By-Product Synergy at its Best

Case Summary

Kalundborg, a small industrial zone 120km west of Copenhagen has evolved from a single power station into a cluster of companies that rely on each other for material inputs. In 1994, 16 contracts had been negotiated and by 1995 materials and energy exchanges resulted in savings approximating $10 million US a year. The core participants included a coal-fired power station, an oil refinery, a pharmaceuticals plant, and Gyproc, Scandinavia's largest plasterboard manufacturer. The municipality of Kalundborg, which distributes water, electricity and district heating to around 20,000 people is also a partner. The by product synergy program developed at Kalundborg has grown to include partners from other districts, as well as farmers.

How does it work?

Participants exchange materials and energy using by-products from one business as low-cost inputs for the others. For example, treated wastewater from the Statoil Refinery is used to cool the Asnaes power station. Meanwhile, Statoil and the pharmaceutical company, Novo Nordisk, purchase steam from the power station for their operations. Surplus heat from the power station is used to heat homes in the surrounding area, as well as in a local fish farm. Over 170,000 tonnes of fly ash from the power plant is recycled partly by the wallboard company, Gyproc, who uses it to obtain gypsum, a by-product of the chemical desulphurization of flue gases. Surplus gas from the Statoil refinery, which used to be burnt off, is now delivered to the power station and to Gyproc as a low-cost energy source. Some of the 1.5 million cubic metres of Novo Nordisk's by-products a year are delivered to local farmers, free of charge for use as fertilizers.

Benefits

Though the project began as a means to work together to find income-producing applications for unwanted by-products, this project has resulted in substantial cost savings and improved the resource efficiency of the businesses. For example, Gyproc has recorded a 90-95% saving in oil consumption and excess heat recovered from the coal plant has eliminated the need for about 3,500 oil-burning domestic heating systems. Environmental improvements have been a secondary gain from this project.

Some Questions

Who are the main beneficiaries of this program?

Are there potential partnerships that could be developed around the waste from your business?

Are there other businesses whose waste products you could use?

How does the community and the environment benefit?

What would it take to develop such a program in Newfoundland?

Source BSD Global

For more information contact:
Conservation Corps Newfoundland and Labrador
267 Duckworth Street,
St. John's, NL A1C 1G9
Phone: 709-729-7267 Fax: 709-729-7270
Email: contactus@conservationcorps.nf.ca
Website: conservationcorps.nf.ca