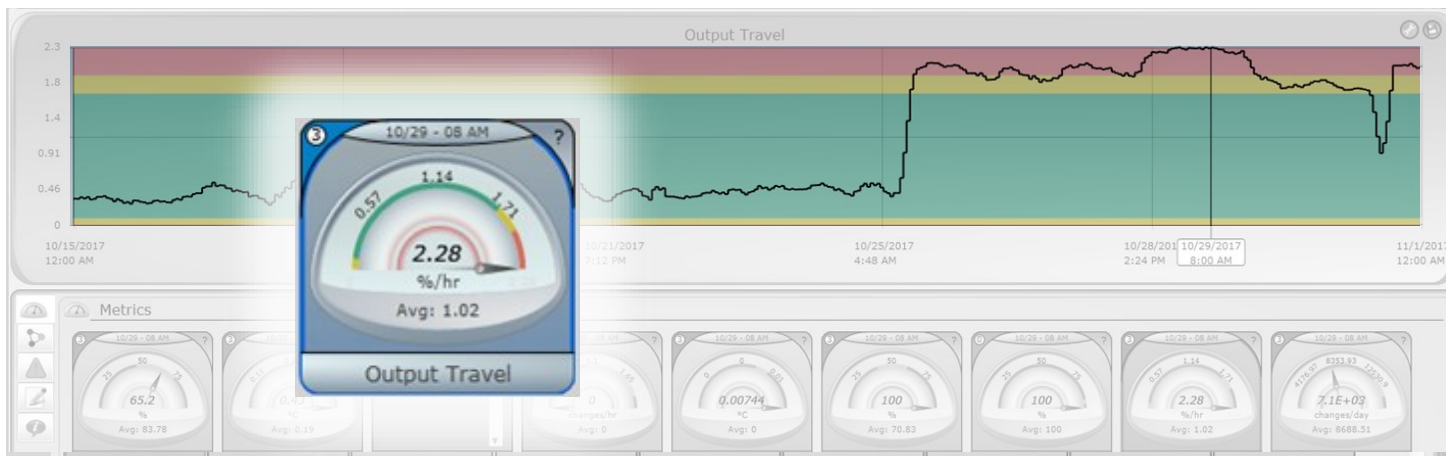


## Biotech & Pharma: *Alerting Staff to Changing Environmental Conditions*

Forget to check the weather? Don't worry — PlantESP has you covered. The impact of a change in temperature was picked up even as production staff failed to notice. While the Southern United States is known for its warm climate the region is still subject to seasonal changes in temperature that can affect production performance. Indeed a late October decrease that was nearly 10° cooler than the area's seasonal average had a near immediate effect on several of the plant's key PID control loops. Loops such as temperature and humidity are known to be especially sensitive to environmental conditions, and so it wasn't a surprise when the Air Supply Temperature controller was flagged straightaway by PlantESP for excessive valve movement. The loop normally applied steady cooling to regulate the process' exothermic reaction. With the change in supply air the process demanded heat instead. The Output Travel metric within PlantESP more than doubled, alerting engineering staff to an issue that had otherwise gone unnoticed. Fortunately they addressed it before production was negatively impacted. With products valued as high as most pharmaceuticals PlantESP helped this team of engineers from getting caught in the cold.



Key Performance Indices (KPIs) like Output Travel allow PlantESP to proactively track essential process performance characteristic and to showcase important details. The gauge shown above displays color-coded benchmarks that correspond with good (green), acceptable (yellow), and poor (red) performance. It also indicates both the current and the average values for the KPI, providing users with important points of reference.

### What was the cause?

The process of manufacturing pills is often particularly sensitive to both temperature and humidity. When unseasonably cold temperatures descended on the plant and surrounding areas engineering staff were caught off guard. The pill powder process normally required cooling to offset the process' heat-generating nature. With an outside temperature nearly 10° below the historical average the process now needed heating in order to complete the transformation of raw material to dispensable tablets. The unexpected change in temperature caused a spike in the work performed by the valve that regulated air flow to the process' Supply Air Temperature controller.

### How did PlantESP find it?

Since no two PID control loops are the same PlantESP enables users to assign a value to each loop that reflects its relative importance. In this case the Supply Air Temperature controller had been assigned a higher than average importance value of "3". When the measure for Output Travel increased from 1.02% to 2.28% per hour PlantESP immediately drew the attention of the plant's process engineers. The uptick in valve effort triggered an Alert as well as a top ranking among the plant's biggest Troublemakers. A single click showed details of the loop's degraded performance which was quickly correlated with the change in outside temperature.