

# Questions to ask when buying a Solar Thermal Evacuated Tube System

Is this system SRCC & Hail rated? (or TUV, SolarKeyMark, a rating may be needed for rebate)  
Is the installer state certified (necessary for incentives)?

What is the frame made of?

How long should it last?

What is the rated wind load? (Evacuated tube systems handle wind better than flat plate)

When attaching it to the roof:

How many roof penetrations are necessary, what do you do to seal them?

What types of bolts do you use? (Stainless is best), Do legs have padding?

Where on the roof will you place the collectors (does it leave room for future expansion or PV electric installation)?

How many tubes are you installing, how much space do they need?

Verify seasonal shading is not an issue from trees or rooflines.

Are the collectors located where snow blows and builds up?

Will snow slide down collector and build up at the bottom when it hits shingles?

What is the output per tube in Maine?

Make sure you compare like months. (don't use SCRR clear "C" data in Florida)

Since all reputable systems do well in summer, use December, the most difficult month. This is especially important when using solar thermal for heating.

Unfortunately, some dealers are less than honest, verify numbers.

What type glass are your tubes made of?

Will their performance derogate over time?

Borosilicate can loose 20% during the first 5 years, Soda/Lime is stable

How long is the warranty on the tubes, what does it cover? What is the life expectancy?

What is the cost of a single tube (in case of damage)?

What is necessary to change a broken tube?

How long has this model been sold/installed, is lifetime performance data available?

Does the tube have a hail rating certification? What is the glass strength?

How long is the warranty on the tank? What is the expected life?

What size storage tank are you installing?

What is the tank's heat loss per day?

Do the math: Output x # of tubes, does the tank storage size make sense?

If the tank is too big, the water does not get really hot.

For our products we use about 2 gallons of storage per tube, sometimes a bit less.

Is the tank rated for the use?

What type of controller & pump are you using?

How many zones can it handle (is expansion important)?

What is the warranty on the Pump/controllers? What is the expected life?

What features does it have for monitoring/recording performance?



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What size pipes are you using from the collector to the tank?  
If the system is expanded, are the plumbing pipes still big enough?  
What are the pipes made of? (copper & stainless meet code and can handle high temps)  
How are the pipes insulated?  
What will the pipe path to the tank be?

Will you use a heat-dump to handle excess heat, what will it be?  
Allowing the system to dry stagnate (vapor drawback) is not recommended by reputable manufacturers and could void the warranty. Plus, excess heat causes the glycol to break down faster and become acidic forcing replacement sooner.

How often does the Glycol need to be changed? What is the aprox. cost?  
How does the owner know it is time to change it?

Do you install ball valves at key points to avoid impacting the entire system in case maintenance is necessary? Where/How many?

Do you warranty the plumbing lines and work, for how long?

You want to store enough water for about 2 days, figure 10-20 gl per person per day.

***We are always happy to answer questions.*** We understand that investing a large sum of money in a solar system is a major decision and is best made with good information. One piece of advice we can offer is to get a quote from at least 2 companies. Make sure you explain your needs to each in an even manner. When you get back each proposal ask lots of questions. Then, tell each about the other company's proposal and ask them to find the possible problems with their competitors quote. That will help you develop a good list of questions to bring back to each vendor for clarification. And remember we have cold winters. Do not be misled by statistics that are not accurate here in New England. (if you have a seasonal house, you have more flexibility)

The SRCC is the US rating agency for Solar. (They recognize TUV ratings) [www.Solar-Rating.org](http://www.Solar-Rating.org).  
***When comparing products use rating for Maine, in December!***

The TUV is the European agency. They do not recognize the SRCC since the SRCC approves products the TUV will not. [www.US.TUV.com](http://www.US.TUV.com).  
SolarKeyMark: [www.SolarKeyMark.org](http://www.SolarKeyMark.org). We think the foreign agencies are more accurate.

When comparing Flat plate collectors to Evacuated tubes make sure you understand the "Gross area mistake" that throws off the numbers from the SRCC. In brief, the SRCC uses gross collector area. With a flat panel this can accurately be stated as the sq ft panel size. On evacuated tubes you have collectors inside the tubes and space between each tube. You cannot take the sq ft area of the tube set up rack and say it is all "collector". About 30% is air space and the manifold. If you use the inflated "collector" area as part of the equation to calculate efficiency of collector per sq ft then you have completely bogus results. Sadly, we have been to manufacture training classes for flat plates where even the trainers do not understand this issue. Evacuated tubes outperform flat plate collectors during cold winter days. Without a vacuum insulator some of Btu's created are radiated out by the flat plate.

Solar Thermal Heat and Hot Water      PV Electric      Wind      Boiler Efficiency Upgrades  
Residential      Commercial      Industrial process heat