Task 3.2 – Data Protocol for Multi-energy Carrier and Multi-purpose Certificates - Results

Task 3.3 – High Level System Requirements - Initiation

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Why Data Protocol is Key. Now.

- To meet the Summer 2021 deadline, information system design work must start now
- Certificate data content and structure is a very fundamental
- Common data structure is the very basis of a common market
- Discussion on data structure teases the devils out from the details
- Post-implementation changes to data structure are very expensive

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Challenges and Strategies Chosen

1. Moving target
   - Enough lead

2. Multiple targets
   - Shotgun

3. Versatile interest groups
   - Frequent drafts and continuous dialogue
Main Certificate Data Structure
### Certificate Data Fields, Common to All

<table>
<thead>
<tr>
<th>CO2Emissions</th>
<th>Capacity</th>
<th>ProductionPeriod</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2EmissionsProduced (0..1)</td>
<td>NominalCapacity (1)</td>
<td>startdate (attribute)</td>
</tr>
<tr>
<td>CO2CalculationMethod (0..1)</td>
<td>MechanicalCapacity (0..1)</td>
<td>enddate (attribute)</td>
</tr>
<tr>
<td>AbsoluteCO2EmissionSaved (0..1)</td>
<td>ThermalCapacity (0..1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ElementCapacity (0..1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ElementDateOperational (0..1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ElementDescription (0..1)</td>
<td></td>
</tr>
</tbody>
</table>

### Certificates

- EnergyCarrier (1)
- Purpose (1..n)
- ProductStatus (1..n)
- ProductType (1..n)
- StartCertificateNumber (1)
- EndCertificateNumber (1)
- IssuingBody (1)
- CompetentAuthority (1)
- CountryOfIssue (1)
- IssuedDate (1)
- ProductionDeviceID (1)
- ProductionDeviceName (0..1)
- Capacity (1)
- DateOperational (1)
- ProductionPeriod (1)
- Technology (1)
- EnergySource (1)
- ElectricalEfficiency (0..1)
- ThermalEfficiency (0..1)
- LowerCalorificValue (0..1)
- UpperCalorificValue (0..1)
- SupportFlag (1)
- SupportSchemeType (0..n)
- ProductionSupportDescription (0..1)
- InvestmentSupportDescription (0..1)
- ProductionDeviceLocation (1)
- MeansOfSupply (0..1)
- RadioactiveWasteProduced (0..1)
- CO2Emissions (0..1)
- HighEfficiencyCogeneration (0..1)
- Sustainability (0..1)
- Gas (0..1)
- HeatingCooling (0..1)
- AdditionalInformation (0..1)

### ProductionDeviceLocation

- ProductionDeviceCoordinates (0..1)
- ProductionDeviceAddress (0..1)

### ProductionDeviceCoordinates

- Longitude (attribute)
- Latitude (attribute)
- CoordinateCode (attribute)

### ProductionDeviceAddress

- Country (attribute)
- City (attribute)
- PostCode (attribute)
Certificate Data Fields, Specific Certificate Types

High Efficiency Cogeneration
- UseOfHeat (1)
- PercentagePrimaryEnergySaved (1)
- AmountPrimaryEnergySaved (1)
- OverallPrimaryEnergySavings (1)
- UsefulCogenerationHeat (1)

Heating Cooling
- Medium (1)
- AggregationStage (1)
- TemperatureRange (1)
- MaximumSupplyPressure (1)
- NetworkIdentity (1)
- NetworkName (0..1)

Sustainability
- Sustainable (0..1)
- CertificationBody (0..1)
- SustainabilityAdditionInformation (0..1)
- SustainabilityAuditReport (0..1)

Gas
- TypeOfGas (0..1)
- CO2SavingsCriteriaMet (0..1)
- UseOfGas (0..1)
- SourceShares (0..1)
- RawGasDateOperational (0..1)
- RawGasCapacity (0..1)

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Message and Transport Related Fields

Header
- MessageTransmissionTime (1)
- MessageID (1)
- FromRegistry (1)
- ToRegistry (1)
- Context (1)

Env
- Header (1)
- Body (1)

Body
- SendingAccountID (1)
- ReceivingAccountID (1)
- NumberOfCertificates (1)
- Certificates (1...n)

Certificates

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What About JSON, AMQP, …?

Why XML over JSON?
- XML is more controlled and secure
- XML support name spaces and schemas
- JSON is more efficient, easier to read and it supports arrays

What about transport layer?
- Currently SOAP/Web service is widely supported and understood
- Future might belong to APIs or message queues
Task 3.3 – High Level System Specification

Based on vision developed as part of task 3.1
- Extension of a hub centric model

1. Adding „missing layers“
   - Residual mix
   - Centralised cancellation

2. Technical concept for a multi-domain registry
   - Adding accounts and transactions
FaStGO – Facilitating Standards for Guarantees of Origin

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