



# Energy Self Assessment

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## Step 3: Analysis

If you provided "Production and Energy Use" data, the table "Summary of Your Current Operation" is a comparison of your dryer to typical efficiencies recorded in university studies of grain dryers. The efficiency of grain dryers is reported as Btu per pound of water evaporated from the grain. The estimated baseline energy use and cost to dry the grain in an average year is listed in the lower part of the first table along with the total energy use in British Thermal Units (Btu's) and the estimated carbon dioxide (CO<sub>2</sub>) emissions from combusting fuels to produce electricity and heat for drying.

The second table, "Energy and Cost Comparison Summary", summarizes the energy and cost savings of all dryer types known to be commercially available in North America. If the value in this table is positive, then using that dryer type with **all** energy efficiency options would be expected to result in lower energy costs. If the value is negative, then the dryer type is expected to use more energy than the dryer you've selected. [Click here](#) for a bar graph that illustrates a general comparison of all the dryer types without optional heat recovery or energy saving cooling processes.

Click on the dryer type in the summary table to display a detailed summary for each dryer. Each summary includes estimated differences in fuel consumption and the cost savings from the dryer options such as in-bin cooling, dryeration, heat recovery and stirring devices, if applicable. At the bottom of the table is the expected increase or decrease in carbon dioxide emissions, the principle greenhouse gas causing global warming.

Summary of Your Current Operation		
Dryer type Selected	<a href="#">High Temp Batch Bin Dryer</a>	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	2,430	Btu/#H2O
Energy Type	Estimated Baseline energy usage	
Energy Use Based on Drying	12,000	bushels of corn
Water Removed	60,000	pounds
Propane	1,562	Gallons
Electricity	854	kWh
Average Annual Drying Cost	\$3,216	\$
Total Energy Use	145,800,000	Btu
Greenhouse Gas Emissions	21,191	lbs. / yr.

## Energy and Cost Comparison Summary

For each dryer listed below, the savings indicated is for the dryer type configured with best possible energy efficiency measures.

Click on Dryer Name (below **Dryer Type**) for more detailed analysis.

Dryer Type	Potential Cost Savings	Potential Energy Savings (Btu)
<a href="#">Natural-Air Bin Dryer with stirring device</a>	\$-1,003	73,800,000
<a href="#">Low-Temperature Bin Dryer with stirring device</a>	\$-1,425	66,600,000
<a href="#">High Temperature Batch Bin Dryer with stirring device</a>	\$804	36,450,000
<a href="#">Roof Batch Dryer with aeration</a>	\$238	10,800,000
<a href="#">Continuous Cross-Flow Dryer with dryeration (full heat mode)</a>	\$437	19,800,000
<a href="#">Cross-Flow Batch Dryer with dryeration</a>	\$622	28,200,000
<a href="#">Mix-flow dryer with dryeration (full heat mode)</a>	\$1,181	53,550,000
<a href="#">Continuous-Flow In-Bin Dryer with dryeration</a>	\$834	37,800,000
<a href="#">Combination High/Low Temperature Drying</a>	\$1,010	73,800,000

[How can a dryer use more energy but save money?](#)

[What does a negative number mean?](#)

<a href="#">Natural-Air Bin Dryer</a>		
<b>Annual Energy Cost Savings</b>		
Propane	1,562	Gallons
Electricity	-25,515	kWh
Energy Savings - Dryer Only	55,800,000	Btu
Percentage of Energy Savings	38%	%
Annual Potential Cost Savings	\$-2,058	\$
<b>Optional Equipment/Process</b>		
<a href="#">With Stirring Device</a>	18,000,000	Btu
Cost Savings for Optional Equipment/Process	\$1,055	\$
<b>Energy Savings</b>		
Max. Total Energy Savings	73,800,000	Btu
Percentage of Energy Savings	51%	%
Total Estimated Cost Savings	\$-1,003	\$

<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-22,196	lbs.
Carbon Dioxide w/Energy Saving Options	-13,519	lbs.
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<u>Low-Temperature Bin Dryer</u>		
<b>Annual Energy Cost Savings</b>		
Propane	1,562	Gallons
Electricity	-28,152	kWh
Energy Savings - Dryer Only	46,800,000	Btu
Percentage of Energy Savings	32%	%
Annual Potential Cost Savings	\$-2,585	\$
<b>Optional Equipment/Process</b>		
<u>With Stirring Device</u>	19,800,000	Btu
Cost Savings for Optional Equipment/Process	\$1,160	\$
<b>Energy Savings</b>		
Max. Total Energy Savings	66,600,000	Btu
Percentage of Energy Savings	46%	%
Total Estimated Cost Savings	\$-1,425	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-26,535	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-16,990	lbs.
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<u>High Temperature Batch Bin Dryer</u>		
<b>Annual Energy Cost Savings</b>		
Propane		Gallons
Electricity		kWh
Energy Savings - Dryer Only		Btu
Percentage of Energy Savings	%	%
Annual Potential Cost Savings	\$	\$
<b>Optional Equipment/Process</b>		
<u>With Stirring Device (Bin Dryer)</u>	36,450,000	Btu
Cost Savings for Optional Equipment/Process	\$804	\$
<b>Energy Savings</b>		
Max Estimated Energy Savings	36,450,000	Btu
Max Percentage of Energy Savings	25%	%
Total Estimated Cost Savings	\$804	\$

<a href="#">Greenhouse Gas Emissions Reduction</a>		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	5,298	lbs.
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<a href="#">Combination High/Low Temperature Drying</a>		
<b>Annual Energy Cost Savings</b>		
Propane	971	Gallons
Electricity	-4,420	kWh
Energy Savings - Dryer Only	73,800,000	Btu
Percentage of Energy Savings	51%	%
Annual Potential Cost Savings	\$1,010	\$
<b>Greenhouse Gas Emissions Reduction</b>		
Carbon Dioxide - Dryer Only	5,036	lbs.
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<a href="#">Roof Batch Dryer</a>		
<b>Annual Energy Cost Savings</b>		
Propane	116	Gallons
Electricity	63	kWh
Energy Savings - Dryer Only	10,800,000	Btu
Percentage of Energy Savings	7%	%
Annual Potential Cost Savings	\$238	\$
<b>Greenhouse Gas Emissions Reduction</b>		
Carbon Dioxide - Dryer Only	1,570	lbs.
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<a href="#">Continuous Cross-Flow Dryer</a>		
<b>Annual Energy Cost Savings</b>		
Propane	-238	Gallons
Electricity	-130	kWh
Energy Savings - Dryer Only	-22,200,000	Btu
Percentage of Energy Savings	-15%	%
Annual Potential Cost Savings	\$-490	\$
<b>Optional Equipment/Process</b>		
<a href="#">With In-bin cooling (Full heat dryer)</a>	25,200,000	Btu
<a href="#">With Dryeration (Full heat dryer)</a>	42,000,000	Btu
<a href="#">With Heat Recovery (Heat/Cool dryer)</a>	25,200,000	Btu

<b>Cost Savings for Optional Equipment/Process</b>	\$926	\$
<b>Energy Savings</b>		
<b>Total Energy Saved</b>	19,800,000	Btu
<b>Percentage of Energy Savings</b>	14%	%
<b>Total Estimated Cost Savings</b>	\$437	\$
<b>Greenhouse Gas Emissions Reduction</b>		
<b>Carbon Dioxide - Dryer Only</b>	-3,227	lbs.
<b>Carbon Dioxide - Dryer w/Energy Saving Options</b>	2,878	lbs.
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<b><u>Cross-Flow Batch Dryer</u></b>		
<b>Annual Energy Cost Savings</b>		
<b>Propane</b>	-13	Gallons
<b>Electricity</b>	-7	kWh
<b>Energy Savings - Dryer Only</b>	-1,200,000	Btu
<b>Percentage of Energy Savings</b>	-1%	%
<b>Annual Potential Cost Savings</b>	\$-26	\$
<b>Optional Equipment/Process</b>		
<b><u>With In-bin cooling (Full heat dryer)</u></b>	14,700,000	Btu
<b><u>With Dryeration (Full heat dryer)</u></b>	29,400,000	Btu
<b>Cost Savings for Optional Equipment/Process</b>	\$648	\$
<b>Energy Savings</b>		
<b>Total Energy Saved</b>	28,200,000	Btu
<b>Percentage of Energy Savings</b>	19%	%
<b>Total Estimated Cost Savings</b>	\$622	\$
<b>Greenhouse Gas Emissions Reduction</b>		
<b>Carbon Dioxide - Dryer Only</b>	-174	lbs.
<b>Carbon Dioxide - Dryer w/Energy Saving Options</b>	4,099	lbs.
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<b><u>Mixed-flow dryer</u></b>		
<b>Annual Energy Cost Savings</b>		
<b>Propane</b>	244	Gallons
<b>Electricity</b>	134	kWh
<b>Energy Savings - Dryer Only</b>	22,800,000	Btu
<b>Percentage of Energy Savings</b>	16%	%
<b>Annual Potential Cost Savings</b>	\$503	\$
<b>Optional Equipment/Process</b>		

<a href="#">With In-bin cooling (Full heat dryer)</a>	18,450,000	Btu
<a href="#">With Dryeration (Full heat dryer)</a>	30,750,000	Btu
<b>Cost Savings for Optional Equipment/Process</b>	\$678	\$
<b>Energy Savings</b>		
<b>Total Energy Saved</b>	53,550,000	Btu
<b>Percentage of Energy Savings</b>	37%	%
<b>Total Estimated Cost Savings</b>	\$1,181	\$
<a href="#">Greenhouse Gas Emissions Reduction</a>		
<b>Carbon Dioxide - Dryer Only</b>	3,314	lbs.
<b>Carbon Dioxide - Dryer w/Energy Saving Options</b>	7,783	lbs.
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<a href="#">Continuous-Flow In-Bin Dryer</a>		
<b>Annual Energy Cost Savings</b>		
<b>Propane</b>	276	Gallons
<b>Electricity</b>	151	kWh
<b>Energy Savings - Dryer Only</b>	25,800,000	Btu
<b>Percentage of Energy Savings</b>	18%	%
<b>Annual Potential Cost Savings</b>	\$569	\$
<b>Optional Equipment/Process</b>		
<a href="#">With Dryeration (Full heat dryer)</a>	12,000,000	Btu
<b>Cost Savings for Optional Equipment/Process</b>	\$265	\$
<b>Energy Savings</b>		
<b>Total Energy Saved</b>	37,800,000	Btu
<b>Percentage of Energy Savings</b>	26%	%
<b>Total Estimated Cost Savings</b>	\$834	\$
<a href="#">Greenhouse Gas Emissions Reduction</a>		
<b>Carbon Dioxide - Dryer Only</b>	3,750	lbs.
<b>Carbon Dioxide - Dryer w/Energy Saving Options</b>	5,494	lbs.
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