Energy efficiency measures applied to site and tunnel facilities

ferrovial agroman

Espiño tunnel

This set of measures is focussed on energy efficiency and reducing site dependency on generators and other types of diesel consumption.

1.- Use of **solar panels** to supply power to the cabin and the weigh bridge. 320W/day is generated by the panels, supplemented by an accumulation battery, obtaining tension at 23V and 24V. The facility also includes a light sensor, which automatically turns off the interior lighting when light-sufficiency is detected.

This measure eliminated the need for generators, thereby reducing emissions by **30 tonnes of CO2** from gasoil combustion and saving of **15,824€** in 39 months.

2. - Fitting of LED luminaires along a 7,900m tunnel. Despite consuming only 24W, which is three times less than fluorescent bulbs, these luminaires ensure at least the same level of light intensity inside the tunnel. The system allows for connection in series, enabling even simpler execution of works. Their high resistance to impacts minimizes the need to replace them due to breakage.

Over one year, costs are reduced **by 33,000 €** and consumption by **70,000 kWh/year**

Environmental benefits:

- ✓ **175 tonne** reduction in our carbon footprint
- ✓ Low maintenance and running costs.
- ✓ Site cost-reduction of **over 100,000 €**

3.- Extension of electricity supply networks to inhabited areas: 2 generators and 2 diesel-motor lighting towers were eliminated, whilst maintaining the power supply to the facilities area and mouth huts, as well as platform lighting.

Substituting groups mains supply saves **47 602 € in 31 months (125 tons of CO2)**

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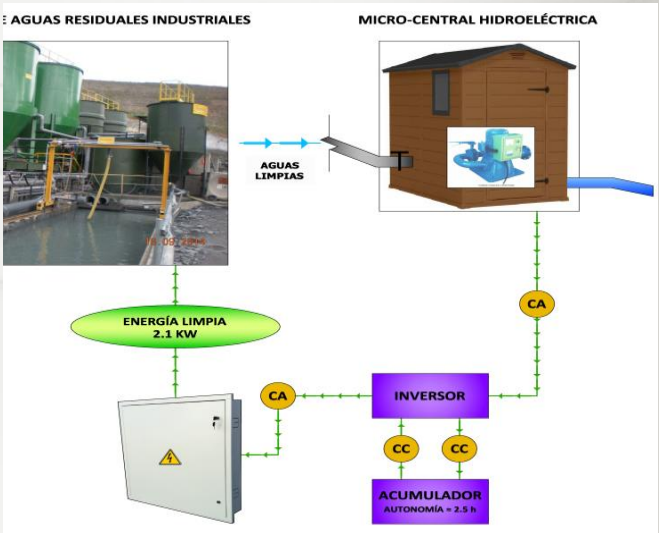
4. - Installation of **dimmers and photo-sensors** in exterior lit areas.

5. - Site office heated by **pellet stove**, replacing the previously-used gasoil boiler.



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Energy Efficiency