

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 (CO₂) 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	Your dryer efficiency is abnormally high based on research data for this type of dryer. Typical efficiency values will be used for calculations.	
Dryer type Selected	Continuous Cross Flow Dryer	
Estimated efficiency of your dryer	828	Btu/#H2O
Typical efficiency for dryer type selected	2,800	Btu/#H2O
Energy Type	Estimated Baseline energy usage	
Energy Use Based on Drying	100,000	bushels of corn
Water Removed	676,000	pounds
Propane	20,273	Gallons
Electricity	11,092	kWh

Average Annual Drying Cost	\$28,573	\$
Total Energy Use	1,892,800,000	Btu
Greenhouse Gas Emissions	275,104	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)
Natural-Air Bin Dryer with stirring device	\$-18,963	1,081,600,000
Low-Temperature Bin Dryer with stirring device	\$-23,717	1,000,480,000
High Temperature Batch Bin Dryer with stirring device	\$9,975	660,790,000
Roof Batch Dryer with aeration	\$5,613	371,800,000
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$4,286	283,920,000
Cross-Flow Batch Dryer with dryeration	\$8,572	567,840,000
Mix-flow dryer with dryeration (full heat mode)	\$12,883	853,450,000
Continuous-Flow In-Bin Dryer with dryeration	\$10,205	676,000,000
Combination High/Low Temperature Drying	\$8,045	1,081,600,000

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

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

Natural-Air Bin Dryer		
Annual Energy Cost Savings		
Propane	20,273	Gallons
Electricity	-286,008	kWh
Energy Savings - Dryer Only	878,800,000	Btu
Percentage of Energy Savings	46%	%
Annual Potential Cost Savings	\$-30,847	\$
Optional Equipment/Process		

With Stirring Device	202,800,000	Btu
Cost Savings for Optional Equipment/Process	\$11,884	\$
Energy Savings		
Max. Total Energy Savings	1,081,600,000	Btu
Percentage of Energy Savings	57%	%
Total Estimated Cost Savings	\$-18,963	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-213,723	lbs.
Carbon Dioxide w/Energy Saving Options	-115,958	lbs.
Top		

Low-Temperature Bin Dryer		
Annual Energy Cost Savings		
Propane	20,273	Gallons
Electricity	-315,718	kWh
Energy Savings - Dryer Only	777,400,000	Btu
Percentage of Energy Savings	41%	%
Annual Potential Cost Savings	\$-36,789	\$
Optional Equipment/Process		
With Stirring Device	223,080,000	Btu
Cost Savings for Optional Equipment/Process	\$13,072	\$
Energy Savings		
Max. Total Energy Savings	1,000,480,000	Btu
Percentage of Energy Savings	53%	%
Total Estimated Cost Savings	\$-23,717	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-262,606	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-155,064	lbs.
Top		

High Temperature Batch Bin Dryer		
Annual Energy Cost Savings		
Propane	2,679	Gallons
Electricity	1,466	kWh
Energy Savings - Dryer Only	250,120,000	Btu
Percentage of Energy Savings	13%	%
Annual Potential Cost Savings	\$3,776	\$
Optional Equipment/Process		

With Stirring Device (Bin Dryer)	410,670,000	Btu
Cost Savings for Optional Equipment/Process	\$6,199	\$
Energy Savings		
Max Estimated Energy Savings	660,790,000	Btu
Max Percentage of Energy Savings	35%	%
Total Estimated Cost Savings	\$9,975	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	36,353	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	96,041	lbs.
Top		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	13,623	Gallons
Electricity	-48,328	kWh
Energy Savings - Dryer Only	1,081,600,000	Btu
Percentage of Energy Savings	57%	%
Annual Potential Cost Savings	\$8,045	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	93,093	lbs.
Top		

Roof Batch Dryer		
Annual Energy Cost Savings		
Propane	3,982	Gallons
Electricity	2,179	kWh
Energy Savings - Dryer Only	371,800,000	Btu
Percentage of Energy Savings	20%	%
Annual Potential Cost Savings	\$5,613	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	54,038	lbs.
Top		

Continuous Cross-Flow Dryer		
Annual Energy Cost Savings		
Propane		Gallons
Electricity		kWh
Energy Savings - Dryer Only		Btu

Percentage of Energy Savings	%	%
Annual Potential Cost Savings	\$	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	N/A	Btu
With Dryeration (Full heat dryer)	N/A	Btu
With Heat Recovery (Heat/Cool dryer)	283,920,000	Btu
Cost Savings for Optional Equipment/Process	\$4,286	\$
Energy Savings		
Total Energy Saved	283,920,000	Btu
Percentage of Energy Savings	15%	%
Total Estimated Cost Savings	\$4,286	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	41,266	lbs.
Top		

Cross-Flow Batch Dryer		
Annual Energy Cost Savings		
Propane	2,534	Gallons
Electricity	1,386	kWh
Energy Savings - Dryer Only	236,600,000	Btu
Percentage of Energy Savings	12%	%
Annual Potential Cost Savings	\$3,572	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	165,620,000	Btu
With Dryeration (Full heat dryer)	331,240,000	Btu
Cost Savings for Optional Equipment/Process	\$5,000	\$
Energy Savings		
Total Energy Saved	567,840,000	Btu
Percentage of Energy Savings	30%	%
Total Estimated Cost Savings	\$8,572	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	34,388	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	82,531	lbs.
Top		

Mixed-flow dryer		
Annual Energy Cost Savings		

Propane	5,430	Gallons
Electricity	2,971	kWh
Energy Savings - Dryer Only	507,000,000	Btu
Percentage of Energy Savings	27%	%
Annual Potential Cost Savings	\$7,653	\$
Optional Equipment/Process		
<u>With In-bin cooling (Full heat dryer)</u>	207,870,000	Btu
<u>With Dryeration (Full heat dryer)</u>	346,450,000	Btu
Cost Savings for Optional Equipment/Process	\$5,230	\$
Energy Savings		
Total Energy Saved	853,450,000	Btu
Percentage of Energy Savings	45%	%
Total Estimated Cost Savings	\$12,883	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	73,688	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	124,042	lbs.
<u>Top</u>		

<u>Continuous-Flow In-Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	5,792	Gallons
Electricity	3,169	kWh
Energy Savings - Dryer Only	540,800,000	Btu
Percentage of Energy Savings	29%	%
Annual Potential Cost Savings	\$8,164	\$
Optional Equipment/Process		
<u>With Dryeration (Full heat dryer)</u>	135,200,000	Btu
Cost Savings for Optional Equipment/Process	\$2,041	\$
Energy Savings		
Total Energy Saved	676,000,000	Btu
Percentage of Energy Savings	36%	%
Total Estimated Cost Savings	\$10,205	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	78,601	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	98,251	lbs.
<u>Top</u>		