



Epic Power Converters, S.L.
CIF: B99349623

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AN022

This application note shows the energy savings that can be expected in different type of elevators by installing the Energy Recovery System, ERS2G.

Revision

V1.3
October, 2022

Application Note - AN022

Energy saving estimations with ERS 2G

Introduction

To evaluate the impact of the installation of the ERS 2G product in a high-traffic elevator an estimation of energy savings is created based on the ISO 25745-2 (*Energy performance of lifts, escalators and moving walks - Part 2: Energy calculation and classification for lifts (elevators)*).

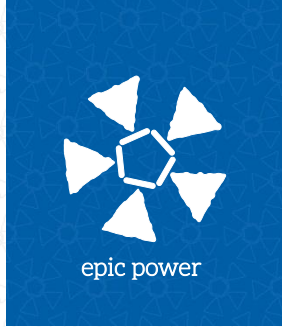
The biggest impact on the energy efficiency of a high-traffic elevator is found in the overall efficiency of the system. This efficiency can be obtained by receiving or measuring each one of the elements efficiency involved in the elevator traction and multiplying each one of them to obtain the overall efficiency of the system, but this method can become long and inaccurate if not all the elements are taken into account.

Another option that shows an estimated overall efficiency can be obtained by directly measuring the power transfer in the motor connections with a specific load. By performing a trip up and down empty or fully loaded the measurements will show the power consumed and generated in the same conditions. The efficiency can be then estimated dividing the nominal generated power with the nominal consumed power.

$$\text{Overall efficiency (\%)} = \xi_{100} = \left(\frac{P_{generated}}{P_{consumed}} \right) * 100$$

Although in datasheets it's possible to find overall efficiencies around 80 % we have measured unidirectional efficiencies around 65-80 % in real life elevators with gearless motors. Having a gearless motor is key to deal with overall bidirectional system efficiencies over 50 %.

In the following pages different cases of load, height, and number of trips in elevators are shown for standard overall efficiencies of 75 %.



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Estimation of energy savings with 1 unit of ERS 2G - 750 trips/day

Trips per day 750
Efficiency 75%
Speed [m/s] 1

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	217	290	362	435	507	580	652	725
	375	272	362	453	544	634	725	815	906
	450	326	435	544	652	761	870	978	1087
	525	380	507	634	761	888	1015	1141	1268
	600	435	580	725	870	1015	1160	1305	1450
	675	489	652	815	978	1141	1305	1468	1631
	750	544	725	906	1087	1268	1450	1631	1812
	825	632	843	1054	1265	1476	1686	1897	2108
	900	690	920	1150	1380	1610	1840	2070	2236
	975	747	997	1246	1495	1744	1993	2236	2236
	1050	805	1073	1342	1610	1878	2146	2236	2236
	1125	862	1150	1437	1725	2012	2236	2236	2236
	1200	920	1227	1533	1840	2146	2236	2236	2236
	1275	977	1303	1629	1955	2236	2236	2236	2236
	1350	1082	1443	1803	2164	2236	2236	2236	2236
	1425	1142	1523	1903	2236	2236	2236	2236	2236
	1500	1202	1603	2004	2236	2236	2236	2236	2236
	1575	1262	1683	2104	2236	2236	2236	2236	2236
	1650	1322	1763	2204	2236	2236	2236	2236	2236
	1725	1382	1843	2236	2236	2236	2236	2236	2236
1800	1443	1923	2236	2236	2236	2236	2236	2236	
1875	1464	1950	2236	2236	2236	2236	2236	2236	
1950	1472	1958	2236	2236	2236	2236	2236	2236	
2025	1484	1970	2236	2236	2236	2236	2236	2236	
2100	1491	1977	2236	2236	2236	2236	2236	2236	
2175	1498	1984	2236	2236	2236	2236	2236	2236	
2250	1504	1990	2236	2236	2236	2236	2236	2236	
2325	1509	1995	2236	2236	2236	2236	2236	2236	
2400	1515	2001	2236	2236	2236	2236	2236	2236	
2475	1520	2006	2236	2236	2236	2236	2236	2236	
2550	1524	2010	2236	2236	2236	2236	2236	2236	
2625	1529	2015	2236	2236	2236	2236	2236	2236	

Fig. 1: Energy savings per year for average trips according to ISO 25745-2. (1 m/s, 75 % efficiency, 750 trips/day)

Trips per day 750
Efficiency 75%
Speed [m/s] 1,2

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	217	290	362	435	507	580	652	725
	375	272	362	453	544	634	725	815	906
	450	326	435	544	652	761	870	978	1087
	525	380	507	634	761	888	1015	1141	1268
	600	435	580	725	870	1015	1160	1305	1450
	675	489	652	815	978	1141	1305	1468	1631
	750	544	725	906	1087	1268	1450	1631	1812
	825	632	843	1054	1265	1476	1686	1897	2108
	900	690	920	1150	1380	1610	1840	2070	2236
	975	747	997	1246	1495	1744	1993	2236	2236
	1050	805	1073	1342	1610	1878	2146	2236	2236
	1125	862	1150	1437	1725	2012	2236	2236	2236
	1200	920	1227	1533	1840	2146	2236	2236	2236
	1275	977	1303	1629	1955	2236	2236	2236	2236
	1350	1082	1443	1803	2164	2236	2236	2236	2236
	1425	1142	1523	1903	2236	2236	2236	2236	2236
	1500	1202	1603	2004	2236	2236	2236	2236	2236
	1575	1225	1630	2034	2236	2236	2236	2236	2236
	1650	1236	1641	2046	2236	2236	2236	2236	2236
	1725	1247	1652	2057	2236	2236	2236	2236	2236
1800	1257	1661	2066	2236	2236	2236	2236	2236	
1875	1265	1670	2075	2236	2236	2236	2236	2236	
1950	1274	1679	2083	2236	2236	2236	2236	2236	
2025	1286	1691	2095	2236	2236	2236	2236	2236	
2100	1293	1698	2102	2236	2236	2236	2236	2236	
2175	1299	1704	2109	2236	2236	2236	2236	2236	
2250	1305	1710	2115	2236	2236	2236	2236	2236	
2325	1311	1716	2120	2236	2236	2236	2236	2236	
2400	1316	1721	2126	2236	2236	2236	2236	2236	
2475	1321	1726	2131	2236	2236	2236	2236	2236	
2550	1326	1731	2135	2236	2236	2236	2236	2236	
2625	1330	1735	2140	2236	2236	2236	2236	2236	

Fig. 2: Energy savings per year for average trips according to ISO 25745-2. (1.2 m/s, 75 % efficiency, 750 trips/day)



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Trips per day 750
Efficiency 75%
Speed [m/s] 1,6

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	217	290	362	435	507	580	652	725
375	272	362	453	544	634	725	815	906
450	326	435	544	652	761	870	978	1087
525	380	507	634	761	888	1015	1141	1268
600	435	580	725	870	1015	1160	1305	1450
675	489	652	815	978	1141	1305	1468	1631
750	544	725	906	1087	1268	1450	1631	1812
825	632	843	1054	1265	1476	1686	1897	2108
900	690	920	1150	1380	1610	1840	2070	2236
975	747	997	1246	1495	1744	1993	2236	2236
1050	805	1073	1342	1610	1878	2146	2236	2236
1125	862	1150	1437	1725	2012	2236	2236	2236
1200	914	1218	1522	1825	2129	2236	2236	2236
1275	935	1239	1542	1846	2150	2236	2236	2236
1350	967	1270	1574	1878	2181	2236	2236	2236
1425	982	1286	1590	1893	2197	2236	2236	2236
1500	997	1300	1604	1908	2211	2236	2236	2236
1575	1009	1313	1617	1920	2224	2236	2236	2236
1650	1021	1325	1628	1932	2236	2236	2236	2236
1725	1031	1335	1639	1942	2236	2236	2236	2236
1800	1041	1345	1649	1952	2236	2236	2236	2236
1875	1050	1354	1657	1961	2236	2236	2236	2236
1950	1058	1362	1666	1969	2236	2236	2236	2236
2025	1070	1374	1678	1981	2236	2236	2236	2236
2100	1077	1381	1685	1988	2236	2236	2236	2236
2175	1084	1387	1691	1995	2236	2236	2236	2236
2250	1090	1393	1697	2001	2236	2236	2236	2236
2325	1095	1399	1703	2006	2236	2236	2236	2236
2400	1101	1404	1708	2012	2236	2236	2236	2236
2475	1106	1409	1713	2017	2236	2236	2236	2236
2550	1110	1414	1718	2021	2236	2236	2236	2236
2625	1115	1418	1722	2026	2236	2236	2236	2236

Trips per day 750
Efficiency 75%
Speed [m/s] 2

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	217	290	362	435	507	580	652	725
375	272	362	453	544	634	725	815	906
450	326	435	544	652	761	870	978	1087
525	380	507	634	761	888	1015	1141	1268
600	435	580	725	870	1015	1160	1305	1450
675	489	652	815	978	1141	1305	1468	1631
750	544	725	906	1087	1268	1450	1631	1812
825	632	843	1054	1265	1476	1686	1897	2108
900	690	920	1150	1380	1610	1840	2070	2236
975	740	983	1226	1469	1712	1954	2197	2236
1050	771	1013	1256	1499	1742	1985	2228	2236
1125	797	1040	1283	1526	1769	2012	2236	2236
1200	821	1063	1306	1549	1792	2035	2236	2236
1275	841	1084	1327	1570	1813	2056	2236	2236
1350	873	1116	1359	1602	1845	2088	2236	2236
1425	889	1132	1374	1617	1860	2103	2236	2236
1500	903	1146	1389	1631	1874	2117	2236	2236
1575	915	1158	1401	1644	1887	2130	2236	2236
1650	927	1170	1413	1656	1899	2142	2236	2236
1725	938	1181	1423	1666	1909	2152	2236	2236
1800	947	1190	1433	1676	1919	2162	2236	2236
1875	956	1199	1442	1685	1928	2171	2236	2236
1950	965	1207	1450	1693	1936	2179	2236	2236
2025	977	1219	1462	1705	1948	2191	2236	2236
2100	983	1226	1469	1712	1955	2198	2236	2236
2175	990	1233	1476	1719	1962	2205	2236	2236
2250	996	1239	1482	1725	1968	2211	2236	2236
2325	1002	1244	1487	1730	1973	2216	2236	2236
2400	1007	1250	1493	1736	1979	2221	2236	2236
2475	1012	1255	1498	1741	1983	2226	2236	2236
2550	1016	1259	1502	1745	1988	2231	2236	2236
2625	1021	1264	1507	1750	1993	2235	2236	2236

Fig. 3: Energy savings per year for average trips according to ISO 25745-2. (1.6 m/s, 75 % efficiency, 750 trips/day)

Fig. 4: Energy savings per year for average trips according to ISO 25745-2. (2 m/s, 75 % efficiency, 750 trips/day)

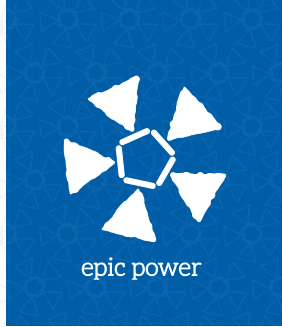
* In the tables of energy saved per year it can be observed that when the load and height increases, the savings get to a limit. This limit is driven by the capacity of storage and power of one unit of ERS 2G. In those cases, more than 1 unit of ERS 2G should be considered.



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Estimation of energy savings with 1 unit of ERS 2G - 1000 trips/day

Trips per day 1000
Efficiency 75%
Speed [m/s] 1

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	237	316	395	474	553	632	712	791
	375	296	395	494	593	692	791	889	988
	450	356	474	593	712	830	949	1067	1186
	525	415	553	692	830	968	1107	1245	1384
	600	474	632	791	949	1107	1265	1423	1581
	675	534	712	889	1067	1245	1423	1601	1779
	750	593	791	988	1186	1384	1581	1779	1977
	825	718	957	1196	1435	1674	1913	2153	2392
	900	783	1044	1305	1565	1826	2087	2348	2609
	975	848	1131	1413	1696	1979	2261	2544	2827
	1050	913	1218	1522	1826	2131	2435	2740	2981
	1125	978	1305	1631	1957	2283	2609	2935	2981
	1200	1044	1392	1739	2087	2435	2783	2981	2981
	1275	1109	1479	1848	2218	2587	2957	2981	2981
	1350	1245	1660	2075	2491	2906	2981	2981	2981
	1425	1314	1753	2191	2629	2981	2981	2981	2981
	1500	1384	1845	2306	2767	2981	2981	2981	2981
	1575	1453	1937	2421	2906	2981	2981	2981	2981
	1650	1522	2029	2537	2981	2981	2981	2981	2981
	1725	1591	2122	2652	2981	2981	2981	2981	2981
1800	1660	2214	2767	2981	2981	2981	2981	2981	
1875	1724	2298	2872	2981	2981	2981	2981	2981	
1950	1735	2309	2883	2981	2981	2981	2981	2981	
2025	1755	2329	2903	2981	2981	2981	2981	2981	
2100	1764	2338	2913	2981	2981	2981	2981	2981	
2175	1773	2347	2921	2981	2981	2981	2981	2981	
2250	1781	2355	2929	2981	2981	2981	2981	2981	
2325	1789	2363	2937	2981	2981	2981	2981	2981	
2400	1796	2370	2944	2981	2981	2981	2981	2981	
2475	1803	2377	2951	2981	2981	2981	2981	2981	
2550	1809	2383	2957	2981	2981	2981	2981	2981	
2625	1815	2389	2963	2981	2981	2981	2981	2981	

Trips per day 1000
Efficiency 75%
Speed [m/s] 1,2

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	237	316	395	474	553	632	712	791
	375	296	395	494	593	692	791	889	988
	450	356	474	593	712	830	949	1067	1186
	525	415	553	692	830	968	1107	1245	1384
	600	474	632	791	949	1107	1265	1423	1581
	675	534	712	889	1067	1245	1423	1601	1779
	750	593	791	988	1186	1384	1581	1779	1977
	825	718	957	1196	1435	1674	1913	2153	2392
	900	783	1044	1305	1565	1826	2087	2348	2609
	975	848	1131	1413	1696	1979	2261	2544	2827
	1050	913	1218	1522	1826	2131	2435	2740	2981
	1125	978	1305	1631	1957	2283	2609	2935	2981
	1200	1044	1392	1739	2087	2435	2783	2981	2981
	1275	1109	1479	1848	2218	2587	2957	2981	2981
	1350	1245	1660	2075	2491	2906	2981	2981	2981
	1425	1314	1753	2191	2629	2981	2981	2981	2981
	1500	1384	1845	2306	2767	2981	2981	2981	2981
	1575	1440	1918	2397	2875	2981	2981	2981	2981
	1650	1456	1934	2413	2891	2981	2981	2981	2981
	1725	1470	1949	2427	2906	2981	2981	2981	2981
1800	1483	1962	2440	2919	2981	2981	2981	2981	
1875	1496	1974	2453	2931	2981	2981	2981	2981	
1950	1507	1985	2464	2942	2981	2981	2981	2981	
2025	1527	2005	2484	2962	2981	2981	2981	2981	
2100	1536	2015	2493	2972	2981	2981	2981	2981	
2175	1545	2023	2502	2980	2981	2981	2981	2981	
2250	1553	2031	2510	2981	2981	2981	2981	2981	
2325	1560	2039	2517	2981	2981	2981	2981	2981	
2400	1568	2046	2525	2981	2981	2981	2981	2981	
2475	1574	2053	2531	2981	2981	2981	2981	2981	
2550	1581	2059	2538	2981	2981	2981	2981	2981	
2625	1587	2065	2544	2981	2981	2981	2981	2981	

Fig. 5: Energy savings per year for average trips according to ISO 25745-2. (1 m/s, 75 % efficiency, 1000 trips/day)

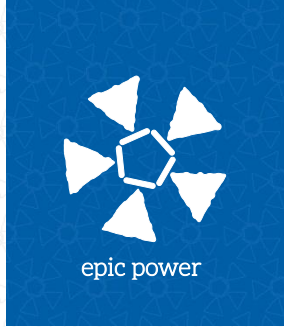
Fig. 6: Energy savings per year for average trips according to ISO 25745-2. (1.2 m/s, 75 % efficiency, 1000 trips/day)



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Trips per day 1000
Efficiency 75%
Speed [m/s] 1,6

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	237	316	395	474	553	632	712	791
375	296	395	494	593	692	791	889	988
450	356	474	593	712	830	949	1067	1186
525	415	553	692	830	968	1107	1245	1384
600	474	632	791	949	1107	1265	1423	1581
675	534	712	889	1067	1245	1423	1601	1779
750	593	791	988	1186	1384	1581	1779	1977
825	718	957	1196	1435	1674	1913	2153	2392
900	783	1044	1305	1565	1826	2087	2348	2609
975	848	1131	1413	1696	1979	2261	2544	2827
1050	913	1218	1522	1826	2131	2435	2740	2981
1125	978	1305	1631	1957	2283	2609	2935	2981
1200	1044	1392	1739	2087	2435	2783	2981	2981
1275	1090	1449	1808	2167	2526	2885	2981	2981
1350	1140	1499	1858	2217	2576	2935	2981	2981
1425	1162	1521	1880	2238	2597	2956	2981	2981
1500	1181	1540	1899	2258	2617	2976	2981	2981
1575	1199	1557	1916	2275	2634	2981	2981	2981
1650	1214	1573	1932	2291	2650	2981	2981	2981
1725	1229	1588	1947	2306	2664	2981	2981	2981
1800	1242	1601	1960	2319	2678	2981	2981	2981
1875	1254	1613	1972	2331	2690	2981	2981	2981
1950	1266	1625	1984	2342	2701	2981	2981	2981
2025	1286	1644	2003	2362	2721	2981	2981	2981
2100	1295	1654	2013	2372	2730	2981	2981	2981
2175	1304	1663	2021	2380	2739	2981	2981	2981
2250	1312	1671	2030	2388	2747	2981	2981	2981
2325	1319	1678	2037	2396	2755	2981	2981	2981
2400	1327	1685	2044	2403	2762	2981	2981	2981
2475	1333	1692	2051	2410	2769	2981	2981	2981
2550	1340	1698	2057	2416	2775	2981	2981	2981
2625	1345	1704	2063	2422	2781	2981	2981	2981

Trips per day 1000
Efficiency 75%
Speed [m/s] 2

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	237	316	395	474	553	632	712	791
375	296	395	494	593	692	791	889	988
450	356	474	593	712	830	949	1067	1186
525	415	553	692	830	968	1107	1245	1384
600	474	632	791	949	1107	1265	1423	1581
675	534	712	889	1067	1245	1423	1601	1779
750	593	791	988	1186	1384	1581	1779	1977
825	718	957	1196	1435	1674	1913	2153	2392
900	783	1044	1305	1565	1826	2087	2348	2609
975	848	1131	1413	1696	1979	2261	2544	2827
1050	895	1182	1469	1756	2043	2330	2617	2904
1125	932	1219	1506	1793	2080	2367	2654	2941
1200	964	1251	1538	1825	2113	2400	2687	2974
1275	993	1280	1567	1854	2141	2428	2715	2981
1350	1043	1330	1617	1904	2191	2478	2765	2981
1425	1064	1351	1639	1926	2213	2500	2787	2981
1500	1084	1371	1658	1945	2232	2519	2806	2981
1575	1101	1388	1675	1962	2249	2537	2824	2981
1650	1117	1404	1691	1978	2265	2552	2840	2981
1725	1131	1419	1706	1993	2280	2567	2854	2981
1800	1145	1432	1719	2006	2293	2580	2867	2981
1875	1157	1444	1731	2018	2305	2592	2880	2981
1950	1168	1455	1742	2030	2317	2604	2891	2981
2025	1188	1475	1762	2049	2336	2624	2911	2981
2100	1197	1484	1772	2059	2346	2633	2920	2981
2175	1206	1493	1780	2067	2355	2642	2929	2981
2250	1214	1501	1788	2076	2363	2650	2937	2981
2325	1222	1509	1796	2083	2370	2657	2944	2981
2400	1229	1516	1803	2090	2377	2664	2952	2981
2475	1236	1523	1810	2097	2384	2671	2958	2981
2550	1242	1529	1816	2103	2390	2677	2965	2981
2625	1248	1535	1822	2109	2396	2683	2971	2981

Fig. 7: Energy savings per year for average trips according to ISO 25745-2. (1.6 m/s, 75 % efficiency, 1000 trips/day)

Fig. 8: Energy savings per year for average trips according to ISO 25745-2. (2 m/s, 75 % efficiency, 1000 trips/day)

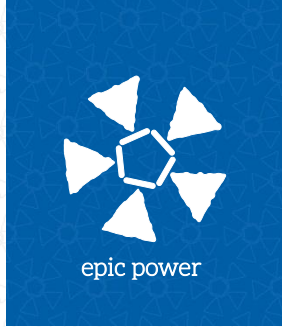
* In the tables of energy saved per year it can be observed that when the load and height increases, the savings get to a limit. This limit is driven by the capacity of storage and power of one unit of ERS 2G. In those cases, more than 1 unit of ERS 2G should be considered.



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Estimation of energy savings with 1 unit of ERS 2G - 1500 trips/day

Trips per day 1500
Efficiency 75%
Speed [m/s] 1

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	356	474	593	712	830	949	1067	1186
	375	445	593	741	889	1038	1186	1334	1482
	450	534	712	889	1067	1245	1423	1601	1779
	525	623	830	1038	1245	1453	1660	1868	2075
	600	712	949	1186	1423	1660	1897	2135	2372
	675	800	1067	1334	1601	1868	2135	2401	2668
	750	889	1186	1482	1779	2075	2372	2668	2965
	825	1076	1435	1794	2153	2511	2870	3229	3588
	900	1174	1565	1957	2348	2740	3131	3522	3914
	975	1272	1696	2120	2544	2968	3392	3816	4240
	1050	1370	1826	2283	2740	3196	3653	4109	4471
	1125	1468	1957	2446	2935	3424	3914	4403	4471
	1200	1565	2087	2609	3131	3653	4175	4471	4471
	1275	1663	2218	2772	3327	3881	4436	4471	4471
	1350	1868	2491	3113	3736	4359	4471	4471	4471
	1425	1972	2629	3286	3943	4471	4471	4471	4471
	1500	2075	2767	3459	4151	4471	4471	4471	4471
	1575	2179	2906	3632	4359	4471	4471	4471	4471
	1650	2283	3044	3805	4471	4471	4471	4471	4471
	1725	2387	3182	3978	4471	4471	4471	4471	4471
	1800	2491	3321	4151	4471	4471	4471	4471	4471
	1875	2586	3447	4308	4471	4471	4471	4471	4471
	1950	2603	3464	4325	4471	4471	4471	4471	4471
	2025	2632	3494	4355	4471	4471	4471	4471	4471
	2100	2646	3508	4369	4471	4471	4471	4471	4471
	2175	2659	3521	4382	4471	4471	4471	4471	4471
2250	2672	3533	4394	4471	4471	4471	4471	4471	
2325	2683	3544	4406	4471	4471	4471	4471	4471	
2400	2694	3555	4416	4471	4471	4471	4471	4471	
2475	2704	3565	4426	4471	4471	4471	4471	4471	
2550	2713	3575	4436	4471	4471	4471	4471	4471	
2625	2722	3583	4445	4471	4471	4471	4471	4471	

Trips per day 1500
Efficiency 75%
Speed [m/s] 1,2

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
Maximum cabin load (kg)	300	356	474	593	712	830	949	1067	1186
	375	445	593	741	889	1038	1186	1334	1482
	450	534	712	889	1067	1245	1423	1601	1779
	525	623	830	1038	1245	1453	1660	1868	2075
	600	712	949	1186	1423	1660	1897	2135	2372
	675	800	1067	1334	1601	1868	2135	2401	2668
	750	889	1186	1482	1779	2075	2372	2668	2965
	825	1076	1435	1794	2153	2511	2870	3229	3588
	900	1174	1565	1957	2348	2740	3131	3522	3914
	975	1272	1696	2120	2544	2968	3392	3816	4240
	1050	1370	1826	2283	2740	3196	3653	4109	4471
	1125	1468	1957	2446	2935	3424	3914	4403	4471
	1200	1565	2087	2609	3131	3653	4175	4471	4471
	1275	1663	2218	2772	3327	3881	4436	4471	4471
	1350	1868	2491	3113	3736	4359	4471	4471	4471
	1425	1972	2629	3286	3943	4471	4471	4471	4471
	1500	2075	2767	3459	4151	4471	4471	4471	4471
	1575	2160	2877	3595	4313	4471	4471	4471	4471
	1650	2183	2901	3619	4337	4471	4471	4471	4471
	1725	2205	2923	3641	4358	4471	4471	4471	4471
	1800	2225	2943	3661	4378	4471	4471	4471	4471
	1875	2243	2961	3679	4397	4471	4471	4471	4471
	1950	2260	2978	3696	4414	4471	4471	4471	4471
	2025	2290	3008	3725	4443	4471	4471	4471	4471
	2100	2304	3022	3740	4457	4471	4471	4471	4471
	2175	2317	3035	3753	4470	4471	4471	4471	4471
2250	2329	3047	3765	4471	4471	4471	4471	4471	
2325	2341	3058	3776	4471	4471	4471	4471	4471	
2400	2351	3069	3787	4471	4471	4471	4471	4471	
2475	2361	3079	3797	4471	4471	4471	4471	4471	
2550	2371	3089	3806	4471	4471	4471	4471	4471	
2625	2380	3098	3815	4471	4471	4471	4471	4471	

Fig. 9: Energy savings per year for average trips according to ISO 25745-2. (1 m/s, 75 % efficiency, 1500 trips/day)

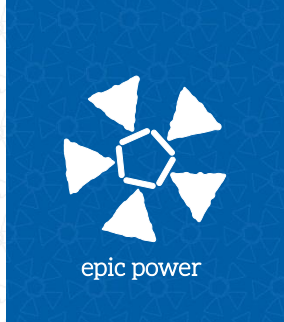
Fig. 10: Energy savings per year for average trips according to ISO 25745-2. (1.2 m/s, 75 % efficiency, 1500 trips/day)



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Trips per day 1500
Efficiency 75%
Speed [m/s] 1,6

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	356	474	593	712	830	949	1067	1186
375	445	593	741	889	1038	1186	1334	1482
450	534	712	889	1067	1245	1423	1601	1779
525	623	830	1038	1245	1453	1660	1868	2075
600	712	949	1186	1423	1660	1897	2135	2372
675	800	1067	1334	1601	1868	2135	2401	2668
750	889	1186	1482	1779	2075	2372	2668	2965
825	1076	1435	1794	2153	2511	2870	3229	3588
900	1174	1565	1957	2348	2740	3131	3522	3914
975	1272	1696	2120	2544	2968	3392	3816	4240
1050	1370	1826	2283	2740	3196	3653	4109	4471
1125	1468	1957	2446	2935	3424	3914	4403	4471
1200	1565	2087	2609	3131	3653	4175	4471	4471
1275	1635	2174	2712	3250	3789	4327	4471	4471
1350	1711	2249	2787	3326	3864	4402	4471	4471
1425	1743	2281	2819	3358	3896	4434	4471	4471
1500	1772	2310	2848	3387	3925	4463	4471	4471
1575	1798	2336	2875	3413	3951	4471	4471	4471
1650	1822	2360	2898	3437	3975	4471	4471	4471
1725	1843	2382	2920	3458	3997	4471	4471	4471
1800	1863	2402	2940	3478	4017	4471	4471	4471
1875	1882	2420	2958	3497	4035	4471	4471	4471
1950	1899	2437	2975	3514	4052	4471	4471	4471
2025	1928	2467	3005	3543	4082	4471	4471	4471
2100	1942	2481	3019	3557	4096	4471	4471	4471
2175	1955	2494	3032	3570	4109	4471	4471	4471
2250	1968	2506	3044	3583	4121	4471	4471	4471
2325	1979	2517	3056	3594	4132	4471	4471	4471
2400	1990	2528	3066	3605	4143	4471	4471	4471
2475	2000	2538	3076	3615	4153	4471	4471	4471
2550	2009	2548	3086	3624	4163	4471	4471	4471
2625	2018	2557	3095	3633	4171	4471	4471	4471

Fig. 11: Energy savings per year for average trips according to ISO 25745-2. (1.6 m/s, 75 % efficiency, 1500 trips/day)

Trips per day 1500
Efficiency 75%
Speed [m/s] 2

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	356	474	593	712	830	949	1067	1186
375	445	593	741	889	1038	1186	1334	1482
450	534	712	889	1067	1245	1423	1601	1779
525	623	830	1038	1245	1453	1660	1868	2075
600	712	949	1186	1423	1660	1897	2135	2372
675	800	1067	1334	1601	1868	2135	2401	2668
750	889	1186	1482	1779	2075	2372	2668	2965
825	1076	1435	1794	2153	2511	2870	3229	3588
900	1174	1565	1957	2348	2740	3131	3522	3914
975	1272	1696	2120	2544	2968	3392	3816	4240
1050	1342	1773	2203	2634	3065	3495	3926	4357
1125	1398	1828	2259	2690	3120	3551	3982	4412
1200	1446	1877	2308	2738	3169	3600	4030	4461
1275	1489	1920	2350	2781	3212	3642	4073	4471
1350	1564	1995	2426	2856	3287	3718	4148	4471
1425	1596	2027	2458	2888	3319	3750	4180	4471
1500	1625	2056	2487	2917	3348	3779	4209	4471
1575	1652	2082	2513	2944	3374	3805	4235	4471
1650	1675	2106	2537	2967	3398	3829	4259	4471
1725	1697	2128	2558	2989	3420	3850	4281	4471
1800	1717	2148	2578	3009	3440	3870	4301	4471
1875	1735	2166	2597	3027	3458	3889	4319	4471
1950	1752	2183	2614	3044	3475	3906	4336	4471
2025	1782	2213	2643	3074	3505	3935	4366	4471
2100	1796	2227	2657	3088	3519	3949	4380	4471
2175	1809	2240	2670	3101	3532	3962	4393	4471
2250	1821	2252	2683	3113	3544	3975	4405	4471
2325	1833	2263	2694	3125	3555	3986	4417	4471
2400	1843	2274	2705	3135	3566	3997	4427	4471
2475	1854	2284	2715	3145	3576	4007	4437	4471
2550	1863	2294	2724	3155	3586	4016	4447	4471
2625	1872	2303	2733	3164	3595	4025	4456	4471

Fig. 12: Energy savings per year for average trips according to ISO 25745-2. (2 m/s, 75 % efficiency, 1500 trips/day)

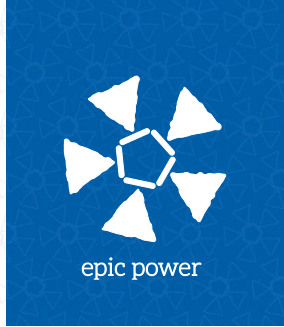
* In the tables of energy saved per year it can be observed that when the load and height increases, the savings get to a limit. This limit is driven by the capacity of storage and power of one unit of ERS 2G. In those cases, more than 1 unit of ERS 2G should be considered.



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Estimation of energy savings with 1 unit of ERS 2G - 2000 trips/day

Trips per day 2000
Efficiency 75%
Speed [m/s] 1

kWh/year		Maximum travel distance (m)								
		15	20	25	30	35	40	45	50	
Maximum cabin load (kg)	300	341	454	568	681	795	908	1022	1135	
	375	426	568	709	851	993	1135	1277	1419	
	450	511	681	851	1022	1192	1362	1532	1703	
	525	596	795	993	1192	1391	1589	1788	1987	
	600	681	908	1135	1362	1589	1816	2043	2270	
	675	766	1022	1277	1532	1788	2043	2299	2554	
	750	851	1135	1419	1703	1987	2270	2554	2838	
	825	1059	1412	1765	2118	2471	2825	3178	3531	
	900	1155	1541	1926	2311	2696	3081	3466	3852	
	975	1252	1669	2086	2504	2921	3338	3755	4173	
	1050	1348	1797	2247	2696	3146	3595	4044	4494	
	1125	1444	1926	2407	2889	3370	3852	4333	4815	
	1200	1541	2054	2568	3081	3595	4108	4622	5136	
	1275	1637	2183	2728	3274	3820	4365	4911	5457	
	1350	1898	2530	3163	3795	4428	5060	5693	5962	
	1425	2003	2671	3338	4006	4674	5341	5962	5962	
	1500	2108	2811	3514	4217	4920	5622	5962	5962	
	1575	2214	2952	3690	4428	5166	5903	5962	5962	
	1650	2319	3092	3865	4638	5411	5962	5962	5962	
	1725	2425	3233	4041	4849	5657	5962	5962	5962	
1800	2530	3373	4217	5060	5903	5962	5962	5962		
1875	2635	3514	4392	5271	5962	5962	5962	5962		
1950	2741	3655	4568	5482	5962	5962	5962	5962		
2025	2863	3805	4747	5690	5962	5962	5962	5962		
2100	2883	3825	4767	5709	5962	5962	5962	5962		
2175	2901	3843	4785	5728	5962	5962	5962	5962		
2250	2918	3860	4803	5745	5962	5962	5962	5962		
2325	2934	3876	4819	5761	5962	5962	5962	5962		
2400	2949	3891	4834	5776	5962	5962	5962	5962		
2475	2963	3906	4848	5790	5962	5962	5962	5962		
2550	2977	3919	4861	5803	5962	5962	5962	5962		
2625	2989	3931	4874	5816	5962	5962	5962	5962		

Trips per day 2000
Efficiency 75%
Speed [m/s] 1,2

kWh/year		Maximum travel distance (m)								
		15	20	25	30	35	40	45	50	
Maximum cabin load (kg)	300	341	454	568	681	795	908	1022	1135	
	375	426	568	709	851	993	1135	1277	1419	
	450	511	681	851	1022	1192	1362	1532	1703	
	525	596	795	993	1192	1391	1589	1788	1987	
	600	681	908	1135	1362	1589	1816	2043	2270	
	675	766	1022	1277	1532	1788	2043	2299	2554	
	750	851	1135	1419	1703	1987	2270	2554	2838	
	825	1059	1412	1765	2118	2471	2825	3178	3531	
	900	1155	1541	1926	2311	2696	3081	3466	3852	
	975	1252	1669	2086	2504	2921	3338	3755	4173	
	1050	1348	1797	2247	2696	3146	3595	4044	4494	
	1125	1444	1926	2407	2889	3370	3852	4333	4815	
	1200	1541	2054	2568	3081	3595	4108	4622	5136	
	1275	1637	2183	2728	3274	3820	4365	4911	5457	
	1350	1898	2530	3163	3795	4428	5060	5693	5962	
	1425	2003	2671	3338	4006	4674	5341	5962	5962	
	1500	2108	2811	3514	4217	4920	5622	5962	5962	
	1575	2214	2952	3690	4428	5166	5903	5962	5962	
	1650	2319	3092	3865	4638	5411	5962	5962	5962	
	1725	2425	3233	4041	4849	5657	5962	5962	5962	
1800	2530	3373	4217	5060	5903	5962	5962	5962		
1875	2635	3514	4392	5271	5962	5962	5962	5962		
1950	2741	3655	4568	5482	5962	5962	5962	5962		
2025	2863	3805	4747	5690	5962	5962	5962	5962		
2100	2883	3825	4767	5709	5962	5962	5962	5962		
2175	2901	3843	4785	5728	5962	5962	5962	5962		
2250	2918	3860	4803	5745	5962	5962	5962	5962		
2325	2934	3876	4819	5761	5962	5962	5962	5962		
2400	2949	3891	4834	5776	5962	5962	5962	5962		
2475	2963	3906	4848	5790	5962	5962	5962	5962		
2550	2977	3919	4861	5803	5962	5962	5962	5962		
2625	2989	3931	4874	5816	5962	5962	5962	5962		

Fig. 13: Energy savings per year for average trips according to ISO 25745-2. (1 m/s, 75 % efficiency, 2000 trips/day)

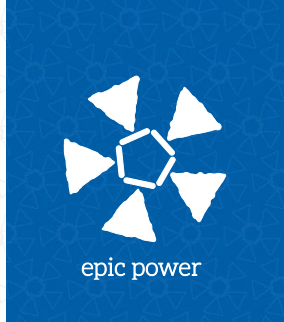
Fig. 14: Energy savings per year for average trips according to ISO 25745-2. (1.2 m/s, 75 % efficiency, 2000 trips/day)



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Trips per day 2000
Efficiency 75%
Speed [m/s] 1,6

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	341	454	568	681	795	908	1022	1135
375	426	568	709	851	993	1135	1277	1419
450	511	681	851	1022	1192	1362	1532	1703
525	596	795	993	1192	1391	1589	1788	1987
600	681	908	1135	1362	1589	1816	2043	2270
675	766	1022	1277	1532	1788	2043	2299	2554
750	851	1135	1419	1703	1987	2270	2554	2838
825	1059	1412	1765	2118	2471	2825	3178	3531
900	1155	1541	1926	2311	2696	3081	3466	3852
975	1252	1669	2086	2504	2921	3338	3755	4173
1050	1348	1797	2247	2696	3146	3595	4044	4494
1125	1444	1926	2407	2889	3370	3852	4333	4815
1200	1541	2054	2568	3081	3595	4108	4622	5136
1275	1637	2183	2728	3274	3820	4365	4911	5457
1350	1832	2421	3010	3598	4187	4776	5365	5954
1425	1878	2467	3056	3645	4234	4822	5411	5962
1500	1919	2508	3097	3686	4275	4864	5453	5962
1575	1957	2546	3135	3724	4313	4902	5491	5962
1650	1991	2580	3169	3758	4347	4936	5525	5962
1725	2022	2611	3200	3789	4378	4967	5556	5962
1800	2051	2640	3229	3818	4407	4996	5585	5962
1875	2077	2666	3255	3844	4433	5022	5611	5962
1950	2102	2691	3279	3868	4457	5046	5635	5962
2025	2156	2745	3334	3923	4512	5101	5690	5962
2100	2176	2765	3354	3943	4531	5120	5709	5962
2175	2194	2783	3372	3961	4550	5139	5728	5962
2250	2211	2800	3389	3978	4567	5156	5745	5962
2325	2227	2816	3405	3994	4583	5172	5761	5962
2400	2242	2831	3420	4009	4598	5187	5776	5962
2475	2257	2846	3434	4023	4612	5201	5790	5962
2550	2270	2859	3448	4037	4626	5214	5803	5962
2625	2282	2871	3460	4049	4638	5227	5816	5962

Trips per day 2000
Efficiency 75%
Speed [m/s] 2

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	341	454	568	681	795	908	1022	1135
375	426	568	709	851	993	1135	1277	1419
450	511	681	851	1022	1192	1362	1532	1703
525	596	795	993	1192	1391	1589	1788	1987
600	681	908	1135	1362	1589	1816	2043	2270
675	766	1022	1277	1532	1788	2043	2299	2554
750	851	1135	1419	1703	1987	2270	2554	2838
825	1059	1412	1765	2118	2471	2825	3178	3531
900	1155	1541	1926	2311	2696	3081	3466	3852
975	1252	1669	2086	2504	2921	3338	3755	4173
1050	1348	1797	2247	2696	3146	3595	4044	4494
1125	1439	1910	2381	2852	3323	3794	4265	4737
1200	1511	1982	2453	2924	3395	3866	4337	4809
1275	1574	2045	2517	2988	3459	3930	4401	4872
1350	1714	2185	2656	3127	3598	4070	4541	5012
1425	1760	2231	2702	3173	3645	4116	4587	5058
1500	1802	2273	2744	3215	3686	4157	4628	5100
1575	1839	2310	2782	3253	3724	4195	4666	5137
1650	1873	2345	2816	3287	3758	4229	4700	5171
1725	1905	2376	2847	3318	3789	4260	4731	5203
1800	1933	2404	2876	3347	3818	4289	4760	5231
1875	1960	2431	2902	3373	3844	4315	4786	5257
1950	1984	2455	2926	3397	3868	4340	4811	5282
2025	2038	2509	2981	3452	3923	4394	4865	5336
2100	2058	2529	3000	3471	3943	4414	4885	5356
2175	2076	2548	3019	3490	3961	4432	4903	5374
2250	2094	2565	3036	3507	3978	4449	4920	5392
2325	2110	2581	3052	3523	3994	4465	4936	5408
2400	2125	2596	3067	3538	4009	4480	4951	5423
2475	2139	2610	3081	3552	4023	4494	4966	5437
2550	2152	2623	3094	3566	4037	4508	4979	5450
2625	2165	2636	3107	3578	4049	4520	4991	5463

Fig. 15: Energy savings per year for average trips according to ISO 25745-2. (1.6 m/s, 75 % efficiency, 2000 trips/day)

Fig. 16: Energy savings per year for average trips according to ISO 25745-2. (2 m/s, 75 % efficiency, 2000 trips/day)

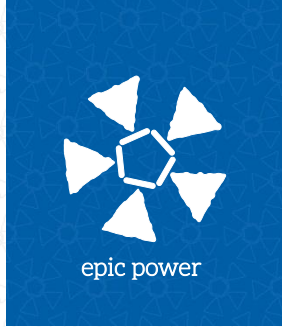
* In the tables of energy saved per year it can be observed that when the load and height increases, the savings get to a limit. This limit is driven by the capacity of storage and power of one unit of ERS 2G. In those cases, more than 1 unit of ERS 2G should be considered.



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Estimation of energy savings with 1 unit of ERS 2G - 3000 trips/day

Trips per day 3000
Efficiency 75%
Speed [m/s] 1

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
300	511	681	851	1022	1192	1362	1532	1703	
375	639	851	1064	1277	1490	1703	1916	2128	
450	766	1022	1277	1532	1788	2043	2299	2554	
525	894	1192	1490	1788	2086	2384	2682	2980	
600	1022	1362	1703	2043	2384	2724	3065	3405	
675	1149	1532	1916	2299	2682	3065	3448	3831	
750	1277	1703	2128	2554	2980	3405	3831	4257	
825	1589	2118	2648	3178	3707	4237	4766	5296	
900	1733	2311	2889	3466	4044	4622	5200	5777	
975	1878	2504	3129	3755	4381	5007	5633	6259	
1050	2022	2696	3370	4044	4718	5392	6066	6740	
1125	2167	2889	3611	4333	5055	5777	6500	7222	
1200	2311	3081	3852	4622	5392	6163	6933	7703	
1275	2455	3274	4092	4911	5729	6548	7366	8185	
1350	2846	3795	4744	5693	6641	7590	8539	8943	
1425	3004	4006	5007	6009	7010	8012	8943	8943	
1500	3163	4217	5271	6325	7379	8433	8943	8943	
1575	3321	4428	5534	6641	7748	8855	8943	8943	
1650	3479	4638	5798	6958	8117	8943	8943	8943	
1725	3637	4849	6062	7274	8486	8943	8943	8943	
1800	3795	5060	6325	7590	8855	8943	8943	8943	
1875	3953	5271	6589	7906	8943	8943	8943	8943	
1950	4111	5482	6852	8223	8943	8943	8943	8943	
2025	4294	5708	7121	8534	8943	8943	8943	8943	
2100	4324	5737	7151	8564	8943	8943	8943	8943	
2175	4351	5765	7178	8592	8943	8943	8943	8943	
2250	4377	5790	7204	8617	8943	8943	8943	8943	
2325	4401	5815	7228	8641	8943	8943	8943	8943	
2400	4424	5837	7251	8664	8943	8943	8943	8943	
2475	4445	5858	7272	8685	8943	8943	8943	8943	
2550	4465	5878	7292	8705	8943	8943	8943	8943	
2625	4484	5897	7311	8724	8943	8943	8943	8943	

Trips per day 3000
Efficiency 75%
Speed [m/s] 1,2

kWh/year		Maximum travel distance (m)							
		15	20	25	30	35	40	45	50
300	511	681	851	1022	1192	1362	1532	1703	
375	639	851	1064	1277	1490	1703	1916	2128	
450	766	1022	1277	1532	1788	2043	2299	2554	
525	894	1192	1490	1788	2086	2384	2682	2980	
600	1022	1362	1703	2043	2384	2724	3065	3405	
675	1149	1532	1916	2299	2682	3065	3448	3831	
750	1277	1703	2128	2554	2980	3405	3831	4257	
825	1589	2118	2648	3178	3707	4237	4766	5296	
900	1733	2311	2889	3466	4044	4622	5200	5777	
975	1878	2504	3129	3755	4381	5007	5633	6259	
1050	2022	2696	3370	4044	4718	5392	6066	6740	
1125	2167	2889	3611	4333	5055	5777	6500	7222	
1200	2311	3081	3852	4622	5392	6163	6933	7703	
1275	2455	3274	4092	4911	5729	6548	7366	8185	
1350	2846	3795	4744	5693	6641	7590	8539	8943	
1425	3004	4006	5007	6009	7010	8012	8943	8943	
1500	3163	4217	5271	6325	7379	8433	8943	8943	
1575	3321	4428	5534	6641	7748	8855	8943	8943	
1650	3479	4638	5798	6958	8117	8943	8943	8943	
1725	3637	4849	6062	7274	8486	8943	8943	8943	
1800	3795	5060	6325	7590	8855	8943	8943	8943	
1875	3953	5271	6589	7906	8943	8943	8943	8943	
1950	4111	5482	6852	8223	8943	8943	8943	8943	
2025	4294	5708	7121	8534	8943	8943	8943	8943	
2100	4324	5737	7151	8564	8943	8943	8943	8943	
2175	4351	5765	7178	8592	8943	8943	8943	8943	
2250	4377	5790	7204	8617	8943	8943	8943	8943	
2325	4401	5815	7228	8641	8943	8943	8943	8943	
2400	4424	5837	7251	8664	8943	8943	8943	8943	
2475	4445	5858	7272	8685	8943	8943	8943	8943	
2550	4465	5878	7292	8705	8943	8943	8943	8943	
2625	4484	5897	7311	8724	8943	8943	8943	8943	

Fig. 17: Energy savings per year for average trips according to ISO 25745-2. (1 m/s, 75 % efficiency, 3000 trips/day)

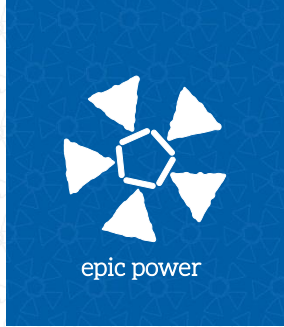
Fig. 18: Energy savings per year for average trips according to ISO 25745-2. (1.2 m/s, 75 % efficiency, 3000 trips/day)



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Trips per day 3000
Efficiency 75%
Speed [m/s] 1,6

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	511	681	851	1022	1192	1362	1532	1703
375	639	851	1064	1277	1490	1703	1916	2128
450	766	1022	1277	1532	1788	2043	2299	2554
525	894	1192	1490	1788	2086	2384	2682	2980
600	1022	1362	1703	2043	2384	2724	3065	3405
675	1149	1532	1916	2299	2682	3065	3448	3831
750	1277	1703	2128	2554	2980	3405	3831	4257
825	1589	2118	2648	3178	3707	4237	4766	5296
900	1733	2311	2889	3466	4044	4622	5200	5777
975	1878	2504	3129	3755	4381	5007	5633	6259
1050	2022	2696	3370	4044	4718	5392	6066	6740
1125	2167	2889	3611	4333	5055	5777	6500	7222
1200	2311	3081	3852	4622	5392	6163	6933	7703
1275	2455	3274	4092	4911	5729	6548	7366	8185
1350	2846	3795	4744	5693	6641	7590	8539	8943
1425	3004	4006	5007	6009	7010	8012	8943	8943
1500	3163	4217	5271	6325	7379	8433	8943	8943
1575	3321	4428	5534	6641	7748	8855	8943	8943
1650	3479	4638	5798	6958	8117	8943	8943	8943
1725	3564	4741	5919	7097	8275	8943	8943	8943
1800	3607	4784	5962	7140	8318	8943	8943	8943
1875	3646	4824	6002	7180	8357	8943	8943	8943
1950	3682	4860	6038	7216	8394	8943	8943	8943
2025	3764	4942	6120	7298	8475	8943	8943	8943
2100	3794	4972	6149	7327	8505	8943	8943	8943
2175	3821	4999	6177	7355	8533	8943	8943	8943
2250	3847	5025	6203	7381	8558	8943	8943	8943
2325	3871	5049	6227	7405	8582	8943	8943	8943
2400	3894	5072	6249	7427	8605	8943	8943	8943
2475	3915	5093	6271	7448	8626	8943	8943	8943
2550	3935	5113	6291	7468	8646	8943	8943	8943
2625	3954	5132	6309	7487	8665	8943	8943	8943

Fig. 19: Energy savings per year for average trips according to ISO 25745-2. (1.6 m/s, 75 % efficiency, 3000 trips/day)

Trips per day 3000
Efficiency 75%
Speed [m/s] 2

Energy saving per ERS 2G (kWh/year) according to ISO 25745-2

kWh/year	Maximum travel distance (m)							
	15	20	25	30	35	40	45	50
300	511	681	851	1022	1192	1362	1532	1703
375	639	851	1064	1277	1490	1703	1916	2128
450	766	1022	1277	1532	1788	2043	2299	2554
525	894	1192	1490	1788	2086	2384	2682	2980
600	1022	1362	1703	2043	2384	2724	3065	3405
675	1149	1532	1916	2299	2682	3065	3448	3831
750	1277	1703	2128	2554	2980	3405	3831	4257
825	1589	2118	2648	3178	3707	4237	4766	5296
900	1733	2311	2889	3466	4044	4622	5200	5777
975	1878	2504	3129	3755	4381	5007	5633	6259
1050	2022	2696	3370	4044	4718	5392	6066	6740
1125	2158	2865	3571	4278	4985	5691	6398	7105
1200	2266	2973	3679	4386	5093	5800	6506	7213
1275	2361	3068	3775	4481	5188	5895	6602	7308
1350	2571	3278	3984	4691	5398	6104	6811	7518
1425	2640	3347	4054	4760	5467	6174	6880	7587
1500	2702	3409	4116	4823	5529	6236	6943	7649
1575	2759	3466	4172	4879	5586	6292	6999	7706
1650	2810	3517	4224	4930	5637	6344	7050	7757
1725	2857	3564	4270	4977	5684	6390	7097	7804
1800	2900	3607	4313	5020	5727	6433	7140	7847
1875	2939	3646	4353	5059	5766	6473	7180	7886
1950	2976	3682	4389	5096	5803	6509	7216	7923
2025	3057	3764	4471	5178	5884	6591	7298	8004
2100	3087	3794	4500	5207	5914	6621	7327	8034
2175	3115	3821	4528	5235	5941	6648	7355	8062
2250	3140	3847	4554	5260	5967	6674	7381	8087
2325	3164	3871	4578	5285	5991	6698	7405	8111
2400	3187	3894	4600	5307	6014	6721	7427	8134
2475	3208	3915	4622	5328	6035	6742	7448	8155
2550	3228	3935	4642	5348	6055	6762	7468	8175
2625	3247	3954	4660	5367	6074	6780	7487	8194

Fig. 20: Energy savings per year for average trips according to ISO 25745-2. (2 m/s, 75 % efficiency, 3000 trips/day)

* In the tables of energy saved per year it can be observed that when the load and height increases, the savings get to a limit. This limit is driven by the capacity of storage and power of one unit of ERS 2G. In those cases, more than 1 unit of ERS 2G should be considered.



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