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		Start-up	2015
A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OWNE OWNER OWNE		Technology Incineration Energy recovery	Grate furnace 4-pass-boiler, turbine, steam export, district beating
		Flue gas treatment	ESP, dry sorption with Bicar, SCR, dry sorption with Lime/AC, heat recovery by two heat exchangers
		Technical Data Fuel Waste capacity Net calorific value Thermal capacity Steam	Municipal waste 250,000 t/a (2 x 15.6 t/h) 10.85 MJ/kg 2 x 47 MW 2 x 58 t/h (41 bar, 410°C)
	MW	% of Input	kWh / t Waste
Fuel Input	94	100%	3,010
Electricity	17.8	18.9%	570
Process Steam	52.0	55.3%	1,670
Total Energy	69.8	74.2%	2,240



Energy Efficiency - Heat o Uppsala, Sweden	ficiency - Heat only Sweden		
		Client Start-up Technology Furnace Energy recovery Flue gas treatment	Vattenfall Värme Uppsala AB 2005 Grate furnace (water-cooled) 4-pass boiler, absorption heat pumps ESP, two wet scrubber (acid,
		Technical Data Fuel Waste capacity Net calorific value Thermal capacity Steam	limestone), condensation reactor, heat exchanger, baghouse filter, low temperature SCR Municipal and industrial waste 210,000 t/a (1 x 26.4 t/h) 10.0 MJ/kg 7.3 MW 100 t/h (saturated 20 bar)
	MW	% of Input*	kWh / t Waste
Fuel Input	73.3	100%	2,780
District Heating incl. Heat from Condensation	75.0	102%	2,840
Total Energy	75.0	102%	2,840
			* Based on LHV











Concept evaluation FGT 7 Key Questions		Hitachi I NOVA	Zosen
Question	Yes	No	
Emission NOx > 80 mg/m <sup>3</sup> ?	SNCR down to 120 mg/m3 Dynor™ down to 80 mg/m3	Low temperature SCR system.	
Emission levels WID compliant?	One step process	Lower emissions: Combined processes	
Plume at the stack acceptable?		Dry or semi-dry scrubbing	
Solidification of APC residues required?	No use of Bicarbonate.	Evaluate Xerosorp system with Bicarbonate.	
High discharge fees of APC-residues?	Wet scrubbing & residue treatment	Semi-dry scrubbing	
Draining of treated waste water possible?	Wet scrubbing in favour.		
Connection to District Heating Network?	Wet scrubbing with flue gas condensation.		
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An Inconvenient Truth - How NZ can take off to Paris with EfW, 6 Dec 2016











New Zealand's ann	ual GHG emis	sions brok	en down by	/ sector	
Year	2008	2009	2010	2011	2012
Energy	34.6	31.7	31.6	31.2	32.1
Industrial processes	4.1	4.2	4.5	5.3	5.3
Solvents	0.0	0.03	0.03	0.03	0.03
Waste	3.9	3.8	3.7	3.6	( 3.6
Agriculture	33.2	33.4	33.6	34.2	35.0
Forestry					
Net Removals	-14.2	-12.3	-14.4	-15.5	-15.1
Deforestation	3.2	5.6	4.1	3.4	4.0
Gross removals	-17.4	-18.0	-18.5	-18.8	-19.1
Total	61.5	60.8	59.1	58.9	60.9













	e real sate fo		litachi Zos NOVA
ty check from OK – what ar	e real gate-re	es :	
Treatment	Median	Range	
Pre-2000 EfW	£73/t	£36/t to £110/t	
Post-2000 EfW	£99/t	£65/t to £132/t	
Landfill inclusive £80/t	£100/t	£89/t to £135/t	
Pre-2000 EfW	\$146/t	\$72/t to \$220/t	
Post-2000 EfW	\$198/t	\$130/t to \$264/t	
Landfill inclusive \$160/t	\$200/t	\$188/t to \$270/t	
WRAP: Gate Fees Report 2015, www.wra rate used 2 AUD equals 1 £	ap.org.uk/gatefees, FX		
UK market prices:			
\$130/t for lower range in la	arge plants 400,000	tpy to 600,000 tpy	
\$198/t for medium range i	n medium plants 20	0,000 tpy to 300,000 tpy	
\$264/t for higher range in	small plants 50,000	tpy to 100'000 tpy	





