



Oil Pipeline's SCADA features

Today's pipelines require rigorous application of safety and control systems. One of the most common technologies found in pipelines is the use of Supervisory Control and Data Acquisition (SCADA) based automation systems, with increasing application of safety shutdown systems in key locations.

Modern SCADA systems have many sophisticated features, such as distributed architecture, distributed database, GUI interfaces, intelligent RTUs, etc. that are the results of advances in many technologies. Oil pipeline SCADA systems provide operators with many useful software features such as emergency shutdown, batch tracking, leak detection, dynamic modelling, optimal dispatch, etc. These facilities help improve operators' productivity. Emerging technologies will further enhance the power of future SCADA systems which will constitute parts of corporate networks holding all data necessary for the efficient management and control of pipelines

Iran with over 14,000 Km of Oil and its related products pipeline has a big potential to maintain SCADA systems for that.



Iran with over 14,000 Km of Oil and its related products pipeline has a big potential to maintain SCADA systems for that.

Based on where an oil pipeline installed, there is different approach to their SCADA and telecom network.

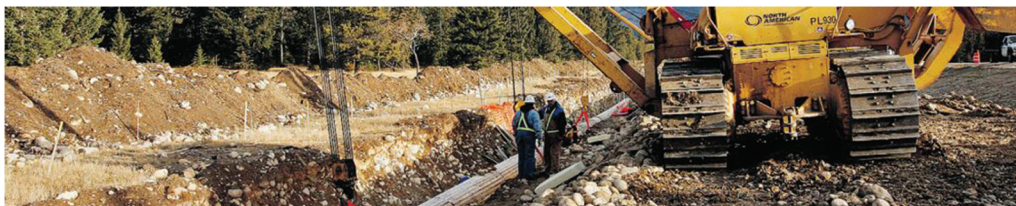
1. Some pipeline are those which installed between wellhead to first-stage treatment like de-salting units. These pipeline normally managed by that oil field control system.
2. Some connect the previous units to refining and processing units
3. The last one, are those that transport the oil production like Gasoline, Fuel Oil from refining plants to the customers like industrial or public users.

Total Solution, we propose, contains:

1- A SCADA System

We propose which have one RTU installed in each station to gather process data and implement the control philosophy to make reliable control and monitoring system and a control center with SCADA servers, time server, backup facilities, Operator/Engineering stations to make you capable for:

- Process data monitor and operation
- Alarm handling
- Historical data storage and retrieval
- Report generation – time-based, event-based, on-demand
- RTU/PLC-system monitor and operation



- Communication with the other systems
- Protection of people, equipment and environment
- Graphical displays showing RTU process conditions of the field
- Trends of selected RTU process variables
- Alarm management for RTU including alarm acknowledgement
- Commands to control the RTU to change the operating state of valves such as opening or closing

In Iran's market, there is also some telecommunication stations along the pipelines that their main role is to provide telecommunication services for operation and maintenance purposes. This stations maybe require some control system like PDCS systems for managing station's utility. Anyway total SCADA solution can manage also these stations.

2- A Telecom Network

To make it possible to transport critical process data on reliable backbone in 24-hour-a-day, 7-day-a-week system operation, Different scenarios can be used based on project specification and available facilities.

While the main user for telecom network is SCADA system but usually there are some other users that maybe installed on this backbone like Radio systems, Telephony services, CCTV and etc.



For oil pipeline in Iran Market all oil and oil products pipelines managed by some national companies who have implemented a telecom backbone using radio and fiber optic network that can be used also for SCADA systems.

3- Our Benefits for these projects

The first is our SCADA software which has been developed completely with FASBA's innovative and expert software and automation engineers.



- FaSCADA, a windows-based process control data visualization system which is Now the leader in the substation automation and process automation software markets, developed and improving continuously by our engineering team.
- Containing standard tools like graphic design interfaces and tools, predefined libraries, Alarm, Trends and reporting facilities
- Power systems special tools like load shedding and load sharing
- High secured architecture and configuration for high secure platforms
- Built-in especial tools for power grid and substation control and monitoring

The second is analytical platforms to analyze process network parameters to make operation and maintenance so easier.



- **DOIS** (Dispatching Online Interface for SCADA) to be connected to both SCADA system software and also analytical software to get the data, analyze, study and generate the results.
- **DPAT** (DIgSILENT Protection Analysis Tools) to simulate relays and protection analysis; whereas in similar software there is no tool for the automatic calculation of the relay settings and now only it could be calculated manually and evaluates the settings coordination. DPAT-Grid, DPAT-Industrial, DPAT-Power Plant and DPAT-Distribution are different software each suitable for one platforms

- **CCSR** (Calculator of Compatible Settings for Relays) to calculate settings for a wide range of different relay types, prepared and used for power transformation/sub-transmission substations, power plants, Industrial networks and distribution networks

Above platforms are those implemented by our team while the other applicable software like leak detection software also can be proposed if required.

Developing main SCADA software by local engineers make it possible to make special security system and cyber security issues, to make more secure SCADA applications.

FASBA's experience in this field and special tools developed by FASBA can make an important added value facility in conjunction with other SCADA applications.

Using FASBA's special platforms, it is possible to integrate usual process control facilities with control and analytical method and tools for power distribution and grids used in Oil and Gas industry.

