

# CHINA RENEWABLE ENERGY AND BATTERY STORAGE PROMOTION PROJECT



**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP

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# Key battery storage market drivers

## Early Birds at Consumer Level

- Time-of-day tariff:
  - gap of peak and off-peak tariff enables the financial profitability of battery investment at the consumer level
  - SMEs aim at long-term engagement for BESS deployment

## Renewable energy development

- Serious RE curtailment requires attention to:
  - “Provincialism” hinders power exchange across provinces
  - Transmission bottlenecks
  - Inadequate operational flexibility in power systems
  - Inefficient dispatch
- More ambitious RE development requires adequate power system flexibility – battery storage will be a key solution at generation, grid and consumer levels

# Battery storage market barriers

- Access to financing for SMEs
- Reluctance to finance by commercial banks
- Policy and regulations
- Technical and environmental standards
- Limited business models



# Project objectives and description

## Objective

Promote the integration and use of RE through the deployment of battery storage systems and innovative applications of RE

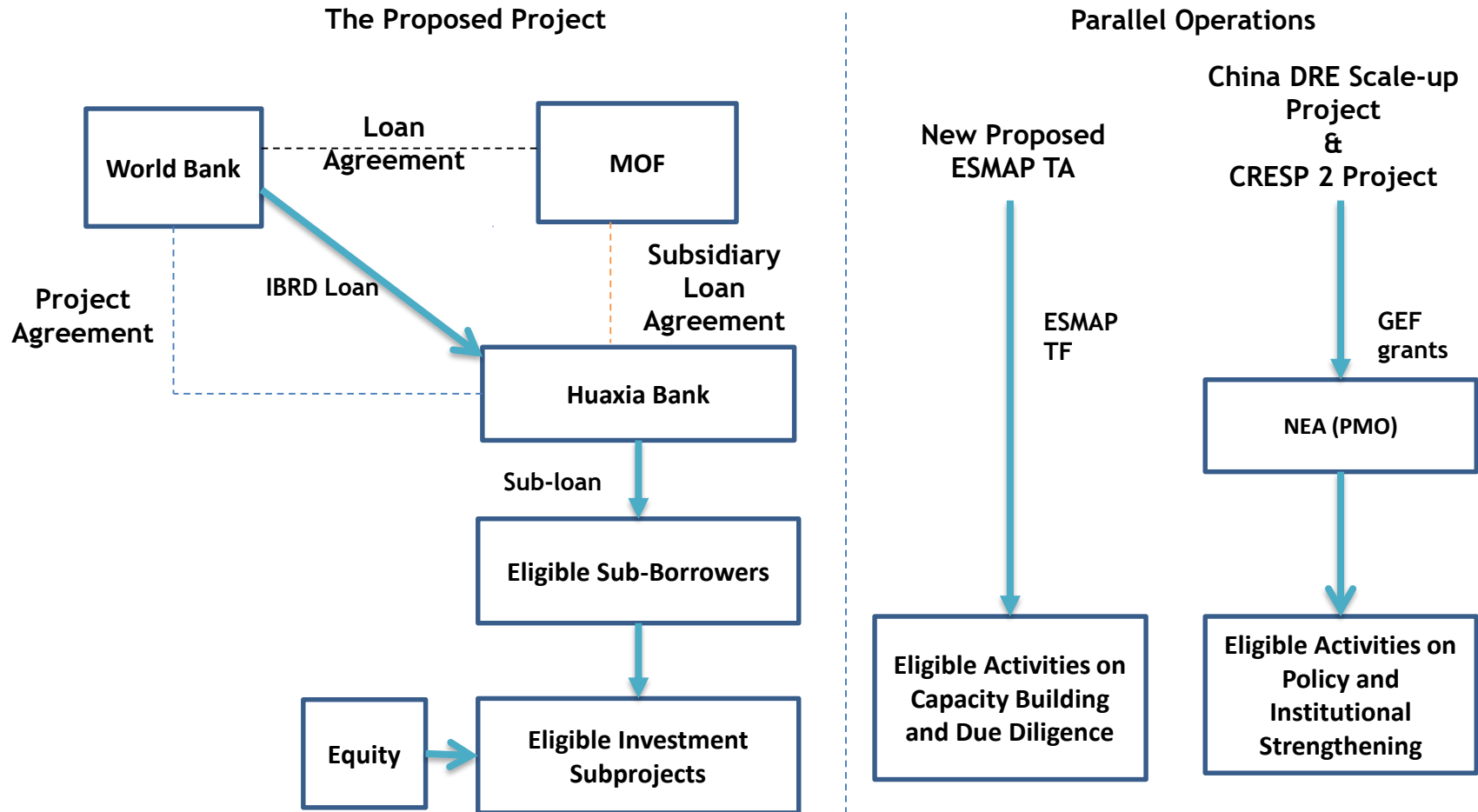
## Investment Support

- World Bank loan of US \$ 300 million + Huaxia Bank of US \$ 450 million
- Lending through financial institutions (Hua Xia) builds on the experience of energy efficiency lending projects
- Qualified investment sub-projects (mainly battery energy storage)

## Technical Assistance

- National Energy Administration: Policy, regulatory, and technical and environmental standards
- Hua Xia Bank: Project implementation support, Market development, loan due diligence, skill building

# Project Design and Implementation



# China Renewable Energy and Battery Storage Promotion Project and Parallel Operations - Results Chain

PDO: Promote the integration and use of renewable energy through the deployment of battery storage systems and innovative applications of renewable energy

## Project Activities

IBRD loan (US\$300 million) and co-finance (US\$ 450 million) for investment subprojects in:

- **Battery storage** systems at generation, grid, and consumer levels, and DRE with storage
- **Innovative RE applications:** RE for heating (geothermal and biomass) and for hydrogen production

## Parallel Operations

GEF grant (US\$2 million) for:

- **Establish enabling policy environment** for battery storage: development of policies, regulations, technical and environmental standards on safety, battery reuse and disposal

ESMAP grant (US\$1.5 million) for:

- **Due diligence review** of the investment sub-projects
- **Capacity building** for Huaxia Bank on market studies and survey, business development and trainings

## Outputs

- **Huaxia Bank: expansion of green finance business and improved capacity** to manage its green finance investment subprojects, including environmental and social management
- **Investment subproject contracts** signed and implemented
- **Knowledge shared** in events and reports
- **Analysis and advice** to Government of China to inform new policy, regulations, standards, plans and/or targets
- **New technical and environmental standards** established

## Intermediate results

1. **Battery storage capacity** installed (MWh) and financing barriers mitigated or removed
2. **DRE installed capacity** supported (MW)
3. **Leverage financing** mobilized for related investments: \$450m debt from Huaxia Bank and about \$188m equity from sub-borrowers
4. **Beneficiary satisfaction** increases – access to financing for SMEs
5. **Quality of subloan portfolio (non-performing loans level to SMEs)** improved

## PDO outcomes

1. **Increase in RE absorption by the grids** from investments (GWh)
2. **Increase in RE use from innovative RE applications** from investments (GWh)
3. **Greenhouse gas emissions reduction** (Mt CO<sub>2</sub>e lifetime)

## Long-term outcomes

- **Climate change mitigation and Cleaner air** (less pollution)
- **Improved energy services** more affordable and reliable
- **Innovation and knowledge** with global benefits
- **Jobs** in clean energy industry including in lower-income northwestern provinces
- **Enabling environment** for battery storage investment established, market growth for project developers and banks

# Role of Huaxia Bank as Project Implementing Agency

- Commits to innovative business lines with proven records
- A capable client with international experience
- National capability for pipeline origination
- Open knowledge sharing participation
- Access to finance for private sector

# Operational aspects

- Project operation manual is the main basis for daily project execution
- Clear management of responsibilities and processes
- Clear qualification requirements for borrowers
- Define the eligibility requirements for the loan subproject
- Technical eligibility
- Financial eligibility
- Clear management requirements for loan subprojects
- Environmental management
- Social management
- purchase
- Financial Management
- Clarify the evaluation report requirements for loan subprojects





问题 QUESTIONS?