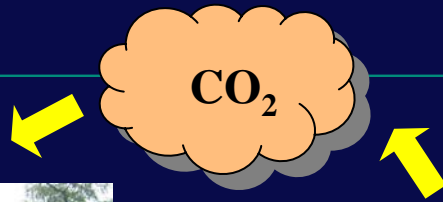


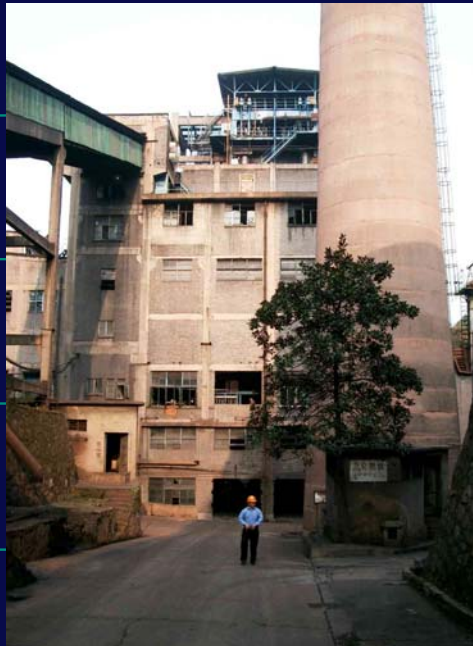
# Carbon credits from CDM fuel-switch in industrial power generation in China replacing coal with wood

Gerald Kapp



# Anhui Power Plant Project

Anhui Power Company	Boiler capacity (MW el.)	Full Work Load (h / yr)	Power generation (GWh el. / yr)	Fuel requirement (GWh th. / yr)
Replacement of one coal boiler	25	4,400	110	330



# Fuel alternatives and emissions avoided

Anhui Power Company	Coal Input (t / yr)	Wood chips needed to replace coal (t / yr)	CO <sub>2</sub> -emissions avoided by replacing coal (t / yr)
Replacement of one coal boiler 75 MWth.	62,300	99,100	114,200



Energy content of coal: 19 GJ / t

Energy content of wood chips: 12 GJ / t

Emission avoided : 1.83 t CO<sub>2</sub>e / t coal

Energy wood potential: over 1 Mt / yr

# Influence of Carbon Credits on IRR of Fuel Switch over 11 years

Anhui Power Company	Biomass boiler (EUR)	Supplemental fuel costs (EUR/yr)	State subsidy for biomass power (EUR/yr)	CER sales benefit (EUR/yr)	IRR (%)
Fuel switch, no CERs	-11.000.000	-1,800,000	2,750,000		- 3%
Fuel switch with CERs	-11.000.000	-1,800,000	2,750,000	800,000	+9%



Current price of CER low-risk forwards: 7 €/ CER  
 State subsidy for Biomass Power: 0.025 €/ kWh  
 Current price of coal (at factory): 38.5 €/ t  
 Current price of wood chips (at factory): 42.5 €/ t

# Wuhu Textile Factory: Fuel alternatives and emissions avoided



Wuhu Textile Company	Coal Input (t / yr)	Sawdust needed to replace coal (t / yr)	CO <sub>2</sub> -emissions avoided by replacing coal (t / yr)
Replacement of two coal boilers 25 MWth. total (3 MWeI.)	30,000	36,800	55,000



Energy content of coal: 19 GJ / t

Energy content of sawdust: 14 GJ / t

Emission avoided : 1.83 t CO<sub>2</sub>e / t coal

Sawdust potential (45 fabrics): 220,000 t / yr



# Influence of Carbon Credits on IRR of Fuel Switch over 11 years

Anhui Power Company	Biomass boiler (EUR)	Supplemental fuel benefits (EUR/yr)	State subsidy for biomass power (EUR/yr)	CER sales benefit (EUR/yr)	IRR (%)
Fuel switch, no CERs	-6.000.000	1,070,000	525,000		23%
<b>Fuel switch with CERs</b>	<b>-6.000.000</b>	<b>1,070,000</b>	<b>525,000</b>	<b>385,000</b>	<b>30%</b>



Current price of CER low-risk forwards: 7 €/ CER  
 State subsidy for Biomass Power: 0.025 €/ kWh  
 Current price of coal (at factory): 38.5 €/ t  
 Current price of sawdust (at factory): 11.7 €/ t



**Thank you for your attention!**

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