

Kalasadama

The new standard in urban construction

Power and productivity  
for a better world™



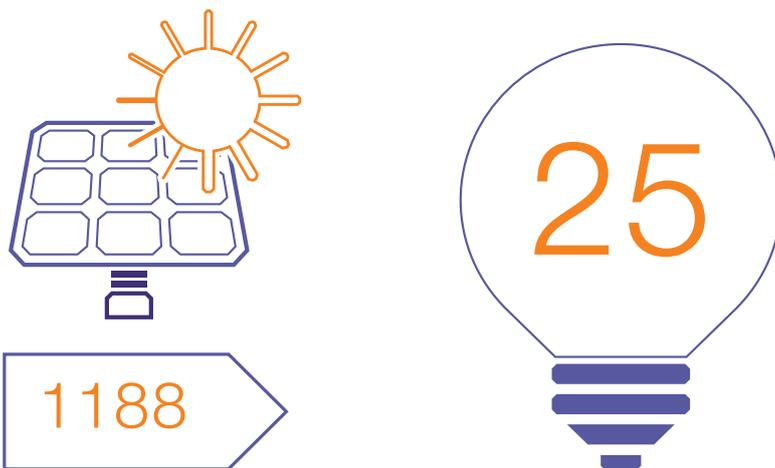
Kalasadama is located by the sea, close to downtown Helsinki. A smart city district is being built in the area, functioning for the good of people, companies and the environment. By the early 2030s, it will provide 8,000 jobs as well as homes for 20,000 Helsinki inhabitants.

## Intelligent energy systems in Kalasadama

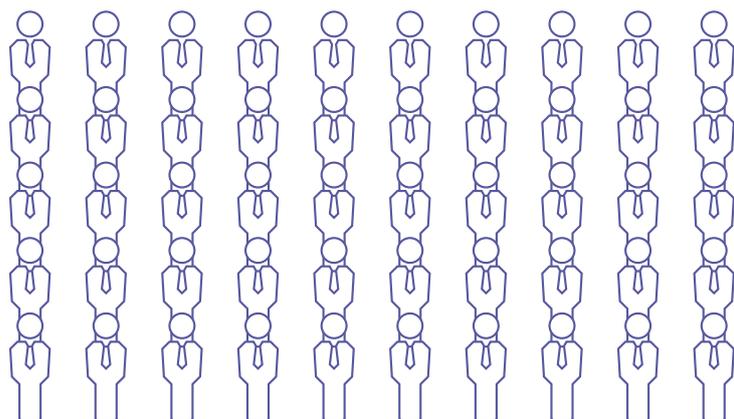
### Production of renewable energy

**Finland's largest solar power station: 1,188** solar panels; at best, a **285-watt** monocrystalline panel will produce enough electricity for more than **25** energy-saving lamps.

String inverter converts **direct current (DC)** from the photovoltaic arrays to **alternating current (AC)**.



**The world's most energy-efficient** production of electricity, district heating and district cooling.



On a hot summer's day, district heating provides **hot tap water** for about

**250 000**

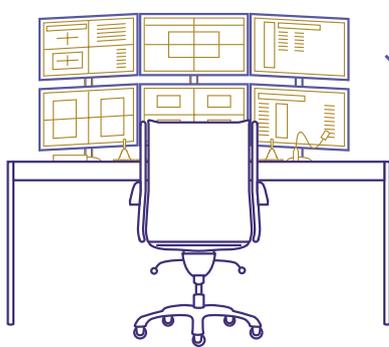
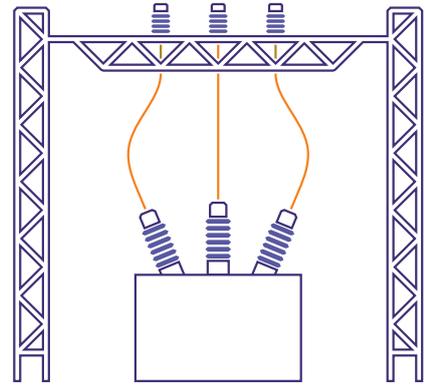
people.

## Reliable distribution

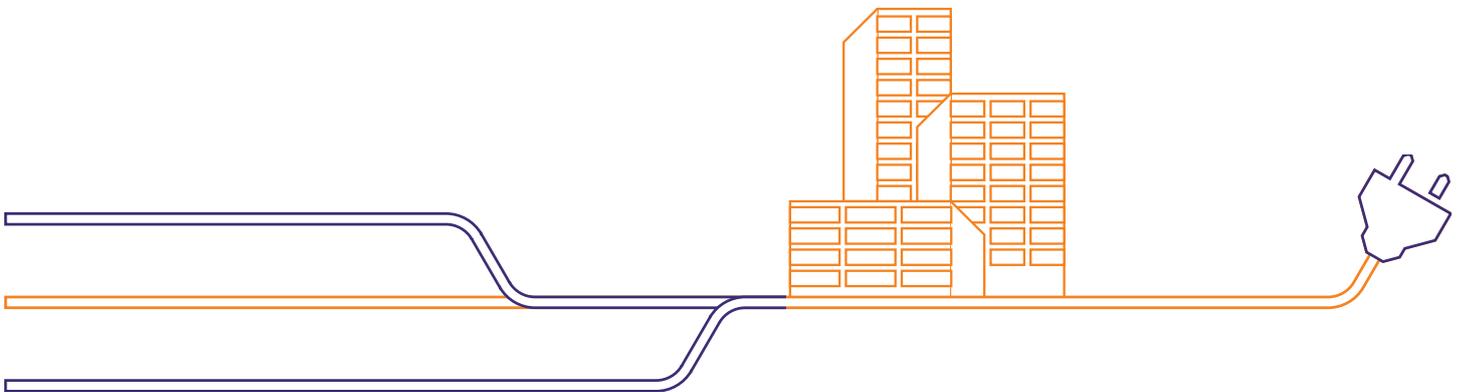
Energy storage facility of over one megawatt. The storage facility consists of **10,000 lithium-ion batteries**, and it has a discharge capacity equivalent to the maximum power of some **4,000 solar panels**.



The **energy storage facility** will help stabilize the main grid frequency, even out production and consumption peaks, support the reliability of the local power grid, and also **reserve power** in critical situations.



The **intelligent remotely controlled transformer station** will reduce the duration of any power outages **by 90 per cent**, as the faulty location can be quickly localized and isolated using remote control.



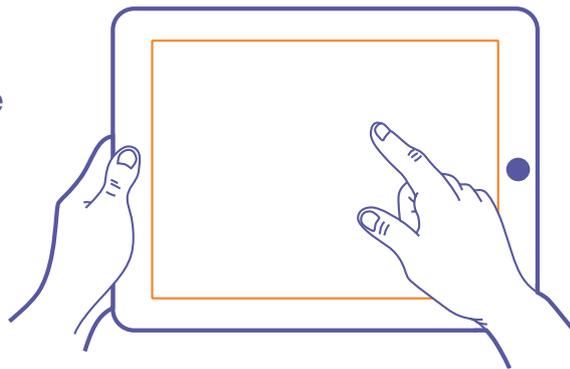
The distribution station at Kalasatama will be connected to a fault-tolerant, closed **medium-voltage ring network** where electricity is constantly supplied from **two directions**. This guarantees uninterrupted power supply to critical areas even in the event of network failures.

## Energy-efficient consumption

**Building automation systems** in high-rise buildings **Fregatti and Fiskari**: real-time monitoring of electricity and water consumption. Monitoring and control can also be performed **using a mobile device**.



The metered data allows **energy and water consumption to be cut by up to 15 percent** and the consumption of electricity to be intelligently controlled.



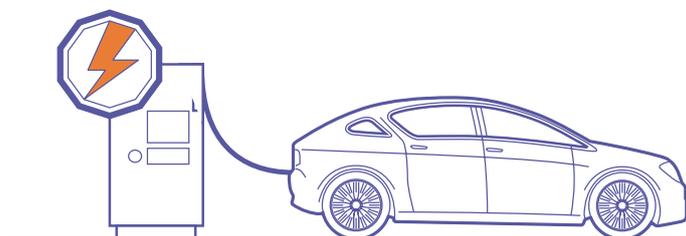
15%

### Capabilities for demand flexibility in buildings

The residents can utilize periods of inexpensive electricity and thus help even out the peaks in electricity consumption.



### Shared-use service for electric cars



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