

# **Sustainable Dubuque Project, 2011-2013**

**Iowa Initiative for Sustainable Communities**



**School of  
Urban &  
Regional  
Planning**



**THE UNIVERSITY  
OF IOWA  
GRADUATE  
COLLEGE**



# Overview

- Chuck Connerly, Professor and Director, UI School of Urban and Regional Planning
- Robyn Fennig, URP 2012 Graduate
- Dan McDonald, Vice President for Existing Business, Greater Dubuque Development Corporation
- Roy Buol, Mayor of the City of Dubuque



## Iowa Initiative for Sustainable Communities (IISC)

- President Mason's commitment to sustainability, April 22, 2008
- School of Urban and Regional Planning launches Iowa Initiative for Sustainable Communities, 2009
- IISC's purpose is to **apply the talent and knowledge of the students and faculty of the University of Iowa** to develop plans and initiatives that will enable Iowa's small towns and cities to enhance their community sustainability.



## 2009-2011 IISC Projects

- 2009-2010 Projects: Anamosa, Columbus Junction, Decorah, Wellman (28 students)
- 2010-2011 Projects: Burlington, Charles City Decorah, Oskaloosa (19 students)





## 2011-2013 IISC Partnership with Dubuque

- 10 projects in two years
- 35 graduate students in 2011-2012, similar number in 2012-2013
- Partnership with City of Dubuque and Greater Dubuque Community Foundation

# 2011-2012 Sustainable Dubuque Projects (35 students)



**Sustainability  
Indicators**



**Local Foods**



**Portrait of Poverty**



**Green and  
Healthy Homes**



**Renewable  
Energy  
Mapping  
and Policy**

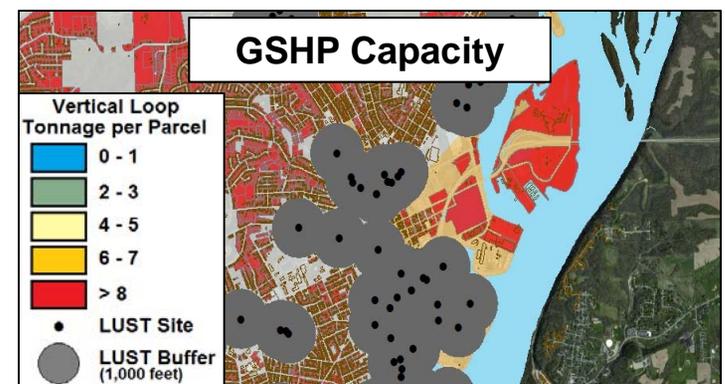
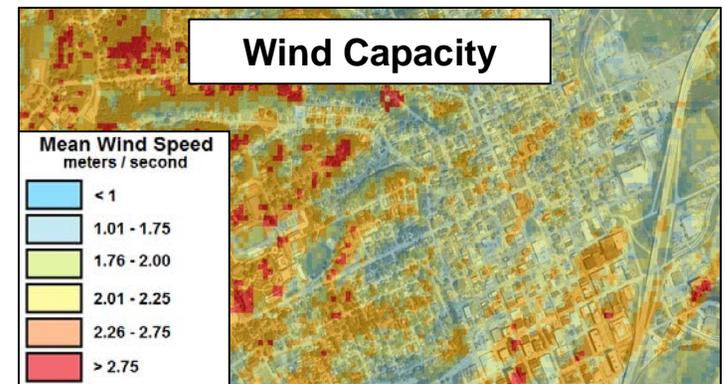
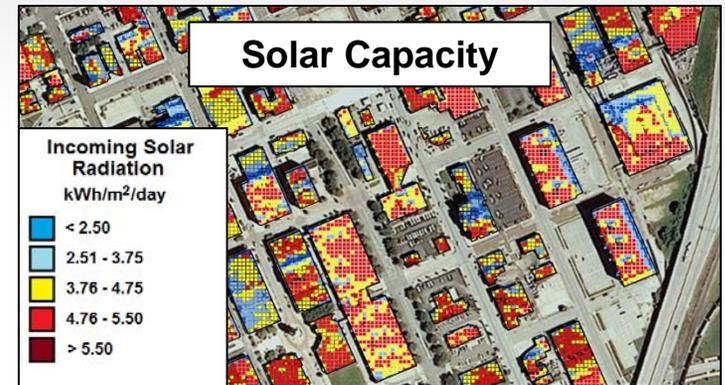


# Robyn Fennig

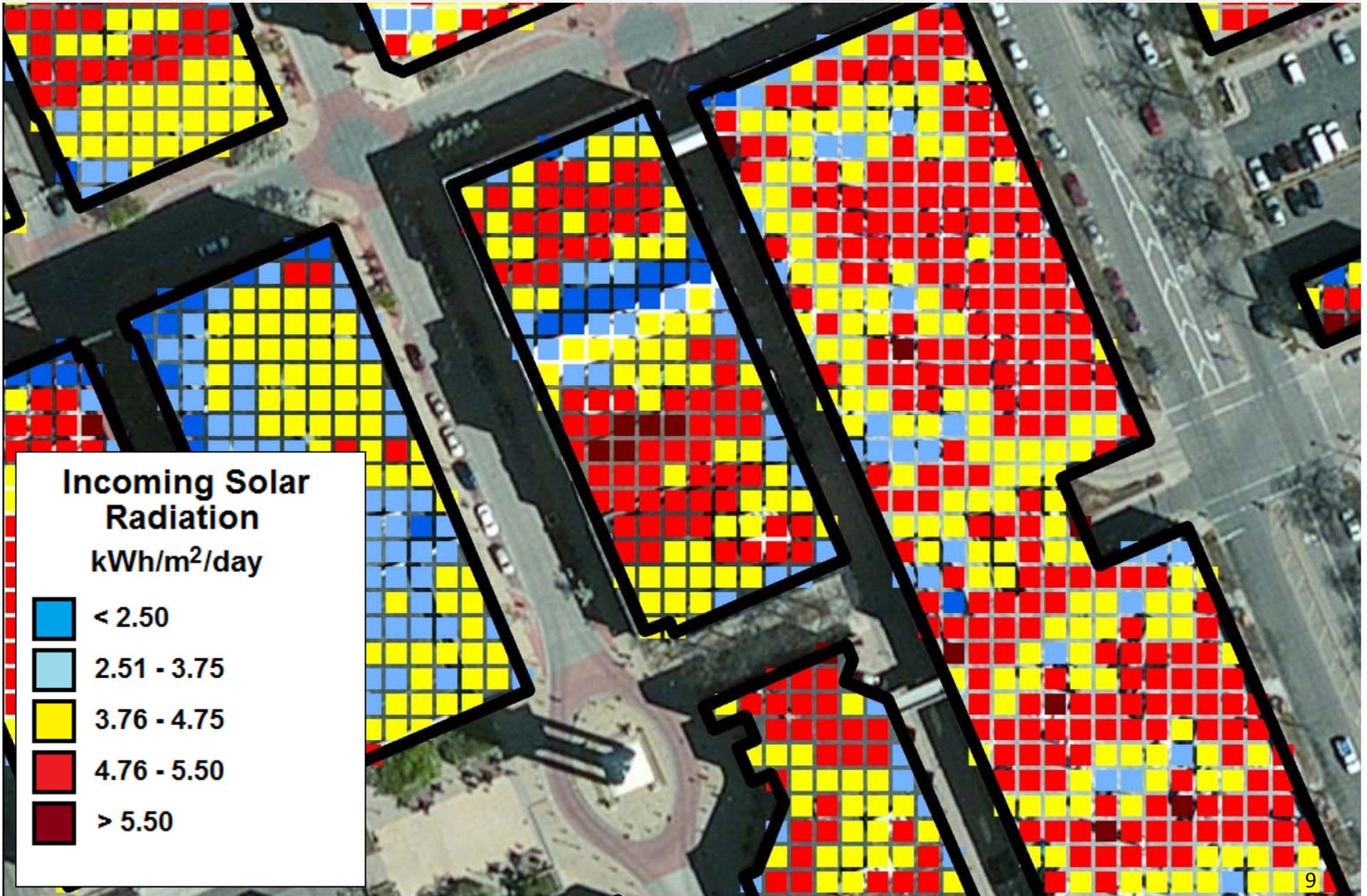
- Master of Science 2012, Urban and Regional Planning
- Iowa Initiative for Sustainable Communities Participant (2011-2012)
  - Renewable Energy Asset Mapping and Policy Project

# Impact on Dubuque

- **Overall renewable energy capacity**
- Return on Investment
- Interactive web-based tool
- Answer important policy questions



# Capacity Mapping: Incoming Solar Radiation





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# Return on Investment: Solar PV Panels





# Impact on Dubuque

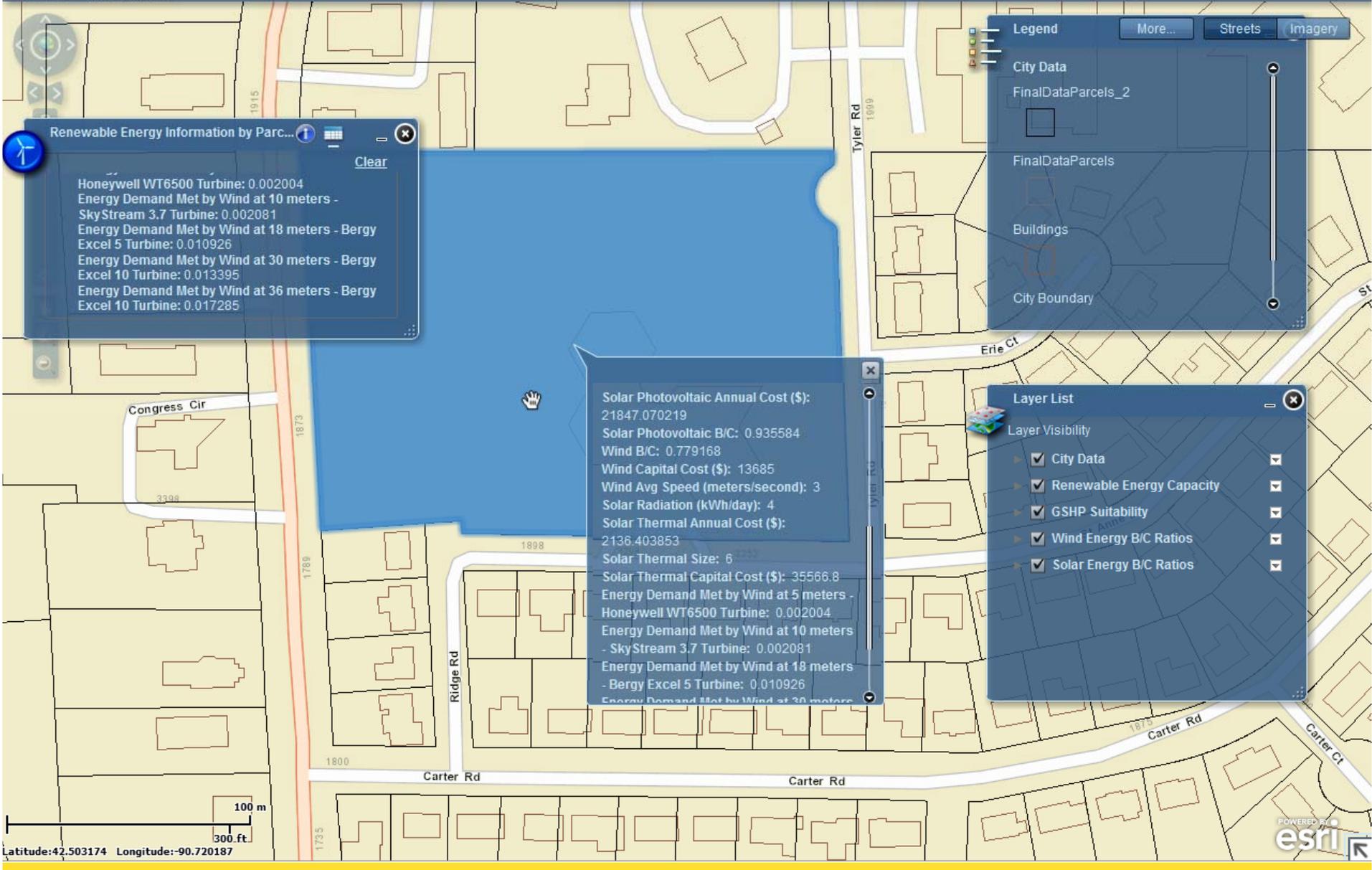
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# Renewable Energy Capacity & ROI

Dubuque, Iowa

About



**Renewable Energy Information by Parc...**

Clear

- Honeywell WT6500 Turbine: 0.002004
- Energy Demand Met by Wind at 10 meters - SkyStream 3.7 Turbine: 0.002081
- Energy Demand Met by Wind at 18 meters - Bergy Excel 5 Turbine: 0.010926
- Energy Demand Met by Wind at 30 meters - Bergy Excel 10 Turbine: 0.013395
- Energy Demand Met by Wind at 36 meters - Bergy Excel 10 Turbine: 0.017285

**Solar Photovoltaic Annual Cost (\$):** 21847.070219

**Solar Photovoltaic B/C:** 0.935584

**Wind B/C:** 0.779168

**Wind Capital Cost (\$):** 13685

**Wind Avg Speed (meters/second):** 3

**Solar Radiation (kWh/day):** 4

**Solar Thermal Annual Cost (\$):** 2136.403853

**Solar Thermal Size:** 6

**Solar Thermal Capital Cost (\$):** 35566.8

**Energy Demand Met by Wind at 5 meters - Honeywell WT6500 Turbine:** 0.002004

**Energy Demand Met by Wind at 10 meters - SkyStream 3.7 Turbine:** 0.002081

**Energy Demand Met by Wind at 18 meters - Bergy Excel 5 Turbine:** 0.010926

**Energy Demand Met by Wind at 30 meters - Bergy Excel 10 Turbine:** 0.017285

**Legend** More... Streets Imagery

- City Data
  - FinalDataParcels\_2
  - FinalDataParcels
  - Buildings
  - City Boundary

**Layer List**

Layer Visibility

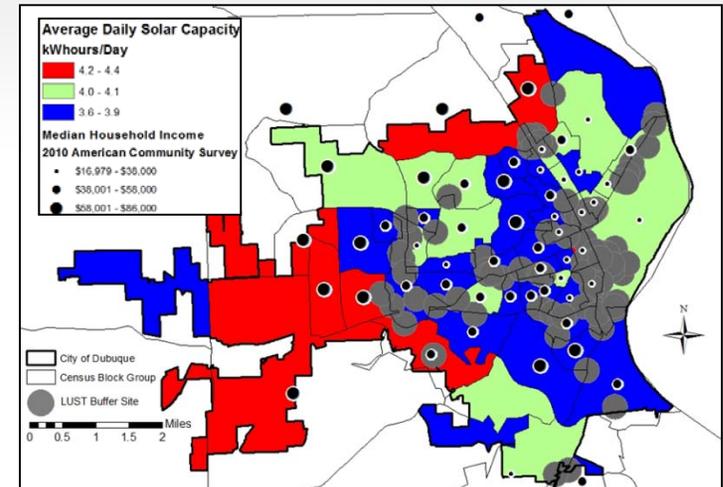
- City Data
- Renewable Energy Capacity
- GSHP Suitability
- Wind Energy B/C Ratios
- Solar Energy B/C Ratios

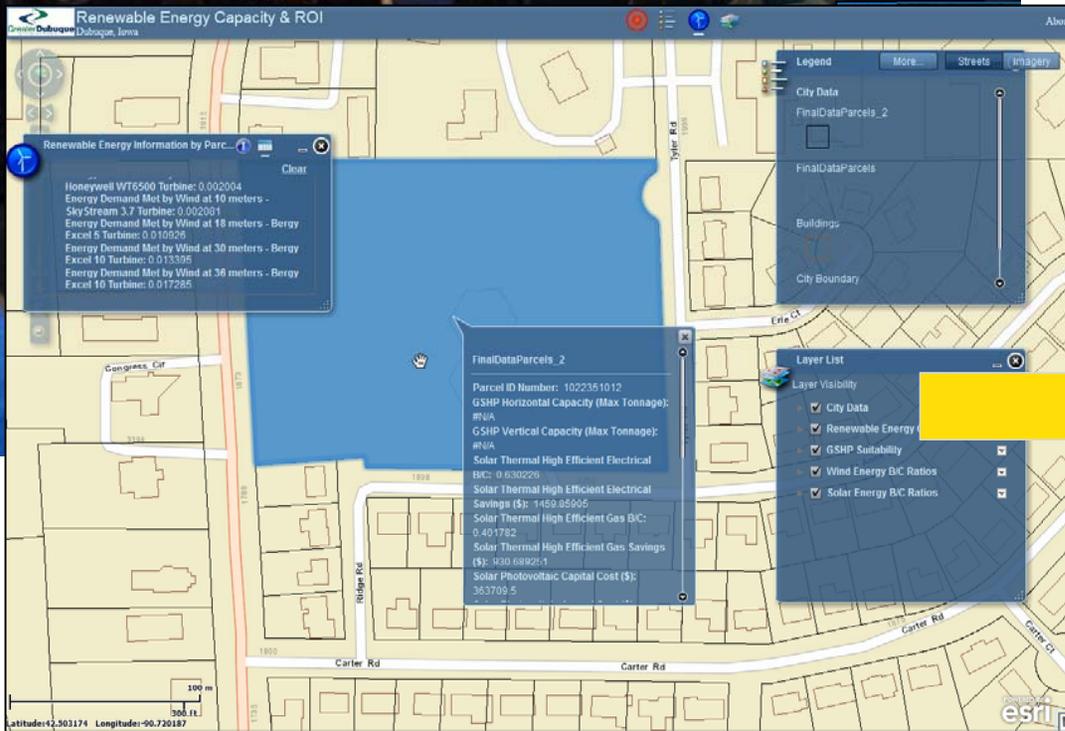
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# Impact on Dubuque

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- **Answer important policy questions**





- Sell planning outcomes to community

THE UNIVERSITY OF IOWA

Regional Planning

