



DEVELOPMENT OF SITE PLAN



# WINDBRATOR

Windbrator field — Land Art of the regenerative metropolis— It can provide electricity to serve the city needs; wind, infinite energy supply, is used as the main concept in energy production and also represented in a breeze-like form where the view is taken from the outside-in. The proposal planning design takes clues from the average flow direction of the wind to position each pole as radial angle and scatter out to catch the wind evenly. Copenhagen wind chart statistic is used as a database to develop planning design; the more strength of wind the more poles are designed to spread out in order to catch most energy. Less pollution is emitted during the production process; hence the electric power contributed is clean and green.





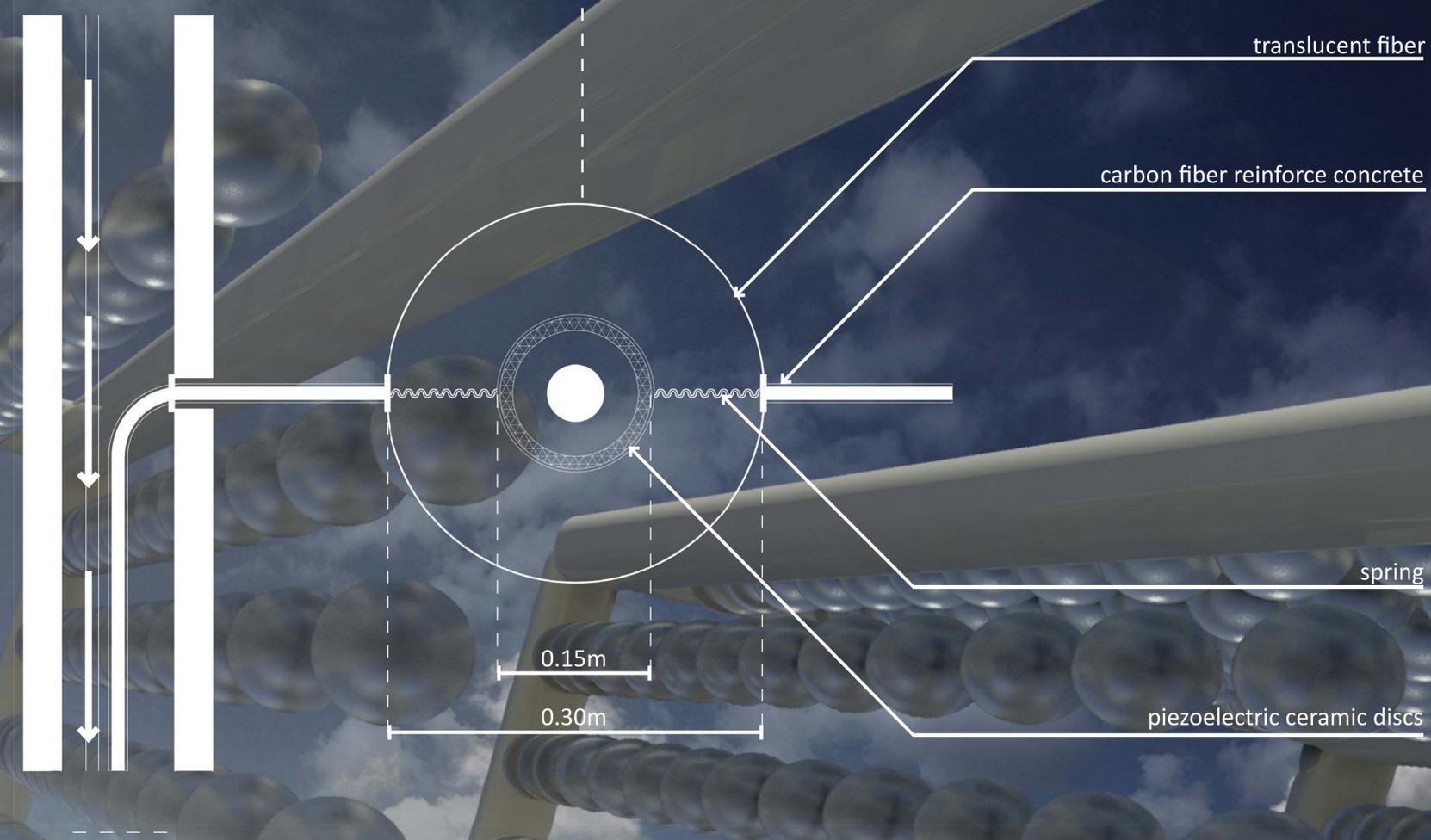
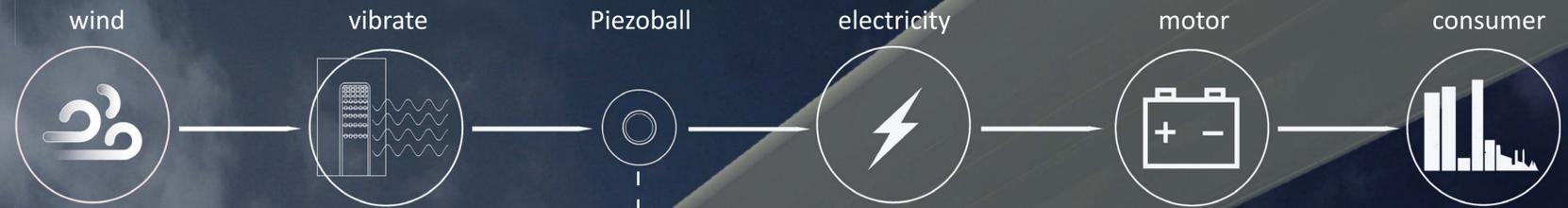
The key is to generate renewable energy from the vibration when the wind blows. Giving the clean and inexhaustible energy as a result and the various effects of Land Art when wind flutters through as the outshot.

The project consists of 552 sectional 3\*3 meter quadrate poles, with difference height from 15-35 meter to form the arch that represent concept of the breeze. Inside of the pole provide a small semi-public space in room scale before heading to the major public space in the center.

Top 10 meter of each pole hung the 'Piezoballs' to harvest electric power. Piezoball made of piezoelectric ceramic discs which can generate energy through the vibration and cover with translucent material as the outer skin.

When they shake, the kinetic force is captured and converted into electric power. The electric power is sent to the source through the conductive cable made of Carbon fibers reinforce resin.

50Wh/year is the average estimated power that can be produced in one Piezoball, One Windbrator contains 400 unit of Piezoball, there are 552of Windbrator house in the area, and hence 11.04MWh/year of electricity is produced by Windbrator field in average.



10 m

**WINDBRATOR**

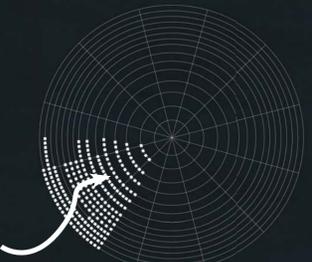
1 Piezoball produce 50 Wh/year  
 400 Piezoballs in 1 Windbrator  
 552 Windbrators in Windbrator field

**11.04** MWh/year

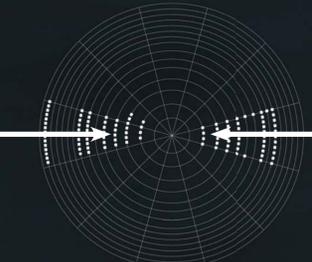
SEASON CALENDAR

# WINDBRATOR

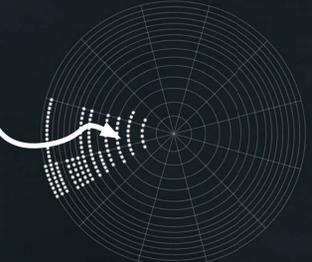
In the night, when the wind caresses through the Piezoball: the vibrate sensor works and lit up the LED light. The lighting effect that happened gives us a sense of aesthetic through the dark and also works as a season calendar as well. Individual seasons, the difference strength of the wind in each direction create an identity that change over time for the period can be measure through the luminous direction.



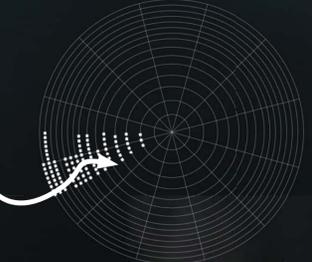
winter : Dec-Feb



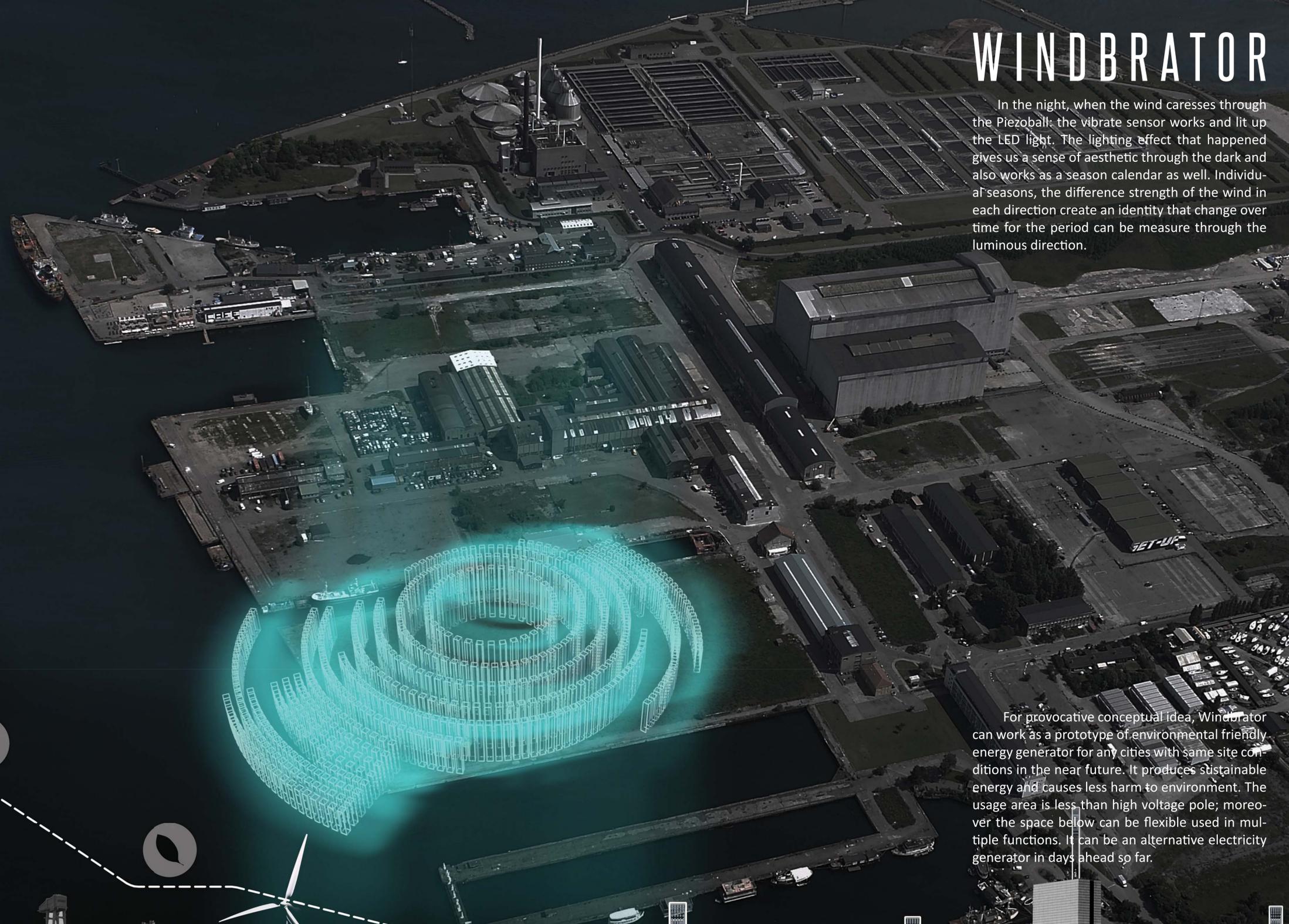
spring : Mar-May



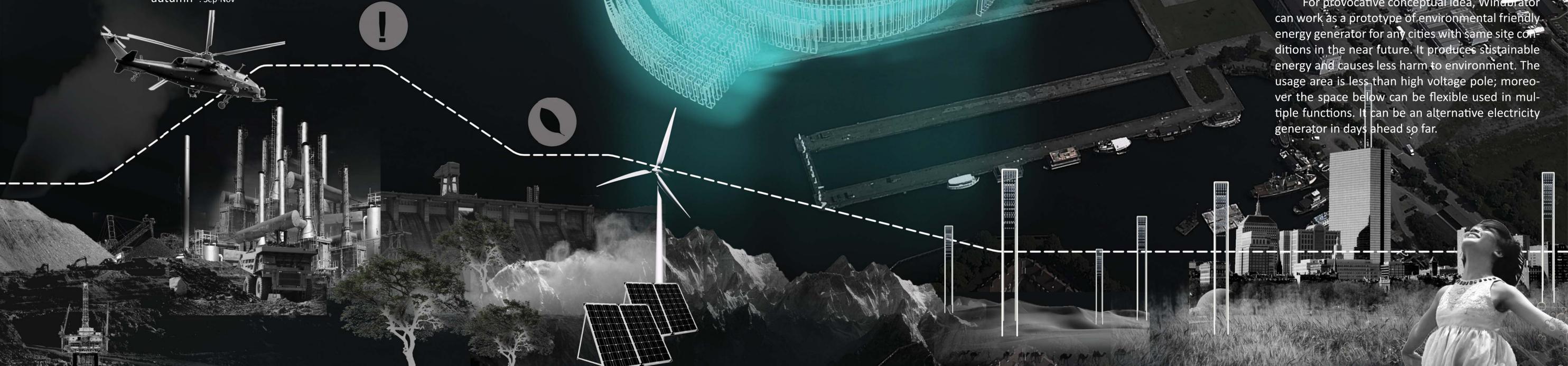
summer : Jun-Aug



autumn : Sep-Nov



For provocative conceptual idea, Windbrator can work as a prototype of environmental friendly energy generator for any cities with same site conditions in the near future. It produces sustainable energy and causes less harm to environment. The usage area is less than high voltage pole; moreover the space below can be flexible used in multiple functions. It can be an alternative electricity generator in days ahead so far.



**MID.1920s**  
district heating system was first established; it consists of coal mining, oil fuel and etc.

**1970s**  
district heating system more intensively developed causing  
-air quality concerned  
-inefficiency energy  
-low quality of life

**1980s-1990s**  
decarbonising the distric heating by using renewable energy supply  
+wind turbine  
+solar cell; etc.

**2011**  
achieve goal of 20% reduction.

**2014**  
windbrator was launched for an alternative energy supply.

**2015**  
Windbrator work as aproto- type for the area with windy site conditions

**2025**  
achieve goal of zero carbon emission

**In The Future**  
reducing carbon emission  
creating green growth  
enhancing quality of life