ALL-IN-ONE

Power Controller function
Load control

Tmax XT   Emax 2   Ekip UP⁺
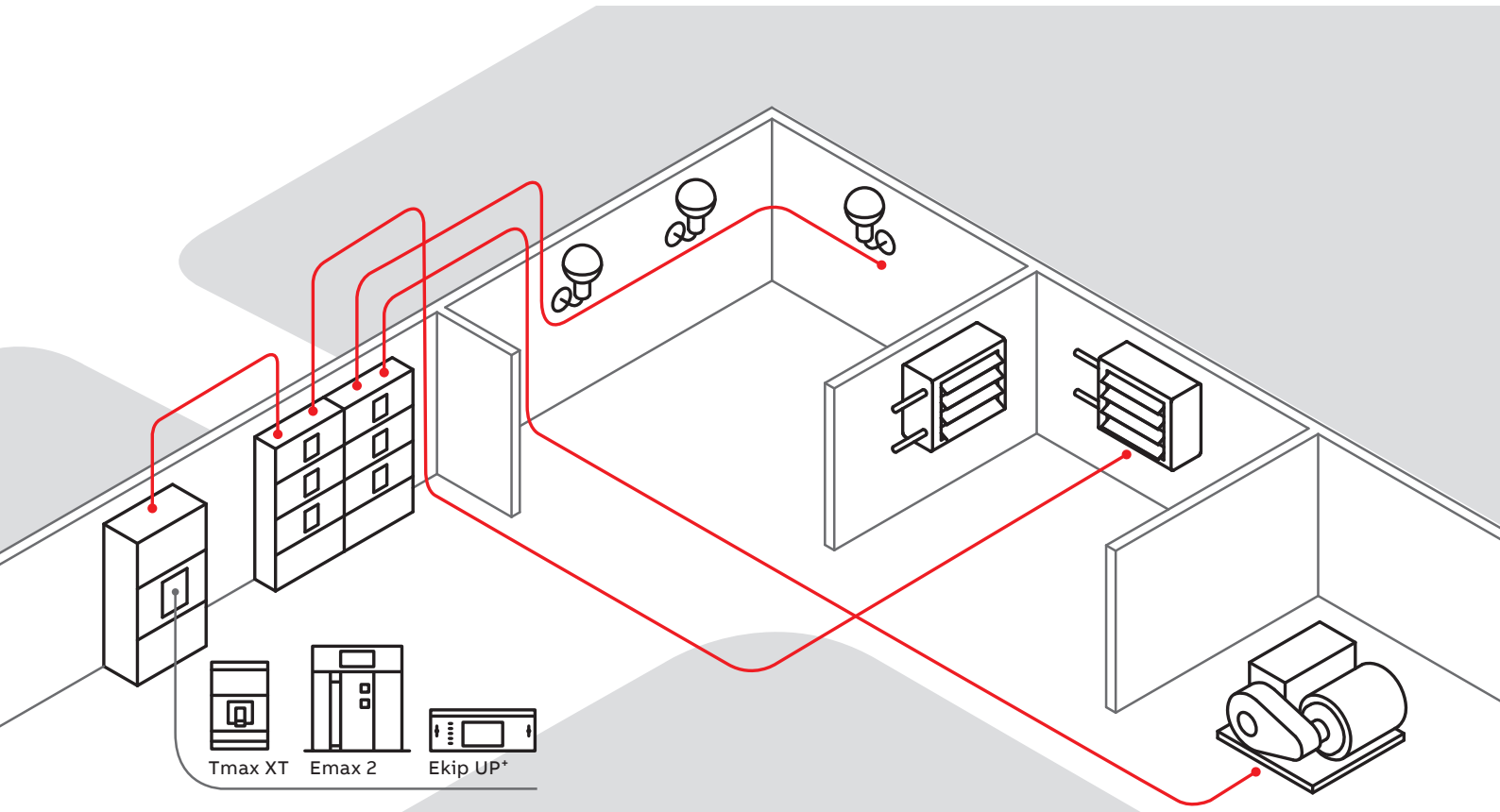
Electric power consumption represents a primary commitment, both in order to reduce costs linked to consumption as well as for the issues linked to environmental sustainability.
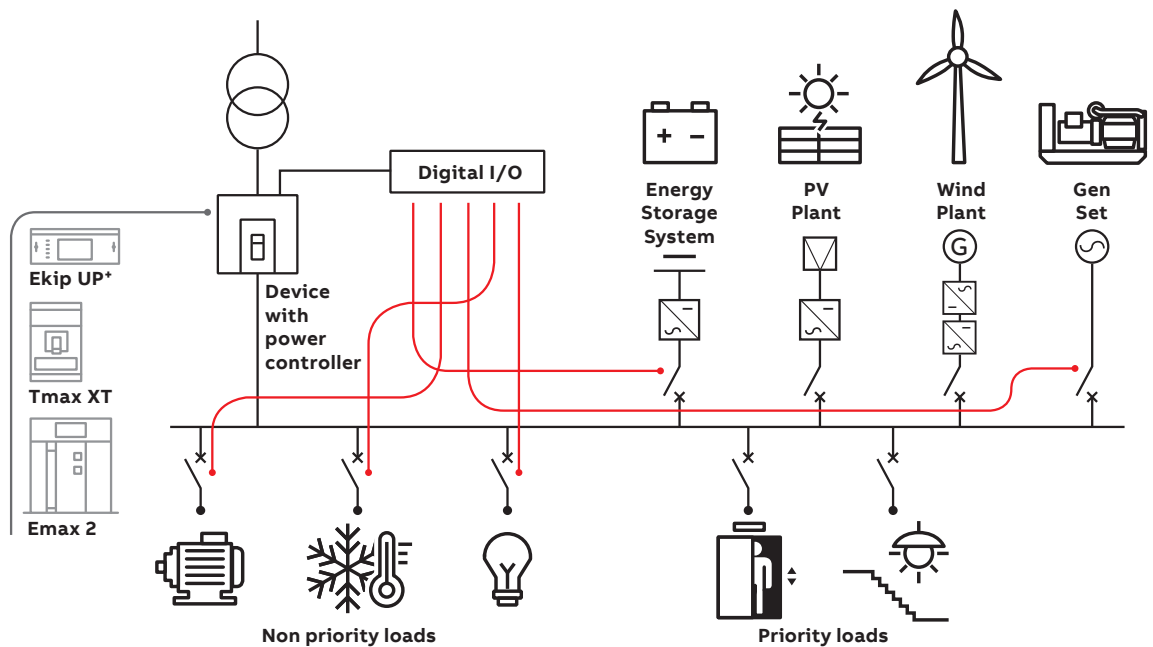
The control and management of power consumption under running conditions is a key point in order to respect contract agreements and prevent the payment of fees in case of over-absorption.

To reduce energy consumption, few actions are needed to get relevant benefits.
One of them is peak shaving, common technique to reduce the energy consumption in a selected period by controlling load and generators.

An automatic control of the loads, based on the absorbed power, is an optimum solution for an effective cost reduction. The target of these control systems is to modulate the demand for electric energy by avoiding non-coordinated operations of the loads.

For example, during a hot summer day, air conditioners absorb a large amount of energy causing consumption peaks and consequent problems with energy supply. Exceeding contract limits can force the plant user to raise contracted power with a consequent increase of fixed costs. In extreme cases, the plant could be over-dimensioned, just to prevent overheating during absorption peaks.

A dedicated system able to manage loads may require the installation of several dedicated control devices, in addition to a PLC or an industrial PC that needs hours of programming.

Ekip UP⁺

Tmax XT

Emax 2

Device with power controller

Digital I/O

Energy Storage System

PV Plant

Wind Plant

Gen Set

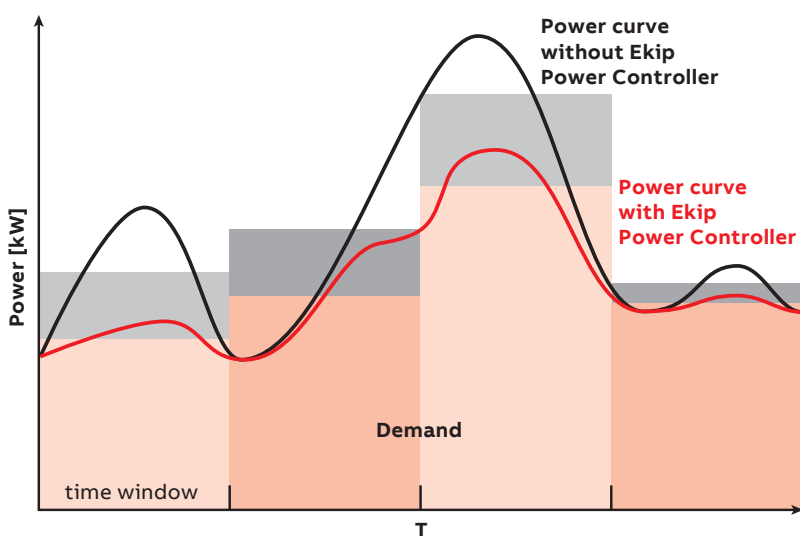**Non priority loads**

Priority loads

Ekip Power Controller is a function that drives peak shaving by managing different loads and generators. It represents an optimum compromise between reliability, simplicity and cost-effectiveness. This function is embedded on request in the Ekip electronic trip unit and avoids complex control systems and implementation of dedicated software programs.

Patented algoritm of power controller allows a load list to be controlled through the remote command of the relevant switching device (circuit breaker, switch disconnector, contactor…) or control circuit. It manages loads and generators according to a priority defined by the user, based on his own requirements and types of load.

The algorithm is based on a forecast average power absorption over determined time interval and set by the user. Whenever this value exceeds the fixed power, the Power Controller function intervenes to bring it back within the limits. This system can be realized with a single Ekip UP⁺ Control or Ekip UP⁺ Control+ standard equipped with this function and installed as the low-voltage plant controller. In the case of parallel supply, one Ekip device realizes the power controller function collecting power data from the other Ekip devices. Loads can be controlled through two ways:
• through the wired solution, by commanding the shunt opening/closing releases or acting on the motor operators of the loads to be managed;
• through Ekip Link, a dedicated communication system.

Power curve without Ekip Power Controller

Power curve with Ekip Power Controller

Power [kW]

Demand

time window

T

Peak shaving function provides significant economical and technical advantages:

• **economical**: controlling power eliminates penalties due to excess power usage and limits usage during peak rate hours to significantly reduce electrical costs

• **technical**: controlling power reduces the risk of malfunctioning, ageing of system components, or worse, black outs due to plant overload.