**Project: WINDunes**

**Site Opportunity**

Located between two green areas, the site serves as a dominant wind corridor to harness the predominant NW wind from the sea.

Built of 28 wind turbines connected with tensile PV membranes, ‘WINDunes’ is not only an integrated energy convertor but provides a covered public space for local activities.

**Wind energy**

Each turbine, 15m in diameter and 30m above ground level, can generate approximately 33000 kWh from an average wind speed of 14km/h. 28 turbines combined can generate approximately 924MWh.

**Solar Energy**

The tensile membranes are spanning across turbines masts. Approximately 3600m2 (1/3 of the SE facing surface) is available for photovoltaic installation, generating up to 7200MWh (2000kWh/m2.)

**Rainwater Recycling**

Rainwater is collected on the parabolic membrane surface and funneled down through concealed pipes to underground water tank for reuse. The ‘funnel-shaped’ structure minimizes construction footprint and surface runoff.

**Environmental Impact Assessment**

* The use of wind turbine and PV cells has a light environmental footprint, which does not produce harmful emissions or hazardous waste, it does not deplete natural recourses, nor does it cause environmental damage through resource extraction, transport and waste management.
* Footprint of the masts is less than 1% of the site area, minimizing impact on existing terrain, activities, population and future use after decommissioning.
* The structure is 30m above ground level, minimizing landscape and visual impact on eye level, enhancing visual and wind corridor.
* For safety and maintenance, open staircases are provided between two masts for easy access.
* The layout is in parallel with existing roads minimizing distraction to motorists.
* Camouflage color scheme is proposed to reduce reflection and glare disturbing population especially motorists.
* The overall impact on the natural habitats and flora is site specific. Further research should be done to avoid building in the area of bird and bat migration routes.
* Aerodynamic noise caused by blades passing through the air can be reduced by aerodynamic blade design and selection of sound absorbing tensile membrane.