

Open Discussion on Base Documents and Model

Jan Lindblad, Gen Chen, Marisol Palmero, Benoit Claise
IETF 125

Design Team Light Report

- Biweekly meetings for the design team light
 - Followed by the WG interim meeting, the time to apply the changes
- Solved/proposed solutions (power & energy attributes, accuracy, relationship, certifications, etc.)
 - Validated by the WG
 - But let's face it: the attendance for the WG meeting was low
 - Hence we need more reviews. Thanks in advance
- We now have a YANG module, with operational data
 - “Can we assume YANG-Push for data collection?” **Yes**
 - Or for polling if you want
- Now we have a few questions for this group
 - Since all drafts are inter-related, hence this specific session

As presented by Jan at IETF 124

Work Item Plan

Work on all items in parallel, but initial focus skewed left

Reporting

Config

Work Item #1

Work Item #2

Work Item #3

Work Item #4

Collection, Aggregation, Delivery mechanisms for (energy-)controllers

Reporting mechanisms for devices

Power saving mechanisms for devices

Power saving mechanisms for controllers/ service orchestrators

- Collection sources, protocols, paths, frequencies, units, ...
- Aggregation mechanisms, filtering, downsampling, unit transformation, annotation, ...
- Delivery targets, time series databases, message busses, ...
- Query API

- Reporting capabilities and directory of available measurement series
- System description, location, purpose, ...
- Common reporting mechanism for new devices based on YP, YP light, ...?

- Control capabilities and directory of available power saving features
- Common control mechanism for new devices

• ...

Device
Controller

Work Item Plan

Work on all items in parallel, but initial focus skewed left

Work Item #1

Collection, Aggregation, Delivery mechanisms for (energy-)controllers

- Collection sources, protocols, paths, frequencies, units, ...
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- Delivery targets, time series databases, message busses, ...
- Query API

Work Item #2

Reporting mechanisms for devices

- Reporting capabilities and directory of available measurement series
- System description, location, purpose, ...
- Common reporting mechanism for new devices based on YP, YP light, ...?

Work Item #3

Power saving mechanisms for devices

- Control capabilities and directory of available power saving features
- Common control mechanism for new devices

Work Item #4

Power saving mechanisms for controllers/ service orchestrators

- ...

**Our focus so far: We did it.
Is this complete, no?
Do we need more reviews, yes?**

Work Item Plan

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Work Item #1

Collection, Aggregation, Delivery mechanisms for (energy-)controllers

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- Delivery targets, time series databases, message busses, ...
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Work Item #2

Reporting mechanisms for devices

- Reporting capabilities and directory of available measurement series
- System description, location, purpose, ...
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Work Item #3

Power saving mechanisms for devices

- Control capabilities and directory of available power saving features
- Common control mechanism for new devices

Work Item #4

Power saving mechanisms for controllers/ service orchestrators

...

Next Focus?

We Brainstormed on the Power Set but ...

```
module: ietf-power-and-energy
  +--ro energy-objects
    +--ro energy-entry* [object-id]
      +--ro object-id      string
      +--ro source-component-id?  -> /hw:hardware/component/name
      +--ro power
        | +--ro instantaneous-power      int32
        | +--ro nameplate-power?        uint32
        | +--ro unit-multiplier          identityref
        | +--ro data-source-accuracy?    identityref
        | +--ro power-factor?            power-factor
        | +--ro measurement-local?       boolean
      +--ro energy
        | +--ro total-energy-consumed?    uint64
        | +--ro total-energy-delivered?   uint64
        | +--ro unit-multiplier?         identityref
        | +--ro data-source-accuracy?    identityref
        | +--ro measurement-local?       boolean
        | +--ro certifications*          identityref
      +--ro relationship* [type]
        +--ro type      identityref
        +--ro peer* [id]
          +--ro id      string
          +--ro details? string
```

```
+--rw power-state-control
| +--rw power-admin-state?  identityref
| +--ro power-oper-state?   identityref
```

- It's easy to add a power state (either admin & oper, or the same leaf with config & operational datastore with NMDA)
- This would mimick the MIB (RFC7460)
- But ...

The IANA Power State Sets

IEEE1621 Power State Set

Registration Procedure(s)

Expert Review

Expert(s)

Unassigned

Reference

[\[RFC7326\]](#)

Available Formats



CSV

Value	Name	Reference
0	off	[IEEE1621]
1	sleep	[IEEE1621]
2	on	[IEEE1621]
3-255	Unassigned	

DMTF Power State Set

Registration Procedure(s)

Expert Review

Expert(s)

Unassigned

Reference

[\[RFC7326\]](#)

Available Formats



CSV

Value	Name	ACPI	Reference
0	Reserved		[RFC7326]
1	Reserved		[RFC7326]
2	ON	G0-S0	[RFC7326]
3	Sleep-Light	G1-S1 G1-S2	[RFC7326]
4	Sleep-Deep	G1-S3	[RFC7326]
5	Power Cycle (Off-Soft)	G2-S5	[RFC7326]
6	Off-Hard	G3	[RFC7326]
7	Hibernate (Off-Soft)	G1-S4	[RFC7326]
8	Off-Soft	G2-S5	[RFC7326]
9	Power Cycle (Off-Hard)	G3	[RFC7326]
10	Master Bus Reset	G2-S5	[RFC7326]
11	Diagnostic Interrupt	G2-S5	[RFC7326]
12	Off-Soft Graceful	G2-S5	[RFC7326]
13	Off-Hard Graceful	G3	[RFC7326]
14	MasterBus Reset Graceful	G2-S5	[RFC7326]
15	Power Cycle Off-Soft Graceful	G2-S5	[RFC7326]
16	Power Cycle Off-Hard Graceful	G3	[RFC7326]
17-255	Unassigned		

Value	Name	Description
0	mechoff	An off state where energy is being consumed.
1	softoff	Similar to mechoff. Energy Object can be typically requires a complete boot, but hibernate(2) is a save-to-RAM state, zero.
2	hibernate	No Energy Object transitioned into a context is maintained.
3	sleep	No Energy Object transitioned into a context is maintained.
4	standby	No Energy Object transitioned into a context is maintained.
5	ready	No Energy Object transitioned into a context is maintained.
6	lowMinus	Indicates that all Energy or selected options.
7	low	Indicates that all Energy or selected options.
8	mediumMinus	Indicates that all Energy or selected options.
9	medium	Indicates that all Energy or selected options.
10	highMinus	Indicates that all Energy or selected options.
11	high	Indicates that all Energy or selected options.
12-255	Unassigned	

<https://www.iana.org/assignments/power-state-sets/power-state-sets.xhtml>

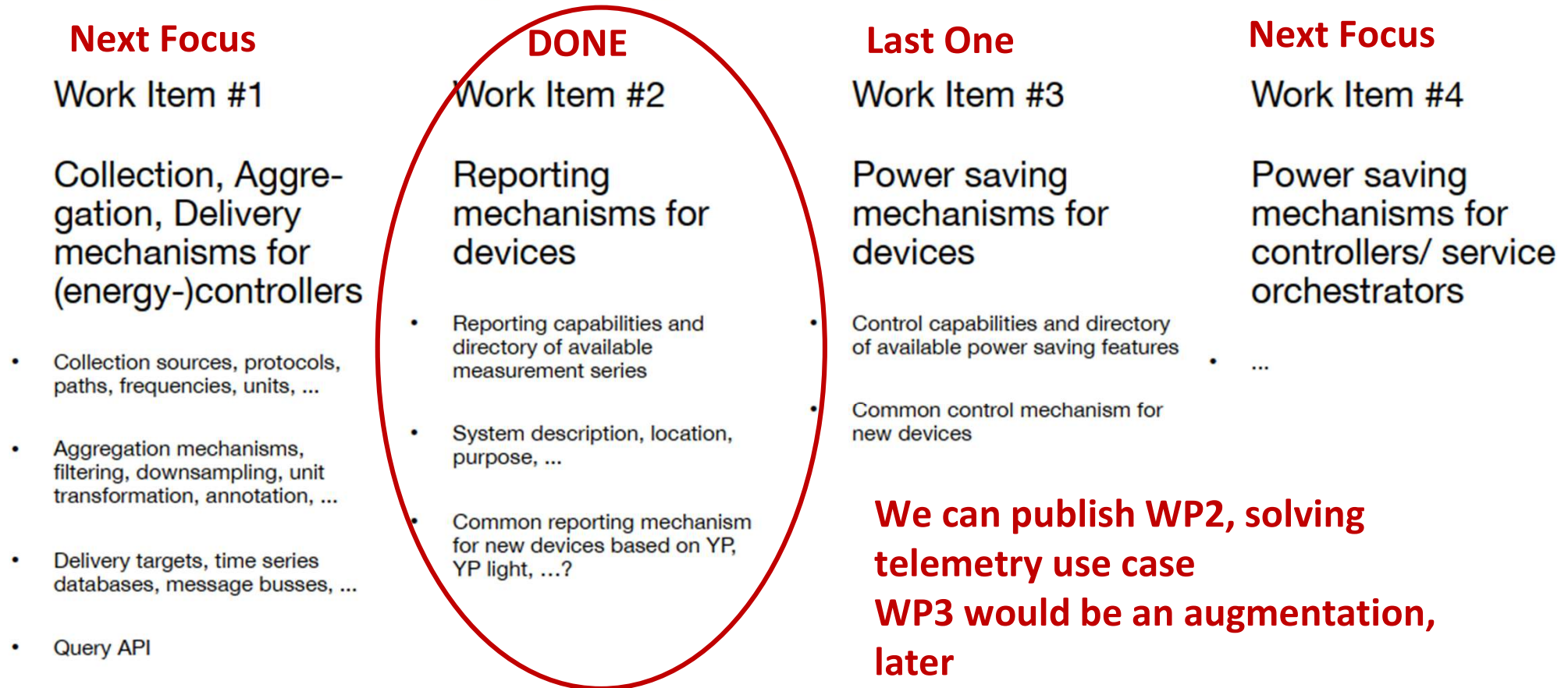
Many Open Questions

- We want to intent from controller.
Ex: it's midnight, I want the network to go in state X
 - How do we define the intent, network-wide, multi-vendor. Not a GREEN specific topic
- Do we even want to have power state configuration of individual component?
 - Ex: the fan would have its own optimization, independently of having component settings
 - However, in some case, we might need a specific component setting
Ex: PoE, smart PDU, optimized routing
- Which power state set to take?
 - Any other existing one used TODAY in the industry?
- What is the connection between the energy intent (and related SLA), the vendor specific energy features (which we will be able to standardize), and the energy ID configurable power state?
 - Ex: vendor V energy slicing E+++, will it share which the energy ID settings?
- What's the component ID? Who has the source of truth for (UU)IDs: the controller or the device
 - And again, this is not a GREEN specific topic
- Do we delay the publication of the device YANG module until we have all the answers?
 - We tend to think it's not a good idea

Work Item Plan

Next step: **OPTION 1 « controller view »**

Work on all items in parallel, but initial focus skewed left



Work Item Plan

Next step: **OPTION 2 « device view »**

Work on all items in parallel, but initial focus skewed left

Work Item #1	Work Item #2	Work Item #3	Work Item #4
<p>Collection, Aggregation, Delivery mechanisms for (energy-)controllers</p> <ul style="list-style-type: none">• Collection sources, protocols, paths, frequencies, units, ...• Aggregation mechanisms, filtering, downsampling, unit transformation, annotation, ...• Delivery targets, time series databases, message busses, ...• Query API	<p>Reporting mechanisms for devices</p> <ul style="list-style-type: none">• Reporting capabilities and directory of available measurement series• System description, location, purpose, ...• Common reporting mechanism for new devices based on YP, YP light, ...?	<p>Power saving mechanisms for devices</p> <ul style="list-style-type: none">• Control capabilities and directory of available power saving features• Common control mechanism for new devices	<p>Power saving mechanisms for controllers/ service orchestrators</p> <ul style="list-style-type: none">• ...

**Add the read-write to the IANA Power State Set in the YANG module, and call it a day (for the device YANG model)
Which one is used is not our business!**

YANG Modeling Questions

Design Team Lite Meeting, March 9th 2026 (with session)
Jan Lindblad, Gen Chen, Marisol Palmero, Benoit Claise

<https://github.com/ietf-wg-green/green-design-work>

Backup Slide

IETF 124

- SoH: "Should we be focussing the work on the concrete use cases (rather than abstract models)?"
 - Y:19
 - N:1
 - NOP:3
- SoH: "Should we be focus the initial work only on a device model?"
 - Y:5
 - N:10
 - NOP:5
- SoH: "Should we focus on using the EMAN MIB (converted to YANG) as a starting point for the device model?"
 - Y:18
 - N:0
 - NOP:3