

The logo consists of the letters 'A' and 'B' in a white, stylized, serif font, set against a red square background.

COGENERATION WORLD

AB | Case History

AB FOR OLIMPIAS SPA (BENETTON GROUP)

COGENERATION AS A COMPETITIVE
FACTOR IN THE ENERGY POLICIES OF A
MAJOR TEXTILE INDUSTRY GROUP

AB FOR OLIMPIAS (BENETTON GROUP)



**STEAM, HOT
WATER AND
ELECTRICITY**
**IN A SINGLE
INTEGRATED
HIGH-
PERFORMANCE
SYSTEM.**



COGENE

RATION IS STRATEGIC FOR THE TEXTILE INDUSTRY.

THE TEXTILE COMPANIES NEED TO
REMARKABLE QUANTITIES OF HEAT
AND USE UP A LOT OF ELECTRICITY.



In view of the current economic situation, which sees the manufacturing sector of the textile industry under pressure, devising and adopting suitable measures to cut costs and sharpen the competitive edge of companies appears crucial. The textile production process is such as to require large amounts of heat and electricity. That is why cogeneration, with the combined production of electricity and heat, represents a great chance to cut the energy costs of production processes. Thanks to a modern cogeneration plant, designed and manufactured to cater to the company's specific requirements, electricity can be self-produced at prices lower than those of the market, while at the same time obtaining heat to be introduced into the

production process. The positive repercussions in terms of environmental commitment must also be taken into account. This is of increasing importance as regards updating to fast-changing legislation and is also strategically usable to upgrade the company image. The case of Olimpias SpA, a member of the Benetton Group, is a particularly interesting example of what cogeneration has to offer the textile industry, especially if the plant best able to adapt to specific production requirements, in terms of size and performance, can be identified. Building cogeneration plants exactly tailored to the needs and expectations of the customer is one of the strong points of AB, which boasts cooperation with big names in the textile industry.

OLIMPI

BENETTON GROUP

- 10 MILLION METRES OF FABRIC MADE EVERY YEAR
- 6.5 MILLION KILOS OF KNITWEAR YARN MADE EVERY YEAR
- 300 MILLION LABELS/YEAR
- 2.5 MILLION KILOS OF GARMENT DYED/YEAR
- 2 MILLION KNITWEAR GARMENTS MANUFACTURED EVERY YEAR
- 5 MILLION MENSWEAR/WOMENSWEAR/CHILDRENSWEAR GARMENTS MANUFACTURED EVERY YEAR



AS.



From cotton yarns to combed and carded wool, from knitwear fabrics to shuttle fabrics, finishes, piece-dyeing and garment-dyeing, besides denim washing and treatments, printed labels, embroidered fabrics and patches. These basic elements, along with experience and the use of technologies, allow offering the market exclusive textile products. Olimpias means complete range of products, top quality and speedy reaction to fashion trends.

The business acumen of the Benetton Group has resulted in its playing a key role on the made-in-Italy and international textile scenario, creating jobs for over 1,500 people who share values which are showing themselves to be all important in what is a difficult period for the industry's economic dynamics. The company can boast a cutting-edge industrial organisation which brings together the know-how of the artisan and the passion of expert

personnel and is able to grasp and best cater to the needs of fashion, driven by curiosity and the desire to always try out new solutions. This is also made possible thanks to the search for prized raw materials and the ability to interpret the different product manufacturing stages. Quality above all, but in the awareness that today, this must never ignore flexibility and good business opportunities. That is why Olimpias is always in step with innovation, to constantly improve its production performance with a careful eye on the environment.

The choice of cogeneration is therefore a decision which fits in perfectly with the company's philosophy and strategies, where innovation is at the service of the "Competitive Quality" concept.

The entire manufacturing process is constantly monitored by means of dedicated software and control units.

OLIMPIAS WAS ESTABLISHED FOLLOWING THE MERGER OF A NUMBER OF DIFFERENT COMPANIES. TODAY IT REPRESENTS A SINGLE LARGE GROUP, A TRAILBLAZER ON THE ITALIAN TEXTILE SCENARIO, PROVIDING ITS CUSTOMERS WITH A BROAD RANGE OF PRODUCTS AND SERVICES.

A NEW PLANT FOR THE SOAVE



FACILITY WITH THE ADVANTAGES OF THE OUTDOOR MODULAR SOLUTION.

The Olimpias facility in Soave occupies a covered area of 18,700 sq m and specialises in preparing, dyeing and finishing fabrics, mainly cotton (fabric manufactured using traditional shuttle looms for casual type outer wear, sportswear, etc.). The cogeneration plant designed and manufactured by AB is the first of this type installed in the facility. The Ecomax[®] 14 NGS plant has an electric output of 1,415 kW, used entirely for the production process. Particularly interesting is thermal energy, a real strong point of cogeneration, specifically used to produce saturated steam at a pressure of 9 bar and hot water at 90°C. By means of a specific steam circuit, the steam integrates that produced by the boilers already installed by the company. In fact, thermal energy is used for two types of pre-heating: that of the reintegrated water from the boilers and that of the water which supplies the

facility washing machines. This synergy, determined and perfected in conjunction with the AB specialists, has made it possible for Olimpias to optimise and make use of all available hot water. The AB engineers also provided consultancy to Olimpias engineering to choose the plant characteristics best suited to specific requirements.

The plant operates over 2 or 3 daily shifts, from Monday to Friday, according to how the production process is scheduled. By means of specific control and supervision software, the plant program can be easily set week by week. Altogether, average operation can be expected of 5700 hours/year. On the basis of experience acquired by working in close cooperation with AB and of the excellent results already achieved as regards Soave plant operation, the Benetton Group has commissioned a second 1 MW plant (Ecomax[®] 10 NGS) from AB.



AB KEPT PERFECTLY TO THE PLANT SUPPLY SCHEDULE; INSTALLATION AT THE OLIMPIAS FACILITY IN SOAVE BEGAN, AS AGREED, ON 10 FEBRUARY 2009, AND ENDED BY 30 MARCH 2009. IMMEDIATELY AFTERWARDS TESTING STARTED.

JOB TIME SCHEDULE

	2008												2009																							
	September			October				November			December		January			February			March			April														
Month	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Design																																				
Workshop prefabrication																																				
Completion of masonry works																																				
Assemblies																																				
Connections																																				
Startups																																				
Continuative running																																				



No critical conditions were found in either of the two stages. In complete coordination with the customer, the AB team completed internal piping installation – the job likely to create greater interference with the production lines - during the facility's Christmas closing period, through January.



Co₂ emissions into atmosphere saved per year: 1,280 ton



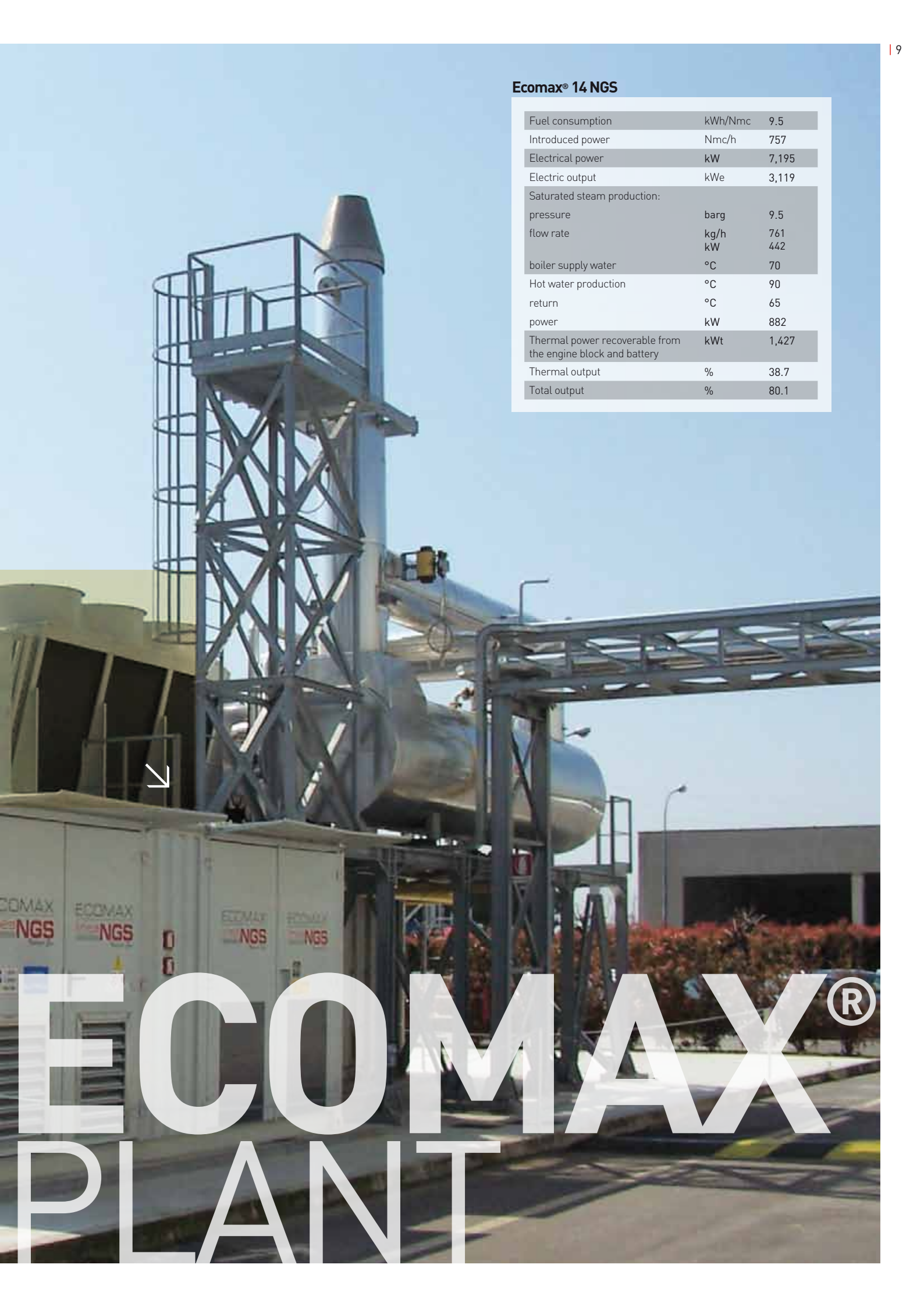
Petroleum consumption avoided per year: 550 tep

After the customer had obtained all necessary authorisations (Region and customs Agency), the plant actually started operating in June 2009. This was followed by a “full service” maintenance contract with AB Service.

The customer has already stated its utmost satisfaction with the prompt and effective after-sales and maintenance service provided by the AB service.

Ecomax® 14 NGS

Fuel consumption	kWh/Nmc	9.5
Introduced power	Nmc/h	757
Electrical power	kW	7,195
Electric output	kWe	3,119
Saturated steam production:		
pressure	barg	9.5
flow rate	kg/h	761
	kW	442
boiler supply water	°C	70
Hot water production	°C	90
return	°C	65
power	kW	882
Thermal power recoverable from the engine block and battery	kWt	1,427
Thermal output	%	38.7
Total output	%	80.1



ECOMAX® PLANT

PLANT OUTPUT AS STATED BY USERS.

(Gianni Zanella, Managing Director of Olimpias SpA – Benetton Group)



What prompted you to invest in a plant of this kind?

“The awareness that cogeneration, for our type of industrial production, represents the ideal and most immediately practicable solution for optimising energy efficiency. To this must be added the fact that Olimpias and, more in general, the entire Benetton Group, is increasingly more closely focused on concrete ways of protecting the environment, especially when these can be reconciled with our principles of work and product quality.

Thanks to the cogeneration plant we are able to considerably reduce the quantity of CO₂ introduced into the atmosphere and, at the same time, be more competitive, an essential factor in what is very definitely a complicated time for the textile industry”.

How does the plant integrate into your production process?

“The availability of thermal energy, in particular, is the plus factor of cogeneration and this has been perfectly integrated into our production cycle.

Thermal energy is used to preheat the water that reintegrates the boilers and for the facility’s washing machines. With the advice of the AB specialists, we have put all available hot water to the very best possible use. With this new cogeneration plant, we can optimise energy and operating efficiency along the production cycle, which is specialised in preparing, dyeing and finishing fabrics, above all cotton”.

In your opinion, which were the most significant factors of your collaboration with AB?

“In AB Energy, we found a highly competent and helpful interlocutor, right from the very moment we began to appreciate the feasibility of the project. AB provided us with a precise operating plan consistent with our expectations, and also with upgrading solutions which are an integral part of their specialised experience. Throughout the period of project development, we were able to count on the direct and concrete professional support of the well-trained AB staff. It was as a result of this dialogue that a second order was placed for another plant due to start operating shortly in our facilities”.

What advantages do you expect at business level and as regards the optimisation of energy consumption?

“We are firmly convinced that by 2010, the plant built by AB for our Soave facility will already enable us to achieve the energy saving goals we had set ourselves when we opted for cogeneration. Thanks to the extremely good plant performance, we expect to redeem our investment even sooner than had been indicated on the specific time schedule”.

AB SETS THE COGENERATION STANDARDS GLOBALLY

AB INDUSTRIAL GROUP HAS BEEN OPERATING FOR OVER 30 YEARS IN THE SECTOR OF COGENERATION AND PROMOTION OF ENERGY FROM RENEWABLE SOURCES.

AB is currently made up of 24 companies and over 500 employees and is a single entity able to manage the entire manufacturing cycle of a cogeneration plant: consultancy, design, production, installation and start-up with a comprehensive service. This has enabled AB to acquire unparalleled know-how, to become acquainted with every product detail and to provide a top-quality and highly-effective after-sales service. The success of AB - which has already designed and built more than 900 plants - stems from ongoing investments in cutting-edge technologies, from the constant training and professional specialisation of all operators and from the development of an absolutely unique engineering

department: a team of over 110 engineers engaged in developing the industry towards the production of increasingly more reliable and higher performance plants. AB cogeneration plants are distinguished by modularity, compactness and ease of transport and cater to the energy requirements of a number of different companies. Outright leader in Italy, AB is also expanding globally: in Spain (2007), in Romania (2009), in Poland (2010), and again with the opening of subsidiaries in Croatia and Serbia (2011). From 2012 AB is in Czech Republic, from 2013 also in the Netherlands, Austria, Brazil, Francia and Canada. From 2014 AB in UK, Germany, USA and Israel and from 2015 in Russia and Turkey too.



AB HOLDING SPA	ITA LY SALES	AB Energy SpA				
	FOREIGN BRANCHES	AB Energy International GmbH	AB Energy España S.L.	AB Energy Romania Srl	KWE Technika Energetyczna Sp. z o.o.	AB Energy Hrvatska d.o.o.
		AB Energy Srbija d.o.o.	AB Energy Česká s.r.o.	AB Energy do Brasil Ltda	Green House Power Netherlands BV	EPS AB Energy Canada Ltd.
		AB Energy (UK) Ltd.	AB Energy Deutschland GmbH	AB Energy Russia	AB Energy Israel Ltd.	AB Energy USA LCC
		AB Energy France	AB Energy Turkey			
	PRODUCTION	AB Plants Srl	AB Power Srl			
	SERVICE	AB Service Srl				
	FINANCING	AB Fin-solution SpA				
	RENEWABLE ENERGY	AB Ambiente Srl				

Cogeneration has proven to be a winning choice, also in other industrial and non-industrial fields, such as food chemical, pharmaceutical, textile, plastic, paper, brick, etc.

700 customers, some of them are:

Amadori, Benetton, BNL, Buitoni, Cartiere Saci, Coca - Cola, Cotonificio Albini, Eridania, Essetunga, Fatro, Ferrero, Felli Color, Galbani, Garda Plast, Granarolo, Gruppo Cremonini, Gruppo Mapei, kraft, Lafarge, Lilly, Martini & Rossi, Nestlé, Orogel, Pastificio Garofato, Pastificio Rummo, Peroni, Pfizer, Polynt, Spumador, Wienerberger, etc.



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