

Saving energy with HP PageWide XL printers



HP PageWide Technology and design for energy efficiency allow HP PageWide XL Printers to offer significant energy savings compared to LED electrophotographic (EP) printers over a wide range of monthly duty cycles.

Power and energy use

HP PageWide XL Printers save substantial amounts of energy in printing, warm-up, and while ready-to-print compared to LED EP printers with similar print speeds. A fuser is required by the EP printing process, and fusing power during printing along with warming-up the fuser and keeping it warm in Ready Mode¹ is a major component of EP energy consumption. HP PageWide Technology produces dry, ready-to-use prints without a fuser or dryer.

In addition to printing, power is used when the printer is warming-up to prepare to print and while idle in Ready Mode, Sleep Mode, and OFF. The power requirements in each mode for HP PageWide XL Printers and their competitive LED EP printers with similar print speed—compare entries along the bottom row—are listed in Table 1.²

It is clear from Table 1 how HP PageWide Technology and design for energy efficiency allow the family of HP PageWide XL Printers to deliver substantial power savings compared to LED EP printers over a wide range of productivities.

Table 1. Power requirements (W) and print speeds (sq.m/h): HP PageWide XL and Competitive LED EP printers²

	HP PageWide XL Printers			LED Electrophotography Printers		
	XL 4000	XL 5000	XL 8000	Océ PlotWave 360/ Ricoh 3601	Océ PlotWave 750/ KIP 7900	Océ PlotWave 900/ KIP 9900
Off (W)	0.10	0.10	0.10	0.10 / 0.10	0.10 / 0.10	0.10 / 0.10
Sleep (W)	4.60	4.60	4.60	70.0 / 13.0	70.0 / 13.0	13.0 / 13.0
Ready (W)	108.4	108.4	108.4	108 / 110	108 / 600	1000 / 900
Avg. Printing (W)	400	460	590	1200 / 1440	1560 / 2000	4500 / 3000
Avg. Warm-up (W)	0	0	0	0 / 1440	0 / 2000	4500 / 3000
Drying/Fusing (W)	0	0	0	1560 / 1440	1560 / 2000	4500 / 3000
Print speed (sq.m/h)	213	360	800	180 / 192	270 / 390	600/660

Figure 1 presents the energy used by competitive printers for duty cycles of 1000, 2000, 5000, and 10000 sq.m/month. Subtracting the total energy used by an HP PageWide XL Printer from its competitors for a specific monthly duty cycle gives the energy savings summarized in Table 2.

Table 2. Energy savings per month by HP PageWide XL Printers compared to LED EP competitors³

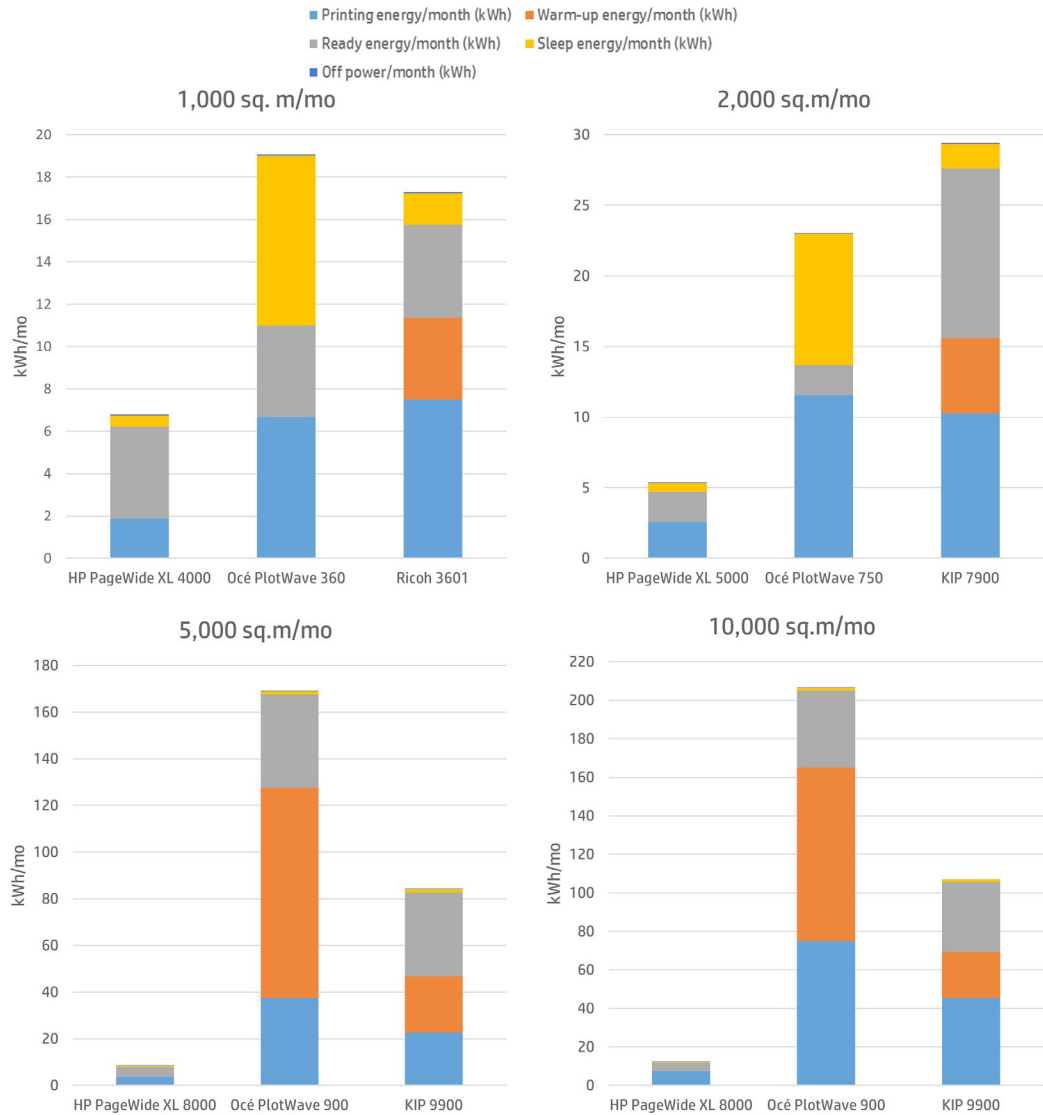
1000 sq.m (10.7 ksq.ft)/mo using HP PageWide XL 4000	2000 sq.m (21.5 ksq.ft)/mo using HP PageWide XL 5000	5000 sq.m (53.8 ksq.ft)/mo using HP PageWide XL 8000	10000 sq.m (108 ksq.ft)/mo using HP PageWide XL 8000
12.3 kWh vs. Océ PlotWave 360	17.7 kWh vs. Océ PlotWave 750	160 kWh vs. Océ PlotWave 900	194 kWh vs. Océ PlotWave 900
10.5 kWh vs. Ricoh 3601	24.0 kWh vs. KIP 7900	75.6 kWh vs. KIP 9900	94.6 kWh vs. KIP 9900

¹ Keeping the fuser warm in Ready Mode reduces the time to first page out.

² All printers compared based on published specifications as of April 2015.

³ Test conditions: 8 working hours/day, 20 working days/month. Assumptions on a daily basis: @1000 sq.m/mo—4 jobs, 125 sq.m/job, 4 warm-ups, 2 hrs ready; @ 2000 sq.m/mo—2 jobs, 50 sq.m/job, 2 warm-ups, 1 hr ready; @ 5000 sq.m/mo—4 jobs, 62.5 sq.m/job, 4 warm-ups, 2 hrs ready; @ 10000 sq.m/mo—4 jobs, 125 sq.m/job, 4 warm-ups, 2 hrs ready.

Figure 1. Comparison of monthly energy usage, HP PageWide XL Printers and LED EP competitors



Summary

Monthly energy savings ranged from 9.6 kWh to 194.1 kWh using HP PageWide XL Printers compared to LED EP competitors for duty cycles of 1000, 2000, 5000, and 10000 sq.m. per month. Savings come primarily from eliminating the fuser used in the EP process and its high energy consumption during warm-up, ready (standby), and printing.

The energy used by a printer is ultimately released as heat into the workplace, so Figure 1 also represents the differences in heat produced by HP PageWide XL Printers compared to their LED EP competitors. In addition to savings on direct energy costs for printing, lower energy use offers users an additional benefit: lower demands on air conditioning and ventilation to maintain a comfortable working environment. This can result in further savings, which can be significant in some cases.

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⁴ Equivalent duty cycles are 10.7, 21.5, 53.8, and 108 ksq.ft per month, respectively

⁵ Other factors being equal, adding 1 kW of power into an enclosed work place requires an additional 1 kW (3412 BTU/hr) in air conditioning to remove the heat and maintain constant temperature. Compare printing power requirements in Table 1. Saving 1kWh during printing could save more than 2 kWh overall.

