Ecma TC38 – TG2
20 June 2007

Update from June 2007 FTF meeting in Washington DC and

Current status of Ecma and BAPCo work

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Agenda

- Background
- Status
- Discussion points

Background

2003: Ecma issued the world's first environmentally conscious design standard (ECMA-341) for the ICT & CE industries

- *Aimed at the designer, provides pragmatic advice on how to reduce the environmental footprint of a product at design stage.*

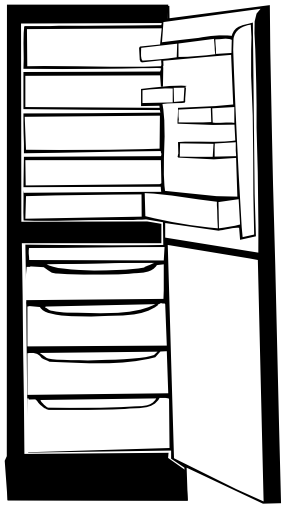
ECMA-341 is incomplete when it comes to the energy efficiency section

- *A significant gap for the ICT & CE industry is how to measure the true energy efficient performance of a given product.*
- *ECMA-341 now adopted by IEC TC108 as IEC 62075 (FDIS in the summer). EE part still incomplete.*

TC38-TG2 formed with a scope of "Energy Efficiency"

- *The initial focus of the Ecma work is at a system level for desktop and notebook (in AC mode) computers.*

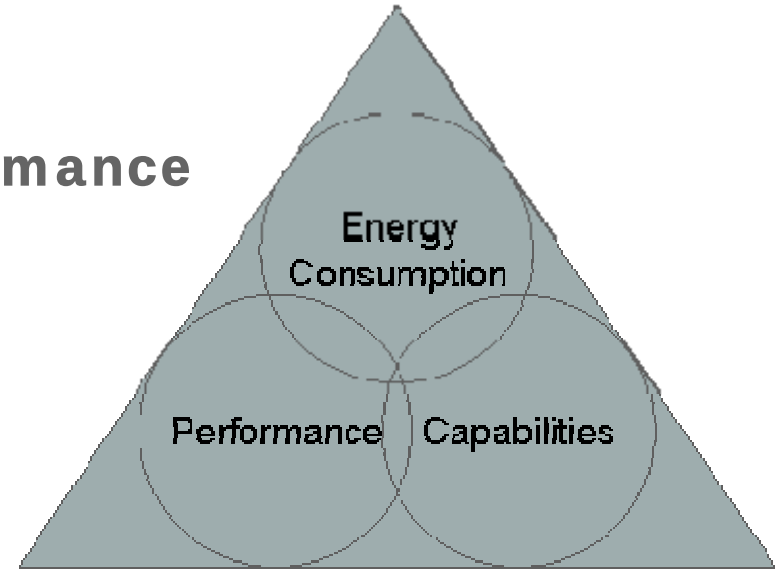
Measuring Energy Efficient Performance



Fridge Energy Efficient Performance =

$$\frac{\text{Cubic Capacity}}{\text{Energy used to get it cold + energy use to sustain temperature over a given time}}$$

Computer Energy Efficient Performance



Car Analogy

Performance = How fast it accelerates & how fast it goes.

Energy Efficiency = Litres/Kilometre

Capabilities = How many seats, A/C, electric windows, heated seats etc

The Information Super Highway has no speed limit. Performance is even more relevant

Classifications:

A motorbike and a Smart car are very energy efficient, but not great for sales people (unless selling pizzas!) or a family of six

A 4 X 4 is great for off road, but inefficient for the school run

ecma INTERNATIONAL

Status

TC38-TG2 Details

Membership

- *Industry: AMD, Apple, Dell, HP, IBM, Intel, Lexmark, Microsoft, NVIDIA, Sony, Toshiba, VIA Technologies, EFI*
- *EU Gov: AEA Technology (UK), EC consultant*
- *EPA Consultants: ECOS, ICF, LBNL, Terra Novum*

Meetings

- *Every two weeks via teleconference*
- *Ad hoc FTF meetings (three to date)*

Ecma: Develop the standard

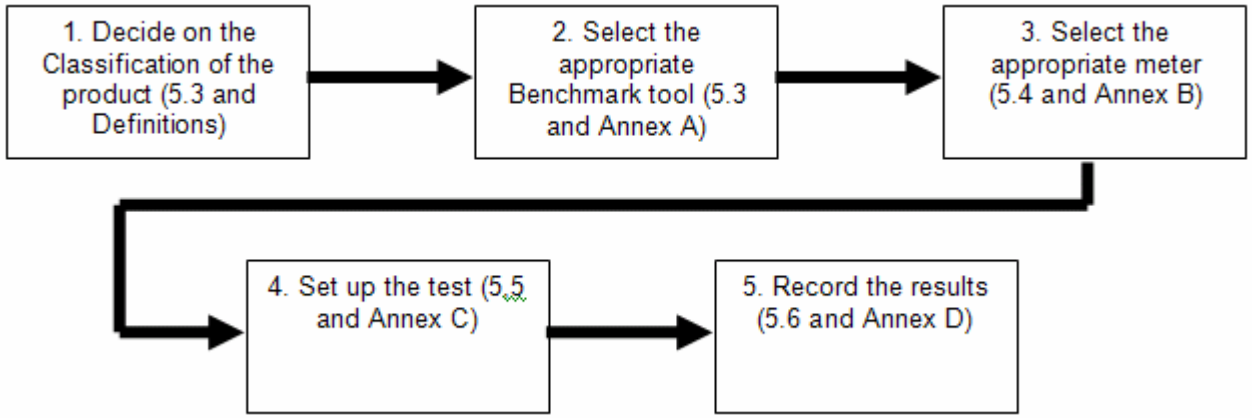
BAPCo: Develop a Benchmark suite to support the standard

BAPCo membership

Three components to the standard

- *System classification*
- *Compute performance and capability measurements*
- *Energy consumption over a defined workload / duty cycle per classification*

Overview of the Ecma Standard



Status of the standard

- **Definitions**
  - *90% done. TG2 to complete via email*
- **Test process**
  - *99% done (block diagram)*
- **Validation process for additional benchmarks**
  - *Concept agreed. Process new to Ecma*
- **Annex A: Benchmark suite criteria**
  - *To be completed by BAPCo (and reviewed/approved by Ecma)*
- **Annex B: Approved Meter**
  - *Will provide specifications with example meters in informative annex. Meter sub team working*
- **Annex C: Test Set up**
  - *80% done (BAPCo work). Will be included in next revision*
- **Annex D: Results reporting format**
  - *Use BAPCo straw-man and adapt. Ecma and BAPCo to jointly work*
  - *Goal is automated report of essential information*
  - *Some tick boxes (eg 80+ Power Supply)*

- Vision: ***To provide industry and government(s) a common language via a power conscious suite of client evaluation metrics with which to evaluate PC system efficiency***

- Goal: ***To create forward looking & representative client usage model which encourages creative and intelligent technology choices by the industry and its customers***

EEcoMark progress

- Understand the need to meet the deadlines we have been working on

- MobileMark and SYSmark 2007 took longer than expected. We are ready to move today

- Commitment from Intel, AMD, VIA, Dell and Apple to add resources. We think we will get additional ones from other members as well

- Workload discussion is ongoing
  Have new benchmarks that provided us with storyboards and workloads. SYSmark 2007 preview has been released. MobileMark 2007 comes out next month.

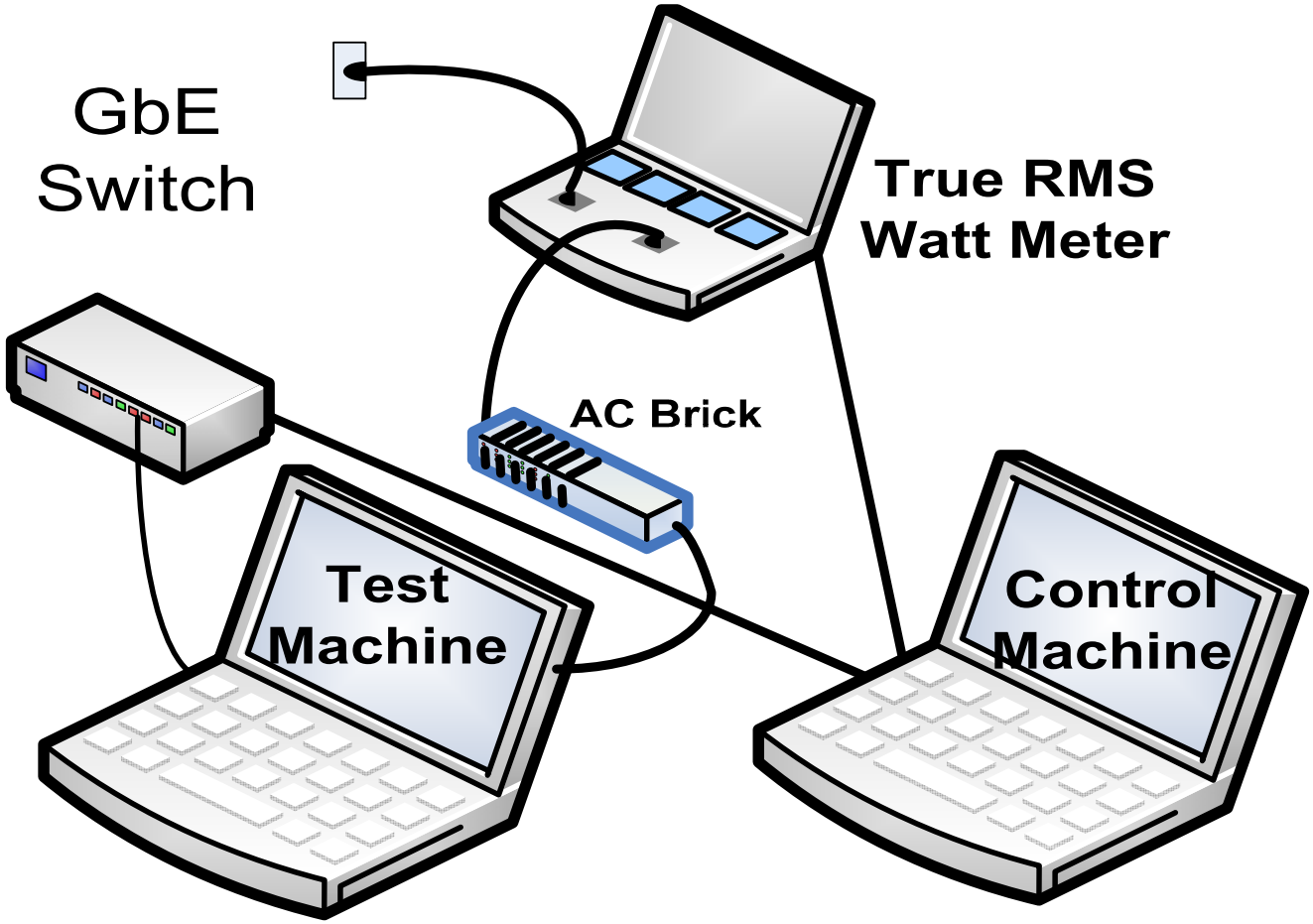
- Core - **Set of components which can be assumed present on any system under test. (Lack of a core component would render the system unable to run the test and directly implies the system is not in scope.)**

- Key - **Additional components which are of interest in the metric (Implies a desire to insure the component does not disturb the system power profile beyond a minimal or defined degree of acceptability.)**

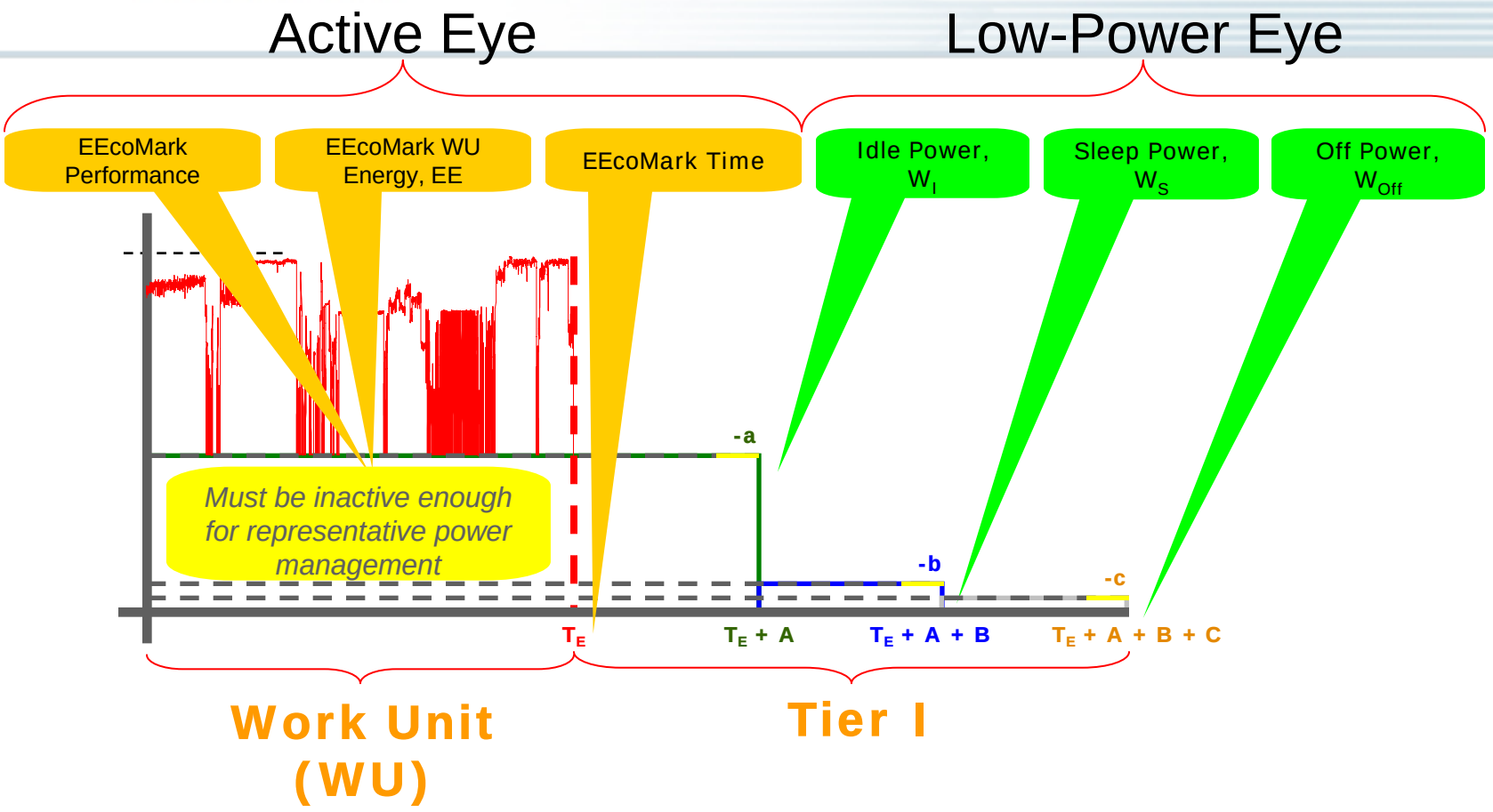
- Other - **Expected not to impact the metric whether present or not and/or may be removed during testing. (Of no present interest, due to the maturity/nature/rarity of the device.)**

Status: Definition of Key needs improving or deleting.

Testing Infrastructure



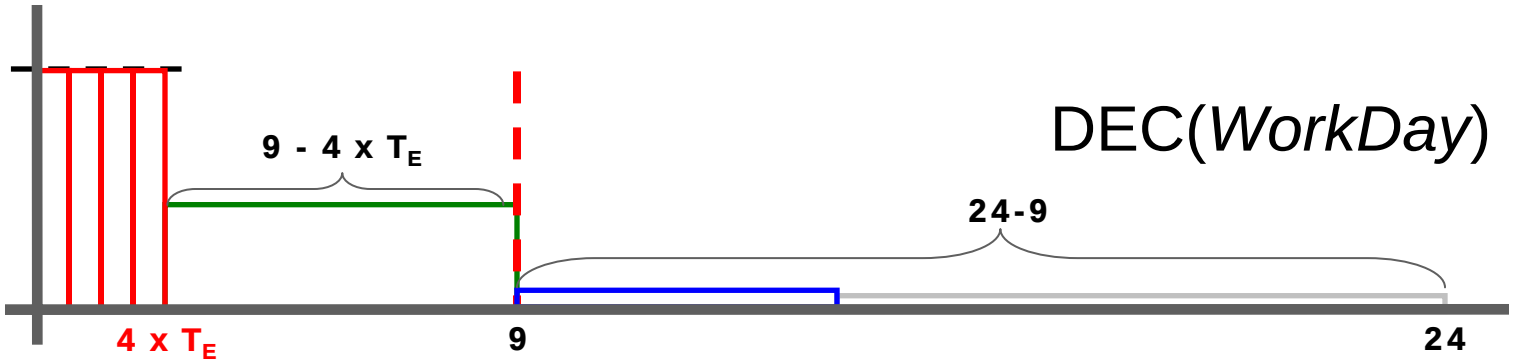
The EEcoMark Toolbox Concept



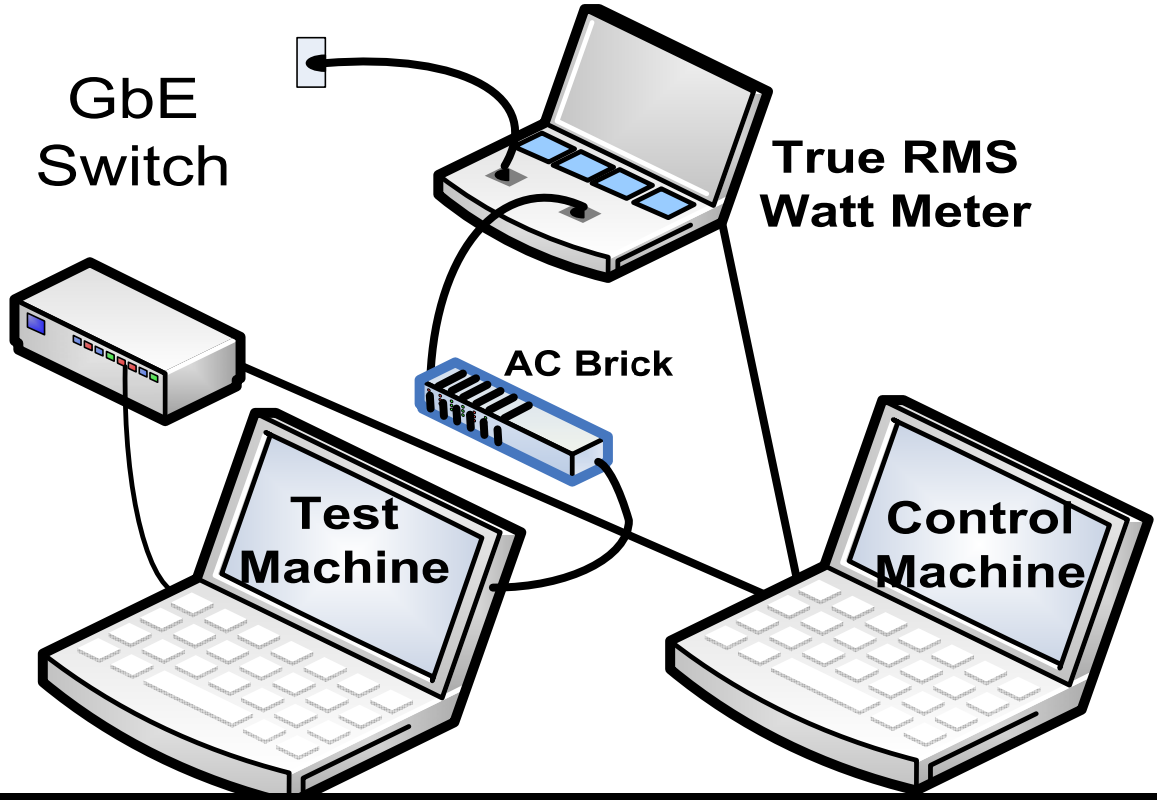
Stable energy envelope can facilitate seamless transitions

Aggregation Template

- **The EEcoMark results are passed parameters**
- **CKO can also be passed for market & classification**
- **Support:**
  - *Fractional active & Low Power state composition and report*
  - *Tier II without active can be aggregated to represent Tier I*
- **BAPCo & Third party analysis report via aggregation templates**



Testing Infrastructure



Roles and Responsibilities

BAPCo

- **Support power logging interface**
- **Introduce a reference *Work Unit***
- **Supply an *AC Energy Analysis Toolbox***
- **Support basic *Energy Tabulation Analysis***
- **Licenses**

Ecma

- ***Standard***
- ***Benchmark suite criteria and validation process***
- ***Coordination, publicity, inclusion, openness***
- ***Elevate standard to IEC***

BAPCo / Ecma

- ***Data collection and interpretation***

Additional information

- **Ecma public web site for TC38-TG2**

http://www.ecma-international.org/memento/TC38-TG2.htm

- **BAPCo**

http://www.bapco.com/ (EEcoMark site to be constructed)

- **Actions**
  - *Develop a Q&A*
  - *Issues some press releases (BAPCo and Ecma)*
  - *Enable participants to evangelise (press, internal etc)*

Discussion Points

Milestones discussion

High risk schedule

- Oct 07 – Beta 1 - Windows release: Feature complete
- Jan 08 – Beta 2 - Release with Windows: Bug fixes
- Jan 08 – Ecma Standard approved
- Feb 08- Beta 3 – Release with Mac OS
- Mar 08 – Final release
- April 08 – Tier II final draft from EPA
- Jan 01, 2009 – Tier II compliance in effect

Lower risk schedule

- Jan 08 – Beta 1 - Windows release
- May 08 – Beta 2 - Release with Windows
- June 08 - Beta 3 – Release with Mac OS
- July 08 – Ecma Standard approved
- July 08 to Sept 08 – Final release
- Oct 01 08 – Tier II final draft from EPA
- July 01, 2009 – Tier II compliance

Classifications

Productivity computer

- *A computer designed primarily for office (home or business) applications such as word processing, internet access, accounting etc.*

Rich media computer

- *A computer designed primarily for entertainment purposes such as listening to music, watching videos, playing games, editing audio, pictures, video etc.*

Workstation computer

- *A computer used primarily for processor intensive applications such as CAD tools, 3D design applications etc.*

BAPCo initial focus is Productivity workload

Data required to support the need for a "rich media" classification

- *Argument: If there is e.g. a 20% delta in power consumption between "productivity" and "rich media" computers on a productivity work load – will the delta be similar when moved to a different work load?*
- *Counter: Methodology is focussed on the designer to improve the EE based on use profile. One classification for client PC's will reduce the incentive and impact the designer can have. The users informed choice may be impacted.*

BAPCo deliverables schedule

- **First full release**
  - *Windows Vista and Mac OS (incremental due to storyboard level)*
  - *Productivity workload (applications native to the O/S)*
- **Subsequent releases prioritisation?**
  - *Linux*
  - *Rich media workload (based on previous discussions)*
  - *Workstation workload*
  - *Other?*

Additional data requirements

- **EEcoMark proxy studies**
  - *Define CKO assignments*
  - *Understand energy impact of peripherals*
  - *Validate assumptions*
    - **Industry provided some data.**
    - **Ecma sub group focusing on defining work required to fill the gaps.**
- **Usage model survey**
  - *Understand System Activity Profile for each classification*
    - **Priority is to understand the usage model of an office productivity machine (and future additional profiles)**
    - **VIA, Intel and probably others have a tool**
    - **Issues on privacy and IT deployment acceptance**
  - *Need to define the process for collection of data*
    - **Easy to be contaminated by bad / miss-leading data**
    - **Agreed to define what it needed and then companies run internal tools (due to privacy and IT deployment issues)**

Standard open work

- **Aggregation files**
  - *Provide general guidance/examples?*
  - *Define files for compliance – eg Energy Star?*
- **What content of a test spec goes into the Ecma std versus Energy Star for example**
  - *E.G. Remove battery from laptop*
  - *Ambient temperature*
  - *etc*

Summary

- **BAPCo and Ecma work well underway**
  - *Excellent (growing) participation*
- **Need help from EPA:**
  - *Milestones*
  - *BAPCo prioritisation (after first release)*
  - *OS transitions*
  - *Use data collection – non US*