draft-ietf-eman-framework-06

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> Review changes in the draft

> Issues Tracker

> Review Three Issues We are Working on

- Components versus Device Modeling Clarification

- Power Quality

- Power States and Curtailment

Changes in this Draft

> Terminology NITs

Nameplate is nominal set by manufacturer

Aggregation Clarification

The functions that the aggregation point may perform include values such as average, count, maximum, median, minimum or listing (collection) of the aggregation.

Changes in this Draft

> Energy Control

Started to reconcile Power States and Curtailment. More to do

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The semantics of a power state is specified by

a) the functionality provided by an Energy Object in this state,

b) a limitation of the power that an Energy Object uses in this state,

c) a combination of a) and b)

The semantics of a Power State should be clearly defined. Limitation (curtailment) of the power used by an Energy Object in a state can be specified by

- an absolute power value

- a percentage value of power relative to the energy object's nameplate power

- an indication of used power relative to another power state - for example: by stating used power in state A is less than in state B.

Issue Tracker

http://trac.tools.ietf.org/wg/eman/trac/report/1

Started with 26 Issues we are down to 13 now

Please use tracker for the drafts!

Issue's we'll review here:

- ISSUE-7 : Components and Device Modeling
- ISSUE-26 : ASHRAE Power Quality
- ISSUE- 6 & 8 : Power States and Curtailment

Issue 7 - On Components and Device Modelling

Small Components

Here only the essential features of components are modeled, such as their power, energy, power states, and optionally time series of power/energy values. There are no power interfaces modeled. This model is useful if components are expected to appear frequently, but it is OK to limit their models to properties relevant for energy management.

Components as Full Device

A Component is treated as a full device. Only containment of components is modeled. This model is useful if components are of high importance for energy management, expected to be used frequently, and thus fully modeled. The disadvantage here is a potentially big overhead for component modeling.

Issue 26 - ASHRAE Power Quality

ISSUE: While discussed at Vancouver, that discussion occurred before ASHRAE 201P was released. In light of 201P, the reasons for the Vancouver decision appear now erroneous. - Brad Schoenig

ASHRAE power quality parameters are a subset of what we call power characteristics. We chose "power characteristics", because it contains some measured values that are typically not used for quality assessment. Also there is a concern that values such as measured voltage may be used for quality assessment, but do not express quality by themselves (without a reference).

However, the term power characteristics is in conflict a common use of the term for specifying the power that a device draws when operational.

Proposal: replace "power characteristics" with "power attributes" and rename section "6.5.2 Optional Power Quality" to "6.5.2 Optional Power Attributes"

This recognizes that some power attributes are commonly used for assessing power quality.

Issue 6&8 - Power States and Curtailment

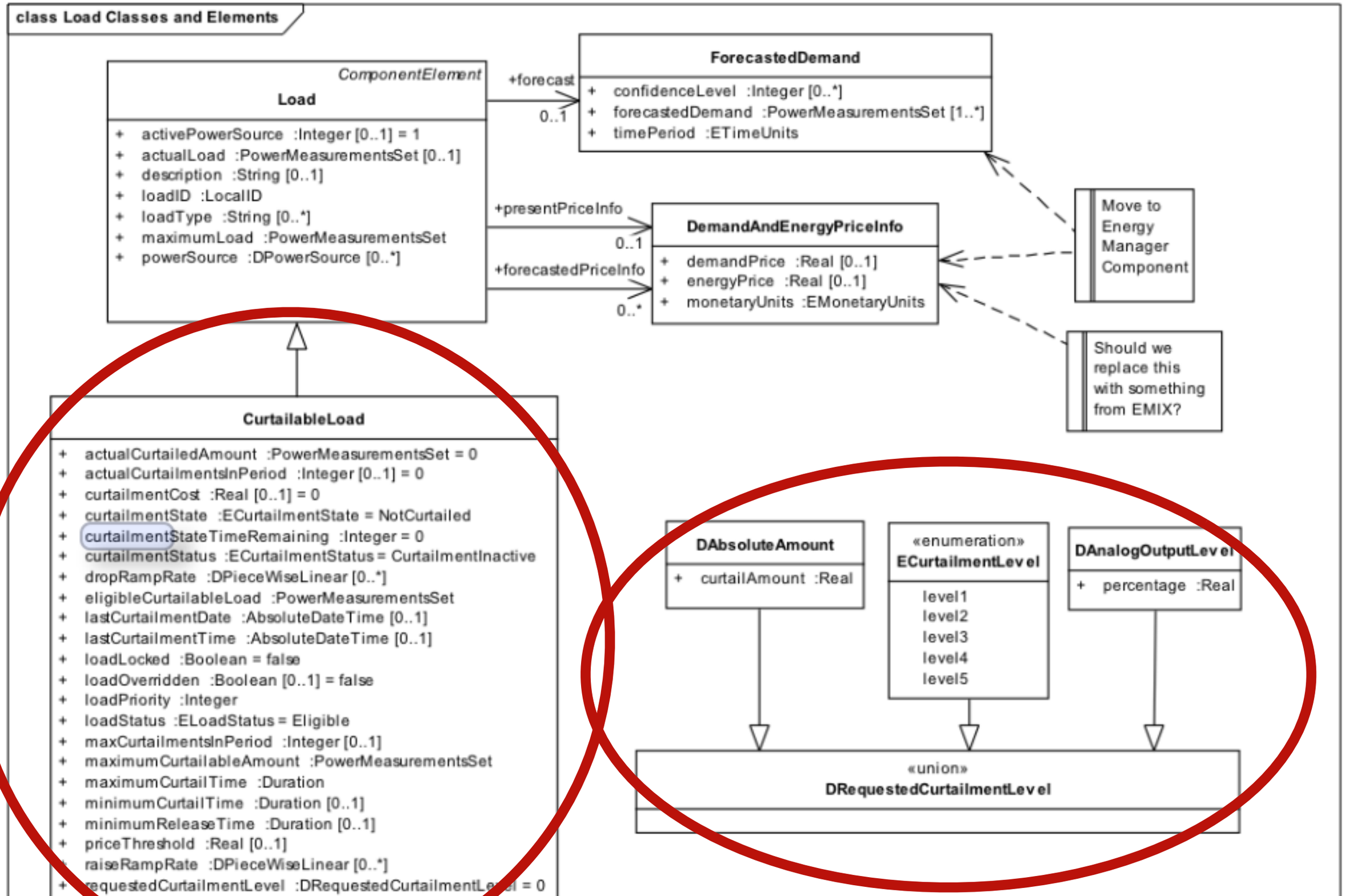
Power states in other standards

Typically just listing of states with some implied ordering. Concerned with state, name, and transition

IEEE1621	DMTF	ACPI
Non-operational states		
off	Off-Hard	G3, S5
off	Off-Soft	G2, S5
sleep	Hibernate	G1, S4
sleep	Sleep-Deep	G1, S3
sleep	Sleep-Light	G1, S2
sleep	Sleep-Light	G1, S1
Operational states:		
on	on	G0, S0, P5
on	on	G0, S0, P4
on	on	G0, S0, P3
on	on	G0, S0, P2
on	on	G0, S0, P1
on	on	G0, S0, P0

ASHRAE / NEMA Curtailments

Bound or limit on a device (load). Device attributes record the limitation on the device. A request for a limitation can be selected from a set of curtailment levels. These are a list of bounds.


class Load Classes and Elements
ComponentElement
Load
+ activePowerSource :Integer [0..1] = 1
+ actualLoad :PowerMeasurementsSet [0..1]
+ description :String [0..1]
+ loadID :LocalID
+ loadType :String [0..*]
+ maximumLoad :PowerMeasurementsSet
+ powerSource :DPowerSource [0..*]
+forecast
0..1
ForecastedDemand
+ confidenceLevel :Integer [0..*]
+ forecastedDemand :PowerMeasurementsSet [1..*]
+ timePeriod :ETimeUnits
+presentPriceInfo
0..1
+forecastedPriceInfo
0..*
DemandAndEnergyPriceInfo
+ demandPrice :Real [0..1]
+ energyPrice :Real [0..1]
+ monetaryUnits :EMonetaryUnits
Move to Energy Manager Component
Should we replace this with something from EMIX?
CurtailableLoad
+ actualCurtailedAmount :PowerMeasurementsSet = 0
+ actualCurtailmentsInPeriod :Integer [0..1] = 0
+ curtailmentCost :Real [0..1] = 0
+ curtailmentState :ECurtailmentState = NotCurtailed
+ curtailmentStateTimeRemaining :Integer = 0
+ curtailmentStatus :ECurtailmentStatus = CurtailmentInactive
+ dropRampRate :DPieceWiseLinear [0..*]
+ eligibleCurtailableLoad :PowerMeasurementsSet
+ lastCurtailmentDate :AbsoluteDateTime [0..1]
+ lastCurtailmentTime :AbsoluteDateTime [0..1]
+ loadLocked :Boolean = false
+ loadOverridden :Boolean [0..1] = false
+ loadPriority :Integer
+ loadStatus :ELoadStatus = Eligible
+ maxCurtailmentsInPeriod :Integer [0..1]
+ maximumCurtailableAmount :PowerMeasurementsSet
+ maximumCurtailTime :Duration
+ minimumCurtailTime :Duration [0..1]
+ minimumReleaseTime :Duration [0..1]
+ priceThreshold :Real [0..1]
+ raiseRampRate :DPieceWiseLinear [0..*]
+ requestedCurtailmentLevel :DRequestedCurtailmentLevel = 0
+ curtailmentRatings :DCurtailmentEffect [0..*] {ordered}
DAbsoluteAmount
+ curtailAmount :Real
«enumeration»
ECurtailmentLevel
level1
level2
level3
level4
level5
DAnalogOutputLevel
+ percentage :Real
«union»
DRequestedCurtailmentLevel

What we have so far

- Registry of Power States and Power State Sets
- Power states have attributes (Absolute value, percent of maximum, name, option ordering)
- Additional set of Power States (EMAN)

Proposals:

1) Remain as is. Keep Power State and Power State set

And....

2) Should an Energy Object record a curtailment and curtailment attributes?
3) Should we have another registry for curtailment levels?

Discussion!

Open Items

1) OPEN Issues listed in Tracker

http://trac.tools.ietf.org/wg/eman/trac/report/1

2) Authors see a need for a draft to collect implementation guidelines

We need an editor to own the draft

Thanks!