

Energy Company Saves \$8M in Revenue by Installing Rosemount 5300 Guided Wave Radar

RESULTS

- Measurement unaffected by product density or foam
- Vessels could be filled to a higher level without risk of overspill
- Increased fermenter capacity



APPLICATION

Level measurement in seven ethanol fermentation vessels

CUSTOMER

An energy company in North America

CHALLENGE

The customer needed accurate level measurement in seven fermentation vessels. The vessels were 50 feet in diameter and 55 feet tall. Each vessel contained a corn-based mash which, is converted to beer during fermentation. The fermentation process causes the density to change throughout the course of a batch and also produces CO₂, which can lead to unpredictable foaming on the surface.

The customer needed to know the exact foam levels in order to prevent spill over of foam into the scrubber, while also maximizing the fill level. To avoid the risk of overfill, they purposely short-filled the vessels by several feet. They were experiencing unreliable and inadequate level measurements with their existing level measurement devices, and the viscous media with high solids content made point level switches unreliable.

Because all the space in the fermenters could not be fully utilized due to the risk of overspill, fermentation became a bottleneck in the process. The loss was estimated to be about 67,000 gallons of mash, which corresponded to about 12,000 gallons of market-ready ethanol per fermenter, per batch.

SOLUTION

The customer installed a Rosemount™ 5300 Guided Wave Radar in each fermenter vessel. The Rosemount 5300 was unaffected by the density changes and was also able to detect the top layer of the foam with the help of a unique software function enabled in the device.

As a result, the operators were able to see how much space was available to top off the vessels, and were consequently able to fill the vessels to a higher level without risk of foam overspilling into the scrubber.

“Our fermentation process is now much more efficient and is no longer a bottleneck in production”



Rosemount 5300 installed in the fermenter

POWER

Since installing the Rosemount 5300, the fermenters are no longer the bottleneck in the process. They can now fill the vessels 55 inches higher, leading to approximately nine percent added capacity, and less variability per batch.

They now have reliable and accurate level measurement, which is unaffected by density and foam. A \$30,000 investment led to approximately \$8M in additional revenue per year.

RESOURCES

Rosemount 5300 guided Wave Radar Level Transmitter

[Emerson.com/Rosemount5300](https://emerson.com/Rosemount5300)

Emerson Automation Solutions Industries

[Emerson.com/en-us/industries/automation/power-generation](https://emerson.com/en-us/industries/automation/power-generation)

“We can now fill the vessels 55 inches higher than before.”



Rosemount 5300 Guided Wave Radar Level Transmitter

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