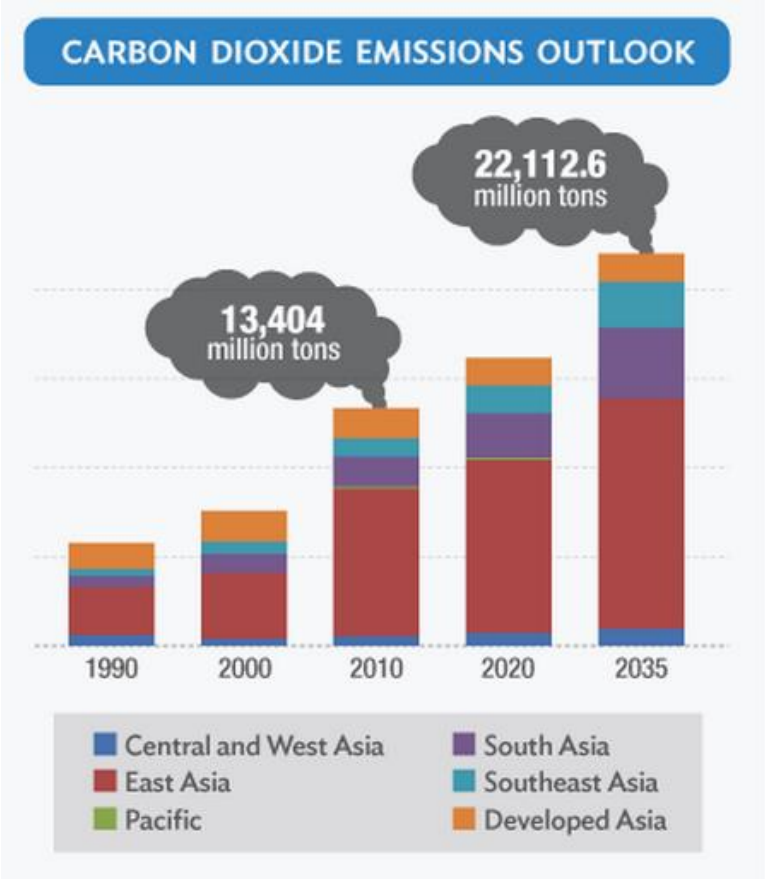
Asia: Low-carbon energy transformation is already underway but..

- More investments now in renewable than in fossil fuel plants ; but inadequate grid investments
- Fossil fuel subsidy reform gained momentum recently; but more needs to be done
- Large investment needs; but inadequate private investments so far

Energy Outlook in Asia and the Pacific



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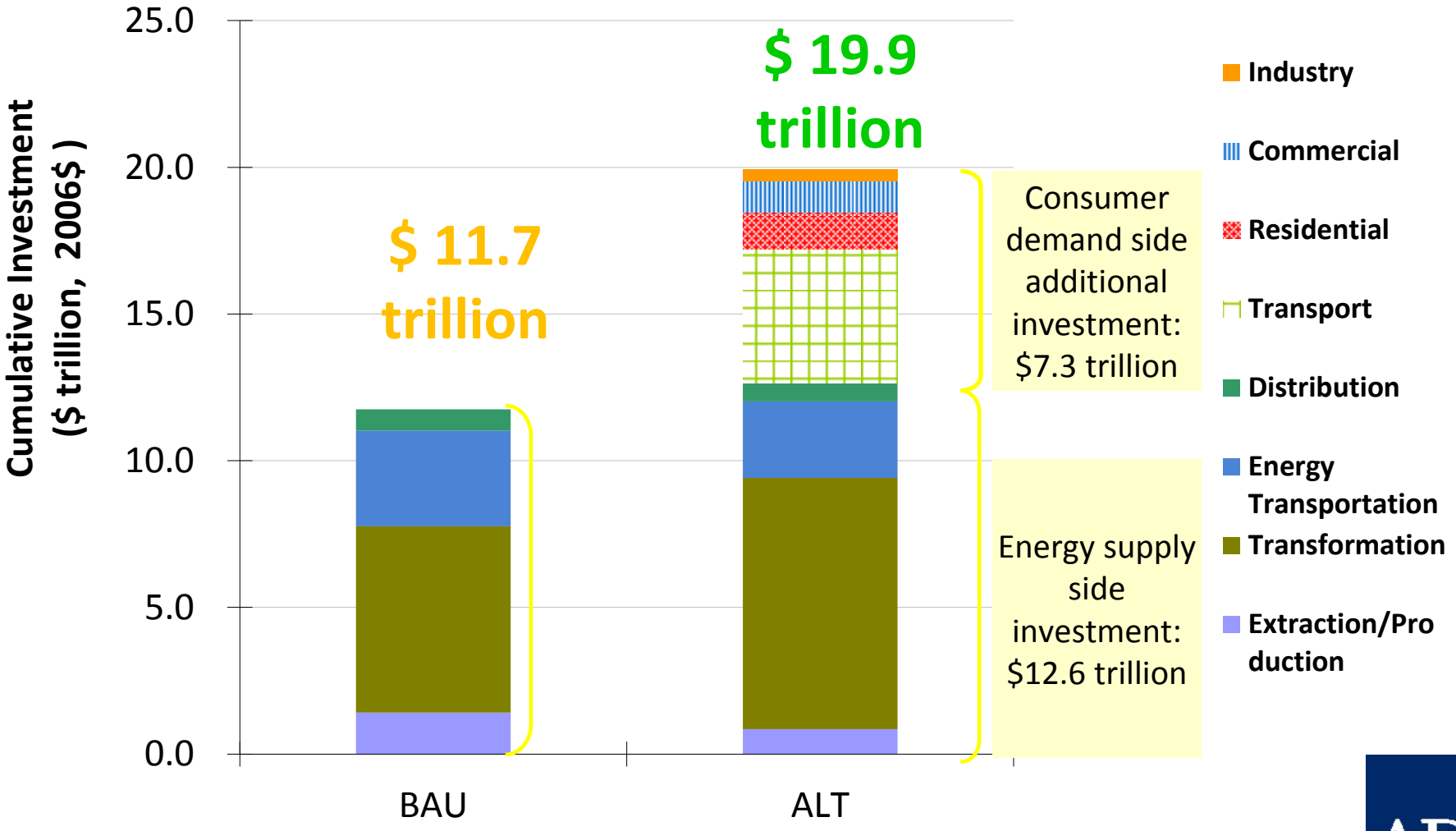
Investment Requirements
"Business-as-Usual" vs. Alternative Scenario
2010-2035



Source: ADB, APERC 2013

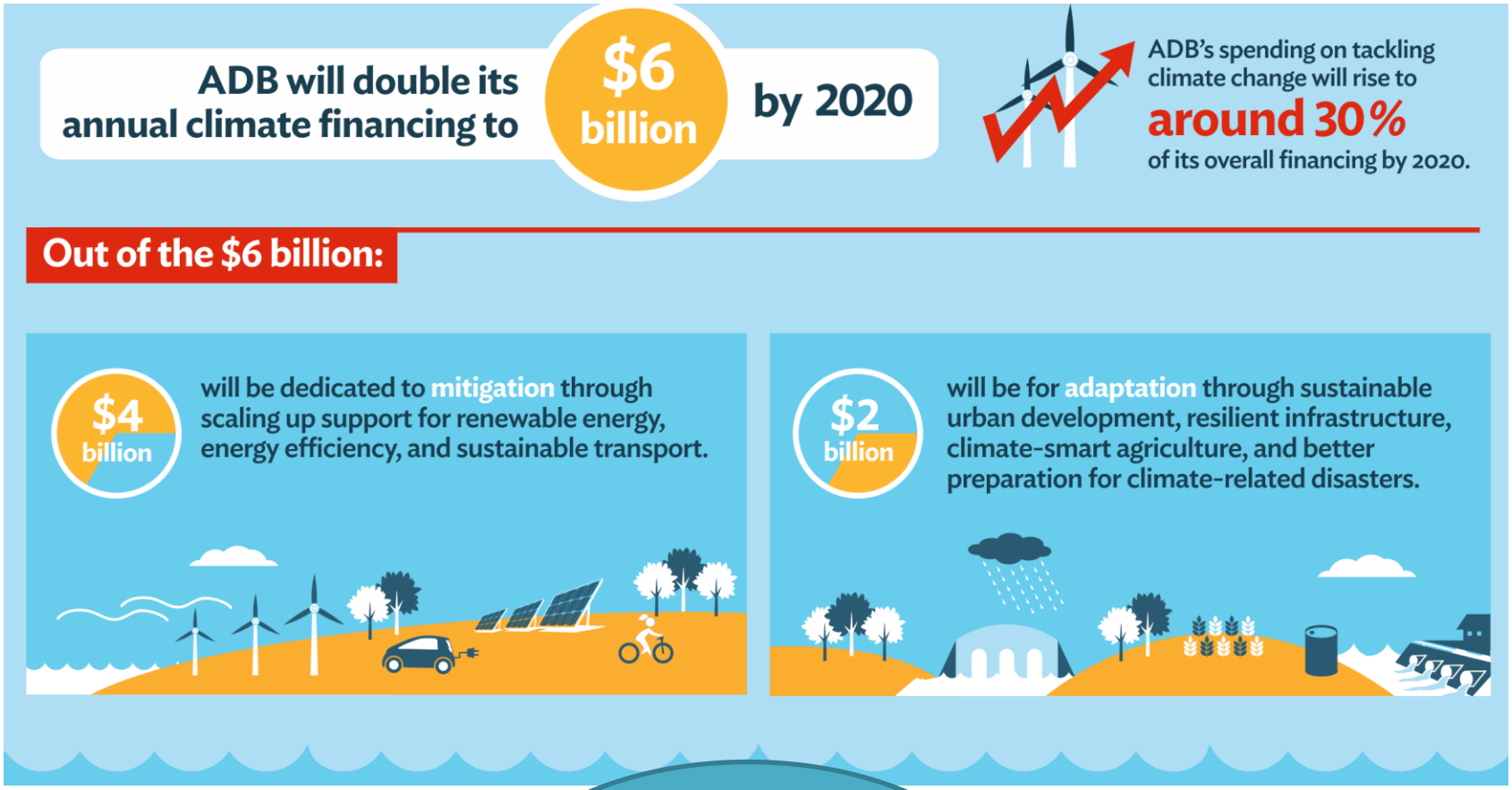
How ADB has positioned itself

- **Double climate finance:** $6 billion annually from 2020

- **Prioritize climate change mitigation and adaptation:** nearly half of all investment projects should address it

- **Institutional realignment with greater focus on climate change**: new department was formed

ADB's Climate Finance Target



$3 billion clean energy

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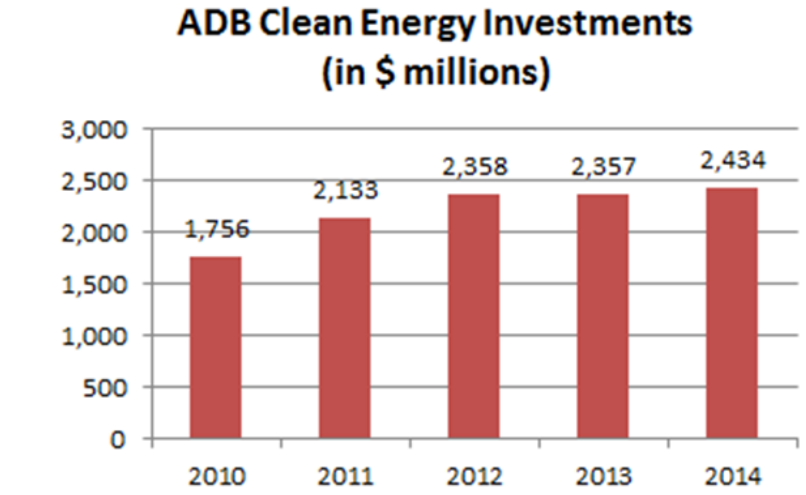
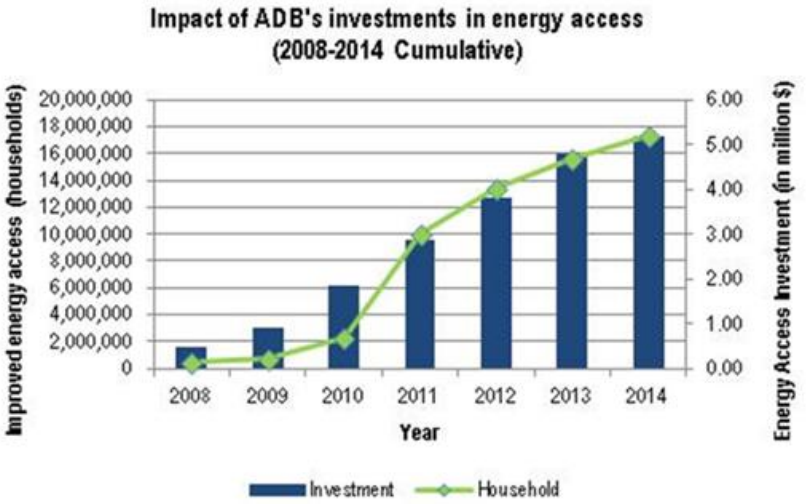
Mitigation Initiatives

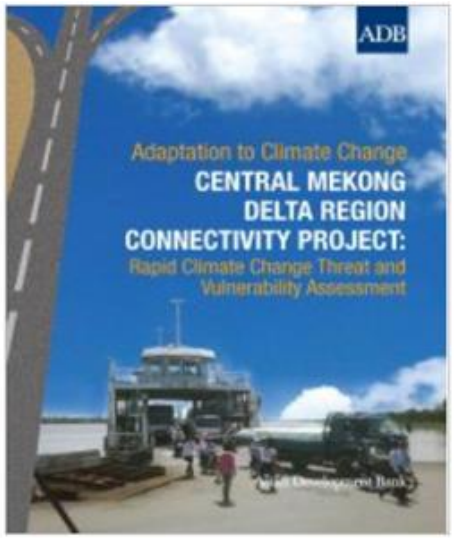
- **Clean Energy**
  - > $2b investments per year
  - 10 GW renewable capacity development
  - Hub for SE4All Initiative/ E4All Partnership
- **Sustainable Transport**
  - 30% of investments for urban transport; 25% for railways by 2020
  - Urban transport investments up 17% (2010-14) vs 2% (2000-09)
  - Climate proofing of road infrastructure
- **Land Use and Forest Management**
  - Piloting REDD+/FIP: Indonesia, Lao PDR

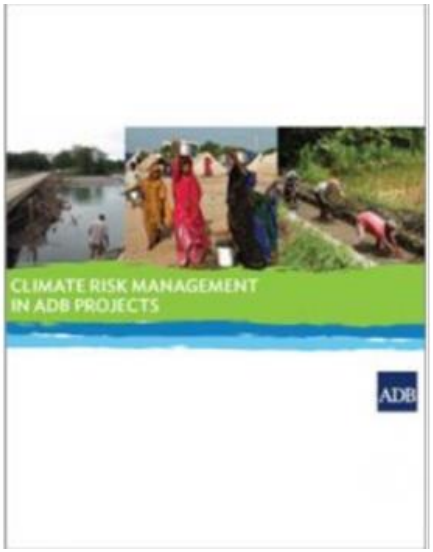




Adaptation Initiatives

- **Mainstreaming climate resilience in core development planning**
  - Pilot Program on Climate Resilience for Bangladesh, Cambodia, Nepal, Papua New Guinea, Samoa, Tajikistan and the Pacific
- **Climate proofing vulnerable projects:** roads and bridges, ports, water supply and drainage
- **Knowledge support:** regional climate projections consortium data facility , guidance and tools
- **Addressing social dimensions :** migration, gender, health impacts
- **Greater emphasis on integration of adaptation and disaster risk**





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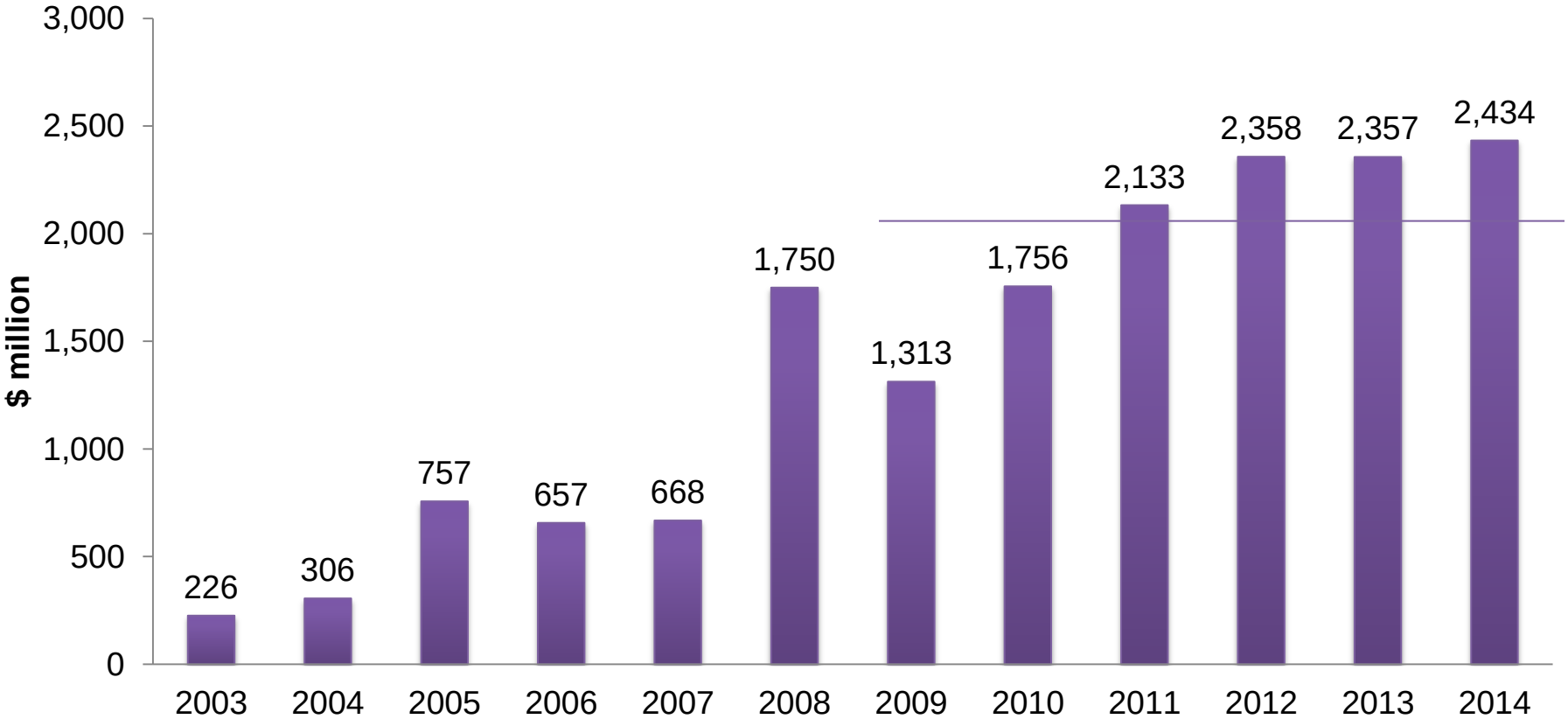
ADB's Clean Energy* Investment 2003-2014



*Clean Energy = renewable energy (hydro, solar, wind, geothermal),
+ energy efficiency (including supply side, demand side)

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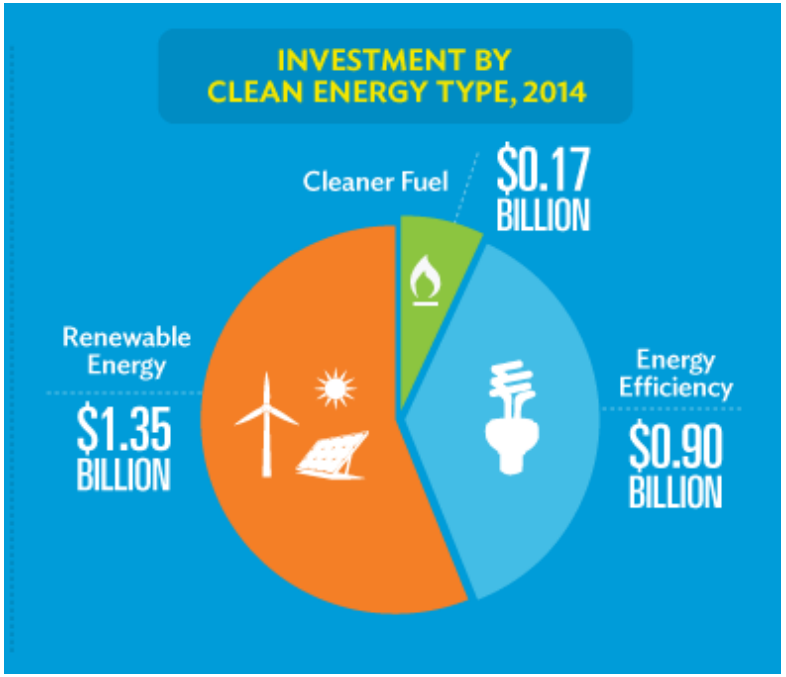
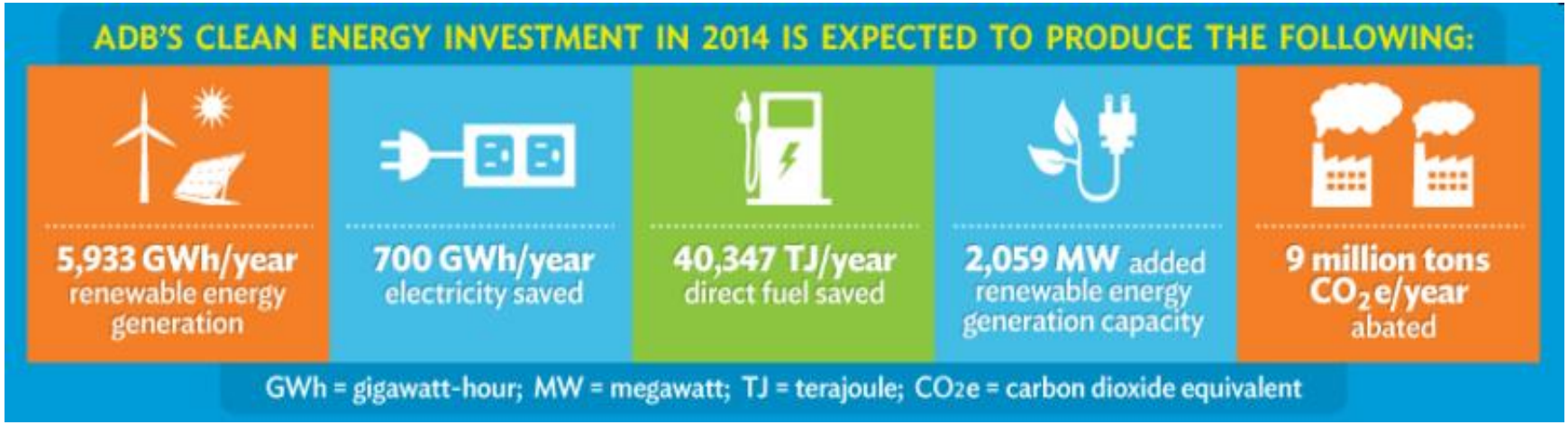
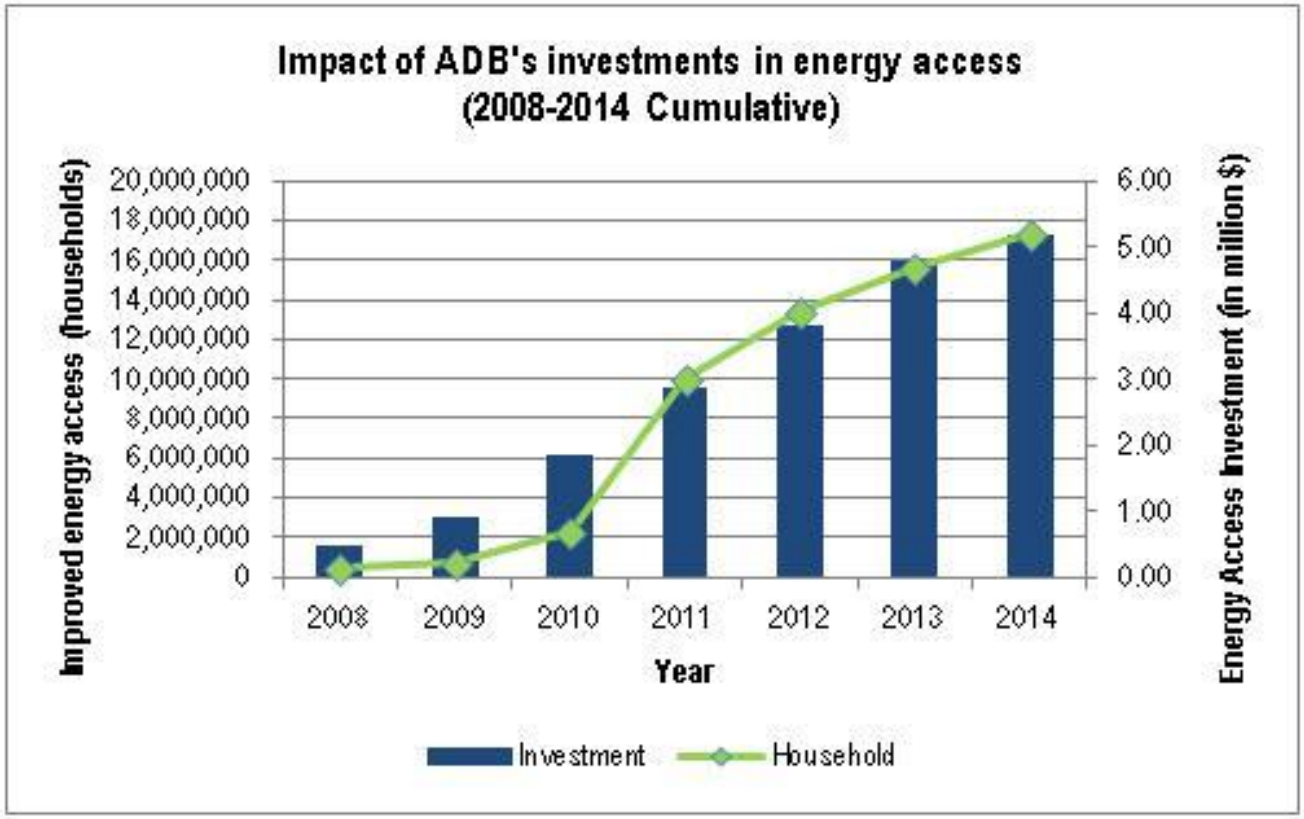
ADB's Clean Energy Investments for 2014





ADB's Contribution to Energy Access* 2008-2014



$5.2 billion
total ADB investment in energy access (2008-2014)

86.4 million
number of people benefiting from ADB's energy access investments

*Energy Access = providing modern energy/electricity access to people

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Innovation in Energy: Technology

- **Renewable:** concentrated solar power (PRC and India); Geothermal (Indonesia)
- **Smart grid and grid improvements :** large EHV and HVDC links in India**;** smart grid/smart meters in Uzbekistan, mini grid with storage in Solomon Island
- **Cost-effective electricity distribution** in Mongolia to connect remote poor communities
- **Innovative energy efficiency financing and new business models** in PRC

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Innovations in Energy: Finance
Result Based Lending (RBL) for Sumatra Grid in Indonesia

- Sumatra needs $7.36 billion in transmission and distribution capex

- A $600 million ADB direct loan to PLN is first ever RBL in the energy sector. Depending on successful out comes, further support will be firmed up

Energy Sector Investments: Private Sector Examples

Simpa Networks: New business model

- $2 million equity investment in 2013 $5 million CTF loan under preparation in 2015
- A unique pay-as-you-go metering solution for off-grid solar home systems in rural India Scaling up of solar “leasing as a service” model.

Sarulla Geothermal Development

- 320 MW; GHG emission reduction: 1.3 million tCO2e annually

Experience with Green Climate Fund (GCF)

- GCF: established in 2010 to channel climate finance, operations via accredited implementing agencies

- ADB among 1st batch of entities accredited by GCF in March 2015

- In November 2015, GCF endorsed ADB's Fiji Urban Water Supply & Wastewater Management Project

Technology Transfer and Development: ADB's Climate Technology Finance Center (CTFC)

- Established in 2012 to accelerate development and deployment of climate change mitigation and adaptation technologies in the Asia-Pacific region.
- Working in partnership with UNEP; with support from GEF, Japan, Republic of Korea, VITO NV.
- ADB-UNEP collaboration = **Pilot Asia-Pacific Climate Technology Network and Finance Center**

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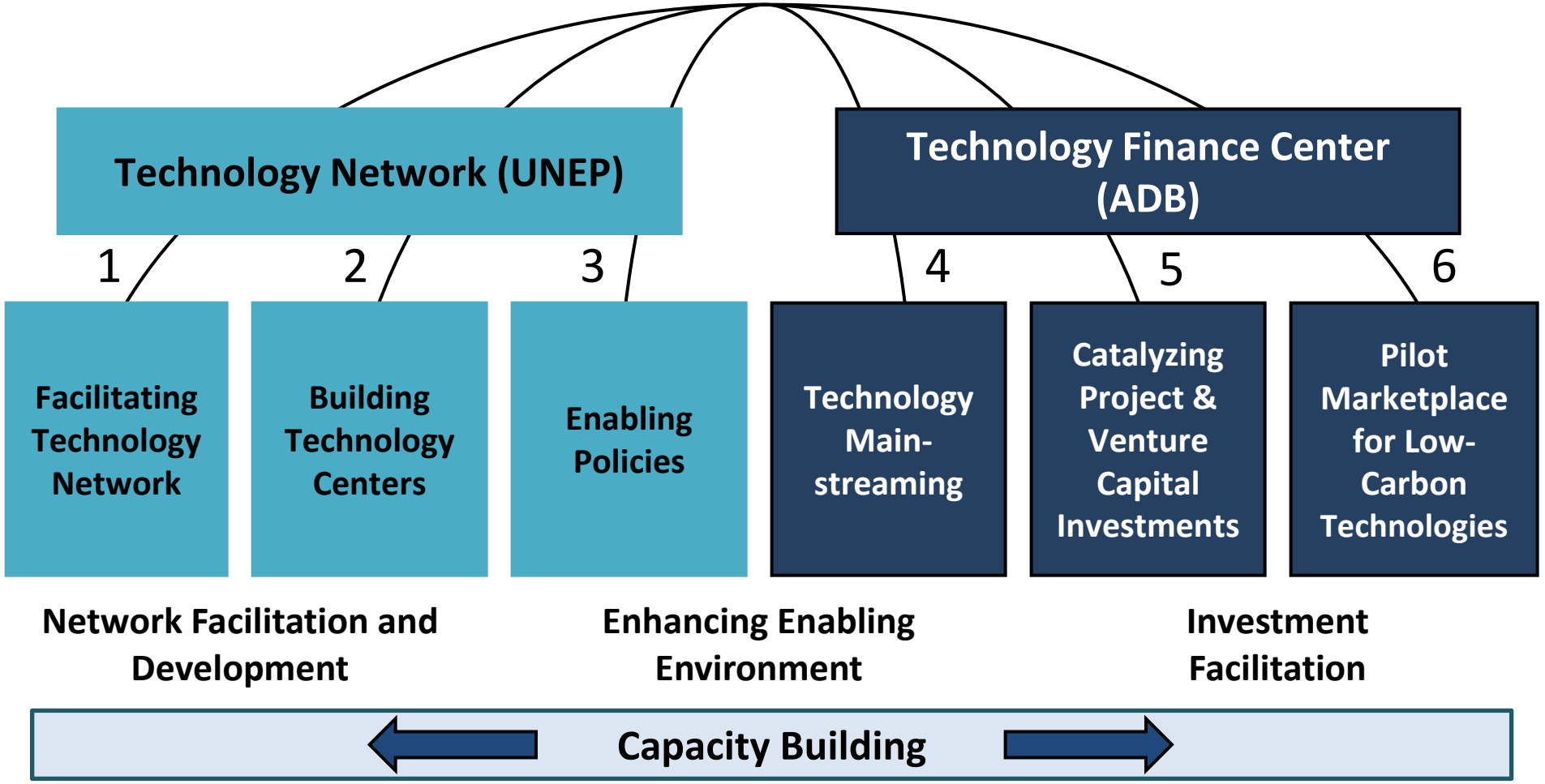
Pilot A-P Climate Technology Network and Finance Center:

ADB-UNEP Collaboration

Center's objective - To accelerate access to climate mitigation and adaptation technologies



Conclusions

Energy sector challenges are complex in Asia. Finance, technology, innovation and knowledge will be crucial to address them.

Anticipated COP 21 agreement can trigger larger investments and more rapid transformation provided enabling systems for technology transfer and investments are put in place

Private sector investments are crucial; more and sustained reforms are needed across developing countries to crowd in investments.

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For more information

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