

Market consultation: Settle 2.0

Product Design Group

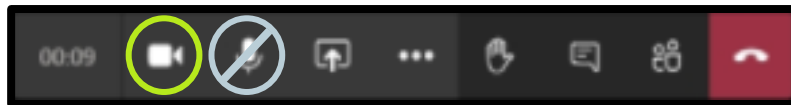
10 October 2024



Hybrid meeting rules

Please keep your camera on (to the extent possible)

Please turn off the microphone when you do not want to intervene



Questions:

- Post your questions in the chat (with slide number if applicable)
- Interactions are foreseen

Agenda

Scope of Settle 2.0

1. Context

2. Regulatory requirements

- Changes in time of use
- Usage of SMR1 15'

3. Improvements

- Provisional allocation

4. Next Steps

Settle 2.0 Atrias project & Implementation

Networking Lunch



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Executive summary

Final Goal of the PDG

Further development of settlement-related market processes

Topic for today: Settle 2.0

Translating a number of regulatory requirements on and improvements for settlement

Changes consulted today

Implementation of regulatory requirements

- For all Non Profiled allocations: aggregation to Settle ToU TH for all DSOs.
- Use of SMR1 15' data in the allocation process.

Improvement

- Daily photo provisional allocation

Settle 2.0 is a starting point

Other innovations to follow

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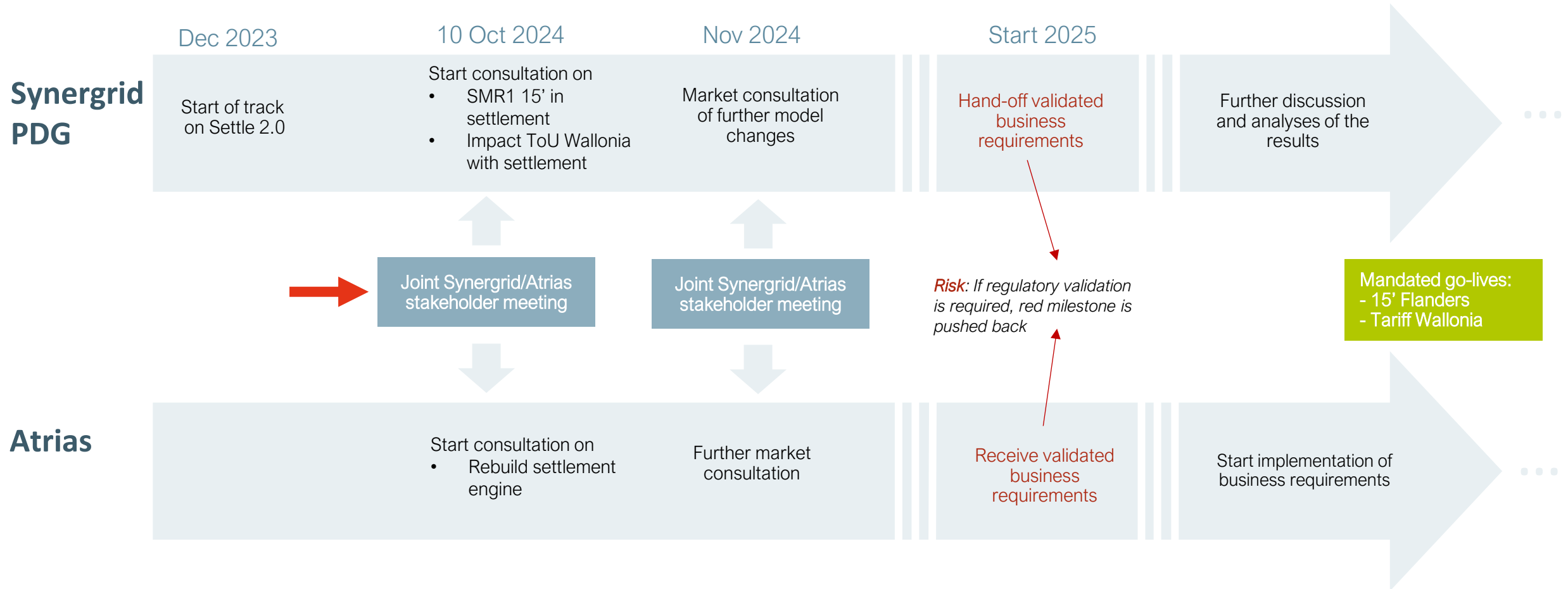
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Settle 2.0: Timeline



Why Settle 2.0?

Regulatory requirements

- 15' data capture Flanders
- Tariff Wallonia

Technical realities

- Advancing roll-out of digital meters

Market evolution

- Demands for a more future-proof settlement model
- Grid user patterns become more volatile and less predictable

The future of settlement: Long term vision

End goal

- 15' value based (for electricity)
- One harmonised model for imbalance and commodity settlement

We are not there yet

- Needs even higher digital meter deployment
- Significant model change

Settle 2.0 as **transitory model**

Settle 2.0: High level principles

15' values will be the new normal

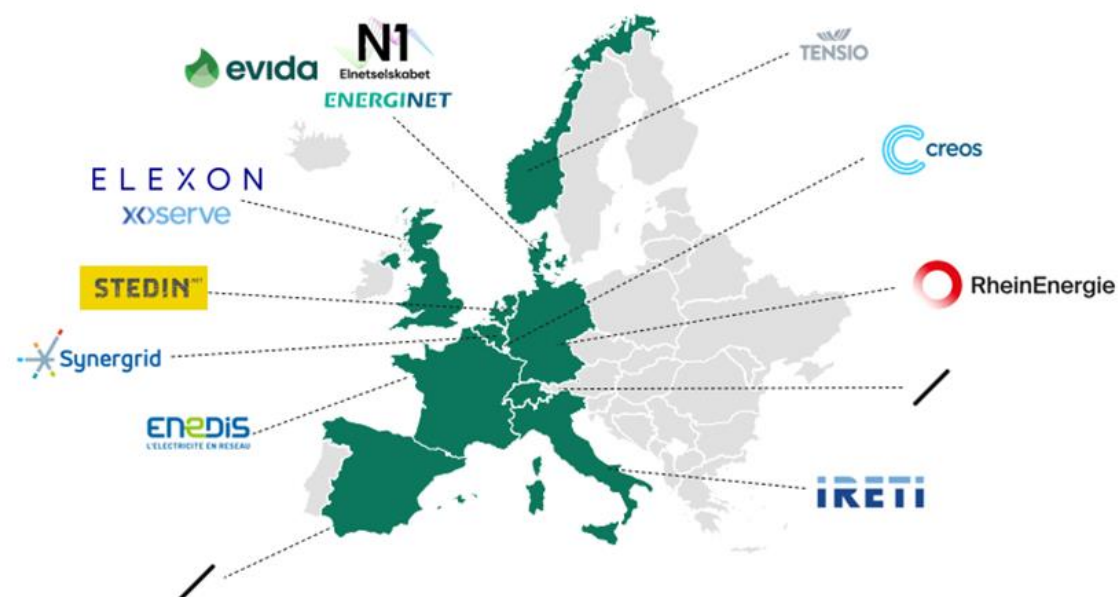
One joint model for all regions

But flexibility to adjust to different **regional realities**

Settle 2.0 is a **starting point** → Other innovations to follow

European Benchmark

Benchmark study with 10 European countries by Sia



Observations

- All countries are in the energy transition
- The regulatory and macro-economic contexts have a big impact
- “The devil lies in the details” → We cannot blindly copy foreign solutions

Take-away

Positive effect of finer granularity → strengthens long term vision

Changes to be consulted

Implementation of regulatory requirements

- Tariff Wallonia => Time of Use (ToU) measure vs Time of Use (ToU) Settle. For all Non Profiled allocations: aggregation to Settle ToU TH for all DSOs.
- Capture of 15' => Settlement method non-profiled SMR1. Use of SMR1 15' data in the allocation process. SMR1 15' data will only be used in allocation processes (and not disclosed to suppliers as is the case for SMR3 data).

Improvement

- Daily photo provisional allocation

Give feedback by 3/11 via email: marketconsultation@synergrid.be

Slides available on Synergrid website:

<https://www.synergrid.be/nl/marktoverleg/pdg-settlement> or
<https://www.synergrid.be/fr/concertation-du-marche/pdg-settlement>

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Tariff Wallonia: impact on Settle 2.0

2 Projects : **Tariff Wallonia 2026** and **Settle 2.0**

New Measure Time of Use (Vert / Orange / Rouge)

New Calendar HI/LO and difference with AMR Calendar

→ Need adaptations on Settlement

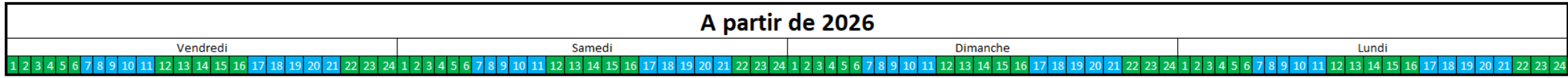
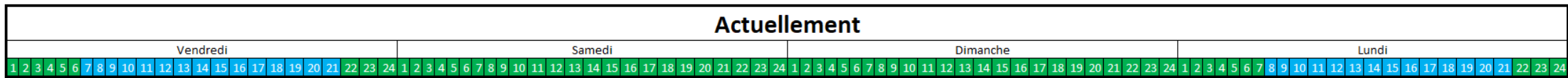
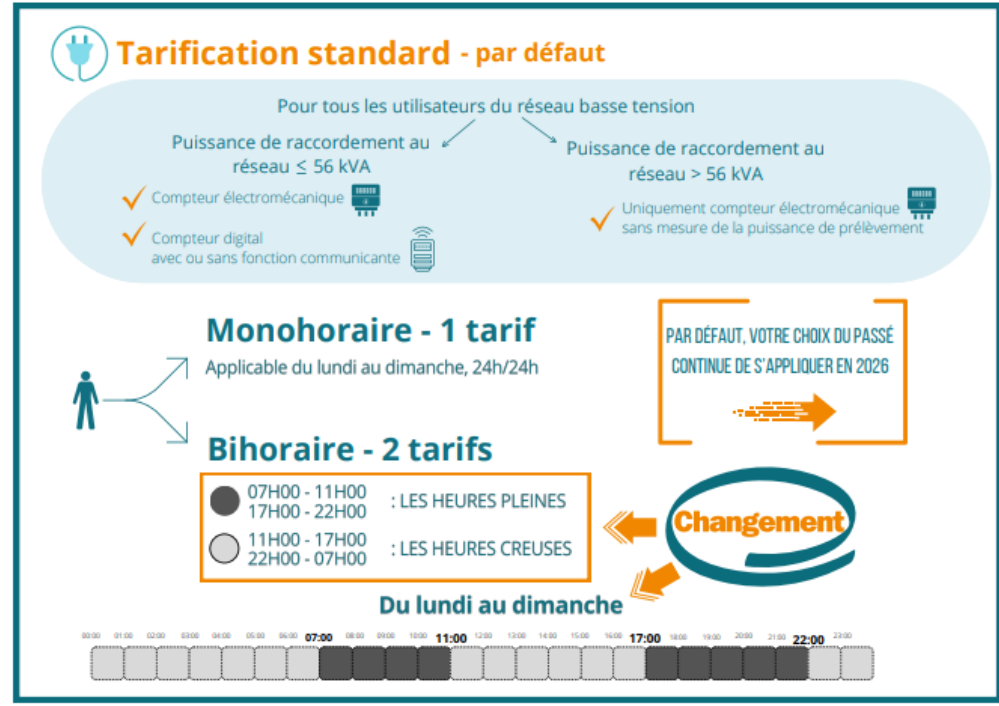
→ Dependence of Settle 2.0 for Tariff Wallonia 2026

Tariff Wallonia: impact on Settle 2.0 – *New HI/LO*

New measure calendar HI/LO in Wallonia for all customers, but not for AMR (> 56 kVA with measured power)

Impact and change for Settlement

- Adaptation on Settlement Calendar for Walloon DSOs (AIEG, AIESH, ORES, REW, RESA)
- Update all ExV to shift volumes for Settlement (in scope of project Tariff Wallonia, not in Settle 2.0)
 - Too high ExV for HI and too low for LO
- In reconciliation, the Measure ToU will be linked to the Settle ToU (see slide 17)






Tariff Wallonia: impact on Settle 2.0 – *Incentive tariffication*

Choosing an incentive tariff does not imply being in SMR3, SMR1 is accepted


The new ToU (Orange / Vert / Rouge) will not be used in the settlement model

PROJET de nouveaux tarifs basse tension en Région wallonne dès **2026**




CW&PE
Tous acteurs de l'énergie


Tarification incitative  +  +  **NEW**

Pour ceux qui veulent renforcer leur rôle d'acteurs de la transition énergétique

2 conditions : 1. Puissance de raccordement au réseau ≤ 56 kVA
2. Être équipé d'un compteur digital dont la fonction communicante est active 


5 plages horaires - 3 tarifs

-  17H00 - 22H00 : LES HEURES ROUGES (€€€)
-  07H00 - 11H00 : LES HEURES ORANGE (€€)
22H00 - 01H00
-  11H00 - 17H00 : LES HEURES VERTES (€)
01H00 - 07H00

NOUVEAU CHOIX POSSIBLE À PARTIR DE 2026 

Du lundi au dimanche

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00



Tariff Wallonia: impact on Settle 2.0 – *Incentive tariffication*

Sector	SettlementMethod	TimeOfUse Measure	TimeOfUse Settlement
Electricity	Non-Profiled (AMR, SMR3 & SMR1)	All Time Of Uses	ToUS TH (Total Hours)
	Profiled (EAV, EMV & RMV)	ToU HI (High)	ToUS HI (High)
		ToU NPH (Non Peak High)	
		ToU PH (Peak High)	
		ToU PE (Peak)	
		ToU EX (Exclusive Night)	ToUS EX (Exclusive Night)
		ToU NPK (Non Peak)	
		ToU TH (Total Hours)	ToUS TH (Total Hours)
		ToU LO (Low)	ToUS LO (Low)
	ToU NPL (Non Peak Low)		
ToU PL (Peak Low)			

- The new HI/LO calendar is different from the HI/LO calendar for AMR meters
 - The mapping between incentive ToU Measure and ToU Settlement is not possible
- ➔ For all Non Profiled allocations : aggregation to Settle ToU TH **for all DSOs** (Wallonia, Flanders, Brussels)

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Use of the SMR1 15' data in the allocation process

Flanders

- Prerequisite for the new tariff structure
- Regulatory requirement
- Valorization of the Digital Meter (DM) data (capture of all DM 15' data by 2026)

SMR1 15': new settlement method

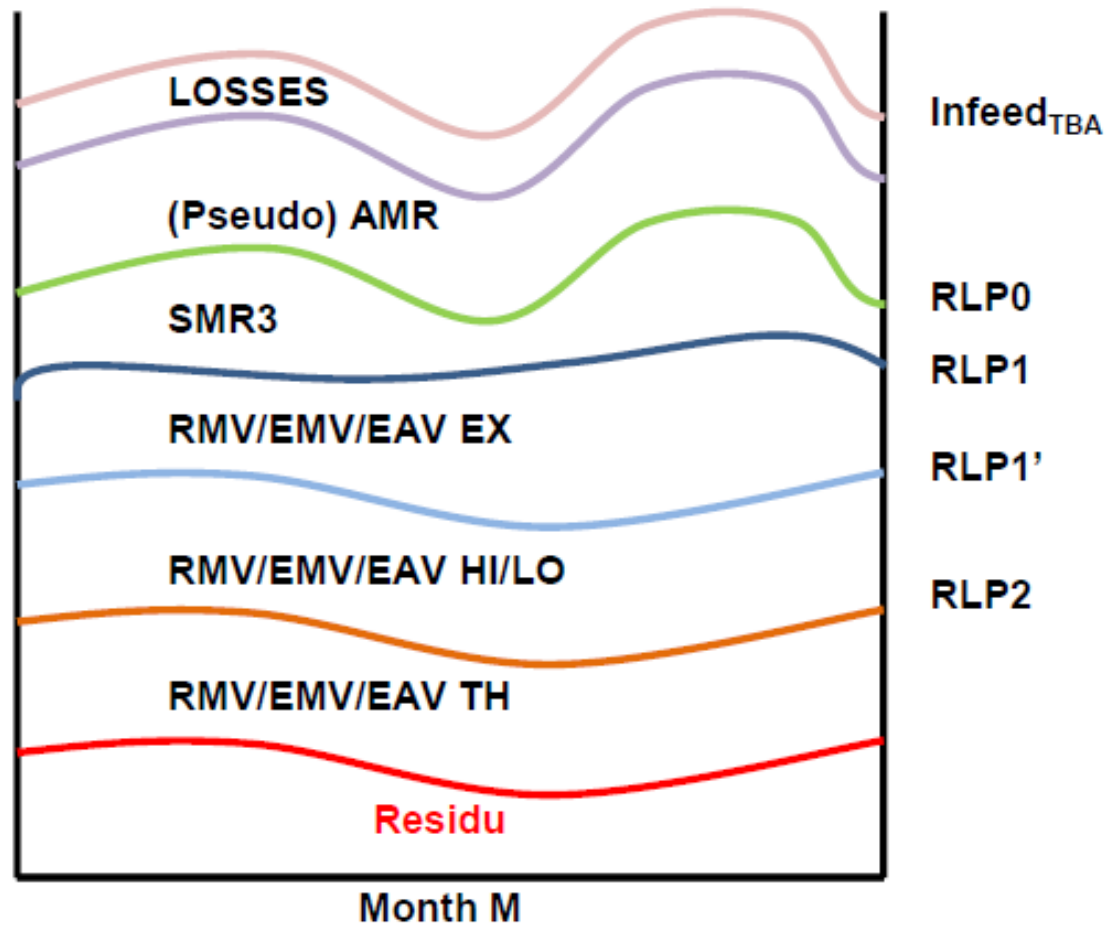
Implementation of a new settlement method: **Non Profiled, SMR1**

- Settlement method will become region dependent
- Headpoint category = SMART; metering regime = R1

Use of the SMR1 15' in the allocation calculation

- Flanders: all HP's with communicating digital meters
- Wallonia: under investigation
- Brussels : N/A for the moment (new tariffs not before 2028)

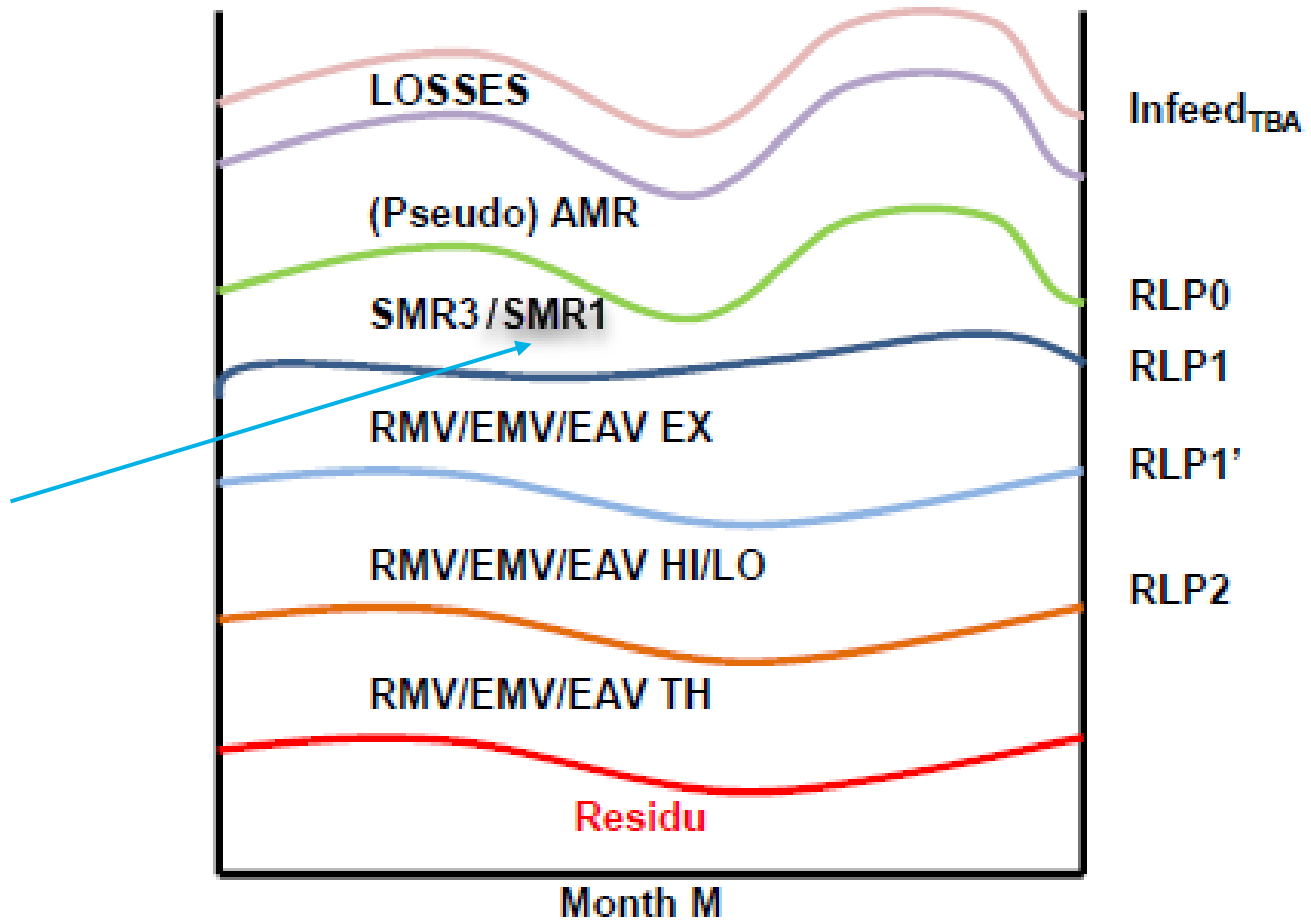
SMR1 15': Existing settlement method



Settlement methods

- Non Profiled
- Non Profiled - SMR3
- Profiled, Monthly Estimate
- Profiled, Monthly Meter Read
- Profiled

SMR1 15': New settlement method



Settlement methods

- Non Profiled
- Non Profiled - SMR3
- **Non Profiled - SMR1**
- Profiled, Monthly Estimate
- Profiled, Monthly Meter Read
- Profiled

SMR1 15': measurement values used

AS IS* (logic for final allocation photo is same as photo (M+1)+10WD)

Meter Configuration Type	Daily Photo
Classic Meter Continu (Consumption/Offtake)	1/4hunvalidated
Classic Meter Continu (Production/injection)	1/4hunvalidated

Production Meter Configuration Type	Photo M+5jc	Photo (M+1)+6jc	Photo (M+1)+10jc
Smart Meter	Power*SPPex-post	1/4hunvalidated	1/4hunvalidated
Classic Meter from DGO or Client	Power*SPPex-post	Power* SPPex-post	Power* SPPex-post
Meter not available	Power* SPPex-post	Power* SPPex-post	Power* SPPex-post

Production Meter Configuration Type	Photo M+5jc	Photo (M+1)+6jc	Photo (M+1)+10jc
Smart Meter Regime3 - Monthly	EMVY-1 > EMVDef	1/4hunvalidated	1/4hunvalidated
Smart Meter Regime 1 - Monthly	EMVY-1 > EMVDef	RMV > EMVY-1 > EMVDef	RMV > EMVY-1 > EMVDef
Smart Meter Regime 1 - Yearly	EAV > EAVDef	EAV > EAVDef	EAV > EAVDef
Classic Meter Non-Continu - Monthly Remote Reading	EMVY-1 > EMVDef	RMV > EMVY-1 > EMVDef	RMV > EMVY-1 > EMVDef
Classic Meter Non-Continu - Monthly	EMVY-1 > EMVDef	EMVY > EMVY-1 > EMVDef	EMVY > EMVY-1 > EMVDef
Classic Meter Non-Continu - Yearly	EAV > EAVDef	EAV > EAVDef	EAV > EAVDef

SMR1 15': measurement values used

TO BE (same photo logic for provisional and final allocation) →

SIMPLIFICATION

Settlement method	(Daily) Photo		
	Offtake/Consumption	Injection	Production
Non Profiled	1/4h validated > 1/4h unvalidated	1/4h validated > 1/4h unvalidated	N/A
Non profiled - SMR3	1/4h validated > 1/4h unvalidated	1/4h validated > 1/4h unvalidated	N/A
Non profiled - SMR1	1/4h validated > 1/4h unvalidated	1/4h validated > 1/4h unvalidated	N/A
Profiled, Monthly Estimate	EMV Y > EMV Y-1 > EMVDef	EMV Y > EMV Y-1 > EMVDef	Power*SPPex-post
Profiled, Monthly Meter Read	RMV > EMV Y-1 > EMVDef	RMV > EMV Y-1 > EMVDef	Power*SPPex-post
Profiled	EAV > EAVDef	EAV > EAVDef	Power*SPPex-post

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SMR1 15': daily photo for provisional allocation

The provisional allocation will be calculated on a daily photo

- Daily update of the TMD/RMD data
Also for the non-AMR Headpoints
- Daily update of the measure data
Use of SMR3 15' and SMR1 15' from the start of the provisional allocation
- Timeline stays as is
Start M+5CD end (M+1)+10WD

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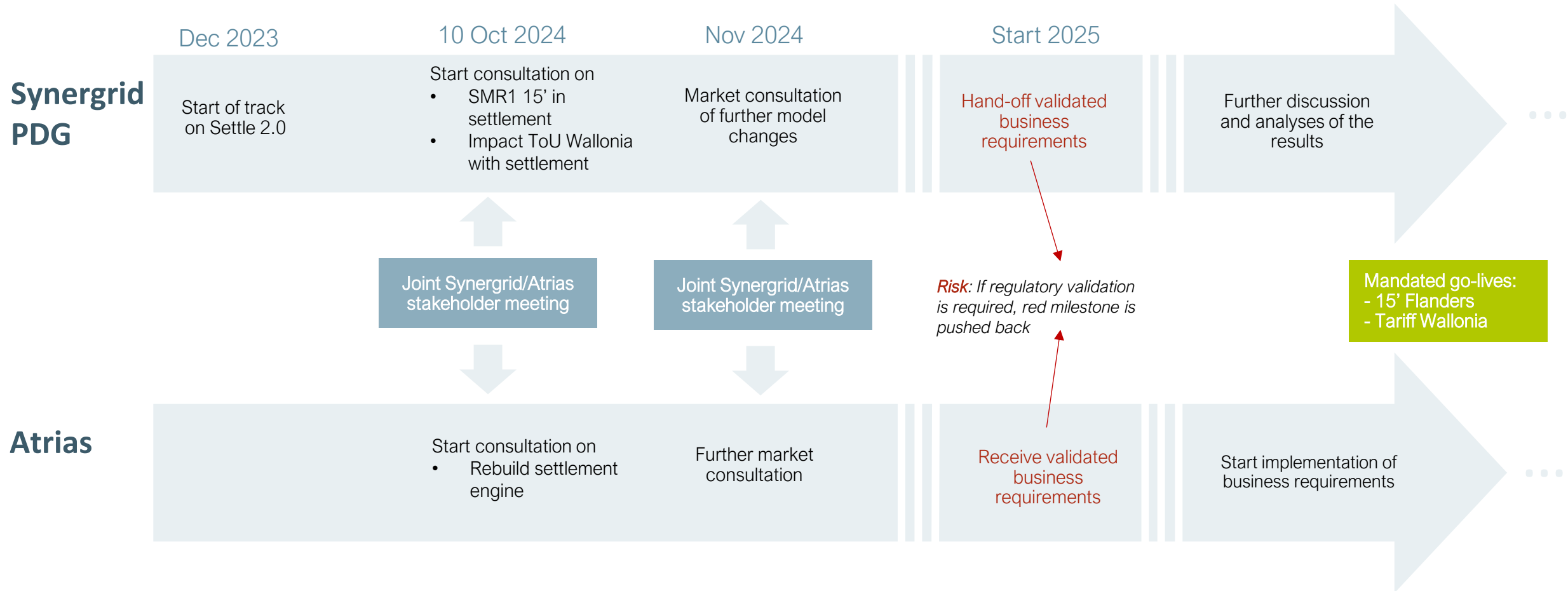
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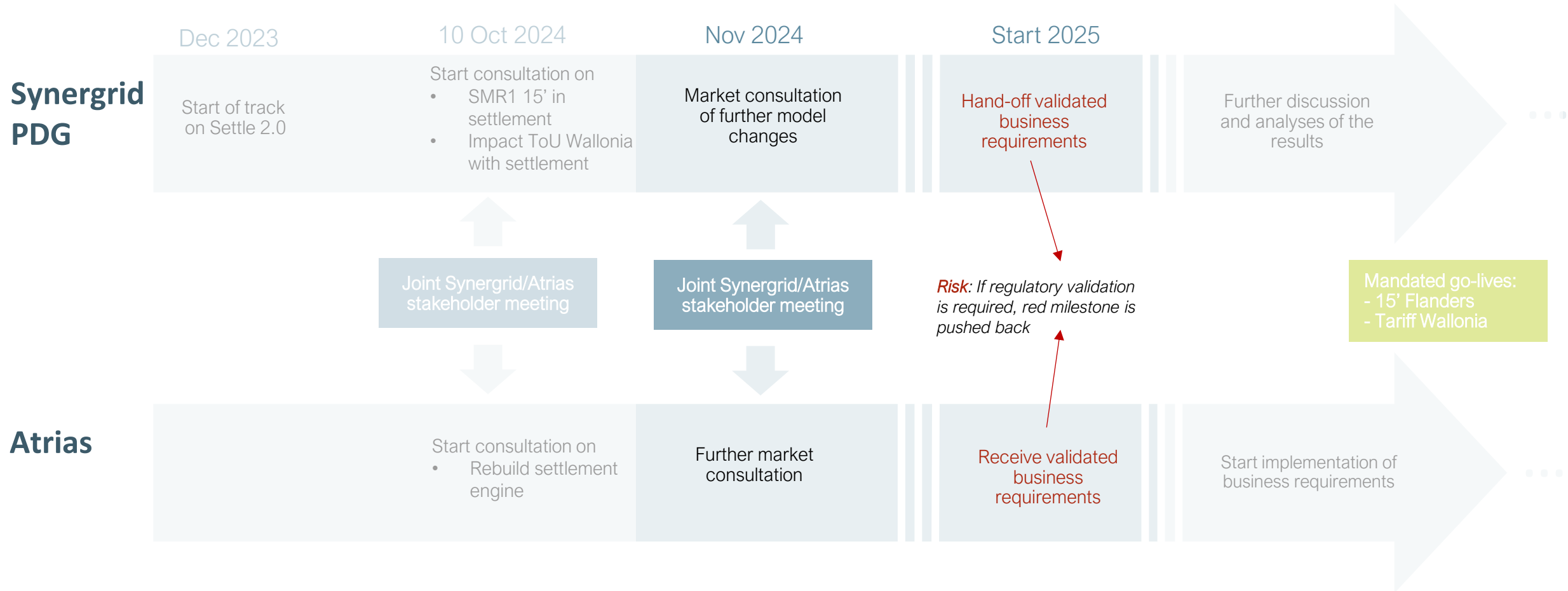
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Settle 2.0: Timeline



Settle 2.0: Timeline



Ongoing analysis

Gas

- Impact of (not) spreading the residue over the MMR headpoints (N/A for Sibelga, since no MMR HP's)
- Impact of the further roll-out of DM on the residue and the residue factor

Electricity

- Impact of the further roll-out of DM on the residue and the residue factor
- Supporting benchmark study ongoing to provide us with insights

Supporting simulations are being done, any resulting proposed model change will be consulted later

Changes to be consulted

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Improvement

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<https://www.synergrid.be/fr/concertation-du-marche/pdg-settlement>

Annex: List of terms and abbreviations

Abbreviation	
AMR	Automatic Meter Reading
CD	Calendar Day
DM	Digital Meter
EAV	Estimated Allocation Volume
EMV	Estimated Monthly Volume
ExV	EAV/EMV
HI/LO	High / Low
HP	Head Point
MMR	Monthly Meter Reading

Abbreviation	
RLP	Real Load profile
RMD	Relational Master Data
RMV	Real Monthly Volume
SMR	Smart Metering Regime
SPP	Synthetic Production Profile
TH	Total Hours
TMD	Technical Master Data
ToU	Time of Use
WD	Working Day



Settle 2.0

Atrias Project

10/10/2024

Settle 2.0 Scope

Modernization

- **Reasons of the project:**
 - **Having a future proof system with an improved performance:** due to business changes (quarter values, model evolutions,...), modify the existing Settle in CMS system is no longer a viable option due to its complexity and limitations (as the performance).
- **Project content:**
 - **Re-architecting** = the core of the modernization is translated through a Settle Engine “stand-alone”, including:
 - The coordination of the photo modules.
 - Allocation and Reconciliation calculations.
 - Screens, Monitoring and Reporting.
 - Integration of the new system in the service landscape.
 - The set-up of the necessary environments (non-prod; prod).
 - The interfaces for SMR1 data
 - **Functionality enhancement** = TMD-RMD photo within the Settle system, without disrupting the current fundamental of the Settle model, and in abstraction to the data sources.
- **The Settle 2.0 GoLive 01/2026** constitutes a first step of a longer journey. After the GoLive, it is about continuing the improvement and development of new Settle requirements with yearly release.

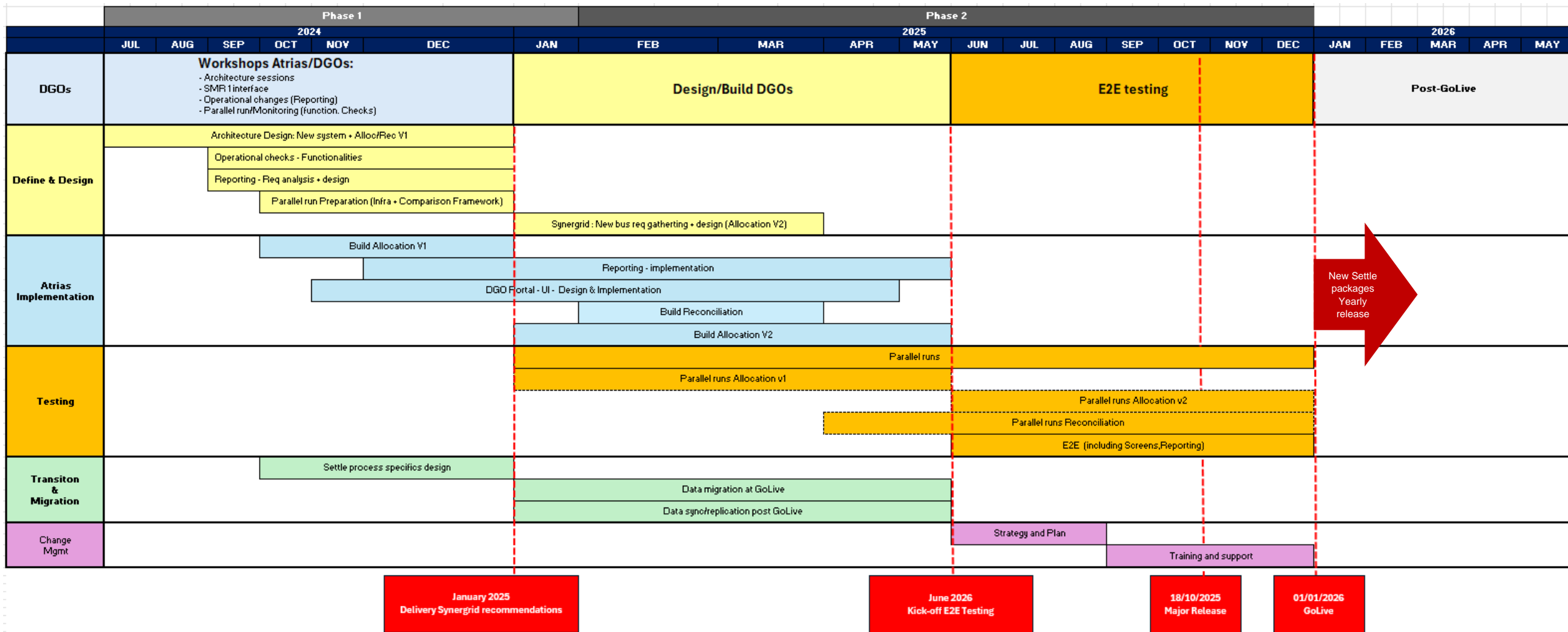
Remarks

- Existing problems: grouping the known incidents and clarify how the project will handle this aspect (= part of the analysis).

Data Quality Approach

- Currently many issues due to poor data quality
- Problems originate from other domains such as TMD-RMD, measurement
- Settle 2.0 will not solve all these issues
- Instead :
 - Goal is not to block the calculation, but proceed with the calculation by descoping problematic EAN's
 - Report clearly on Issues detected while processing
 - Such that the root cause may get solved

High Level plan Settle 2.0



Change Process



Business Drivers

- VREG: Regulatory directive for using SMR1 data within allocation
 - Huge increase of data size
 - Limitations within the CMS system
- New tariffication mechanisms
- Model changes
 - Triggered by using of the SMR1 data within allocation
 - How to handle remaining residue
 - Simulations on-going
 - New business scenario's, may trigger model adjustments
 - Energy sharing, electric vehicles, ...
 - Specifications are still getting elaborated
- Merger-simplification of Settlement area's
 - May change opportunities for parallel processing
- Different transition speeds towards a full SMR landscape, causing regional specificities

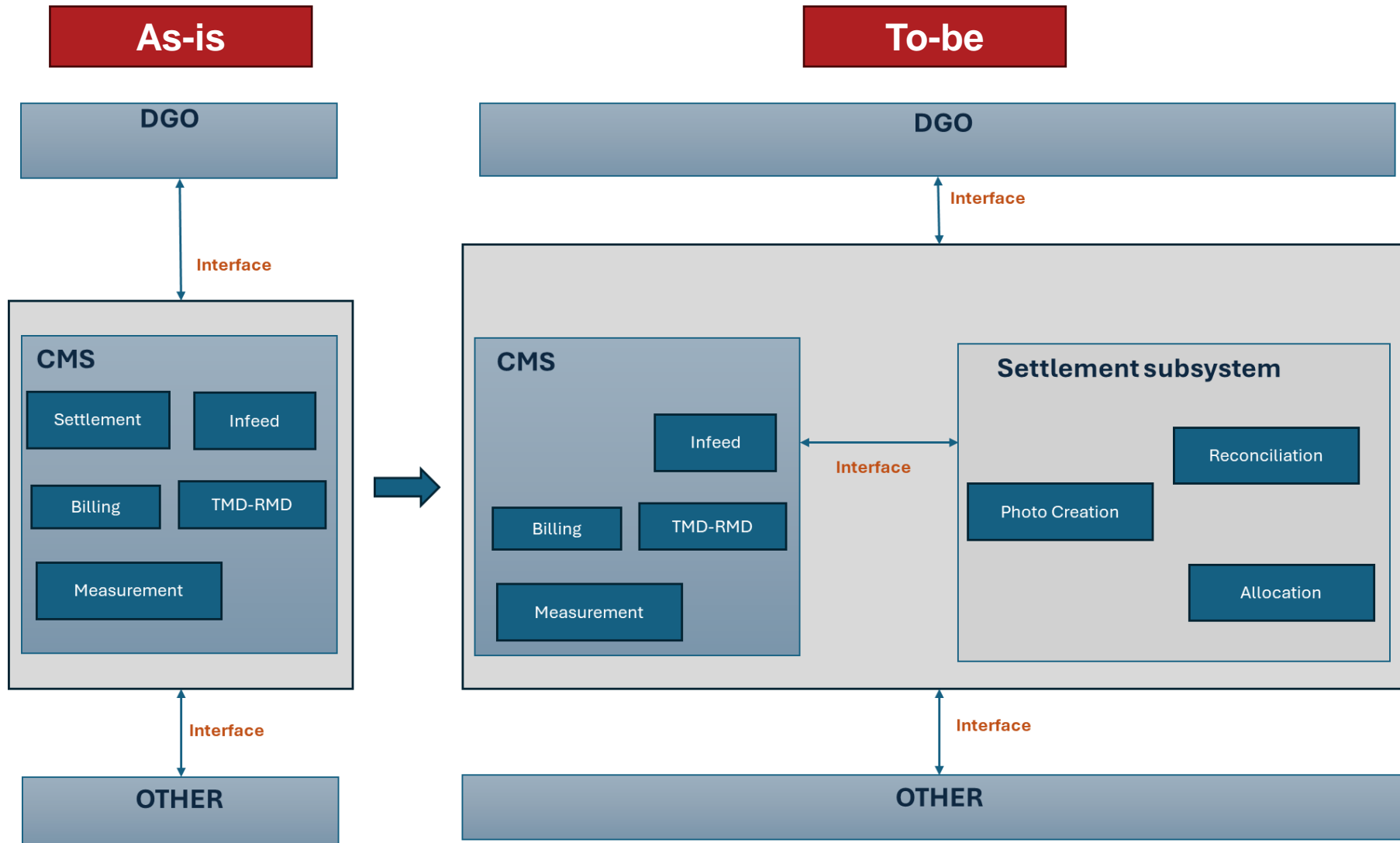


Technical Drivers

- Data source abstraction: Data needed for settlement may originate not only from the CMS system
- Settlement processing induces heavy load on the current CMS system
 - Moving heavy processes to separate resources will lower the pressure on the central system
- Making the system better maintainable
 - Adhere to the 'modernization' principles inspired by microservices pattern – decoupling of domain logic
 - Faster go-to-market
- Improve on the technology stack available in the cloud
 - Data factory, Data bricks, Delta lake,
- Improving the testability of the system
 - Performance testing
 - Regression testing
 - Comparative testing

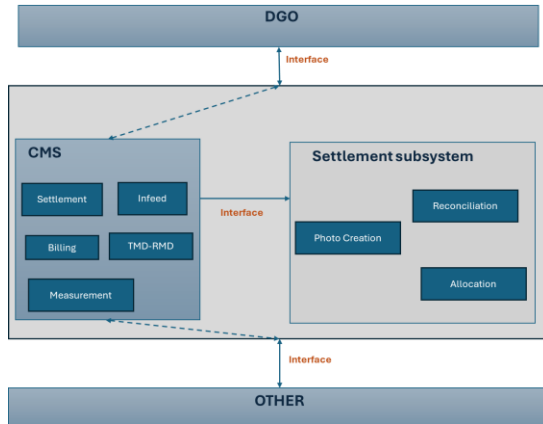


Settlement Subsystem

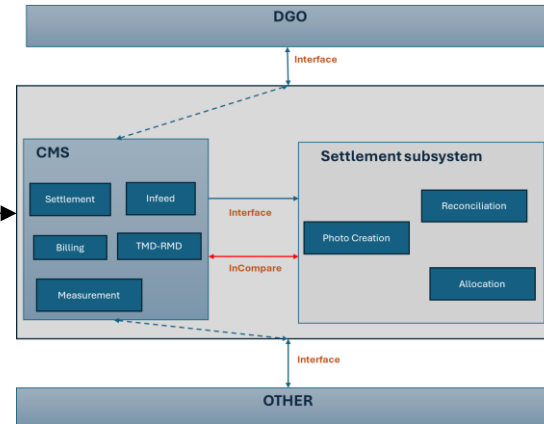


Strangler Pattern : 4 phases

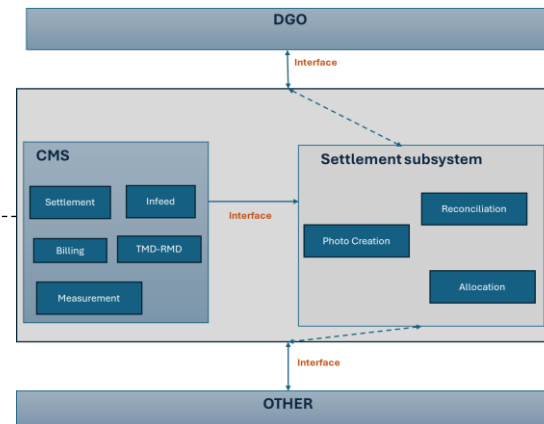
1. Build New



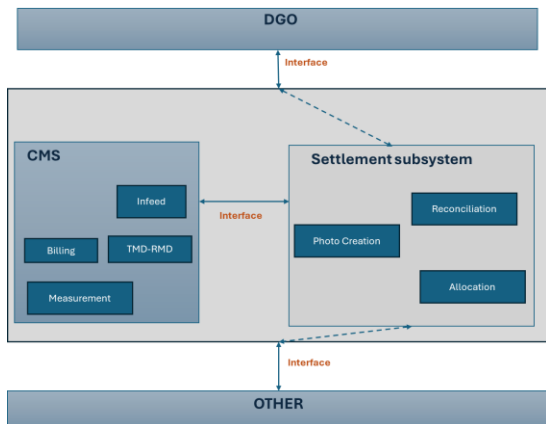
2. Comparative Testing



3. Switch Over

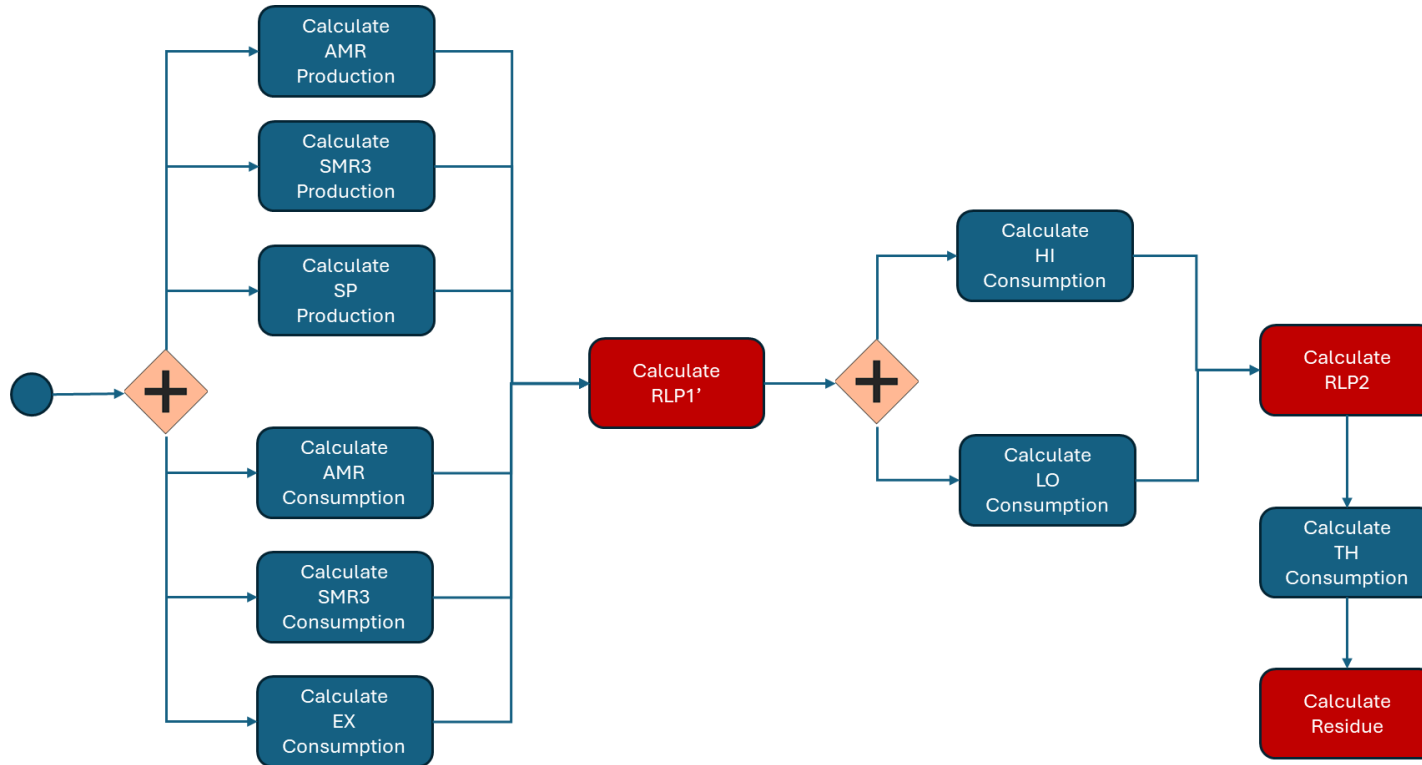


4. Deprecate Old



- Refactoring CMS system is not an option!
- Instead Build new Settlement
 - Using lessons learned
 - Applying Patterns, solutions from YASE
- Comparative testing
 - Parallel run for extended period of time
 - Only possible in case of iso-functional implementation
 - Two phase approach:
 - Step 1: Iso-functional implementation
 - Step 2: Extra business functionality
- Switch over
 - External parties communicate with new implementation
- Deprecate Old
 - Remove old code from monolith
 - To simplify internal structure
 - Make subsequent restructuring more simple

Allocation Calculation pipeline

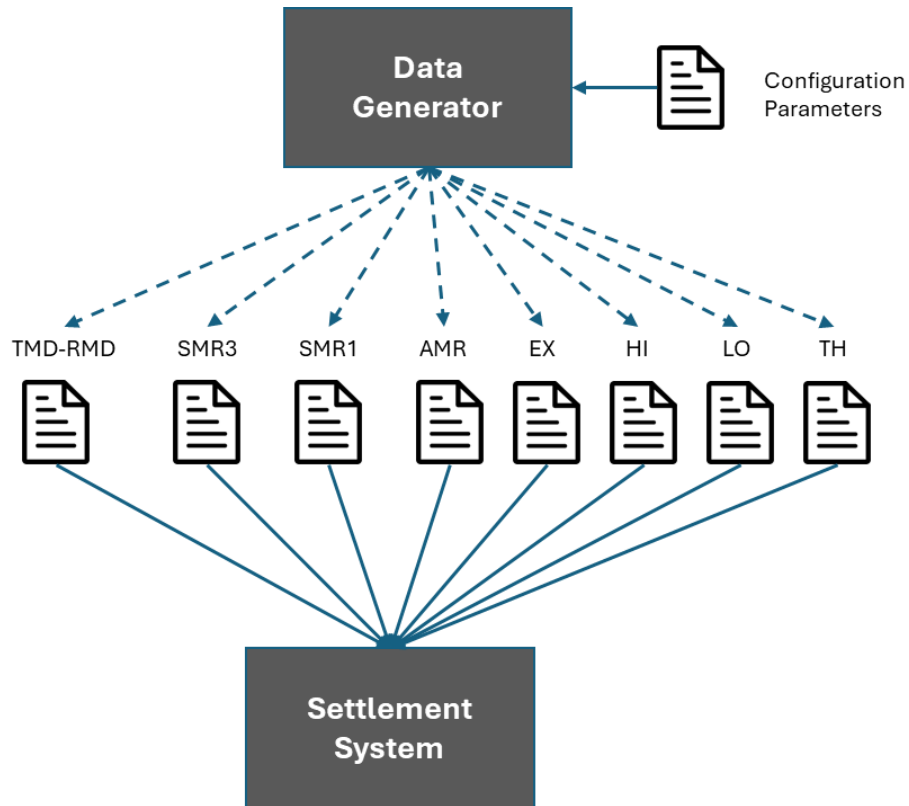


- Less options to apply parallelization across settlement area
- So, we aim for parallel computation within a settlement area
- Although this is limited due to the MIG specifications

Testing

- Less need for complex database setup
- Performance testing, regression testing & comparative testing

Performance Testing



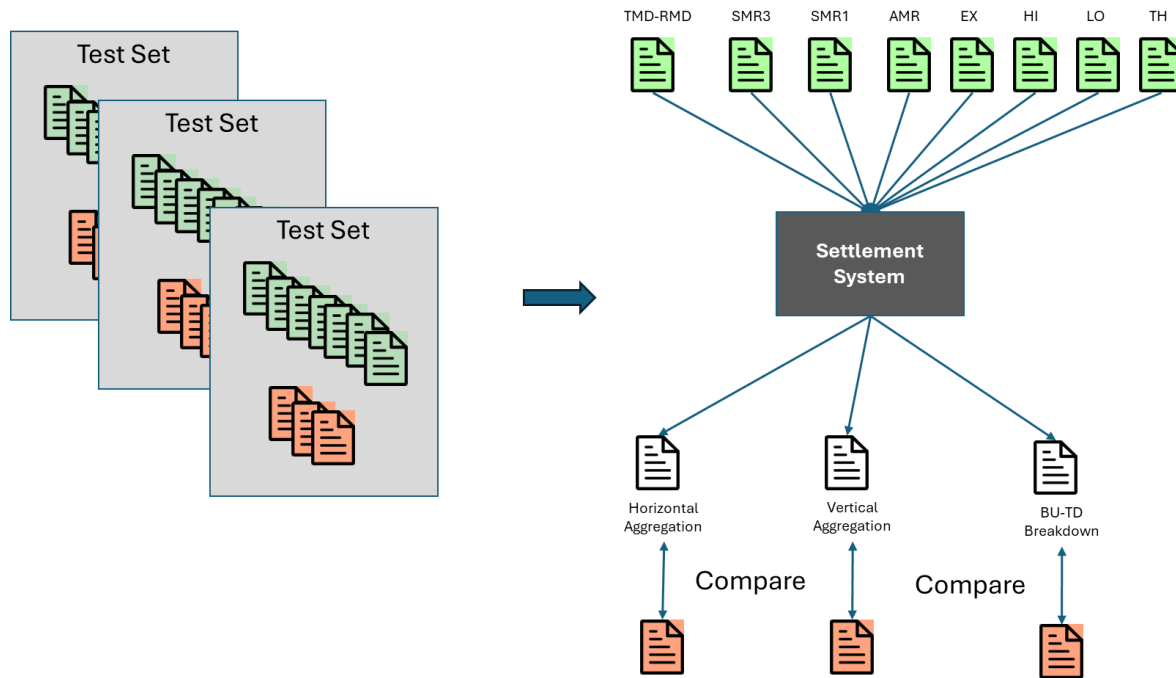
Need for a data generator component

- Which generates required input data in high volumes
- Compliant with specified interface
- Using a random value generator
- Actual results are discarded

During calculation, we measure :

- Processing time
- Memory usage

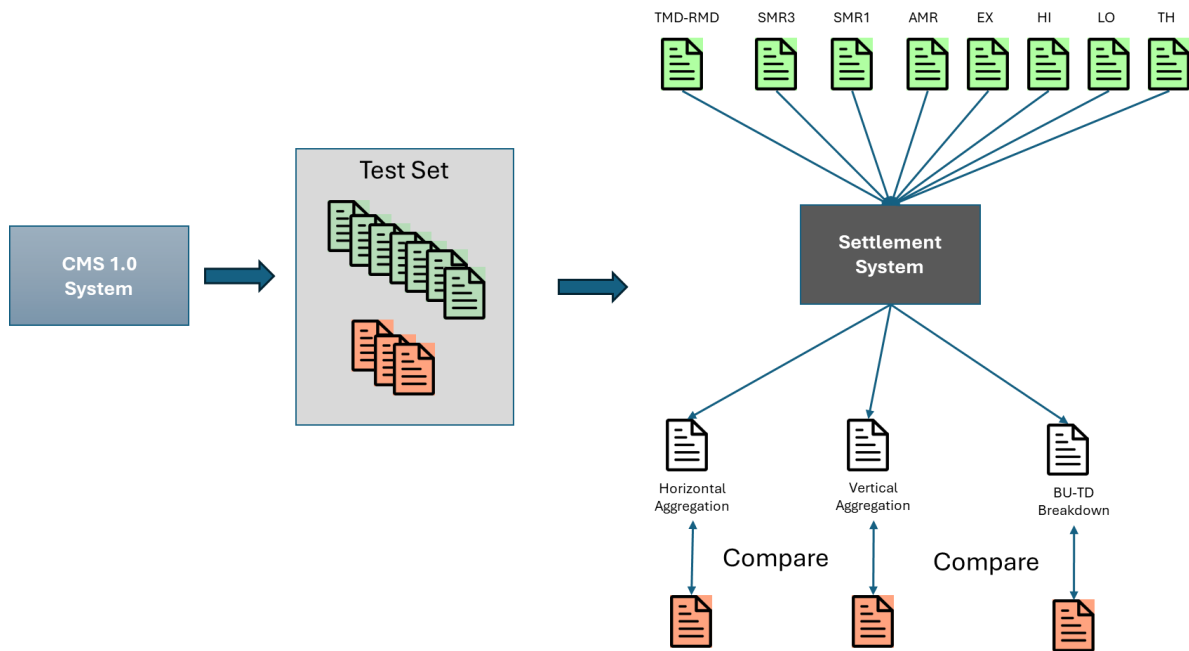
Regression Testing



Idea

- We archive previous calculations which has been validated to be correct:
 - We keep the required input
 - We keep the output (reports)
- We foresee a simple comparison function to compare output results
- In case we refactor code internally, we rerun & compare archived Test sets

Comparative Testing



- Comparative testing will allow to test the new system based on real production data coming from CMS 1.0
- Two cases can be covered
 - a) Modernization : Assure the as-is is rebuilt correctly (CMS 1.0 and Settle 2.0 results match)
 - b) Business Evolution : See the impact of SMR1 '15 allocation on the allocation results

Next Steps

Next Steps

- What is the Technical Impact
 - Will XSD change? Will there be endpoint changes? ...
- What is the Business Impact
 - How will the SMR1 '15 allocation be validated (cf. Comparative testing slide)
- Organize E2E testing
- Define Governance with Suppliers & BRP's