



ELSYCA AC & CP Bundle

Protect Your Pipeline Network from AC & DC Threats - Simultaneously

Software solution that unifies cathodic protection design, AC interference assessment with GIS-based preview - built for corrosion and integrity engineers



3-in-1 AC-DC-GIS

Fast & Unlimited
Combining effective
BEM+FEM in-house
solvers

50+
Years combined
corrosion modeling
expertise

Elsyca CatPro - DC & Cathodic Protection

Pipeline CP design and DC stray current simulation from real geographic coordinates. Decisively superior CP engineering, field-validatable results.

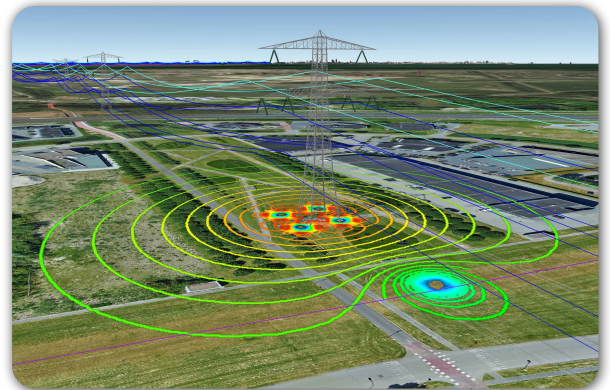
Elsyca IRIS - AC Interference & Mitigation

Maps AC-induced voltages, current densities, and coating stress across the full corridor. Mitigation designs per NACE SP0177 & SP21424.

Elsyca ModelComposer - GIS-based building

Supports CatPro and IRIS models building with modern map layers and from (KML/KMZ, SHP, Google Earth).

Purpose-built for pipeline and corrosion engineers



Supported challenges

AC Interference from Power Lines

HVAC transmission corridors induce current densities that standard CP systems cannot handle — causing coating stress and accelerated corrosion.

DC Stray Currents — Rail & HVDC

Dynamic stray currents from electrified rail and HVDC lines create localised hotspots invisible to conventional survey methods.

Regulatory Pressure & Compliance Gaps

ASME B31.8S, API 1160, and NACE standards require network-level risk data that ILI surveys and point measurements cannot provide.

Complex Geometry & Ageing Assets

HDDs, bores, multi-operator crossings, and variable coating/soil conditions defeat legacy modelling tools.



Modern pipeline networks face simultaneous threats from cathodic protection degradation, AC induction from power lines, and dynamic DC stray currents from rail systems. Managing these in isolation is no longer sufficient – the interactions between them determine real-world corrosion risk. Elsyca's AC & CP Bundle resolves all three in a unified, physics-based digital twin environment.

Key Features

- Coupled AC & DC analysis on the same network – no separate tools, no siloed results
- Spatially continuous coating resistance modelling – CIGRE/Battelle-based, location-dependent, physically realistic
- Near-infinite soil resistivity variation – continuous spatial flexibility with explicit geological uncertainty
- Full HDD, bore, and complex routing support from real-world geographic coordinates
- Dynamic stray current simulation – rail systems, HVDC, and third-party CP interactions
- Steady-state AC interference per NACE SP0177-2019 and SP21424; AC voltage, current density, coating stress
- Integrated polarization curve fitting – spline-based, scalable to large transmission networks
- Modern GIS export – Google Earth (.kml), ESRI (.shp), and interactive map dashboards
- Easy field validation – transparent models built to be verified against measured CP data
- Standards-compliant reporting – ASME B31.8S, API 1160, EN 15280, NACE SP0169

Some of our technology adopters



GASCADE



Customer Benefits

Outcomes delivered to corrosion & integrity teams.

Eliminate Analytical Blind Spots

See AC and DC risks simultaneously on the same network model. Corrosion hotspots between test stations become quantifiable, actionable data.

Reduce Survey & Maintenance Costs

Physics-based digital twins reduce reliance on expensive ECDA and ILI campaigns. Prioritise inspections where the model shows real risk.

Accelerate Regulatory Compliance

Automated KPI dashboards and standardised reporting streamline compliance with ASME, API, NACE, and regional Integrity Management requirements.

Faster, More Confident Decisions

What-if scenarios and rapid recalculation enable evaluation of mitigation options – from anode adjustments to drainage redesign – before any field work begins.

Physically Realistic Results

Spatially variable coatings and soil models ensure your analysis reflects actual field conditions and supports defensible engineering decisions.

Industrial Applications

Onshore Gas Transmissions

Regulatory Compliance

AC Interference Corridors

DC Stray Current Zones

HVDC / HVAC Infrastructure

Electrified Rail Proximity

AC/DC Mitigation Engineering

Oil & Gas Pipelines

CP Design & Commissioning

ECDA & ILI Support

Multi-Operator Networks

