

### Improvement of the Bio Waste and Leftover Digestion Bioenergie Schwaben GmbH

In order to improve the efficiency and sustainability of the plant, the system has been continuously improved and procedurally optimized over the recent years.

The measures were first carefully analyzed together with the operational staff and then planned in a way that all retrofit steps could be performed during operation without any production breaks.

Inevitable feed fluctuations in the waste deliveries can now be processed just in time. Because of the optimized hydrolysis stage the inhomogeneous input material become predigested and homogenized so that the fermenters can be equally distributed with similar substrate from Monday to Sunday. With all the measures the overall efficiency of the plant was significantly improved and the power production now works continuously at utilization rate of 95 - 98% full load.



One bottle neck in the process was the pulper. The disintegration and separation of impurities was working one behind the other in the same room.

An essential rebuilding measure was therefore the division of the pulping process into two independent tanks and process steps.

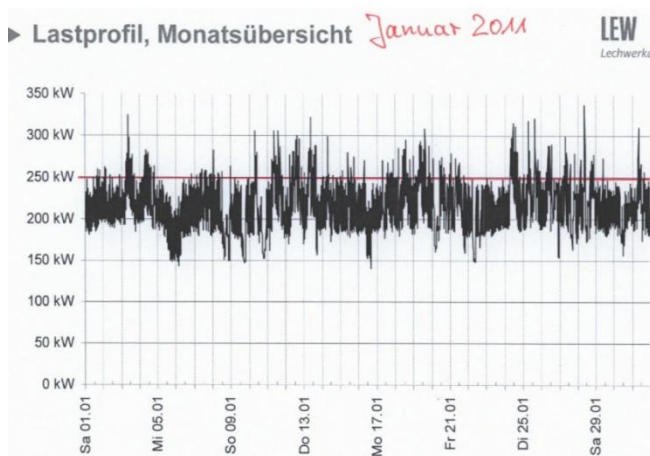
Thus, the throughput capacity was nearly doubled and as result the expensive night and weekend shifts are reduced.

With the installation of a complete new control system and program also a well balanced load management system was made in order to avoid unnecessary parallel operations of current consumers.

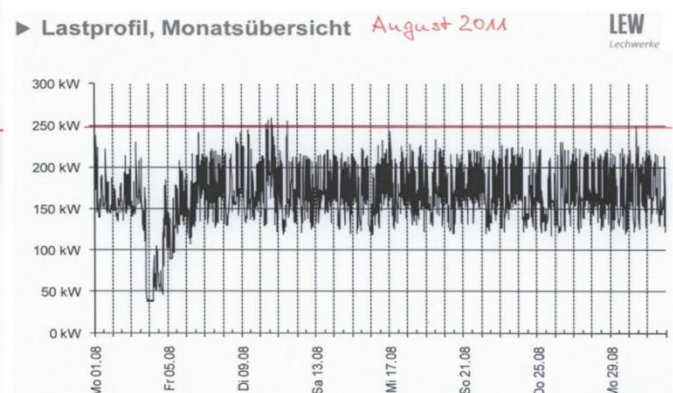
Peak loads which where before up to 350 kW are now consequently limited to lower than 250 kW.

Thus the company now safes annually power delivery cost in a 5-digit value.

#### Load profile before Modification



#### Load profile after Modification



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