AUTORITATEA NAȚIONALĂ DE REGLEMENTARE ÎN DOMENIUL ENERGIEI

TRANSGAZ MAGISTRALA ENERGIEI

2018

CONCEPT PAPER
for the Development of the Entry/Exit System in the Romanian Gas Market and Implementation of the EU Network codes

Bucharest, 22 March 2018

Working group. Scope. Indicative project plan

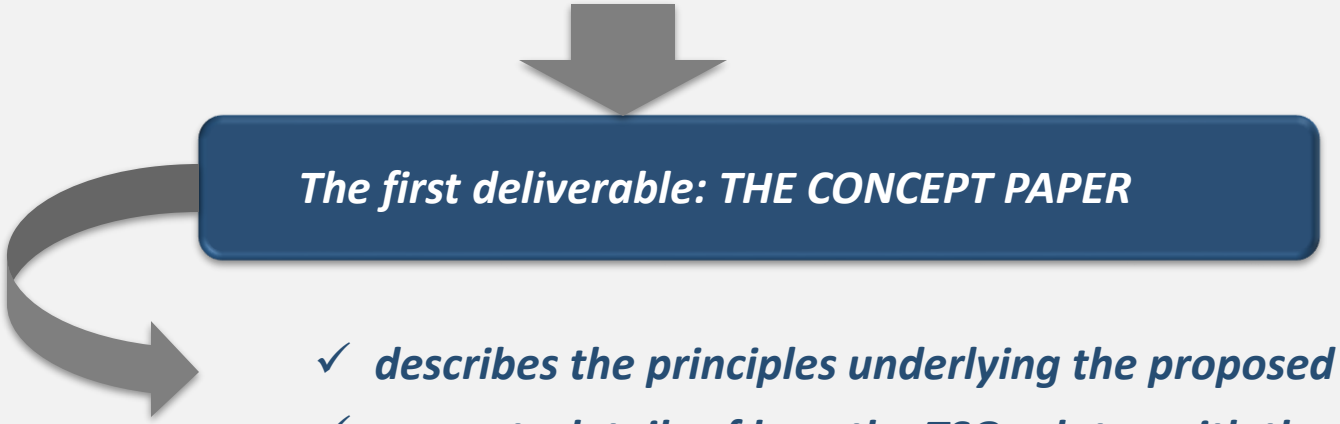
- ✓ ***Established in October 2017, with the participation of:***

SCOPE:

To check the compliance of current Romanian gas market regulatory framework with the applicable European laws and to establish specific concepts/recommendations for amending the national secondary laws or other applicable regulations.

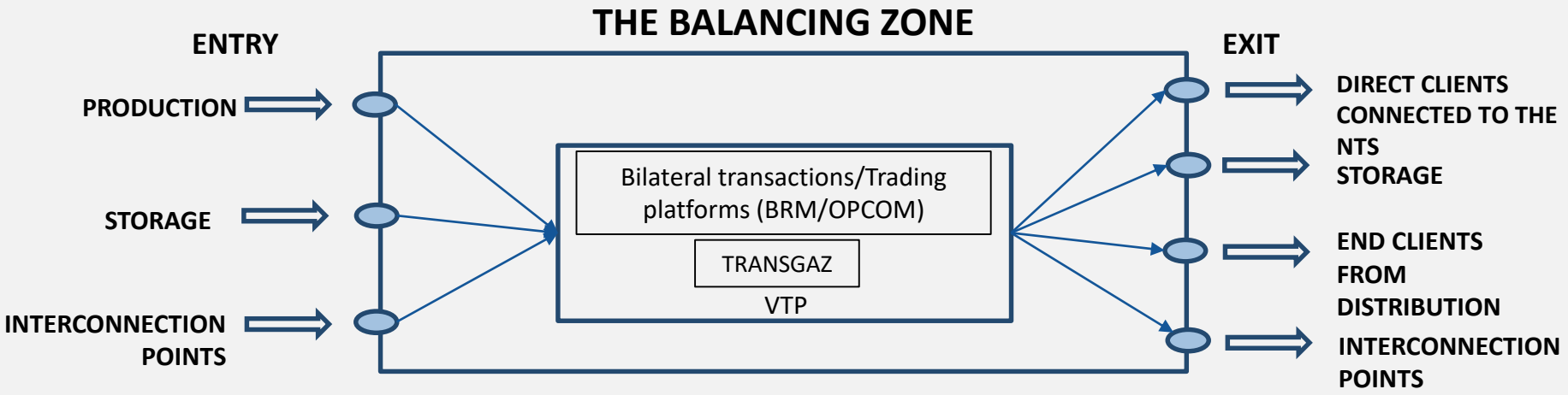
Working group. Scope. Indicative project plan

- ✓ *The issues of concern were reviewed*
- ✓ *The possible solutions were analyzed*
- ✓ *Opinions were exchanged within the working group, including within two workshops (November and December 2017)*



- ✓ *describes the principles underlying the proposed entry/exit system*
- ✓ *presents details of how the TSO relates with the other market participants (NUs, adjacent system operators, etc.)*

PRINCIPLES OF THE PROPOSED ENTRY-EXIT SYSTEM



- ✓ *The balancing zone includes the NTS and the distribution systems.*
- ✓ *Capacity is booked independently, for entry /exit points.*
- ✓ *No VTP restrictions:*
  - ✧ *Allows title transfers independent of gas location in the NTS .*
  - ✧ *Allows access including to the market participants which do not book capacity.*
  - ✧ *Access is granted based on balancing contracts*

PRINCIPLES OF THE PROPOSED ENTRY-EXIT SYSTEM

- ✓ *At least one trading platform will be connected to the VTP.*
- ✓ *The simplification of the processes as much as possible.*
- ✓ *An improvement of the TSO/market participants relation.*

BENEFITS

- ❖ *It creates the prerequisites for increasing market liquidity in particular regarding short-term trading.*
- ❖ *It provides the necessary balancing mechanisms for the NUs for their own portfolios*
- ❖ *It facilitates the commercial exchanges between the adjacent balancing zones provided that the projects implemented by the TSO lead to the increase in the physical interconnectivity.*

THE VIRTUAL TRADING POINT

Definitions. Aim of Virtual Trading Point VTP

- *Sole virtual point located within the NTS, where title transfers between the gas market participants are allowed*
- *All transactions with gas quantities within the NTS must be notified to the VTP operator*

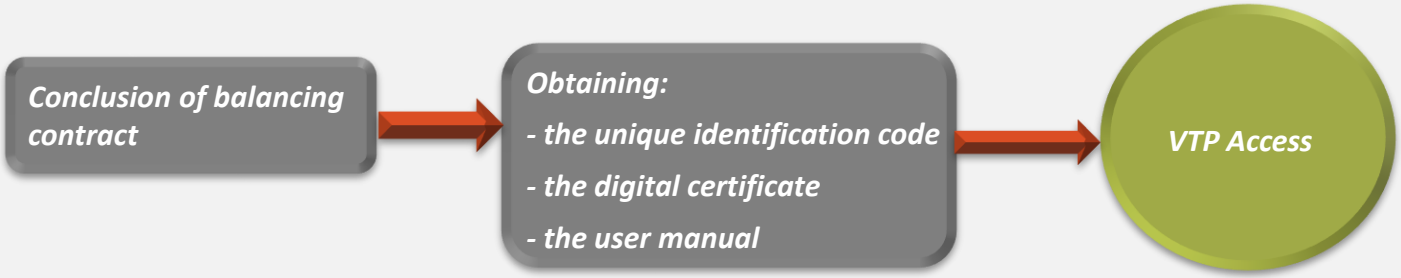
VTP transactions may be concluded:

- *on trading platforms*
- *By bilateral agreements*

Responsible for notifications at the VTP

1. *The trading platform for :*
   - *Short, medium and long-term products*
   - *The cases where the operator of the trading platform is empowered by the parties*
2. *Market participants for bilateral transactions*

VTP access. Validation of notifications



Validation of notifications:

1. *For notifications from the trading platforms - ✓ (no other validation necessary)*

2. *For notifications from the trading parties:*
   - ❖ *It is verified if the two notifications are equal:*
     - ➢ *If yes: the notification is considered validated ✓*
     - ➢ *If no: the notification will be rejected ✗*

Secondary validations:

- ✓ *The identity of the parties*
- ✓ *The existence of the balancing contract*

The TSO will inform both trading parties on the validation result and will record the quantities in their portfolio.

Transgaz – GMOIS IT platform

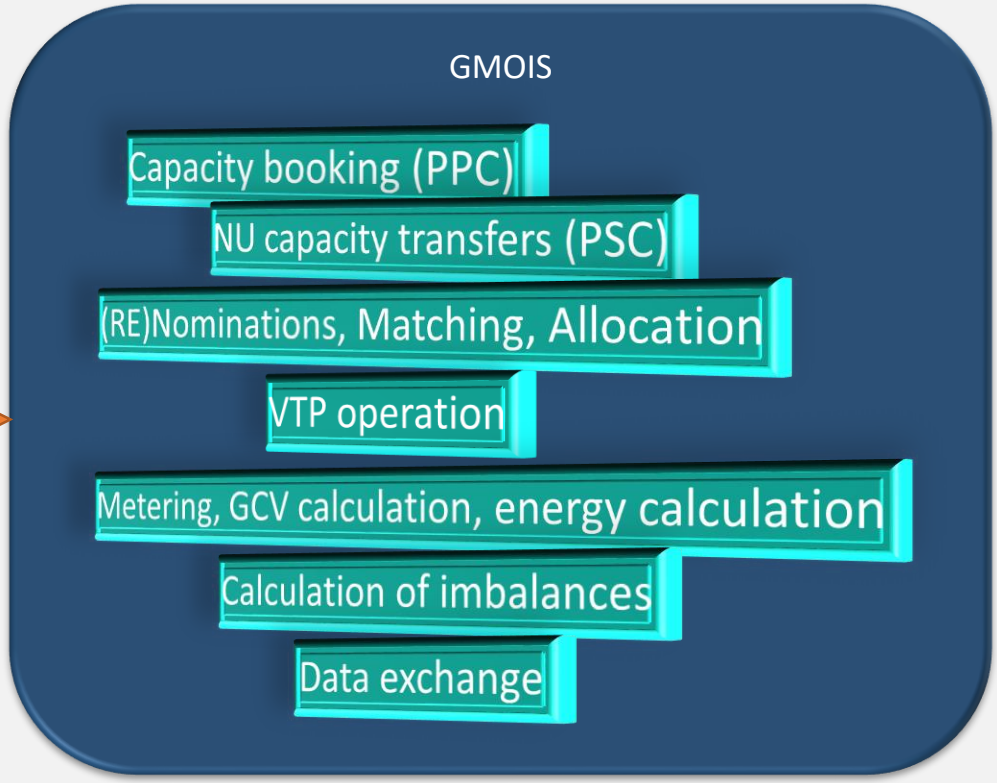
Adaptation of platform according to the network code amendments

Non-discriminatory access

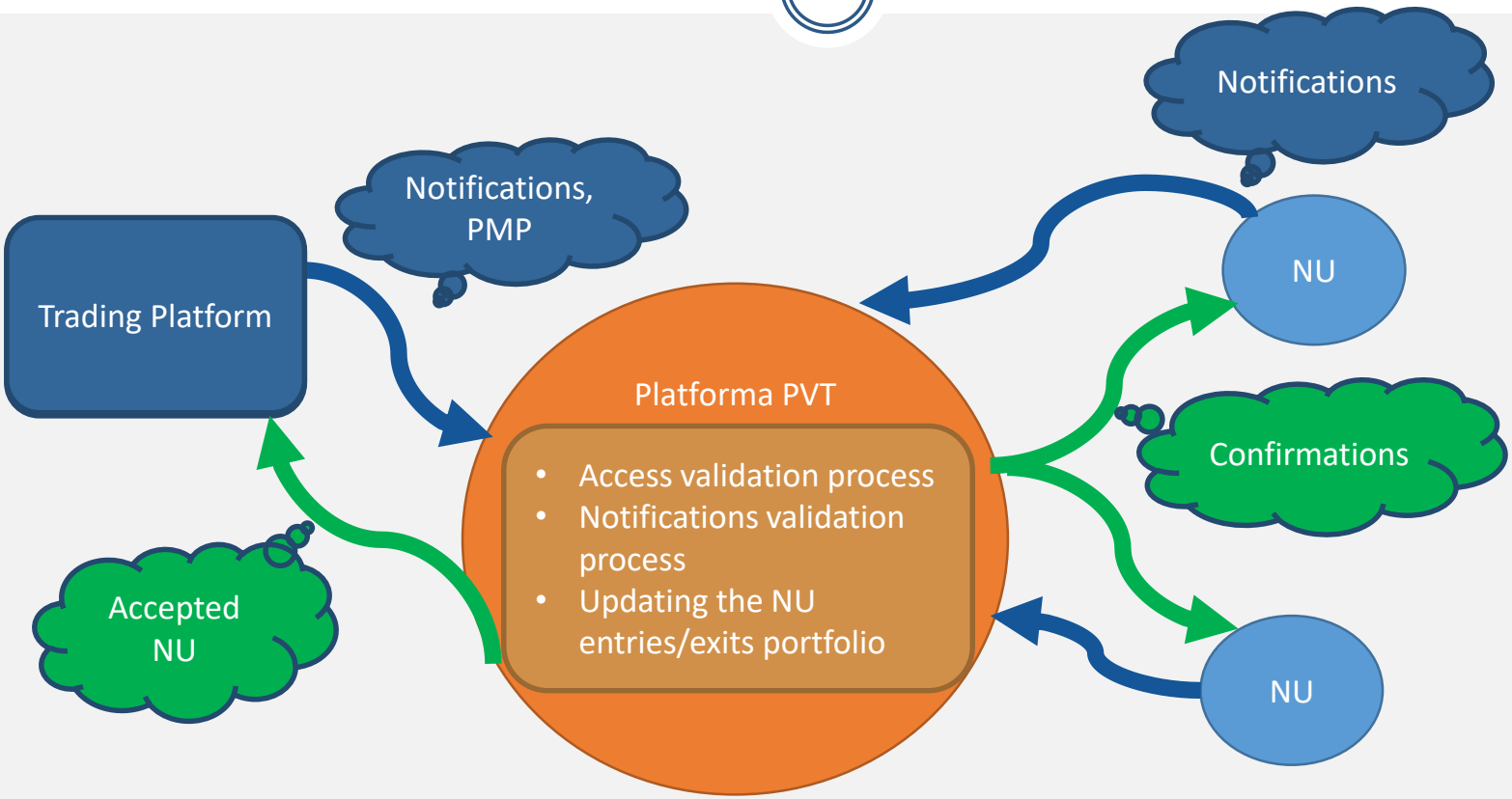
Online 24/7 , 365year

Connection to the trading platforms

Confidentiality

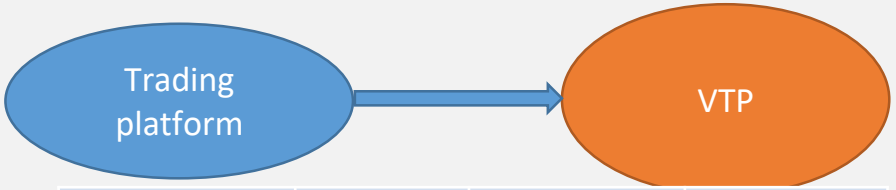


Virtual Trading Point



Model of information received from the trading platform operator

Model 1 : Short-term products, the trading platform notifies the resulting net position



1

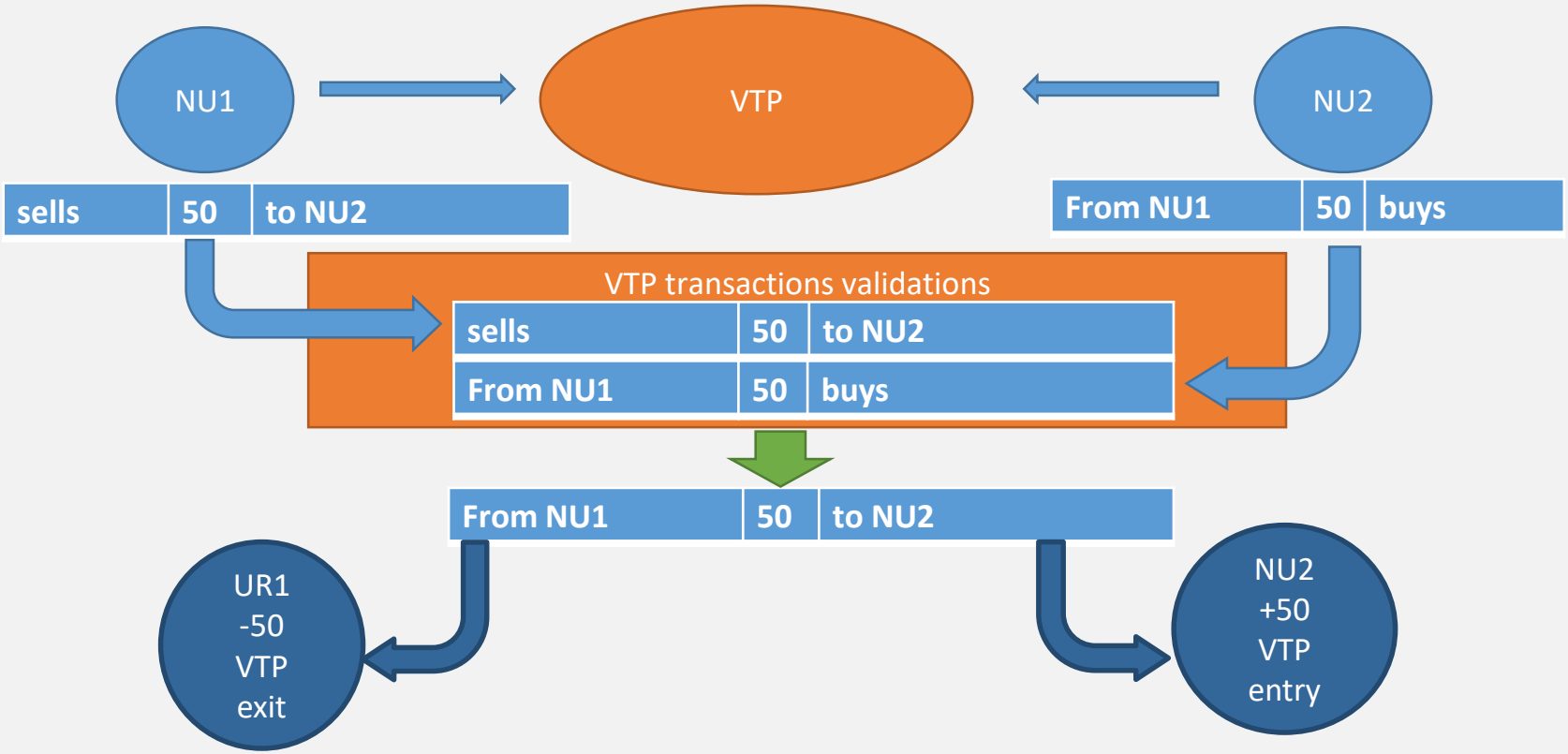
Parties	Sell	Buy	Gas Day
NU1	50		01.10.2017
NU2		50	01.10.2017

Model 2 : The trading platform notifies on behalf of the NU

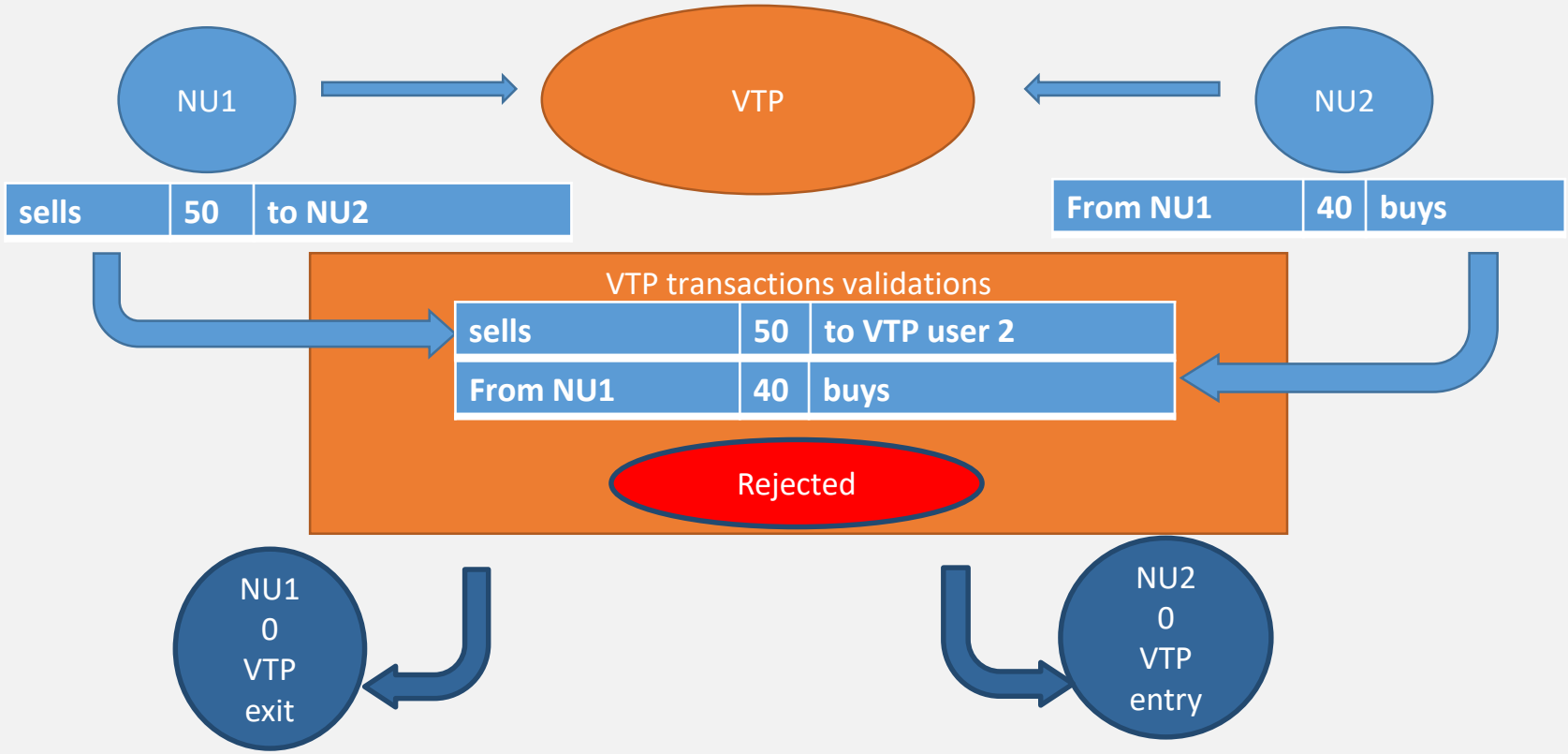
2

From	Cantitate	către	01.10.2017
NU1	50	NU2	01.10.2017

Model for transmission of VTP notifications for the transactions concluded bilaterally and the validation process



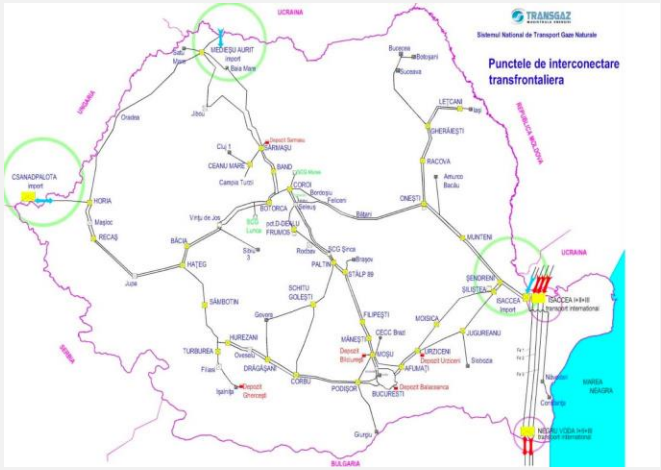
Model for transmission of VTP notifications for the transactions concluded bilaterally and the validation process



Simplification of system – Virtualization of entry/exit points

Physical entry points

- From production fields– **137**
- From storages – **7**
- From cross-border IP - **4**



Virtual entry points

- From production fields– **6**
- From storages –**2**
- From cross-border IP - **3**

Physical exit points

- To distribution systems – **870**
- To direct clients – **232**
- To storages - **7**

All commercial operations will be carried out at virtual points

Virtual exit points

- To distribution systems – **37**
- To storages - **2**

Capacity booking. Contractual framework

Capacity booking. Contractual framework

TYPE OF CONTRACTS:

1. Capacity contracts:

ENTRY – for introduction of gas into the NTS for:
(i) trading , with VTP notification
(ii) transmission to exit points

EXIT– for taking gas from the NTS for:
(i) supplying end clients
(ii) storage
(iii) transmission to adjacent systems

NOTE: for daily and within-day products, first the conclusion of framework contracts (general terms and conditions) is proposed for the simplification of the bureaucratic procedures upon procurement of this type of products.

This approach could be applied to all types of products?!

Capacity booking. Contractual framework

2. Balancing contracts

Set the rules applicable to the Nus and TSOs regarding the main obligation of NU to daily balance their portfolios.

Contains elements regarding: VTP access, calculation of imbalances, financial settlement of imbalances, financial guarantees, neutrality, etc.

New capacity booking elements:

- *Introduction of within-day products*
- *Alignment of booking periods for different types of products with the ENTSOG auction calendar*
- *Allocation of capacities will be made based on the FCFS principle, by entry points and by auction (CAM NC) for the cross-border IPs with the EU Member States.*

Details regarding capacity booking will be presented below by types of points.

Capacity booking. Capacity transfers

Capacity transfer considerations

- *The virtualization of the NTS exit points to distribution systems will simplify to a great extent the procedures for capacity booking and for using the capacity booked by this type points.*

- *The different capacity booking regime depending on the type of NTS entry/exit point, and the virtualization of the points will lead to the elimination of NU capacity transfers.*

- *The facilities created by the TSO and made available to the NU:*
  - ✓ *to book capacity by NTS virtual exit points to distribution systems, additional to the capacity booking by currently existing virtual points*
  - ✓ *the possibility to trade the capacities booked on the secondary capacity market.*

- *The IT applications necessary for the functioning of the secondary capacity market will be installed on the IT platform of the TSO. The TSO will develop a separate module on the GMOIS (Gas Market Operation Information System) platform , dedicated to the secondary capacity market.*

Modalities of trade on the secondary capacity market

- **The transfer of the right to use the capacity:**
  - ✓ No TSO agreement required
  - ✓ The obligation to pay the capacity remains with the initial NU
  - ✓ The beneficiary NU undertakes all other rights and obligations

- **The complete transfer of the rights and obligations under the capacity contract:**
  - ✓ TSO agreement required
  - ✓ The beneficiary NU undertakes all rights and obligations, including the obligation to pay for the capacity
  - ✓ The initial NU and the beneficiary NU perform this transfer on the secondary capacity platform after the bilateral capacity sale-buy transaction, executed outside the IT platform of the TSO
  - ✓ The TSO amends the capacity contracts

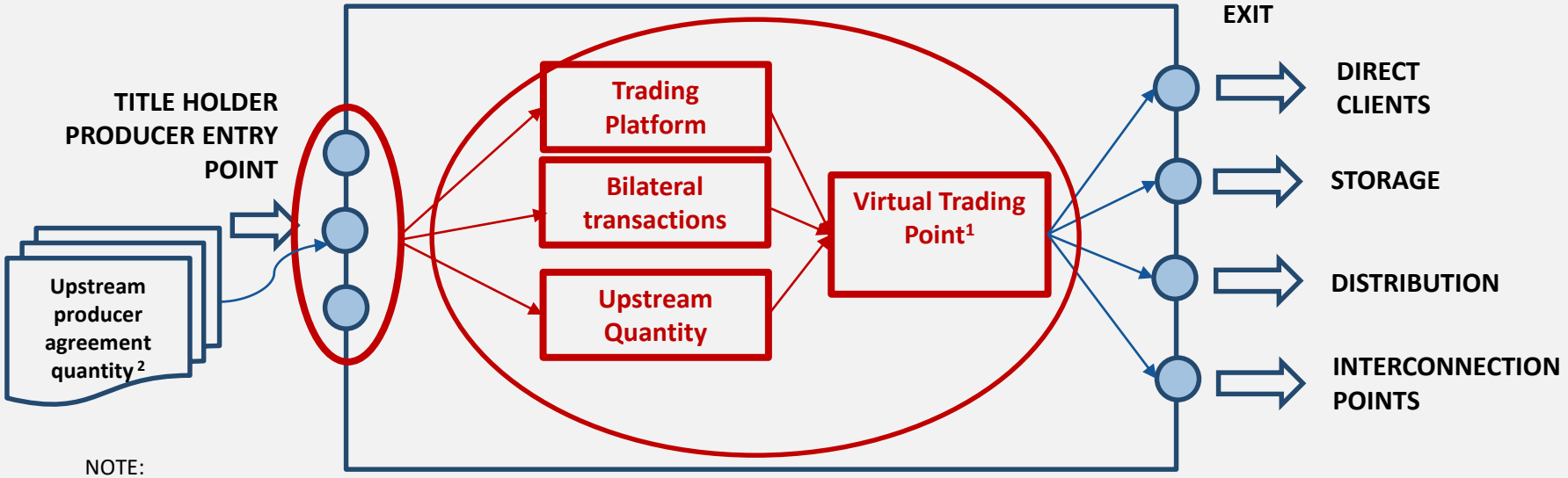
DESCRIPTION OF THE PROPOSED MECHANISM FOR NTS ENTRY POINTS FROM PRODUCTION FIELDS

NTS ENTRY POINTS FROM PRODUCTION FIELDS
CAPACITY BOOKING, VTP NOTIFICATION

Capacity is booked only by the title holder producer or by an entity appointed by the latter

The producer or the entity appointed by it will also mandatorily conclude a balancing contract with the TSO

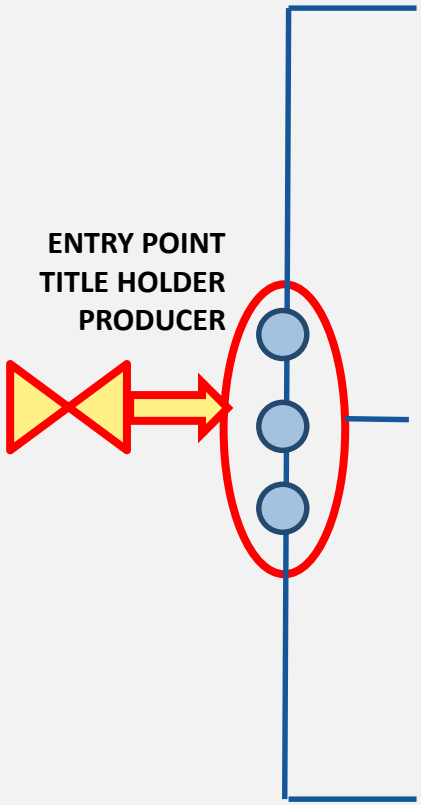
The producer / appointed entity notifies all transactions to the VTP, including the gas amounts agreed under the agreement between the producer title holder of the virtual entry point and the third party producer



NOTE:

1. If the producer is a NU also at the exit point, then gas is not notified at the VTP.
2. The producer title holder of the NTS entry point will deliver to the (upstream) third party producer its quantities at the VTP .

INTERCONNECTION AGREEMENT



- If upstream of an entry point there are more producers, the ones which are not directly connected to the NTS may inject gas in the system based on an agreement with the title holder producer of the virtual entry point. The gas quantities will be delivered at the VTP.
- From a physical point of view, the entry points are operated based on an interconnection agreement concluded between the transporter and the title holder producer.

- The interconnection agreements will include provisions regarding the following:
  - Metering of gas amounts;
  - Gas flow control (the producer controls the NTS injected gas flows, so that the differences between the physical flow and the nominations are as close to 0 as possible).
  - Technical parameters related to all physical points;
  - Setting the limit of the Operational Balancing Account (OBA). The OBA limit will be set so as to cover only the flow control technical possibilities and the accuracy class of the metering systems located at the producer's interface with the NTS;
  - Gas quality;
  - Exchanges of information;
  - Emergency procedures.

(RE)NOMINATION, ALOCATION

(Re)nomination

- The producer / entity appointed to submit (re)nominations of the gas amount planned to be injected into the NTS

- The re-nominations will be made for the entire hourly time-span remaining until the end of the gas day and will be considered 2 hours after the completion of the hourly re-nomination cycle. E.g. a re-nomination received on gas day D, during 08:00 p.m.-08:59 p.m., shall be effective as at 11:00 p.m. and shall refer only to the remaining hours of gas day D (11:00 p.m. - 06:00 a.m.).

Allocation

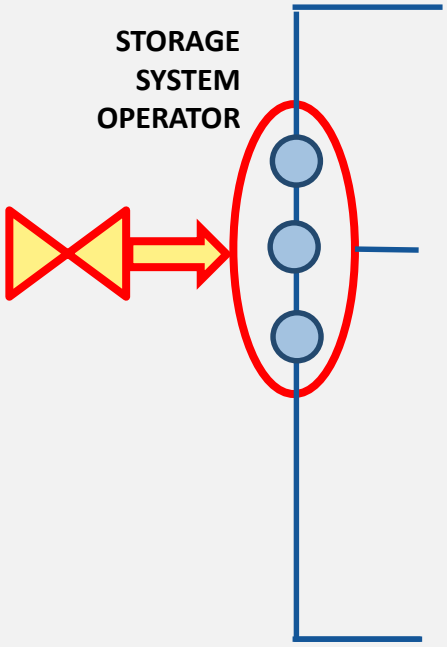
- TSO checks if the difference between the metered amounts and the nomination related to the relevant virtual point added to the current balance of the OBA account shall not exceed the OBA limit agreed under the interconnection agreement.

    - If the OBA limit is not exceeded, the TSO shall allocate gas pursuant to the nominated amounts.
    - If the OBA limit is exceeded, the OBA-based procedure shall be suspended and the TSO shall allocate gas pursuant to the metered amounts.

DESCRIPTION OF THE PROPOSED MECHANISM FOR THE POINTS OF INTERCONNECTION WITH UNDERGROUND STORAGE FACILITIES

CAPACITY BOOKING, INTERCONNECTION AGREEMENT

➢ ***The capacity is booked by the NU*** by concluding with the TSO an NTS entry/exit capacity booking contract at the interface with the underground storage facility. At the same time the NU will be required to conclude a balancing contract with the TSO.



- The physical points of entry/exit to/from the underground storage facilities are operated based on an **interconnection agreement** concluded between the transmission system operator (TSO) and the storage system operator (SSO);
- The interconnection agreements will include provisions related to:
  - Commercial rules (information flow on the pair of SSO clients-TSO clients, the (re)nominations, correlation/their confirmation, the allocation of the quantities per NU);
  - The control of the gas flow (the SSO controls the gas flows delivered/taken over to/from the NTS, so that the difference between the physical flow and the sum of the confirmed nominations for the current gas day to be as close to 0 as possible;
  - Metering gas quantities;
  - Setting the limit of the operational balancing account (OBA). The limit of the OBA will be set so as to cover only the technical possibilities of flow control and accuracy class of the metering systems at the SSO and NTS interface;
  - Information exchange;
  - Emergency Procedures;
  - Details regarding the technical parameters related to all physical points.

INTERCONNECTION POINTS WITH UNDERGROUND STORAGE FACILITIES

(RE)NOMINATION, CORRELATION, ALLOCATION

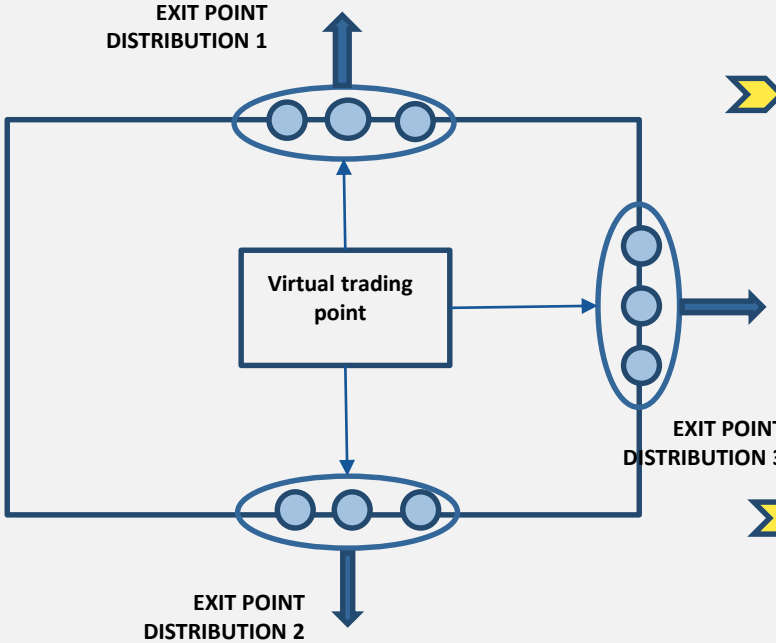
- The TSO clients will send the (re)nominations, included in the booked capacity, indicating the pair partner who is a client of the Underground System Operator (SSO);
- The SSO will send to the TSO the nominations of its clients, split per each pair of SSO client – TSO client. In a 30 minutes time span:
- Based on the received information the TSO performs the correlation, applying the "lesser rule";
- The TSO notifies the SSO of the result of the correlation for each SSO client – TSO client pair; both the TSO and the SSO notify their own clients of the result of the correlation;
- The sum of the confirmed (re)nominations is the planned quantity to be delivered/taken over at the interface between the 2 systems

The **ALLOCATION=NOMINATION** principle is applied

- The TSO checks whether the difference between the sum of the metered quantities and the (re)nomination related to that virtual point added to the current value of the OBA account, does not exceed the OBA limit agreed by the interconnection agreement;
  - If the OBA limit is not exceeded, the TSO will make the allocation per NU in line with the (re)nominated quantities;
  - If the OBA limit is exceeded – the difference between the metered quantity and the (re)nominated quantity will be allocated to a NU responsible for balancing, appointed by the SSO
  - If the OBA limit is exceeded because of technical reasons (for example: higher pressures in the NTS than the ones agreed between the TSO and the SSO)- the difference between the metered quantity and the (re)nominated quantity will be an adjustment of the TSO stocks from the storage facilities.

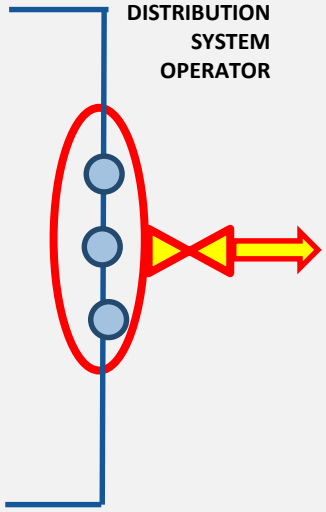
DESCRIPTION OF THE PROPOSED MECHANISM FOR THE NTS EXIT POINTS TO THE DISTRIBUTION SYSTEMS

CAPACITY BOOKING



- **Capacity is booked by the NU– by concluding with the TSO an Exit Capacity Services contract.**
- **Only the NUs who concluded a balancing contract with the TSO have the right to book NTS exit capacity.**
- **The capacity is booked annually in a sufficient amount to cover the maximum consumption needs of all the end clients connected to the DS.**
- **The total amount of the capacity booked per each virtual point related to each DSO is set based on an algorithm defined in the Network Code (it will take into account the actually used capacity per virtual points related to each DSO)**
- **The capacity booked by each NU is determined by the split by the DSO of the amount set according to the share of the capacity used in the previous calendar year by the end clients from the portfolio of such NU, at the date the booking period starts, to the total capacities used in the virtual point related to the DSO in the same period.**

CAPACITY BOOKING, INTERCONNECTION AGREEMENT



The DSO notifies the TSO of any change of supplier (NU) to the end clients connected to the DS, submitting in due time the re-calculated capacity for each supplier (NU) involved and the information at the basis of this calculation, according to the `rucksack` principle.

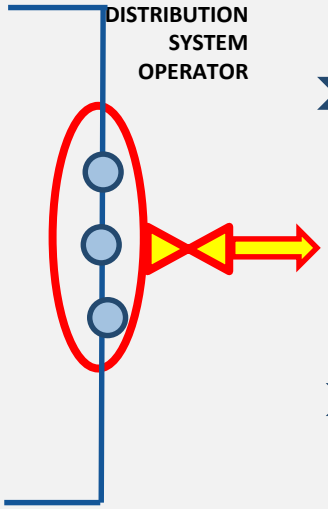
If a distribution system is connected to another distribution system connected to the NTS the capacity of the virtual point related to the DS connected to the NTS also includes the capacity related to the downstream DS.

The physical NTS exit points are operated based on an interconnection agreement concluded between the TSO and the DSO.

The interconnection agreements will include provisions related to:

- **Metering gas quantities;**
- **Gas quality;**
- **Information exchange;**
- **Emergency Procedures.**

NTS EXIT POINTS TO THE DISTRIBUTION SYSTEMS
(RE)NOMINATION, ALLOCATION



NOMINATION

NU submits until the day D-1, at 02:00 pm, to the GMOIS platform, nominations for the day D, on the virtual exit points to the DS, highlighting separately the nomination for the daily metered end clients.

RENOMINATION

A re-nomination cycle starts every hour within the time span 06:00 pm and until the day D, 03:00 o'clock.
Following the receipt of the re-nomination the TSO submits a confirmation message of its registration to the information platform of the TSO.

ALLOCATION

The allocation is performed by the TSO, based on the information received from the DSO, in the day D+1.

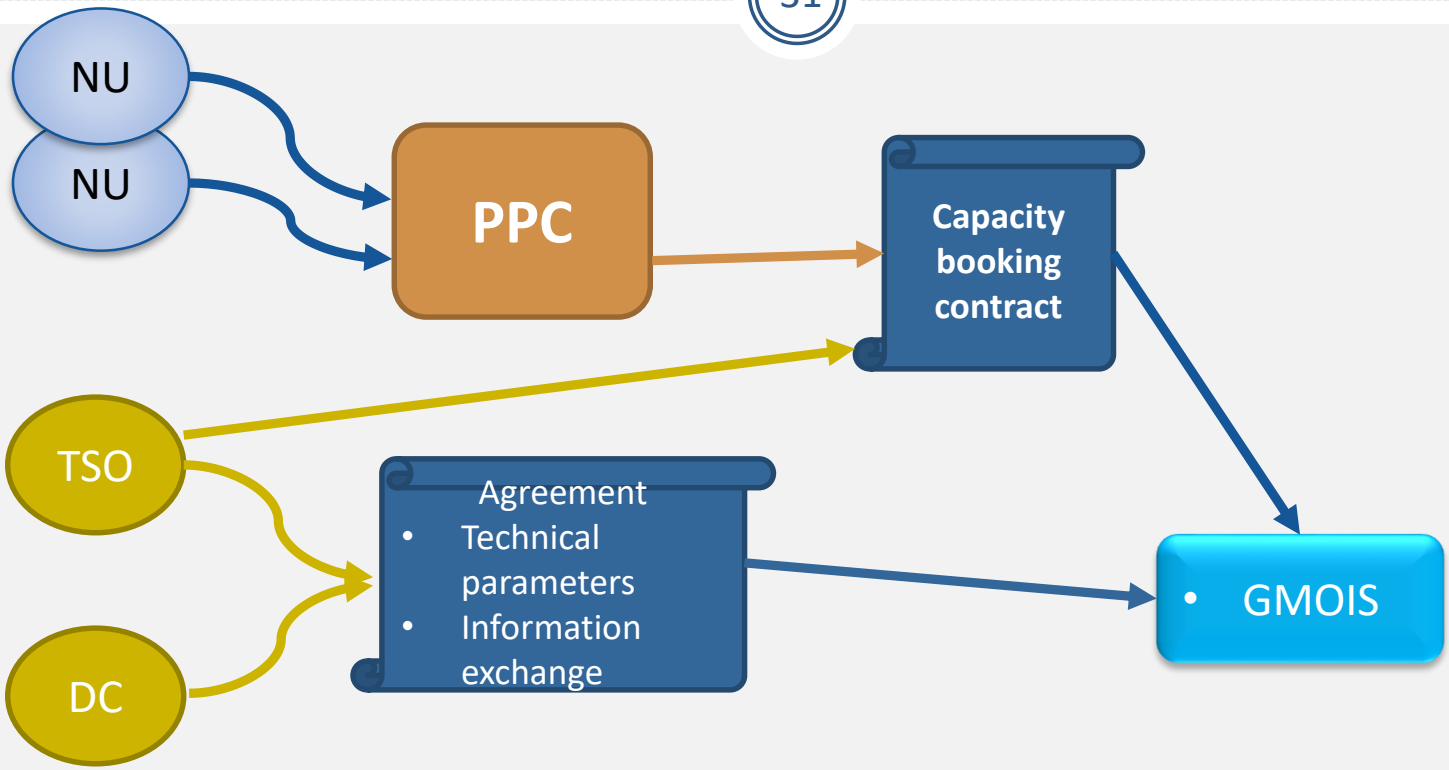
If the DSO does not send the allocations per NU, (re)nominations are used in the initial allocation process (pro rata with the nomination) related to the quantities metered in the points located at the NTS/DS interface.

Until the 8th day of the month M+1 the TSO notifies the DSO connected to the NTS of the corrections of the daily metered quantities at the NTS/DS interface.

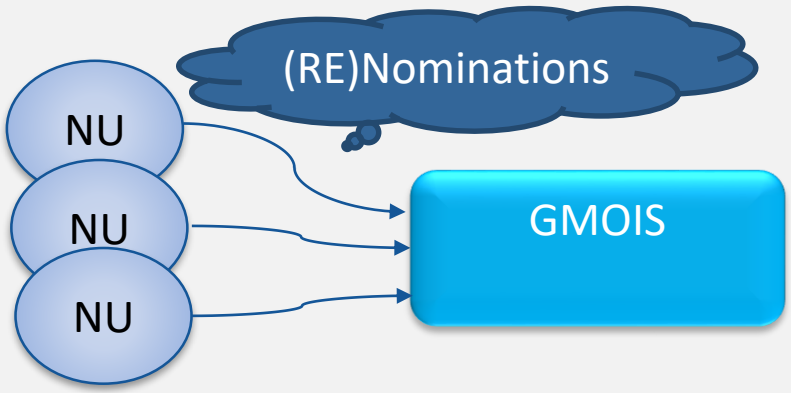
Within 2 days, the DSO connected to the NTS notifies the TSO of the final information on the split per NU of the differences resulted from the correction of the daily gas quantities metered daily at the NTS/DS interface.

The TSO performs the final daily allocation and notifies it to the NU until the 12th day of the month M+1, the latest.

EXIT POINTS TO DIRECT CLIENTS
Contract



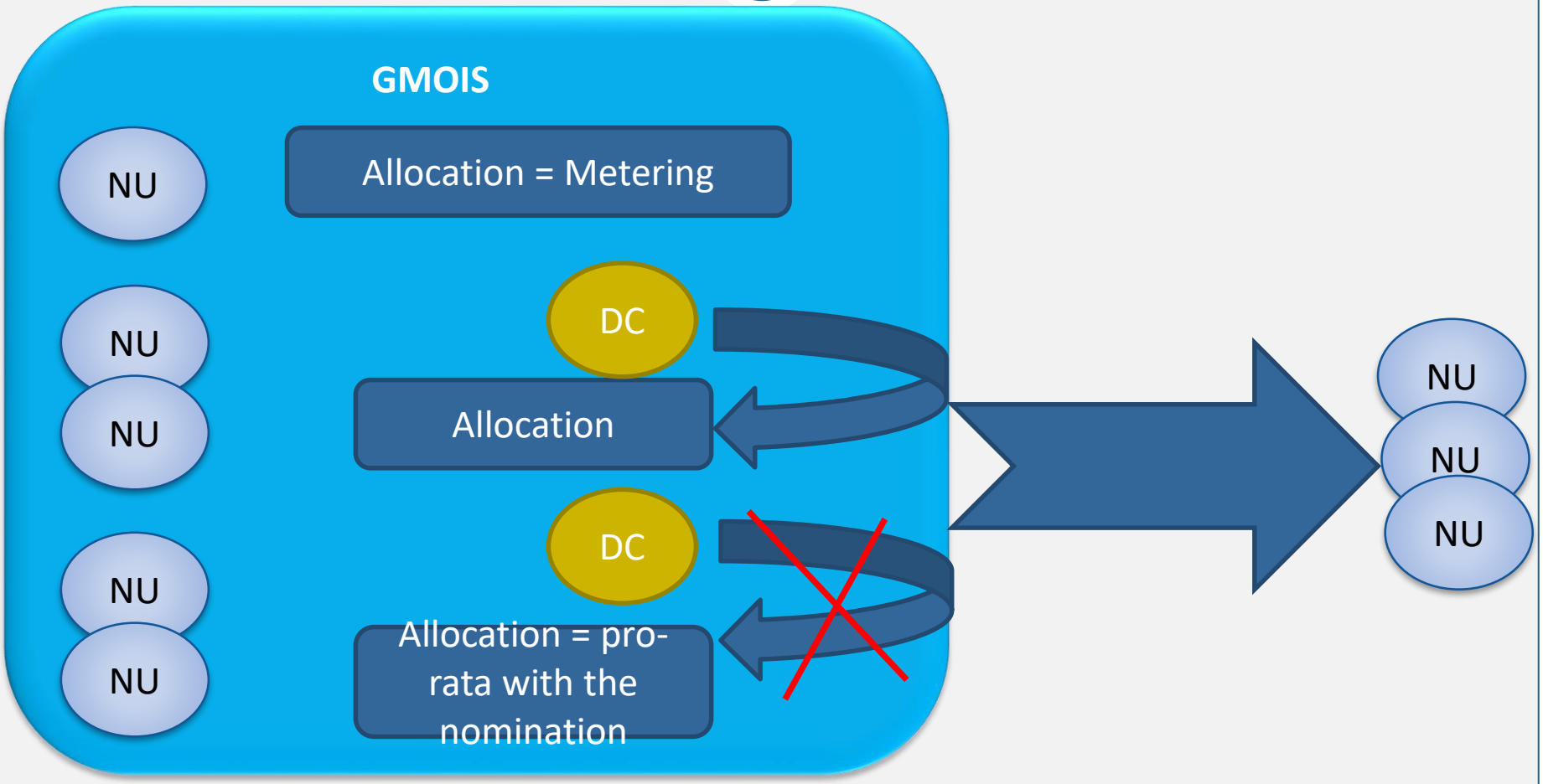
EXIT POINTS TO DIRECT CLIENTS
(RE)NOMINATION



(Re)Nomination

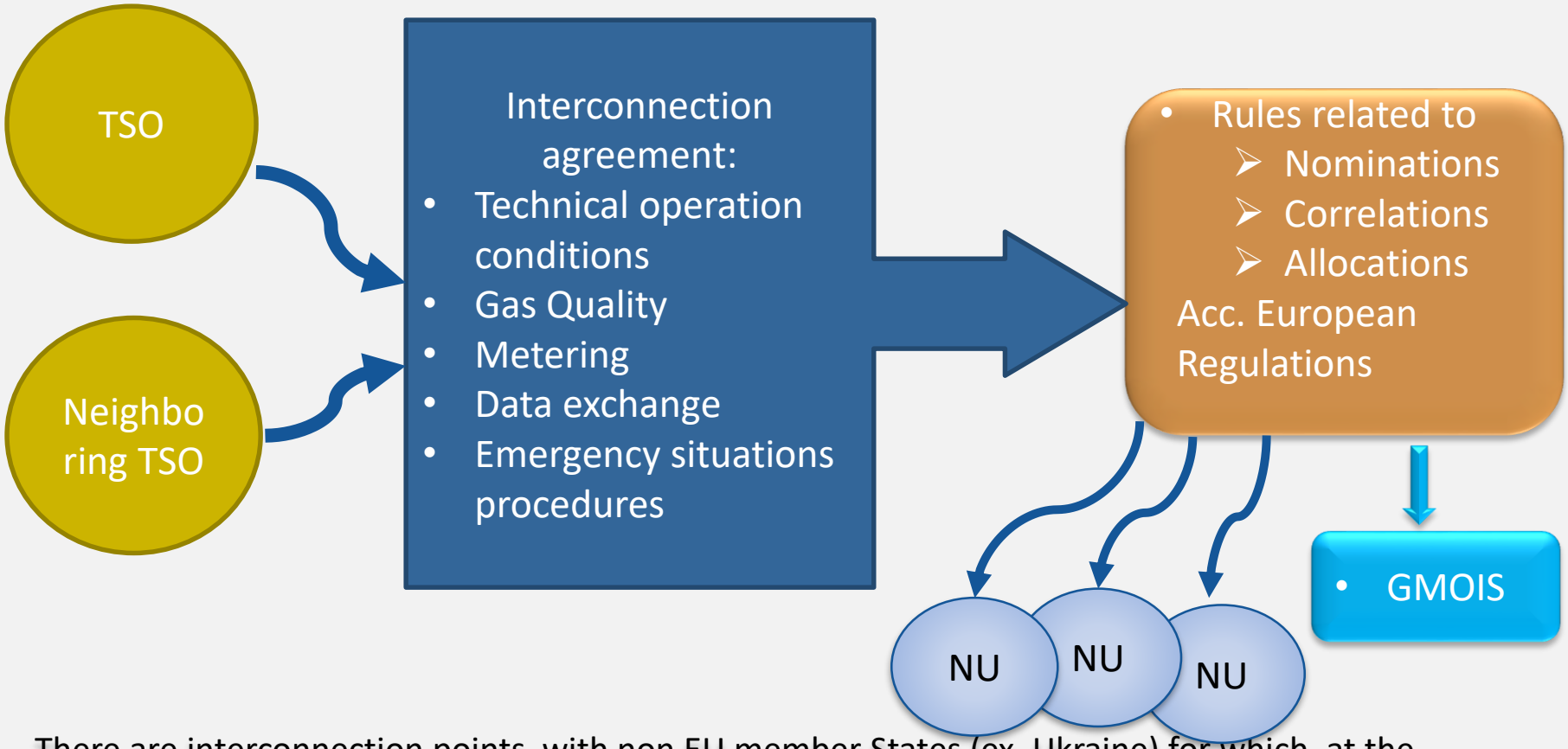
NUs submit to the GMOIS platform (re)nominations for the day D, per exit points to DC. If the NUs do not submit any (re)nominations for the gas day, the TSO considers the nomination to be 0 and will cease gas deliveries for the NTS exit point at the interface with DC

EXIT POINTS TO DIRECT CLIENTS
ALLOCATION



CROSS BORDER INTERCONNECTION POINTS

CROSS BORDER INTERCONNECTION POINTS

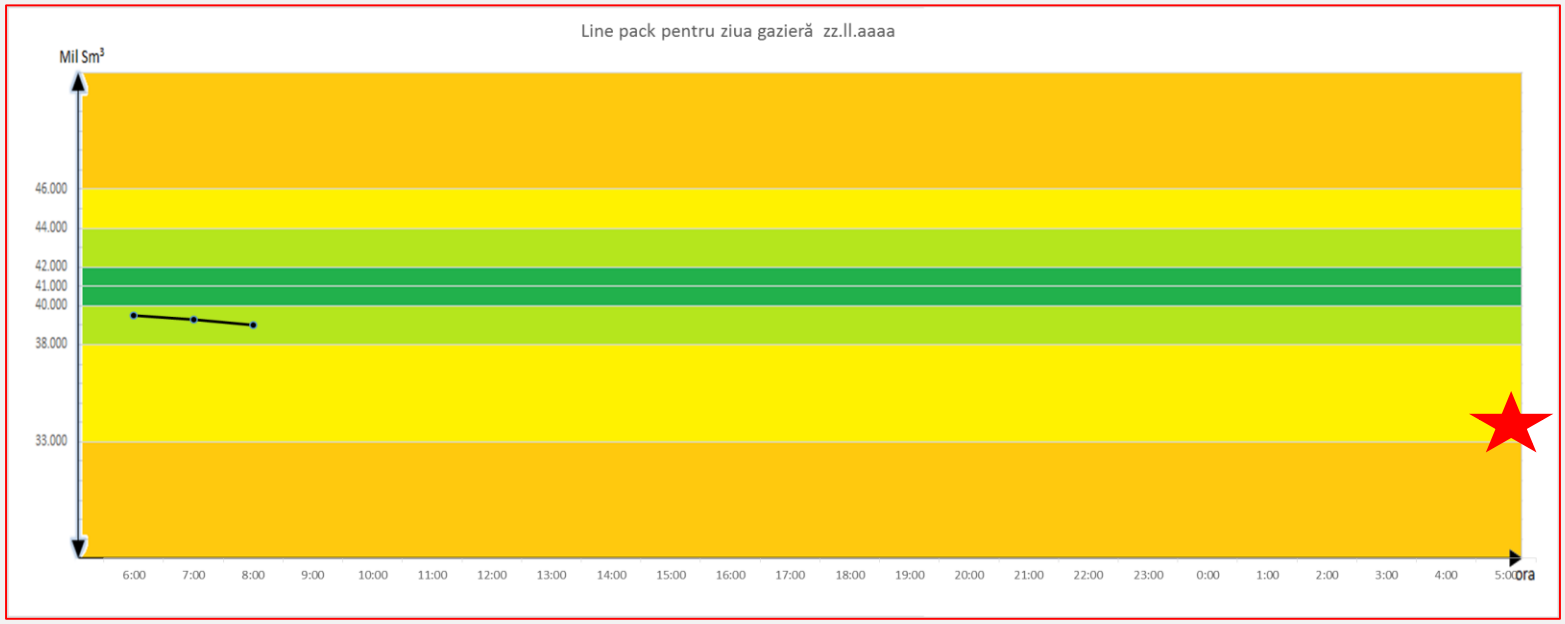


There are interconnection points with non EU member States (ex. Ukraine) for which, at the moment, no interconnection agreements have been concluded. The interconnection agreements are being negotiated.

Information provision

Information provision

1. Gas quantity (linepack) in the NTS at the beginning of each gas day and the gas quantity forecasted to be present in the NTS at the end of the gas day. Both the existing quantity and the one forecasted for the end of the day are updated on hourly basis.



Hourly publication of the linepack in the day D ✓

Forecasting the linepack in the end of day D – Ongoing project !

2. Balancing actions taken by the TSO. The actions are published on the TSO's website on a daily basis.

3. Each NU's entries and exits to/from the balancing zone.

In the case of cross-border interconnection points, entry points from the production fields and points at the interface between the transmission system and the underground storage facilities the **NU entries/exits = confirmed (re)nominations** (the allocation principle of the quantities is **Allocation = confirmed (Re)Nomination**)

➡ When the (re)nominations are confirmed the NU has the information related to its **entries/exits through such points, for the gas day D**

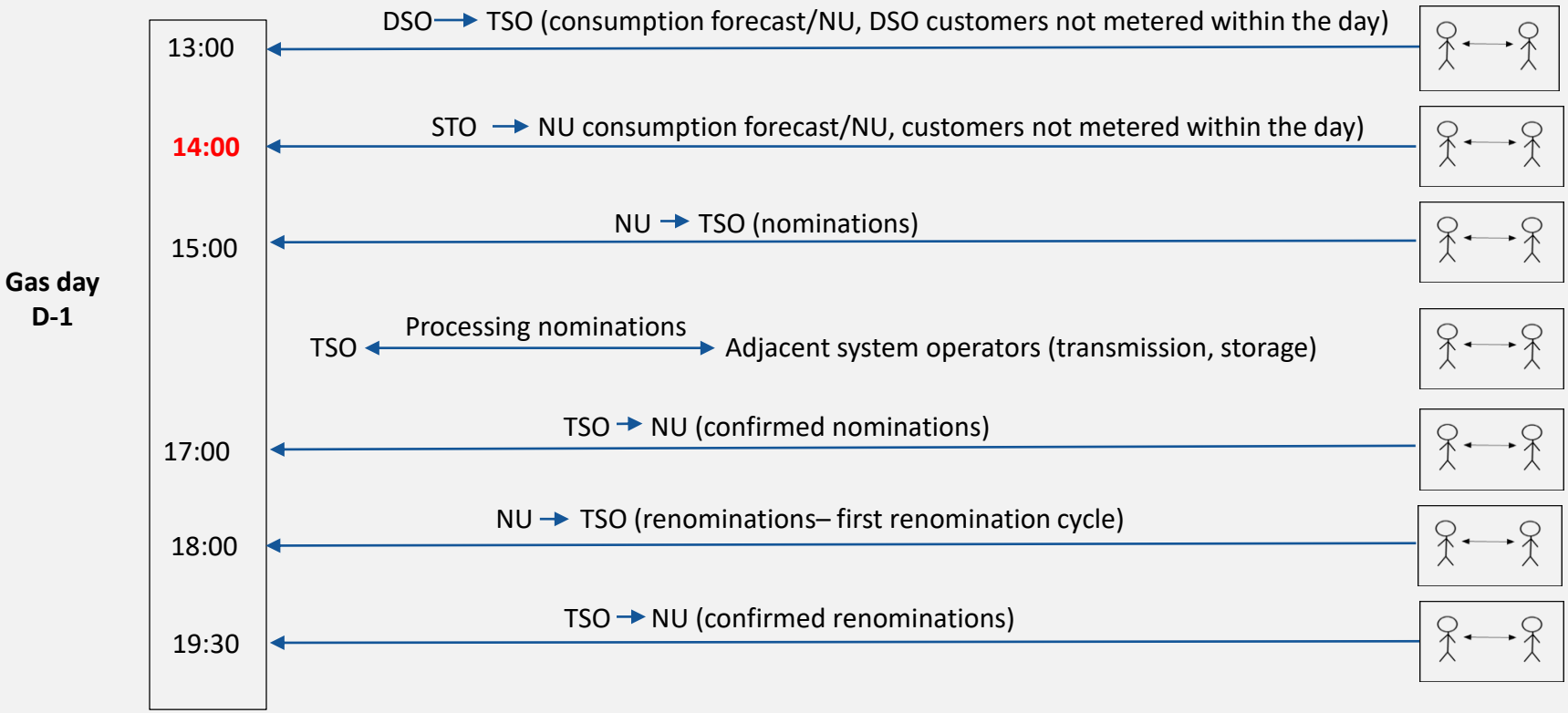
In the case of exit points to the consumers connected to that transmission system respectively to the distribution system, 2 situations stand out:

a) Daily metered exit points.

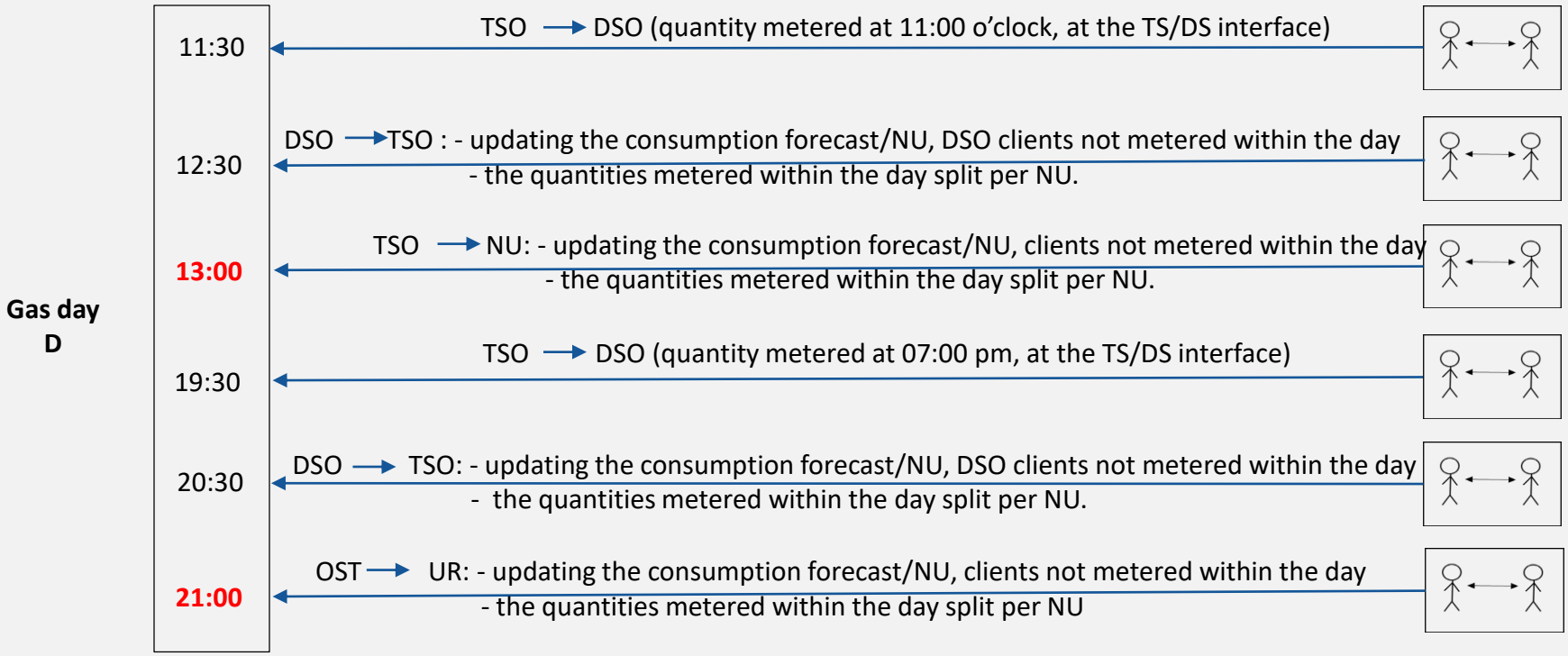
b) Non –daily metered day exit points.

Forecasts

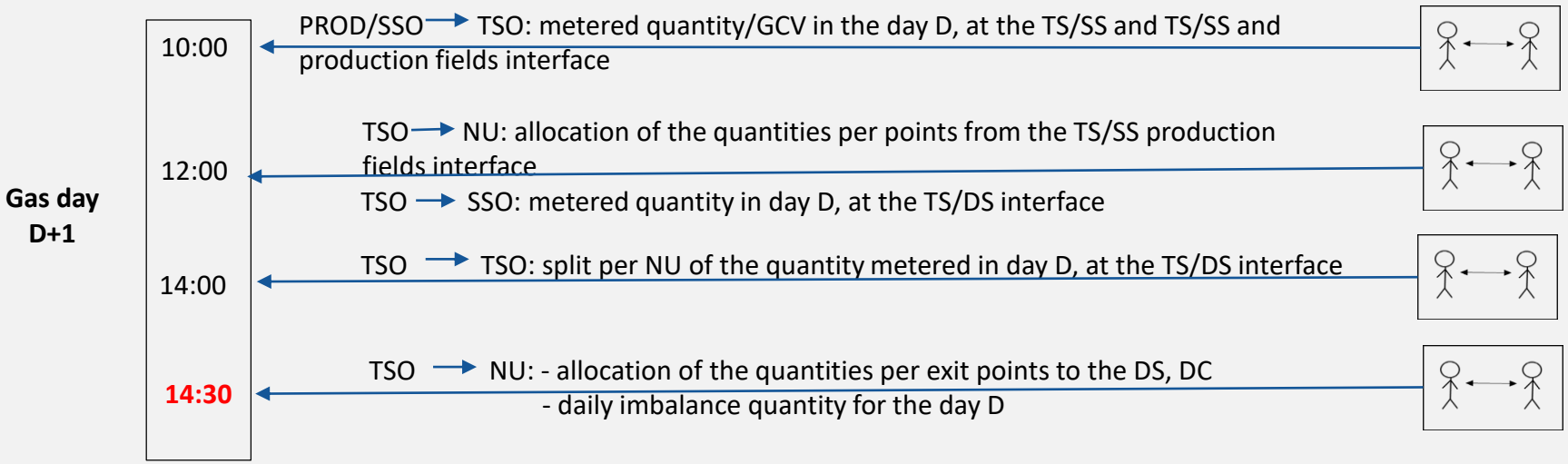
Information provision, data exchange



Information provision, data exchange



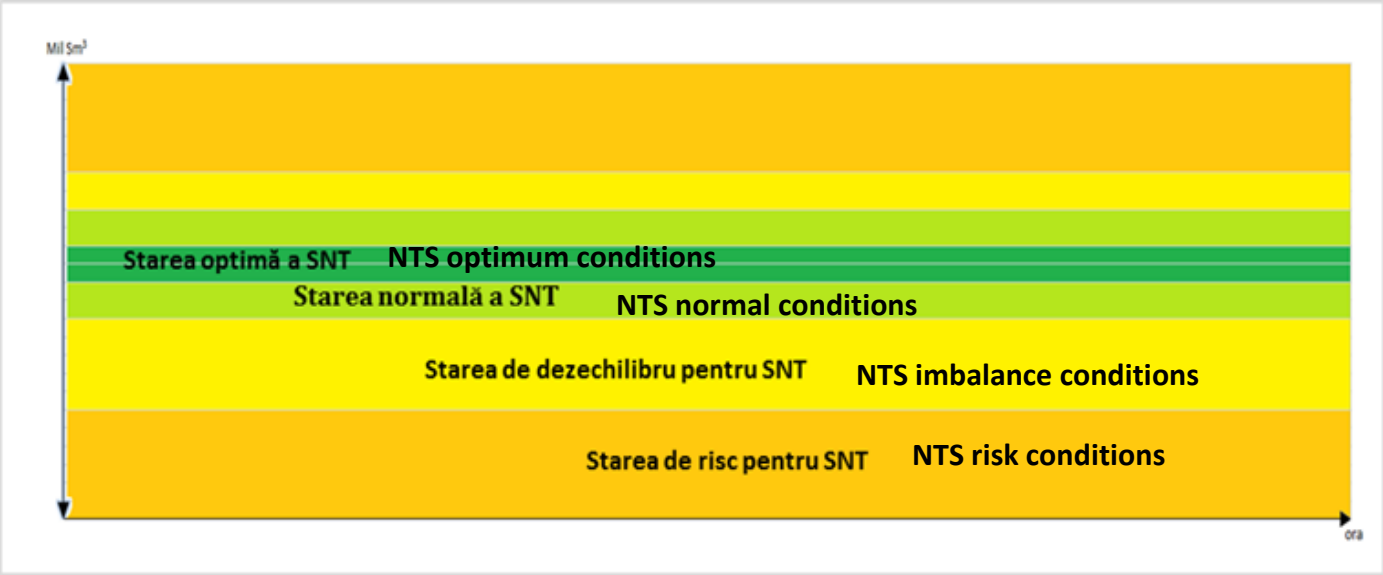
Information provision, data exchange



Balancing

BALANCING

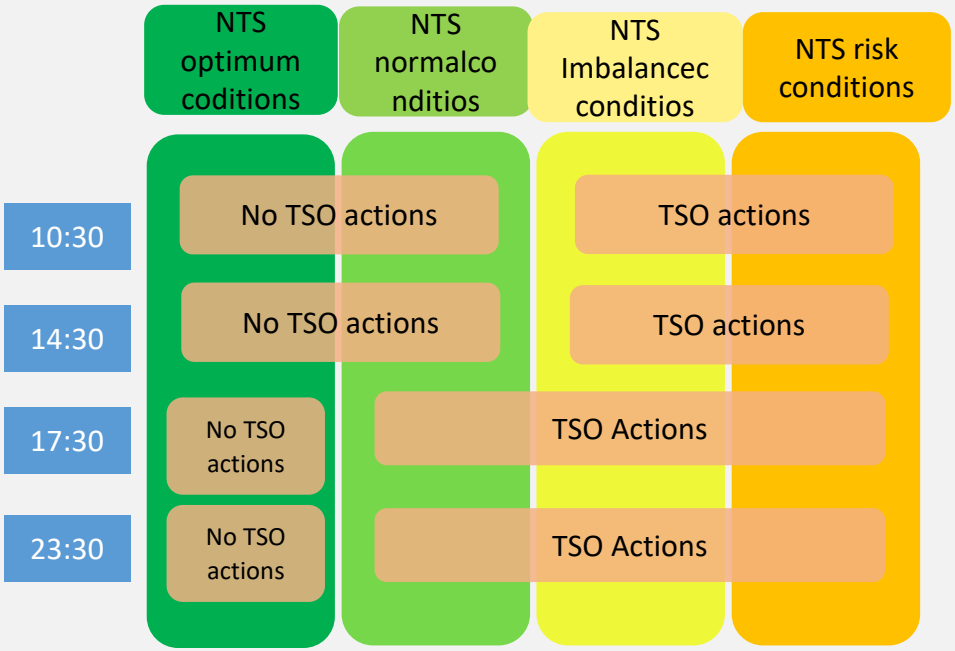
- The NU is required to balance its entries and exits in the system during the gas day D, in order to reduce to the minimum the need for the TSO to take balancing actions
- The Operational limits of the NTS are set by the TSO, depending on the value of the linepack as follows:



- The limits of the linepack defining the abovementioned states differ depending on the season (warm/cold).

BALANCING

- Depending on the position of the line pack forecasted for the end of day D, 4 time slots are available to the TSO, within the day to take balancing actions by trading standardized short term products made available on the trading platforms



- If the short-term standardized products do not allow the TSO to keep the network within its operational limits, the TSO will use the balancing services procured on a transparent and non-discriminatory basis.

CALCULATION OF THE DAILY IMBALANCE OF A NU –IMBALANCE CHARGES

- The daily imbalance is calculated according to the following formula:

Imbalance quantity= (total allocation entry + total purchases VTP) – (total allocations exits + total sales VTP)

- The TSO notifies the NU of the imbalance registered in the day D, in the day D+1, 14:15 o'clock.

- The (short-system) daily imbalance charge is determined as follows:

Imbalance charge = Negative quantity of daily imbalance * marginal buying price

- If there is an excess of gas in the system causing imbalances the following formula is used:

Imbalance charge = Positive quantity of daily imbalance * marginal selling price

NEUTRALITY

- The TSO shall not record gain or loss as a result of the actions taken to balance the transmission system;.
- The TSO will transfer to the network users the difference between revenues and costs directly related to the taken balancing actions;
- Costs directly related to the actions for balancing the transmission system will be included in the neutrality account on a monthly basis and will be included in the neutrality charge.

NEUTRALITY ACCOUNT	
COSTS	REVENUES
• Costs registered by the TSO as a result of paying long-system type imbalance charges • Costs resulted from the purchase of gas by the TSO for ensuring physical balancing of the NTS	• Revenues recorded by the TSO as result of recording of short-system type imbalancing charges • Revenues coming from the sale of gas by the TSO for ensuring the physical balancing of the NTS

CALCULATION OF THE NEUTRALITY CHARGE

- The value of the neutrality account is distributed to NU at the end of each settlement period based on the Neutrality Rate determined according to the following formula:

Neutrality rate = The value related to the neutrality account / the output amount allocated to all Nus (VTP, NTS)

- The neutrality charges paid by or to network users are proportional to the output amount allocated during the settlement period by the network users and are determined according to the following formula:

Neutrality charge** = **neutrality rate* **the output gas quantity** ***allocated to all Nus (VTP, NTS)***

- The neutrality charge is paid by the TSO to the NU if the value of the neutrality account is positive.
- The neutrality charge is paid by the NU to the TSO if the value of the neutrality account is negative.
- The settlement period is the calendar month for which the neutrality charge is calculated.