



**FORRS**

# **New Frontiers in Energy Trading Architectures**

How the paradigms in technology,  
operations, and organizational  
capabilities are shifting





## Management Summary

For a long time, energy and commodities trading companies have sought a fully digital end-to-end trading process—in fact, it's the industry's "holy grail." That's because these companies are constantly engaged in an uphill struggle to achieve optimal business operations. Burdened by large integration projects, complex new interfaces, and lengthy settlement cycles, trading companies want to achieve improvements along the full value chain. Even a small change can positively impact business cases.

New, readily available technologies are radically changing the trading business, while opening up opportunities for forward-thinking market participants. In this white paper, we'll outline the key elements of the enterprise blueprint for a future-ready energy trading company. In the process, we'll present three established market players and their game-changing solutions that can serve as examples for other organizations entering today's competitive digital age.

# Four Factors That Are Driving Change

Energy markets are facing new, fast-changing developments across all segments of the value chain. For most market participants, staying in control of their trading and risk processes is becoming more and more challenging.

Four factors are driving these developments. **First**, the rapid introduction of renewable energy sources into European and global energy markets is disrupting the value chain of each trading organization, causing unexpected volatility in trading portfolios. The fast development and deployment of renewables technologies, as well as the mandatory market integration of “green” power, present new organizational and technical challenges to energy market participants. These challenges will be accelerated by the phase-out of fossil fuels, and the increasing generation of renewables across Europe.

**The second factor** driving changes in energy trading markets is the sheer number of rapid technological innovations. The strong tendency to move systems, data, and processes into new cloud infrastructures is the most prominent technological driver. In addition, microservice architectures and open architecture concepts are helping agile, fast-moving trading organizations ensure interoperability and cope with the required speed of adoption.

Going forward, technological innovations need to be implemented faster, and development cycles must be shortened, to keep players ahead in an increasingly competitive energy trading market.

**Short time-to-market has always been important, but today’s accelerating pace of technological change makes it absolutely imperative.**

**The third factor** is the significant structural changes that energy markets are showing throughout European states and their neighbors. We’re witnessing:

- › **The emergence of new trading venues and market models**, to fulfill demand for products and their liquidity.

- › **Increasing trading volumes for energy and underlying commodities**, with a significant rise in algo-trading volumes in most marketplaces.
- › A further opening and liberalization of energy markets worldwide, especially in Eastern European countries.
- › Growing cross-border capacities and electricity flows, due to various market coupling activities

Exploiting the new market opportunities that arise due to these changes requires shifting towards a more agile and flexible organizational structure and deploying more sophisticated technologies faster. By making these changes, organizations will be able to explore possibilities, while reducing risks when dealing in more volatile market environments.

**Increased market volatility means that organizations have to make trading decisions faster to stay competitive.**

**Finally**, the fourth factor driving change is that new energy suppliers must be prepared to service more ambitious clients who expect to be able to seize new opportunities as they arise. Markets are much more demanding, but these clients demand greater market transparency to improve their deal terms. They use modern approaches and technologies as enablers, and don’t have to deal with existing, inflexible, and expensive legacy systems. For them, missing the next wave of digitalization means missing new business opportunities, and becoming vulnerable to additional market changes.

**To seize new business opportunities in an increasingly competitive environment, clients want the latest available technologies, and they expect energy suppliers to offer them.**



This transformation can only be managed with the help of a more sophisticated, integrated architecture of trading, risk, and post-trading systems.

# 2 A New IT Paradigm

A future-ready, agile organization needs IT that meets the requirements of the new energy trading value chain. While developing this is challenging, it can be carried out with the right approach and tools.

Here are three examples of successful trading technology providers that help energy traders to unlock additional value:

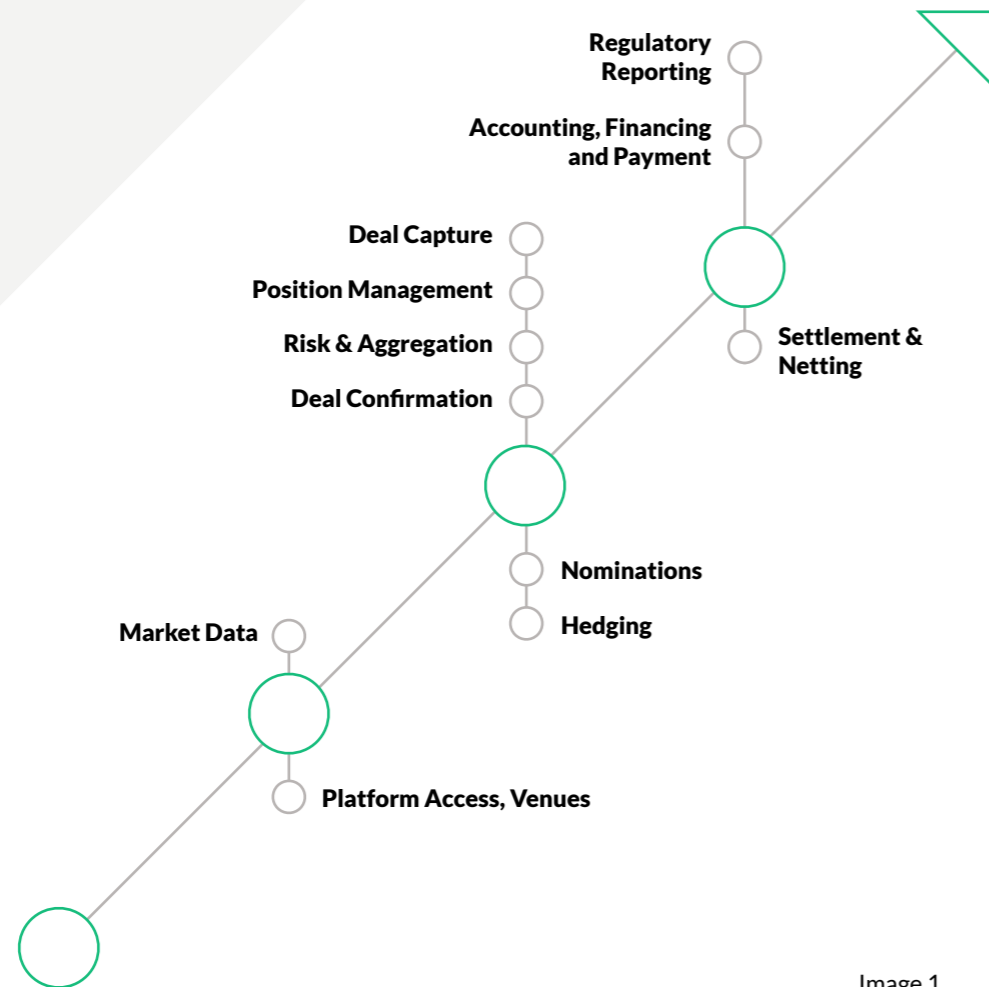


Image 1

- > **enmacc, the new-era marketplace**, helps traders identify perfectly matching trading partners, even in market situations with very low liquidity, using an innovative request for quote methodology-
- > **Previser, the new-era ETRM solution**, enables trading companies to establish a modularized trading platform, and actively integrate and orchestrate additional external services-
- > **Fidectus, the new-era post-trading platform**, provides energy trading companies with comprehensive and cross-company tools to increase their operating profitability.

The energy trading value chain traditionally includes executing a trade, processing it seamlessly within the internal organization, and invoicing all due payment. A sophisticated model of this is shown in Image 1.

Today, the architecture of trading houses worldwide is dominated by monolithic applications that require considerable effort to implement, connect, and maintain. To deliver the flexibility and speed of change needed in the electronic markets of the future, current architectures must be changed.

The core capabilities that a professional trading company must develop along the value chain are:

- › **Scaling costs with high flexibility.** When adapting business cases or tools, the OPEX positions need to reflect changes fast.
- › **Operating a highly modular architecture.** Being able to exchange smaller, more flexible components, instead of relying on monolithic applications, is essential.
- › **Leveraging interoperability and open IT standards.** Instead of reinventing the wheel, open APIs enable extremely fast integration of individual components, along with a standardized, secure operational framework. Enterprises need to develop a new digital ecosystem to survive.
- › **Applying a high level of standardization throughout the whole organization.** As a prerequisite for automation, standardization helps increase operational stability and resilience, while reducing costs.
- › **Moving up the technology ladder.** The IT landscape must move away from applications developed in-house, with inflexible operating and maintenance models. It needs to quickly integrate new technologies, such as service-oriented architectures and cloud adoption, into trading processes. Even market and trading apps built by citizen developers, using low code platforms, might become highly relevant.
- › **Quickly adapting to new business opportunities.** Businesses should be able to experiment, fully aware that any change can be reversed without massive damage and high costs. This applies to evolving business opportunities in trading, such as onboarding new venues or products to test value creation directly. Enterprises need to unlock the potential of disrupting technologies and approaches.
- › **Focusing on long-term platform evolution.** Instead of maintaining monolithic architectures based on various third-party applications, organizations should integrate external services and combine them with specific core functionalities developed internally—by using a strategic platform.

The transition towards a flexible IT platform is not a one-off project with subsequent maintenance and a “run” phase. Instead, it’s a long-term structural and financial commitment. The normally separated “run” and “change” phases have to be managed in parallel in a strategic, sustainable agile program, with clear sponsorship from each organization’s executive board.



Connectivity to the whole trading ecosystem and the possibility to scale in several directions (commodities, regions and market participants) is needed as a key player in the transforming markets of the future.  
Jens Hartmann, CEO, enmacc



## CASE STUDY

# enmacc – a new innovative market model

### New routes to liquidity

enmacc is a digital trading platform that targets market participants who seek liquidity opportunities. It offers an alternative route to markets next to Brokers and Trayport – and still prevailing email, messengers, and phone in bilateral trading. enmacc delivers speed, efficiency, and security to traders, and offers a new market model, where finding the exact match for a deal has the highest priority.

### Innovative trading workflows

By directly connecting trading counterparts and using the Request-For-Quotes (RFQ) protocol, enmacc helps identify and unlock new trading opportunities. This mechanism shares trading interest with selected counterparties, and generates “request quotes” for price discovery, negotiating, and concluding deals. The platform guarantees anonymity if wished, giving traders more control than on other trading venues, such as order books or voice broking services. Initially appealing to smaller players and traders of illiquid markets, enmacc now serves more than 400 clients of

all sizes and provenance and enables trading throughout Europe.

Deeply integrated into trader workflows, enmacc focuses on delivering excellence in execution. Its browser-based application is fully plug-and-play. To guarantee smooth and efficient pre- and post-trade workflows, enmacc offers various state-of-the-art integrations and open APIs (for example, direct connections to clearing houses, automated handling of risk/credit data, and integrating into REFINITIV’s Eikon messenger).

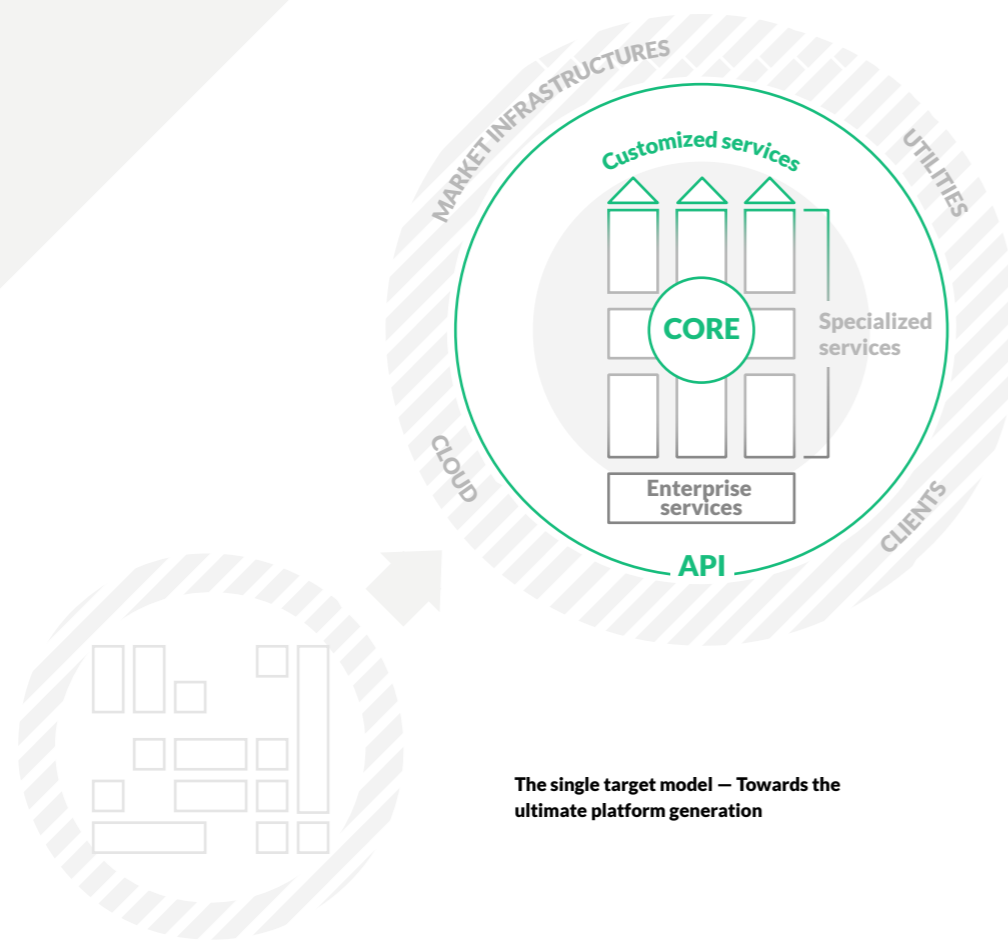
### A digital and connected way into the transforming energy markets of the future

Any future-oriented enterprise has to be able to adopt new market models fast and must be able to efficiently integrate new market models, or at least validate them. As stated by FORRS, “execution is king.” A trading organization will only be efficient if execution on markets has high priority and is done well.

## A New Status Quo

For the future energy trading paradigm to work, an appropriate operating model for the enterprise architecture must be established. The following aspects are the most important ones to consider:

**Horizontal flexibility and vertical efficiency.** The new architecture must allow new functions and vendors to be integrated fast (horizontal flexibility), while ensuring cost effectiveness and rapid value creation for the overall business (vertical efficiency). Technical interoperability is mandatory in both directions, vertical and horizontal.



The single target model – Towards the ultimate platform generation

### CASE STUDY

## PREVISE SYSTEMS

### Following a new “north star” by joining an open ecosystem, based on standard technology

The traditional Energy Trade and Risk Management (ETRM) architecture revolves around a monolithic core solution, which is costly and complex to maintain, expensive to upgrade, and cumbersome to adapt. These legacy solutions were built for different market environments, and now struggle with new or changing energy markets—and especially with the rapidly changing performance requirements of massively increasing data volumes.

#### Previs Systems’ conceptual innovation

Previs Systems has introduced a robust, high-performance SaaS platform for European electricity, natural gas, and certificates trading, architected for the cloud using microservices and serverless technology. While Previs Coral includes core ETRM functionality, the Coral Ecosystem supports the development and inclusion of any additional functional elements in the form of apps, as well as interconnectivity with other tools and systems.

The Coral Ecosystem is technology-agnostic, allowing customers and third-party developers to expand system capabilities in any technology they choose. Distributed development in open standards ensures an optimally short time-to-market and limits the dependency on any one software supplier.

#### Future-proof possibilities

As energy markets mature, traders must be able to rely on the fast and efficient adaptability of their infrastructure to benefit from market opportunities, such as those created by the emergence of renewable energy and the higher volatility created by it. Through Previs’s best-of-breed approach, the interoperability facilitated by open APIs, and the easy exchangeability of components, it provides a future-proof platform for energy trading.



**Focused job profiles.** The new, open architectures require expertise in one specific area, along with skilled individuals who are experienced with agile methodologies and organized into an agile team. DevOps and DataOps are becoming the new norms for working models, but they take time to establish.

**Evolving architecture.** The modern architectures are built with a completely different approach. They should be seen as evolving platforms, rather than a few connected applications, delivered and maintained by vendors.

These platforms support a new generation of capabilities, including:

- > Interoperability with other platforms or ecosystems,
- > Easy-to-integrate modules with generic interfacing options,
- > Fast, cost-effective technical adoption for business and traffic growth,
- > Organizational knowledge embedded in the platform, and not held by individuals.

**Long-range view.** In parallel with architecture transformation, both the way of working and the organizational culture need to be adapted. This requires the long-term commitment of the executive team and the relevant business and technical experts within the organization.

**Significant financial benefits.** Running a leading trading organization requires expensive technology and human resources. However, by using the approach described in this paper, organizations can save considerable cost and effort, while increasing productivity and gaining the flexibility to adapt their businesses.

**Substantial commitment required.** Building a new strategic platform is an all-in game. Technology, data architectures, processes, organizational capabilities, and the corporate culture must all change to achieve success.

These transformations simply can't occur in legacy architectures, where monolithic applications dominate and determine the capabilities of the overall architecture. They can only take place in a flexible, open environment.

Building this future-ready platform doesn't require applying cloud technologies but moving to the cloud will greatly facilitate it. Additionally, IT vendors are expected to push towards a "cloud only" approach to leverage scale, standardization, and efficiency.

# 4

## The Vendors' View

Energy trading organizations need to track the changing view and market behavior of software companies and platform providers. Here are some recent trends:

- > **Vendors are adapting their commercial and structural models from selling software to offering services.** This trend began several years ago and is now accelerating in markets for energy trading solutions.
- > **Open architectures will become the new standard.** New vendors are providing highly standardized integration points, to ensure flexibility for the services they offer.
- > **Vendors are shifting from a classical license-based sales model towards a "SaaS" pay-per-use commercial model.** This is a major change, and customers now have to learn about commercial terms and conditions, as well as operational implications.
- > **Solutions are migrating from on-premises to the cloud.** This trend will continue and will be the new norm for decades to come, since it enables vendors to manage both customer engagement and the services they provide more effectively.

### CASE STUDY

## Fidectus

### Adopting a time-to-market booster that removes risks and increases profitability, based on open standards and state-of-the-art technology

Settlement can take up to 51 days after delivery, resulting in significant cost, risk exposure, and tied liquidity. Once considered an acceptable cost of doing business, the current practice puts energy traders at a competitive disadvantage. Fidectus' Global Energy Network (GEN) is changing that.

GEN is a SaaS platform that rapidly connects trading companies. They can now confirm, report, settle, net, finance, and pay their OTC deals, fully electronic and automated—close to real-time. GEN's dashboards, analytics tools, and ad-hoc reporting can all help improve decision making.

Fidectus removes hurdles and pitfalls for energy traders, and gives them competitive advantages, with:

- > Substantially less cost, risk, and time required,
- > Faster release of limits and liquidity,
- > Improved operating profitability.

#### An open, modern API architecture

GEN supports industry standards and interoperability. Amongst other open standards, it supports EFET's

electronic Confirmation Matching (eCM) and electronic Settlement Matching (eSM). Challenging, costly bidirectional cross-company workflows now become fast and seamless. Trading companies can now perform post-trading with all their counterparties through a single automated workflow, without worrying about their organization's ability to implement today's standards. GEN handles all connectivity, file types, and communications. What that means for Front Office is more flexibility and speed in trading and term negotiation.

GEN's state-of-the-art user interface provides a fresh experience and requires little training. It's intuitive, easy to use, and continuously improved with industry experts and users. The rapid integration improves the total cost of ownership for trading companies. And it provides several native connections to widespread ETRM/CTRM vendors, with more to come.

Fidectus has quickly become a key player in the energy trading ecosystem, by breaking existing market structures and making middleware and monolithic software architectures redundant.

## Conclusion

Energy trading companies are introducing significant changes within their enterprise architectures. To keep up with the increasing demand to adopt new business models, they also need to adapt their architectural approaches and challenge monolithic operating models.

The quest for digitization follows a simple rule: let legacy systems go and quickly introduce a new set of technologies. Energy trading companies must remember that the competition won't be waiting patiently while they decide whether they should adjust. They have to act fast to maintain their competitive edge.

Are you already exploring your architectural transition towards a new frontier? We're happy to speak with you about your roadmap!


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