

ADB's Renewable Energy Development Programs

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Asian Development Bank
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Developing Asia

Issue:

- Rapid economic growth → rapid growth in fossil energy use
→ Rapid growth in GHG emissions

Advantages:

- Abundant resources of renewable energy
- Huge rooms for improvement from low level
- Comparatively lower cost for improvement

Disadvantages:

- Weak technological capability
- Low affordability to expensive technologies

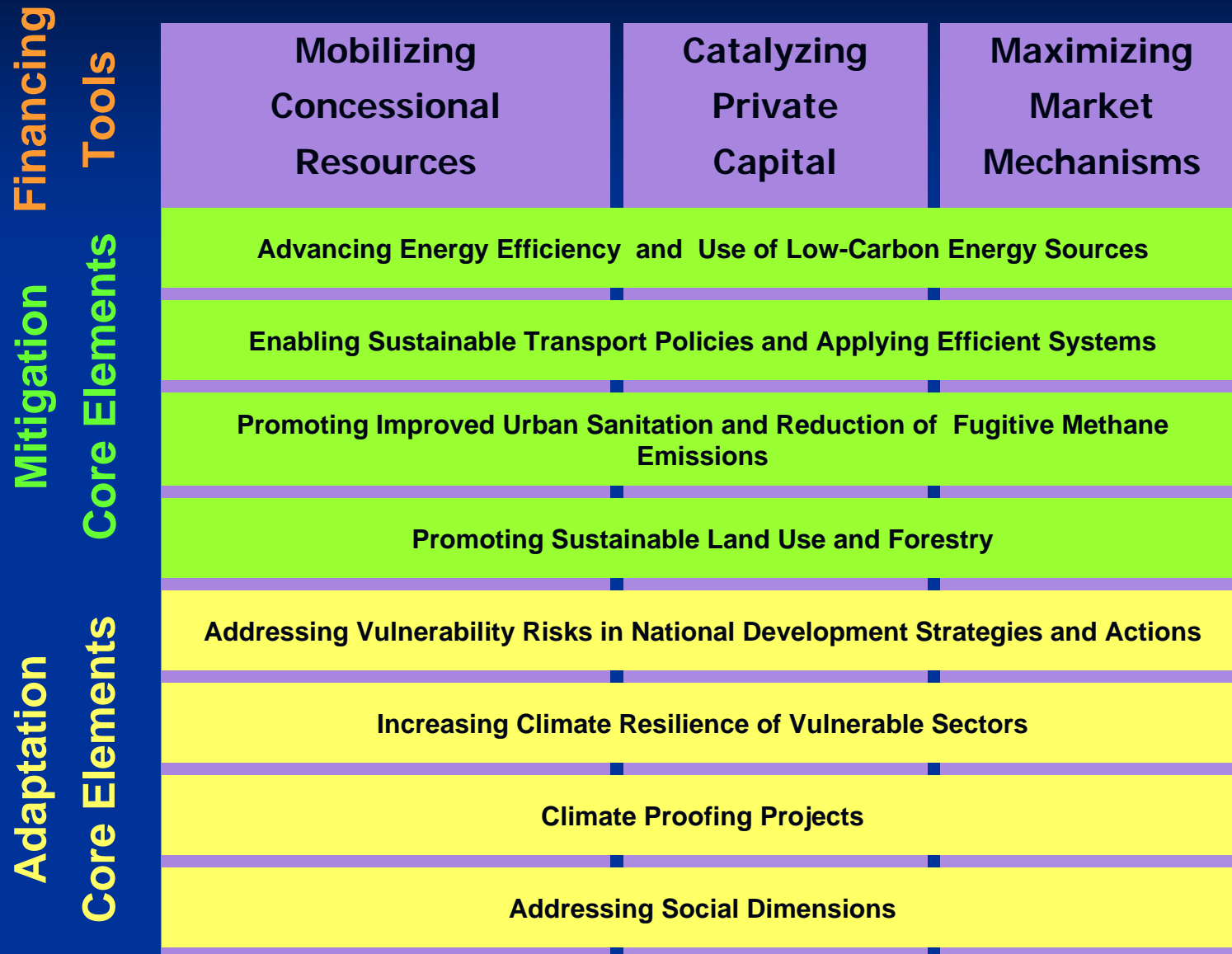
Concerns of Developing Countries

- Development is top priority for poverty reduction
- Adequate energy supply is essential
- Challenges:
 - Environmental degradation
 - Vulnerability to fluctuations in international markets
 - Limit to continued use of cheap and abundant fossil energy
 - Affordability of using new technologies and renewable energy

Role of ADB

- **BRIDGES** between developing and developed countries, public and private sectors
- **CATALYST** leveraging commercial resources with low cost financing
- **PARTNERS** of both developing and developed countries, governments and companies

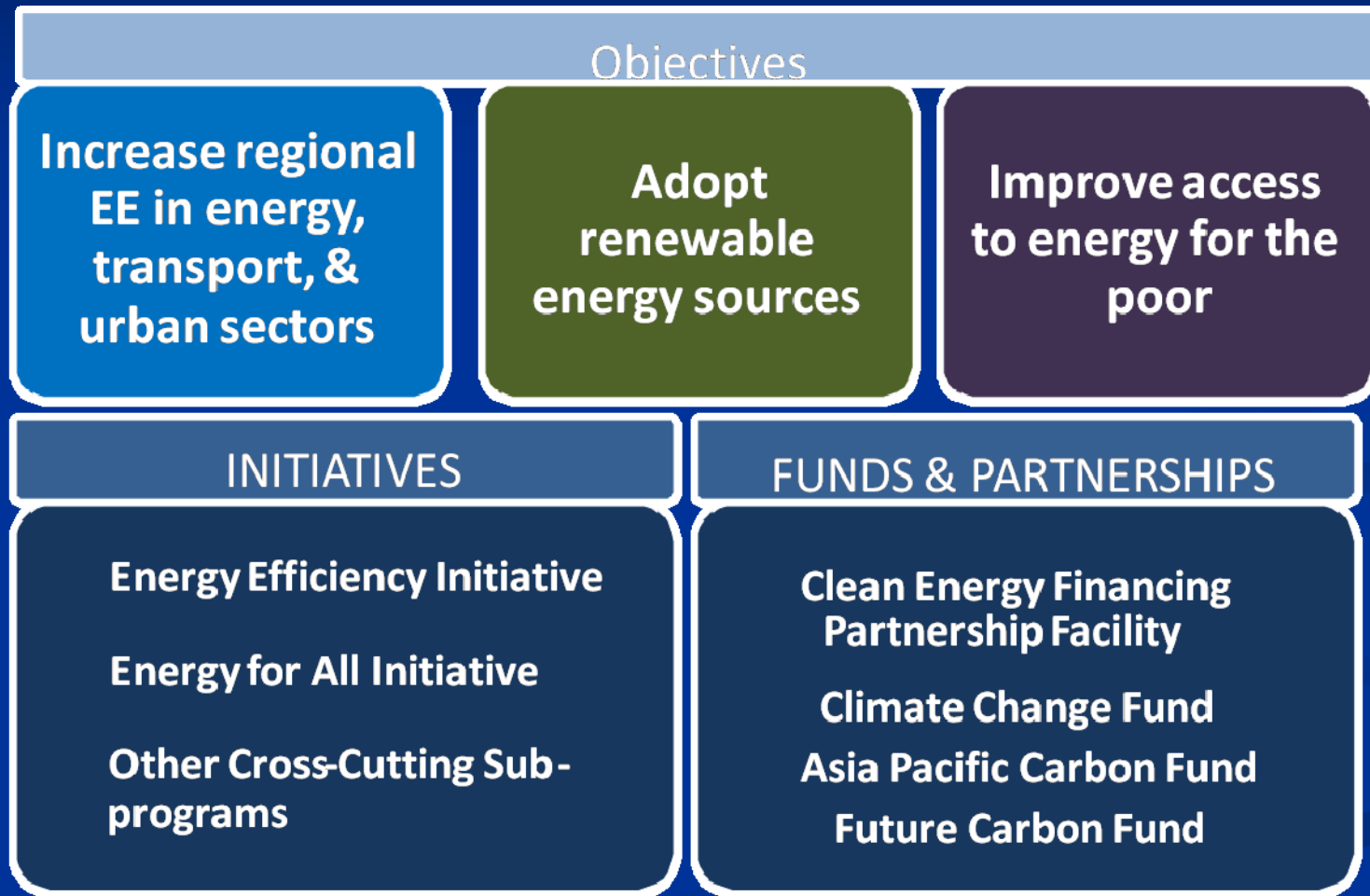
Renewable Energy: An integrated part of ADB's CC Programs



Renewable Energy: One of the three pillars of ADB Energy Policy

- Promoting **energy efficiency and renewable energy**
- Maximizing access to **energy for all**
- Promoting energy sector **reforms, capacity building, and governance**

Clean Energy Program



Expanding ADB's Clean Energy Investment

Target: \$1 billion 2008, \$2 billion 2013

Priority DMCs:

PRC, IND, INO, PAK, PHI, VIE (RETA 6436)

AFG, BAN, CAM, LAO, MON, UZB (RETA 6392)

Focus: smaller DMCs, eg. CAM, LAO

Clean Energy Project Examples

- **IND:** National power grid development program (replace thermal power with renewable)
- **PRC:** Zhangbei wind farm (100MW)
- **IND:** Gujarat Paguthan Wind Financing Facility
- **BAN:** Public-Private Infrastructure Development Facility (solar projects)
- **IND:** Uttarakhand Power Sector Investment Program
- **VIE:** Renewable Energy for Remote Island and Mountainous Communes (wind + diesel hybrid)

Ongoing ADB projects (sample)

Country	Project Type
Indonesia	Geothermal power
India	Wind power
Lao, PDR	Small hydropower
Bangladesh	Waste composting
China, PR	Geothermal space heating
Pakistan	Hydropower
Thailand	Biomass power
Uzbekistan	Small hydropower

Biomass Power Generation Project, Thailand



Treetop – Left to decay



Biomass Power Generation

Efficient Utilization of Agricultural Wastes Project, Henan, PRC



CH₄

Anaerobic Lagoon

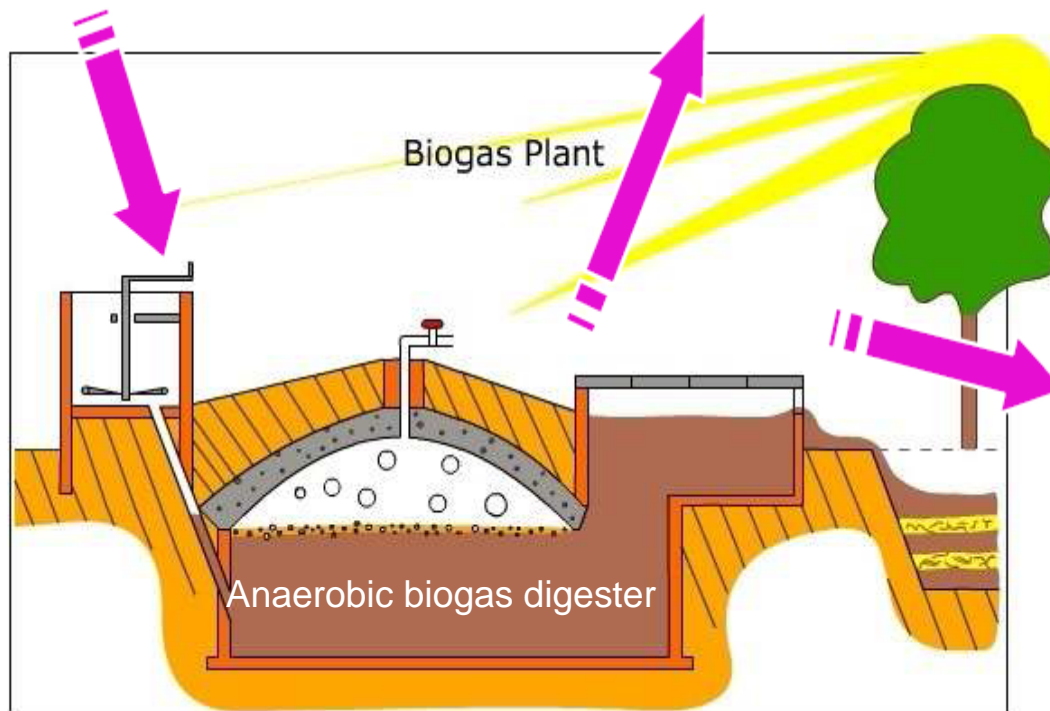


Anaerobic Digester

Household Level Biogas Project, Vietnam

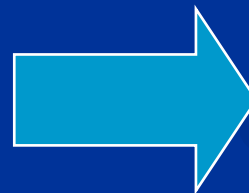
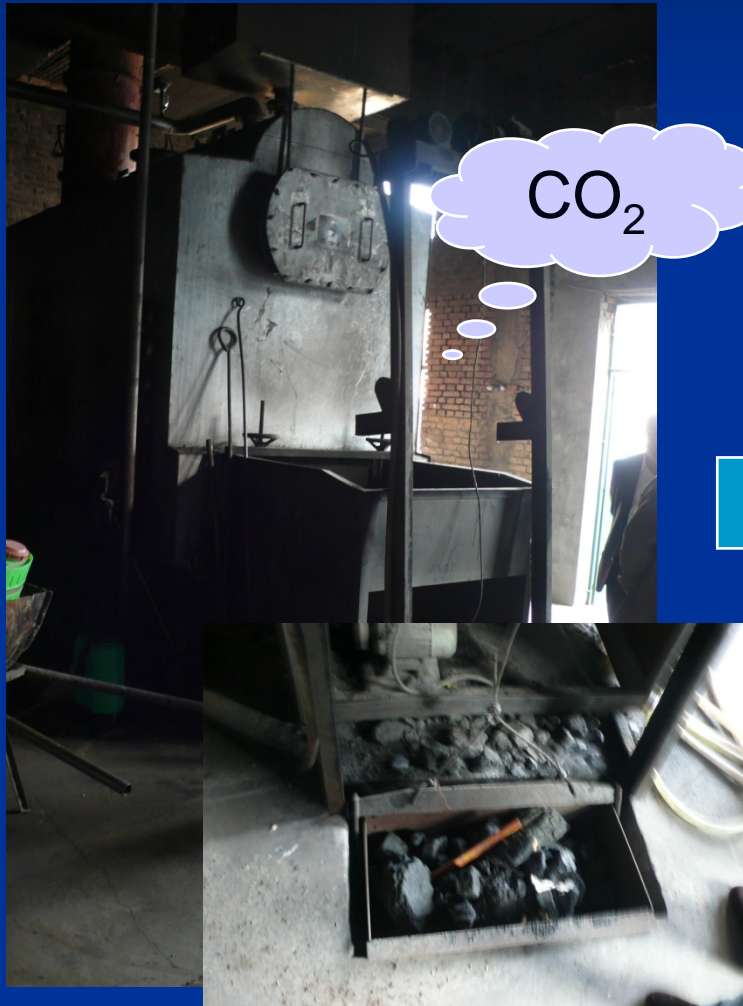
Biogas plants transform traditional manure management; reducing CH₄ emissions

Biogas substitutes conventional domestic energy sources, reducing reliance on fossil fuel and firewood (CO₂)

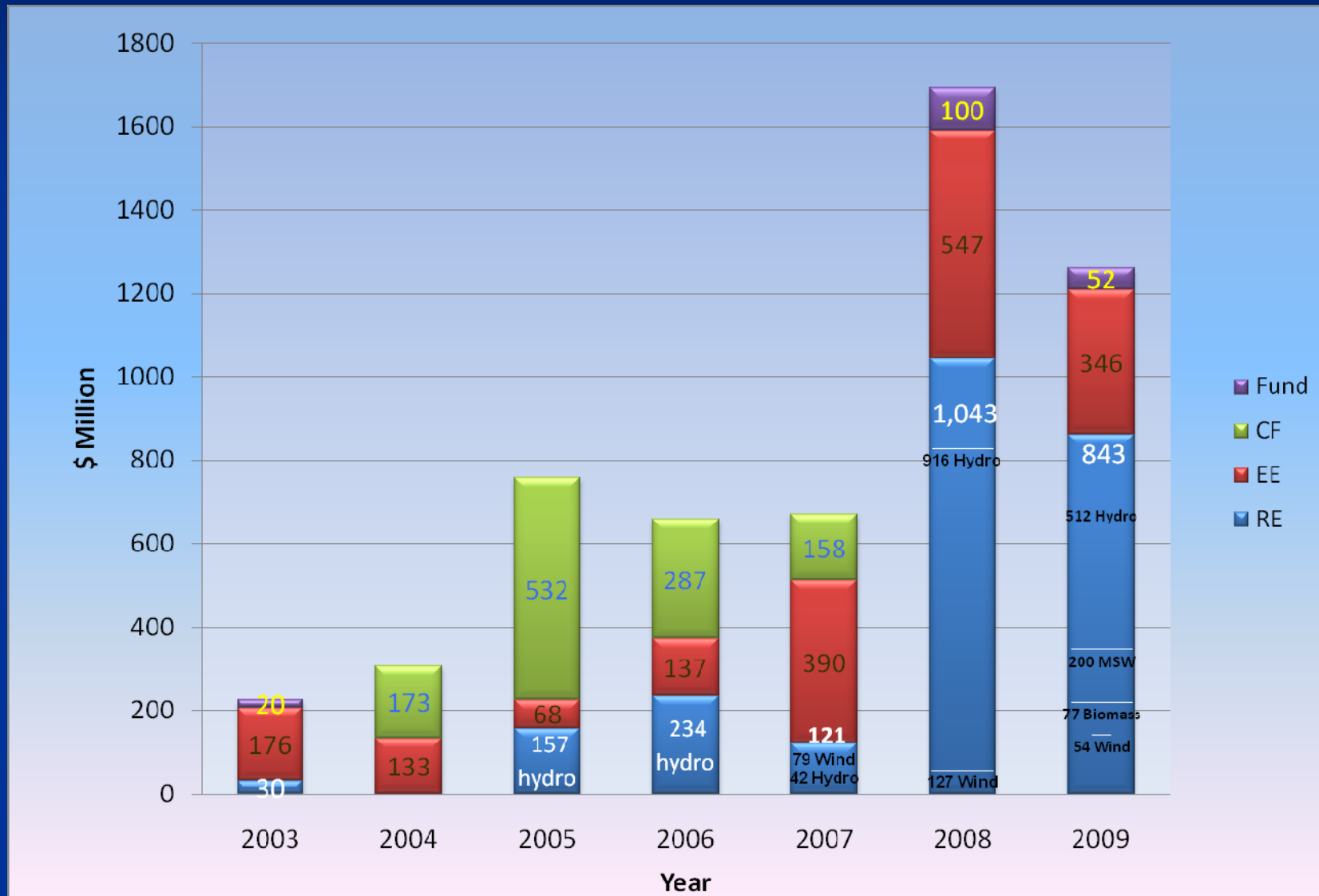


Bio-slurry can substitute chemical fertilizer, reducing N₂O emissions

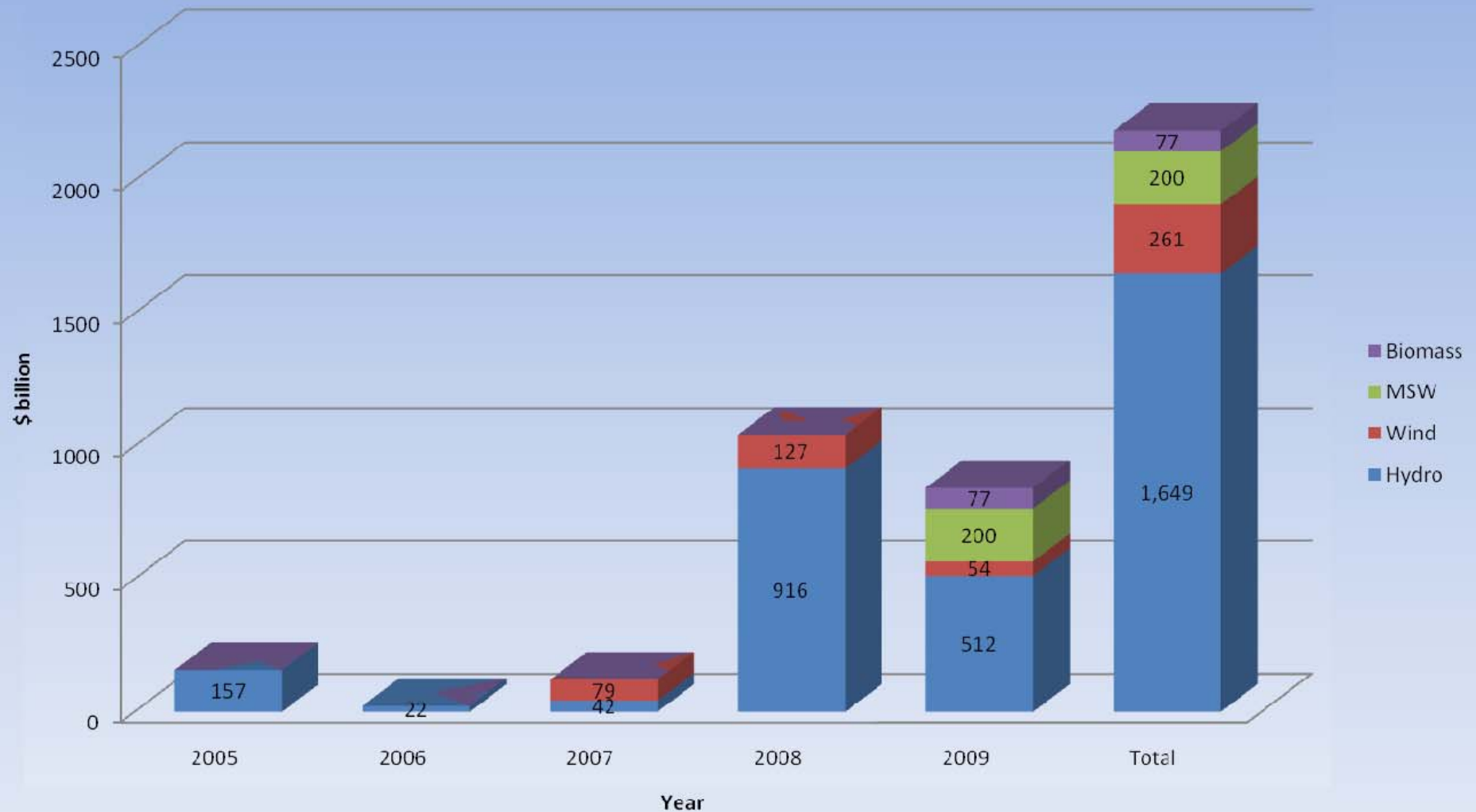
Switching from Coal to Geothermal



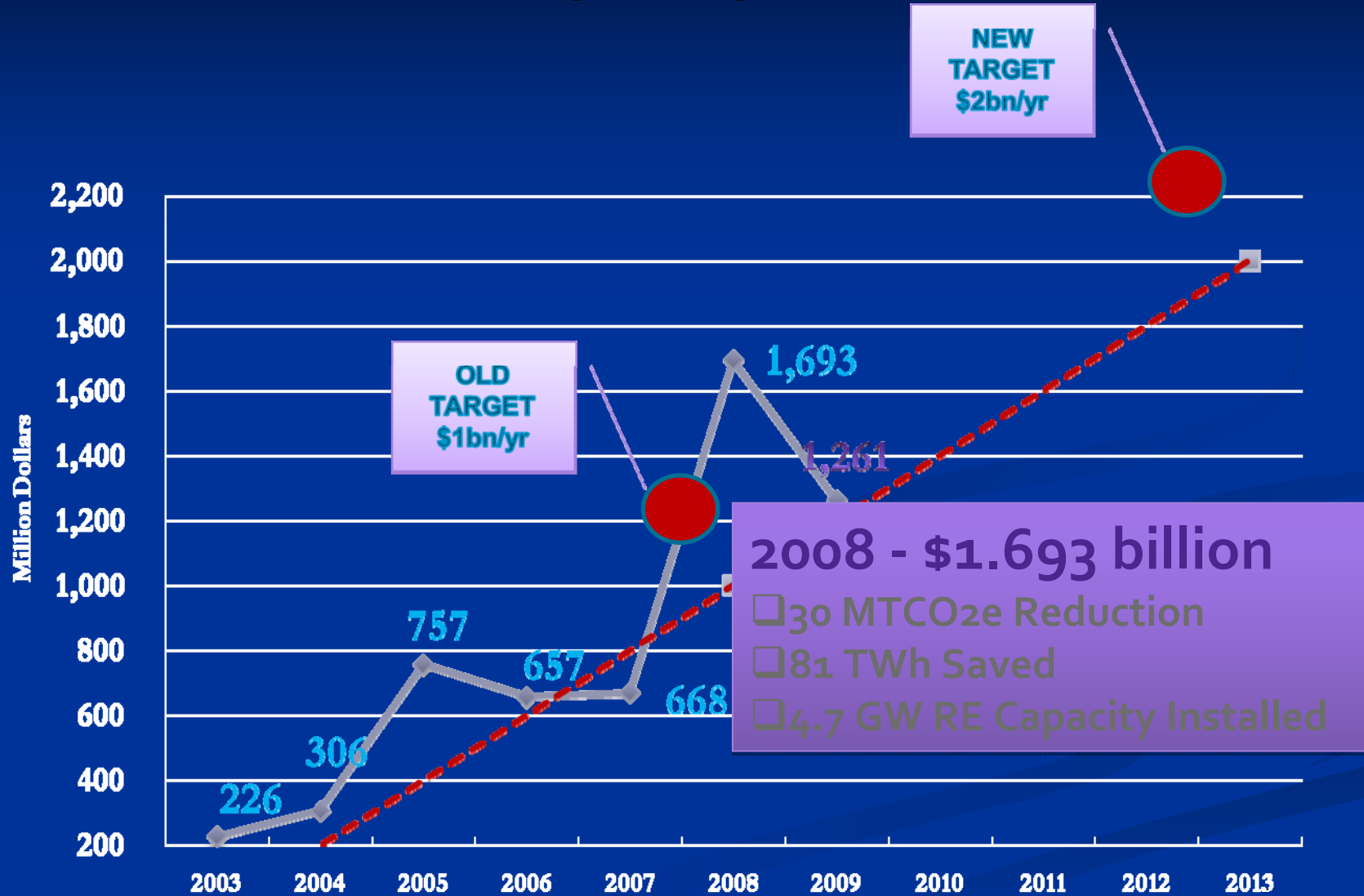
ADB's Clean Energy Investments (2003-2009)



ADB's Renewable Energy Investments by Sources (2003-2009)



Summary of Clean Energy Investment (2003-2009)



Selected ADB's CE Projects (2003-2008)



THANK YOU

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