

BIOCH4NGE®

CHANGE HAS ARRIVED
FOR BIOMETHANE WITH BIOCH4NGE®.



CHANGE HAS ARRIVED.

Using our expertise and technologies to support businesses looking to increase their competitive capacity, while saving energy and limiting emissions into the environment. Since 1981, this has been the mission of AB. After a journey distinguished by continuous innovation, which enabled us to become the global leader in the entire construction cycle for biogas and methane

gas cogeneration plants, we now have a new challenge: to offer turnkey solutions for the production of biomethane. Because for us at AB, sustainability is a high-priority and unceasing commitment. A way of being and working to improve today's world, with a keen eye on the future. **With BIOCH4NGE® change is already here. And now we want to share it with you.**

**AB: EXPERTS AND INDUSTRY LEADERS IN
COGENERATION SOLUTIONS, ENGAGED
IN THE DEVELOPMENT OF SYSTEMS TO
ACHIEVE ENERGY SUSTAINABILITY**



With more than **1,550 plants** for a total of over **1,750 MW** installed, AB is the global leader for energy sustainability solutions: cogeneration from methane and biogas, biomethane and emissions treatment with solid experience in the design, production, installation and maintenance of plant solutions of absolute excellence.



AB SERVICES FOR BIOMETHANE

ENGINEERING OF THE OFFER

Technical - economic feasibility plan

AUTHORISATION PROCEDURE SUPPORT

Assistance during the project authorisation stage

BIOGAS QUALITY ANALYSIS

Monitoring of biogas composition through continuous and specific periodic analyses | Predictive management of purification of the gas flow assigned to upgrading

DESIGN

140 technicians | Electrical engineering | Mechanical engineering | Process engineering

PRODUCTION

Area of 34.000 m², of which 26,000 m² under cover | Automised warehouse | Painting technology with water | Standardisation of processes

INSTALLATION

Hydraulic, mechanical and electrical interfacing with the client's plant environment | Rapid installation and site start-up

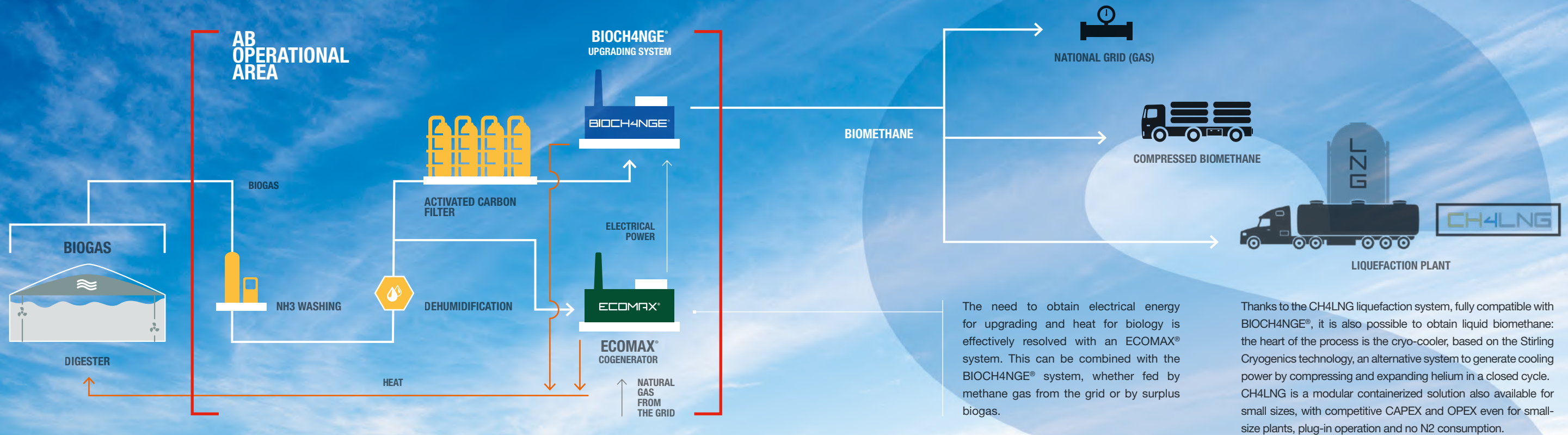
CONTROL SOFTWARE

Choice of service structures | Monitoring of operational conditions | Monitoring of plant profitability | Remote connection via data networks / Internet

SERVICE

Wide geographical coverage | 365 days a year availability | AB Service Competence Center

**BIOGAS AND BIOMETHANE:
SUSTAINABLE, PROGRAMMABLE,
EFFICIENT AND PROFITABLE
ENERGY.**



SOURCES



SLURRY AND
MANURE FROM
COWS AND PIGS



OFMSW - SEPARATE
COLLECTION OF
ORGANIC WASTE



SEWAGE SLUDGE



CHICKEN MANURE



SUGAR CANE



SLUDGE AND
WASTE FROM
PAPER MILLS



WASTE FROM
SLAUGHTERHOUSES AND
THE MEAT PROCESSING
INDUSTRY



WASTE FROM AGRO-
FOOD INDUSTRIAL
PROCESSES



LIGNOCELLULOSE
BIOMASS



STRAW FROM RICE, MAIZE
AND WHEAT

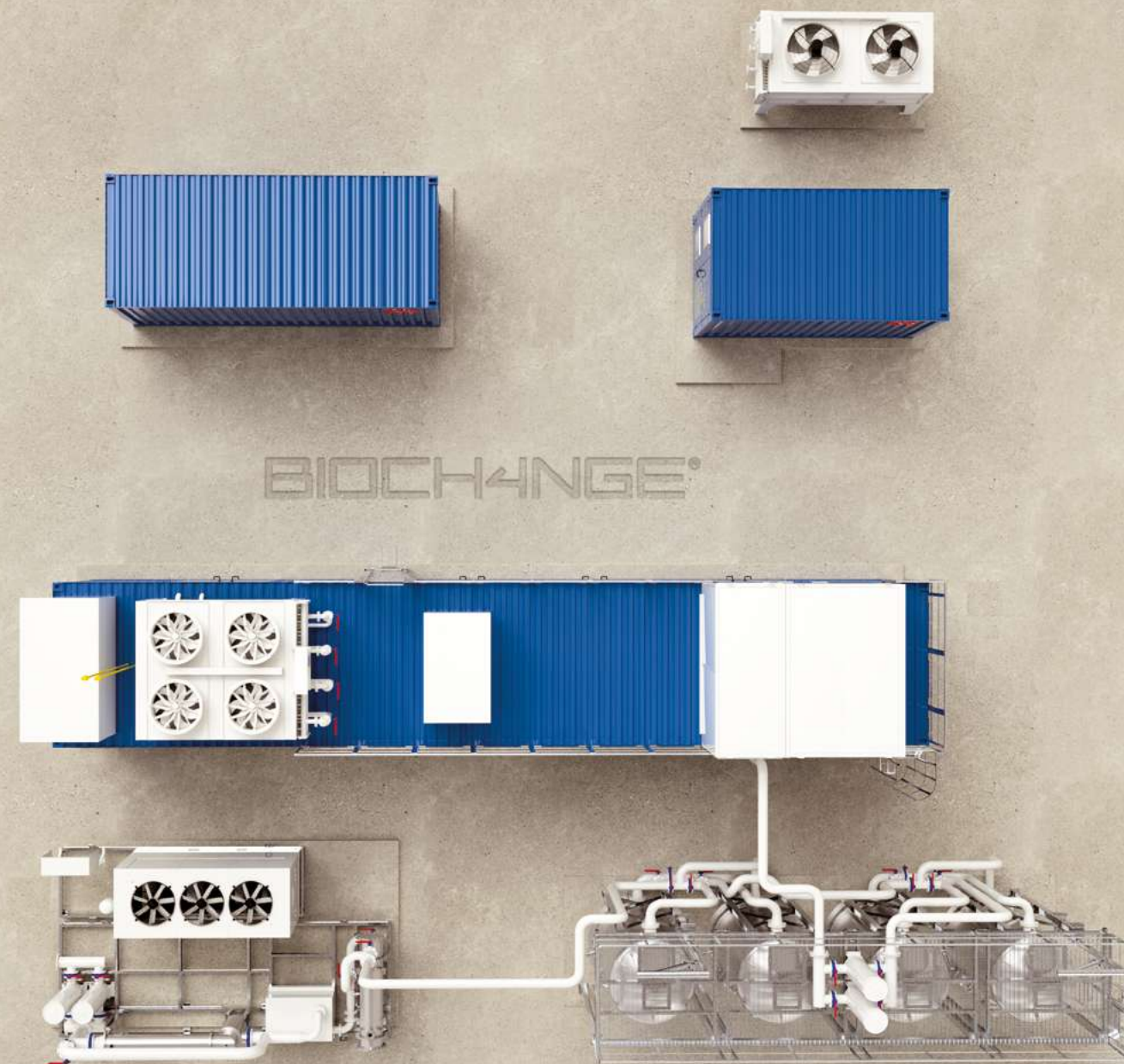
BIOCH4NGE®: OUR SOLUTION.

DRY COOLER
FOR COMPRESSORSVENTILATION
SYSTEMACTIVATED
CARBON FILTERSMEMBRANE
SKIDINTERSTAGE
COMPRESSORPRE-TREATMENT
SKIDCONTROL
ROOMMAIN
COMPRESSOR

BIOCH4NGE®

DISCOVER ALL PRODUCT
DETAILS IN A 3D VIDEO RENDERING

AN EFFICIENT SYSTEM FOR BIOMETHANE PRODUCTION.



Biogas produced by an anaerobic digester is full of water and pollutants that have to be removed to ensure that the upgrading system works correctly, producing biomethane suitable for feeding into the network. The first stage of the process carries out this purification. The flow is initially treated in the “Biogas Treatment” system with a first filtration process along with the elimination of the water, which is condensed by cooling with a purpose-designed chilled water exchanger. The dehumidified gas is compressed, cooled further by a second exchanger and sent to the next treatment phase. This uses activated carbons under optimal pressure and temperature conditions. By passing through the bed of activated carbons the biogas is purified

of any remaining pollutants (H_2S , VOCs). The “Lead-Lag” configuration of the carbons provides maximum flexibility through a series of valves to enable inverted flows and the bypassing and sectioning of the individual filter, thus ensuring reliability and continuity of service. The pre-treated and purified biogas is then ready for the upgrading process itself, i.e. the separation of methane from carbon dioxide: the gas is compressed to enable it to pass through several stages of membranes separating the CO_2 from the CH_4 . In this way the process is optimised in terms of energy consumption and enables the production of biomethane with characteristics as needed for different uses, maximising efficiency in recovering CH_4 from the biogas.

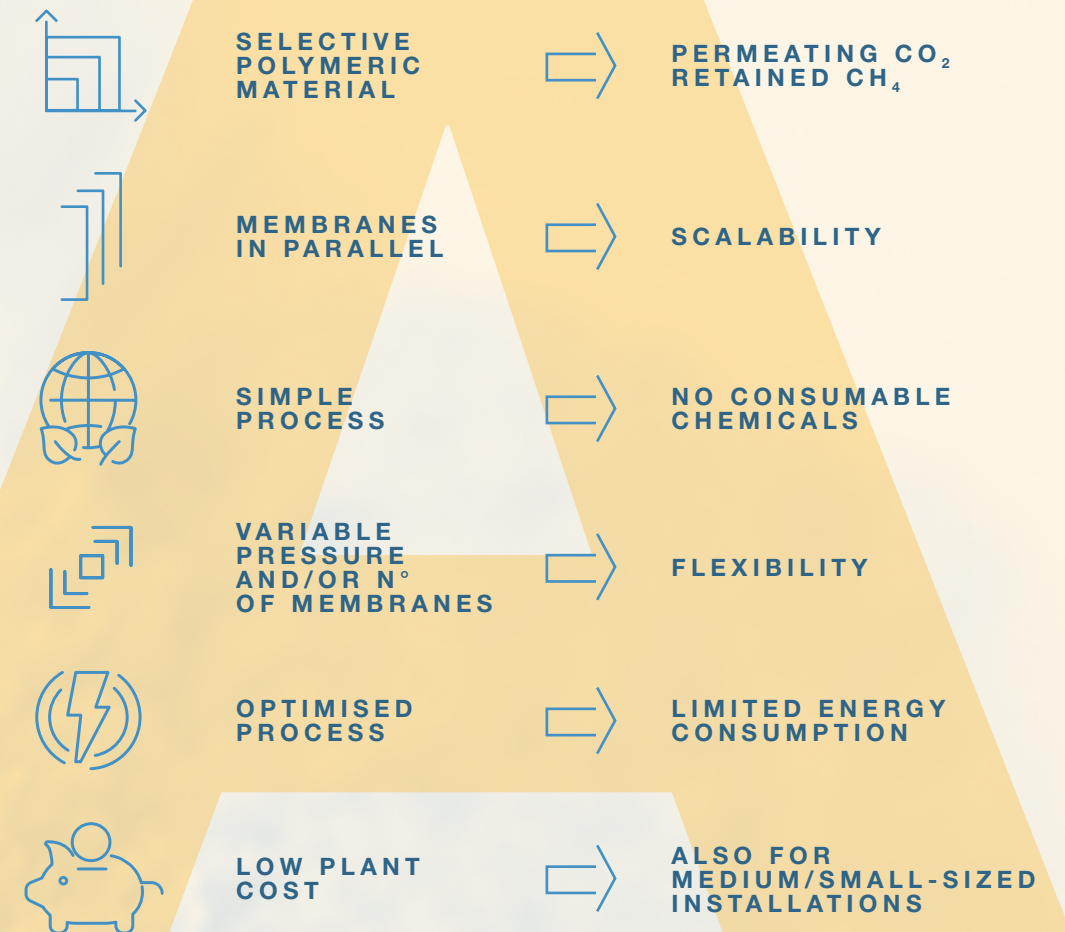


BIOMETHANE BY AGRO-INDUSTRIAL SECTOR / OFMSW / WWT.

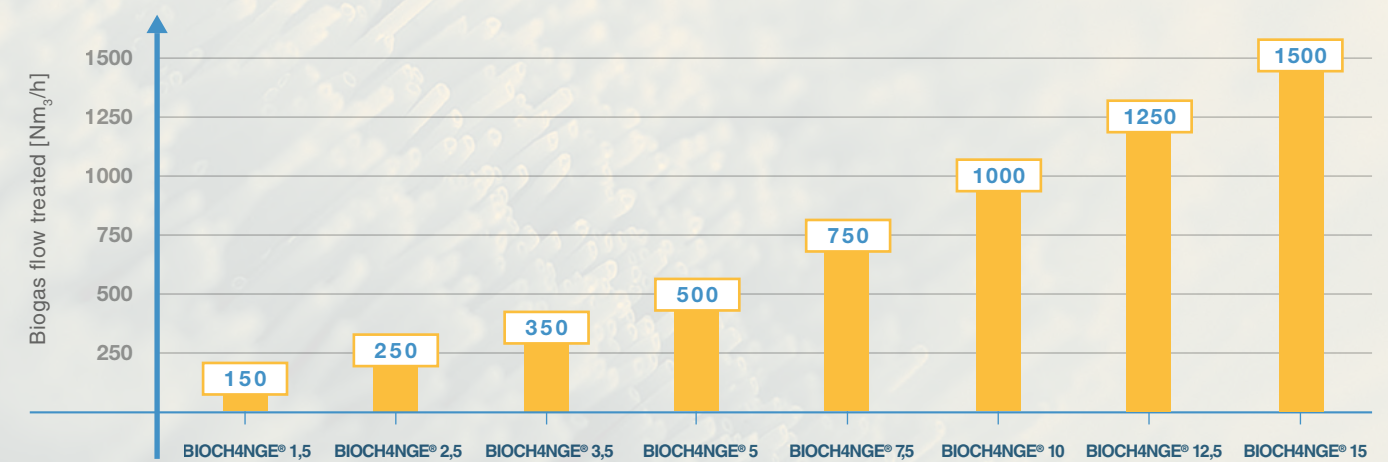
There are various biomethane upgrading technologies available on the market, based on different chemical and physical principles relating to gas separation. AB has chosen the membrane-based system, the most widely used worldwide, consisting of special polymeric materials with a selective permeability useful in separating CH_4 and CO_2 . The pretreated gas is compressed over several phases and sent to different stages of membranes to optimise the operation; two stages aligned in series ensure compliance with grid specifications, while a third stage has the specific

task of optimising methane recovery while simultaneously limiting emissions into the atmosphere. Through independent compressions management the control system is able to regulate the operating pressures in the separation stages, thus ensuring the required performance with the lowest possible energy consumption. Other advantages are the simplicity of the process (without intermediate phases or the use of chemicals or consumables) along with high scalability and flexibility - e.g. operation also with partial loads (ideal for possible future plant expansion).

SUMMARY OF ADVANTAGES



PRODUCT RANGE AIMED AT THIS TARGET



Specific consumption: 0.26 kWh/Nm³ - CH_4 recovery: > 99%

SERVICE : A STRATEGIC CHOICE TO ENSURE THE CERTAINTY OF THE PAYBACK ON YOUR INVESTMENT.

Thanks to our staff of specialized technicians operating around the world, AB guarantees the constant maintenance of each plant installed throughout its life cycle. The advantages offered by AB Service begin with the installation of the plant:

- a single partner for every need
- remote monitoring and online diagnosis
- availability and supply of original spare parts
- extensive presence of personnel near the installation sites
- wide network of spare parts warehouses
- guarantee of quick turnaround timeframes on site for repairs, updates and overhauls.

+1,300

Plants supported
and monitored

H24

Active 24 hours
a day, 365 days
a year

THE MAINTENANCE CYCLE

01

Maintenance contracts

Customised contracts meet every individual need, ensuring high availability and yields throughout the working life of the plant with the advantage of outstanding performance.

02

Implementation

AB specialists ensure qualified plant installation and start-up in-line with requirements.

03

Training and refresher courses

AB provides immediate support for the customer's own technicians through ad hoc training to ensure the maximum operational and functional efficiency of the plant.

04

Remote monitoring and online diagnosis

Facility operational 24 hours a day, 365 days a year, with the plant constantly monitored by activating the remote Control Room diagnostic and assistance service.

05

On-site assistance

Thanks to the wide geographical reach of the service, AB Service technicians - in close liaison with customer personnel - guarantee punctual and rapid assistance.

06

Original spare parts

AB Service only uses original spare parts for all plant components, ensuring maximum durability and reliability.

A BIOCH4NGE® biomethane plant is able to offer multiple advantages to customers who opt to entrust AB with its design, construction, implementation and assistance.



Industrial product

BIOCH4NGE® is entirely designed and produced by AB, being pre-assembled at the Orzinuovi production facility and tested before shipment to the installation site.



Modular outdoor solution

BIOCH4NGE® is a solution designed for outdoor installation; available in different sizes, it guarantees the highest modularity of application.



Compactness

Being extremely compact, BIOCH4NGE® has been engineered in all respects to restrict the space required for its installation to a minimum and to simplify maintenance operations.



Plug & play

BIOCH4NGE® is quick to install, without the need for on-site construction activities.



Sustainability

BIOCH4NGE® is a flexible solution in terms of both the quality requisites of the gas produced and the residual gas emitted into the atmosphere; in combination with secondary AB systems it ensures the total elimination of CH₄ emissions.



Remote control

BIOCH4NGE® is equipped with a centralised monitoring and supervision system, produced and managed by AB, which enables the remote control of all system parameters and related production processes.



Full service

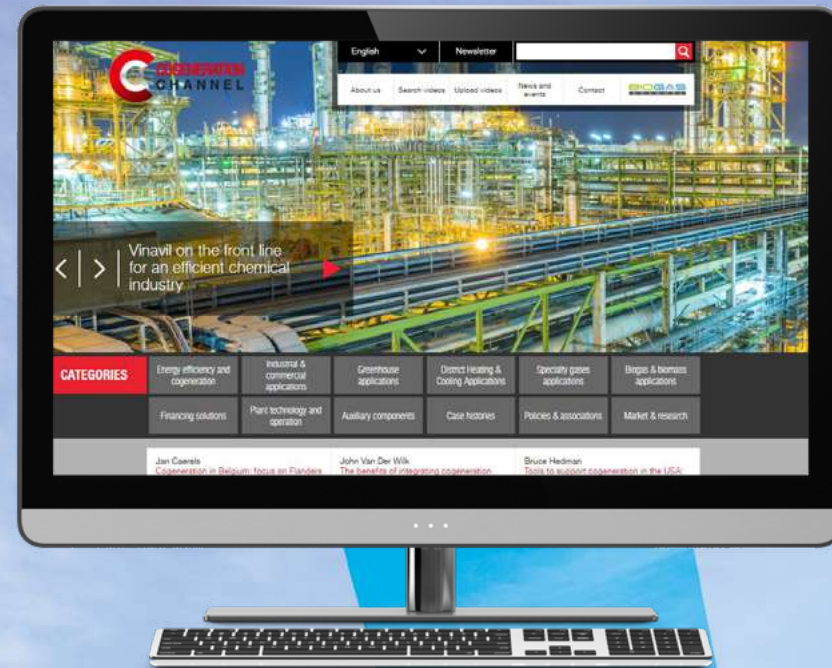
AB guarantees a "Full Service" after-sales maintenance contract providing assistance 24 hours a day, 365 days a year, remote monitoring of the system and the availability of original spare parts.



BIOCH4NGE® + ECOMAX®

BIOCH4NGE® integrates perfectly with cogeneration plants to create a "totally sustainable" energy system.

ALL THE ADVANTAGES
OF THE AB BIOCH4NGE®
SOLUTION.



www.cogenerationchannel.com

The first and only web-based video channel entirely dedicated to the world of COGENERATION in all its applications.

**CASE HISTORIES AND BEST PRATICES FROM ALL AROUND THE WORLD
MORE THAN 1,000 VIDEOS AVAILABLE**



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