



# TUSSAM

*Sevilla, Spain*

The public transport company Transportes Urbanos de Sevilla (TUSSAM) used to operate a fleet of 237 buses \_ diesel Euro III and Euro IV \_ including 12-meter long vehicles (150 units) and articulated buses (87 units). Different manufacturers are represented: Renault, Iveco, Man and Scania.

### **A first evaluation in 2011**

In March 2011, after a first positive evaluation performed on four buses they year before, decision has been made to use XBEE Enzyme Fuel Technology in all the biodiesel B15 consumed by the whole fleet.



The company observed a reduction of fuel consumption by -1.78% in the 12-meter long buses and -0.97% in the articulated buses. We have compared data from March 2011 to April 2012 to the average fuel consumption of 2009 and 2010.

# Results analysis

## **Increasing fuel consumption after stopping the treatment**

In 2012, when the company decided to stop using XBEE, fuel consumption increased by +3.21% in average compared to 2011. The same was observed for the 12-meter long buses (+1.88%) and for the articulated buses (+4.23%).

In June 2013, they started to use XBEE again and, after a year and a half, they could notice a reduction of fuel consumption by -2.96% in average (Comparing consumption data of May 2012 / June 2013 to July 2013 / December 2014).

Taking into account that the yearly consumption of the whole fleet managed by Tussam amounts about 5 millions litres of fuel, we can say that reducing it by -2.91% represents a net saving of more than €130,000.00 (Product paid!).

When using XBEE, biodiesel storage tanks were significantly cleaner, thanks to the elimination of sludge and water. Moreover, the maintenance conditions of the engines have been improved.

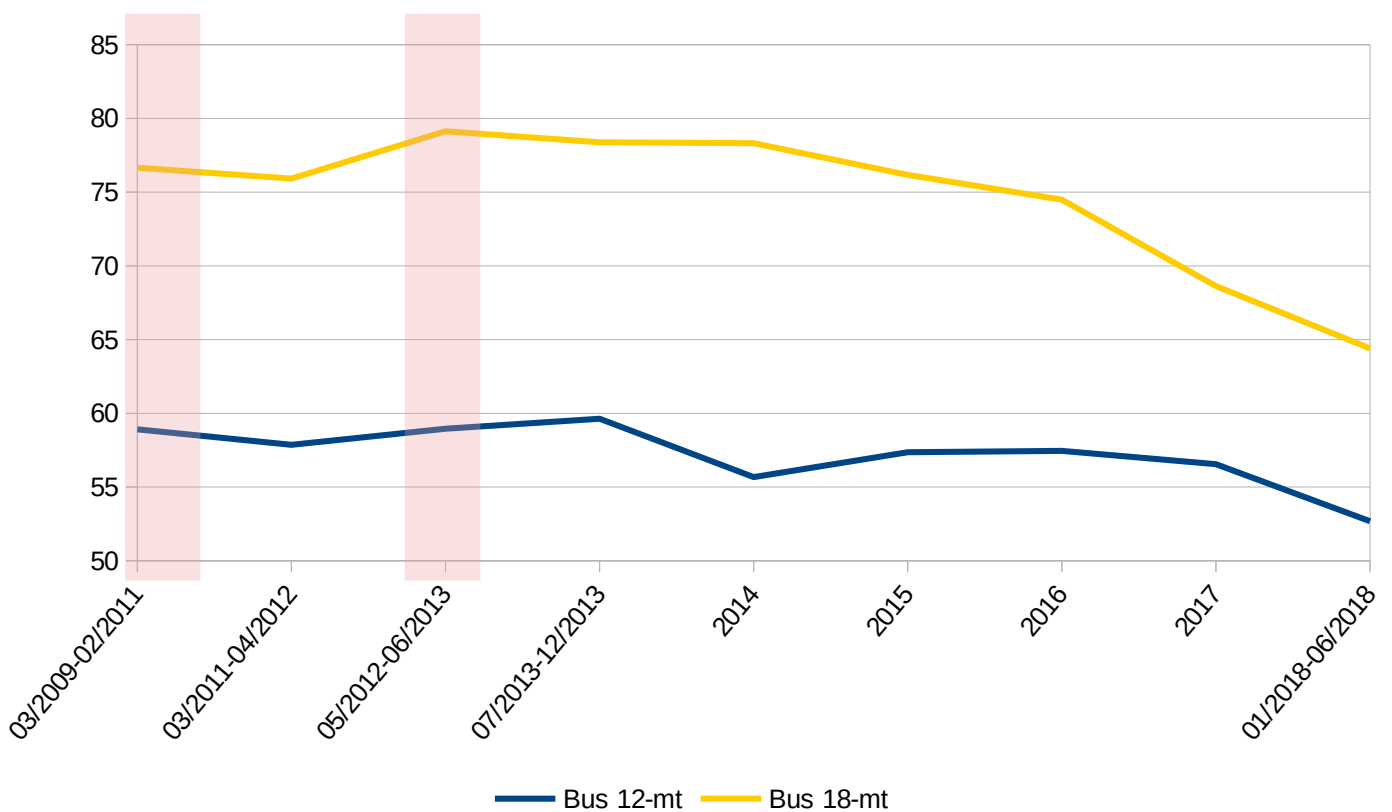
*"It has not been necessary to clean the diesel tanks. The additive has eliminated the presence of bacteria and mold. No sludge has formed in the tanks."*

*"The average fuel consumption of our vehicles that run on diesel has been reduced by -2.9% continuously over the past three years."*

*"In 2015 the average consumption of vehicles has been 3% lower than it was in 2009-2010, after five years and 200,000 km!"*

*- Manuel Rosendo Roldán / Technical Manager*

Time period	12-metre buses	18-metre buses
03/2009-02/2011	58.91	76.66
03/2011-04/2012	57.86	75.92
05/2012-06/2013	58.95	79.13
07/2013-12/2013	59.63	78.38
2014	55.67	78.32
2015	57.36	76.17
2016	57.54	74.49
2017	56.55	68.63
01/2018-06/2018	52.68	64.40

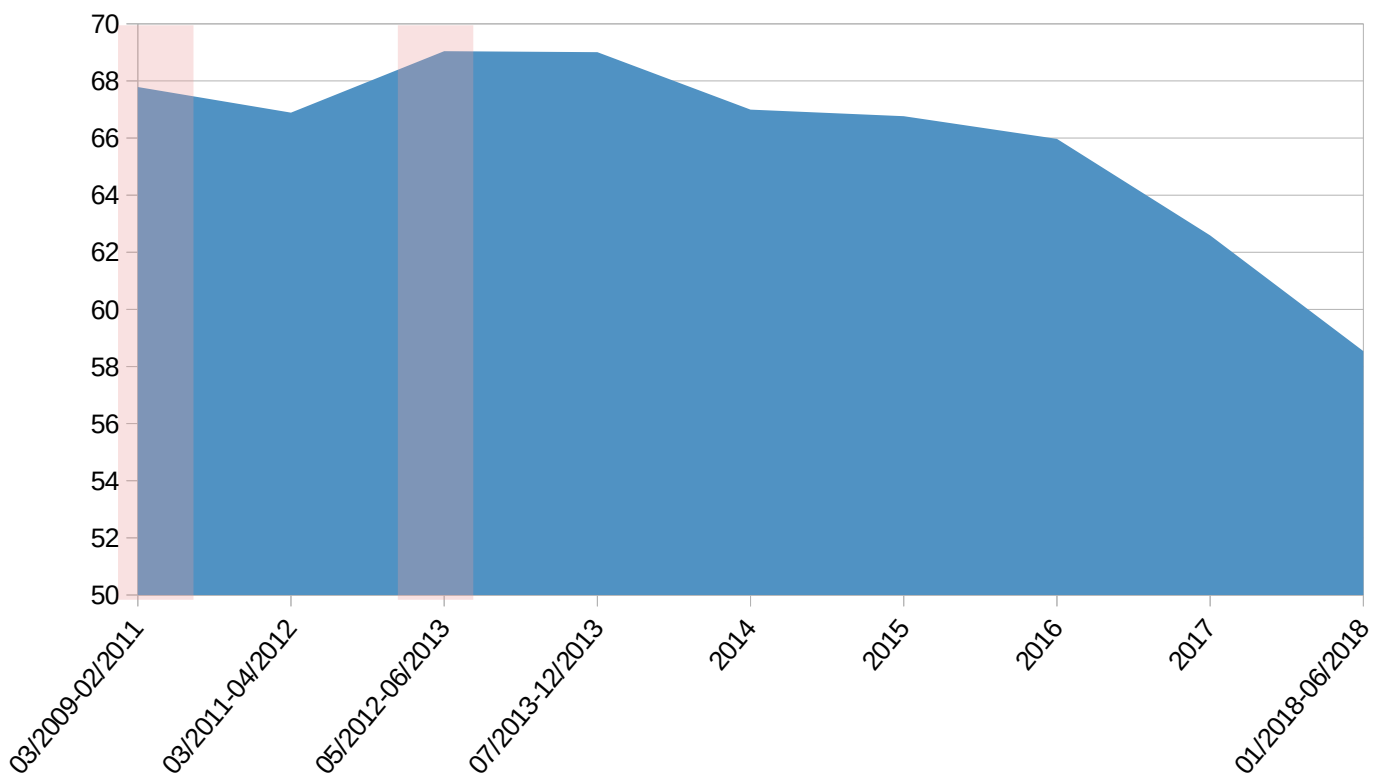


## Constant savings growth

After years of using XBEE Enzyme Fuel Technology, Tussam has observed a constant reduction in fuel consumption.

The average of the periods without XBEE is 68.41 litres / 100 km. The comparison, year after year, speaks for itself:

- 2014 → -2.07 %
- 2015 → -2.41 %
- 2016 → -3.57 %
- 2017 → -8.51 %\*
- 2018 → -14.43 %\*



*\*Introduction of a driver training program for an efficient driving that allows the effects of XBEE to be maintained over time and to improve savings in fuel consumption.*