Carbon capture turns coal into greener fuel

Swedish energy giant Vattenfall's coal-fired power plant at *Schwarze Pumpe* in eastern Germany is the world's first to use carbon capture and storage (CCS) technology. The 30-megawatt test facility uses an *oxy-fuel* process to remove almost all CO_2 emissions

SCHWARZE PUMPE'S OXY-FUEL PROCESS

1 Air separation Nitrogen removed from air. Stream of almost pure oxygen is pumped to boiler house

2 Boiler house: Coal is burned in oxygen and recycled flue gas (water vapour and CO_2), producing heat to generate electricity

3 Flue gas cleaning: Ash, sulphur and other particles are removed. Remaining gas is almost pure CO_2

4 CO_2 compression: Gas is cooled and compressed to 1/500th of its original volume, producing liquid CO_2 which is held in storage tanks

5 Tankers Will transport liquefied CO_2 to depleted gas field for injection deep underground

If successful, CCS technology could be ready for commercial use from 2020

Source: Vattenfall Picture: Associated Press