





*Local Efficiency and Renewable Project
Examples for ARRA Funds*

June 11, 2009

2-4 pm EST



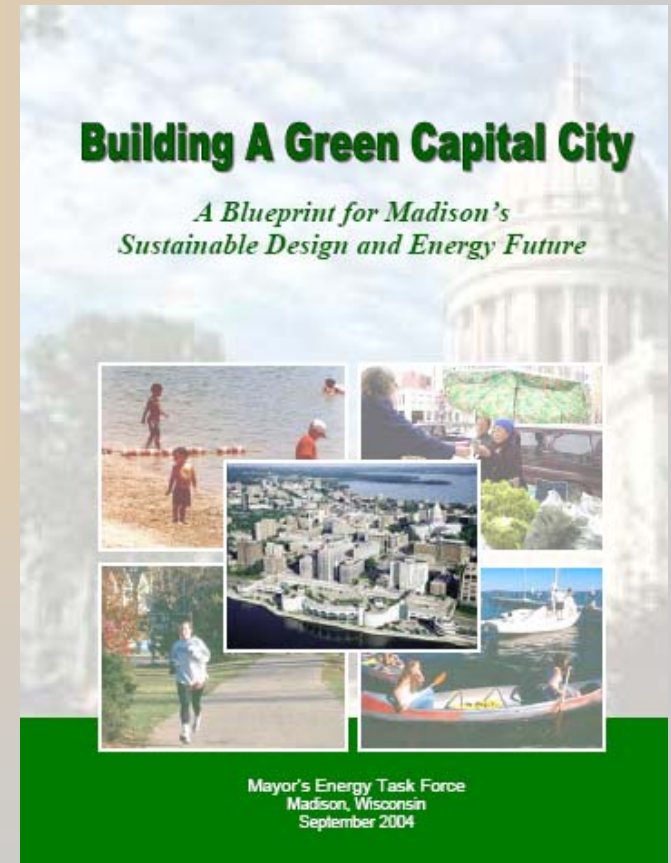
MadiSUN - Solar America Cities Program
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City of Madison, Wisconsin



Sustainability Goals for the City of Madison

Building a Green Capital City

- To make Madison a green Capital City, a national leader in energy efficiency and renewable energy that also supports the city's economic vitality.
- Plan adopted by the Common Council in January 2005





Highlights of “Building a Green Capital City Plan”

- Creation of the Office of Sustainability
- Adopting a Framework for Sustainability – The Natural Step
- Green Policies and Projects
- Energy Efficiency Projects
- Solar Projects
- City’s Wind Purchase
- Green Fleet
- Engaging the Community



Office of Facilities and Sustainability

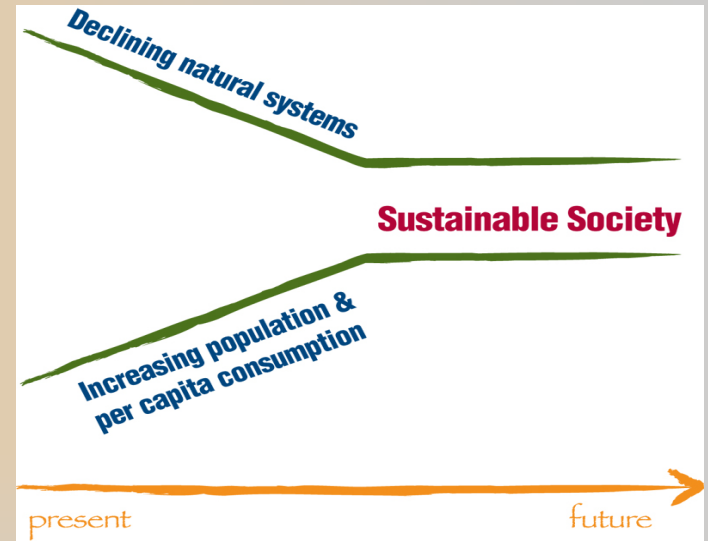
- Facilities and Sustainability Manager position created as part of 2007 budget, with manager hired in May of 2007
- Housed in the Engineering Division
- Manager, Architects, Mechanical Engineers, Maintenance and Custodial staff





Adopting a Sustainability Framework: The Natural Step

- Provides a framework to think about the environmental, economic, and social impacts of City programs, projects, and facilities
- Lays out the conditions and requirements that will help the City make greater progress toward sustainability
- Encourages us to plan strategically for the most sustainable outcomes





Green Polices and Projects

- Green Cleaning
- Green Purchasing
 - Office Furniture
 - Supplies
- E-Waste and Recycling
 - recycling companies shall comply with the most rigorous criteria consistent with current international e-waste laws, standards and definitions for sustainable and socially just electronics recycling operations.
- Printer Paper Policy
 - Duplex as default mode, move to MFD, recycled paper, toner cartridges
- Mileage and Emission Standards for City Fleet





Energy Efficiency Projects

- New Construction – LEED
 - Libraries
 - Fire Station
 - Convention Center
 - Maintenance Facilities
- Remodeling/Energy Efficiency
 - energy efficient upgrades at fire stations, police stations, PW facilities, and offices – HVAC, roof insulation, air sealing, lighting
- **Additional flexible funding for for energy efficiency and renewable energy**





Solar

Madison a US DOE Solar America City

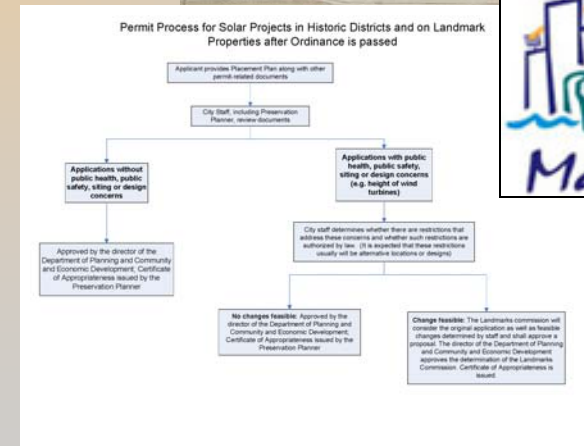
- To make Madison a model solar city for the Midwest
- To double the amount of PV and solar thermal systems installed in Madison by 2010. From 100 to 200 solar thermal systems and from 125 kW to 250 kW of PV





Components of MadiSUN

- Consultant to provide businesses and residents with assistance in installing solar
- City Installations – leading by example
- Pro-Solar Zoning
- Education for City Staff and Installers
- Technical Assistance from US DOE
 - Marketing
 - Structural Loading Research
 - Investigating Solar Mapping





Solar Agent



Assumptions

- City of Madison has a strong environmental ethic
- High level of education
- People are too busy to find out about technology, process and paperwork.
- The Solar Agent is here to help!

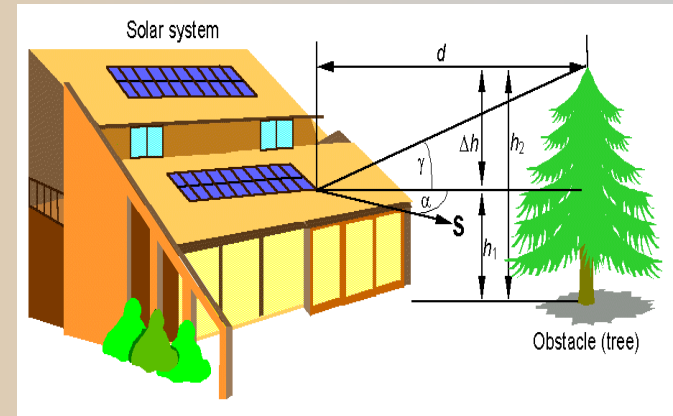




Solar Agent Program



- Pre-screening that provides a “grade”.
- Evaluate your home’s solar options
- Advise you on architectural options
- Explain permits needed and how to deal with them
- Assist in hiring the installer and proceed with installation

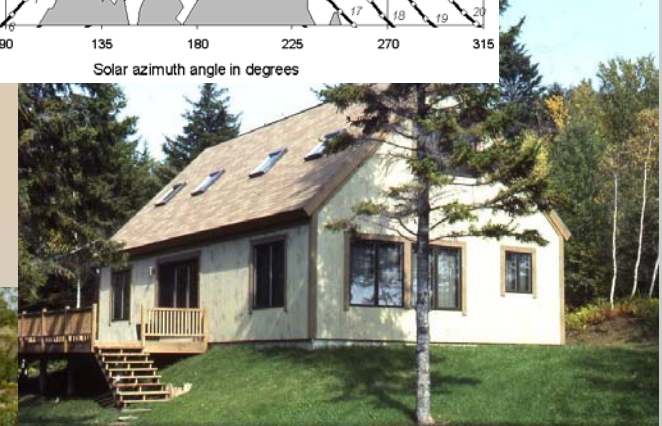
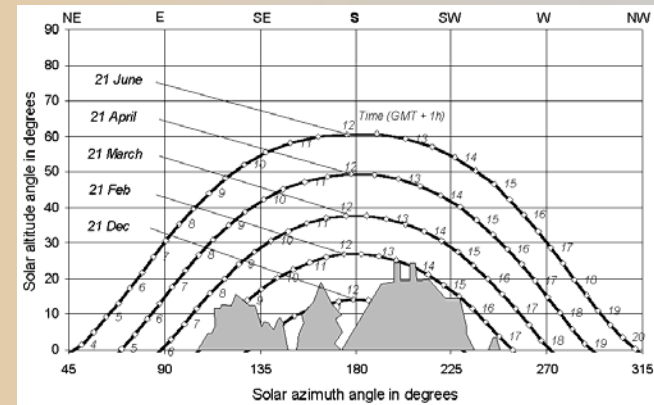




Results to date



- 404 total inquires to date
- 274 quick-look report-cards issued
- 121 site visits done & report issued
- 5 systems installed (two 10kW commercial, one 2.5 kW residential and one 2 kW residential and a 5.74 kW residential)





City Installations – Leading by Example



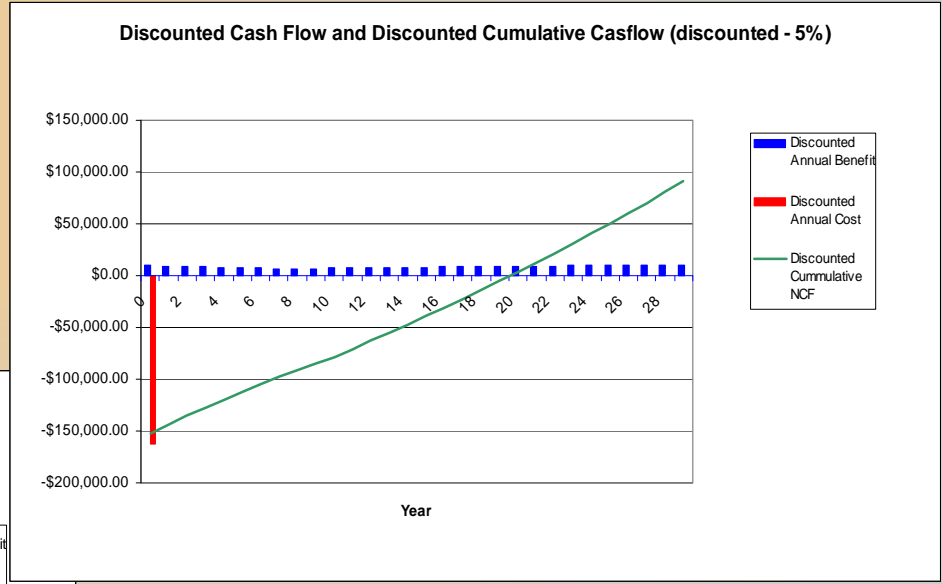
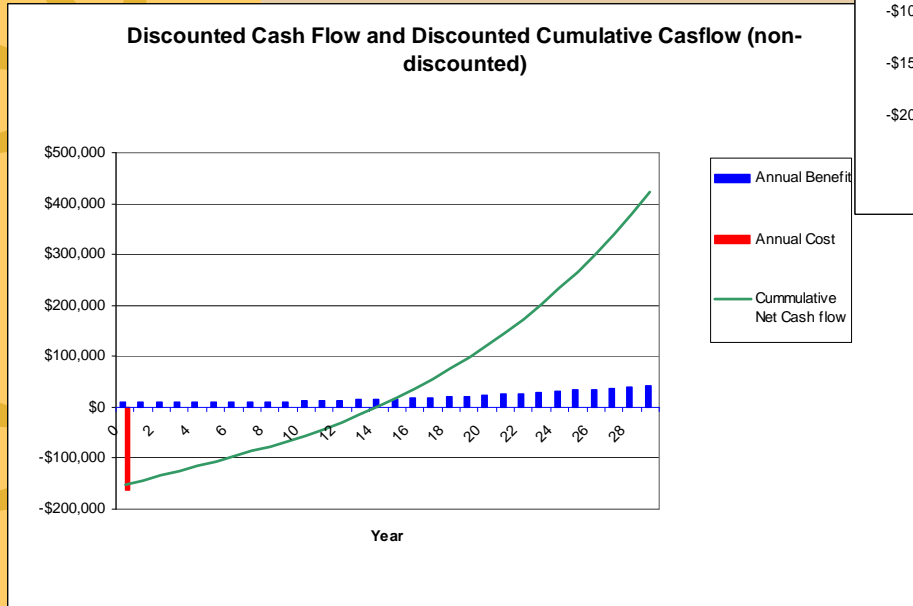
- Solar Electric
 - Systems on Greentree and Demetral Landfill are 6.3 kW each and produces 8,364 kWh annually each.
 - Alicia Ashman library is 7 kW and produces 8,700 kWh annually.
 - Engineering Service building is 4.2 kW and produces 5,254 kWh annually.
 - Olin Landfill is 30 kW and produces 38,000 kWh annually.
 - East Police is 10 kW and produces 12,640 kWh annually.





City Installations – Leading by Example

City runs pay-back analysis on all projects. (discounted and non-discounted.)



Pay-back uses 10-year debt repayment with level principal payments and also takes into account the buy-back rate that Madison Gas and Electric is offering for the next 10 years.



City Installations – Leading by Example

- **Solar Thermal**
 - All 11 Fire Stations have hot water solar systems that save 3,426 therms of natural gas and 18 tons of CO2 annually altogether
 - In 2010, City will implement solar thermal at Public Work facilities.





City Installations – Leading by Example

- The City also partners with our local utility Madison Gas and Electric to install utility-owned PV systems throughout the city.





Engaging the Community



- **Mpower Madison Campaign**
www.mpoweringmadison.com
- Cooperative public and private effort:
 - To reduce city-wide carbon dioxide emissions by 100,000 tons by 2011
- Madison's City government:
 - To reduce its CO₂ "footprint" by 25% by 2011 and eliminate 15,000 tons of carbon dioxide
- **MadiSUN**
- To make Madison a model solar city for the Midwest
- To double the amount of PV and solar thermal systems installed in Madison by 2010. From 100 to 200 solar thermal systems and from 125 kW to 250 kW of PV



Conclusions

- Important to have overall sustainability goals and plan
- Need to think about triple bottom line.
- Lead by example, then engage community.

