



*The Sustainable Communities Movement
as an Emerging Driver for Renewables
Development*

RICHARD A. HEINEMANN

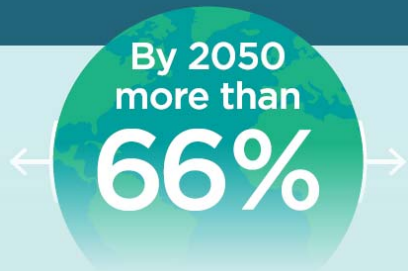
OCTOBER 3, 2017

RENEWABLE ENERGY IN THE MIDWEST CONFERENCE

BoardmanClark 

CITIES ARE BEING PUSHED TO THE LIMIT

of the world's
10 billion
people will live
in cities¹



of the world's
energy is likely
to be consumed
in cities²

“Barrett Wants to Send ‘Loud And Clear Message’ With Local Efforts to Combat Climate Change Milwaukee Officials Discuss Policies, Initiatives at Local Level”

Kathleen Dunn Show, Wisconsin Public Radio broadcast

July 2, 2017

Climate Mayor Cities

377 US #ClimateMayors, representing 67.7 million Americans, have committed to adopt, honor and uphold the climate goals of the Paris Agreement



CLIMATEMAYORS.ORG



Cities for Climate Change

Bayfield, WI

Highland Park, IL

Kenosha, WI

Burnsville, MN

Carver, MN

La Crosse, WI

Windsor Heights, IA

Maplewood, MN

Des Moines, IA

Dubuque, IA

Iowa City, IA

Eden Prairie, MN

Dunn, WI

Duluth, MN

Middleton, WI

Madison, WI

Minneapolis, MN

St. Paul, MN

Milwaukee, WI

Edina, MN

Monona, WI

Falcon Heights, MN



Outline

- Sustainable Communities “Movement”
- Sustainability Plans (Madison/Minneapolis)
- 100% Renewable/Net Zero Energy Cities
- Locally Driven Renewable Energy Projects
 - Group Buys
 - Community Solar
 - Direct Purchases (municipal operations)
- Municipal Utilities

What is a “Sustainable Community”?

From Rand Corporation Monograph...

*A sustainable community effort consists of a long-term integrated and systems approach to developing and achieving a healthy community by addressing **economic, environmental, and social** issues. Fostering a strong sense of community is also an important part of such efforts.*

Minneapolis Sustainability Efforts

- Dates back to 1989 (w/ St. Paul)
- First Energy Work Plan in 1996
- Sustainability Program launched in 2003
 - Sustainability principles integrated into city policies
 - Community roundtables
 - Sustainability Indicators
- Heath Energy and Environment Committee (2006)
- Climate Change grant program (2007)
- Climate Action Planning (2012); Plan Adopted 2013



Minneapolis Climate Action Plan

- GHG reduction targets
 - 15% by 2015
 - 30% by 2025
 - 80% by 2050
- Second Annual Report (2016)
 - GHG emissions from citywide activities down 17.8% in 2015 (compared to 2006 baseline)



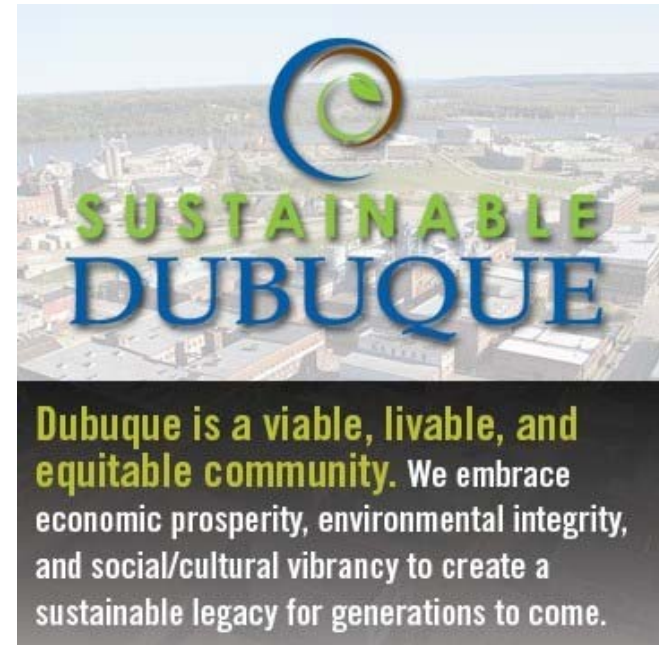
Minneapolis Clean Energy Partnership

- Launched in 2015
- Successful leveraging of City's franchise authority
- Work Plan developed in dialogue with incumbent utilities, with metrics
- Formal stakeholder representation, reporting and transparency, led by joint City/utility Board



Dubuque Sustainability Plan

- Began in 2006
- Smarter Sustainable Dubuque
 - Smarter Water
 - Smarter Travel
 - Smarter Electricity
 - Smarter Discards
 - Smarter Health and Wellness



Dubuque Community Climate Action & Resiliency Plan

- 50% by 2030 (adopted 2013)
- Dubuque GHG Inventory
 - 2003 Baseline Measures of City Operations
 - Again in 2007
 - Future predictions



ReFRESH MILWAUKEE Sustainability Plan

- Started in 2013
- 25% Renewable Energy by 2025
- Solar Purchasing
- Benchmarking
- PACE



Madison Sustainability Plan

“Madison will be a self-reliant, peaceful community that relies on **renewable**, local resources and is able to adapt to changing environmental, social and economic conditions over time. It will be a beautiful place in harmony with the environment where life thrives” *Vision statement (2011)*

- Sustainable Madison Committee: Two year effort to update the 2004, “Building a Green Capital City” plan
- Ten sustainability categories, including **Natural Systems, Planning and Design, Transportation, Carbon & Energy**, Economic Development, Employment/Workforce Development, Education, Affordable Housing, Health, Arts/Design/Culture

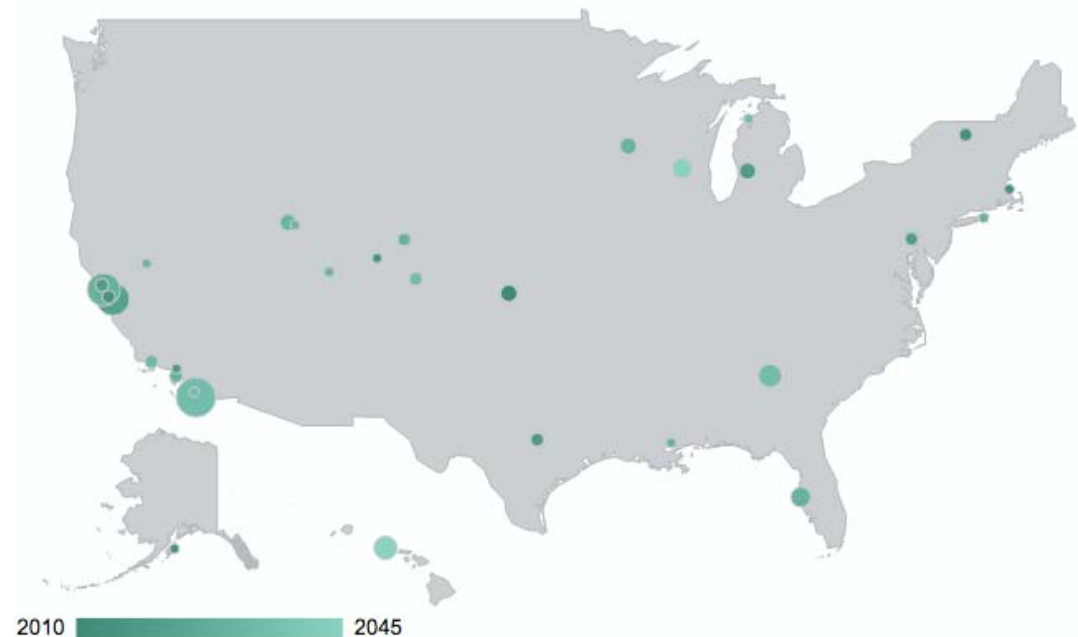
Madison Energy Work Plan

- Passed by City Council in June, 2016
- Intended to Update 2011 Sustainability Plan
 - Review 80% carbon reduction by 2050 goal
 - Support PACE and City benchmarking ordinance
 - Participate in broader regional climate change efforts
 - **Develop agreement with MGE**
 - Solar
 - PV infrastructure to support electric vehicles
 - Outreach initiatives and innovative retail service modes

Madison's 100% Renewable Energy Resolution

- Passed by City Council in March, 2017
- Adopts a goal of 100% renewable energy for city operations
- Authorizes up to \$250,000 for consulting services to help develop a plan for city operations to meet this goal (with an eye to wider community efforts)
- Navigant hired as consultant

COMMUNITIES COMMITTED TO 100% RENEWABLE ENERGY



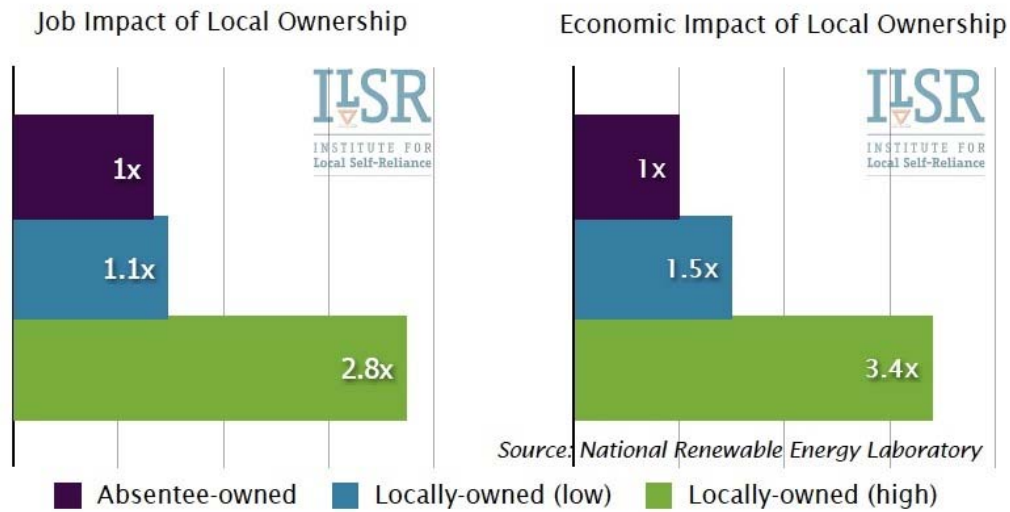
What Drives Local Government Sustainability Efforts

- Stakeholder groups concerned about climate change
- Reduce the Cost of Energy
- Promote Local Job Growth
- Tool for Workforce and Economic Development
- Enhance Local Branding Efforts
- Increase Energy Resilience

Economic Impact

(Institute for Local Self-Reliance)

Local Ownership Means More Jobs & More Local Economic Impact



Available Local Government Tools

- Energy costs of city operations
- Zoning and construction codes
- Right of way regulation
- Transportation policies
- Education and Outreach
- Partnerships with incumbent utilities

Renewable Energy Initiatives – What are local governments doing?

- Renewable Energy Project Development
 - Facilitating Residential Group Buys
 - Community Solar (City/Utility partnerships)
 - Solar installations on city facilities
- Transportation
 - EV infrastructure and public transportation
 - Clean City initiatives (DOE programs to promote alternative and renewable fuels)
- Building and construction
 - Benchmarking
 - Green TIF requirements
 - PACE
- Shared Energy Economy Model (City of Spokane)

Residential Group Buys (solar)

- Aggregates residential buyers in a community
- Pool purchase lowers cost per installation
 - \$3.50 per watt in 2016; expected to be as low as \$2.50 per watt in 2017
- Lowers soft costs for prospective buyers
- Can be facilitated by local government with assistance by third party or advocacy group
- Contracts can be awarded to one or more installers
- Educational programming

Group Buys

- MadiSUN
 - City of Madison in partnership with RENEW Wisconsin (42 subscribers in 2016, 194kW)
- Milwaukee Shines (146 subscribers, 496 W)
- SOLARacine (19 subscribers, 104 kW)
- Solar Chippewa Valley (31 subscribers, 185 kW)
- Solarize Linn County (11 projects, 85 kW)



Local Government Solar Projects - Wisconsin

- School Districts
 - Darlington
 - Oregon
 - Minocqua
- Counties
 - Dane
 - Sauk
- Municipalities
 - Monona
 - Middleton
 - Madison
 - Milwaukee
 - Fitchburg

Municipalities and school districts own at least 5.34 MW or 10% of Wisconsin's 52.8 MW of solar electric generation

from UW-Extension Solar Energy Financing Guide, p.4



Community Solar: Xcel Energy – Eau Claire / La Crosse Solar Connect

1 MW Eau Claire

- installation in Eau Claire is on 26 acre abandoned landfill owned by City
- City will subscribe to offset 116 kW of electric use at public pool
- Other public subscribers
- 20 business and 80 homeowners

1 MW La Crosse

- Subscriptions at La Crosse site include Gundersen Health, Mayo and Marshfield clinics



Community Solar - Governmental Solar Garden Subscriber Collaborative (Minnesota)

- Collective local government solar power purchasing (31 municipalities)
- Initiated in 2015 - targeted 180 MW
- Goals: Save money on energy costs and encourage solar development
- 25 year contracts signed with community solar developers
- Obstacles - pricing, data practices law restrictions
- Still achieved savings
- Doubled state's solar capacity in 2016



Alliant/Dubuque Solar Project

- 5 MW Solar Project
 - Located in Dubuque Industrial Center West
- Second (1.5 MW) project located in downtown
- Collaboration between utility, city, and business development group
- Alternative land use and visibility



Local Government Direct Solar Purchase

- Behind The Meter Solar Installations on City-owned Buildings
- Smaller Projects (less than 100 kw) generally come under utility parallel generation rules
- Larger Projects can present financing and legal challenges
 - Unless self-financed, will require 3rd party participation (i.e. Private entity with tax appetite needed to lower cost by taking advantage of federal PTCs)
 - Not all states expressly authorize third party ownership (so third party must not function as a “public utility”)
 - *But there are feasible deal structures that work*

Madison Small Solar Installations

Slide courtesy of RENEW Wisconsin



Direct solar purchasing for City Operations: Fitchburg

- Fitchburg received \$25,617 from RECIP and \$25,000 from the state Office of Energy Innovation
- Staff prepared the OEI grant and Legacy assisted with the RECIP application (Full Spectrum provided a quote for RECIP)
- Both grants will be used to fund 100 kW on new West Fire Station
- City will kick in some funds and the remainder will be covered by a third-party tax sponsor
- The fire station project is part of a larger 375 kW citywide solar project



Green Tariff Programs

MGE - Renewable Energy Rider

- Approved by PSCW in 2017
- Allows utility to contract directly with customer for dedicated renewable generation
- Structured as a “sleeve” tariff
 - Project may be owned by MGE, or 3rd party
 - Customer substitutes from regular tariff energy purchases
- Available to City of Madison (and others served under MGE large customer tariffs)
- Customer responsible for all dedicated project costs

Xcel - “Renewable*Connect”

- Approved by PUC in 2017
- Allows commercial and local government customers to support GHG reduction goals, and spur renewable production
- Supplements Xcel’s community garden and Windsorce programs
- Customers include City of Minneapolis and UM
- Subscription purchasing (month-to-month, or 5- and 10-years), customers can claim RECs
- 3 cent surcharge (higher than fuel surcharge)



Municipal Utilities/Joint Action Agencies

- Local control – means its easier to be proactive (*but economics have to work*)
- WPPI Energy has been a leader
 - 100 MW solar purchase from NextEra facility near Point Beach nuclear plant in Two Rivers
 - Community solar projects in member communities (New Richmond, River Falls)
 - Helped facilitate 1 MW installation in Jefferson with Half Moon Ventures as early as 2009
- Upper Midwest Municipal Energy Group is pursuing a potential 20 MW project with installations in more than ten member communities
- Southern Minnesota Municipal Power Agency: 5 MW Lemond Solar Project
 - Central Minnesota Municipal Power Agency also an off-taker
- Osage, Iowa
- Cautionary Tales
 - Marshfield Utilities
 - Village of LaFarge
 - Fixed fees



Osage Municipal Utilities

- Self-funded Community Solar
- 792 Kw array
- 1X \$250 fee/20 yr. prod. credit
- Initial Solar Rate Credit = \$0.076/kWh
- Completed in 2016



City of Rochester - Rochester Public Utilities

- Minnesota's largest municipal utility (SMMMPA member)
- 2015 Mayoral Proclamation: 100% Renewables by 2031 (non-binding)
- Spurred by desire to make city an innovation and tech hub (Mayo Clinic)
 - SolarChoice community solar
 - City offers \$.50/watt rebate for residential customer solar installations



Fremont (Nebraska) Municipal Utilities Community Solar Farm

- Residential purchases qualify for Federal tax credit
- Three options:
 - Purchase your own panel(s)
 - Purchase one or more Solar Energy Shares
 - Combination of panel(s) and Solar Energy Shares
- Capped at 80% annual KWh consumption (residential); 50% (commercial)

QUESTIONS??

Richard A. Heinemann

rheinemann@boardmanclark.com

608-283-1706

