SUSTAINABLE AGRICULTURE SOLUTIONS

GLOBALESCO

Our mission is to **use clean technologies** that **protect** and **heal** the **environment** while **eliminate agro waste**, **enhancing food** production and **yields**.


SUSTAINABLE CIRCULAR
AGRICULTURAL CLUSTER

SUSTAINABLE CIRCULAR AGRICULTURAL CLUSTER

We have developed the Sustainable Circular Agricultural Cluster.
The project concerns a vertical implementation in a specific area of a number of livestock, agricultural and side farms that incorporates the principles and best practices of Sustainable Development and the Circular Economy with the use of renewable energy sources, zero residual, zero residual and zero.
In a relatively small area the following infrastructure are implemented:

- Livestock facilities [livestock breeding, milking, cheese-making]
- Agricultural facilities [hydroponics greenhouses, feed production, etc.]
- All supportive [production and management of diets, product standardization, etc]
- Smart agriculture Management systems with complete recycling and reuse of resources [utilization of biowaste and agricultural waste for the production of organic fertilizers, purification and reuse of water, etc]

All of the above with

- central support and management by a dedicated team of experts [agronomist, nutritionist, chemist, geneticist, doctors, etc.]
- using a central management system of intelligent agriculture [control of diets, automation, automatic machines, condition control, complete operating information system, etc.]
- Innovation and training center
- Complete recycling and reuse of water resources
- Zero residue and zero waste
- And energy autonomous installation using renewable energy sources.

The implementation ensures the highest possible level of operation, environmentally friendly operation with zero pollutants, significant economies of scale, zero transport costs and an optimal operational and sanitary operation that can be a best practice for upgrading the production standards of our country.

- Complete vertical production in a small number of acres
- Full integration of principles and practices of Circular Economy
- Organic production
- Creation of new jobs
- Zero transportation costs
- Very high level of infrastructure and equipment
- Minimization of diseases
- Dramatic reduction of feed costs
- Multiple business models & revenue sources
- Minimum level of emissions
- Zero residue
- Up to 50% less human resources [compared to conventional operational models/methods]
- Water recycling & reuse
- Energy autonomous operation
- Use of renewable energy sources
- Complete production control at all stages & for all operational units

SUSTAINABLE CIRCULAR AGRICULTURAL CLUSTER

The design was based on standards and principles:

- **Circular Economy**
- **Organic production**
- **Waste management**
- **Minimum level of emissions**
- **Zero Waste**
- **Water recycling & reuse**
- **Use of renewable energy sources [photovoltaics, geothermal, etc.]**
- **Energy management**
- **Precision Agriculture**
- **Modular Design**
- **Compliance with EU programs such as From Farm to Fork, or Circular Economy Strategy, or the UN Sustainability Millennium Goals**

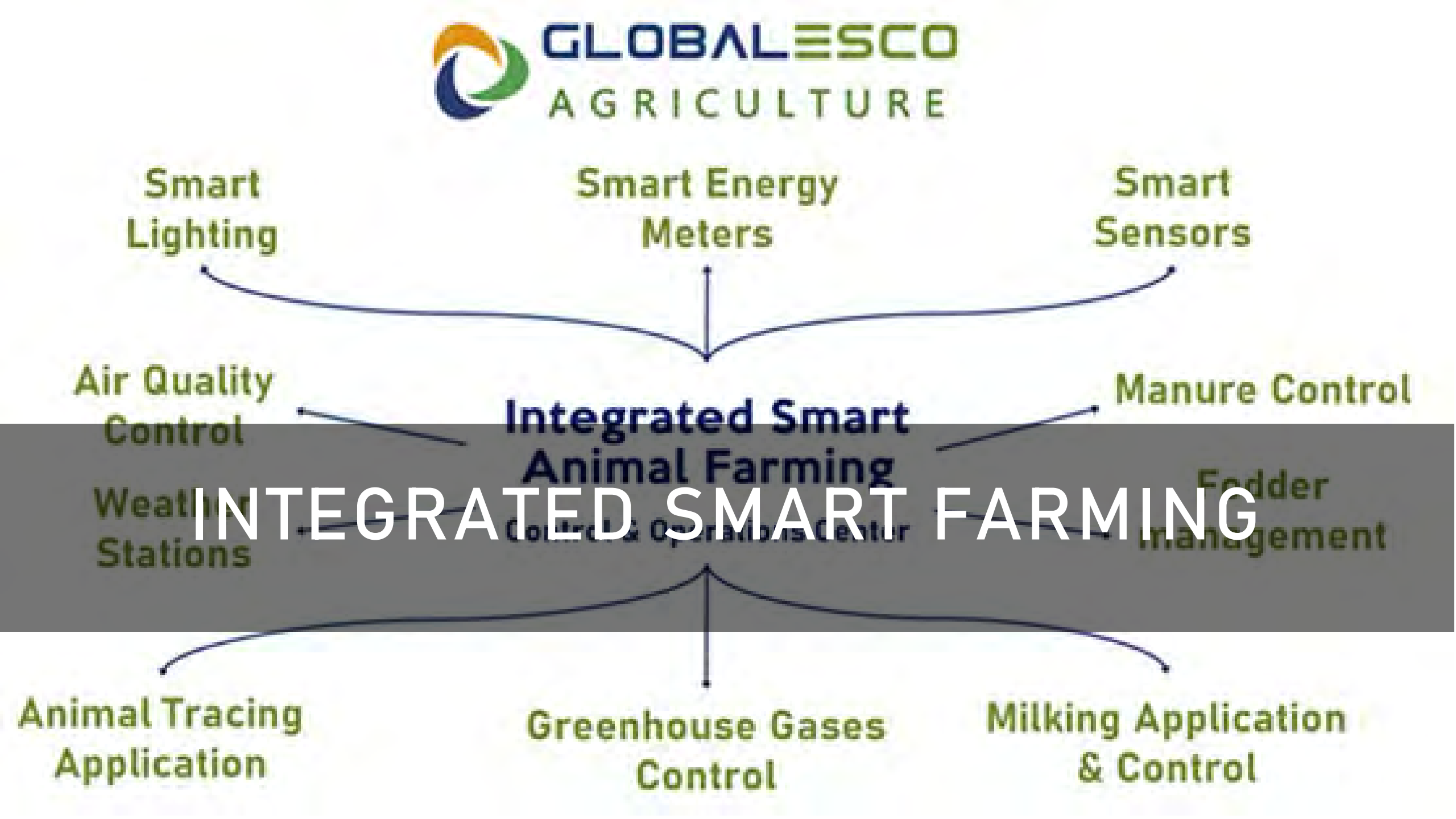
HYDROPONIC GREENHOUSES

CROP PORTFOLIO

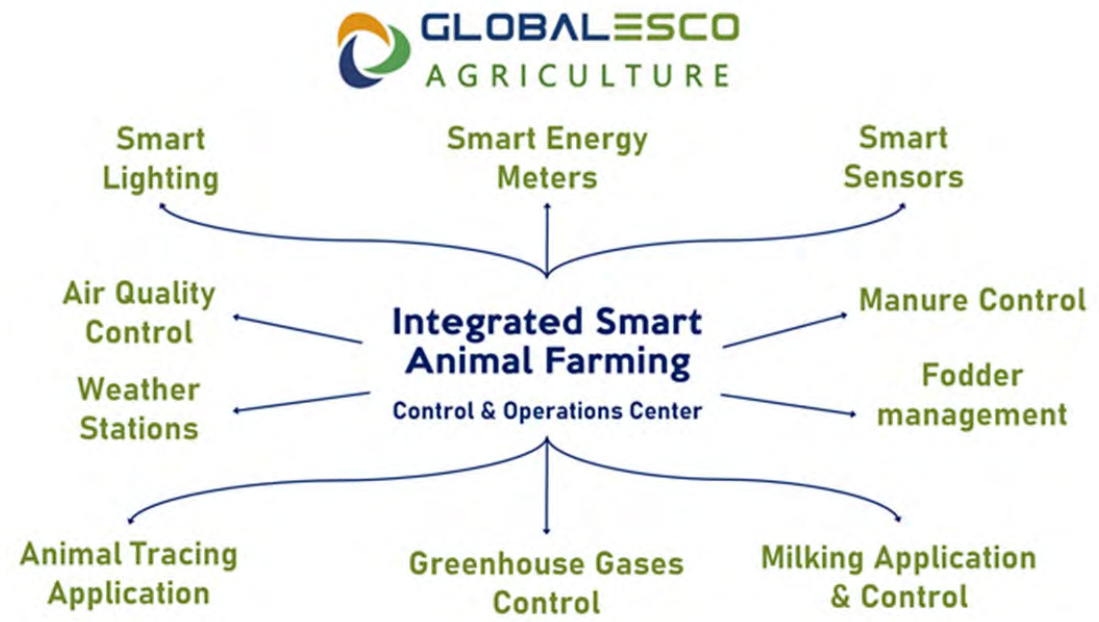
- TOMATO (Beefsteak, Cherry, Plum, TOV, cocktail, etc.)
- SWEET BELL PEPPERS (Red, Yellow, Orange, Green)
- LETTUCE
- LEAFY VEGETABLES (cabbage, broccoli, etc)
- MICROGREENS
- STRAWBERRY-BLUBERRY-RASPBERRY
- MEDICAL CANNABIS
- AROMATIC HERBS (rosemary, basil, parsley, coriander, thyme, etc.)

Projects Developed

- Greece
- Netherlands
- GCC (UAE, KSA, Oman, Qatar, Bahrain)
- Italy
- Spain
- United Kingdom
- Turkey
- Bulgaria
- Serbia
- Albania
- Africa (Sudan, Egypt)
- Eurasia (Azerbaijan, Kazakhstan)
- USA & Canada
- Mexico

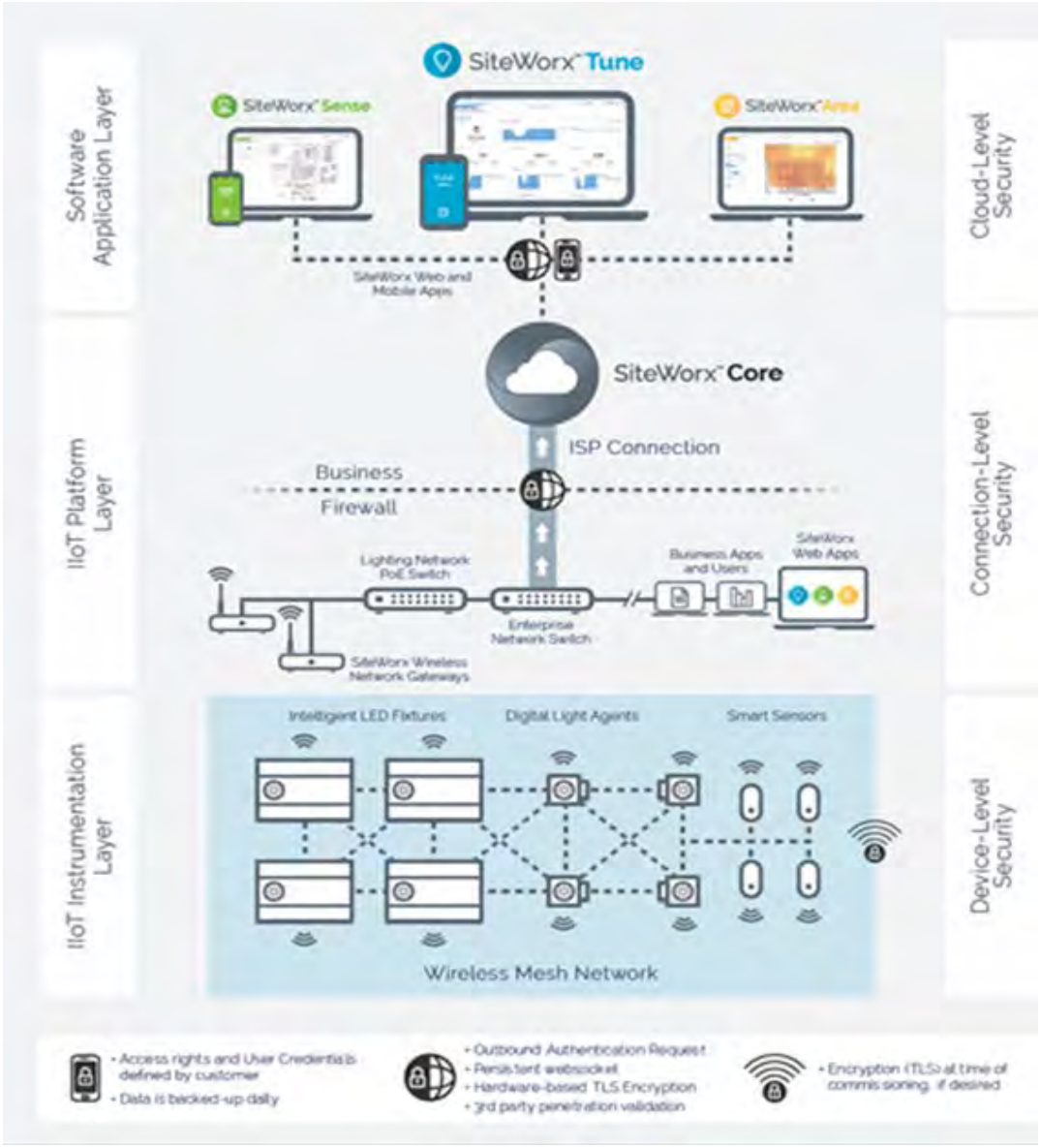


INTEGRATED SMART FARMING



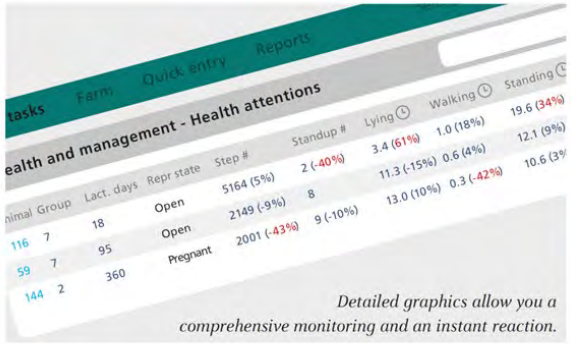
INTEGRATED SMART ANIMAL FARMING [ISAF]

ISAF is integrating into one single platform the management, monitoring of all aspects of the Animal Farming critical and non critical operational components.
Using wireless uninterruptible systems interconnects hardware [lighting, sensors, meters, automation, equipment etc.] and softwa applications [milking monitoring, air control, semi-automated feeding, slurry & manure management, ERP, cost control, KPIs monitoring greenhouse gases management, etc.] and provide them accessible to operators, manager, and agronomists near real time.
We provide them with the necessary tools under one access point to monitor the Animal farm operation, animals' health, environmental compliance, KPIs and financial performance of the farm in a fast, reliable, and easy integrated manner.
Precision livestock farming can manage and improve livestock health using IoT in scenarios like connected cows.



INTEGRATED SMART ANIMAL FARMING [ISAF]

Optimal lighting for increased results - Better light schedule, more milk
Good lighting in the barn has been shown to enhance cows' productivity. Creating the perfect day and night rhythm in the barn contributes to the cow's health and ultimately to increased milk yield. ISAF can help you to reach the optimal light schedule for your herd and farm.
With ISAF you can set up an efficient light plan, giving 150 – 200 lux light intensity in the barn, 16 hours a day. A good lighting plan can increase milk production by 6-15%. It also has a positive influence on the cows' activity, fertility and on the growth of your young cattle. Cows benefit of good and efficient light management in the barn. Simulating a long summer day stimulates growth, heat detection and milk production. Special programs can be applied whether it is for young stock, lactating cows or dry cows.
Fully automated. With ISAF you are always assured of the right amount of light at the right time and in the right place in the barn. This is thanks to an individual lighting control system for each light. The lighting control system is wirelessly connected and fully automated and the amount of light is determined per individual light. The lighting control system also factors in light coming from the windows or other sources. The best possible lighting with the least possible effort.
Energy saving. The unique and automated lighting control system means that ISAF also saves you energy. You can achieve the most efficient level of lighting with a minimum number of lights. By only allowing the lights to turn on when necessary, you achieve the required lighting intensity with the fewest possible hours of operation and lighting levels. Saving you energy can reach 80% over traditional lighting systems and 50% over LED based Lighting.

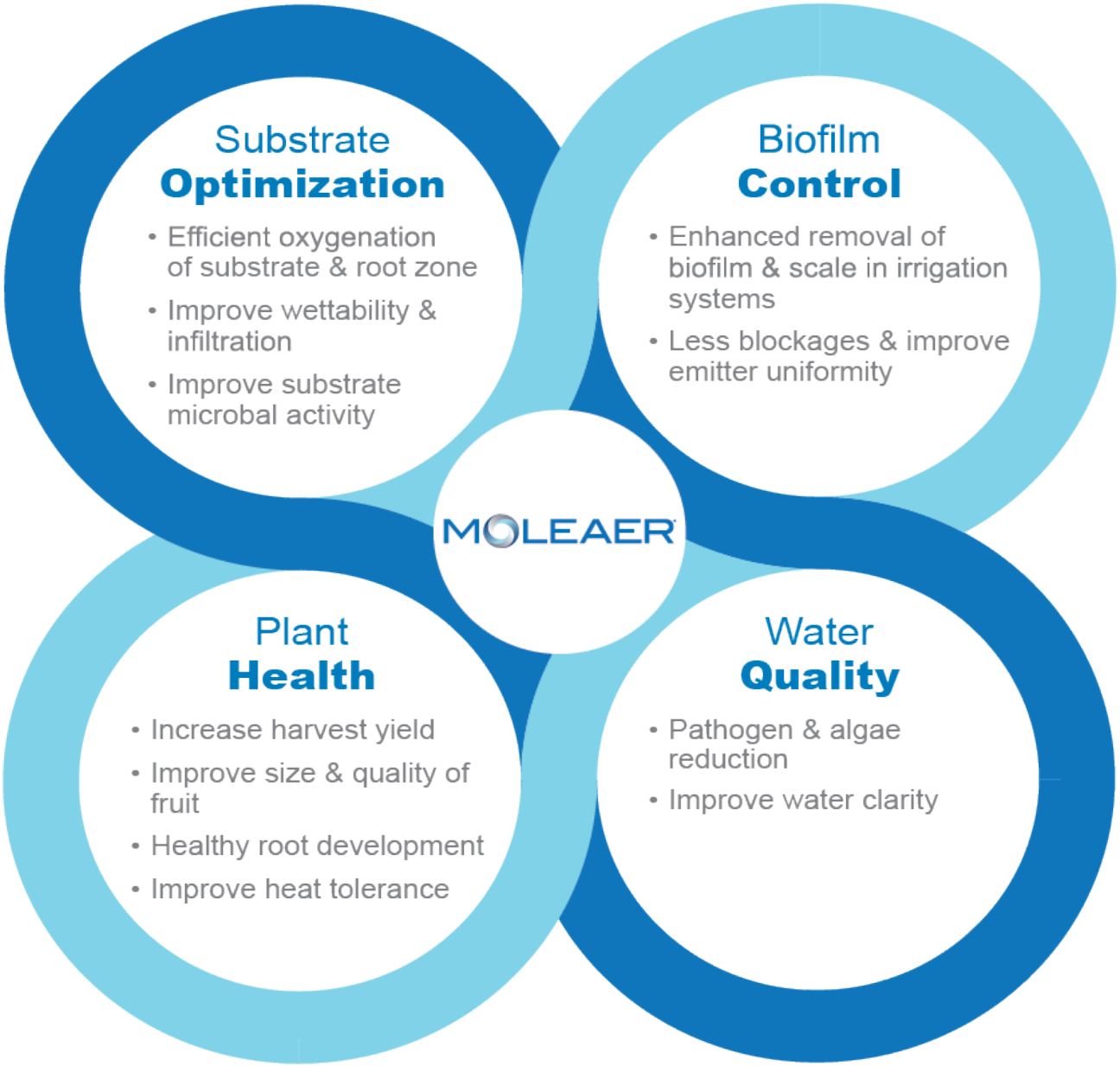


INTEGRATED SMART ANIMAL FARMING [ISAF]

Real-time animal monitoring

Real-time animal monitoring with precision livestock farming (PLF) technology will become more prevalent with 5G-enabled technology, such as animal tags, sensors and cameras. Through 5G connectivity, farmers can monitor animal eating and sleeping patterns, feed availability, indoor and outdoor environments, and general behaviour to identify if an animal is sick or even pregnant. As in the case of precision agriculture, smart farming techniques enable farmers better to monitor the needs of individual animals and to adjust their nutrition accordingly, thereby preventing disease and enhancing herd health. Large farm owners can use wireless IoT applications to monitor the location, well-being, and health of their cattle. With this information, they can identify sick animals, so that they can be separated from the herd to prevent the spread of disease.

NANOBUBLES TECHNOLOGY FOR HORTICULTURE



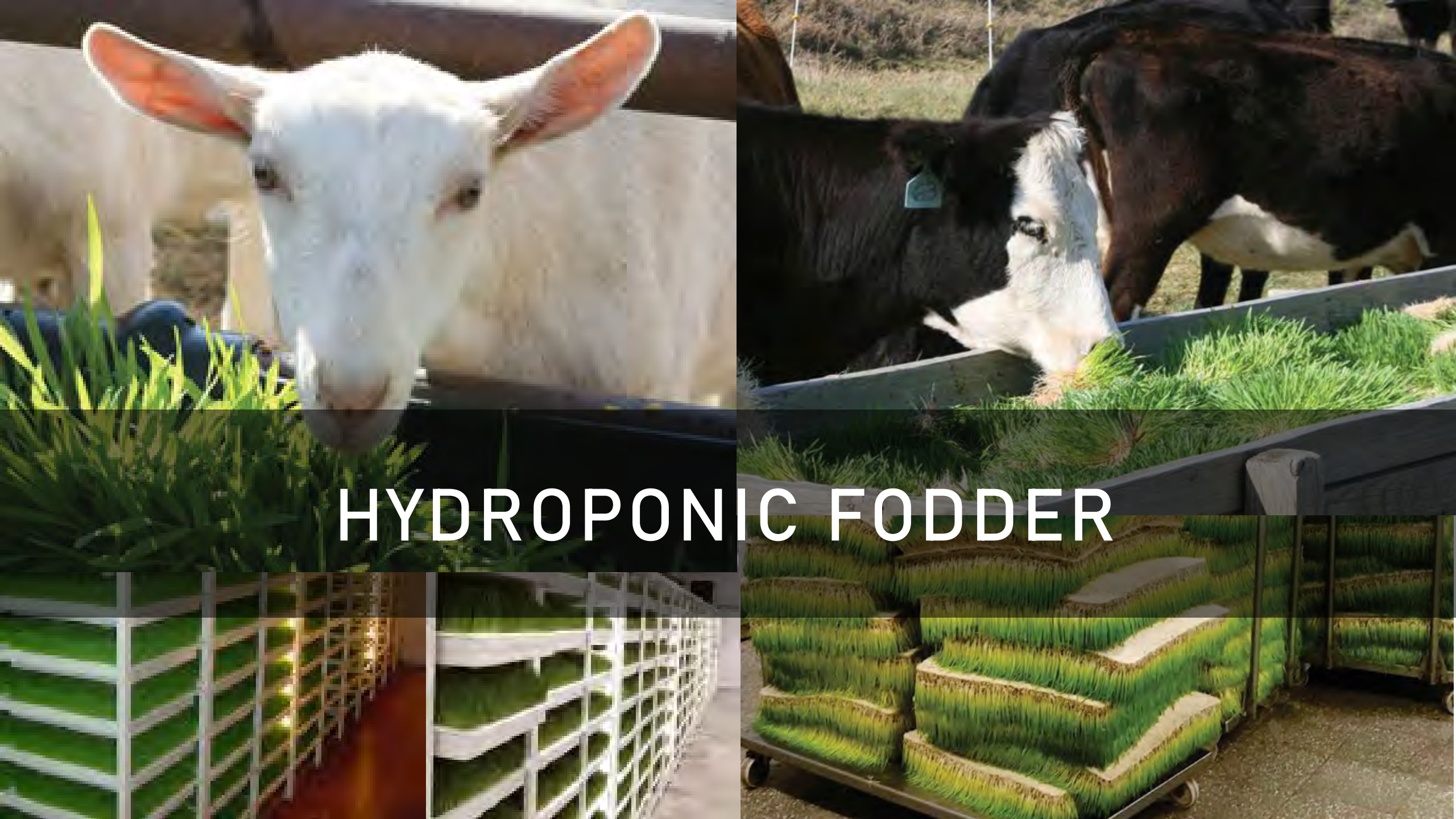
Benefits of Oxygen Nanobubbles in Cultivation

Before

After

Basil & Leafy Greens: Reduced Pythium Levels Increase Yield by 30%

GROW LIGHTING SYSTEMS



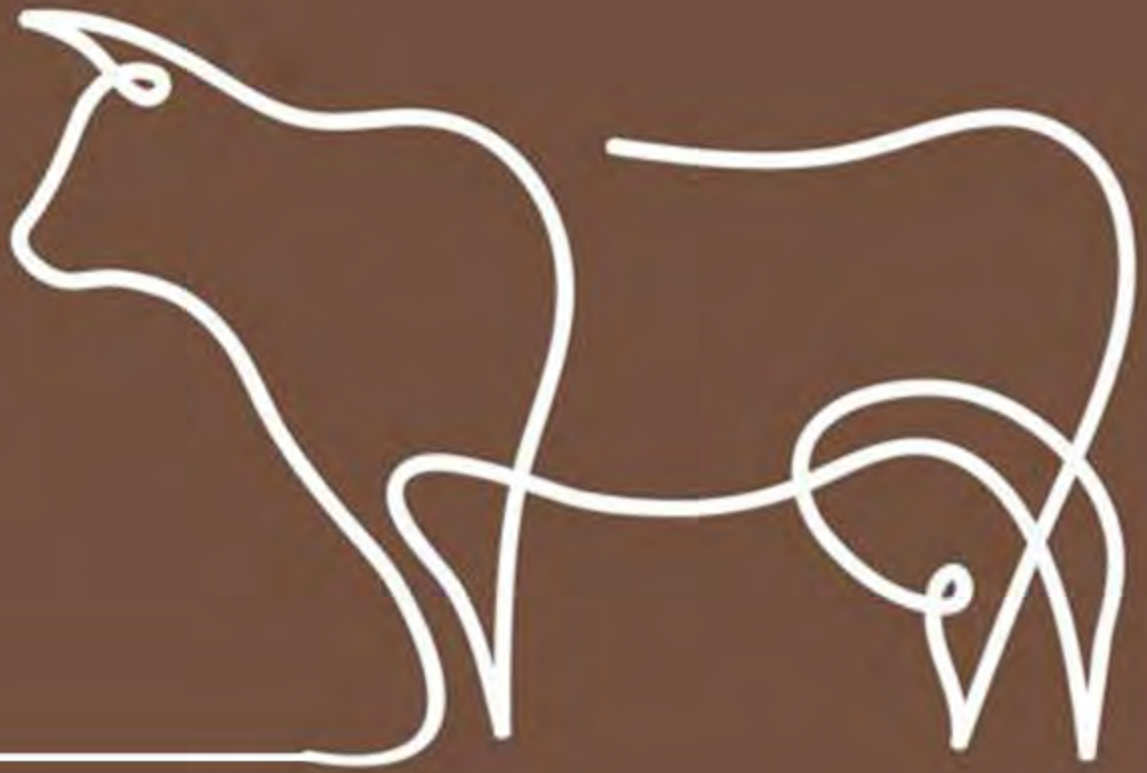
HYDROPONIC FODDER

HYDROPONIC FODDER PRODUCTION

Our company provides technology solutions for the agricultural sector through high-quality, cost-effective feed solutions using hydroponic technology.
Our hydroponic fodder system is a climate controlled system that allows the growing of seeds into a high grass mat in approximately six to seven days.
As livestock eats the whole thing - seeds, roots, and grass. There is zero waste.
Each initial operation will consist of fodder production centers at two levels of production capacity.
Entry level production unit installation is able to produce 1-4 tons per day
Pro level is able to produce 7-20 tons per day of biological, fresh livestock feed.

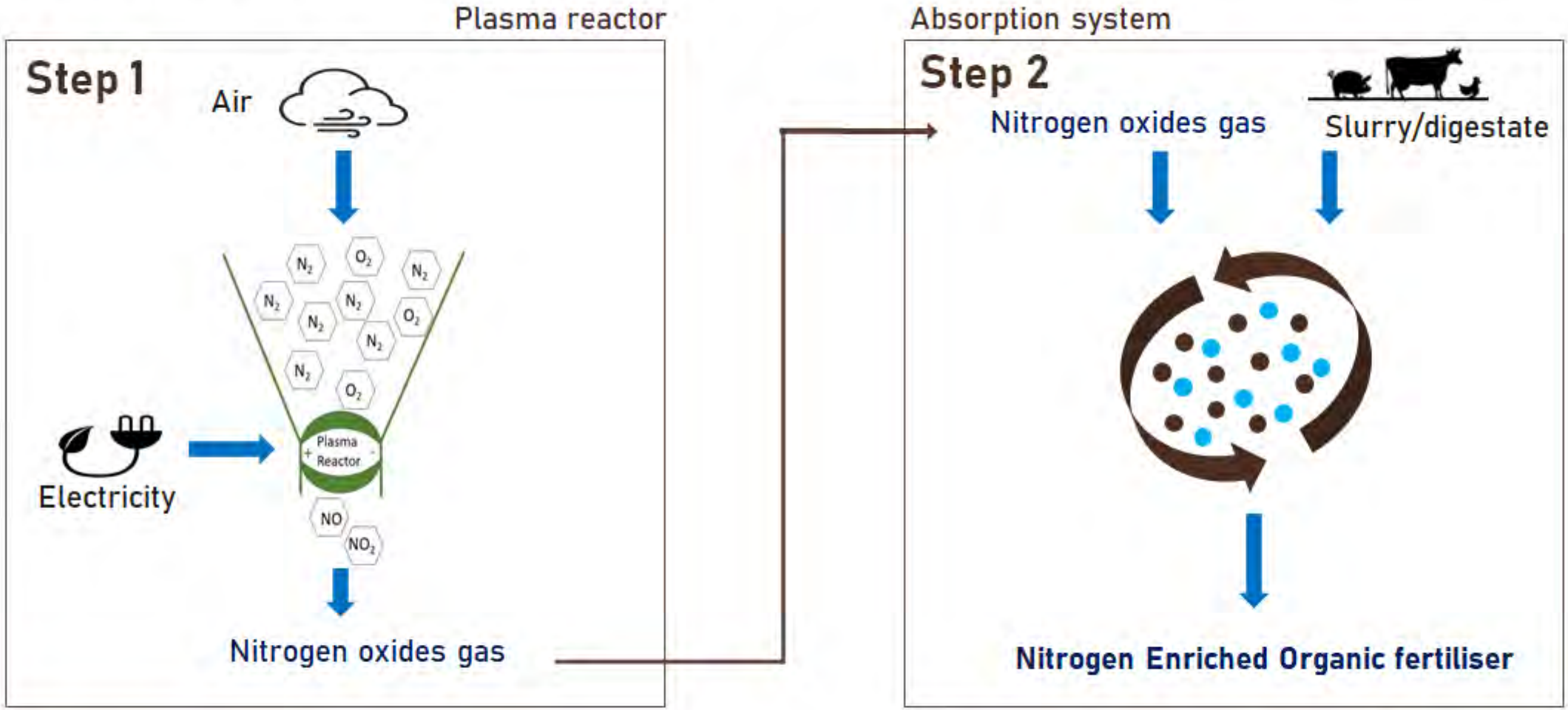
- Our fodder system benefits animals in the following ways:
  - Increases weight gain
  - Reduces illness such as colic and gut ulcers
  - Improves appearance of coat or fleece
  - Improvements in hoof strength and quality
  - Improved conception and birth rates
  - Improves milk yield and levels of unsaturated fatty acids (UFA)

N2 Applied has developed a technology that enables local production of fertiliser from liquid organic substrates such as slurry or digestate with air and electricity. The technology adds nitrogen from the air into the liquid substrate and increases the nitrogen content. The reaction stops the loss of ammonia and reduces emissions, making it an efficient and sustainable fertiliser, and creating a more circular farm system. N2's scalable process enables fertiliser production to be re-distributed to the end-user, the farmer – cutting long and expensive value chains, and reducing the need for chemical fertiliser production based on fossil gas or coal. The solution also provides on-farm emission reductions of methane and ammonia, as well as odour.



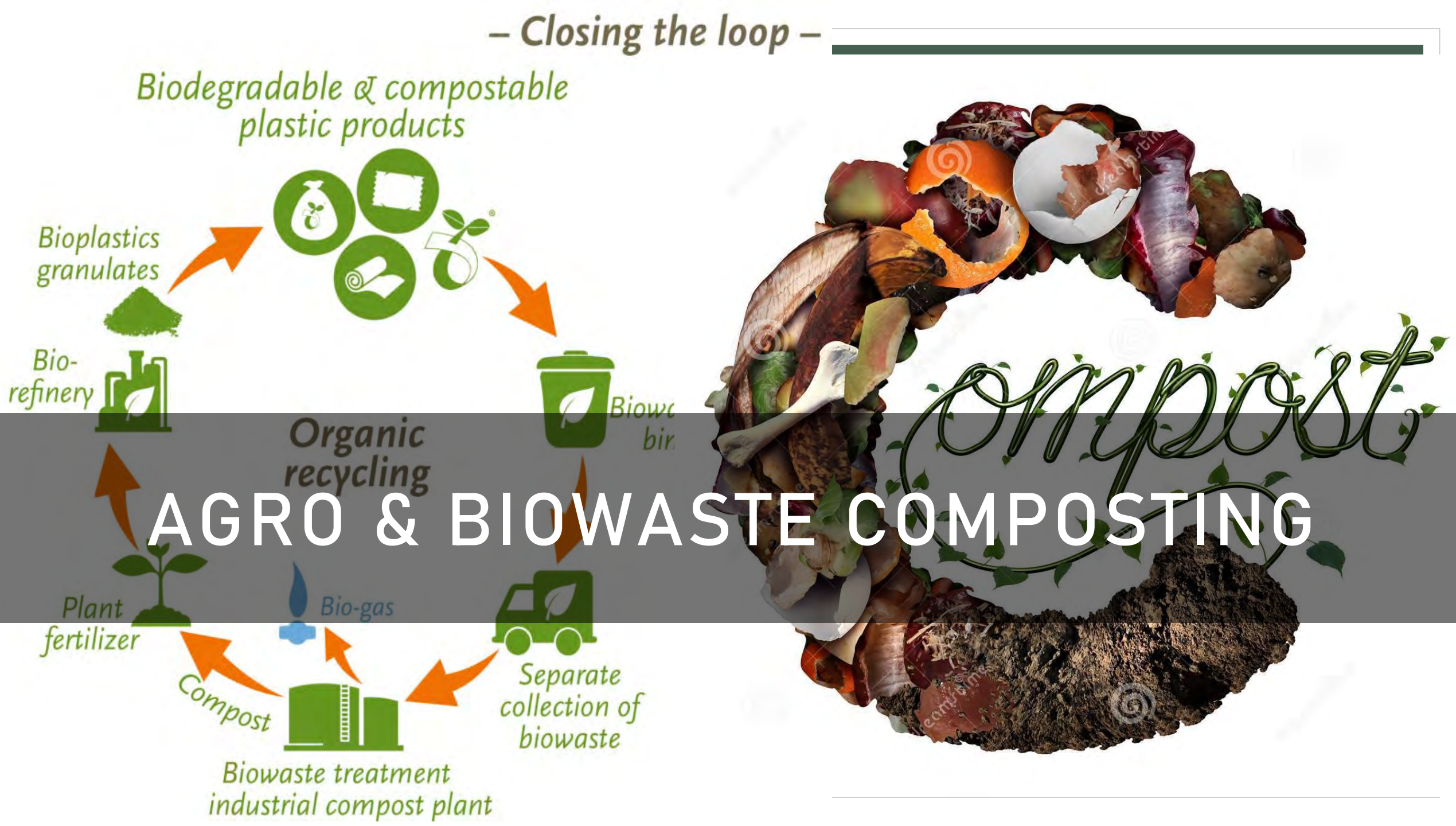
N2 Applied

How it works - Two steps



- Nitrogen from air added as plant available nitrogen
- Stops ammonia and methane emissions
- Manure smell is removed

N2 — Applied

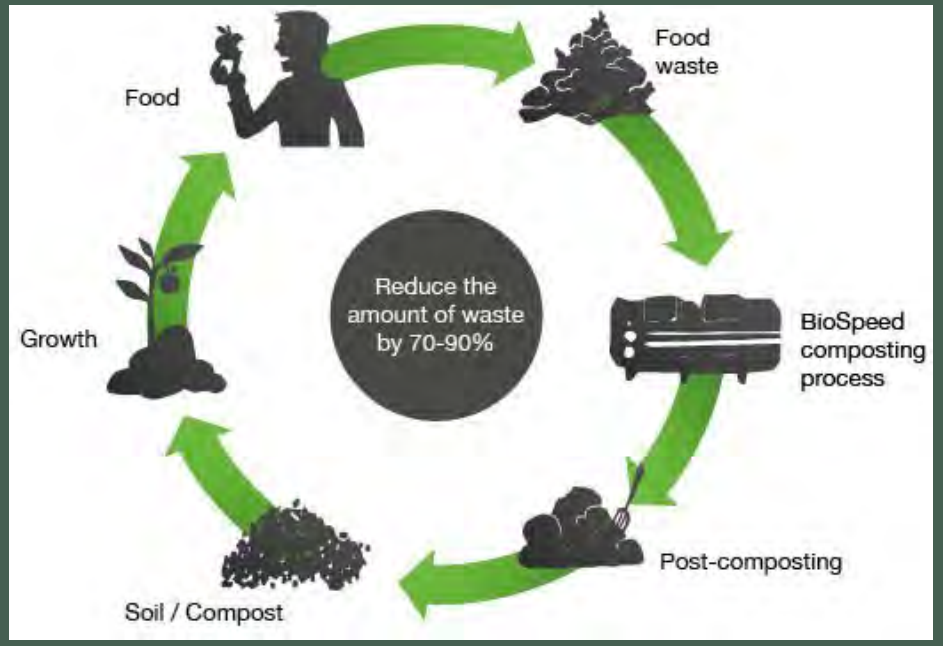


AGRO & BIOWASTE COMPOSTING

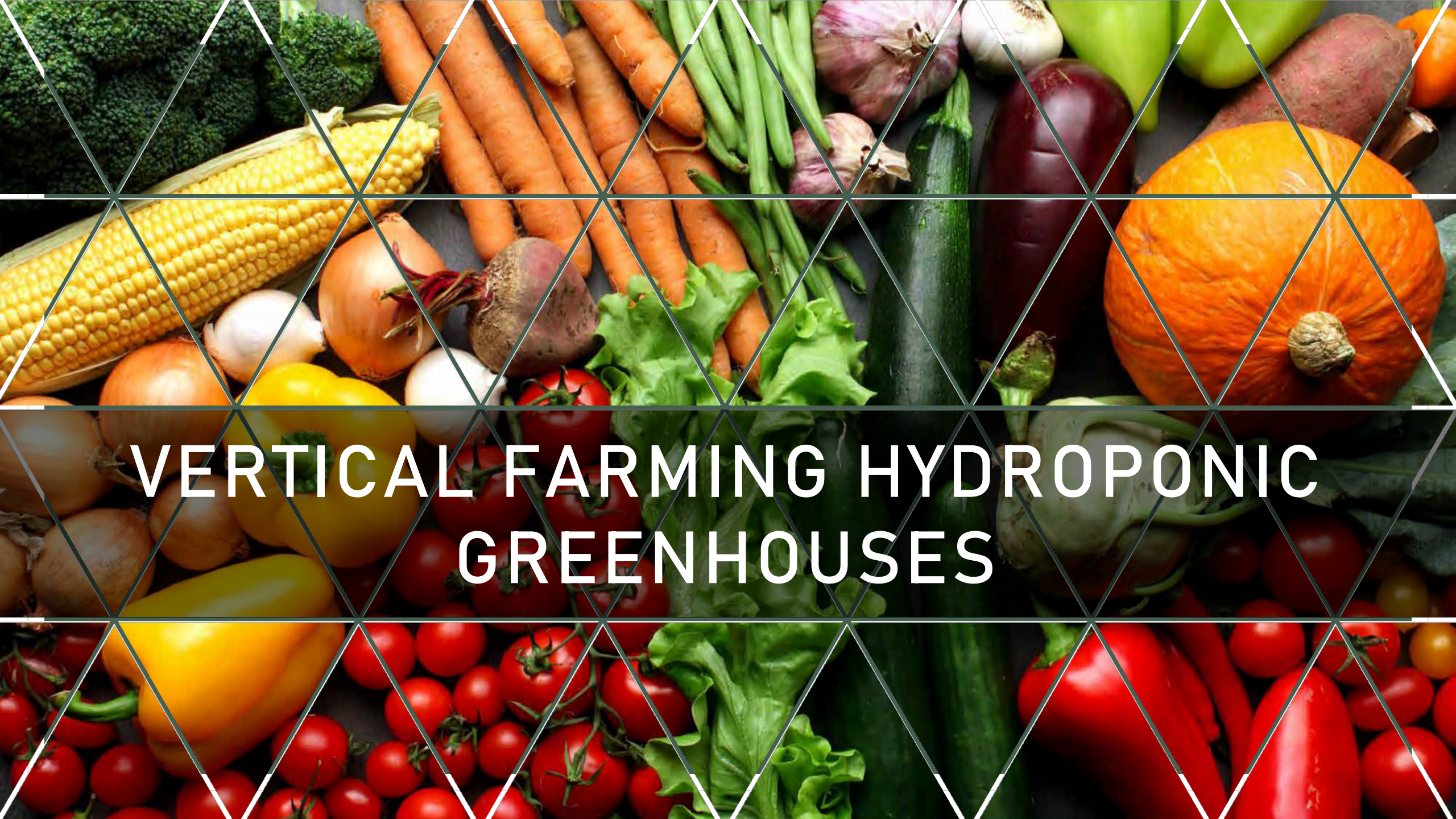
HIGH SPEED BIOWASTE COMPOSTERS - ORGANIC WASTE RECYCLING AT SOURCE

Eliminate biowaste at source with high speed, closed composters with unattended, odorless operations and creation of valuable compost.

CIRCULAR ECONOMY THE BIOWASTE RECYCLE



Composting of dry poultry excrement, broiler manure and separated pig slurry – fast and fully automatic



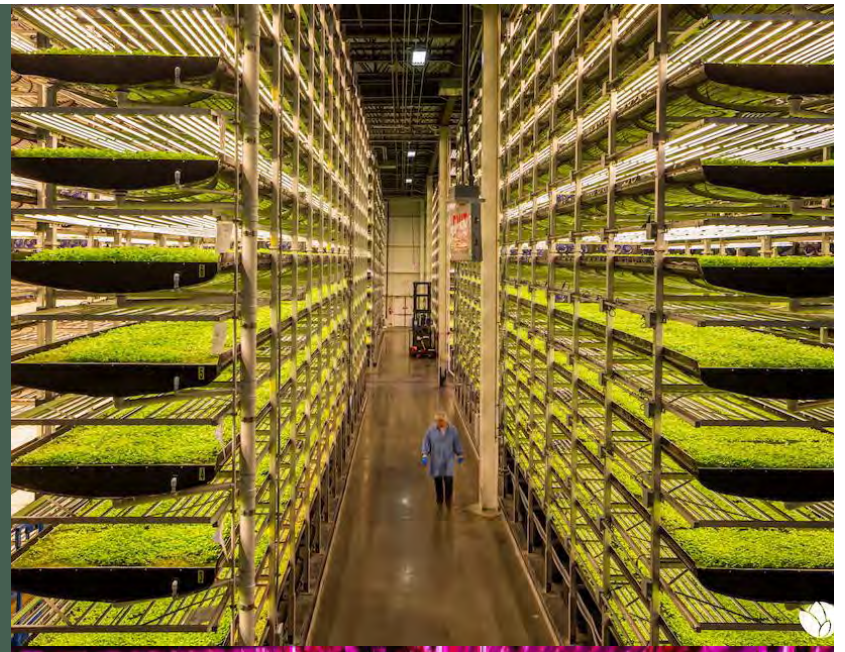
VERTICAL FARMING HYDROPONIC GREENHOUSES

Κλειστές Κάθετες Καλλιέργειες – Vertical Farms

- Θερμομονωμένες καλλιεργητικές περιοχές
- Πολλαπλά στρώματα (σειρές ή στήλες) καλ/γειας φυτών
- Σύστημα θέρμανσης/δροσισμού (κλιματισμός-αντλίες θερμότητας)
- Τεχνητή κυκλοφορία αέρα (ανεμιστήρες)
- Φίλτρα CO_2
- Τεχνητός φωτισμός (LED)
- Υδροπονικό/Αεροπονικό σύστημα καλ/γειας
- Θρεπτικό διάλυμα
- Αυτοματισμοί/Ρομπότ

Κλειστές Κάθετες Καλλιέργειες Vertical Farms Διαφορετικά μεγέθη – Επιχειρηματικά Μοντέλα

Αποθήκες



Κλειστές Κάθετες Καλλιέργειες Vertical Farms Διαφορετικά μεγέθη – Επιχειρηματικά Μοντέλα

Containers

Φυτά που Καλλιεργούμε σε Vertical Farms

Κριτήρια επιλογής καλ/γειας:

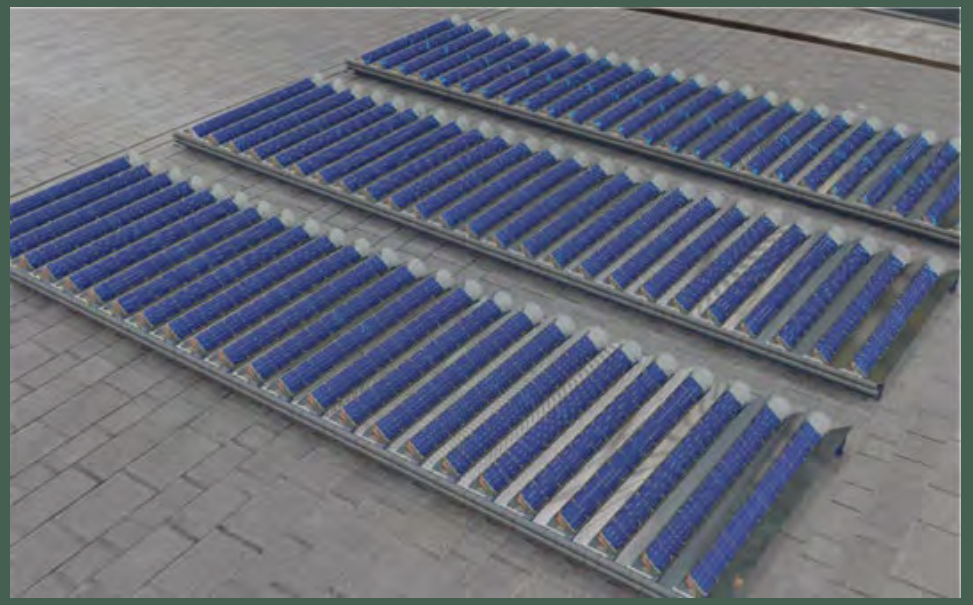
- Πυκνότητα φύτευσης
- Ύψος φυτών
- Διάρκεια κύκλου ζωής
- Τιμή πώλησης

- Leafy greeneries
- Berries – Cherry tomatoes Herbs
- Flowers – Edible Flowers Microgreens
- Medical Cannabis

Πλεονεκτήματα Vertical Farms

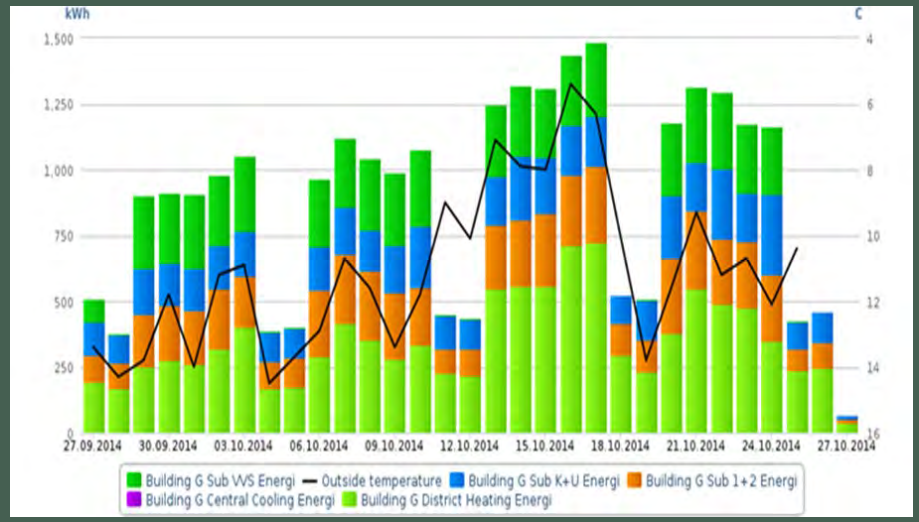
- Μηδέν Γεωργικές απορροές – Διαχείριση αποβλήτων – Συστήματα κλειστού βρόχου (close loop)
- Παραγωγή όλο το χρόνο – Ανεξαρτησία από περιβαλλοντικές συνθήκες
- Χωρίς απώλειες καλλιέργειας από σοβαρές και απρόβλεπτες καιρικές συνθήκες
- Χρήση 70-95% λιγότερο νερό, χωρίς αγροχημικά και ορυκτά καύσιμα
- Εξάλειψη του κόστους μεταφοράς και εκπομπών CO2 (foodmiles)
- Τοπική παραγωγή – Τοπική κατανάλωση
- Επιτρέπει την ανάπλαση του κατεστραμένου οικοσυστήματος
- Αποκατάσταση γκρίζου νερού
- Δημιουργία νέων θέσεων εργασίας σε τοπικό επίπεδο
- Παραγωγή φρέσκων προϊόντων για τους κατοίκους της πόλης
- Χρήση εγκαταλελειμένων κτηρίων στο αστικό δίκτυο
- Καλλιέργεια βιοκαυσίμων από τα υπολείματα καλ/γειας
- Αποτελεσματική και αποδοτική με έξυπνα δίκτυα ανανεώσιμης ενέργειας
- Νέα εποχή Δικτύου Νερό – Τροφή – Ενέργεια (Water-Energy-Food Nexus)

LOW HEIGHT SOLAR THERMAL

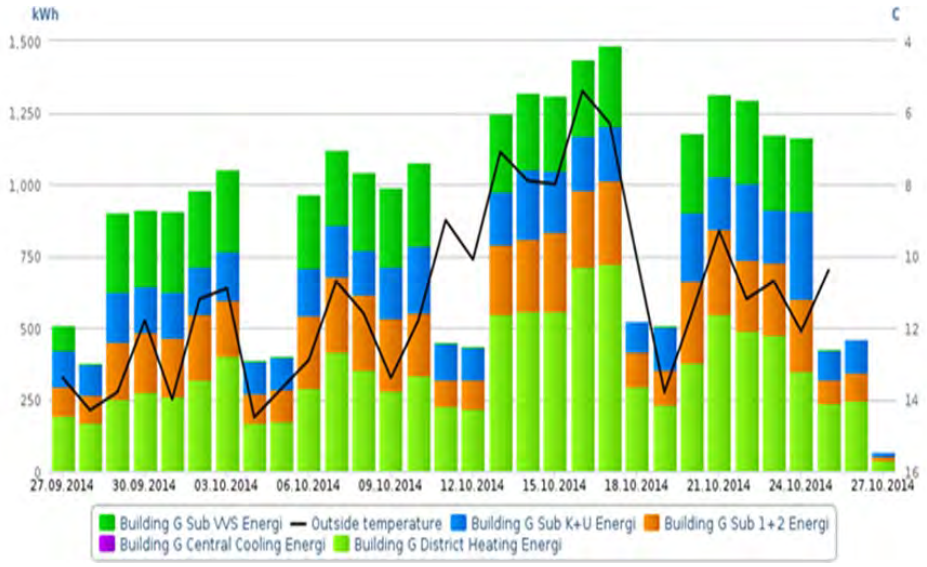


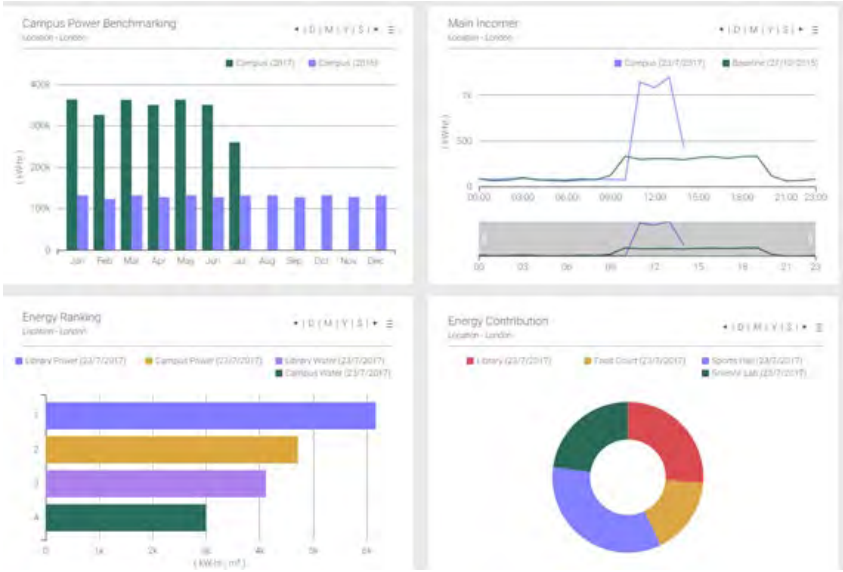
CLEAN WATER FROM THE AIR

ENERGY & GHG EMISSIONS MANAGEMENT



ENERGY MONITORING& MANAGEMENT





EnMS, Energy Management System is an integrated solution that combines hardware, software and services to help cut utilities' cost, implement energy strategies, reduce GHG emissions and optimize processes.

ENERGY MONITORING& MANAGEMENT

Energy costs are the most significant item of a company's operating expenses. The volatility of energy prices, the mandatory compliance to regulations lead companies and organizations towards more efficient energy use. The introduction of robust and efficient energy management systems helps you to better understand and thus control energy use and take informed managerial and efficiency decisions. Global Esco offers an integrated tool that combines: Energy Monitoring and Management along with Environmental Reporting, Waste Management, Project Management and help to achieve faster and maintain your ISO 50001 Certification.

Meter. We gather metering data from both your existing meters and additional wirelessly connected sub-meters to give a complete picture of your site's energy usage in real-time. Our wireless metering devices collect data on lighting, heating, air conditioning and any other systems you need to monitor.
Control. Directly control all major plant on site to identify wastage, reduce costs and drive your efficiency strategy - all benefiting your bottom line
Monitor. As well as ensuring that all of your buildings are at the correct temperature and lighting is only on when needed, we also monitor energy usage and other important variables like occupancy status, humidity and air quality to identify potential wastage.
Analyze. Analyze the performance of each building with energy reporting tailored to your specific requirements. Our reports provide close analysis of a wide range of plant or site performance including: plant runtime; environmental reports; client consumption; client override; and sitewide thermal mapping.
Manage. Our dedicated bureau team of engineers review your buildings daily to optimize energy performance, and remotely fix problems as they arise. Our Enterprise Manager application provides advanced alarm handling capabilities as well as features such as leaderboards for benchmarking, regression analysis and thermal mapping.

ENERGY MONITORING& MANAGEMENT

EVO's IPMVP protocol: Real-time savings verification

Certify achieved energy savings according to IPMVP protocol by comparing your current consumption vs your baseline.

- Certify and validate savings in a objective way
- Monitor your Energy Efficiency Measure portfolio in real-time, quantifying achieved savings
- Easily detect when your consumption exceed what was expected

Basic and advanced reports: Report energy savings to entire community

Set up automated reports to receive, weekly or monthly, advanced data analysis in your e-mail, ready to make decisions.

- EXCEL or pdf reports
- Weekly, monthly, quarterly or on-demand automations
- Custom figures
- Comments insertion
- Send to e-mail only to indicated users
- Electricity, gas, water, cost, EnPI's, trends, benchmarking, etc.

Energy App Market©: Energy Management has no limit

Third-party developed apps market to get the most of your data, covering all project requirements.

- Apps developed
- Differentiate from other partners developing your own apps.
- Develop your own apps if Energy Manager doesn't covers all your project needs
- Get revenue from selling your apps into Energy App Market®
- Analysis, reports, widgets, alerts, data backups apps.
- Goals, targets, budgeting, renewables energy, forecast…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