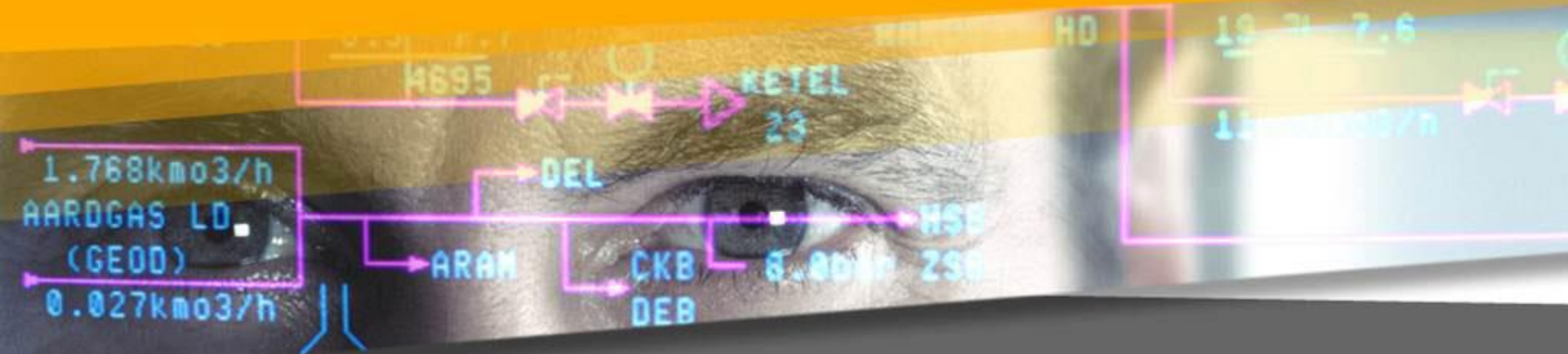


Shipper Workshop NC Balancing

Implementing the European Balancing Network Code



Aim and topics

- Aim for the workshop
 - Explain the GTS proposals
 - Open discussion
 - Identifying thoughts of shippers
 - If feasible: end of day settlement preferred option

- Changes to balancing regime according to NC
 - End of day settlement leading to daily imbalance charges
 - Balancing actions through WDM, not through BPL
 - Remove Assistance gas
 - Remove Beta component from damping formula

- Changes to balancing regime inspired by evaluation
 - Remove Incentive Component
 - Remove Call Correction Factor

Basics of the current market based balancing regime

- Key principles:
 - Market parties are encouraged to help GTS to maintain and, if necessary, restore the system balance and are rewarded for doing so; market parties that cause an imbalance in the system are charged on a cost-reflective basis.
 - If necessary, GTS will restore the balance at system level. The information concerning system balance and the means by which GTS maintains and, if necessary, restores the balance (the bid price ladder or BPL) are transparent and market-based.
 - Every market party is responsible for its own imbalance position and is able to restore this position based on information supplied by GTS.

All the details can be found on the GTS website:

<http://www.gasunie transportservices.nl/en/transportinformation/about-balancing>

Basics of the current market based balancing regime

- Some important aspects:

- Programme: Before the gas day begins, shippers send in a programme containing predictions of their entries, exits and trades.
- POS: Portfolio Imbalance Signal. The programme is compared with the actual allocations on a near real time basis to determine the shipper's individual portfolio imbalance.
- SBS: System Balance Signal. The sum of all the Portfolio Imbalance Signals. If the SBS is not zero, this indicates an imbalance in the system.
- Zones: The system is divided into zones. If the SBS is in the dark green zone, no action is necessary. However, if the SBS is in the light green, orange or red zone, a correction mechanism called the bid price ladder is activated.

Basics of the current market based balancing regime

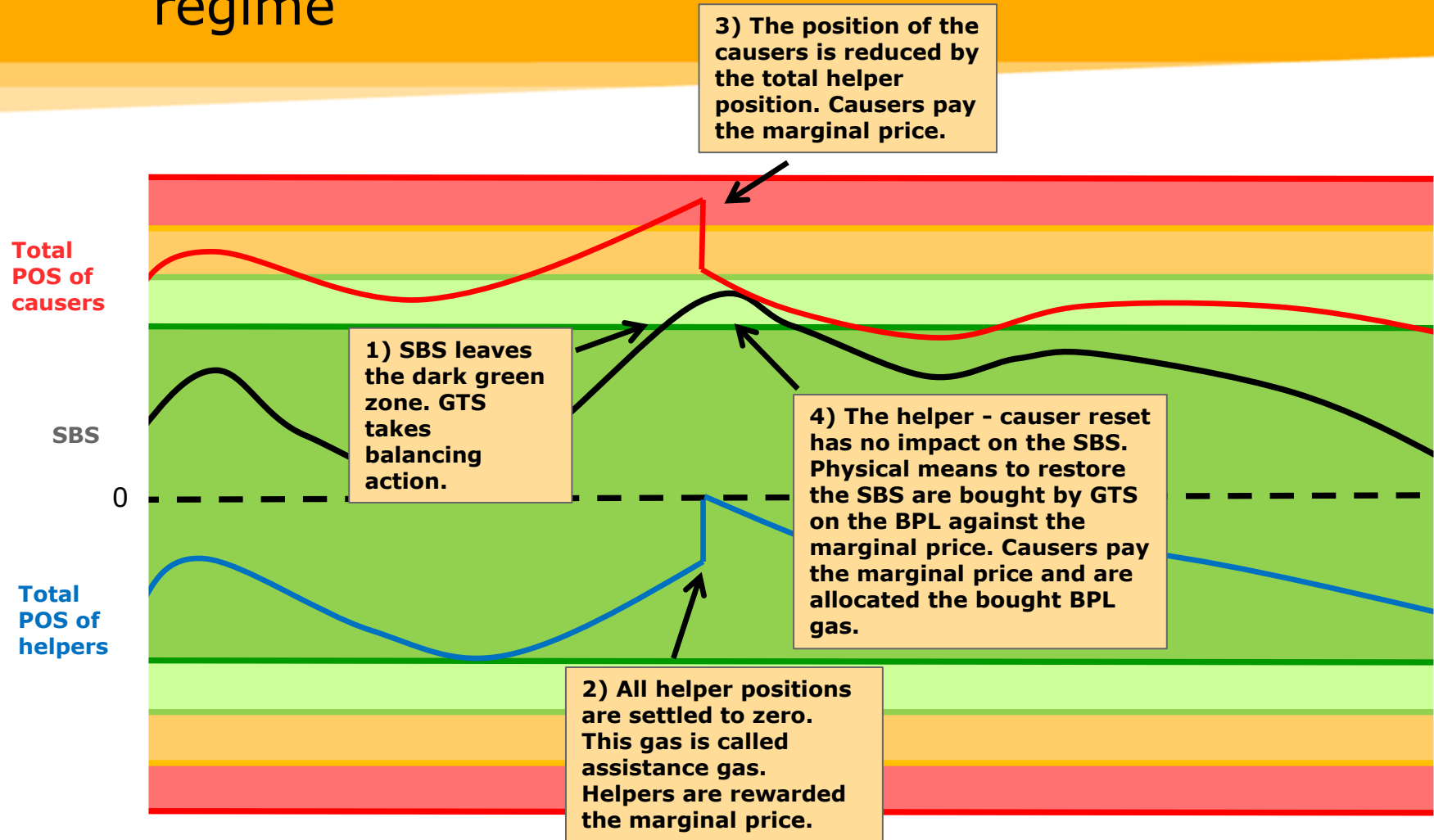
- BPL: Market parties can offer to sell gas to us or buy gas from us on the Bid Price Ladder. We will buy or sell gas from/to these parties to restore the system balance.

Using the information about imbalances stored in POS and SBS, shippers can choose whether they want to help restore the system balance or to maintain the (im)balance in their own portfolio. They can do this by using their own (physical) resources, by trading on the TTF (OTC or spot market), by entering into commercial balancing relations or by leaving their position as it is (and accepting the consequences of a possible bid price ladder call).

The balancing regime has no fixed balancing period. A “short” or “long” position in a portfolio can go on for some time without any consequences.

As long as the position of the overall network remains within the allowable limits (the dark green zone), the network will be in balance.

Basics of the current market based balancing regime



End of day settlement

- Current situation
 - No end of day settlement in market based balancing
- Network Code
 - Article 28 and 30 of the NC require that all network users will be charged for their total accumulated imbalance volume at the end of the gas day
- The NC introduces end of day imbalance charges. Consequences for market based balancing to be determined.

High, medium and low impact implementation options are identified.

End of day settlement

- High impact implementation options
 - All POSses to zero at 06:00. Linepack restored by shippers
 - All POSses to zero at 06:00. Linepack restored by GTS via trading on WDM
- Medium impact implementation option
 - Helper-Causer settlement
- Low impact implementation option
 - Linepack Flexibility Service

End of day settlement with high impact

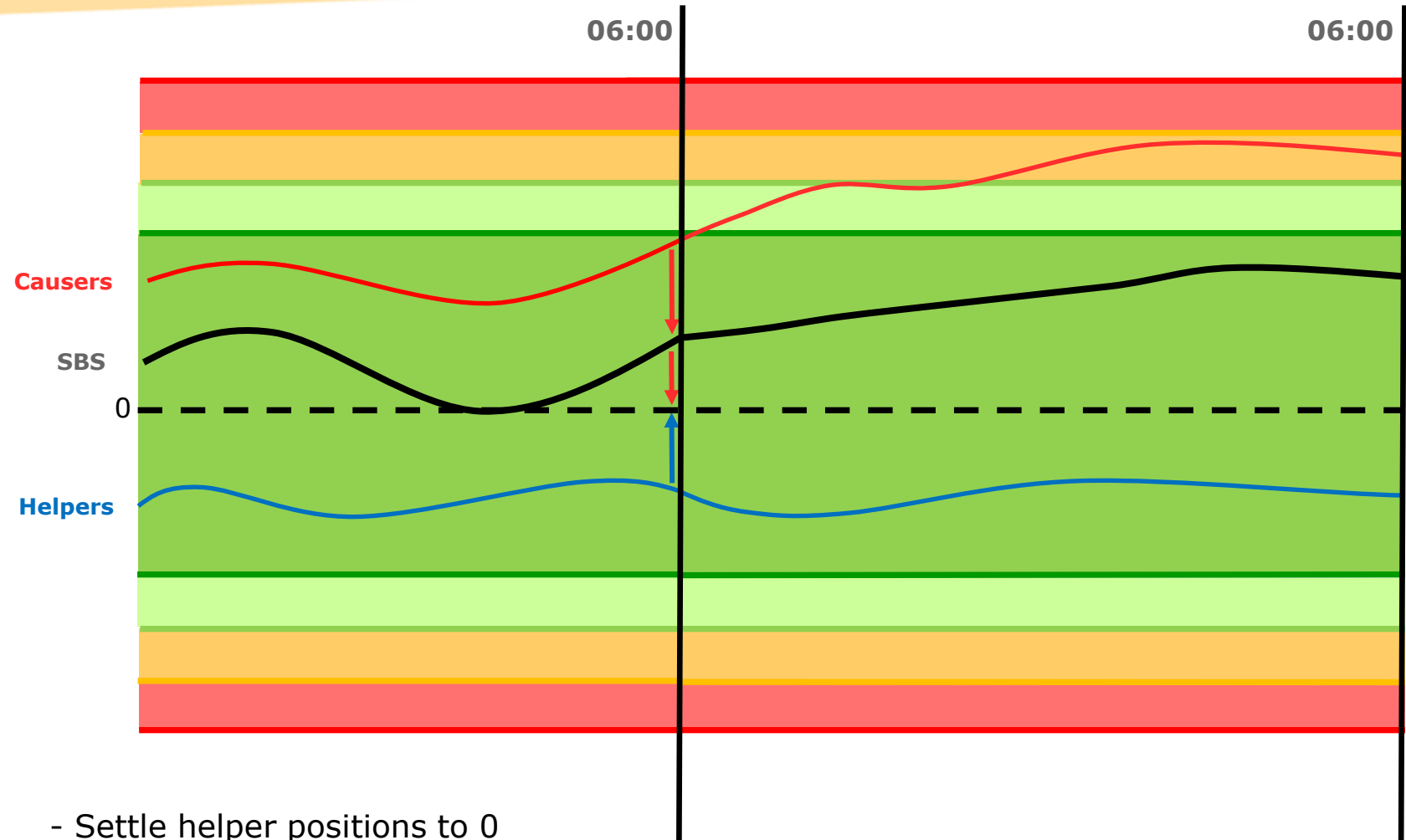
- Two options have been developed that lead to a full reset to zero of all shipper's positions

Option 1: major role for shippers

Option 2: major role for GTS

- Similarities of both options: the first steps in the settlement process
 - Settle helper positions to zero
 - Reduce causer position with total helper position
 - Use the linepack volume for the remaining part of the causer's position
 - Result: full settlement at 06.00 hours. SBS and all POSses are zero

End of day settlement with high impact similarities of both options



- Settle helper positions to 0
- Reduce causer position with total helper position
- Use the linepack for the remaining part of the causer's position

End of day settlement with high impact differences of both options

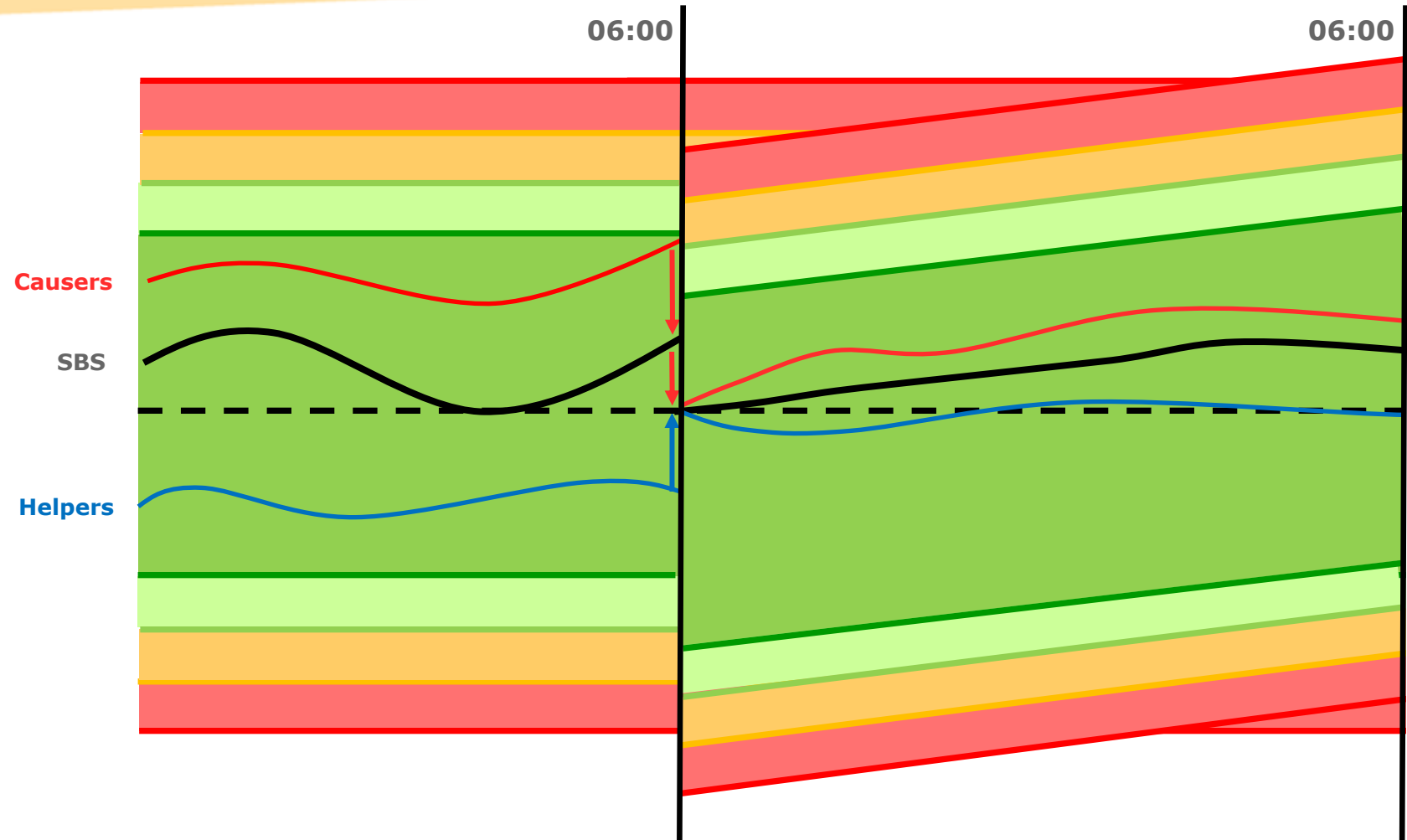
- Two options for restoring the linepack the next day
 1. Shippers (causers) restore the linepack during the **next** gas day.

GTS slowly extracts gas from the causers portfolio or feeds gas into the causers portfolio.
Causers counterbalance: via WDM, own resources or no action.
 2. GTS restores the linepack during the **next** gas day by trading on the WDM.

Final settlement price for shippers will depend on trade price GTS on WDM.

End of day settlement with high impact

option 1 and 2 graphic



Return of the linepack during the next gas day by:

- option 1: shippers (causers)
- option 2: GTS via WDM

End of day settlement with high impact

Neutrality arrangements with option 1: linepack restored by shippers

- Example: marginal price = €11, small adjustment = €1

Settlement to zero at 06:00					
Shipper	POS	Type	Transaction	Settlement price	Cashflow GTS
1	-50	long	sells to GTS	€ 10	-€ 500
2	100	short	buys from GTS	€ 12	€ 1.200
SBS	50	short			€ 700

- Restore actions: next day transaction price is the same as the settlement price

Financial transaction with shipper for the linepack return					
Shipper	Amount	Transaction	Price	Cashflow GTS	
1	0				
2	50	shipper sells to GTS	€ 12		-€ 600
					€ 100

- Neutrality arrangements: helper reward

Remaining amount is always positive. Settle with helpers.					
Shipper	Amount	Transaction	Price	Cashflow GTS	
1	50	helper reward	€ 2		-€ 100
2	0				
					€ 0

If the SBS turns the helpers become the causers. Therefore, shippers have an incentive to balance their portfolio end of day. Result is a less volatile SBS as end of day approaches.

End of day settlement with high impact

Neutrality arrangements with option 2: linepack restored by GTS via WDM

- Example: marginal price = €11, small adjustment = €1

Settlement to zero at 06:00					
Shipper	POS	Type	Transaction	Settlement price	Cashflow GTS
1	-50	long	sells to GTS	€ 10	-€ 500
2	100	short	buys from GTS	€ 12	€ 1.200
SBS	50	short			€ 700

- Restore actions: next day WDM trade price = €13

GTS trade on WDM				
GTS	Amount	Transaction	Price	Cashflow GTS
	50	GTS buys on WDM	€ 13	-€ 650
				€ 50

- Neutrality arrangements: divide amongst helpers or causers

Remaining amount positive or negative. Settle with helpers or causers				
Shipper	Amount	Transaction	Price	Cashflow GTS
1	50	divide amongst helpers	€ 1	-€ 50
2	0			
				€ 0

Depending on the GTS trade price on the WDM, the remaining amount can be positive or negative. Positive: settle with helpers. Negative: settle with causers. Result is an incentive to be balanced end of day and a less volatile SBS.

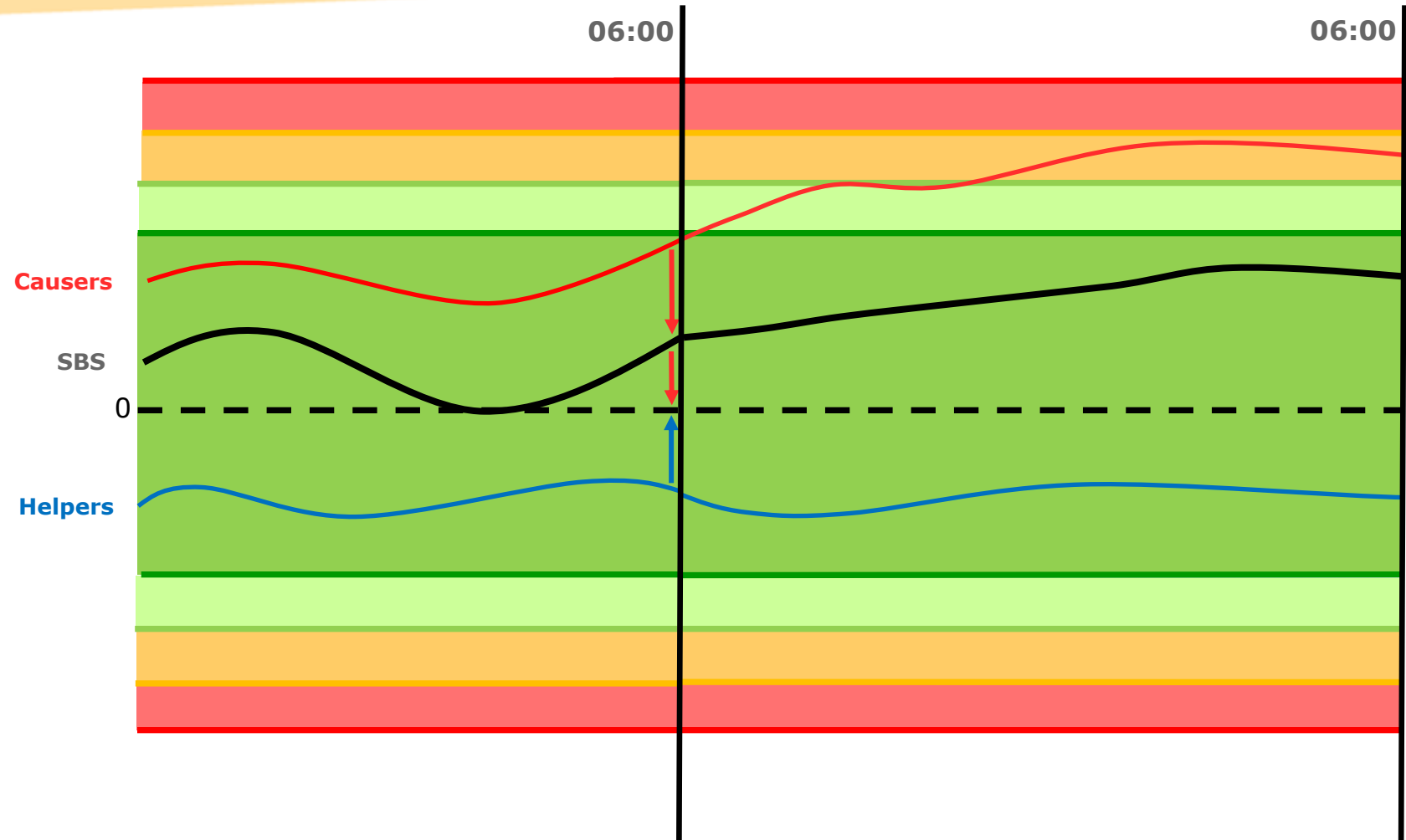
End of day settlement with medium impact

Helper–Causer settlement

- The first three steps in the settlement process are equal to the high impact options:
 - settle helper positions to zero
 - reduce causer position with total helper position
 - the linepack is used for the remaining part of the causer's position
- The return of the linepack volume by the shipper is not during the whole next gas day, but immediately
- The net effect is a helper-causer settlement
- Result: NC implemented in accordance with market based balancing

End of day settlement with medium impact

Helper-Causer settlement



Return of the linepack by shippers immediately

End of day settlement with medium impact

Neutrality arrangements with helper-causer settlement (same as option 1)

- Example: marginal price = €11, small adjustment = €1

Settlement to zero at 06:00					
Shipper	POS	Type	Transaction	Settlement price	Cashflow GTS
1	-50	long	sells to GTS	€ 10	-€ 500
2	100	short	buys from GTS	€ 12	€ 1.200
SBS	50	short			€ 700

- Restore actions: transaction price is the same as the settlement price

Financial transaction with shipper for the linepack return					
Shipper	Amount	Transaction	Price	Cashflow GTS	
1	0				
2	50	shipper sells to GTS	€ 12		-€ 600
					€ 100

- Neutrality arrangements: helper reward

Remaining amount is always positive. Settle with helpers.					
Shipper	Amount	Transaction	Price	Cashflow GTS	
1	50	helper reward	€ 2		-€ 100
2	0				
					€ 0

If the SBS turns the helpers become the causers. Therefore, shippers have an incentive to balance their portfolio end of day. Result is a less volatile SBS as end of day approaches.

End of day settlement with low impact

Linepack Flexibility Service

- GTS may offer an implicit Linepack Flexibility Service to network users to balance inputs and off-takes over a period longer than a gas day (NC Article 28 and Chapter X).
- The available linepack flexibility (dark green zone) in the GTS network is derived from the network buffer and network load.
- With market based balancing and thanks to near real time information provision GTS already provides this service by giving maximum linepack flexibility to all network users. In the current balancing regime the BPL is called only if the SBS exceeds the operational limits of the network, which are displayed as the borders of the safe dark green zone.
- Making available the linepack flexibility to network users in the current balancing regime leads to an economic and efficient operational use of the transmission network.

End of day settlement with low impact

Linepack Flexibility Service

- As long as the sum of the network users' positions (SBS) is in the safe dark green zone, every individual imbalance is supplied by the implicit Linepack Flexibility Service.
- If the SBS is outside the dark green zone, a within day balancing action has already been taken by GTS. Therefore, the end of day position of every shipper is always fully supplied by the linepack flexibility.

End of day settlement with low impact

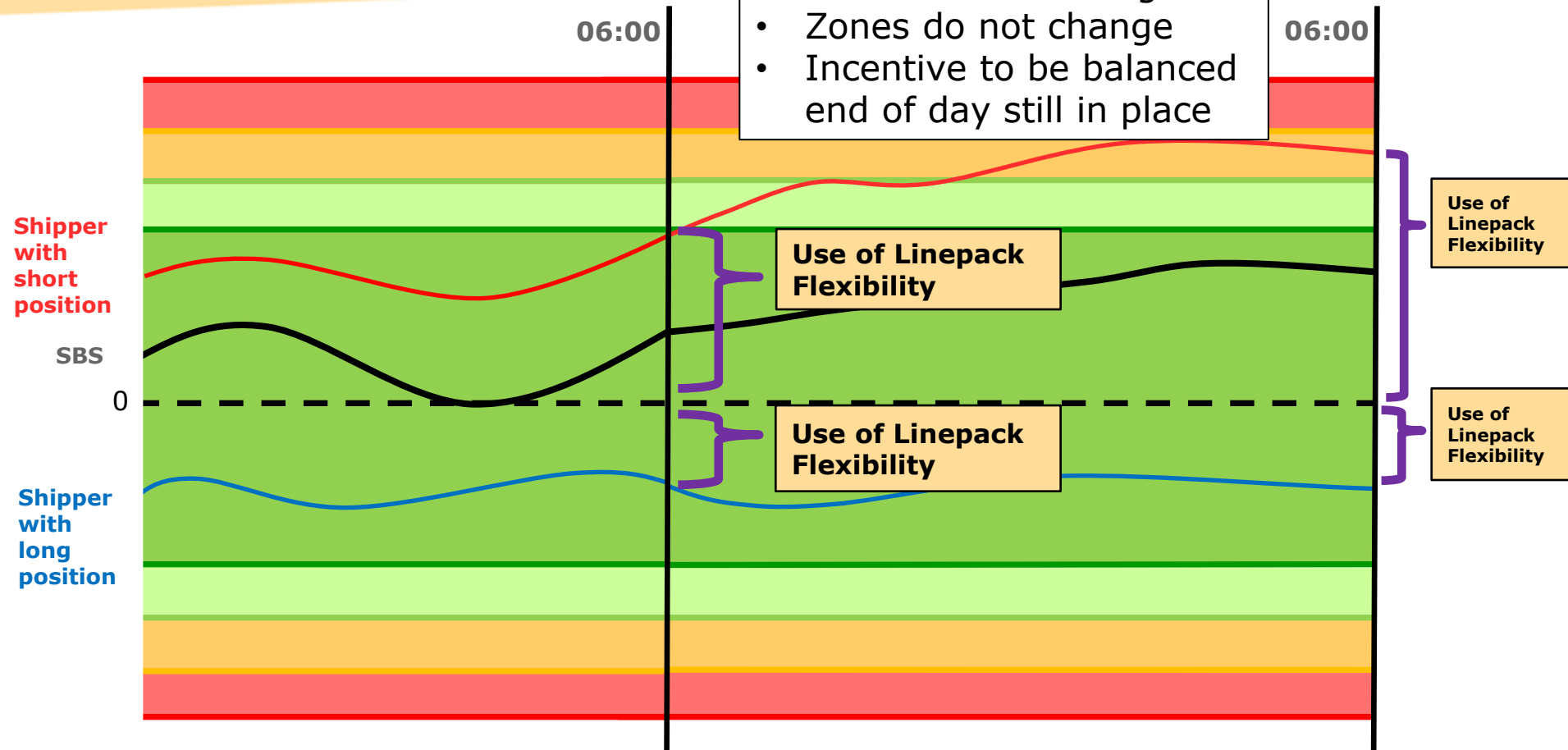
Linepack Flexibility Service

- Service change: a daily charge in relation to the end of day use of linepack flexibility
 - the applicable tariff is a pre-determined percentage of the marginal price of the gas day
 - the absolute 6 o'clock position of a shipper is his use of the linepack flexibility service
 - the daily charge is the absolute 6 o'clock imbalance position multiplied by the tariff
- Result: NC implemented in accordance with market based balancing
 - financial incentive for shippers to be balanced end of day and thus stimulation for WDM-trading
 - shippers remain responsible for balancing, minimal role for GTS
 - minimal impact for shippers and GTS: no changing zones, no end of day adjustment of positions
 - the revenue of the service is returned to shippers: various possibilities, e.g. via a discount in transport tariffs

End of day settlement with low impact

Linepack Flexibility Service

- Positions do not change
- SBS does not change
- Zones do not change
- Incentive to be balanced end of day still in place



Daily imbalance quantity = Inputs – Off-takes adapted for use of linepack

Therefore: daily imbalance quantity is always zero for every shipper.

For the end of day use of linepack flexibility a charge is introduced.

End of day settlement with low impact

Linepack Flexibility Service financial example

- Daily Imbalance Quantity = (Inputs – Off-takes adapted for use of Linepack Flexibility, NC Art. 28) = always zero
- A daily charge for the use of linepack flexibility is introduced as an incentive to end the day with a balanced portfolio. The tariff is a pre-determined percentage of the marginal price of the gas day.
- The revenues are returned to the network users, e.g. via transport tariffs

Day 1						
Shipper	POS	Type	End of day use of linepack	Daily Imbalance Quantity	Tariff for Linepack Flexibility	Linepack Flexibility charge
1	-50	long	50	0	€ 1	€ 50
2	100	short	-100	0	€ 1	€ 100
Linepack Flexibility Service revenue to be returned to network users:						€ 150

Day 2						
Shipper	POS	Type	End of day use of linepack	Daily Imbalance Quantity	Tariff for Linepack Flexibility	Linepack Flexibility charge
1	-50	long	50	0	€ 1	€ 50
2	150	short	-150	0	€ 1	€ 150
Linepack Flexibility Service revenue to be returned to network users:						€ 200

Do we need daily imbalance charges?

- Daily imbalance charge is not a logical choice for a Dutch market based balancing system
- GTS provides near real time balancing for the day shipping zone
can cover the zone

Or can we skip it overall?

- ... to low balancing costs.
- ... addition of a complex high impact end of day balancing system
element the way to go?

Or can it be done more easily?

Dutch Market Based Balancing outperforms NC

- MBB encourages trade between shippers, in NL and abroad
- MBB minimizes role of TSO
- MBB has the best possible information provision
- MBB encapsulates WDM for within-day actions

Other changes to the balancing regime

- Balancing actions through WDM, not through BPL
- Remove Assistance gas
- Remove Beta component from damping formula
- Remove Incentive Component
- Remove Call Correction Factor

Balancing actions through WDM, not through BPL

- Current situation
 - When SBS is outside the Green Zone GTS buys/sells balancing gas on the BPL
- Evaluation
 - Short term Flexibility Liquidity is now split between BPL and WDM
- Network Code
 - Article 12.4 of the NC dictates the use of WDM for balancing actions
 - BPL is a Balancing Platform cf. Article 49 of the NC
 - By that it is an interim measure, only allowed if liquidity on the WDM is too low
- GTS was already planning to use WDM for balancing actions. Our intention is in line with the NC obligation.

Balancing actions through WDM

- November 2012: LoI APX-GTS.
Now: working towards cooperation agreement
- Proposed changes
 - Automated call-off process through messages between WDM-GTS
 - Weighted average buy/sell price will be charged to causers
 - No physical products, delivery on TTF
 - Exchange is counterparty of GTS in transactions
 - No more reserved means

Balancing actions through WDM

- In the light green zone title (end of day) products are used in accordance with the NC merit order (Art. 13).
 - In the orange zone next hour products are used in accordance with the NC merit order.
 - Emergency measures will continue to exist
-
- **Unchanged**
 - Called volume is the volume needed to return the SBS to the border of the dark green zone
 - Allocation mechanism of called volume to causers is unchanged and thus pro rata

Remove Assistance gas

- Current situation
 - Assistance gas creates an extra incentive on shippers to balance the network and enables shippers who are not able to bid on the BPL to help balance the network by taking a position opposite of the SBS
- Network Code
 - Settlement to zero within the day is forbidden by Article 32.2.e of the Network Code
- The NC obliges GTS to remove it from the regime in its current implementation

Remove Beta component from damping formula

- Current situation
 - Enables shippers during the summer months to feed gas in with a less volatile profile by increasing damping
 - Beta decreases the size of the Green Zone
 - This increases the chance of calling BPL
- Network Code
 - Article 31.2 of the NC states: WDOs should minimise the TSOs need to undertake balancing actions
- The NC obliges GTS to remove it from the regime

Remove Incentive Component

- Current situation
 - Increase the incentive for shippers to prevent a BPL-call by raising the price difference between the call price and the Neutral Gas Price
 - GTS has published a report with the algorithm for change
 - 1,5 year of experience have shown that it was never used
- Market evaluation
 - Already before April 2011 and above all as part of the evaluation shippers indicated that they doubted the usefulness of this mechanism
- Proposal to remove it from the regime

Remove Call Correction Factor

- Current situation
 - Decrease the amount of gas bought/sold in a Bid Price Ladder Call (BPL-call) to prevent oscillation of the SBS
 - 1,5 years of experience have shown that it has never been used and therefore is not necessary
- Market evaluation
 - During the evaluation Shippers indicated that they doubted the usefulness of this mechanism
- Proposal to remove it from the regime

Please give your opinion about the proposals

- 1) Which end of day settlement implementation option do you prefer and why?

 - 2) What do you think about the other proposals?
 - Replacement of the Bid Price Ladder for the Within-day market for within-day balancing actions
 - Removal of Assistance gas
 - Removal of the Beta component from the damping formula
 - Removal of the Incentive Component
 - Removal of the Call Correction Factor
- Send your opinion by email to M.R.Neef@gastransport.nl
 - We will forward your opinion to the Dutch Competition Authority
 - Make sure your opinion is known by the Representative Organizations