

LOW- AND NO-COST MEASURES CHECKLIST

These measures were recommended by U.S. DOE Industrial Assessment Centers and implemented at various water resource recovery facilities, averaging \leq 2-year payback periods.

Installation

- Install timers on light switches and occupancy sensors in little-used areas and adjust for scheduled operations as needed.
- Install programmable thermostats and use night set-back/setup settings.
- Turn off unnecessary lighting and install occupancy sensors.
- Identify and use energy-efficient belts compatible with your facility's equipment.
- Change aeration blower intake filters regularly to minimize air intake resistance.¹
- Use automatic controls when available to optimize equipment, process monitoring, and operations.

Assessment

- Review and assess ventilation requirements to optimize efficiency, reduce space conditioning during non-working hours, and manage space conditioning energy use during non-occupancy times.
- Assess the potential to remove organics prior to entering the secondary treatment system. Assess the capability for high strength organic dischargers to feed directly to an anaerobic digester.
- Review operations to identify any pumps or blowers that are being throttled and assess them to determine if they can be adjusted to operate more efficiently.
- Assess air and water piping systems in need of insulation (exposed piping).
- Identify equipment speeds and resheave blowers where needed.
- Consult your energy utility account manager to evaluate rate schedules and determine the most efficient rate for your facility.

Operation

- Test, calibrate, and maintain dissolved oxygen level/sensors in aeration tank(s).²
- Shift to smaller HP pumps/blowers during nightly low-flow periods or seasonal low-flow periods, if applicable.³
- Reduce blower pressure to the minimum required through proper maintenance of aeration diffusers and distribution system to minimize head loss. Control the set point in the aeration blower control strategy. Also, identify, assess and repair aeration system air main leaks (e.g., replace gasket, repair corrosion, underground maintenance) and lower aeration tank levels to reduce air header static pressure, if applicable (may need sensing O₂ level).
- Turn off equipment when not in use (e.g., turn off aerobic digester blower periodically or operate intermittently).
- Adjust system operations when there is a change in wastewater load.
- Raise wet well levels to reduce static head in the pump system. Coordinate all control points (low-level alarm, pump start/stop, high-level alarm) to adjust the wet well level upward. Consider hydraulic profile of the facility when doing so.
- Eliminate leaks in inert gas and compressed air lines/valves.
- Operate select aeration tanks as needed while also establishing operating protocols to enable the plant to bring tanks back on line efficiently.
- Routinely clean UV lamp sleeves to enhance transfer efficiency and decrease the number of UV lamps where/when possible while still meeting disinfection needs.
- Idle aeration basins/zones, if not needed (periodic maintenance may still be needed).
- Reschedule plant operations or reduce load to avoid on-peak hours (e.g., operate dewatering equipment during off-peak, load digesters during off-peak, repair equipment, and shift recycling of supernatant to off-peak).

¹ Use static pressure to check if filters need replacement.

² Requires emptying tanks. Otherwise, payback can be much shorter.

³ Must have more than sporadic (significantly frequent) nightly low-flow periods.