

FEC® POWER

Source

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A Mini Split Heat Pump Can Make a Good Alternative

Ductless, mini split system air-conditioners (mini splits) have numerous potential applications. The most common applications are as retrofit add-ons to the whole home as the primary air conditioner/heat supply, space such as a finished garage, built-on room additions, and apartments. They are very convenient where putting distribution ductwork might be problematic or not feasible.

Like central systems, mini splits have two main components: an outdoor compressor/condenser, and an indoor air-handler unit (header). A conduit, which houses the power cable, refrigerant tubing, suction tubing, and a condensate drain, links the outdoor and indoor unit(s).

Advantages

The main advantages of mini splits are their small size and flexibility for zoned or heating and cooling individual rooms. Many models can have as many as four indoor headers (for four zones or rooms) connected to one outdoor unit. The number depends on how much heating or cooling is required for the building or each zone (which in turn is affected by how well the building is insulated). Each of the zones will have its own thermostat, so you only need to condition that space when it is occupied, saving energy and most importantly, money.

Ductless mini split systems are also often easier to

install than other types of space conditioning. For example, the hook-up between the outdoor and indoor units generally requires only three-inch hole through the wall for the conduit. Also, most manufacturers of this type of system can provide a variety of lengths of connecting conduits. So, if necessary, you can locate the outdoor unit as far away as 50 feet from the indoor header. This makes



it possible to condition rooms on the front side of a building or house with the compressor in a more inconspicuous place on the outside, perhaps on the side or back of the structure.

Since mini splits have no ducts, they avoid the energy losses associated with the ductwork of central forced air systems. Duct losses can account for more than 30% for energy consumption for space conditioning, especially if the ducts are in an unconditioned space such as attic.

Compared with other add-on systems, mini splits offer more flexibility in interior design options. The indoor air handlers can be suspended from a ceiling, hung on a wall, or there are even new designs that allow for flush ceiling mounting with ceiling cassettes. Ceiling cassettes are installed into the ceiling where the mechanics are hidden. They cover larger areas than wall-mounted units, and in some cases, allow you to control the direction of air flow. Most indoor units have profiles of about seven inches deep and



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Manager's Message...**Lance Adkins, GM**

(FEC) really know how much of that energy was generated by renewable resources?

From recent wholesale and retail rate cases filed by Xcel Energy, we get a glimpse of their plans for Tolk Station. Xcel has requested accelerated depreciation from federal and state regulators on Tolk assets, meaning recovery of costs from consumers faster than provided for in existing rates. According to documentation filed by Xcel, a primary reason for requesting accelerated depreciation is concern about limitations on fresh water supplies necessary for generation. It is my understanding, Tolk Station is necessary for power stability and reliability in our corner of the world and that planning is underway for how to maintain power stability and reliability when Tolk ceases operation. I am not aware of any date-certain plans to retire Tolk Station, Xcel has resisted attempts by regulators and rate-case participants for a commitment to a firm retirement date. In addition to the Integrated Market, SPP, as the regional reliability coordinator, is actively involved in planning for the future with and without Tolk Station.

Regarding renewable energy, companies that own or control utility scale renewable energy generation within the SPP IM footprint, such as Western Farmers Electric Cooperative (WFEC) and Xcel Energy (Xcel), include their renewable resources in their bidding strategy. It is my understanding renewable resources are generally bid into the SPP IM at a low or zero price to ensure the resource will be selected to run by the IM. This strategy presents challenges for a utility as the IM will determine what the actual real-time value of the energy was after-the-fact. As I have reported before, the IM price may be below the actual cost of renewable energy to the utility at various times and above those costs at other times. In fact, with the high level of wind energy available, it is not uncommon to see negative prices in certain time intervals, meaning the utility is paying the IM to take the energy. Why would that make sense? Remember, renewable energy also receives certain federal and state tax incentives or credits;

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Xcel Requests Accelerated Depreciation of Tolk Coal Plant

My message from last month on wholesale energy supply sparked a few discussions. I mentioned Tolk Station, a coal-powered plant owned by Xcel Energy located to the northeast of Muleshoe, Texas, but did not elaborate on how much longer that plant will continue to operate. Another question, based on past articles on renewable energy in FEC's wholesale power supply resource mix; if all energy is being purchased from the Southwest Power Pool Integrated Market (SPP IM) how can Farmers' Electric

*Tolk Station near Muleshoe, Texas*

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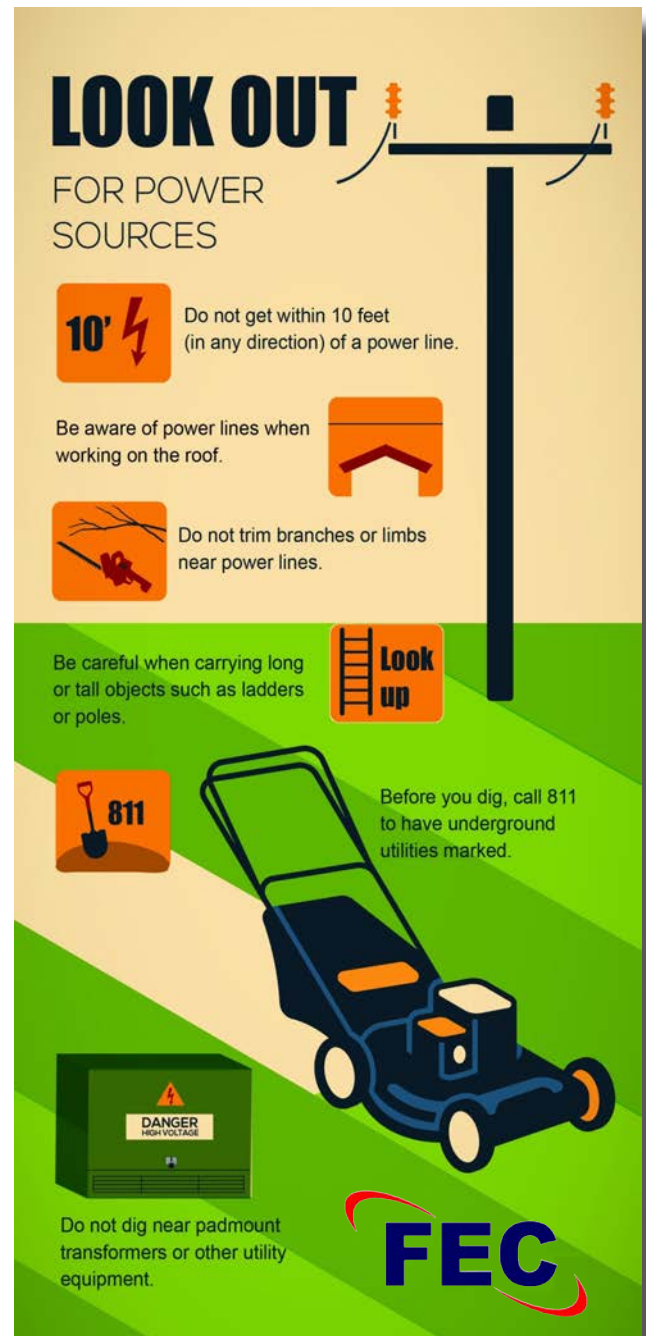
the renewable energy generation must run to receive these credits and the value of the credits outweigh the risks of being upside down on pricing during short periods of time. This may seem simple enough; however, it now takes six months for the full SPP IM cost settlement process to reconcile and a generation owner to fully realize the total costs and revenues for a specific month of operation.

Verification of renewable energy is accomplished through creation and tracking of Renewable Energy Certificates (RECs), also called Renewable Energy Credits or Green Tags. RECs represent certain environment attributes/benefits of renewable energy and one REC represents the environment attributes of 1,000 kilowatt-hours of electricity. Once created, RECs are tracked by independent tracking systems to be banked, used, traded, or sold. Historically, FEC has worked with and actively holds REC accounts with two tracking systems, the Western Renewable Energy Generation Information System (WREGIS), tracking generation in the western US, including New Mexico, and the tracking system operated by the Electric Reliability Council of Texas (ERCOT) for renewable resources physically located in Texas.

Now is a great time to update the membership with the level of renewables in our wholesale power supply for the year ending 2019. WFEC reports that renewable energy resources in our wholesale portfolio were comprised of Wind (23%), Hydro (9%), and Solar (1%), for a total of 33%! I plan to provide additional detail on specific renewable energy generation projects, existing and planned, in a future article.

33%

Until next month,

LOOK OUT FOR POWER SOURCES

- 10'** Do not get within 10 feet (in any direction) of a power line.
- Be aware of power lines when working on the roof.
- Do not trim branches or limbs near power lines.
- Be careful when carrying long or tall objects such as ladders or poles. **Look up**
- 811** Before you dig, call 811 to have underground utilities marked.
- Do not dig near padmount transformers or other utility equipment.

FEC

How to Beat a Heat Wave

- Never leave children or pets in enclosed vehicles
- Stay hydrated by drinking plenty of fluids even if you do not feel thirsty. Water is best. Avoid drinks with caffeine or alcohol.
- Eat small meals and eat more often.
- Avoid extreme temperature changes.
- Wear loose-fitting, lightweight, light-colored clothing. Avoid dark colors because they absorb the sun's rays.



- Postpone outdoor games and activities.
- Slow down, stay indoors and avoid strenuous exercise during the hottest part of the day.
- Use a buddy system when working in excessive heat.
- Take frequent breaks if you must work outdoors.
- Check on family, friends, and neighbors who do not have air conditioning, who spend much of their time alone, or who are more likely to be affected by the heat, especially the elderly.
- Check on your animals frequently to ensure they are not over-heated and have plenty of water.

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usually come with sleek, high-tech-looking jackets. Many also offer a remote control to make it easier to turn the system on and off when it's positioned high on a wall or suspended from a ceiling.

Disadvantages

The primary disadvantage of mini splits is their cost. They are not cheap. Such systems cost about \$1,500 - \$2,000 per ton of cooling capacity. This is on par with central systems, excluding costs associated with ductwork.

The installer must also correctly size each indoor unit and judge the best location for its installation. Oversized or incorrectly located air-handlers (handlers) often result in short-cycling, which wastes energy, does not provide proper temperature or humidity

control, and will shorten the life of the equipment. Additionally, oversized systems are more expensive to buy and operate.

Some people may not like the appearance of the indoor part of the system. While less noticeable than a window room air conditioner, they seldom have the built-in look of a central system. However, there are some promising new designs, mentioned earlier, that use ceiling "cassettes" that are more seamless in design.

Currently, FEC offers a \$125/ton with a \$500 cap per meter cash-back rebate for new construction or retrofits that include mini split heat pumps. In order to qualify for the rebate, the SEER rating shall be 15 or greater. Call FEC today at (800) 445-8541 for this and other energy efficiency rebate information.

Energy Tip of the Month!

When using air conditioning, a ceiling fan will allow you to raise the thermostat setting about 4°F with little or no reduction in your comfort level.

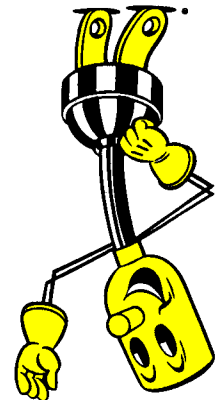


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