Annual Environmental Report 2018

DOCUMENT EXTRACT

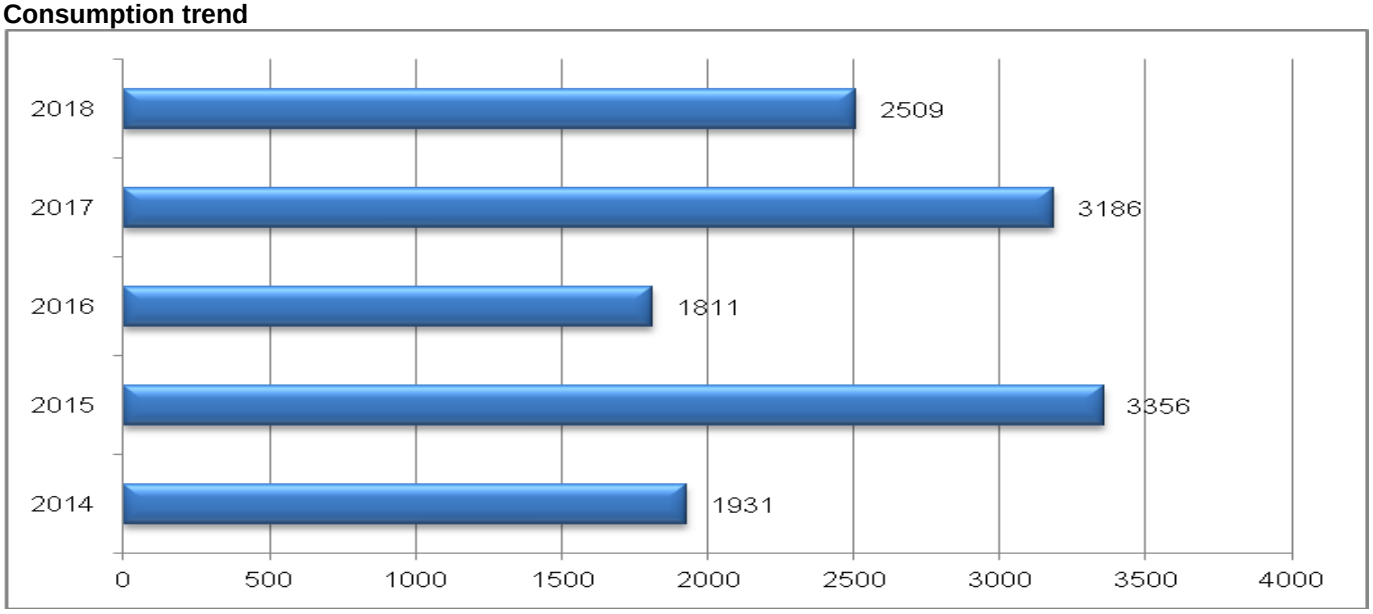
Opera, FEBRUARY 2019

The herenclosed Annual Environmental Report summarizes the activity data and CGM's consumption taking into consideration the data of the last 5 years (2014-2018).

Input Analysis (resource consumption)

DRINKING WATER

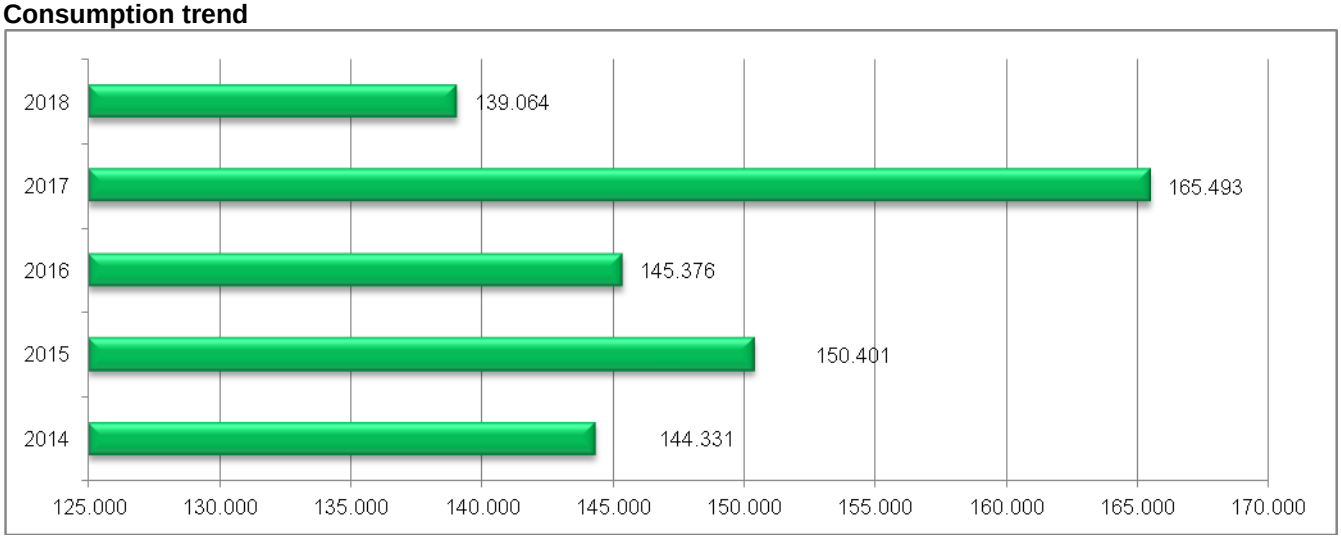
Consumption trend



Data analysis input allowed us to highlight **a decrease in drinking water consumption of 21.2%.**

ELECTRIC ENERGY

Consumption trend



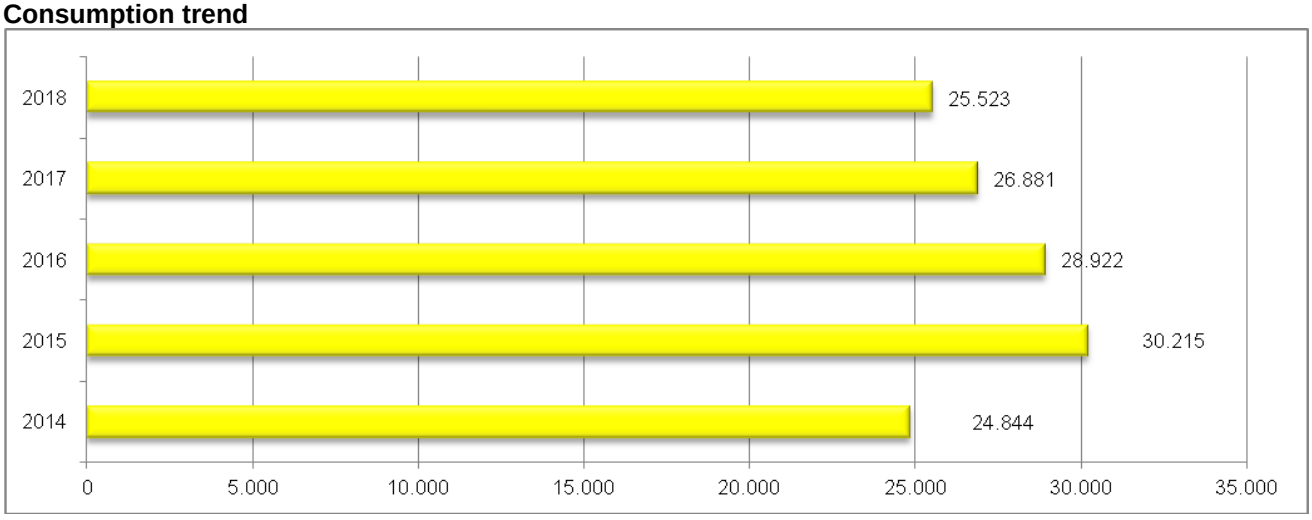
Electric Energy

Active electricity consumption shows a 15.9% decrease compared to 2017, despite a 1.3% increase in hours worked. We think that the reduction is due to the fact of the almost total installation of LED lamps for external and internal lighting.

Also the consumption of reactive energy decreased by 47.9%, indicating a considerable increase in the cosfi, due to better rephasing of the engines of the new machines and to LED lighting.

METHAN GAS

Consumption trend



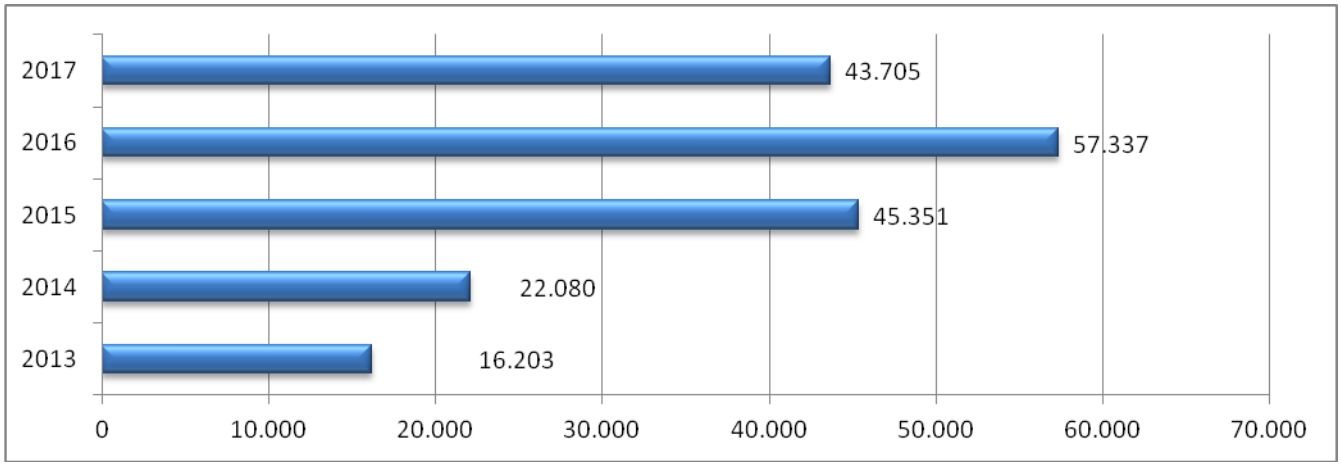
Methan Gas

The consumption of methane gas chalks up, after the 7.1% reduction in 2017, **a further reduction in 2018 of 5.05%.**

Output analysis (environmental effects)

WASTE AND RESIDUALS

Total waste: Dangerous + Not dangerous

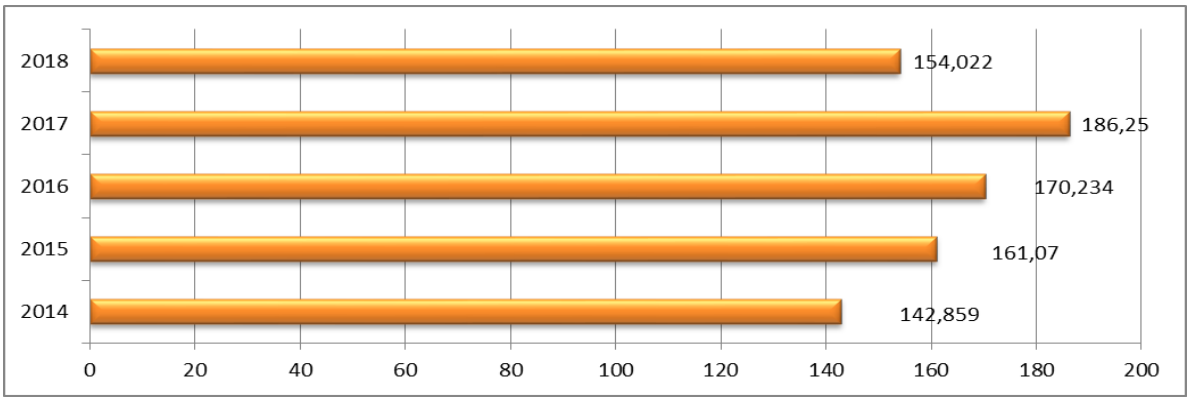


Waste

Concerning the waste produced, in 2018 there was an appreciable decrease in quantities, equal to 23.8%.

CO_2 TOTAL EMISSIONS

Total emissions trend



ENVIRONMENTAL PERFORMANCE

In our Company, some indicators are used to evaluate environmental performances..

Table: Summary of total energy consumption

Environmental performance Indicators	**u.m.**		**2014**		**2015**		**2016**	
Electric energy consumption	MWh	TEP	0,144	0,036	0,150	0,037	0,145	0.036
CH_4 consumption	Nm^3	TEP	24,844	28,922	23,71	24,77	28,922	23,71
Total electric energy consumption	TOE		28,958		24,807		23,746	
Ratio TEP/hours worked*1000			**0,275**		**0,229**		**0,221**	

Environmental performance Indicators	**u.m.**		**2017**		**2018**			
Electric energy consumption	MWh	TEP	0,165	0,041	0,139	0,034		
CH_4 consumption	Nm^3	TEP	26,881	22,04	25,523	20,92		
Total electric energy consumption	TOE		22,081		20,96			
Ratio TEP/hours worked*1000			**0,228**		**0,213**			

Legend:
TOE (tonne of oil equivalent):
1 MWh of electric energy = 0.25 TOE*
1.000 Nm^3 of methan gas= 0.82 TOE*
1 Ton of oil= 1.08 TEP*

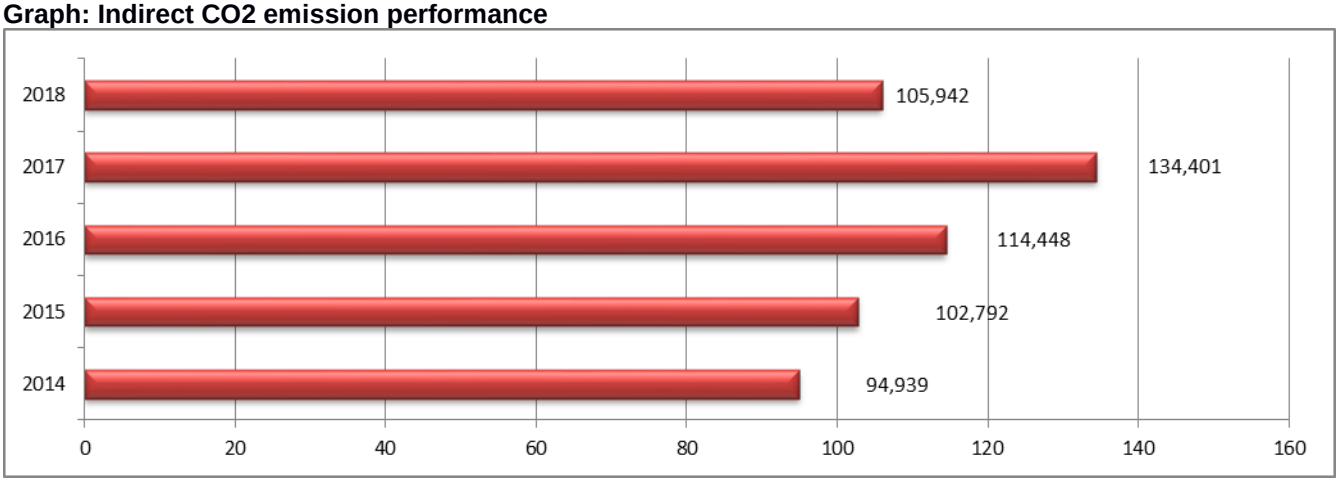
Environmental Performance

The analysis of the environmental performances expressed in TOE shows a data in line with 2017 and overall a constant trend in the last years.

CALCULATION OF CO_2 EMISSIONS

INDIRECT EMISSIONS

Graph: Indirect CO2 emission performance



Indirect Emissions (CO_2)

With the calculation of indirect CO2 there is a decrease of 26.86%, compared to 2017, related to the decrease in electricity consumption (-15.9%) and drinking water (21.2%) and together with a lower overall production of waste.

DIRECT EMISSIONS

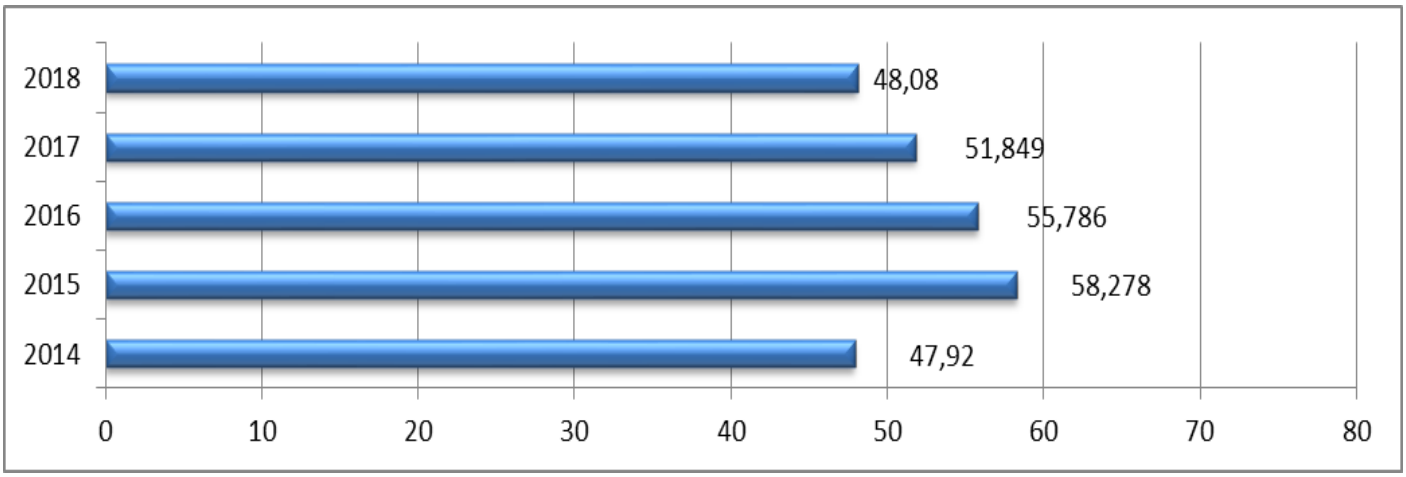
The method (FONTE ENI) is based on calculations deriving from other measures; there are no direct CO2 measurement systems on the plant

Heating = Kg di CO2/anno = Calorific Value x Density x Emission Factor x **m3** of fuel /1000

Heating = Kg di CO2/anno = 8250 x 1 x 0,2338x **m3** of fuel/1000

	PC	D	F
Natural gas or methan	**8250 kcal/ m3**	**1 m3/m3**	**0,2338 g(CO2)/kcal**
Diesel	10200 kcal/ m3	835 Kg/m3	0,3068 g(CO2)/kcal
LPG	10000 kcal/ m3	565 Kg/m3	0,2612 g(CO2)/kcal
Fuel oil	9800 kcal/ m3	923 Kg/m3	0,3205 g(CO2)/kcal

Emission trend CO_2 from heating systems



Direct Emissions (CO_2)

The calculation of the direct CO2 highlights a reduction of 7.27% in 2018, compared to 2017, due to lower methane consumption..

Overall, the total CO_2 on an annual basis has decreased by 20.92%