

Requirements for Energy Management

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Status

- At IETF #80 we stated as first next step:
 - ◆ "After agreement on some basic issues we will revise the entire draft carefully: elaboration needed for several sections"
- This lead to a restructuring of the draft
 - ◆ Many changes from version -01 to version -04
 - ◆ particularly new is the section on identities
- Good news: we are getting closer to completeness
 - ◆ List of open issues is still long
 - ◆ But hard issues seem to be solved
- Basic structure:
 - ◆ Sections 4-6 list rather conventional requirement
 - Management system talking to the managed node of interest
 - ◆ Sections 7-8 list requirements that are specific for energy mgmt.
 - Management system talks to device A in order to monitor or control device B

Section 4: Identification

4.1. Identifying powered entities

4.2. Identifying components of powered devices

4.3. Persistency of Identifiers

Section 5.1: General Information

5.1.1. Type of powered entity

5.1.2. Context information on powered entities

5.1.3. Grouping of powered entities

Section 5.2: Power State

- 5.2.1. Actual power state
- 5.2.2. List of supported power states
- 5.2.3. Multiple power state sets
- 5.2.4. List of supported power state sets
- 5.2.5. List of supported power states
- 5.2.6. Maximum and average power per power state
- 5.2.7. Power state statistics
- 5.2.8. Power state changes

Section 5.3: Power Inlets and Outlets

- 5.3.1. List of power inlets and power outlets
- 5.3.2. Corresponding power outlet
- 5.3.3. Corresponding power inlets
- 5.3.4. Availability of power
- 5.3.5. Use of power
- 5.3.6. Type of current
- 5.3.7. Nominal voltage
- 5.3.8. Nominal AC frequency
- 5.3.9. Number of AC phases

Section 5.4: Power

- 5.4.1. Real power
- 5.4.2. Power measurement interval
- 5.4.3. Confidence in power values
- 5.4.4. Accuracy of power and energy values
- 5.4.5. Complex power
- 5.4.6. Actual voltage and current
- 5.4.7. Actual AC frequency
- 5.4.8. Total harmonic distortion
- 5.4.9. Power supply impedance
- 5.4.10. Time series of power values

Section 5.5: Energy

5.5.1. Energy

5.5.2. Time intervals

5.5.3. Energy per power state

5.5.4. Time series of energy values

Section 5.6: Battery state

- 5.6.1. Battery charge
- 5.6.2. Battery charging state
- 5.6.3. Battery charging cycles
- 5.6.4. Actual battery capacity
- 5.6.5. Static battery properties
- 5.6.6. Low battery charge notification
- 5.6.7. Battery replacement notification
- 5.6.8. Multiple batteries

Section 6: Control

6.1. Controlling power states

6.2. Controlling power supply

Section 7: Reporting on other devices

- 7.1. Reports on other powered entities
- 7.2. Identity of other powered entities on which is reported
- 7.3. Reporting quantities accumulated over multiple powered entities
- 7.4. List of all powered entities on which is reported
- 7.5. Content of reports on other powered entities
- 7.6. Indicating source of remote information
- 7.7. Indicating source of remote information

Section 8: Controlling other devices

Power states

- 8.1.1. Control of power states of other powered entities
- 8.1.2. Identity of other power state controlled entities
- 8.1.3. List of all power state controlled entities
- 8.1.4. List of all power state controllers

Power supply

- 8.2.1. Control of power supply of other powered entities
- 8.2.2. Identity of other power supply controlled powered entities
- 8.2.3. List of all power supply controlled powered entities
- 8.2.4. List of all power supply controllers

Open Issues

- Revise security considerations and references
- Terminology for reporting on other entities to be improved
- Requirement to re-use existing standards?
- Features
 - ◆ Universal Unique Identifier?
 - ◆ Power and energy time series?
 - Do we need both or just one of them?
 - ◆ Metering power supply impedance?
 - ◆ High/Low power notifications?
 - ◆ Power availability mode 'minimum' or 'ready' for PoE?
 - ◆ Producers and Consumers
 - Producers are not yet considered. Shall we do so?
 - ◆ Outlet gang
 - Can anybody contribute a requirement for outlet gangs?
 - ◆ Aggregated reports?
 - ◆ Aggregation functions: Do we need them? What are they?

Next steps

- A lot of constructive comments from reviews

Thank you very much!

- New revision very soon
- Then solve remaining open issues starting with new revision