



At the service
of sustainable
progress

Presentation scheme

Background

S.I.E. Services

Softwares

Experience

Opportunities



Background

- Electrical engineer
- Master degree in grid analysis
- Consultant at S.I.E.
- Power Flow and Stability
- Electromagnetic transients
- Power quality
- International training: USA, China, Argentina



Countries	Type
Uruguay	Power Flow, Stability, Transients, management, Power Quality, Protections
Spain	Power Flow, Stability
Mexico	Power Flow, Power Quality, Protections
Panama	Power Flow, Stability
Brazil	Stability, transients
Australia	Power Flow, insulation coordination
Ethiopia	Power losses analysis, losses course
Dominican Rep.	Seminars on inertia in electrical grids
Singapore	Seminar on inertia estimation in electrical grids
Chile	Connectivity
England	Connectivity
Cape Verde	Power Flow, Stability

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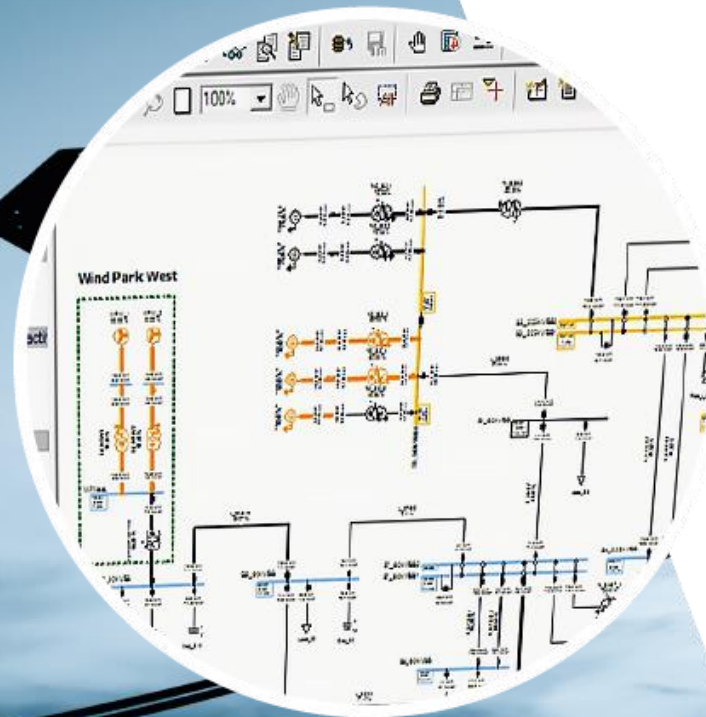
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Power flow studies:

- Models development
- Losses
- Capability curve
- Compensation
- Short circuit
- Interconnection studies

Electromechanical transients studies:

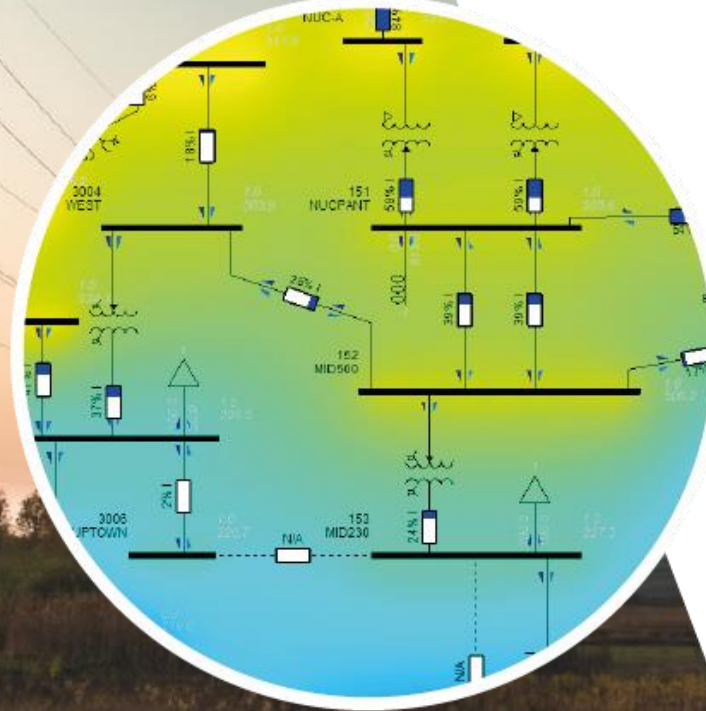
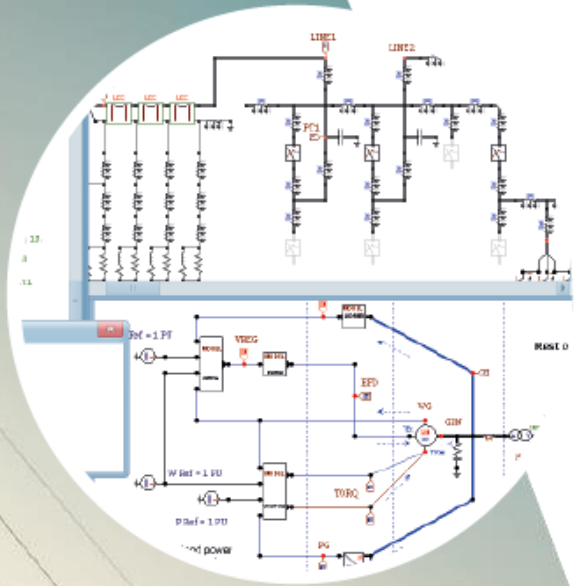
- Dynamic models development
- User models, development and setting
- Frequency and voltage stability
- Temporary over voltages

Electromagnetic transients studies:

- Dynamic models development
- User models, development and setting
- Lightning over voltages
- Insulation coordination
- Circuit breakers TRV specification
- Line reactors dimensioning
- Lines and cables electrical parameters calculation

Power quality studies:

- Current and voltage harmonics
- Flicker
- Voltage variations



Short courses

- Models approval and validation for electromechanical and electromagnetic transients in non-conventional renewable generation



Short courses

- Methodology for inertia estimation on electrical grids.
- Power losses study on electrical grids.



Short courses

- Power quality
- Python programming for engineers



Short courses

- PO-TRA-SL-0001/02



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Current	Uses
PSS/E	Power flow, Short circuit and stability
ETAP	Power Flow, stability and harmonics
ATP/Draw	Electromagnetics transients
PVSyst	Simulation, design, and analysis of PV systems
Future	Uses
ANAREDE	Power flow
ANAFAS	Short Circuit
ANATEM	Stability
PSCAD	Electromagnetics transients
DigSilent	PF, SC and transients



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Year	Location	Project	Description
2024	Spain	Inverter modeling	Development of an ATP/Draw model for SG250HX inverter, simulating transient responses, fault ride-through, and validations, ensuring grid code compliance.
2024	Cape Verde	National grid planning	Comprehensive load flow and stability studies for Cabo Verde's grid, integrating VRE projects, proposing reinforcements, and optimizing phased development.
2024	Uruguay	Artilleros	Assessment and advancement of PSS/E and ATP/Draw models for Artilleros Wind Farm, focusing on load flow, stability, and transients.
2024	Uruguay	PTI solar	Capability curve analysis at the point of connection for the photovoltaic farm, including scenario evaluation and determination of the expected capability curve.
2024	Uruguay	PTI solar	Modeling and studies at PTI photovoltaic farm (25 MVA). Includes PSS/E and ATP/Draw modeling, Performance Ratio estimation, and compliance with UTE's requirements.
2024	Uruguay	Palomas	Electromagnetics transients modeling for the Palomas wind farm (70 MVA) using ATP/Draw, including representation from generation to connection with UTE.
2024	Uruguay	UPM 2	Negotiation with UTE for the scope of the electromagnetics transients and stability models for UPM 2, a biomass plant with 240 MW consumption and 426 MVA generation.

Year	Location	Project	Description
2023	Uruguay	HIF - E-FUEL	The ampacity of transmission lines was evaluated to transport 5.15 GVA between three generation centers and an electrolyzer plant, considering two operating voltages.
2023	Uruguay	DANK	Power flow and stability modeling for DANK plant. Distribution client with a 5 MW biomass generator and multiple loads. Hybrid grid behavior: load and generator.
2023	Uruguay	350 MW PV plant	Connectivity study for a 350 MW photovoltaic plant, in the Uruguayan electrical grid. Location selection and definition of installed power.
2023	Uruguay	30 MW PV plant	Connectivity study for a 30 MW photovoltaic plant, in the Uruguayan electrical grid. Admissibility determination for the defined power.
2023	Uruguay	E-FUEL	Connectivity study for an e-fuel plant and its associated renewable energy generation. Study carried out with 1200 MW of generation and 750 MW of consumption.
2023	Uruguay	VENCODESA BESS	BESS modeling for San Gregorio de Polanco (10MVA) y Sarandí del Yí (8MVA) sites. Viability, power flow, short circuit, harmonics, stability and black start studies.
2022	Uruguay	UPM2	Electromagnetics transients modeling of Biomass plant: 240 MW in loads and biomass generators for 426 MVA. Passive grid, loads, generators and control system modeling.

Year	Location	Project	Description
2022	Uruguay	SEG BESS	BESS modeling for San Gregorio de Polanco (10MVA) y Sarandí del Yí (8MVA) sites. Viability studies.
2022	Uruguay	AKUO BESS	BESS modeling for San Gregorio de Polanco (10MVA) y Sarandí del Yí (8MVA) sites. Viability, power flow, short circuit, stability and black start studies.
2022	Uruguay	STILER BESS	BESS modeling for San Gregorio de Polanco (10MVA) y Sarandí del Yí (8MVA) sites. Viability, power flow, short circuit, stability and black start studies.
2022	Uruguay	UPM 2	Training on PO-TRA-SL-0001/02 regulation for foreign and national engineers in charge of on-site building at UPM 2 (Transmission client and biomass generator) facilities.
2022	Uruguay	Albisu	Modeling of photovoltaic farm, installed power 10 MW. Modeled for power flow, short circuit and stability studies.
2022	Uruguay	Tubacero	Modeling of photovoltaic farm, installed power 0.3 MW. Modeled for power flow and short circuit studies.
2022	Uruguay	Pamer	Modeling of photovoltaic farm, installed power 3.5 MW. Modeled for power flow and short circuit studies.
2022	Uruguay	Cristalpet	Modeling of photovoltaic farm, installed power 1.3 MW. Modeled for power flow and short circuit studies.
2022	Uruguay	Giacote Menafra	Modeling of photovoltaic farm, installed power 20 MW. Modeled for electromagnetics transients studies.
2021-2022	Uruguay	Punta del Tigre	Photovoltaic farm, installed power 30MW. Power flow and stability model creation.
2021	Uruguay	Zonamerica: private town	Grid and load modeling for private town, free commerce zone. Voltage studies. Installed power: 8MW.

Year	Location	Project	Description
2021	Ethiopia	National Transmission grid	Creation of a power losses guide manual.
2021	Uruguay	Statcom insertion studies	Studies determination for the installation of a 180 MVA Statcom in a transmission Substation.
2020	Ethiopia	National Transmission grid	International training in power losses, study philosophy and results oriented methodology.
2020	Ethiopia	National Transmission grid	Power losses study for the complete transmission grid.
2020	Dominican Republic	Training course	Seminar dedicated to frequency stability in electrical grids with lack of inertia Participants of the Coordinated Organization for the National Interconnected Electric System.
2020	Argentina Uruguay	CTM	Calculation of neutral reactors in expansion project of CTM (Mixed Technical Commission) Salto Grande - Uruguay.
2019-2020	México	Sol de Sonora	Photovoltaic farm, installed power 10MW. Power flow, harmonics and protections studies.
2019	Uruguay	Salto Grande	Reclosing study in transmission substation Salto Grande - 500 kV.
2019	Uruguay	Anillo 500 kV	Study for the insertion of damping reactors in the context of grid transmission planning.
2019	Uruguay	Anillo 500 kV	Energization study for 2 transmission lines, taking into account lines transpositions. Comparison against established limits.
2018-2020	Panama	Ikakos 0, 1, 2 & 3	Photovoltaic farm, installed power 40MW. Power flow and stability model creation. Power flow and stability studies. Contract management.
2018	Uruguay	Anillo 500 kV	Modeling of electrical line parameters from physical topology, conductor type, tower type and geographical disposition. Reactive compensation study.

Year	Location	Project	Description
2018	Uruguay	Anillo 500 kV	Calculation of neutral reactors for grid transmission planning. In total, 800 kms in transmission lines to be fully compensated.
2018	Uruguay	Punta del Tigre	Energization study for connecting lines of Punta del Tigre substation - 500 kV.
2018	México	Bluemex	Photovoltaic farm, installed power 90MW. Power flow and reactive compensation studies.
2018	México	Camargo	Photovoltaic farm, installed power 25 MW. Power flow and reactive compensation studies.
2018	Australia	Lilyvale	Photovoltaic farm, installed power 118MW. Power flow and insulation coordination studies.
2018	Uruguay	Uruguayan grid modeling in ATP/Draw	The whole Uruguayan electrical transmission grid, modeled for electromagnetic transients studies. Almost 5000 MW installed in generation, 300 transmission lines, 250 transformers and their respective loads, capacitors and inductors bank, etc.
2016	Uruguay	Wind power plant Pampa	Ferroresonance study in the context of the insertion of a wind power plant.
2016	Uruguay Brazil	Conversion station HVDC	Modeling of frequency conversion station HVDC - 50 Hz/60 Hz - 500 kV – 500 MVA boundary between Uruguayan and Brazilian grid.
2015	Uruguay	Montes del Plata	Connectivity study, installed power 160MW. Impact analysis and grid planning in transmission grid.
2015	Uruguay	Ombues generator	Connectivity study, installed power 10MW. Impact analysis in Distribution and Transmission grid.
2014	Uruguay	Multiple studies	26 connectivity studies. Loads and generators with authorized/installed power between 2.5MW and 20MW. Loads and generators to be installed on Distribution grid. Impact analysis in Distribution and Transmission grid.

Experience (6)

supervision and approval

Year	Location	Project	Description
2015-2016 and 2020-2021	Uruguay	Estrellada Melowind	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2015 and 2020-2021	Uruguay	Alto Cielo	Photovoltaic farm, installed power 20MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017-2018 and 2020-2021	Uruguay	Pampa	Wind farm, installed power 140MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 and 2019-2020	Uruguay	Astidey	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 and 2019-2020	Uruguay	Cadonal	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 and 2019-2020	Uruguay	Colonia Arias	Wind farm, installed power 70MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 and 2019-2020	Uruguay	R. del Este	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 and 2019-2020	Uruguay	R. del Sur	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2015-2016 and 2019-2020	Uruguay	Valentines	Wind farm, installed power 70MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2014 and 2019	Uruguay	Agua leguas 1	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2014 and 2019	Uruguay	Agua leguas 2	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017-2018	Uruguay	Jolipark	Wind farm, installed power 20MW. Power flow, stability model approval. Power quality study and field test approval.

Year	Location	Project	Description
2017 - 2018	Uruguay	Ladaner	Wind farm, installed power 50MW. Power flow, stability and electromagnetics transients model approval. Power quality study and field test approval.
2017 - 2018	Uruguay	Palomas	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2017	Uruguay	Juan Pablo Terra	Wind farm, installed power 140MW. Power flow, stability model approval. Power quality study and field test approval.
2017	Uruguay	Colidim (El naranjal)	Photovoltaic farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2016 - 2017	Uruguay	Montes del plata	Biomass generator, installed power 160MW. Power flow model approval. Power quality study and field test approval.
2015 - 2016	Uruguay	Fingano	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2015 - 2016	Uruguay	Polesine II	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2015 - 2016	Uruguay	Vengano	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2015 - 2016	Uruguay	Vientos de Pastorage	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2015 - 2016	Uruguay	Cobra (Kiyu)	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2014 - 2015	Uruguay	Gemsa Polesine I	Wind farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.
2014 - 2015	Uruguay	La Jacinta	Photovoltaic farm, installed power 50MW. Power flow, stability model approval. Power quality study and field test approval.

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Co-working opportunities



Technical representation (regional and worldwide)

Power system engineer at your disposal

Software consultancy licences purchased

Short course trainer or seminars representation

A team member you can count on



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