

Risk engineering solutions for today's energy industries



Why Risk Engineering?

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- Risk Engineering in North America completes over 1,000 risk assessment and consulting projects annually by energy specialists who average over 20 years of industry experience.
 - Our hands-on assessments provide a view into operations to help assist in compliance with corporate directives as well as federal and state regulations to manage the overall cost of risk.
 - Our mining risk engineers have industry experience in both hard and soft rock sectors. These engineers are cross-trained in conducting mining specific “property and machinery breakdown” and “casualty” (workers’ health and safety and liability) exposure assessments at Zurich’s customers mining operations. Our risk specialists are Mine Safety and Health Administration-certified (MSHA) and have the experience and expertise to understand all aspects of production, including underground and open pit mining, leaching, processing, and tailing management. Additional services we can provide include but are not limited to construction risk services, hazard analysis facilitation and builders risk assessments for new mining projects.
 - Our oil & gas risk engineers have direct industry experience. They perform property and casualty risk assessments and they can assist in the facilitation of HAZOP, PHA, JHA, PSM, and our proprietary Zurich Hazard Analysis (ZHA) methodology.



Our experience makes the difference

Our risk engineers know the industry and will work with you and your employees to build practices that help you minimize your company's risk. We understand the challenges of today's world and can provide insight to the management and communication of operational and strategic risks such as failure to meet legal/regulatory requirements, loss of customers, damage to brand equity, low employee morale, and supply chain breakdown. We study industry specific loss trends, emerging risk issues, and best practices.

Our experience is backed by a robust quality control program.

- Our wealth of knowledge and experience across our global network of more than 800 risk engineers enable our group to leverage cross-industry experience.
- Our industry specialists are often featured in industry publications and participate in select associations, trade shows, and conferences.
- Over 100 risk engineers in North America have leadership roles on technical committees and focus groups that help drive new standards, guidelines and best practices within a particular industry or group of industries.



Risk engineering services for the challenges you face today



Our risk engineers have industry experience and can provide insight into the problems you face now and in the future. Their experience enables them to understand the financial, operational and competitive challenges that you could face. We provide customized risk solutions for corporations in diverse energy markets. We offer a single point of contact for access to a global team of energy specialists.

Because every customer's risk profile is different, we have structured our risk engineering services to several specialized areas designed to address those individual needs.

Power generation & alternative energy

- Major utilities, independent producers, merchant plants, and secondary generation
- Thermal plants; boiler, combustion engines and gas turbine based
- Hydroelectric biomass, geothermal
- Wind farms, solar, fuel cells / micro-turbines, battery storage systems

Mining

- Large global, junior and intermediate miners (metal, coal, and non-metal)
- Fully integrated mining vertical, including processing and support industries such as drillers, blasters and utilities

Oil, gas & petrochemical

- Petrochemical, crude oil and petroleum plants/terminals/tank farms
- Mid-stream pipeline operators and contractors
- Alternative energy (e.g. ethanol and biodiesel plants)
- E&P - drilling contractors, oilfield service companies, wire line, stimulation, coil tubing

Challenge	Solution	Benefits
<p>A large merchant power plant's single generating step-up transformer represented a business interruption exposure in excess of \$35M USD</p>	<p>Business Interruption Risk Improvement consulting</p>	<p>Zurich worked through a known equipment vendor to locate two different transformers that would provide "spare" options in a short time frame. The approach allowed the plant to have "non-owned" back-up contingency plans during the long delivery period of a new spare transformer. This significantly reduced exposure to both insured and non-insured losses.</p>
<p>A facility is experiencing excessive boiler down time and possible compliance issues</p>	<p>Machinery breakdown services</p>	<p>Zurich's experienced staff of equipment breakdown risk engineers can work with customers to conduct essential boiler reviews at those times of scheduled down time, or over holidays.</p>
<p>An oil & gas organization has an increased frequency of employee injuries centering on slip, trips, and falls for the same level and elevated surfaces</p>	<p>Slip, trip and fall evaluations</p>	<p>Our slip, trip and fall evaluations range from providing self-assessment tools to in-depth site evaluations of the slip, trip and fall exposures you face. Our assessment model identifies the most important factors affecting the potential for slips, trips and falls. After helping you identify these critical risk factors, we focus on practical and cost-effective improvements. Our experience helps us recognize the problems unique to your environment that can lead to slip, trip and fall accidents, and our solutions have led to measurable results.</p>
<p>An energy conglomerate is concerned with concentration of values, disaster recovery, and potential gaps in their business continuity plan</p>	<p>Enterprise Risk Management, business continuity, natural hazards risk assessment</p>	<p>Zurich's holistic approach to Enterprise Risk Management will help identify gaps and add real insight to the management and communication of strategic risks. Our risk engineers will evaluate your properties and offer solutions designed to help minimize the effects of these catastrophic events. We will also assist with your efforts to plan and recover from these events, as there is no substitute for a thorough, well-rehearsed pre- and post-event plan.</p>
<p>A global mining organization has an incidental fleet of owned and non-owned auto exposures</p>	<p>Fleet services</p>	<p>Zurich's Virtual Risk Manager – Fleet allows customers to customize the development of a program that will provide them with an effective fleet management tool providing interactive driver tools, driver profiles, defensive driver training, MVR analysis, driver information management, and electronic driver qualification file maintenance.</p>
<p>The owner of a wind farm is concerned with exposure to construction activities such as crane operations, fall protection and general builders risk</p>	<p>Construction risk services</p>	<p>Our construction risk engineers specialize in the assessment and control of risks associated with building material and erection activities. We offer customized solutions, training, and tools for unique situations involving crane operations and fall protection in unlikely places.</p>

Additional services we can offer under contract

Strategic risk

- Customized service plans
- Enterprise Risk Management gap analysis
- Supply chain risk assessment
- Risk Topics and solutions, webinars, seminars
- Web-based reporting, resource and loss tools and training

Property

- Property risk assessments
- Fire protection, construction plan and specification reviews/assessments
- Assistance with sprinkler impairment handling
- Business continuity, emergency management and security evaluations

Employee health/safety

- Ergonomic surveys
- Absence management (return to work) consultations
- Health and safety audits

Fleet

- Fleet program evaluations and assistance
- Virtual Fleet Risk Management
- 10-4 Defensive Driver training

General liability/Products liability

- Life Safety Code evaluations and plan reviews
- Slip, trip and fall evaluations and slip meter testing
- Product quality control and recall program reviews

Equipment breakdown

- Boiler, pressure vessel and machinery assessments
- Jurisdictional inspections
- Facility operating procedure development
- Combustion safety course
- Energy audits
- Fuel-fired equipment audits



Success stories

- A large energy customer entered into an Owner Controlled Insurance Program (OCIP). During the first year of the program they asked Zurich's Risk Engineering team to assist them in driving the cost per work hour down to achieve higher profitability. A Return to Work Program was implemented that resulted in a reduction in the number of lost work days and reduced the overall cost of claims with the assistance of a Zurich Absence Management Consultant. The cost per work hour was driven down from \$0.71/hour to \$0.18/hour over a three year period.
- A Power Generation customer had requested Zurich's Risk Engineering team to conduct several Property and Machinery Breakdown assessments at various locations across the United States. A review of transformer oil testing revealed that several of their 125 MVA transformers were showing signs of internal sulfur corrosion. Corrosion of this type has been known to lead to significant failures including internal arcing and fires resulting in a potential loss of over \$2 million and extended outage time.
- In working at a coal preparation plant, a Zurich risk engineer discovered inadequate water pressure and flow from a hydrant. As a result of our investigation, a blockage was found past the tap point with subsequent repair. The fire protection system was successfully brought back online at full capacity to protect the \$10M facility.
- Zurich Risk Engineering assisted a large Global Energy customer with implementing a Management of Change program for by-passing critical alarm interlocks. This recommendation alone had a significant impact of preventing a potential large loss. Additional successes with this customer included: formalizing the existing mechanical integrity program, including PMI, tracking metal thickness measurements, and increasing the inspection frequency for the existing CUI and CUF programs.

Cost containment in collaboration with claims services

Our risk engineers work in collaboration with you and with our underwriting and claims professionals to identify those strategic services that will positively impact your risks, and help you run an efficient and profitable business. We know that claims service is how we truly deliver when it matters to our customers. We have a dedicated Major Claim unit that handles significant claims with an average adjuster experience of more than 20 years. Our claim handlers have experience in products liability claims and mechanical failure analysis capabilities.

Serving your needs

Our specialists are in many locations around the globe, including: Buenos Aires, Calgary, Chicago, Denver, Dubai, Hong Kong, Houston, London, Melbourne, New York, Philadelphia, Singapore, Toronto and Zurich.

For more information visit:
zurichna.com

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This is intended as a general description of certain types of risk engineering services available to qualified customers through The Zurich Services Corporation. The Zurich Services Corporation does not guarantee any particular outcome and there may be conditions on your premises or within your organization, which may not be apparent to us. You are in the best position to understand your business and your organization and to take steps to minimize risk, and we wish to assist you by providing the information and tools to help you assess your changing risk environment.

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