



BAL NC – Launch Workshop

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Balancing Target Model

Nigel Sisman

Business Area Manager, Market

13-14 December 2011 - Diamant Centre, Brussels

Balancing Target Model – key points

- Bridging the gap between the physical and commercial realities
- The critical content elements
- Delivery of properly functioning regimes



Trading room photo

Bridging the gap

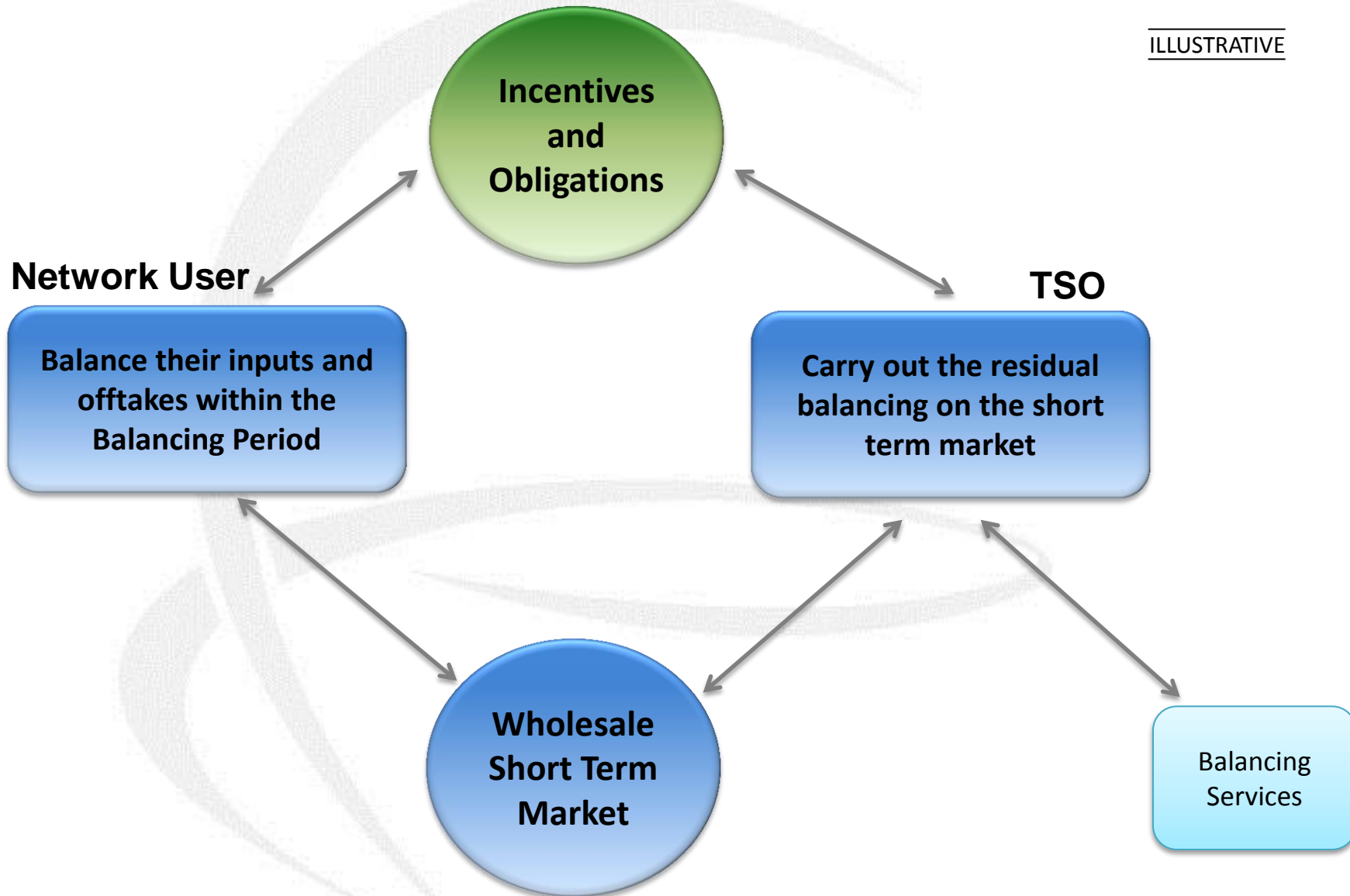
TSO photo of hardware

- Visual slide to somehow draw out the similarities and differences between the physical and commercial realities perhaps by drawing out differences between a system users perspective and TSO
- But that the two worlds come together with balancing platform screens
- **BALANCING PLATFORM SCREEN
APX/POWERNEXT**

System user
/Supplier photo
symbolising their
business

Balancing Target Model – a view

ILLUSTRATIVE



Balancing Target Model - aspirations

Market based balancing systems

Enabling efficient gas trading

**Maximising user role;
Minimising TSO role**

... encouraging the realisation of efficiencies from the gas market

Balancing Target Model - key elements

Daily Imbalance Charge

Imbalance settlement based on inputs – offtakes

- aspiration for systems to demand track within day
- offtakes to be determined as late as is reasonable
- full daily cashout

Information provision

Users must have information to manage risks and opportunities

- within day information where reasonable
- sufficient information where within day obligations apply

TSO role and responsibilities

Residual and limited role

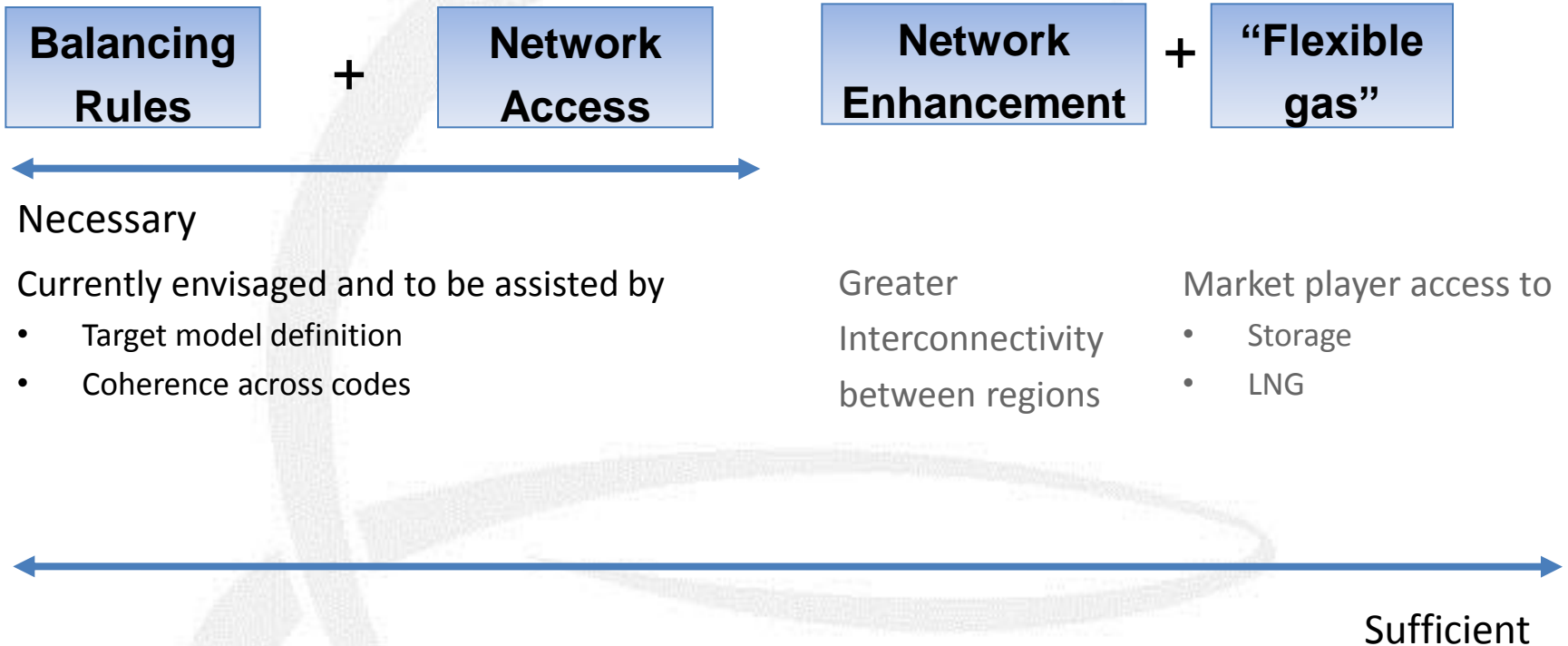
- use of wholesale markets wherever efficient
- additional tools where wholesale markets cannot deliver

Within-day obligations

But only subject to multiple criteria

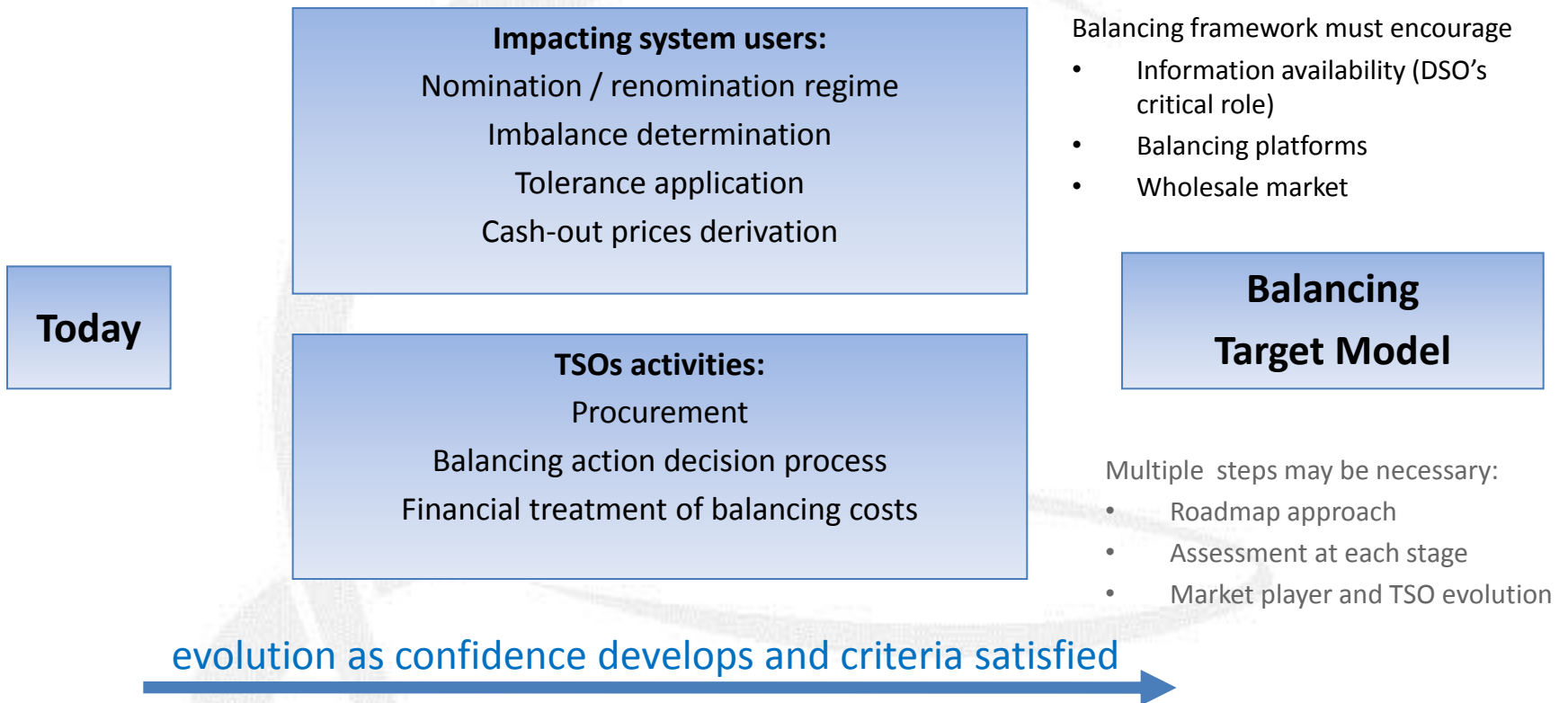
- necessary for system integrity and minimise TSO actions
- no undue barriers to cross-border trade or to new entrants
- network users to have adequate info to manage exposures
- Shall not undermine daily balancing principle
- Charges for within-day small compared with imbalance charges

Delivery of effective functioning regimes



TSO rules can enable short term balancing market but may need other political and regulatory support to enhance network and “flexible gas” competition to ensure hub & market functioning

Transition to a properly functioning regime



Aiming towards a balancing target model requires both system users and TSOs to manage transitional steps

Conclusions

- Balancing Target Model
 - Simple in aspiration
 - Complex in terms of interactions
- Concepts need to be well understood
 - Objective of next day and a half
- Need to focus on the target
 - Then deal with other issues including transition



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Elemental Areas of Framework - General

Ruud van der Meer
Advisor, ENTSOG

13-14 December 2011 - Diamant Centre, Brussels


Agenda

Balancing concepts

Roles and responsibilities

Framework Guidelines' options

Stakeholder perspective



Balancing concepts

Roles and responsibilities

Framework Guidelines' options

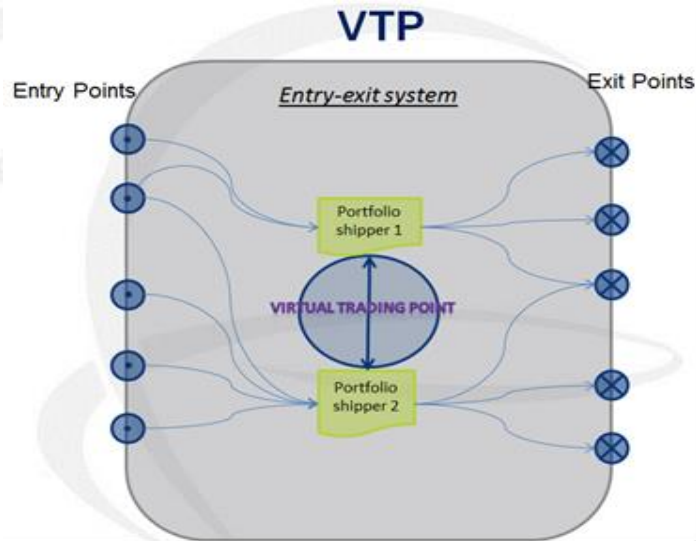
Stakeholder perspective

Balancing Zone - definition

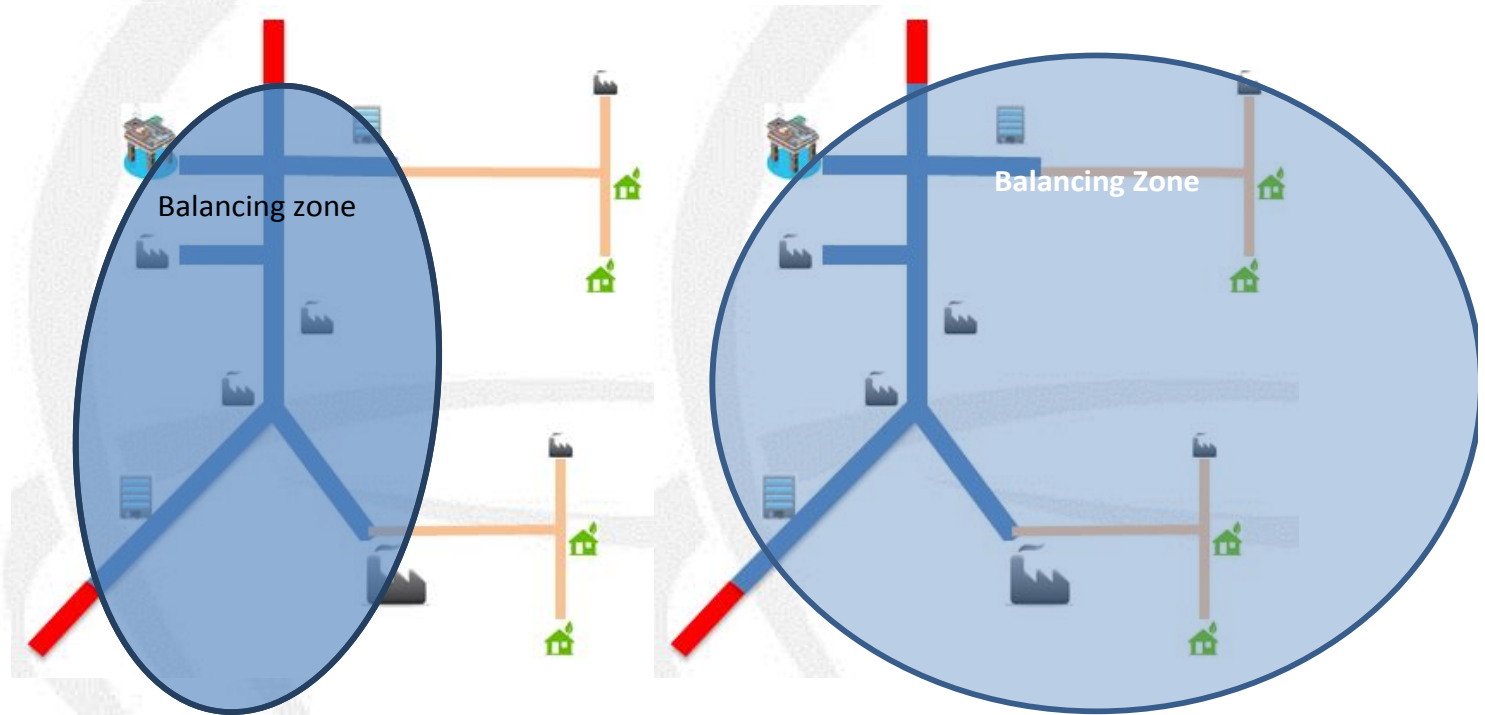
- Balancing Zone (framework guidelines):
 - Is an entry-exit system, which may consist of more than one system, as defined in Article 2(13) of the Gas Directive, to which a specific balancing regime is applicable
 - Includes entries from storage and LNG into the transmission system as well as the exits from the transmission system into storage
 - Distribution systems may be part of the balancing zone (it is not intended that the network code will apply to distribution systems)

Entry-exit system - definition

- Entry-exit system (proposed working definition, based on Reg 715/2009)
 - Is a transmission system in which transmission capacity is marketed based on an entry-exit model, a commercial model in which there is:
 - no link between entry and exit when booking
 - no link between entry and exit when using
 - Offering a virtual trading point as a service to network user to exchange title to gas within the system



Balancing Zone - examples



Imbalance charge - definition

- Imbalance charge (framework guidelines)
 - Charge applied by a TSO to network users (or payment received by a network user from the TSO) for financial settlement of a network user's imbalance in respect of a balancing period
- In this context 'Imbalance' is defined as (framework guidelines):
 - the difference between network user's injections into the balancing zone and its off-takes from the balancing zone

Balancing Period - definition

- Balancing period
 - Is a standardised daily interval (24 hour period)
 - From 5:00 to 5:00 UTC for winter time
 - From 4:00 to 4:00 UTC when daylight saving is applied

Observations

- Network users' imbalance charges are based on
 1. For each network user the difference between its inputs and outputs; the difference being the network user's imbalance
 2. imbalance prices to settle individual imbalances
- Each balancing period network users' portfolio position will be zero

Inputs and off-takes

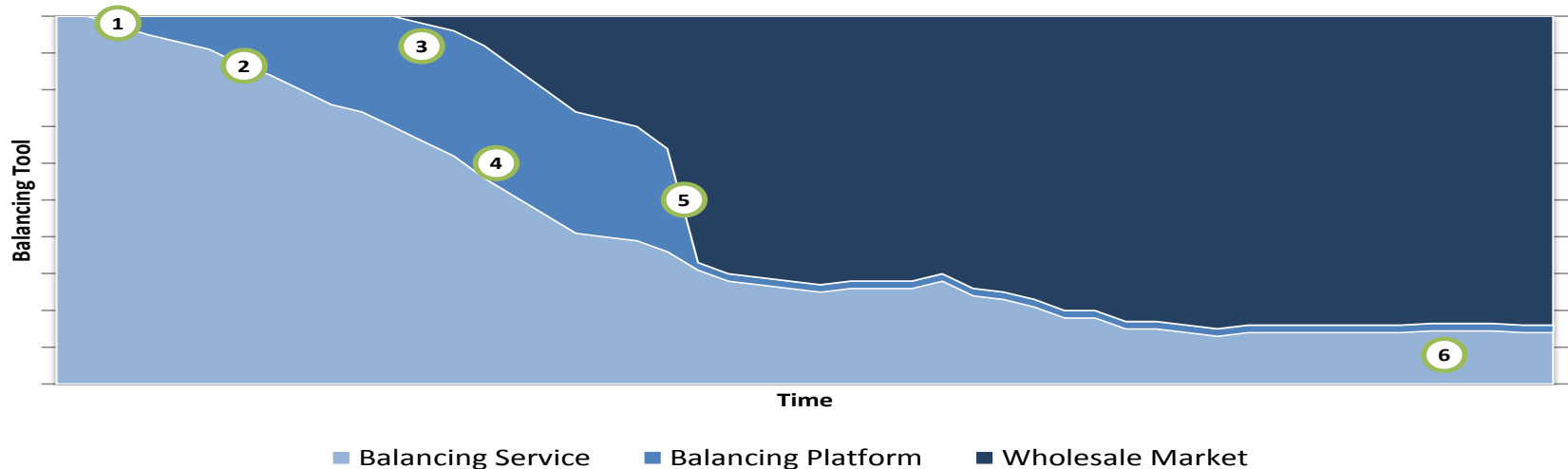
- Entry and exit flows are measured at entry and exit points
- At most entry and exit points more than one network user has title to part of the total flow
- At these entry and exit points the total flow has to be allocated to individual network users
- Different mechanisms are in use
 - Allocated as nominated, with a balancing party to take the difference between total nomination and actual flow (either the TSO or a balancing shipper)
 - Allocation proportional to nominated flows
 - On interconnection between TSO and DSO two more mechanisms are used:
 1. Use of load-profiles to calculate a proxy for off-takes by non-daily metered customers based on measured flows over the interconnection point and measured off-takes by other customers in the distribution network
 2. Use of day-ahead forecast as proxy for off-takes by non-daily metered customers

Within-day obligations - definition

- Within-day obligations (framework guidelines, section 3.1)
 - Are specific obligations relating to network users' inputs and off-takes during the gas day
 - Imposed by the TSO where the TSO needs to take balancing actions regarding the system's position during the day

Balancing evolution - illustration

TSO Balancing Tools Development



Stage 1

- No wholesale market
- Balancing actions are via balancing services
- Balancing platform created to stimulate a short term market
- All trades are with the TSO

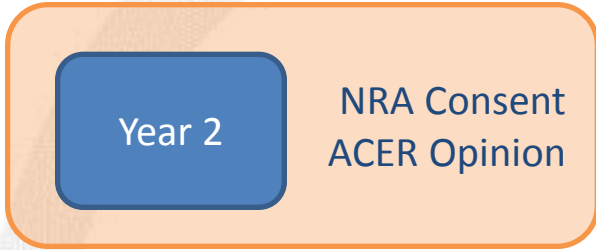


Stage 6

- TSO balancing actions made on the wholesale market
- The balancing platform may still be used for temporal or locational products
- Some balancing services are maintained but use is minimal


Compliance

No Interim Measures



Interim Measures





Balancing concepts

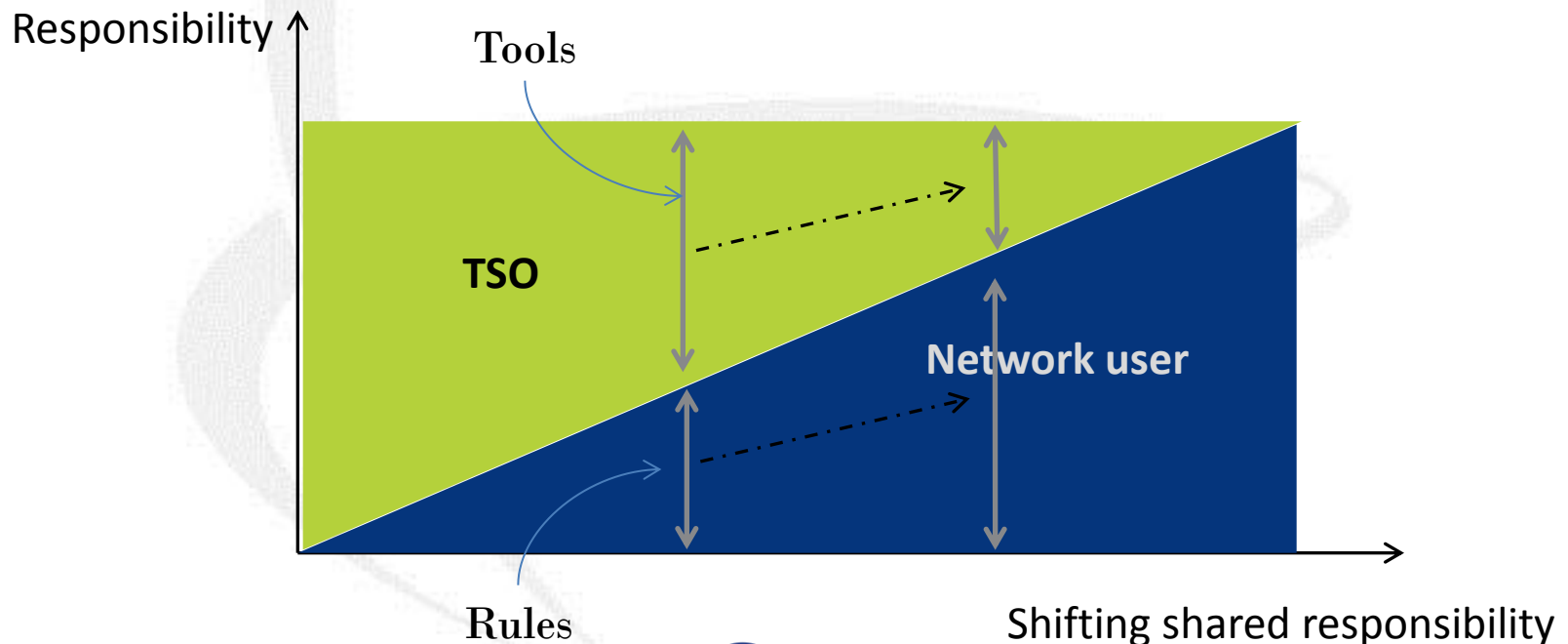
Roles and responsibilities

Framework Guidelines options

Stakeholder perspective

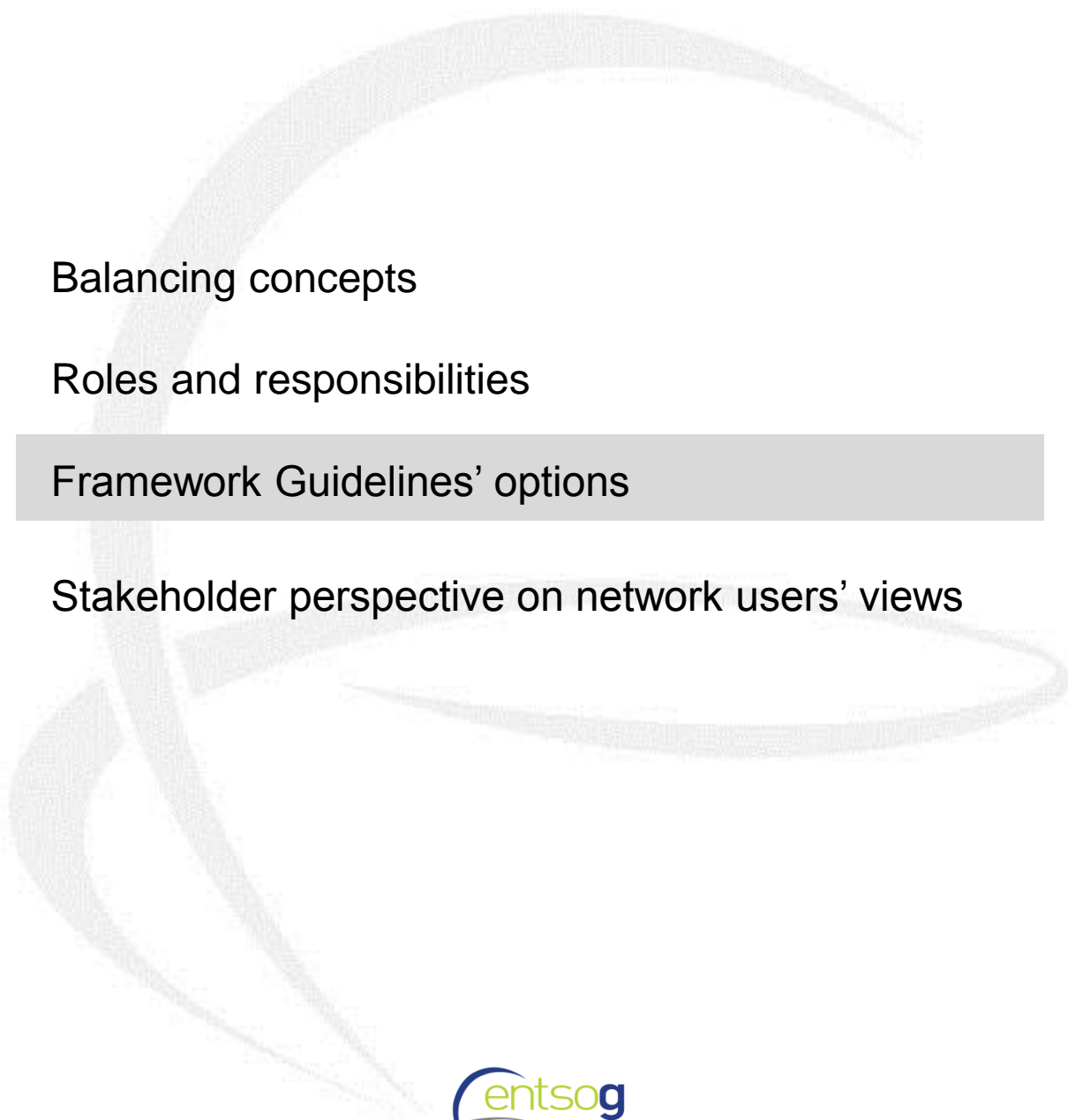
Shared responsibility

- Balancing is a responsibility shared between network users and TSO
- There is a choice in how to share responsibilities between network user and TSO
- Framework guidelines aim to minimize the role of the TSO
- Responsibilities must be reflected in
 - the rules on network users
 - tools available to the TSO



TSO roles – direct and indirect

- In the context of balancing, different roles can be identified
 - Examples of such roles are:
 - Balancing role responsibility for taking balancing actions, procuring the balancing tools and services needed to balance the system(s)
 - Settlement role managing the financial flows on behalf of the TSO, for example, settlement calculations, statements, invoicing, etc
 - Information flow role responsibility for gathering, processing and providing network users with the information they require to manage their portfolio
- Roles of the TSO may be undertaken by different parties on behalf of the TSO
- Framework Guidelines recognize this stating ‘where there is a party different from the TSO, references in the framework guidelines relate to that party’.



Balancing concepts

Roles and responsibilities

Framework Guidelines' options

Stakeholder perspective on network users' views

Problem identified

Framework guidelines state as part of the main problem that

- TSOs undertake most of the network balancing
- TSOs hold options to considerable amounts of flexible gas via long-term contract to fulfil this task
- This flexible gas should be available for trade in the wholesale market

Objective therefor seems to be to

- Reduce the role of the TSO
- Thereby reducing the amount of long-term flex held by the TSO and
- increasing liquidity in the wholesale market

Contribution of within-day obligations

In managing within-day positions of the system within-day obligations:

- Reduce the role of the TSO
- Reduce amount of flex held in long term contracts
- Increase market based procurement of flexible gas

However:

- Within-day obligations make portfolio balancing more complex
 - This trade-off is clearly accepted by the framework guidelines
- In some cases within-day obligations
 - remove the genuine system need for an end-of-day settlement and
 - keeping the end-of-day settlement will
 - increase the role of the TSO
 - potentially increased cost for the network users

In this case the fg seem to accept the increased role and higher cost

Determining inputs and off-takes

- To reduce the role of the TSO network users have to match inputs against off-takes during the balancing period
- The framework guidelines allows forecasts to be used as off-takes in calculating imbalance charges
- This will increase the role of the TSO:
 - Difference between forecast and actual off-take has to be provided by the TSO


The framework guidelines clearly accept the option of an increased role of the TSO

Trade at the VTP

- Trades at the VTP add to a network user's imbalance
- Until when should TSO accept trade nominations at the VTP?

The framework guidelines is not explicit on this.

Experience shows that trades can be allowed until late in the gas day



Balancing concepts

Roles and responsibilities

Framework Guidelines options

Stakeholder perspectives



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Elemental Areas of Framework – Within-day obligations

Sandrie Egberts

Genuine System Needs Kernel Group,
ENTSOG

13-14 December 2011 - Diamant Centre, Brussels

Agenda

Rationale for within-day obligation / incentives

Types of within day obligations / incentives

Stakeholder perspective



Rationale for within-day obligation / incentives

Types of within day obligations / incentives

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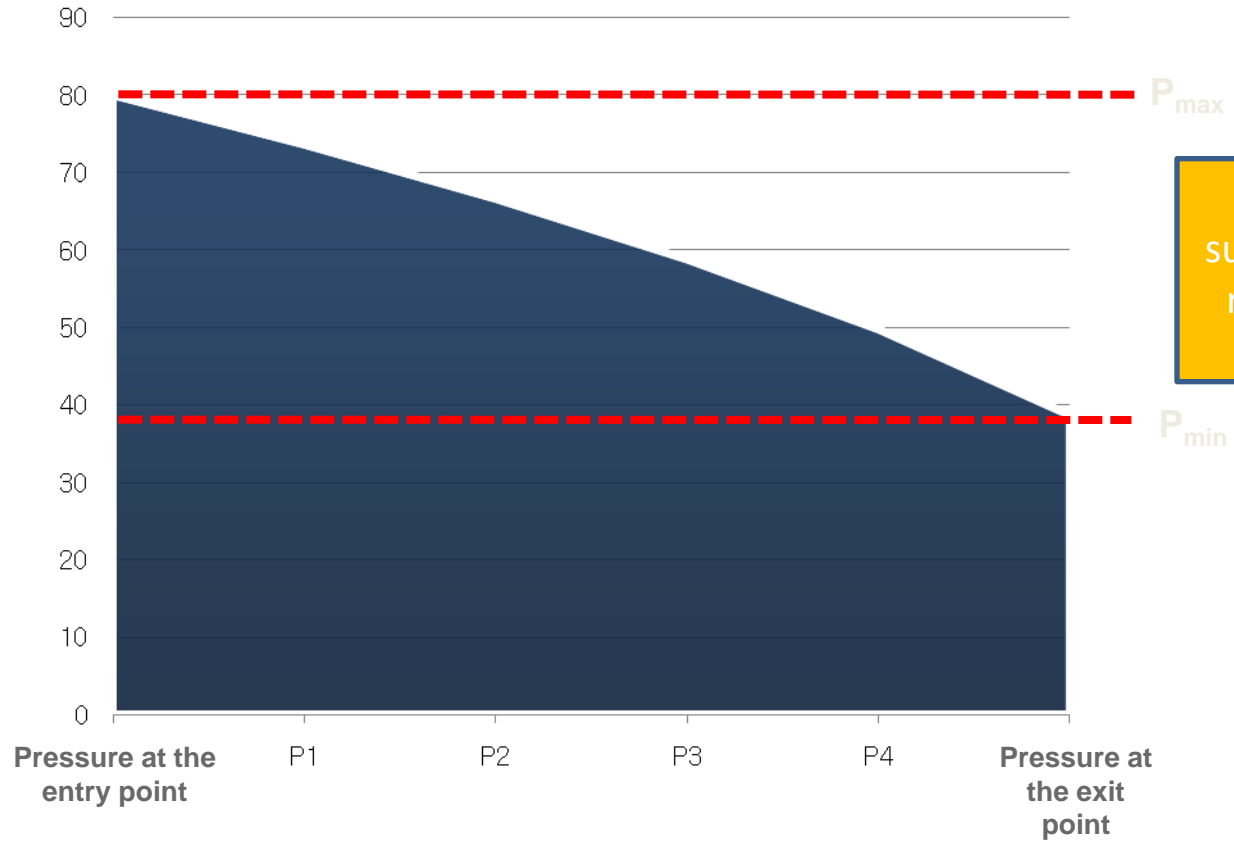
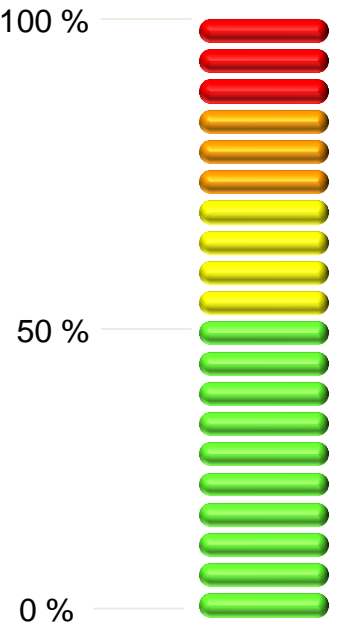
Within-day obligations (WDOs) - rationale

Why WODs necessary?

- The band within which pressures have to be kept allows for some difference between total entry flows and total exit flows and provides the transmission system with a capability to store an amount of gas in the pipelines, often referred to as “linepack”
- The amount of linepack available in each system differs significantly and, over time, can vary significantly within any one system, depending on demand, supply, and operating conditions in the system.
- It is experienced and expected – in any system – that situations arise where linepack depletion or misallocation of gas volumes on the system require action. This does not only hold for extreme scenarios.
 - increasing share of gas needs may in the near future be even less predictable because of intermittent production of electricity (wind, solar, back-up)
- To minimise the need for TSO action and to cost-reflectively target users who cause within-day imbalances, within-day obligations may be most efficient.

Animated illustration: flow and pressure

Flow Q



Correct place for divider?

Rationale for within-day obligation / incentives

Types of within-day obligations / incentives

Stakeholder perspective

WDOs – FG requirements

“...where, in order to ensure system integrity and to minimise the need for the TSO to take balancing actions, it is necessary to incentivise network users to take appropriate balancing actions during the day.”

Design requirements:

1. No undue barrier to x-border trade
2. Sufficient information to users
3. Not undermine daily balancing
4. Cost-reflective and no barrier on new entry – financial zero settlement within-day prohibited
5. WDO charges small proportion of any imbalance charges (proportionality rule)

Procedural requirements:

- Public consultation, including analysis of impacts: financial, x-border trade, liquidity, non-discrimination
- NRA approval considering benefits and negative impacts. In doubt regarding x-border impact: NRA to seek ACER opinion

WDOs as incentives

Development of the concept

WDOs are most often structured as an incentive (financial: e.g. structuring; or partial settlement of balance beyond specified range) rather than an obligation (absolute and enforceable)

**Aim: Reduction of TSO balancing actions
within-day**

**Parameters: Physical properties of
network and flow patterns occurring**

Factors to be examined:

Profile of entry and exit flows onto the system including available conversion or blending capacity between sub-networks

WODs – incentive types

Criteria on choice of WODs (incentives)

Framework Guidelines approach: Tasking TSOs and NRAs to evaluate choice based on system specifics

Three types of WODs (incentives) can be identified:

1. Obligation (incentive) on system imbalance
 2. Obligation (incentive) on network user's portfolio
 3. Obligation (incentive) on entry/exit point
- May require within-day information provision to network users
 - Information needs to be consistent with risks and opportunities to network user

WOD 'type-1' – system imbalance

Type-1: Obligation (Incentive) on system imbalance

Targeting costs of TSO balancing action to those who have caused imbalance, thereby providing incentives to eliminate the TSO balancing action requirement.

Example:

- Based on adequate information, each market party is responsible for its own position
- Based on adequate information, market parties are encouraged to help TSO to maintain and if necessary restore system position and may be rewarded for doing so
- Market parties causing an imbalance will be charged on cost-reflective basis

Requires comparison of user forecast with actual allocations and information provision individually and per summation of all users to the entire market.

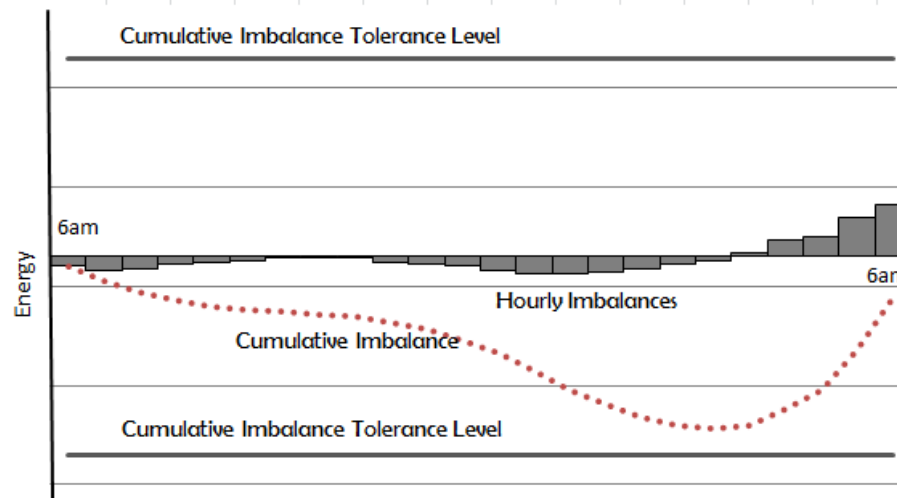
WOD 'type-2' – network users' portfolio

Second type: Obligation (Incentive) on network users' portfolio

Directly influencing individual network user's behaviour

Example:

- Hourly obligations (incentives)
 - Injections and off-takes match within hour or other sub-daily period
- Hourly obligations (incentives) with tolerances
 - Δ of injections and off-takes to stay within pre-defined band
- Within-Day cumulated imbalance obligation (incentives) with tolerances
 - As long as network user's cumulative imbalance does not exceed the tolerance levels, no charge is applied



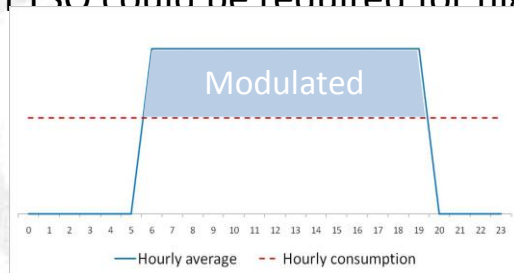
WDOs 'type 3' – entry/exit points

Type-3: Obligation (Incentive) on entry/exit points

Influencing behaviour either of network users or facility operators (e.g. power plant, adjacent infrastructure)

Examples:

- **Information provision obligation (incentive) on expected within-day profile**
- **Obligation (incentive) on limitations of within-day flow variations**
 - e.g. feed in flat rate from offshore pipeline
 - Extra flexibility with TSO could be required for highly modulated off-takes



- **Obligation (incentives) to follow TSO's instruction for flow variation**
 - e.g. ramp rate requirement for end-consumer/facility operator

WDOs – cost issues

Framework Guidelines put a requirement on WDOs:

“...the main costs to be incurred by network users in relation to their balancing obligations shall relate to their position at the end of the day...”

- Text appears to have been written on the assumption that managing within-day positions of the system is a relatively small activity compared to managing the end-of-day position of the network

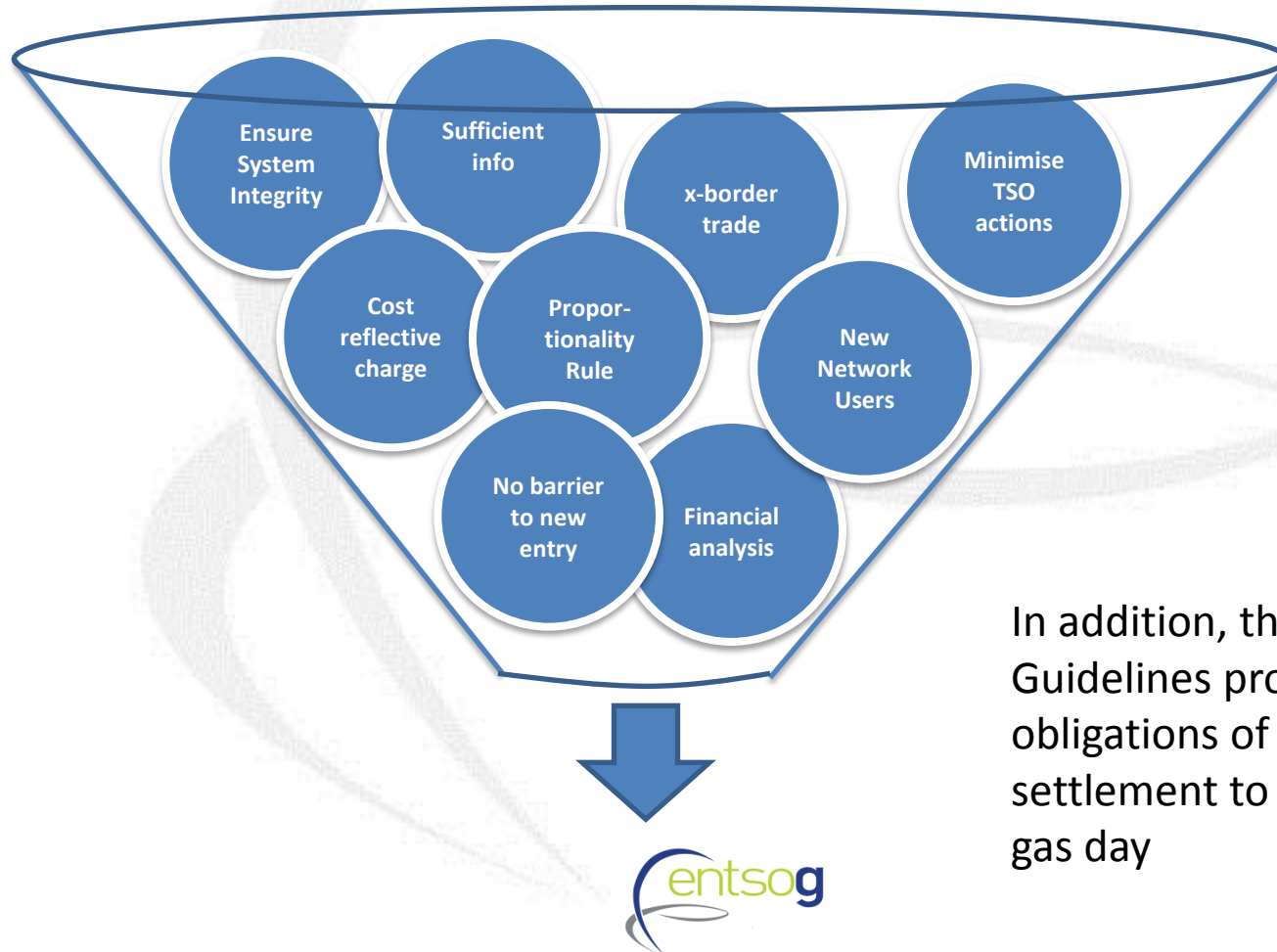
This will not be true for many transmission systems

Issues with this requirement for consideration:

- Cost to all network users?
- Over what period?
- “Unit price” vs. “cost”
- $\text{cost} = \text{unit price} * \text{imbalance volume}$; volume is within network users control, so cost is also a function of network user actions
- Meeting this requirement and “cost reflectivity” difficult

WDOs – possible criteria

Criteria to be considered in the process:
(consultation, NRA approval, ACER opinion)



In addition, the Framework Guidelines prohibit obligations of financial settlement to zero during the gas day

WDOs – FG requirements

- How should the requirements on use of WDOs (incentives) be interpreted to meet other provisions in Balancing FG?
- Will the requirements provide a sufficient level of harmonisation?
- To what extent should the criteria for designing WDOs (incentives) be part of the network code?
 - Type of WDOs
 - Charges for WDO incentives



Rationale for within-day obligation / incentives

Types of within-day obligations / incentives

Stakeholder perspective



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Elemental Areas of Framework – Traded Markets

Presenter

Title, Company

13-14 December 2011 - Diamant Centre, Brussels

Agenda

Role of balancing within traded markets

Virtual trading points and linkage to imbalance

Stakeholder perspectives



Role of balancing within traded markets

Virtual trading points and linkage to imbalance

Stakeholder perspectives

ANY SLIDES HERE?

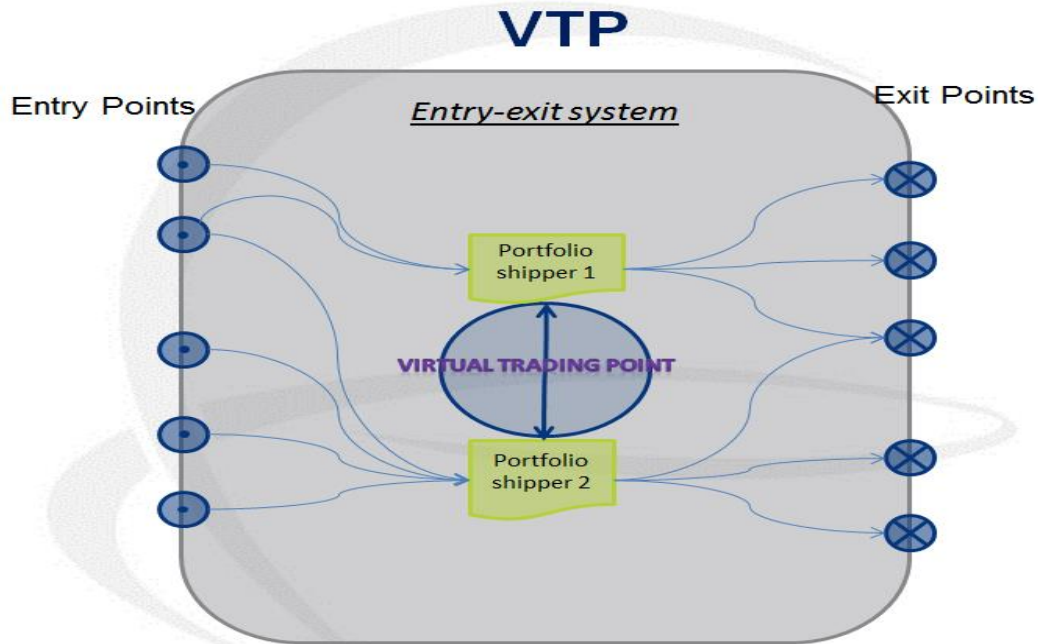


Role of balancing within traded markets

Virtual trading points and linkage to imbalance

Stakeholder perspectives

Virtual Trading Point - concept



- Notional accounting point
 - it does not physically exist, but through which participants in the gas market register trades
- Trades at the virtual trading point are title based
 - have no direct relationship with physical flows
- For trading at a virtual trading point gas is changing ownership and not location
- Network users nominations would need to be amended to support the trade



Role of balancing within traded markets

Virtual trading points and linkage to imbalance

Stakeholder perspectives



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Elemental Areas of Framework – Imbalance charges

Noel Regan
Advisor, ENTSOG

13-14 December 2011 - Diamant Centre, Brussels

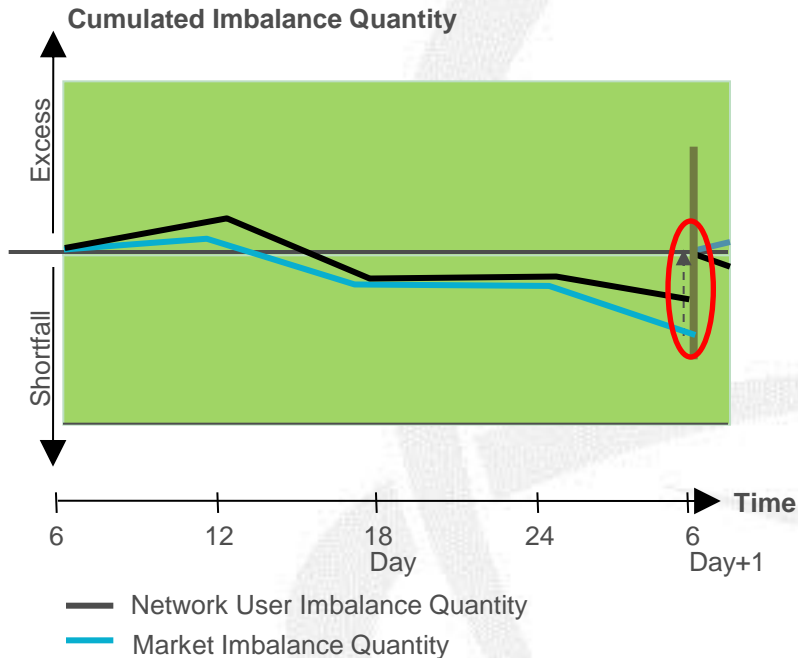
Imbalance charges – FG requirements

- Network code shall establish harmonised principles for transparent methodologies for the calculation of imbalance charges,
- Network code shall require TSOs to publish the transparent methodologies for the calculation of imbalance charges,
- TSO shall provide network users with regular and detailed information on how any imbalance charges they incurred were calculated,
- Imbalance charges shall be reflective of the costs incurred by the TSO to the extent this is possible,
- Imbalance charges shall be levied on the network users that were out of balance at the end of the balancing period,
- Costs incurred by the TSO from undertaking balancing actions that are not attributable to a network user causing imbalances may be shared across all network users,
- Imbalance charges shall be targeted on the network users contributing to the imbalance and therefore shall not include other charges,

Imbalance charges – FG requirements (2)

- Imbalance charges should include appropriate incentives on network users to balance their portfolios, without deterring new market entry or impeding the development of competitive markets and leading to minimising the need for TSO to undertake balancing activities
- Imbalance charges should be consistent and have been approved by the NRA
- Imbalance charges shall be based on the marginal buy/sell price (wholesale market / balancing platform)
- Imbalance charges may include a small adjustment to incentivise network users to balance their portfolio
- Imbalances charges should be non-discriminatory, i.e., not deterring market entry or impeding the development of competitive markets

Imbalances charges – concept



- **Imbalance Quantity**: is the difference in energy of a network users Inputs and Offtakes within a balancing period,

- **Imbalance Charge**: is the charge applied by a TSO to network users for financial settlement of the Imbalance Quantity

$$\text{Imbalance charge} = \text{Imbalance Quantity} \times \text{Imbalance Price}$$

Imbalance charges – price-setting

Imbalance Price : will be determined for each Balancing Period and consist of a “marginal sell or buy”

Marginal Buy Price: a price based on the higher of:

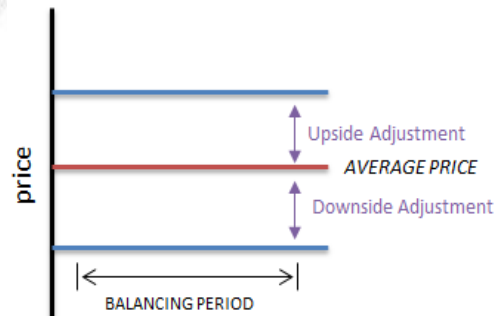
- The highest price of any gas balancing trading to which the TSO is a party in respect of the balancing period (excluding locational or temporal products, and)
- The weighted average price of gas traded in respect of that day (this price may include a small adjustment to incentivise network users to balance

Attention: marginal buy/sell price also applies when the TSO has taken no action

Imbalance charges – examples of price-setting

Example 1

No TSO Balancing Actions



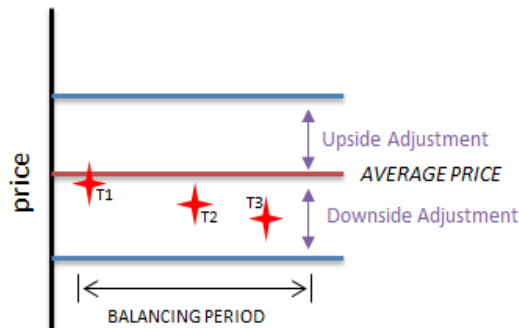
In **Example 1** the imbalance prices are set as:

Marginal Sell Price: The average price less the downside adjustment as there are no TSO trades.

Marginal Buy Price: The average price plus the upside adjustment as there are no TSO trades at a greater price.

Example 2

Some TSO Balancing Actions



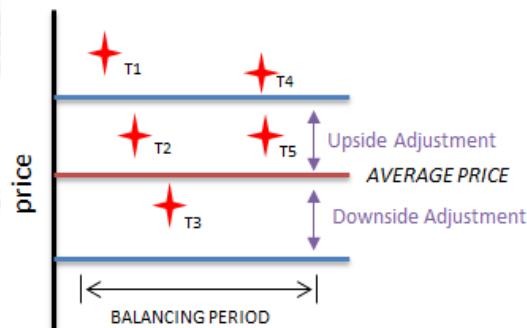
In **Example 2** the imbalance prices are set as:

Marginal Sell Price: The average price less the downside adjustment as there are no TSO trades at a lesser price.

Marginal Buy Price: The average price plus the upside adjustment as there are no TSO trades at a greater price.

Example 3

More TSO Balancing Actions



In **Example 3** the imbalance prices are set as:

Marginal Sell Price: The average price less the downside adjustment as there are no TSO trades at a lesser price.

Marginal Buy Price: T1 sets the price as it is the highest of the TSO balancing actions and greater than the average price plus the upside Adjustment

Imbalance charges – open questions

- How to establish the quantities which will feed into the imbalance quantity determination?
- The exact definitions of each parameter used within the imbalance charge methodology, for example:
 - The average gas price for a balancing period:
Should the price effecting balancing actions by a TSO be limited to within-day actions only? If not, why?
- Should the BAL NC include principles or rules of how the upside and downside adjustment to the marginal prices where no balancing action has been taken by the TSO? How can they be calculated in such a manner so as not to deter new entry and impede the development of competitive market?
- Should the BAL NC include principles or rules around the timing of both the Initial and final imbalance charge and allocation information provided to network users?



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Elemental Areas of Framework – Information provision

Julien Quainon

Information Flows Kernel Group, ENTSOG

13-14 December 2011 - Diamant Centre, Brussels

Agenda

What do system users need?

Principles and general requirements

DSO perspective

Stakeholder perspectives



What do system users need?

Principles and general requirements

DSO perspective

Stakeholder perspectives

What do system users need?

Principles and general requirements

DSO perspective

Stakeholder perspectives

Info. provision – concept

- Network users have the responsibility to balance their portfolio
- TSO are responsible for residual balancing actions
- Network users need information (sufficient & in time) to allow them to manage the risks and opportunities:
 - Imbalance exposure
 - Efficient participation in wholesale markets/balancing platforms
- DSO cooperation will also be needed to deliver the information

Info. provision – FG requirements

The Framework Guidelines on contain several distinct information provision requirements:

- I. Overall status of the system, in accordance with Chapter 3 of Annex 1 of the Gas Regulation
- II. Aggregate network user information
- III. TSO actions to buy and sell gas from network users or other TSOs
- IV. Individual network user information

I. Overall Status of the System

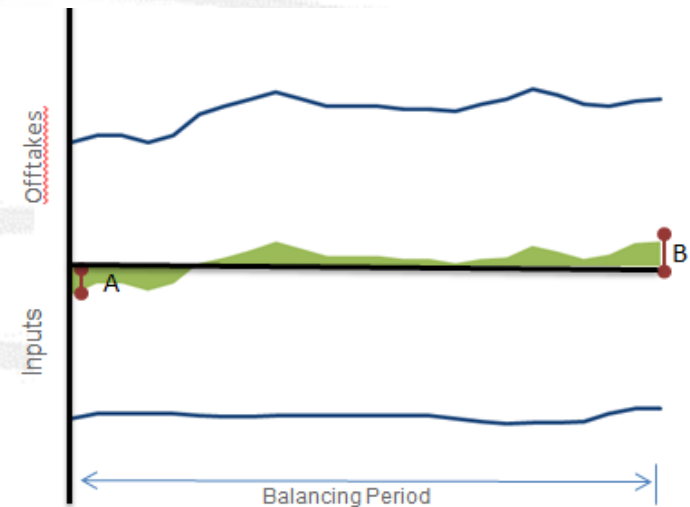
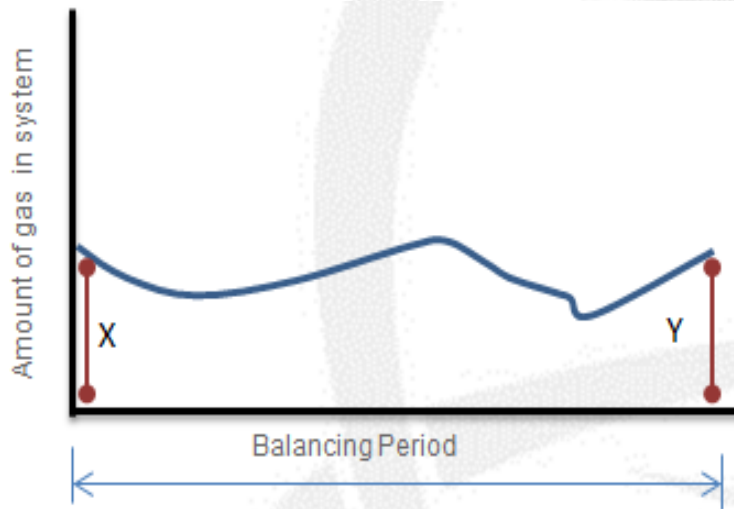
The overall status of the system is intended to indicate to network users whether the TSO is likely to have to conduct any balancing actions which might affect the imbalance price

The TSO shall publish :

- The amount of gas in the transmission system at the start of each gas day AND the forecast amount at the end of each gas day, updated each hour

OR

- Aggregate imbalance position of all network users at the start of each gas day AND a forecast of the aggregated imbalance position at the end of each gas day



II. Aggregate network user information

The TSO shall provide :

- aggregate network user input and off-take information
- in a clear, timely manner and on the same timescale to all network users

⇒ **Initial view:** information on aggregate flows into and off-taken from the system provided by the new transparency requirements arising from EC 715/2009 are sufficient

III. TSO actions to buy and sell gas from network users or other TSOs

Network code considerations :

- several standardised short-term products were introduced yesterday
- when the TSO buys or sells gas to balance its system, the TSO will make information available to network users about its trading actions which may have a **direct impact** on the **imbalance price** set for each Balancing Period

⇒ **Initial view:** network users' interest here will be to understand the type and level of impact the balancing actions of the TSO may have on the imbalance price

IV. Individual Network User Information

Individual information provision regarding its inputs onto and off-takes from the balancing zone

- free of charge
- the available information
- at least twice a day or more frequently if necessary (i.e., to comply with any within-day obligations)

NDM forecasts

In the absence of information being metered during the balancing period :

- detailed forecasts of off-take volumes for non-daily metered customers at the day-ahead stage
- updates of this forecast at appropriate intervals during the balancing period, at least twice a day
- No updates required, if network users are able to fulfil their balancing obligations with information provided day-ahead

IV. Individual Network User Information

What are the different categories to consider ?

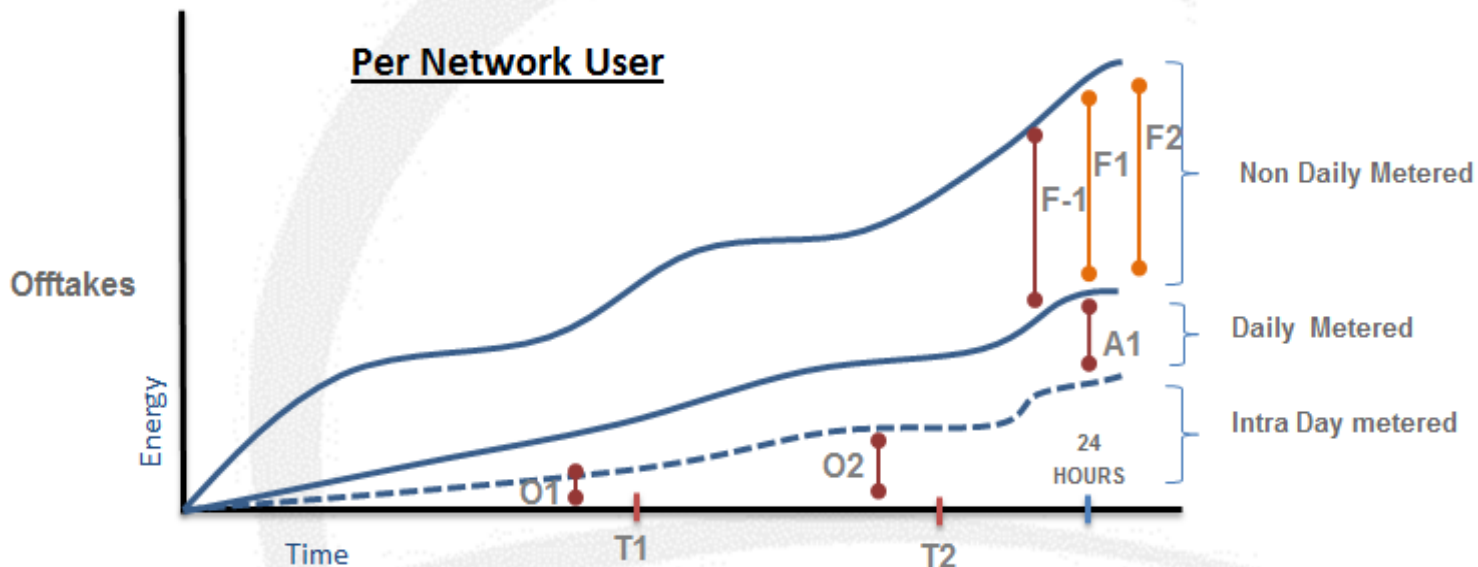
Category	Description
Intra-day metered IDM	<i>An input or off-take from the balancing zone for which the meter value is read and collected at least twice within the balancing period</i>
Daily metered DM	<i>An input or off-take from the balancing zone for which the meter value is read and collected once per balancing period after the close of this period</i>
Non-daily metered NDM	<i>An input or off-take from the balancing zone for which the meter value is read and collected less frequently than once per balancing period</i>

IV. Individual Network User Information

Daily Balancing Worked Example

Off-takes

- NDM : Day Ahead Forecast provided (F-1) and, if not exempted, at least two updates during the day of its end-of-day forecast (F1 and F2). Forecasts can be supported by an algorithm
- DM : allocation provided after the Balancing Period (A1)
- IDM – metered off-takes provided (O1 and O2) up to a certain time in the gas day (T1 then T2)

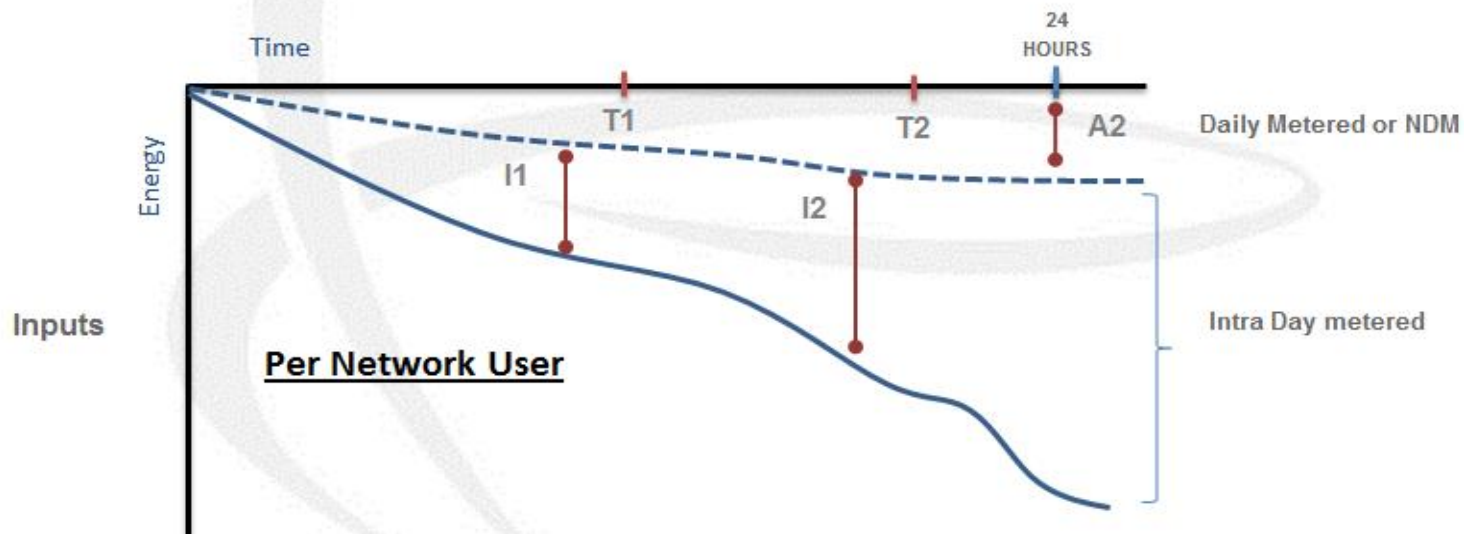


IV. Individual Network User Information

Daily Balancing Worked Example

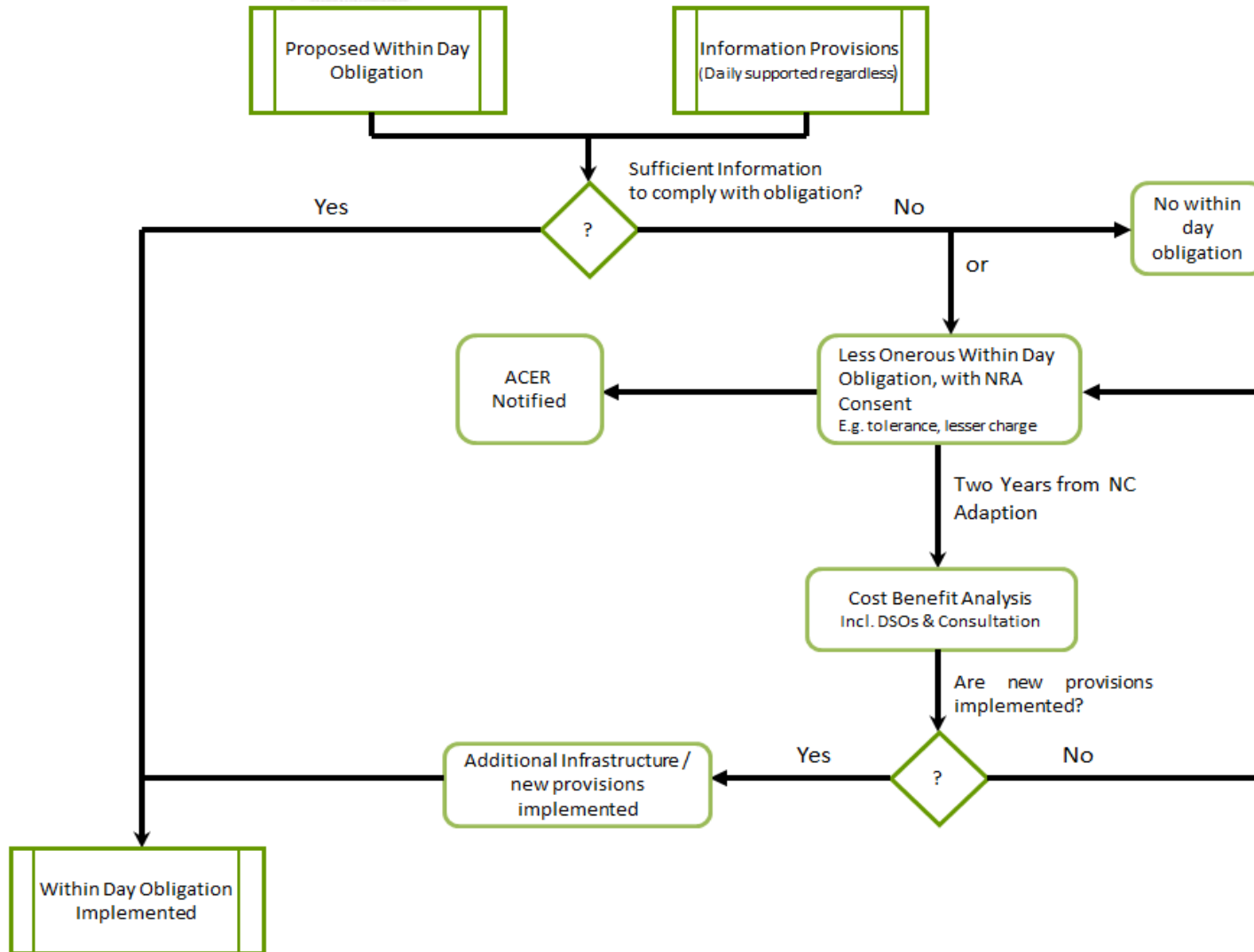
Inputs

- Daily metered : allocation provided after the Balancing Period (A2)
- Intra-day metered : within day updates I1 and I2, provided respectively at T1 and T2
 - May be in aggregate per entry point
 - May be nominations where allocations equal confirmed nominations at the interconnection point (IP)



IV. Individual Network User Information

Information requirements when within-day obligations are used



IV. Individual Network User Information

Important Considerations

Options to debate for making information available within the day

- Change of metering / more frequent reading ?
- Diurnal load profiles ?

⇒ **Initial view:** *The accuracy and timeliness of any information provision has to be taken into consideration, as well as the sufficiency of the information provision (especially for a within-day obligation/incentive)*

V. Key DSO/TSO information provision

In order to comply with the information provisions section there are some specific requirements the TSO will need from DSOs. The level of cooperation will of course depend on the information solution put in place in each system:

- Intra-day metered
- Daily metered
- Non Daily metered

The exact requirements responsibilities will clearly depend on the network code that is developed. There will be some parameters required to support the above transfer of information such as accuracy, timing, etc.

Info. provision – code considerations

To conclude this part about information provisions to network users, ENTSOG would appreciate stakeholders views on the main considerations below in the network code process

- Determination of the rules required to be placed on TSOs for a daily balancing regime
- Understanding the information requirements to support within-day obligations (where applicable)
- Determination of the exact co-operation required by DSOs in enabling TSOs to comply with the different network code requirements on information provision



What do system users need?

Principles and general requirements

DSO perspective

Stakeholder perspectives



PLACE-HOLDER FOR DSO SUB-PRESENTATION

What do system users need?

Principles and general requirements

DSO perspective

Stakeholder perspectives



BAL NC – Launch Workshop

—

Elemental Areas of Framework – Additional code sections

Laurent de Wolf, Colin Hamilton
Expert Kernel Groups, ENTSOG

13-14 December 2011 - Diamant Centre, Brussels

Agenda

Nominations and links to capacity and interoperability issues

TSO standardised balancing tools and wholesale market

Settlement and neutrality concepts

Incentives

Linepack

Cross-border co-operation

Stakeholder perspectives



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Nominations – FG requirements

- **Network Code shall:**
 - Set out criteria for nomination and re-nomination procedures to be harmonised at both sides of the border at interconnection points and consistently across Europe
- **The criteria shall:**
 - Prevent TSOs from requiring that network users nominate input volumes which match their output volumes or vice versa
 - Enable network users to adjust their own positions and buy or sell flexible gas for balancing purposes
 - Minimise response times by allowing network users to adjust their balance position during the gas day up to a specified time in accordance with other legal obligations

Nominations – extra-FG requirements

- **Legal requirements outside of the FGs also need to be considered:**
 - **CAM Network Code** is expected to provide that
 - “adjacent transmission system operators shall establish a joint nomination procedure for Bundled Capacity, providing network users with the means to nominate the flows of their Bundled Capacity via a single nomination”
 - **CMP Guidelines** may restrict re-nomination rights for certain capacity products at congested interconnection points, from a defined date
 - **Interoperability Draft FGs** require harmonised nomination and re-nomination process processes to be implemented at all interface points across Europe

	2011				2012								2013																		
<u>Legal Obligation</u>	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S							
CMP Guidelines goes to comitology																														
CAM Network Code	CODE DEVELOPEMENT						 submitted to ACER																							
Interoperability	CODE DEVELOPEMENT																							 submitt						
Balancing Network Code	CODE DEVELOPEMENT												 submitted to ACER																	

Nominations – procedural criteria

- **Criteria for nomination and re-nomination procedures:**
 - Network users are able to adjust their gas positions at IPs to facilitate portfolio balancing and if necessary within-day obligations (incentives)
 - Network users are able to adjust their position through buying and selling gas
 - TSOs shall minimise response times
 - TSOs may not require that network users nominate input volumes which match their output volumes or vice versa
 - TSO is provided with adequate information to allow it plan its operation in a safe and secure manner

Nominations – procedural criteria (2)

- **Further considerations related to the development of the criteria:**
 - Network user ability to nominate ahead of the balancing period
 - Network user ability to re-nominate, both day-ahead and within day
 - The extent to which an approval / rejection process is maintained by the TSO
 - A confirmation process to confirm nominations have been accepted or rejected
 - Single nomination under a bundled capacity regime
 - Matching process – in particular, when set against the above points

Nominations – procedural criteria (3)

Application area

- The criteria for nomination and re-nomination procedures are to be prepared for IPs, between balancing zones
- As balancing applies to the wider system, any rules that will apply for IPs need to be assessed against those for the wider system to ensure that the balancing rules as an overall package are effective and efficient

Interoperability

- is expected to deal with the operational implementation of the criteria
- define any technical parameters, including units and the timing of certain provisions

Nominations – code considerations

- **In developing the Network Code, ENTSOG will be considering:**
 - Interaction with other code areas, such as CAM, CMP and interoperability
 - The exact nomination and re-nomination criteria to apply to the procedures developed by TSOs at IPs
 - How the criteria complements any system-wide rules that may be currently utilised by TSOs or may be required going forward
 - Consider how nominations interact with the delivery of balancing products and services (e.g., a TSO might require an increased nomination in respect of delivery of locational gas)

Nominations and links to capacity and interoperability issues

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Standardised products – FG requirements

- *“The network code on gas balancing shall define standardised products and related balancing services that TSOs may buy or sell. These standardised products shall include short-term products, which are traded either on a physical basis or through title transfer. They may also include long-term products of up to one year.”*
- *“In order to allow TSOs to meet the specific balancing needs of their transmission systems, the network code on gas balancing shall permit TSOs to buy or sell non standardised products such as temporal products and / or locational products.”*

TSO products by functional criteria

Criteria	Standardised Short Term Products	Standardised Long Term Products = Standardised Balancing Service	Non-Standardised Balancing services
Utilisation	One-time usage	Recurrent usage	Recurrent usage
Duration	Short-term	Long-term	Long-term
Standardisation	Standardised	Standardised	Non-standardised
Type of counterparty	Network user	Network user or Infrastructure Operator / Provider	Network user or Infrastructure Operator / Provider

Short-term products – title

The following types of Standardised Short Term Products can be envisaged.

“Title products”:

1. Balance-of-day products

- gas transferred from beginning of day, if trade was made before day; gas transferred from time after confirmation of trade, if trade is made during day;
- bought or sold through title transfer at virtual trading point.

2. Intra-day products

- gas to be transferred during specific window during day;
- through title transfer at virtual trading point.

Short-term products – physical

Standardised Short Term Products, continued.

“Physical Products”:

3. Balance-of-day products at specific entry or exit point

- through physical transfer (also called “physical market trade”)

4. Intra-day gas at specific entry or exit point of the network

- during specific window during the day, through a physical transfer

5. “Time swap”

- profile products at specific entry or exit points, where the amount of gas to flow by the end of the day is unchanged (no gas is bought or sold) but gas is put in, or taken off, in accordance with the agreed profile

Balancing services – standardised vs. non-

Two types of Balancing Services shall be distinguished:

Standardised Balancing Services

Characterised by standard contractual conditions (e.g. quantity of gas, lead time for gas delivery, duration of applicability of contract, injection and withdrawal capacity of gas into the system, etc.). Examples include:

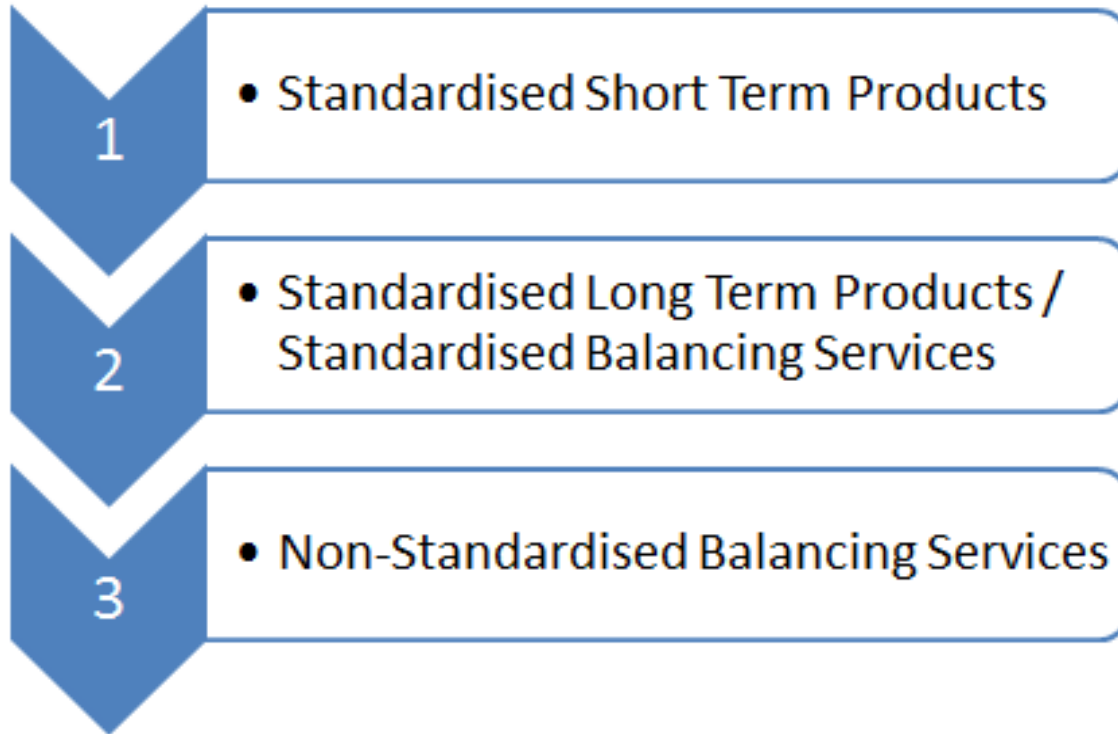
- Long term option to buy/sell flexible gas
- Standard capacity bundles for accessing storage

Non-Standardised Balancing Services

Tailor-made and designed to resolve situations where Standardised Balancing Services are inadequate to assure system management within acceptable operational envelope. Examples include:

- Option to receive a specific within-day gas profile at a specific entry or exit point for a critical duration
- Tailor-made parking-and-loaning type services, at a specific point in the network

TSO balancing services – merit order



Standardised products – code considerations

- Determination of the exact list of Standardised Short Term Products and Balancing Services
- Use of Short Term Standardised Products and Balancing Services
 - Should Network Code include a merit order to prescribe the Balancing Tools hierarchy as a means of promoting the use of a wholesale market by TSOs?
 - What forms of incentives could be developed to encourage and reward TSOs use of wholesale markets so as to accelerate the development of liquidity of those markets?
- Options for acquiring locational and temporal products, if Balancing Platform is only source, after interim measures expire.

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Settlements – FG requirements

- TSO shall be cash neutral with respect to all its balancing activities
- TSO shall only recover from all network users, any costs incurred from undertaking balancing activities that are not directly attributable to a network user
- Code to include the treatment of charges which can be attributed directly to network user
- Code to include the recovery of charges for those costs / revenues which cannot be attributed to a specific network user

Neutrality – FG requirements

- TSOs are to be cost neutral with respect to its balancing activities
- Levy imbalance charges should be separate from other transmission charges
- Imbalance charges shall be levied on the network users that were out of balance at the end of the balancing period
- TSO shall only recover from all network users, any costs incurred from undertaking balancing activities that are not directly attributable to a network user
- TSOs shall endeavour to harmonise balancing regimes and streamline structures and levels of balancing charges in order to facilitate gas trade.
- Settlement/neutrality mechanism should be included in the BAL NC [assumption]

Neutrality – implementation mechanism

- TSO remains cash neutral with regards to the balancing activities undertaken in its role as the system ‘residual balancer’
- Enables the TSO to recover and appropriately apportion charges and revenues related to its balancing activities
- All the money that changes hands during the imbalance settlement process and any TSO balancing actions costs feed into a “neutrality pot”
- The balance of the pot (whether positive or negative) is apportioned back to network user
- Mechanism would apply to four main groups of finances:
 - Imbalance charges
 - Charges on WDOs (incentives)
 - TSO Balancing Actions
 - Other charges related to the TSOs balancing activities

Settlements/neutrality – code considerations

- The concept of a balancing neutrality mechanism is not explicitly defined within the gas balancing framework guidelines
- Do you agree with TSOs that in order for them to remain cost neutral with respect to their balancing activities, a neutrality mechanism is required?
- Decisions to be made:
 - The key principles and parameters of a neutrality mechanism
 - The types of balancing charges that are appropriate to recover via this mechanism
 - How balancing neutrality charges should be recovered from network users, in terms of the frequency of the neutrality invoice and the exact basis of the neutrality apportionment

Settlements/neutrality – code considerations (2)

- Whether separate neutrality mechanisms should be defined for both end of day balancing and within day obligations (incentives) or whether one mechanism is appropriate

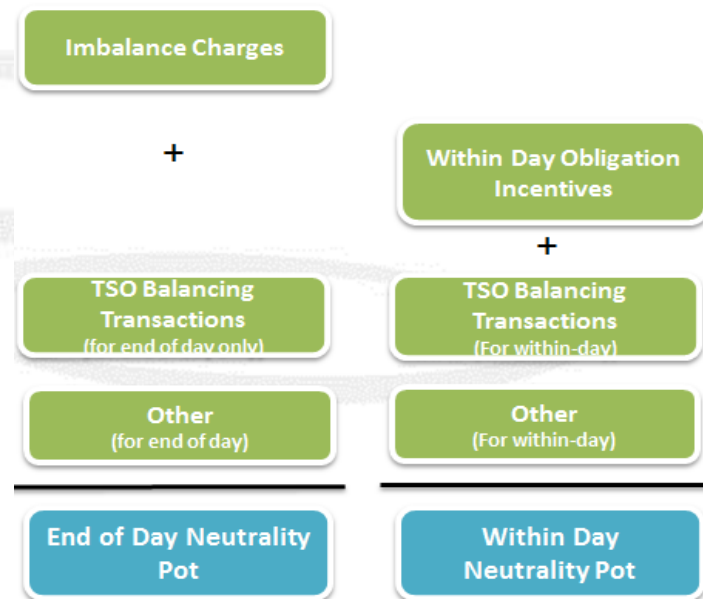
- **Single Balancing Neutrality Mechanism**

TSO Financial Transaction



- **Dual Balancing Neutrality Mechanism**

TSO Financial Transaction



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Incentives – FG requirements

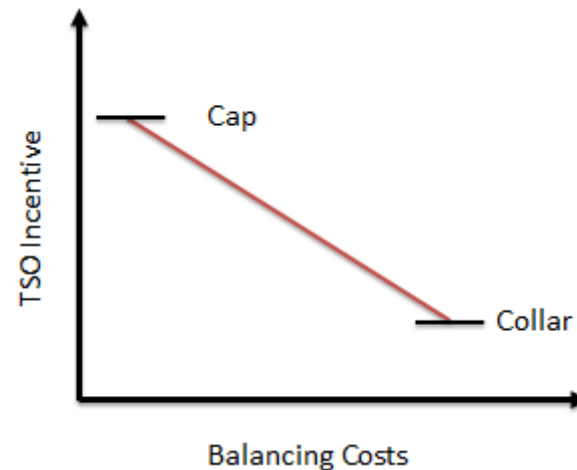
- TSOs shall maximise the amount of their gas balancing needs to be fulfilled through short-term standardised products on the wholesale market
 - Incentive to encourage TSOs compliance
- TSOs shall procure flexible gas and related balancing services in a way that helps minimise the cost of balancing the system
 - TSOs may receive payment if balancing costs are minimised
- Within-day obligations
 - A charge on network users for failing to meet obligations
 - Shall not act as an undue barrier to new network users

Incentives – limited scope for BAL NC

- **Assumption** The design of the first two incentives are tasked to the NRAs
- **Assumption:** for the third incentive. it does not seem possible or practical to design a specific harmonised incentive mechanism; rather, the BAL NC will define a basis for such schemes
- Thus, the BAL NC will provide examples of the types of incentives that the TSO may wish to pursue in order to facilitate an efficient and economic balancing regime

Incentives – basic principles

- Incentives should reflect the liquidity of the individual TSOs gas market and their genuine system needs
- Incentives may have an upside and a downside and provide the TSO with an appropriate level of risk and reward, best achieved by the use of uncertainty mechanisms or profit caps/loss floors. In the example below, the incentive has a direct relationship with the balancing costs
- Incentive schemes should be subject to periodic review



Incentives – code considerations

- Although the FGs do not facilitate specific incentive rules being included in the BAL NC, further investigation will be required on the determination of key principles of the types of gas balancing mechanisms that could be considered by a TSO/NRA

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Linepack – FG requirements

- Linepack is defined as the storage of gas by compression in gas transmission and distribution systems, but not including facilities for TSOs carrying out their functions
- BAL NC shall not prevent TSOs from allocating linepack to network users if:
 - Approved by the relevant NRA
 - Allocated as a commercial product on a transparent and non-discriminatory basis
 - Offered at a cost reflective price, while the price may also be determined through competitive mechanisms

Linepack – FG requirements (2)

- The decision by the relevant NRA shall be based on objective criteria, including:
 - The physical characteristics of the networks
 - Whether the provision is consistent with Section 4 of these FGs
 - Whether offering a linepack product would facilitate a more efficient use of the transmission system

Linepack – concept

(I) The physical characteristics of the networks

- The level of linepack flexibility in transmission systems varies across Europe.
- Linepack is normally used to absorb mismatches in flow rates across the systems.
- The calculation methodology should be based on the technical criteria of TSOs and the best information available on the utilisation of that flexibility.
- TSOs should not need to contract any other infrastructure to provide this service.

Linepack – concept (2)

(II) Whether the provision is consistent with the FG sections

- Users shall take the primary responsibility for matching their inputs and offtakes through their portfolio balancing activities
- At the end of the balancing period any imbalance is reset to zero
- The impact on the evolution of wholesale market

(III) Whether offering a linepack flexibility product would facilitate a more efficient use of the transmission system

- Reducing the overall cost of operating the system and total cost of network users and TSO

Linepack – code considerations

- Definition of the objective criteria that could be considered to determine linepack flexibility services
- Determination of how TSO ensures that such a service is transparent and cost reflective
- The impact on the imbalance calculation
- Responsibilities of affected parties

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Cross-border co-operation – FG requirements

- “relevant TSOs to cooperate in order to integrate European gas markets by merging entry and exit zones or create cross-border balancing zones wherever this is technically feasible and economically reasonable or through other means such as market coupling.”
- “The relevant TSOs shall consult stakeholders on proposals to integrate European gas markets, including an impact assessment of the expected costs and benefits and on the timeline for completion.”
- “ENTSOG shall share the results of the stakeholder consultations with the relevant NRAs and ACER. The final proposal shall be submitted for approval to the relevant NRAs and for information to ACER.”

Cross-border co-operation – FG requirements (2)

- “The involved NRAs shall coordinate to reach the best outcome possible when providing a decision on this proposal. NRAs may seek an opinion or a recommendation from ACER, based on the provisions of the Agency Regulation.”
- “ENTSOG to regularly review the progress of harmonisation of rules in adjacent balancing zones in order to identify opportunities for the creation of cross-border balancing zones and market coupling.”
- “The review will also consider whether there are additional measures needed to harmonise rules, which may facilitate the achievement of cross-border balancing zones.”

Cross-border co-operation – FG requirements (3)

- Including proposals for TSOs to implement cross-border balancing projects, e.g.:
 - Shipper-led cross-border portfolio balancing
 - Cross-border TSO balancing
 - Joint balancing platforms

These requirements shall not prevent TSOs in any of the gas regions (European Regional initiatives) from bringing forward or consulting proposals to merge balancing zones or for cross-border balancing in the meantime

Cross-border co-operation – two elements

In essence there are two distinct elements to be examined:

- (i) Procedures for cross-border parties with defined roles for the different participants
 - Regular review of harmonisation of rules
 - Individual cross-border project proposal and development

- (ii) Proposals on cross-border co-operation models

Cross-border co-operation – procedures

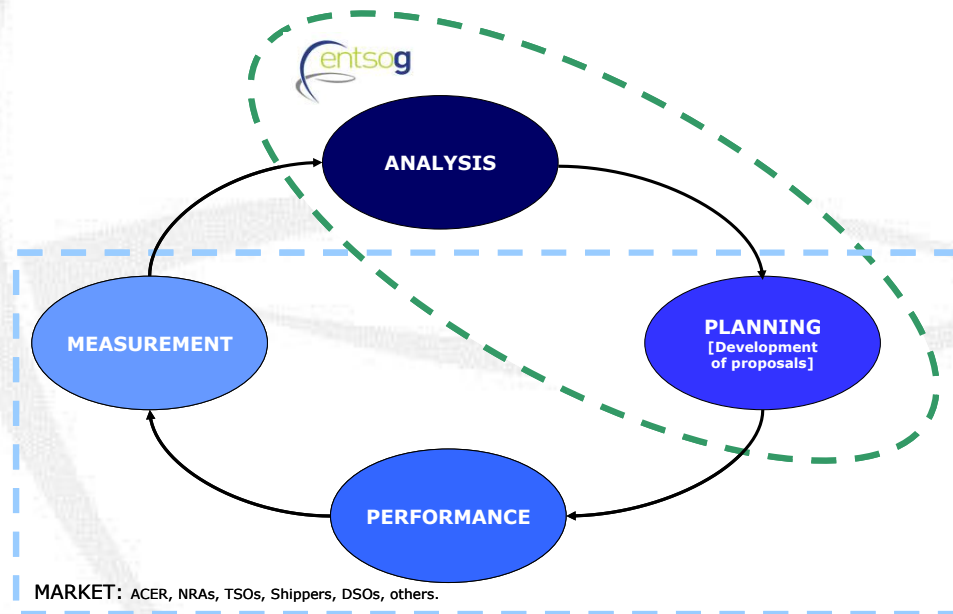
The following comments need to be considered on how the procedure would be developed:

- The review to be conducted by ENTSOG has to be worked out in more detail
- The role of NRAs and ACER should be described in more detail
- Participation of stakeholders on the development of the proposals

Cross-border co-operation – procedures (2)

Process of reviewing could be based on:

- Regular reviewing of any analysis or information provided from different agents/TSOs in each market on potential projects.
- Effective reviewing of harmonisation of rules in a prudent manner.
- An evaluation of the performance of any non-binding proposals in place or being proposed by TSOs.



For the SJWS on Cross Border topics, ENTsOG intends to chart out the procedure, highlighting options where they exist and will seek stakeholder views

Cross-border co-operation – proposals

ENTSOG's view: It would be inappropriate for NC to include detailed proposals for such projects. The NC shall describe the process by which project proposal shall be developed (public consultations, cost/benefit analysis, ...)

The options included in the FGs:

- Shipper Led cross border portfolio balancing: “Allows network users to net their imbalances between cross-border neighboring balancing zones; this shall be without prejudice to a fair allocation of balancing costs among network users of interconnected balancing zones.”
This proposal confirms the E/E model, where shippers move gas between balancing zones based on transmission rights and nominations of cross-border flows.
- Cross border balancing: TSOs would act as intermediaries to facilitate access to flexible gas between adjacent markets. E.g., TSOs could accept bids and offers for flexible gas from adjacent zones.
- Joint balancing platforms: Where sufficient interconnection exists, a whole platform could be created.
- Others?

For the SJWS on cross-border topics, ENTSOG intends to examine each option in greater detail, and provide views on advantages and disadvantages of each and will seek stakeholder views

Cross-border co-operation – proposals (2)

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- Others?

For the SJWS on Cross Border topics, ENTSOG intends to examine each option in greater detail, and provide views on advantages and disadvantages of each and will seek stakeholder views

Cross-border co-operation – code consideration

- Examine the responsibilities that have been set out in the FG
- Identify the scenario and high level criteria required to promote cross-border projects
- Examine the proposals for cross-border project models in the framework guidelines and any other models
- Consider a review process for ENTSOG to monitoring harmonisation

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BAL NC – Launch Workshop

—

Elemental Areas of Framework – Transitional issues

Julien Quainon, Markus Sammut
Expert Kernel Groups, ENTSOG

13-14 December 2011 - Diamant Centre, Brussels

Agenda

Nominations and links to capacity and interoperability issues

Tolerances

Balancing platform

Imbalance price proxy

TSO surplus flexible gas release programme

Understanding interactions and step-wise processes

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ANY SLIDES FOR THIS SECTION?

Nominations and links to capacity and interoperability issues

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Tolerances – as interim step towards Balancing Target Model (BTM)

- FGs allow tolerances to be introduced as an interim step where network users do not have access to a liquid short-term wholesale gas market or to sources of flexible gas (including the associated infrastructure) to trade in order to be in a position to balance their portfolios
- Tolerances shall reflect genuine system flexibility and user needs -- in particular, the needs of small users and new entrants. These tolerances may be free of imbalance charges
- The rules for the level of tolerances allocated to categories of network users shall be approved by the relevant NRA

Tolerances - concept

Specific assumption

Tolerances in this section only apply to the end of day imbalance quantity

Development of the concept

The level of tolerances available for network users should meet the following criteria:

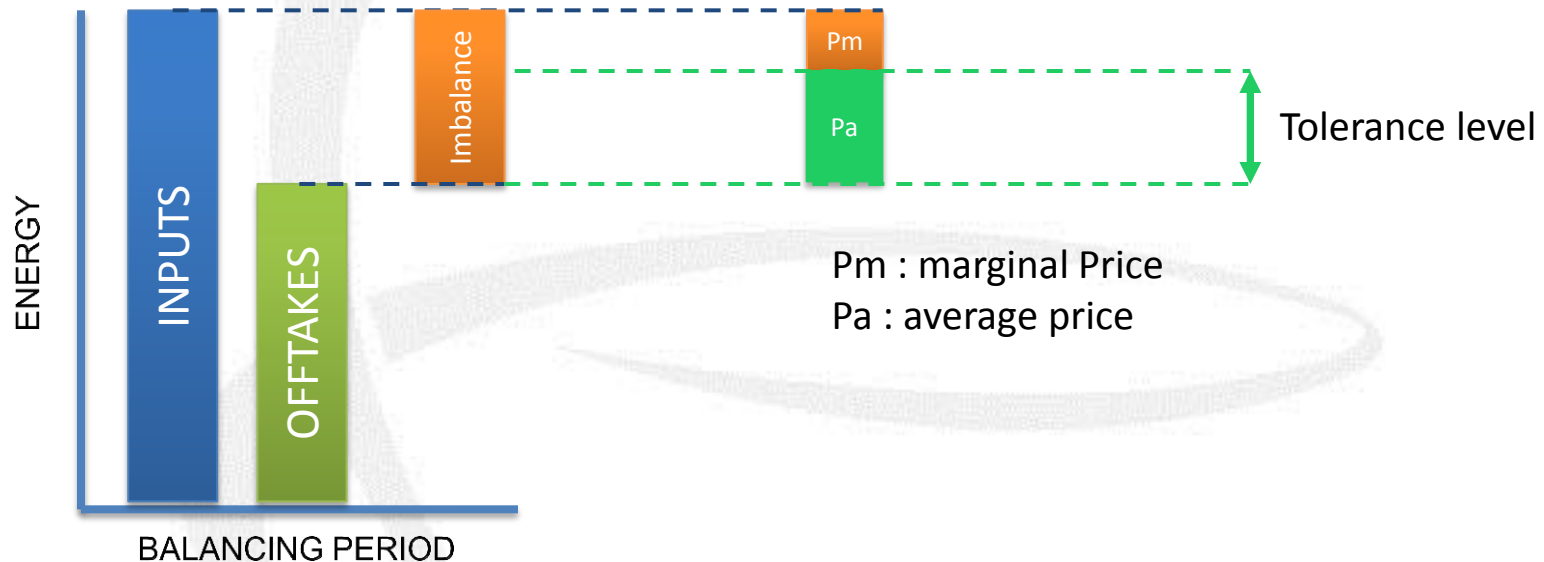
- Consistency with technical transmission system requirements
- Reflection of the level of risk assumed by network users
- Useful tool in order to evolve towards the BTM
- The tolerance level applied to each network users should not be too small to prevent the management of the initial risk, related to not having access to a liquid short-term wholesale market or to sources of flexible, and not too big to not support their adaptation to the BTM

FGs state that tolerances should not discriminate in particular against network users with smaller gas portfolios

Tolerances – concept (2)

If a tolerance regime applies then the price for the imbalance quantity is treated differently considering the imbalance below the tolerance and the imbalance which exceeds the agreed tolerance.

Some examples of tolerance



Another option

Different multipliers can be applied to the price for different tranches of the imbalance quantity

Tolerances – code considerations

In preparing a section on the Network Code on tolerances several decisions will have to be made:

- Determination of the **rules for tolerances** (including how the level(s) / threshold is (are) defined and the prices to be applied) and whether different rules could apply to different categories of network users, especially new entrants or small users.
- The framework guidelines provide for tolerances where network users do not have access to a liquid short term wholesale gas market or to sources of flexible gas. The Network Code shall determine the **criteria for the use of tolerances**. TSOs that comply with these criteria can then discuss the use of tolerances, as an interim measure with the relevant NRA. While this is not expected to be the case it may be in the early years.

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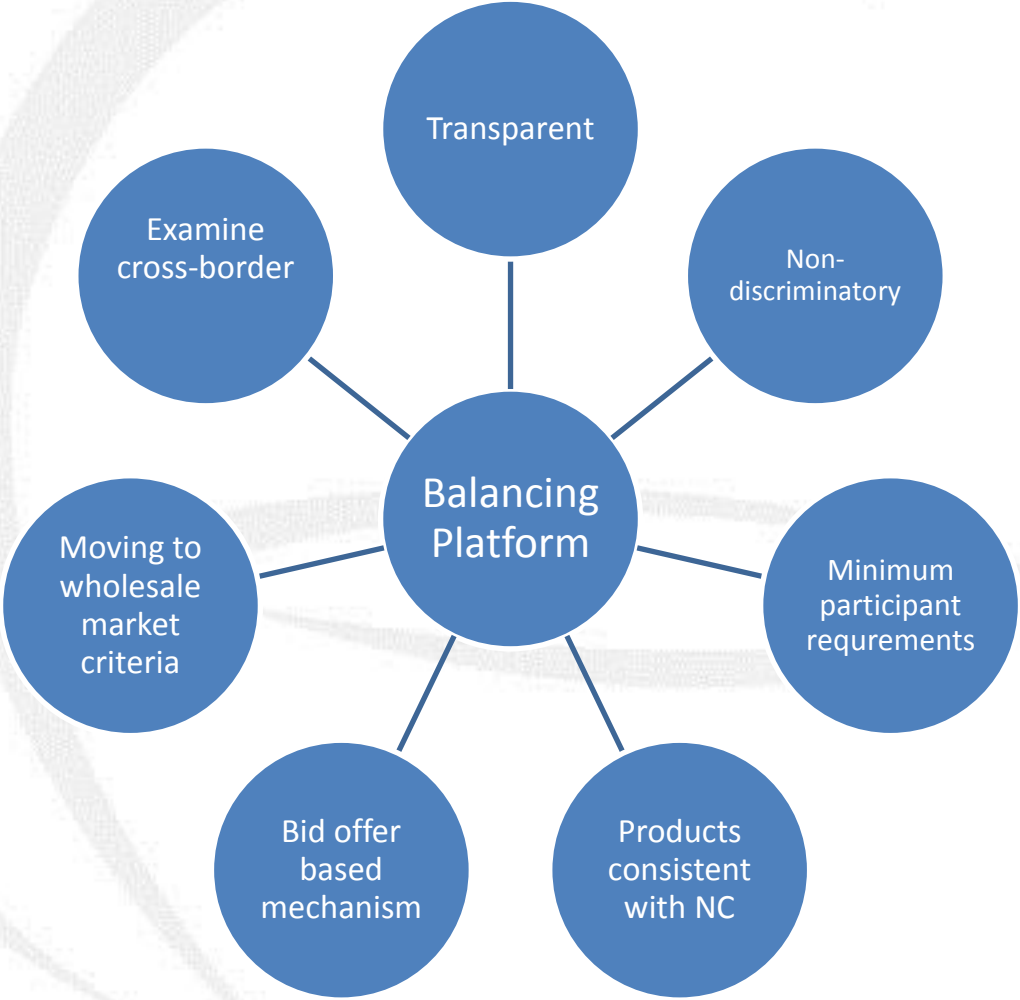
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Balancing platform – FG requirements

- A balancing platform is defined as a trading platform on which flexible gas is bought and sold, balancing services are procured and the TSO is party to every trade
- A balancing platform is typically set up in the absence of a liquid wholesale market and can act as a bridge from having no short term market to the development of one.
- FGs provide for TSOs to procure flexible gas on a balancing platform where a wholesale market is insufficiently liquid (or temporal and locational products cannot be procured on the wholesale market)
- The framework guidelines require that the network code shall set out criteria on the design of a balancing platform

Balancing platform – design criteria



Balancing platform – code considerations

- The network code development will need to address the design of a balancing platform and examine how it interfaces with the TSO systems.

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Imbalance price proxy – concept

Target Model

- The balancing target model envisages an imbalance price based on the TSO balancing costs from purchasing/Selling in the wholesale market
- Provides the incentive for network users to balance their inputs and off-takes over the balancing period
- ➔ In the early stages of the development of this model there may not be enough liquidity in the wholesale market to fulfill this requirement (interim solution)

Interim Solution

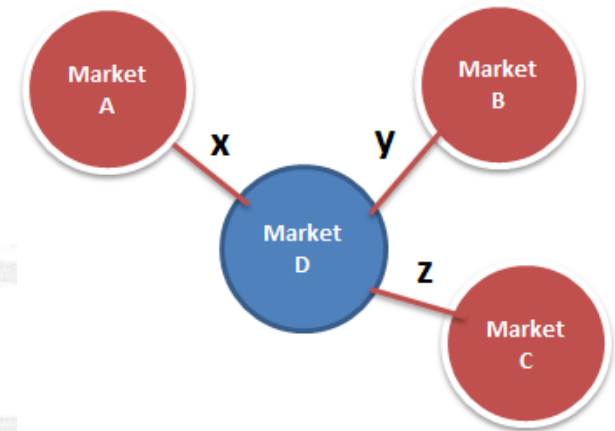
- An imbalance price proxy can be used, for example the imbalance price can be set using a neighboring markets price for or based on another measure such as a flexibility contract the TSO is a party to
- ➔ The proxy price should incentivise the same behaviours of the network user that the enduring imbalance price calculation is expected to do

Imbalance price proxy: FG requirements

- An interim measure to be used due to insufficient liquidity in the wholesale market
- The imbalance charge may be based on an administered price or a proxy price
- The proxy price may be based on the prices in different wholesale markets
- The imbalance charge may include a small uplift or reduction in order to incentive Network Users to balance their portfolios
- The charge must not deter new market entrants but must provide an appropriate incentive for Network Users to balance their portfolio

Imbalance price proxy – examples

- Example 1 (Price Proxy): Simple Average calculation
 - Market D price = $(A + B + C) / 3$
- Example 2 (Price Proxy): Weighted Average calculation
 - As per example 1, except this time the flows are weighted based on the volumes of gas being imported from each market. So if 90% of the gas came from Market A and 10% from Market B and none from Market C then:
 - Market D price = $(A * 90\%) + (B * 10\%) + (C * 0\%)$.



Imbalance price proxy – examples (2)

- **Example 3 (Administered Price):** Bespoke calculation
 - In this example the price is based on an bespoke formula
For example: choose the highest market buy price from each of the markets each day and the lowest for sell price. Variants are possible – for example if there are four proxy markets then choose the second highest / lowest
- **Example 4**
Examples where price based on something else entirely – storage contract, etc.

Imbalance price proxy – code considerations

- Determination of the exact criteria for using an imbalance price proxy; are there circumstances other than insufficient liquidity in the wholesale market that need to be considered?
 - At what point does a market switch from the proxy price to the wholesale price?
 - Determination of the principles for an imbalance price proxy and any related price uplift and reduction.

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Imbalance price proxy

TSO surplus flexible gas release programme

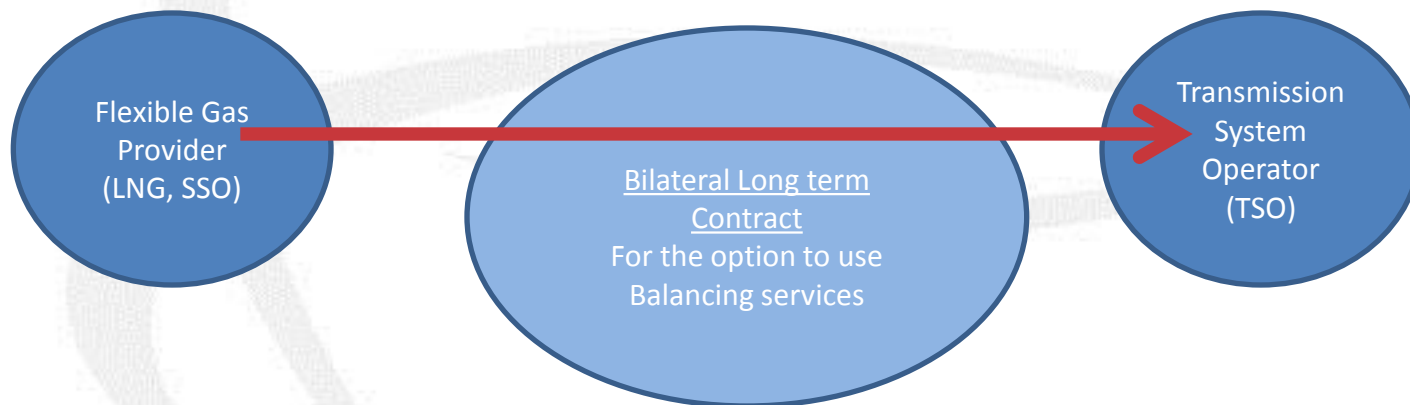
Understanding interactions and step-wise processes

Stakeholder perspectives

TSO surplus flexible gas release - concept

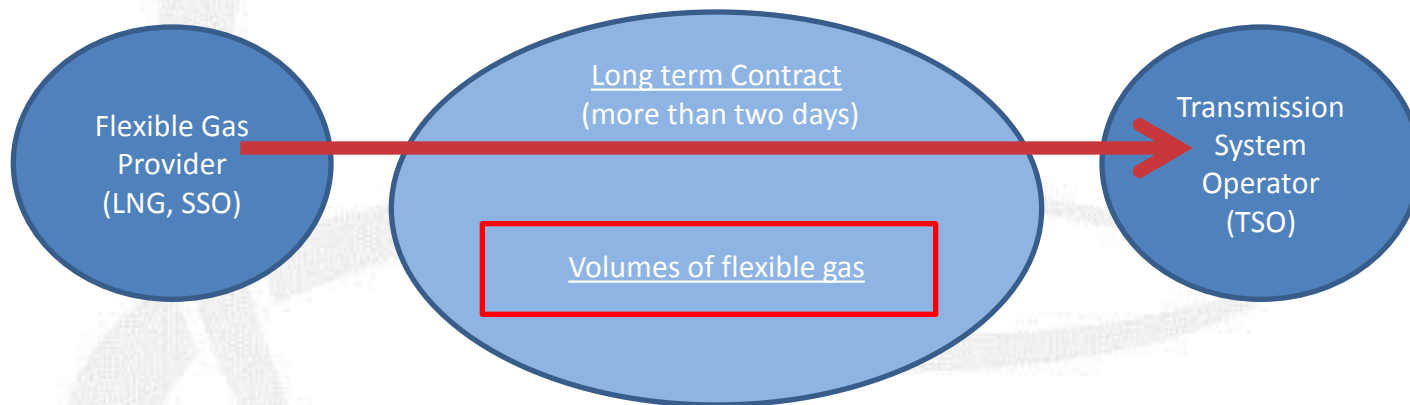
It is recognised that in order to establish a competitive gas market all network users need to have fair and economic access to customers, transmission networks, gas supplies and flexibility services.

In line with this principle, ACER proposed that where bilateral long-term contracts for the option to utilise balancing services are in place, the network code should introduce arrangements for the TSOs to release back to the market any gas, it does not require for balancing purpose, and reduce the volumes contained in these contracts



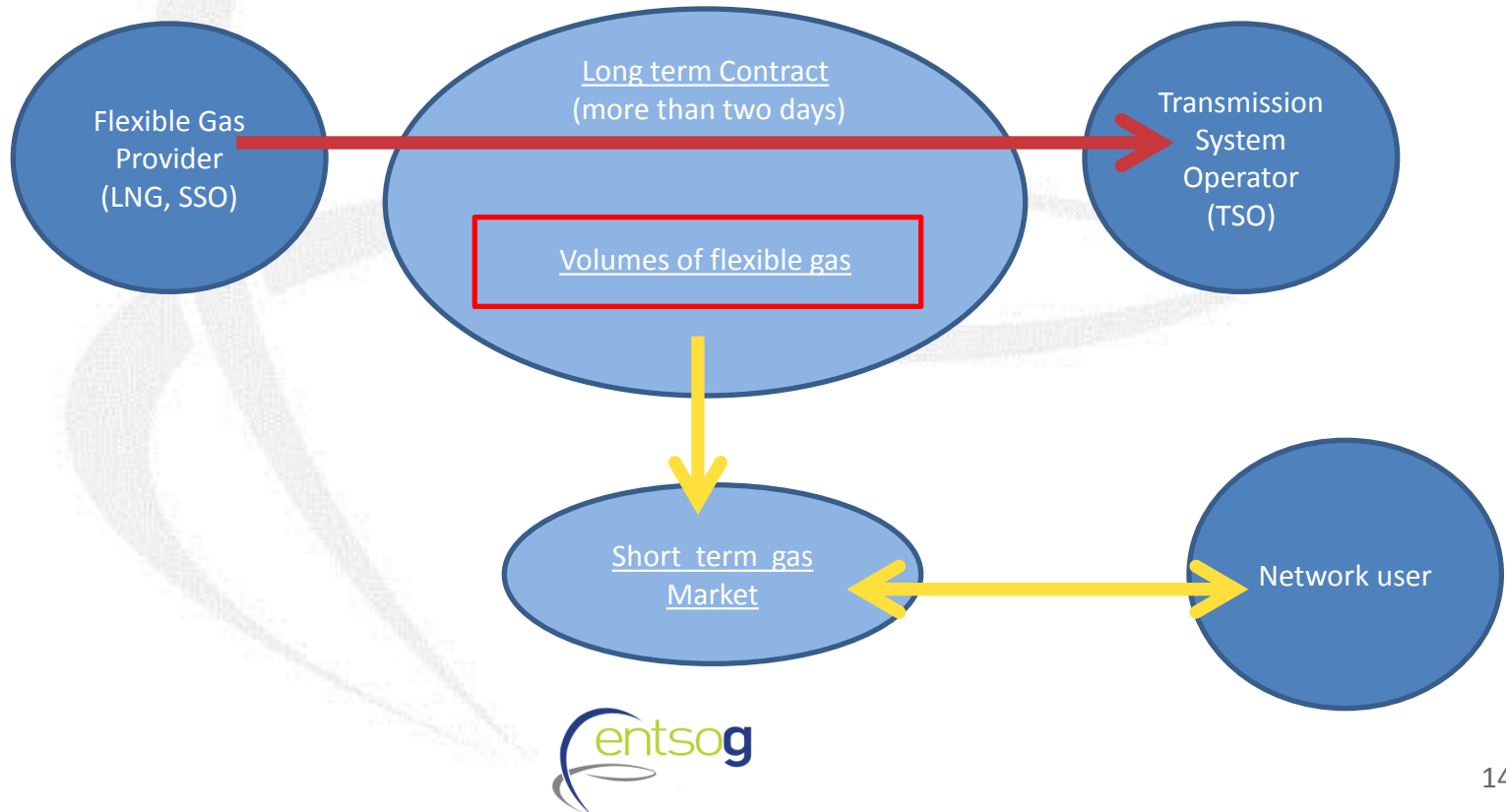
Surplus flexible gas release – FG requirements

Where long term contracts for the procurement of flexible gas are already in place and provide TSOs with an option to take specific volumes of flexible gas, the network code on gas balancing shall provide for the volumes of flexible gas covered by the option to be reduced.



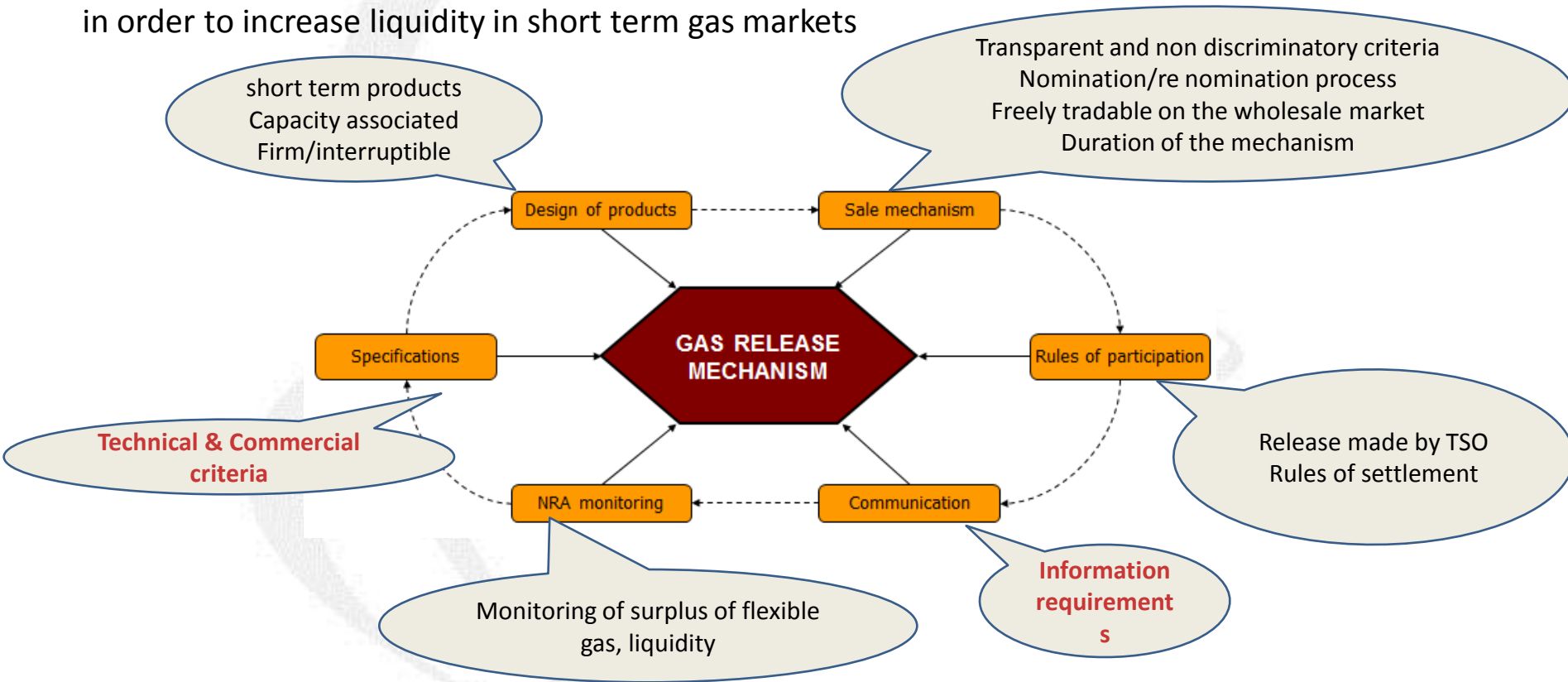
Surplus flexible gas release – FG requirements

The network code shall include arrangement for the TSOs or the undertaking holding the flexible gas to release back to the market any surplus gas which is not required for balancing purposes in any given balancing period, in order that network users have access to greater volumes of flexible gas. The relevant NRA(s) may set targets regarding the proportion by which these long term contracts should be reduced. This interim step can increase liquidity in short term gas markets.



Surplus flexible gas release - mechanisms

ENTSOG shall consult on the rules of procedure for the release of flexible gas. The relevant NRA may set targets regarding the proportion by which these long-term contracts should be reduced in order to increase liquidity in short term gas markets



Surplus flexible gas release – code considerations

- High-level criteria
- Requirements and specifications of the process
- Find methodology to determine what surplus gas is available
- Sale mechanisms
- Responsibilities

Nominations and links to capacity and interoperability issues

Tolerances

Balancing platform

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ANY SLIDES FOR THIS SECTION?

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