



Electricity and Water Consumption Management

# IN FACTORIES

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# INTRODUCTION

In the face of escalating environmental impacts from excessive energy and water consumption, this reality is felt globally, including the UAE. The rapid industrial development, driving a surge in demand, underscores the imperative for factories to adopt sustainable practices in managing water and energy consumption.

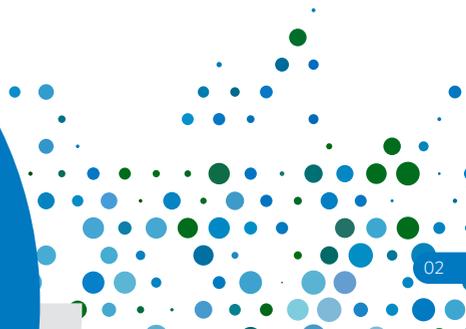
**Factories worldwide are awakening to their responsibility in resource conservation, and now it's time for your factory to join the movement. You will find practical tips aimed at reducing your factory's consumption and cutting down on the water and energy costs. These environmentally responsible practices not only benefit your business but also contribute to the wellbeing of our shared resources and environment. Let's forge a path towards sustainability together.**

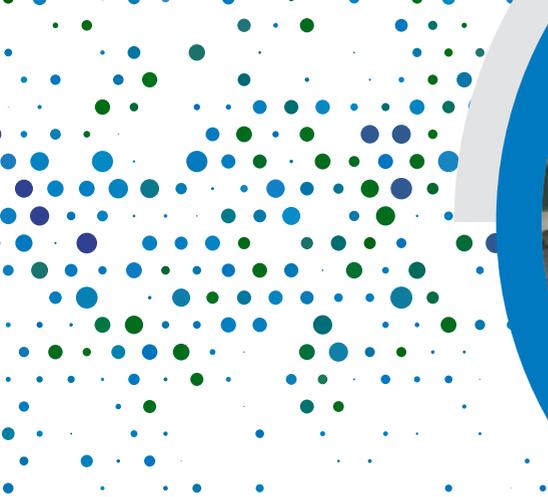


# ELECTRICITY SAVING TIPS

Set the thermostats at 24°C or 75°F during working hours, and shut off at the end of the working hours. If air conditioning units are over 10 years old then energy costs will be higher than the costs of high-efficiency air conditioners available today..

- Use high-efficient appliances and equipment. In most factories, production equipment is the greatest contributor to electricity costs
- Use motors with Variable Speed Drive (VSD)/Variable Frequency Drive (VFD)
- Conduct annual maintenance work during summer months, especially July, August and September, if possible
- Set the thermostats at 24°C or 75°F for occupied spaces during working hours, and Turn Off after the working hours. If air conditioning units are over 10 years old then energy costs will be higher than the costs of high-efficiency air conditioners available today
- Avoid keeping thermostats close to equipment, machinery or door which might generate heat. This will ensure efficient running of the AC
- Clean the AC filter regularly to maintain the efficiency of the AC. Clogged or dirty AC filters can significantly reduce the system's capacity for efficient air flow
- Make use of natural daylight as much as possible, and switch off lighting in areas where natural lighting is available
- Use efficient lights (LED) for indoor & outdoor lighting because of their longer lifespan and higher efficiency compared to equivalent conventional lights.- Explore the use of Solar tubes. Solar tubes are reflector tubes that help capture sunlight and harvest daylight without increasing the thermal load of the building
- Conduct Energy audits and prepare periodical reports on the factory's electricity and water consumption to monitor electricity and water usage
- Clean lighting fixtures frequently to maintain the level of lighting





- If possible, replace water-cooled chillers instead of air-cooled chillers
- Fix all leaks in pressurised air systems
- Replace regular flat belt drives on motor systems. Consider using Cogged V-belts. They are more expensive than standard belts but can reduce motor output losses by almost a half
- Switch off unused equipment
- Make sure that all electric connections are proper and clean to ensure no points of loose connection or short circuiting are present in the system
- Regularly provide preventive maintenance to all machinery and equipment
- Replace old machinery or ones that breakdown often with new more efficient equipment
- Clean all machinery and equipment regularly to maximise their efficiency
- Insulate hot and cold water pipes, water heaters and hot or cold water storage tanks to avoid heat and energy loss
- Make sure office equipment are used efficiently in the office areas. (e.g. copiers, fax machines, computers, printers etc.). Switch them off after use
- Make sure that all lighting and air conditioning is switched off in areas not regularly used, or use suitable occupancy sensors for the areas to avoid unnecessary running
- Consider installing solar water heaters and outdoor solar lighting. Look into other solar powered equipment and applications or ones that run on other renewable energy resources
- Seal and weather - strip doors and windows that leak air. Monitor external doors, windows and outside walls for gaps, cracks and unnecessary openings to minimise cooled air escape
- Apply insulation/coating to old / uninsulated roofs for improving structural thermal performance
- Encourage staff to use stairs instead of elevators if they are not carrying loads

# WATER SAVING TIPS

Consider replacing old toilets with new high-efficiency toilets that save water and have a dual flush system.

- Install a calibrated water control system for all washrooms that control water pressure and flow, or fit taps and showerheads with water flow reducers or aerators. Water flow reducers on taps can save more than 30% of water. Install tap timers in public / staff washrooms
- Consider replacing old toilets with new high-efficiency toilets that save water and have a dual flush system
- Use treated sewage effluent (TSE) water, which is provided by Dubai Municipality to irrigate the gardens and plant
- Install timers on irrigation systems. Use drip irrigation systems for water efficiency.
- Water your green areas before 8 am or after 6 pm to reduce evaporation losses during summer
- Regularly check pipes and other systems for leaks and provide repair work immediately. Provide regular maintenance to the factory's plumbing system
- Consider installing water re-circulating, re-cycling or re-claiming systems, so that the water may be used for various purposes instead of going to waste
- Re-use waste water generated during production
- If your company uses water to wash down waste material, use sprayers that are high-pressure but low volume
- Try and remove waste in dry mode if possible. This saves water and avoids chemicals going down the sewerage system. Pulses to lower the amount of water that is needed for washing
- If your factory operations consume a lot of water daily, consider expanding water agency storage tank operating reserves, as this ensures less pumping power will be required during peak hours. Invest in specialised software programs that help monitor water levels and supply