



## BACSOFT CASE STUDY EILAT ASHKELON PIPELINE



### ABOUT EILAT ASHKELON PIPELINE COMPANY

Founded in 1968, the Eilat Ashkelon Pipeline Co. Ltd. (EAPC) serves as a land bridge for transporting crude oil from the Red Sea to the Mediterranean and back. The crude oil pipeline system consists of a bidirectional pipeline linking Eilat with Ashkelon, two additional lines that supply the oil refineries in Haifa and Ashdod, and one more pipeline for transporting oil and gas products from Ashkelon to Eilat. The company also operates two oil ports and two oil terminals with a total storage capacity of 3.7 million cubic meters for crude oil and oil products. In addition to pipeline transit of crude oil, EAPC provides long-term terminal storage and crude oil blending, as well as infrastructure services for oil products, liquefied petroleum gas (LPG), fuel oil, coal, natural gas and electricity.

As one of the leading companies in the Israeli energy sector, EAPC remains at the forefront of industrial practices and infrastructure technologies. It adheres to the strictest international standards and guidelines for both environmental protection and community involvement, and is committed to providing the highest level of service to its customers.

### THE CHALLENGE REMOTE MONITORING AND CONTROL OF CATHODIC PROTECTION

Preventing corrosion is critical to the maintenance of any pipeline, and EAPC is no exception. To protect its nearly 750 km of pipeline, EAPC has implemented a sophisticated network of active and passive cathodic protection.

The cathodic protection is widely spaced throughout the country, and until 2013, all configuration, monitoring and maintenance took place on-site. At over 60 active cathodic protection sites, which relied on enforced current from rectifiers, EAPC used a local monitoring solution to log data. Every few weeks, teams were sent out to check the equipment and collect the data for analysis. At the passive protection sites, there was no monitoring at all apart from the on-site visits.

## < THE CHALLENGE

Because of the intervals between inspections, problems with the equipment could go undetected for months, resulting in costly damage to the pipes and urgent repairs. The company needed a way to remotely and continuously monitor the rectifiers and to adjust them on demand. EAPC had over 60 rectifiers from six different vendors, and none of them included a protocol for remote control. They needed a solution that would be able to wirelessly-enable their entire legacy infrastructure, and integrate all of the data into a centralized application for monitoring and control.

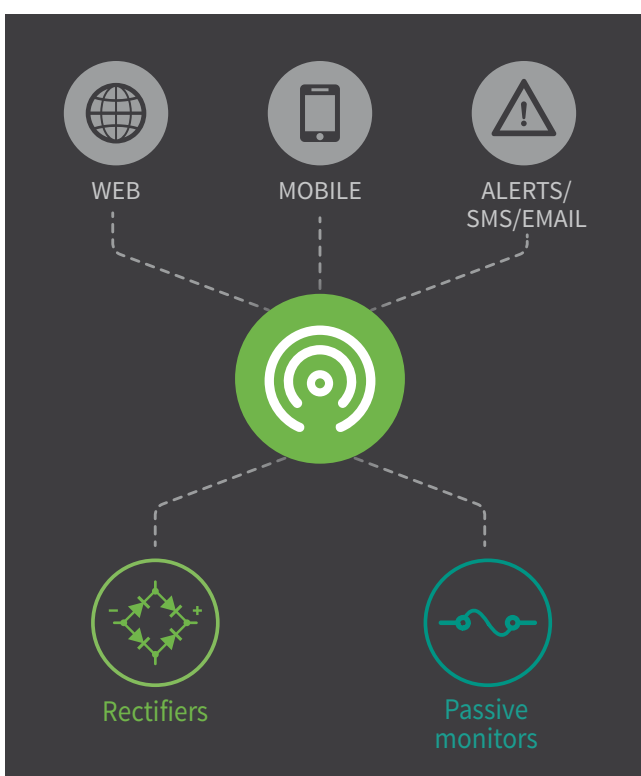
## THE SOLUTION CLOSED LOOP PROTECTION

EAPC selected Bacsoft to connect their cathodic protection infrastructure to the Internet of Things and to design and implement a new application for continuous remote monitoring and control.

Bacsoft quickly connected EAPC's rectifiers to the cellular network with Bacsoft's Smart Communications Controllers, which plug into any PLC. Since the rectifier manufacturers did not provide a communications protocol, Bacsoft implemented a vendor-agnostic protocol to control the rectifiers and the power supplies, including output voltage and output current, remote interruption, and remote adjustment.

Since remote control is only possible where a PLC is present, Bacsoft installed remote monitoring for the older rectifiers as well as for the hundreds of passive cathodic protection and basic measurement sites. Each measurement is GPS time-synchronized to provide the required level of accuracy.

To enable closed-loop control, Bacsoft developed a cloud-based application that performs continuous analysis and determines when and where real-time remote adjustment is required. Using web and mobile apps, EAPC's cathodic protection and pipeline maintenance engineers can now monitor and adjust cathodic protection anytime and anywhere. They also receive real-time alerts about changes to any parameter that might indicate a problem, such as lower current or high potential, opening a cabinet, or high temperatures. With Bacsoft, EAPC has transitioned from reactive problem solving to proactive, ongoing management and maintenance of cathodic protection.



## THE BACSOFT IOT PLATFORM

Bacsoft used the comprehensive IoT platform to create a solution for EAPC. The platform includes:

### M2M Communications

The Bacsoft Smart Communications Controllers plug into all of the rectifiers and passive cathodic protection sites. A custom protocol was developed to support monitoring and control of six different vendors.

### IoT Cloud

The Bacsoft IoT Cloud handles all aspects of communications, application execution, data storage, security and auditing in a high-availability cloud platform. All of the time-synchronized data from the hundreds of sites is analyzed in real-time to provide closed-loop protection.

### Bacsoft Application Builder

With the Application Builder, Bacsoft developed the web and mobile applications that management uses to monitor and configure each site. EAPC also receive real-time alerts and can easily define new alerts for any parameter or condition.

Due to the success of the project, EAPC is currently upgrading all of their rectifiers to the new generation with PLCs, so that they can take advantage of closed-loop protection throughout the entire pipeline.

**“WITH COMPLETE CONTROL AND VISIBILITY OVER OUR CATHODIC PROTECTION, BACSOFT HAS ENABLED US TO SIGNIFICANTLY LOWER COSTS AND IMPROVE THE EFFICACY OF OUR CATHODIC PROTECTION. NOW WE SPOT POTENTIAL PROBLEMS EARLY AND SOLVE THEM BEFORE DAMAGE IS DONE.”**

Pipeline Manager, EAPC

## BACSOFT BENEFITS FOR EAPC

- REDUCED CORROSION AND PIPE DAMAGE
- LOWER MAINTENANCE AND OPERATING COSTS
- CONTINUOUS REMOTE VISIBILITY
- PROACTIVE AND PREVENTIVE MAINTENANCE
- UNIQUE CLOSED-LOOP PROTECTION FOR OPTIMIZED PERFORMANCE
- TIME-SYNCHRONIZED DATA COLLECTION
- TRANSFORMATION OF LEGACY INFRASTRUCTURE
- ONE SOLUTION FOR ACTIVE AND PASSIVE CATHODIC PROTECTION
- SIMPLE DEPLOYMENT AND MANAGEMENT

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