

# SG1 Update for HAN Workshop 19/11/2010

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representing SBGI at SMDG SG1 meetings

# SG1 Update - Contents



- Overview of SMDG SG1
- Prospectus Functional Requirements
  - Scope / architecture
  - HAN Requirements HA.1-HA.22
  - Other requirements affecting HAN data
- Technical Specifications Questionnaire
  - Reasons for issue
  - Responses informing HAN selection and application protocols
- SG1 Programme work going forwards
  - Revised view of Technical specification Documentation
  - Manufacturers views of critical functional requirements
  - Use cases to support the HAN specification
- Summary

# Overview SMDG SG1



- Ofgem facilitated industry group to support SMDG in the following deliverables
  - Prospectus Functional Requirements - Review and propose draft updates
  - Cost benefit analysis and recommendations for key areas following feedback to 28<sup>th</sup> Sept responses
  - Assess the state of technical specifications available now and in development in industry to support the GB market requirements
  - Assess technical inter-operability gaps and make recommendations to support industry in development of “Technical Specifications”
- SG1 Makes recommendations to SMDG for approval
- Organisations supporting SG1; AMO, BEAMA, British Gas, EDF Energy, ENA, ERA, Eon-UK, ESTA, First Utility, Gemserv, ICoSS, Intellect UK, RWE Npower, SBGI, Scottish Power, SSE, Utilita.

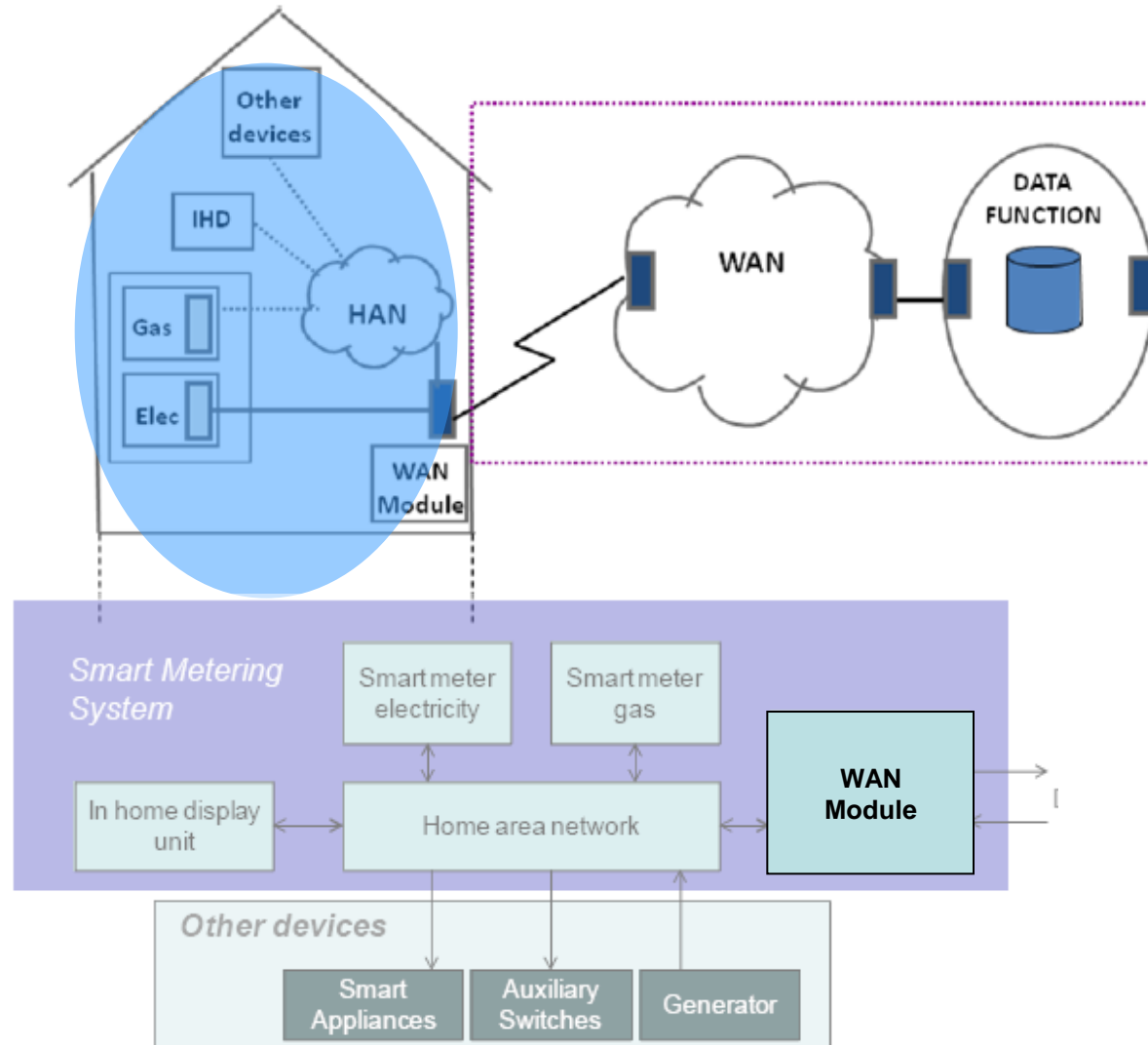
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# Prospectus Functional Requirements Scope and assumed architecture

- SG1 Scope; Requirements for in home Components
- Focus on minimum requirements delivering Impact Assessment and Technical Interop
- WAN module could be located in/on Electricity meter or as separate unit



# Prospectus Functional Requirements HAN Specifics HA.1 to HA.22



- Application Layer**
- HA.14 supports a defined application profile
  - HA.19 supports new device classes
  - HA.15 supported alphanumeric messaging
  - HA.7 expansion to home appliance control
  - HA.13 supports gateway/bridging devices for consumer
  - HA.17 expansion for other utility meters – within limits

- Network & Transport Layers**
- HA.2 Only Authorised Devices
  - HA.4 Network co-ordination function
  - HA.9 Support repeaters/boosters to extend range
  - HA.10 Support Ack signals
  - HA.11 30 minute updates gas (implied “Sleepy” meters)

- Physical Layer**
- HA.3 Real time, 2 way comms for mains powered nodes,
  - HA.6 Supports operation over radio freq (wireless)
  - HA.18 Physically switched on/off
  - HA.21 Used by all components in house
  - HA.22 Don't interfere with existing HANs

## Common across layers

- HA.1 – Open & non-proprietary,
- HA.16 security & privacy
- HA.5 independently certified and tested for interoperability
- HA.12 Remotely upgradeable firmware
- HA.20 Backwards compatible

# Prospectus Functional Requirements

## Further impacts on Application layer



### Application Layer

#### App Layer impacts from other requirements

- IM.2, OP.7 Application firmware upgrades for component functionality
- PC.1 -11, Definition of data items for Tariffs, pricing and Prepay functionality in meters and IHD
- ES.1-13 Electricity meter configuration & reporting
- GS.1-3, GS.3, Gas meter configuration and reporting.
- IH.2 IHD functionality with needs for data items from meters
- And several more.....
  
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# Technical Specification Questionnaire



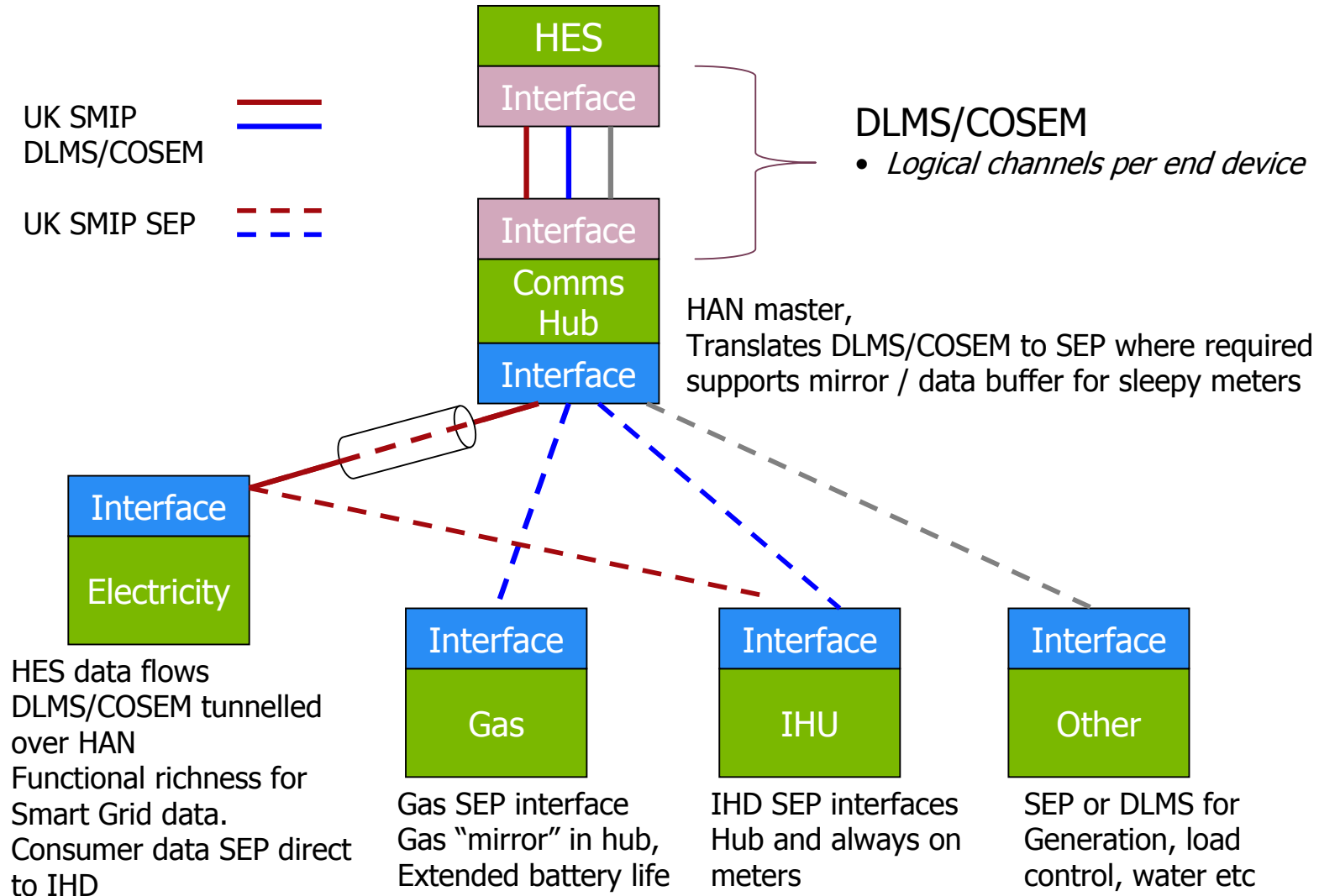
- Objective No 2 for SG1 – Industry feedback on technical specification availability, openness, technical interop and timing to support GB rollout
- Questions covered;
  - status now / timeframe,
  - logical architecture with HAN and WAN protocols supported,
  - Deployments & maturity,
  - interoperability across manufacturers,
  - adaption to GB market and issues with Functional Requirements
  - openness of IP and alignment with EU standards,
  - Views on Impact assessment product pricing
  - Security
  - Limitations by property types
- 14 submissions from manufacturers, standards/protocol bodies and energy suppliers.

# Technical Specification Questionnaire Responses



- Summary Points from Responses affecting HAN
  - There are no interface standards available today that meet all the relevant functional requirements in the prospectus.
  - Main gaps are support for prepayment, tariffs/pricing and/or availability as an open standard.
  - Respondents indicated that these gaps would be closed in 2011 for GB specific items (e.g. prepayment).
  - Generally, there is positive intent on openness, but various interpretations
  - HAN Physical and Application layers - ZigBee mentioned the most, with z-wave and Lonworks also mentioned in the submitted responses.
  - Multi-vendor environments were indicated, the industry is working to achieve interoperability, DLMS/ COSEM / ZigBee demonstrated, more clarity on GB needs
  - WAN Interface - DLMS/COSEM over IP at the application layer provides flexibility for the use of a range of WAN technologies
  - Property types - a theme of the responses was that there would be limitations with using a wireless HAN.

# TSQ Response Example Architecture



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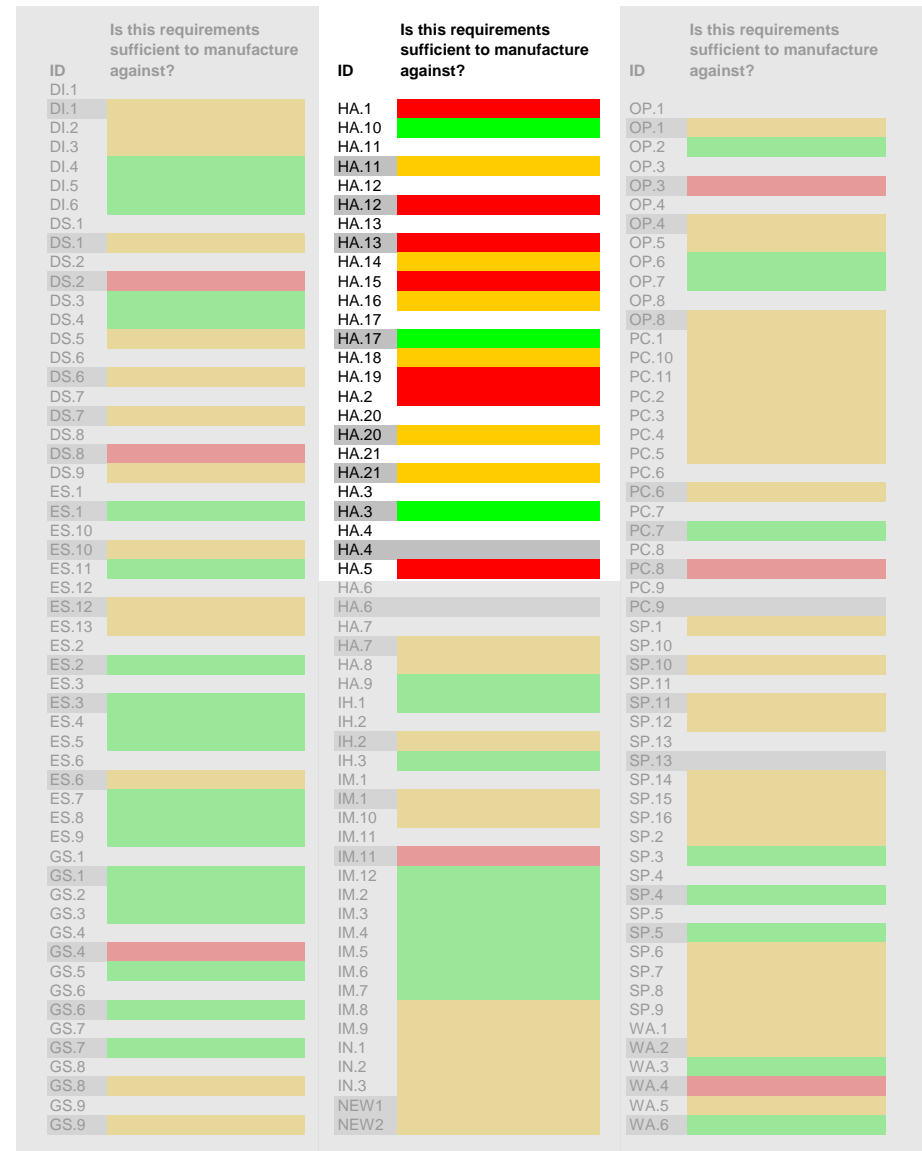
# SG1 Technical Spec Process and impacts for HAN



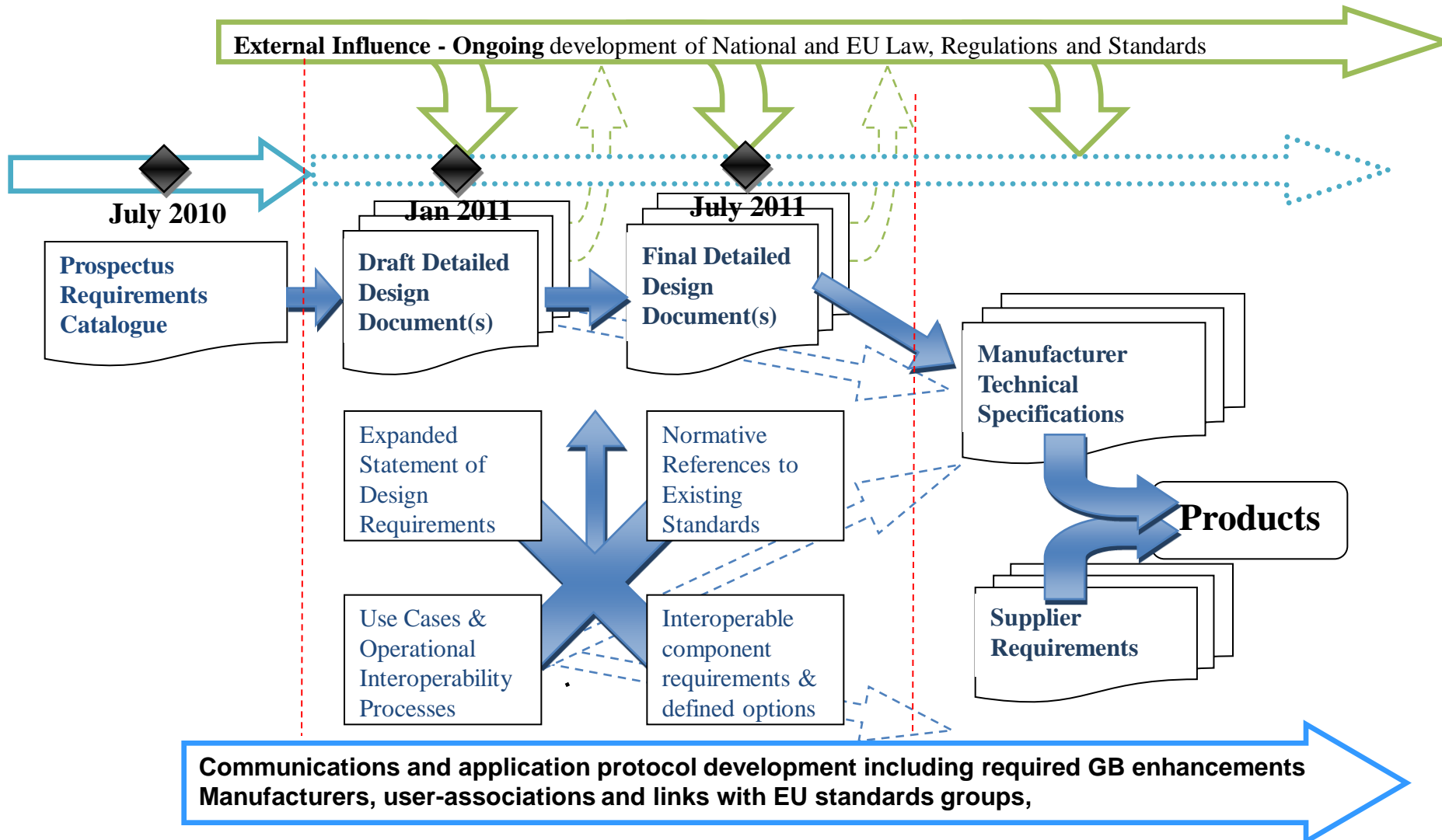
- SG1 Technical Specification work following TSQ responses
  - Greater clarity and a common understanding of the “tech spec” is required
  - The “tech spec” should be the minimum required to ensure interoperability and encourage innovation / competition amongst manufacturers
  - A full “Tech Spec” for a meter probably isn’t suitable
- Work commenced
  - Manufacturer “RAG” assessment on which Functional requirements still require further definition to deliver technical interoperability
  - HAN and WAN Use cases to determine which functional component does what and the data items to support them. This can be joint work Programme initiated and supported by cross industry / protocol groups.

# Which Functional Reqs does programme need to “tech spec” ?

- SBGI and Beama review
- Which Functional Reqs need Major programme work for interoperable products
- **RED** – major / decision required
- **Amber** – some further work
- **Green** – simple/no updates
- Choice of HAN is major
- Many HA.X requirements depend on underlying HAN standard
- Many other “ambers” dependent on HAN use cases to confirm data requirements in protocols
- Joint SG1, SG3 HAN process critical to programme timeline



# SG1 Tech Specs & HAN Draft – work in progress



# SG1 Tech Specs & HAN Use Cases

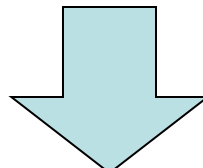


Install Smart Meters	Update Tariff	Manage Logs and Alarms	Schedule Meter Reads	Manage Payment Mode	+ Many More
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**Headline Use Cases SG1**

Update Billing Periods	Update Prices	Update TOU Calendar	Update Block Thresholds
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**Detailed Use cases & sub-use cases SG1 collaborative work with Industry,**



Functional Requirements on each Component  
Data Items required across HAN  
Reference to existing protocol standards or additions to protocol standards to support

**Outputs to achieve Technical Interoperability  
Increasing industry & standards role for protocol references**



# SG1 update HAN workshop Summary



- SG1 provides recommendations to SMDG on the process from Prospectus Functional Requirements to industry “Technical specs”
- Prospectus Functional HAN Requirements – 3 layers
  - Physical and Transport/Network layers in HA.1-HA.22
  - Applications Layer has data impacts arising from many other functional requirements
- Technical Specification Questionnaire RFI issued, responses indicated GB extensions required for HAN/WAN protocols
- Proposed process for “Tech Spec” deliverables refined and in review, based on ensuring interoperability and enabling innovation
- HAN definition is critical to meeting the rollout timescales
  - What wireless standard(s) - requires joint SG1, SG3 process
- HAN use cases next step for SG1
  - Identify headline use cases and commence Use case definitions
  - Enable parallel industry group and standards work on application protocol enhancements to deliver use cases