

# Solar Hot Water Business Council

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2010 Green Energy Summit



U.S. DEPARTMENT OF  
**ENERGY**





# Barriers to Making Solar Mainstream in Milwaukee

1. Informational
2. Procedural
3. Economic
  - Consumer
  - Producer



# Milwaukee Shines' Goals

1. Increase number of solar installations and solar capacity in Milwaukee
2. Increase number of Milwaukee based installers and site assessors
3. Increase number of NABCEP certified installers in Milwaukee
4. Create necessary framework for solar-friendly legislation
5. Engage business sector and create attractive regional environment for solar products manufacturing

# Why Are We Here Today?

- To introduce the Council
- To raise awareness about the growing market
- To initiate discussions
- To facilitate collaborations
- To generate interest and feedback
- To cultivate business leadership



# Solar Hot Water is a Growth Industry

- Domestic installed capacity of solar hot water systems quintupled between 2005 and 2008.
- In 2008, despite the recession, the solar hot water market grew 40%.
- 1 in 10 Chinese households have solar hot water systems.

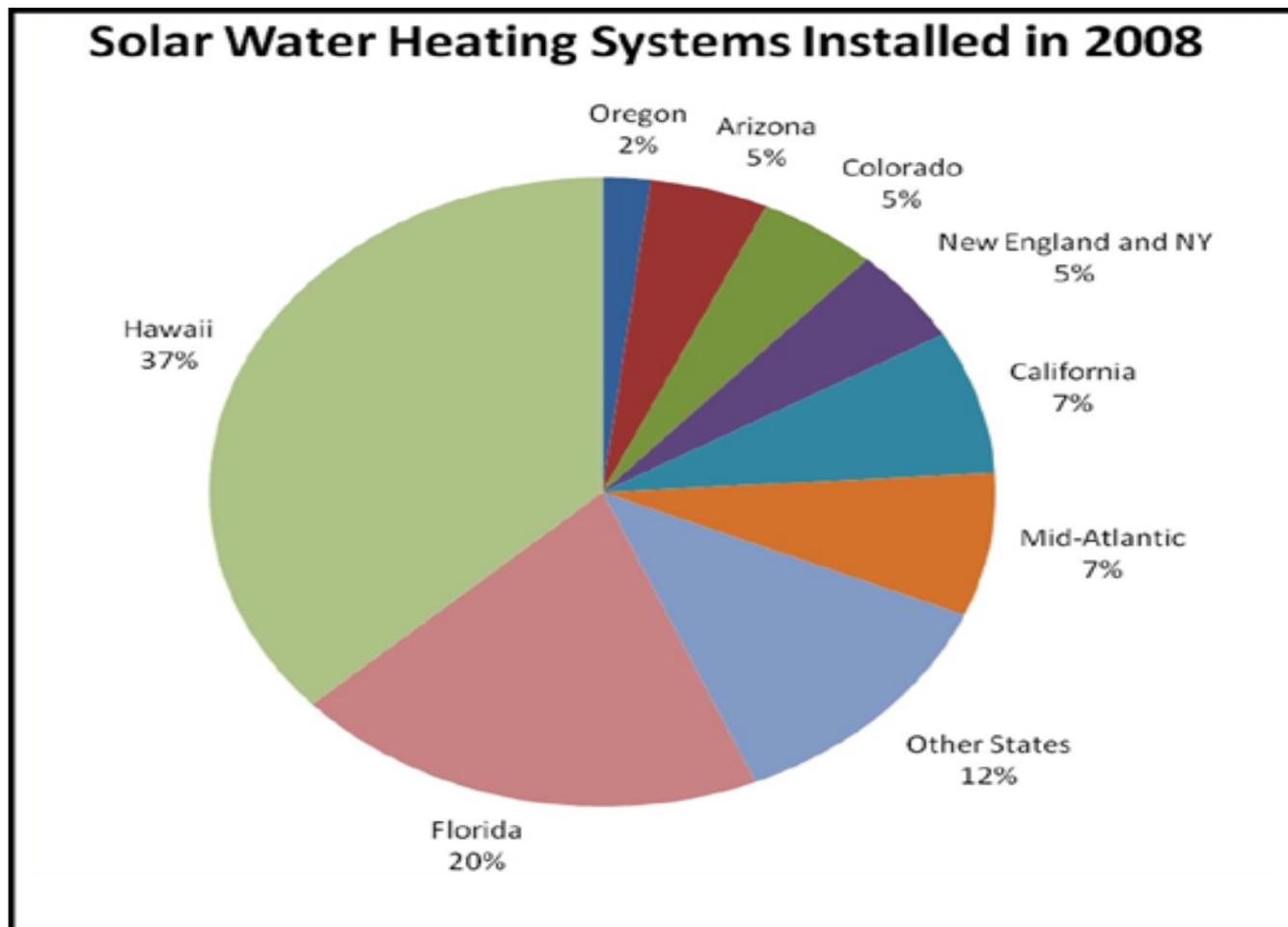
# Leading Export Markets for Residential-scale SHW Collectors

1. Canada	36%
2. Europe	23%
3. Mexico	20%
4. South America	17%

Note: Collector shipments are used as a proxy for the overall SHW market. Collector data is more complete & accurate than data for components. 2008 is the most recent data.

Source: U.S. Department of Energy Solar Thermal Collector Activities, 2008. Released January, 2010

# U.S. Installed SHW Systems in 2008



Source: SEIA's US Solar Industry Year in Review 2008, Les Nelson (Western Renewables Group)

# The Midwest SHW Market

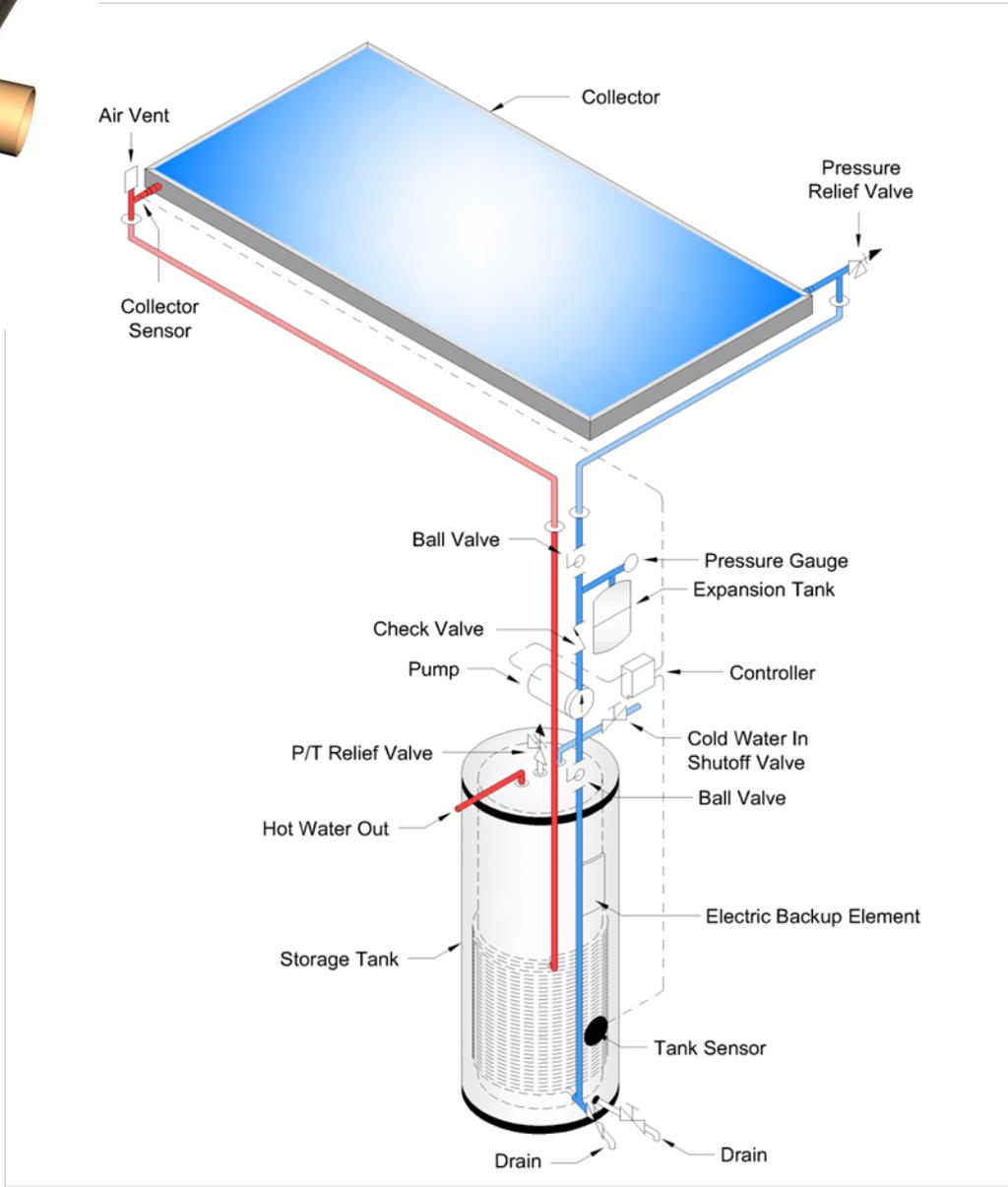
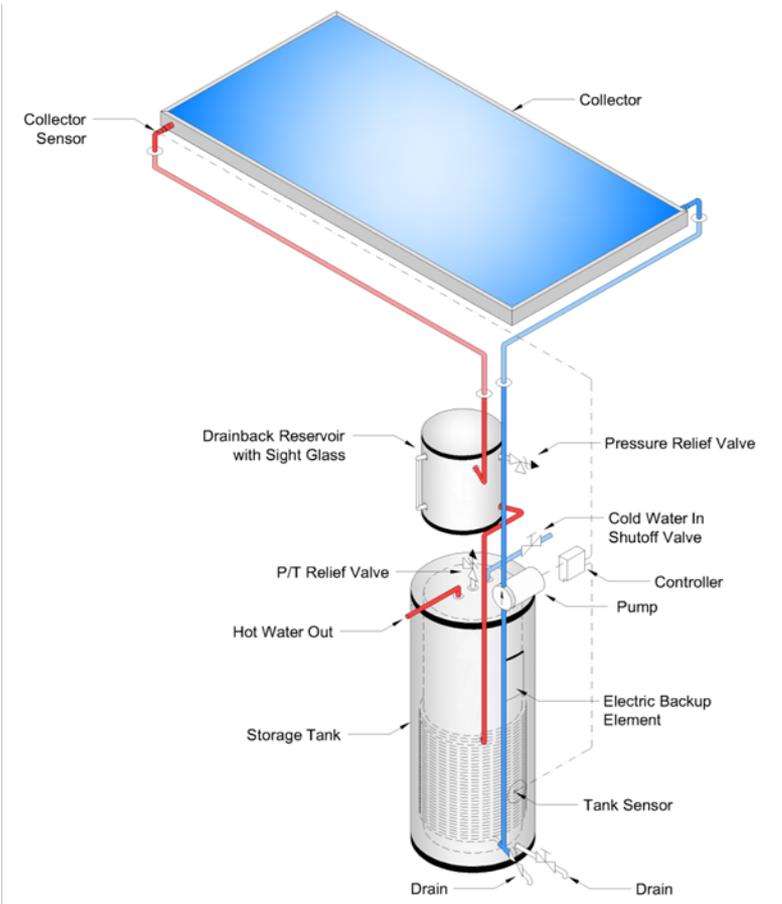
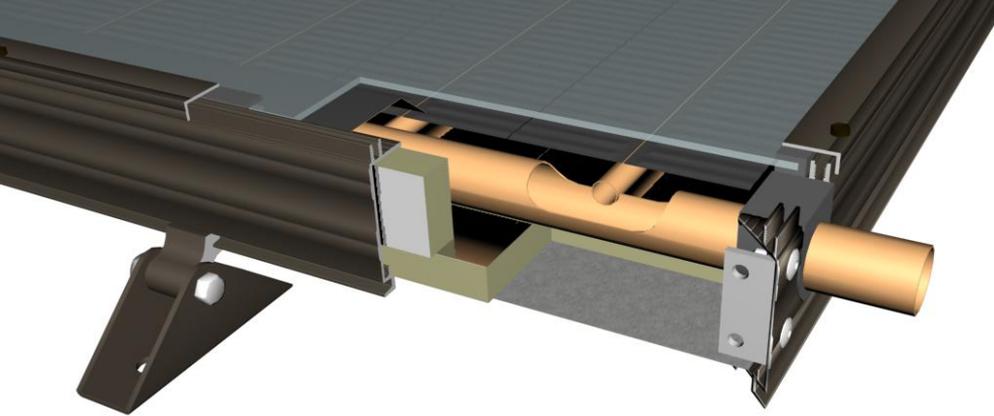
Midwest defined as WI, IL, MN, MI, IA, IN, OH

In 2008, the Midwest comprised over 5% of domestic collector shipments.

Shipments in order: IL, MN, WI, OH, MI, IN, IA

Wisconsin includes or borders the 3 biggest Midwest markets. WI shipments nearly doubled between 2007 & 2008.

80% of the Midwest SHW market within a 5 hour drive of Milwaukee.



All Illustrations Courtesy of Alternative Energy Technologies

# SHW Components

Gate, globe & ball valves

Check & mixing valves

Fittings

Zone valves

Strainers

Balancing/pressure relief valves

Expansion tanks

Pumps

Rack systems for solar collectors

Air & dirt separators

Solar hot water tanks

Electronic controllers

# Milwaukee Has Experience in Manufacturing

## **Job skills required for SHW manufacturing:**

Sheet metal worker

Materials Science

Technician

Material Handler

Assembly

Factory Supervisor

Mechanical Engineer

Manufacturing Engineer

Manufacturing Manager

Distribution/Sales

## **Raw materials required:**

Copper, aluminum, steel, glass

**No exotic processes, it's just plumbing!**

# Solar Products Manufacturing Feasibility Study

## Based on three facts:

1. Solar hot water is a growth industry
2. There are dozens of small components that are needed to produce a system
3. Milwaukee has experience in manufacturing

*Milwaukee Shines* asked the DOE to contract with consulting firm CH2MHill to assess Milwaukee's ability and opportunity to attract and grow local solar products manufacturing.

# 8 Key Criteria Were Analyzed

1. Solar Manufacturing Initiatives
2. Base of Tech Businesses
3. Solar Products R&D
4. Electricity Availability and Costs
5. Proximity to Markets
6. Sites
7. Workforce
8. Incentives for Manufacturing

# Milwaukee's Advantage

- Existing manufacturing and engineering base
- Skilled manufacturing workforce
- University engineering programs
  - Applied research focus of universities
- Abundant, high-quality water supply
- Competitive electricity rates
- Good transportation/distribution channels and facilities
- Public/private enthusiasm and support for creating solar product
- Milwaukee-area companies already involved in solar product supply chain – Caleffi, A.O. Smith, JCI, Hot Water Products, Helios, and others
- We Energies committed to developing solar generation
- Federal, state and city incentives

# Feasibility Study Results (1)

- Milwaukee has strength and expertise in metals manufacturing that can be leveraged into:
  - fittings and valves for SHW
  - assembly of frames for both PV and SHW
  - mounting systems for both PV and SHW
  - tracking systems for PV
  - tanks for SHW
- Milwaukee's experience in electronics can be leveraged into:
  - Controllers for SHW
  - Inverter and charge controllers for PV

# Feasibility Study Results (2)

- The solar products manufacturing industry is about to enter a long growth phase and Milwaukee has a window of opportunity **RIGHT NOW** to begin planning and positioning activities.
- Milwaukee will need to invest substantial time and effort, recruit the right people, and commit the necessary funding to compete with other regions and cities also seeking to develop solar product manufacturing capabilities

# Recommendations and Next Steps

- Commit to the solar products industry with solid public action
- Organize a working group of stakeholders
- Coordinate public and private interests
- Analyze situation and prioritize opportunities and actions
- Improve the Milwaukee product
- Invest to bridge gaps (specifically in local solar manufacturing initiatives, sites/buildings, and incentives)
- Commit resources to outreach and marketing
  - Develop an informational kit
  - Market to solar product companies (local/foreign, PV/SHW)
- Develop showcase projects to educate and create public enthusiasm
- Create highly visible solar product projects
  - Small PV assembly or SHW collector manufacturing operation
  - Local commercial, industrial, or small utility scale installation

# Solar Hot Water Business Council

- Inspired by a feasibility study on local solar manufacturing
- Kick-started by Recovery Act money
- This is the first event/meeting
- Survey was conducted to gather initial perceptions
- *Milwaukee Shines* advisors are helping in the early stages
- Goal is for it to be “business led”
- A few members have already self-identified
- Membership does not exclude companies from other types of manufacturing – the idea is to find synergy
- Marketing kit and outreach planned
- Deep-cut supply chain market analysis planned
- Now is your chance to get involved and help shape it



# Council's Proposed Main Purposes

- Educate manufacturers and businesses
- Provide support network
- Provide opportunities to collaborate
- Regional economic development
- Raise awareness of growing industry

# Council's Proposed Missions

- To grow the SHW industry in the M7 region through the cultivation and education of businesses and manufacturers
- To create opportunities for interaction and technical partnerships
- To support businesses as they enter the solar hot water manufacturing and supply chain markets
- To increase the number of local manufacturers that produce solar hot water components

# Council's Proposed Goals

- To have a member list of 30 by December 2010
- To have 5 new product lines by existing companies by December 2011
- To attract 2 new companies to Milwaukee by December 2011
- To be represented at 3 conferences/year
- To present Council's initiatives to 3-4 economic development institutions per year

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