PRESENTATION TO EC FOR NAESB REQ 18, WEQ 19

PAP10 Energy Usage Information

October 15, 2010
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PRESENTATION OF REQ 18 AND WEQ 19

- Introduction of Energy Usage Information
- Process to date
  - Construction of the standard
  - 400+ informal comments
  - XXX formal comments
- Standard composition by section
- Differences to the Standard for Late Comments
  - Principles
  - Compliance
  - Model (full, minimal, schema)
  - Requirements and verifications appendix
- NAESB Extensions & Migration Back to CIM Part 9

INTRODUCTION OF ENERGY USAGE INFORMATION

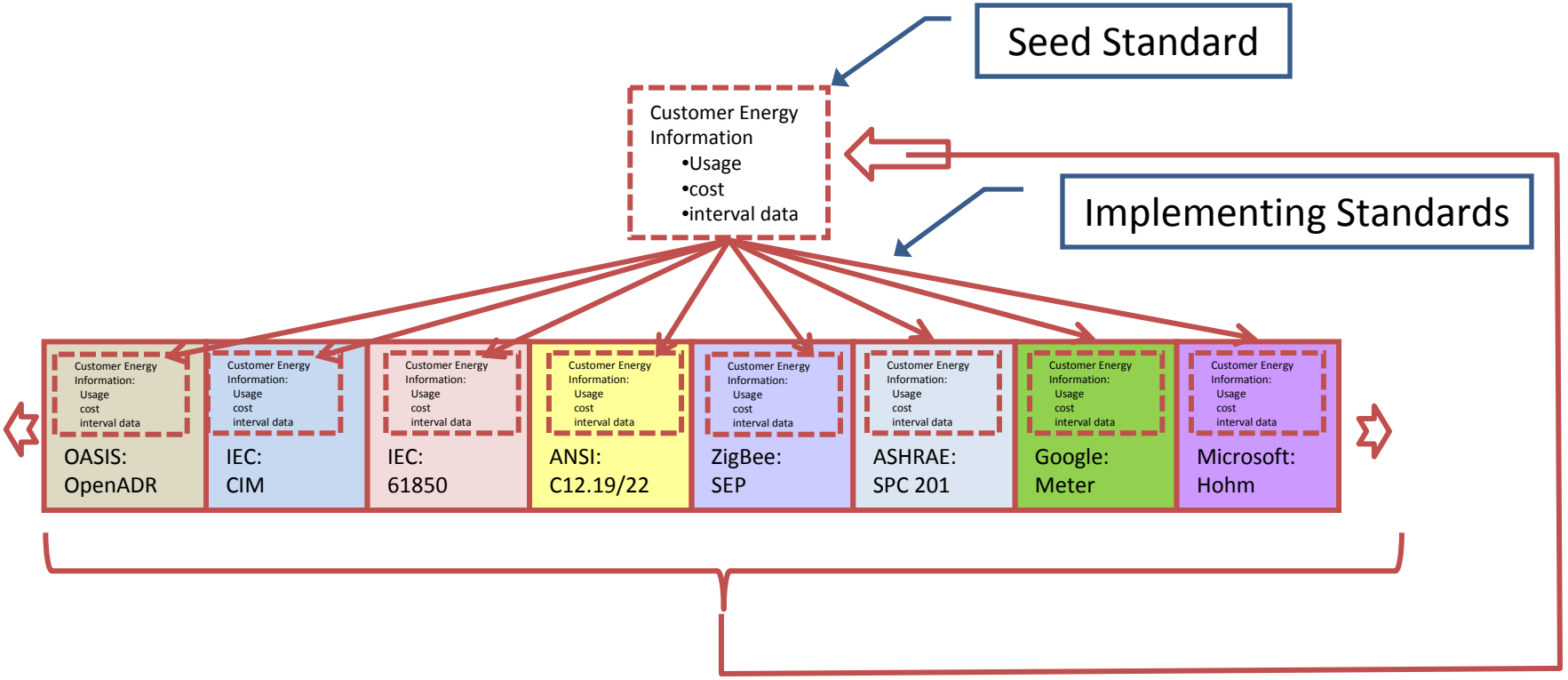
PAP10 PRODUCT ENABLING VISION

Interval Data

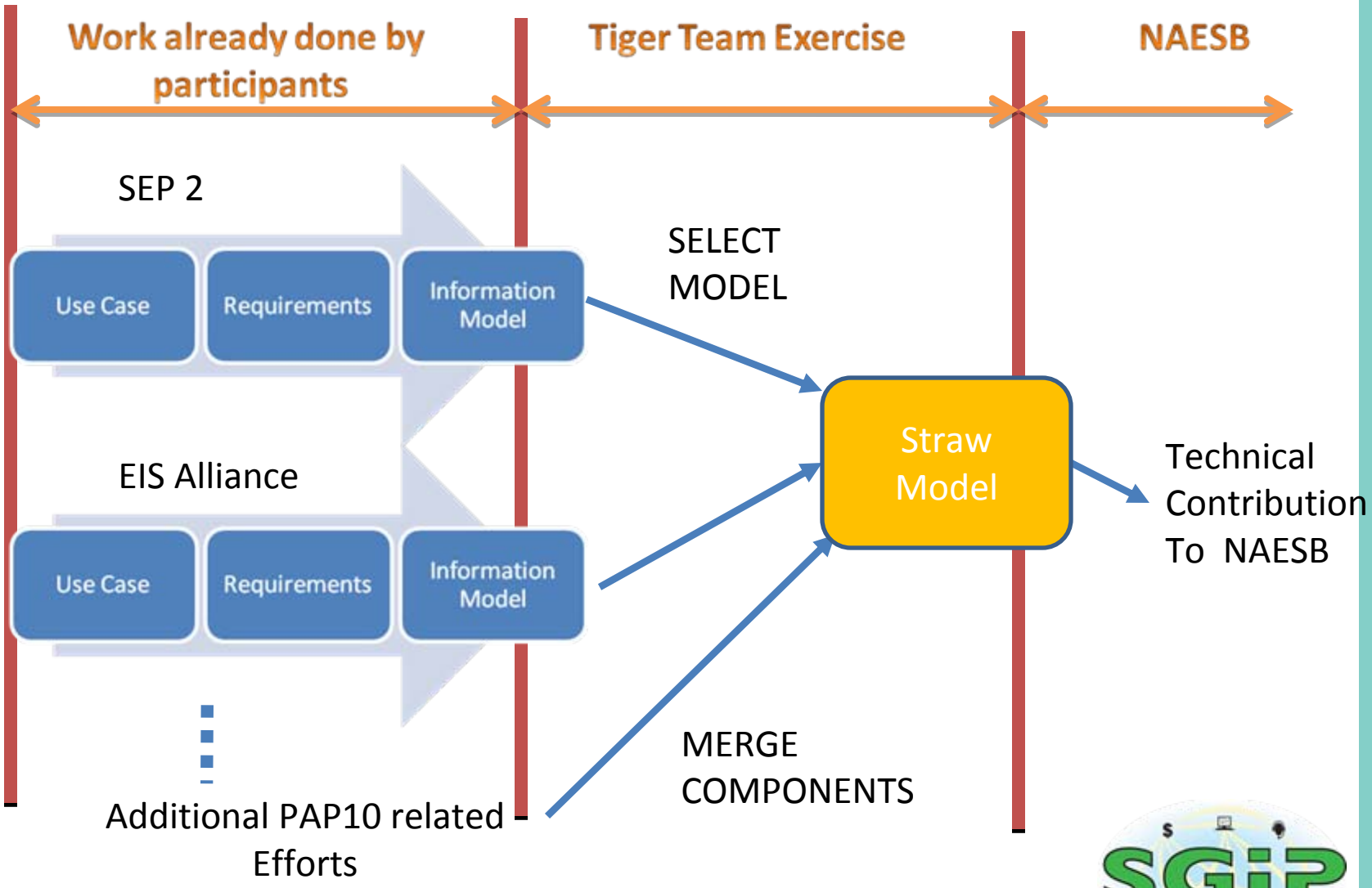
Usage

Cost

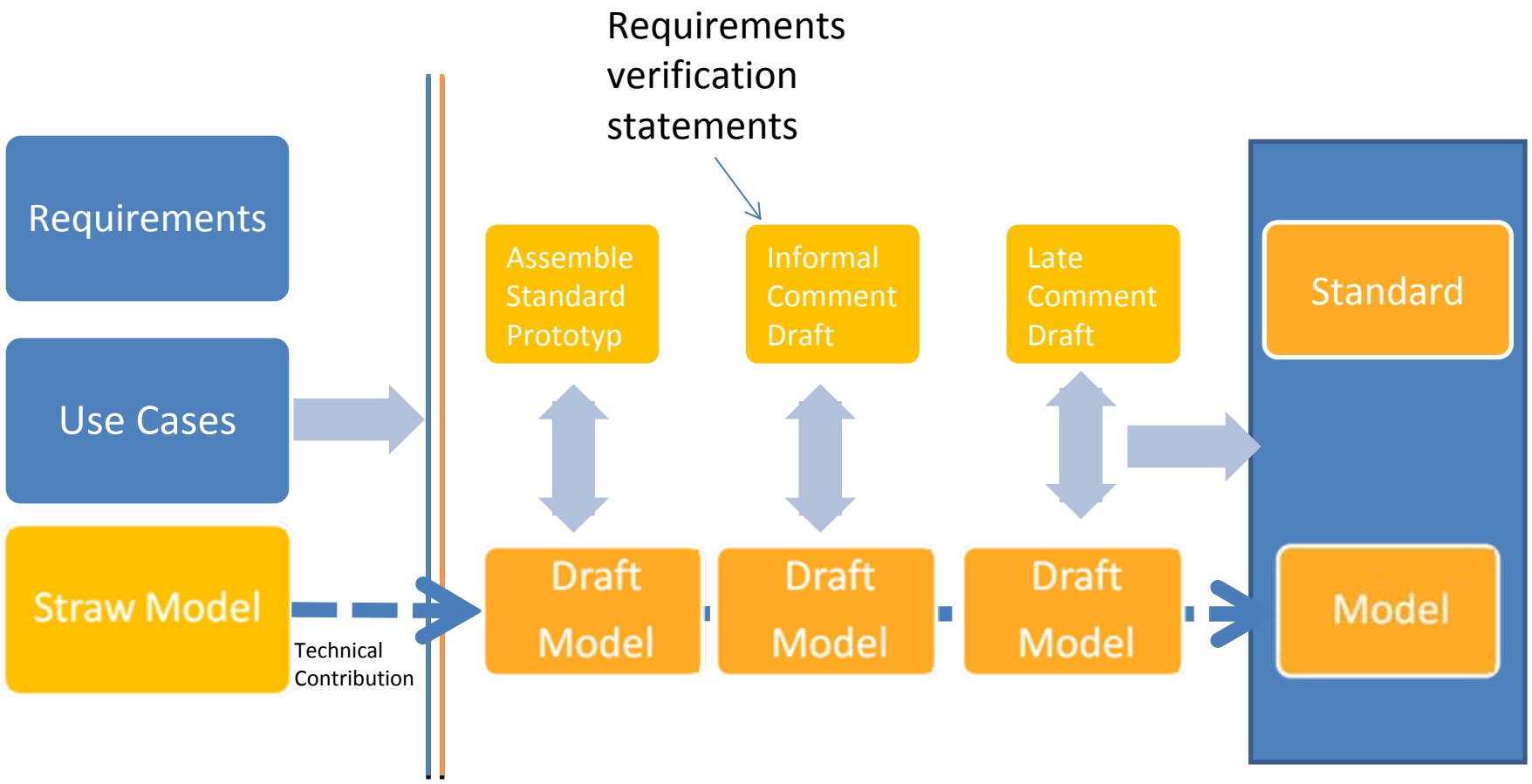
THE NAESB SEED STANDARD: INFORMATION MODEL



PAP 10 Tiger Team Timeline (not to scale):

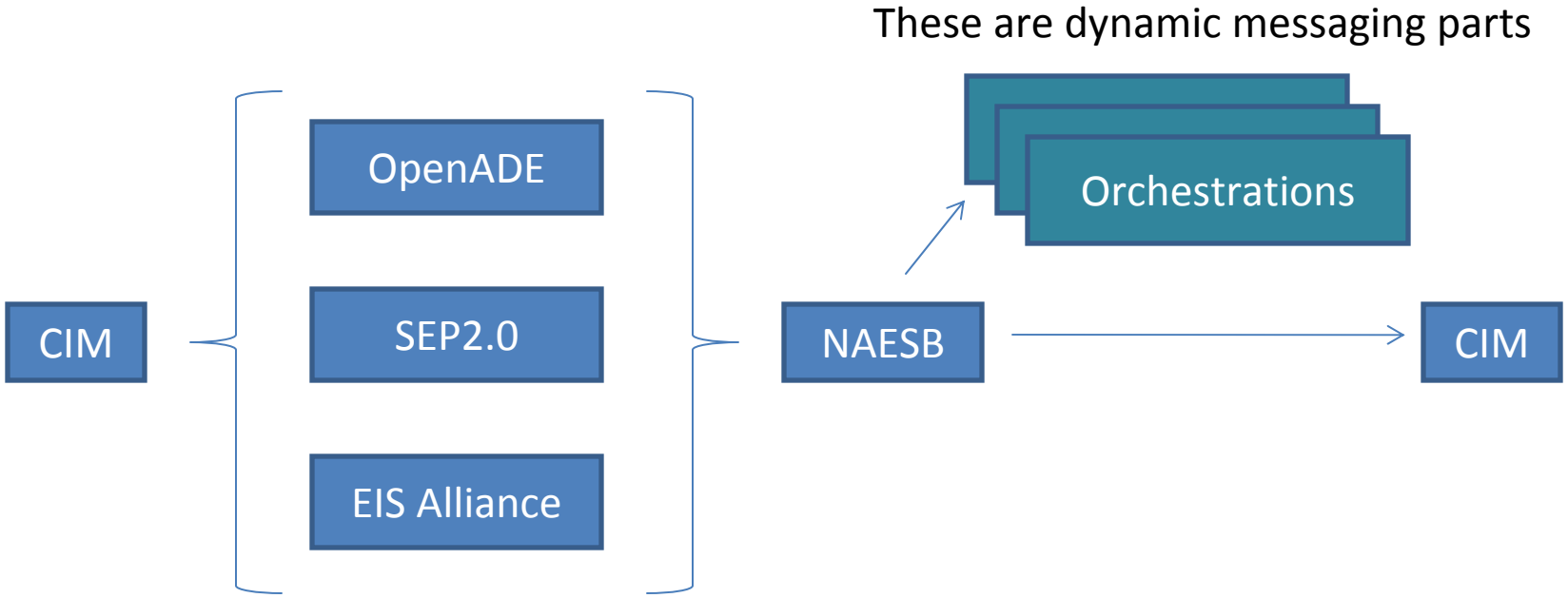


NAESB PAP10 PROCESS



June 2010

MIGRATION OF MODEL FROM AND BACK TO CIM



NAESB REQ 18, WEQ 19
STANDARD COMPOSITION BY SECTION

OVERVIEW OF DOCUMENT (VIEW DOCUMENT)

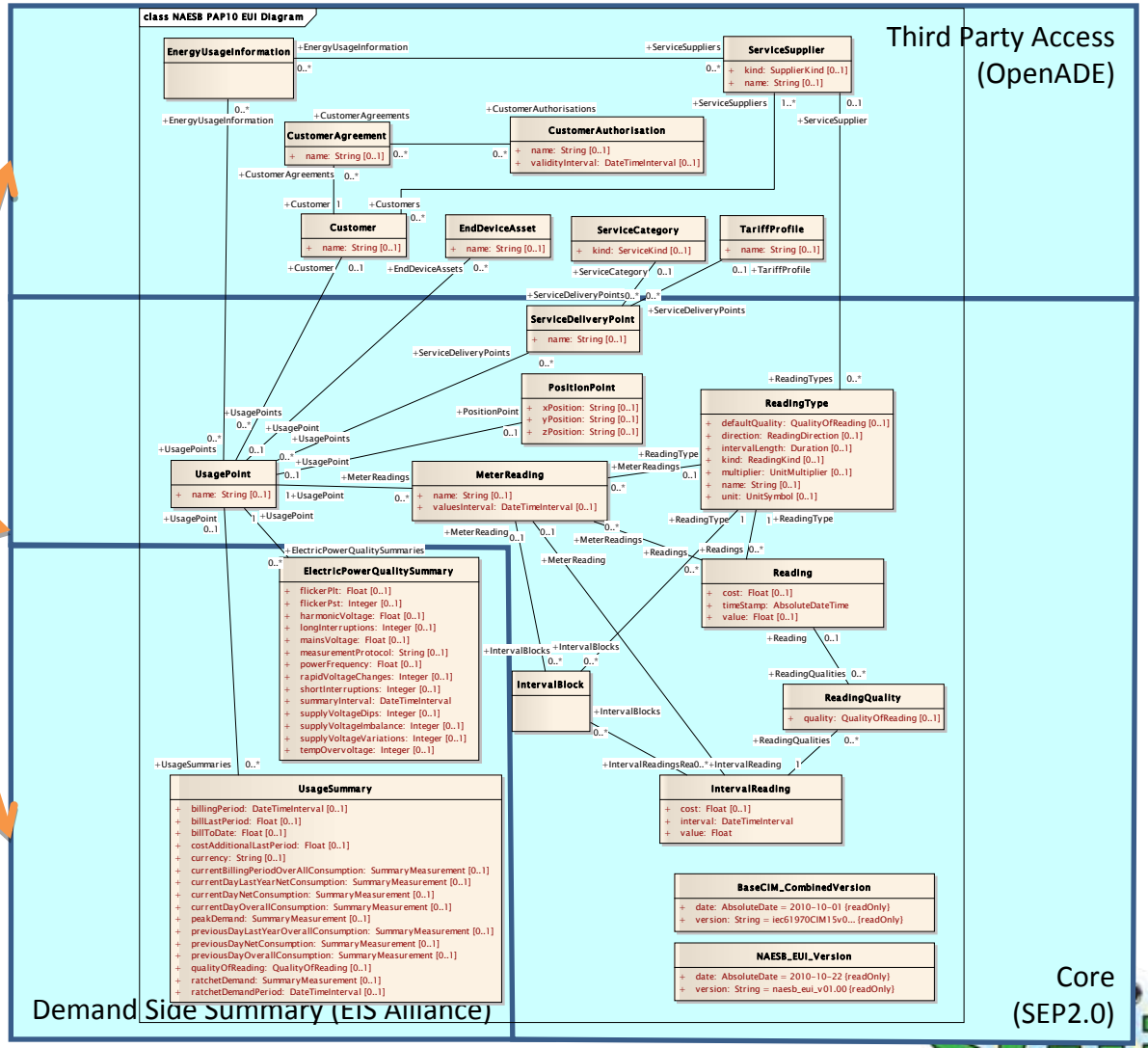
- Top Matter
- Principles
- Definitions and Abbreviations
- Summary of Business Processes
- ➔The information model
- Requirements and Verifications

OVERVIEW OF MODEL

- Sources that went into draft
  - CIM
  - SEP 2.0
  - EIS Alliance
  - OpenADE
- Containers
  - SDP
  - MeterReading
- MeterReading
  - IntervalReading
  - Reading
  - ReadingType
- Summary
  - UsageSummary
  - PowerQualitySummary
- Minimal Conformant View
- Example Schema

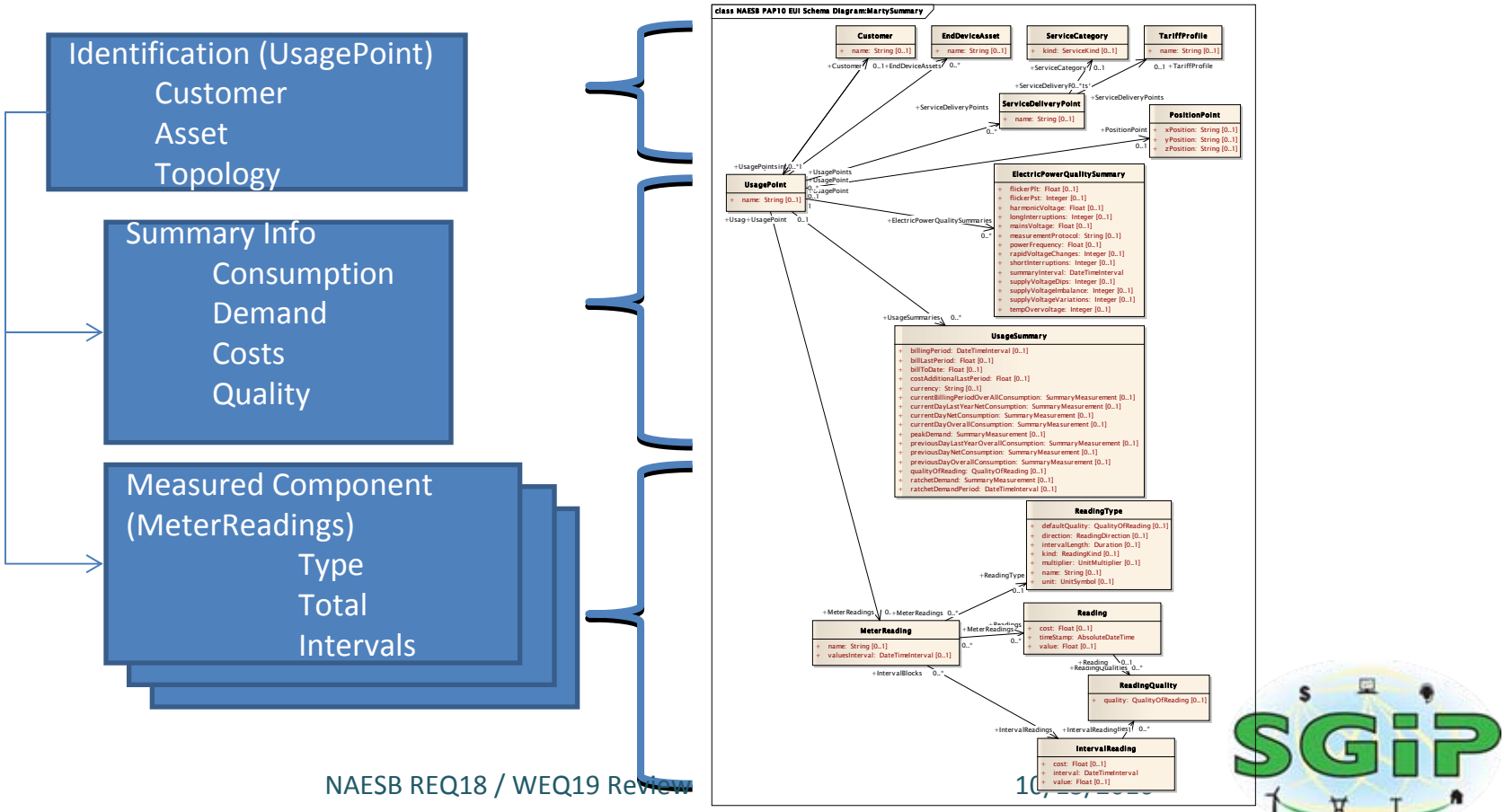
BASIC ENERGY USAGE INFORMATION MODEL

Three Main Components

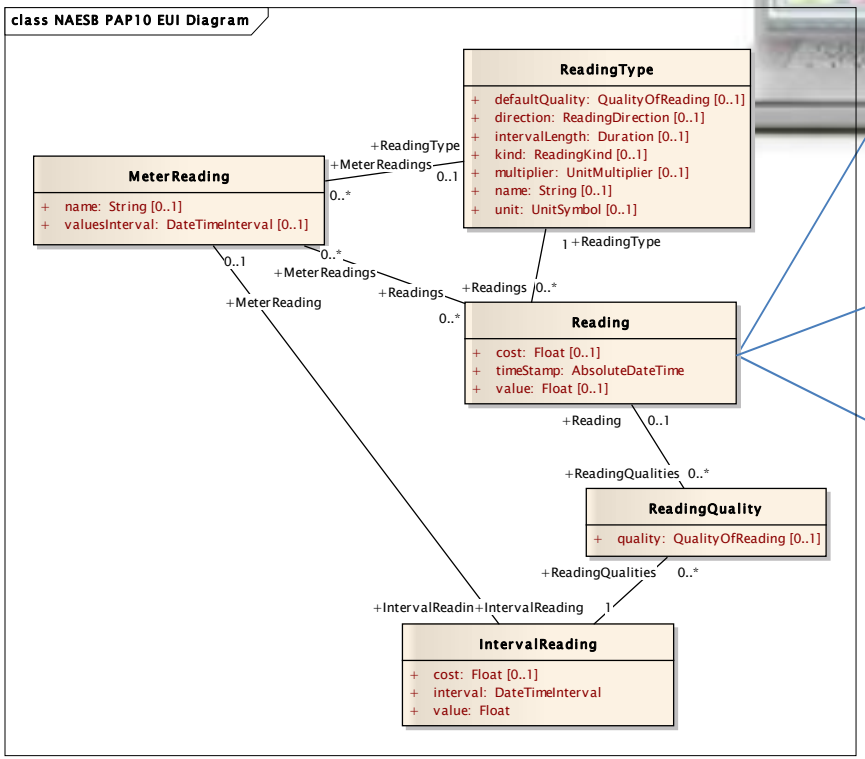


PAP10 EUI USAGEPOINT STRUCTURE

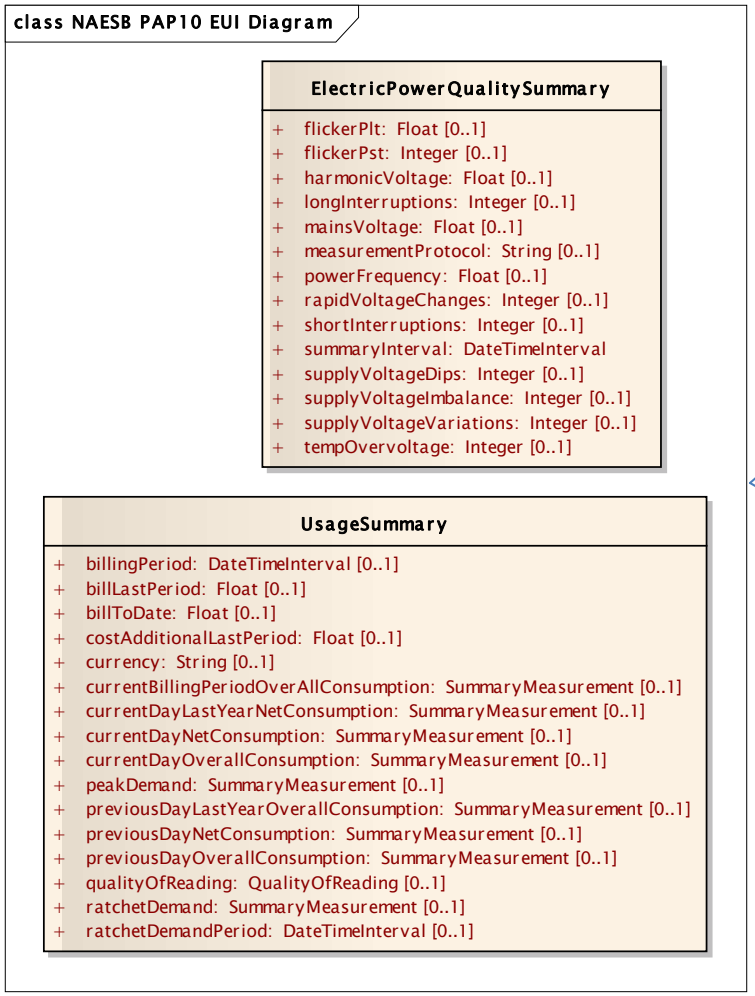
The NAESB model is organized hierarchically to achieve the following:
Container class at top to facilitate aggregation by Asset, Topology, and/or Customer references
Nesting that allows a client application to descend to only summary information or through to detailed interval information
Organization that minimizes the need to repeat duplicate information. Thus interval data is only the data and timestamps. All associated information is present once.



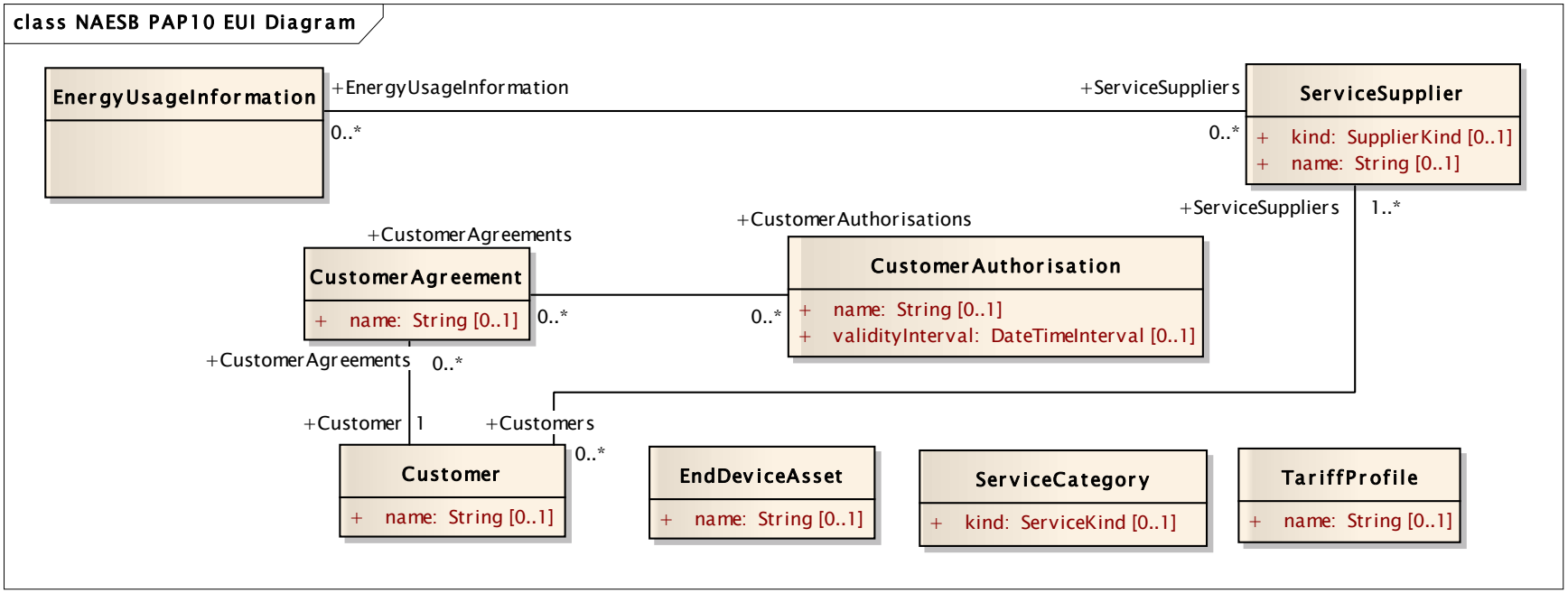
METERREADING DETAIL



USAGE SUMMARY

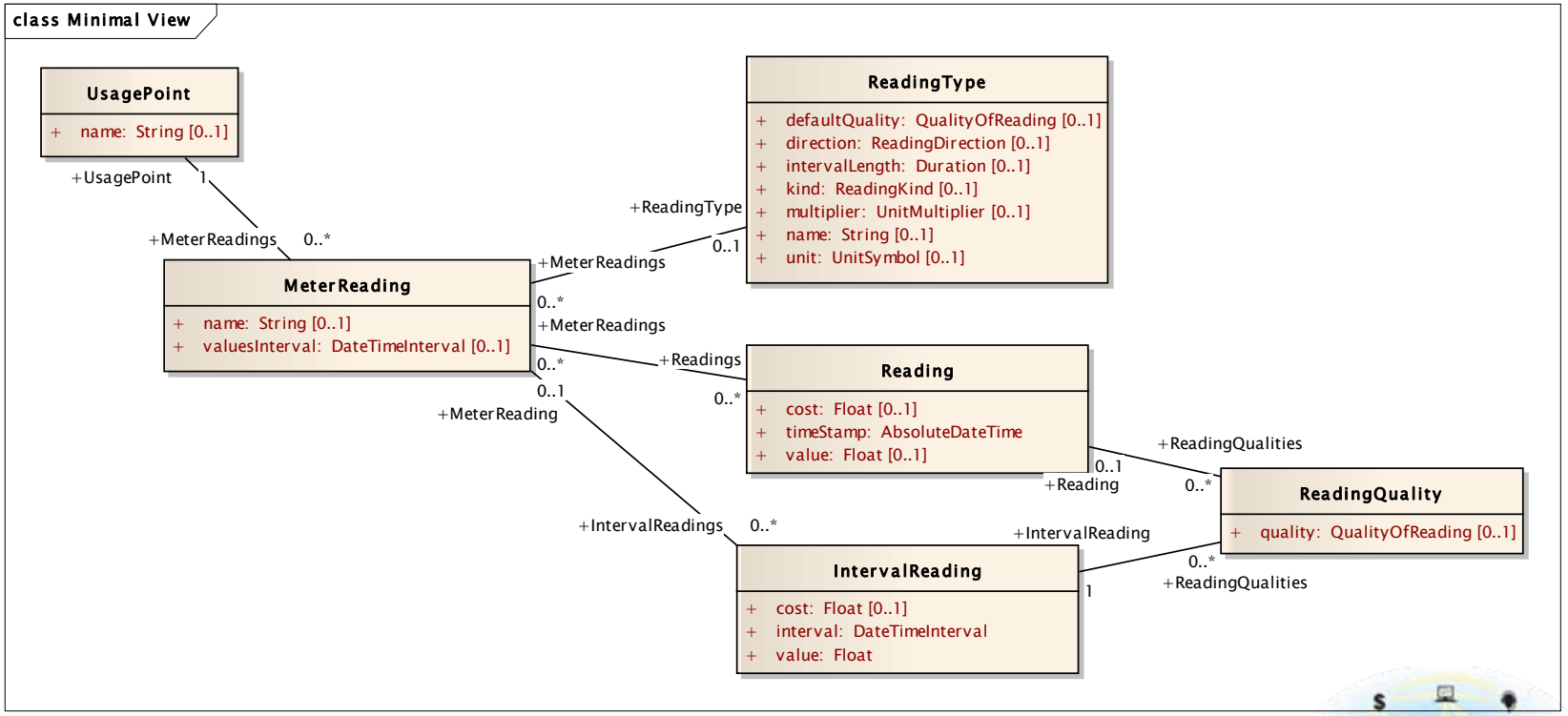


THIRD PARTY ACCESS CLASSES



MINIMAL CONFORMANT VIEW

- REQ 18.3.4.3 A specification that claims conformance to these Model Business Practices shall map corresponding energy usage information model components to and from at least the following required core model attributes as exchanged between data provider and data consumer in their defined messages (Refer to REQ.18.4.1 for definitions of capitalized terms):
  - *One or more measurement or summary containers: IntervalReading, Reading, PowerQualitySummary, UsageSummary*
  - *At least two of the following attributes, for each IntervalReading: timeStamp, endTimeStamp, duration*
  - *The attribute "value" (the value of the measurement, from IntervalReading or Reading)*
  - *ReadingType – ID, defaultQuality, direction, kind, multiplier, name, unit*
  - *Association to ReadingType for each measurement (IntervalReading or Reading) (exists in model through MeterReading)*
  - *Measurement source / location – ServiceDeliveryPoint.ID or MeterAsset.ID and association to measurements or summary*



DIFFERENCES TO THE STANDARD FOR LATE COMMENTS

REVIEW DIFFS OF DOCUMENTS

- Front Matter
- Principles
- Conformance
- Appendix A

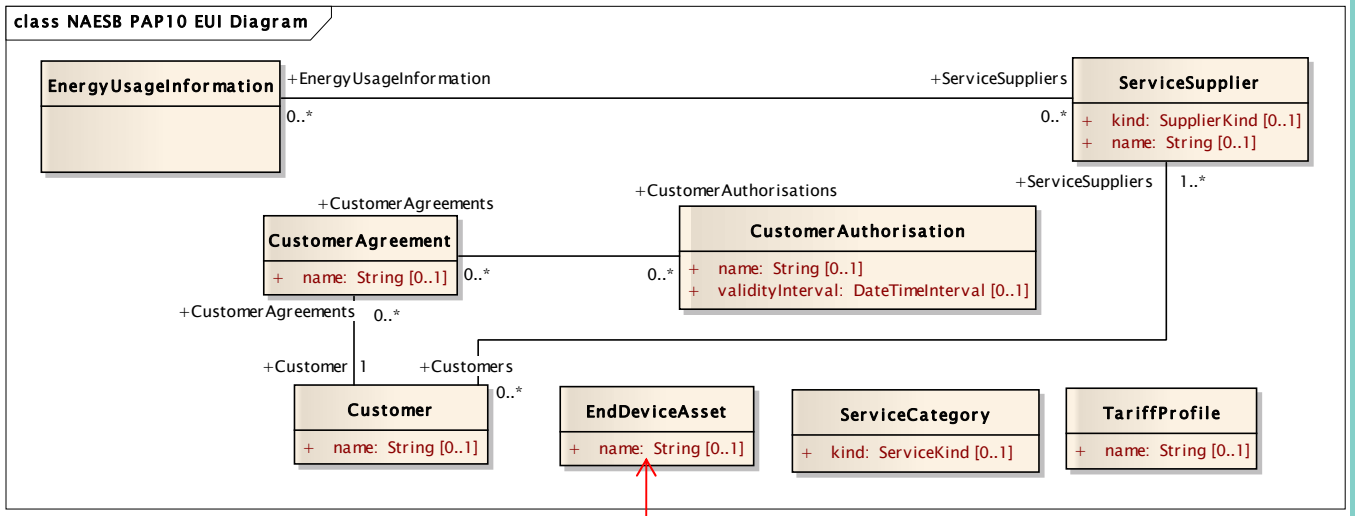
REVIEW OF MODEL CHANGES

- Third Party Access Part (OpenADE)
- Usage Part (SEP 2.0)
- Summary Classes Part (EIS Alliance)

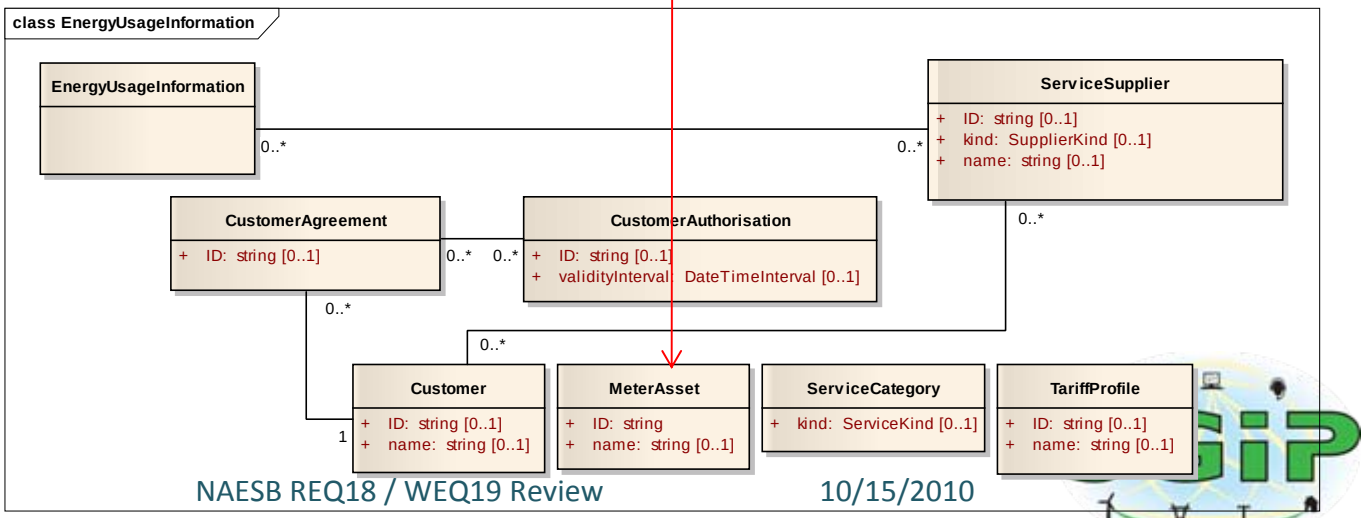
OPENADE PART

New EndDeviceAsset (CIM)

Late Comments

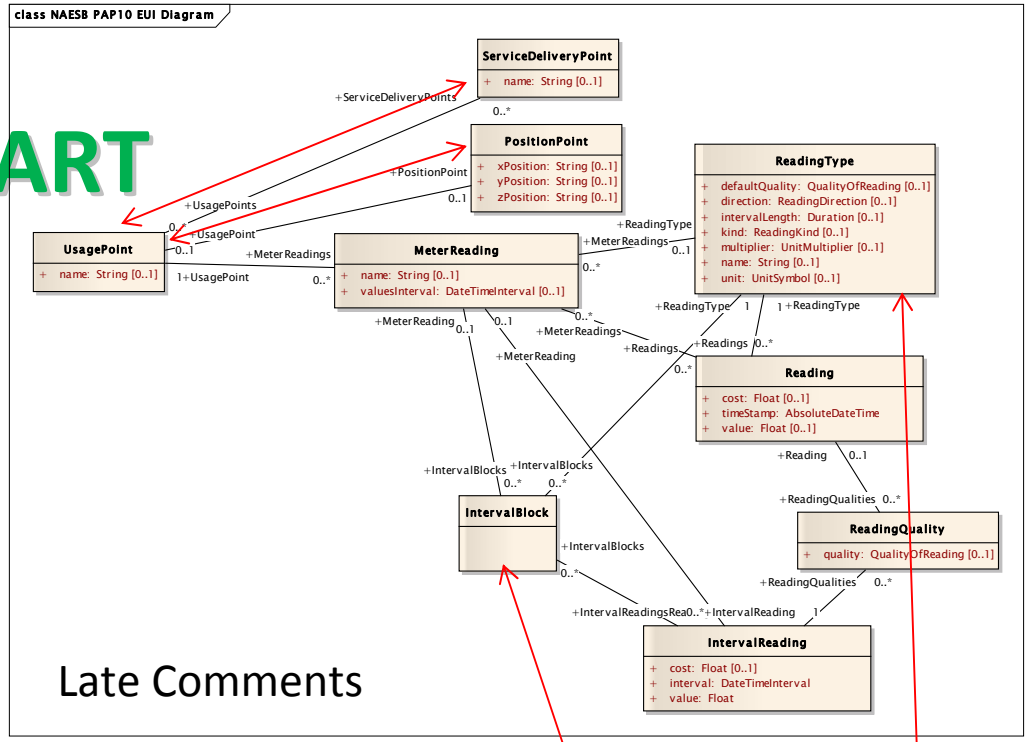


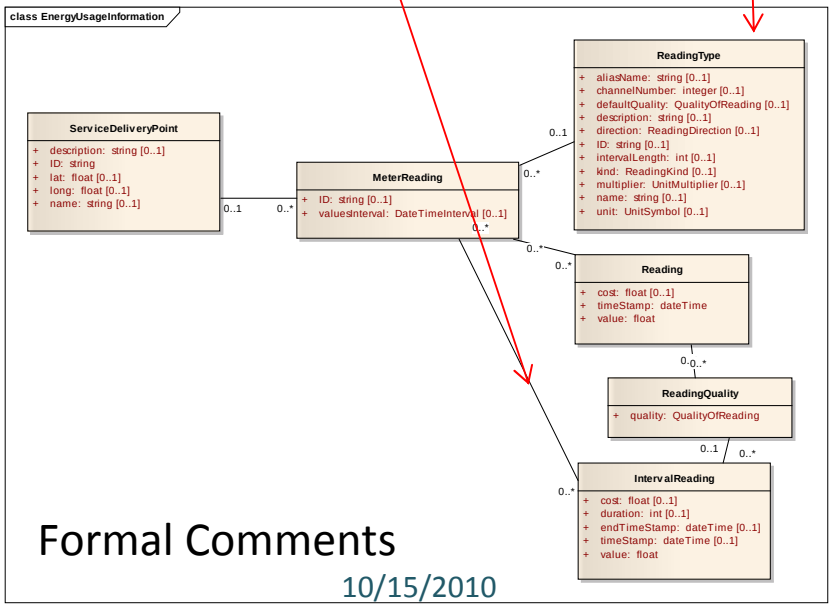
Formal Comments



USAGE INFORMATION PART

New UsagePoint (CIM)
Separate PositionPoint (CIM)
IDs -> name (CIM)
IntervalBlock (CIM)
ReadingType (CIM)



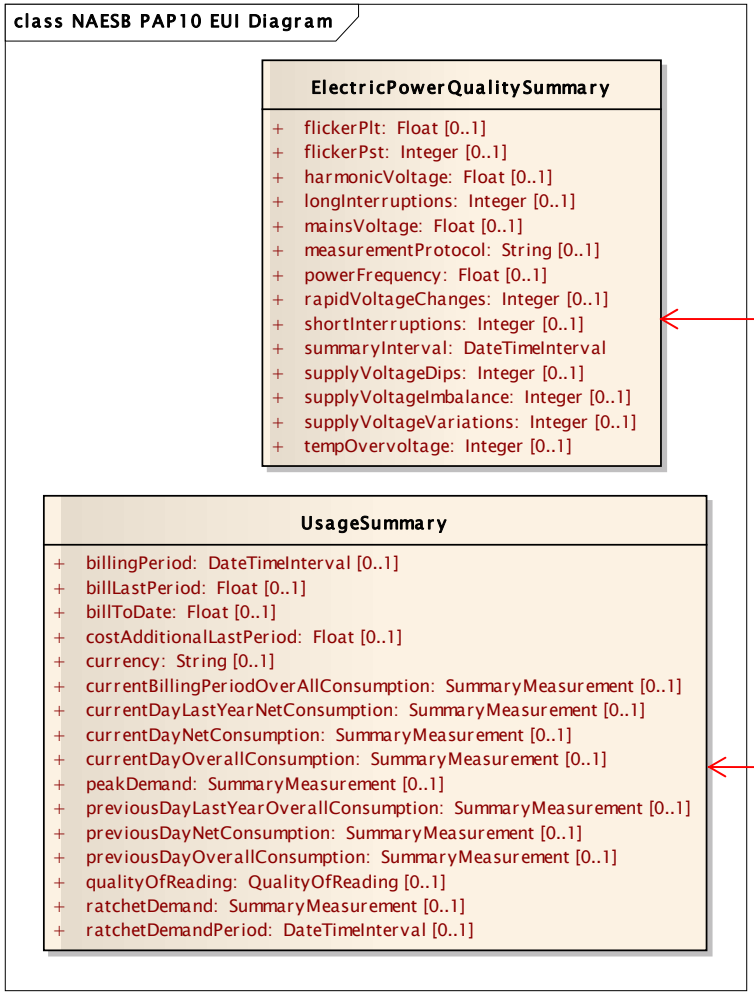


SUMMARY CLASSES PART

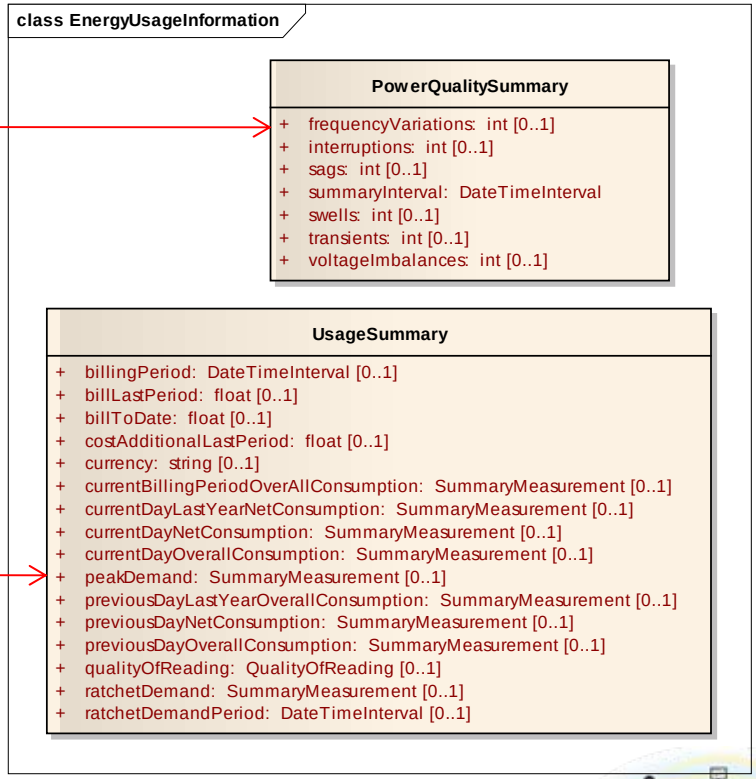
ElectricPowerQualitySummary
Cox contribution for IEC consistency

UsageSummary – added attribute

Late Comments



Formal Comments



NAESB EXTENSIONS & MIGRATION BACK TO CIM PART 9

NAESB EUI (PAP10) EXTENSIONS

- NAESB Standard has built on CIM and extended it to staisfy NAESB PAP10 requirements
- Review of NAESB standard with CIM Part 9 participants evidenced some initial issues
- A number of these issues were addressed in Late Comments
- Modeling efforts identified need for extensions (additions)
- The normal IEC process allows extensions to CIM
- The extended CIM can be “interval data” for implementation
- The extensions can not be “approved” by IEC until full discussion within IEC working groups
- If some extensions are rejected or implemented differently by IEC, they would need to be managed by NAESB
- Promising discussions toward the most acceptable extensions

PROPOSED CLASS EXTENSIONS

- OpenADE identified the need for “CustomerAuthorization”
  - For tracking access grants to resources and period / expiration
- EIS Alliance identified the need for summary classes.
  - For concise standard representation of useful summary values
  - UsageSummary, ElectricPowerQualitySummary, SummaryMeasurement, SummaryQuality (enumeration)
- IEC harmonization identified the need for “UsagePoint”
  - Similar to ServiceDeliveryPoint, but less strict definition
- NIST tiger team identified “EnergyUsageInformation”
  - Top level container to hold energy usage information
- These all include new associations and attributes

PROPOSED ATTRIBUTE / VALUE EXTENSIONS

- Multiple parties identified ReadingType changes
  - New ReadingType attribute “direction” (forward, reverse, net, total)
  - New ReadingType.ReadingKind values (pollutants, C12.19 alignment)
  - New ReadingType.unit values (thm, m3/h, ft3/h)
- NAESB identified new supplier types
  - New ServiceSupplier.kind values district, local, microgrid, intermediary
- NIST / tiger team identified new “cost” attribute
  - Allows readings to carry an optional associated cost value
  - IEC / part 9 still discussing the best model for this concept
- NAESB identified need for additional “interval” attributes
  - Allows readings to refer to irregular time periods: {start, duration, end}
  - IEC / part 9 still discussing the best model for these values

PROPOSED ASSOCIATION EXTENSIONS

- MeterReading to IntervalReading
  - was possible through IntervalBlock
- MeterReading to ReadingType
  - was possible through IntervalBlock or Reading
- ServiceSupplier to ReadingType
  - To allow synchronization of ReadingType definitions
- ServiceDeliveryPoint to Tariffinterval data
  - Provides high-level indication of the rate