

OPPORTUNITY

What portion of water consumed by office buildings goes to irrigation?

20%
OF WATER IN U.S. OFFICE BUILDINGS IS USED FOR IRRIGATION¹

UP TO 50% WASTED

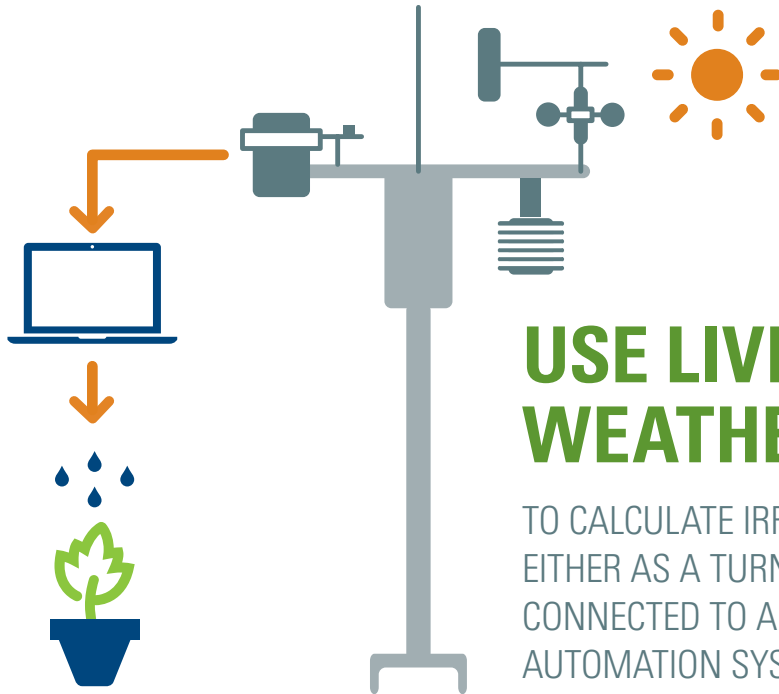
with timer-based irrigation²

20-40% CAN BE SAVED

with smart irrigation, depending on climate, soil, and vegetation profile³

TECHNOLOGY

How do Weather Stations for Irrigation Control work?



USE LIVE LOCAL WEATHER DATA

TO CALCULATE IRRIGATION NEEDS, EITHER AS A TURNKEY SYSTEM OR CONNECTED TO A BUILDING AUTOMATION SYSTEM (BAS)

M&V

Where did Measurement and Verification occur?

PACIFIC NORTHWEST NATIONAL LABORATORY assessed a weather station provided by Campbell Scientific and connected to a BAS at the Hart-Dole-Inouye Federal Center in Battle Creek, Michigan.

RESULTS

How did Weather Stations for Irrigation Control perform in M&V?

66%
WATER SAVINGS
PROJECTED⁴

BAS-CONNECTED WEATHER STATION

CHALLENGING TO PROGRAM AND NOT FULLY REALIZED, TURNKEY RECOMMENDED AT PRESENT⁵

Life-Cycle Cost Analysis for Smart-Irrigation Systems

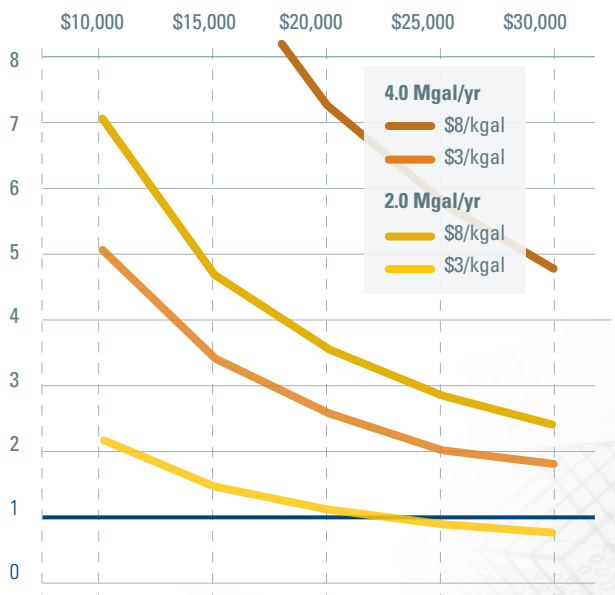
Water Rate (\$/kgal)

Assuming system cost of \$20,000 for a facility using 4.0 Mgal/yr and \$15,000 for a facility using 2.0 Mgal/yr



Installed System Cost

Assuming 40% savings



DEPLOYMENT

Where does M&V recommend deploying Weather Stations for Irrigation Control?

FURTHER RESEARCH

CONNECTING WEATHER STATIONS TO BAS NEEDS MORE SUPPORT

Meanwhile, turnkey weather-based systems recommended.* Areas with intermittent rain will have higher savings and should be targeted first.

¹Assessment of Weather Station Used for Irrigation Control: Hart-Dole-Inouye Federal Center, Battle Creek, MI, KL McMordie Stoughton, RS Butner, PNNL, November 2014, p. 3 ²Ibid, p.3 ³Ibid, p.3 ⁴Ibid, p.6 ⁵Ibid, p.10 Subject to evaluation and approval by GSA-IT and Security