Meta

# **Public Water Reporting:** Expanding the Operating Envelope

Water is a key resource used in operating our data centers and is primarily used for evaporative cooling during summers and humidification during winters.

Thanks to a design philosophy that has focused on efficiency, Meta continues to design and operate some of the most energy and water efficient data centers in the world.

## THE OPPORTUNITY

**As a result of our innovative design choices (e.g. direct evaporative cooling application) and operational excellence, our data centers are on average over 80 percent[1] more water efficient than the average data center.**

In order to meet our long term sustainability objectives and to be good water stewards in the communities we operate in, we evaluated our current water use and identified humidification needs during winter as an area of opportunity to further improve our operating efficiency.

Meta data centers are on average **80 percent more water efficient** than the average data center.



[1] Lawrence Berkeley National Laboratory "United States Data Center Energy Usage Report" , June 2016, Lead Author: Arman Shehabi

## THE SOLUTION

**Relative humidity (RH), temperature and airflow are three key factors to maintaining an ideal operating environment for data center servers.**

At our data centers, we design and operate our evaporative cooling and humidification process to maintain an environment between 65 degrees F - 85 degrees F and 20% RH and 80% RH.

We identified the opportunity to adjust our RH boundaries upon reviewing the guidance recommended by The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) - an industry recognized organization dedicated to advancing ventilation, air conditioning, refrigeration and heating to promote a healthy and sustainably built environment for all.

We piloted the RH adjustment at our data center in Los Lunas, New Mexico and found by lowering our current 20% minimum RH to 13% minimum RH, significant water savings can be achieved.

**Up to 65%**
**in water savings**
in annual usage across our North America data centers

**The pilot results and analysis demonstrated a water savings of approximately 40% over the course of nine months.**

## THE IMPACT

**With the success of this pilot project, we have now rolled out the new relative humidity set point changes to the majority of our operating fleet.**

Additionally, we have also updated the design standard of our data centers to this new minimum RH value, realizing water savings from day one. With this change, we expect to save between 10% and 65% of annual water usage across our data centers that use direct evaporative cooling design.

With this case study, we hope to share our example and encourage our peers in the industry to explore the opportunity to optimize the cooling and humidifying conditions to achieve easy water savings.

Higher savings will be realized in regions that are cold and/or dry during winters such as high desert regions while savings in the lower end of this range can be expected in regions that are generally warmer and more humid.

At Meta, we are committed to pushing boundaries to further improve our sustainability impact. With the successful implementation of this project, we are now pursuing more opportunities in data center energy and water optimization that have the potential to further increase our efficiency. We look forward to sharing some of that work in the near future.

Meta

**We believe sustainability is about more than operating responsibly.**

It’s an opportunity to support the communities we’re a part of and have a positive impact on the world.