

Solar Power

The DG Clean-Energy Solution for today and tomorrow



Presentation to:

**Andrew Thomas' Super Awesome Class on Renewable Energy @ CSU
10/28/13**

**By: Jeff Burns
Regional Sales Manger
Renusol America, Inc.**



Jeff Burns - Bio



2002 – 2006

GreenCover America, Inc.

Boise, ID

Land Reclamation & Revegetation Services for DOT's, Mines, U.S. Forest Service



2007 – 2010

Renewable Energy Resources

Boise, ID

Residential Solar PV, Small Wind Turbines, Geothermal Heating & Cooling



2010 – 2013

Dovetail Solar & Wind

Cleveland, OH

Commercial Solar PV



2013 – Present

Renusol America, Inc.

Cleveland, OH

Solar Mounting Systems

From visions to solutions



Solar Power



The U.S. Department of Energy indicates the amount of solar energy that hits the surface of the earth every hour is greater than the total amount of energy that the entire human population requires in a year.

From visions to solutions

CSU Wolstein Center – 805 KW



Project Data:

Financing: PPA (NO \$ out of pocket for CSU)

Cost: \$2.8 MM (includes reflective roof treatment with 10 yr warranty)

Energy Output: 940,000 kWh/yr (23% offset of building power)

Completion Date: Summer 2013

From visions to solutions

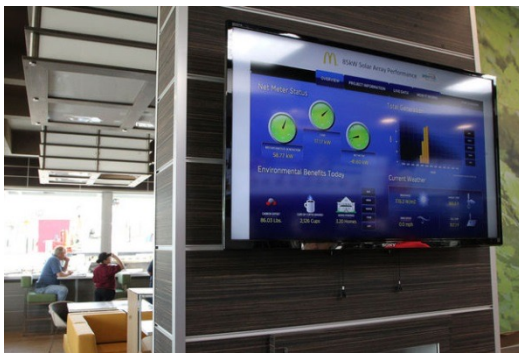
New McDonald's Restaurant in Cleveland, OH



85 KW Solar car canopy
producing approximately
26% of annual power
requirements for the
restaurant



Opened May 1, 2013



From visions to solutions

Hyre Community Center School



Size: 105 KW
Location: Akron, OH
Commissioned: January 2012



Orange High School, Pepper Pike, OH - 15.6 KW System



Mayfield Village Police Department - 50 KW

Commissioned April 2012



Renusol *America* - Not just another Solar start-up!

- Part of the CentroSolar Group, and wholly owned subsidiary of Renusol GmbH, headquartered in Cologne, Germany
- Origin of Renusol dates back to 1978, with the development of the original Console product
- Renusol is a market leader in Europe with over 400MW of Solar PV installed with Renusol's mounting systems in the last few years.
- Focus on roof applications, with a specialization in roof-integrated systems



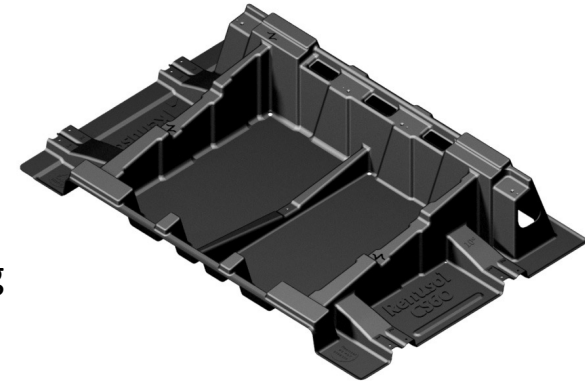
201 17th. Street – Suite 300
Atlanta, GA 30363
Toll-free: 1 877-847-8919
Phone: 1 678-538-6650
Fax: 1 678-538-6653
www.renusolamerica.com
info@renusolamerica.com



From visions to solutions

Renusol CS60 Flat Roof System

- One piece mounting system available in 10° or 15° tilt
- Made from High Molecular Weight Polyethylene (HMWPE)
 - Excellent impact resistance
 - Not electrically conductive. Only PV modules need grounding
 - 2.5% carbon for UV resistance
 - 100% recyclable at end of life
- Product Kits: The Renusol CS60 kits allow for easier staging on and off site
 - Ships in packs of 10 count or 60 count; up to 2040 pieces per truckload
 - Light weight, stackable units make system cost-effective to ship and store
 - Most comprehensive wind tunnel testing (up to 150 mph) for the U.S. market
 - Installed in over 30 states Nationwide.
 - 100% engineered and made in AMERICA!





From visions to solutions

Renusol VS – Pitched Roof Installation



From visions to solutions

Renusol VS Rails with Micro-inverters



From visions to solutions

Renusol MS



 **Renusol**
Solar Mounting Systems
1292 Logan Circle NW
Atlanta, GA 30318
+1 877 847 8919
www.renusolamerica.com

The Renusol MS system is a simple, compact, cost-effective PV mounting system for steel trapezoidal sheet metal roofs.

**SOLAR
POWER 13**
INTERNATIONAL
Booth 3310

From visions to solutions

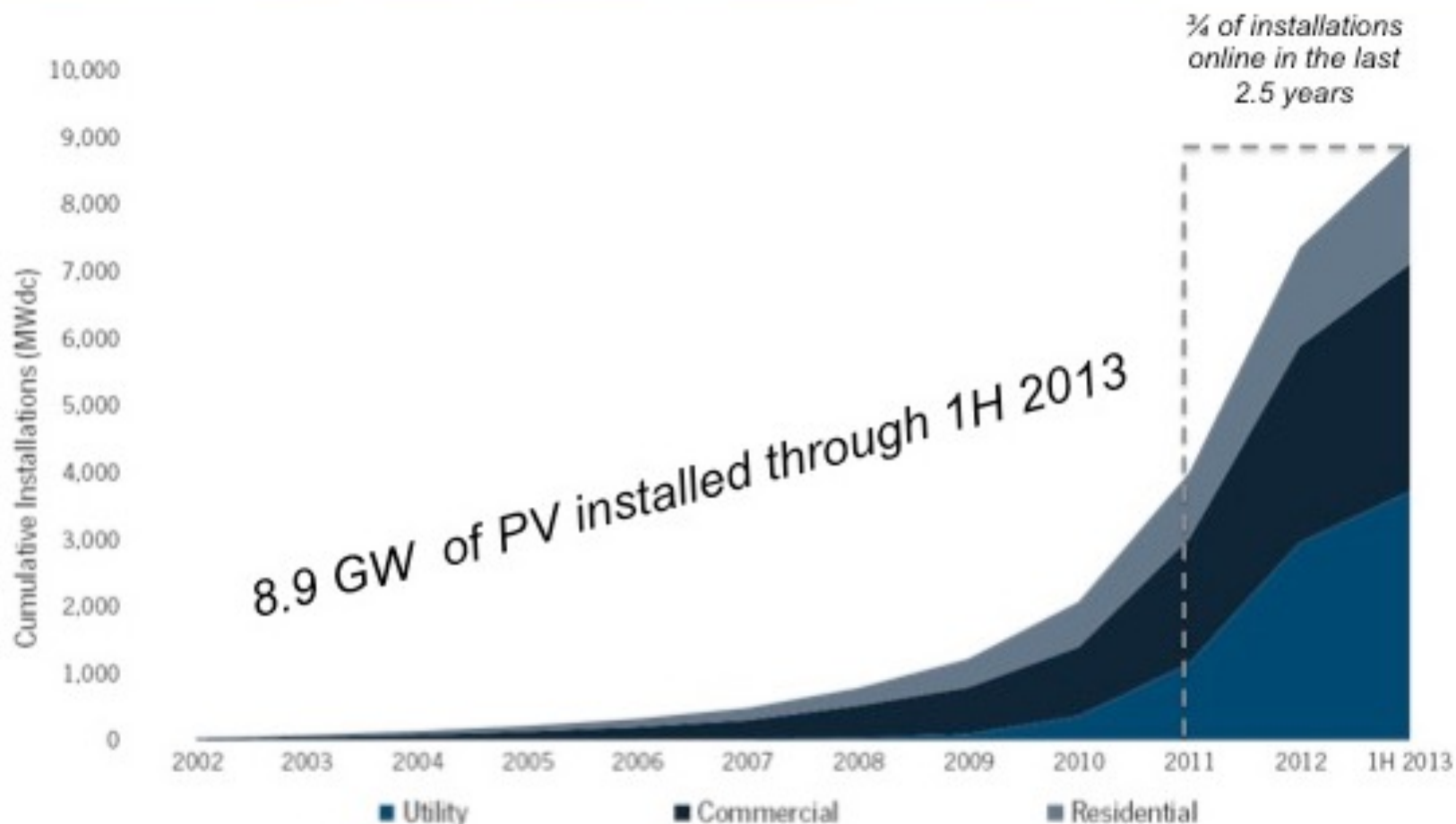
 **Renusol**
Solar Mounting Systems

Renusol MS For Trapezoidal Sheet Metal Roofs



From visions to solutions

U.S. PV Market Growth Through 1H 2013



Source: GTM Research

5 Hidden Growth Opportunities: 2H 2013 - 2016

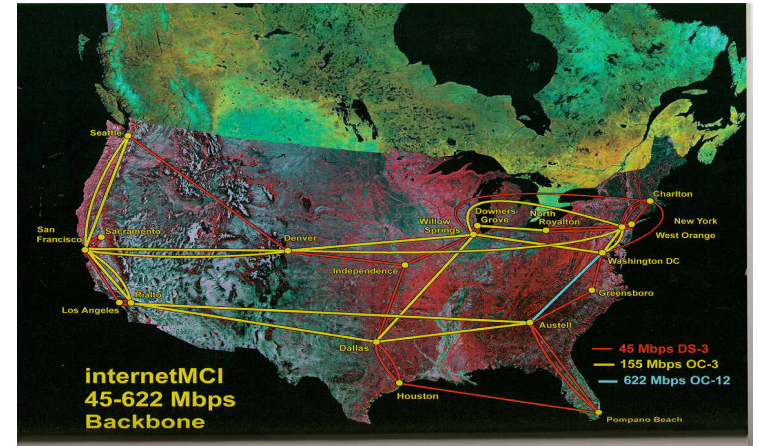


More than 1 GW of PV demand from these 5 states between 2H 2013 & 2016

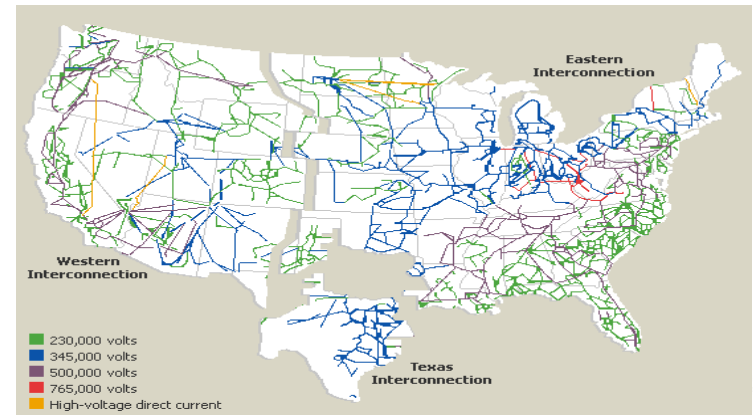
1950's – The Interstate Highway System



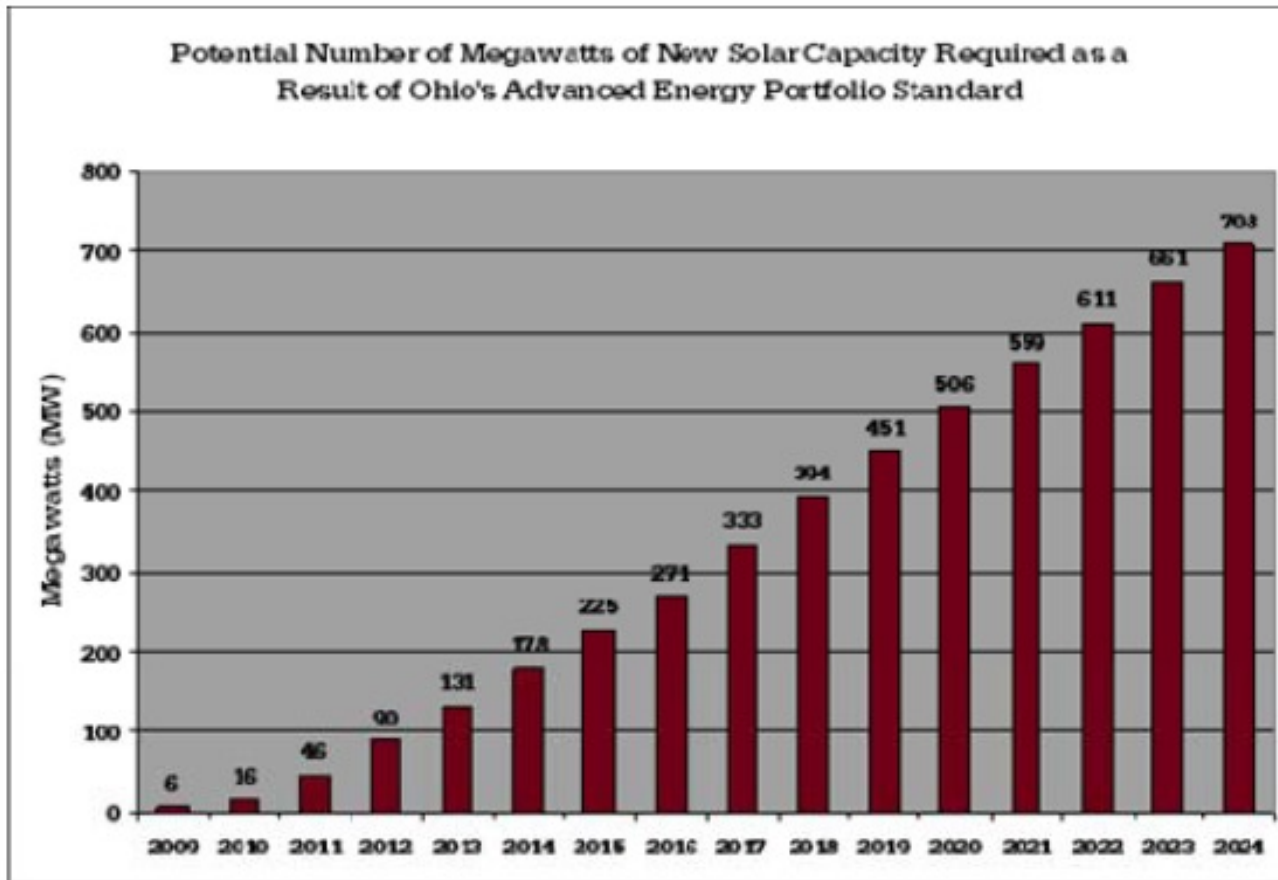
1990's – The World Wide Web (Internet)



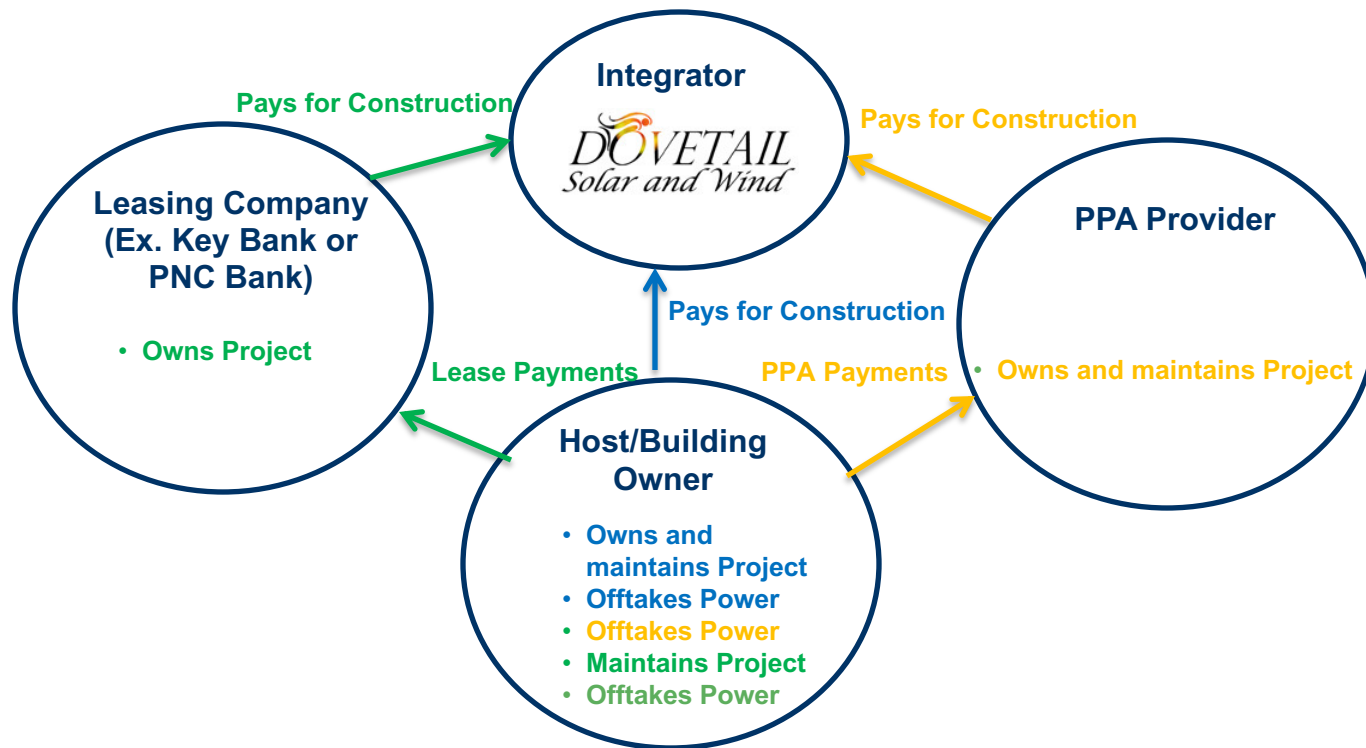
2010 – The Smart Energy Grid



Ohio RPS creates solar demand



Overview of Customer Finance Options



1. System Purchase

Generally provides quickest payback time for companies that are able to absorb the tax incentives

2. PPA

Fixed power prices over the 15-25 year term provides a hedge against the rising cost of electricity

3. Lease

Good option to avoid a capital outlay but still enjoy quick path to ownership

Ohio's Renewable Energy Industry UNDER ATTACK !



Sep 07, 2011

Ohio senator introduces bill to repeal Ohio's renewable energy standards

Ohio Senator Kris Jordan (R-Powell) has introduced a bill that would repeal Ohio's renewable portfolio standard ("RPS"), requiring that the state's electric utilities provide 25 percent of their retail energy supply from advanced and renewable energy sources by 2025. The bill is being co-sponsored by Senators Tom Patton (R-Strongsville) and Bill Seitz (R-Cincinnati). Ohio's RPS was enacted in 2008.

Solar Data



- Each day more solar energy falls to the earth than the total amount of energy the planet's six billion inhabitants would consume in 27 years. Currently, we harness only about 1% of this energy.
- Enough sunlight reaches the earth's surface each year to produce approximately 1,000 times the same amount of energy produced by burning all fossil fuels mined and extracted during the same time period.
- PV systems convert sunlight directly to electricity. PV modules covering 0.3% of the land in the U.S., equivalent to one-fourth of the area currently occupied by railroads, could provide all of the U.S.'s electricity needs.

Q & A

Thank you for your time !



Jeff Burns

Regional Sales Manager

Midwest / East Coast

Cell # 216.630.7395

jeff.burns@renusolamerica.com