SOLAR HOT WATER

Town Meeting
August 31st 6:30 pm
Odd Fellows Hall

GO GREEN
SOLAR HOT WATER

Find out
HOW TO SAVE $$$
SAVE THE ENVIRONMENT TOO

Solar Hot Water is
Simple proven technology
100% green
Reduces C02 & GHG emissions
Positive influence on natural resources
Lowest cost form of clean energy
High return on investment
Fast payback

Come to Info Town Meeting
August 31st 6:30 pm
Odd Fellows Hall
Meet certified solar installers
sponsored by Mount Holly Conservation Trust
contact rolandmarx@yahoo.com
802 259 9259

GO GREEN SOLAR HOT WATER TOWN MEETING

On again September 26th

Get the real skinny on solar …
you won't believe the $$$$ you'll save !!

Sponsored by Mount Holly Conservation Trust

Monday, September 26th 6:30 pm Odd Fellows Hall Belmont

The MHCT is holding a free educational town meeting to inform homeowners about the benefits of **solar hot water** in helping to preserve the environment and **save money** too. This meeting will tell about **simple proven technology**, help those unfamiliar with solar to get up to speed (a sort of "solar hot water for dummies") and open a Q & A with certified solar installers.

For most households, heating hot water is a major expense, amounting to about 20% of heating expense … and **solar hot water** is a way to stop the furnace from running all summer, to stop supporting foreign oil suppliers and to save big on expenses.

You need sun … a **sunny south-facing** exposure. And sun **is** predictable in Vermont … more so than in Germany, which has the highest solar use of any country in the world.

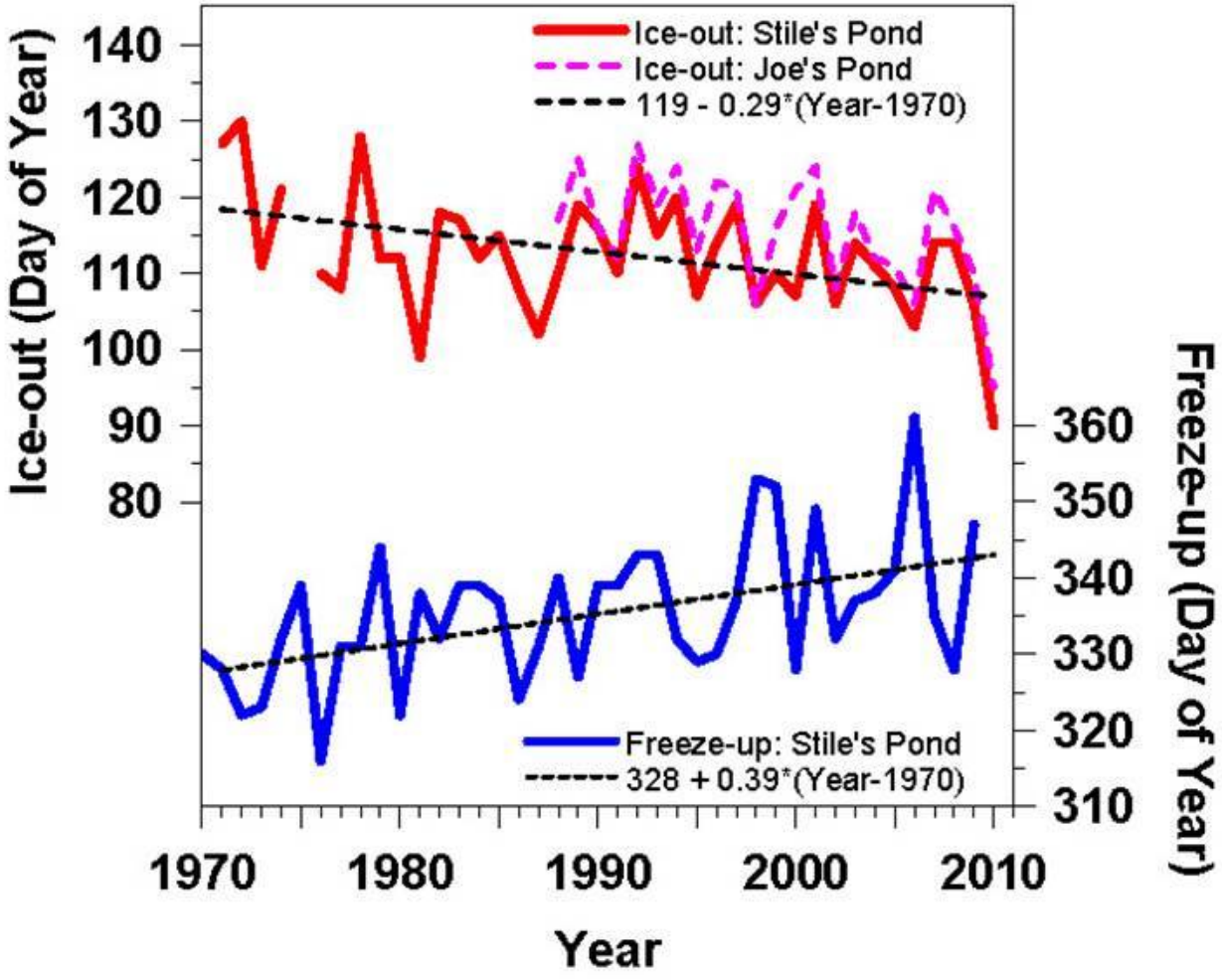
You get a **fast payback** and could get a **10% annual yield**, or more, on your investment. That's a lot more than the 1% or so banks pay or the 2-3% CDs do … and without the risk of a 2008 market meltdown.

And you would know that every household installation would prevent almost 2 tons of CO2 and other greenhouse gases from entering the atmosphere each and every year … about the **equivalent of planting more than 200 trees**.

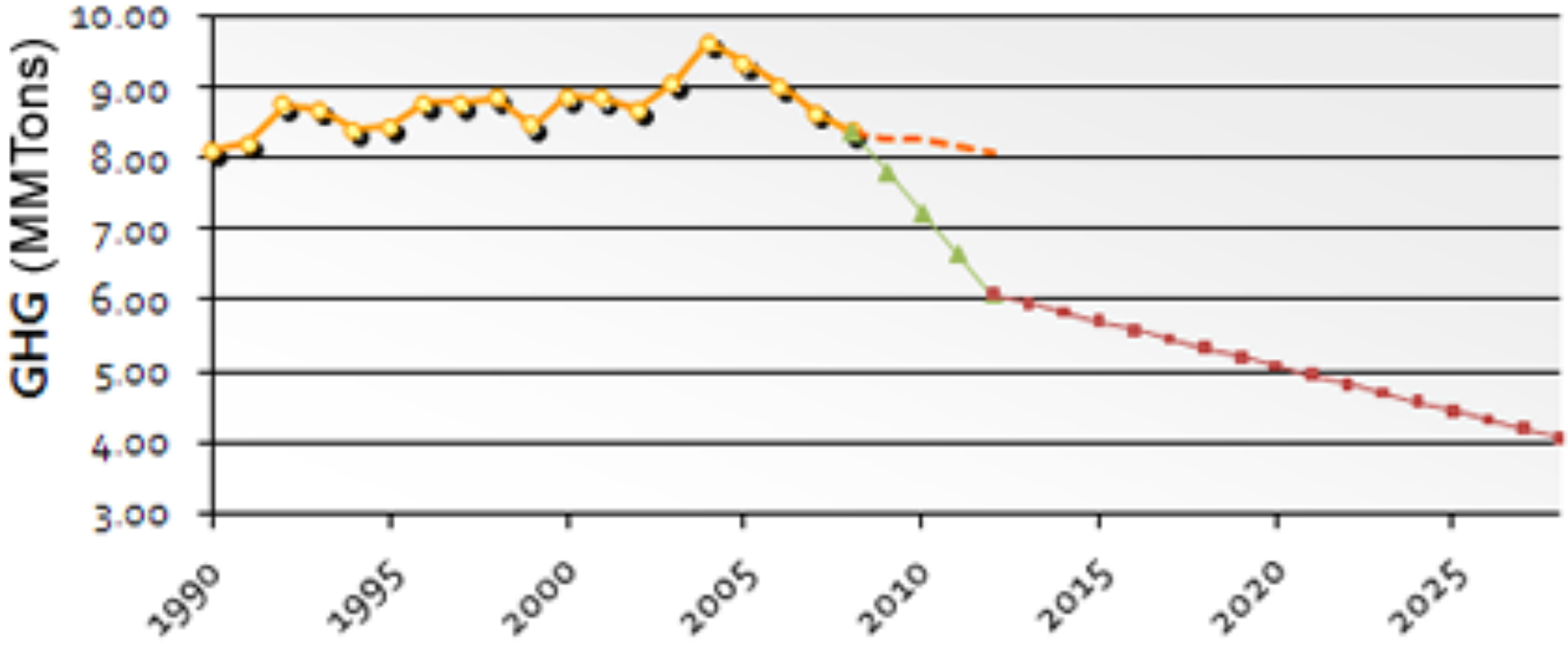
Please come and find out what solar hot water can do for you, for the community and for the environment. For more information, contact rolandmarx@yahoo.com or 802 259 9259.

SOLAR HOT WATER

Vermont ponds freezing trends



Vermont Greenhouse Gas Emissions



SOLAR HOT WATER

Why HOT WATER ?

Everybody uses it

#2 expense after space heating

20% of heating costs

Solar Hot Water Systems

Heating domestic hot water (DHW) is the second highest energy cost in a typical household. An average family of four, using an electric hot water heater and paying nine cents per kilowatt-hour (kWh), will spend about $400 a year on hot water. A solar DHW system can economically provide two-thirds or more of this energy at a cost equivalent to six to eight cents per kWh.

Modern solar water heating technology has been in use for over 20 years and is a highly reliable technology with more than 100,000 installations in the United States. During the first half of the 1980's, federal and state tax credits

can supply 100 percent of the hot water load year-round. Systems are typically designed to meet 100

Modern solar water heating technology .... is highly reliable.

summer
ar
cent.
systems
as preheat
k-up electric,
oil or wood systems that can supply extra heat when needed.

Solar water heating systems can also be used for providing some of a building's space heat.

SOLAR HOT WATER …

100% green

Low cost clean energy

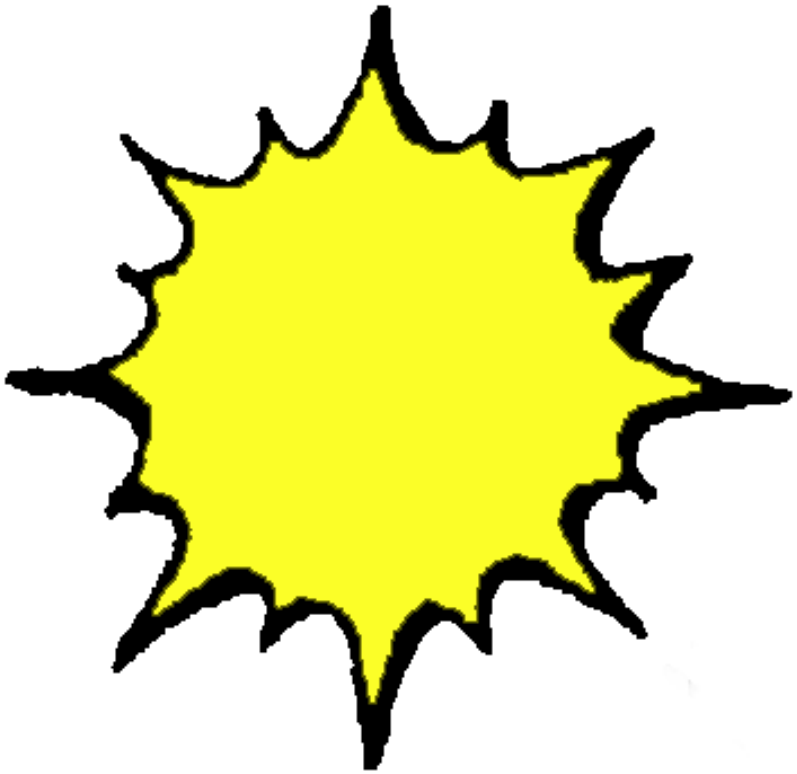
Saves $$$ immediately

Pays back fast

High return on investment

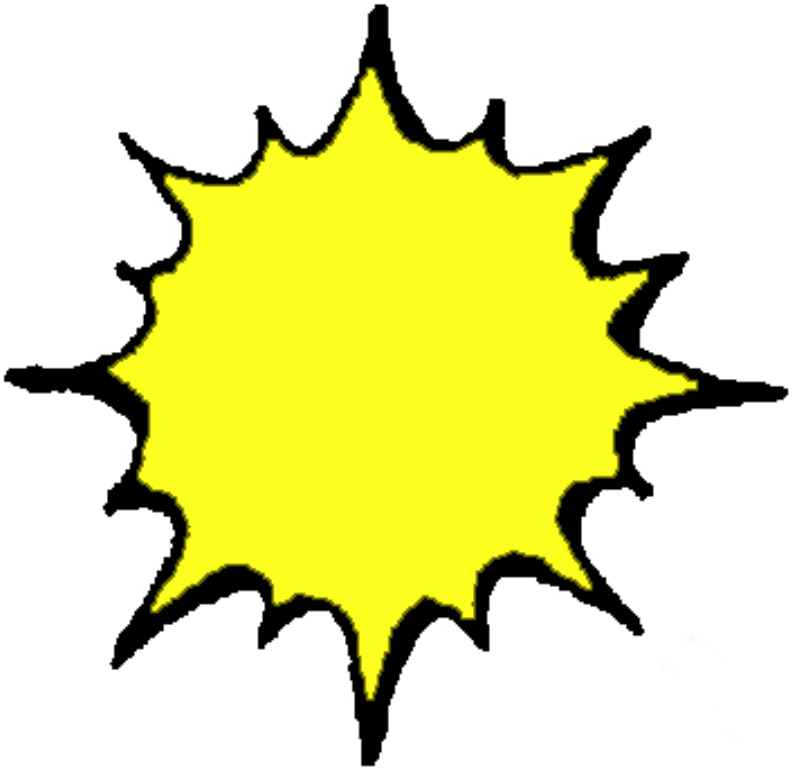
Says no to foreign oil

You need



& **South** exposure

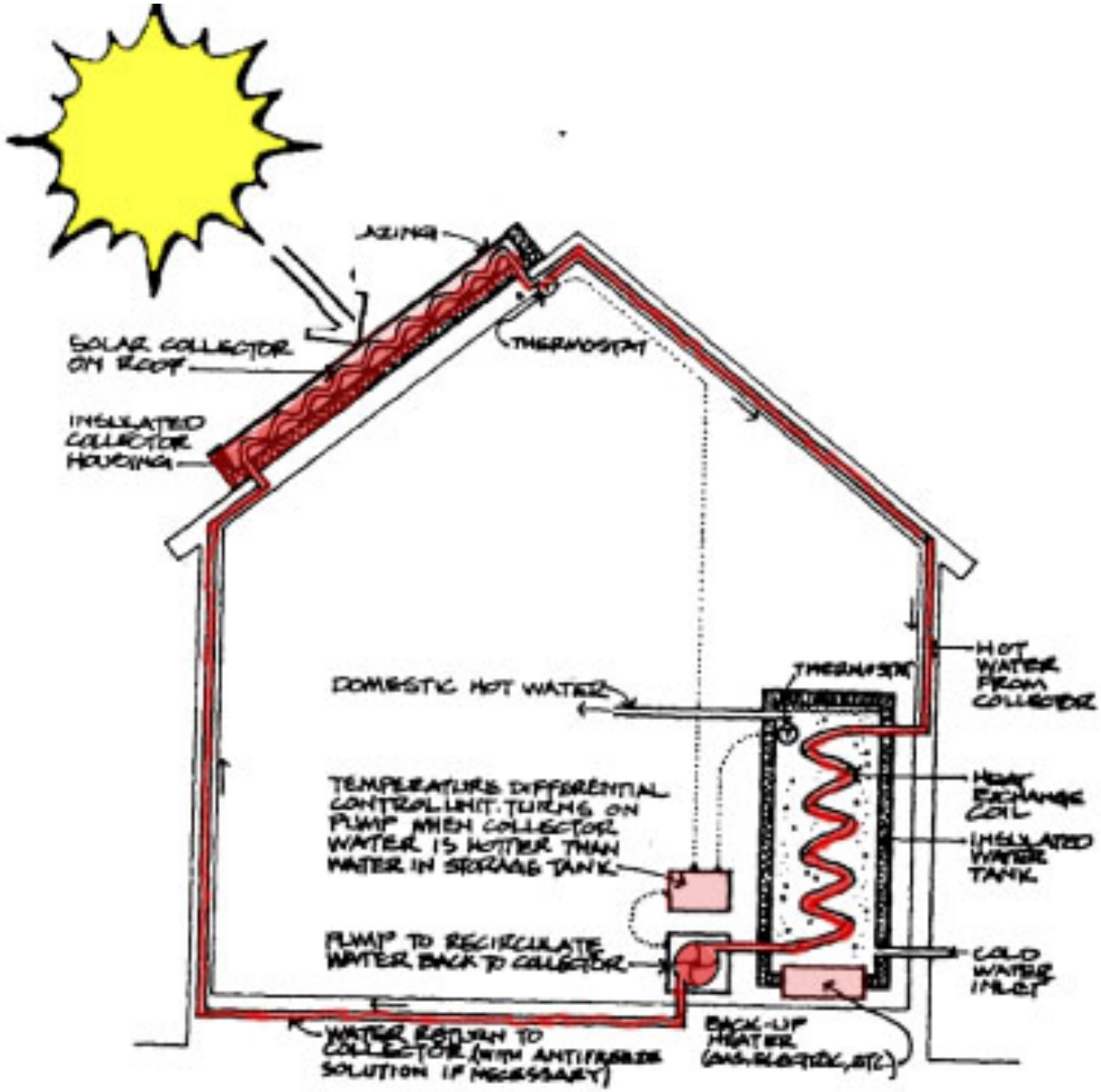
In Vermont, sun is abundant



500 x greater than Wind

In Vermont

solar can provide
100% of hot water in "summer"
& 70% of hot water year-around



Solar Water Heater

solar-heated solution from the absorber plates. Heat is then extracted from the fluid by a heat exchanger at the storage

Solar DHW systems may be used as a preheat source for any type of hot water system including instantaneous heaters.

Preheated water in the solar tank is fed to a conventional water heater for supplemental heating if necessary. Solar DHW systems may be used as a preheat source for any type of hot water system including instantaneous heaters.

The operation of a passive thermosyphon system is essentially the same except the

collectors and there must be minimal flow restriction (such as a long pipe run) that would stop the natural thermosyphon effect. Passive systems that use the geysereffect are just the opposite; they must have the collectors above the storage tank.

Because of their reliability, superior efficiency compared to passive systems, and because there are no restrictions on collectors location, active systems are most commonly installed in Vermont. Regardless whether the choice is an active or passive system, the most important point is to design and install the system according to manufacturer's instructions. The best equipment will fail to live up to its potential if incorrectly

Can SOLAR heat my home?

HOT WATER, yes

Space heating limited effectiveness

ɪr gives a system
bility to meet
er patterns and
ical use.

dules are solid-
h no moving
tremely reliable
aintenance for the
stem. The only
n that requires
the batteries
eriodically
aced about every
ad acid batteries
for nickel-
s.

the key to understanding cost-effective photovoltaic applications.

A fundamental consideration in the design of any independent power system is energy efficiency. The first rule is to use electricity only for purposes where it is best suited — such as lighting, electronics and motors — not for water or space heating, cooking or drying, all of which can be done less expensively by propane, oil or solar thermal systems.

Electricity in VT
is produced
mostly from clean energy
… over 90% "green"
according to CVPS

Solar costs

reduced by incentives

Federal tax credit: 30% of gross cost

State rebate: about $1000

Can save 40%

SOLAR

Saves $$$ right away

Lowers water heating costs up to 70%

Pays back fast

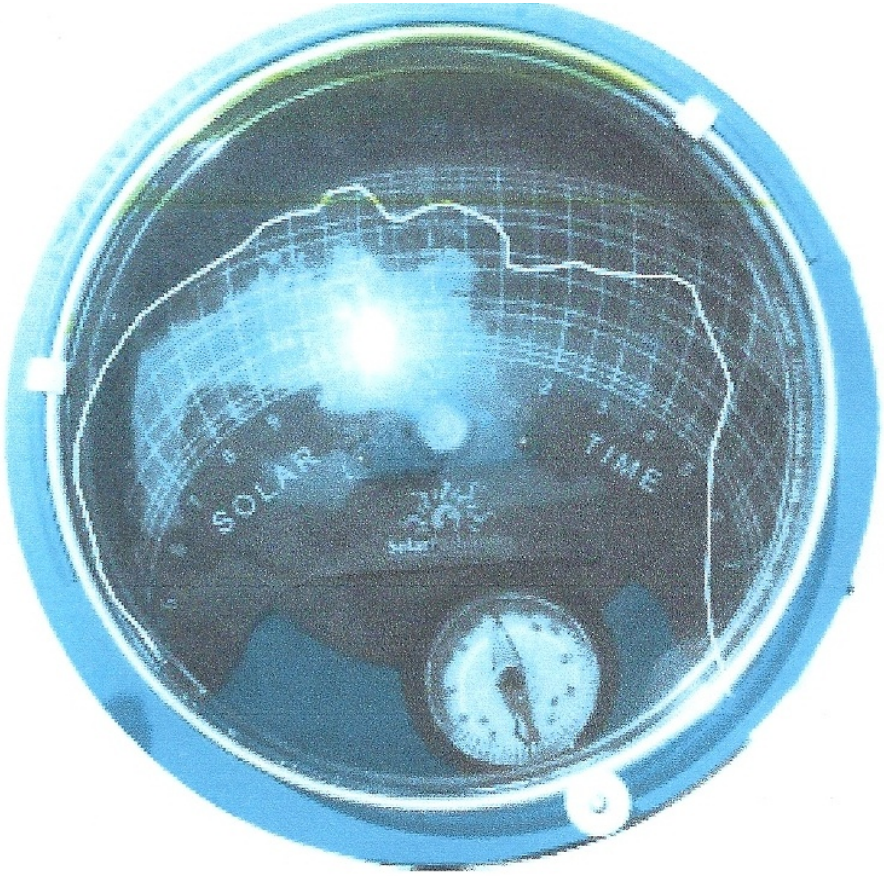
High return on investment

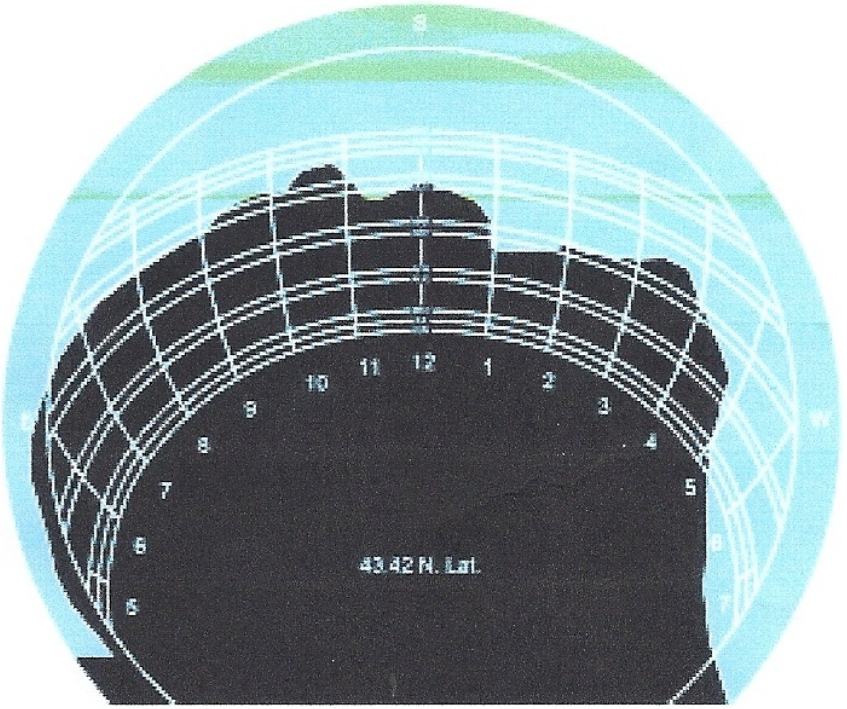
Adds to real estate value

actual apr – sep 2009 & 2010
172 gal. oil cost $415
est. apr – sep 2011 hot water
cost $500+

…

past year fuel oil: 1200 gal.
cost $3700
hot water: est. 20% or $740
summer hot water: est. 70%
or $518





solar pathfinder projects sun/shade 12 months of year

Solar Site Analysis Report

Image File: "Marx_
Layout Point: 1

Solar Obstruction Data

Month	Unshaded % of Ideal Site Azimuth=180 Tilt=43.42	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=45.0 KWhr/m^2	Solar Hot Water Shaded Cost Savings Propane $4.00/gallon	Solar Ho Solar Fr Azimuth Tilt=45.0
January	0.00 %	0.00	$0.00	
February	23.68 %	0.86	$1.73	
March	75.06 %	3.20	$45.31	
April	97.34 %	5.08	$70.52	
May	97.46 %	5.01	$72.99	
June	97.63 %	5.27	$74.48	
July	97.27 %	5.31	$77.72	
August	96.86 %	5.30	$77.44	
September	86.46 %	3.89	$56.26	
October	38.02 %	1.43	$15.66	
November	0.00 %	0.00	$0.00	
December	0.00 %	0.00	$0.00	
Totals	**59.15%**	**35.36**	**$492.10**	
	Unweighted	**Effect: 70.59%**		
	Yearly Avg	**Sun Hrs: 2.95**		

exchanger efficiency	%	95.0%
llaneous losses	%	2.0%
power / solar collector area	W/m²	10.60
icity rate	$/kWh	0.140

marg

icity - pump	MWh	0.1
ng delivered	MWh	3.3
fraction	%	

ing system

ct verification		
ype		
onal efficiency		
consumption - annual		
ate		
cost		

Heating system

	Base case	Proposed case
Project verification	Oil (#6) - gal	Oil (#6) - gal
Fuel type	65%	65%
Seasonal efficiency	204.5	78.8
Fuel consumption - annual	4,000	4,000
Fuel rate	818	315
Fuel cost		

nalysis

al parameters

ate		
fe		

osts

ystem	$	6,269	100.0%
	$		0.0%
itial costs	$	6,269	100.0%
res and grants	$	2,841	45.3%

costs and debt payments

vings) costs	$	
t - proposed case	$	331
	$	
nnual costs	$	331

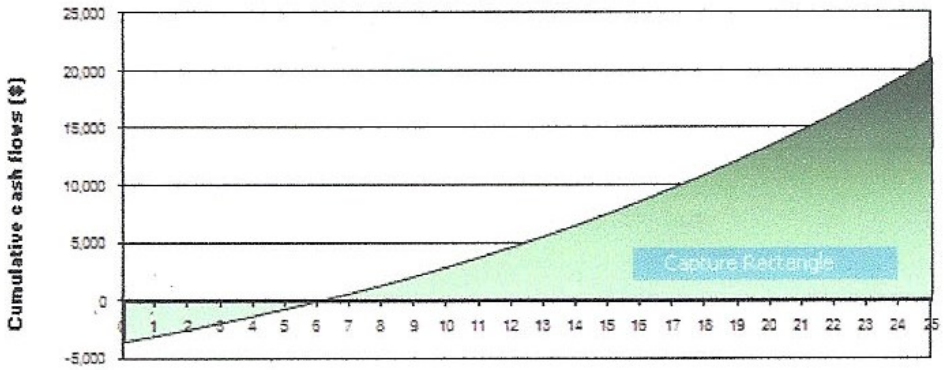
savings and income

t - base case	$	818
	$	
nnual savings and income	$	818

al viability

RR - assets	%	19.3%
ayback	yr	7.0

Cumulative cash flows graph



solar hot water

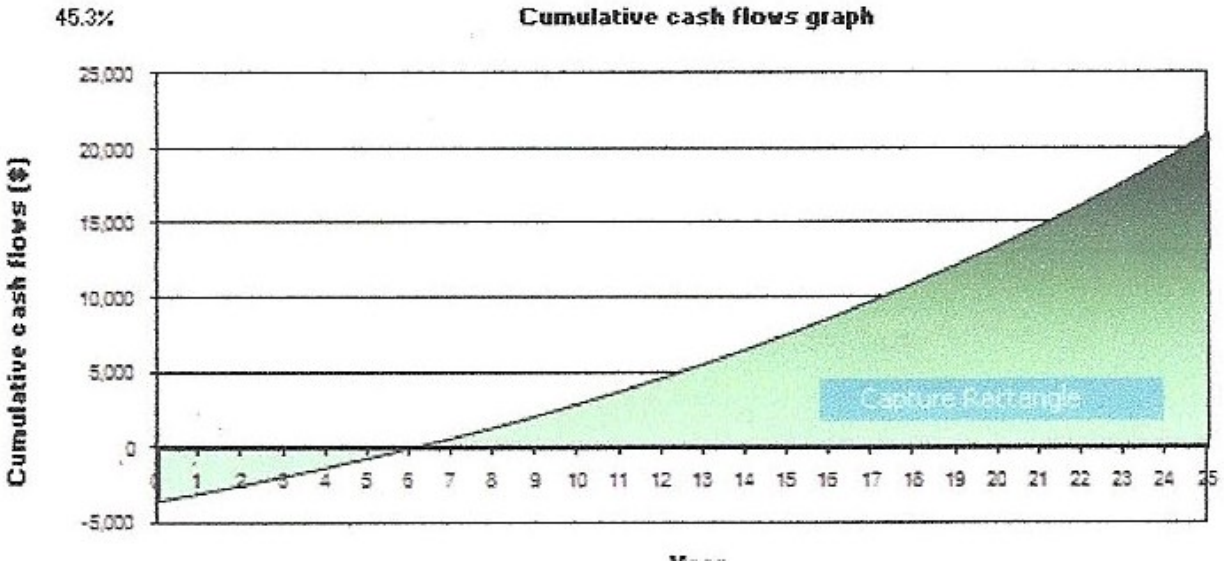
uses sun to heat water for

free

0 operating costs

save $500 per year

Fuel rate		818
Fuel cost		
$	6,269	100.0%
$		0.0%
$	6,269	100.0%
$	2,841	45.3%
$		
$	331	
$		
$	331	
$	818	
$		
$	818	
%	19.3%	
yr	7.0	



return on investment

bank accounts: 1%

CDs: 2 or 3 %

SOLAR HOT WATER can yield

10% per year

“solar is a better investment than stocks … without market risks”

says a solar investor

every solar hot water installation

keeps 2 tons of CO_2 from atmosphere every year

like planting 200 trees

solar hot water

reliable clean energy

saves $$$

saves the environment

!!!!


CHROMAGEN

CALEFFI
SOLAR
COL
172
iSolar 2
WILO


PASCO
°C
°F
CALEFFI
SOLAR
COL
172.7
iSolar 2

SOLAR HOT WATER

GO GREEN SOLAR HOT WATER

Town Meeting … August 31, 2011

PARTICIPANTS & CREDITS

We would like to thank the following for their help in making this workshop possible:

South Face Design (solar installer) … Ted Emerson
ted@southface.biz 802 484 3307 / 5071

Sunny Nose Solar (solar installer) … Karl Rosengrant
sunnynosesolar@gmail.com 802 738 8103

Stephanie Stouffer Studio … artist for "go green" illustration
stouffer@vermontel.net 259 2686

Emily Clifford Jackson … audio/visual graphics
www.cliffordcountry.com 259 2269
eclifford@vermontel.net

Abe Leber … graphics for "go green solar" logo
aleber@vermontel.net 259 3363

Express Copy … Don Reiser … printing posters & flyers
expresscopy@vermontel.net 802 362 0501

Thank you,

Mount Holly Conservation Trust
rolandmarx@yahoo.com 259 9259