



SALKHIT WIND FARM PROJECT



CDM Experience: SALKHIT Wind Farm Project

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CONTENT

Background of the project and company

CDM Experience of Salkhit wind farm project

- PDD Development & Revision:
 - Emission Factor Calculation and Data Gathering
- Validation and Registration
 - Providing the evidence
- Emission Reduction Purchase Agreement (ERPA) and CER Sales Strategy

Opportunities and Barriers for future projects in Mongolia

- Current carbon market condition and future trend?





ABOUT CLEAN ENERGY LLC

- A renewable energy company developing the *Salkhit Wind Farm Project*, the first wind farm in Mongolia
- Clean Energy LLC was established in 2004 as part of Newcom Group
- Investors:
 - Newcom LLC
 - General Electric Pacific Pte Ltd
 - European Bank for Reconstruction and Development (EBRD)
 - Dutch Development Bank (FMO)





ABOUT THE WIND FARM



Salkhit Wind Farm in Mongolia

- ✓ First Commercial Scale Wind Farm
- ✓ First Independent Power Producer
- ✓ First Privately Owned Power Plant
- ✓ First Power Purchase Agreement
- ✓ Largest renewable energy source
- ✓ First new and largest power generation connected to the Central Grid in the last 30 years
- ✓ First Project to receive International Project Finance Award as the Best Deal of 2012 in Renewables in Asia Pacific Region from Mongolia

- Location: Sergelen Soum, Tuv aimag, 70 km from UB
- 31 GE wind turbine generators
- Total capacity: 50 MW
- Operation start: 2013





ENVIRONMENT



Sakhit wind farm will annually:

- Avoid emission of 178,778 tons of CO₂
- Save 122,000 tons of coal
- Save 1.6 million tons of water
- Supply 100,000 households with renewable energy resources

Follows best international practice on environmental & social management + health & safety of:

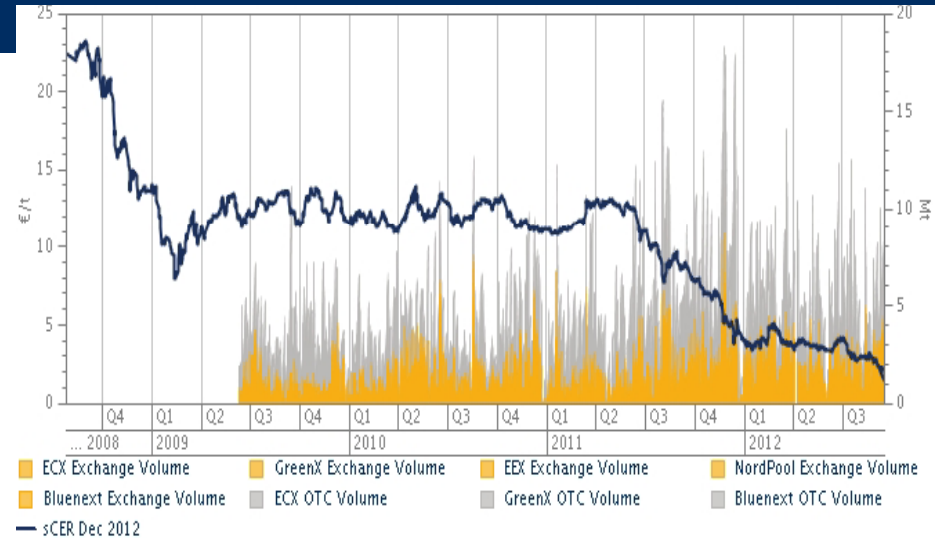
- EBRD, IFC Performance Standards
- Equator Principles
- Plans for ISO 14001 (E), 9001 (Quality) & OHS AS18001





CLEAN DEVELOPMENT MECHANISM

Capacity	49.6 MW wind project
Annual electricity generation	168.5 GWh
Expected annual emission reduction	178,778 tCO ₂ e
Crediting period	21 years
Total project investment	US\$ 120 million



Project name	Type	CERs/t (per year)
A retrofit program for de-centralized heating stations in Mongolia	Energy distribution	12,000
Durgun Hydropower Project	Hydro	29,000
Taishir Hydropower Project	Hydro	30,000
Salkhit Wind Park Project	Wind	178,778

Source: Point Carbon sCER OTC price assessment (as of Sep 2012).

CER sales price examples	CDM annual return	Total CDM Return (gross)
€20 fixed	€3.5 mln/y	€75 mln
€1 fixed	€178,778	€3.7 mln
~ 90 % floating price of sCER market price		
CER closing price of 27 Oct 2013 – 0.30 € (spot)		





Why CDM?

Penalty of non-compliance in the EU ETS is €100 (was €40 in Phase I)

So entities can buy emission reductions or allowances either from Joint Implementation or CDM





CDM & PROJECT CYCLE

CDM Cycle:	Timeline
• CRM contract	2007
• Project Design Document (PDD)	2007; 2011
• Validation	2007; 2011
• LoA from DNA	2007; 2011
• Registration	Mar – May 2012
• Developing CER Sale Strategy	Q2 2012 & beyond
• Finding a Buyer	2012
• Signing ERPA	Q2 2012-Q1 2013
• Monitoring	From June 2013
• Verification/ Certification	From June 2014
• CER Issuance/Forwarding	2015
• Renewing Crediting Period	2019

Environment	Time	By
EIA	2006	MEGD
ESIA	2008	Black & Veatch
Detailed EIA	2012	Sunny Trade

Technical parts	
Wind measurement	Since 2004
Land lease	Since 2004
Feasibility	2007-2011
Permits & license	Since 2007
PPA	2007,2010
Financial Close	2012
Equipment contract	2011





PDD development

Key factors of PDD:

- Emission Factor Calculation (ex-post vs. ex-ante):
 - Carbon content of lignite
(int'l default value vs. local estimates)
 - NCV (net calorific value) or heat content of coal
- Baseline Emission (data gathering, evidence to sources used)
- Monitoring (clear roles and responsibilities, file records)
- Develop PDD not only following PDD guidelines, but also validation guidelines (VVM – validation & verification manual etc).
- Be as clear & specific
- Keep records/evidence of all data used
- Track all guidelines & requirements of the methodology & tool





VALIDATION & REGISTRATION

Project needs to be in advanced stage to complete validation:

DOE required:

- evidence that the project will be implemented (financial close or EPC contract):
 - a. complete details on the technology to be adopted (its origin and environmental soundness, purchase order/contract)
 - b. justification for the wind turbine generation (net electricity generation, capacity factor)
- proof of the starting date of the project activity
- proof of all sources and data used (cross-reference) to justify CER/EF calculation





CER SALES STRATEGY

- CER Price Forecast: Supply & Demand Analysis
- Sales timing, amount
- Contract options: forward, upfront, combination, spot, auction
- CER Price Structure: Fixed, Floating (with cap&floor), combination
- Choosing the market: compliance vs voluntary market
- Buyer: government, fund, private utility, broker
- Single Buyer or many Buyers: Long-term ERPA or short term
- Tender: closed, open or bilateral communication





Emission Reduction Purchase Agreement

- Condition Precedent: Add buyer as Project Participant?
- Obligation to deliver CERs/sell and buy?
- Conditions and terms of Delivery Shortfall
- Verification/Certification and Project Operation
- Representations, Warranties and Undertakings
- Event of Default and Remedies
- Termination
- Miscellaneous
- Governing Law and Dispute Resolution





CURRENT CARBON MARKET

- CER price reduced below 1 Euro (~30 cent €)
- Low CER demand vs. oversupply

Global CER Supply & Demand up to 2020 (June 2012)



Source: Point Carbon

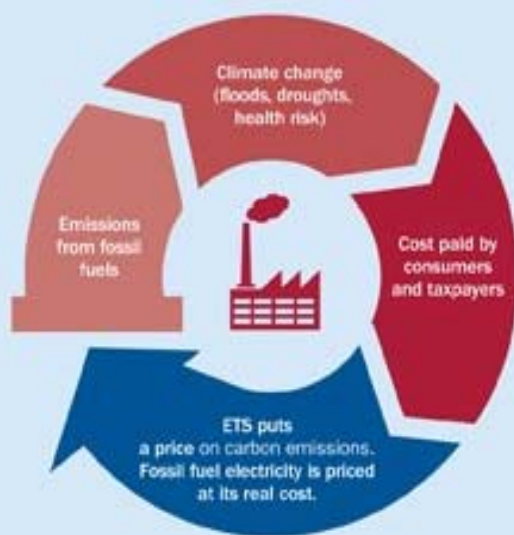




FIX THE EMISSIONS TRADING SYSTEM

The patient - the ETS

Emissions from fossil fuel power plants and heavy industry cause climate change. The Emissions Trading System (ETS) puts a price on carbon emissions and prices fossil fuel electricity at its real cost.



The illness - surplus permits

The economic crisis has undermined the ETS by bringing about a surplus of emissions permits. How?



The treatment - backloading

A short-term lowering of the supply of permits is needed to save the carbon market.



· Delay the sale of part of the permits.

The cure - structural measures

Only a long-term reduction of the supply of permits will cure the flooded ETS market.



· Remove all surplus emissions permits.
· Adopt ambitious 2030 emissions reduction and renewables targets to create a stable investment framework and a structurally sound Emissions Trading System.

How does the ETS work?

The **cap** sets a limit on the total amount of carbon that can be emitted by the power and industrial plants in the system; the cap goes down over time. Permits are received for free or auctioned.

Companies can **trade** permits to emit carbon with one another, if a company reduces its emissions, it can keep the spare permits to cover its future needs or sell them to another company.

Why backloading?

Backloading means postponing the auctioning of 900 million permits out of the 2,000 million surplus. Fewer permits being available should push the carbon price back up. Alongside a binding renewables targets, a higher carbon price can help push investments in renewable sectors like wind energy that are creating jobs (248,000 EU jobs in 2011).

Backloading is a push for both climate action and economic growth.

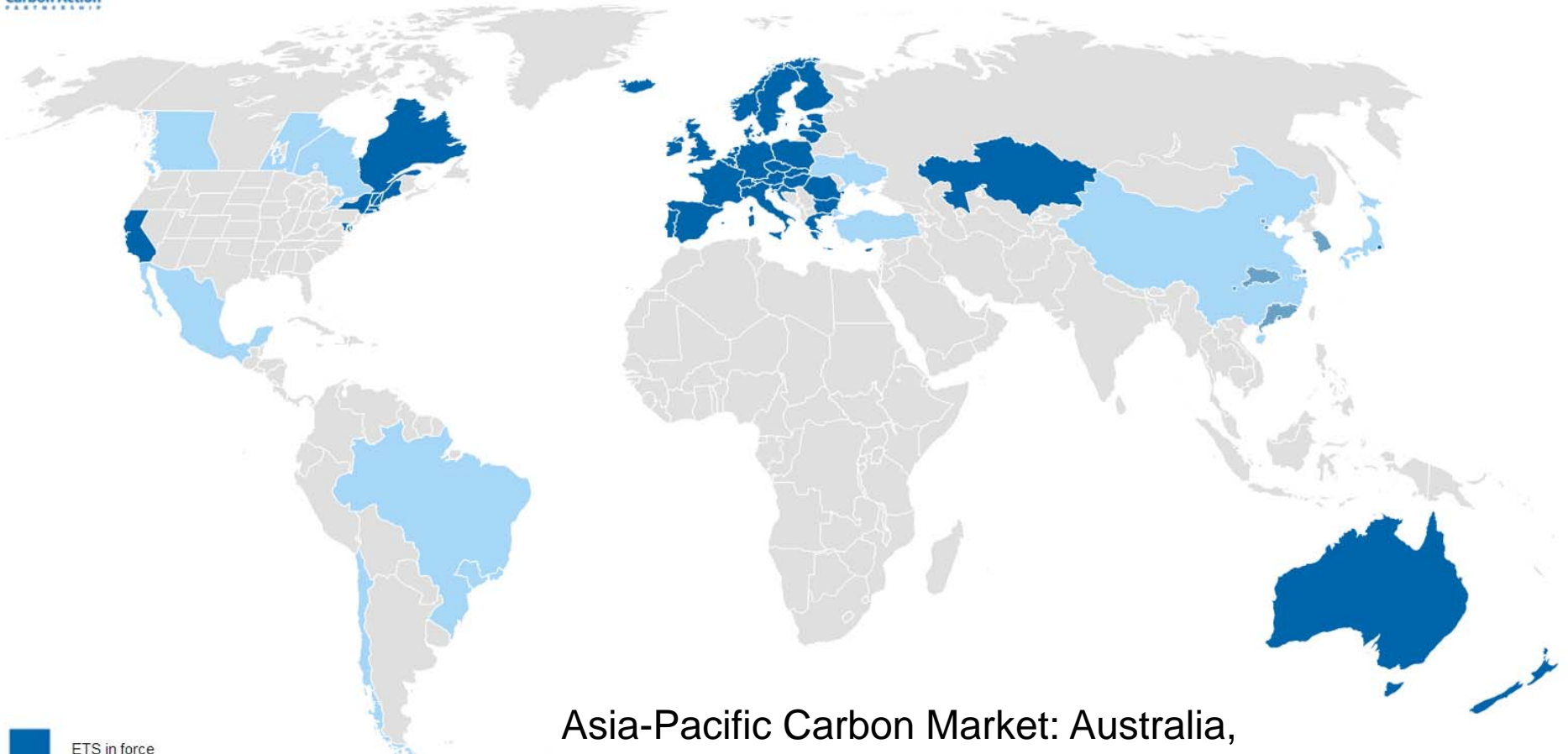





9 ETS in force: EU, Australia, California, Kazakhstan, NZ, Quebec, Swiss, Tokyo, US:RGGI

8 ETS implementation scheduled: China (7 cities), South Korea

Updated on: 10 April 2013

12 ETS under consideration: Brazil, British Columbia, Chile, China, Japan, Mexico, WCI, Ukraine, Turk



-  ETS in force
-  ETS implementation scheduled
-  ETS under consideration

Asia-Pacific Carbon Market: Australia, China, NZ, South Korea



Regional Distribution of CDM Projects

CDMMaps





Future Challenges & Opportunities

Challenges:

- Low CER Demand
- Low CER Price
- Project Potential for Large Scale CDM
- Lack of capacity
- Dependence on consultants

Opportunities:

- NAMA
- NMM
- Regional and new ETS
- Capacity Building
- Technical Assistance
- GHG Inventory
- Emission Factor Calculation





THANK YOU

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