



# FEDERAL TAX INCENTIVES

For Commercial Geothermal Heat Pumps



**Benefits of Tax Credit:**

10% of total system cost with no limit  
Combine with solar and wind tax credits  
(1/2018 to 12/31/2021)

**Accelerated Depreciation:**

100% Bonus Depreciation in first year  
(1/2018 to 12/31/2021)

**Eligibility:**

Building located in U.S.  
Original use begins with taxpayer  
(Installation must begin prior to 1/1/2022)



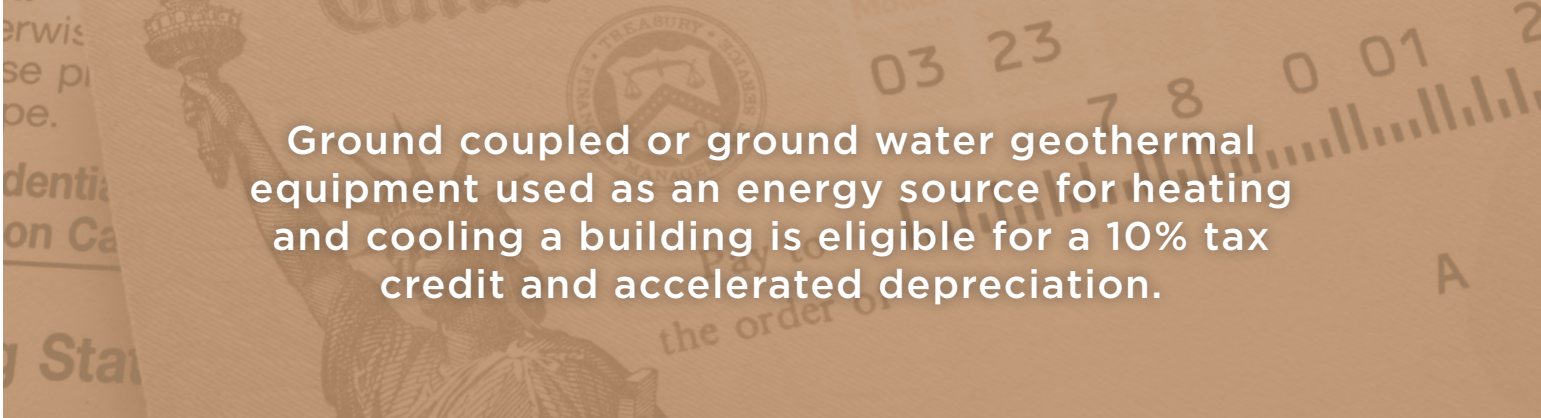
## Federal Tax Incentives for Building Owners

### Ten Percent Energy Income Credit

In February of 2018, the 10% federal tax credit under section 48(a) of the Internal Revenue Code was expanded and extended for spending on property whose construction begins prior to 1/1/2022 with no time limit on when the construction must be completed. There's also no limit to the total credit amount, and it can be used to offset both regular income taxes and alternative minimum (AMT) taxes.

### Accelerated Depreciation of Energy Property

Qualified energy property is classified as a 5-year property in section 168(e)(3)(B)(vi) of the Internal Revenue Code, meaning the cost of the property can be deducted on an accelerated MACRS basis. For depreciation purposes, the cost basis must be reduced by one half of the energy tax credit. In the example of a C-corporation in a 26% overall tax bracket, the MACRS depreciation provides additional tax savings equal to 24.7% of the energy property basis over the first 5 years, or optionally all within the first year. By comparison, conventional heating and cooling systems are generally depreciated on a 39-year straight line basis and would provide only 3.33% of the basis in tax savings over the first 5 years. The tax benefits for pass-through entities such as S-corporations could be much higher due to the higher marginal tax rates for individuals.



Ground coupled or ground water geothermal equipment used as an energy source for heating and cooling a building is eligible for a 10% tax credit and accelerated depreciation.

### Who's Eligible

Equipment that uses the ground or ground water as an energy source for heating and cooling a building is eligible for the tax credit. The structure must be located in the United States and only its owner can claim tax credits or depreciation deductions. After equipment is installed the taxpayer must take legal title of the equipment and have all necessary licenses and permits needed for its operation. If an owner can't use the tax credits, other options exist such as sale-leasebacks, partnership "flip" structures, or energy purchase contracts.

### Who's Not

The credit can't be claimed for spending on equipment used for a purpose other than space conditioning, on previously used equipment, or on equipment that's used by tax exempt organizations like schools, government agencies, or charities. This also precludes tax-exempt entities from leasing energy property.

### How to claim the Credit

Use IRS Form 3468 to claim the Energy Credit. The tax credit can be used to offset both regular income taxes and individual alternative minimum taxes (AMT). If the tax credit exceeds the income tax liability, the loss can be carried back one taxable year and the remaining balance can be carried into future years.

## New Construction

A corporation installs a geothermal heat pump system with a total cost basis of \$2,000,000 in its new office building. They moved into the building during the 4th quarter of 2019. The corporation is in a 26% tax bracket when state income tax is included.

Depreciable Basis:	$\$2,000,000 - (\$200,000/2)$	= \$1,900,000
2019 Depreciation Benefit:	$\$1,900,000 \times 100\% \text{ special} \times 26\% \text{ tax rate}$	= \$494,000

### Option A: 100% special depreciation in the first year

2019 Depreciation Benefit:	$\$1,900,000 \times 100\% \text{ special} \times 26\% \text{ tax rate}$	= \$494,000
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### Option B: 5 year MACRS depreciation

2019 MACRS Tax Benefit:	$\$1,900,000 \times 5\% \text{ Q4 MACRS} \times 26\% \text{ tax rate}$	= \$24,700
2020	$\$1,900,000 \times 38\% \text{ MACRS} \times 26\% \text{ tax rate}$	= \$187,720
2021	$\$1,900,000 \times 22.80\% \text{ MACRS} \times 26\% \text{ tax rate}$	= \$112,632
2022	$\$1,900,000 \times 13.68\% \text{ MACRS} \times 26\% \text{ tax rate}$	= \$67,579
2023	$\$1,900,000 \times 10.94\% \text{ MACRS} \times 26\% \text{ tax rate}$	= \$54,044
2024	$\$1,900,000 \times 9.58\% \text{ MACRS} \times 26\% \text{ tax rate}$	= \$47,325

10% Tax Credit:	$\$2,000,000 \times 10\% \text{ Credit}$	= \$200,000
Option A or B:		= \$494,000
<b>Total tax savings including the 10% tax credit:</b>		<b>= \$694,000</b>



## Retrofit Example

An S-corporation has an existing building that uses a water-loop heat pump system with a boiler and cooling tower. They remove the boilers, install a geothermal heat exchange loop and upgrade their heat pumps to high-efficiency geothermal models with a total cost basis for the system of \$1,000,000. They start the project in 2021 and it becomes operational in the 1st quarter of 2022. The S-corporation owners are in a 40% marginal tax bracket when state income tax is included.

Depreciable Basis:	$\$1,000,000 - (\$100,000 / 2)$	= \$950,000
2022 Depreciation Benefit:	$\$950,000 \times 100\% \text{ special} \times 40\% \text{ tax rate}$	= \$380,000

### Option A: 100% special depreciation in the first year

2022 Depreciation Benefit:	$\$950,000 \times 100\% \text{ special} \times 40\% \text{ tax rate}$	= \$380,000
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### Option B: 5 year MACRS depreciation

2022 MACRS Tax Benefit:	$\$950,000 \times 35\% \text{ Q1 MACRS} \times 40\% \text{ tax rate}$	= \$133,000
2023	$\$950,000 \times 26\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$98,800
2024	$\$950,000 \times 15.60\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$59,280
2025	$\$950,000 \times 11.01\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$41,838
2026	$\$950,000 \times 11.01\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$41,838
2027	$\$950,000 \times 1.38\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$5,244

10% Tax Credit:	$\$1,000,000 \times 10\%$	= \$100,000
Option A or B:		= \$380,000
<b>Total tax savings including the 10% tax credit:</b>		<b>= \$480,000</b>



## Replacement Example

An LLC spends \$200,000 to install new geothermal heat pumps in its existing building. The geothermal heat pumps are replacing older geothermal heat pumps that were originally installed in 1992. The project is completed in the 3rd quarter of 2020. The LLC owners are in a 40% marginal tax bracket when state income tax is included.

Depreciable Basis:	$\$200,000 - (\$20,000 / 2)$	= \$190,000
2020 Depreciation Benefit:	$\$190,000 \times 100\% \text{ special} \times 40\% \text{ tax rate}$	= \$76,000

### Option A: 100% special depreciation in the first year

2020 Depreciation Benefit:	$\$190,000 \times 100\% \text{ special} \times 40\% \text{ tax rate}$	= \$76,000
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### Option B: 5 year MACRS depreciation

2020 MACRS Tax Benefit:	$\$190,000 \times 15\% \text{ Q3 MACRS} \times 40\% \text{ tax rate}$	= \$11,400
2021	$\$190,000 \times 34\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$25,840
2022	$\$190,000 \times 20.40\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$15,504
2023	$\$190,000 \times 12.24\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$9,302
2024	$\$190,000 \times 11.30\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$8,588
2025	$\$190,000 \times 7.06\% \text{ MACRS} \times 40\% \text{ tax rate}$	= \$5,366

10% Tax Credit:	$\$200,000 \times 10\%$	= \$20,000
Option A or B:		= \$76,000
<b>Total tax savings including the 10% tax credit:</b>		<b>= \$96,000</b>





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BR1557MW 09/19