

Unicorn in energy and utilities

IT for single European market



- **More than 20 years of experience in the Czech and European energy industry**
- **Out-of-the-box solutions for energy generating parties, distributors, traders, transmission operators, and market operators**
- **Highly proven Damas and Lancelot platforms with a unique configuration and customisation options**
- **Custom development using a wide range of both standardised and highly innovative technologies**
- **Turn-key projects, including comprehensive services and support across Europe**
- **Solutions delivered and run on premises, in the cloud, or as a service**
- **Outstanding experience from international data interchange and integration projects**
- **Unique references from major international projects**
- **Large expert team and unique know-how**
- **Compliance with top security standards and sensitive data protection**



Unicorn Systems is a leading vendor of information systems for the European energy industry and utilities. In the last 20 years, we have successfully implemented many projects for companies from several European countries, both for national environments and for support of international cooperation. We have acquired ample experience in production software support, trading and its organising in liberalised markets, technical solutions for network management support, and sophisticated solutions for energy infrastructure management. We have acquired unique know-how in the course of these projects, which we can offer now to our clients via state-of-the-art solutions creating high added value for the energy industry and utilities.

Organising energy markets

While Unicorn Systems provides solutions for all areas of the energy industry, we specialise in the organisation and operation of energy markets. Most of our solutions are designed specifically for transmission and distribution system operators, energy exchanges, and market operators. They provide standardised features made available through our standardised products and platforms, as well as outstanding integration and communication abilities built on state-of-the-art open technologies and standards.

Managing national markets with Damas MMS

Products of the Damas MMS (Market Management System) family are designed mainly for use in the national energy industry. They meet all the needs of electricity and gas transmission system operators, as well as other parties participating in the organisation of energy markets. They support all the processes necessary for bilateral and multilateral energy trading, purchasing and use of ancillary and system services, controlling of cross-border energy flows, or settlement and invoicing between marketplace

operators and market participants. Damas MMS is improved continuously to keep pace with the European legislation and industry standards. We work with universities to develop new features and algorithms which will be necessary to transform the energy industry on its journey to smart grids.

Damas is built on a robust enterprise platform, ready to support business and technical processes in the energy industry, typically those with a time dimension. The platform is built on several cornerstones: handling data in time series, configurable computing engine, and user interface, complete with automated process management and other components. Thanks to its unique qualities, you

control of an HVDC link. The primary purpose of Inca is to convert nominated electricity trades into the physical electricity flows in a secure and most economical way.

Thanks to our unique experience, we have the know-how of a wide range of HVDC trading, operational and IT processes and we can significantly contribute to the successful launch of new HVDC interconnections.

Establishing the single European energy market

Unicorn Systems supplied and continues to improve and upgrade several systems which are essential for the operation of the common European energy market.

Custom-built solutions

Industry solutions

Skills and resources

Market management

Energy trading

Geoinformatics and asset management

can use it to build applications without programming, with far greater speed and efficiency than with many other systems.

HVDC interconnectors

Our competency in the HVDC Interconnector (IC) domain has been continuously developed since 2008. In these years, Unicorn has acquired a strong track record in managing the power flows over the HVDC links in Europe. We are ready to solve all trading agendas of HVDC link operation using our Damas platform. Our Inca product (Interconnector and Network Control Application) supports the business-critical processes of real-time

We act as contractors for regional auction offices which provide transmission capacity trading. Our solutions connect day-ahead and intraday markets of many countries of the Western, Central, and Northern Europe. We also provide centralised balance settlement for the energy market in Nordic countries.

Our system AMICA provides gathering and analysis of data concerning the condition of interconnected power grids, to ensure reliable and secure power supply across the region of Central Europe.

We have provided Selene-CC, the regional security coordinator for the region of South-East Europe, with a system



Figure 1 – Examples of Damas MMS screens

performing cross-border capacity calculations and ensuring the security of power grid operation.

Unicorn Systems took an active part in many initiatives aimed to standardise the European energy market. We are a major vendor for the European Network of Transmission System Operators (ENTSO-E), providing solutions to support its pan-European initiatives. We participate in many activities aimed to consolidate the European energy market and ensure its increasing transparency.

Furthermore, we are the provider of the Energy Communication Platform (ECP), a reference implementation of the MADES communication standard. ENTSO-E produced the MADES standard in order to achieve technical standardisation of data communications throughout the energy industry, and the modern, open, decentralised communication platform was developed to ensure secure and reliable communication to be freely used by parties of all types. The ECP provided the foundations upon which an advanced, decentralised solution for the pan-European interchange of grid operation scheduling data, OPDE (Operational Planning Data Environment), was built.

Energy trading on Lancelot platform

Lancelot is a trading solution for energy-related commodities, designed to meet the needs of traders, suppliers, and



distributors. It can handle the processes related to purchasing and selling of energy, portfolio management, customer care, and data interchange. It also provides extensive support for consumption, generation, balance, and price forecasting. It namely uses sophisticated optimisation algorithms to improve business

decision-making. Built on top of a time series database and a computing engine optimised to handle virtually unlimited volumes of data in time series, Lancelot is ready for deployment in smart grid environments.

Currently, the Lancelot family includes four standard solutions for different domains of the energy market:

- **Lancelot ETRM (Energy Trading and Risk Management)** – An end-to-end solution for gas and electricity traders operating in the environment of liberalised energy markets.
- **Lancelot CIS (Customer Information System)** – An information system providing support for gas and electricity supply to end customers.
- **Lancelot EDM (Energy Data Management)** – A system for big data gathering and administration in time series, with a configurable computing engine supporting a number of many computational operations, both elementary and advanced, including sophisticated forecasting, optimisation, and simulation algorithms.
- **Lancelot Hub** – Is a cloud service designed to provide a single source of consolidated business and technical data essential for trading in electricity, gas, and other commodities.

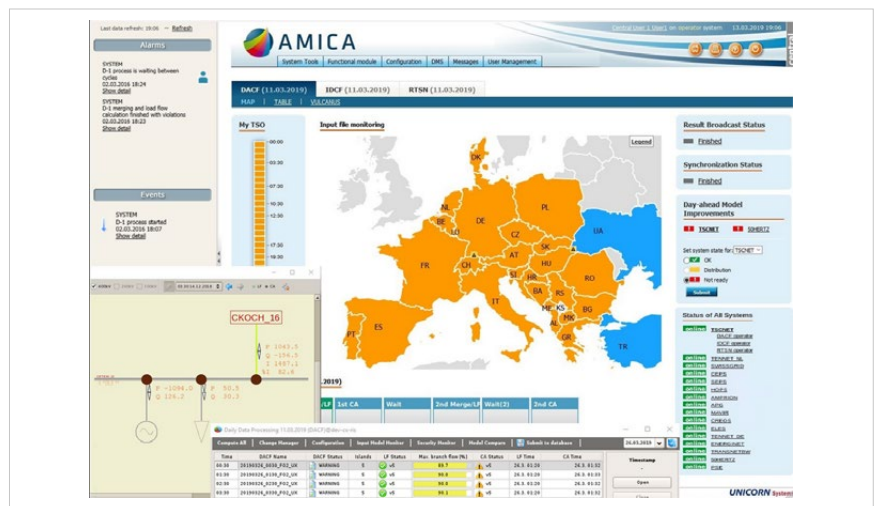


Figure 2 – AMICA system

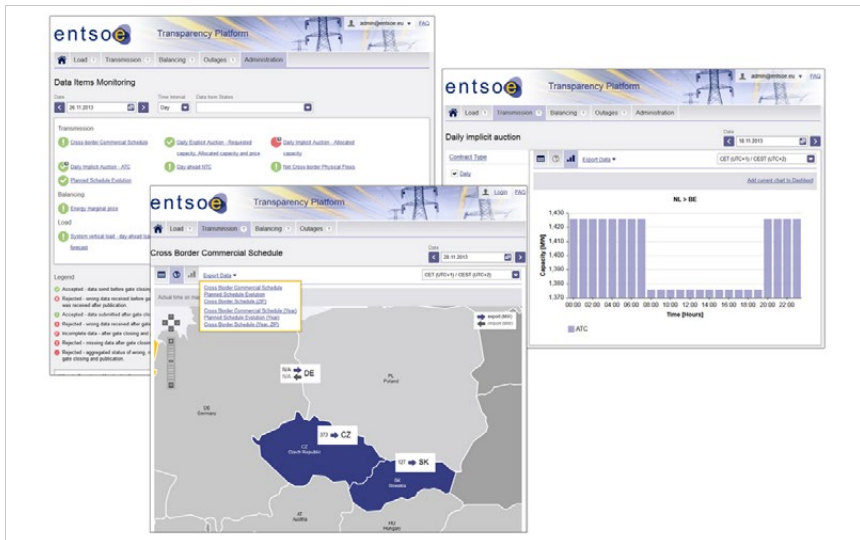


Figure 3 – EMFIP screenshots

Geoinformatics and asset management

Our solutions in this field are designed mainly for large infrastructure operators, to help them achieve necessary security parameters with the maximum efficiency and minimum cost.

Geographic information systems (GIS) lay foundations for modern enterprise asset management. The accurate asset registry information, whether it concerns buildings, grid elements, or power lines, is a key to success. A properly designed and implemented GIS will let you plan the development of your infrastructure to maximise its benefits within

your budget constraints. Also, a GIS is necessary to provide maintenance and support processes in a way leading to customer satisfaction.

Unicorn Systems uses geoinformatics platforms to build situational awareness systems providing accurate, real-time information on the condition of your mission-critical infrastructure. Such systems support dispatching management and improving the quality of real-time decision-making. This is because they can handle the huge flood of big data coming e.g. from the IoT (Internet of Things) analysing it in the context of your grid topology and location information.

Among other things, the systems provide operators and other parties participating in administration and maintenance with situational insight into the condition of grid elements and with tools for analysis and representation of changing customer behaviour based on changes to electricity prices.

All these solutions help operators of large infrastructures satisfy the restrictions imposed by their customers' requirements, their budgets, and the laws of physics while achieving the maximum operation security and reliability.

Custom-Built information systems

The strengths of Unicorn Systems include the ability to provide a solution tailored specifically to the customer's requirements. To achieve this, we, as their systems integrator, combine the technologies most suitable for the customer's purpose or best fitting their environment. We are always ready to address highly specialised tasks through custom development, preferably with the use of proven open-source technologies. In this way, we have built, and we continue to improve the Unicorn Application Framework (UAF), a platform providing universal foundations for the architecture of modern information systems to be deployed in the cloud, mobile, and IoT environments.

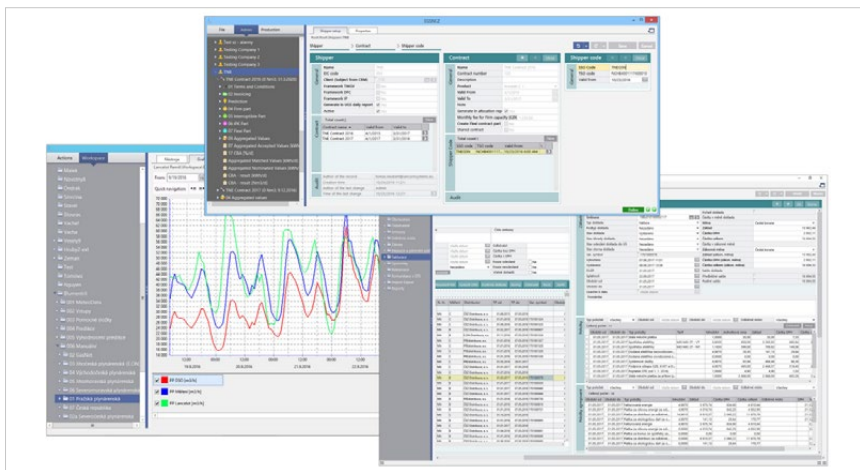


Figure 4 – Lancelot energy platform



We also provide comprehensive services for systems integration, custom development, operation, and first- and second-line support processes. Besides that, we handle end-to-end infrastructure deliveries, supporting our clients with hosting and operation of our their information systems in a private hybrid cloud well-known for its security and flexibility, in terms of both business and technology (Unicorn Cloud).



Security and data protection

Unicorn Systems puts a great emphasis on the security of all information systems that we design, develop, implement or operate. We realize the criticality of the processed data, the need to maintain confidentiality and integrity, and, last but not least, the importance of high availability of our solutions. Information security is firmly implemented in all our processes, continually assessed, improved and subjected to regular audits. In terms of information security in energy and utilities, we focus on:

- **Secure Software Development Lifecycle (SSDLC)**
- **Continuous education and certification of our employees**
- **Compliance with best security practices and standards (such as OWASP, BSIMM, SOX)**
- **Monitoring of vulnerabilities, threats and legislative requirements**
- **Secure operation of all information systems**

Unicorn Systems is certified for information security management based on the international standard ISO/IEC 27001.

IT products

In addition to the above-mentioned solutions, we provide the following IT services:

- **Consulting** – We help our clients set up their business processes and IT environments, so their IT solutions support their business plans in the best way.
- **Integration** – We can bridge the communication gap between business and IT, providing solutions to meet your business requirements and solving all integration needs of developed systems into your IT environment.
- **Development** – We design and implement large information systems, which meet our clients’ business requirements, providing them with the support necessary to conduct their business efficiently.
- **Operation** – We run our customers’ information systems, providing the necessary supervision and management of their IT infrastructure, thus ensuring the high availability of their IT features to users.
- **First-line support** – We provide immediate and efficient assistance to information system users, helping

them handle known issues, providing workarounds, and ensuring effective communication with second-line support when new and previously unknown issues are encountered.

- **Second-line support** – We provide guaranteed solving of any problems arising from the use of an information system which requires too much work and effort to be solved by first-line support; we provide support for solving of new and non-routine operation tasks.
- **Infrastructure** – We provide end-to-end deliveries of networking and communication infrastructure, cybersecurity, HW and SW components, and tools, including their deployment into routine operation.
- **Education and training** – We provide standardised off-the-shelf solutions, custom courses designed to meet your specific requirements, and long-term objective-oriented training programs.
- **Security** – We provide comprehensive security services for your energy infrastructure, information systems, and personal data.

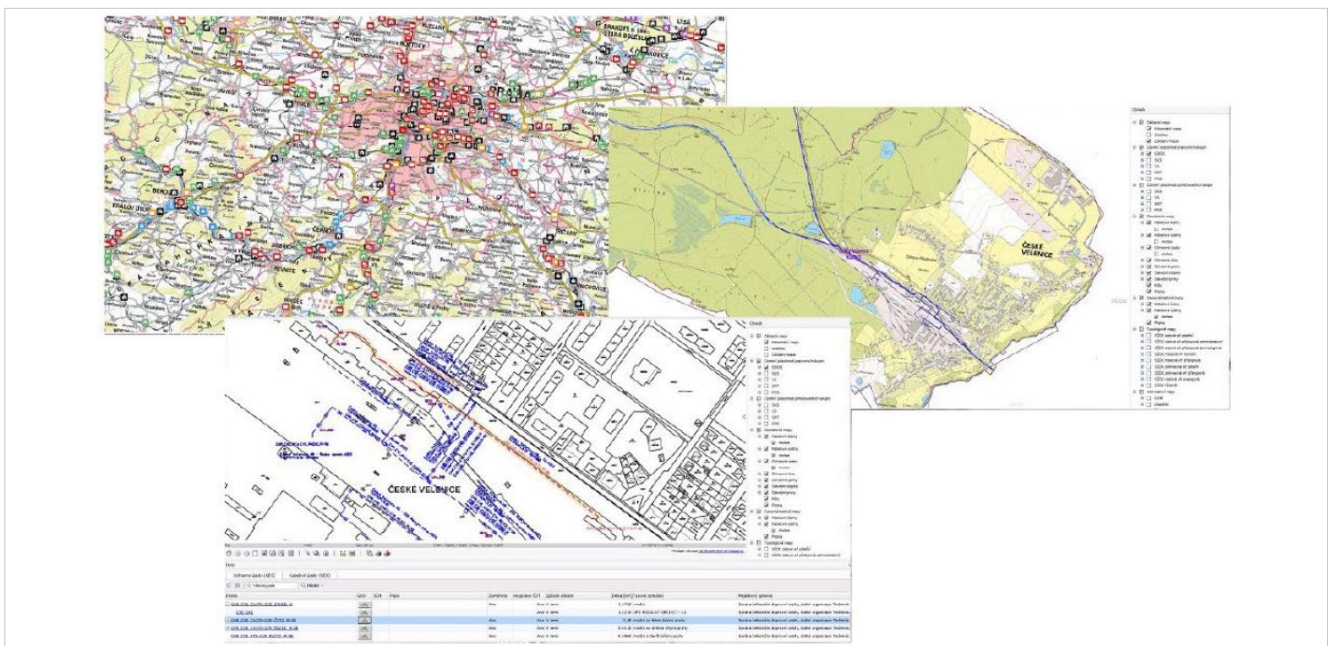
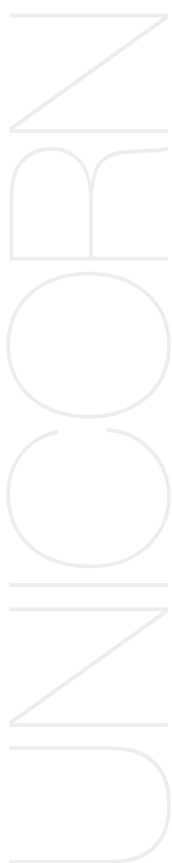


Figure 5 – Collage of screenshots from different GIS's



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About Unicorn

Unicorn is a renowned European company providing the largest information systems and solutions in the area of information and communication technologies. We are focused on providing solutions, which provide a high added value while also delivering a competitive business advantage to its clients. We have been serving our clients since 1990 and over the years, we

have developed a number of high-end, large-scale solutions, which are being used to serve the IT needs of important companies in many of the key sectors of the economy. Moreover, we provide the Plus4U Internet service in which we offer a large portfolio of services based on robust software solutions for small and medium-sized enterprises, and end users.



Unicorn Systems a.s.

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Unicorn is a renowned European company that provides the most complex information systems and solutions in the area of information technology.

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