



Rooftop Units

Energy Savings Opportunity

Rooftop units are commonly used to provide space heating and cooling because they offer many benefits. Rooftop units are relatively inexpensive and can easily be integrated into a standard forced air duct system when placed on the exterior of a building; so they don't take up valuable internal space. You can save on operating costs by installing a high-efficiency rooftop unit in a new building, replacing old, inefficient rooftop units in existing buildings, as well as by maintaining your HVAC system.

If you have a failed unit that needs to be replaced, buying an energy-efficient model will provide savings over the life of the unit. For example, if you replace an existing 5 ton, 9 SEER unit with a high-efficiency 5 ton, 15 SEER unit, you may pay \$500 more up front than for a standard model, but you can save \$1,500 in energy costs over the life of the unit, plus save on maintenance costs. Additionally, the Efficiency Maine Business Program is offering cash incentives, making energy efficiency investments even more attractive. You can use the formula on the back of this worksheet to estimate your potential savings.

High Efficiency Rooftop Units

The energy efficiency of rooftop units smaller than 5.4 tons is listed in terms of SEER (Seasonal Energy Efficiency Ratio), while the efficiency of units 5.4 tons and larger is listed in terms of EER (Energy Efficiency Ratio). Check ENERGY STAR® (energystar.gov) for the most current recommended efficiencies.

Over the years, the average efficiency of rooftop units has increased. In 1981, the average SEER was about 7.8, but by 1995, the average had jumped to about 10.7. In addition, as a unit gets older, its parts become worn and efficiency decreases. Thus, that 1980's vintage rooftop unit might really have a SEER of less than 7.0 when wear-and-tear on its parts is taken into account.

Maintenance

Keep your rooftop unit in top condition by changing the filters every spring and fall, and having it serviced at least once a year. Servicing should include greasing the bearings and checking pulleys, belts, refrigerant charge, temperature drop across the coil and amperage for potential problems.

More Information

You can use the worksheet on the back to gain an understanding of your savings potential. The formula used is most appropriate for commercial buildings of 25,000 square feet or smaller. Consult with your HVAC dealer for a more precise estimate on prices and savings for your situation. When determining your savings opportunity, you will want to take into account the Efficiency Maine Business Program's HVAC prescriptive cash incentives shown on back.

Learn more about cash incentives available through the Efficiency Maine Business Program from our Qualified Partners. A complete list of these contractors and suppliers who specialize in energy-efficient products and services is available at efficiencymaine.com, under Business Program, or call toll-free 866-376-2463. The website also provides information about programs for new school construction projects and residential electric energy consumers.

Information in this fact sheet was derived from the ENERGY STAR®, Small Business Guide, published by the EPA as well as other sources. For further information on the ENERGY STAR Small Business Program, visit energystar.gov.

Estimate Your Savings

You can estimate the savings you would realize if you installed a high-efficiency rooftop unit by comparing your old unit with a high-efficiency new unit using the worksheet below.

- Enter the size of the existing rooftop unit in tons.
- From Table 1, select the city nearest your location and enter the listed number of hours.
- Enter your average energy cost (from your electric bill). If you don't know what it is, enter \$0.145.
- From Table 2, select the approximate age of the existing unit and enter the listed EER/SEER.
- Calculate your current annual operating cost based on the formula in the chart below.
- Enter the size of the proposed rooftop unit.
- Enter the hours you entered in B.
- Enter the cost per kWh you entered in C.
- Enter the EER/SEER of the proposed unit. (Use the same rating EER/SEER for both estimates)
- Calculate your proposed annual operating cost based on the formula in the chart below.
- Calculate your proposed annual energy savings by subtracting E from J.

Table 1: Equivalent Full Load Cooling Hours

Area	Hours
Bangor & South	653
North of Bangor	369

Table 2: Approximate EER/SEER Based on Age

Approx. Age	EER	SEER
5-10	9	10
10-15	8	9

A. Current unit size tons		Btu/hr per ton		B. Cooling hours for your area		C. Cost per kWh		D. Current unit EER or SEER		E. Current annual cost
<input type="text"/>	x	12,000	x	<input type="text"/>	x	<input type="text"/>	÷	<input type="text"/>	÷	1,000 = \$ <input type="text"/>
F. New unit size tons		Btu/hr per ton		G. Cooling hours for your area		H. Cost per kWh		I. New unit EER or SEER		J. New annual cost
<input type="text"/>	x	12,000	x	<input type="text"/>	x	<input type="text"/>	÷	<input type="text"/>	÷	1,000 = \$ <input type="text"/>
K. Annual Savings E - J										\$ <input type="text"/>

Note: Be sure to remember to factor in any cash incentive when calculating the cost of a new rooftop unit.

HVAC

Equipment Capacity (Tons)	Equipment Capacity (Btuh)	Minimum SEER or EER	Maximum Incentive (\$/Ton)
Unitary AC and Split Systems			
< 5.4	< 65,000 Split	15.0 SEER/12.5 EER	\$125.00
< 5.4	< 65,000 Packaged	15.0 SEER/12.0 EER	\$125.00
≥ 5.4 to < 11.25	≥ 65,000 to < 135,000	12.0 EER	\$80.00
≥ 11.25 to < 20	≥ 135,000 to < 240,000	12.0 EER	\$80.00
≥ 20 to < 63	≥ 240,000 to < 760,000	10.8 EER	\$50.00
≥ 63	≥ 760,000	10.2 EER	\$50.00
Air-to-Air Heat Pump Systems			
< 5.4	< 65,000 Split	15.0 SEER/12.5 EER & 9.0 HSPF	\$125.00
< 5.4	< 65,000 Packaged	15.0 SEER/12.0 EER & 8.5 HSPF	\$125.00
≥ 5.4 to < 11.25	≥ 65,000 to < 135,000	11.5 EER	\$ 80.00
≥ 11.25 to < 20	≥ 135,000 to < 240,000	11.5 EER	\$ 80.00
≥ 20	≥ 240,000	10.5 EER	\$ 50.00
Water Source Heat Pump Systems			
< 11.25	< 135,000	14.0 EER	\$ 80.00
Dual Enthalpy Economizer Controls (when installed with new, qualifying eligible equipment)			\$250.00/unit
Demand Control Ventilation (when installed with new, qualifying eligible equipment)			\$200.00/unit

Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help Maine residents and businesses reduce energy costs, and improve Maine's environment.