

EMEA Power

Challenges and opportunities
in the sector



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Introduction

We are encountering a period of significant change in the power sector driven by government policy, technological advances and consumer demand. This provides both opportunities and threats that need to be navigated. Whether you operate in the field of conventional thermal power, nuclear energy or renewable energy you will face similar opportunities and threats to growth. This booklet is designed to give you an overview of the industry's challenges and threats, coupled with examples, resources and support to create opportunities.

Developments in technology are helping to drive the power market forward. Renewable energy generation is becoming increasingly cost competitive and in some areas allowing for subsidy free production. Battery storage is one of the new developments that will help with issues of intermittent generation, reduce the need for fossil fuel based peak load generation and further influence the future energy mix.

Whilst energy efficient schemes and technologies may be reducing consumption, new markets are opening up in the power sector such as in energy management services, electric vehicles and domestic generation. This is supported through unlocking the potential of smart grids and smart meters which will fundamentally change how the electricity market operates and open up the potential for greater use of data and analytics in a digitalised era. This will lead to the power of consumers increasing and further changes in business models.

Governments continue to play a key role in the sector including through liberalisation of energy markets, setting subsidy regimes linked to investment strategies, enforcing climate change policies and developing frameworks to support energy trading mechanisms. As we sit on the edge of a truly interconnected EU energy union we wait with significant interest to see how aspects such as the UK's exit from the EU and Electricity Market reform will drive further change in the power sector.

With distributed generation from home and business owners, real estate and community based schemes and increased digitalisation across networks there is a need for companies to evolve, get closer to the consumer and adapt to deal with new distribution models. Increasingly we will also see companies in the sector moving across the value chain to protect themselves against these changing dynamics through diversification and in seeking out new growth opportunities.

Our aim is to support you through your industry's challenges; whether you are looking for advisory services on risk, retirement, human resources or health we are here to help your business to thrive and succeed.

Mark Potter
Head of Power EMEA Specialty

Executive summary

USD \$340M
of Power
premium
placed by
Aon in EMEA
in 2016

Interest in the power sector is very high; in EMEA in 2016 there were more than €77 billion deals in power infrastructure representing 59% all investments in infrastructure. Merger and acquisition activity is buoyant both within the region and from companies further afield increasingly attracted by the positive investment yields. This creates a buoyant industry with dynamic ownership structures that opens up new areas of risk as well as savings from greater portfolio economies of scale.

As the power industry goes through changes, insurance products and risk management services need to continue to evolve too to help companies meet ever-changing challenges and business goals.

How these risk management issues are addressed, and business goals reached, while protecting the bottom line and securing capital to open up options to access opportunities is critical to success. Fundamental to this is the advisor and strategic partner you choose to work with to navigate these areas.

The structure of today's commerce, and growing financial pressures, means that internal expertise is not always fully and readily available. External partners are able to offer a wide range of capabilities combined with an independent third-party perspective that complements our clients' know-how.

Aon may have its roots in the insurance industry, but it has an in-depth understanding of the global power industry, and the EMEA region in particular. This means it is able to offer expertise in risk management, talent, retirement and health solutions, as well as data and analytics insight. This support can help businesses when making decisions, approaching challenges and managing risks.

Research from our Global Risk Management Survey has shown that the top ten risks identified by the power industry in EMEA resulting in a loss of income over the last 12 months are:

Looking at the key risks impacting the power industry, the ability of the insurance market is challenged to support the sector as best as possible. Although insurers and brokers will work hard to help clients mitigate traditional exposures such as business interruption, political risk and third party liability, it is important that the sector continues to innovate to deal with emerging threats, such as cyber crime for one. Power companies are also looking for solutions to help with less traditional insurance lines such as implementation of flexible benefit programmes that help with the retention and attraction of key talent and the implementation of insurance affinity programmes to help differentiate solutions to consumers and generate additional revenue flows. This all needs navigating against a backdrop of regulatory and legislative changes that continue to register as the biggest risk factor impacting revenues.

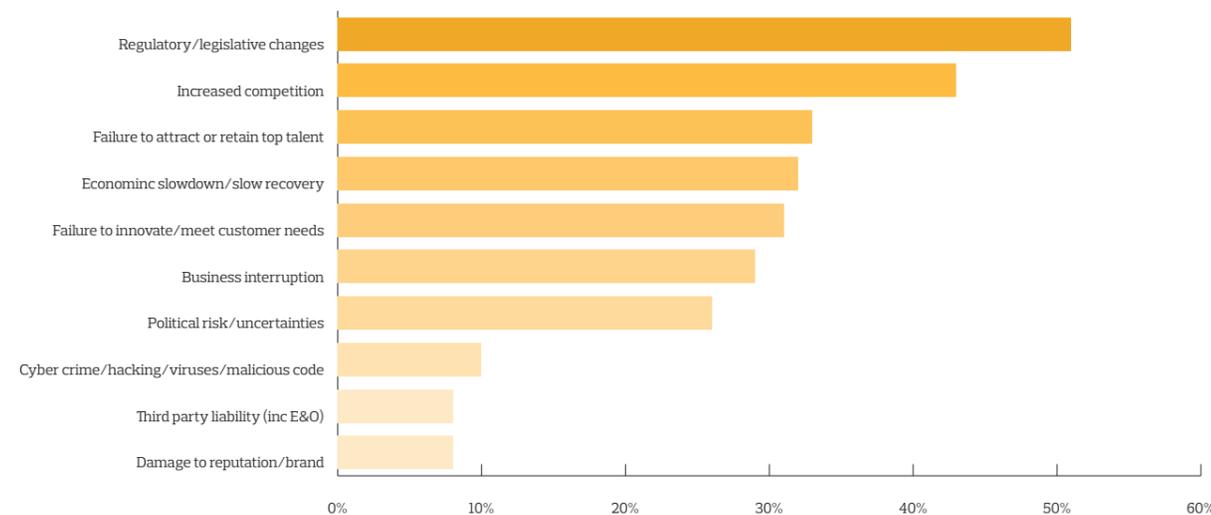
The power industry needs advisors and strategic partners that are client focused, with a wider portfolio of services based on their expertise and market insight. In addition,

these partners should be able to offer tailored services and solutions that make a difference, and not merely selling an off the shelf product. The ability to meet the industry's challenges will come through:

- **Value adding industry insight** - extensive knowledge across the industry, consultative approach, proactive thinking (e.g. legislative changes and impact)
- **Strategic partnership** - in all areas, operating as a client advisor
- **Creativity and innovation** – an ability to develop new solutions for new situations
- **Agility and flexibility** – in its approach and solutions

This will be delivered in the form of advisory services on risk and people, data and analytics to empower client decision-making, the structuring of performance security and traditional brokerage services.

EMEA Power and Utilities - Top 10 risks leading to revenue loss



66% of CEOs believe they face more threats today than three years ago



What are the industry's greatest challenges?

Barriers to sustainability and building resilience

Identifying risks and creating a risk management plan is one approach to sustainability. However, taking a look at each risk individually can throw up its own problems. Creating a sustainable and efficient industry, means several key issues need be addressed at the same time. As part of our Global Risk Management Survey we asked a sample of power companies what they thought would be the top 10 risks impacting power companies in 3 years' time as below:

Top risks 3 years from now

- 1 **Regulatory/legislative changes**
- 2 IT Cyber crime/hacking/viruses/malicious codes
- 3 **Operational property damage**
- 4 Corporate major project failure
- 5 **External factors increasing competition**
- 6 Corporate failure to innovate/meet customer needs
- 7 **Commodity price risk**
- 8 Political risk/uncertainties
- 9 **Third party liability**
- 10 Corporate merger/acquisition/restructuring

Here are just some of the themes highlighted in this year's risk management survey:

Legislation and regulation

Market reform, energy security, energy efficiency and de-carbonisation are key themes consistently at the heart of potential legislative and regulatory change. With such drivers the potential balance sheet impacts are considerable.

As we look forward energy policy plays a key role for all involved in the power sector. With potentially more harmonised energy frameworks underpinned by reformative legislative frameworks such as the EU's Energy Union this could help drive a new era of an interconnected Europe with peaks and balances supported by smart grid technologies.

De-carbonisation and the transition towards renewables will also continue, underpinned by frameworks such as the Paris Climate Agreement from COP21. How the UK's exit from the EU, and other local and international policy changes, impacts on such frameworks wait to be seen. From a risk perspective, however, this opens up new international trade dynamics and technological issues across the industry.

Government policy and incentives have a great influence on how capital is invested, while business strategies need to adapt to new regulatory issues and changing legislation. Clarity and consistency of government policy helps to provide for a less risky environment for investment. Navigating these changes and understanding where different risk management tools and strategies can be implemented to mitigate some of the impacts are critical.

Cyber security

The technological revolution of the 21st century has increased productivity and transformed every industry. Advances in technology have left the industrialised world more vulnerable to cyber attacks such as a cyber-Trojan horse in your inbox waiting to be opened, or a zero day attack, adding to the potential threats that organisations now face.

Advances in technology such as enhanced SCADA systems, the Internet of Things and Smart Metering have improved operational efficiency and revenue streams. Cyber exposures are now able to rapidly evolve faster than ever before and the threat of an attack against the power sector is certainly a reality that can happen at any time. The potential for such a threat was highlighted in recent times with events such as the attack on the Ukraine power grid and the WannaCry ransomware outbreak.

With increased exposures and in the face of more frequent contractual requirements for cyber liability insurance, combined with the increase in penalties from new legislation such as EU GDPR, organisations need to take proactive steps to understand their cyber risk profile. Furthermore, they need to align cyber mitigation strategy with a broader enterprise risk management framework, connecting technological changes with insurance strategy where solutions are tailored to the specific risks an organisation faces—not lulled into a false sense of security with a one-size fits all approach.

Property damage and project risk

Property and project risks have increased in importance in our Global Risk Management Survey this year showing that against a backdrop of geopolitical risks and uncertainty more traditional areas of risk are proving a challenging area for power companies.

According to the International Energy Agency, global investment in the power sector increased almost two-and-a-half times from US\$290 billion in 2000 to US\$690 billion in 2011. However, between 2014-2035 cumulative investment of US\$16.4 trillion is needed across the power sector – an annual average of US\$740 billion per year. This is essential in order to meet future energy demands and make vital upgrades to infrastructure.

With new investment comes new technology, a necessary step towards competitiveness, which carries its own risks. The growth of the offshore wind industry for example has been supported through technological improvements that have driven a notable increase in size in projects and their component parts leading to greater demand for specialist installation vessels therefore increasing the supply chain risk during the construction and operating phases of projects. Additionally, as organisations venture into emerging markets new risks will have to be assessed from political and social issues, to climate and geographical concerns.

We are seeing a period of increased variability of weather events on a global basis with flooding, wind storm and other extreme events becoming more difficult to predict. When developing projects this is a key area of focus for developers and insurers, and requires strong mitigation plans, for example completing flood risk assessments for acquisitions and new projects and making sure that sufficient design mitigations are in place. The impact of variable weather patterns also need to be carefully assessed against the impact on revenue projections and what mitigations are available.

Effective risk management is fundamental. Strategic thinking and smart savings provide long-term solutions. For example, while reducing annual insurance premiums is one way to reduce costs, it could end up costing a business more due to higher deductibles. In addition, if claims are rejected due to gaps in cover, this leaves the business no flexibility to cope with losses. There are also total cost of risk savings to be made if the risk of business interruption is addressed effectively. Successful businesses will be the ones that understand the evolution of risks in a changing economic and regulatory environment.

What is the solution?

In the face of these challenges, the power industry needs to develop smarter, more efficient and more sustainable strategies that address the growing environmental concerns and capital costs. Technological advances play a huge role in this approach, along with joint ventures, opportunities in new markets and diversified offerings.

Understanding future risks and barriers to business goals is only half the issue. The power industry needs strategic advisors who have in-depth knowledge and understanding across the sector.

Aon Client Promise Methodology



Advisory

Strategic partners and advisors need to offer a range of support services that add value. By approaching concerns with agility and flexibility, partners will be able to create solutions according to client needs. This calls for creativity and the ability to promptly respond to new situations.

A fluid and flexible approach to a client-centric relationship means adding value at all levels: from setting up the right teams to assisting with contract negotiation support and developing a joint consultative approach. Furthermore, thorough industry knowledge, for example legislative changes and their impact, alongside forward thinking and planning, aids the creation of tailored solutions leading to greater efficiency and financial savings.

In-depth industry insight across the power business is obtained by using data and analytics to pinpoint specific risks: the use of historical and peer risk information helps model the forecast impact and provide tools to strategically manage the outcome and contingency plans.

Brokerage and analytics

Traditionally, companies used a high level and empirical approach to any risk, for example, an assessment of the likelihood of failure of generation technology would be based on history and experience.

However, with the complexity of globalisation and diversification, superficial risk management programmes, designed to be a catchall, are destined to fall short of success.

The trend has moved towards using data and analytics to drill down into the details of the type of risks a power company faces, for example a fire, pollution, materials failure, weather events, security breaches etc. Tailored protection solutions can then be developed, the risk impact mitigated and the full cost of each risk assessed.

Dynamic risk analytics uses immense sets of data and in-house knowledge derived from our insurance placements, claims mitigation engagement and loss prevention information. This data set is comprehensive in size and scope

and complements the power industry's expertise in providing a thorough view of power risks to inform the development of a more sophisticated risk management programme.

Risk transfer management

Applying a thorough risk transfer system and following a robust risk allocation process can save money and help to create greater insurance adequacy.

The risk transfer management process would be described as follows:

1. Risk profiling: Identify and quantify the risks
2. Risk understanding: Evaluate the tolerance to the risks
3. Risk management design: Review risk and solution identification
4. Risk outlay: Identify costs associated with financial and efficiency solutions

Decisions about the type and amount of insurance cover required can only be taken by assessing and understanding the risks facing an organisation. Without it there is exposure to gaps or overlaps in the risk protection system: buying too much, or too little, insurance cover; failing to meet requirements of loan agreements; underestimating liabilities and warranties under contract; being forced to adhere to irrelevant insurance policy exclusions or prohibitive warranties. Without following a sound risk management process, projects can be delayed and derailed, with significant financial impact.

Project support

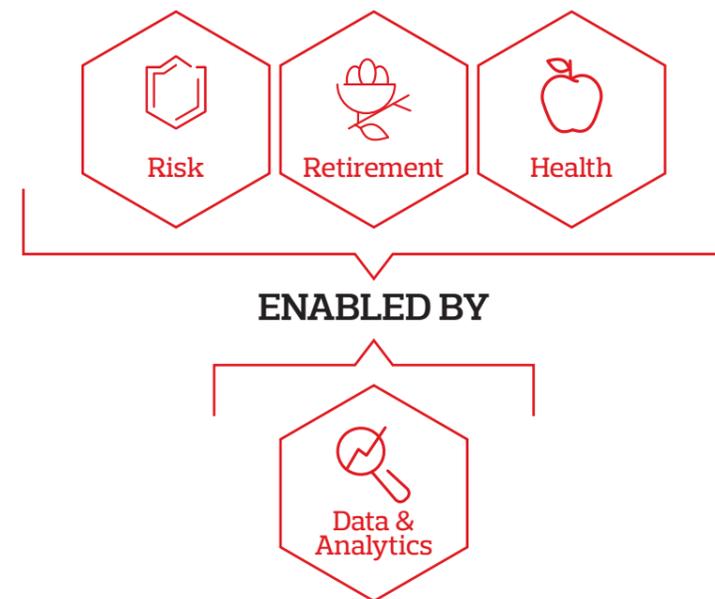
Creating a team and corporate structure that will keep production on track is not without its own risks. Add to this external relationships and collaborations, and the risks increase. However, the right partners can mean the difference between success and failure. From securing funding, through to advice on insurability and accurate benchmarking and industry insight, partners and suppliers need to be able to support businesses through the entire lifecycle.





Aon in action

Focussed on supporting clients to achieve profit, growth and continuity, we offer a range of services based on our core capabilities.





Getting the right support



PROJECT

Offshore wind farm.



RISKS

Potential gaps in cover and uneconomic pricing.



ISSUE

Uncertain that their current arrangements were delivering both the security and value they expected, Aon was approached by the developer of a large off-shore wind farm in Northern Europe.

However, this was not a straightforward matter of needing insurance. There were several challenges to overcome, including:

- Renegotiation of a debt finance agreement
- Time constraints
- Renegotiation of construction and supply contracts
- Resubmission of the project to the insurance market

The developer had been concerned about the approach by their previous broker and turned to Aon for a more holistic solution. Benchmarking current arrangements, it was discovered that the proposed policy was overpriced and full of gaps in cover.



STRATEGY

Involving Aon's forensic accountants to analyse the project's financial model.



TACTICS

Assess risk exposures and insurance requirements, develop options for an improved insurance programme.



OUTCOME

Outcome: Aon was able to deliver a bespoke and comprehensive insurance programme whilst saving the client several million dollars.

Ground breaking insurance to enable important government initiative



PROJECT

Smart Meter warranty solution.



RISKS

Product warranties are too short leading to impacts to project risks that impact the return on investment.



ISSUE

Using public sector money to invest in any energy initiative means that accountability and scrutiny are paramount.

Aon was approached to support a scheme to install a smart meter system across the UK by 2020 and the first hurdle was satisfying the need to ensure all warranties lasted at least 15 years. Insurers generally limit extended warranty coverage to five years.



STRATEGY

Assess risk exposures and available insurance options.



TACTICS

By working closely with manufacturers, it was possible to support the global insurance markets lack of knowledge by developing a detailed insight into meter build quality and integrity. With insight comes understanding, and the process overcame traditional market concerns regarding the length of the warranty ensuring the required term was achieved.



OUTCOME

The resulting innovative and bespoke insurance solutions helped enable the adoption of smart meter systems that will lead to savings for consumers and help the UK to meet their overall smart meter roll out targets.

Developing consumer solutions



PROJECT

Family protection designed to help with short term expenses for utility bills.



RISKS

Unemployment, temporary disability, death or hospitalisation.



ISSUE

Cost of utility bills becomes more difficult to fund.



STRATEGY

Development of an affinity product for a power company's consumers that reduces the financial impact in covering essential costs.



TACTICS

Creation of an affinity product that is easy to understand and easy to sell. Telemarketing campaign rolled out and face to face sales to grow client base.



OUTCOME

Increased financial protection for power utility customers and new business growth linked to sale of insurance products.

Risk consultancy services



PROJECT

Offshore wind business interruption risk and insurance cost benefit analysis.



RISKS

Offshore wind farms have potentially large business interruption exposures. The cost of repair or replacement needs to factor in the availability of vessels and specialist contractors and the potential impact of variable weather windows.



ISSUE

Potential balance sheet exposures with risks increased from factors outside of the project owner's control.



STRATEGY

Development of full cost benefit analysis that evaluates the potential risk exposures and options for mitigation.



TACTICS

We worked with our client to establish credible risks to which the project was exposed to and the commercial impact, including the frequency of potential loss events. This allowed us to produce a risk profile for each individual asset, based on their unique characteristics such as age, turbine type, electrical system design and grid connection.

This risk profile was then compared against achievable insurance rates, deductibles and waiting periods to establish the opportunity to reduce the company's exposure to both attritional and major loss events.



OUTCOME

An improved understanding of the company's overall exposure to business interruption events. Identification of exposures which could have a material effect of the company's balance sheet.

Presentation of risk transfer options with an accompanying cost benefit analysis.

Weather protection



PROJECT

Gauging production for renewable energy projects affected by volatile weather patterns.



RISKS

Unreliable production forecasting; inability to assess production costs; construction and repair delays; inability to cover losses on the balance sheet.



ISSUE

Peaks and troughs in revenue flow that are difficult to manage and forecast.



STRATEGY

Utilisation of data and analytics to model potential output based on weather statistics and seeking out potential insurance solutions to help provide greater revenue protection.



TACTICS

Engaging a specialist risk advisor to access climate data for risk analysis purposes. Using insurance to reduce the financial damage of unexpected weather patterns.



OUTCOME

Balance sheet protection with fixed amounts payable if wind, river flow, wave height or sun radiation is outside of specific parameters.

Managing relationship disputes to limit delay in claims settlement



PROJECT

Construction of offshore wind farm.



RISKS

Stakeholder disagreements leading to extended and costly negotiations as part of the claims process.



ISSUE

Potentially millions of dollars of losses due to a highly complex claim and some disputes with insurers over policy coverage.



STRATEGY

Use of an independent third party and specialist claims managers to develop clear claims processes and protocols.



TACTICS

Investigation of project defects, negotiations with multiple parties (supplier, contractors, insurers, energy companies).



OUTCOME

Breadth of coverage in policy wording successfully challenged. Saved several million dollars in interim payments to enable work to continue.

Improve employee engagement and employee experience



PROJECT

Implementing technology solutions to increase employee experience and engagement.



RISKS

Benefits undervalued by the employees. All the information about benefits on the intranet but not well organised. Need to improve communication channels.



ISSUE

Inefficient use of economic resources; benefits not valued; disengagement.



STRATEGY

To communicate all benefits through one channel or platform, improving communication and offering to employees through new online tools to enable projections and simulations of available benefits.



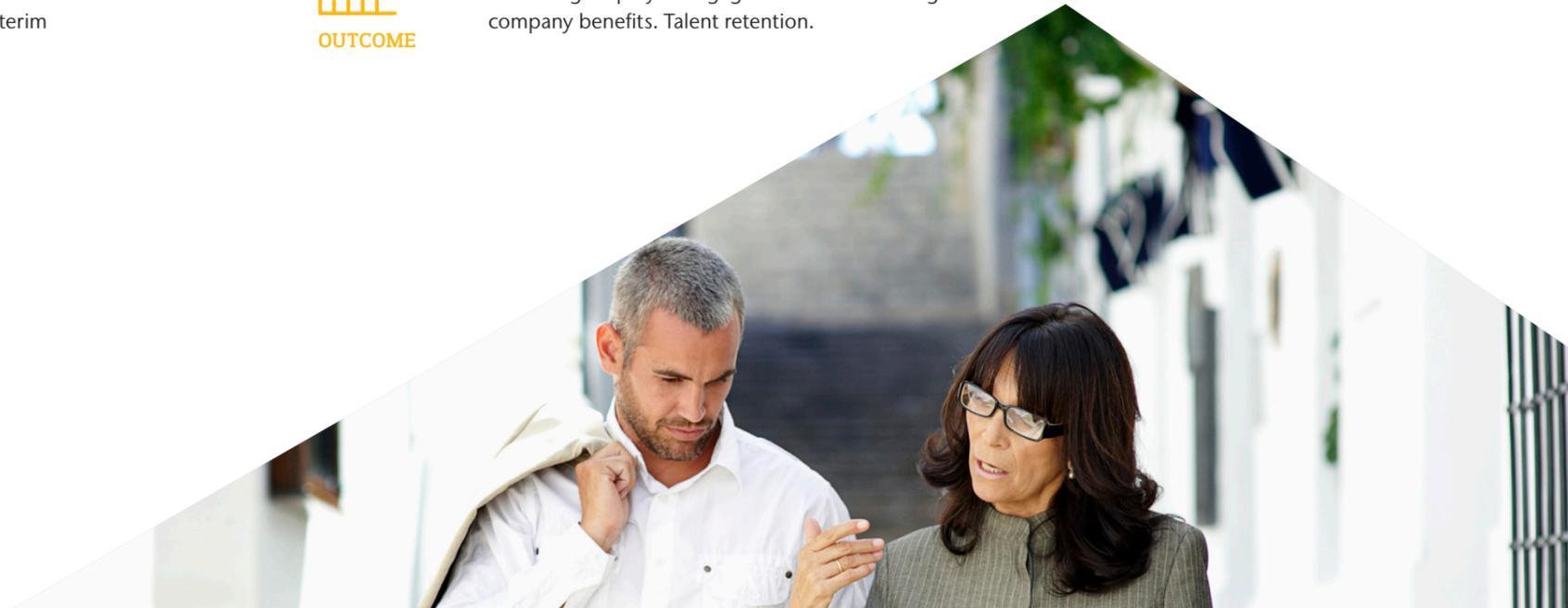
TACTICS

Use tailored technological solutions to improve employee experience. Advice on how to communicate benefits and develop marketing plans for implementation. Create ad hoc simulators and increase online benefits on offer to employees through affinities solutions.



OUTCOME

Increasing employee engagement and knowledge of company benefits. Talent retention.



Pension deficit surety bond



PROJECT

Pension fund ring fencing.



RISKS

Future over-funding, or tying up bank capacity for long periods.



ISSUE

Client trying to negotiate beneficial deficit recovery plan with trustees while optimising use of working capital.



STRATEGY

Created a tailored product to fit client's need and explained benefits.



TACTICS

Worked closely with client, trustees, lawyers and insurers to ensure we could adjust the product in line with ongoing negotiations between pension fund and company.



OUTCOME

An innovative surety bond solution that protects part of our client's pension deficit. Added value to an important client relationship.



Need to find out more?

One Portfolio of Solutions

Aon provide a comprehensive range of risk and consultancy solutions across 5 core areas:

Commercial Risk Solutions

- #1 primary insurance brokerage
- +\$60B bound premium annually
- +90% average retention

Reinsurance Solutions

- #1 treaty and facultative brokerage
- +\$30B bound premium annually
- 24 consecutive quarters net new business in core treaty

Retirement Solutions

- +4T assets under independent advisory
- \$100B assets under delegated management
- 1000's of companies trust their retirement plans to Aon

Health Solutions

- #1 provider of health exchange solutions
- Leading provider of global health & b enefits
- \$180B in premium and equivalents placed globally

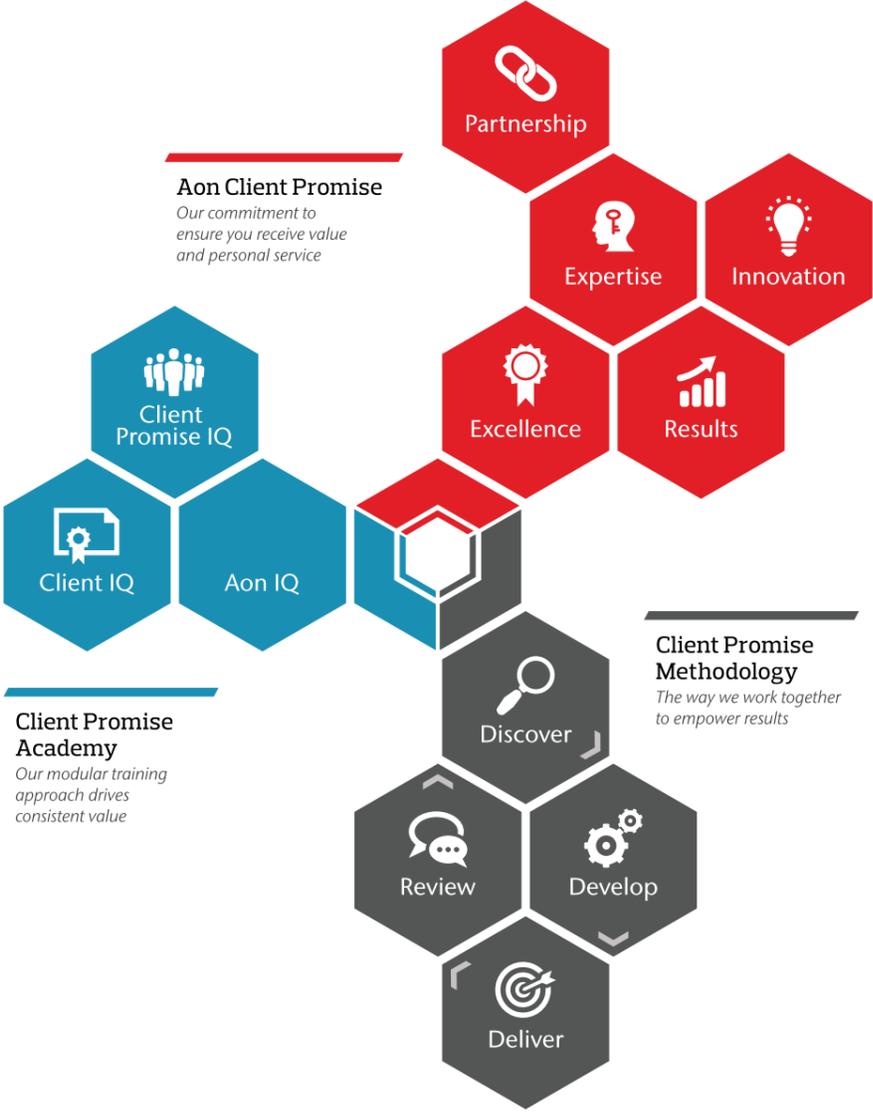
Data & Analytic Services

- \$400M annual investment in data and analytics
- \$170B bound premium through Aon In point platform
- +30M individual customers from +200 organisations served by Aon Affinity

Aon Client Promise

The Aon Client Promise framework includes the five promises; partnership, expertise, innovation, excellence, and results. The five promises are supported by a comprehensive training curriculum focused on listening for and

responding to client needs and building knowledge of the full breadth of Aon capabilities. This is all underpinned by a robust methodology for ensuring a consistent client experience.



Power Practice Leadership

Aon's EMEA Power Practice group consists of a connected platform of specialists that support the heightened and multifaceted risk management needs of power companies. This allows Aon's best talent to work together to provide consistent, strategic services.

Please contact your local Aon representative for more information or the Power Practice Leadership.

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About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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