SkySails POWER


# SKYSAILS POWER

## REVOLUTIONARY AIRBORNE WIND ENERGY SYSTEM

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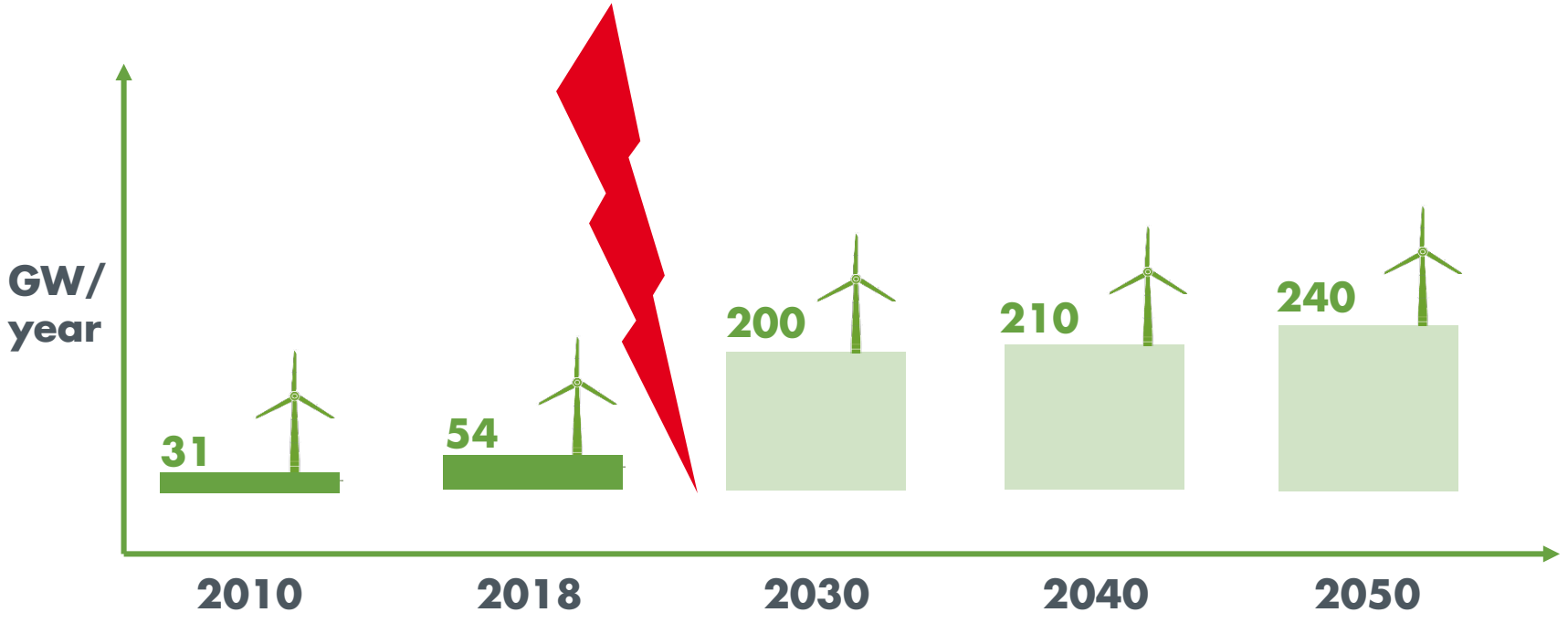
# IT´S ALL ABOUT KITES!
## DEVELOPMENT OF KITE SYSTEMS UNTIL TODAY




- Founded in 2001
- Technology leader for automatic large scale kite systems up to 400 m²
- Technology investment to date > €75 Million
- 60 staff – motivated & committed
- Experience of kite operation in offshore conditions >10y

# NEW TECHNOLOGIES NECESSARY TO REALIZE GLOBAL ENERGY TRANSITION

**Annual wind capacity additions required to achieve the global energy transition***




- Wind energy sector far behind schedule
- Conventional wind energy technology unable to reach targets

→ **Airborne Wind Energy can close the gap**



* Source: IRENA, Global Energy Transformation, a roadmap to 2050 (2019)

# AIRBORNE WIND ENERGY (AWE)
## HARNESSING STRONG HIGH ALTITUDE WINDS

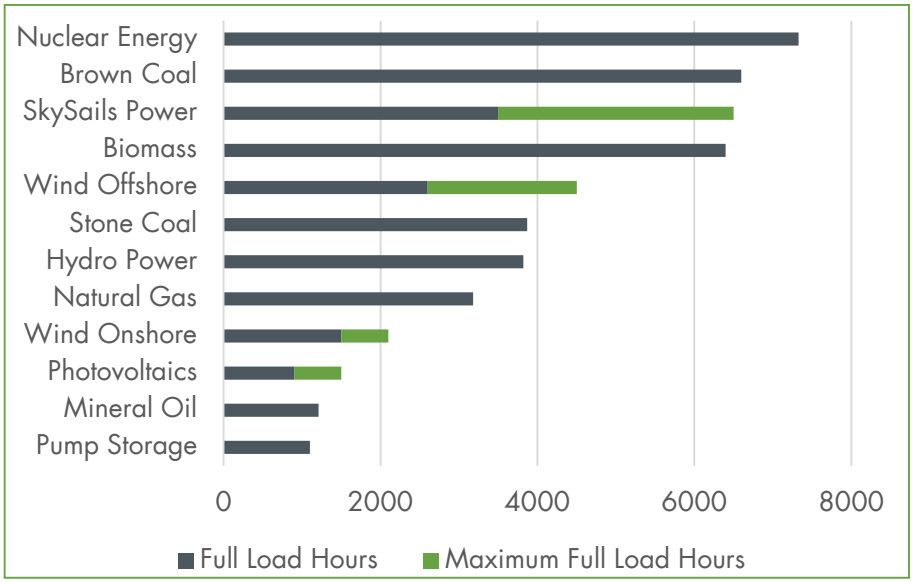
**Problem:**
Conventional wind energy is limited due to site restrictions


Wind energy potential is influenced by the boundary layer and can be substantially higher above 200m

**Solution:**
Harness strong high altitude winds with AWE

# AIRBORNE WIND ENERGY (AWE)
## PROVIDE RELIABLE POWER

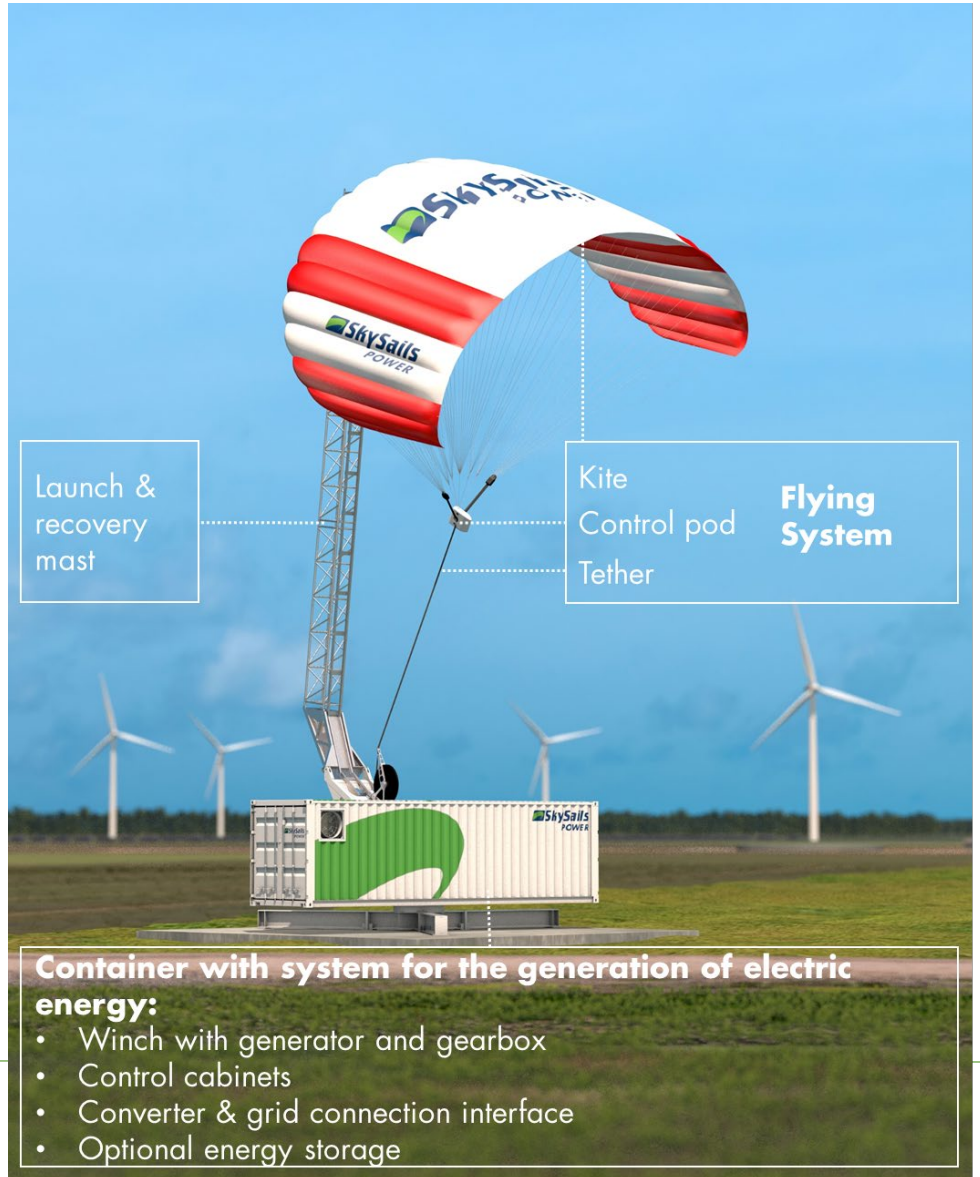
**Problem:**
Low availability of conventional renewable energies



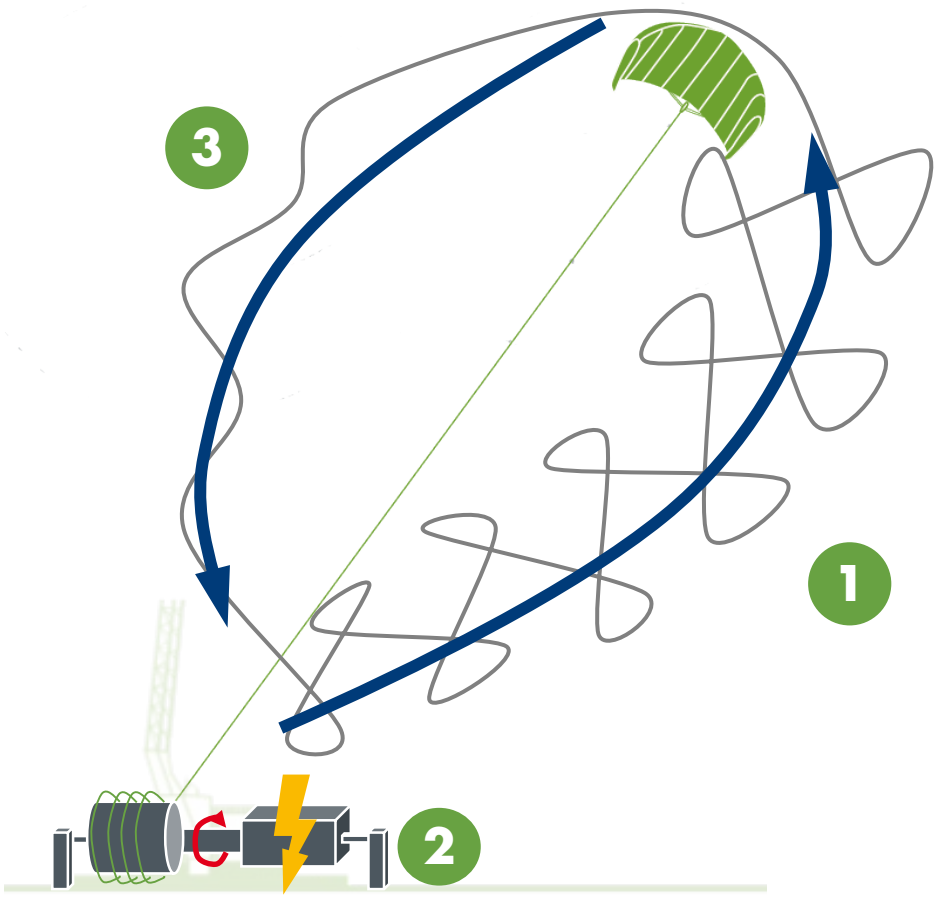

Full load hours: Production (MWh) / installed capacity (MWh)
Source: BDEW (www.bdew.de), amendment: SkySails Power

**Solution:**
Kite-based AWE solutions provide reliable base load energy

# HOW IT WORKS
## SYSTEM COMPONENTS



# HOW IT WORKS
## POWER CYCLE

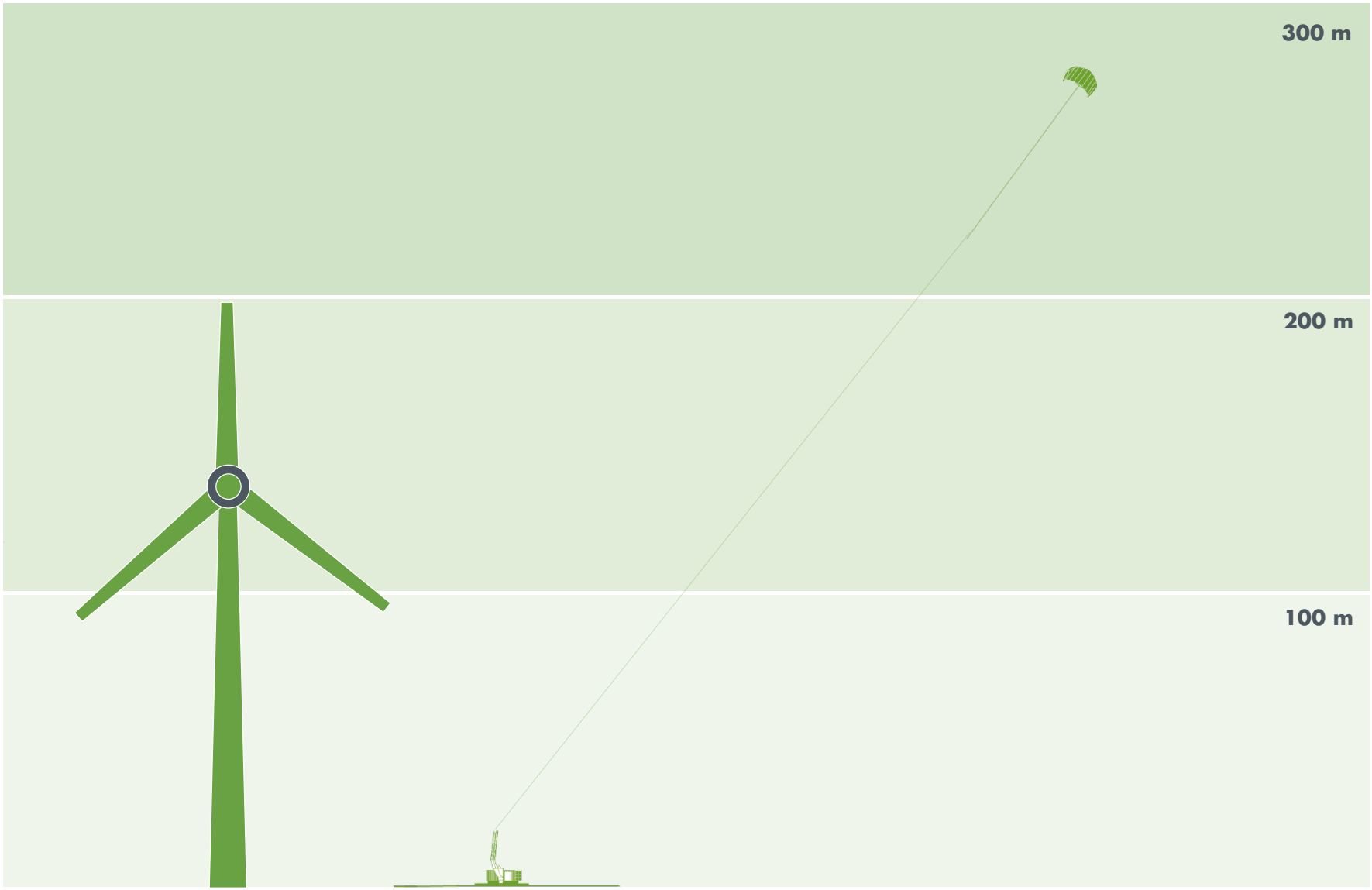



1. **Work phase -** The kite pulls the rope from a winch
2. **Power generation -** A generator inside the winch converts the rotatory power to electricity
3. **Rewind phase -** The autopilot steers the kite into a neutral position – the generator now acts as a motor and retracts the rope, consuming only a fraction of the energy generated during the work phase

**The excess energy is fed into the grid & the power cycle starts again**

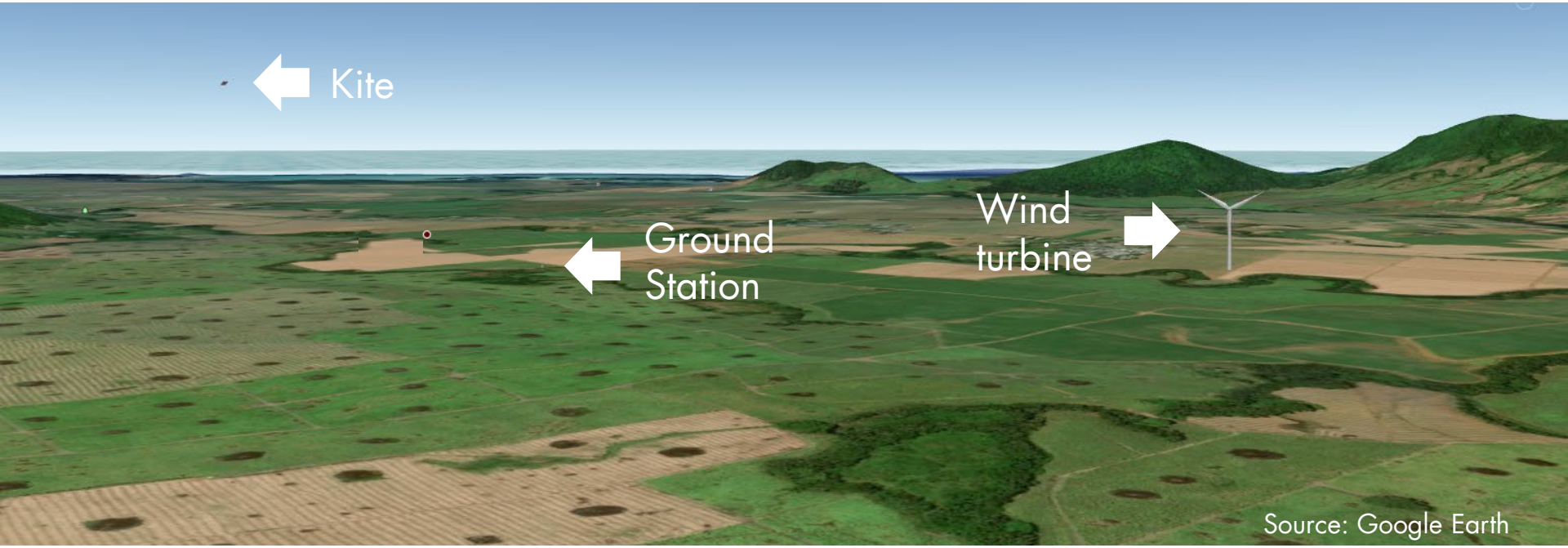
# ENVIRONMENTAL INTEGRATION

## REDUCED VISUAL IMPACT



# ENVIRONMENTAL INTEGRATION
## REDUCED IMPACT

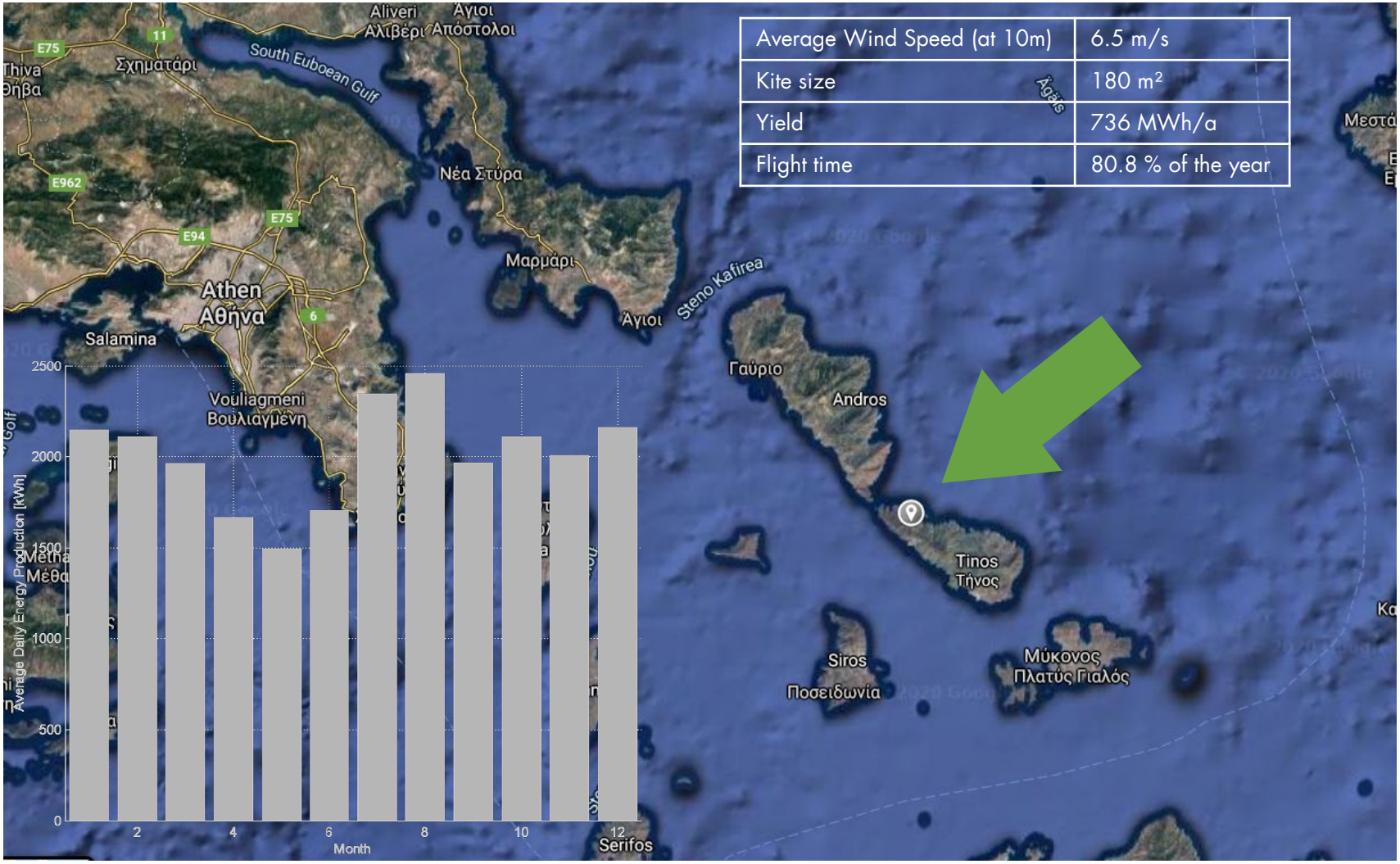
- No deep-foundation required
- Visual impact significanty reduced
- Reduced sound emissions
- Reduced shadow impact, no flicker effects



# EXAMPLE SITE

## TINOS – CYCLADES ISLANDS

| | |
|---|---|
| Average Wind Speed (at 10m) | 6.5 m/s |
| Kite size | 180 m² |
| Yield | 736 MWh/a |
| Flight time | 80.8 % of the year |



# HOW DOES YOUR PROJECT LOOK LIKE?

Source: Google Maps

## GET IN TOUCH

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