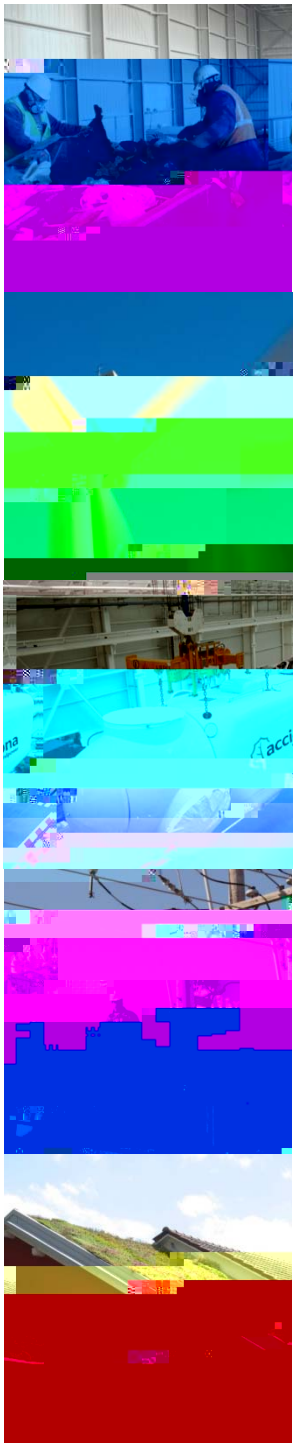


Green Economic Development Strategies for the Chicago Region

Prepared
by The Delta Redevelopment Institute

June 2009

for
RCF Economic & Financial Consulting
and for
Chicago Metropolitan Agency for Planning

Delta Redevelopment Institute

This page was left intentionally blank.

Introduction and Acknowledgements

Environmental, national security and most recently job creation goals have converged to generate strong public interest, political support and an array of new policies and incentives to support green energy, energy efficiency, and waste reduction. A paradigm shift of relevant economic development drivers is occurring as a result of growing concerns—and associated policy developments and incentive programs—related to resource scarcity issues associated with climate change, air quality, raw materials, water supply, and land use. This report examines the potential of these new policies and incentives to create jobs and private sector investment in the Chicago region.

Most of the information in this report was gathered from existing reports that are listed as references. Reports from the U.S. Conference of Mayors and the Renewable Energy Policy Project (REPP) in Washington D.C. were especially helpful in identifying specific industries that are emerging and that have potential. REPP was also able to provide data on businesses within Illinois with detailed industry codes that would indicate potential for manufacturing energy equipment.

We are also grateful to local experts who provided information for this report. Dylan Tuttle, a wind supply chain expert at the Jane Addams Resource Center and Kevin Borgia, executive director of Wind For Illinois, provided valuable information on the emerging Illinois wind industry. Pete Kadens, president of SoCore Energy LLC and George Kramerich, president of Solar Tracking Skylights helped with information on the solar energy and green building industries. Ed Kalebich, manager at Robbins Community Power, Nate Harrison at Tetra Vitae LLC and Guenther Recknackel provided help understanding developments in biomass energy and biobased chemicals industries. Sylvia Coronado, Cal King, and Anna Nussbaum of Recycling Systems, Inc. provided insights into the challenges and opportunities for the recycling industry. Terry Shelley of Intercon Solutions gave insights into the e waste recycling industry. Rachel Weber and Susan Kaplan at UIC's College of Urban Planning and Institute for Environmental Policy developed research on the waste and deconstruction industry for the region. David Chandler, Senior Business Analyst at the Center for Neighbooste003Tj/TT91Tf012Tc9880Tc8003Tj/TT91Tf0

Executive Summary

Climate change commitments by major corporations, colleges and universities, the City of Chicago and other smaller cities in the region in just the past two years provide the potential to create new green business opportunities and jobs in the region. The Chicago Climate Change Action Plan, released in 2008, is by far the most ambitious public sector effort to date in the region. The plan

6. Solutions for challenges facing specific emerging green industries, such as the lack of ideal climate conditions for wind or

Existing Conditions

A. Climate Change and Resource Scarcity

Climate change and water conservation are the two most prominent resource scarcity issues (opportunities) facing this region in the coming decade, and both have the potential to shift business practices and growth in the nation and the region. However, they are not issues that many business and government leaders in the Chicago region are prioritizing and actively committed to at the present time. Air pollution regulations currently affect a small segment of businesses in the region. Water use is currently not regulated (or even metered) in most communities in the region with the exception of broad interstate compacts regarding the use of Lake Michigan water and seasonal bans on watering lawns in some locations. Although a CMAP survey of Green Practices for Local Governments in 2008 revealed that hundreds of municipalities in the region are doing something, very few are committing to take strong action to combat climate change. Only a small percentage of municipalities, businesses and institutions have climate change or sustainability plans.

Nonetheless, because Chicago is part of a global marketplace, sustainability

likely be impacted by future growth and economic development activities such as land use and availability, and transportation.

B. Current Status of Green Economy Sectors

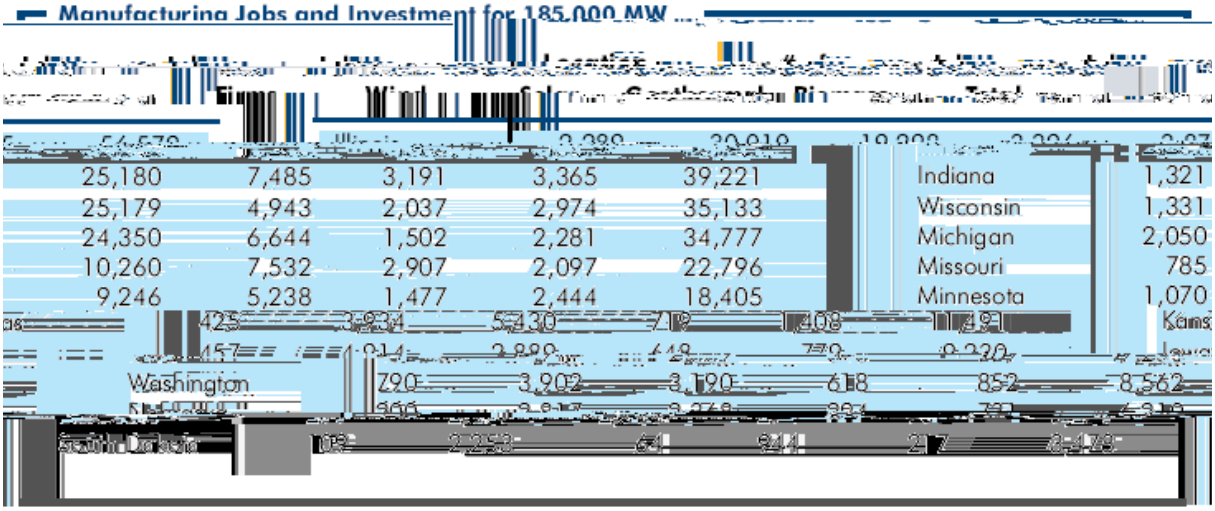
Green Energy. Green energy sectors have competitive advantages in

turbines or solar panels by metal manufacturers who are already producing similar products. Comparing the NAICS (North American Industry Classification System) codes of wind turbine and solar panel parts to the NAICS codes of companies in the 7 county area revealed that 1194 companies had NAICS codes matching one or more wind turbine parts, and 680 companies had NAICS codes matching one or more solar panel parts. (See Appendix A for

source for defining or estimating green job growth, but at least one major recent study ranks the Chicago region 6th in the nation among 100 metro areas in existing and projected jobs (U.S. Conference of Mayors, 2008; see table below). The same report also indicates that the Chicago region has more jobs in industries linked to energy and building retrofits than most U.S. cities. Initial estimates of green jobs are relatively small (just over 16,000 current jobs or 0.4% of total employment in the region), however the definition of green industries used in this report is relatively narrow – limited primarily to renewable energy and alternative fuel production and some sectors relating to building retrofits. It does not include any assumptions about greening of other existing sectors.

Top 100 Current and Potential Green Jobs Ranked by Metropolitan Area

				Existing 2006	New Through 2038
1		New York-Northern New Jersey-Long Island, NY-NJ-PA (MSA)		25,021	107,071
	24,287	182,165	2	Washington-Arlington-Alexandria, DC-VA-MD-WV (MSA)	
	8,708	166,866	5	Boston-Cambridge-Quincy, MA-NH (MSA)	
	16,120	127,545	6	Chicago-Naperville-Joliet, IL-IN-WI (MSA)	
			7	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD (MSA)	14,379
			8	San Francisco-Oakland-Fremont, CA	



Using a similar methodology, data from REPP for existing businesses in Illinois was mined to determine the potential number of renewable energy component manufacturers in the 7 county region (see Appendix A). The largest numbers for the region by far is in Cook County. Currently supplier surveys are underway to determine the potential and needs for transitioning these businesses into renewable energy component manufacturing, but more resources are needed to do targeted outreach particularly in Cook County.

Due to the large number of existing and proposed wind farms in Illinois, construction, installation and maintenance jobs have special promise in the wind industry in the relatively short term. While many of these sites are

Net Metering. The ability for wind, solar and biomass users to sell power back into the grid is an important incentive for investing in small scale systems. In Illinois, net metering is available to electric customers that generate electricity using solar energy, wind energy, dedicated energy crops, anaerobic digestion of livestock or food processing waste, hydropower, and fuel cells and microturbines powered by renewable fuels. Systems up to 40 kilowatts (kW) in capacity that are intended primarily to offset the customer's own electrical requirements are eligible. While Illinois's investor owned utilities and alternative retail electricity suppliers must offer net metering, the state's municipal utilities and electric cooperatives are generally not required to do so. (DSIRE) ComEd has already announced plans to expand its Smart Ideas programs by installing more "smart" 2 way metering boxes. Monitoring and information on the roll out of this program and net metering rules is needed.

Incentives

- **Grants and Rebates: Illinois Renewable Energy Resources Program,** Illinois Department of Commerce and Economic Opportunity (DCEO). http://www.commerce.state.il.us/dceo/Bureaus/Energy_Recycling/Energy/. Supports renewables through grants, loans and other incentives administered by the Illinois Department of Commerce and Economic Opportunity (DCEO). The funding mechanism was established for 10 years in January 1998. In August 2007, funding was extended through December 12, 2015.
    - Renewable Energy Business Development Grant Program – Targets projects that develop and expand the renewable energy sector and corresponding supply chain while improving the economy of the State new businessdevelopment.oSolarEnergyIncentiveProgramSolarPV $250,000 on facility

targets,

- Renewable Fuels Development Program grants for the construction of new biofuels production facilities in Illinois. The program is specifically designed to increase biofuels (ethanol and biodiesel) production in Illinois.
- E85 Infrastructure Development Program (funded by IL Clean Energy Community Foundation, see below)
- Economic Development for a Growing Economy (EDGE). Grants and low interest loans for major new plant investment.

- **Tax Incentives (abatements, deductions, credits, etc.)**
  - DCEO Commercial Wind Energy Property Valuation
  - DCEO Special Assessment for Solar Energy Systems
- **Private Incentives**
  - Renewable Energy Credits for Small Solar PV Energy Producers through the Illinois Renewable Energy Aggregation Program (RECAP). http://www.illinoissolar.org/. The Illinois Solar Energy Association (ISEA) provides a direct incentive for Renewable Energy Credits produced by members' solar photovoltaic systems by offering its members an opportunity to earn $0.06 for every kilowatt hour produced through a partnership with Community Energy, an Iberdrola Renewables company.
  - Illinois Clean Energy Community Foundation Grants. http://www.illinoiscleanenergy.org

Chicago Climate Action Plan

The result of broad and ambitious research by the Chicago Climate Task Force, the Chicago Climate Action Plan outlines five strategies, which are broken into 26 actions for mitigating greenhouse gas emissions and nine actions to prepare for climate change. The Chicago Climate Action Plan details steps for both organizations and individuals to take action. Currently the City of Chicago is working with partner organizations on implementation plans for the actions.

Chicago Climate Action Plan Strategies
• Energy Efficient Buildings • Clean and Renewable Energy Resources • Improved Transportation Options • Reduced Waste and Industrial Pollution • Adaptation

www.chicagoclimateaction.org

Metropolitan Mayors Caucus' Greenest Region Compact

In July 2007, member mayors attending the Metropolitan Mayors Caucus's business meeting unanimously approved a motion to recommend the region's nine Councils of Government and the City of Chicago approve adoption of the Caucus's Greenest Region Compact. The Greenest Region Compact is a voluntary initiative to improve the region's air, water and land, reduce greenhouse gases, minimize waste, and reduce energy consumption through a series of environmental actions. Three priority strategies have been identified: residential water conservation education and regulation, e waste recycling, and CFL bulb distribution. As of May 2009, over 100 mayors have signed onto the Compact. A workbook is available to assist municipalities in implementing the strategies recommended in the Compact.

Metropolitan Mayors Caucus' *Greenest Region Compact* **Strategies**
Priority • Residential water conservation education and regulation • E waste recycling • CFL bulb distribution **Air** • Diesel retrofits • Transit education • Bus shelters and bike racks **Energy** • LED traffic signals • Municipal green power purchase **Land** • Tree planting programs **Waste**

- Construction and demolition debris recycling
- Paint recycling
- Residential curbside recycling

Water

- Stormwater best management practices

www.mayorscaucus.org

ComEd

of credit markets, government subsidies (interest write downs) or loan guarantees will be important in expanding financing options for capital improvements. Government programs like a pilot program announced by the Illinois Treasurer's Office in 2008 can help.

Suburban Efforts

Several suburban municipalities in the region are currently developing or implementing sustainability plans. The City of Aurora, the second most populous city in Illinois, is in the process of implementing sustainability initiatives

Challenges and Opportunities

manufacture and servicing of green energy and energy efficiency products – but is a wind turbine manufacturing company that uses polluting products and processes, or a weatherization contractor that employs day laborers with poor wages and no benefits, truly

networks of alternative energy and clean tech investors, spearheaded by local energy magnates such as Michael Polsky. The University of Chicago Booth School of Business' Polsky Center for Entrepreneurship hosted the 2nd annual Midwest Alternative Energy Venture Forum in the fall of 2008. The keynote speaker was flown in from California and didn't linger long to talk to Midwest entrepreneurs. The challenge and opportunity for the region will be to continue to grow its own angel and venture capital investor network.

Government and private sector financial support for R&D and demonstration projects is especially important for the green energy sector, since technology breakthroughs are needed to lower production costs and reduce dependence on subsidies. Similarly for waste, waste to energy has advantages for the region, but also faces challenges of high capital cost for relatively untested technologies. Financing incentives, R& D funding and demonstration projects could lead to breakthroughs in this sector within the next 10 years, with potential to catapult these industries to the forefront. Even for greening of existing sectors, new capital funding sources and other financing sources (New Market Tax Credits, for ifis example) are needed to support innovation and to implement alternative product technologies and services at scale.

Loan Guarantees. The federal stimulus package provisions are a fleeting, if possibly important, springboard – if they amount to enough money to be noticeable in terms of what is oamount

Green Bank Loan Programs. Traditional private sector banks are also launching initiatives to support clean energy, climate mitigation and green building. In 2008, Bank of America announced it would direct $20 billion to help its corporate, customers pursue green business opportunities. Citigroup said it would devote $50 billion toward projects that reduce carbon emissions. (Makower 2008) Smaller Chicago based banks are also participating in a new state subsidized green loan program. Harris Bank is one Chicago bank partnering with the Illinois State Treasurer's Office on the new Cultivate Illinois Green Energy Program, in which the State Treasurer's Office secures below market interest rates for borrowers who finance their purchase or installation of energy efficient and renewable energy equipment with participating lenders.

OPPORTUNITIES:

- Continue to grow the

opportunity for states, counties and cities to establish new energy offices. Coalitions of smaller cities could pool their resources or apply jointly for assistance from county or state offices. There is a need for more dialogue in the region on the need for a coordinated support network for green industries and businesses.

Need for Renewable Energy and Energy Efficiency Support Center. New federal block grant money provides an opportunity to establish both larger regional offices and also smaller sub regional offices to administer renewable energy and energy efficiency programs and provide a broader range of services and information. These offices could also serve as clearinghouses for information and training opportunities provided by other existing support organizations. Specific support groups exist for wind and solar production and component manufacturing. Increasingly, foreign consulates are also offering programs and networking opportunities in the region to introduce foreign companies to local partners. However, these groups and events are currently fragmented and could benefit from having a one stop shop in the region.

Scale: Challenges for Small-Scale Energy Producers and Equipment Manufacturers; Need for Aggregators and Integrators. Scale – and whether there will also be room in the green economy for smaller scale energy producers and equipment manufacturers, or resource recovery businesses – is a challenge that touches both emerging green sectors and existing sectors that are shifting into new green product lines. For example, many small manufacturing businesses lack the capability to make precision parts for major wind turbine manufacturers. Local manufacturing support groups are working to identify larger suppliers that could serve as integrators for smaller scale suppliers in the region and provide business development assistance in helping smaller suppliers retool. Scale is also an issue in collecting waste from smaller scale sources. New markets are developing for biomass and food waste, but cost effective systems for collecting and aggregating these specific waste streams from many small generators need to be developed. There is a need in many emerging green industries for intermediaries or distributors who can help integrate or aggregate energy, products or raw materials for smaller businesses or generators of energy or waste.

Global collecting

- Support the formation of aggregators and integrators to achieve economies of scale for the manufacturing shift to green product lines.

Challenge 4: Business Climate: Deficiencies in Incentives, Policies, Industry Standards, and Regulations.

Green businesses (increasingly foreign based businesses) and entrepreneurs are attracted to locations with strong commitments to resource protection, strong financial and organizational support for emerging green industries, and a competitive business climate. Business climate is a general term that encompasses both "carrots" (incentives) and "sticks" (regulations) and the ease with which businesses can obtain financing, subsidies, sites, necessary

Incentives. Green energy, building improvements and products often involve higher upfront cost than non green alternatives. Economic incentives are important in leveling the playing field and creating demand while markets develop and lead ultimately to lower prices. Incentives are more important in some sectors than others. Small wind, solar, biomass or geothermal have far lower upfront capital cost than utility scale projects but most building owners are still reluctant to invest in green building improvements without incentives due to long payback periods. Incentives are important in driving demand in the green building sector as well. A major infusion of federal stimulus money will soon be available for energy efficiency improvements in public buildings, some private buildings and job training.

Education and Assistance in Accessing Incentives. Understanding new policy drivers and navigating the complex web of new incentives is not easy, and few entrepreneurs have the time do this. Very few of the green businesses or projects that are featured as case studies in this report were pursuing incentives or knew much about them. Effective incentive programs will also require education and assistance in accessing them.

Legislation and Regulatory Streamlining. Red tape can sometimes make Chicago or other more urbanized parts of the region unappealing for emerging green industries or key existing industries. There are a broad range of ordinances that could be adopted to support emerging green industries. Zoning and building code reform is most important to the emerging green sectors as many do not have standards for new uses like wind turbines or building material reuse centers. Updating codes to add clear standards for new green uses is needed to recruit green

In certain sectors such as green building, standards such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system have enjoyed both policy and market uptake in many major metropolitan areas (including Chicagoland) and some non metropolitan areas. On the policy and incentive front, many municipalities have adopted LEED certification as a policy or incentive for new public buildings, and some have done so for existing public buildings or even new private buildings. In the private sector, building tenants around the country are beginning to demand LEED certified spaces from landlords, and LEED project experience is a highly marketable skill. In the material recovery industry, new industry standards for handling some specific types of waste are also needed. For example, some ordinances are requiring recycling rather than disposal of construction waste, but don't provide any guidance for crews on how to handle or dispose of potentially hazardous building materials such as lead based paint or asbestos laden materials.6.6.6.6p04373Tj/to

development professionals need to understand the process for selling renewable power to ComEd so they can

-

Purchasing

- Percentage of municipalities committed to purchasing green products.
- Dollars of government spending on green products.
- Number of new green products piloted by government entities.
- Number of cradle to cradle anti waste products purchased.

Brownfields

- Acres of infill and brownfield development.
- Value of investment in infill and brownfield development.
- Acres of greenfield development.

Food & Hunger

- Percent of food consumed that was grown locally.
- Number of farmer's markets by municipality.

Transportation

- Average miles pergallon (MPG) for fleet.
- Percentage of fleet using alternative fuels.

Goals, Objectives, and Strategies

This part of the report extracts key recommendations linked to challenges described earlier. Recommendations on who should

- *utility-scale power generation*
- *manufacturing -*

  -

- *construction*

  - -

- *services*
- *waste management*

- *food*

Key existing industries.

-
-

Strategy 1.2.2: Collect data on existing green business and jobs in emerging green sectors. A list of renewable energy equipment manufacturers in the 7 county region has already been obtained (see summary table in Appendix A). However, energy component manufacturing activity needs to be verified. Verification should ideally confirm what % of a business's products and services are green (% revenue from green products) as well as

Strategy 1.4.1: Encourage larger cities, businesses and institutions to make greenhouse gas reduction commitments similar to those in the Chicago Climate Action Plan. New federal targets in proposed climate change legislation (Waxman Markey bill) should also be considered.

Strategy 1.4.2: Develop targets for greening fleets (to supplement federal requirements under EPACT).

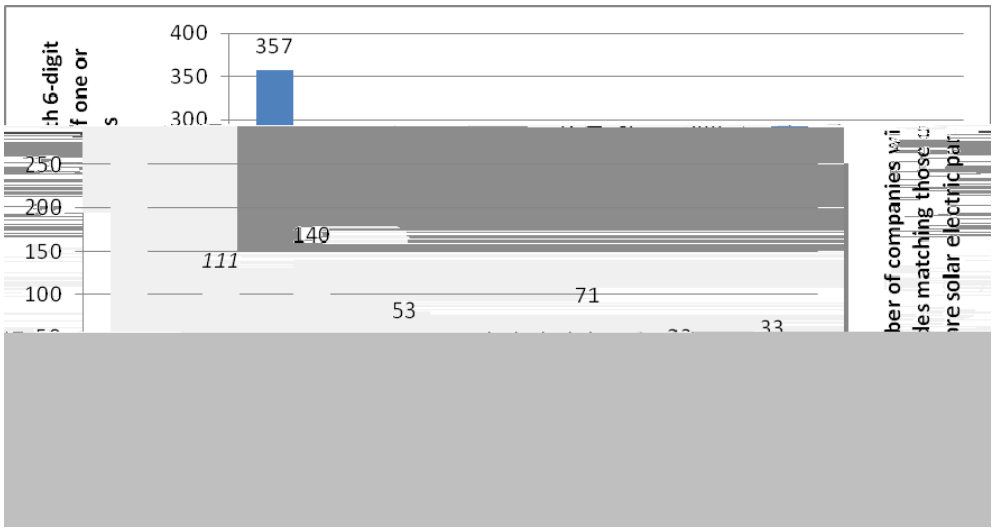
Strategy 1.4.3: Unused

Objective 4.3: Identify policy/regulatory barriers and

Appendices

This page was left intentionally blank.

Part(s)	NAICS		# of Companies by County								
	Industry Code	Industry Description	Cook (Total)	*Cook (Chicago only)*	Dupage	Kane	Kendall	Lake	McHenry	Will	*7-County TOTAL*
Complete Module, Solar Cells, Blocking Diode	334413	Semiconductors and Related Devices	22		9	7		5	2	1	*46*
Top Surface	327211	Flat Glass	17			2		1	1		*21*
Encapsulant	325211	Plastics Material and Resin Manufacturing	24		7	8		3	4	6	*52*
Rear Layer	326113	Unlaminated Plastics Film and Sheer (Except Packaging) Manufacturing	25		8	6	1	11	1	2	*54*
Frame	332322	Sheet Metal Work Manufacturing	118		63	10	1	13	8	9	*222*
Charge Controller, Inverter	335999	Electronic Equipment and Components, NEC	62		20	14		12	4	4	*116*
Circuit Breakers and Fuses	335313	Switchgear and Switchboard Apparatus Manufacturing	22		9	3		5	1	4	*44*
Meter	334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	39		14	3		8	1	1	*66*
Switch Gear, Electrical Connections	335931	Current Carrying Wiring									



Appendix B: Chicago Climate Action Plan Strategies and Actions

Chicago Climate Action Plan **Strategies and Actions**	
Strategy	**Actions**
Energy Efficient Buildings	

Industrial Pollution	conditioners and appliances = 1.16 MMTCO2e reduction* 3. **Capture stormwater on site:** Manage stormwater with green infrastructure = .1 MMTCO2e reduction*
Adaptation	1. **Manage heat:** Update the heat response plan, focusing on vulnerable populations, complete further research into urban heat island effect and pursue ways to cool hot spots 2. **Pursue innovative cooling:** Launch an effort to seek out innovative ideas for cooling

Appendix C: Case studies focused on job creation potential and investment impact.

Green Energy Case Studies

1. **Wind component manufacturing: A. Finkl & Sons.** 130 year old steel producer and open die forge located close to downtown Chicago, transitioned over lifetime from brick chipping hammers to 200,000 lb forgings. Current production includes products for power transmission and wind energy. Major expansion is underway for a new facility on Chicago's South Side, targeting a 200% increase in annual output.
2. **Solar component manufacturing: Allied Tube & Conduit.** As steel becomes an increasingly popular material for Side,

or Solar RECs have been instrumental in subsidizing the cost of solar energy installations in New Jersey.

New stimulus money (through the City of Chicago) could also help offset the cost of solar installations on the rooftops of municipal buildings in Chicago.

- **Biomass production: Robbins Community Power LLC** (www.rcpower.us – website under construction) is in the process of

Green Building Case studies

1.

New federal stimulus funding (especially $6.3 billion in new federal grants to cities, counties and states to improve energy efficiency) is likely to boost demand for energy saving building products. States that mandate utility subsidies have significantly increased acceptance of the product.

1. **University: University of Illinois at Chicago (UIC) - Office of Sustainability**:
   UIC CASE

Team. Key Departments are now implementing these strategies, which include a new "Paper Busters" competition. Schools compete for prizes by reducing paper use, buying recycled content paper and encouraging recycling of waste paper. CPS's Environmental Program Manager oversees the implementation of the action plan. More information on the status of these implementation projects as well as other green tips for schools can be found at:
http://cps.k12.il.us/programs/PaperWasteBusters/CPSEnvironmentalActionPlan.pdf and
http://cis.uchicago.edu/outreach/workshops/0809/documents/080926+081024_CPS_Green_School_Tips.pdf

References

Bedzek, Roger. “Green Collar Jobs in the U.S. and Colorado: Economic Drivers for the 21st Century.” American Solar Energy Society, 2009.

Bedzek, Roger. “Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century.” American Solar Energy Society, 2007.

Chandler, David. “Go to 2040 Questions on Freight Transportation” (prepared expressly for this report). Center for Neighborhood Technology, 2009.

Chicago Metropolis 2020. “The Metropolis Freight 2040 [(M)3.7(e)1.5(tropolis)]TJ/TT11Tf4.:n:90.229Tc1

About the Delta Redevelopment Institute

The Delta Institute and Delta Redevelopment Institute are affiliated non profit organizations formed in 1998 that work for a cleaner environment, healthier communities and a greener economy in the Great Lakes region. The Delta Redevelopment Institute was formed as a supporting 501(c)(3) organization to the Delta Institute focusing on brownfield and other economic development initiatives.

www.delta institute.org

www.deltaredi.org