

GreenStep Cities Best Practice # 28 **- final draft for comment through May 2010 -**

- ❖ **Business Synergies:** Network/cluster businesses to achieve better energy, economic and environmental outcomes.

Optional for all cities

Category: Economic and Community Development

Summary

Fostering communication and networking among businesses, and clustering businesses, can optimize resource use and reduce economic and environmental business costs. Beginning with the observation that in nature, every waste is used by some other organism within an ecosystem, eco-industrial business development aims to help groups of businesses work efficiently as an industrial ecosystem that interfaces more benignly with the local natural ecosystem. Eco-industrial principles encompass a range of approaches a city can promote, ideally working with a local business association, and include:

- Waste and pollution prevention and materials reuse in business operations.
- Byproduct and waste energy exchanges among businesses.
- Higher performance buildings served by more sustainable infrastructure.
- Producing products with a smaller environmental impact over their lifecycle.
- Ongoing community job training efforts to assure green businesses of talented workers.

Best Practice Actions

- For category A cities: complete at least one of the following Actions if you choose to implement this best practice.
 - For category B and C cities: complete at least Action (2), (3) or (4) if you choose to implement this best practice.
- (1) Help at least three businesses register as users of the Minnesota Materials Exchange and document their exchanges/sales of byproducts with other local/regional businesses.
 - (2) Assist at least one business, through a voluntary coordination or incentive program, to use waste heat or water discharge from another business or city facility.
 - (3) Require, build or facilitate at least four of the following in a business/industrial project:
 - a. Shared parking/access.
 - b. Shared recreation /childcare facilities.
 - c. A green job training program.
 - d. Green product development, manufacturing or sales.
 - e. Buildings located within walking distance of transit and/or residential zoning.
 - f. Renovated buildings.
 - g. Buildings designed for reuse.
 - h. Green buildings built to exceed the Minnesota energy code.
 - i. Combined heat and power (CHP) generation capacity.
 - j. Shared geothermal heating/cooling.
 - k. Low-impact site development.
 - (4) Use eco-industrial park tools to identify industrial facilities that could achieve economic and environmental benefit by co-locating in the city's industrial park or industrial zone.

See related *Green Business Development* best practice.

GreenStep Guide

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Implementation Resources

(tied to the relevant Action by number)

- (1) Minnesota Materials Exchange: <http://mnexchange.org/>
- (2) Energy/water reuse examples: reuse of non-contact industrial cooling water; reuse of hot water from a laundromat by a nearby greenhouse.
- (2) Minaqua Fisheries Co-op in Renville, MN uses heated water, to raise tilapia fish, from waste water generated by the nearby Southern Minnesota Beet Sugar Cooperative: http://www.charles-mix.com/miscellaneous/pdf/Mar09/SD_0309_12-13.pdf
- (3) Twin Cities Mayors' Green Manufacturing Initiative:
http://www.bluegreenalliance.org/press_room/private_publications?id=0018
- (3) *EcoIndustrial Development: A Strategy for Building Sustainable Communities* (Cornell University: 2001):
<http://tinyurl.com/lt9p9q>
- (3) National Center for Eco-Industrial Development: <http://www.usc.edu/schools/sppd/research/NCEID>
- (3) EPA combined heat and power resources, calculators and a contact person: <http://www.epa.gov/chp/>
- (4) U.S. EPA's *Facility Synergy Tool (FaST)*, *Designing Industrial Ecosystems Tool (DIET)*, and *Regulatory, Economic, and Logistics Tool (REaLiTy)*: <http://www.smartgrowth.org/pdf/fastflyr.pdf> Also contact Suzanne Giannini-Spohn, U.S. EPA: (202) 260-7568, giannini-spohn.suzanne@epa.gov

Benefits

- A biomass combined heat and power system, as being explored in Silver Bay, MN, is estimated to increase fuel efficiency from about 37% in utility-sized coal-fired electric power plants to about 75%. When using a renewable fuel such as wood, net CO₂ emissions are zero, displacing approximately 150,000 tons per year of CO₂. A 2500 kilowatt pellet plant power and district heating system, firing about 10 tons per hour of biomass, is estimated to create 15 permanent pellet plant jobs and 6 logging jobs. Estimated savings from the district heating is \$200,000 when compared to using natural gas.

Connection to State Policy

www.MnGreenSteps.org