

Games Consoles Self-Regulatory Initiative Consultation Forum Meeting

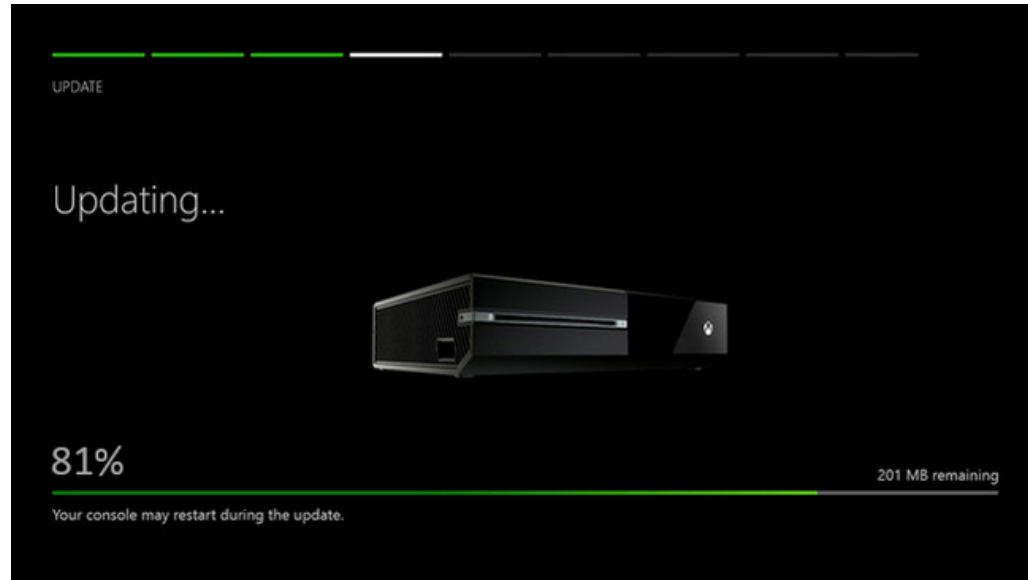
December 12, 2019
Brussels



Presentation outline

1. Games Consoles industry updates and achievements to date
2. 2019 Review of the SRI - proposed future commitments
 - Timescales
 - Compliance
 - Energy efficiency
 - Material efficiency
3. Next steps
4. Conclusions

1. Games Consoles industry updates and achievements to date



- **Future trends** - next shift in gaming could be the biggest in history of industry.
- **Next generation consoles announced** – new review required.
- **Substantial energy savings achieved** - opportunities for further savings limited in current generation.

Future trends and technology shifts ahead



4K now common, shift to 8K approaching



VR headset popularity increasing



Game streaming services expected to grow



HVEC **VVC**

Video compression technology improving



Moore's law is slowing – nearing limits of current silicon

Next generation consoles announced

WIRED

Exclusive: A Deeper Look at the PlayStation 5

Now that the name is official, we've got more details about Sony's next-gen console—from the haptics-packed controller to UI improvements.



techradar

Xbox Project Scarlett release date, specs and games confirmed for the Xbox Two

By Vic Hood, Gerald Lynch, Henry St Leger 6 days ago Gaming

Microsoft's next generation console is arriving late next year




New console category proposed for next generation

Specifications of Sony PlayStation®5 announced so far:

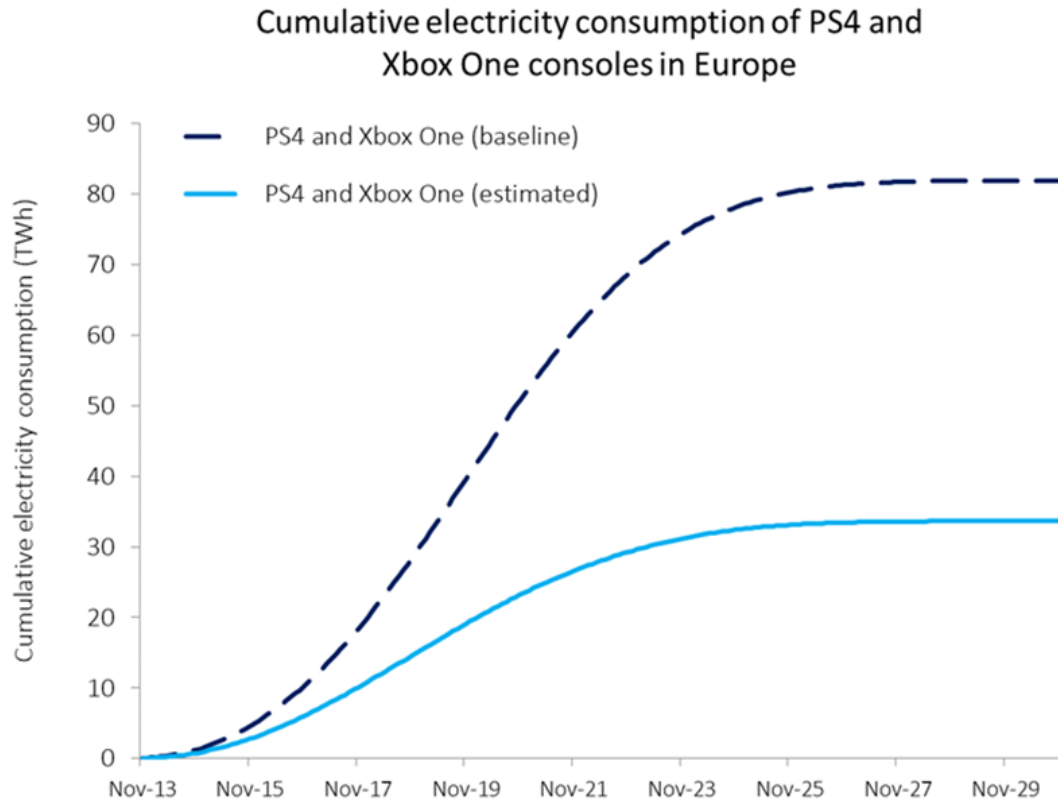
- Third generation of AMD's Ryzen CPU
- Custom unit for 3D audio
- Eight cores 7nm Zen 2 microarchitecture
- Radeon's Navi GPU supporting ray tracing
- Solid State Drive: suspend mode achieved at 0.5 W
- Adaptive triggers and haptic feedback on controllers

Specifications of Microsoft Project Scarlett announced so far:

- Custom-designed AMD processor
- GDDR6 memory
- Next generation Solid State Drive

Additional SRI review needed in 2020 
New category will be created for new requirements considered in the next review

Cumulative lifetime savings estimated at 48 TWh



Equivalent to the annual electricity consumption of **Portugal** (46.9 TWh in 2016)

Based on average five year console lifetime

Opportunities for further power savings are limited

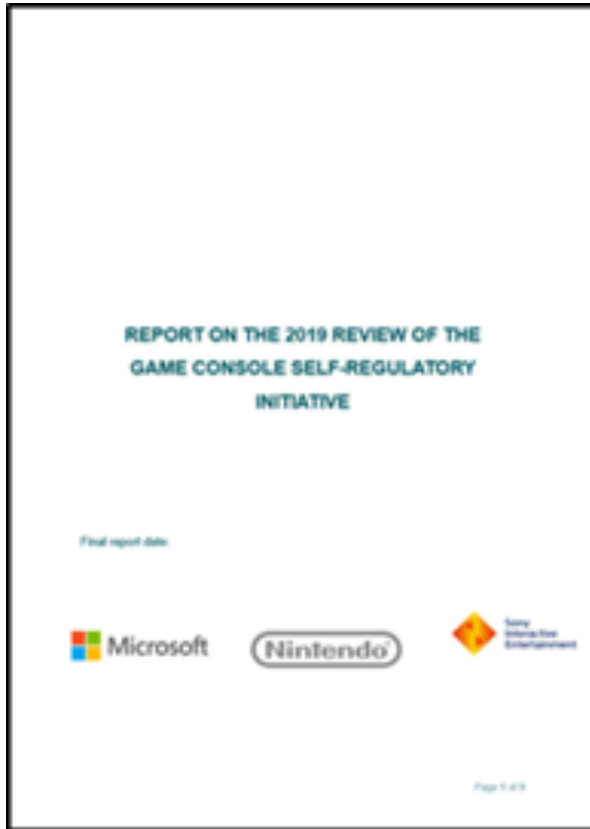
Technology	Study reference							Adopted today?
	AEA (2010)	ECOS (2011)	Hittinger (2012)	Energy Star (2012)	NRDC (2014)	LBNL (2015)	US EPA (2015)	
Separate/additional components to run non-gaming applications (separate video architecture)	✓				✓		✓	No
Efficient power supplies	✓						✓	Yes
Power supply output power reduction							✓	Yes
CPUs based on 32nm architecture	✓							Yes
Die shrink (based on predicted trends in efficiency / performance of PCs per transistor)							✓	Yes
System on a Chip architecture	✓							Yes
Power scaling of CPU and GPU		✓				✓		Yes
Processor performance scaling and power management techniques	✓							Yes
Advanced power management technologies to reduce on-idle power to less than 20% of active mode power	✓							Yes
Default Automatic Power Down features	✓		✓	✓		✓		Yes
APD with saving of in-game progression						✓		Yes

Majority of technology improvements recommended have been adopted.

Scope for improvement in current gen limited.



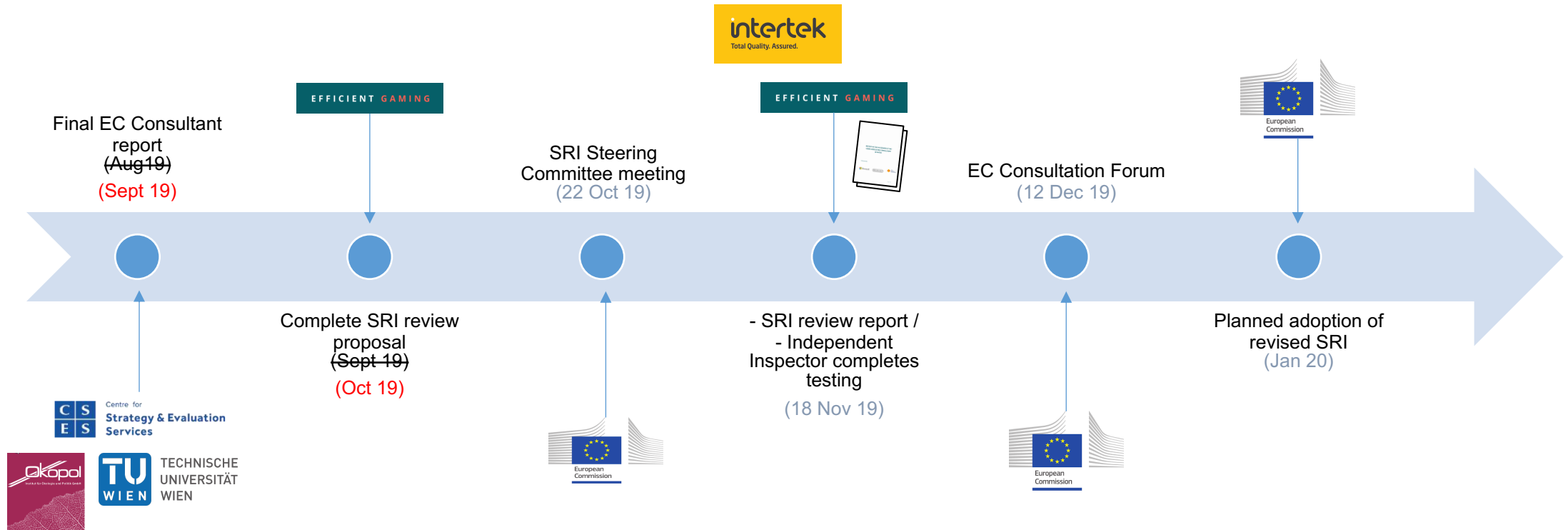
Based on ultra-high definition capable console models.



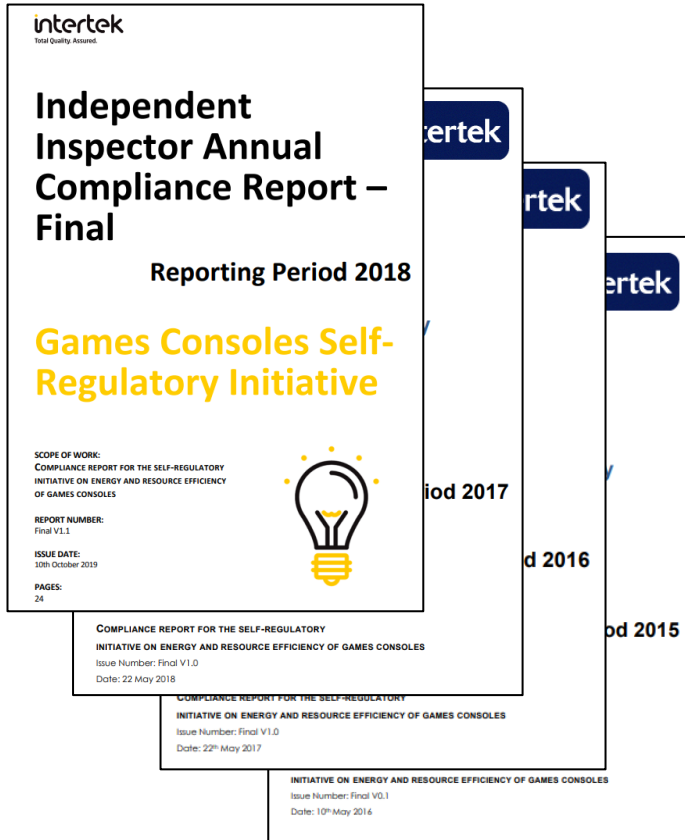
2. The 2019 Industry SRI Review

- Second SRI review completed.
- New energy and material efficiency commitments proposed.
- First independent review of SRI completed and recommendations considered.

SRI timeline



Consoles Industry Compliance with the SRI



- VA recognised in 2015.
- Four reporting periods completed: 2015-2018.
- The Independent Inspector determined all Signatories except Microsoft were compliant with their SRI commitments for all reporting periods to date.
- The Microsoft Xbox was found compliant except for APD in three modes. The Independent Inspector has reviewed and accepted Microsoft's corrective action.

Microsoft Xbox – Corrective Action

- The SRI requires consoles be brought into compliance within 12 months.
- Microsoft is correcting the APD times and is testing the updated software.
- The update will be sent to all Xbox consoles by February 2020.

Proposed Changes to the SRI – Energy (1/2)

New SRI Energy Efficiency proposals

Remove +20 W allowance for Natural User Interface (NUI)

Clarify basis of navigation power caps after 30 minutes inactivity **(IN LINE WITH STUDY)**

Define separate power caps for 2K & 4K navigation mode (as per media power consumption)

Introduce 65 W cap for 2K navigation and 70 W cap for 4K navigation for 4K capable gaming consoles in 2020 **(IN LINE WITH STUDY)**

Consider definition and power cap for rest modes of next generation consoles in next SRI review (NEW)



Added from consultant's recommendation



Proposal drafted June 2019

Proposed Changes to the SRI – Energy (2/2)

New SRI Energy Efficiency proposals

Include a method to check stability of measurements and where necessary extend test time on a case by case basis

Consider reporting power consumption of any separately enabled ray tracing for next generation in next SRI review (NEW)

No additional requirements for HDR: signatories do not currently provide navigation function or media content in HDR

Set requirements against circumvention (proposed SRI text agreed already)

Explain current caps to account for power variation between models



Added from consultant's recommendation



Proposal drafted June 2019

The Independent Review Study – Energy (1/4)

The Console's Industry Comments

Energy Efficiency proposals already addressed

Include provision to comply with Lot 26: we already comply with the ecodesign standby regulation

Provide easily accessible information on console power use: already an SRI commitment

The Independent Review Study – Energy (2/4)

The Console's Industry Comments

Energy Efficiency proposals not agreed

Adaptative power management: not needed as the activity of the player is sensed directly by the console

Include arcade-style consoles: do not have console operating systems

One step approach for powering consoles off: consoles have sophisticated low power function, no evidence or need for this

Schedule downloads for times of peak renewable generation: the impact would be marginal and there is no SMART grid to allow this

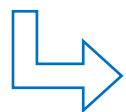
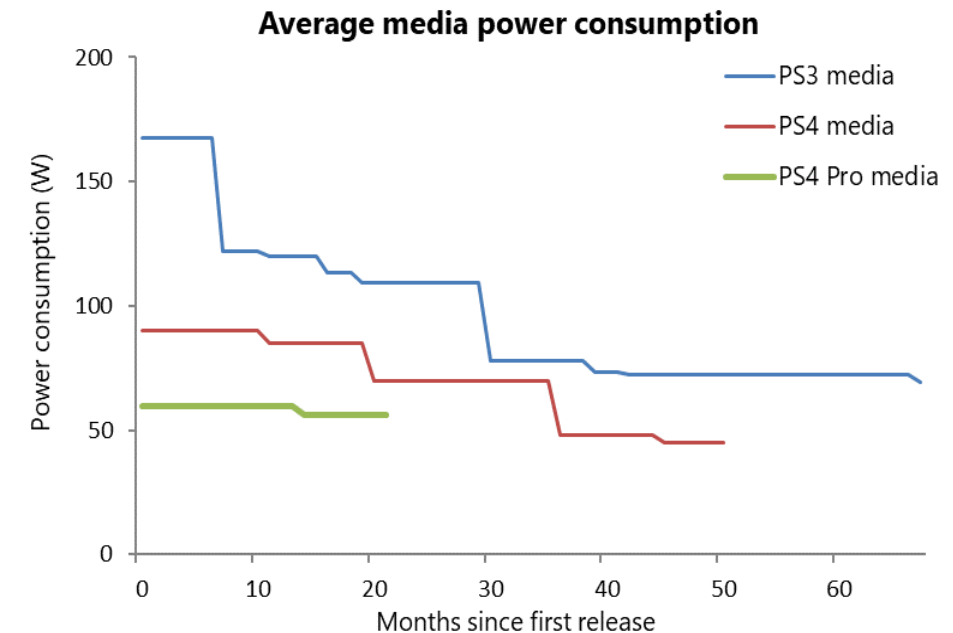
The Independent Review Study – Energy (3/4)

Use current generation console power as a baseline for next

- EC consultant's estimated lifetime energy savings of 54 TWh.
- PS5 and Project Scarlett will have higher performance than current generation.

“ Console manufacturers have made the greatest strides. What can be observed is that each in-generation release of consoles has historically achieved gaming-mode power reductions compared to the prior version, and that the cross-generation trend is generally downwards, **albeit with spikes at the initial launch.** ”

Lawrence Berkeley

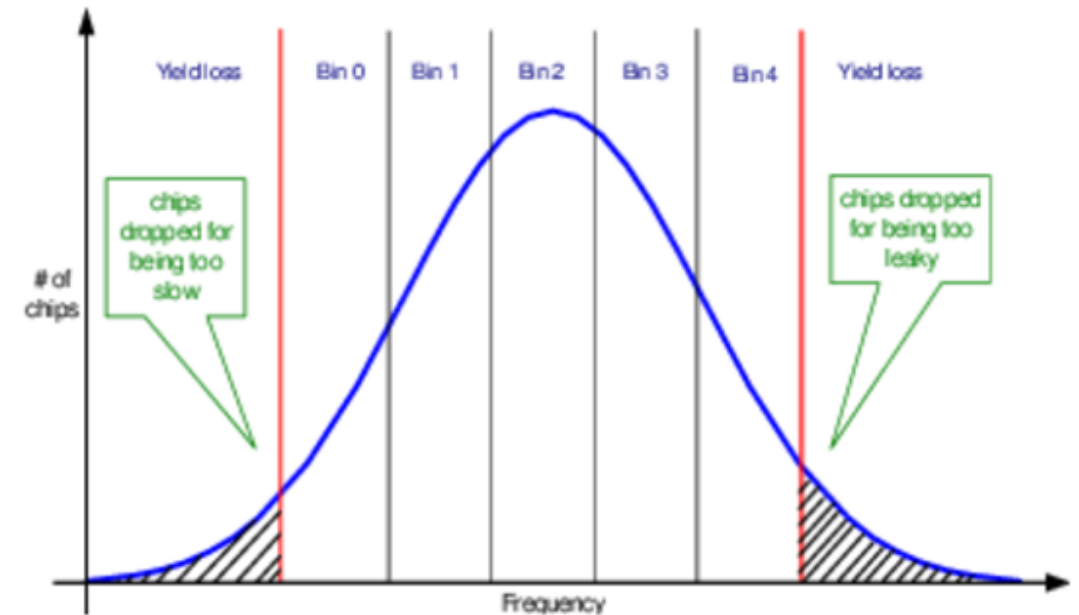


New baseline for power caps required for next gen

The Independent Review Study – Energy (4/4)

Consider 90 W cap for 4K media play

- There is inherent variability in power consumption of components from manufacturing.
- On average consoles consume ~90 W or less for 4K media play.
- 110 W cap required to account for variation between different samples.



Proposed Changes to the SRI – Material efficiency

New SRI Material Efficiency proposals

Include home consoles consuming <20 W in scope of material efficiency requirements by 2021 (NEW)

Plastic enclosure parts >100g removable using tools commercially available to recyclers (IN LINE WITH CONSULTANT)

Allow marking as alternative method to provision of recycling information concerning brominated flame retardants contained in plastic casing used for external enclosures >25g

Mark plastics >25 g and >100 mm² in accordance with ISO standards: re-insert ISO standards reference (NEW)

Draft statements describing reparability of consoles (IN LINE WITH CONSULTANT)

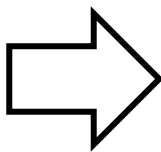


Added from consultant's recommendation



Proposal drafted June 2019

Remove
20 W
exemption



Nintendo Switch will be **in scope** of
material efficiency requirements for
2021 reporting period



The Independent Review Study - Material (1/4)

Materials Efficiency proposals already addressed

Ensure batteries are easy to replace: already required under Battery Directive

Disassembly using common tools: SRI already requires use of commercially available tools

Use common EPS: already covered under Radio Equipment Directive's Common Charger initiative

Phase out hazardous substances: already covered by REACH & RoHS – needs a horizontal approach

Guarantee free system updates: system update are already free, plus this is a commercial matter

Provide separate take-back of consoles: already under WEEE Directive, separate collection is not eco-efficient

Provide information on flame retardant contents: already commit to information on Br flame retardants in SRI

The Independent Review Study - Material (2/4)

Materials Efficiency proposals not agreed

Keep battery capacity at 90% after 500 charges: there is no evidence battery failure affecting product lifetime

Use >10% post consumer plastic: no known recycled high quality PC+ABS can meet flame retardant grade V0 (1.5mm) required by IEC62368

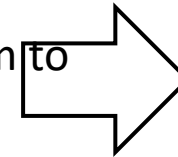
Commit to free repair as first option under guarantee: largely this is done already, but not always possible – no evidence of a problem

Provide information on recycled plastics content: recycling plastics no used as explained above

The Independent Review Study - Material (3/4)

Provide spare parts to all repairers for 7 years

- Consoles components form a specialised and locked encrypted system to prevent software piracy.
- Parts such as the power supply are bespoke and proprietary.



PS4 power supply



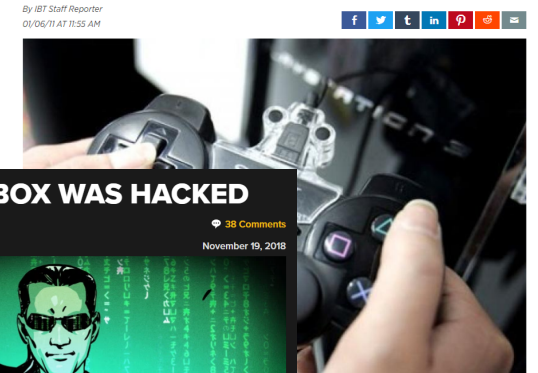
Xbox One X power supply

- The Waste Framework Directive requires that Member States take sufficient steps to protect intellectual property from being made freely available:

encourage, as appropriate and without prejudice to intellectual property rights, the availability of spare parts

Waste Framework Directive

Sony's PS3 Hacked To Allow Pirated Games



The Independent Review Study - Material (3/4)

Provide spare parts to all repairers for 7 years *Continued*

Customers are supported through out of warranty repair services, furthermore:

- Signatories return rate for consoles over 5-years-old is very low.
- UK government (DEFRA) study identified games console repair as **best practice** reverse logistics.
- iFixit score current generation games consoles **8/10** for repairability:



Repairability: 8 / 10



Repairability: 8 / 10



Repairability: 8 / 10



The Independent Review Study - Material (4/4)

Provide information on durability of consoles

- There are currently no test methods to estimate lifetime of electronic products.
- Existing studies, including SRI independent consultants and UK government study show consoles are long lasting.



Many old generation consoles can still be purchased second hand

A recent UK Government study suggests that games consoles “never die”, which is also supported by surveys of WEEE that have found 34% of consoles are usually more than 5-years-old when disposed of

ebay Shop by category

playstation 1

Related: playstation playstation 1 console playstation 1 games ps1

Categories

All

< Video Games & Consoles

Video Games

Video Game Consoles

Video Game Accessories

Manuals, Inserts & Box Art

More

Vehicle Parts & Accessories

Clothes, Shoes & Accessories

Home, Furniture & DIY

Mobile Phones & Communication

Business, Office & Industrial

Show more

All listings Auction Buy it now Condition Item location

2,614 results for playstation 1 Save this search

Sony Playstation 1

Pre-owned

£30.99

Buy It Now

Free postage

50 sold

3. Next Steps



EFFICIENT GAMING

2020

- If accepted, the revisions to the SRI will become effective from January 2020.
- A new SRI review is required in 2020 to include the new generation consoles announced by Microsoft and Sony.

4. Conclusions

- The SRI continues to be an effective driver of energy efficiency.
- New console generation announced, triggering a new review in 2020.
- All signatories found compliant with SRI by Independent Inspector to date.
- First independent review of SRI completed, feedback included in new proposals.
- Further commitments for energy efficiency made, but current gen approaching limits.
- Material efficiency commitments will also apply to consoles < 20 W.