

zenon empowers local ownership of energy infrastructure in Hanoi

Building a grid for the future

Local COPA-DATA distributor PETROLEC has been instrumental in helping EVN Hanoi, the board within Vietnam's national electricity operator that serves the Hanoi region, to implement a new control system based on zenon automation software for more than 30 of its 110kV substations.



Developing an effective and sustainable national energy supply is a fundamental objective – and foundation – of Vietnamese national socio-economic development policy. The need for a secure, reliable power grid that can support and attract inward investment and meet growing commercial and domestic demand requires a proactive national approach to energy management.

In conjunction with the national electricity company EVN, the Vietnamese Government has a 15-year investment plan in place to develop and secure a reliable and sustainable grid for electricity generation, transmission and distribution throughout the entire country.

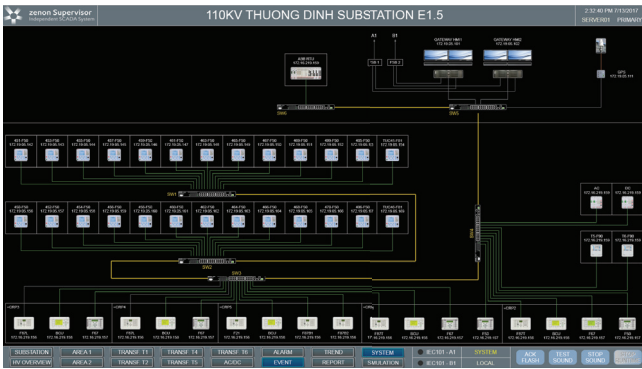
Effective control and monitoring systems are a key element in ensuring a reliable and sustainable supply. In Vietnam, adding substations to the grid network had historically been undertaken in a series of large turnkey projects. However,

this gave the national operator very little control over the maintenance and development of its systems.

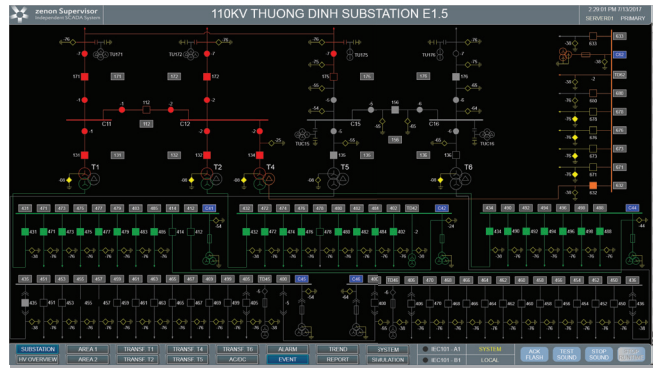
The operating company felt it was a hostage to fortune when repairs or maintenance work were necessary, and it believed that regaining control over its substation operations was essential to reduce both cost and inconvenience in the short term and to ensure the safe and cost-effective growth and sustainability of the grid over the long term.

WIN BACK CONTROL

In 2014, EVN Hanoi began a project to upgrade the control and monitoring systems at 23 of its 110kV substations. It was keen to find a new solution with local support that its in-house engineers could maintain easily; this would mean a move away from all of the incumbent suppliers.



zenon displays the entire IEC 61850-based network architecture, including seamless redundancy, clearly and visually.



Everything under control: Single line diagrams convey vital information about the three different voltage levels – 110kV, 35kV and 22kV – within the substation.

To reduce the risk such a move would represent, EVN Hanoi decided that the selected system would initially need to be commissioned at one substation only for a period of testing.

Mr. Dao Hoang Quang, Director of the Hanoi Region Load Dispatch Center (HLDC), describes the process: “We looked at a number of different solutions and tested more than one. We were very attracted to the solution presented to us by PETROLEC that was based on zenon because it appeared to meet all of our performance, maintenance and communication requirements and because we were impressed by the support PETROLEC was offering.”

Because the EVN Hanoi team were new to zenon, the local COPA-DATA distributor provided a great deal of support in the initial stages, including helping with the design of the first project for the electricity company. This was then installed in parallel to the existing system at one of EVN Hanoi’s 110kV substations.

Mr. Dao Hoang Quang explains: “We tested the zenon-based solution for three months and were very satisfied with its performance. This test project gave us confidence in both the energy automation software and the commitment and support we could receive from the PETROLEC team. Most importantly, we were confident that our local engineering team would be able to maintain the system and roll out zenon in further projects.”

OVERSIGHT OF A DIVERSE ECOSYSTEM

Following the successful test project, the initial scope was for zenon to be installed as the HMI/SCADA solution across 23 of EVN Hanoi’s 110kV substations. This spanned a diverse ecosystem of heterogeneous hardware components, and hardware and software from many different suppliers.

Mr. Dao Hoang Quang: “The engineering team was hugely impressed by the connectivity the COPA-DATA solution allowed

for. zenon easily solved the problems arising from the need to communicate with the products of many manufacturers, including some very specific hardware, such as smart meters, and the communications standards peculiar to our industry.”

zenon natively supports more than 300 communication drivers and protocols – ensuring unparalleled flexibility in terms of the hardware and software with which it can communicate. In addition, zenon supports the energy industry IEC 60870 and IEC 61850 communication protocols – enabling the secure, compliant and reliable communication from IED through to the dispatch center.

EMPOWERING LOCAL CONTROL AND DELIVERING LOCAL SUPPORT

Although the initial project design was created with support from the PETROLEC team, the EVN Hanoi engineers now have complete ownership of the application and this has had significant advantages in terms of the maintenance of the systems, as Mr. Dao Hoang Quang explains: “We are now able to undertake any engineering tasks ourselves which has ensured much faster issue resolution. We are now no longer reliant on third parties based overseas, as we can handle many issues internally. This has a clear advantage in terms of the speed and cost of support.”

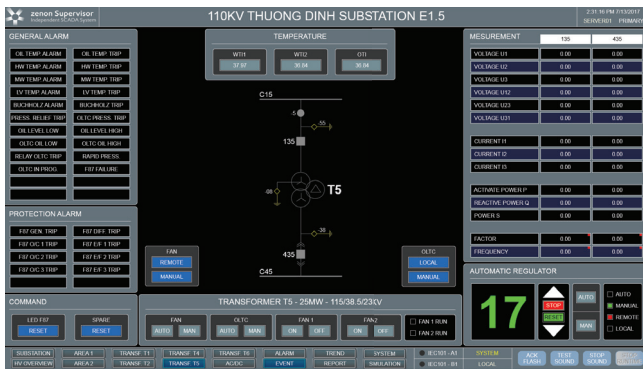
“What’s more, if we encounter any problems, we simply call PETROLEC support. Our engineering team is backed up by the comprehensive zenon help texts which were customized for our project in Vietnamese. In PETROLEC we have one great local partner.”

A SECURE INVESTMENT

zenon has now been successfully rolled out to more than thirty substations within EVN Hanoi’s regional power grid – going beyond the specifications of the original project, thanks

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MR. DAO HOANG QUANG, DIRECTOR OF THE HANOI REGION LOAD DISPATCH CENTER (HLDC), EVN HANOI



Operators can drill down to view detailed information about substation components: here, the “health status” of one of the transformers is displayed.

to these early successes. As well as providing control and supervision locally, zenon is installed at the Hanoi Regional Load Dispatch Center where it provides an overview of the operation and maintenance of the system.

Mr. Dao Hoang Quang states: “In zenon, we have found a system that gives us the comprehensive overview of operations we need. It has allowed us to take back control of our own infrastructure and reduce the cost of ownership both in the short and long term. We are delighted to have found, in PETROLEC and COPA-DATA, partners who are able to support our plans for developing a sustainable power grid. It is enabling us to improve current performance and will form the basis of our long-term development and expansion of the electricity grid.”

HIGHLIGHTS:

- ▶ Intuitive open system that allows for ownership by the end user’s local engineering team
- ▶ Supportive local distributor with extensive industry knowledge
- ▶ Flexible, open connectivity with diverse hardware across multiple locations
- ▶ Support for IEC 60870 and IEC 61850 communication standards
- ▶ Seamless redundancy
- ▶ Low-cost maintenance on-site
- ▶ Ongoing support from local partner