The research for alternative sources of energy by the exploitation of natural resources without exhausting them has been an important issue for decades:

- Parks operating renewable energy are increasingly using heterogeneous equipment making difficult the monitoring and maintenance of various facilities.
- Today’s existing monitoring systems are expensive, intrusive and high energy consuming. Thus they do not fit your needs.

You are installer, equipment manufacturer, exploiter, engineering consulting firm in renewable energy field? Beanair® is here to help you value your equipments!

The wireless sensors network developed by Beanair® is completely autonomous and energy-saving.

Our products are dedicated to the measurement of multiple physical and environmental parameters:

- Wind speed, sunshine
- Generated energy, voltage, current
- Liquid pressure, atmospheric pressure.
- Temperature, humidity
- Gas, carbon
- Vibration, tilt
Rethinking Sensing Technology

Wind parks

Solar power

Biomass power

Geothermal power

Hydraulic power

Tide power

Value your equipments thanks to a fickle and Ad hoc wireless measurement technology

- A strong and reliable wireless sensor network even in severe environments.
- Ultra low consumption technology (up to 7 years energy autonomy)
- Small-sized and unintrusive products.
- Evolutionary wireless network with extendable measurement spots.
- Interoperable with your business-specific applications

Optimize your exploitation and maintenance costs

- Reduce maintenance, integration and operation costs related to your machine stocks by remote monitoring their efficiency.
- Optimize and extend your equipment life cycle by benefiting from predictive maintenance.
- Manage your site through our wireless sensor network package (IEEE 802.15.4 and GSM / GPRS M2M).
- Centralize the management of multiple remote sites.

www.beanair.com
The benefits of mixed wireless sensor network IEEE 802.15.4 and GSM/GPRS against simple wireless network GSM/GPRS

<table>
<thead>
<tr>
<th>Unit costs</th>
<th>GSM/GPRS solution</th>
<th>Mixed wireless network solution IEEE 802.15.4 and GSM / GPRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total equipment cost</td>
<td>10 GSM / GPRS automats equipped with 4-20 mA + temperature + Integration of automats in small mechanical cases IP65 Price of 1 product: 500/600 euro H.T. 5000 euros – 6000 euros</td>
<td>1 x BeanGateway® GSM/GPRS Outdoor 5 x BeanDevice® SUN-T (wireless temperature measurement) 5 x BeanDevice® AN-420 (Analогical measurement 4-20 mA) 1x BeanScape – WSN Manager version &lt; 4000 euros</td>
</tr>
<tr>
<td>Cost of annual SIM card subscription (Subscription 10 Mb / monthly magazines)</td>
<td>10 subscription x10 euros/month 1200 euros</td>
<td>Only 1 subscription 10 euros/month 120 euros</td>
</tr>
<tr>
<td>Monthly subscription Web server</td>
<td>50 to 150 euros</td>
<td>50 to 150 euros</td>
</tr>
<tr>
<td>Inception and build of a supervision monitor based on a web server technology</td>
<td><strong>30.000 euros</strong> 3 months of development for 1 IT engineer</td>
<td><strong>0 euros</strong> OneSense® is a standard supervision monitor designed by BeanAir® &amp; Vertical M2M</td>
</tr>
<tr>
<td>Web server lower cost boundary</td>
<td>500-600 euros</td>
<td>500-600 euros</td>
</tr>
<tr>
<td>1st year total cost</td>
<td>37.300 to 38.500 euros</td>
<td>5200 to 6400 euros</td>
</tr>
<tr>
<td>2nd year total cost</td>
<td>1800 to 3.000 euros</td>
<td>720 to 1920 euros</td>
</tr>
<tr>
<td>3rd year total cost</td>
<td>1800 to 3.000 euros</td>
<td>720 to 1920 euros</td>
</tr>
</tbody>
</table>

**Example on an isolated site: GPRS Network Energy metering on windmills**

Embedded system
- Current Sensor
- Measurement Line
- GSM/GPRS transmission module

Constraints:
- A SIM Card per Acquisition Platform
- Absence of battery autonomy
- No control of the wireless network

Benefits:
- Only one GSM/GPRS transmission module and a unique SIM Card
- Ultra-low power consumption
- Entirely autonomous system (operating on rechargeable battery or primary cell)
- Progressive Wireless Network (the number of measurement points can extend easily)

BeanDevice AN-420
- with energy metering sensors
- Transmission to the operators network

BeanGateway network coordinator including:
- Wireless Sensor Network mapping
- GSM/GPRS transmission module

Benefits:
- Only one GSM/GPRS transmission module and a unique SIM Card
- Ultra-low power consumption
- Entirely autonomous system (operating on rechargeable battery or primary cell)
- Progressive Wireless Network (the number of measurement points can extend easily)

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**Application Fields: Renewable Energy**

**EcoSensor**

**Rethinking Sensing Technology**

Wind parks

Solar power

Biomass power

Geothermal power

Hydraulic power

Tide power

www.beanair.com
Using BeanAir® products contributes to the preservation and improvement of the environment

By remotely monitoring your parks operating on renewable energy, you decrease your technicians movements. This will reduce the amount of CO2 released into the atmosphere. Limit your electrical equipment over-consumption and minimize the battery disposal frequency that can cause water pollution.

BeanAir® products have been designed in compliance with environmental directives (RoHS, lead free)

To promote mechanical and electronic waste sorting, we have chosen the concept of modular products where no mechanical part is glued but rather screwed