



CHP and Economic Redevelopment – Case Studies and Policy Issues

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Redevelopment Economics

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Redevelopment Economics

- Representative engagements:
 - Tax increment Financing and Smart Growth - State of Maryland Sustainable Growth Commission
 - Brownfields Policy Analysis - State of Washington Department of Ecology
 - Economic and Environmental Benefits of the Historic Tax Credit - Abell Foundation
 - Green Job Strategy - Allegheny River Towns Enterprise Zone
 - Economic and Environmental Benefits of the Westport Waterfront TOD - Westport Waterfront, LLC



Case Studies

- Mixed use and high density projects
- Industrial park projects
- Eco-industrial park projects
- Sustainable and controlled-environment agriculture projects

Case Studies – Mixed use

Austin – Mueller

- 700 acre former airport
- Plan:
 - 4.7 million sq. ft of commercial space
 - 4,500 residences.
- 470,000 sq ft Dell Children's Hospital is an anchor
- CHP plant:
 - 4.5 megawatts
 - Heat Recovery Steam Generator 22,000 lb/hr;
 - Absorption chiller plants – 1500 tons, and 700 tons.



- CHP –
 - 1.2 MW electricity to hospital
 - Steam/chilled water to hospital and loop road

Case Studies – Mixed use

St Paul Energy Park – district energy serves mixed use redevelopment and business park

- 1980's 218 acre industrial redevelopment area
- Energy Park now includes 25 buildings:
 - 2.6 million sq ft of space
 - 92 companies (about $\frac{3}{4}$ office and $\frac{1}{4}$ industrial)
 - 4,200 jobs
 - 1,000 DU's
- Development advantages:
 - lower capital costs for energy infrastructure
 - Lower energy operating costs



- Energy efficiencies helped lure a 2,000-employee US Bancorp back office facility
- Expansion to CHP planned

Case Studies – Mixed use



Dockside Green, Vancouver – district energy/potential CHP

- Former copper mine
- 26 buildings,
- 1.3 million sq ft,
- 1,300 DU's
- 20 sustainability awards

Atlantic Station, Atlanta District Chilled Water

- \$2 billion, 13 million sq ft mixed use redevelopment of the former Atlantic Steel mill near downtown Atlanta.
- District chilled water developed simultaneously;
- Density synergies

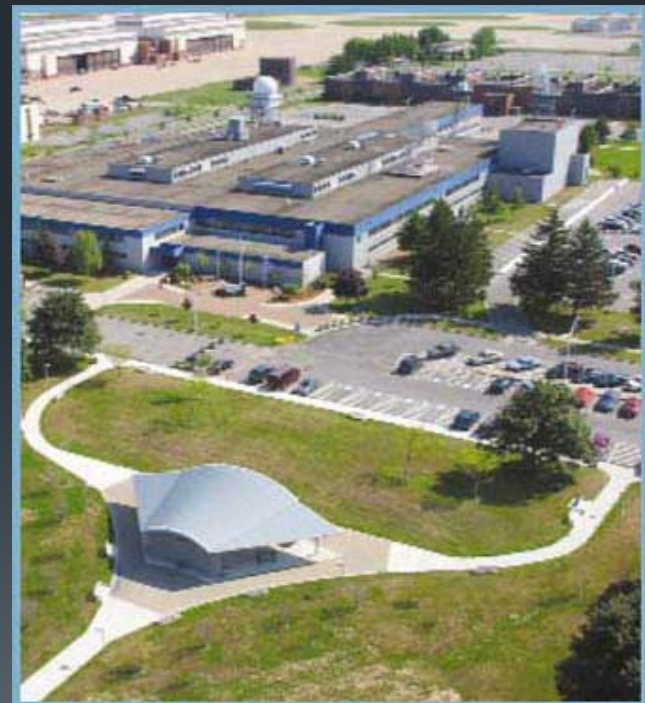


Case Studies – Industrial Parks

Griffiss Energy Utility, Rome, NY

- Former Griffiss Air Force base (Superfund site)
- 3,500 acre industrial park
- 80 businesses with a total of 5,800 employees.
- Existing district energy system w/ 26-mile steam piping serves 70% of industrial-commercial space
- 22 MW bio-mass plant CHP plant under construction

Key financing – \$6.2 million 1603 Treasury Grant



Case Studies – Industrial Parks

Eastman Business Park, Rochester, NY



- 1,200 acres, 900 retained by Kodak and 300 acres available for redevelopment
- 3,000 jobs/35 businesses (+3,500 jobs still in Kodak operations)
- 7 large manufacturers
- CHP Tri-generation system with the following:
 - electricity production capacity of 130,000 kilowatts;
 - Steam capacity of 1,500,000 pounds per hour;
 - chilled water capacity of 60,000 tons;
 - The feedstock is coal with natural gas back-up.

Case Studies

Eco-Industrial Parks

Catawba County, NC Ecocomplex

- 250-employee eco-park
- LFG recovery plant - 3.0 MW
- Biomass CHP plant (in design) - 3 MW electricity
- Steam heat will be used by:
 - Gregory Wood Products and Pallet One for drying kilns,
 - County - new sludge maintenance facility,
 - Appalachian State biodiesel research facility,
 - planned greenhouse.

A 250 job industrial prospect and steam user



Case Studies Eco-Industrial Parks

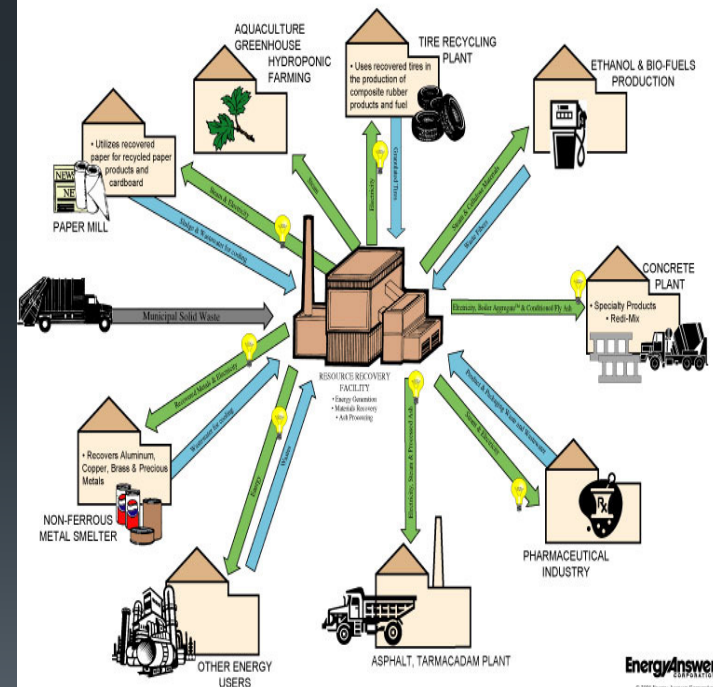
Saline Green,
Marshall, Mo



- steam users planned:
 - ethanol plant
 - Furfural chemical manufacturing

Energy Answers
Baltimore

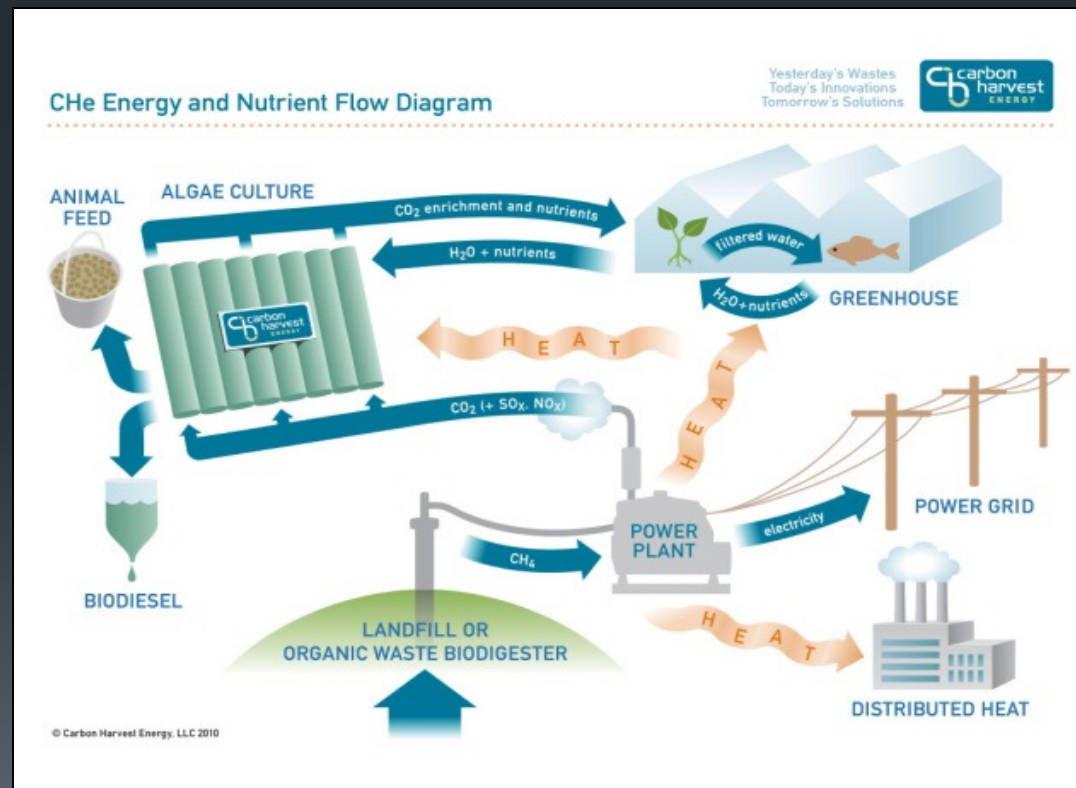
Resource Recovery Based Eco-Industrial Park



Case Studies – Sustainable Agriculture and Economic Development

Carbon Harvest - Brattleboro, VT; Keene, NH; Lebanon, NH; and Sullivan County (Monticello), NY

- LFG recovery – electricity to the grid and heat recovery:
 - Greenhouse
 - Aquaculture
 - Algae culture
 - Associated industrial use
- Key financing – 1603 Treasury Grants



Case Studies – Sustainable Agriculture and Economic Development

■ The plant, Chicago

- Farm and food business incubator,
- CHP – 420 KW + steam
- Anaerobic digester
- Aquaponics
- Rooftop greenhouse
- Brewery
- Bakery
- Space for food production
- 100 jobs projected



■ H2Grow, Model City, NY -

- LFG
- 12 MW to the grid
- Steam heat to greenhouse





CHP, District Energy, and Smart Growth – case study analysis

- CHP and district energy complement redevelopment projects that are:
 - Dense (25 DU/ac+);
 - Mixed use/24 hour energy needs; or
 - High energy use industries
- CHP and district energy are the anchors and organizing elements of a new generation of eco-parks
- Financing/project feasibility are usually dependent on governmental incentives
 - Private lenders want long-term deals with existing customers

Policy issues - statutory

CHP Incentives:

- Continue 1603 Treasury grants to convert value of the ITC and PTC
- Accelerate CHP incentives
 - HB 2720 raises the capacity allowance for the Business Energy Investment Tax Credit (ITC) from 15 MW to 25 MW
 - HB 2784 - "Highly Efficient CHP projects" eligible for the 30 percent ITC credit.
- Modify the Clean Air Act to allow New Source Review to consider forestalled emissions.
- Classify MSW as renewable.

District Energy Incentives:

- HR 5805/111th congress, :
 - Extend the tax credit for the production of electricity from renewable resources to the production of thermal energy.
 - Expands the definition of "local heating and cooling facilities" for purposes of tax-exempt facility bonds
- Accelerated Depreciation for District Energy Assets –from the current 20 years to five years

Policy issues, cont.

Funding Issue:

- **Full funding for EISA Sec. 471**
 - Section 471 provides local government with cost-shared funding for sustainable energy projects, including district energy systems, renewable energy, combined heat and power, waste heat recycling.
 - The program was authorized at \$3.75 billion over FY 2009-2013.

Brownfields Tie-in:

- S 3374 from 111th Congress authorizes a new EPA brownfields program for renewable energy on brownfields.

Administrative Issues:

- **DOE Loan Guarantee Program** – Clarify use for CHP
- **EPA Re-Powering America Initiative** –
 - EPA should expand the Re-Powering Initiative to include CHP and District Energy