

KPI LIST (pre issue) GREEN BOND ISSUED 2017-MATURITY 2027 (ISIN XS1704789590)

Business Unit	n.	Project Description	Eligible Green Category	Eligible Category (DNV)	KPI	UM	2006/2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022					
WASTE MANAGEMENT	1	Waste to energy plant for Heat Production in Parma	Energy efficiency	Cogeneration facilities	PES Primary Energy Saving Indicator per operating year	%									11	17	17	17	17								
					Renewable energy share in percent on total	%												27	49	49	49	49					
					Thermal energy recovered from waste to Parma DH network in MWh per operating year	GWh													103	130	133	150	151				
	2	Waste to energy plant for Heat Production in Piacenza	Energy efficiency	Cogeneration facilities	PES Primary Energy Saving Indicator per operating year	%														25	25	25	25				
					Renewable energy share in percent on total	%																35	15	15	15		
					Thermal energy recovered from waste to Piacenza DH network in MWh per operating year	GWh																55	55	55	55		
	3	Development of separate waste collection services	Waste management efficiency and recycling	Waste collection and sorting upgrades	Total sorted waste collection	t							635.724	644.444	675.610	721.788	737.163										
					Total of non sorted waste disposed	t									550.903	528.100	503.896	484.128	488.426								
					Number of bins for sorted waste	N										661.961	648.491	648.709	663.268	699.065							
					Volumes of bins for sorted waste	mc										105.278	111.322	120.371	145.345	155.114							
Door to door collection system					N										687.215	833.069	998.080	1.061.847	1.139.228								
Sorted waste collection hubs					N										112	112	112	117	117								
Volumes of waste collected in the collection hubs					t										161.937	174.639	186.210	208.544	205.719								
ENERGY	4	Accumulators district heating Bit (TO)	Energy efficiency	Energy distribution and management	Primary energy saving per operating year	MWh										3.855	8.220	10.079	12.181	14.372	12.395	11.488					
					Avoided CO2 emissions from fossil sources per operating year	t														758	1.616	1.981	2.395	2.826	2.437	2.259	
	5	Accumulators district heating Martinetto (TO)	Energy efficiency	Energy distribution and management	Primary energy saving per operating year	MWh											19.261	20.563	20.157	24.363	28.744	24.790	22.977				
					Avoided CO2 emissions from fossil sources per operating year	t															3.787	4.043	3.963	4.790	5.651	4.874	4.517
	6	Accumulators district heating Mirafiori Nord (TO)	Energy efficiency	Energy distribution and management	Primary energy saving per operating year	MWh														5.846	14.372	12.395	11.488				
					Electrical energy produced from renewable non-fossil sources per operating year	MWh																	45,75	45,75	45,75	45,75	
					Thermal energy produced from renewable non-fossil sources per operating year	MWh																		350	350	350	350
					Avoided CO2 emissions from fossil sources per operating year	t																		1.149	2.826	2.437	2.259
	7	Heat exchange and pumping substation in Lucento	Energy efficiency	Energy distribution and management	Electrical energy produced from renewable non-fossil sources per operating year	MWh												18,3	18,3	18,3	18,3	18,3	18,3				
					Avoided CO2 emissions from fossil sources per operating year	t															9,37	9,37	9,37	9,37	9,37	9,37	
	8	Heat exchange and pumping TRM in Grugliasco and interconnection with Grugliasco and Beinasco	Energy efficiency	Energy distribution and management	Avoided CO2 emissions from fossil sources per operating year	t															31.280	31.280	31.280	31.280			
					Distributed thermal energy per operating year	MWh																	145.000	145.000	145.000	145.000	
	9	Piacenza district heating network, connection and pumping station at WTE	Renewable energy	Energy network development	Avoided CO2 emissions from fossil sources per operating year	t							2.384	2.506	2.104	2.504	2.738	3.205	4.232	4.643	4.883	5.002	5.122				
					Distributed thermal energy per operating year	MWh										32.706	34.389	28.873	34.361	37.568	43.978	58.066	63.701	66.988	68.632	70.276	
	10	Parma district heating network	Renewable energy	Energy network development	Primary energy saving per operating year	MWh							12.813	13.260	127.896	179.722	199.900	199.900	202.519	204.243	205.966	207.689	207.689				
					Avoided CO2 emissions from fossil sources per operating year	t										4.326	1.551	16.856	23.614	29.523	29.523	29.909	30.164	30.418	30.673	30.673	
					Distributed thermal energy per operating year	MWh										176.797	176.815	159.146	188.688	196.691	196.691	199.268	200.964	202.660	204.355	204.355	
	11	District heating networks development in Torino	Renewable energy	Energy network development	Primary energy saving per operating year	MWh							2.794.000	2.889.000	2.270.000	2.733.000	2.997.000	3.125.000	3.176.000	3.330.000	3.416.000	3.479.000					
					Avoided CO2 emissions from fossil sources per operating year	t										1.007.686	1.092.546	795.595	933.086	1.026.775	1.070.460	1.087.995	1.140.770	1.170.222	1.191.843		
					Distributed thermal energy per operating year	MWh										2.192.000	2.312.000	1.990.000	2.109.000	2.205.000	2.299.000	2.336.000	2.450.000	2.513.000	2.559.000		
12	District heating networks development in Reggio Emilia	Renewable energy	Energy network development	Primary energy saving per operating year	MWh							91.780	92.595	93.365	93.883	94.065	94.986	95.553	96.191	96.758	98.175	98.175					
				Avoided CO2 emissions from fossil sources per operating year	t										33.289	33.585	33.864	34.052	34.118	34.452	34.658	34.889	35.095	35.609	35.609		
				Distributed thermal energy per operating year	MWh										456.566	285.767	384.325	409.932	402.057	405.995	408.418	411.144	413.567	419.625	419.625		
13	Mini Hydro La Loggia (TO)	Renewable energy	Mini Hydro Power	Electrical energy produced from renewable non-fossil sources per operating year	MWh										3.536	3.536	3.536	3.536	3.536	3.536	3.536	3.536					
				Avoided CO2 emissions from fossil sources per operating year	t														1.810	1.810	1.810	1.810	1.810	1.810	1.810		
14	Mini Hydro Pianchette - Noasca (TO)	Renewable energy	Mini Hydro Power	Electrical energy produced from renewable non-fossil sources per operating year	MWh															2.020	2.020	2.020					
				Avoided CO2 emissions from fossil sources per operating year	t																		1.034	1.034	1.034		
15	Mini Hydro Giffoni plant repowering	Renewable energy	Mini Hydro Power	Electrical energy produced from renewable non-fossil sources per operating year	MWh															1.837	1.837	1.837					
				Avoided CO2 emissions from fossil sources per operating year	t																		940	940	940		
16	Enia Solaris photovoltaic plants near Brindisi	Renewable energy	Solar PV energy generation	Net produced electricity from renewable non-fossil sources per operating year	kWh							6.813.750	6.290.625	6.721.427	7.051.488	6.826.286											
				Avoided CO2 emissions from fossil sources per operating year	t										3.491	3.223	3.444	3.613	3.498								
NETWORKS	17	Improvement of Genova plants	Waste water treatment	Waste water treatment plant upgrades	Treated population equivalent (potential)	N						160.000	160.000	196.000	196.000	196.000	231.000	231.000	236.000	326.000	423.000	423.000					
					Analytic parameters (Abb % BOD, Abb % COD, Abb % SST, Abb % Ntot, Abb % Ptot)	%																					
	18	Improvement of Reggio Emilia plants	Waste water treatment	Waste water treatment plant upgrades	Volumes of water destined to irrigation re-usage / Volumes of total treated water	%										18%	28%	28%	28%	28%	28%	28%	28%				
					Treated population equivalent (potential)	N										19.350	19.350	19.350	20.250	20.250	24.250	24.250	38.850	38.850	38.850	38.850	
	19	Improvement of Piacenza plants	Waste water treatment	Waste water treatment plant upgrades	Treated population equivalent (potential)	N							17.360	17.360	17.360	19.500	19.500	23.500	23.500	23.500	23.500	23.500	23.500				
					Analytic parameters (Abb % BOD, Abb % COD, Abb % SST, Abb % Ntot, Abb % Ptot)	%																					
	20	Improvement of Parma plants	Waste water treatment	Waste water treatment plant upgrades	Treated population equivalent (potential)	N							10.400	10.400	11.650	11.650	11.900	11.900	14.000	14.000	14.000	14.000	14.000				
					Analytic parameters (Abb % BOD, Abb % COD, Abb % SST, Abb % Ntot, Abb % Ptot)	%																					
	21	Cogeneration turboexpansion plant "Celsius"	Energy efficiency	Cogeneration facilities	Net produced electricity from renewable non-fossil sources per operating year	kWh													5.100.000	5.100.000	5.100.000	5.100.000	5.100.000				
					Avoided CO2 emissions from fossil sources per operating year	t																1.200	1.200	1.200	1.200	1.200	
22	Hydroelectric investments	Renewable energy	Mini Hydro Power	Net produced electricity from renewable non-fossil sources per operating year	kWh	23.238.000	23.238.000	23.238.000	24.699.000	25.916.000		32.653.000	34.404.000	36.453.000	36.453.000	36.453.000											
				Avoided CO2 emissions from fossil sources per operating year	t	11.930	11.930	11.930	12.680	13.305		16.763	17.662		18.714	18.714	18.714										