

Energy Savings of the Console Manufacturer Industry Proposal

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Estimated Savings in the European Union

Within the European Union, it is estimated that this proposal will result in an overall energy saving of 2.6TWh/year for consoles. **Table 1** shows the contribution of the different aspects of the industry proposal to the total energy saving. This analysis is based on our best technical understanding, at this time, of the future capabilities of our products. The energy savings exclude network standby savings, which are calculated separately because they are subject to separate industry regulation, and also it is possible they may not be relevant for all consoles in future.

The detailed calculations are shown in **Annex 1**.

Table 1: Estimated energy savings of this industry proposal

Year	Percentage Contribution to Total Energy Savings			Total Savings (TWh/year)
	Power caps ¹	APD ²	Standby ²	
2013	18.8%	59.5%	21.7%	0.39
2014	18.8%	59.5%	21.7%	0.78
2015	18.8%	59.5%	21.7%	1.17
2016	18.8%	59.5%	21.7%	1.56
2017	21.3%	57.6%	21.0%	2.02
2018	23.0%	56.4%	20.6%	2.47
2019	24.9%	55.0%	20.1%	2.54
2020	26.8%	53.7%	19.6%	2.60

1 Lot 3

2 Commission Regulation (EC) No 1275/2008

Annex 1: Detailed energy savings calculations for the European Union

Table 1 Base Case for High Definition Consoles

Function	Hours /day	Time in Each function (%)	Estimated Share of Time During On Modes		Active			Inactive			Standby/Off Power	TEC Based on Manufacturer Use Hours kWh/year
			Active Mode	Inactive Mode	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)		
Game Play	1.40	6%	62%	38%	0.87	113.0	35.8	0.53	113.0	21.9	-	57.7
Movie/Video playback	0.40	2%	62%	38%	0.25	113.0	10.2	0.15	113.0	6.3	-	16.5
Internet Browsing	0.10	0%	62%	38%	0.06	113.0	2.6	0.04	113.0	1.6	-	4.1
Other Functions	0.30	1%	62%	38%	0.19	113.0	7.7	0.11	113.0	4.7	-	12.4
Total ON	2.20	-	-	-	-	-	56.3	-	-	34.5	-	-
Standby/Off	21.80	91%	-	-	-	-	-	-	-	-	1.3	10.3
All	24.00	100%										101.1

This new base case for PlayStation®3 has been created using the hours of usage contained in the Lot 3 report calculations for TEC (AEA, 2010, Table 76). This is based on actual console usage data provided by manufacturers. The power use values are averages of all PlayStation®3 models since launch in 2007 (not weighted by sales of each model) as the values used in the Lot 3 base case are not applicable to high definition consoles. Navigation mode covers all functions found on the navigation menu screen (Cross Media Bar), not including media functions. The figure of 38% for the contribution of inactive to the total on-time has been estimated using information collected through the ISFE Gamer survey (2010) and industry data regarding number of sessions, estimated to be around 5 per week.

The following tables quantify the expected energy savings of alternative proposals made by industry, in contrast to the consultant's proposed measures.

Table 2 Tier 1 Industry Proposal

Function	Hours /day	Time in Each function (%)	Estimated Share of Time During On Modes		Active			Inactive			Standby/Off Power	TEC Based on Manufacturer Use Hours
			Active Mode	Inactive Mode	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)		
Game Play	1.13	5%	77%	23%	0.87	113.0	35.8	0.27	113.0	11.0	-	46.8
Movie/Video playback	0.32	1%	77%	23%	0.25	90.0	8.1	0.08	90.0	2.5	-	10.6
Internet Browsing	0.08	0%	77%	23%	0.06	90.0	2.0	0.02	90.0	0.6	-	2.7
Other Functions	0.24	1%	77%	23%	0.19	90.0	6.1	0.06	90.0	1.9	-	8.0
Total ON	1.78	-	-	-	-	-	52.1	-	-	16.0	-	-
Standby/Off	22.22	93%	-	-	-	-	-	-	-	-	0.5	4.1
All	24.00	100%										72.1

Table 2 calculates the expected TEC after implementation of a 90W power cap for media and navigation functions and an APD after 1 hour. It is assumed that APD will reduce inactive time by half.

Table 3 Tier 2 Industry Proposal

Function	Hours /day	Time in Each function (%)	Estimated Share of Time During On Modes		Active			Inactive			Standby/Off Power	TEC Based on Manufacturer Use Hours kWh/year
			Active Mode	Inactive Mode	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)	Time (Hours/day)	Power Consumption (W)	Energy use per year (kWh)		
Game Play	1.13	5%	77%	23%	0.87	113.0	35.8	0.27	113.0	11.0	-	46.8
Movie/Video playback	0.32	1%	77%	23%	0.25	70.0	6.3	0.08	70.0	1.9	-	8.3
Internet Browsing	0.08	0%	77%	23%	0.06	70.0	1.6	0.02	70.0	0.5	-	2.1
Other Functions	0.24	1%	77%	23%	0.19	70.0	4.8	0.06	70.0	1.5	-	6.2
Total ON	1.78	7%	-	-	-	-	48.5	-	-	14.9	-	-
Standby/Off	22.22	93%	-	-	-	-	-	-	-	-	0.5	4.1
All	24.00	100%										67.4

Table 3 calculates the expected TEC after implementation of a 70W power cap for media and navigation functions and an APD after 1 hour. It is assumed that APD will reduce inactive time by half.

Table 4 Projected Savings for high definition consoles

Year	Cumulative sales	Tier 1 savings Per console (kWh/year)				Total Current Generation (TWh/year)	Next Generation sales	Tier 1 & 2 savings Per console (kWh/year)				Total Next Generation (TWh/year)	Total (TWh/year)
		Active	Inactive	Standby	Total			Active	Inactive	Standby	Total		
2013	13500000	4.2	18.5	6.3	29.0	0.39	0	0.0	0.0	0.0	0.0	0.00	0.39
2014	27000000	4.2	18.5	6.3	29.0	0.78	0	0.0	0.0	0.0	0.0	0.00	0.78
2015	40500000	4.2	18.5	6.3	29.0	1.17	0	0.0	0.0	0.0	0.0	0.00	1.17
2016	54000000	4.2	18.5	6.3	29.0	1.56	0	0.0	0.0	0.0	0.0	0.00	1.56
2017	54000000	4.2	18.5	6.3	29.0	1.56	13500000	7.8	19.6	6.3	33.7	0.45	2.02
2018	54000000	4.2	18.5	6.3	29.0	1.56	27000000	7.8	19.6	6.3	33.7	0.91	2.47
2019	40500000	4.2	18.5	6.3	29.0	1.17	40500000	7.8	19.6	6.3	33.7	1.36	2.54
2020	27000000	4.2	18.5	6.3	29.0	0.78	54000000	7.8	19.6	6.3	33.7	1.82	2.60

Console sales have been calculated using sales of all consoles between January 2nd 2005 and 1st January 2011 (indicating a 6 year product lifetime). This gives an annual sales value of 13.5 million per year.

The projected energy savings are highly conservative estimates. In the above calculations game play power use is assumed to stay constant, although the reduction in media and navigation compared to the average base case will also help to reduce game play power use. Also, next generation consoles may have higher performance, and therefore use more power than current high definition consoles, resulting in a higher TEC base case and estimated energy savings. It is also anticipated that the power reduction trends seen to date with PlayStation®3 could potentially apply to any future product, according to Moore's Law. However, at present these reductions cannot be accurately quantified.