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Application for the European Responsible Care Award 2008

Project:

Usage of warm water from the Carbon- Black site Kalscheuren of Evonik Industries for the early season vegetable cultivation in agriculture

General description:

A part of the cooling water from operations in carbon black production is usually cooled down in a cooling tower. Energy level of the cooling water is very low (max. 35° C) and can not be used for other purposes. This stream of cooling water now is partially used for the heating of about 230.000 m² of asparagus cultivation surrounding the plant. The energy transfer is designed as a closed water circuit with a piping system embedded into the soil of the asparagus fields.

Beside a set of indirect advantages the primary effect is that the plant saves well water (to replace the water losses due to evaporation in the cooling tower) and the farmer saves the equivalent in oil alternatively necessary to heat up the soil. Main goal for the farmer is to offer domestic high quality asparagus on the market about 6 weeks before the season typically starts and so being able to compete with imported asparagus from warm countries.

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Registered Office is Essen
Register Court
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Commercial Registry B 20227

For the saving of 6.500 t of CO₂-emissions the partners (agro and site) receive the equivalent of CO₂-emission certificates / allowances. The farmer has been officially promoted by EU-programs.

The project got major attention from the neighbours and local media (radio, newspaper). Of course it was also published in the internal media of our company (monthly brochure, intranet).

Quantitative information (based on a standard 4-month operating time per year):

Area under cultivation:	230.000 m ²
Pipes used to heat up the soil:	220.000 m (3/4 "pipe)
Power (min.) / energy (total):	6.000 kW / 29.000.000 kWh/a
Fuel equivalent saved (agro):	2.400.000 l
CO ₂ -emission-equivalent saved:	6.500 t
Well water saved (site):	14 m ³ /h or 40.000 m ³ in total
Season of application:	winter till spring
Saving of fuel and CO ₂ -emissions for alternative asparagus imports	→ not quantified

Project officially started in 2007

Responsible Care issues concerned

The project is impressive due to the variety of effects on core points of our responsible care program as well as the unusual approach and application field. It may be assumed that there are many other possibilities in the (chemical) industry, where our approach and application may be copied in a similar way.

- Innovative application of surplus low level energy sources

- **Involving of employees in ESH- and RC-issues:**

The project has been initiated by motivated employees who discussed those issues with interested neighbours. On this background the project was more or less born and further developed.

- Environmental protection by avoiding of CO₂ emissions (megatrend → global warming, climate change)

- Saving of critical resources: Drinking water and especially fossil fuels

- The supply of “early season” vegetables does not involve major environmental and financial transport disadvantages (usually by air plane) but is offered by local farmers
- Creating additional values for the neighbours and thereby raising acceptance for the production site
- Positive feedback from the regional media → positive effect for the image of the production site and chemical industry
- Positive example for other sites / employees to show a similar involvement

Integration into other projects of the Carbon Black plant in Kalscheuren

The new application of warm water is subsequent to the energy saving strategy of the site. Long time before several other kind of residual energies (higher level) have been used for the production of electric energy and district heating. The savings in the production of primary energy and reduction of CO₂-emissions amount even to a multiple of the current project.

