



IS SOLAR HVAC COST EFFECTIVE?

Solar HVAC has a substantial on-going utility savings over conventional HVAC equipment. This savings usually amounts to 40 – 50% of the energy that is used by the HVAC equipment, along with the fact that since the Solar HVAC has an inverter on the compressor, the in-rush current is low and if the utility in the area has peak demand electrical charges, these are eliminated or minimized by Solar HVAC.

In addition to the Solar HVAC utility savings, there are many incentives that federal, state, and local governments are providing for solar projects. There are also many utility incentives for these projects. For a complete list of these programs, go to <https://www.dsireusa.org/>. This website was created by NC State University and has Federal, State, local and power company provided incentives for every state around the country.

The federal government currently offers a federal tax credit of 26% of the installed cost of a solar system. Current legislation is moving through Congress that would move this up to 30% on all solar panels and an additional 10% for American made Solar Panels. Plus, an additional 20% for Solar Projects on low-income housing. Since iAIRE makes our solar panels in the US, iAIRE would be eligible for a 40% Federal tax credit on normal jobs and 60% on low-income housing if this legislation gets through Congress. iAIRE has written a document to show both businesses and homeowners how to obtain this tax credit. Click [here](#) to see this document.

The tax code also allows for an accelerated depreciation schedule on solar projects. At the current rebate rate of 26%, a business could depreciate 87% of the cost of the equipment and installation the first year. Also, most states are not charging sales tax on solar projects.

The up-front cost for Solar HVAC is more than conventional equipment. Because of this, most people believe there is still a long payback period to pay for the additional cost of utilizing Solar HVAC over conventional equipment. Below iAIRE will show a couple of examples of the use of Solar HVAC compared to conventional equipment to show that the payback on projects can be seen as rapidly as the first year.

Below is an example of a 5-ton packaged roof top unit replacement on a store in Orlando FL.

Conventional 5 ton system	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Installed Cost	\$9,500.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9,500.00
Federal Credit @26%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tax savings on Depreciation expense 15% @21% rate	\$299.25	\$299.25	\$299.25	\$299.25	\$299.25	\$299.25	\$299.25	\$2,094.75
Sales Tax 6%	\$570.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$570.00
Property tax 1%	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$665.00
Electrical cost (\$378/mo)	\$4,536.00	\$4,762.80	\$5,000.94	\$5,250.99	\$5,513.54	\$5,789.21	\$6,078.67	\$36,932.15
Total yearly cost	\$14,401.75	\$4,558.55	\$4,796.69	\$5,046.74	\$5,309.29	\$5,584.96	\$5,874.42	\$45,572.40
iAIRE Solar 5 ton system	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Installed Cost	\$20,830.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20,830.95
Federal Credit @26%	\$5,416.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5,416.05
Tax savings on Depreciation expense 87% yr 1 @21% rate	\$3,805.81	\$94.78	\$94.78	\$94.78	\$94.78	\$94.78	\$94.78	\$4,374.50
Sales Tax 6%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Property tax 1%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Electrical cost (\$189/mo)	\$2,268.00	\$2,381.40	\$2,500.47	\$2,625.49	\$2,756.77	\$2,894.61	\$3,039.34	\$18,466.08
Total yearly cost	\$13,877.09	\$2,286.62	\$2,405.69	\$2,530.71	\$2,661.99	\$2,799.83	\$2,944.56	\$29,506.48
Annual Savings with Solar HVAC	\$524.66	\$2,271.93	\$2,391.00	\$2,516.02	\$2,647.30	\$2,785.14	\$2,929.87	\$16,065.92

This analysis assumes a 26% Federal Tax credit, no sales tax, and a \$0.13/kwh cost for power. The numbers show that this customer would experience a first-year savings of \$524.66 and then the ongoing savings from installing Solar HVAC will save this customer \$16,065.92 over the first 7 years of the HVAC equipment's life.

Below is an example of a large commercial new construction job where the customer chose Solar HVAC over conventional equipment in Columbus, IN.

System as currently designed	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Cost	\$1,380,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,380,000.00
Federal Credit @26%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tax savings on Depreciation expense 15% @21% rate	\$41,400.00	\$41,400.00	\$41,400.00	\$41,400.00	\$41,400.00	\$41,400.00	\$41,400.00	\$289,800.00
Sales Tax 6%	\$82,800.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$82,800.00
Property tax 1%	\$13,800.00	\$13,800.00	\$13,800.00	\$13,800.00	\$13,800.00	\$13,800.00	\$13,800.00	\$96,600.00
Electrical savings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total yearly cost	\$1,435,200.00	-\$27,600.00	-\$27,600.00	-\$27,600.00	-\$27,600.00	-\$27,600.00	-\$27,600.00	\$1,269,600.00
System with Solar HVAC	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Cost including Solar HVAC	\$2,007,071.77	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,007,071.77
Federal Credit @26%	\$482,838.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$482,838.66
Tax savings on Depreciation expense 87% yr 1 @21% rate	\$343,787.01	\$12,949.68	\$12,949.68	\$12,949.68	\$12,949.68	\$12,949.68	\$12,949.68	\$421,485.07
Sales Tax 6%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Property tax 1%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Electrical savings	\$31,646.44	\$33,228.76	\$34,890.20	\$36,634.71	\$38,466.44	\$40,389.77	\$42,409.25	\$257,665.57
Total yearly cost	\$1,148,799.66	-\$46,178.44	-\$47,839.88	-\$49,584.38	-\$51,416.12	-\$53,339.44	-\$55,358.93	\$845,082.47
Annual Savings with Solar HVAC	\$286,400.34	\$18,578.44	\$20,239.88	\$21,984.38	\$23,816.12	\$25,739.44	\$27,758.93	\$424,517.53

This analysis assumes a 26% Federal Tax credit, no sales tax, and a \$0.12/kwh cost for power. The numbers show that this customer would experience a first-year savings of \$286,400.34 and then the ongoing savings from installing Solar HVAC would save this customer \$424,517.53 over the first 7 years of the HVAC equipment's life.

As shown above, Solar HVAC can have a payback as quickly as the first year. In almost all cases, the payback on Solar HVAC is 3 years or less when installed on new equipment. Please contact iAIRE for more information or to discuss your specific project or questions.