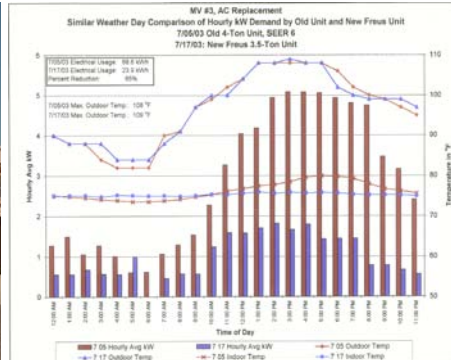


Field Studies in Las Vegas Showed 65% savings



Utility sponsored tests on over 60 homes showed before and after energy savings.

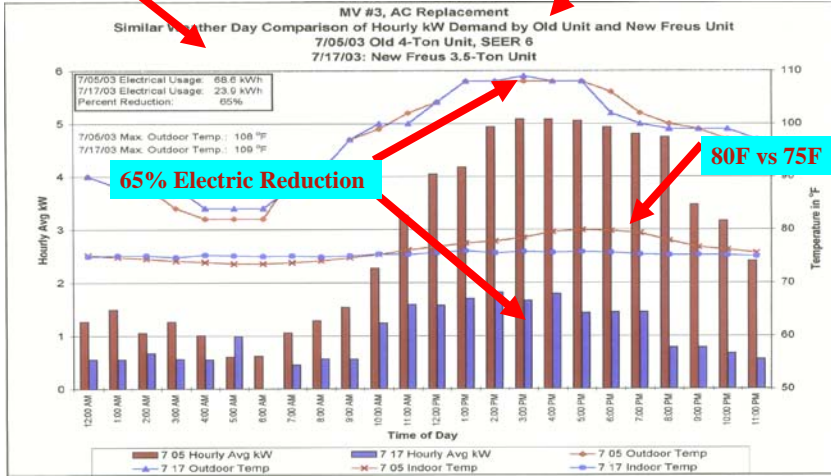
The house on the right had an air cooled 4 ton unit replaced by 3 1/2 ton Freus unit. The study was done by Nevada Power.

The savings are charted on the next page and it shows that the smaller unit (Freus) provided more comfort and save up to 65% of the energy.

The other pages show some maintenance studies that you might find interesting. We charge the same for water cooled units as air cooled units and have found that generally the water cooled units take less time and less equipment.

65% Electric Savings - Las Vegas @108°F

108F - 109F



All Air Conditioners need maintenance!

Have you seen a filthy furnace filter?

Equipment Maintenance Advice: HVAC



Cleaning Condenser Coils

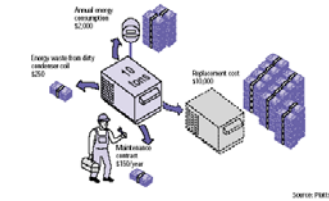
Unlike the evaporator coil, the condenser coil is exposed to unfiltered outdoor air—so it suffers much greater degradation due to dirt. The performance penalty of a dirty condenser makes this task one of the most cost-effective energy-efficiency practices available for rooftop unit maintenance. A dirty coil reduces the cooling ability of the air blowing across the condenser coils. If the condensing temperature is raised from 95° Fahrenheit (F) to 105°F as a

result, then cooling capacity will be cut by 7 percent and increase power consumption by 10 percent, with a net compressor efficiency reduction of 16 percent. Such performance degradation in a 10-ton unit operating at 9.0 EER for 2,000 hours per year at 8 cents per kilowatt-hour wastes about US\$250 per year in operating costs (Figure 1). It takes a technician about an hour to clean the condenser, which typically costs about \$50. This is money well

spent—in this example, cleaning the unit would have a payback of just over two months, with a net annual savings of \$200. The best tool for this maintenance job is a power washer that foams cleaning solution into a high-pressure water flow. Some companies specialize in performing this type of cleaning for a competitive price. They typically use tank trucks and custom self-contained equipment. Spray-on cleaning solutions that are intended to be used with a brush and a hose will not do a good enough job of cleaning the coils, even though they may brighten the outer surface. A serious condenser cleaning involves before-and-after measurements of the temperature difference across the coil to verify the effectiveness of the cleaning. These measurements should be included in a report to the owner or supervisor.

Power washing, if done improperly (for instance, using the wrong spray angle or excessive pressure), can damage coils by bending the fins—or even breaking them off if the coil is old. The task isn't very complicated, but it should be done only by people trained in the proper use of the necessary equipment.

Figure 1
Cash flows through a rooftop unit. Owning and operating a rooftop unit entails a number of expenses, some of which are often overlooked—in particular, those related to maintenance. This diagram shows some typical cash flows related to a 10-ton rooftop unit.



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Condensers must be cleaned annually!

See Carrier "Application Guide and Service Manual" No. 563-732

Maintenance Saves more on Electricity than it costs!

Cash flows through a rooftop unit
Owning and operating a rooftop unit entails a number of expenses, some of which are often overlooked—in particular, those related to maintenance. This diagram shows some typical cash flows related to a 10-ton rooftop unit.

Annual energy consumption \$2,000
Energy waste from dirty condenser coil \$250
Maintenance contract \$150/year
Replacement cost \$10,000

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Source: Platts

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Residential - Heating and Cooling

The A/C Quality Program



Did you know...
 an efficient and reliable
 A/C system can **Save** you
 up to **30%**
 on your cooling bill?

Tools

- Home Energy Survey
- Lower Your Bill Toolkit
- Options & Base Allocations
- Residential Energy Guide
- CHEERS Energy Efficiency Ratings
- SCE Welcome Kit

How It Works

Southern California Edison's A/C Quality Program is designed to help you save money on your cooling bill and improve your comfort by ensuring that your central A/C system is efficient and reliable.

Tune Up Your A/C And Save

Your central A/C system is an important part of your home, keeping your family comfortable and cool during hot weather, but you could be spending up to 30% too much on cooling if your system is not installed or maintained properly. Much like a car, your central A/C system requires regular maintenance to keep it running smoothly.

The A/C Quality Program pre-qualifies contractors who are able to assess the performance of your A/C system and make the appropriate energy and money saving adjustments that will improve its reliability.

Program-approved tune-ups to your central A/C system will diagnose and repair system inefficiencies that can increase your cooling bill and shorten the life of your A/C system by up to 8 years. Proper maintenance can even help prevent your air conditioning from a break-down right when you need it the most.

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