SIEMENS energy

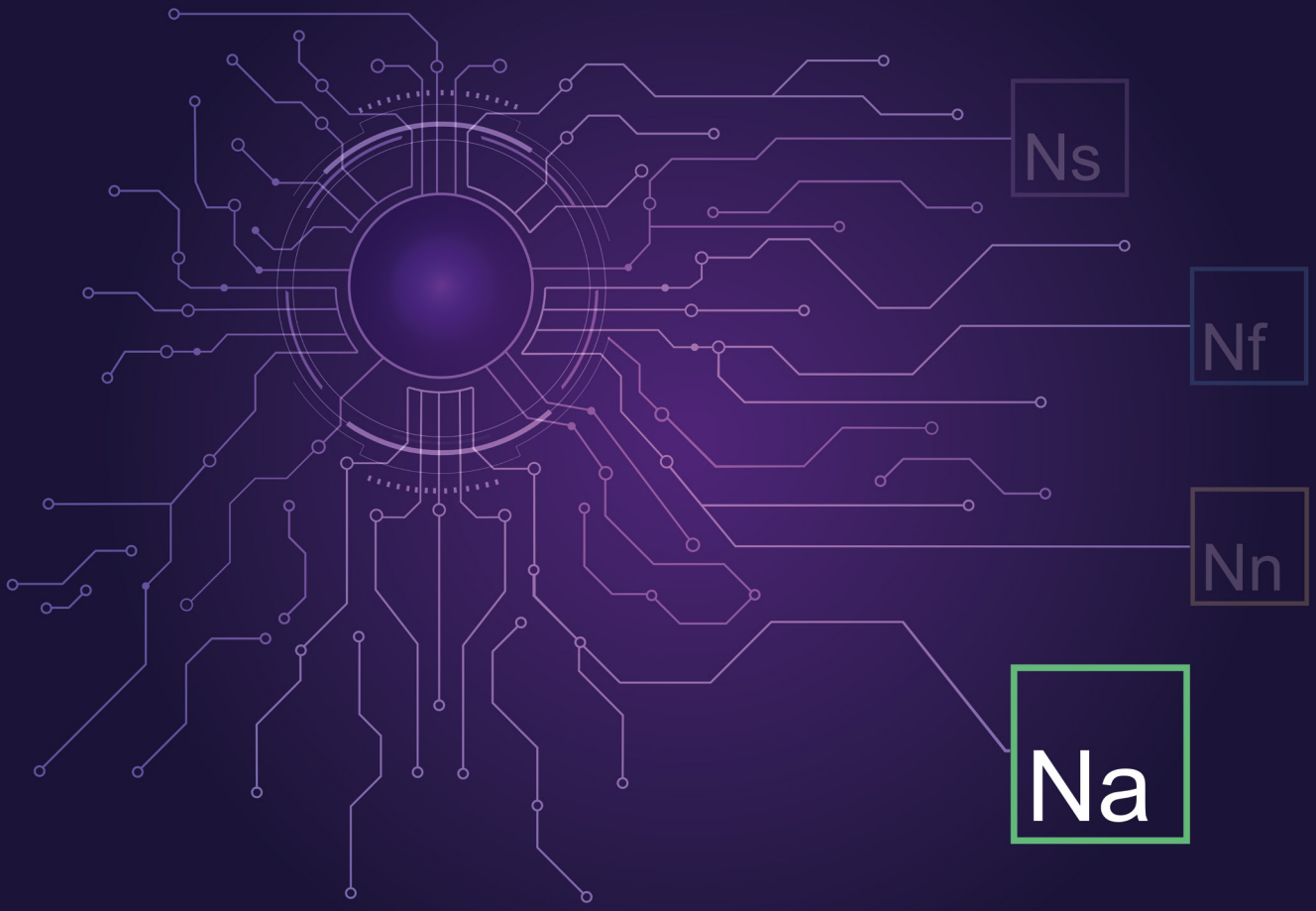
Noedra Atlas suite for energy advisory

Transform knowledge into direction.



Na

Noedra Atlas
Energy Advisory



The Noedra framework

Noedra is Siemens Energy's digital framework - *The Mind of the Grid* - bringing together Grid Technologies' intelligent solutions, from sensing and control systems to software and advisory, into one connected ecosystem.

By transforming data from across the grid into clarity, coordination, and confident action, Noedra helps operators work smarter and faster in an increasingly complex energy landscape.

Each Noedra suite expresses a specific way this intelligence acts: protecting, sensing, structuring, and guiding the grid.

Together, they enable a coherent, future-ready digital grid.

Atlas suite - Strategic guidance for the grid

Within the Noedra ecosystem, Atlas acts as the strategic guide.

The Atlas suite supports long-term decision-making by helping utilities, developers, and industrial operators prioritize technologies and investments, plan grid evolution, and design future-ready energy systems.

Combining insight, foresight, and deep technical expertise, Atlas turns complexity into clear direction - supporting informed decisions across planning, investment, and transformation phases.



From energy transition to strategic clarity

The energy landscape is undergoing rapid transformation, driven by decarbonization, digitalization, and decentralization.

Utilities and energy stakeholders face mounting challenges:

- Integrating renewables at scale.
- Ensuring grid stability amid volatile markets.
- Meeting evolving regulatory and grid-code requirements.
- Safeguarding operations against cyber and operational risks.

These pressures demand more than incremental optimization.

They require strategic clarity, technical precision, and confidence in long-term decisions.

The Noedra Atlas suite addresses this need through an integrated approach that combines advisory, engineering, and digital intelligence to guide the grid from concept to execution.

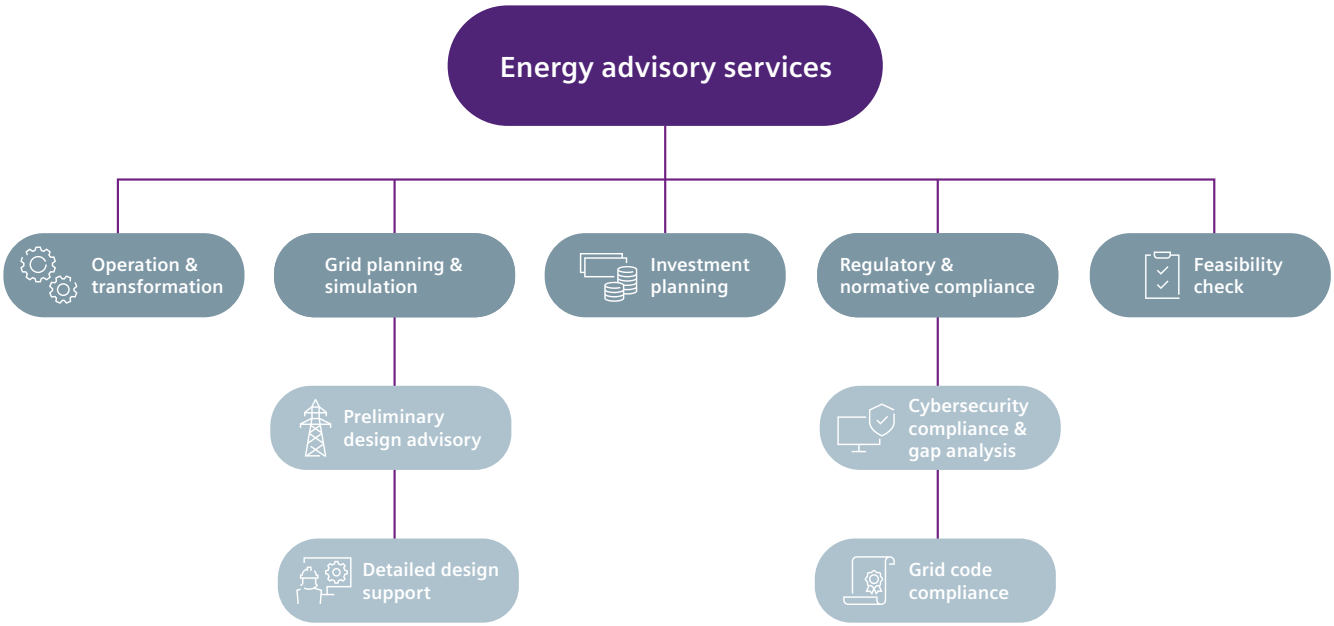
Our offerings

Energy advisory across the full decision lifecycle

The Noedra Atlas suite supports customers across the entire energy landscape, providing vendor-agnostic advisory services that span strategy, planning, and execution readiness.

Our approach: The 6-step energy advisory approach

To successfully navigate the energy transition, our six-step energy advisory approach provides a structured, end-to-end process that transforms strategy into executable action across the entire investment lifecycle. This methodology ensures that every phase-from early market insight to operational transformation - is designed to build confidence in decisions, validate feasibility, and deliver vendor-neutral, supply chain-feasible recommendations. These foundational steps seamlessly integrate with our three advisory pillars: energy transformation advisory, grid planning & simulation, and regulatory & normative compliance. By aligning each step of our consulting framework with these services, Atlas suite helps customers optimize operations, plan strategic investments, and ensure compliance, all while maintaining consistency, transparency, and measurable outcomes.



Energy transformation advisory

Energy transformation advisory provides strategic guidance to organizations navigating the transition to more sustainable and efficient energy systems. Experts assess current energy use, identify optimization opportunities, and define strategies for decarbonization. The outcomes include optimized energy consumption, cost reductions, improved environmental performance, and enhanced long-term sustainability and resilience in evolving energy markets. A comprehensive advisory framework is delivered across three key steps: operations, investment planning, and feasibility, all executed using a vendor-agnostic approach.

Operations & transformation:

Operations and transformation services focus on assessing current grid and asset performance, benchmarking against best practices, and designing transformation roadmaps to enable digitalization, decarbonization, and process optimization.

Investment planning:

Investment planning involves the development of strategic investment plans through market analysis, scenario modeling, and techno-economic evaluations to ensure cost-effective and future-ready infrastructure decisions.

Feasibility check:

Feasibility checks include detailed technical and economic feasibility studies, interconnection assessments, compliance reviews, and risk analyses to validate project viability and minimize implementation risks.





Grid planning and simulation

Grid planning and simulation services support projects from concept to execution, minimizing risks and laying a solid foundation for investment decisions. These services define system requirements, evaluate technical and economic feasibility, and model grid behavior under various scenarios. Insights from these analyses are translated into detailed engineering and compliance-ready designs, ensuring projects are prepared for implementation with reduced risk.

Grid planning and simulation advisory encompasses the Pre-FEED and FEED phases to deliver robust, compliant, and cost-effective grid solutions.

Preliminary design advisory:

Preliminary design requirements and boundary conditions are defined while exploring alternative concepts to minimize technical and financial risks. Tender support is also provided through clear technical documentation for competitive bidding. This includes projects that address complex grid architectures, mitigate multi-vendor asset risks, and ensure operational readiness for seamless implementation.

Detailed design support:

Designs are validated through advanced simulations and compliance checks. Performance requirements are clearly defined to meet regulatory standards, components are specified, and accurate cost estimates are prepared, ensuring execution readiness and minimizing implementation risks.

Regulatory & normative compliance

Staying ahead of regulatory demands is made possible through services such as cybersecurity gap analysis and grid code compliance. Risks are identified, interoperability is ensured, and systems are aligned with global standards. These measures allow grids to operate safely, reliably, and remain prepared for future challenges.

Grid operations and digital systems are aligned with the highest regulatory and industry standards to reduce complexity and compliance risks. Regulatory and normative compliance advisory focuses on two key areas:

Cybersecurity compliance, gap analysis & risk assessment:

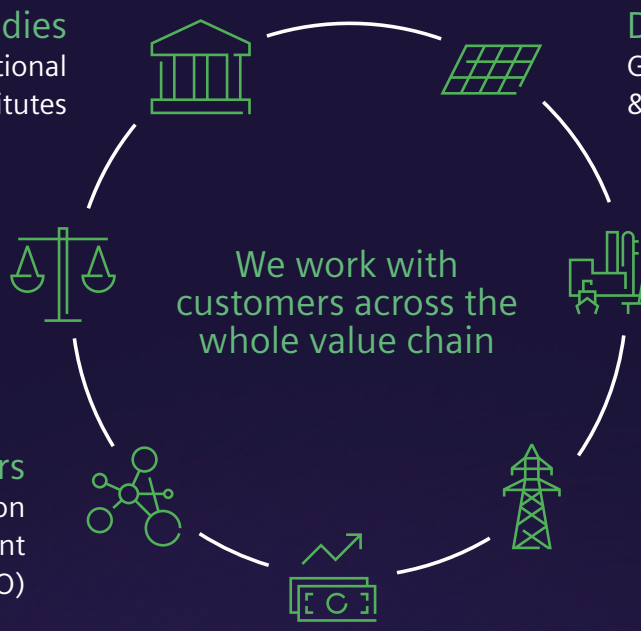
Secure and compliant grid operations are achieved through global standards mapping, vulnerability detection, automated asset discovery, real-time change alerts, risk analytics, and evidence collection for regulatory audits.

Grid code compliance:

Cybersecurity compliance solutions include gap analysis and risk assessment across the five key industrial control system (ICS) domains: incident response planning, defensible architecture, OT network visibility monitoring, secure remote access, and risk-based vulnerability management. These services establish best practices baseline for OT/ICS cybersecurity programs while supporting compliance reporting, asset management, and real-time incident response and recovery.



Clients, Atlas suite supports



Public bodies
Government & international financial institutes

Developers
Generation, storage & stability assets

Regulators
Energy systems, market & safety oversight authorities

Large energy consumers
Industrial & commercial

System operators
Transmission, distribution and independent (TSO, DSO, ISO)

Network operators
Transmission, distribution and independent (TNO, DNO, iDNO)

Specialist investors
Energy & utility infrastructure



40+

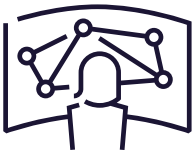
Client countries

200+

Core experts

1200+

Studies and projects per year



OEM expertise

Available in-house OEM domain know-how for all key technologies and solutions.



Vendor-agnostic advisory

Providing unbiased advice through access to proprietary products / solution of major OEMs.



Global expertise

With a presence in over 90 countries, delivering global best practices to your projects.



Innovation and R&D

Shaping the grid of the future by active R&D and innovation infusion.



Proven track record

Demonstrating strong ability to support customers throughout their digital transformation with references.

Our capabilities - Selected use cases

Every grid and investment context is different. These examples show how our vendor neutral advisory, deep engineering, and feasibility first mindset translate into decisions you can execute - from system planning to detailed design and operational transformation.



BESS Plant design

Scope: Main electrical studies for plant design and equipment performance analysis / tuning in terms of arbitrage or ancillary services.

Key capabilities:

- Electrical studies including dynamics, stability and transients
- Optimal BESS asset sizing including demand forecasting, ancillary services for arbitrage and depreciation
- Scoping of required equipment / verification of ratings and performance
- Compliance and HIL testing



Transmission system master plan

Scope: Overall holistic network planning by traditional power sources and/or renewables.

Key capabilities:

- Overall concept design, balancing of load, generation and storage
- Techno-economic analysis and control center concept development
- Energy efficiency & policy frameworks, including regulatory gap analysis, sector studies, and national efficiency / decarbonization roadmaps
- OEM equipment benchmarking



Renewables with or without storage

Scope: Renewable generation interconnection to AC grid.

Key capabilities:

- Generation forecasting, curtailment analysis & reliability, availability and maintenance analysis (RAM)
- Vendor-agnostic system sizing with realistic asset performance validation
- Stability and dynamic analysis, grid code compliance, substation design
- System integration with multi-asset multivendor environment



Data center with AI applications

Scope: Impact mitigation of fast load on generators ensuring stable data center operation, collocutors on grid & off-grid.

Key capabilities:

- Site selection, CAPEX and OPEX calc.
- Design of end-to-end system including MV, LV, plant level control
- Harmonics analysis, grid code compliance, dynamic simulations including load optimization options
- Overall system integration incl. HIL testing



Industry plants

Scope: development of new plants, existing plants digitalization strategies or decarb aspects.

Key capabilities:

- Techno-economical aspects of investing in new plants or expansion of existing plants with optioneering
- Digitalization roadmaps of chemical, pulp and paper, food and beverage, mining industries
- Design of substation and modelling of systems in different software including compliance



Large H2 hub or small-scale grid connections

Scope: large PtX plant development with grid connection or small distributed MW's.

Key capabilities:

- PtX plant power supply design validation
- Overall optimization of sizing and operational philosophy including ram
- Verification of grid code and PPA limitations on reactive power in operating modes development including interactions, system energization etc.
- Techno-economic modelling
- Overall system integration incl. HIL testing



Grid access to oil platforms (PtX)

Scope: Electrical design and evaluation of options for the system.

Key capabilities:

- Evaluation of technical options for offshore and onshore platform solutions
- Capital cost estimation including life cycle cost modelling
- Operational philosophy, contingencies, and RAM (reliability, availability, maintenance) assessment
- System design, substation design, model development, and grid code compliance



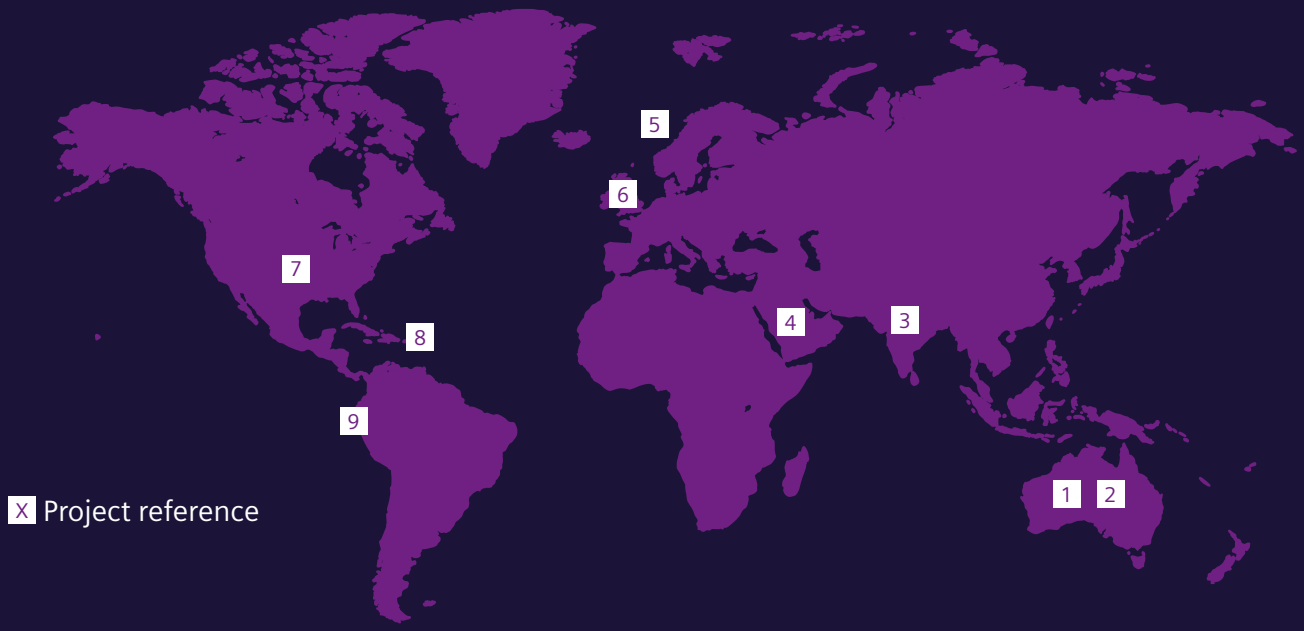
DC or AC backbone and grid access

Scope: Feasibility and design of AC or DC transmission system including grid access.

Key capabilities:

- Techno-economic analysis with supply-chain constraints for large infrastructure, socioeconomic impact assessment
- System design & impact assessment on the AC network, with model implementation and HIL verification
- Specifications development

Designing modern power systems: transmission infrastructure, grid access, renewables, stabilization & storage



1 Customer:
Renewables developer

Country: Australia

Scope: Model development, stability assessment, dynamic model acceptance testing & compliance

2 Customer: New utility

Country: Australia

Scope: Scenario analysis, system impact assessment, socioeconomic and revenue auction impact assessment

3 Customer: TSO

Country: India

Scope: Vendor neutral System design of assets, dynamic performance and stability assessment criteria establishment

4 Customer:
Infrastructure developer

Country: Saudi Arabia

Scope: Overall generation and demand planning, AC vs DC backbone feasibility, System stability and design, RAM

5 Customer: TSO

Country: Norway

Scope: Overall grid modelling for impact, RAM stability, harmonic, dynamics and substation design

6 Customer: TSO

Country: United Kingdom

Scope: BESS sizing and impact assessment, stability analysis, RAM

7 Customer:
Renewable developer

Country: United States

Scope: Overall system design including interconnection studies, substation design studies and compliance for solar power plant

8 Customer: TSO

Country: Dominican republic and Puerto Rico

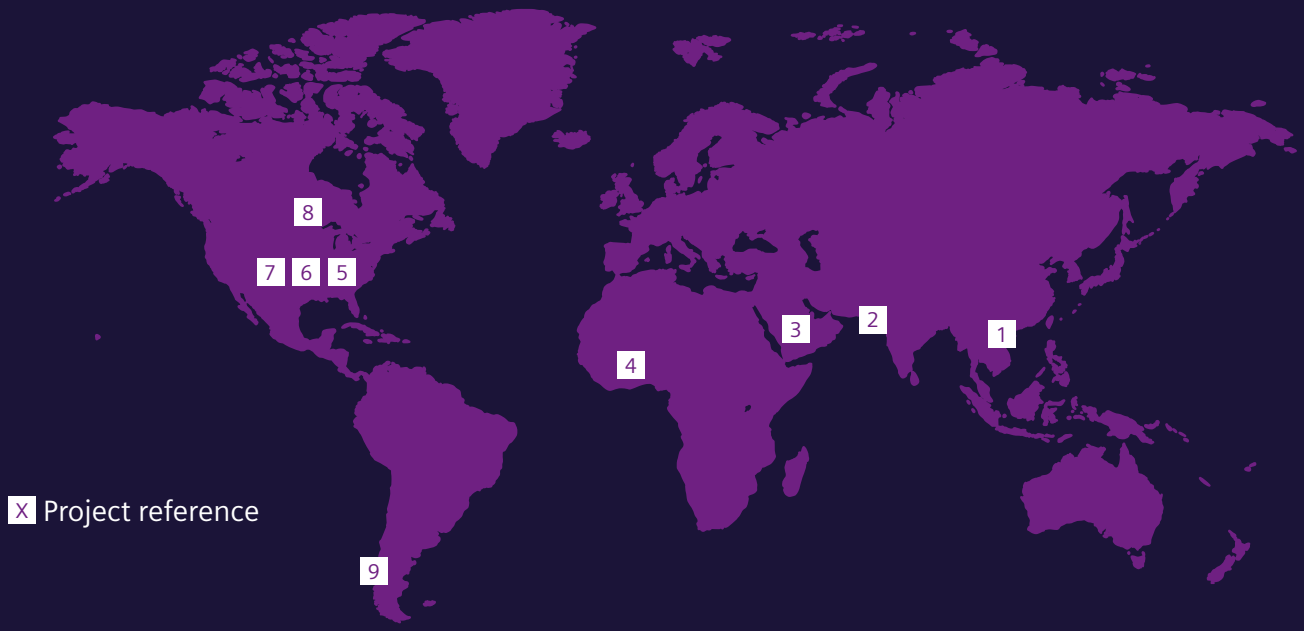
Scope: HVDC interconnector - Vendor-neutral system design of HVDC, gas turbines, and stabilization assets with dynamic Modelling and techo-economic analysis

9 Customer: Utility

Country: Peru

Scope: GIS expansion - Very fast transients, Arc flash, ferroresonace, insulation co-ordination studies

Enabling the low-carbon economy: industry decarbonization, data center applications, hydrogen solutions & regulatory frameworks



X Project reference

1 **Customer:** Utility

Country: Hong Kong

Scope: Scenario analysis, system impact assessment, socioeconomic and revenue auction impact assessment

2 **Customer:** Industrial plant

Country: Pakistan / Mexico

Scope: Implementation roadmap based on techno-commerical modelling, procurement strategy, site assessment and load profiling

3 **Customer:** Utility

Country: United Arab Emirates

Scope: Benchmarking of different methods, build-up data repository & revenue analysis, identification of load profile gaps, revenue modelling and tariff segmentation

4 **Customer:** DSO

Country: Nigeria

Scope: Technical due diligence findings: asset condition, safety, efficiency, risks, investment outlook: capex, capacity expansion.

5 **Customer:** utility

Country: United States of America

Scope: NERC compliance - Mod and PRC model tests including site compliance process

6 **Customer:** Data center

Country: United States of America

Scope: Primary asset design consisting of steady state, harmonic and stability analysis, RAM, system modelling in PSSE & PSCAD

7 **Customer:** State utility

Country: United States

Scope: Solar assessment for region - techno-economic assessment, market barrier assessment, benchmarking of best practice, cyber security concept.

8 **Customer:** Industry (LNG)

Country: Canada

Scope: Impact of potential renewable generation including CAPEX, OPEX, dynamics, harmonic stability and SSTI analysis

9 **Customer:** Utility

Country: Chile

Scope: Complete system design including asset performance criteria, dynamic simulation and implementation of operational principle, RAM

Why Siemens Energy

Partnering with Siemens Energy means more than just choosing a technology provider. Our value goes far beyond technology - we bring vision, reliability, and partnership to every project.

Proven expertise:

Benefit from decades of experience in power systems and grid modernization, ensuring reliable and forward-thinking solutions.

Global reach:

Leverage our worldwide presence and deep industry knowledge to address local requirements while meeting global standards.

Tailored solution:

Our teams collaborate closely with customers to deliver solutions customized to your unique operational needs.

Trusted partnership:

Rely on Siemens Energy as your advisor, dedicated to building long-term relationships and supporting your journey toward a reliable, secure, and sustainable energy future.

Continuous innovation:

Experience ongoing support and innovation, ensuring your organization stays ahead in a rapidly evolving energy landscape.

Plan smarter.
Decide with confience.

Discover how Noedra Atlas turns knowledge into direction for the grid of tomorrow.



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