# AC INTERFERENCE AND MITIGATION
ELSYCA IRIS software

Elsyca IRIS (Inductive and Resistive Interference Simulation) is a new state-of-the-art graphical simulation platform for the pipeline industry to assess safety and corrosion risks of pipelines that are affected by HVAC transmission lines. **Elsyca IRIS** allows modeling of AC interference and mitigation on pipelines in right-of-ways (ROWs) with high-voltage overhead transmission lines. The software combines a user-friendly interface with fast numerical solvers and advanced pre/post-processing capabilities.

Elsyca IRIS enables the corrosion engineer to troubleshoot, assess and verify designs in compliance with international standards, ensuring safe pipeline operation at minimal cost.

With Elsyca IRIS, the CP engineer can easily and rapidly assess mitigation actions such as adding AC drains or study the effect of insulating flanges, anode beds, bonded pipelines, coating condition and/or soil resistivity. The results can be validated and interpreted by adding survey data from AC voltage measurements at the test stations in the simulation plots.

- **Model creation**: direct import of detailed pipeline and power line routings using geographical coordinates (eg. lat/lon) with model visualization in graphical user-interface

- **Model refinement**: pipe specifications (diameter, wall thickness, coating resistance, soil resistivity,…) can be defined per section; power line towers (position phase and shield wires, pole resistance-to-earth, …) can vary along routing

- **Solver**: very quick and robust, calculating LEF, induced voltages/currents, touch and step potentials and ground potential rise

- **Post-processing**: fully automated export of geometry, properties and results to Google Earth and SVG (Scalable Vector Graphics) of complete project (pipelines, power lines, anodes, connections, …) to allow printing on A0->A4, zooming, creation of pdf)

- **Special features:** Automated fault module: all towers of a given power line are automatically faulted while other power lines operate at a user selected load

Elsyca is a leading supplier of engineering services and software products to the pipeline industry. Its technology has been adopted by leading companies world-wide in the oil & gas industry.
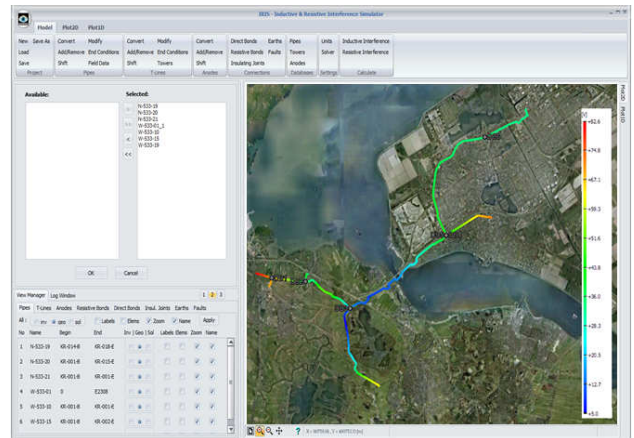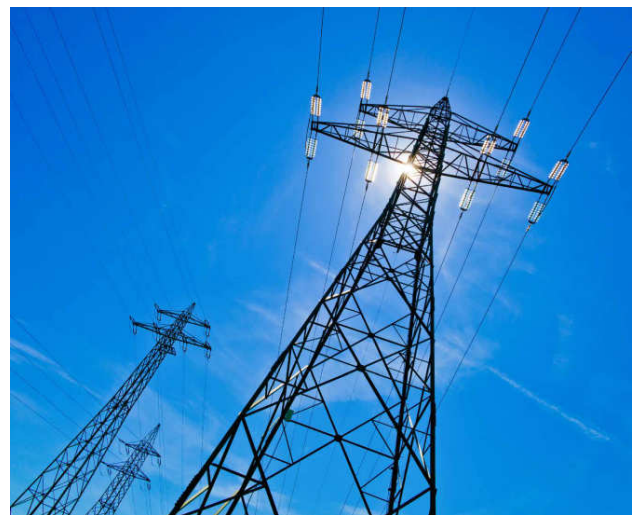
- *No limitation on number of pipelines, power lines, gradient control mats*

- *No separation of routing in "near parallel" zones needed*

- *Pipe specifications (diameter, wall thickness, coating resistance, soil resistivity,…) can be defined per section*

- *Tower specifications (position of phase/shield wires, phase angle, sag,…) can vary per section*

- *Single layer or double layer configuration*

- *Automated fault simulation: all towers of a given power line are automatically faulted while other power lines operate at a user selected load*

- *Automatic calculation of tower foot length and radius to match measured resistance-to-earth values*

- *Calculation of transferred voltage, coating stress, remote earth potential, current density and longitudinal current on complete pipeline network*

- Calculation of ground potential rise on 2D grid/1D line; touch and step potentials; arcing distance

- Calculation of currents/potentials in network formed by shield wires, towers, tower poles and the earth for phase-to-ground resistive interference

- Different mitigation techniques (resistive and direct bonds between pipelines, insulation joints, discrete grounds, distributed anode grounds, parallel mitigation wire, gradient control mats, …)

- Visualization of all calculated results (LEF, induced voltages/currents, current density, coating stress voltage, GPR) using 2D color plots and 1D developed length plots

- Visualization of all pipeline properties (outer diameter, wall thickness, coating resistance) using 2D color plots

- Export to Google Earth, ASCII and SVG (Scalable Vector Graphics) files

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Hardware and Software Requirements for Elsyca IRIS

- Minimum 2GHz processor (64-Bit architecture recommended), minimum 2GB RAM (8GB recommended)

- Windows operating systems x32or x64: Windows7 and Windows8

Customer Quotes

- *"Elsyca IRIS outranks any other commercially available tool both in performance, accuracy, robustness, and user-friendliness."*

- *"Modeling with Elsyca IRIS ensures an immediate ROI. When questions arise, Elsyca's technical support team provides the answers you need to address critical issues."*

- *"We're well into using IRIS on some of our recent project work, and so far it's proven to be very accurate and helpful"*