

ADB Natural Gas Investments in Asia

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Regional Footprint



- 67 members; 48 in the region
- 40 borrowing members
- Japan and the United States are the two largest members

KEY OBJECTIVE

- Private Sector Ops
 - Seeks to identify
- commercially
 - viable
- transactions

- without sovereign guarantees
- generate attractive financial returns
- promote environmentally sustainable and inclusive economic growth



Key Sectors



Infrastructure & Natural Res

Generation (particularly renewables), **transmission, distribution, water/waste, transport** and **associated services** (airports/airlines, roads, ports/shipping, logistics, rail/rolling stock), **natural resources** (oil/gas, mining)



Finance & Capital Markets

Access to finance (rural, microfinance, housing, SMEs, climate, inclusive business and gender mainstreaming), **insurance, digital finance**, filling market gaps via **trade and supply chain financing**



Agribusiness

Inputs (seeds, irrigation, cold storage), **farming** (crop, livestock, dairy), **processing** (grains, meats, packaging), **distribution** (wholesale/retail markets)



Health & Education

Suppliers (pharmaceuticals, medical equipment), **Providers** (hospitals, clinics), distributors (pharmacies, supply chain), **e-health**, and in person and online **education**

Project Approvals (2015-2017)

Central and West Asia

Armenia

- FINCA Bank
- Electric Networks of Armenia
- Ameriabank

Azerbaijan

- AccessBank
- FINCA Bank
- Shah Deniz Stage II Gas Field Expansion
- Shah Deniz Gas Field Expansion

Georgia

- TBC Bank
- Credo Bank
- FINCA Bank

Kazakhstan

- JSC Samruk Energy Restructuring and Transformation

Kyrgyz Republic

- Bai Tushum Bank

Pakistan

- Engro Fast Track LNG Regasification
- 102 MW Gulpur Hydropower
- Triconboston Wind
- Khushhali Bank
- Zorlu Solar Power

| Year | 2015 | 2016 | 2017 |
|---------------|-------|-------|-------|
| Projects | 27 | 26 | 29 |
| Volume (\$MM) | 2,626 | 2,502 | 3,150 |
| CWRD | 580 | 601 | 280 |
| EARD | 325 | 325 | 740 |
| PARD | 0 | 0 | 2 |
| SARD | 924 | 865 | 1,047 |
| SERD | 702 | 664 | 461 |
| REGIONAL | 95 | 47 | 620 |

- Agribusiness
- Energy – Renewable
- Energy – Other
- Financial Institutions
- Info, Com and Telecom
- Private Equity
- Transport
- Water
- Other

South Asia

Bangladesh

- BRAC Bank
- Eastern Bank Limited
- Reliance Bangladesh LNG and Power

Bhutan

- Hazelnut Value Chain Development

India

- IndusInd Bank
- Shapoorji Affordable Housing
- Green Energy Corridor & Grid Strengthening
- Mytrah Wind and Solar Power Development
- Simpa Off-Grid Prepaid Solar Leasing
- RBL Bank
- PNB Housing Finance
- JFS Limited Debt Financing
- Au Financiers Limited
- ReNew Clean Energy
- Satin Creditcare Network
- Capital First
- Kutch Wind Project
- Cholamandalam Investment and Finance
- True North Fund VI

Sri Lanka

- LOLC Finance and LOLC Micro Credit
- Hatton National Bank
- Shipyards Rehabilitation and Infrastructure

Pacific

Samoa

- Jarcon Pty Limited and Sun Pacific

Regional

- Distributed Energy Storage Solutions
- Microfinance Risk Part & Gty
- Micro Credit Ratings International
- Creditor Fund III
- VI Fund III
- High-Value Horticulture Development
- CreditAccess Asia
- OrbiMed III
- Agricultural Value Chain Development

East Asia

People's Republic of China

- Western Counties Water and Wastewater Mgmt
- SME Industrial Wastewater and Sludge Treatment
- CFPA Microfinance
- Yingda International Leasing for Healthcare Fin
- Sustainable Dairy Farming and Milk Safety
- Integrated Wastewater Management
- Inclusive and Sustainable Livestock Farming
- Urban and Rural Integration Water Distribution
- China Everbright Renewable Energy
- Minsheng Financial Leasing for Green Transport Fin
- Environmentally Sustainable Agricultural Input
- Integrated Urban Water Management Project
- Geothermal District Heating Project

South East Asia

Cambodia

- Cambodia Solar Power

Indonesia

- Tangguh LNG Expansion
- Muarah Laboh Geothermal Power
- Eastern Indonesia Renewable Energy

Myanmar

- Nationwide Telecommunications
- Mingyan Natural Gas Power Plant
- Yangon Urban Renewal and District Cooling
- Telecommunication Towers Infrastructure

Philippines

- Tiwi and MakBan Geothermal Climate Bonds
- 150 MW Burgos Wind Farm

Thailand

- Grid-Parity Rooftop Solar
- Southern Thailand Waste-to-Energy
- ASEAN Distributed Power Phase 1
- Cornerstone Investment in Leading IPP
- ASEAN Distributed Power Phase 2

Viet Nam

- Municipal Waste to Energy Project
- An Binh Commercial Joint Stock Bank

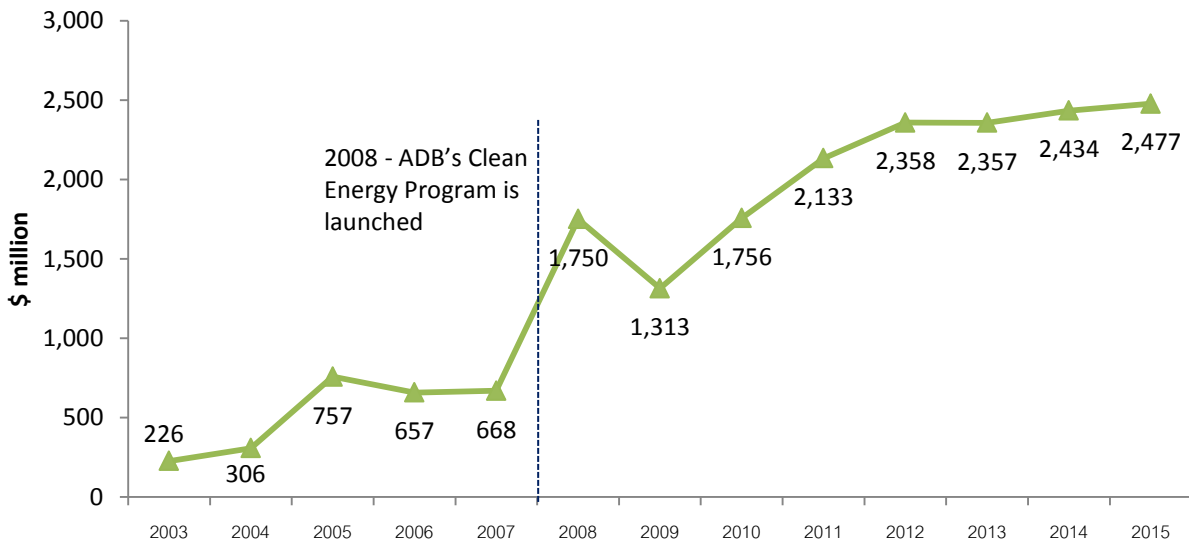
Products and Services

| Instrument | Typical Size | Typical terms | When is it relevant? |
|----------------------|----------------|---|---|
| Debt | \$20M - \$500M | <ul style="list-style-type: none"> • 7 years (corporate) to 15+ years (project) • LIBOR / ADB cost of fund in local currency + credit spread • Secured or unsecured | <ul style="list-style-type: none"> • Established company with large balance sheet, strong cash flow • Possibility to mobilize cofinancing under B-loan or risk participation |
| Equity | \$2M - \$100M | <ul style="list-style-type: none"> • 25% ownership maximum • Board seat • Minority protection rights • Put on the parent company | <ul style="list-style-type: none"> • Growing company in a pre-IPO or pre-trade sale situation |
| Guarantees | \$20M - \$500M | <ul style="list-style-type: none"> • Partial credit guarantees: market based, fees based off lenders' margin • Political risk guarantees: market based, fees based off reinsurance market | <ul style="list-style-type: none"> • Where other lenders are more efficient than ADB in mobilizing local currency, or reaching target customers (PCG) • In frontier markets (PRG) |
| Donor Funding | \$5M - \$10M | <ul style="list-style-type: none"> • Long term loan at concessional interest rate to be "blended" with ADB financing • First loss cover | <ul style="list-style-type: none"> • Whenever donor funds managed by ADB are available • Applicable for climate mitigation and adaptation projects or low-income countries |
| Technical Assistance | \$0.5M - \$1M | <ul style="list-style-type: none"> • For project preparation TA, reimbursable at closing • For capacity development TA, non-reimbursable grant | <ul style="list-style-type: none"> • For projects in need of additional, concessional financial assistance |

ADB Energy Policy Overview

- **Prioritizes sustainable energy and low-carbon development:**
 - ✓ Promoting energy efficiency and renewable energy
 - ✓ Maximizing access to energy
 - ✓ Promoting energy sector reform, capacity building and good governance
- **ADB's Clean Energy Investment:**
 - ✓ ADB responded to Asia's high appetite for clean energy
 - ✓ Mature technologies and an improving policy landscape led to high investments

Record of ADB's Clean Energy Investments 2003 - 2015



- Asia estimated to need \$40 billion annually to adapt to climate change
- ADB set **new climate change financing targets** in July 2015, part of a long-term strategic climate response to 2030
- ADB has pledged to increase climate financing to **\$6 billion annually** by 2020

LNG and Natural Gas – Issues and Challenges in Asia

- **Asia's gas consumption is growing faster than the world average, while natural gas production in the region is on the decline.**
 - Malaysia and Indonesia who are LNG exporters will soon become LNG importers.
 - Gas reserve in Gulf of Thailand is also depleting over the medium term
 - Myanmar is also in need of additional gas supply for domestic consumption
 - Gas production in Bangladesh and Pakistan is on the decline. By 2018 they will be importing gas to meet domestic demand.
- **Lack of associated LNG/NG infrastructure:**
 - Many countries lack associated infrastructure (LNG terminal, port facilities, etc) for large scale LNG transport;
 - Floating units, smaller ships, etc can provide both transitional approach and long term approach to the issue (depending on size of demand).
- **Greater gas utilization in the region depends on price of natural gas relative to coal:**
 - Delink gas prices from crude oil prices;
 - Gas prices to reflect regional supply-demand fundamentals;
 - Place a price on carbon emissions.

ADB Energy Policy – Specific Provisions on Gas

- ADB will continue to support financing natural gas-based power plants, because of their environmental benefit.
- ADB will continue its policy of not financing any oil and gas field exploration projects – however will continue to provide assistance for gas field development, transportation and distribution of gas and support for refining, transportation, and distribution of petroleum products.
- ADB will promote a policy framework that enables regional trade of electricity and gas, as well as infrastructure to enhance regional cooperation and trade in the energy sector.
- ADB will also provide policy assistance to promote a policy environment that encourages private sector participation, greater competition, and independent and transparent regulation in oil and gas sectors.
- ADB will also support safety and efficiency improvements in the transportation of oil and liquefied natural gas (LNG), including oil and LNG terminals, storage facilities, pipelines, and marine transportation.

Case Study – Tangguh Liquefied Natural Gas Expansion



Client: BP, CNOOC and others.

ADB Assistance: \$400m loan.

Key Features:

- The project will add the third 3.8 million metric tons per annum LNG train as well as the associated offshore and onshore facilities and other supporting infrastructure.
- The project will provide much-needed natural gas to help meet rapidly growing domestic demand, particularly in the power sector.
- It will support development of a more sustainable fuel mix to reduce carbon emissions by using natural gas to displace coal or diesel in powering electricity generation.
- The project will accelerate economic development in the province of West Papua, providing additional local employment opportunities and scope for human resource development in one of the country's poorest regions.

Case Study – Shah Deniz II Project: Southern Gas Corridor

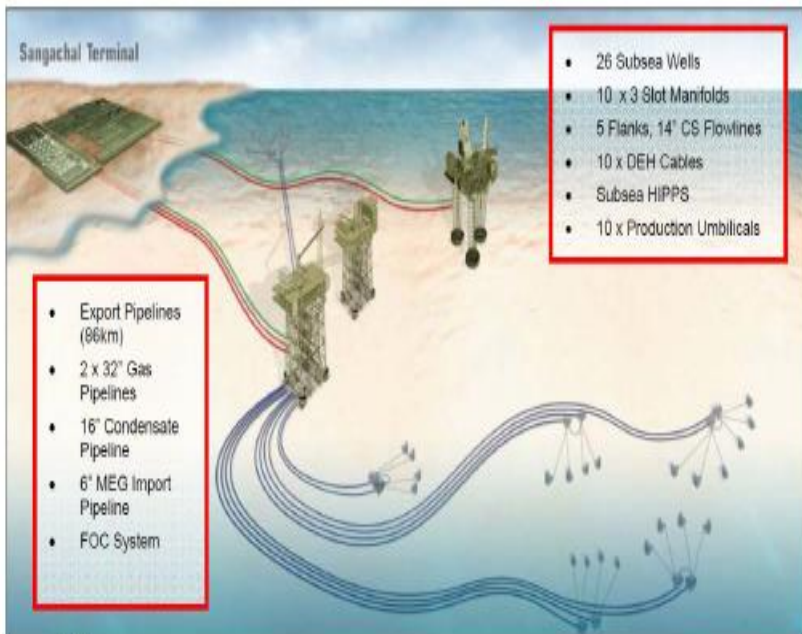


Client: Southern Gas Corridor CJSC.

ADB Assistance: \$500m direct nonsovereign loan; \$500m partial credit guarantee with a sovereign guarantee.

Key Features:

- Stage 2 development of the Shah Deniz gas field, one of the world's largest gas fields commenced gas production in 2006.
- The increase in gas production and opening of the European market to Azerbaijan gas exports will improve regional integration and diversify Azerbaijani exports of natural gas.
- The successful experience of foreign commercial banks financing a large project in Azerbaijan will help increase foreign direct investment for the development of other upstream gas field development projects as well as midstream and downstream petrochemical projects, which use natural gas as feedstock.



Source: JP Kenny

Areas of Interest for ADB

“Supporting projects across LNG and Natural Gas Value Chain through Private sector and Sovereign investments”

“Support to improvements in gas transportation, LNG terminals and carriers as a way to support diversity of energy supply, emission reductions and energy security”

Thank you
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