

Financing options for Energy Efficiency & Emissions Reductions in Trucks in China

Yan PENG

China Representative

Clean Air Initiative for Asian Cities (CAI-Asia) Center

Sustainable City Finance

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Outline

1. Why focus on trucks for a sustainable city?
2. What can be done to reduce fuel use and emissions -
Result from the Guangzhou Green Truck Pilot Project
3. Challenges and opportunities to scaling up
4. Financial mechanism options – inviting partners

About Clean Air Initiative

The **Clean Air Initiative for Asian Cities** promotes reductions of air pollution and greenhouse gas emissions in transport, energy and other sectors by translating knowledge to policy and action



CAI-Asia began as a multi-stakeholder initiative by ADB, WB and USAID in 2001

The **CAI-Asia Center** was incorporated in 2007 as a non-stock, non-profit corporation in the Philippines

The **CAI-Asia Partnership** has 170 organizational members and **Country Networks** exist in eight Asian countries



Part I:

Why focus on trucks for a sustainable city?



Why focus on trucks for a sustainable city?

1. Trucks are largest group of diesel vehicles in China and will increase 6 times by 2035
2. Trucks carry 70% of freight in China and in 5 years time there was a 67% increase in road freight transport
3. Emissions from diesel trucks are high and contribute to
 - Air pollution and health impacts
 - Climate change
4. Diesel fuel is about 60% of truck operating costs (depending per truck)
5. High potential to improve fuel efficiency and reduce emissions
6. SmartWay and other programs can provide a good basis for a program in China and Asia



Part 2: Results: Guangzhou Green Truck Pilot Project



Summary Results of the Guangzhou Green Truck Pilot Project

1. Technology pilot:
 - Savings between 2-18%
 - Strong support from truck companies
2. Maintenance for fuel efficiency
 - Fuel efficiency included in I&M of main truck companies, but not sure of small companies or individual drivers
3. Driver training for fuel efficiency
 - Training materials developed, tested and ready for scaling up
 - Training materials to be adopted by participating truck companies
4. Survey of truck industry
 - 80% of surveyed drivers' companies are registered outside Guangdong province
 - 80% of surveyed drivers started trip outside Guangdong Province
 - Most drivers own their own truck: fragmented sector!

5. Design of next phase

Proposed GEF project builds upon pilot project and has two major components

- **Green Truck Technology Demonstration**
 - Retrofitting 150 trucks
 - Purchasing 150 new trucks with green technologies
 - Provide training to 600 truck drivers
 - Facilitate licenses for local enterprises for green technologies
 - Monitoring and evaluation of demonstration trucks
- **Technical Assistance and Capacity Building**
 - Technical advisory services for government agencies
 - Green Truck Toolkit
 - Carbon footprint analysis and develop low carbon and emissions strategies
 - Training for senior government officials and managers
 - Public communication program

Part 3: Challenges and opportunities for scaling up



Challenges and opportunities for scaling up

1. Technologies
2. Savings potential
3. Financing
4. Institutions and policies
5. Truck industry
6. Stakeholder support
7. Ability to build on existing programs

Part 4: Financial Mechanisms: overcoming challenges



Financing challenges

- Limited tax policies for truck industry relevant to energy and emissions management
- Investment costs are too high for many companies, even if potential savings are high and payback periods short
- Truck sector not considered most reliable sector for lending (especially small companies and individual truck driver-owners)
- ESCOs established for industry but no experience with trucking fleets
- Capacity weakness: knowledge/tools missing for financial appraisal

Financing solutions

1. Broaden tax policies
2. Develop financing programs in truck/transport programs
3. Create active role for financing sector in truck/transport programs
4. Make financing an explicit role of the program facilitator

1. Broaden tax policies

- Develop a broader range of tax policies for the trucking sector and transport in general
 - Subsidies / tax reductions
 - Grants / awards
 - Lending
 - ESCOs (energy service companies)

1. Tax policies in China for the transport sector

Types financial mechanisms	Taxes Tax incentives Credits	Public or Private	Availability for trucks?
Subsidies	Non-tax	Public	N/A
Grants/awards			N/A
Lending	Bank loans Soft loans/revolving funds Guarantee funds	1. Public 2. Private?	1. Available but hard for SMEs to access 2. N/A
ESCOs (Energy Service Companies)	Guaranteed saving Shared savings Pay from savings Performance-based contract	Public/Private	Available but hard for SMEs to access No ESCOs known for transport sector

2. Develop financing programs under trucks / transport programs



1. Supply Chain Partnership

- Multimodal Operations
- Models and Benchmarking
- Carbon Footprints
- Technology Adoption
- Fuel/\$/Emissions Savings

2. Technology Programs:

- Heavy-Duty truck testing
- SmartWay Tractor/Trailer
- SmartWay certified technologies
- Technology verification

3. Finance Programs

- Innovative loan programs
- Financial mechanisms
- Grants

4. Brand Marketing

- SmartWay Logo
- Successful multi-media campaigns
- Educational Materials
- Annual Awards

5. Light Duty Vehicles

- SmartWay certified vehicles
- Consumer Education



2. Develop financing programs under trucks / transport programs (b)

Under US Smart Way Program, financing programs are available for:

Transport Refrigeration Units (TRU)

- New Units
- Replacements
- Repowers
- Exhaust Retrofits

Aerodynamic Improvements

- Low Rolling Resistant Tires
- Light Weight Wheels
- Tire Inflation *J* Monitoring Systems
- Tire Sealants

Exhaust Retrofits

Oil Filtration *J* Lubrication Systems

SmartWay Upgrades for

- Idle Reduction Strategies
- Auxiliary Power Units (APU)
- Heaters *J* Evaporative Coolers *J* AC
- Battery *J* Solar *J* Shore power Systems

Truck Replacements

- Hybrids
- LNG
- Clean Diesel

Trailers

- SmartWay Certified Trailers
- Improved Aerodynamic Upgrades

Source: Cascade Sierra Solutions



2. Develop financing programs under trucks / transport programs (c)

The following types of financing are available for trucks and transport in the US:

Loan:

- EBW-USA;
- SBA Express Loan Program;
- Green Lease Program;

Tax Incentives:

- Oregon Green Diesel
- Truck Engine Tax Credit
- Oregon Business Energy Tax Credit
- Federal Tax Credit for Hybrid Vehicles

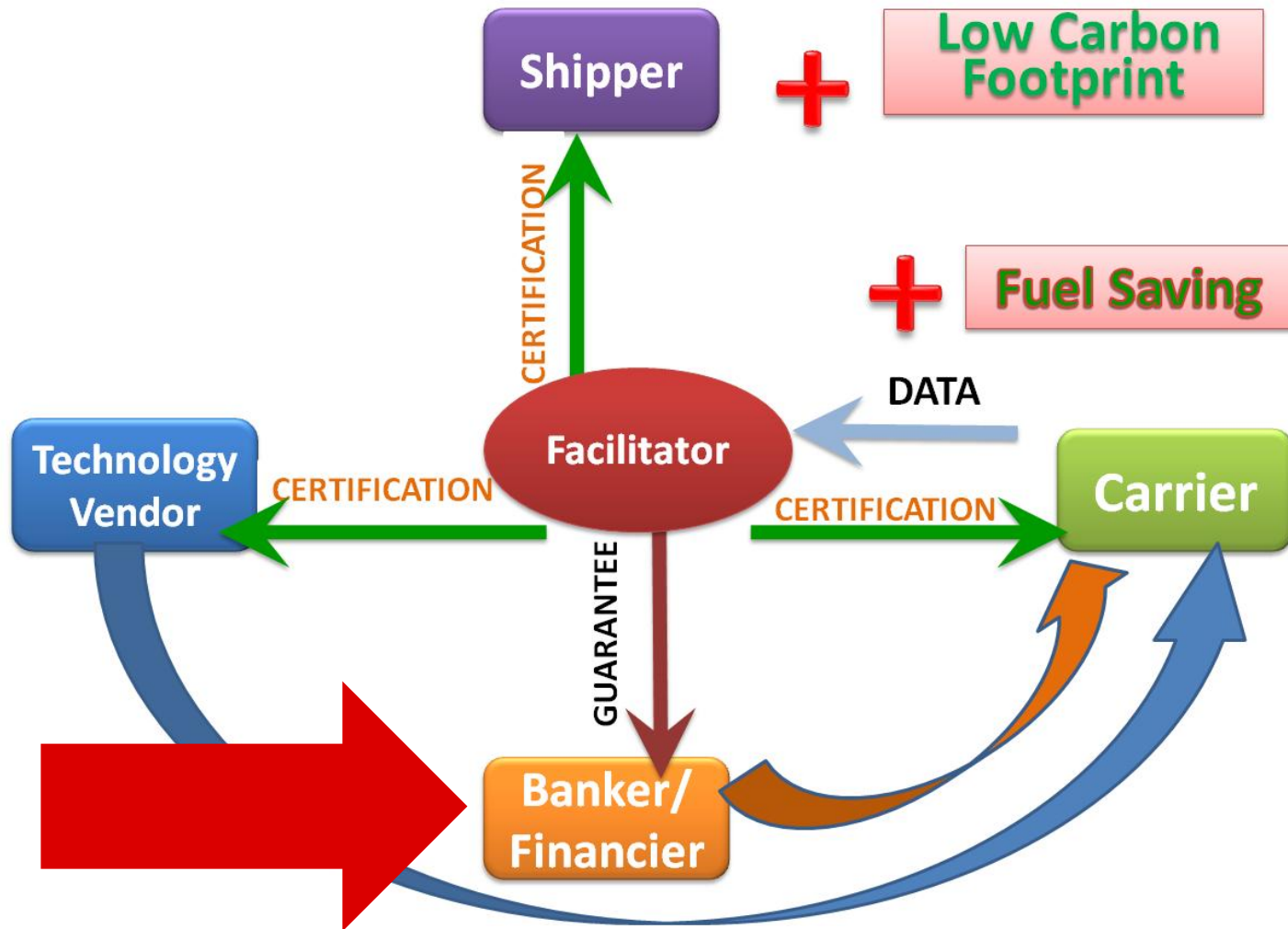
Grant:

- Great Smartway Rebate Program
- Oregon Clean Diesel Grant Program.
- California Goods Movements Emission Reduction Program- Proposition 1B
- Carl Moyer Memorial Program

Source: Cascade Sierra Solutions



3. Create active role for financing sector in truck/transport programs



4. Make financing an explicit role of program facilitator

Facilitators role would be to :

- Incorporate cost/benefit calculations into tools/methodology of trucks toolkit for identified measures/technologies that reduce
- fuel consumption and emissions
- Establish an independent Center for green truck grant management in China (involving logistics companies, truck and truck equipments manufacturers.....)
- Conduct feasibility research for broader tax policies



CAI-Asia Center

www.cleanairnet.org/caiasia

Yan Peng, China Representative

Yan.peng@cai-asia.org

China Project Office

Room 601B AVIC Tower

B-10 Dong San Huan Zhong Lu (Road)

Beijing, 100022, P.R. China

Tel/Fax. No.: 86 10 65561650

Mobile No.: 86 13910791221