Sludge Working Group Data Platform

11 April 2016

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Sludge Data Platform

Agenda

- Considerations
- What is it for?
- From which points do we need information?
- What information is needed?
  - Wastewater treatment works
  - Sludge process
- What are the key data issues?
- What other issues need to be considered?

Considerations

1. How best to balance the trade off between cost and quality of data?

- Test which data collection methods are most suitable for collecting data at different points in the sludge process

2. Where is sludge information most needed?

- Test the criticality of information at different points in the process

3. What information is most helpful to collect?

a. From WwTW / Sludge Processing (i.e. volume/quality information for potential **export** of sludge from incumbents)

b. From Sludge Centres (i.e. capacity and utilisation information for potential **import** of sludge/waste to incumbents)

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Considerations - Initial views of UU

The data platform helps parties to initiate a trading discussion, but no more.

Data is very expensive (a) to collect, and (b) to calibrate, so:

- Only collect via measurement at minimum number of sites to be worthwhile
- Where possible, avoid cost of complex systems/telemetry to record detailed time trends
- Use calculation methods to provide estimates for smaller sites if full coverage is required – need to apply consistent rules / methodologies / governance
- Provide minimal information to be useful – use the principle of revealing the key information that might otherwise prevent a potential trade

Recognise that actual trades will likely require more comprehensive sampling / metering to inform pricing and contractual terms – capturing all of this in the data platform (at a data quality that is suitable for setting a contract) seems likely to make it prohibitively expensive.

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Sludge Data Platform – what is it for?

Primary purpose is to help participants to identify potential trades, although this could take many forms:

- Provide information to initiate a discussion **yes**
- As a trading/auction platform **no**
- Something in-between **???**

It achieves its objective by revealing information:

- **Who?** Incumbents only, or also entrants (e.g. entrants which take sewage sludge)?
- **What?** Just sludge or also OOW? What about co-digested waste?

What is the status of the information?

- To inform & initiate a more detailed discussion? **Yes?**
- To inform formation of contractual terms **Yes?**
- To be binding on a final contract? **No?**

Key Question: what is appropriate & efficient to help the market be successful?

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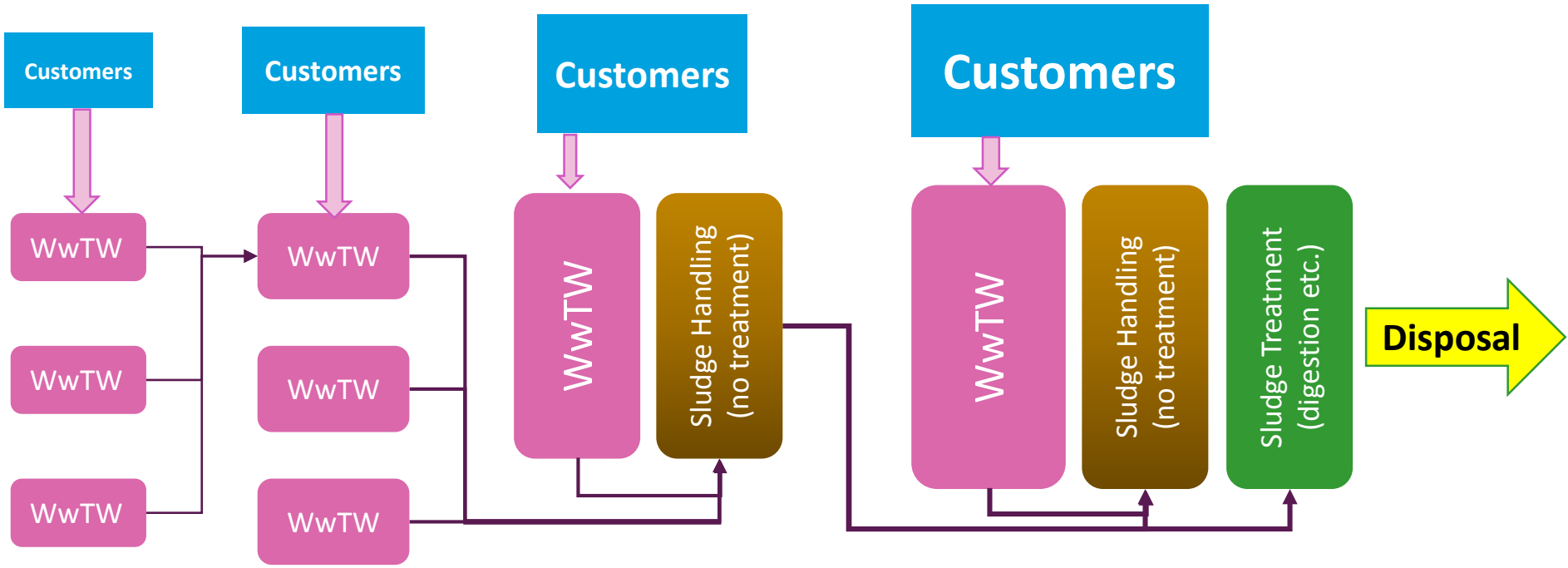
From which points do we need information?

Schematic of network+ to sludge



Two types of information:

- **Volume information** - outputs from WwTW, and inputs/outputs to sludge processes. This will be useful for those seeking to take sludge (**export**).
- **Capacity and utilisation of sludge assets** – this will be useful for those seeking to input sludge into these processes (**import**)

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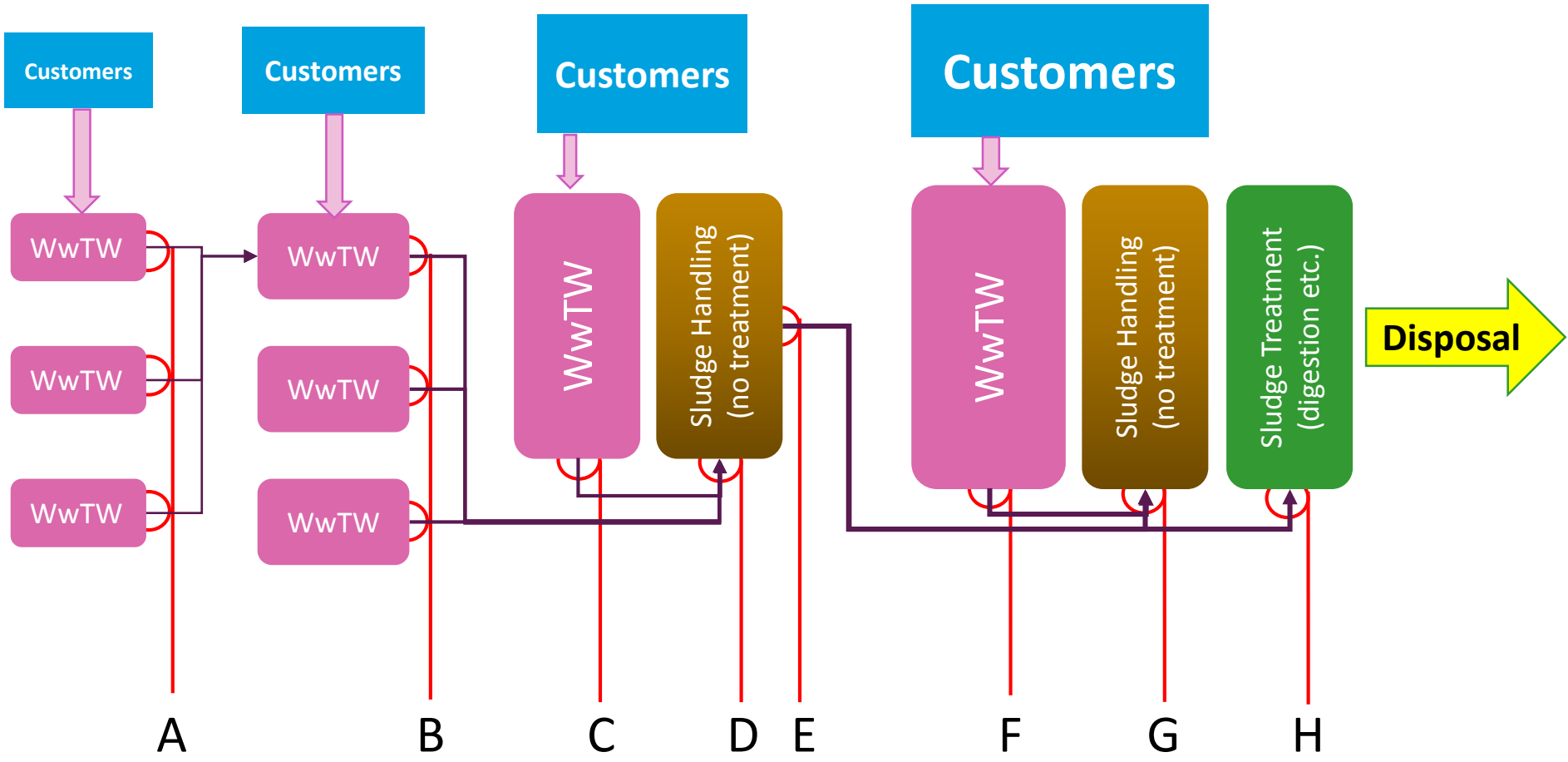
From which points do we need information?

Part 1 – sludge volumes



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From which points do we need information?

Part 1 – sludge volumes

A. Output from WwTW with no sludge processing which is transported to another WwTW which also has no sludge processing

B. Output from WwTW which is transported to another WwTW which has sludge processing

C. Output from WwTW which has on-site sludge handling only (not treatment)

D. Input into sludge handling (which may combine inputs from multiple WwTW) where there is no on-site sludge treatment

E. Output from sludge handling which is transported to another STC

F. Output from WwTW which has on-site sludge handling and treatment

G. Input into sludge handling (which may combine inputs from multiple WwTW) where there is on-site sludge treatment

H. Input to sludge treatment process

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From which points do we need information?

Part 1 – sludge volumes. Key questions

Principle: we should aim to avoid the cost of unnecessary data reporting, and unnecessarily onerous data quality requirements. This should be assessed relative to the likely detriment to trading.

Questions:

- Is it necessary to have both output from individual WwTW as well as (aggregated) inputs into Sludge Handling processes?
- Is it necessary to have both inputs and outputs to and from sludge handling centres? (data on the output seems more likely to be helpful)
- Is it reasonable to set different data standards to different points, e.g.
  - Allow estimates for A, and smaller works for B?
  - Require better quality (and more frequent data updates?) for E, F, G, H?

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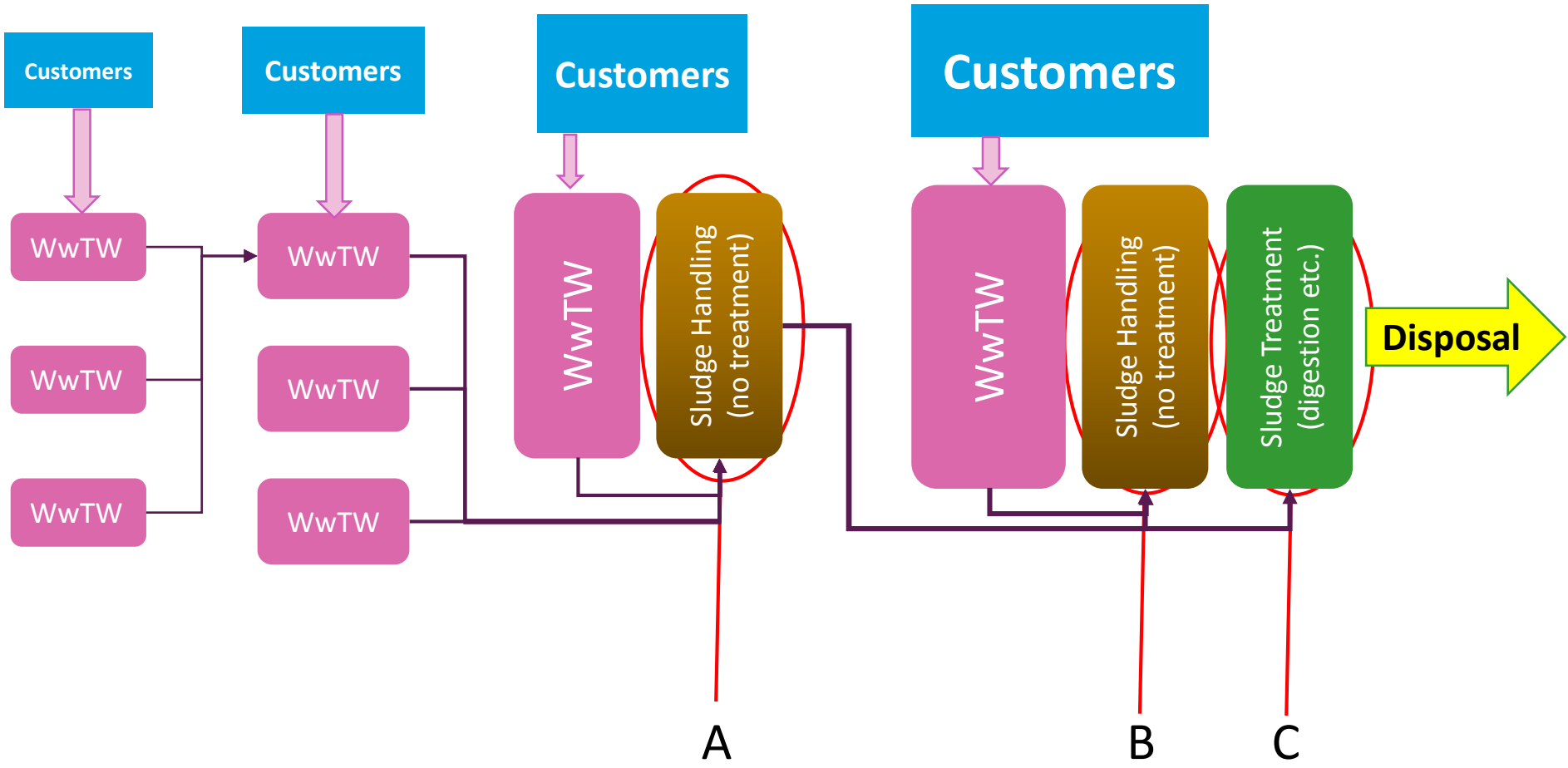
From which points do we need information?

Part 2 – capacity & utilisation



From which points do we need information?

Part 2 – capacity & utilisation. Key questions

A. Sludge handling processes, where there is no on-site treatment

B. Sludge handling processes, where there is on-site treatment

C. Sludge treatment processes

Questions:

- Is it necessary to have capacity and utilisation information for both Sludge Handling processes and Sludge Treatment processes separately?

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What information is needed?

Part 1. Wastewater Treatment Works – sludge volumes for exports

Standard information	Special information
Location	* Presence of foreign bodies
Contact information	Access restrictions (e.g. time of day, tanker size etc.)
* Volume produced (m3)	Permits operated
Storage (days – i.e. how often is collection required)	
* Strength (% dry solids)	
* Quality (calorific value)	
* Freshness/Toxicity (age related degradation)	
Price paid currently, including transport (£per m3)	

* potential for different measurement options (such as use of proxy measures)

NB. relationship between calorific value and age/"freshness" – if both are used, then need to consider how each is measured in combination.

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What information is needed?

Part 1. Wastewater Treatment Works – sludge volumes for exports

Strength & calorific value

- Could measure directly via instrumentation or sampling
- Alternatively use “treatment type” as a proxy, or as a method for estimating strength and calorific value – need to define standard types, and standard strength/qualities (e.g. per standard domestic strength effluent)

Toxicity

- Could measure directly via instrumentation or sampling
- Alternatively use “Weighted average age of sludge” at point of transfer, or Ph?
    - Recognise that at some points (e.g. at thickening centre) it may be a mix of sludge from different works and different ages.

Presence of foreign bodies

- Could have a “tick sheet” of potential impurities
- Alternatively use “minimum screen size applied” as a proxy (what might be missed?)

What information is needed?

Part 2. Sludge Treatment Centres – capacity and utilisation for imports

Standard information	Special information
Location	Restrictions on foreign bodies / screening
Contact information	Access restrictions (e.g. time of day, tanker size etc.)
* Total capacity	Permits operated and required
* Utilisation (or what is the key constraint?)	
Minimum price to accept new sludge	

* There are many ways to measure capacity, or ways in which capacity could be constrained.

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What information is needed?

Part 2. Sludge Treatment Centres – capacity and utilisation for imports

There are different types of capacity, any of which could be constrained:

- Physical capacity in digester (or other sludge asset)
- Liquid volume input rate (Per hour? Per day?)
- Tanker numbers (frequency, time of day, size etc.)
- Size of reception tank

Propose to convert to a single meaningful measure, e.g.:

- Tankers per day (for liquid) – based on a standard tanker size & % DS
- Trailers per day (for cake) – based on a standard trailer size & % DS

Other softer constraints (which may affect price for alternative solution)

- Limited headroom (e.g. ammonia) at receiving works – for liquors which may need to be diverted
- Dilution – may need to input into WwTW rather than sludge process

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What are the key data issues?

Features of different methods of data collection

- **Monitoring equipment:**
  - Implementation – at small remote works, this could be costly in comparison to the potential value to the market
  - Calibration – for a level playing field, need some assurance that instrumentation is calibrated within and between companies
  - Cost of telecommunications (if using remote/automated data collection)
  - Ongoing management, data collection and validation
- **Sampling**
  - More accurate
  - Very labour / time intensive – not cost effective to provide large volumes of data / frequent intervals
- **Management estimate / calculation**
  - Most cost effective but least accurate
  - May be improved in conjunction with other methods (e.g. periodic sampling)

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What are the key data issues?

- How information is derived – i.e. is it observed, or calculated / allocated?
  - This affects the requirement for (more costly) monitoring equipment)
  - Make more use of other information that is already collected, e.g. billing data?
- Frequency and timeliness of data – annual, monthly, daily?
  - This affects whether data collection needs to be automated, or could be manual
- Coverage – all works **or** just large works **or** just sludge centres?
  - This affects the total quantum of monitoring equipment required.
- Type of data required – e.g. quality vs. quantity data
  - There will be differences in the cost / complexity of recording information on some information more than others.

This perhaps indicates that a variety of approaches should be taken to data collection, on a risk based approach, to manage trade offs between cost of providing data and the potential market benefit.

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What other issues need to be considered?

Two further considerations

- **Consistency of data measurement** – need consistency for the market to trust the data it is observing on the data platform:
  - Consistency of rules / assumptions to be followed for calculated data
  - Consistency of data collection for measured data – e.g. to ensure measurements are at the same place for all companies
  - Calibration of instrumentation for measured data – i.e. to ensure that a consistent product is measured the same (within limits) by all companies, at all points of measurement.

- **Commercial issues with revealing costs** – companies may be reluctant to reveal costs of specific works/assets as this is valuable to prospective contractors, who could use this information to gain commercial advantage in negotiating future construction prices.
  - Do we need to reveal cost/price or is this just about what sludge is available?
  - Revealing price information will be more acceptable, but that has complex issues (e.g. availability of consistent cost information by individual works, how to allocate the focussed RCV etc.) – this would be calculated and would need consistent pricing rules to be followed.

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THE END

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