



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		
Dryer type Selected	Natural Air Bin Dryer	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	1,500	Btu/#H2O
Energy Type	Estimated Baseline energy usage	
Energy Use Based on Drying	30,000	bushels of corn
Water Removed	61,200	pounds
Propane		Gallons
Electricity	26,897	kWh
Average Annual Drying Cost	\$3,548	\$
Total Energy Use	91,800,000	Btu
Greenhouse Gas Emissions	44,255	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	\$710	18,360,000
Low-Temperature Bin Dryer with stirring device	\$426	11,016,000
High Temperature Batch Bin Dryer with stirring device	\$845	-19,737,000
Roof Batch Dryer with aeration	\$211	-45,900,000
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$434	-36,720,000
Cross-Flow Batch Dryer with dryeration	\$641	-28,152,000
Mix-flow dryer with dryeration (full heat mode)	\$1,268	-2,295,000
Continuous-Flow In-Bin Dryer with dryeration	\$879	-18,360,000
Combination High/Low Temperature Drying	\$1,520	18,360,000

[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		Gallons
Electricity		kWh
Energy Savings - Dryer Only		Btu
Percentage of Energy Savings	%	%
Annual Potential Cost Savings	\$	\$
Optional Equipment/Process		
With Stirring Device	18,360,000	Btu
Cost Savings for Optional Equipment/Process	\$710	\$
Energy Savings		

Max. Total Energy Savings	18,360,000	Btu
Percentage of Energy Savings	20%	%
Total Estimated Cost Savings	\$710	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide w/Energy Saving Options	8,851	lbs.
Top		

<u>Low-Temperature Bin Dryer</u>		
Annual Energy Cost Savings		
Propane		Gallons
Electricity	-2,690	kWh
Energy Savings - Dryer Only	-9,180,000	Btu
Percentage of Energy Savings	-10%	%
Annual Potential Cost Savings	\$-355	\$
Optional Equipment/Process		
<u>With Stirring Device</u>	20,196,000	Btu
Cost Savings for Optional Equipment/Process	\$781	\$
Energy Savings		
Max. Total Energy Savings	11,016,000	Btu
Percentage of Energy Savings	12%	%
Total Estimated Cost Savings	\$426	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-4,425	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	5,311	lbs.
Top		

<u>High Temperature Batch Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	-1,593	Gallons
Electricity	26,026	kWh
Energy Savings - Dryer Only	-56,916,000	Btu
Percentage of Energy Savings	-62%	%
Annual Potential Cost Savings	\$-55	\$
Optional Equipment/Process		
<u>With Stirring Device (Bin Dryer)</u>	37,179,000	Btu
Cost Savings for Optional Equipment/Process	\$901	\$

Energy Savings		
Max Estimated Energy Savings	-19,737,000	Btu
Max Percentage of Energy Savings	-21%	%
Total Estimated Cost Savings	\$845	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	22,640	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	28,044	lbs.
Top		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	-602	Gallons
Electricity	21,518	kWh
Energy Savings - Dryer Only	18,360,000	Btu
Percentage of Energy Savings	20%	%
Annual Potential Cost Savings	\$1,520	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	27,777	lbs.
Top		

Roof Batch Dryer		
Annual Energy Cost Savings		
Propane	-1,475	Gallons
Electricity	26,090	kWh
Energy Savings - Dryer Only	-45,900,000	Btu
Percentage of Energy Savings	-50%	%
Annual Potential Cost Savings	\$211	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	24,241	lbs.
Top		

Continuous Cross-Flow Dryer		
Annual Energy Cost Savings		
Propane	-1,835	Gallons
Electricity	25,893	kWh
Energy Savings - Dryer Only	-79,560,000	Btu

Percentage of Energy Savings	-87%	%
Annual Potential Cost Savings	\$-604	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	25,704,000	Btu
With Dryeration (Full heat dryer)	42,840,000	Btu
With Heat Recovery (Heat/Cool dryer)	25,704,000	Btu
Cost Savings for Optional Equipment/Process	\$1,038	\$
Energy Savings		
Total Energy Saved	-36,720,000	Btu
Percentage of Energy Savings	-40%	%
Total Estimated Cost Savings	\$434	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	19,349	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	25,575	lbs.
Top		

Cross-Flow Batch Dryer		
Annual Energy Cost Savings		
Propane	-1,606	Gallons
Electricity	26,019	kWh
Energy Savings - Dryer Only	-58,140,000	Btu
Percentage of Energy Savings	-63%	%
Annual Potential Cost Savings	\$-85	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	14,994,000	Btu
With Dryeration (Full heat dryer)	29,988,000	Btu
Cost Savings for Optional Equipment/Process	\$727	\$
Energy Savings		
Total Energy Saved	-28,152,000	Btu
Percentage of Energy Savings	-31%	%
Total Estimated Cost Savings	\$641	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	22,462	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	26,821	lbs.
Top		

Mixed-flow dryer

Annual Energy Cost Savings		
Propane	-1,344	Gallons
Electricity	26,162	kWh
Energy Savings - Dryer Only	-33,660,000	Btu
Percentage of Energy Savings	-37%	%
Annual Potential Cost Savings	\$508	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	18,819,000	Btu
With Dryeration (Full heat dryer)	31,365,000	Btu
Cost Savings for Optional Equipment/Process	\$760	\$
Energy Savings		
Total Energy Saved	-2,295,000	Btu
Percentage of Energy Savings	-2%	%
Total Estimated Cost Savings	\$1,268	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	26,020	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	30,579	lbs.
Top		

Continuous-Flow In-Bin Dryer		
Annual Energy Cost Savings		
Propane	-1,311	Gallons
Electricity	26,180	kWh
Energy Savings - Dryer Only	-30,600,000	Btu
Percentage of Energy Savings	-33%	%
Annual Potential Cost Savings	\$582	\$
Optional Equipment/Process		
With Dryeration (Full heat dryer)	12,240,000	Btu
Cost Savings for Optional Equipment/Process	\$297	\$
Energy Savings		
Total Energy Saved	-18,360,000	Btu
Percentage of Energy Savings	-20%	%
Total Estimated Cost Savings	\$879	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	26,465	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	28,244	lbs.
Top		