



CLEAN ENERGY ESB

CARBON BIOCAPTURE TECHNOLOGY

WORLD LEADER IN GREEN TECHNOLOGY



CLEAN ENERGY **ESB**

- Clean Energy seeks to reduce the carbon footprint and promotes sustainability in the community.
- The first operational biorefinery in the world, directly connected to a fossil-fuel thermal power plant and a cement plant.
- Negative Emissions Technology (NET) based on proprietary photobioreactor (PBR) design and patented microalgae management systems.
- Highly innovative systems in carbon sequestration, while producing usable biomass, oxygen and clean water.





CIRCULAR ECONOMY



Stage 2
Biological Sequestration
CO₂



Stage 3
Biomass Production



Stage 6
Biomass derivatives



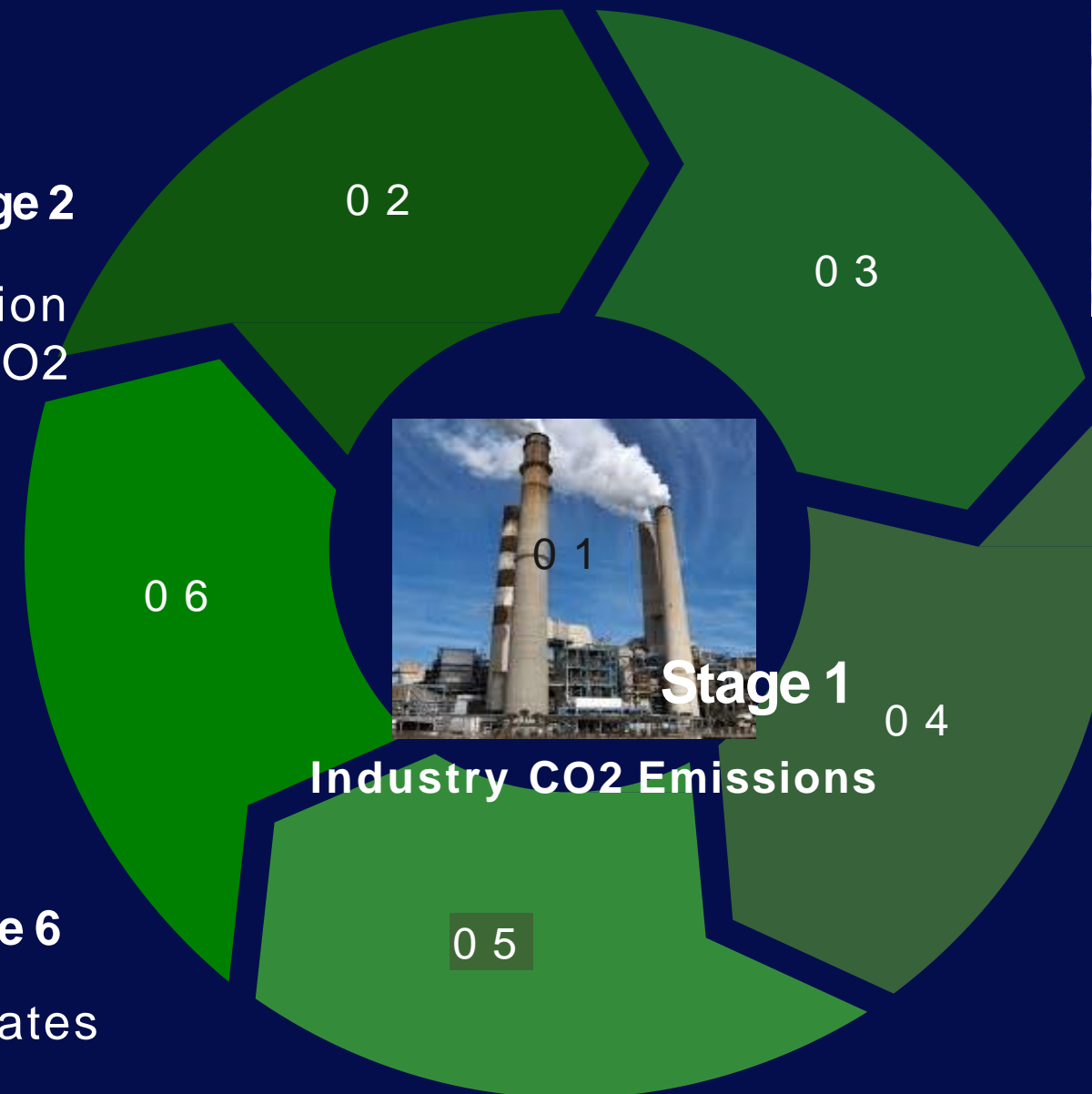
Stage 1
Industry CO₂ Emissions



Stage 4
Oxygen Production



Stage 5
Purified water release





TECHNOLOGY ADVANTAGES



- Capture up to 86% of CO₂ (Carbon emission sequestration)
- Substantial reduction of POP's, NO_x (Up to 92%), SO_x (100%), CH₄ and other gases
Processes industrial wastewater
- Low operating and maintenance costs
- Modular technology/scalable results
- Hurricane and earthquake resistant
certificated by University of Miami
- Adaptable technology to different
contaminated environments
- Highly efficient production of Biomass
- Real time monitoring systems



CLEAN ENERGY **ESB**





INDUSTRY BENEFITS

CARBON NEGATIVE TECHNOLOGY

Beyond net zero carbon

COMPETITIVE INVESTMENT

ROI POSITIVE

EFFLUENTS PURIFICATION

When needed – phosphates, nitrates and sulphates reduction

CORPORATE IMAGE

Branding Recognition



URBAN CAPTURE

CARBON SEQUESTRATION

- Sequesters gas emissions from the atmosphere as an autonomous unit.
- Sequesters emissions from urban installations Hospitals, Schools, Buildings, Restaurants, Hotels, etc.
- 2 Urban captures can reduce the emissions of a building with 1,200 people per day.
- Negative Emissions Technology (NET)



VALIDATED
TECHNOLOGY

15 years research and 10 years in operation in
AES Corp and 2 years in Argos Group.

COMMERCIAL
PARTNERS



PATENTS

Certified in 38 countries

STRATEGIC
ALLIANCES



Germany

Portugal

USA

LEGAL PARTNERS





OUR UNIQUE ADVANTAGES

OTHER BIOMASS SYSTEMS

Use modified strains or strain collections, safety hazards (GMO)

Use clean gases or ponds (additional costs)

Use up to 2,500 times the energy produced

Open ponds exposed to invasive species

Operating under highly restricted conditions

CLEAN ENERGY EBS

Adaptation and cultivation of native microalgae, without genetic manipulation

Use raw gas, without fractionation or pre-treatment

Positive Energy Balance. It does not use electricity

Closed System ensures production and safety.

Flexible/ adaptable in new polluting environments

CLEAN ENERGY ESB



CLEAN ENERGY ESB



**HELPING COMPANIES REDUCE EMISSIONS THROUGH
CARBON BIOCAPTURE TECHNOLOGY**