

**Bilanci di massa ed energia**

		MEDIO		A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	
		Giorno	Notte													
Ambient Temperature	°C	23.1	21.2	40	40	40	40	22.1	22.1	22.1	22.1	10.3	10.3	10.3	10.3	
Ambient Relative Umidity	%	60	75	10	10	10	10	60	60	60	60	85	85	85	85	
Wet Bulb Temperature	°C	17.82	18.17	18.58	18.58	18.58	18.58	16.95	16.95	16.95	16.95	9.02	9.02	9.02	9.02	
Net GT1 power	kW	71506	72478	61469	61457	61494	61461	72014	71996	72030	71996	77738	77724	77750	77723	
Net GT2 power	kW	71506	72478	61469	61457	0	0	72014	71996	0	0	77738	77724	0	0	
Net ST power	kW	101364	75710	100754	69106	48181	32076	101464	75548	48111	34931	95520	76798	44547	34877	
Ausiliari	kW	6546	5576	6599	6136	4735	4509	6762	5865	3799	3466	5928	5426	3413	3205	
<b>Net cycle power</b>	kW	<b>237830</b>	<b>215090</b>	<b>217093</b>	<b>185884</b>	<b>104940</b>	<b>89028</b>	<b>238730</b>	<b>213675</b>	<b>116342</b>	<b>103461</b>	<b>245068</b>	<b>226820</b>	<b>118884</b>	<b>109395</b>	
LHV fuel cons GT1	kWt	208996	211100	188508	188497	188533	188501	210020	210005	210038	210005	222004	221990	222016	221989	
LHV fuel cons GT2	kWt	208996	211100	188508	188508	0	0	188508	188508	0	0	188508	188508	0	0	
<b>Net Cycle LHV Eff</b>	%	<b>56.90</b>	<b>50.95</b>	<b>57.58</b>	<b>49.31</b>	<b>55.66</b>	<b>47.23</b>	<b>56.95</b>	<b>50.87</b>	<b>55.39</b>	<b>49.27</b>	<b>55.19</b>	<b>51.09</b>	<b>53.55</b>	<b>49.28</b>	
<b>1</b>	<b>Total exausted</b>															
	Flow	t/h	1472.4	1482.8	1358.6	1358.6	679.3	679.3	1478.8	1478.8	739.5	739.4	1549.6	1549.6	774.8	774.8
	Temp	°C	610.2	608.7	628.2	628.2	628.2	628.2	609.3	609.3	609.3	609.3	599.6	599.6	599.6	599.6
	<b>GT exausted per HRSG</b>															
	Flow	t/h	736.2	741.4	679.3	679.3	679.3	679.3	739.4	739.4	739.5	739.4	774.8	774.8	774.8	774.8
<b>2</b>	<b>Stack</b>															
	Temp	°C	87.75	107.4	89.95	109.6	85.36	104.7	87.57	106.9	88.38	107	95.82	110.6	98.05	111.7
<b>3</b>	<b>HRSG #1 HPS</b>															
	Flow	t/h	130.3	94.26	135.6	89.06	135.7	89.31	130.5	93.98	130.8	94.27	122.3	96.3	122.9	96.62
	Pressure	bar	86.5	68.37	90	68.27	67.95	67.7	86.56	68.36	67.92	67.72	81.24	68.4	67.87	67.73
	Temp	°C	560.6	561.5	561.5	561.5	561.5	561.5	559.8	561.5	561	561.5	560.1	561.5	560.9	561.5
	Entalpy	kJ/kg	3539	3558	3538	3558	3559	3559	3537	3558	3557	3559	3543	3558	3557	3559
<b>4</b>	<b>HRSG #2 HPS</b>															
	Flow	t/h	130.3	94.26	135.6	89.06	0	0	130.5	93.98	0	0	122.3	96.3	0	0
<b>5</b>	<b>HPS from SF</b>															
	Flow	t/h	102	0	128	0	64	0	102	0	51	0	74	0	37	0
	Pressure	bar	89.1	-	92.18	-	70.83	-	89.5	-	70.65	-	84	-	70.34	-
	Temp	°C	350	-	350	-	330	-	350	-	325	-	341	-	325	-
	Entalpy	kJ/kg	2962	-	2952	-	2953	-	2962	-	2936	-	2945	-	2936	-
<b>6a</b>	<b>HPS from SF to HRSG #1</b>															
	Flow	t/h	51	0	64	0	64	0	51	0	51	0	37	0	37	0
<b>6b</b>	<b>HPS from SF to HRSG #2</b>															
	Flow	t/h	51	0	64	0	0	0	51	0	0	0	37	0	0	0
<b>7</b>	<b>HPS to ST</b>															
	Flow	t/h	260.7	188.5	271.2	178.12	135.7	89.31	261	187.96	130.8	94.27	244.6	192.6	122.9	96.62
	Pressure	bar	85.2	67.5	90	67.5	67.5	67.5	85.9	67.5	67.5	67.5	81.24	67.5	67.5	67.5
	Temp	°C	559.1	560.2	560	560	560	560	559	560	560	560	560	560	560	560
	Entalpy	kJ/kg	3536	3556	3534	3556	3556	3556	3536	3556	3556	3556	3540	3556	3556	3556
<b>8a</b>	<b>HRSG #1 Steam to CRH</b>															
	Flow	t/h	127.4	92	132.5	86.82	131.5	85.43	127.6	91.72	126.6	90.37	119.5	94.04	118.8	92.7
	Pressure	bar	32.5	24.42	33.96	23.67	18.61	12.91	32.53	24.37	17.82	13.33	30.51	24.64	16.76	13.5
	Temp	°C	419.9	424.6	420.9	426.6	426.8	429.2	419.2	424.7	425.3	427.1	420	423.6	424.8	426
	Entalpy	kJ/kg	3273	3296	3273	3302	3309	3322	3272	3296	3307	3317	3276	3293	3307	3315
<b>8b</b>	<b>HRSG #2 steam to CRH</b>															
	Flow	t/h	127.4	92	132.5	86.82	0	0	127.6	91.72	0	0	119.5	94.04	0	0
<b>8</b>	<b>Total steam to CRH</b>															
	Flow	t/h	254.8	184	265	173.64	131.5	85.43	255.2	183.44	126.6	90.37	239	188.08	118.8	92.7
	Pressure	bar	32.5	24.42	33.96	23.67	18.61	12.91	32.53	24.37	17.82	13.33	30.51	24.64	16.76	13.5
	Temp	°C	419.9	424.6	420.9	426.6	426.8	429.2	419.2	424.7	425.3	427.1	420	423.6	424.8	426
	Entalpy	kJ/kg	3273	3296	3273	3302	3309	3322	3272	3296	3307	3317	3276	3293	3307	3315
<b>9</b>	<b>HRSG #1 HRH steam</b>															
	Flow	t/h	127.4	95.19	133.2	92.33	132.8	91.19	127.6	95	126.7	93.89	119.5	96.02	118.8	94.93
	Pressure	bar	31.48	23.64	32.91	22.94	16.59	11.55	31.5	23.59	15.86	11.88	29.54	23.85	14.91	12.01
	Temp	°C	559.9	561.5	561.5	561.5	561.5	561.5	559.2	561.5	561.5	561.5	558.7	561.5	560.7	561.5
	Entalpy	kJ/kg	3589	3600	3591	3600	3606	3611	3587	3600	3607	3610	3588	3599	3606	3610

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<b>10</b>	<b>HRSG #2 HRH steam</b>																
	Flow	t/h	127.4	95.19	133.2	92.33	0	0	127.6	95	0	0	119.5	96.02	0	0	
<b>11</b>	<b>Total HRH steam to ST</b>																
	Flow	t/h	254.8	190.38	266.4	184.66	132.8	91.19	255.2	190	126.7	93.89	239	192.04	118.8	94.93	
	Pressure	bar	30.6	22.95	31.91	22.74	16.09	11.05	30.5	22.9	15.36	11.38	28.54	23.05	14.41	11.51	
	Temp	°C	560	560	560	560	560	560	558.2	560	560	560	557.7	560	560	560	
	Entalpy	kJ/kg	3586	3598	3589	3598	3603	3608	3586	3598	3604	3608	3585	3597	3605	3608	
<b>12</b>	<b>HRSG #1 LPS steam</b>																
	Flow	t/h	24.32	21.88	23.04	19.58	18.86	19.48	24.34	21.77	22.01	21.66	25.19	22.95	23.32	22.83	
	Pressure	bar	6.901	6.919	6.91	6.934	6.939	6.935	6.901	6.92	6.918	6.921	6.894	6.912	6.909	6.913	
	Temp	°C	219	215.3	219.9	215.7	219.3	215.7	219.1	215.3	216.6	215.2	217.3	215.1	215.6	215	
	Entalpy	kJ/kg	2886.9	2878.6	2888.9	2879.6	2887.5	2879.4	2887.1	2878.7	2881.6	2878.5	2883.3	2878.2	2879.4	2878	
<b>13</b>	<b>HRSG #2 LPS steam</b>																
	Flow	t/h	24.32	21.88	23.04	19.58	0	0	24.34	21.77	0	0	25.19	22.95	0	0	
<b>14</b>	<b>Total LPS steam to ST</b>																
	Flow	t/h	48.63	43.76	46.08	39.16	18.86	19.48	48.68	43.54	22.01	21.66	50.38	45.9	23.32	22.83	
	Pressure	bar	5.98	4.624	6.16	4.42	3	2.2	5.9	4.6	3	2.3	5.7	4.7	2.84	2.3	
	Temp	°C	215.9	209.1	217	209	210	204	216	209	207	204	214	209	205	204	
	Entalpy	kJ/kg	2884.6	2876.3	2887	2879	2886	2878	2889	2879	2880	2878	2885	2879	2880	2878	
<b>15</b>	<b>ST Outlet to Condenser</b>																
	Flow	t/h	308.7	238.2	318	227.9	155.5	114.3	309.1	237.6	152.6	119.2	294.4	242.00	146	121.5	
	Pressure	bar	0.0959	0.0944	0.226	0.169	0.133	0.115	0.091	0.092	0.096	0.0906	0.094	0.099	0.011	0.0105	
	Temp	°C	45	44.72	62.73	57	51.5	52.6	44	44.3	45.1	44	44.6	45.6	47.54	46.88	
<b>16</b>	<b>Condenser Air</b>																
	Flow	t/h	49008	35488	46530	46530	46530	46530	37386	49192	23612	19677	30805	24644	14376	12322	
	Temp	°C	37.38	36.46	40	40	40	40	22.1	22.1	22.1	22.1	10.3	10.3	10.3	10.3	
<b>17</b>	<b>Outlet cond</b>																
	Flow	t/h	49008	35488	46530	46530	46530	46530	37386	49192	23612	19677	30805	24644	14376	12322	
	Temp	°C	37.38	36.46	55.43	51.23	47.82	45.85	36.37	36.58	37.05	36.3	32.07	32.72	33.97	33.54	
<b>18</b>	<b>BFW HRSG1</b>																
	Flow	t/h	154.5	119.2	159	113.95	155.5	114.3	154.55	118.8	152.6	119.2	147.2	121	146	121.5	
	Pressure	bar	10.91	11.75	10	11.59	10.54	11.1	10.98	11.7	10.7	11.69	11.1	11.76	12.75	11.69	
	Temp	°C	43.95	43.86	61.7	55.8	51.3	48.9	43.0	43.5	43.1	44.2	43.6	44.7	47.4	47.1	
	Entalpy	kJ/kg	180.6	180.95	256	231	214	201	180	181	180	185	181	185	197	197	
<b>19</b>	<b>BFW HRSG2</b>																
	Flow	t/h	154.5	119.2	159	113.95	0	0	154.55	118.8	0	0	147.2	121	0	0	
<b>20</b>	<b>BFW SF</b>																
	Flow	t/h	51	0	128	0	64	0	102	0	51	0	74	0	37	0	
	Pressure	bar	92.7	-	97.5	-	75	-	93.4	-	75	-	88.74	-	75	-	
	Temp	°C	167	-	167	-	167	-	167	-	167	-	167	-	167	-	
	Entalpy	kJ/kg	710	-	711	-	708	-	710.5	-	708	-	710	-	708	-	
<b>21</b>	<b>Demi Make up</b>																
	Flow	t/h	1.111	1.125	1.042	1.041	0.5233	0.522	1.113	1.121	0.5602	0.5619	1.149	1.161	0.5795	0.582	
	Pressure	bar	10.91	11.75	10	11.59	10.54	11.1	10.98	11.7	10.77	11.7	11.12	11.76	12.76	11.69	
	Temp	°C	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Entalpy	kJ/kg	63.99	64.07	63.9	64.05	63.95	64	63.99	64.06	63.97	64.06	64.01	64.07	64.16	64.06	
<b>22</b>	<b>ATT HP</b>																
	Flow	t/h	0	6.32	1.16	10.15	0.76	5.06	0	6.45	0.07	3.22	0	4.37	0	2.18	
	Pressure	bar	-	68.6	90.34	68.48	68.41	67.9	-	68.59	68.35	67.95	0	68.65	-	67.98	
	Temp	°C	-	166	167	166	166	166	-	166	166	166	166	166	-	166	
	Entalpy	kJ/kg	-	705	110	105	105	105	-	105	105	105	105	105	-	105	
<b>23</b>	<b>ATT RH</b>																
	Flow	t/h	0	6.38	1.34	11.01	1.25	5.76	0	6.54	0	3.52	0	3.95	0	2.23	
	Pressure	bar	-	24.6	33.47	23.3	17.7	12.3	-	24.01	-	12.68	-	24.27	-	12.82	
	Temp	°C	-	165.5	166	165.5	165.5	165.5	-	165.5	-	165.5	-	165.5	-	165.5	
	Entalpy	kJ/kg	-	698	703	698	697	697	-	698	-	697	-	698	-	697	
<b>24</b>	<b>Blow Down</b>																
	Flow	t/h	0.793	0.9426	0.716	0.8906	0.3585	0.44655	0.795	0.9398	0.399	0.47135	0.853	0.963	0.4295	0.4831	
	<b>Verifica limite att HP</b>	%	0%	3%	0%	6%	1%	6%	-	3%	-	3%	-	2%	-	2%	
	<b>Verifica limite att IP</b>	%	0%	3%	1%	6%	1%	6%	-	3%	-	4%	-	2%	-	2%	
	<b>Verifica M/m in ST</b>		96%	70%	100%	66%	50%	33%	96%	69%	48%	35%	90%	71%	45%	36%	