

Seasonal wind diagrams

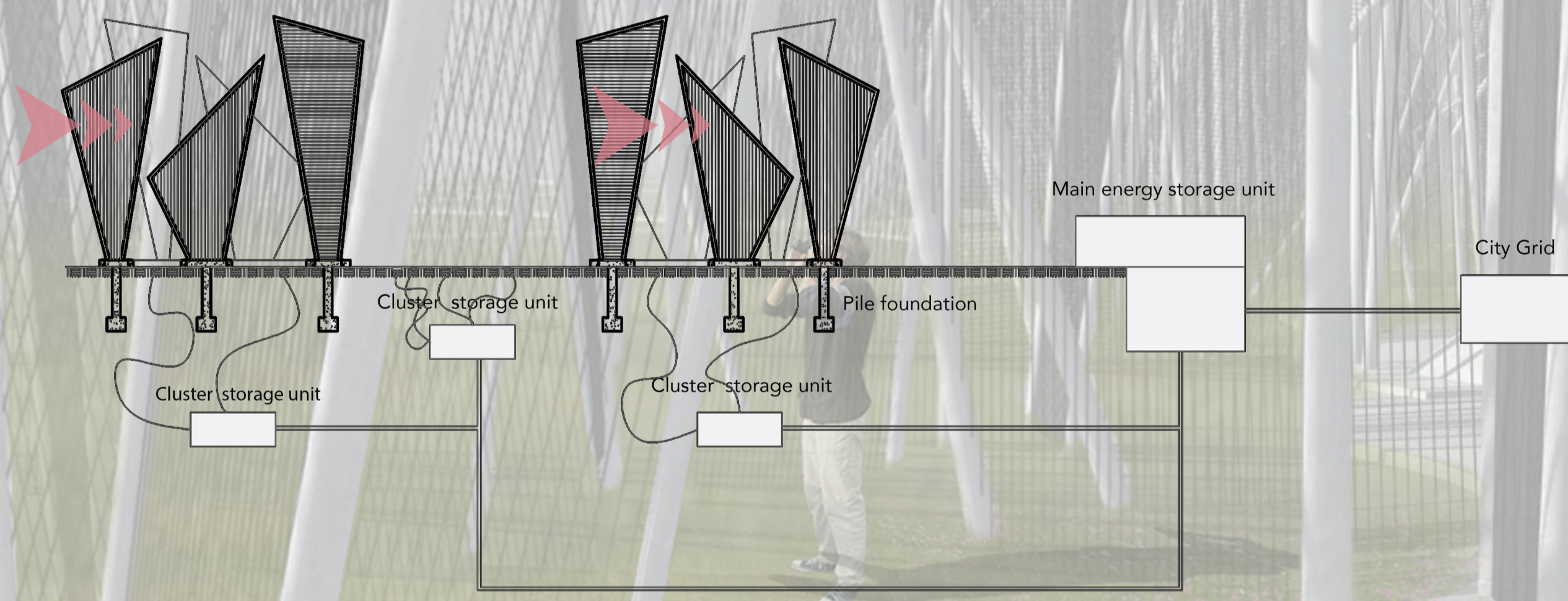


Refkløver

Refshaleøen, Copenhagen

Each energy-producing node consists of a cluster of recycled stainless steel structures, with piezoelectric wires spanning across each surface; these wires transform their own movement, caused by wind currents, into electrical energy. The localized patterns of wind motion will cause variance in the amount of energy produced. However, the various orientation of the triangular planes to each angle on a 360° circumference ensures that seasonal changes in wind direction will be captured.

There are 300 small clusters, 168 medium clusters, and 260 large clusters of triangles found on the site. Each small cluster covers 16 square meters, each medium cluster covers 44 square meters, and each large cluster covers 72 square meters. With an average windspeed of 10 meters per second, at an assumed 50% efficiency, the piezoelectric wires will produce 44,895 MWh per year.



1557 Pavegen kinetic flooring tiles are interspersed throughout the paved path; the Pavegen technology converts kinetic energy into electrical energy. Every time someone walks on a Pavegen tile, renewable energy is harvested from the footstep. Thus, the design of the site is symbiotic in the sense that a public space is created for the people, and in turn, visitors to the site help to create renewable energy.

It is assumed that each tile will receive 120 steps per hour, during active times. Thus, at a 25% efficiency, 858.5 MWh of kinetic energy per year are captured through the Pavegen tiles. The design in total will harvest 45,753 MWh per year of energy, which is enough to power 11,400 homes in Denmark per year.

- high traffic
- medium traffic
- low traffic

