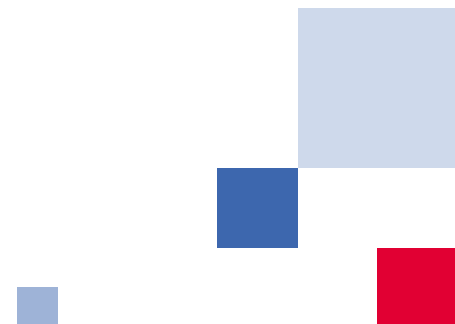


Promoting Renewable Energy and the use of Biomass in Power Generation

Sam Warburton

RWE Power AG

Climate Protection



RWE's competitive position



Market positions	Electricity	Gas
Germany	No. 1	No. 2
UK	No. 2	No. 3
Central Eastern Europe	No. 2 in Hungary No. 3 in Slovakia Starting position in Poland	No. 1 in the Czech Republic Leading position in Hungary
Total Europe	No. 3	No. 6

Mechanisms to promote the development of renewable projects



GLOBAL WARMING - the Kyoto Protocol sets binding emissions reduction targets for 39 developed nations based on 1990 emissions



RWE is developing renewable projects using carbon credit finance to make projects viable.



EU Emissions Trading Scheme (from Jan 2005) and the National Allocation Plan. suppliers of electricity to source a given percentage from renewable energy sources – **from 3% in 2003 to 10% in 2010**

Many EU countries have introduced incentives to promote the development of renewable projects.

RWE's programme for climate protection



By 2014, we will be investing about € 2 billion in efficient climate protection through a tripartite strategy.

Clean Coal

Climate-friendly retrofits
Increasing energy efficiencies
CO₂-free power plant

Renewable
energies

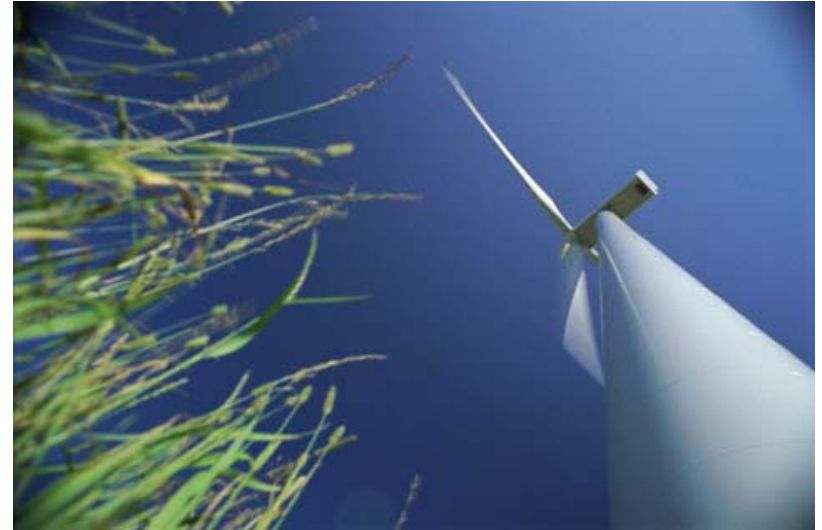
Invest up to €650 million in the next five years

CDM/JI

€150 million budget for investing in greenhouse gas emissions mitigation projects under the CDM and JI

Expansion of renewables

- Extension of today's renewables-based power station fleet by 500 to 700 MW.
- Deployment of technologies already or in the foreseeable future competitive with fossil fuels on the wholesale market (focus on wind power).
- Construction and expansion of renewable power generation facilities in Germany and Europe wherever a potential exists that can be profitably tapped.



RWE's approach to the CDM/JI market



A prime buyer of carbon credits for its own compliance via

- Emission Purchase Agreements (ERPA) with project owners
- Participation in carbon funds; RWE has been contributing to the Prototype Carbon Fund of the World Bank since 2000.
- Min. volume: 200.000 t CO₂e in total.

Direct participation in CDM/JI projects by providing

- Financing
- CDM/JI project skills
- Technical know-how
- Min. volume: 500.000 t CO₂e in total

Purchase of carbon credits

No project type or region is excluded,

but proposed activities have to comply with the eligibility requirements as stipulated in the Marrakech Accords.

Project participation

- Destruction of N₂O
 - Nitric acid plants
- Methane recovery and utilisation
 - Coal mine methane
 - Landfill gas
 - Biogas
- Energy efficiency
- Fuel switch
- Renewable Energy

Options for Generating Electricity from Biomass

■ **Dedicted Biomass Plants:** there are two technology options:

- Conventional Boilers
- Bio-digestors
- Issues:
 - Construction Period
 - Fuel Supply Security
 - Technology



■ **Co-firing of Biomass in existing thermal power plants**

- Benefits:
 - Immediate
 - Not reliant on a single fuel source

What is Co-firing



- Why Co-fire:
 - Co-firing can pave the way for energy crops
 - Helps to meet renewable targets in early years before other technologies can deliver – “gap filling technology”
 - Helps to reduce emissions: carbon neutral, SO₂ and potentially NO_x
 - Using existing plant is the most efficient conversion technology to turn biomass into electricity: >35% compared to 18% to 30% in dedicated biomass plants

- In 2007 RWE will burn between 300 - 600,000 tonnes of biomass in the UK

Biomass use in Kyoto Projects

- RWE is developing CDM and JI projects
- The use of renewables qualifies for these projects where the additional revenue bridges technical or financial gaps
- RWE has extensive experience with biomass. The drivers for co-firing are nearly identical to the UK scenario:
 - Projects can developed rapidly
 - Technical and commercial risks are understood
 - Utilise biomass sources local to the power station



A new opportunity for Farming Energy crop contracts for Didcot power station

This new local market for energy crops could give you more profit than conventional crops and provide you with the opportunity to help increase levels of renewable energy generation in the UK

Are you looking for :

- New crops with a long term market to maintain profit from farm activities after decoupling in 2005 ?
- An opportunity to be in at the start with an exciting crop development, new to this area ?
- Involvement in curbing CO₂ emissions and addressing the issue of climate change ?
- Ways to develop your land, machines and expertise to make energy crops seriously attractive ?
- More opportunities to work with neighbours and others in the supply chain ?

Alternatively:

- Do you have land that is looking for a secure, profitable use which mainstream enterprises or letting agreements will not provide for after 2005 ?
- Do you want to cut overhead costs from your business and still be counted as a farmer and keep all your Single Payments?

npower renewables

esd biomass



Current Kyoto Projects

- Four projects under development in Bulgaria:
 - Two co-firing projects
 - One complete conversion of an existing boiler to 100% biomass fuel
 - Building new district heating boilers using 100% biomass as a fuel – small scale project

- Biomass Sources:
 - Within SE Europe – wood, sunflower and other crop residues
 - Importing – Wood pellets

- Requirement: 130 – 150,000 tonnes per year

Conclusions

- The co-firing of biomass is an opportunity to rapidly develop renewable energy projects to meet regulatory obligations
- Co-firing biomass results is investment in local industry and farming
- Initiates the development of alternative crops providing new commercial opportunities for farmers
- In the short term farmers in Serbia can benefit from the development of biomass projects in the region.
- Serbia's ratification of Kyoto will provide an incentive for the development of biomass and other renewable projects in Serbia.
- RWE is interested in developing biomass projects and finding biomass for its projects

RWE is committed to developing CDM and JI projects in collaboration with Project Partners

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