a	0% recycle & landfill
b	0% recycle & burning (30% energy recovery)
c	50% recycle & landfill
d	50% recycle & burning (30% energy recovery)

Energy kJ/use						
	Drier	Cotton Towel	Paper			
			a	b	c	d
Production	0.9	6.3	97.5	97.5	73.8	73.8
Transportation	0.0	0.0	8.0	8.0	8.0	8.0
Usage	60	570/235	0	0	0	0
Disposal	0.0	0.0	3.2	-26.0	3.2	-18.9
Total	61.0	576.3	108.7	79.5	85.0	62.8
CO2 g/use						
	Drier	Cotton Towel	Paper			
			a	b	c	d
Production	0.060	0.000	-0.002	-0.002	-0.001	-0.001
Transportation	0.0	0.0	0.3	0.3	0.3	0.3
Usage	10.5	85.35/38.12	0	0	0	0
Disposal	0.0005	0.0	2.1	2.1	2.1	2.1
Total	10.6	85.4	2.4	2.4	2.4	2.4

Comments: Based on the suggested value, cotton towel is the worst choice both enery wise and CO2 wise. Drier is competitive with paper in energy consumption, but emits much more CO2 during operation. The dominant factor of every choice is highlighted with yellow color. Besides cotton towel, all other significant values should be trustable since they are calculated based on fairly accurate numbers, such as drying time for drier, and hence variations should be small.Even though transportation might be a big factor for paper, big change of this factor cannot alter our conclusion.

Cotton towel: If we use the alternative value for load and load per wash/dry, as listed next to the value we chose, the minimum value for energy consumption is 230 kJ/use, way higher than other options. CO2 emission will decrease to 25 g/use, still way higher than any other option. So cotton towel is by no means a good choice. However, if we calculate the energy usage by calculating the energy needed to evaporate water, we have a second set of value, as listed in the cell, smaller value after the slash.

Assumptions		Source
Delivery	200	Estimate
Usage /day	150	Estimate
Truck /mpg	6	Estimate
Truck load /kg	2250	Estimate
Train /	235	http://en.wikipedia.org/wiki/Fuel_efficiency_in_transportation
Gas energy	1.32E+05	howstuffworks.com
Gas CO2 kg/gal	8.82	EPA
Disposal	80	Estimate
Train runs on electricity		

Drier		
Steel /kg	4	Estimate
Embedded energy of steel kJ/kg	2.56E+04	CES
Embedded CO2 of steel kg/kg	2.00E+00	CES
Al /kg	2	Estimate
Embedded energy of Al kJ/kg	2.00E+05	CES
Embedded CO2 of Al kg/kg	1.25E+01	CES
Dry time /s	30	Estimate
Drier power /kW	2	Estimate
Lifetime /yr	10	http://www.reusablebags.com/facts.php?id=7
CO2/Electricity	1.75E-04	1998 DOE CO2 emissions report
Paper		
Embeded energy / kJ/kg	3.40E+04	CES
Manufacturing /	5.00E+03	CES
Embeded/Manufacture CO2 /	-0.8	CES
Mass per usage	0.0025	Estimate
CO2 emission 30% burn per	0.5	CES
Energy to recycle / kJ/kg	2.00E+04	CES
Cotton Towel		
Embeded energy / kJ/kg	3.80E+04	CES
Embeded CO2 /	0.675	CES
Weight per	0.05	Estimate
Lifetime /use	300	Estimate
Wash power / kW	10	Estimate/ http://hes.lbl.gov/hes/aboutapps.html
Wash time / s	1800	Estimate
Dry power / kW	10	Estimate
Dry time / s	2700	Estimate
Wash/Dry per	5	Estimate
Hot water per load to wash	40	www.laundrywise.com/downloads/MLA_WhitePaper.pdf
Water Heat capacity /	4.20E+00	hyperphysics.phy-astr.gsu.edu/hbase/thermo/spht.html
Natual gas density / kg/m3	8.00E-01	Hypertextbook.com/facts/2004/JessicaYan.shtml
Natual gas energy density	4.00E+04	www.engineeringtoolbox.com/gas-density-d_158.html
Heating	7.00E-01	Estimate
Water evaporization	2.30E+03	http://en.wikipedia.org/wiki/Enthalpy_of_vaporization
		assume water to evaporate is roughly the same weight with towel