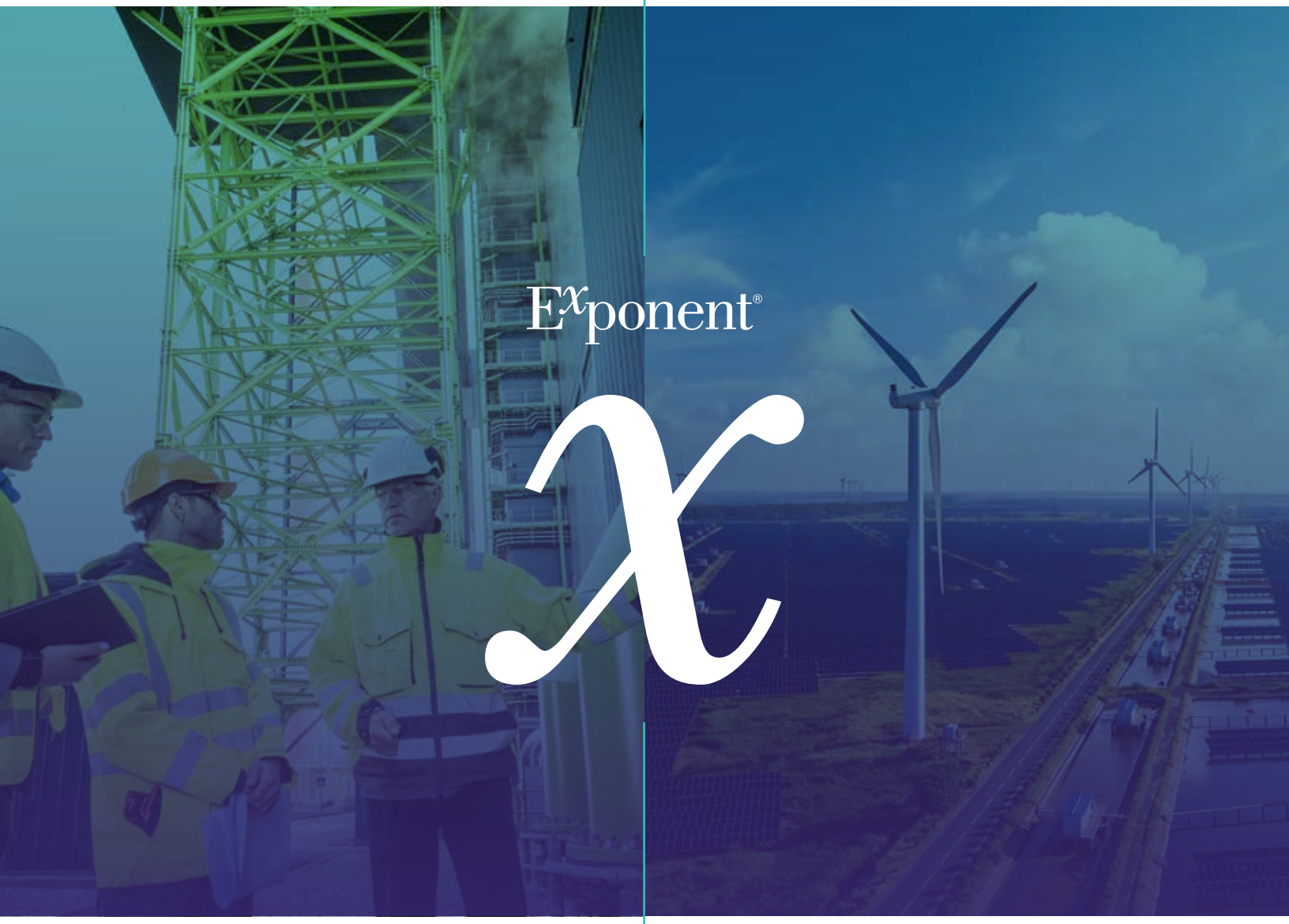
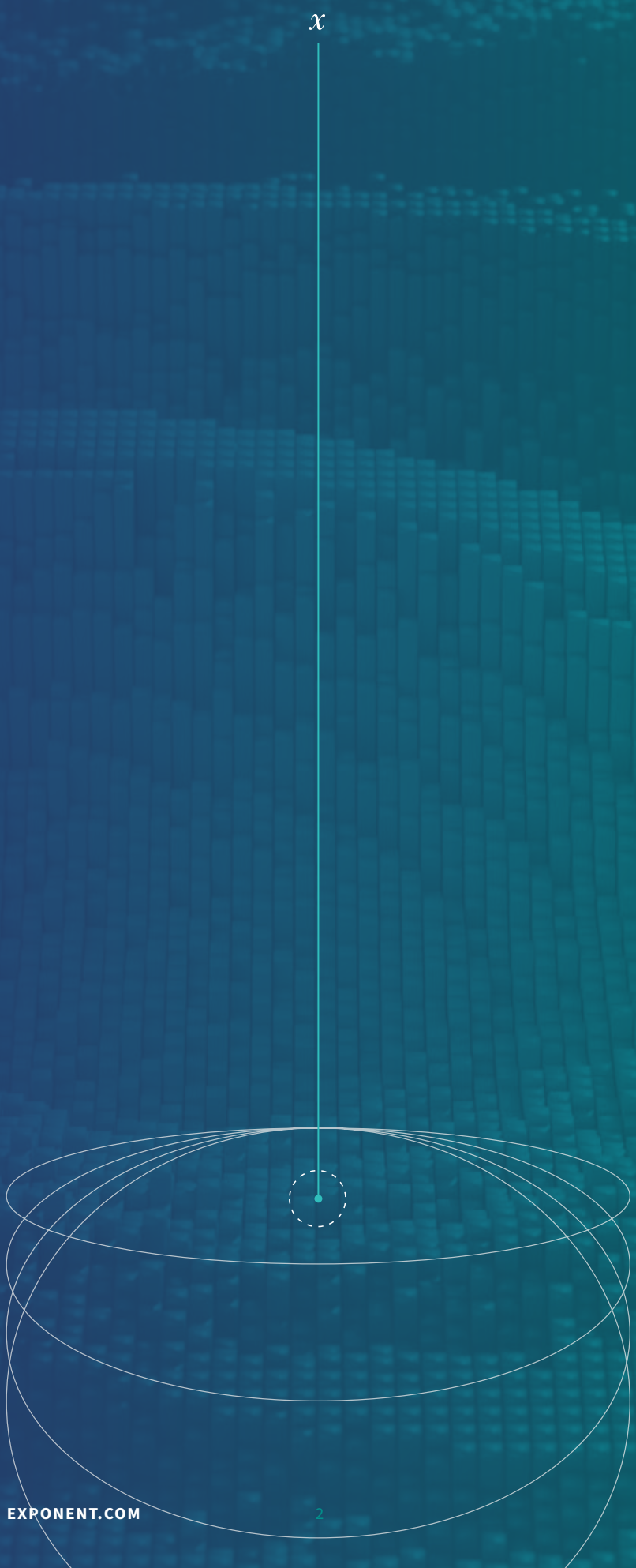


Exponent®

Asset Management for Utilities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Hard Questions. Tough Challenges. Bring It.

In an era of accelerating change, Exponent is the only premium engineering and scientific consulting firm with the depth and breadth of expertise to solve our clients' most profoundly unique, unprecedented, and urgent challenges.

Exponent brings together 90+ technical disciplines and 950+ consultants to help our clients navigate the increasing complexity of more than a dozen industries, connecting decades of pioneering work in failure analysis to develop solutions for a safer, healthier, more sustainable world.

Our consultants deliver the highest value by leveraging multidisciplinary expertise and resources from across Exponent's offices in North America, Asia, and Europe. Exponent's consultants, laboratories, databases, and computing resources work seamlessly together around the globe, enabling us to produce the breakthrough insights needed to help multinational companies, startups, law firms, insurance companies, governments, and society respond to incidents and push their products and processes forward.

Exponent by The Numbers

90+
Technical Disciplines

30+
Offices Across North America, Europe & Asia

1967
50+ Years of Scientific Excellence

950+
Consulting Staff

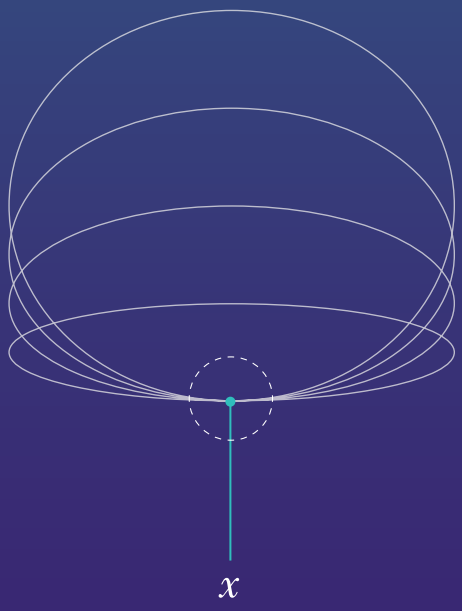
640+
Doctoral-Level Professionals

35+
Staff Serving on Editorial Review Boards or as Peer Reviewers

50+
Staff Working at Universities

250+
Standards Committees and Advisory Boards Served

1,200
Staff Academic Articles Published



Industries

Navigate the complexities of your industry with someone who understands your daily challenges. Exponent tailors a multidisciplinary team that's dedicated to helping you through the end-to-end industry lifecycle. Through our international locations, we bring together rigorous technical know-how, state-of-the-art labs, regulatory experience — and 50+ years of breakthrough insights.

- Chemicals
- Construction
- Consumer Products
- Electronics
- Energy
- Food & Beverage
- Government Sector
- Software & Computer Science
- Life Sciences & Healthcare
- Industrial & Manufacturing
- Mining & Forestry
- Transportation
- Utilities

Expertise

Work with multidisciplinary teams of science, engineering, and regulatory experts who are hard-wired to take on your toughest challenges. Because when getting it right matters, you need the right expertise at the table.

- Biomechanics
- Biomedical Engineering & Sciences
- Buildings & Structures
- Chemical Regulation & Food Safety
- Civil Engineering
- Construction Consulting
- Data Sciences
- Ecological & Biological Sciences
- Electrical Engineering & Computer Science
- Environmental & Earth Sciences
- Health Sciences
- Human Factors
- Materials & Corrosion Engineering
- Mechanical Engineering
- Polymer Science & Materials Chemistry
- Thermal Sciences
- Vehicle Engineering

How can Exponent's systematic, risk-based framework help you make more informed utility asset management decisions?

Exponent empowers utility asset management with data-driven tools and multidisciplinary expertise so clients can accurately evaluate asset health and reduce climate change-related risks.

The impacts of climate change are heightening risks for all utility providers, ranging from more intense and faster-spreading wildfires to changing hydrology, flooding, and extreme temperatures.

Risks of an electric utility asset failure starting a catastrophic wildfire have become a particular concern in the western United States, with regulatory agencies like the California Public Utilities Commission requiring utility companies to demonstrate their plan for using more advanced, systematic techniques that quantify risk reduction and associated remediation.

Exponent provides unparalleled consulting capabilities to help utilities quantify their asset failure probability, develop models to demonstrate degradation, and predict the growth of specific risks such as fire over time.

We've worked with utility clients to develop a state-of-the-art tool that provides risk- based metrics for determining asset health across their entire system. This framework is then used to compare the relative risk of each individual asset (such as tens of thousands of electrical towers or wood utility poles) to target repair, replacement, or other capital improvement projects for assets that pose the greatest risk. Based on inspection inputs, outage history, and real-time data, our advanced predictive models enable more precise decision-making — precisely when it counts.

Applied to wildfire, we have assisted clients in reducing their risks by measuring transmission structure failure probability as a function of wind speed within a given high fire threat zone. And our degradation modeling work has helped utilities predict when specific assets may reach threshold strength levels and require replacement. We perform failure modes and effects analysis, reliability and maintenance assessments, asset health condition assessments, project prioritization, as well as risk management records and data management, regulatory compliance support, and change and quality management.

Under site-specific conditions, Exponent can predict fire growth over time, so you can evaluate catastrophic risks in an area during specific meteorological events. Our damage assessments can assist you in better managing assets by evaluating the extent of damage to equipment, enabling asset repair and replacement to reduce the likelihood of failure. Additionally, Exponent's origin and cause investigations aid in the evaluation of physical evidence for investigations and litigation. This helps clients understand potential consequences, assess natural resource recovery, and mitigate future litigation risks.

Given the multifaceted challenges of utility asset management and mitigating the risk of extreme weather and climate change, Exponent's multidisciplinary teams of materials scientists, electrical engineers, civil engineers, thermal engineers, metallurgical engineers, data scientists, health toxicologists, epidemiologists, and others are uniquely qualified to help solve the evolving, complex challenges of utilities clients through capabilities such as:

- Asset management for extreme weather risks
- Natural resource damage assessments
- Economic assessment of natural resource damages
- Ecological recovery
- Electric utility and wildfire risk mitigation
- Hazardous locations and materials analysis
- Wildfire and explosion investigation
- Wildfire impact
- Landslide and slope failures
- Water sciences and management

Our Capabilities Are Unparalleled

With expertise in over 90 disciplines and hundreds of capabilities, tools, and methodologies — we get to the root of even the most complex challenges, giving you the objective answers you need.

BUILDINGS & STRUCTURES DESIGN & DEFECTS SUPPORT

- Complex structural health and design support and defect assessments, with effective strategies to mitigate environmental impacts and degradation.

CHEMICALS IN THE ENVIRONMENT

- State-of-the-art chemical fate and transport assessments to understand chemical movement in air, water, and subsurface water, as well as the physical, chemical, and biological processes that influence chemical disposition in the environment.

EMERGENCY RESPONSE

- Rapid, data-driven engineering response services for natural disasters, accidents, building failures, and human-made catastrophes.

ENVIRONMENTAL PERMITTING

- Extensive support for compliance with local, state, and federal requirements.

HYDRAULIC & HYDROLOGIC ANALYSIS

- Expert hydrologic and hydraulic analyses and water consulting services, supporting hazard identification and mitigation, and planning for appropriate water supply.

QUANTITATIVE RISK ASSESSMENT

- Innovative, quantitative risk assessments to support climate-change planning that helps protect buildings, infrastructure, and other valuable assets.

SPECIALTY STRUCTURES

- From airports to green buildings, construction consulting for specialty structures requiring wide-ranging expertise to improve safety and performance.

Quantitative Risk Assessment for Buildings & Structures

Risks to buildings and infrastructure come in many forms, from extreme weather, earthquakes, and wildfires to flooding and explosions. Exponent provides innovative, quantitative risk assessments to help clients plan and protect their buildings, infrastructure, and valuable assets.

Exponent's multidisciplinary risk assessment teams collaborate to offer groundbreaking quantitative risk analysis, failure probability studies, and structural risk assessments for protecting buildings, infrastructure, and assets. Exponent's risk assessment services help you predict, plan, and make decisions around maintenance and operational priorities with confidence.

Exponent works with clients to safeguard operations, minimize liabilities, improve safety, and maintain business continuity. Our quantitative, risk-based operability assessments accurately evaluate asset performance to enable real-time decisions that protect customers and communities.

Capabilities

Exponent's quantitative risk analysis services help clients better understand potential risks from numerous events and hazards, enabling you to proactively plan and protect your assets.

SEISMIC RISK ASSESSMENT

- Exponent conducts probabilistic structural risk assessments to determine the annual likelihood of unacceptable seismic performance and provide recommendations for strategies to achieve target levels of reliability.

UTILITY ASSET MANAGEMENT & WILDFIRE RISK MITIGATION

- Exponent empowers asset management with data-driven tools so clients can accurately evaluate asset health and reduce risks.

NUCLEAR POWER

- Exponent's engineering team conducts risk assessments and investigations that provide evidence-based insights for plant managers to better plan for dangerous events.

RISK DUE TO CLIMATE CHANGE & EXTREME WEATHER

- Exponent's multidisciplinary asset integrity management experts help safeguard our clients' infrastructure through proactive programs and tools that assess asset vulnerability to climate extremes.

ENVIRONMENTAL SUPPORT

- Exponent offers wide-ranging environmental services, designed to answer critical questions about the health and safety of your operations and their impact on people and planet, including:
  - Safe storage and usage of hazardous compounds
  - Modeling the dispersion, fate, and transport of pollutants
  - Designing and deploying water and air monitoring networks
  - Conducting ecological and human health studies
  - Engineering for remediating existing issues

Sustainability & Climate Change

Protect water, assets, and the environment with better sustainability practices and climate change planning.

How can you leverage Exponent's leading sustainability and climate change expertise backed by advanced technology and quantifiable methodologies?

Governments and businesses are prioritizing sustainability programs and metrics as critical components for analysis, decision-making, and project planning — including transitioning to renewable energy sources such as solar, wind, and hydropower, as well as the use of liquid natural gas (LNG). Sustainability practices can help businesses address the challenges of climate change, make sound business decisions, adapt to evolving markets, increase the resiliency of their operations, meet regulatory requirements, accelerate growth, minimize risk, and elevate reputation.

Critical to sustainability planning is obtaining clarity on climate-related uncertainty — whether projecting water availability and impacts to hydropower and reservoir operations, characterizing flood risk amid changing weather patterns, or preventing a wildfire during high winds. From an industry and government planning perspective, extreme weather events heighten the risk of valuable infrastructure and asset failure such as utility, energy, and water distribution facilities, as well as bridges, roads, and railways, which are essential for the continuity of business operations and modern life. To address these climate change and sustainability challenges, our scientists and engineers use state-of-the-art technology to provide predictive modeling with quantifiable analytical frameworks.

Capabilities

- Conditions assessment to establish present-day baselines
- Degradation modeling to account for climate-related changes to asset threats
- Climate change impact evaluations identifying the frequency and severity of floods and droughts
- Climate-related hazards evaluations and vulnerability assessments
- Future hydrologic patterns evaluations identifying risk of drought and flood
- Environmental baseline changes assessments to support permitting and regulatory proceedings
- Infrastructure inspection planning
- Regulatory compliance for changing climate conditions
- Water quality, harmful algal blooms, and invasive species (such as mussels) management
- Multidisciplinary renewable energy and stewardship services for complex project challenges, from assessment and implementation to execution
- Consulting for solar and wind, including system design, construction and functionality, and operation and maintenance
- Expert analyses for hazards related to appropriate water supply with expert analyses and water consulting services
- End-to-end support for liquid natural gas (LNG) handling, transportation, and storage