

Economics of TerraNova Ultra at a 100.000 P.E. Waste Water Treatment plant with Digestion

Capacity:		
Annual troughput of dewatered sewage sludge within 7.200 operation hours	8.000	t/a
Investment cost (without V.A.T)	1.900.000	EUR
Annual amount of HTC coal with 65% dry matter (at 24% dry matter input sludge)	2.215	t/a
Annual cost:		
Capital cost	153.463	EUR
Cost electricity, 15 kWh / t sewage sludge input	24.000	EUR
Cost heat, 100 kWh / t sewage sludge input	16.000	EUR
Catalyst	12.308	EUR
Spare and wear parts	20.000	EUR
Cost electricity of treatment of HTC filtrate after digestion in WWTP biological step	22.560	EUR
Additional power generation through co-fermentation of HTC filtrate in digestors	40.492	EUR
Personnel	15.000	EUR
Service contract TerraNova Ultra plant	20.000	EUR
Disposal cost resulting HTC coal	93.046	EUR
Sum annual cost (without V.A.T)	335.885	EUR
Total cost per ton dewatered sewage sludge input including disposal of HTC products	41,99	EUR/t
Annual savings compared to disposal of sewage sludge with 65 EUR/t	184.115	EUR/a
Input variables:		
Cost electricity	0,20	EUR/kWh el
Cost heat (waste heat CHP)	0,02	EUR/KWh th
Disposal cost HTC coal incl. transportation	42,00	EUR/t
Annuity with 2,5% interest, 15 years depreciation	0,0808	
Electrical energy demand for treatment of HTC filtrate (N-reduction in biological step)	1,95	kWh/kg N
Additional power generation through co-fermentation of HTC filtrate in digestors	35,00	kWh/t Filtrate