

Smart Meters @ Eandis-Infrax-Resa-Sibelga



**Towards a generic set of
Smart Meter specifications
for Multi-Utilities**

November 3th , 2015



Agenda

■ Introduction Eandis-Infrax-Resa-Sibelga

■ A Multi-Utility in search of...

■ Towards a generic use case driven solution



Introduction



The map shows Belgium divided into four colored regions: orange in the north, red in the south, and a small blue area in the center. The logos for Eandis, Infrax, Sibelga, and Resa are overlaid on these regions.

eandis

infrax

Sibelga

RESA

Key figures Eandis-Infrax-Sibelga-Resa

> 70% of Belgian customers:

- 2.7 million LP connections natural gas
- 4.4 million LV connections electricity
- Heat: not (yet?) regulated

Introduction



The background of the slide features a map of Israel, color-coded by region: orange for the north and center, and red for the south. Overlaid on the map are four white boxes containing the logos of major Israeli utility companies: eandis (northwest), infrax (north), Sibelga (center), and RESA (south).

eandis

infrax

Sibelga

RESA

2010-now:

- Each DSO did one or more pilots
- Limited amount of meters
- Different communication technologies

M-Bus based pilots and tests:

- Wired / wireless
- Enhanced gasmeter functionalities: FW-upgrade; valve; ...
- Different meter types: G, W, H, dinrail E, pulse
- Different suppliers
- 868MHz / 169 MHz

M-Bus

2014-2015:

- Optimisation and improvements
- Acquiring lot of knowledge

Introduction



For the next rollout phase:
Standardisation is key!

4 Belgian DSO's work together towards
generic use case driven specifications



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A Multi-Utility in search of...

■ What do Multi-Utilities expect from a Smart Meter ecosystem?

An E2E perfect working system

For different meter types (E, G, H, W, ...)

Fit for all required Use Cases

Interoperability: no vendor lock-in

Future proof and secure

Cost effective

Meter certification included

A Multi-Utility in search of...

- What do Multi-Utilities expect from a Smart Meter ecosystem?

An E2E perfect working system

For di

The answer is clear:
Use Standard Meters



e Cases

Inter

Future proof and secure

Cost effective

Meter certification included

A Multi-Utility in search of...

- Lessons Learned: **Standardisation is key**
- Some examples
 - All meters must behave identical for each event
 - E.g.: power down/power up: identical error flags are needed; no impact on 15' values
 - Missing functionality?
 - E.g. Gas meter valve: Risk of different interpretation/solution by the manufacturers

➔ **Gaps in standards: more standardisation, extra specifications required!**

↔ **Available resources?**

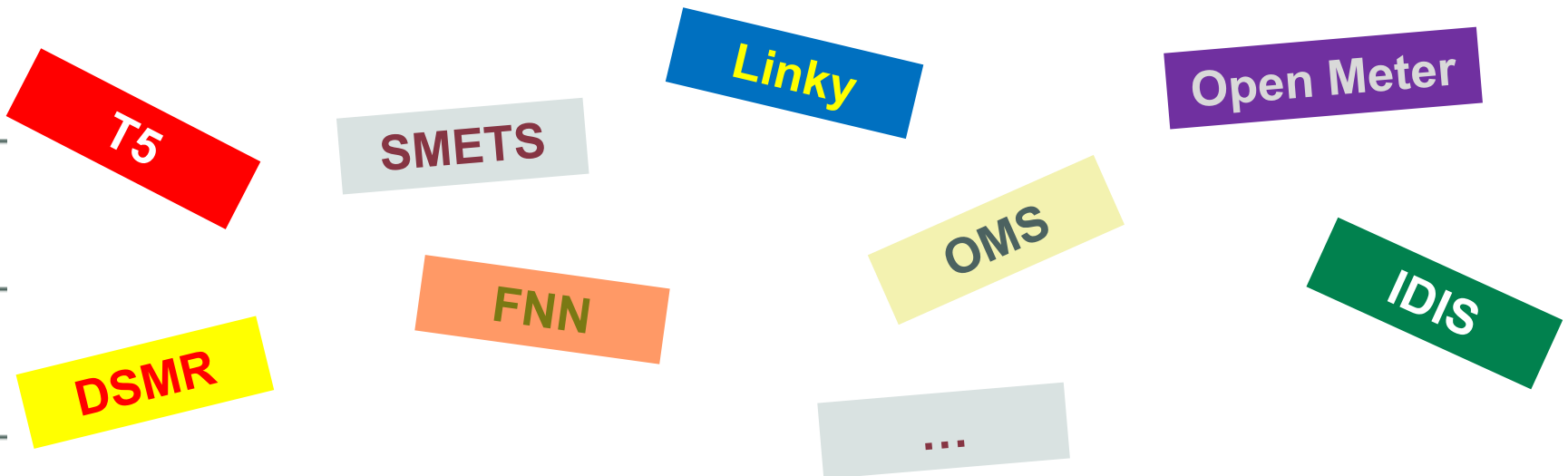


A Multi-Utility in search of...

■ Standard? Which standard?

- A high level standard is not detailed enough
- A detailed standard has too many options (e.g. DLMS, MBus,...)

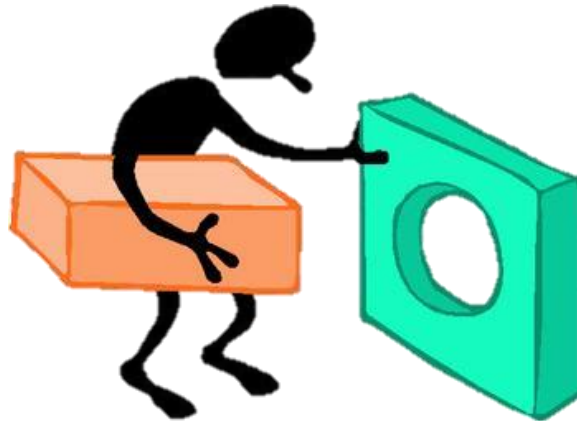
➔ Many Companion Specifications exist



A Multi-Utility in search of...

■ Standard? Which standard?

- Country specific requirements <> missing or conflicting features
- Incompatibility with Multi-Utility requirements



• Standards are not yet mature:

- E.g. evolution in security; MBus firmware upgrade

A Multi-Utility in search of...

■ The road to the solution

1. Define your **Use Cases**: To what purpose are you implementing Smart Meters?
2. Which existing companion specification **fits best** onto your Use Cases?
3. What are the gaps? Missing functionality?
+ Is this functionality **valuable for other DSO's**?
4. Is it **possible to extend** the companion specification with this valuable functionality to get a **generic use case driven solution**?

➔ **Result**
= generic usable standard



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Selection of companion specifications

- After studying many different companion specifications
- Taking into account all requirements
 - including flexibility of the solutions
 - avoiding restrictions of country related specifications
 - allowing freedom of communication technology
- **Combining 2 companion specifications leads to the required generic solution:**



Interoperable
Device
Interface
Specifications



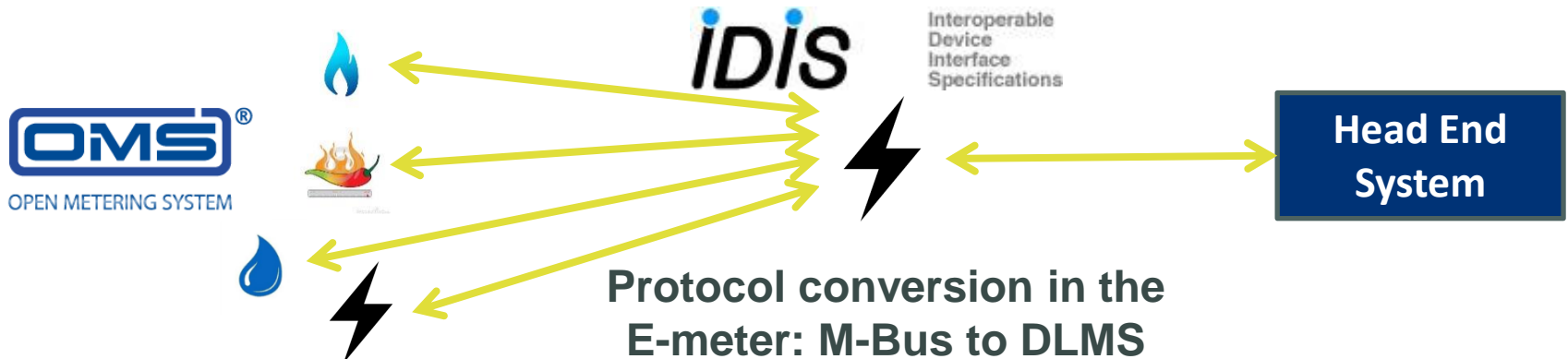
OPEN METERING SYSTEM

2 generic architectures for Multi-Utilities

1. All meters communicate through a Smart Meter Gateway towards Head End System



2. M-Bus meters communicate through the Electricity meter towards Head End System



Option 2 with IDIS and OMS

Still work to be done





**DLMS/
COSEM**



M-Bus



		
Multi Utility Solution	✓	✓
Interoperability: no vendor lock-in	✓	✓
E2E Use Cases defined	✓ to HES: ok; to OMS meters: Work defined, ready to start	Work defined, ready to start
Security	Mode 9	Mode 7, 13
	← Work defined →	
Missing functionality	✓ Work in progress	Work in progress or ready to start
Meter certification	✓ Generally ok; Only to be extended with new functionality	Protocol tests only; Use Case tests: TBD

Other Specifications



- Hardware requirements
- Communication technology
- EMUCS documents:
 - Defines options within IDIS/OMS
 - HAN interface based upon DSMR P1 V5



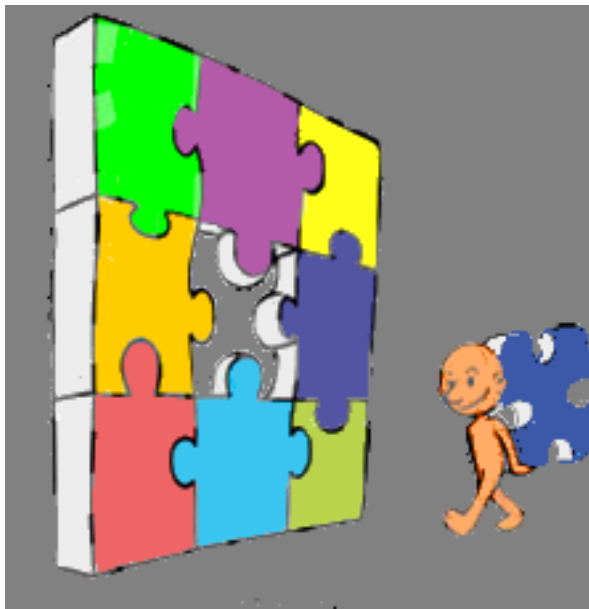
➔ **Downloadable documents @ Eandis website:**

<http://www.eandis.be/en/partner/technology/more-about-smart-meter-specifications/eandis-concept-emucs>

Conclusion

Within a few months, a **generic use case driven** set of Smart Meter specifications for **Multi-Utilities** will be available, including:

- E2E use cases
- Security including authentication
- Meter certification possible



The last pieces of the puzzle will finally fit together!



Questions?

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