

# Utility Standards Board (USB)



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# Utility Standards Board (USB) Overall Process

## Business Case

- Develop functional requirements
  - User needs (Use Cases, etc.)
- Assess USB utility systems
  - Existing system issues
  - Future system issues
- Perform gap analysis
  - Assess existing standards and vendor solutions
  - Research future trends
  - Identify gaps
- Affirm value proposition
  - Benefits
  - Costs and risks
  - Barriers
- Go/No Go decision on Development stage

## Development

- Design
  - Develop process and information flows
  - Develop technical and performance requirements
  - Affirm fit with the USB utilities technology environment
- Use appropriate tools to document results
- Iterative review and comment
  - USB utilities
  - Vendors
  - Consultants
- Identify acceptance barriers and mitigating strategies
- Reaffirm value proposition before developing on-boarding plan

## On-boarding Plan

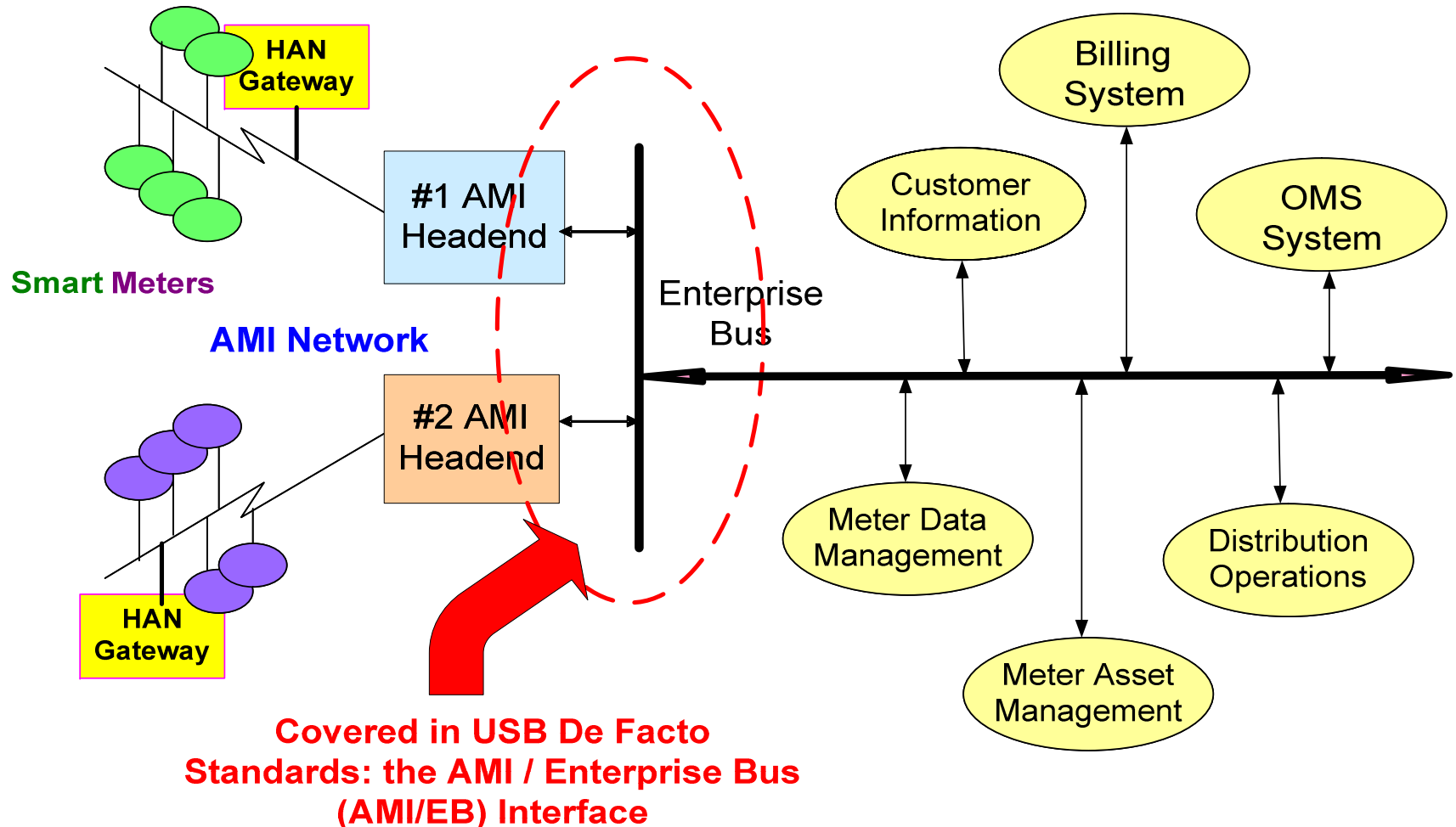
- Confirm stakeholders and initial players for first implementation
  - USB utilities
  - Vendors
  - Standards bodies
- Assess cost-benefit
  - Resources required
  - Legacy issues
  - Benefits identified
- Submit de facto standards to appropriate Standards Body as input for standardization
- Develop promotional plan for presenting results to the industry
- Develop test plan
  - Stakeholder commitments
  - Approach
  - Resources
  - Schedule

Submit De Facto Standard

**Submit *De Facto* Standard and On-boarding Plan to USB Leadership Team for approval**

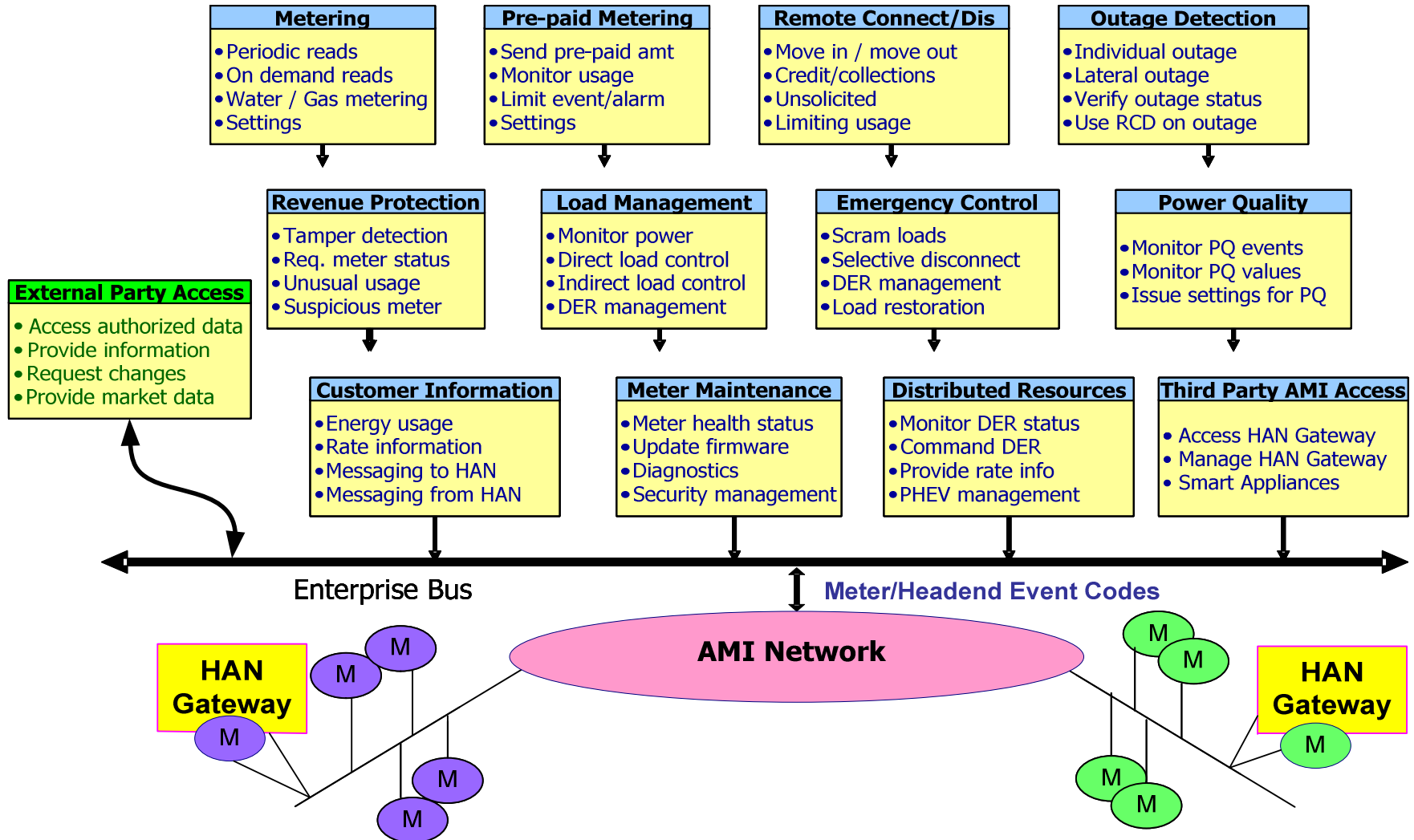
# Scope of USB Projects

## AMI / Enterprise Bus Interface, with Examples of AMI Equipment and Utility Systems



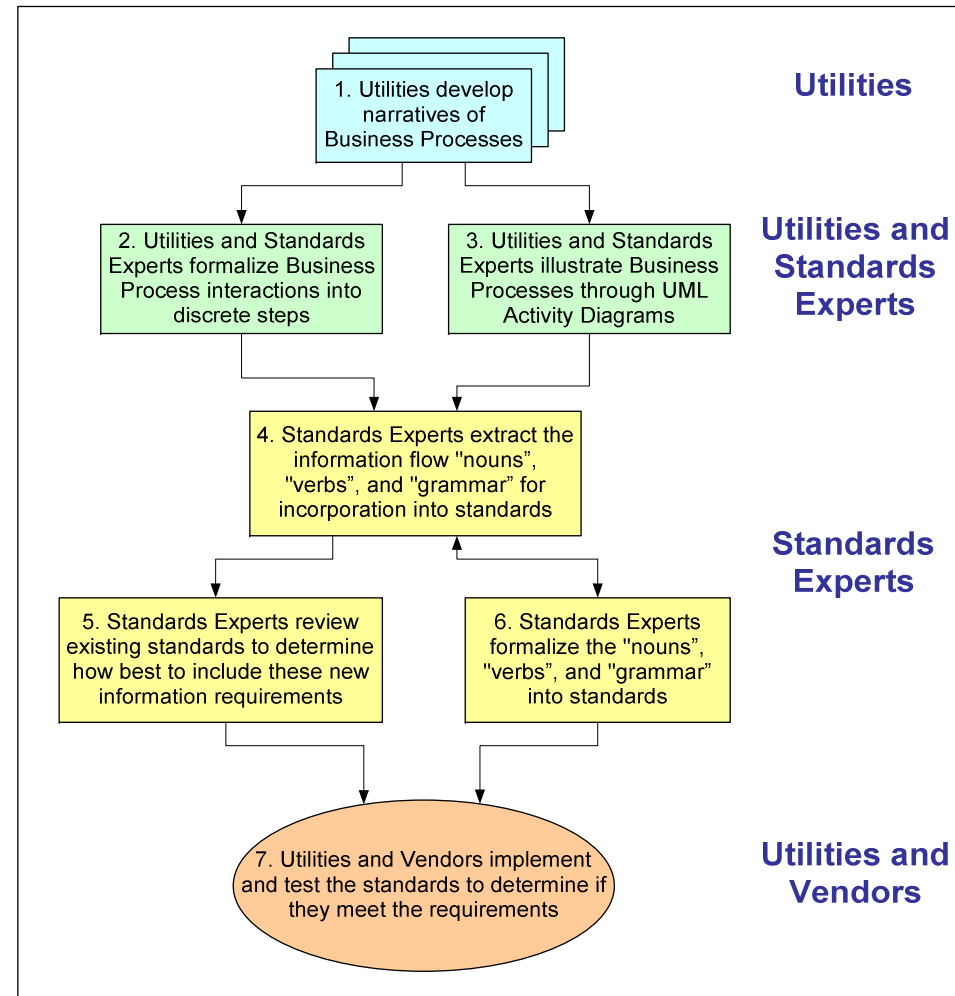
# Business Processes utilizing the AMI/EB Interface

## Business Processes Utilizing the AMI/Enterprise Bus Interface



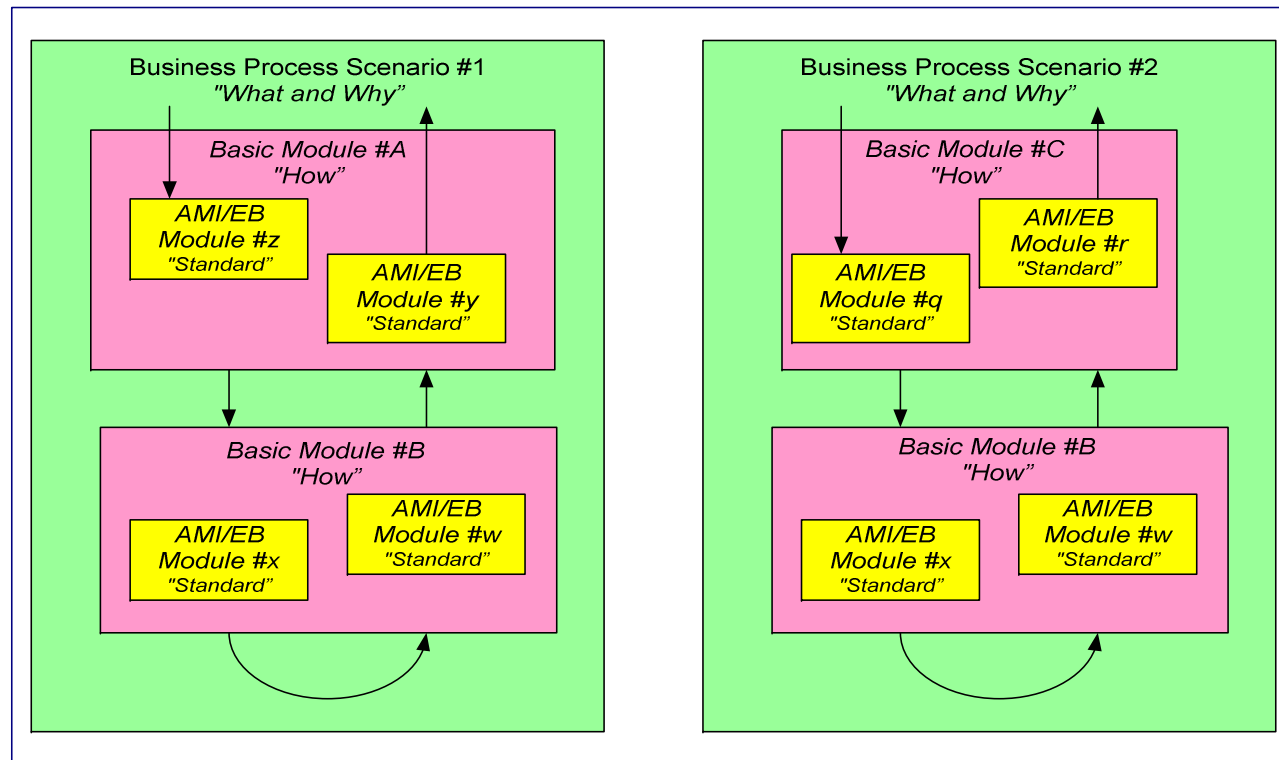
# RCD Document Concepts

- RCD Team has developed the Business Processes narratives
- RCD Team and Standards Expert formalized the narratives into Steps or Activity Diagrams
- Standards Expert extracted the information flow “nouns” and “verbs” and “grammar”, while reviewing the existing standards
- Standards Expert developed draft de facto standards, using the XML Schema Definition (XSD) language as used by both the IEC and MultiSpeak
- Remaining question on how to expand the “nouns”:
  - Develop CIM objects (IEC)
  - Use XSD objects (MultiSpeak)



# Overview of RCD Document Concepts and Structure

- 3 Layers
  - Business Process
  - Basic Modules that captures the interactions across the AMI/EB interface
  - Standard modules that break each basic module into its component pieces



# Layer 1 – Business Processes

- Routine turn-on of service (move in) – Duke
- Routine shut-off of service (move out) – Dominion
- Credit & Collections termination of service – Dominion
- Credit & Collections reinstatement of service – ComEd
- Local/on site shut-off of service – PHI
- Local/on site turn-on of service – AEP
- Credit & Collection Service Limiting – PHI
- Emergency Response / Load Shedding – PECO
- Exceptions processing related to unsolicited change of state of disconnect switch – Hydro One

# Layer 2 – Basic Modules

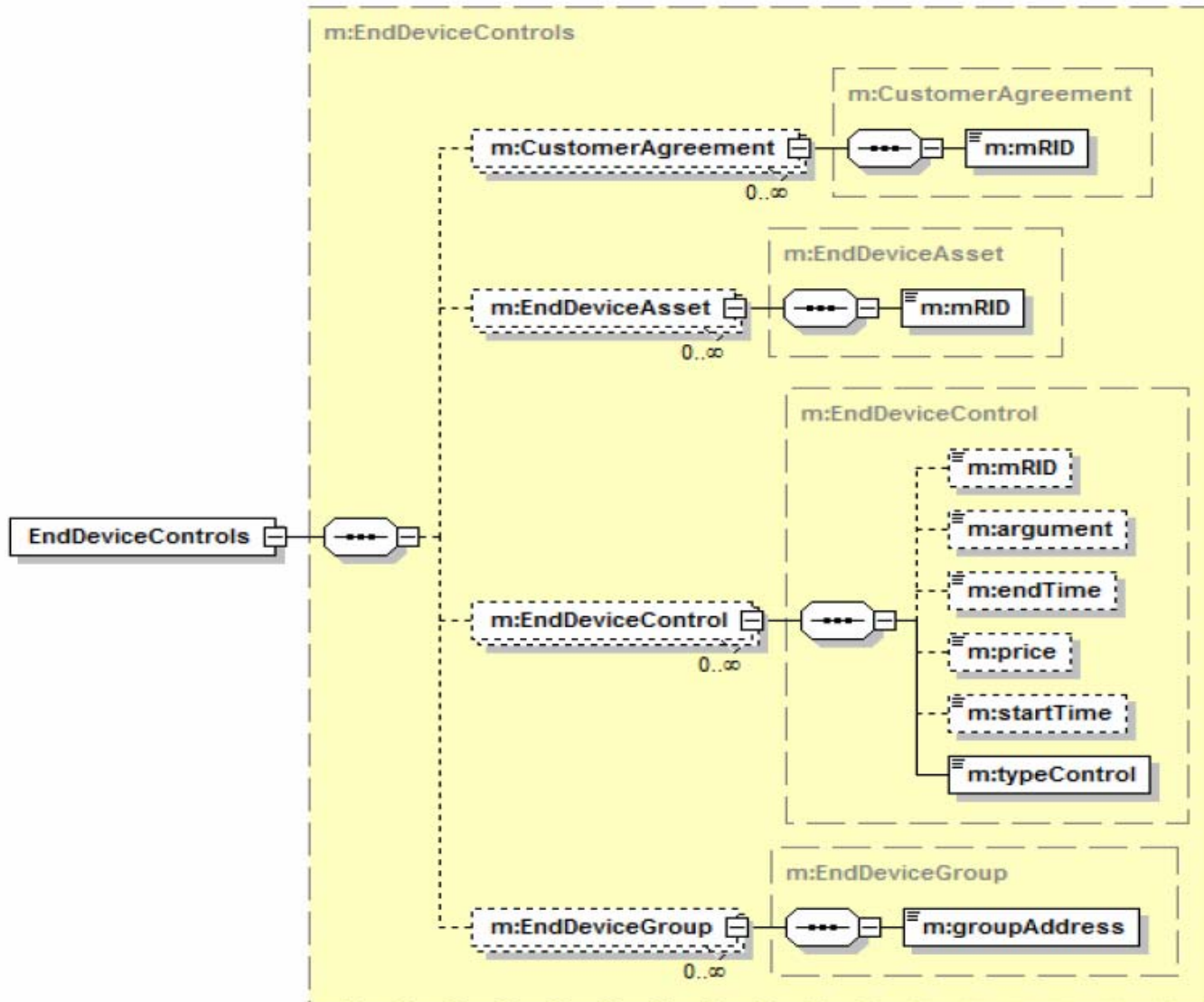
- **RC – RCD Connect Basic Module**
  - SRE – Check existence of RCD switch
  - SOR – Read meter
  - SLD – Check on load at meter
  - SRC – Connect RCD switch
  - SRS – Check RCD switch connected
  - Exx – Exception handling for each of these steps
- **RD – RCD Disconnect Basic Module**
  - SRE – Check existence of RCD switch (not necessary on each disconnect command)
  - SRS – Check RCD switch connected
  - SRC – Connect RCD switch
  - SOR – Read meter
  - Exx – Exception handling for each of these steps
- **RU – RCD Unsolicited Change in RCD Switch Basic Module**
  - SRS – Check RCD switch connected
  - SOR – Read meter
  - Exx – Exception handling for each of these steps



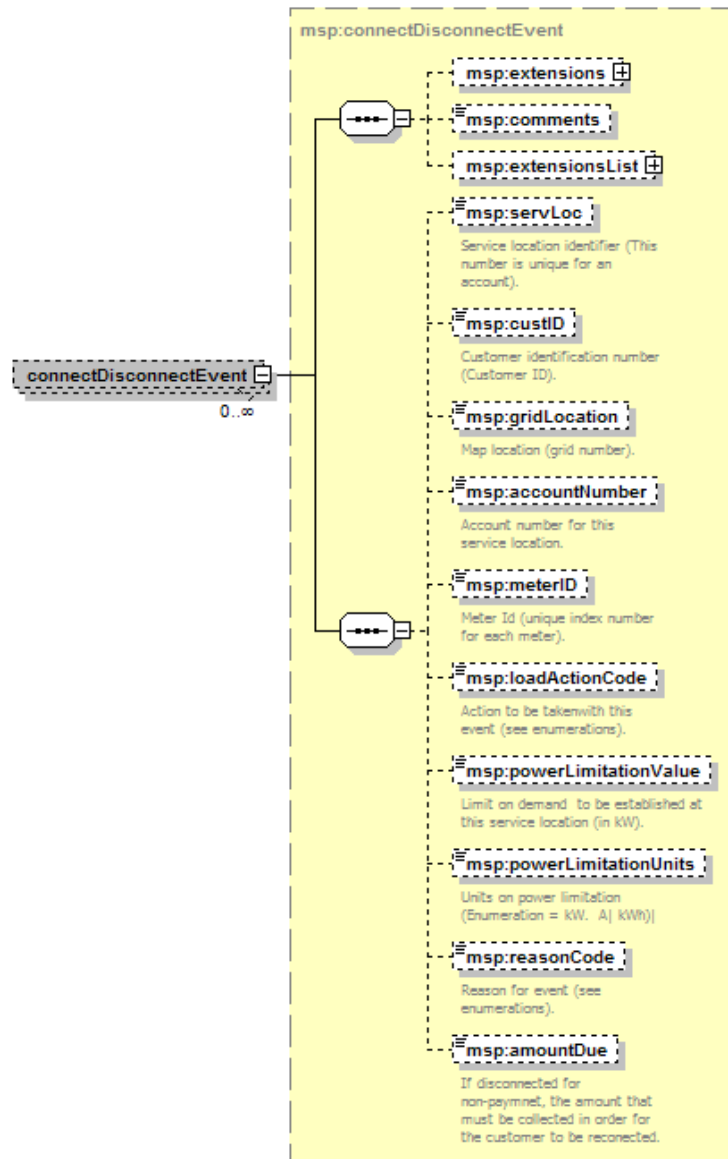
## Layer 3 – Standard Modules

- **SOR:** Standard On-Demand Meter Read module
- **SCS:** Standard Check Status of RCD Switch module
- **SRC:** Standard Remote Connect Command module
- **SRD:** Standard Remote Disconnect Command module
- **SLD:** Standard Check Load Value at Meter module
- **SUC:** Standard Unsolicited Connect Event module
- **SUD:** Standard Unsolicited Disconnect Event module
- **SRE:** Standard for Determining Existence of RCD Switch module
- **Exx:** Many exception handling modules

# CIM General Command in XSD (Section 7.3.2)



# MultiSpeak Unsolicited RCD Event (no Connect or Disconnect Command exists) (Section 7.4.2)



# Proposed Draft USB RCD Messages in XSD (Section 8)

