

Renewable Energy in the MRV

In conjunction with the Valley
Futures Network Energy Group



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Overall Goals and Deliverables

- Main Goal


- To identify and document renewable energy systems in the MRV, analyze trends, and make recommendations to the Energy Group

- Project Deliverables

- 1: Develop methodology for finding systems
- 2: Create a master list of MRV's systems
- 3: Interview and survey system owners
- 4: Conduct site visits and document findings
- 5: Research similar/parallel initiatives elsewhere
- 6: Make recommendations to Energy Group
- 7: The video!!

Introduction and Overview

The Mad River Valley – A unique community.



- Methodology for Finding Sites
- What is Renewable Energy in the MRV?
- Sites We Found (and Making Sense of the #s)
- Our Survey (and our findings)
- Site Visit Overview (and our findings)
- Parallel/Relevant Initiatives
- How We Could Have Done Better
- Our Recommendations to VFN Energy Group
- Our Long Anticipated MRV Energy Movie!

Methodology for Finding Sites

● Methods

- Public Records
 - Certificates of Public Good
 - Clean Energy Development Fund (CEDF)
- VFN e-mail listserv
- Survey participants and local contacts
- Local Installers

● Issues we encountered

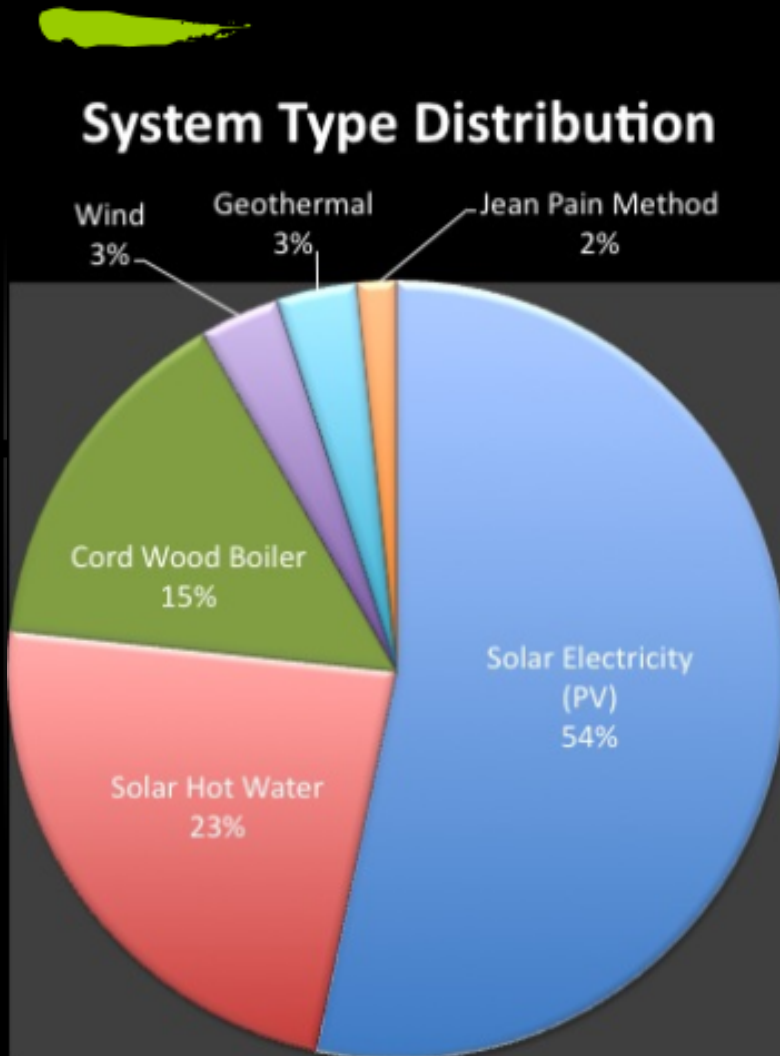
- Privacy (especially with installers)
- Verifying information
- Minimizing redundancies

What is Renewable Energy in the MRV?

- Systems in the MRV

- Solar Electricity (PV) - Roof or pole mounted
- Solar Hot Water - Domestic
- Cord Wood Boilers - Hot water and heating
- Geothermal - Heating and air conditioning
- Wind - Residential
- Jean Pain Method - Hot Water (heating/electricity)
- Hydroelectric - Small scale

Sites We Found



Renewable Energy System	Count
Solar Electricity (PV)	32
Solar Hot Water	14
Cord Wood Gasification Boiler	9
Wind	2
Geothermal	2
Jean Pain Method	1
Total	60

Positive Trend (2006 -2009)
2006 CPG's = 15
2009 CPG's = 31
That's a 106% increase!

Making Sense of the Numbers?



- Solar Electricity (PV)
 - Most popular, but expensive. Is it practical for all in MRV?
- Solar Hot Water
 - Practical in VT/MRV? (Clouds, mountain cover)
- Cord Wood Boilers (with Gasification)
 - Popular/efficient, and VT has abundant wood resources
- Geothermal
 - Expensive. Practical for VT (no sun/wind needed)
- Wind
 - What's going on with Wind in the MRV?
- The Jean Pain Method ("Brown Mound")
 - Cheap and VT has abundant wood resources. Reliable?
- Hydro (Warren's Timber Creek Dam)
 - Political and environmental issues, but abundant and reliable

Our Survey



- 36 Question Survey, approx. 35-40 mins
 - 9 responses (all came online, but phone option was available)
- The Questions.....
 - Basic demographics
 - Name, Contact, Permissions, Length in MRV
 - System info
 - Type, Age, Installer, Expectations, Performance
 - Reflections
 - Motivations, Lessons Learned, Recommendations
 - Process
 - Installer, Obstacles, Research, Efficiency/adjustments
 - Interaction
 - Neighbors, Friends, Co-workers, VFN and VFN Energy

Survey Findings

- Solar PV most popular
- 9 responses
- 20 systems
- Solar PV most popular system installed
- Range of lengths living in the MRV: 3 - 29 years
- Range of system ages: Solar Hot Water in 2002 - PV in October 2009
- When they became motivated to purchase/build their system:

“Knew all along...” “...when oil prices skyrocketed before/after Hurricane Katrina in 2005”

“During planning for construction of new home” “In the 70’s”

“We wanted to put an addition on our house without increasing fossil fuel consumption”

“...talking to a friend and neighbor who had just had a PV system installed

Site Visit Overview: Day 1

Wednesday, October 14, 2009



- Gib Geiger - Residence
 - Solar Electricity (PV)
- John Donaldson - Residence
 - Solar Electricity (PV)
 - Geothermal (Heat/AC)
- Dennis Derryberry - Residence
 - Solar Electricity (PV)
 - Geothermal (Heat)
 - Solar Hot Water

Site Visit Overview: Day 2

Sunday, November 8, 2009



- David Frank - Mad River Car Wash (SunWood Systems)
 - Cord Wood Boiler with Gasification
- Gaelan Brown - Residence
 - “Brown Mound” Jean Pain Method
- Knoll Farm - Residence and Community Center
 - Solar Electricity (PV)
 - Cord Wood Boiler with Gasification
- David Frank - Von Trapp Family Farm and Residence
 - District Cord Wood Boiler with Gasification
- Kate Stephenson - Yestermorrow
 - Solar Hot Water
 - Mobile Solar Electricity (PV)

Site Visit Findings



- Two kinds of renewable/alternative system
 - High Cost
 - Geothermal, Solar Electricity PV
 - Low Cost
 - “Breadbox” Solar Hot Water, “Brown Mound”
- Pockets of renewable energy (Scragg Mtn)
 - Neighbors/friends can be resources for each other
- “It’s getting better”
 - Incentives
 - Just as convenient as traditional systems

Parallel/Relevant Initiatives Elsewhere



- Pioneer City

- The Scenario for a New Community

- Background

- What happened

- How they did it

- How can the VFN and MRV learn from these plans and apply them here?

Parallel/Relevant Initiatives Elsewhere



- Family Tries to go Green Through Government Funding
 - Can a family farm benefit from Section 9006?
 - Background
 - What happened
 - How they did it
 - How the MRV residents can learn from this

Parallel/Relevant Initiatives Elsewhere



- Renewable Energy Systems for the Valley?
 - Cow Power! (mooooooo)
 - Cow Power energy generation process
 - Cow Manure
 - Anaerobic Digester
 - Generator
 - Electricity
 - Dry Waste (fertilizer?)
 - Advantages/Disadvantages
 - Local Partnership

Hindsight is 20/20...

- Raised awareness to solicit more site count referrals
 - Article in the local paper at the beginning
 - Posters in key locations in the MRV
 - Use of social networking media
- Included Wood Stoves in our scope
- Gathered individual system output for all sites
- Calculated total output for systems in the MRV

Recommendations to VFN Energy

- Serve as a resource
 - Host Information Sessions
 - Incentives, Installers, Efficiency, Do-It-Yourself
 - (Button Up Vermont, DIY Solar Hot Water, Brown Mound)
- Affordability and accessibility as a priority
 - Without helping to expand low cost access to renewables/alternatives, cannot really grow throughout the MRV
 - Will help VFN reach out to some who haven't been involved
- Engage in Energy Activism
 - Lobby for incentives and convenience
 - Enable commercial use of renewables/alternatives
 - Reduce red-tape to financial incentive
 - Encourage institutional/municipal use

And now the moment you've all been
waiting for.....

*Video was shown at this point in the
presentation. To view the video, go to:*

<http://www.youtube.com/MRVEnergy>

In Closing...

- Special Thank You to...

- David Frank for showing us around several sites and for his wisdom
- Dennis Derryberry for his guidance and ideas (and for showing us his new home!)
- Stan Ward for all of his support and direction as our primary VFN Energy Group contact
- All of the MRV folks who took our survey helped us along the way, or welcomed us to their property

- Be sure to check out the MRV Energy Wiki

- MRVEnergy.org

- Look for our materials there soon!