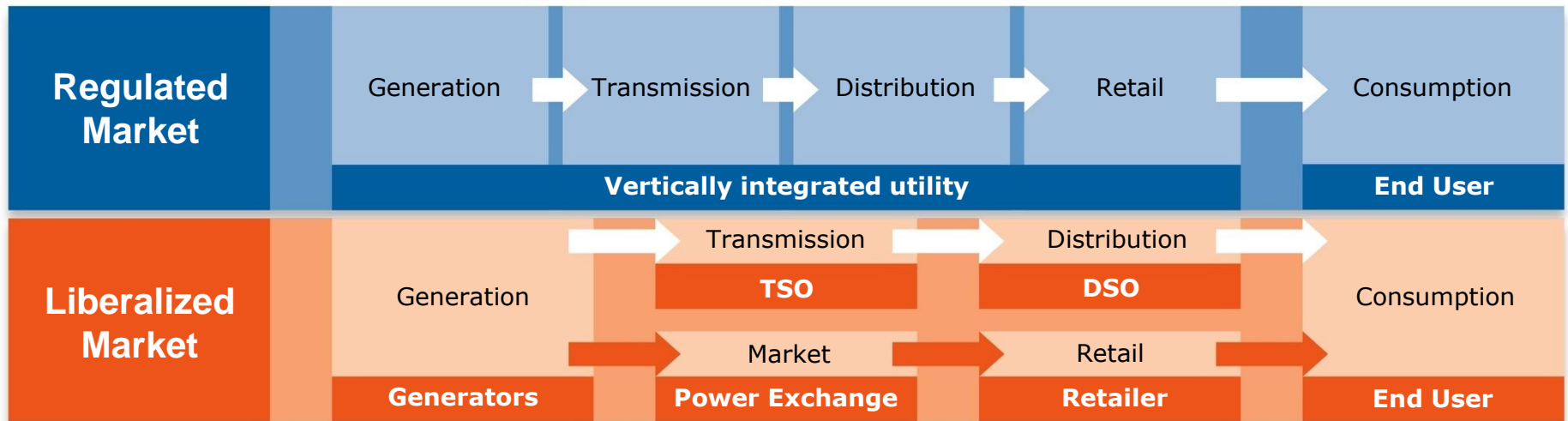


PTRS gas

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# PTRS Market Challenge

commercial  
dispatchin  
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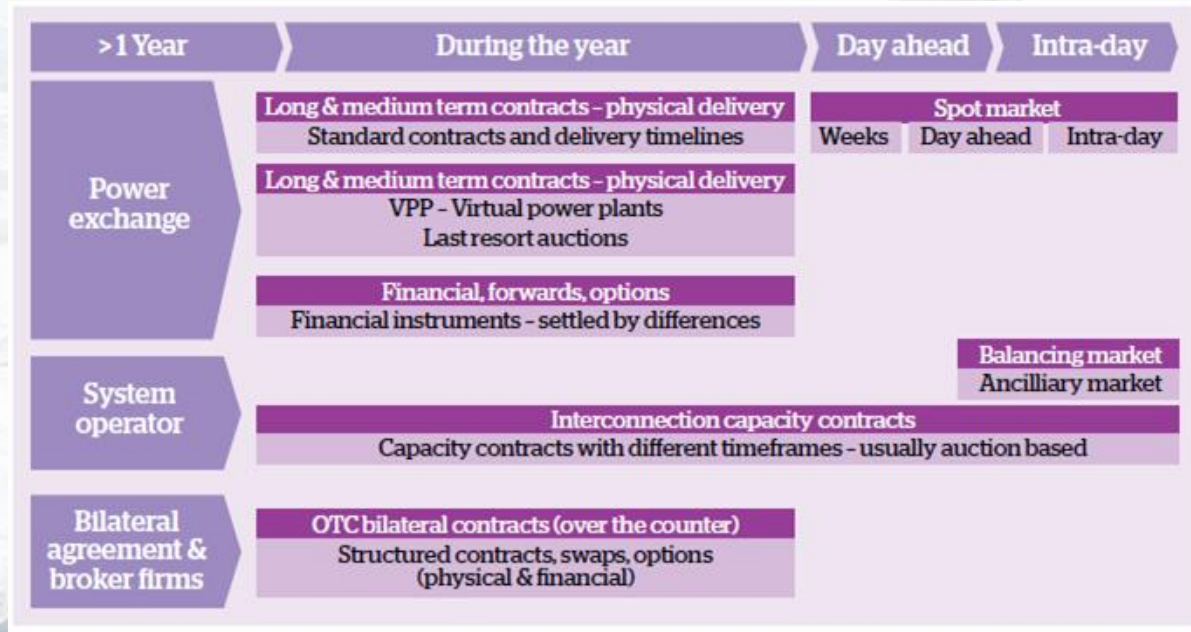
- ▶ Market liberalization increases the sophistication and complexity of trading
- ▶ Ever more varied and complex portfolio of energy contracts makes an effective risk management approach essential
- ▶ Integration of Gas and Electricity industries through generators with CCGT and retailers supplying both commodities to customers
- ▶ The rise of renewable energy has increased the number of players in the generation business



# PTRS a comprehensive toolset for trading

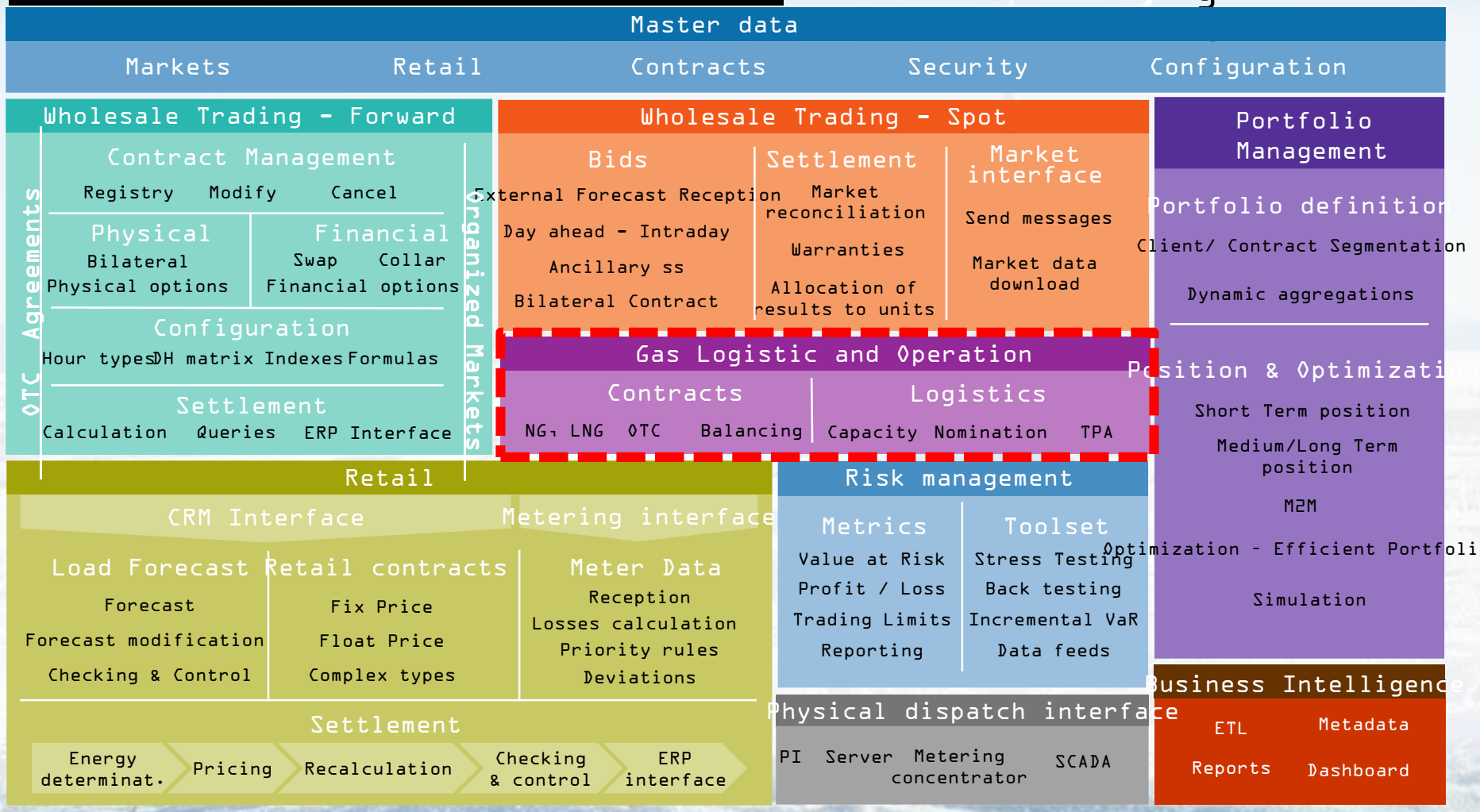
commercial  
dispatchin  
gas  
gas  
shipper

- ▶ Atos PTRS is a comprehensive trading toolset
  - Covering all trading requirements: Long-term contracts; Spot deals and Real-time transactions
  - Physical to financial deals
  - Taking products from Power Exchanges to system operator markets
  - Bilateral transactions tailored to counterparty needs
  - Wholesale to retail



# PTRS complete functional map: multicommodity

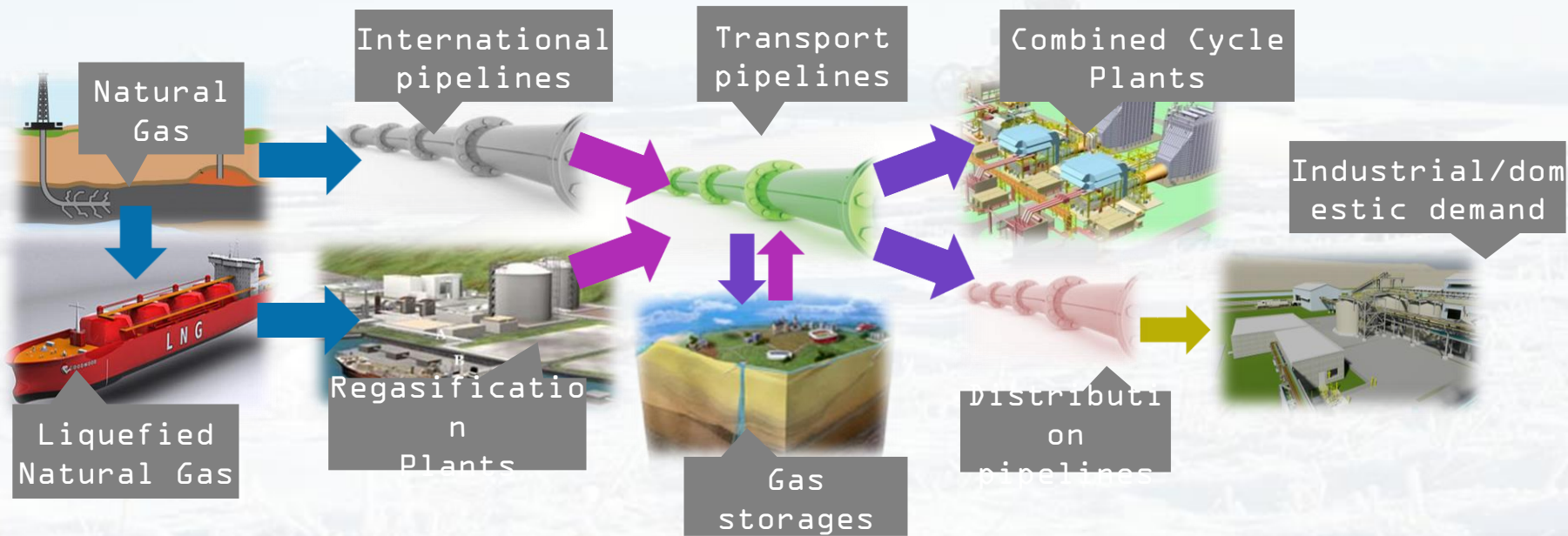
commercial  
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# Our gas solution

High level description: What value ~~does it bring?~~

commercial  
dispatchin  
gas  
gas  
shipper

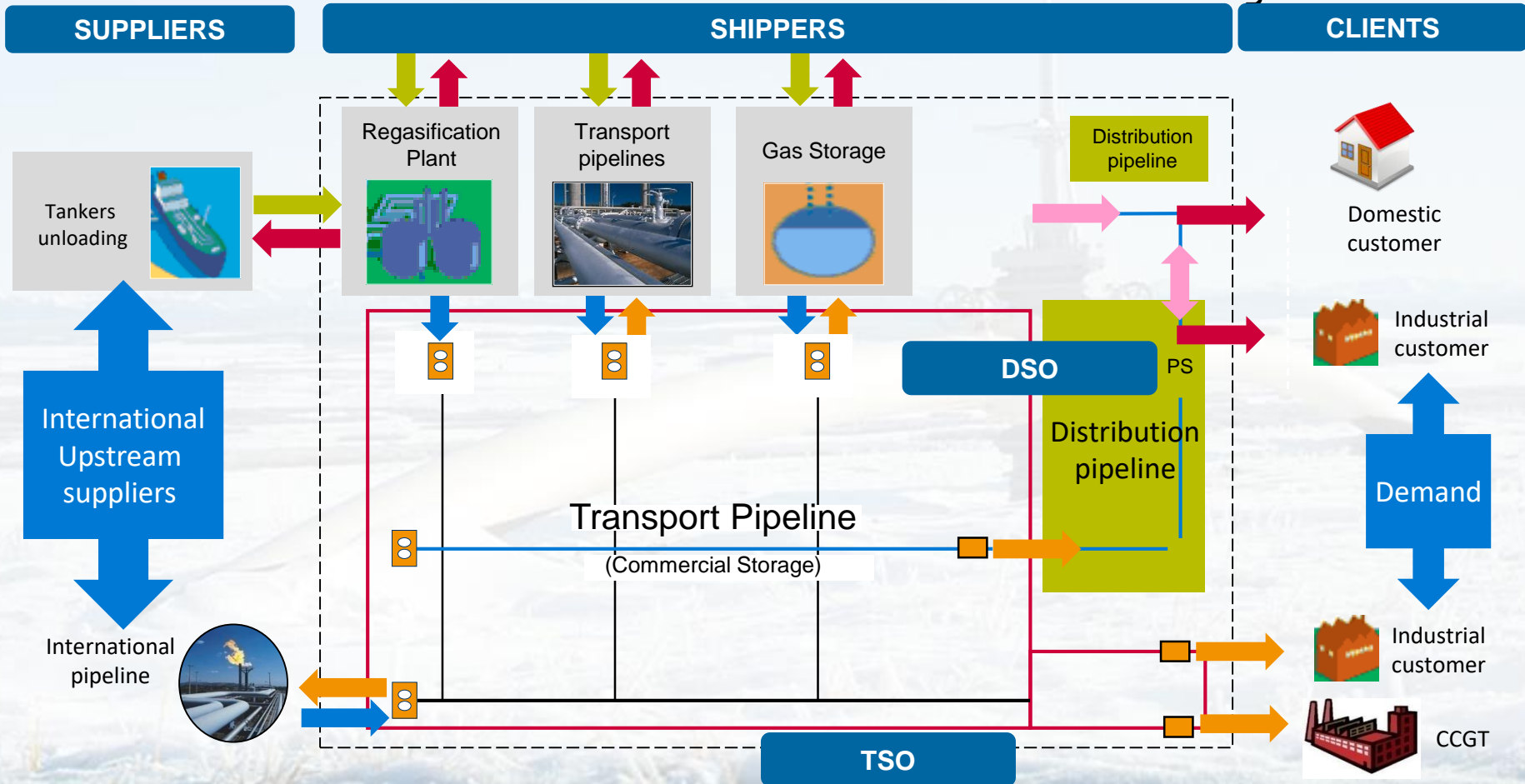




# Our gas solution

## Functional description: Global overview

commercial  
dispatching  
gas  
gas

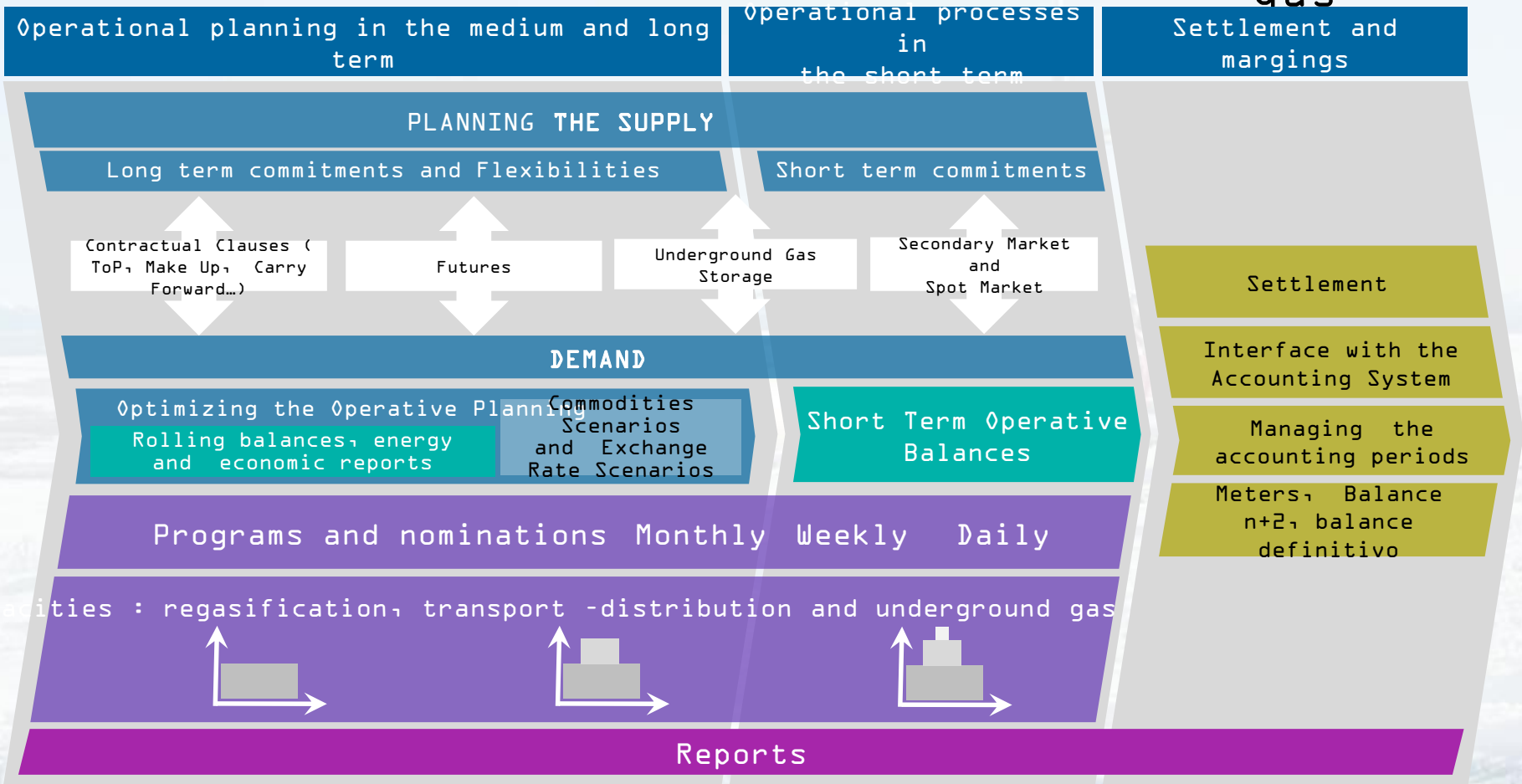


# Our gas solution

Functional description: Wholesale

## Process Map

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dispatchin  
gas  
gas

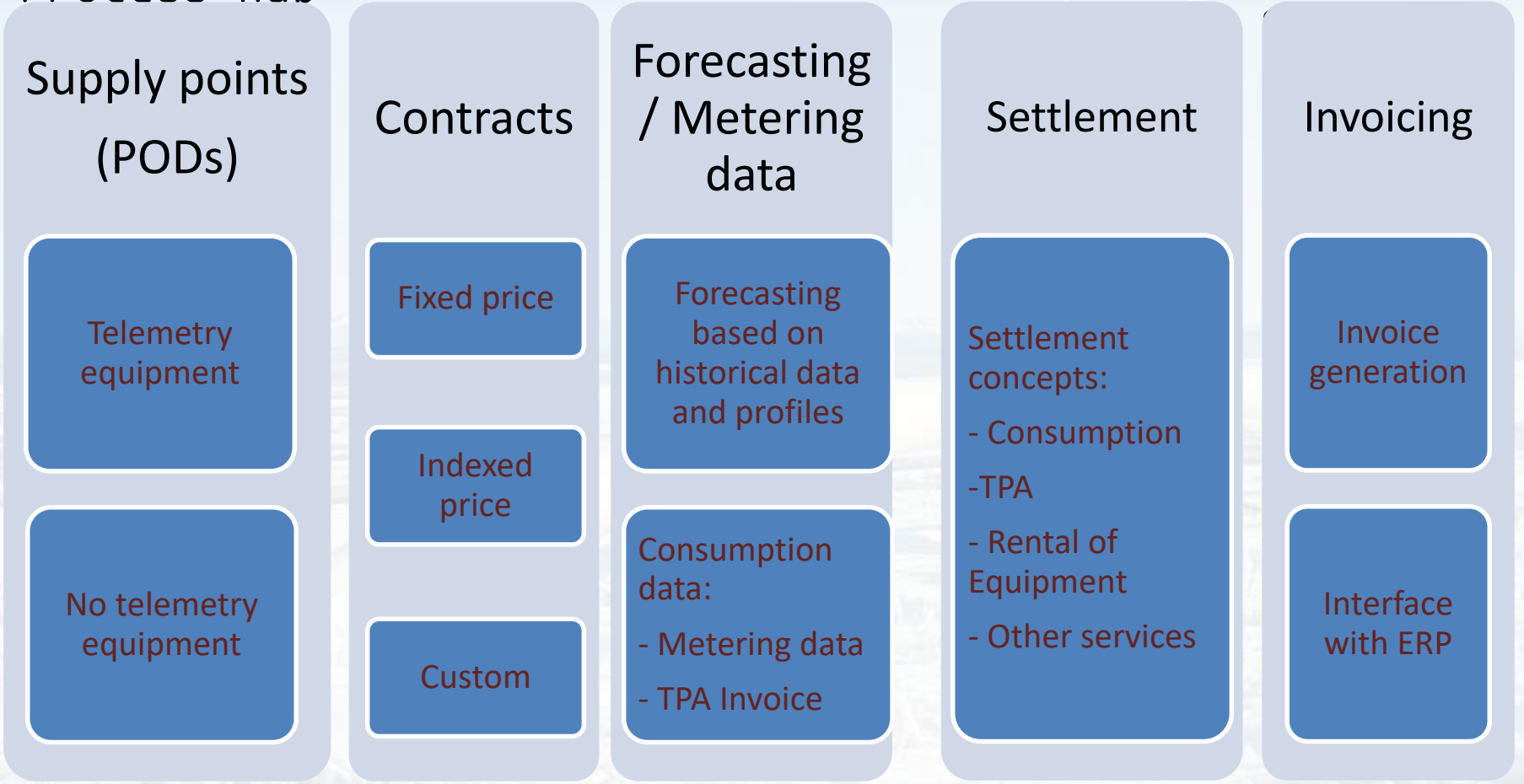


# Our gas solution

Functional description: Retail

## Process Map

commercial  
dispatchin  
gas

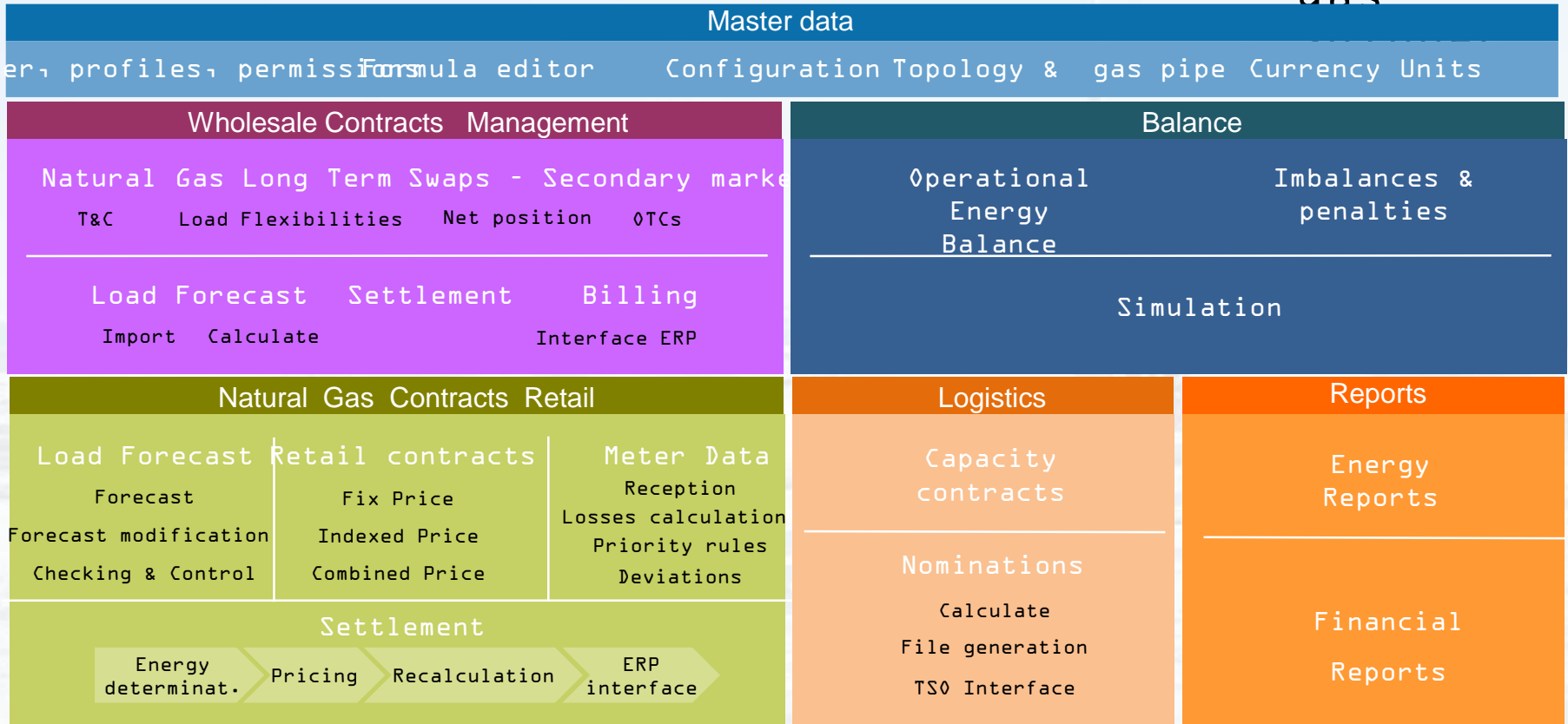




# Our gas solution

## Functional description: Modules

commercial  
dispatchin  
gas  
gas



# Our gas solution

Functional description: Description of

## Modules

commercial  
dispatchin

gas

gas  
shipper

### Swaps

- ▶ OTC purchases and sales of gas signed with other shippers in the secondary market.
- ▶ Settlement of the energy transaction and the related TPA fees.
- ▶ Swap contracts may take place in any point of the transmission system.
- ▶ Generation of documents associated to the contract

### LNG Supply Management

- ▶ Contracts with suppliers, methane tankers and fees.
- ▶ Contractual commitments with upstream suppliers in the gas market: periods, prices and clauses, Take or Pay obligations, Make up and Carry Forward flexibilities. Price formulas used worldwide, referred to any commodity with rolling averages.
- ▶ Methane tankers management. set off date, arrival date and intermediates dates. Module computes de economic delays, generates the nominations to the upstream and to the TSO. Settlement of gas, contractual commitments, flexibilities, fees, etc
- ▶ Service contracts. consignment and inspection services.

### NG Supply Management

- ▶ Contracts with suppliers, prorates resulting of matching processes and fees.
- ▶ Contractual commitments with upstream suppliers in the gas market: periods, prices and clauses, Take or Pay obligations, Make up and Carry Forward flexibilities. Price formulas used worldwide, referred to any commodity with rolling averages.
- ▶ Monthly and annual prorating. Nominations to the TSO and to the upstream supplier. On a monthly basis, energy quantity is assigned to each supply contract. Allocation on monthly and annual energy for every typology: natural gas or flexibility clauses. Settlement.

### Meters & Demand Forecast

- ▶ Management of provisional and definitive meters and regularizations.
- ▶ Management demand forecasts.
- ▶ Reporting.
- ▶ Management of closing meters.

# Our gas solution

## Functional description: Description of

### Modules

#### Balance module

- ▶ Consolidation of all the "best" inputs and outputs and generation of the operational balances.
- ▶ Computing of the energy inventories in every point in the transmission system.
- ▶ Daily balancing is carried out.
- ▶ Simulation of all the energy variables in the gas market for the short term.
- ▶ Closing balance. Energy report computed in every point of the transmission system with the closing meters.
- ▶ Additional Reports: Monthly energy balance, Offer and Demand, Monthly global closing results, Yearly global closing results, Yearly Demand Analysis.

#### Operational - Planning Scenarios

- ▶ Set of energy and economic balances that allows the user to simulate different operational and economical scenarios (offer and demand), simplifying the analysis of all the variables.
- ▶ Short, medium term and long term.
- ▶ Management of several simultaneous scenarios. simulating all the inputs and outputs in the system.
- ▶ Aggregation of physical and economic information.
- ▶ Commodities scenarios for simulating prices and currency exchanges.

#### Programs and Nominations Module

- ▶ Generation of monthly, weekly and daily nominations / renominations that must be sent to the TSO.
- ▶ Regasification, transport, distribution, storage and electric market nominations.
- ▶ Retrieval of the best information in the system.
- ▶ Prorating algorithm than optimizes the use of the TPA contracts.

commercial  
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gas  
gas  
shipper



# Our gas solution

## Functional description: Description of Modules

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gas  
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### Costs

- ▶ Settlement of the gas concepts.
- ▶ Calculation of the economic inventories in regasification plants, transport point and gas storages.
- ▶ Management of accounting documents: provisions, invoices, credits, etc.
- ▶ Interface with the accounting system.
- ▶ Accounting periods.
- ▶ Economic regularization with definitive meters.
- ▶ Computing of the TPA fees with the best available data.
- ▶ Price formulas used worldwide, referred to any commodity with rolling averages.

### Retail Contracts & Settlement

- ▶ Management of supply points
- ▶ Possibility to connect to external CRM
- ▶ Multiple types of contracts: fix prices, indexed,
- ▶ Computing loadforecasts, uploading of meters from distributors
- ▶ Settlement for telemetered and non telemetered points
- ▶ Billing / Interface ERP

### TPA Capability Management

- ▶ Administration of the contracts with the TSOs and all the relevant information.
- ▶ Regasification, transport, gas storage and distribution contracts.
- ▶ Analysis of the used capacity and the spare capacity.
- ▶ Registry of the bank guarantees asked by TSOs for certain contracts.

# Our gas solution

Functional description: International  
~~features~~

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gas  
gas  
shipper

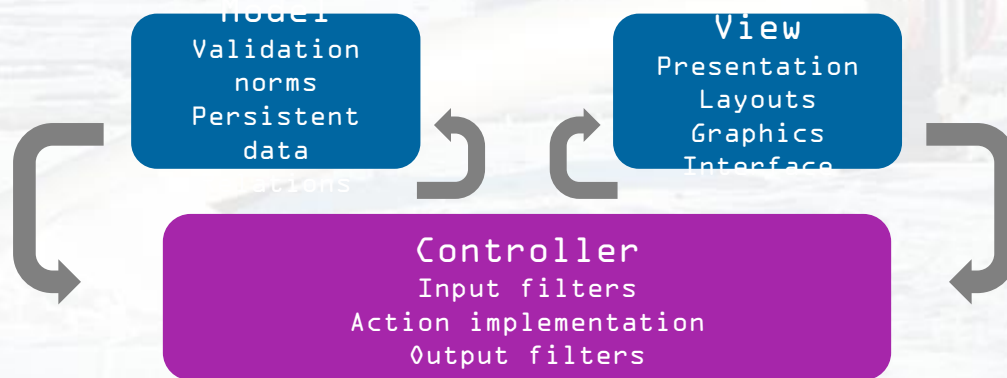
- ▶ The solution handles multi currency. It is possible to specify a different exchange for every trade and link to it to exchange formulas.
- ▶ It handles different energy units.
- ▶ Formula editor covers the requirements of pricing in current gas contracts.
- ▶ Interface with accounting system.
- ▶ Multi-language interface.

# Our gas solution

## Technical description: Architecture

commercial  
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gas  
gas  
shipper

- ▶ Use of the standards.
- ▶ Use of the J2EE platform as support of the components architecture that will made the main part of the system.
- ▶ Architectural standard followed by the system is the standard Model-View-Controller (MVC).





# Our gas solution

Technical description: Security

## ~~Features~~

- ▶ Common to all modules that integrate the system
  - Username/Password, certificates and HTTPS connection capability
  - Every transaction is registered with the user and timestamp
  - There are registered the sessions initiated by the different application users.
  - There is also registered in a Log file all the different events occurred during the execution of the different processes, both from calculation and from data loading and from data generation.

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gas  
gas  
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# Our gas solution

## Technical description: Technology

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gas  
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- ▶ First Following tables show the tools set to be used for the System implementation, both from the Server side and from Client side.

J2EE Solution Server-Side		Solution Client-Side	
Concept	Tool	Concept	Tool
Program Language	Java		
Program Environment	J2EE		
Web / Application Server	Apache Tomcat	Excel	Office 2003 or higher
Access to Data	JDBC	Browser	Internet Explorer 7.0 or higher
Connection to the Database	iBatis / Oracle		
Database	Oracle		

- ▶ The J2EE platform provides the interfaces set that allows the applications development accessing to the already established services in a transparent form, as well as to those chosen for the future.
- ▶ Access to the Database. The access to the database is carried out through the connectivity provided by iBatis:
  - Connections named through JNDI.
  - Connections pool.
  - Support to transactions.
- ▶ The access to the Data Sources will be carried out through JNDI, being the references to each of them stored under the JDBcbranch.

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# Our gas experience

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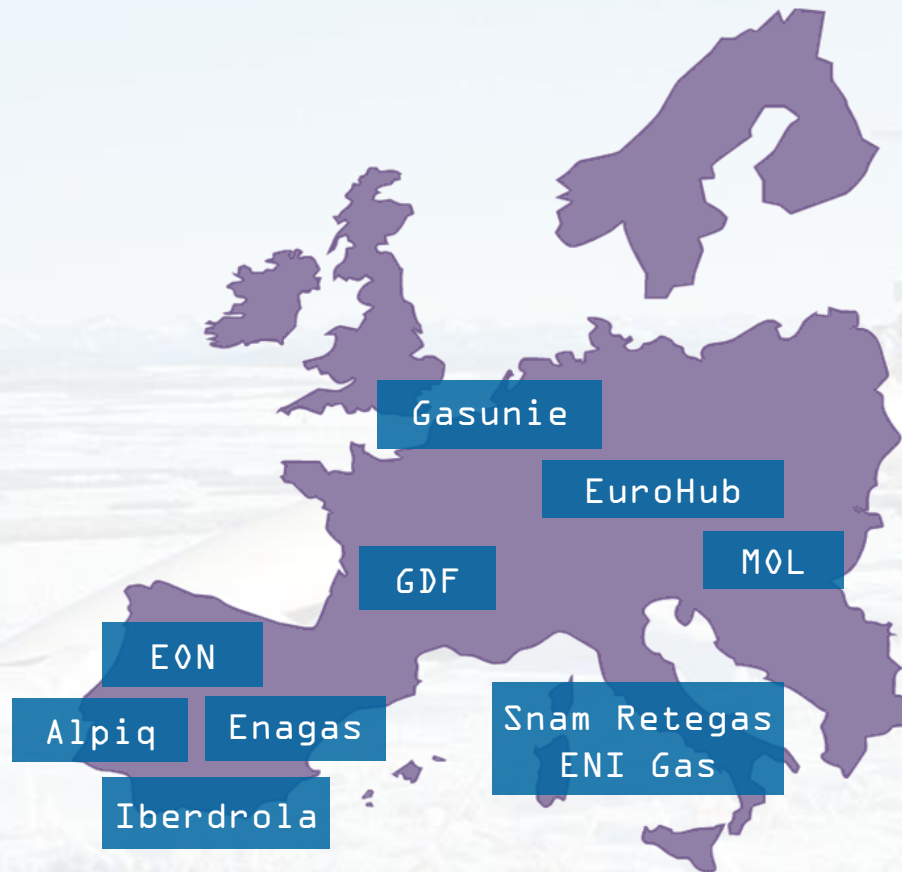
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Worldgrid



# Our gas experience

Map

commercial  
dispatchin  
gas  
gas  
shipper



# Our gas experience

SGG - ALPIQ (2011)

commercial  
dispatchin  
gas  
gas  
shipper

System for the management of the gas operative for a shipper

- ▶ Solution covers logistic with TSO, balances and gas inventories in the transport pipelines
  - It manages combined cycles power plants.
  - It provides the interfaces to import meters and demand forecasts.
  - It handles purchases (swaps) of gas in any point of the transmission system.
  - It generates operative balances and compute gas inventories (energy and price) in transport pipelines.
  - It manages nominations / programs in transport pipeline.

# ALPIQ

# Our gas experience

## SICOGAS IBERDROLA (2010)

commercial  
dispatchin  
gas  
gas  
shipper

### Gas Cost System

- ▶ It imports TPA costs, risk covers, trades and business operations from the gas operative system and risk analysis systems.
- ▶ It prorates costs associated to risk covers among the operations according to different criteria, defined by the user.
- ▶ It prorates costs associated to TPA fees among the operations according to different criteria, defined by the user.
- ▶ It manages economic scenarios in which it is possible to simulate every variable, involved in the process: dates, prorating criteria, costs, prices, modify existing operations, etc.
- ▶ The system computes gas costs for every scenario and condition.
- ▶ It computes economic margins for every operation and scenario.
- ▶ It provides consistent reports and balances.





# Our gas experience

SGOG - E.ON (2009)

commercial  
dispatchin  
gas  
gas  
shipper

System for the management of the gas operative for a shipper

- ▶ It manages industrial demand and combined cycles power plants.
- ▶ It handles TPA coefficients and computes fees and the rests of the costs associated to the gas operative.
- ▶ It provides the interfaces to import meters and demand forecasts.
- ▶ It manages LNG (contracts, gas tankers) and NG supply (contracts and prorates).
- ▶ It handles sales and purchases (swaps) of gas in any point of the transmission system.
- ▶ It generates operative balances and compute gas inventories (energy and price) in plants, transport pipeline and gas storages.
- ▶ It manages nominations / programs in plants, transport pipeline and gas storages and generates tankers nominations to be sent the technical manager and to the upstream suppliers.
- ▶ It allows the user to generate long term and medium term physical and economic scenarios and simulate.
- ▶ It manages costs: monthly settlement, accounting periods, accounting documents, reports, interface with accounting systems.

e-on | España

# Our gas experience

## SL-ATR ENAGAS (2000-2011)

commercial  
dispatchin  
gas  
gas  
shipper

### Operative systems implemented:

- ▶ SL-ATR (Logistic System for the Spanish technical manager).

#### Main features:

- Second Infrastructures and physic system management.
- It manages Third Party Access contracts and addendums.
- Communication with other operators (SGITD).
- It manages nominations and sends viability confirmations (POC).
- Interface with Secondary Market (MS ATR).
- It computes the shippers' meters and balances.
- TPA fees pre-invoicing (SAP interface).

- ▶ SIFCO (Consumption and Invoices Information System):  
It generates the information required by the CNE (Consultative Spanish Energy Regulator).
- ▶ SLM (Gas Metering System):  
It manages meters for the technical meters of the gas system. It centralises the handling of validated meters, received from different systems.  
It manages and validates the meters provided by SCADA (volume, energy, gross calorific value temperatures.. etc.), remote-controlled meter log.
- ▶ SIVOGAS (Operative Variables Gas System Information):  
It provides information about the demand of the Spanish (for the whole system and disaggregated for every infrastructure).



# Our gas experience

ENI Gas & Power (2005)

commercial  
dispatchin  
gas  
gas  
shipper

Multi-pipeline Commercial Management Gas System (diversity and flexibility):

## ► SITE System:

Atos 's WEM TGM platform was chosen by ENI G&P to support the requirements of the gas operators, outside Italy, in the same IT system. Atos coped with the challenge of managing the different locations. Four gas operators in three countries:

- Tunisia (TTPC, TMPC),
- Libya (Greenstream).
- Switzerland (ENI CH).
- Different process in every infrastructure:
  - Capacity contract management.
  - Support to shippers' operations and matching with operators' operations.
  - Metering module and interface with SCADA.
  - Generation of prorating of meters among shippers' operations.
  - TPA tolls invoices.
  - Module to inform to the operator and to the operator.





# Our gas experience

MOL (2004)

commercial  
dispatchin  
gas  
gas  
shipper

Gas Commercial Management System for the Hungarian technical  
manager of the gas system: FRI IP

- ▶ Definition, design and Implementation of Atos 's WEM TGM platform:
- ▶ The Contract Module allows managing TPA Contracts arranged with the shippers.
  - It handles with shipper's nominations and confirmations (path and non-path).
  - Allocation management and reconciliation process.
  - Capacity trading in secondary market and capacity release.
  - Interface with Neighbourhood Network Operators and data matching.
  - Handling of flexibility mechanisms: back-up and back-down. Blowing and heating activities.
  - Interface with SCADA.
  - Quality meters of gas.
  - Reporting.



# Our gas experience

SCTD SEDIGAS (The Spanish association of ~~gas distributors~~)

commercial  
dispatchin  
gas  
gas  
shipper

Common platform that unifies TPA processes and defines the communication standards with gas shippers and transporters.

## ► Track Records

- 2002: Consultancy and definition of the business processes.
- 2003: Definition, design and implementation of the application that manages TPA process for distributors (SCTD-Distribution - Transport Communication System ).
- 2003: The system is installed in every distribution in
- Currently: Maintenance of the system.
- Functionality.
- Capacity contracts requests and change of suppliers.
- Interface to the Supply Points Register.
- It performs meter prorates.
- It manages nominations and programs.
- Metering and invoicing.



# Our gas experience

GAS FLEET MANAGEMENT Stream Repsol-Gas

~~Natural LNG~~

commercial  
dispatchin  
gas  
gas  
shipper

Stream Repsol-Gas Natural LNG is the corporation constituted by Repsol YPF

and Gas Natural which manages the LNG supplies for both companies

## ► Functionality

- Generation of the monthly supply program for every plant.
- Annual unload schedule.
- Interface and document exchange with the system "Aplicacion de Buques". The system receives information about periods of off-hire, daily report, trip stages, supply requirements , etc.
- SAP interface.
- Interfaces with SAP to load forecast and other commercial information.
- Reporting Microstrategy: It includes REPSOL defined and custom reports.

gasNatural





# Our gas experience

## North West European Hub (2002)

commercial  
dispatchin  
gas  
gas  
shipper

### New company and new challenge

#### ► Project Road Map:

- June 2002 definition of the business process.
- Gap Analysis and adaptation of the WEM-TGM platform.
- Delivery of the first phase in October 2002 - HubCo ready to operate.
- Delivery of the second phase in March 2003.
- Delivery of the second phase in December 2003.
- Services managed.
- Hosting.
- Security.
- Digital Certificate infrastructure (PKI).
- Help desk first/second level operational support



# Our gas experience

## GASUNIE (2001)

### Third Party Access Commercial Management System

- ▶ Definition of the functional specification for the development of the TPA system, design and implementation.
- ▶ Redundant IT architecture.
- ▶ Interfaces with.
- ▶ SCADA.
- ▶ Document management.
- ▶ CRM.
- ▶ Invoicing system.
- ▶ Edig@s protocol.

- ▶ Gasunie, as TSO company, requires a system for contract management to handle the Nomination Information and facilitate the interfaces with external systems.
- ▶ The system must handles several processes that deal with incoming and outgoing messages concerning nomination, matching and confirming.
- ▶ System for Third-Party Access with the following main functions:
  - Master file maintenance.
  - Contract management.
  - Alarms control.
  - Nominations.
  - Queries and reporting.
- ▶ Help in the management of all exchange of information with Gasunie, to conclude transport contracts.
- ▶ Interfaces that allow connections with multiple external systems, working at CPP in Groningen.

# Our experience

## Electric PTRS

### ► Business Challenges

- Design and implement a system based on real-time information for energy trading, contract management and provide a complete service to big industrial consumers.

### ► Our solution

- Generation of trading offers for day ahead and intra-day market and notifications of physical bilateral contracts.
- Reception and management in real-time of the information published by the market operator, OMEL, and the systems operators, REE and REN.
- Consumer load forecast management: Day or intra-Day modification, aggregation to obtain Fortia Load Forecast .
- Calculation of the electrical losses.
- Reception of meter readings from different sources: directly from the clients, published by REE or manual readings.
- Wholesale contract management: registration, settlement and portfolio calculation .
- Settlement and billing processes for the retail consumers represented by FORTIA including advance invoices.
- Reporting.

### ► The results

- Centralization of all data for making better decisions.
- Find better ways to price, sell and bill energy and services to win and retain customers.

Smart energy. Powering progress





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# About us

business  
**two**  
progress

Atos

Smart energy · Powering progress

**Atos**  
Worldgrid

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About us

Atos Worldgrid

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## Atos WorldGrid

Atos Worldgrid is an Atos business unit delivering sophisticated integration projects and real-time smart energy solutions to Energy and Utilities companies across the power, water, oil & gas value chains. With 1,500 engineers and over 30 years experience, Atos Worldgrid operates in more than 15 countries.

Smart energy. **Powering progress**

The logo for Atos Worldgrid is displayed in a large, blue, sans-serif font. The word "Atos" is in a larger font size than "Worldgrid". The background of the slide features a blurred cityscape with a yellow taxi in the foreground and a large, faint watermark of the Atos logo and the word "Project" overlaid on the scene.

Atos  
Worldgrid

# About us

## Atos

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### Atos

Atos is an international information technology services company with annual revenues of EUR 8.7 billion and 78,500 employees in 42 countries.

Serving a global client base, it delivers hi-tech transactional services, consulting, systems integration and managed services. Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. It is the Worldwide Information Technology Partner for the Olympic Games and is quoted on the Paris Eurolist Market. Atos operates under the brands Atos, Atos Consulting, Atos Worldline and Atos Worldgrid.

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Your business technologists.  
**Powering progress**



# Thank you

business  
**to**  
progress

Atos

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