



*This project is co-financed by  
the European Union and the Republic of Turkey*

**European Union / Instrument for Pre-  
Accession (IPA) Energy Sector  
Technical Assistance Project**

EU-IPA12/CS03

**Consulting Services for the Design and  
Implementation Plan for the Gas Trading  
Platform**

***D11 – Draft Technical and Functional Design***

*28. January 2016*



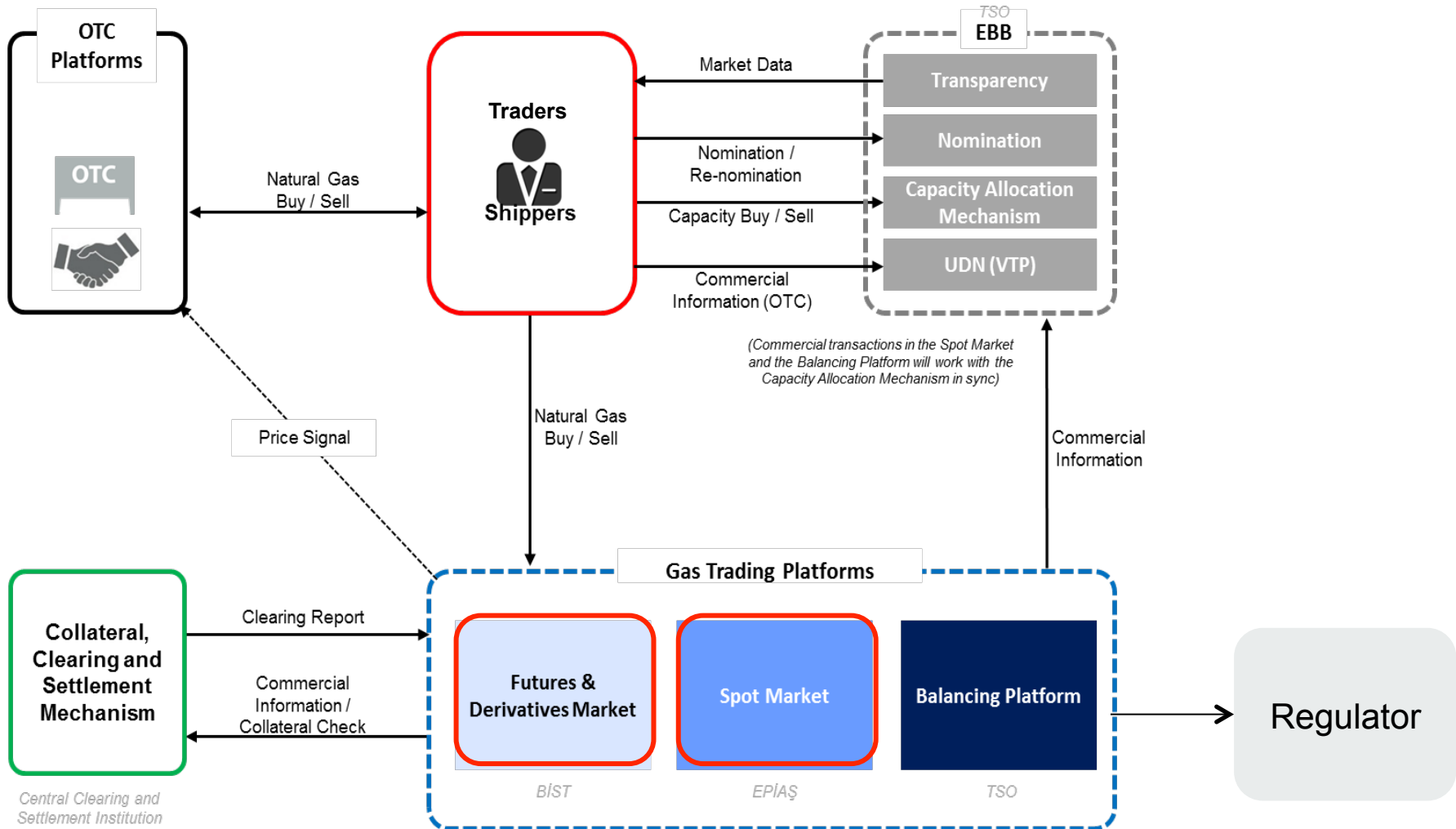
## D11 – DRAFT (!) Gas Trading Platform

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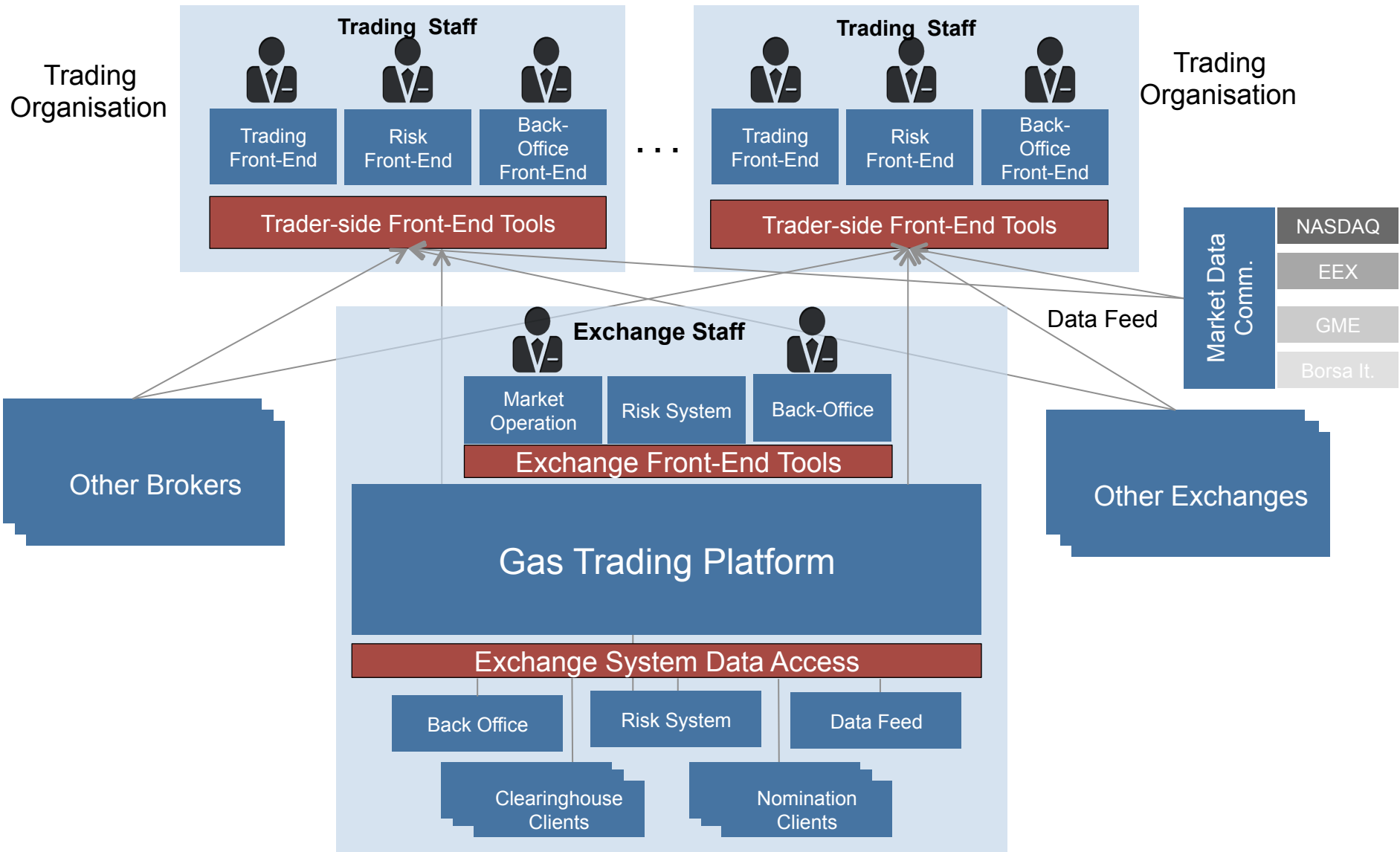
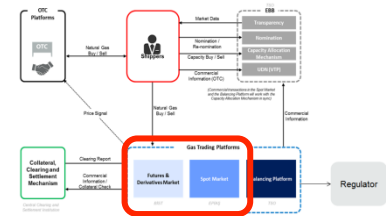
### Overview

- Possible structuring of the GTP – „the big picture“
- Components
- Tradable Products
- Order Routing / Order Book Management
- Trade Execution / Transaction Engine
- Market Control & Supervision
- Market Surveillance
  - Cases: market abuse / insider trading
- Clearing and Settlement Services
- Risk Management
- Regulatory Reporting

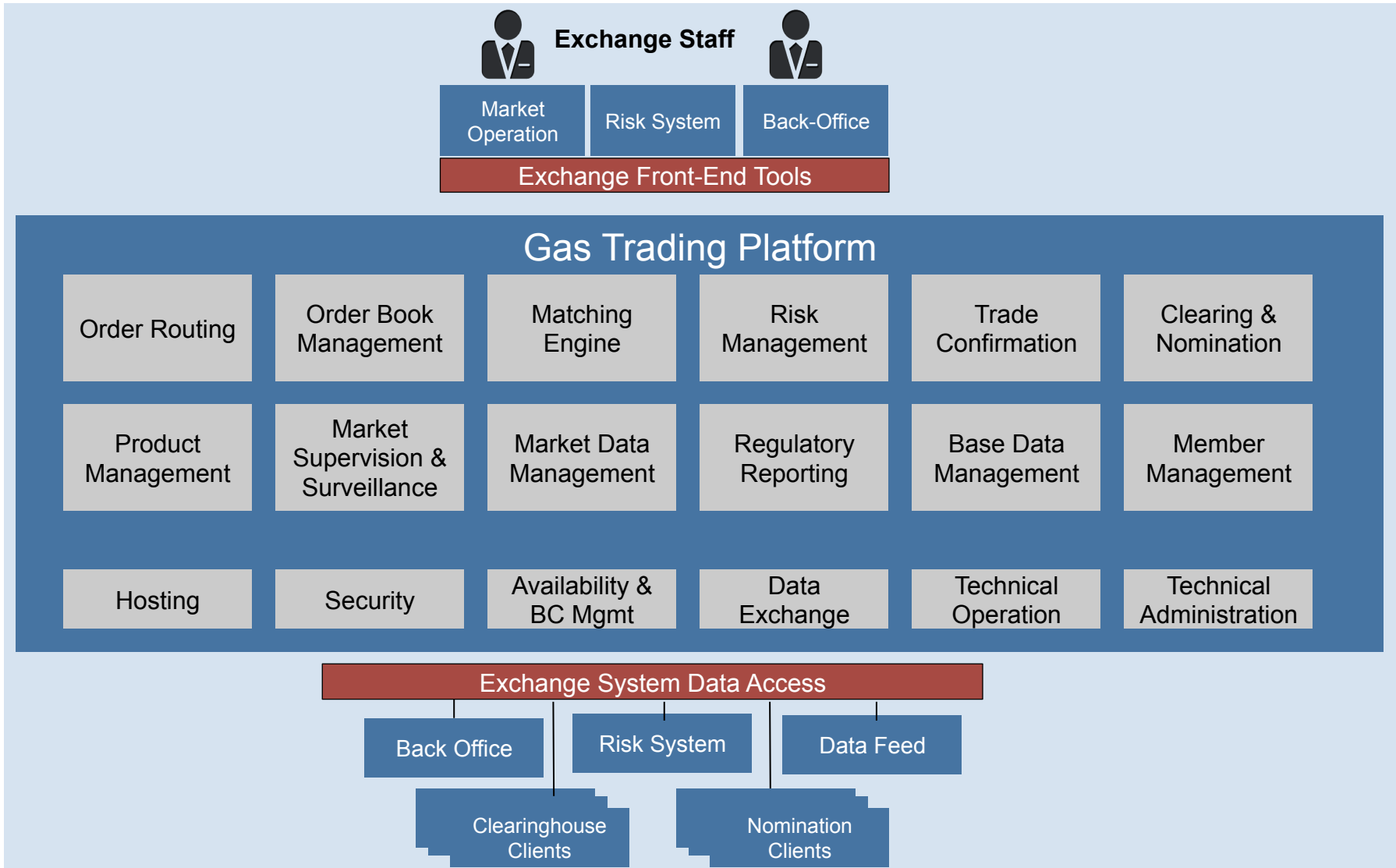
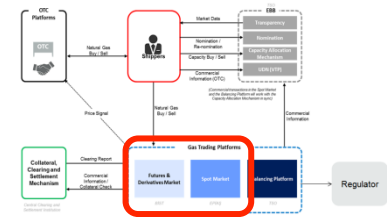
# Gas market overview – Platforms to be used



# Gas Trading Platform and Neighbouring Systems



# Internal Organisation of the Gas Trading Platform



## Tradable Products

### Futures & Derivatives Platform

Futures & Derivatives Market													
	Front Month			Front Quarter				Front Season / Front Year					
	1	2	3	1	2	3	4	1	2	3	/	1	2
<b>Gas product type</b>	Base Load												
<b>Delivery Point</b>	Turkish NBP												
<b>Settlement</b>	Physical Delivery (Gas Day 07:00 a.m. To 07:00 a.m.)												
<b>Trading Hours</b>	From 09:30 a.m. To 05:30 p.m.												
<b>Price Units</b>	TL/MWh												
<b>Minimum Price Change</b>	0.025 TL/MWh												
<b>Minimum Trade Size</b>	10												

### Spot Platform

Spot Market			
	Next Hour Contract	Within-Day	Day-Ahead
<b>Gas product type</b>	Base Load	Base Load	Base Load
<b>Delivery Point</b>	Turkish NBP	Turkish NBP	Turkish NBP
<b>Settlement</b>	Next hour with a lead time of 3 hours based on the next full hour	Rest of day with a lead time of 3 hours based on the next full hour to 07:00 am (G or G+1)	Physical delivery from 07:00 am (G+1) to 07:00 am (G+2)
<b>Trading Hours</b>	24/7	24/7	EPIAŞ Trading Calendar
<b>Price Units</b>	TL/MWh	TL/MWh	TL/MWh
<b>Minimum Price Change</b>	0.025 TL/MWh	0.025 TL/MWh	0.025 TL/MWh
<b>Minimum Trade Size</b>	1 MW	1 MW	1MW

# Product Configuration Options

GlobalVision Instrument Administration

File Edit Options Help

Modify Instrument Properties

- UK Block 5 CLRD (1)
- UK Block 5 WD Only (1)
- UK Block 5A (4)
- UK Block 5A CLRD (1)
- UK Block 5B (1)
- UK Block 5B CLRD (1)
- UK Block 6 (1)
- UK Block 6 CLRD (1)
- UK Block 6 WD Only (1)
- UK Block 6A (1)
- UK Block 6A CLRD (1)
- UK Block 6B (1)
- UK Block 6B CLRD (1)
- UK LEBA 7:30-9am Index (1)
- UK LEBA 8-9am Index (1)
- UK LEBA Month Ahead 4.00-4.
- UK Off-Peaks (1)
  - EFA Years (3)
  - EFA Months (3)
    - Single Period
  - EFA Quarters (3)
  - EFA UK Prompt (3)
  - EFA Days (3)
  - EFA Weeks (3)
  - EFA Weekends (3)
  - EFA Seasons (3)
  - EFA Mon-Fri (3)
  - EFA Extended Weekends
- UK Peaks (1)
  - UK Peaks / UK Peaks ICE CLRD
  - UK Peaks CLRD (1)
  - UK Peaks ICE CLRD (1)
  - UK Spark Spread (100k Th/ 60
  - UK Weekend Baseload (1)
  - Unmapped Instrument (1)
  - Zee ZTP (4)
  - Zee ZTP/GASPOOL (4)
  - Zee ZTP/NCG (4)
  - Zee ZTP/PEG NORD (4)
  - Zee ZTP/TTF (4)
  - zeebrugge (5)

1 node checked

**Override Trading Flags**

- Tradable
- Enable Single Dealing
- Enable Hidden Quantity
- Enable Volume Dealing
- Use Simple Volume Dealing Algorithm
- Use Hidden Qty Volume Dealing Algorithm
- Disable Manual Deal
- Allow Dealing Implied Prices
- Enable All or None
- Enable Fill or Kill
- Default To All or None
- Always All or None
- Show Counter Party Name
- Disallow Self Trading
- Enable Bid > Ask Protect
- Allow Choice Market
- Find Best Single Deal
- Allow Top of Market Deals Only
- Deny Worse Prices Despite Quantity
- Show Deal Volume's Trade Selected Volum
- Show Deal Confirm Paid/Given
- Allow Basket Dealing
- Allow Good For Day
- Allow Good Till Date
- Allow Current Session Only
- Trader Confirm Voice Deals
- Broker Confirm Non-Voice Deals
- Trader Confirm Non-Voice Deals
- Clearing Compatibility
- Voice deals are not PNC
- Verify PNC Deals
- No Volume Workup for Hidden Quantities
- Allow Market Orders
- Cash limit instrument
- Has Settlement Price
- Exercisable Instrument
- Dark Instrument
- Restrict Bid Entry
- Restrict Ask Entry

**Override Instrument Settings**

Product Info URL:

Price Format Type:

**Override Price Settings**

Price Types Allowed:  Indicative  Reference  Firm  Stop Order  Take Profit

Order Stepping:

Manual Deal Stepping:

Stepping Multipliers:

Multiplier 1:  Multiplier 4:

Multiplier 2:  Multiplier 5:

Multiplier 3:

Min. Decimals:  Max. Decimals:

**Override Price Ranges**

Min. Valid Price:  Max. Valid Price:

Min. Sane Price:  Max. Sane Price:

Enable Price Warning Threshold  
Price Warning Threshold:  %

Enable Price Rejection Threshold  
Upper Price Rejection:  %  
Lower Price Rejection:  %

Reference Price Field:

Override Hidden Quantity Settings  
Default Price Delta:

Override Display Settings  
LSDs To Display:

Override JTT Settings  
Enable JTT:   
Deals are not PNC:   
Session Duration:

**Override Quantity Settings**

Override Manual Deals  Enable

Min. Qty Decimals:  Max. Qty Decimals:

Min. Qty:  Max. Qty:

Default Qty:  Qty Stepping:

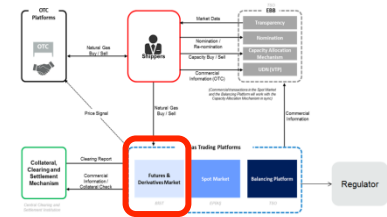
Enable Min. Ins. Qty  
Min. Ins. Qty:

Override Market Order Settings  
Reasonability Delta:

Override Settlement Price Settings  
Min. Decimals:  Max. Decimals:

Override Deal Confirmation Timeout  
Enable Timeout:   
Timeout (minutes):

# Derivatives / Futures Trading Platform: Market Price Overview / Market Depth for a single Instrument and Spreads

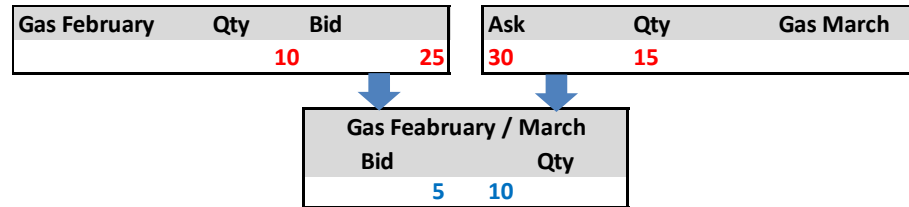


Turkish Gas Futures				
Instrument Name	Qty	Bid	Ask	Qty
Turkish Gas February-16	20	30,75	31,00	10
Turkish Gas March-16	15	25,50	25,75	15
Turkish Gas April-16	15	24,00	24,25	15
Turkish Gas Q2-16	10	24,25	24,50	15
Turkish Gas Q3-16	10	25,00	25,25	15
Turkish Gas Q4-16	15	32,75	33,25	5
Turkish Gas Summer-16	15	24,25	24,75	15
Turkish Gas Winter-16-17	15	33,25	33,75	15
Turkish Gas 2017	10	28,50	28,75	15
Turkish Gas 2018	10	29,25	30,50	15
Turkish Gas 2019	15	30,25	31,00	15
Turkish Gas March / February	10	5,50	5,75	15

- 10** Firm order, tradable
- 15** Firm order, not tradable (no trading agreement)
- 15** Implied orders (generated, e.g. for spreads)
- 20** Own orders



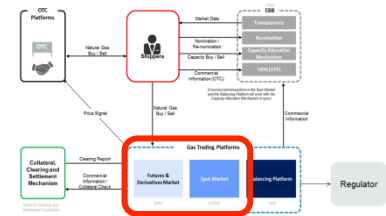
Turkish Gas Futures				
Instrument Name	Qty	Bid	Ask	Qty
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	10	30,50	31,25	15
	15	30,50	31,50	10
	20	30,25	31,50	20
	5	30,00	31,75	15
	10	30,00		
	20	29,50		
	15	29,25		



Automatically generated spread product



# Expandable Screen for Detailed Instrument Views



Global Financial Markets.vwb - GlobalVision

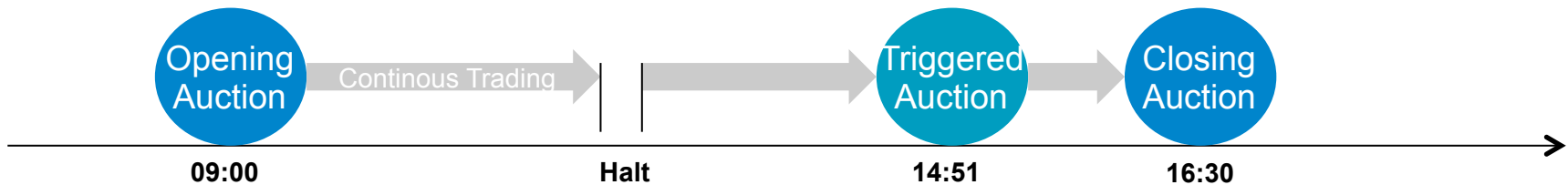
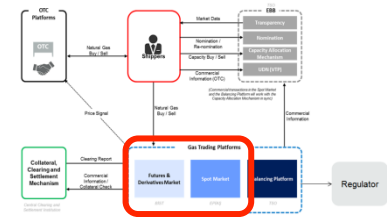
File Edit View Format Tools Help

Withdraw All Withdraw Me Delete All Delete Me

	Apples			Oranges			Apples/Oranges					
	Qty	Bid	Ask	Qty	Qty	Bid	Ask	Qty	Qty	Bid	Ask	Qty
Sep-06	15	8.50	8.75	55	10	8.25	8.30	15	15	0.20	0.50	10
	25	8.45	8.75	15	15	8.15	8.30	25				
	35	8.40	8.80	1	25	8.10	8.35	15				
Oct-06	25	8.60	8.90	25	15	7.25	7.35	25	25	1.25	1.65	15
					25	7.20						
May-07												
Jun-07	15	8.95	9.00	25	15	5.40	5.55	15	15	3.40	3.60	15
Jul-07	25	8.50			25	5.25						
Aug-07							6.25	15				

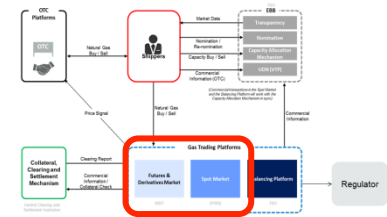
Ready NUM

# Trade Execution



- Scheduling of Trade Sessions
  - Depending on market liquidity
  - Start with Opening Auction
  - Continuous trading over the day
  - Closing Auction
- Per Auction: „Pre-open“ session
- Trading session may also be halted
- Schedule is pre-defined but can be manually overridden

## Trade Statistics

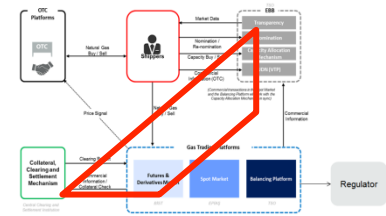


### The Trayport ETS system provides the following statistics through its API:

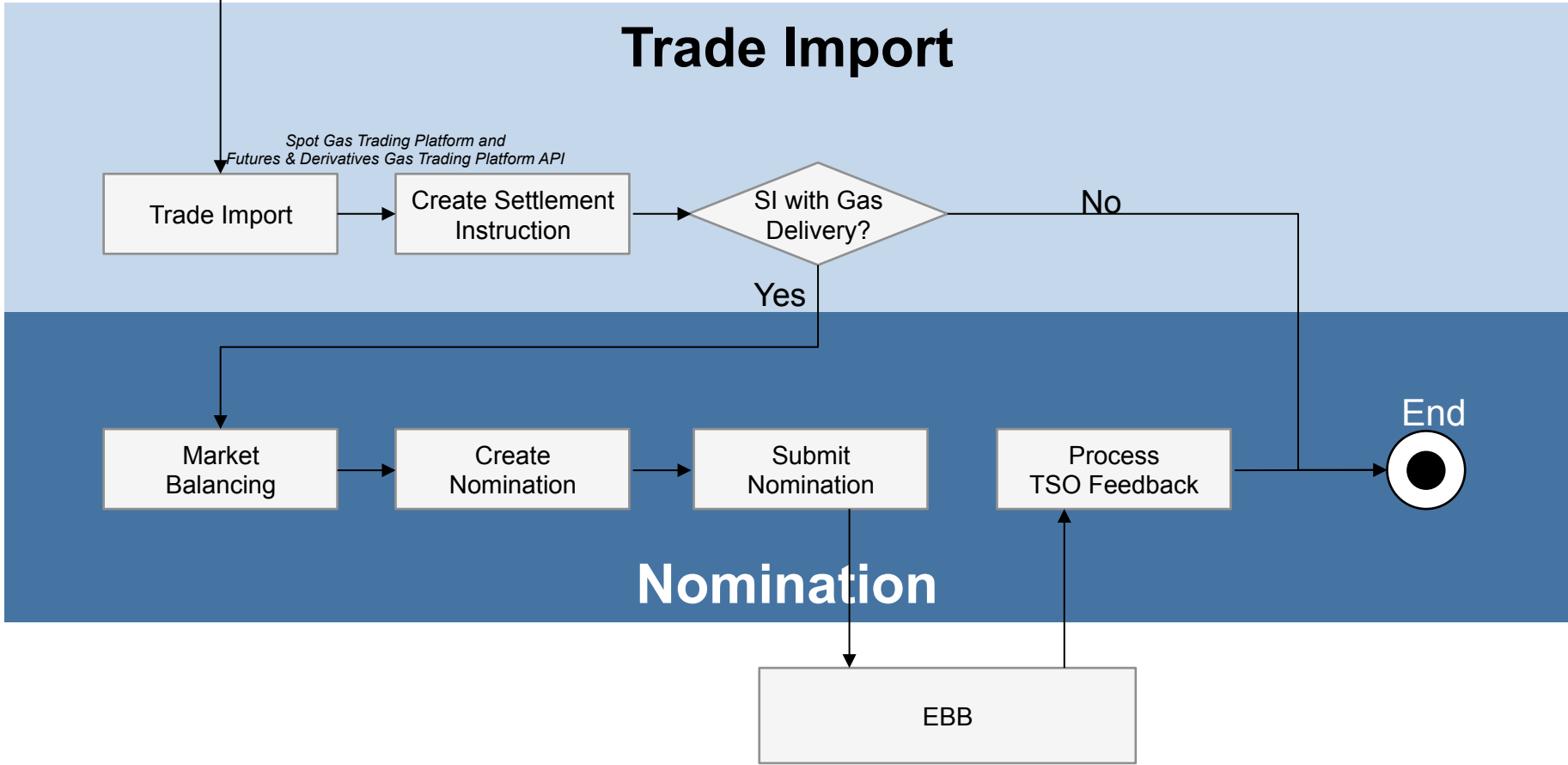
- Last Traded Price & Volume
- Price change (difference in price between the last two trades)
- Highest Price Today
- Lowest Price Today
- Time of Last Trade
- Total Number of Trades Today
- Total Volume Traded Today
- VWAP (volume-weighted average price)

More precise data can be calculated based on individual order and trade data.

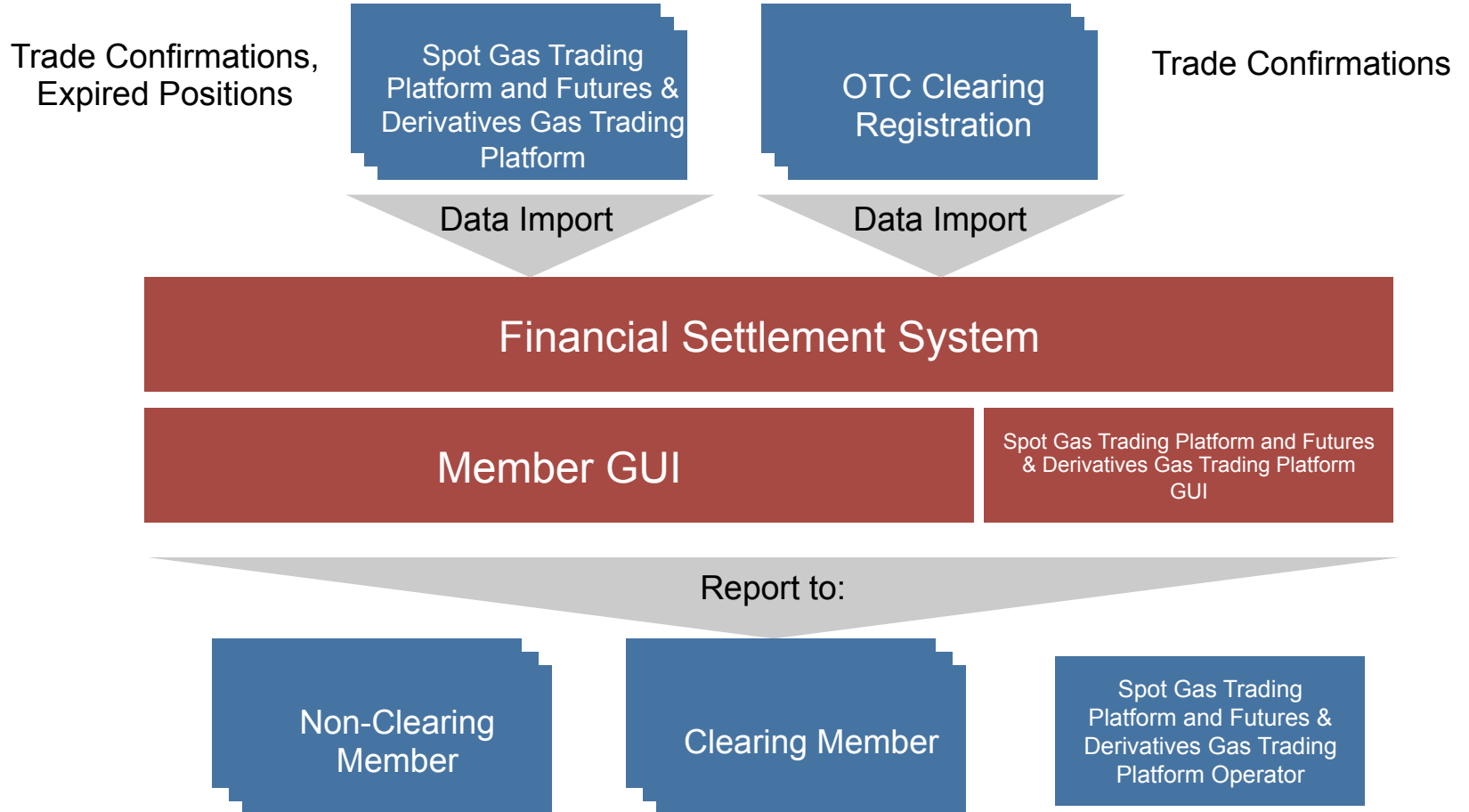
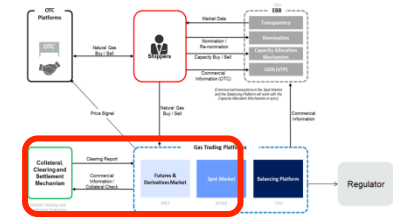
# Spot Trading Platform: Nomination System



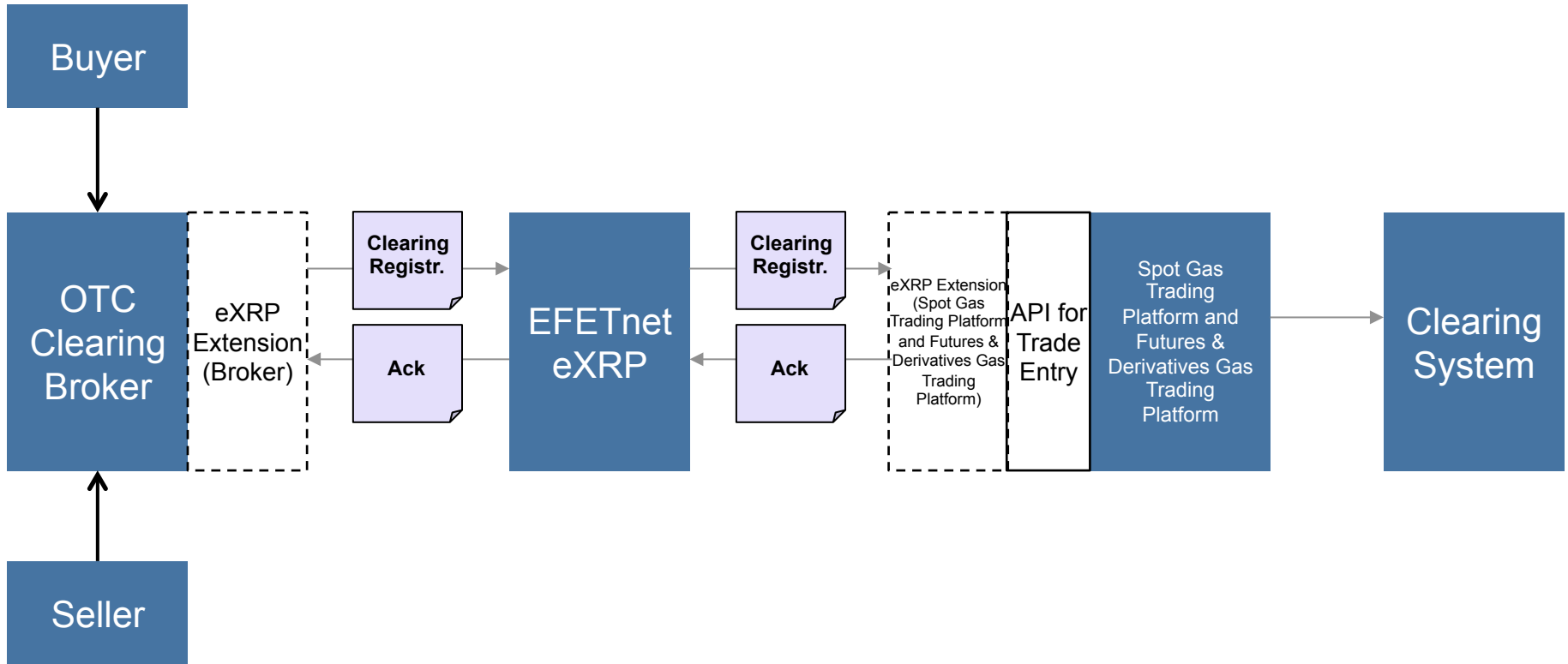
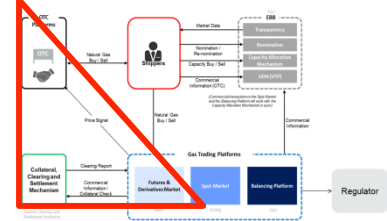
Spot Gas Trading Platform  
and Futures & Derivatives Gas  
Trading Platform



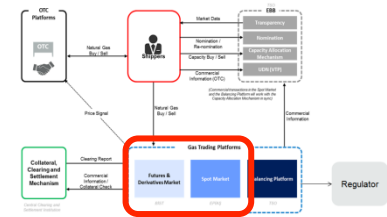
# Spot Trading Platform: Financial Settlement Process



# Clearing Registration for OTC Trades



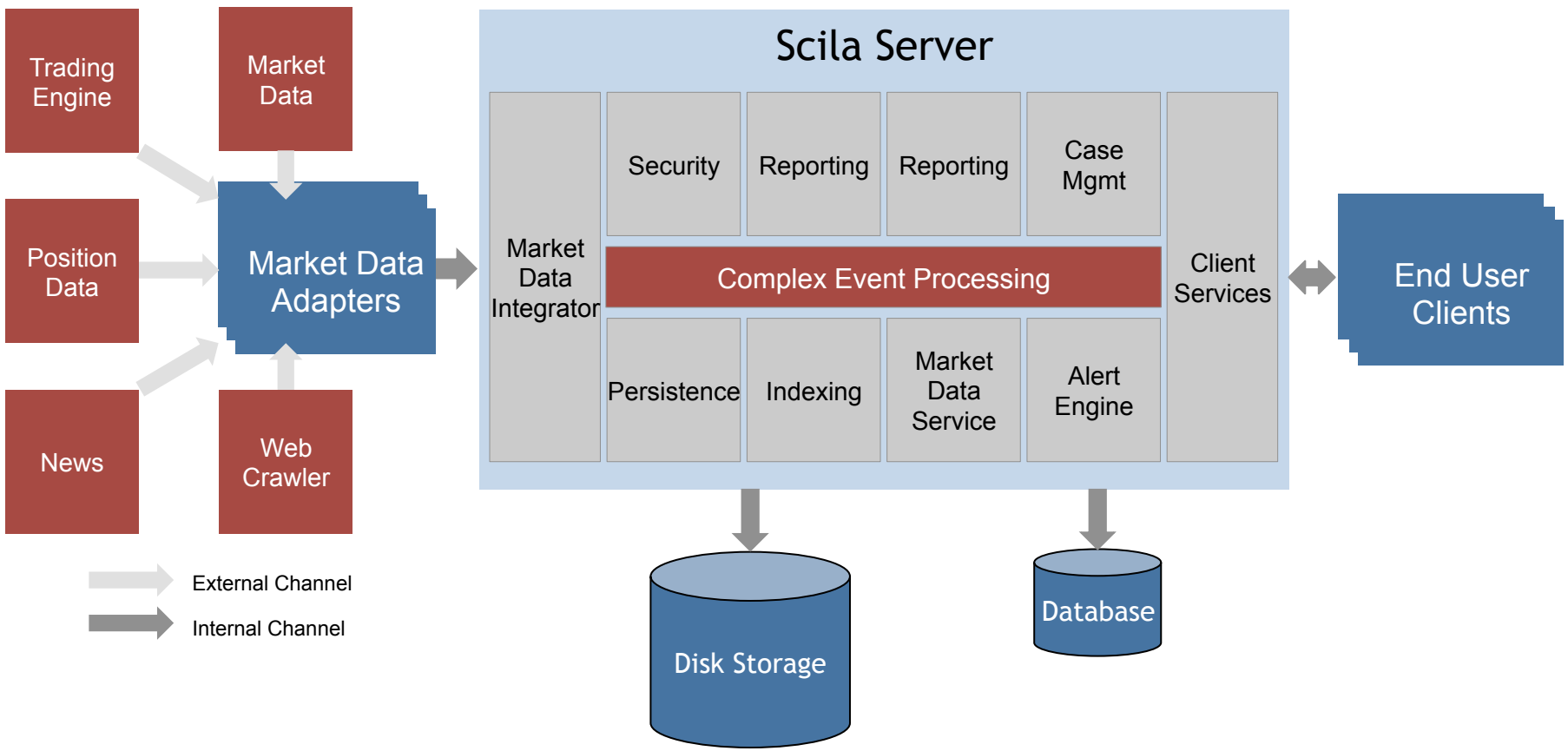
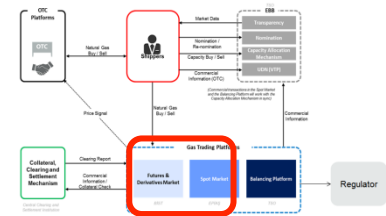
## Why Market Surveillance?



### → See ACER FAQs

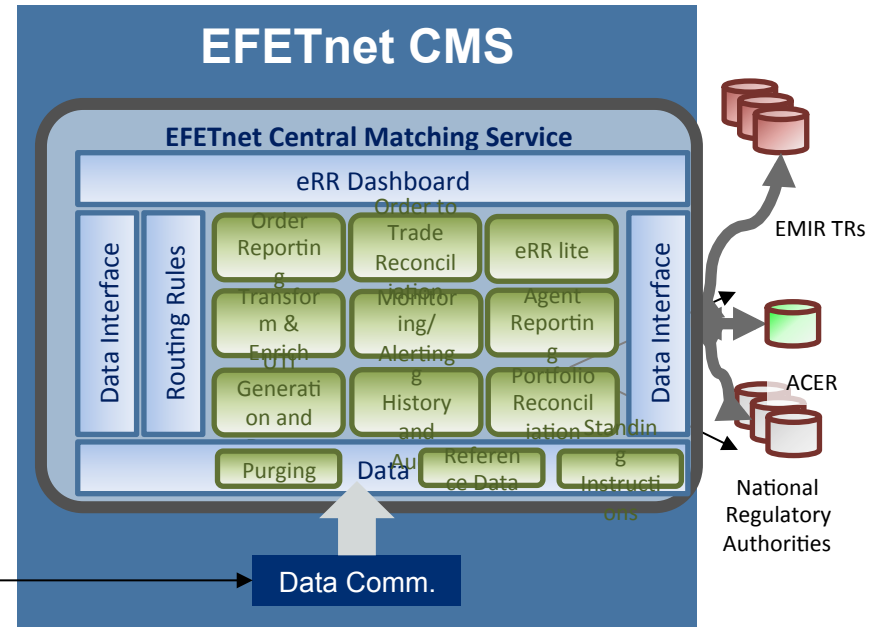
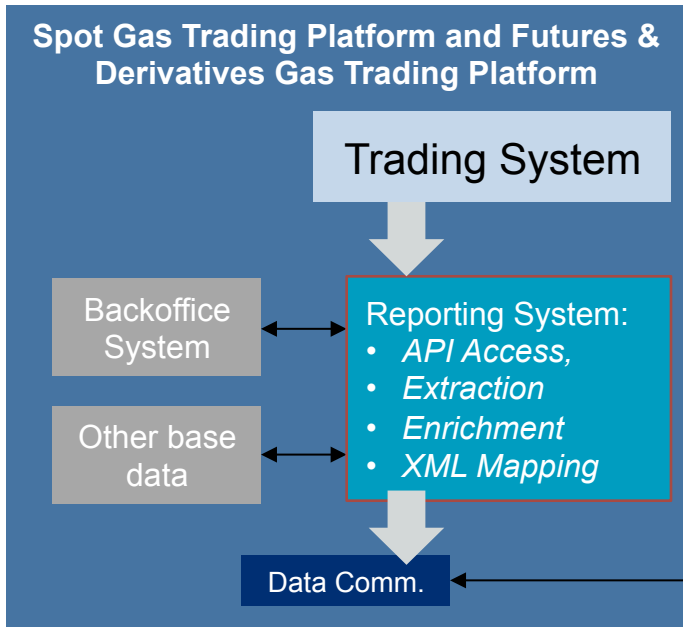
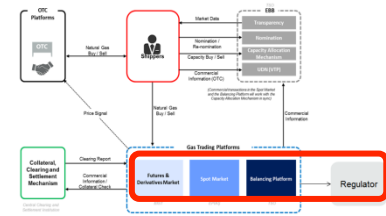
- A regulated exchange hosts a market surveillance department which directly reports to the regulator in charge.
- Fraud cases:
  - Insider Trading
  - Market Abuse, types are:
    - Market manipulation through false or misleading information
    - Market manipulation through abusive squeeze / cornering
    - Market manipulation through ramping
    - Market manipulation through cross-market-manipulation
    - Market manipulation through wash trades
    - Market manipulation through circular trading
    - Lack of market liquidity leading to price peaks
    - Manipulation of an end-user relevant index at a market place

# Surveillance System Architecture – Overview

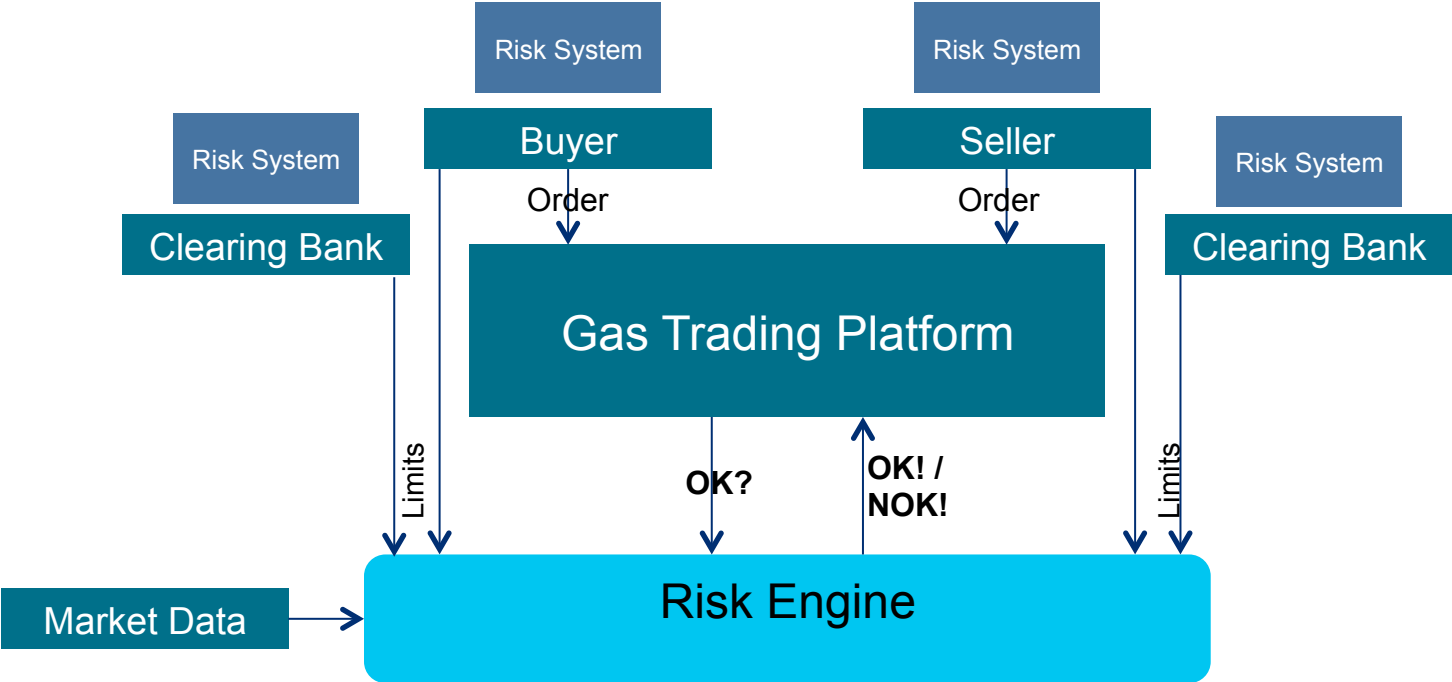
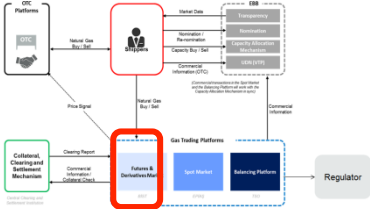




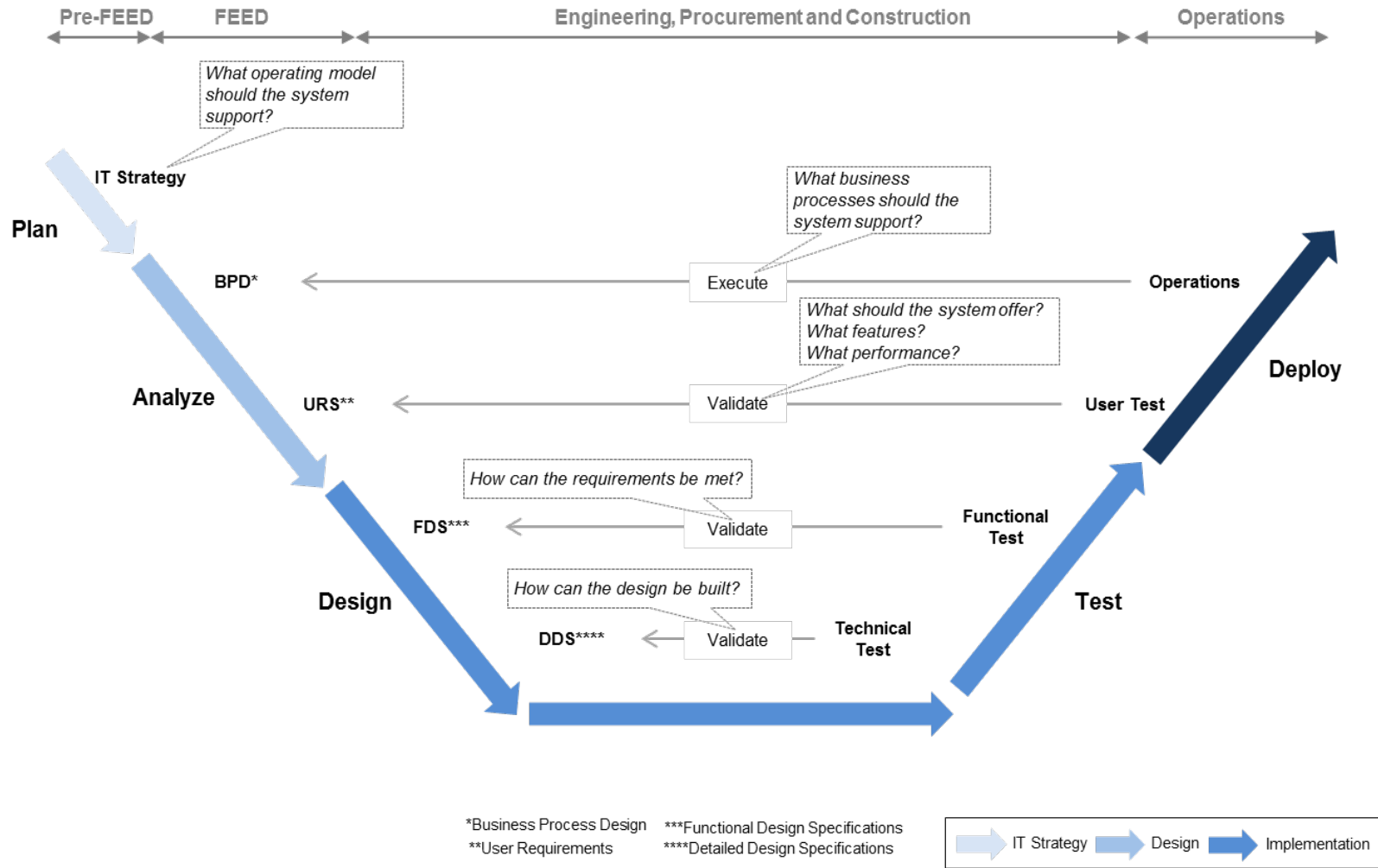
# Integration between Spot & Futures Platforms and Reporting Services for Regulatory Reporting



# Risk Management



# GTP Implementation



**Thank you!**

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