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Power Scheduling and Gas Nomination Solutions for European Power and Gas Markets



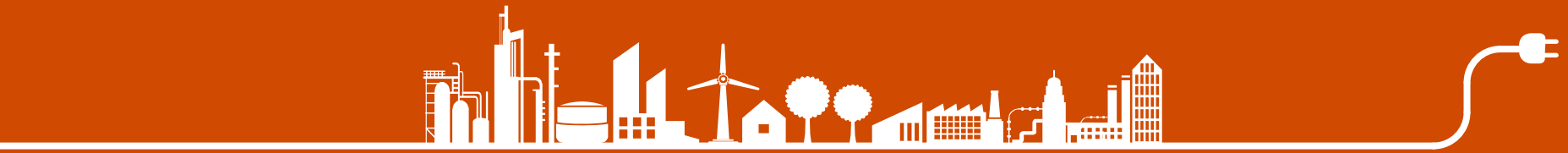


APPENDIX –
Market Study Detailed Results





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Study Summary

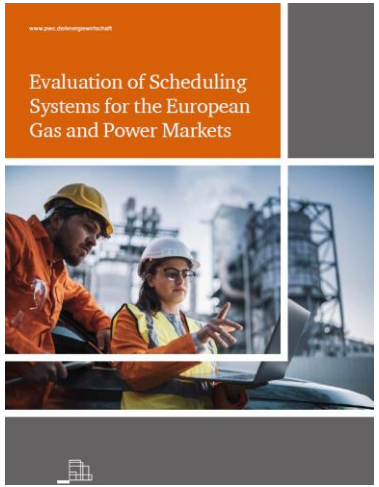
Our study provides an overview of the service offering for Scheduling & Nomination solutions for European power & gas markets

Approach

- This study aims to investigate products that offer a scheduling solution for the European power and gas markets.
- In doing so, a number of scheduling and nomination system vendors were approached with a questionnaire and asked to provide specific product information which can be categorized as follows:
  - System solution
  - Functionalities
  - Other functionalities
  - Other (non-functional) requirements
  - Implementation effort
  - Costs
  - Flexibility and maintenance
  - Operating Model and Additional Services
  - References and documentation
- The questionnaire served as the basis for classifying the software applications comprised in this study, and for detailing the coverage offered by each of them in terms of the different commodities (gas and power) and markets in which they operate

Results Summary

For the results summary please see:



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Vendor Overview

Vendor Overview

Aktif Technology

The energy industry is the commercial focus of the AKTIF company group that was founded in 1997. The company is known as a software specialist for business processes in the energy industry. Products and services for the energy market and for other sectors, such as medicine, agriculture, industry and trade are offered to customers.

“With our software AKTIF dataService we have developed energy data management into energy logistics and have significantly coined this term.”

Source: https://aktif.energy/en/about-us/

DispoGas

dispoGas is an SaaS platform that streamlines natural gas nomination handling in Europe. Our platform simplifies the message exchange process for our customers with the relevant Transmission System Operators (TSOs) and Market Area Coordinators.

Built for the cloud, dispoGas is accessable simply via your web browsers. You can easily provide the quantities for your nominations, and we take care of sending the right information to your market partners in the appropriate format and over encrypted AS2/AS4 channels.

dispoGas is designed to be user-friendly, giving you a clear overview of your current nomination status and the ability to automate the nomination process. If any action is required, dispoGas will actively notify you via email, SMS or other communication channels.

https://www.dispogas.com/solution/

e·Opt Solutions OHG

Companies have needs that mainstream ETRM Systems fail to fulfill. Key business processes include working off spreadsheets, with little participations to model imperfections, and no risk oversight.
e·Opt Solutions offer PriceHub, a business led technology solution that helps companies transform their operations, end-to-end. Their aim is to help Energy companies of all sizes make their processes more efficient and improve their ROI.
“e·Opt was set up in late 2008, by a small group of energy industry professionals who had spent several years at the forefront of energy and technology. Based in one of the most innovative regions in Europe - Mannheim, e·Opt is a closely held company, and has its focus firmly in the energy space.”

Source: https://www.eopt.org/home.php

Vendor Overview

Brady Technologies

Brady Technologies enables energy market participants to profit in new ways from the green energy transition, supporting Environmental, Social & Governance (ESG) requirements. We provide software solutions to support above market returns, resilient risk management and scheduling in volatile markets.
Our customers include globally renowned organisations from utilities, independent power producers, renewable asset developers, energy trading firms, oil & gas companies, state power grid operators and commodity trading firms. Whether engaged financial or physical trading, on major exchanges or over-the-counter, we help market participants to realise revenue growth across the trading life cycle.

The solution suite comprises:
PowerDesk - a SaaS trader's dashboard for European intraday and day-ahead power trading. With dynamic, intelligent visualisation of live P&L and market connectivity from one central place, traders are empowered to seize opportunities faster and optimise revenues from generation assets.
Igloo - a high-performance SaaS ETRM solution designed in collaboration with one of the world's largest financial energy traders. It offers a state-of-the art user experience, unrivalled exchange connectivity and support for automated trading volumes in excess of 10,000 trades per day. Igloo helps energy trading desks achieve maximum return on investment from their operations.

PowerDesk Scheduler - helps traders to deliver power through the majority of TSOs across Europe in a single solution. The solution helps to maximise trading opportunities enabling adherence to country-specific TSO communication protocols and deadlines.

CRisk - a cloud credit risk management solution providing real-time exposure monitoring to ensure oversight and control of all counterparty positions. Supports the entire OTC counterparty lifecycle from assessment to limit allocation and exposure management, both current and PFE. This is supplemented by comprehensive CSA collateral management capability and liquidity forecasting.

Energy Data Manager - A market leading trading and communication platform for Nordic electricity market participants. Supports day-ahead, intraday and reserve market bidding, including FCR, aFRR and mFRR. Enables power scheduling via Norwegian, Danish, Swedish and Finnish TSOs.

Source: www.bradyplc.com.

Vendor Overview

EnergyOne Limited

Energy One is listed on the Australian Stock Exchange since 2007 and represents a global supplier of software products and services to wholesale energy, environmental and carbon trading markets. In accordance to more than 15 years of experience in this field, the Energy One Group of companies has a successful track record of providing sophisticated, practical solutions and services to Australasian and European companies operating in the fast-paced 24/7 wholesale energy marketplace.

Source: https://www.energyone.com/about-energy-one/

Globalsyde Systemas S.L.

Globalsyde is a cloud platform (SaaS) created to provide full support to energy companies with their backoffice operations. The platform comprises three different modules:
Globalsyde Pioneer: Our solution for gas balance and scheduling, covering also other interesting functionalities and automations.
Globalsyde Argentia: Our solution for tackling the automation of the settlement processes conducted by the energy company.
Globalsyde Prognoss: Our solution for demand forecasting, helping energy companies reduces their imbalance costs and optimise their market strategies.

Source: https://globalsyde.com/en/about-us/

GMSL

GMSL provides the European energy industry with comprehensive 24-hour dispatching operations and portfolio management software – applications and services essential for monitoring and evaluating gas markets. With more than 25 years' experience, GMSL works with over 150 gas and power market participants across all the actively-traded European grids, helping to streamline business processes and manage energy-related data.
"The EuroRunner and PowerTrak software is designed and built using our unique experience of gas and power operations. We understand the detail of 24-hour operations and can provide robust, proven solutions for your gas and power needs. Every product we market is already in daily use by our own 24-hour operations team and our reliance on GMSL software means that it is continually updated in response to changing operational needs and market rules."

Source: https://www.gmsl.co.uk/

Vendor Overview

Hitachi Energy Ltd

Companies in the utility industry and infrastructure sectors with innovative solutions and services across the value chain belong to the customers of Hitachi Energy.

“Together with customers and partners, we pioneer technologies and enable the digital transformation required to accelerate the energy transition towards a carbon-neutral future. We are advancing the world’s energy system to become more sustainable, flexible and secure whilst balancing social, environmental and economic value.”

Source: https://www.hitachienergy.com/about-us/who-we-are

KISTERS

Originally founded in 1963 as an engineering firm in Aachen Germany, KISTERS today is an international medium-sized organisation that now specialises in the water, weather, energy and IT sectors. We employ over 750 experts, engineers, scientists, inventors and developers from more than 30 nations across 5 continents.
KISTERS specialises in the gathering, processing and reporting of environmental data from all over the world, creating innovative and data driven solutions that harness the power of data and technology.
The KISTERS Scheduling Cockpit is your go-to tool for cross-commodity scheduling and nomination management for all European power and gas markets. Just imagine – a single tool for all your market communication – the margin for error is significantly reduced, while your processes and workflows become much more efficient, and you spend less time on training.

Source: www.kisters.eu/product/trade-and-procurement/

PSI

PSI is a leading software supplier for Europe’s energy and utilities industry. The company provides highly flexible and reliable standard products and services that are customized to their clients’ needs, covering a wide range of energy industry processes, from energy production and grid operations to trading and energy sales. The high degree of standardization of the products modules enables both customers and partners to do a large part of customization on their own, thereby significantly reducing the systems lifecycle cost. PSI was established in 1969 and employs more than 2,200 people worldwide, with the headquarters located in Berlin, Germany.

Source: www.psi.de

Vendor Overview

Soptim AG

Soptim AG is focused in understanding the energy industry, especially electrically charged projects in critical infrastructures, from many different angles. Soptim is using technologies and methods to meet the high demands of the industry.

Source: https://www.soptim.de/en/company/

Trayport Limited

Founded in 1993, Trayport is the primary network and data platform for European wholesale energy markets. Our network and solutions provide choice and support the growth of our trader, broker and exchange clients and trading markets. Our solutions are used worldwide in multiple asset classes across OTC and cleared markets. Through the Periotheus Suite, Trayport offers a fully integrated short-term energy trading solution with best-in-class trading algorithms, asset management, scheduling and more. It supports 24x7 autonomous trading on major European power and gas exchanges. Trayport Limited is a wholly-owned subsidiary of TMX Group Limited (TMX Group).

Source: https://www.trayport.com/company/

Volue ASA

Volue is a leading supplier of technology and enabler of the green transition. We offer software, market data and services that enable our customers to succeed in the energy transition.

Our market-leading products optimise energy production, trading, distribution and consumption, as well as infrastructure and construction projects. Our mission is to realise a cleaner and more profitable future for our 2,200+ customers and thus the global society

Source: https://www.volue.com/who-we-are

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Detailed Results

3.1 General Questions

General Questions

Vendor	What is your companies name?	What is your companies scheduling / nomination solution(s) name(s)?	Is it an inhouse solution, i.e. a self-developed solution? (if your solution is not self-developed, please name the developer)
Aktif Technology	AKTIF Gruppe GmbH	AKTIF®smart&easy BKM	Inhouse solution by AKTIF
Brady Technologies	Brady Technologies Limited	"1) PowerDesk Scheduler (Power scheduling) 2) Igloo Gas Nominator (Gas nominations)"	Brady Technologies' (Brady) scheduling solutions are developed in-house.
dispoGas AG	dispoGas AG	dispoGas	yes
e·Opt Solutions OHG	e·Opt Solutions	PriceHub e·Flow	Yes. In-house developed product
EnergyOne Limited	Energy One Limited	eZ-Ops, egssPort, enVoy, EnergyOffer	Yes these solutions were all developed by Energy One Limited
Gas Management Services Limited (GMSL)	Gas Management Services Limited (GMSL)	1. Chorus 2. EuroRunner 3. PowerTrak"	**Chorus:** In-house solution **EuroRunner:** In-house solution **PowerTrak:** In-house solution"
GLOBALSYDE SYSTEMAS, S.L	Globalsyde Sistemas SL	Globalsyde Pioneer	Yes
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Hitachi Energy	PowerTracker / GasTracker	Self-developed

General Questions

Vendor	What is your companies name?	What is your companies scheduling / nomination solution(s) name(s)?	Is it an inhouse solution, i.e. a self-developed solution? (if your solution is not self-developed, please name the developer)
KISTERS AG	KISTERS AG	BelVis+ Scheduling Cockpit and BelVis+ Short Term Cockpit	Inhouse solution.
PSI	PSI Software AG	PSI energy logistics (including modules PSI transport, PSI passage, PSI markets)	Yes
Soptim AG	SOPTIM AG	SOPTIM NomT	Yes
Trayport Limited	Trayport Limited	Periotheus	Inhouse solution
Volue ASA	Volue	DeltaXE	Inhouse solution

General Questions

Vendor	What kind of type is the solution (stand-alone or as add-on to a ETRM system)?	In case of an add-on solution, is the module a standard component of the ETRM system?	In case of a stand-alone solution, which peripheral functionalities are available? (e.g. deal capturing, position monitoring, auto/algo trading, ….)
Aktif Technology	It is a stand-alone solution with interface to ETRM systems (i.e. eRisk by Kisters AG)	It is a stand-alone Solution, but it can be also a add-on Solution for the ETRM-System. The integration is with via API.	The peripheral functionalities are in sales controlling modul, with calculation and export of different sales forecast cases for the next 5 years
Brady Technologies	"Brady's power scheduling functionality can be deployed as a stand-alone solution (ETRM system agnostic), but is also provided as an optional add-on to our ETRM solutions, including Igloo SaaS.Brady's gas nominations functionality is an integrated module within our Igloo ETRM SaaS solution."	"The gas nominations tool is an optional but standard component of our Igloo ETRM solution.The power scheduling tool is an optional but standard component of all our ETRM solutions (Both Brady's SaaS and on-premise ETRM solutions)."	"Deal capturing, position monitoring and auction submission are peripheral functionalities available in our stand-alone solution. Trade automation and algorithmic trading are possible via integration with other Brady solutions, such as 'PowerDesk Trader - our short-term power trading solution."
dispoGas AG	stand-alone	N/A	Position Monitoring, VTP Nomination, Storage

General Questions

Vendor	What kind of type is the solution (stand-alone or as add-on to a ETRM system)?	In case of an add-on solution, is the module a standard component of the ETRM system?	In case of a stand-alone solution, which peripheral functionalities are available? (e.g. deal capturing, position monitoring, auto/algo trading, ….)
e·Opt Solutions OHG	e·Flow can be configured to run as a Stand alone system, or can be linked to any ETRM system from where position and static data is retrieved and used.	e·Flow can be linked to any ETRM system, allowing interfacing through APIs, DB links, flat file, etc. We have experience of interfacing to Aligne, Allegro, Contango, Previse, etc.	Trade Capture, Position aggregation, Real-time Position Monitoring, Counterparty Management, TSO management, Book Structure, etc.
EnergyOne Limited	All four solutions are stand-alone solutions that can be linked to an ETRM via interfaces (API, middleware, etc.)	Not applicable	Auto/Algo-trading, Auction Bidding, REMIT Reporting, deal capturing, position management, time series management, balancing management generation asset scheduling, asset management, gas storage management, power plant contract management, capacity retrieval from JAO & PRISMA, IX Server rental

General Questions

Vendor	What kind of type is the solution (stand-alone or as add-on to a ETRM system)?	In case of an add-on solution, is the module a standard component of the ETRM system?	In case of a stand-alone solution, which peripheral functionalities are available? (e.g. deal capturing, position monitoring, auto/algo trading, ….)
Gas Management Services Limited (GMSL)	**Chorus:** Stand-alone **EuroRunner**: Stand-alone **PowerTrak**: Stand-alone"	N/A	**Chorus** provides gas scheduling capabilities and in addition displays market data for GTS and Fluxys Notional and GTS balancing action alerts. **EuroRunner** provides gas scheduling capabilities and in addition position tracking, deal capture via interface with ETRM, displays market data for GTS and Fluxys Notional and GTS balancing action alerts. **PowerTrak** provides scheduling capabilities and in addition position checking with counterparties & API interface to EPEX Trading System (ETS).
GLOBALSYDE SYSTEMAS, S.L	Stand-alone solution	N/A	Globalsyde API is able to retrieve deals from organised markets, such as MIBGAS, ETRM solutions, Excel spreadsheets, etc.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Add-on to ETRM system	Yes standard, as optional add-on module	Yes, if scheduling or nomination is part of the requested solution.

General Questions

Vendor	What kind of type is the solution (stand-alone or as add-on to a ETRM system)?	In case of an add-on solution, is the module a standard component of the ETRM system?	In case of a stand-alone solution, which peripheral functionalities are available? (e.g. deal capturing, position monitoring, auto/algo trading, ….)
KISTERS AG	Both, the Scheduling Cockpit is a modular solution, which is integrated into the KISTERS solution landscape. It can also be used with other PFM or ETRM systems via REST interfaces.	Yes if scheduling or nomination is part of the requested solution.	BelVis+ Scheduling Cockpit is delivered with an underlying position management. Via KISTERS Deal API the positions can be imported into position management and used for scheduling/nomination process.
PSI	Both	Yes	Deal capturing, portfolio management, risk management, regulatory reporting, electronic confirmation matching, algo trading, PFC calculation, reporting, accounting, automated business process management, network trade management, control power management
Soptim AG	Standalone with Connectors/Interfaces to SOPTIM or other ETRMs	N/A	Deal import and versioning, automatic schedule/time series computation and message version management, fully automated scheduling, manual or automated compensation of schedule differences, event management, reporting, a clear and concise GUI, monitoring of surrounding systems

General Questions

Vendor	What kind of type is the solution (stand-alone or as add-on to a ETRM system)?	In case of an add-on solution, is the module a standard component of the ETRM system?	In case of a stand-alone solution, which peripheral functionalities are available? (e.g. deal capturing, position monitoring, auto/algo trading, ….)
Trayport Limited	Standalone	N/A	The Perioteus platform provides deal capturing, position monitoring, time series management, balancing & scheduling, value forecasting, auction interface (DA & ID on EPEX and Nord Pool), a process framework for own customisations and REST API. It is also well integrated with autoTRADER (automated and alogorithmic trading)
Volue ASA	Stand alone.	X	Additional to scheduling for power and gas, DeltaXE offers following functionalities: Deal capturing, Contract Manangement, Counterparty Management, Real-time Position management, Position adjustments (time series standard calculations, scipts for more complex requirements), Capacity Management, Interface to JAO (Joint Auction Office). Additionally, DeltaXE offers a standare interface to Volue Trading Solutions (algo-trading for power&gas), Volue Optimisation solutions (BoFit, Smart Power) and Volue Ancitra (solution for bidding in balancing markets). The standard interface can be configured flexibly to connect third party systems like ETRM, trading,forecasting and settlement solutions.

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
Aktif Technology	The architecture is a web based 3-level architecture and it works in Web-Browser without installation on client side	Fully automated BKV processes with scheduling and nomination and MaBiS and GaBi Gas
Brady Technologies	"1) PowerDesk Scheduler (power scheduling): Power Desk Scheduler is a three tier application. Consisting of a desktop Java user interface, a backend running on a JBoss server and a SQL Server or Oracle database. 2) Igloo Gas Nominator (gas nominations): the gas nominations tool within Igloo is viewable on a web application running on Angular, with a NET6 back-end and SQL Server database, hosted on Azure".	PowerDesk Scheduler has the broadest European power market coverage including Central, Western and Eastern Europe. The solution allows you to send schedules to over 30 European TSOs and Interconnectors in the right format and with the correct protocols (eg. FTP, email, webservice).

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
dispoGas AG	dispoGas is a cloud native Software-as-a-Service solution that provides a platform to manage and monitor the gas nominations. The vision behind the architecture was to build a product which will: • provide high availability for 24/7 operation • ensure the visibility of the process for the operators • ensure 100% compliance with edig@s standard • provide full auditability and security of the data • use open and modern standards like OpenAPI and Open ID Connect for integration and authentication In order to ensure the highest security and compliance standards, dispoGas was built on top of Microsoft Azure platform. dispoGas components use only the Microsoft-managed offer to minimize the risk of a security breach, human error and provide a high availability of the service. Each component has a built-in redundancy which in combination with an automatic transient fault handing, allowed DispoGas to become a reliable platform immune to temporary network issues, temporary outages and even human errors. Moreover, dispoGas provides excellent data security thanks to the rich features provided by Azure hosted and managed databases: data encryption at rest, backup encryption and point-in-time recovery with long retention spans. All the network communication is also encrypted using HTTPS/TLS, SFTP/SMB3 and AS4/AS2 protocols. dispoGas availability and security is monitored 24/7 using an intelligent log monitoring solution with a built-in alerting system. In case of an outage or suspicious network activity, dispoGas DevOps team is immediately notified.	dispoGas is a lightweight SaaS (Software as a Service) solution designed for companies seeking to independently manage their gas logistic processes. - Ready-to-use solution with preconfigured master data. - Smart position overview and user-friendly interface. - Proactive notifications - Open standards for seamless integration. - Modern architecture for 24/7 availability.

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
e·Opt Solutions OHG	PriceHub, of which e·Flow is an integral module, has four components - Front-end as a Windows Application, Business Logic Layer, API Framework and the Database. It has a .NET + Oracle + REST API based architecture.	"End-to-End Solution for quick, reliable and flexible Nomination process for all major European markets.As e·Flow is part of PriceHub, it facilitates effortless integration with our Intraday Trading & Optimization module, e·Connect. Together they solve a significant operational challenge"
EnergyOne Limited	Software-as-a-Service solutions hosted in the cloud, in redundant ISO27001 certified data centres based in Europe	Manage all the business & technical complexity of balancing operations and connectivity with operators so that our customers can focus on their core business.

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
Gas Management Services Limited (GMSL)	**Chorus**: REST APIs with a single page application website (React), AWS hosted **EuroRunner** consists of a database, a Windows-based application server component and a Windows client application for users. It can be installed on-premise at the customer's location or offered as SaaS where GMSL hosts on its infrastructure. **PowerTrak** is a web application which can be installed on-premise at the customers location or offered as SaaS where GMSL hosts on its infrastructure. Access is via a browser with SSO available and MFA."	**Chorus:** is our cloud based gas scheduling system. Chorus supports shippers in managing their gas portfolios through a single website connected to a series of REST APIs. No installation required, SaaS. Configuration required by the user is kept to a bare minimum meaning that is provides easy and quick access to new markets.It is also used by GMSL's own 24h gas scheduling team who work closely with the development team to ensure that usability is at the forefront of our design and we're always up-to-date with upcoming market changes. Our first-line customer support is provided by the teams that build the application, including developers and analysts with an extensive background in gas operations, so whatever you need we can easily understand your requirements, and provide clear, informed guidance. **EuroRunner:** is a powerful, highly-configurable portfolio management tool with extensive features for integration with ETRM systems and supports a huge range of markets, TSOs, SSOs and third party communications. It offers extensive contract and capacity management functionality and is trusted by some of the largest European energy companies.It is also used by GMSL's own 24h gas scheduling team who work closely with the development team to ensure that usability is at the forefront of our design and we're always up-to-date with upcoming market changes. Our first-line customer support is provided by the teams that build the application, including developers and analysts with an extensive background in gas operations, so whatever you need we can easily understand your requirements, and provide clear, informed guidance. **PowerTrak**: GMSL operators use the software every day and closely liaise with the PowerTrak development team allowing operators to feedback directly to the team to help improve the product. It also makes providing out of office hours operations easy, as the customer and GMSL teams can have shared access to the system.It is also used by GMSL's own 24h gas scheduling team who work closely with the development team to ensure that usability is at the forefront of our design and we're always up-to-date with upcoming market changes. Our first-line customer support is provided by the teams that build the application, including developers and analysts with an extensive background in gas operations, so whatever you need we can easily understand your requirements, and provide clear, informed guidance."

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
GLOBALSYDE SYSTEMAS, S.L	Globalsyde is a multi tenant SaaS solution built on Microsoft Azure PaaS services (Azure App Services, Azure SQL databases, API Management, Azure Storage, Logic Apps, etc.).	Globalsyde data model allows our team to evolve the solution to new regulatory changes (or make it ready for a new market) with little or no code involved. New infrastructures, connection points, logistics services, etc. can be modeled by a simple configuration on our database.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	The modules run on a scalable multi-tier web-based client/server architecture based on Microsoft technology, and offers several industry-standard solutions. Our solution is easy to integrate with any external system/process. Given that it is based on a thin, web-based client-server architecture, users require only a web browser to access the system – regardless of whether deployed on-premise or when Hitachi Energy hosts this remotely.	Highly configurable solution, modern platform technology, with tight integration to a unique portfolio of optimization, forecasting, market communication and ETRM functionality. Live, near realtime, system with innovative reporting and intuitive user interface experience
KISTERS AG	Microservice architecture, running in a cluster.	Ease of operation, automation, international trade, deadline management, alerting and status overview.
PSI	3-tier-Architecture, Fail safe, geo - redundant	"User-friendly completely flexible compliant to EU-Regulations fast, secure cloud available multi-lingual dynamics scalability"

General Questions

Vendor	Please provide a high level description of the IT Architecture used.	What is the USP of your solution?
Soptim AG	Three tier Java/Jakarta EE application. Bottom tier: Oracle Database, Middle Tier. RedHat JBoss Enterprise Application Platform running on RedHat OpenJDK 17 (cluster capable). Top tier: Java (17) Swing Application communicating via REST services with the application server	Reliable 24/7 operation and high performance automated scheduling (performance figures on request). As a solution provider to most critical infrastructures of TSOs/RCCs we know scheduling from both sides - Traders and TSOs. Proven operation for largest trading floors in Europe. 100% SOPTIM - no outsourcing of development or support - even when it comes to 24/7 you will reach out directly to our colleagues from our offices in Aachen and Essen.
Trayport Limited	SaaS solution	Customisation options using the integrated process framework
Volue ASA	Java and Oracle based architecture; Hosted by Volue as SaaS basedon MS Azure	Full automation of the power and gas schedulingprocess. Scheduling for power and gas in one solution. Very large coverage of Eupean markets for both power & gas. Extremely flexible to adjust to customer specific requirements.

3.2 Basic Features of the Solution

Basic Features Power

Vendor	Please list all countries that can be modelled (regarding power)?	Does the system support the modeling of all EIC Codes?	Is the system able to model all TSOs within each European country?
Aktif Technology	Germany and Austria	Yes	“No, only Germany and Austria”
Brady Technologies	Austria (APG+APCS), Belgium (ELIA), Bosnia & Herzegovina (NOS-BHI), Bulgaria (ESO), Croatia (HOPS), Czech Republic (CEPS+OTE), Albania (OST), France (RTE), GB (Elexon),Germany(Amprion, 50 Hertz, TransnetBW, TenneT), Greece (ADMI), Hungary (Mavir), Italy (Terna), IFA, Britned, NEMOLINK, ElecLink, Kosovo (KOSTT), Luxembourg (CREOS), Macedonia (MEPSO), Montenegro (CGES), The Netherlands (Tennet), Romania (Transelectrica), Serbia (EMS), Slovakia (Seps + OKTE), Slovenia (Eles +Borzen), Switzerland (SwissGrid)	Yes	Yes
dispoGas AG	n/a	n/a	n/a
e·Opt Solutions OHG	Already in use for DE, NL, CH, FR, AT, IT. But with little effort and configuration, is capable of all ENTSOE standards compatible regimes.	Yes	Yes
EnergyOne Limited	All European power grids, Interconnectors, and Australian grids (NEM, WEM)	Yes	Yes

Basic Features Power

Vendor	Please list all countries that can be modelled (regarding power)?	Does the system support the modeling of all EIC Codes?	Is the system able to model all TSOs within each European country?
Gas Management Services Limited (GMSL)	Countries - Austria, Belgium, Czech Republic , France, Germany, Hungary, Italy, Netherlands, Switzerland and UK . Interconnectors - BritNed, IFA, IFA2, NEMO Link and ElecLink.	**Chorus**: See PowerTrak questionnaire **EuroRunner**: See PowerTrak questionnaire **PowerTrak**: supports location and counterparty EIC codes"	**Chorus**: See PowerTrak questionnaire **EuroRunner**: See PowerTrak questionnaire **PowerTrak**:Currently supported:50 Hertz; Amprion; APG; APCS; CEPS; Elexon; Elia; Mavir; OTE; PCE; RTE; Swissgrid; TenneT DE; TenneT NL (+DSOs);Terna; Transnet BW"
GLOBALSYDE SYSTEMAS, S.L	We are not currently offering scheduling services for power markets.	Yes, EIC codes can be modeled in the same way any other suitable local or custome code systems that may apply for counterparties or delivery points.	The system is ready to model any TSO, DSO, counterparty, network, etc. across EU on a database basis. However, Globalsyde is currently offering services just for Spanish and Portuguese markets.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Any country	Yes	Able yes, but current we do not provide off-the-shelf interfaces to TSOs.
KISTERS AG	Germany, Austria, Switzerland, France, Belgium, Netherlands, Italy. Any other countries, which use a derivate of ESS process.	Yes	Yes
PSI	Various countries can be provided of the shelf e.g., Germany, Austria, Italy, Switzerland; other countries can be easily modelled	Yes	Yes

Basic Features Power

Vendor	Please list all countries that can be modelled (regarding power)?	Does the system support the modeling of all EIC Codes?	Is the system able to model all TSOs within each European country?
Soptim AG	"Austria, Belgium, Czech Republic, Croatia, Denmark, Finland, Germany, Hungary, Italy (Terna), Luxembourg, Montenegro, Netherlands, Norway, Romania, Serbia, Slovakia, Sweden, Switzerland, UK (+ any ESS/CIM markets within minimal efforts)Market coverage is constantly growing, we appreciate every opportunity to expand."	Yes	Yes
Trayport Limited	"European countries, including following list and more: Austria, Estonia, France, Germany, Hungary, Latvia, Lithuania, Luxembourg, Romania, Switzerland No restrictions for implementing/modelling other European countries"	Yes	Yes, but not all TSOs are currently available out of the box
Volue ASA	Countries: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finnland (2023), France, Germany, Greece, Hungary, Ireland, Italy, Luxemburg, Macedonia, Montenegro, Netherlands, Norway (2023), Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden (2023), Switzerland, Turkey, UK Interonnectors: UK-FR (IFA1, IFA2), UK-NL (BritNed), UK-BE (NEMO), ElecLink	Yes	Yes

Basic Features Gas

Vendor	Please list all countries that can be modelled (regarding gas)?	Is the system able to model all market areas within each European country?	Is the system able to model L-gas and H-gas separately?	Is the system able to model capacity contracts, both firm and not-firm?	Is the system able to model capacity prices?
Aktif Technology	Germany and Austria	“No, only germany and Austria”	Yes	Yes	Yes
Brady Technologies	GB	Within GB, yes	There is no L-gas in GB	Not yet	Not yet
dispoGas AG	All european countries possible	Yes	Yes	Yes	No
e·Opt Solutions OHG	e·Flow is primarily a Power Scheduling and Nomination solution, with a limited functionality for Gas Nomination.	DE and NL	Yes	Yes	No
EnergyOne Limited	All European Gas grids, Pipelines (TAP, BBL, IUK, etc.), and Australian grids (VicGas, NEM, WEM, STTM)	Yes	Yes	Yes	Yes

Basic Features Gas

Vendor	Please list all countries that can be modelled (regarding gas)?	Is the system able to model all market areas within each European country?	Is the system able to model L-gas and H-gas separately?	Is the system able to model capacity contracts, both firm and not-firm?	Is the system able to model capacity prices?
Gas Management Services Limited (GMSL)	**Chorus**: Austria, Belgium, Netherlands, UK, Germany, France **EuroRunner**: See Chorus questionnaire **PowerTrak**: See Chorus questionnaire	**Chorus**: Currently supported (with new markets being added): Austria Market Area East; Fluxys; Gasunie Transport Services; GRTgaz; National Grid; Teréga; THE; **EuroRunner**: See Chorus questionnaire **PowerTrak**: See Chorus questionnaire"	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: See Chorus and EuroRunner questionnaires"	**Chorus**: No **EuroRunner**: Yes **PowerTrak**: See Chorus and EuroRunner questionnaires"	**Chorus**: No **EuroRunner**: No **PowerTrak**: See Chorus and EuroRunner questionnaires"
GLOBALSYDE SYSTEMAS, S.L	From a commercial perspective, we are currently working on Spanish and Portuguese balance zones. We expect to start offering services for the France market by the end of 2023. From a technical point of view, a new market can be modeled on database.	As mentioned above, this is, probably, one of the key capabilities of Globalsyde Pioneer.	"It would be easily modeled into the platform, assuming the definition of two different technical infrastructures with custom rules for exchanging purposes. Not necessary, so far, in the markets where Globalsyde is currently present."	Yes. Globalsyde Pioneer is able to retrieve this information automatically from the TSO.	Yes. Globalsyde Pioneer is leveraging the capabilities of Globalsyde Argentia (backoffice module) in order to perform settlements for TPA costs (for past or future months) according to the information available in the system (actuals from TSOs and use intentions of the market participant).

Basic Features Gas

Vendor	Please list all countries that can be modelled (regarding gas)?	Is the system able to model all market areas within each European country?	Is the system able to model L-gas and H-gas separately?	Is the system able to model capacity contracts, both firm and not-firm?	Is the system able to model capacity prices?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Any country	Yes	Yes	Yes	Yes
KISTERS AG	Germany, Austria, Switzerland, Netherlands, Belgium. Any other countries, which use a derivate of Edig@s nomination process.	Yes	Yes	Currently not supported, but already planned.	Currently not supported, but already planned.
PSI	Completely flexible. All countries can be modelled.	Yes, completely flexible in modelling all market areas.	Yes	Yes, firm, interruptible, biogas, H2,...	Yes

Basic Features Gas

Vendor	Please list all countries that can be modelled (regarding gas)?	Is the system able to model all market areas within each European country?	Is the system able to model L-gas and H-gas separately?	Is the system able to model capacity contracts, both firm and not-firm?	Is the system able to model capacity prices?
Soptim AG	"Austria, Belgium, France, Germany, Netherlands, Poland, Switzerland (+ any markets supporting EDI@XML 5.1 within minimal efforts)Market coverage is constantly growing, we appreciate every opportunity to expand."	Yes	Yes	"Capacity Contract is provided to the solution on a per-deal basis"	Currently out of scope.
Trayport Limited	"European countries, including following list and more: Austria, Belgium, Germany, France, Hungary, Netherlands, Slovakia, Switzerland, United Kingdom No restrictions for implementing/modelling other European countries"	Yes, but not all market areas are currently available out of the box	Yes	Yes	Yes
Volue ASA	Countries: Austria, Belgium, Czech Republic, Denmark, France, Germany, Italy, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, UK Exit/Entry: On demand	Yes.	Yes	Yes	Yes

3.3 Functionalities of the Solution

Functionalities Aggregation – Power and Gas

Vendor	Is the software able to balance the different market zones automatically?	Are all the relevant European time zones supported?	Does your application support individual calendars? (bank holidays, country or region specifc public holidays)
Aktif Technology	Yes	Yes	Yes
Brady Technologies	Yes users can configure balancing strategies which can be triggered by events or manually.	Yes	No
dispoGas AG	The system automatically calculates the balance of each market area.	yes	no
e·Opt Solutions OHG	Yes. e·Flow utilizes the concept of Pooling Zone, wherein the residual position from all the zones is transferred automatically to the home (Pooling) Zone. The corresponding Schedules consider this intra-zone position transfer.	Yes	Although holidays are not relevant for the Scheduling process, PriceHub does include the concept of bespoke Holiday calendars, and these can be assigned to any process within e·Flow as well.
EnergyOne Limited	Yes	Yes	Yes
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: No. Balances are calculated automatically and user can easily transfer gas between zones, but this is not automatic. **PowerTrak**: No	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**:Yes	**Chorus**: No **EuroRunner**: Yes. Holiday calendars can be configured and applied to contracts with business-day nomination rules for calculating nomination deadlines. **PowerTrak**: UK Bank holidays are supported for UK trade types

Functionalities Aggregation – Power and Gas

Vendor	Is the software able to balance the different market zones automatically?	Are all the relevant European time zones supported?	Does your application support individual calendars? (bank holidays, country or region specifc public holidays)
GLOBALSYDE SYSTEMAS, S.L	Yes. Operations moving gas from one infrastructure to another are automatically updating stocks of both sides. When the exchange is made between two different balance zones (through an International Connection Point) the procedure is just the same. Globalsyde configuration determines which TSOs need to be informed.	Yes. Every information on Globalsyde Pioneer is working with the harmonised Gas Day.	Not necessary, so far, in the markets where Globalsyde is currently present.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Customizable	Yes	Yes
KISTERS AG	Yes. The balancing rules can be configured using the GUI.	Yes	Yes
PSI	Yes	Yes	Yes
Soptim AG	Yes, freely configurable via GUI	Yes	Currently out of scope.
Trayport Limited	Yes	Yes	Yes
Volue ASA	Yes	Yes	Yes

Functionalities Aggregation – Power and Gas

Vendor	Are the summer/ winter time shifts supported?	Does the system support complete history and (versioning) of values?	In which different granularities can the data be aggregated?	Does the system support use of formulas, in order to model custom restrictions (eg. based in capacity, etc.) that the different balancing groups may have?
Aktif Technology	Yes	Yes	The granularity is configurable, the default is 15 minutes or 1 hour	Yes it is supported
Brady Technologies	Yes	Yes	Hour, half hour, 15 minutes, custom blocks.	"Formulas are not supported but dedicated cross-border screens are available to compare capacity holdings (including any restrictions) to flows."
dispoGas AG	yes	yes	Hourly and daily	no
e·Opt Solutions OHG	Yes. Automatically.	Yes. Version concept is fully integrated in e·Flow. In addition, it is also possible to override the "actual" Version manually, to take into account some manual intervention done outside of the system.	Data is aggregated @ 15 min granularity	No. But capacity restrictions can be modelled within e·Flow and these are taken into account while generating the schedules.
EnergyOne Limited	Yes	Yes	"Yearly, Quarterly, Monthly, Weekly, Hourly, Half-Hourly, 15-Minutes There are no restrictions on granularities, all calculation is done automatically"	Yes

Functionalities Aggregation – Power and Gas

Vendor	Are the summer/ winter time shifts supported?	Does the system support complete history and (versioning) of values?	In which different granularities can the data be aggregated?	Does the system support use of formulas, in order to model custom restrictions (eg. based in capacity, etc.) that the different balancing groups may have?
Gas Management Services Limited (GMSL)	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: No **EuroRunner**: A history of values which have been nominated (in or out) on swing contracts is stored, and all historic notices are retained. **PowerTrak**: Historical schedules are available from the Message Viewer page. Version numbers of schedules can be updated if required.	**Chorus**: Daily and hourly **EuroRunner**: Hourly, Daily or custom period in most screens. Reports can be used to aggregate values over any time period. **PowerTrak**: Trades can be added into PowerTrak as per the nomination granularity of the market, for example, for Germany trades can be added at 15 minute granularity and are aggregated for the schedule message.	**Chorus**: No **EuroRunner**: Custom formulas aren't supported but a wide range of custom restrictions can be configured. E.g. Custom capacity checks can be configured which sum/compare multiple flows. Various capacity factors can be configured(e.g. Gassco shrink and service factors). Contracts allow capacity checks for customisable groups of locations/capacity types within the contract. **PowerTrak**: Formulas not supported but capacity curtailments supported if new JAO rights documents received. Loss factors for UK<>EU interconnectors can be configured to calculate losses on flows
GLOBALSYDE SYSTEMAS, S.L	Yes. Every information on Globalsyde Pioneer is working with the harmonised Gas Day.	Yes. Every activity on the platform is audited and traceable.	Globalsyde Pioneer is currently working on a gas day basis.	Yes. Gas balances may include custom rules in order to enrich the information presented to the user (available capacity, minimum security stocks, winter plan restrictions, etc.).

Functionalities Aggregation – Power and Gas

Vendor	Are the summer/ winter time shifts supported?	Does the system support complete history and (versioning) of values?	In which different granularities can the data be aggregated?	Does the system support use of formulas, in order to model custom restrictions (eg. based in capacity, etc.) that the different balancing groups may have?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Yes	"Valuations – We maintain versioning as part of our “As of Date” methodology. Price timeseries have same concept Nominations – Referenced with Position, currently we do not maintain nominations sent to third party Versioning in the form of system audit is configurable throughout the application. "	Down to 5-min interval data.	Yes. Core features of the system comes with formula engine
KISTERS AG	Yes	Yes	Quarter hourly, hourly, daily, monthly, yearly, total (one value for defined period)	No. Currently not.
PSI	Yes	Yes	15min, h, d, m, q, a; other granularities available with next product release	Yes

Functionalities Aggregation – Power and Gas

Vendor	Are the summer/ winter time shifts supported?	Does the system support complete history and (versioning) of values?	In which different granularities can the data be aggregated?	Does the system support use of formulas, in order to model custom restrictions (eg. based in capacity, etc.) that the different balancing groups may have?
Soptim AG	Yes. Deal data can also be provided in various types (with shift hour present/absent, with/without gaps).	Yes, including functionalities in the GUI for comparison.	Power: 15/30/60 Minute, Gas: 60 Minutes, aggregated by whatever is required by each market (e.g. per counterparty, control area, BRP, contract)	Purpose of our solution is to carry out scheduling and nomination - reliably and highly performant. All calculations / time series operations are especially designed to follow this idea in a very efficient manner. We see custom calculation rules or time series operations (freely configurable) as belonging to other systems such as ETRM, EDM, Optimisation, Position Management, ...
Trayport Limited	Yes	Yes	"Hour, half hour, 15 minutes Additionally, minutes, daily, weekly, monthly, quarterly, yearly"	Yes
Volue ASA	Yes	Yes	3min, 5min, 10min, 15min, 30min, 60min, 24h, weekly, monthly, yearly	Yes

Functionalities Aggregation – Specifics Gas

Vendor	Is the system able to aggregate data by quality of the gas (L-gas/H-gas)?	Is the system able to automatically transfer energy between connected hubs (by means of predefined paths)?	Does the system support complete history and (versioning) of values?
Aktif Technology	Yes	Yes, if Contracts and values for the transfer exist	Yes
Brady Technologies	N/A in GB	No	The gas nominations tool for the GB market within Igloo allows you to view all your historic nominations by date. Furthermore, you can drill down into which trades have been aggregated to create your nominations easily. Any manual adjustments to nominations can be made in a way that preserves the original nominations schedule, so there is full transparency over what has been nominated, both today and historically.
dispoGas AG	yes	no	yes
e·Opt Solutions OHG	Yes	Yes	Yes
EnergyOne Limited	Yes	Yes this is feasible.	Yes

Functionalities Aggregation – Specifics Gas

Vendor	Is the system able to aggregate data by quality of the gas (L-gas/H-gas)?	Is the system able to automatically transfer energy between connected hubs (by means of predefined paths)?	Does the system support complete history and (versioning) of values?
Gas Management Services Limited (GMSL)	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: See Chorus and EuroRunner questionnaires	**Chorus**: No **EuroRunner**: No. Paths can be configured and users can easily see available flows taking into account available capacity and deadlines, but flows are not automated. **PowerTrak**: See Chorus and EuroRunner questionnaires"	**Chorus**: No **EuroRunner**: A history of values which have been nominated (in or out) on swing contracts is stored, and all historic notices are retained. **PowerTrak**: See Chorus and EuroRunner questionnaires"
GLOBALSYDE SYSTEMAS, S.L	"It should not be a problem, as operations would be associated to different infrastructures (as mentioned above).Not necessary, so far, in the markets where Globalsyde is currently present."	Balance zones are created by the sum of different infrastructures (virtual trading points, underground storages, LNG facilities, etc.). These infrastructures are connected to each other by connection points. A user is able to create custom or standard operations to transfer gas across different infrastructures.	Yes. Every activity on the platform is audited and traceable.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Yes	Customizable	"Valuations – We maintain versioning as part of our “As of Date” methodology. Price timeseries have same concept Nominations – Referenced with Position, currently we do not maintain nominations sent to third party Versioning in the form of system audit is configurable throughout the application. "

Functionalities Aggregation – Specifics Gas

Vendor	Is the system able to aggregate data by quality of the gas (L-gas/H-gas)?	Is the system able to automatically transfer energy between connected hubs (by means of predefined paths)?	Does the system support complete history and (versioning) of values?
KISTERS AG	Yes. This can be done by selecting contract types.	Yes	Yes
PSI	Yes	Yes	Yes
Soptim AG	Yes - this happens implicitly by the separation of BRPs for H-gas and L-gas	"Yes - as part of the automatic balancing (see 5.1.1)."	Yes, including functionalities in the GUI for comparison.
Trayport Limited	Yes	Yes	Yes
Volue ASA	Yes	Yes	Yes

Functionalities Nomination – Specifics Gas

Vendor	Does the system support automatic matching of (IN/OUT) EDI files?	Can the system calculate balance energy?	Which formats are supported for the transfer files?
Aktif Technology	Yes	Yes	MSCONS, CSV, XML, ESS
Brady Technologies	Yes	Yes	XML, CSV
dispoGas AG	Yes	It calculates the open position per market area.	All Edig@s formats (NOMINT, NOMRES, REQEST, etc.) starting in versions 4, 5.1 and 6.1 Edifact for Germany-specific market messages
e·Opt Solutions OHG	Yes	No	ESS (XML), KISS
EnergyOne Limited	Yes	Yes	XML, CSV, TXT, XLSX

Functionalities Nomination – Specifics Gas

Vendor	Does the system support automatic matching of (IN/OUT) EDI files?	Can the system calculate balance energy?	Which formats are supported for the transfer files?
Gas Management Services Limited (GMSL)	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: No **EuroRunner**: Yes **PowerTrak**: No	**Chorus**: Input to Chorus is js on via API or Excel upload via the website As required for supported markets, including Edigas EDI and XML, DVGW EDI, custom APIs (e.g. GTS, National Grid) **EuroRunner**: As required for supported markets, including Edigas EDI and XML, DVGW EDI, custom APIs (e.g. GTS, National Grid, Enagas, Gas Network Ireland), HTML and Text email, Excel and more **PowerTrak**: PowerTrak has a standard XML format for trades, cross border flows and production/consumption forecasts. Data from ETRM can be imported using API or sFTP. Nominations can be sent to TSOs in the relevant format required by the TSO for example ESS/CIM XML, EDINE. "

Functionalities Nomination – Specifics Gas

Vendor	Does the system support automatic matching of (IN/OUT) EDI files?	Can the system calculate balance energy?	Which formats are supported for the transfer files?
GLOBALSYDE SYSTEMAS, S.L	"Apart from the nomination process, Globalsyde is able to retrieve additional information from TSOs (measures, allocations, forecasts, etc.).The solution is also able to automate the communication process with DSOs to request change of supplier, retrieve TPA invoices, measures, etc."	Yes. Globalsyde Pioneer calculates daily balances for each gas infrastructure over supported balance zones.	"File formats are defined by TSOs and market operators (normally under Edig@s specification).Additionally, Globalsyde Pioneer may handle other format for custom communication needs (JSON, XML, XLSX, CSV, TXT, etc.)."
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Not currently	Yes	API supports all standard formats such as xml, csv, JSON
KISTERS AG	Yes	Yes	EDIFACT / EDIG@S Standard (NOMINT, NOMRES, REQEST, REQRES, etc); ESS Standard; ELIA XML; ESS CIM; KISS Excel
PSI	Yes	Yes	EDIG@S, EDI@energy, MSCONS, Excel, XML, ENTSO-E ESS, CIM, KISS (Excel); Gas: EDIG@S EDIFACT, EDIG@S XML, KISS-GAS (Excel), CSV; user defined formats can be easily configured

Functionalities Nomination – Specifics Gas

Vendor	Does the system support automatic matching of (IN/OUT) EDI files?	Can the system calculate balance energy?	Which formats are supported for the transfer files?
Soptim AG	"Yes, incoming responses will be automatically matched against the nominations, with the status being updated in the GUI and via events"	Out of scope - we see this functionality belonging to trading solutions (see also above line 133)	"Deal import: Database, Webservices, CSV, Excel. Nominations: Power: ESS, CIM TPS Schedule Documents - Gas: EDIFACT (NOMINT/REQEST) XML 4.0 and 5.1, EDIFACT 4.6/4.7 (DVGW)"
Trayport Limited	Yes	Yes	XML, TXT, CSV, JSON, XLS, XLSX
Volue ASA	Yes, nomination time series matching is one of the core functionalities in DeltaXE	Yes. Balancing energy is the difference between consumption and production in a balancing group based on actual data. If actual data (production, consumption) is imported to DeltaXE, then the balancing energy can be calculated.	Excel, CSV, XML, JSON, EDIFACT, ESS, EDIGAS (non standard formats can be implemented on request)

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
Aktif Technology	E-Mail and AS2	Yes	the communication must be secure, it ist E-Mail with certificates to sign & encryption or SFTP or Web-Service	Only the standard formats ALOCAT, ESS, MSCONS, UTILMD are supported and no individual country formats.
Brady Technologies	E-mail, FTP, web service	Yes	The connection details of external systems are configured in the system via the UI. Each schedule is sent to a "target" external system, acknowledgements confirmations etc are retrieved from that same "target" system and result in updates to the status of the sent schedule.	In German markets PowerDesk scheduler supports the reception of MSCON messages and response using CONTRL messages. Allocation type processes are not supported in any other markets.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
dispoGas AG	AS4, AS2, webservices, API	Yes. We offer either full service with dispoGas certificates (we take care of everything) or customers provide us their indidividual certificates	Communication channel: We exchanges the connection sheets with the external party, configure the communcation channel accordingly (typically AS4) and execute the connectivity tests with the external party on behalf of our clients as part of our SaaS offer. Message definition: We create the definitions for a new message like type (e.g. NOMINT), Edig@s version, and many others as part of our SaaS offer. The Communcation channel to be used is a property of the Message definition.	dispoGas recieves the allocation data in all mentioned message formats. The application currently does not provide any functionality to post-process the data contained in the messages, but can forward the messages to the designated applications (ETRM/EDM) that implement the extraction and further processing of the respective business content.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
e·Opt Solutions OHG	e-Mail, sFTP, ECP	Yes	Pre-defined external counterparties can receive the position information via FTP, e-Mail, prior to submission of schedules to the TSOs. Automatic matching of similar reports received from external parties is also possible.	Not entirely
EnergyOne Limited	FTP, SFTP, SMTP, web service, AS2, AS4, API, HTTP, email	Yes	Communication with external systems can be done using our REST API and Websocket API, sFTP can also be used. Nomination process with third parties can be implemented (e.g. KISS format, EDIGAS, email). When needed data can be entered manually in the user interface.	Yes to all the additional questions. We support all required formats to a certain extent.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
Gas Management Services Limited (GMSL)	**Chorus**: Edigas and DVGW via AS2 and AS4. Gemini API for National Grid **EuroRunner**: As required by supported TSOs. Currently includes AS2, AS4, market-specific APIs, secure email, SFTP **PowerTrak**: Nominations can be sent to TSOs using secure email, sFTP, web services	**Chorus**: Certificates can be used for communication where required. If you use our Message Routing services, we manage all certificate replacement and exchange on your behalf. Users are warned when certificates will expire giving 30 days notice. **EuroRunner**: Certificates can be used for communication where required. If you use our Message Routing services, we manage all certificate replacement and exchange on your behalf. Users are warned when certificates will expire giving 30 days notice. **PowerTrak**: Certificates can be used for communication where required. If you use our Message Routing services, we manage all certificate replacement and exchange on your behalf. Users are warned when certificates will expire giving 30 days notice."	**Chorus**: A service runs in order to provide communication of messages with external parties and supports API data transfer over the internet, secure email, web services, AS2, AS4. **EuroRunner**: Most communication is via our message routing service which handles the exchange of messages via various protocols: typically AS2 or AS4, or other services as required by the counterparty. Some direct APIs are integated directly into the application for counterparties that don't support AS2/AS4 messaging according to Edigas standards. **PowerTrak**: A service runs in order to provide communication of messages with external parties and supports sFTP, secure email, web services, AS2, AS4.Customers can feed their data (trades etc) into PowerTrak using an API or sFTP.	**Chorus:** Chorus does not currently support allocation data. **EuroRunner:** supports processing of specific allocations formats if required for the activity we support in a country. E.g. we support retreiveing allocations from the GTS web services. Edigas ALOCAT messages can be viewed. **PowerTrak:** only provides basic support for some allocation messages (Settlement Report, MSCONS, PRICAT, SLSRPT, MeasurementSeries etc) in Germany, the Netherlands and UK where it generates response messages and displays incoming and outgoing messages on Message Viewer pages.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
GLOBALSYDE SYSTEMAS, S.L	Communication protocols are also defined by TSOs and market operators (SOAP, AS4, etc.).	"Yes. Necessary requirement in order to establish communications with TSOs and market.Customer certificates are securely stored using MS Azure Key Vault."	Every submission is handled through our Globalsyde DISPATCH API. This API receives a set of operations the user are willing to communicate to the TSO. The list of operations is classified depending the balance zone, type of operation, type of message, etc. The API automatically creates the corresponding packages of operations, produces the proper messages for each one and the resulting trigger of the communication.	Yes, the solution is ready to work with the spectific formats and business rules existing in each market we are currently offering services (Spain and Portugal). The provided examples are not currently suitable for both Iberian markets.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	No current integration with TSO; standard data exchange formats we support include Flat File, Excel, XML, Web Services API, REST, SOAP, Linked Server, SSIS, FIX Protocol.	Yes	Data exchange format we support include Flat File, Excel, XML, Web Services API, REST, SOAP, Linked Server, SSIS, FIX Protocol.	TRMTRacker does not currently support any direction submissions to TSO in any country. Support is provided for nomination creation in Germany, but submitted via 3rd party tool. For gas, nomination are supported in Ukraine and Slovak Republic.
KISTERS AG	Signed e-mail; AS2; AS4	Yes	The current communication channels (e-mail, SFTP, AS2, AS4, webservice/REST API) and standard formats are supported. The system can be connected to 3rd party systems.	All processes required in interaction with the TSO are supported.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
PSI	File, FTP, SFTP, eMail and AS4, Electronic Highway	Yes	Dedicated module for market communication that enables the system to interconnect with different partners includes message monitoring	Out of the box is available ENTSO-G and ENTSO-E. All other formats can be modeled on demand by the vendor during runtime without development.
Soptim AG	"E-Mail (with S/MIME) via SMTP/IMAP/POP, shared folder, SFTP, SCP and TSO-specific WebServices such as MMC Hub in NL, Nordic Balancing System, RTE PEB, Elia B2B, AS2 and AS4 (separated module)"	Yes, via GUI.	"Main focus is on TSO communication and their formats/processes. In Gas, contract orders (REQEST/REQRES) area also supported as standard formats. Proprietary external party communication can be done via the reporting module (output e.g. CSV/Excel/XML)"	Our scheduling and nomination solution NOMT is designed especially for scheduling and nomination purposes - we allways keep the focus on this scope in order to assure excellent results, highest performance and reliability. We restrain from integrating more market communication processes , e.g. for customer switching communication.

Functionalities Nomination – Specifics Gas

Vendor	Which means of communication with the balancing group/TSO are available?	Does the system support lifecycle management of certificates to sign & encrypt messages?	How is the communication with external parties designed? Please explain.	Does the application process allocate data as well by country?
Trayport Limited	E-mail, FTP, SFTP, HTTP, SHTTP, AS2, AS4	No but expiry warning available	Communication channels can individually be configured based on available communication means	ALOCAT; MSCONS (DE, AT incl. 1st, post and 2nd clearing); CR_MSG (AT); LALL, BALL, RNINFO, RSINFO, CINFO, TINFO, OVEXIT (NL incl. versions)
Volue ASA	All relevant communications channels are available (email, AS2, AS4, web services, SFTP, etc.)	Yes	All communication to external parties and the transformation into the target file formats is done by the integrated Oracle Service Bus (OSB)	Yes. DeltaXE is generally very flexible to configure new message formats. ALOCAT and MSCONS data are already used by DeltaXE customers. The other data formats can be implemented on demand.

Functionalities Nomination – Power
Functionalities Nomination – Gas

Vendor	For which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) POWER	Which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) GAS
Aktif Technology	Germany	Germany
Brady Technologies	Austria (APG+APCS), Belgium (ELIA), Bosnia & Herzegovina (NOS-BHI), Bulgaria (ESO), Croatia (HOPS), Czech Republic (CEPS+OTE), Albania (OST), France (RTE), GB (Elexon),Germany (Amprion, 50 Hertz, TransnetBW, TenneT), Greece (ADMI), Hungary (Mavir), Italy (Terna), IFA, Britned, NEMOLINK, ElecLink, Kosovo (KOSTT), Luxembourg (CREOS), Macedonia (MEPSO), Montenegro (CGES), The Netherlands (Tennet), Romania (Transelectrica), Serbia (EMS), Slovakia (Seps + OKTE), Slovenia (Eles +Borzen), Switzerland (SwissGrid)	GB
dispoGas AG	n/a	All EU countries + CH

Functionalities Nomination – Power
Functionalities Nomination – Gas

Vendor	For which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) POWER	Which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) GAS
e·Opt Solutions OHG	Already in use for DE, NL, CH, FR, AT, IT. But with little effort and configuration, is capable of all ENTSOE standards compatible regimes.	DE and NL
EnergyOne Limited	France, Belgium, UK, The Netherlands, Germany, Luxembourg, Switzerland, Austria, Denmark, Norway, Sweden, Italy, Czech Republic, Poland, etc. + Interconnectors, Australia - We are continuously implementing new TSOs	France, Belgium, UK, The Netherlands, Germany, Luxembourg, Switzerland, Austria, Denmark, Norway, GASSCO, Sweden, Finland, Italy, Czech Republic, Slovakia, Slovenia, Poland, Spain, Estonia, Latvia, etc. + pipelines (TAP, IUK, BBL, eustream, etc.), Australia

Functionalities Nomination – Power
Functionalities Nomination – Gas

Vendor	For which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) POWER	Which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) GAS
Gas Management Services Limited (GMSL)	**Chorus**: See PowerTrak questionnaire **EuroRunner**: See PowerTrak questionnaire **PowerTrak**: Countries - Austria, Belgium, Czech Republic , France, Germany, Hungary, Italy, Netherlands, Switzerland and UK . Interconnectors - BritNed, IFA, IFA2, NEMO Link and ElecLink.	**Chorus**: Austria, Belgium, Netherlands, UK, Germany, France **EuroRunner**: Austria, Belgium, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Slovakia, Slovenia, Spain, Switzerland, UK **PowerTrak**: See Chorus and EuroRunner questionnaires
GLOBALSYDE SYSTEMAS, S.L	We are not currently offering scheduling services for power markets.	As mentioned above, we are currently working on Spanish and Portuguese balance zones. We expect to start offering services for the France market by the end of 2023.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	We can create schedules but do not provide interface connector to TSO	TRMTRacker does not currently support any direction submissions to TSO in any country. Support is provided for nomination creation in Germany, but submitted via 3rd party tool. For gas, nomination are supported in Ukraine and Slovak Republic.
KISTERS AG	Currently Germany, Austria, Switzerland, Netherlands, Belgium fully supported. More countries are planed.	Currently Germany, Austria, Switzerland, Netherlands fully supported. More countries are planed.
PSI	Various countries can be provided of the box e.g., Germany, Austria, Switzerland; other countries can be easily modeled on demand by the vendor during runtime without development.	Various countries can be provided of the box e.g., Germany, Austria, Italy, Switzerland, Netherland; other countries can be easily modeled on demand by the vendor during runtime without development.

Functionalities Nomination – Power
Functionalities Nomination – Gas

Vendor	For which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) POWER	Which countries are you fully compliant to nominate and process the commodity? (we would expect all required proceses: actuals, preliminary timeseries..) GAS
Soptim AG	"Austria, Belgium, Czech Republic, Croatia, Denmark, Finland, Germany, Hungary, Italy (Terna), Luxembourg, Montenegro, Netherlands, Norway, Romania, Serbia, Slovakia, Sweden, Switzerland, UK (+ any ESS/CIM markets within minimal efforts)"	Austria, Belgium, France, Germany, Netherlands, Poland, Switzerland (+ any markets supporting EDI@XML 5.1 within minimal efforts)
Trayport Limited	Supported formats are: ENTSO-E ESS, ENTSO-E ERRP, IEC 62325 Framework (for FR), KISS. (Missing codes to existing formats can easily be implemented.) For a country overview please refer to 4.1 Basic Features - Power.	Supported formats are: EDIGAS, EDIFACT (incl. EDI-DVGW), KISS. (Missing codes to existing formats can easily be implemented.) For a country overview please refer to 4.2 Basic Features - Gas.
Volue ASA	Countries: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finnland (2023), France, Germany, Greece, Hungary, Ireland, Italy, Luxemburg, Macedonia, Montenegro, Netherlands, Norway (2023), Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden (2023), Switzerland, Turkey, UK Interonnectors: UK-FR (IFA1, IFA2), UK-NL (BritNed), UK-BE (NEMO), ElecLink	Countries: Austria, Belgium, Czech Republic, Denmark, France, Germany, Italy, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, UK Exit/Entry: On demand

Functionalities Monitoring – Power and Gas

Vendor	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to monitor the available capacities? Are notifications available?
Aktif Technology	Yes	Yes	Yes
Brady Technologies	Yes	Yes	No
dispoGas AG	Daily sum and hourly profile are both shown always. If a market like TRF only uses daily nominations, we only show daily values.	n/a	Available Capacities: On our roadmap Notifications: yes

Functionalities Monitoring – Power and Gas

Vendor	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to monitor the available capacities? Are notifications available?
e·Opt Solutions OHG	Not currently, but this feature can be easily added.	Not currently, but this feature can be easily added.	Yes
EnergyOne Limited	Yes	Yes	Yes (Day-Ahead auction bidding and Within-Day continuous market)
Gas Management Services Limited (GMSL)	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: See PowerTrak questionnaire **EuroRunner**: See PowerTrak questionnaire **PowerTrak**: Yes	**Chorus**: No **EuroRunner**: Yes, yes. **PowerTrak**: See Chorus and EuroRunner questionnaires
GLOBALSYDE SYSTEMAS, S.L	For our current markets, Globalsyde Pioneer is just offering the information on a daily aggregation. For intra-day renominations, the solution automatically calculates the current conveyed flow to match the final desired volume.	We are not currently offering scheduling services for power markets.	"Yes, available capacity can be monitored on a real-time basis to ensure the intended gas flows are going to be accepted by the TSO. If a nomination is not backed by the capacity portfolio an error message would be presented to the user."

Functionalities Monitoring – Power and Gas

Vendor	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to change the view of the nomination data between hourly, half-hourly and quarter-hourly?	In the position management function, is it possible to monitor the available capacities? Are notifications available?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Through different reports	Through different reports	Yes
KISTERS AG	Yes	Yes	Yes
PSI	Yes, the nominated time series can be viewed directly with the build in time series viewer. With the build in Portfoliomanagement system a view of aggregated positions can be switched on either granularity from an quarter of an hour up to year.	Yes, the nominated time series can be viewed directly with the build in time series viewer. With the build in Portfoliomanagement system a view of aggregated positions can be switched on either granularity from an quarter of an hour up to year.	Capacitites and load positions can be compared using functions of portfolio management
Soptim AG	Yes	Yes	Currently out of scope.
Trayport Limited	Yes	Yes	Yes
Volue ASA	Yes	Yes	Yes. Notifications about a breach of available capacity is available.

Functionalities Short-Term Trading

Vendor	Does the solution include short-term trading, i.e. access to short-term markets?	If yes to the previous questions, which markets can be accessed?
Aktif Technology	Yes	Germany
Brady Technologies	Yes	We can support pan -European coverage (including Nordpool, CROPEX, EPEX (ETS +M7), SEMOPX, HENEX, GME).
dispoGas AG	n/a for Gas	n/a
e·Opt Solutions OHG	Yes. Within PriceHub we have a dedicated module e·Connect for Short-Term trading. It is a complete Intraday trading solution for Power in the markets supported by EPEXSPOT.	DE, AT, CH, BE, FR and NL

Functionalities Short-Term Trading

Vendor	Does the solution include short-term trading, i.e. access to short-term markets?	If yes to the previous questions, which markets can be accessed?
EnergyOne Limited	All markets covered by EPEXSpot (ETS, M7), NordPool (auction, Elbas) and any exchange based on their IT systems (CROPEX, SEMOpx, IBEX, HUPX, EXAA, SEEPEX, TGE, Southpool, Opcom, GENEX…)	See previous question
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: No **PowerTrak**: GMSL are an ISV with EPEX for the day ahead market. PowerTrak allows customers to place day ahead hourly linear orders onto the EPEX Trading System (ETS) using the API.	**Chorus**: N/A **EuroRunner**: N/A **PowerTrak**: EPEX Day Ahead Market
GLOBALSYDE SYSTEMAS, S.L	Currently, Globalsyde Pioneer is able to connect with Iberian organised gas market (MIBGAS) in order to retrieve real-time operations.	MIBGAS (Spanish/Portuguese gas organised market).
Hitachi Energy Ltd (Hitachi ABB Power Grids)	The solution allows daily and hourly deals in both power and gas. For Power, our product provides an interface for bids/awards	EPEXSPOT, Nordpool

Functionalities Short-Term Trading

Vendor	Does the solution include short-term trading, i.e. access to short-term markets?	If yes to the previous questions, which markets can be accessed?
KISTERS AG	Yes	"EPEX SPOT incl. API for DayAhead. Intraday connection by an algotrading solution. Nordpool and EXAA by file transfers."
PSI	Yes, the system provides a build in module for Day Ahead and Intraday market	We support the EPEX and EXAA and over XBID all connected european markets
Soptim AG	"See above line 133. SOPTIM offers a short term trading platform (power) SOPTIM iTrade. In general short term trading has special requirements with auto- /algo trading functionalities and special interfaces to markets. We consider it the current market standard that for short term trading separated expert solutions are designed and offered to the market."	SOPTIM iTrade: EPEX SPOT / Nord Pool markets.
Trayport Limited	Integrated auction module (for EPEX and Nodpool) available, connection to autoTRADER for continous trading on EPEX and Nord Pool possible	"For auctions: AT, BE, CH, DE, FR, GB, NL on EPEX and DE, GB on Nord PoolFor continous via autoTRADER see published market matrix at https://www.trayport.com/markets/market-matrix/?&autotrader=1&power=1&naturalgas=1&continuousintradaymarket=1&forwardsandfutures=1"
Volue ASA	DeltaXE is not a trading system, but it offers deal capturing (manual and import like EPEX exchange results) and position management functionality.	Import of EPEX and Nordpool exchange auction results, EPEX SPOT ComTrader (continuous intraday csv-file import), JAO (capacities: submission of bids, import of results)

Functionalities Algorithmic/Automated Trading

Vendor	If no to the first question under 5.4, is there an interface to common Short-Term Trading solutions? If yes, please name.	Does the solution include algorithmic / automated trading solutions? If yes, please describe. If not, does it have an interface to (specific) algo trading solutions?
Aktif Technology	Yes, we have a interface to Short-Term Trading solution eRisk from Kisters AG.	No
Brady Technologies	The solution includes short-term trading, but there are also enhanced options for short-term trading in our complementary solutions like Igloo ETRM and PowerDesk Trader.	Yes, within both PowerDesk Trader and Igloo ETRM solutions we support algorithmic and automated trading.
dispoGas AG	n/a for Gas	No. Interface to Algo trading solution (typcially via ETRM) can be implemeted via REST API.
e·Opt Solutions OHG	N/A	No. neither e·Flow nor e·Connect have native Algorithmic Trading capabilities. They can however both link to other Algorithmic Trading tools, for execution in the markets and subsequent Scheduling processes.

Functionalities Algorithmic/Automated Trading

Vendor	If no to the first question under 5.4, is there an interface to common Short-Term Trading solutions? If yes, please name.	Does the solution include algorithmic / automated trading solutions? If yes, please describe. If not, does it have an interface to (specific) algo trading solutions?
EnergyOne Limited	Yes we have interfaces via our eZ-Ops auction bidding and eZ-Ops algo-trading modules	Yes
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: No **PowerTrak**: N/A	**Chorus**: No **EuroRunner**: No **PowerTrak**: No
GLOBALSYDE SYSTEMAS, S.L	Over the last few years, Globalsyde team had created integrations with some relevant ETRM vendors, such as Allegro or Openlink.	No
Hitachi Energy Ltd	In addition to spot markets above, we have interfaced with autotrading solutions like Likron.	This is on the roadmap. We do provide separate modules for Battery Capacity Trading.

Functionalities Algorithmic/Automated Trading

Vendor	If no to the first question under 5.4, is there an interface to common Short-Term Trading solutions? If yes, please name.	Does the solution include algorithmic / automated trading solutions? If yes, please describe. If not, does it have an interface to (specific) algo trading solutions?
KISTERS AG	Interfaces to serveral algorithmic trading solutions are available: Volue/Likron, VisoTech/Trayport, PowerBot and proprietary custom systems.	Market partner solution PowerBot.
PSI	We provide our own build in module, but other systems can also connected using our standard interfaces.	"The system provides an additional module for trading at the intraday market with configurable trading strategies. Third party solutions can also connected using our standard interfaces."
Soptim AG	See line 164: NomT can be connected either to our own Short-Term Trading Platform SOPTIM iTrade or to any other trading solution via the provided interfaces.	"See above line 133. SOPTIM offers a short term trading platform (power) SOPTIM iTrade. In general short term trading has special requirements with auto- /algo trading functionalities and special interfaces to markets. We consider it the current market standard that for short term trading separated expert solutions are designed and offered to the market."
Trayport Limited	See question 5.4	Periotheus and the Trayport solution for automated traing - autoTRADER - are well integrated.
Volue ASA	Yes. DeltaXE has a standard API to connect to trading systems.	DeltaXE does not include agorithmic / automated tradeing, but it has a standard interface to Volue Trading Solutions (algo-trading for power and gas)

Functionalities Algorithmic/Automated Trading

Vendor	Are there pre-defined strategies which can be parameterized by the customer?	Can the customer develop own strategies without involving you?	Can the GUI be customised by the user?	Is it possible to open different windows simultaneously?
Aktif Technology	No	No	No	Yes
Brady Technologies	Yes	Yes	"Yes users can configure their own preferences for default layouts of panels and windows."	Yes
dispoGas AG	n/a	n/a	Yes	Yes
e·Opt Solutions OHG	N/A	N/A	No, but bespoke Reports etc. can be built by the users without needing assistance from e·Opt.	Yes

Functionalities Algorithmic/Automated Trading

Vendor	Are there pre-defined strategies which can be parameterized by the customer?	Can the customer develop own strategies without involving you?	Can the GUI be customised by the user?	Is it possible to open different windows simultaneously?
EnergyOne Limited	Yes	Yes	Yes	Yes
Gas Management Services Limited (GMSL)	**Chorus**: N/A **EuroRunner**: N/A **PowerTrak**: N/A	**Chorus**: N/A **EuroRunner**: N/A **PowerTrak**: N/A	**Chorus**: No **EuroRunner**: Yes, user can have multiple windows open and arrange these as they wish, create custom map views of markets or their whole portfolio with custom backgrounds, customise colours for error highlighting and various other settings. **PowerTrak**: No	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes
GLOBALSYDE SYSTEMAS, S.L	No	No	No, only color palettes or company logo can be customised.	"Yes, no problem."

Functionalities Algorithmic/Automated Trading

Vendor	Are there pre-defined strategies which can be parameterized by the customer?	Can the customer develop own strategies without involving you?	Can the GUI be customised by the user?	Is it possible to open different windows simultaneously?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Custom strategies are fully configurable	Book structure is configurable without any consulting help	Yes, a personal profile (coloring) can be set, fields, columns can be arranged	Yes
KISTERS AG	Yes, in PowerBot.	Yes, in PowerBot.	Yes. Users can create their own dashboards.	Yes. It's a browser GUI.
PSI	The system provides predefined trading strategies which can be adapted to own needs by parametrizing	"The trading strategies are driven by a set of KPIs, which reflect the actual market situation.A special parametrizing logic and integrated AI allows the user to develop own strategie settings"	Yes	Yes

Functionalities Algorithmic/Automated Trading

Vendor	Are there pre-defined strategies which can be parameterized by the customer?	Can the customer develop own strategies without involving you?	Can the GUI be customised by the user?	Is it possible to open different windows simultaneously?
Soptim AG	"SOPTIM iTrade: We decided not to sell ready made strategies but tools for our clients to develop their own strategies. We do not believe that much in ready made strategies sold to the market. We can provide sample strategies and trainings / workshops on strategies set-up. "	"SOPTIM iTrade: We offer 3 different ways for clients to develop their strategies:1) Auto-Trading with parameters that are available via the GUI2) Scripting via integrated scripting engine 3) Algo-Server-Interface: external scripting"	The main window's panels layout can be adjusted to the user's needs (e.g. for horizontal/vertical or multiple displays)	Yes

Functionalities Algorithmic/Automated Trading

Vendor	Are there pre-defined strategies which can be parameterized by the customer?	Can the customer develop own strategies without involving you?	Can the GUI be customised by the user?	Is it possible to open different windows simultaneously?
Trayport Limited	Trayport autoTRADER offers out-of-the-box algorithms. Those come with configureable parameters. White-box algorithms, which allow developers to use our standard algo code as templates and adjust as the customer sees fit, using standard and custom parameters. With the pro version of autoTRADER customers have the possibility to develop their own algorithms. Standard algorithms we provide for spot marets are position closing (power, gas), flexibility marketing (power), arbitrage (gas) and power storage. Standard algorithm we provide for forwards & futures is market maker (power, gas, EUA). The Trayport client onboarding process requires customers evaluate/test the usage as well as the results on test-/simulation environments before they put them onto production systems. Trayport Autotrader has many built-in tools to help compliance teams to ensure appropriate usage of Algorithnmic trader. The customer is required to ensure full compliance with any Venues and regulatory oligations.	Yes	Partially	Yes
Volue ASA	Yes (within Volue Trading Solutions)	Yes (within Volue Trading Solutions)	Yes	Yes

Functionalities - Other functionalities

Vendor	Is the user notified when the connection is lost? Does the system try to reconnect automatically?	Does the system record which user is logged in and is it visible which user executed specific nominations?	Can automatic e-mail notification be configured and can the user modify the recipient?	Is there a document management functionality available?
Aktif Technology	Yes	Yes	Yes	Yes
Brady Technologies	Yes	yes	Yes email notifications are available and are highly configurable.	PowerDesk Scheduler: No
dispoGas AG	Yes	Yes	Yes. Each User can subscribe to notifications via various channels (emails, SMS, In-app,…). Email and phone number can be defined per user	For nomination documents yes
e·Opt Solutions OHG	Yes and yes	Yes and yes	Yes and yes	Yes

Functionalities - Other functionalities

Vendor	Is the user notified when the connection is lost? Does the system try to reconnect automatically?	Does the system record which user is logged in and is it visible which user executed specific nominations?	Can automatic e-mail notification be configured and can the user modify the recipient?	Is there a document management functionality available?
EnergyOne Limited	Yes	Yes	Yes	Yes
Gas Management Services Limited (GMSL)	**Chorus**: Yes to both **EuroRunner**: Yes to both **PowerTrak**: Yes to both	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: No **EuroRunner**: Yes **PowerTrak**: Yes
GLOBALSYDE SYSTEMAS, S.L	"Yes, quite common after a session inactivity timeout. The platform tries to reconnect automatically."	Yes. Every activity on the platform is audited and traceable.	Automatic responses to certain events may be configured (such as email notifications), but changes on those configurations should be requested to Globalsyde team.	Yes. Globalsyde platform relies on Microsoft Azure Blob Storage for file management purposes.

Functionalities - Other functionalities

Vendor	Is the user notified when the connection is lost? Does the system try to reconnect automatically?	Does the system record which user is logged in and is it visible which user executed specific nominations?	Can automatic e-mail notification be configured and can the user modify the recipient?	Is there a document management functionality available?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	The user is notified and reconnection is attempted automatically	Yes. Visibility comes from audit trail.	Yes	Documents can be attached. True PDF formats can be searched.
KISTERS AG	Yes. There is an automatic reconnect and the user is informed via the GUI.	Yes. It will be written to the logbook.	Yes, trigger, recipients and mail content can be configured.	All nomination files are stored within database and are retrievable.
PSI	Yes	Yes	Yes	Yes
Soptim AG	Yes	"Logging of active users is done within the limits of the stateless REST protocol ("login“ and "logout" by opening/closing the window) are logged. Any user action such as deal import, schedule computation and schedule transmission are also logged in the database."	Yes, various events (functional and technical) can be setup via GUI and customized further.	Out of scope.
Trayport Limited	Yes	Yes	Yes	Partially
Volue ASA	Yes.	Yes	Yes	Yes. Documents can be attached to DeltaXE contracts

Functionalities - Other functionalities

Vendor	Which standard reports are available?	Is the data saved regularly as a backup?	Can the saved data in the DB be encrypted? If yes, please provide level of encryption.
Aktif Technology	Many Standard Reports are available	Yes	No (but it would be possible)
Brady Technologies	Configurable position reports: Including schedule status, position per control area/balance area/counterparty.	Data is stored in a SQL server or Oracle database, backups are the responsibility of the database administrator. In the case of a Brady cloud installation we will manager this on the customer's behalf.	Certain secret data is stored encrypted by the application. SHA and BCrypt are used.
dispoGas AG	Dayahead and Intraday status overview (real time) Nomination position incl status per Marketarea, Connectionpoint, and Shippercode pair (real time)	Yes, on a daily basis within a backup retention period of 14 days.	Our Database service uses the FIPS 140-2 validated cryptographic module for storage encryption of data at-rest. Data, including backups, and temporary files created while running queries are encrypted. The service uses the AES 256-bit cipher included in Azure storage encryption.

Functionalities - Other functionalities

Vendor	Which standard reports are available?	Is the data saved regularly as a backup?	Can the saved data in the DB be encrypted? If yes, please provide level of encryption.
e·Opt Solutions OHG	"Position Reports Static Data Reports Reporting Activity Report Audit Report Status Reports Submission and Response Reports"	PriceHub has a robust data archival and backup routine, which ensures no inadvertent loss of data and data history.	This is based on User requirements, and we can use Oracle Transparent Data Encryption if needed.
EnergyOne Limited	All frequently used kinds of reports + there are customization options to easily create your own reports. All data can also be exported using APIs if needed.	Yes	"egssPort: Yes, all customer data can be encrypted. The default level of encryption is AES 256eZ-Ops: All sensitive data (passwords, certificates) is encrypted. The default level of encryption is AES 256enVoy: data is encrypted in the database and during data transfer"

Functionalities - Other functionalities

Vendor	Which standard reports are available?	Is the data saved regularly as a backup?	Can the saved data in the DB be encrypted? If yes, please provide level of encryption.
Gas Management Services Limited (GMSL)	**Chorus**: Matching and balancing reports **EuroRunner**: Capacity Position, Capacity Trades, Daily Allocations, Fixed Trades, Latest Flows, Metered Quantities, Network Allocations, Network Position, Steering Position, Swing Contract History, Swing Latest BDR Nominations, Trade Latest Notifications, Trade reconciliation reports, shift handover reports, position reports, User Listing, User Auditing, Notices, Contract Defaults **PowerTrak**: PowerTrak has the following reports available - Matching Reports, Reconciliation Report, Position Report, Confirmed Volume Report	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: Yes, backups are encrypted as per customer data at rest. Data stored in the cloud is encrypted using keys from our FIPS 140-2 compliant HSM. **EuroRunner**: Yes **PowerTrak**: Yes
GLOBALSYDE SYSTEMAS, S.L	"Globalsyde platform relies on the capabilities of Qlik Sense OEM in order to meet any analytical requirements of the customer. Globalsyde Pioneer standard reports covers trading activity, logistics operations, TPA costs analysis, capacity portfolio, stocks evolution, etc."	Yes. Globalsyde platform relies on Microsoft Azure standard backup policy (https://docs.microsoft.com/en-us/azure/sql-database/sql-database-automated-backups).	"Globalsyde platform is using Transparent data encryption (TDE) to protect their Azure SQL Databases (https://docs.microsoft.com/en-us/azure/azure-sql/database/transparent-data-encryption-tde-overview).The encryption algorithm used by TDE is AES 256."

Functionalities - Other functionalities

Vendor	Which standard reports are available?	Is the data saved regularly as a backup?	Can the saved data in the DB be encrypted? If yes, please provide level of encryption.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	The system contains a robust and extensive library of standard reports including Position, P&L, Credit and MTM. Additionally, customers can augment existing reports as needed from scratch or by deriving new reports from existing ones. Tools available to support reporting include pivot functionality to allow users to easily build additional or ad hoc reports and an embedded report writer to build reports from scratch. The system also provides an Excel Add-In and integration with Microsoft Power BI	Yes	No, only transport is encrypted
KISTERS AG	Status reports, anomaly reports, version report, activity report, position report.	Yes	Yes
PSI	"All documents and nomination versions send out and received are visualized in an central dashboard. In additional system overviews (EDIFACT-Manager) are all communication processes listed and can be checked in the case of errors. User specific reports can be configured."	Yes	Yes

Functionalities - Other functionalities

Vendor	Which standard reports are available?	Is the data saved regularly as a backup?	Can the saved data in the DB be encrypted? If yes, please provide level of encryption.
Soptim AG	A reporting engine is included which can transform database queries against the NomT database to various report formats such as CSV, Excel, XML and PDF also using templates. Any data of the data base can be reported. Reports can be configured by users or by SOPTIM.	Logfiles and database data can be backuped depending on customer needs via standard tools (such as xcopy, a snapshot of the virtual server, database dump)	Can be set-up at the data base level - not recommended
Trayport Limited	No standard reports available, however every data field and time series can be converted into a report. XLSX templates for reports are supported. Available output formats are XLSX, CSV and PDF.	Yes	Only passwords and other critical information
Volue ASA	DeltaXE provides a OData standared reporting interface which allows the customers to build own reports in external tools like PowerBI.	Yes	Yes, Oracle databases can encrypt saved data using Transparent Data Encryption (TDE). TDE is part of Oracle Advanced Security and encrypts data in table columns and tablespaces. By default, Oracle uses AES-256, which is highly secure.

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
Aktif Technology	Yes, TLS 1.2	Many processes can be controlled and designed by the customer via configuration. If additional implementations are required, these must be carried out by the provider.
Brady Technologies	For communication with third parties, i.e. TSOs, various encryptions are used as per third party requirements.	Introducing custom code is not supported. Where a code change is required Brady works with customers through a change request process to make that change. Message content, email alerts, running various processes as automated "jobs" can all be configured via the client UI to meet most use-cases.
dispoGas AG	dispoGas allows connections using only HTTPS, and using only the modern encryption standards TLS 1.2/1.3. Web interface and REST-based integrations must connect to DispoGas using the above protocols, other connections will be dropped.	At the moment, dispoGas does not offer functionalities to directly insert custom code. However it is fully possible to integrate dispoGas in workflow engines via our REST API. Examples: - Ids/fields can be changed via configuration in the UI - Messages can be integrated via the REST-API - dispoGas uses Azure Functions for fully automated file based data transfers including sftp via Azure Blob Storage

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
e·Opt Solutions OHG	Data transferred to external entities use sFTP protocol, which provides the necessary level of security and encryption.	The system does not generally allow for custom code integration. But the generic functionality within the product allows for user defined process flows to be configured.
EnergyOne Limited	"egssPort and eZ-Ops: Yes, all transferred data is encrypted. All traffic is encrypted and protected by the latest supported TLS cyphers. (A+ rating on ssllabs) enVoy: data is encrypted in the database and during data transfer"	It's possible, for example we have a calculation module where users can set their custom calculation in eZ-Ops. It's also possible to set-up custom workflows in our solutions.

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
Gas Management Services Limited (GMSL)	**Chorus**: Yes, all customer data is encrypted to strong industry standards (minimum level TLS 1.2). **EuroRunner**: The data itself is not encrypted, but it is transferred over an encrypted method, for example sFTP or HTTPS **PowerTrak**: The data itself is not encrypted, but it is transferred over an encrypted method, for example sFTP or HTTPS	**Chorus:** Chorus is a SaaS solution with minimal configuration. There are no options for customers to customise functionality or the UI. Messsge contents are determined by Chorus based on the requirements of the message recipient and are not possible to be configured by the customer. **EuroRunner:** a high degree of flexibility and customisation is offered through our UI. Unlike some products, most aspects of message contents can be configured easily by the user without the need for custom code. **PowerTrak:** no, PowerTrak generates messages that are required by TSOs by default. GMSL can support the exchange of messages with third parties using its Message Routing Service which supports sFTP, AS2, AS4, web services etc
GLOBALSYDE SYSTEMAS, S.L	"Communications with the platform are secured by Globalsyde certificate. All in-transit information is secured with TLS 1.2 protocol."	Globalsyde APIs is the main gate to expand standard capabilities of the platform. Those expansions can be developed inside or outside the Globalsyde infrastructure. Globalsyde provides a Developer Portal so third-parties may learn and test our APIs in a DEV environment. Some example of those expansion can be the following: - Capturing custom measure files - Including custom forecasts into the system - Creating custom messages any time some event happens within the platform (a nomination has been sent, for instance) - Including new purchases of gas into the system and communicate them automatically to the TSO (with no human interaction)

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Yes	TRMTracker allows for a high level of customization that does not require consultant help. At the most basic level, existing tables can be extended with new custom fields. Custom tables can also be added for nonstandard data storage and usage. Similarly, reporting is facilitated by standard datasets that support the full life cycle of activity within TRMTRacker. But these datasets can be expanded via custom SQL to achieve any level of reporting required. This is saved and utilized in a way that is not disrupted by normal upgrade activity. Finally, custom processes are supported that might take the form of stored procedures as example. These custom processes can then be incorporated into standard event driven workflow capability which includes notification within the application or via external email TRMTracker has an API that can be utilized for connection to external systems
KISTERS AG	Yes	There is a well documented public REST API, which includes all functionalities of our BelVis+ Scheduling Cockpit. In case of simple adjustments of message formats there is a feature within the GUI.

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
PSI	Yes	The system can be configured by the user to a very high extent. BPM and scripting language are available for this purpose. Inside the nomination module additional communication channels can be created by simple configuration. Other imports and exports can be created using the build in interfacemanager. Available protocols are File, (s)HTTP, IMAP, ODBC, (s)FTP and special protocols to Organized Market Places. Also available are BPMN, Scripting languages and plugins to communicate with customer third party systems and integrate them into the build in system workflow.
Soptim AG	All communication between the clients and the RedHat middleware (application server) is secured via TLS. Sensitive data such as user passwords are stored in hashed and salted format. Account passwords (e.g. for email server) are stored AES encrypted in the DB.	Changing Ids/fields in Edifact: Can be done by customer using the EDI or ESS profiles Messages via a process written by the customer: Configurable event manager, task manager and external workflow manager (REST-API) Get and Uploading messages/data to (s)ftp-servers via processes: Configurable communication interfaces possible to connect with, e.g. sftp-server, AS4-Server, Mail-Server, ... Configurable and flexible reporting for all data available in the database Configurable checking rules that can trigger events, such as creation of a report

Functionalities - Other functionalities

Vendor	Is the transferred data encrypted? If yes, please provide level of encryption.	Please describe how additional processes can be configured without involving the vendor (e.g. API, code, Environment,..)!
Trayport Limited	Yes, available encryption level dependent on communication means	Perietheus provides a process framework with standard modules as well as the possibility to integrate own python code using the Periotheus API. Additionally, the system can be configured via REST API.
Volue ASA	Within application components we provide TLS 1.2. Within TSO communication, this depends on the level possible with the TSO.	DeltaXE is extremely flexible concering workflows and customer specific configurations and scripts. The whole scheduling process (creating and sending schedules, receiving messages) can be automated 100%. Super users with appropriate training can do this without involving Volue. Manual adjustements of specific values (like IDs/fields in Edifact, etc). can be changed easily in the DeltaXE GUI. There is a timeseries calculator and a workflow engine embedded into DeltXE, to support customer specific processes. Additionally, more complex problems can be solved by scripting.

3.4 Implementation

Implementation

Vendor	Is a demo version of the software available to clients?	How long does the software implementation take until its full operative capacity is reached?	What is the best practise approach for implementation / migration?
Aktif Technology	Yes, but only as paid demo provision	Approx. 3 months	A combination of waterfall and agile approach
Brady Technologies	Demos of the solutions can be provided to customers.	Typically it is the speed of the customers' registration with exchanges and TSOs (and the associated the time to get certification) that is the limiting factor in the implementation. The implementation time of the standalone scheduling tool is modest.	This will vary from customer to customer, depending on whether it is a greenfield client or a migration project. There are configuration options in the core system which are defined in a scoping phase. The adapters are preconfigured and ready to be implemented.
dispoGas AG	Yes	1-3 months duration	Client provides the list of markets, tso and counterparties and inform their market partners that dispoGas is allowed to set up the secure connections on their behalf. dispoGas sets up the system and connections accordingly and performs the technical testing with the marketpartners for the secure connections. The interface between the clients ETRM/Position Management Tool and dispoGas is also part of the implementation.

Implementation

Vendor	Is a demo version of the software available to clients?	How long does the software implementation take until its full operative capacity is reached?	What is the best practise approach for implementation / migration?
e·Opt Solutions OHG	Yes. We host our solution on our Azure Cloud environment, from where Trial users can access and use the system for pre-defined limited periods.	Implementation of such applications is seldom a single entity task. It is always linked to up/down-stream systems. So it is difficult to estimate how long an implementation would take. As a ballpark figure, considering interfacing to systems we have previous experience with, would take about 10 weeks.	We have experience with many Implementation styles. In our experience a Waterfall approach works best in cases where Specification and Testing support from the client is limited and a Agile approach suits best where the client is embedded well in the project.
EnergyOne Limited	Yes	1 to 3 months	Our teams work closely with the customer using Agile methodology during 2-4 week sprints featuring: Design, Set-up, Testing, User-Acceptance-Testing,Review, Refinement and Roll-Out. If an existing solution is in place we can run both systems in parallel until the migration takes place and is fully operational.

Implementation

Vendor	Is a demo version of the software available to clients?	How long does the software implementation take until its full operative capacity is reached?	What is the best practise approach for implementation / migration?
Gas Management Services Limited (GMSL)	**Chorus**: Once a customer has signed a Chorus contract they can have access to a test/ demo system. **EuroRunner**: Once a customer has signed a EuroRunner contract they can have access to a test system. **PowerTrak**: Once a customer has signed a PowerTrak contract they can have access to a test system.	**Chorus**: 1 week to provide access to Chorus, configuring TSO connection is dependent on the implementation timeline of the different TSOs **EuroRunner**: 1-3 months depending on existing scope of client's operations. **PowerTrak**: Setting up a hosted PowerTrak, configuring TSO connections and configuring the software typically takes around 1 month.	**Chorus**: Scoped based on customer requirement **EuroRunner**: This varies greatly depending on the client, the scope of their pre-existing activity, and their priorities. A dedicated analyst will typically work with a client representative to understand their portfolio and work with them to create and implement a plan. **PowerTrak**: This varies depending on the Client, the scope of their pre-existing activities and their priorities. A dedicate analyst will typically work with the customer to understand the portfolio and create and implement a plan.
GLOBALSYDE SYSTEMAS, S.L	Yes	2-3 weeks.	Globalsyde team provisions a new production environment for the customer and installs the necessary certificates to communicate with TSOs and markets. Globalsyde team uses these permissions to automatically retrieve all the relevant historical information from the sources. Once everything is ready, Globalsyde team creates users, assign them roles and held the training sessions before go live procedure.

Implementation

Vendor	Is a demo version of the software available to clients?	How long does the software implementation take until its full operative capacity is reached?	What is the best practise approach for implementation / migration?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	No trial or demo systems are provided. Demos are conducted by Hitachi staff.	4-6 months	Implementation / migration is typically approached through an engagement with our services group. This begins with a project scoping exercise to define current and desired business function. Data migration is then scoped, developed and tested, followed by training and testing phases.
KISTERS AG	Yes	Successful project implementation within 4 weeks is possible.	Our recommendation is to use it via KISTERScloud.
PSI	Yes	Depending on specific requirements (provision of the standard system approx. 1 month; specific features may require additional time)	PSI is offering different best practice approaches; The approach meeting customer's requirements is selected.

Implementation

Vendor	Is a demo version of the software available to clients?	How long does the software implementation take until its full operative capacity is reached?	What is the best practise approach for implementation / migration?
Soptim AG	Yes, on request we can provide a test system.	Depending on the scope of the project (number of commodities, markets and BRPs), the typically range is from only few weeks up to 6-12 months	We offer a standardized, but flexible project plan which includes all the steps necessary from initial environment setup (remote access, hardware/software setup), through definition of the relevant static data and setup of all interfaces (deal import, e-mail server, webservices) up to the TSO communication. Optionally, events and reports can also be setup during implementation or later. Migration is typically done only for static data such as BRPs and counterparties, not for moving data. Static data will be setup by SOPTIM when provided by the client in the form of simple tabular data (e.g. BRPs with their EIC codes)
Trayport Limited	Yes	4-6 weeks for one country (each additional country 1–2 weeks)	Trayport runs onboarding-projects for each customer to support a smooth onboarding-experience.
Volue ASA	No	Depends on the number of market and complexity of business requirements. Usually between 4-12 months.	1. Pre-Project to define the scope of implementation / migration 2. Define a project-plan with specific tasks and timelines for each task. 3. Declare a project leader on both sides. 4. Assign consulting teams on both sides. 5. Kick-Off the project and continuously monitor the progress according to the agreed project-plan. 6. UAT to confirm that the implementation / migration was delivered according to the agreed scope. 7. Go-Live

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
Aktif Technology	Individual user training online or in person.	REST API, file interface or database interface	Yes, Cursor CRM, eRisk Kisters, DATEV and SAP FI	No
Brady Technologies	The system is intuitive. Menu options are designed so they reflect the different requirements of each TSO adapter. Typically we have one or two super users, with in-depth knowledge of the configuration options and for the other users experienced in scheduling, the training requirements are modest.	REST API and XML file based available.	Power Scheduler - has interfaces with in-house and other ETRM systems. Igloo has extensive connectivity to a range of third parties such as clearing banks, regulatory reporting tools and confirmation matching providers.	Yes, we have partners that can support the implementation of our solutions, including PWC.
dispoGas AG	Online User Training before Go-Live (3 hours training coures) Online Super User Training on Request Online documentation at docs.dispogas.app	REST API defined according to OPENAPI 3.1 specification	Currently in implementation with various ETRM vendors	Partners for System integrations capSpire Lead Consult Hakkie.ai

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
e·Opt Solutions OHG	Our normal practice is to have two levels of Training - End-user Training, and - Train the Trainer, who is normally the person responsible for the product at the Client. Refresher trainings may be held as needed.	Interfaces used in any constellation are either standard PriceHub interfaces, or are built bespoke on a cast-to-case basis. We always try and use our standard interfaces, where possible. These are REST APIs, COM APIs, DB Views, Flat files (JSON, CSV, XML, Excel, etc.), Messaging Queues, etc.	PriceHub consumes data from several external ETRM vendors and similarly feeds data to several downstream systems. In both cases standard interfaces have evolved over the years.	Yes. We have formal and informal association with many known integration companies.

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
EnergyOne Limited	Training can be given on-site, digitally via webinar, or hybrid. Scope is fully up to the needs of the client. Our own operations team is on-call 24/7 to help users at the customer with any questions or issues they may have.	REST API, Websocket API, SOAP API	We have standard interfaces with enTrader ETRM which is developed by Energy One UKegssPort includes integrated Forecasting powered by Tangent. Works' Tangent Information Modeller	N/A
Gas Management Services Limited (GMSL)	**Chorus**: Minimal training, intuitively driven design. Scope based on customer requirement **EuroRunner**: We recommend two training sessions: one covering general use of the software and one for "super users" covering more advanced usage and configuration. These can be arranged at GMSL or on site at the customer's offices. **PowerTrak**: Training can be provided on-line or at the customers location depending on customer preference.	**Chorus**: REST API **EuroRunner**: XML over SFTP, or can be folder-based if the customer hosts EuroRunner on their own premises **PowerTrak**: XML over API or SFTP, or can be folder-based if the customer hosts PowerTrak on their own premises	**Chorus**: No **EuroRunner**: No **PowerTrak**: No	**Chorus**: No **EuroRunner**: No **PowerTrak**: No

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
KISTERS AG	A short training of 4 hours is sufficient to get comfortable with our Scheduling Cockpit.	REST API preferred.	Powerbot and EPEX.	No
Hitachi Energy Ltd (Hitachi ABB Power Grids)	A benefit of our agile, iterative delivery process is the fact that the core team users get hands-on experience with the software from the beginning of the project to the final go-live version. During implementation, they work side-by-side with Hitachi Energy staff (i.e., hands-on training). Most are ready to operate the software by the end of implementation which minimises additional training and allows the customer to quickly realise results. For business end-users, we provide training during and after the project. Sufficient training is critical to the adoption of the system by the business end-users. Additionally, we provide robust help files and video based training modules.	Hitachi Energy has invested a great deal in integration methods, and the system supports several integration approaches. Our system easily integrates with other applications and data sources using various methodologies, with the use of flat files, APIs, database access, and the middle layer to web services (Flat File, Excel, XML, Web Services API, REST, SOAP, Linked Server, SSIS, FIX Protocol).	We have interfaced with a variety of systems including EZ-nergy and Egssis, also with ETRM, accounting systems, trading venues…	We are building out our partner eco system. We have worked with staff augmentation and subcontractors from partner like ETRMServices, Capco, Capspire, Commoditas, or worked on same projects with consulting partners like Baringa, BCG/Platinium, and also have worked with PWC.

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
GLOBALSYDE SYSTEMAS, S.L	It usually takes about 2 training session of 2-3 hours each in order to present the solutions, replicating real-life use cases through the platform.	Globalsyde API is a RESTFul API over Odata protocol.	"Over the last few years Globalsyde team had created some standard integrations with several relevant vendors: - ETRMs: Allegro or Openlink - CRMs: Salesforce or Wolf CRM - ERPs: SAP, MS Navision, Holded, etc."	Not necessary so far.
PSI	Dedicated training courses for operators, administrator, infrastructure	Different interfaces can be selected (REST, SOAP, File, …)	SAP, REMIT, various ETRM vendors, PRISMA, RBP, EEX, EMS	PSI partner program is currently being established

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
Soptim AG	Initial training typically consists of three business days, guiding application users through all relevant functionalities. A separate training for administrators on a technical level is also available. Additional trainings for more advanced functions such as reporting can be offered to customers needs. Documentation and user manual are always part of the deliveries.	Client to server communication happens via a REST API. Some of the APIs are also available for external use and documented as such. E.g., NomT can be externally triggered via REST API to execute a deal import / transmission. Interfaces for deal import exist for database imports, CSV/Excel files as well a simple HTTP WebServices. Deal import interfaces can further be customized via XML files regarding the format of the deals, such as deals fields, resolution and handling of DST). Interfaces to external systems for business communication (nomination) exist for all relevant communication protocols (SMTP, IMAP, POP, SFTP, SCP, shared folder, TSO web services) can be easily setup within the NomT GUI.	There are standard interfaces to SOPTIM Supply&Trade and SOPTIM iTrade. We have also connected to a wide range of well-known ETRM solutions so far in our current client IT infrastructures with the help of interfaces provided by the solution. We have never encountered an ETRM we could not connect to so far.	"We prefer to do this ourselves.

Implementation

Vendor	What does the training concept look like and what is its scope?	How are the interfaces designed? (e.g. REST API, ...)?	Are there standard interfaces to certain vendors (or "partner firms")?	Do you have partners that offer the implementation of your solution?
Trayport Limited	Admin- and Key-user-trainings are part of the customer onboarding. Additional trainings are provided on request and demand.	Periotheus provides a varietey of communication interfaces, a Periotheus API to write custom code and the Periotheus REST API to configure the system as well as to exchange data with the system.	N/A	N/A
Volue ASA	Technical and business functional DeltaXE trainings are offered	Different interface types like REST API, SOAP, file import/export, etc are available	DeltaXE provides a flexible standard interface to connect external systems. At the moment there are no standard interfaces to certain vendores, that are certified and approved by both parties.	No

3.5 Costs

Costs

Vendor	Which license costs apply? Are these per user, module, installation?	Are there maintenance or support costs involved? How high are these costs?	Are there additional license costs for other proprietary technology or third-party software?
Aktif Technology	License cost on individual request, these are per system, client, medium, module	Maintenance and support costs are involved in SaaS-Model	Yes, necessary ORACLE NUP licenses
Brady Technologies	We apply an annual subscription model. The main driver of the model is the number of adapters and markets being participated in.	Maintenance and support costs are part of the subscription.	No there are no third party software costs within our standalone scheduling solution. Our customers can subscribe to other complementary tools within our solution suite.
dispoGas AG	No license costs, but yearly SaaS fee, which includes unlimited users and 24/7 technical support. The fee is calculated in following way: Yearly base fee per tenant incl. test instance Yearly fee per AS2/AS4 connection to TSOs, MAC, SSOs, etc. Initial set up fee per AS2/AS4 connection to TSOs, MAC, SSOs, etc. Price Range is between 24 000 and 50 000 EUR per year.	Included in SaaS Fee.	No

Costs

Vendor	Which license costs apply? Are these per user, module, installation?	Are there maintenance or support costs involved? How high are these costs?	Are there additional license costs for other proprietary technology or third-party software?
e·Opt Solutions OHG	On-Premises - Enterprise License per module with minimum of 5 users. SaaS - Subscription Fee per user with minimum of 5 users .Implementation Costs as per actual effort	Annual Support costs are applicable in case of On-Premises implementation. In case of SaaS delivery, a flat Subscription Fee is applicable.	No
EnergyOne Limited	Monthly SaaS license is set per country and module used for each commodity	Maintenance and support fees are included in the monthly SaaS license fee	If customers want to use the Tangent Information Modeller for forecasting then this comes at an additional cost

Costs

Vendor	Which license costs apply? Are these per user, module, installation?	Are there maintenance or support costs involved? How high are these costs?	Are there additional license costs for other proprietary technology or third-party software?
Gas Management Services Limited (GMSL)	**Chorus**: Annual subscription, per connection fee and per user fee **EuroRunner**: Pricing is per installation and depends on the number of markets supported, with some per-user costs for SaaS. **PowerTrak**: Annual rental, per additional market fee, per connection fee. Additional costs for SaaS.	**Chorus**: Included in annual subscription **EuroRunner**: An annual support fee is payable. **PowerTrak**: Included in annual rental	**Chorus**: No **EuroRunner**: N/A if using SaaS **PowerTrak**: N/A if using SaaS
GLOBALSYDE SYSTEMAS, S.L	Globalsyde Pioneer subscription fee depends on the set of modules and capabilities the customer needs in order to support its scheduling operations.	No. The monthly fee includes these supporting services.	No. The monthly fee includes every software licenses and cloud infrastructure costs needed in the SaaS service.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Per module and per user. We can license as perpetual, annual (both Non-SaaS) and as SaaS subscription.	Yes, in additional to license fee there is an annual maintenance fee. SaaS includes maintenance and hosting)	No
KISTERS AG	The licence costs apply to number of markets and modules.	The costs are subject to the requested SLA.	No

Costs

Vendor	Which license costs apply? Are these per user, module, installation?	Are there maintenance or support costs involved? How high are these costs?	Are there additional license costs for other proprietary technology or third-party software?
PSI	Depending on technical and commercial scope	Depending on technical and commercial scope	Yes
Soptim AG	We offer two license models:1) ""Classical"": one-off license fee for selected commodities / markets, production and test installation included unlimited users, balance groups, sub-balance groups, schedule computations, ... + yearly maintenance fee depending on the selected scope2) ""Partnership"": monthly license fee for selected commodities / markets, production and test installation included, standard support and maintenance included unlimited users, balance groups, sub-balance groups, schedule computations, ...	We offer a wide range of support and maintenance starting with standard support (office hours, see above) up to sophisticated SLAs designed to individual customers needs and requests, including 24/7 support.	On Premise: If the solution runs on premise we assume that customer will provide IT-set-up and infrastructure, including the Database (Oracle). SOPTIM uses the JBOSS EAP (Enterprise) middleware for NomT to meet the high requirements for availability, performance and robustness and to increase flexibility, maintainability and future-proofing. Subscriptions can be purchased via SOPTIM or any other provider. SAAS: IT-setup, Database and JBOSS included in SAAS fee.
Trayport Limited	SaaS fees based on number of users, used modules and market formats.	Included in the SaaS fees	No
Volue ASA	Costs depend on number of users, number of markets, number of interfaces, etc.	Yes, there are yearly maintenance and support costs. Costs are a certain percentage of the total license costs.	No

Costs

Vendor	How high are the implementation/ installation/ configuration costs?	How high are the costs for the user training?	Are there additional costs for software updates/ upgrades?	Are there any other costs involved?
Aktif Technology	Cost on individual request	Cost on individual request	Software updates/upgrades are involved in maintenance costs	Yes, system hosting and administration
Brady Technologies	The implemenation and configuration costs are reflective of the scale of the project being requested by the customer.	See Qu 6. With well engaged customer super users, user training costs can be minimised.	No	No
dispoGas AG	dispoGas will be delivered ready to use. This includes the full set up of the required configurations for the client and all connections to external partners activated and technically tested. This is included in the SaaS fee. Support to integrate dispoGas in the clients system landscape (import and export of data), will be billed on a t&m basis.	Initial training, conducted remotely, is included in the SaaS fee.	No, we continously update and upgrade dispoGas with no addional costs for the client	No

Costs

Vendor	How high are the implementation/ installation/ configuration costs?	How high are the costs for the user training?	Are there additional costs for software updates/ upgrades?	Are there any other costs involved?
e·Opt Solutions OHG	This depends upon the number of modules licensed, extent of interfacing and extent of customization involved.	Standard Training costs are included in the License/Subscription Fees. Subsequent Trainings are charged on man-day basis.	Minor and simple market mandated updates are included in the Support costs. Major changes, are paid for by the client(s) and are estimated on a case-to-case basis.	No
EnergyOne Limited	This depends on the number of grids, communication lines, and modules that need to be configured and tested.	There is a daily rate and a fixed cost for travel & lodging if the training has to happen on-site with the customer	No, all updates are provided as part of the SaaS agreement - Only additional modules or functionalities come at a cost	No

Costs

Vendor	How high are the implementation/ installation/ configuration costs?	How high are the costs for the user training?	Are there additional costs for software updates/ upgrades?	Are there any other costs involved?
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: N/A if using SaaS **PowerTrak**: N/A if using SaaS	**Chorus**: N/A if using SaaS **EuroRunner**: Charged at standard daily rate **PowerTrak**: Charged at standard daily rate	**Chorus**: No **EuroRunner**: N/A if using SaaS **PowerTrak**: Some training is provided as part of the implementation. Further training would be provided using our standard daily rate	**Chorus**: No **EuroRunner**: No **PowerTrak**: No
GLOBALSYDE SYSTEMAS, S.L	Globalsyde Pioneer standard implementation process has no additional costs for the customer.	Globalsyde Pioneer standard implementation process includes the necessary training sessions.	Regulatory changes are included on the service with no addtional costs for the customer. Custom adaptions for a given customer may be implemented after an agreement on costs and scope.	No.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	That depends on the scope	Those are typically included in the implementation project scope	Not for SaaS systems (automatic upgrade). For non-SaaS, upgrade software is provided but implementation is based on project/cost basis	Optional add-on third party modules such as PowerBI come at their own cost.
KISTERS AG	Subject to markets and modules requested.	Training costs are included in the implementation costs.	The costs are subject to the requested SLA.	No

Costs

Vendor	How high are the implementation/ installation/ configuration costs?	How high are the costs for the user training?	Are there additional costs for software updates/ upgrades?	Are there any other costs involved?
PSI	Depending on technical and commercial scope	Depending on the number of scope and required training	Included in maintenance scope	- Initial project implementation costs depending on scope and implementation approach - monthly fee (license, basic maintenance, update, upgrade) - system environment (cloud, infrastructure, …) - optional additional operational support
Soptim AG	Implementation / configuration costs highly depend on the scope of the solution: commodities and markets selected, number of deal sources / interfaces, ...	Usually key users are involved in the implementation and configuration tasks within the project. Therefore need for training is usually addressed with up to 3 training days. We provide all training materials to the customer and also support train-the trainer concepts.	Up to customers choice, see line 321: Classical license module includes software updates (= error correction and smaller improvements) Partnership model includes updates and upgrades (= changes due to new regulations, new features and functionalities for the selected scope)	Yes, we confirm, no other costs involved.

Costs

Vendor	How high are the implementation/ installation/ configuration costs?	How high are the costs for the user training?	Are there additional costs for software updates/ upgrades?	Are there any other costs involved?
Trayport Limited	This depends on the specific needs of the customer.	The user training is included in the onboarding project.	Regular updates are included in the SaaS fees	Additional 24/7 support as an option. AS4 via Ponton as option (standard AS4 is included).
Volue ASA	This depends on the business requirements.	Training is included in the implementation costs.	Yes. There are cost for the consulting efforts for the implementation of the release upgrades.	No

3.6 Flexibility

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
Aktif Technology	Highly flexible	1. installation on test system, 2. check on test system, 3. installation on production system	No
Brady Technologies	We manage market changes in support of our customers.	Upgrading is as simple as downloading the latest version and deploying it to a server. Database changes are carried out automatically by the application as part of the upgrade. Where the software is hosted by Brady the only step is to request an upgrade via Jira.	The system is highly configurable and customizable for different user cases but third party development is not offered.
dispoGas AG	As dispoGas is offered as a SaaS, regulatory changes are continously included in our releases.	None, since we have continuous deployment strategy.	Yes, with our REST-APIs.

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
e·Opt Solutions OHG	We give an undertaking to meet the Regulation mandated requirements. Implementation of Regulation related changes are always taken on priority in order to meet deadlines.	This is handled on a case-to-case basis. The process might be simple, requiring little input from the client, but could be a extended exercise requiring the client to carry out thorough testing and configuration.	No to a very large extent. PriceHub is not an open source software.
EnergyOne Limited	We follow-up on all regulatory changes and implement these with full transparency for users without service interruption. We continuously release product updates through Agile sprints lasting 2-6 weeks. We always deliver regulatory updates according to the timeframe required by the TSO/regulators.	We have a continuous delivery policy as our Software is entirely web-based, without interrupting the service.	Partly, using the REST API and SOAP API

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
Gas Management Services Limited (GMSL)	**Chorus**: Any market and regulatory change are supported by GMSL as part of the support and maintenance services at no additional cost to the customer. **EuroRunner**: For markets that are already supported by EuroRunner, regulatory changes can often be met through configuration alone and we provide documentation of the required changes. If development is necessary, this is always carried out at no additional cost to the customer (other than their annual support fee). **PowerTrak**: Any market and regulatory change are supported by GMSL as part of the support and maintenance services at no additional cost to the customer.	**Chorus**: None - SaaS, continuous deployment **EuroRunner**: From the customer side, no actions necessary where using SaaS. Upgrades are managed by GMSL in planned maintenance windows. **PowerTrak**: From the customer side, no actions necessary where using SaaS. Upgrades are managed by GMSL in planned maintenance windows.	**Chorus**: No **EuroRunner**: No **PowerTrak**: Yes

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
GLOBALSYDE SYSTEMAS, S.L	Most of the regulatory changes over the past few years has been addressed by Globalsyde's team leveraging the flexibility tools the platform offers (network and operations data model, message dispatching service, Globalsyde Argentia's settlement configuration, etc.).	Apart from our quarterly schedule fior roadmap and regulatory changes, which follows the CI/CD principles, any of our customers may approach the Globalsyde team to ask for custom developments, that may be implemented after an agreement on costs and scope	Yes. Globalsyde APIs let the customer, not just exchanging information for third party integration purposes, but also for reacting to any of the events the platform is triggering (a new file/message has been processed/submitted, a measure has been amended, etc.). These events may trigger their custom business processes, and their results may be populated back into Globalsyde to continue with the standard processes.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	We monitor together with the customer. Standard interfaces based on a single publicly published specification may be maintained by Hitachi (connector only, any custom specific configuration that is affected will be done on project basis).	SaaS environments are automatically upgraded.	No access to software code or database tables. The system does provide a high degree of extendibility as mentioned (user defined fields/tables etc)
KISTERS AG	Easy to adapt.	Installation of the new software version.	Not the software, but the usage of the software by REST API and market formats and rules.

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
PSI	Rules are configurable. New regulatory requirements may cause additional adaptions.	Upgrade Service contract. Delivery of software through the used stages PSI, TEST, PROD, BACKUP.	In general the system offers a very high degree of flexibility for user configuration. However software code cannot be modified by user.
Soptim AG	ESS/CIM/EDIFACT changes can be customized using the "ESS profiles/EDI profiles" GUI functionality. Advanced changes such as syntax changes are implemented by SOPTIM and part of the regular release cycle (each quarter a new major release). Major changes like new TSO webservices are also implemented when they are required for nomination purposes.	A backup of the application server files as well as a database backup (e.g. dump) is recommended. For minor release changes without JBoss/DB changes, a simple exchange of the two main deployment files is sufficient. For releases containing database changes and/or a JBoss upgrade (typically in each quarterly release), the database needs to be patched and the JBoss packages needs to be upgraded on the application server. SOPTIM tries to minimise the downtime required for each upgrade. Downtimes can be further reduced in a clustered systems where each JBoss can be upgraded separately.	Clients have a wide range of configuration options to adopt the software to their specific needs (see above). Development (changes of source code) is done exclusively by SOPTIM to ensure security and maintenance

Flexibility

Vendor	How flexible is the software in regard to regulatory changes?	Which steps are necessary in a system upgrade?	Can the user further develop the software without involving the provider? Can the customer enhance/change the solution on their own? Please explain briefly about programming language or workflow possibilities
Trayport Limited	Trayport is adopting Periotheus regularly to regulatory changes.	Depending on the change it might only be changes in the configuration or need a system update.	The process development framework (in Python) and the Periotheus API can be used to write custom code and the Periotheus REST API to configure the system as well as to exchange data with other systems.
Volue ASA	Any regulatory changes concerning power and gas scheduling are implemented via our "Marekt Update Service". There is no restriction in terms of flexibility.	Release upgrades are first implemented on a TEST system. After this was approved by the customer, it is moved to the PROD system.	No. Development and further enhancement needs to be done in aligment with Volue.

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
Aktif Technology	Yes	Additional reports can be created by user with third party tools on database views	Questions about the application and the process as well as troubleshooting
Brady Technologies	Real-time calculation of position time series aggregated from individual trades to create schedule timeseries is core functionality.	PowerDesk Scheduler: N/A	Our support package includes access to our support team via our online support system or by telephone, with typical PO-P3 prioritisation of support tickets, and associated SLAs.
dispoGas AG	Creation yes.	All data is fully availabe via our Rest-APIs.User can extranct the data and create addional reports with their standard reporting solutions.	Troubleshooting, Resolving of technical issues.

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
e·Opt Solutions OHG	Yes. There are several forecasting and simulation models included in PriceHub, but these are not part of e·Flow, the Scheduling module.	Where licensed, users can define and embed there own bespoke reports, and can schedule them to run at specified times or events, with pre-defined filter conditions.	Our standard Support involves 09:00 to 17:00 Mo-Fr Support for Level 1 to 4 issues. Support over telephone/e-Mail and an online Wiki are available.
EnergyOne Limited	Yes	Custom report can be created in the user interface. For complex/specific reports, all data can be retrieved outside of the system using APIs.	24/7 IT support for bug management, corrective & evolutive maintenance, system monitoring 24/7 operational support form the operations desk to answer user questions and advise users on functionality

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
Gas Management Services Limited (GMSL)	**Chorus**: Yes **EuroRunner**: Yes **PowerTrak**: Yes	**Chorus**: None **EuroRunner**: Report "data sets" are provided and users can heavily customize the data exported by specifying the columns to include, sorting, filtering, and adding totals to change the content and granularity of the data. Reports can be exported manually, automatically on schedules or triggered by events. **PowerTrak**: Users cannot create bespoke reports but can request/receive certain reports	**Chorus**: Support covers technical and user support, support for hosting services and message routing services, software changes due to regulatory changes and access to new features added to the software. **EuroRunner**: Support covers technical and user support, support for hosting services and message routing services, software changes due to regulatory changes and access to new features added to the software. **PowerTrak**: Support covers technical and user support, support for hosting services and message routing services, software changes due to regulatory changes and access to new features added to the software.

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
GLOBALSYDE SYSTEMAS, S.L	The solution is ready to retrieve information from any available source, as well as introducing any type of information using a set of Excel templates. Those templates offer additional flexibility for non-standard use cases (manual load of market prices, demand forecasts, nominations, deals, capacity contracts, etc.).	Globalsyde platform relies on the capabilities of Qlik Sense OEM in order to meet any analytical requirements of the customer.	- Initial training for users - Technical and functional support through helpdesk solution - Corrective maintenance when a bug is reported (according to Globalsyde's SLAs standards)
Hitachi Energy Ltd (Hitachi ABB Power Grids)	TRM Tracker includes an optional forecasting module which uses data time series and applicable training to produce forecasts. Input time series added manually.	Customers can augment existing reports as needed from scratch or by deriving new reports from existing ones. Tools available to support reporting include pivot functionality to allow users to easily build additional or ad hoc reports and an embedded report writer to build reports from scratch. The system also provides an Excel Add-In and integration with Microsoft Power BI	A variety of service levels up to 24/7 are available.

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
KISTERS AG	Creation, calculation, prediction of individual timeseries are covered by other KISTERS solutions.	Flexible dashboards and export possibilities.	Hotline, Online service desk, new updates/hotfixes and CVE tracking.
PSI	Yes	Can be Configured by end users, by partners or by PSI	Depends on SLA
Soptim AG	Purpose of our solution is to carry out scheduling and nomination - reliably and highly performant. All calculations / time series operations are especially designed to follow this idea in a very efficient manner. We see custom calculation rules or time series operations (freely configurable) as belonging to other systems such as ETRM, EDM, Optimisation, Position Management, Forecasting, Time Series Management ... Aggregation and versioning (as part of the nomination and scheduling process) will be done by NomT depending on the specific market rules.	An integrated reporting offers a flexible creation / configuration of reports for all data available in the database with various output formats, such as CSV, Excel, XML and PDF. Serial reports (e.g. separate files per schedule day, BRP etc.) can be freely customized via the GUI.	See also 341. We offer a wide range of support and maintenance starting with standard support (office hours, see above) up to sophisticated SLAs designed to individual customers needs and requests, including 24/7 support.

Flexibility

Vendor	Does the system support creation, calculation, prediction of individual timeseries)?	What options do you provide to create additional reports by end users?	What is covered by the system support?
Trayport Limited	Yes	Reports can be created by the users with the included reporting module	System support covers all typical support requirements, such as e-mail, phone calls, ticketing.
Volue ASA	Yes. A timeseries calculator is part of DeltaXE standard solution.	DeltaXE provides a OData standared reporting interface which allows the customers to build own reports in external tools like PowerBI.	Customers can choose between support only during business hours up to 24x7 support. In the case of an error situation, the Customer can contact Volue Support to report and get help to solve the incident. All deficiencies reported to Volue Support will be registered in a ticket issue system and the Customer receives a receipt with a ticket number. Incidents reported to Volue Support will be categorised according to severity and the defined categories for Volue Support according to the Customer service level agreement (SLA).

3.7 References

References

Vendor	What are the current references?	Which standard documentation is delivered together with the software implementation?	What certifications can the provider show with regard to its solution? (e.g. in regards to compliance, data protection, …)
Aktif Technology	References on individual request	individual training documents	ISO 27001
Brady Technologies	We have a number of major European utilities and power trading companies using our system, and this is reflected in the breadth of our European coverage.	Extensive documentation on configuration, installation and use of the software is available to customers on our customer portal (Wiki).	Brady Technologies as a company is ISO27001 certified. We have a comprehensive cyber security strategy and strong GDPR controls.
dispoGas AG	Erdgas Zentralschweiz AG Swissgas AG	Online documentation available at docs.dispogas.app	dispoGas is a SaaS product, built and deployed on the top of Azure PaaS services. Microsoft Azure hosting guarantees compliance with very restrictive security and quality standards including: ISO/IEC 27001 SOC 2 Type 2 SOC 3 CSA STAR Germany C5

References

Vendor	What are the current references?	Which standard documentation is delivered together with the software implementation?	What certifications can the provider show with regard to its solution? (e.g. in regards to compliance, data protection, …)
e·Opt Solutions OHG	We have clients in many European countries.Key among them are: - Eneco Trading NL, - RheinEnergie DE, - Syneco Trading DE, - Enovos LU, - SmartestEnergy UK, - Azienda Elettrica Ticinese CH, - MVV Energie DE, - EDF Luminus BE, - Energie Südbayern DE, - Innogy DE, - PXIL IN, - EON DE, - A2A IT, - Energie Wasser Bern CH	"Our standard PriceHub User Manual is available online and in PDF form. Post roll-out to PROD, a Client specific Addendum to the PriceHub User Manual is generated, to match with the implementation and made available. Apart from these, the TEST and other Use Cases are documented and shared.	Our products and implementation processes have been successfully certified for Quality, Completeness and Conformity to Standards and Regulations by our Clients' auditors, on several instances.

References

Vendor	What are the current references?	Which standard documentation is delivered together with the software implementation?	What certifications can the provider show with regard to its solution? (e.g. in regards to compliance, data protection, …)
EnergyOne Limited	E.On, Essent, MET International, Orsted, Naturgy, PGNiG Supply & Trading, TotalEnergies, Solvay, Gulf Gas & Power, Gasum, Norlys Energy Trading,Wintershall DEA, Castleton Commodities International, Sumitomo Corporation Europe, Gelsenwasser, enercity, Swissgrid, Electroroute, EDF Edison, Dalkia, SSE	User manual, technical documentation, API documentation, (on-demand) training video recordings	"ISAE 3000:Type 1CyberVadis IT Security ReviewISO:27001 is in progress"
Gas Management Services Limited (GMSL)	**Chorus**: Information on customers is confidential, however references can be provided on request, in response to direct enquiries. **EuroRunner**: Information on customers is confidential, however references can be provided on request, in response to direct enquiries. **PowerTrak**: Information on customers is confidential, however references can be provided on request, in response to direct enquiries.	**Chorus**: Trade API documentation, Excel upload documentation, User enrolment documentation **EuroRunner**: Manual, interface documentation and XSDs, pre-requisites, installation guide. **PowerTrak**: Interfaces documentation and XSDs. Installation guide if on-premise.	**Chorus**: External penetration tests are conducted on our software to ensure the software and data therein are secure **EuroRunner**: External penetration tests are conducted on our software to ensure the software and data therein are secure **PowerTrak**: External penetration tests are conducted on our software to ensure the software and data therein are secure

References

Vendor	What are the current references?	Which standard documentation is delivered together with the software implementation?	What certifications can the provider show with regard to its solution? (e.g. in regards to compliance, data protection, …)
GLOBALSYDE SYSTEMAS, S.L	We are currently offering our services to a large part of the energy stakeholders in the Iberian market.	Globalsyde platform features a help section for each UI module, in order to provide general information about the process, resolve FAQs, etc. Additionally, Globalsyde provide an API portal to help third party developers with their integration efforts.	ISO 9001 and ISO 27001.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	HS - Naftogaz, Enercity	The application comes with an embedded on-line user manual with contextual search facility. Additionally, the application portal provides tutorials including selected videos.	Hitachi Energy has information security policies and procedures in place but is not certified. Built-in integration with nMa For data center services we rely on Microsoft Azure, which is certified, e.g., ISO 27001.
KISTERS AG	About 100 clients are currently using the Scheduling Cockpit.	Online documentation is available.	ISO/IEC 27001
PSI	UNIPER SE Germany, TAP AG Switzerland, OGE Open Grid Europe GmbH Germany, Tennet, TransnetBW, 50Hertz, Creos, Rheinenergie, ThyssenKrupp, Stadtwerke München, Stadtwerke Düsseldorf , Stadtwerke Duisburg and many more	User Manual, Administration Manual	ISO27001, ISO9001, ISO45001

References

Vendor	What are the current references?	Which standard documentation is delivered together with the software implementation?	What certifications can the provider show with regard to its solution? (e.g. in regards to compliance, data protection, …)
Soptim AG	Currently around 50 clients are using NomT: utility companies, energy trading companies, utility cooperations, industrial customers and TSOs. We cover a range from smaller utilities up to the largest trading floors in Europe. NomT is also part of several TSO or Multi-TSO solutions that are part of the most critical infrastructures. Our client list is confidential.	A manual is provided in German and English language. Technical documentation is available for interfaces for deal import and REST services, for the Jboss packaging and configuration as well as a documentation of all the database tables used (helpful for reporting).	Quality Management according to DIN ISO 9001. IT Security Management according to DIN ISO 27001.
Trayport Limited	A wide variety of major European utilities are using Peirotheus.	Online standard documentation	Our data-centers are fully ISO27001 certified. We undertake internal and external penetration testing. Trayport is ISO27001 and we are currently working towards expanding this to cover scheduling and balancing.
Volue ASA	Statkraft, E.ON Germany, Vattenfall, ewz, SBB, Northpool, SW Munich	User Guides	ISO 27001

3.8 Operating Model and Additional Services

Operating Model and Additional Services

Vendor	Are any additional services offered by the system provider?	Please provide a short description of the operating models possible? (BPO, SaaS, PaaS, IaaS, …)
Aktif Technology	Yes, complete balance group management power and gas as a service (BPO)	BPO and SaaS for balance group management
Brady Technologies	As set out above, we have a range of further solutions for the energy trading lifecycle - (including our short-term power trading solution - PowerDesk Trader; our innovative energy trading & risk Management (ETRM) solution - Igloo and our modern counterparty credit risk management solution - CRisk.	Power Scheduler can be installed on a customer's premise or as a fully managed SaaS solution hosted in the Brady Cloud. Igloo is provided as a managed service hosted on Azure.
dispoGas AG	We offer hosting of secure connections for power nomination system via ECP and AS4 (BDEW)	dispoGas is offered as SaaS

Operating Model and Additional Services

Vendor	Are any additional services offered by the system provider?	Please provide a short description of the operating models possible? (BPO, SaaS, PaaS, IaaS, …)
e·Opt Solutions OHG	PriceHub has several modules that provide solutions for different areas of Energy Trading and Sales. These include:e·Pool Market Price Data Management Systeme·Curve Forward Curves – Power, Gas, Fuels, Emissions, IR and FXe·Price Portfolio Risk based Contract Pricing. Offer Management.e·VaR Value at Risk, Stress Testing, Incremental VaRe·Flow Power Scheduling for self and Third Party (as a Service)e·Val Mark-to-Market/Model, Valuation, Scenario Analysise·Report Cross Function, Operations wide Reportinge·Comply Regulatory Reporting – EMIR / REMIT / MiFID II e·Clean Renewable Certificates Trade Management e·Link Straight-thru interfacing: Exchanges/Broker Platforms to ETRMe Connect Intraday Optimization & Trading. Renewable/Conventional Asset Integration.	"We have only 2 operating models: - On-Premises, where the client might have an in-house or a Private cloud data centre. Client is responsible for all management and costs thereof.- SaaS, where as e·Opt we take responsibility for maintaining and delivering the application.

Operating Model and Additional Services

Vendor	Are any additional services offered by the system provider?	Please provide a short description of the operating models possible? (BPO, SaaS, PaaS, IaaS, …)
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Built-in integration with nMarket and forecasting module.	SaaS, on premise installation
KISTERS AG	Additional services are available upon request.	SaaS and on premises.
PSI	Maintenance Service, System Modeling, Upgrade Service, Hosting Service, Application Management	SaaS, IaaS, OnPremise Installations are supported
Soptim AG	Consulting services, advanced SLA services, individual software development, support and maintenance services for 3rd party software	SAAS
Trayport Limited	Topic specific trainings	SaaS
Volue ASA	We offer customer specific solutions (like complex timeseries calculations before sending schedules, format transformations to different interfaces, etc.). Beside the scheduling software DeltaXE Volue offers software for power and heat production planning and optimisation, demand forecast, hydro inflow forecast, power and gas algo trading, balancing market bidding, and market data as a service.	On-Premises or SaaS

Operating Model and Additional Services

Vendor	Do you have a partnership with certain cloud vendor, i.e. which cloud vendors are you working with?	How often are releases planned or possible (release schedule)?
Aktif Technology	Yes, Hetzner Online GmbH	Two releases are planned p.a.but individuell releases are possible
Brady Technologies	Microsoft Azure and Rackspace	Power: New releases are available on average once per month. Gas: GB gas nominations related releases are dependent on customer demand for functionality enhancements or market changes.
dispoGas AG	Microsoft Azure	We release software updates approximatly every 6 weeks

Operating Model and Additional Services

Vendor	Do you have a partnership with certain cloud vendor, i.e. which cloud vendors are you working with?	How often are releases planned or possible (release schedule)?
e·Opt Solutions OHG	We are cloud agnostic, but have over the years found Azure to be the most convenient to work with. Our own cloud environment is set up on Azure. But we have PriceHub running on AWS, Google Cloud, and other Private clouds.	We expect on an average one Release per year, after all the Customizations and Project Implementation Releases have been rolled out into PROD.
EnergyOne Limited	Amazon Web Serices (AWS), Microsoft Azure	We have a continuous delivery policy as our Software is entirely web-based We usually release major updates in sprints of 2-6 weeks
Gas Management Services Limited (GMSL)	**Chorus**: We use AWS for Chorus but do not have a "partnership“ **EuroRunner**: We use our own infrastructure to deliver the application when it is offered under a SaaS model **PowerTrak**: We use our own infrastructure to deliver the application when it is offered under a SaaS mode	**Chorus**: Continuously **EuroRunner**: The release schedule varies depending on customer requirements and the scope of development, but there are typically around 4 major releases per year. **PowerTrak**: PowerTrak - new releases of the software are typically available for our customers every 2 to 3 months.

Operating Model and Additional Services

Vendor	Do you have a partnership with certain cloud vendor, i.e. which cloud vendors are you working with?	How often are releases planned or possible (release schedule)?
GLOBALSYDE SYSTEMAS, S.L	Globalsyde platform is developed leveraging the offering of Microsoft Azure PaaS services.	Globalsyde's roadmap plan is scheduling a new major release on a quarterly basis.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Hitachi relies on Microsoft Azure for hosting services	Updates about every 6 months, hotfixes when needed, upgrades (major rewrite) every 2 years.
KISTERS AG	Our SaaS solution is operated by Microsoft Azure.	Continuous patches and hotfixes at least monthly. New versions twice a year.
PSI	All relevant cloud service provider are supported.	Once a year
Soptim AG	We currently offer SAAS based on Oracle Cloud.	The regular release schedule is a quarterly release cycle including new features, JBoss/Java JRE upgrades, CVE fixes and regulatory changes. Bug fix and hotfix releases (including critical CVEs) are also provided outside of the regular schedule if necessary.
Trayport Limited	Well as ultilising Trayport's private cloud infrastructure we also leverage major cloud vendors.	Biweekly
Volue ASA	Microsoft Azure	Typically 1 release upgrade per year and security patches in between.

Operating Model and Additional Services

Vendor	Is it a live ("continuous") system or is it batch based?	Which additional services are offered?
Aktif Technology	The system is batch based	All processes for supplier as BPO and SaaS
Brady Technologies	PowerDesk Scheduler supports a live input of trades in real-time. For communication with third parties TSOs etc. communication may be continuous or batch based depending on third party requirements. Messages are processed in real time as they are sent and received. Balance calculations and matching update automatically on receipt of new data.	N/A
dispoGas AG	Live	None

Operating Model and Additional Services

Vendor	Is it a live ("continuous") system or is it batch based?	Which additional services are offered?
e·Opt Solutions OHG	Both options are available. Certain process are time triggered and others are event triggered.	We also offer Strategic Advisory Services in the area of Energy Trading and Sales. In particular we specialize in areas of Pricing, Hedge Strategy, Risk and Regulatory Reporting.
EnergyOne Limited	Yes it is a live system	"Yes, we offer global 24/7 outsourced operations for gas & power nomination, balancing, short-term energy trading, asset scheduling, and more. We can take over these operations during out-of-office hours, weekends, public holidays or full 24/7. We have a team of 30 operators in 3 control rooms based in Paris (France), Aalst (Belgium), and Adelaide (Australia)"

Operating Model and Additional Services

Vendor	Is it a live ("continuous") system or is it batch based?	Which additional services are offered?
Gas Management Services Limited (GMSL)	**Chorus**: Continuous **EuroRunner**: Releases are batched **PowerTrak**: Releases are batched	**Chorus**: Comprehensive 24/7 Gas and Power Operations Services **EuroRunner**: Comprehensive 24/7 Gas and Power Operations Services **PowerTrak**: Comprehensive 24/7 Gas and Power Operations Services
GLOBALSYDE SYSTEMAS, S.L	Globalsyde is a real-time platform which is constantly responding to events that are taking place (capture of trades, measures, invoices, prices, etc., nomination and conciliation messages, scheduled activities, etc.).	As mentioned above, Globalsyde value proposition comprises Globalsyde Pioneer (gas scheduling), Globalsyde Prognoss (gas and power forecasting models) and Globalsyde Argentia (gas and power commercial backoffice).
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Live continuous	Built-in integration with nMarket and forecasting module.
KISTERS AG	Regarding to your example: The values will be calculated ad hoc at each new message. In your context it is a "live" system.	Additional services are available upon request.
PSI	Live system	Maintenance Services, Upgrade Service, Third-Party-Update-Service, 24/7-Services, Business Message Format Service

Operating Model and Additional Services

Vendor	Is it a live ("continuous") system or is it batch based?	Which additional services are offered?
Soptim AG	It's a continuous system processing all incoming and outgoing data immediately with the help of a SOPTIM developed "task framework" which supports prioritizing nominations for near schedule days over schedule days further away. Tasks that would be executed twice (e.g. manually or via autopilot/webservice) will be skipped for performance reasons. Also, tasks can be executed on multiple instances in parallel to further increase throughput.	It's a continuous system processing all incoming and outgoing data immediately with the help of a SOPTIM developed "task framework" which supports prioritizing nominations for near schedule days over schedule days further away. Tasks that would be executed twice (e.g. manually or via autopilot/webservice) will be skipped for performance reasons. Also, tasks can be executed on multiple instances in parallel to further increase throughput.
Trayport Limited	Live	All other Trayport products and services. These include (Non-Exhaustive): Joule (Energy Trading Aggregator system), Broker Trading Systerms, Exchage Trading Systems, Automated Trading, Customers Portal, Internal Market Systems, Reporting Services and Data Analytics, Advanced Technical Charting and Analysis. see Trayport.com for further in formation
Volue ASA	Continous 24/7 live system	Oracle & Windows Patching Service, DB Monitoring, Intrusion Detection Service, High Availablitly Cluster Solution, Techncial Consulting for customer specific requirements,

Operating Model and Additional Services

Vendor	Do you have partners you work with? What additional services can they offer?
Aktif Technology	Cursor AG CRM, Kisters AG ETRM, ene't GmbH training center and market data
Brady Technologies	As above
dispoGas AG	Partners for System integrations capSpire Lead Consult Hakkie.ai
e·Opt Solutions OHG	We work with several ETRM vendors and Consultants who provide different services.
EnergyOne Limited	Energy One subsidiaries offer a wide range of solutions including: ETRM, battery optimisation, gas pipeline operations, financial instruments broking (weather derivatives & forced outage protection), consulting and advisory services We have several partners including Tangent.Works for forecasting solutions
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: No **PowerTrak**: No

Operating Model and Additional Services

Vendor	Do you have partners you work with? What additional services can they offer?
GLOBALSYDE SYSTEMAS, S.L	Globalsyde platform is built on Microsoft Azure PaaS services, and is also using Qlik Sense OEM in order to extend its analytical capabilities. Additionally, we are currently working with a number of local providers in order to extend our standard capabilities (e.g. CRM solutions), offering BPO services on top of our platform, consultancy services, etc.
Hitachi Energy Ltd (Hitachi ABB Power Grids)	Built-in integration with nMarket and forecasting module.
KISTERS AG	No.
PSI	Caplog-x, operation in private cloud
Soptim AG	Many of our clients offer Scheduling and Nomination services (BPO) based on our solution - we would be happy to provide contacts, if requested. Also Trading and Portfolio Management services are provided to the market by our clients based on our other software solutions (e.g. SOPTIM iTrade).
Trayport Limited	See Trayport.com for partners and their associated services.
Volue ASA	No

3.9 Additional Questions

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	In which countries do you support processes for delivery to end customers on DSO-level?	Are customer switching processes and data handling processes supported (forecast, actuals , ..) supported directly or with a module?
Aktif Technology	Germany	All customer change processes and data processing processes are supported as a standard software solution and as a back office service
Brady Technologies	Reception of metering data from DSOs and submission of GLMD documents to MMC HUB in The Netherlands is supported.	Not supported
dispoGas AG	None	No

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	In which countries do you support processes for delivery to end customers on DSO-level?	Are customer switching processes and data handling processes supported (forecast, actuals , ..) supported directly or with a module?
e·Opt Solutions OHG	None	None
EnergyOne Limited	Natural gas: Belgium, Netherlands, Germany	We don't do customer switching We do support data handling processes via API We support metering data from the DSO in Germany, Belgium and The Netherlands
Gas Management Services Limited (GMSL)	**Chorus**: None **EuroRunner**: None **PowerTrak**: Netherlands	**Chorus**: No **EuroRunner**: No **PowerTrak**: No
GLOBALSYDE SYSTEMAS, S.L	Currently those services are included in Argentia module (commercial backoffice) for Spanish and Portuguese markets.	Those processes are included in Argentia module (commercial backoffice).

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	In which countries do you support processes for delivery to end customers on DSO-level?	Are customer switching processes and data handling processes supported (forecast, actuals , ..) supported directly or with a module?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	No European direct submission to TSO. Gas nominations are supported for Ukraine and Slovak Republic	Transactions can be initially populated using a forecast but later updated with actuals as they become available for invoicing
KISTERS AG	Isn't executed directly within BelVis+ Scheduling Cockpit. There are further KISTERS modules, where these processes are supported for the markets Germany, Swiss, Benelux, Italy, Spain.	Isn't executed directly within BelVis+ Scheduling Cockpit. There are further KISTERS modules, where these processes are supportedfor the markets Germany, Swiss, Benelux, Italy, Spain.
PSI	The handling of metering points with all corresponding processes, e.g. customer change, is completely covered for germany. For other countries is at least possible to use the modelling purposes, importing data and use the calculation functionalities. The data communication processes must be adapted by configuration to the given environment and depending on the required EDIFACT formats possibly extended.	The system provides an integrated communication module with EDIFACT manager, which enables the system to send, receive, document and execute the corresponding messages for the customer switching process.

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	In which countries do you support processes for delivery to end customers on DSO-level?	Are customer switching processes and data handling processes supported (forecast, actuals , ..) supported directly or with a module?
Soptim AG	Managing delivery processes is part of our Energy Sales and Portfoliomanagement Solution "SOPTIM Energy Suite" It supports German Market regulations and rules ohter markets need to be checked. Our Nomination solution can be integrated into the Energy Suite but also used as "stand-alone" Solution.	See above, this is also part of "SOPTIM Energy Suite" - understanding of customer switching would need to be discussed. Regarding more advanced forecasts we also have a full Forecasting Solution at hand - SOPTIM "Plusprognose", naturally all SOPTIM solutions work perfectly together but can be also integrated and combined.
Trayport Limited	Austria, Germany	Integrated customer switching processes only available for gas in Germany. Integrated data handling available for gas and power in Austria and Germany.
Volue ASA	DeltaXE does not handle end-customers on DSO level but the focus is on wholesale market and TSO level.	DeltaXE does not support switching processes.

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	Are customer forecasting functionalities supported directly or with a module?	Please describe your capability to manage counterparties and their relationships. How static or flexible is this?
Aktif Technology	The customer forecast functionalities are supported as a standard software solution and as a back office service	We manage the counterparties with their master and communication data and all relevant contracts. All contracts are time-defined.
Brady Technologies	Importing forecasts to be incorporated into balance calculations or positions is supported. The creation of the forecasts themselves is not.	Configuring mappings between different names used for counterparties in different systems and configuration of counterparty codes EIC, EAN ECVN ids etc is all available to users via the UI.
dispoGas AG	No	dispoGas uses a central masterdata database for Counterparties and Balancegroups including all necessary technical identifiers. For each client, their relevant counterparties and balancegroups are activated in the client specific tenant. Each client can adjust these entries for specific purposes like individual display names or additional balancegroups. It is also possible to add addional counterparties per client if necessary. Each client can adjust their counterparty data on their own, but adding new counterparties and maintaining existing ones is included in the dispoGas SaaS fee.

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	Are customer forecasting functionalities supported directly or with a module?	Please describe your capability to manage counterparties and their relationships. How static or flexible is this?
e·Opt Solutions OHG	We have a separate module for Load Forecasting	Completely Flexible with rgards to their Static and Dynamic data, Hierarchy, Grouping, etc. We can go down to individual end-customer as well, and manage their MaLo ID, Meternumber, etc.
EnergyOne Limited	We offer forecasting functionalities via a third party module	It's very easy to set-up new counterparties and contracts in our solutions.
Gas Management Services Limited (GMSL)	**Chorus**: No **EuroRunner**: forecasts can be imported via interfaces, but are not calculated by EuroRunner **PowerTrak**: forecasts can be imported via interfaces, but are not calculated by PowerTrak	**Chorus:** Counterparties and their relationships cannot be managed by customers. Chorus has a fixed configuration (managed by GMSL) where counterparties and their shipper codes are available for customers to use. **EuroRunner:** counterparties and their relationships (e.g. to shipper codes, locations) are entirely configurable by the customer. **PowerTrak:** Counterparty details can be configured by the user through the UI by filling out a number a static fields.
GLOBALSYDE SYSTEMAS, S.L	Those processes are included in Prognoss module (demand forecasting).	On a general basis, all regulated counterparties are included in the standard implementation of Globalsyde. Custom counterparties may be included in order to offer support for other businesses, such as bunkering.

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	Are customer forecasting functionalities supported directly or with a module?	Please describe your capability to manage counterparties and their relationships. How static or flexible is this?
Hitachi Energy Ltd (Hitachi ABB Power Grids)	TRMTracker includes a forecasting tool called Forecaster. Based on advanced models, Forecaster can be easily configured to meet specific needs of any country or energy market. Predictions are derived using two methods: neural network technology for short-term forecasts and multiple linear regression techniques for longer time horizons. Forecaster enables organizations to improve forecast accuracy by tracking forecasts with actual values and integrating new data as soon as it becomes available. The neural network algorithm becomes progressively smarter as it learns load and price variables triggered by weather events, time-of-day cycles, holidays and other historical data.	TRMTracker supports a broad range of counterparty attributes. Parent / child relationships can be established between counterparties with nesting with no limit on layers for great flexibility.

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	Are customer forecasting functionalities supported directly or with a module?	Please describe your capability to manage counterparties and their relationships. How static or flexible is this?
KISTERS AG	Isn't executed directly within BelVis+ Scheduling Cockpit. There are further KISTERS modules, where these processes are supported (e.g. BelVis+ Forecast).	Diverse types of counterparty management (e.g. classic trade partner, broker, service customer, clearing bank, ...). Different types of master agreements for trading of commodities. Each counterparty has balancing groups. For automation balancing rule sets can be configured, which are representing the relation of the balancing groups. All master data objects can be changed based on timeslices.
PSI	The system provides an integrated forecasting module with several, configurable forecasting methods (Comparison Day Search, Extrapolation, Linear regression, Neural network, Temperature dependend load profile, Characteristic), which allows to forecast on group level, as well down to individual customer level from the short term range to the long term range.	The system provides an integrated customer management module, which is capable to model the counterparty attributes for all customer types and energy management processes in the energy market, which means e.g., from TSO, DSO down to end customer, as well trading parties, brokers, clearing centers and central counterperties

Additional queries regarding DSO interfaces and counterparty relationships

Vendor	Are customer forecasting functionalities supported directly or with a module?	Please describe your capability to manage counterparties and their relationships. How static or flexible is this?
Soptim AG	Both possible: Integrated into the SOPTIM Energy Suite or as separate forecasting solution for all kinds of forecasting purposes. Supports all forecasting methods that are usually applied within energy industry.	Configuring counterparties can be done by customer and is very flexible. For example validity of counterparties data or allowance to do business with counterparty can be managed. We are not sure what is meant by counterparties relationships - we would be happy to discuss this question or get an example from you.
Trayport Limited	Different integrated forecasting functionalities are available.	Counterparties can be assigned different pre-defined purposes, e.g. gas/power trading partner, customer, broker, grid operator, data provider, balancing group manager or service provider. Each purpose has certain functionality assigned to it. Additionally user-defined values for counterparty types can be set up based on customer needs.
Volue ASA	Volue has a seperate solution for customer demand forecasting.	Counterparty data can be managed directly in DeltaXE. DeltaXE also provices an interface to import counterparty data from an ETRM system.

DRAFT

Our partnership starts here...

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Appendix

Reasons to involve PwC's project team

Advantages of involving PwC's ETRM delivery hub in future project endeavours

Project experience

The project team has **thorough experience** delivering ETRM projects with SME's supporting client's project team throughout the implementation.

Market knowledge/trends and strategy

The client can draw upon the knowledge of a **large pool of country and industry experts** and publications to help its business perform better and more effective.

Regulatory compliance

Ensuring the client's "**compliance readiness**" in an industry, which is subject to numerous existing and future regulations as MiFID II, MIFIR, MARM/MAD, REMIT & EMIR.

E2E service

The client receives **full service support** from strategic through implementation topics throughout the whole project lifecycle.



Competitive pricing

Due to an established project approach, the use of best practice models and benchmarks, PwC has provable conducted **faster and less costly** implementations.

IT & business knowledge

The client will work with trading and IT specialists to best use synergies during the implementation considering **PwC's ETRM benchmarks.**

Risk management

Managing risks is becoming more and more important in **volatile market environments.** PwC covers an E2E consulting approach for that purpose.

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