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Six Key ESG Issues for Energy Credits

ESG information provides investors with valuable information on a company's ability to manage assets, repay debt, avoid operational impairments and create shareholder value.

RobecoSAM provides the ESG research, analysis and perspective that supports the investment process of Robeco and RobecoSAM's portfolio management teams. In this article, we address six critical ESG issues relevant to the energy sector and how they affect a company's investment profile from the perspective of a credit investor.

- The oil & gas sector is faced with significant ESG challenges
- Six ESG factors identified as critical to credit analysis for energy companies
- Sustainability analysis integrated into company valuations

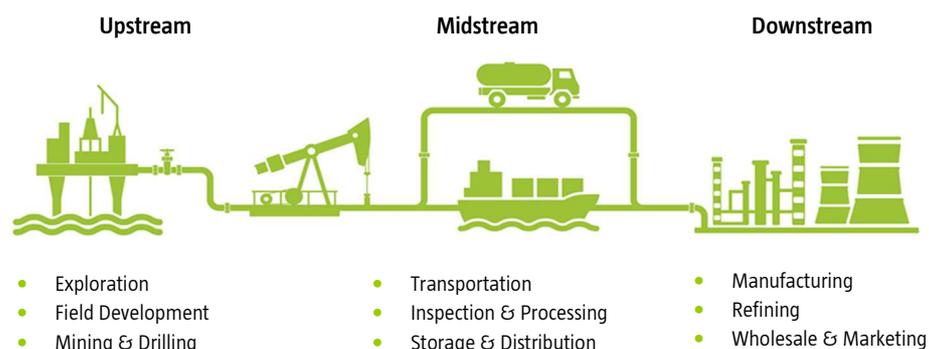
The Playing Field

The oil and gas sector includes those companies involved in the production and sale of energy. Their activities can be grouped into upstream, mid-stream and downstream activities along the supply chain (Figure 1). Upstream players are responsible mainly for field exploration and fuel extraction while midstream companies are responsible for production, transportation, storage and distribution. Downstream players process, refine, and market the petroleum products that are used to fuel our cars, heat our homes, and supply electricity to the grid.

When investing for credits, Robeco primarily focuses on the following types of issuers:

- International oil companies (IOCs), which integrate upstream, midstream and downstream operations and which are interesting for their generally high credit quality. Most IOCs combine conventional operations with some exposure to unconventional onshore operations
- Independent exploration & production (E&P) companies with a focus on upstream unconventional North American onshore operations
- National oil companies (NOCs) with integrated business models that include ownership of the essential components of the supply chain

Figure 1: Oil & Gas Value Chain



Source: RobecoSAM

Key ESG issues for energy

Combining RobecoSAM's expertise in ESG research and materiality analysis with the valuation needs of a credit investor, we identify six key sustainability issues in the energy sector that can have a material financial impact on a company's long-term business performance. They include:

1. Energy use and greenhouse gas emissions
2. Water management
3. Health & safety
4. Community relations
5. Bribery and corruption
6. Corporate governance

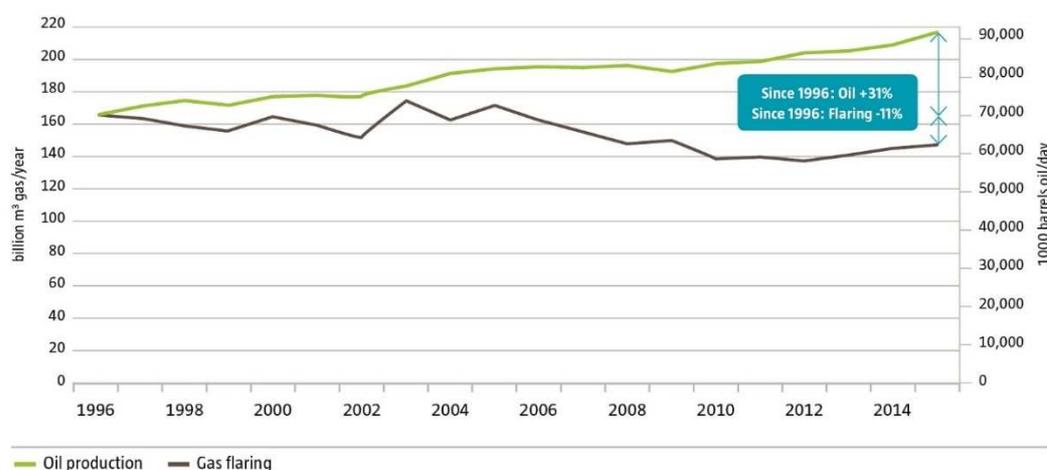
Integrating material ESG information with financial data and traditional fundamental analysis supports better investment decisions in credits and equities. In this report, we summarize the factors listed above, the potential risks they impose, their impact on credit valuations, the magnitude of that impact, and how we expect company management to mitigate or diversify these risks.

1. Energy use and greenhouse gas emissions

Upstream greenhouse gas (GHG) / carbon emissions are driven by the location (offshore, onshore, Arctic, geological character) and nature of the reserves (crude oil, oil sands, natural gas, etc), which in turn affects energy use and the volume of gas flared (burnt) or vented. Emissions can be direct or indirect. In this part of the value chain, direct emissions mainly consist of flared natural gas (carbon dioxide) and natural gas (methane) that is vented or lost through leakage. Indirect emissions are caused by the energy required to lift or extract hydrocarbons (e.g. crude oil, natural gas). Energy intensive extraction methods like those used for oil sands operations and in aging conventional drilling fields generally demonstrate higher carbon emissions per unit of production.

Upstream producers have reduced methane emissions and flaring through techniques that improve natural gas capture. The development of Liquefied Natural Gas (LNG) enabled the capture and transport of stranded natural gas, that would have otherwise been destined for onsite flaring. As a result, flaring and resulting GHG emissions have declined, even as production has increased, as shown in Figure 2. A number of oil & gas companies are seeking to further reduce flaring as part of the Global Gas Flaring Reduction Partnership, a public-private initiative comprising international and national oil companies, national and regional governments, and international institutions.¹

Figure 2: Global flaring and oil production 1996-2015



Source: World Bank

In the downstream segment, oil refineries are significant contributors to direct GHG emissions. Direct GHG emissions in oil refineries come from the flaring of methane gas released during processing as well as the CO₂ produced as a byproduct. Data taken from a sample of IOCs show that approximately half of their total GHG emissions are produced from downstream operations.

Indirect GHG emissions are also significant in the downstream segment. Large downstream refining operations typically consume large amounts of hydro-power from nearby third-party plants and electricity from the public grid. Energy costs total as much as 30% of total refinery operating costs. Downstream carbon emissions are driven by energy use, which varies according to the type of feedstock (raw materials) used and refinery complexity. Heavy crudes, refineries with a high Nelson complexity index, and the production of petrochemicals used for industrial plastics and resins, generally have a higher energy intensity.

In the midstream segment, largely responsible for resource transportation and distribution, GHG emissions are typically associated with methane leakage. Leakages are usually small and localized along a highly dispersed network, but in the aggregate, are enough to create a small contribution to overall industry emissions.

Why it Matters

Energy use and greenhouse gas emissions are relevant to credit investors because:

- A company's position relative to the industry-average carbon intensity is an indicator of its overall operational and energy efficiency, and its operating margin.
- Energy producers are subject to regulations, which may include natural gas emissions. In the US, local- or state-level "Specified Gas Emitters Regulations" require companies to monitor energy use and GHG emissions. Failure to comply with emission standards and regulations could result in severe financial penalties and reputational damage for affected companies.

Credit investors are interested in the extent to which companies are able to avoid, reduce or mitigate the overall risks arising from energy consumption intensity and GHG emissions. For us, key factors are the company's overall policies towards environmental management and more specifically its approach to GHG emissions. Moreover, decarbonization is increasingly a critical investment theme for public and private sector investors. Our information sources include company reports and publicly disclosed responses to the Carbon Disclosure Project.

2. Water management

Water management is important for hydrocarbon (oil & gas) producers. Hydrocarbon extraction and processing require significant amounts of water. The potential for conflicts over water access increase in areas where water resources are less plentiful. Waste water disposal is another issue because of the need to dispose of hazardous waste water or 'produced water', which contains hydrocarbons residuals.

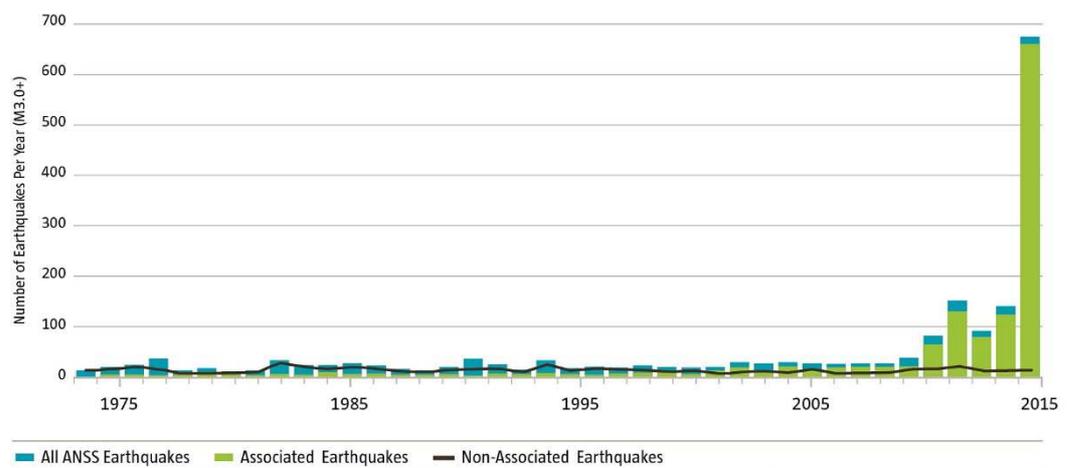
In the upstream segment, the problem of water management is becoming more significant in North America, particularly for unconventional extraction methods such as hydraulic fracturing production ('fracking') of shale oil and gas reserves. The overall environmental impact of water demand and waste water disposal is still subject to some uncertainty. The possible impacts of hydraulic fracturing on drinking water have been discussed by the US Environmental Protection Agency (EPA) in a draft paper.²

In addition, an additional risk for upstream players involved in fracking is dealing with waste water disposals role in increasing earthquakes, technically known as "induced seismicity". When hydrocarbon producers extract oil and gas from wells in affected regions (Figure 3), thousands of liters of salty water laced with heavy metals surface along with fuel. The excess water is often re-injected into highly-pressurized underground disposal wells. The US government and academic researchers have found that this practice may trigger movements along geologic fault lines causing earthquakes; more research is needed to link specific wells to specific incidents.

So far, no industry-wide solution exists to counter this problem and energy producers may face a potential financial impact because of new regulations that restrict energy production, impose fines and/or require monitoring and reparations for affected regions.

The substantial volumes of water needed for processing and cooling by refineries means downstream players also face issues with water management. BP disclosed that over 90% of its fresh water withdrawal is for downstream operations.³ The US EPA has estimated that refineries use 1 - 2.5 gallons of water (3.8 - 9.5 liters) for every gallon of product. Not all water is consumed, however, and portions must be disposed as waste. The costs of waste water treatment are also increasing such that companies are seeking ways to improve water efficiency and increase the proportion of recycled water.

Figure 3: Increasing earthquakes associated with hydraulic fracturing 1975-2015⁴



Source: US Geological Survey

Why it Matters

Water management is relevant to credit investors because:

- A company's water intensity is an indicator of its overall operational and energy efficiency which affects its operating cost base.
- Companies are subject to regulations and agreements on water access. Changing regulations and demands for access to water resources may increase costs.
- In waste water disposal, unconventional onshore producers, in particular, are facing increased risks of new regulations and an increase in costs associated with disposal wells due to concerns about environmental impact and induced seismicity.

In our analysis, we look for company-specific information on water consumption and operations in water stressed areas, as well as water disposal methods. We are also interested in the extent to which companies are able to avoid, reduce or mitigate the overall risks arising from water use. The overall focus of a company's operations, its general environmental management, and its specific focus on water management are key considerations. A company's water management program should include a focus on efficiency gains to reduce water use or on water-efficient operations. This could mean increased recycling, cost reductions, proactively managing water scarcity risk, as well as waste water management and disposal issues. A company's track record in compliance with permits and regulations are also important for its overall profile.

3. Health and safety

On top of the costs of injury and death, safety incidents can lead to disruptions, delays, oil spills and natural gas leakages, which impair the profitability of projects by reducing production and operating revenues, increasing cleaning costs as well as other operating costs and liabilities. This is particularly important for

energy companies that operate in challenging conditions such as deep-water offshore explorations and Arctic operations.

The most significant incident was BP’s Gulf of Mexico spill in 2010, which required an outlay of USD 61.6 billion to cover financial and environmental costs. Other significant costs include the Exxon Valdez tanker spill in 1991, which cost the company USD 3.8 billion, and Occidental Petroleum’s Piper Alpha accident in 1988 with costs totaling USD 1.6 billion.

Over the last ten years, the oil and gas industry has been successful in reducing occupational health & safety incidents through management’s renewed focus on the safety of employees and contractors, the establishment of a ‘safety culture’, and the continuous improvement of operating practices (Figure 4).

Why it Matters

Occupational health & safety and environmental data is a proxy for operational excellence. We therefore look for:

- The track record and disclosure of occupational health & safety indicators, including fatalities, injury rates and process safety events
- The disclosure of environmental incidents such as unplanned/uncontrolled leakages and spills (i.e. “loss-of-containment”) events and their measured impact
- The proportion of assets located in challenging operating environments and the extent to which the company is able to mitigate the associated risks

How a company manages the health & safety of its employees and contractors is important. Successful companies will address situations where they fall below industry standards, scrutinize cases of injuries and fatalities, and holistically assess its safety systems and culture.

Figure 4: Occupational Health & Safety track record



Source: International Oil & Gas Producers (IOGP)

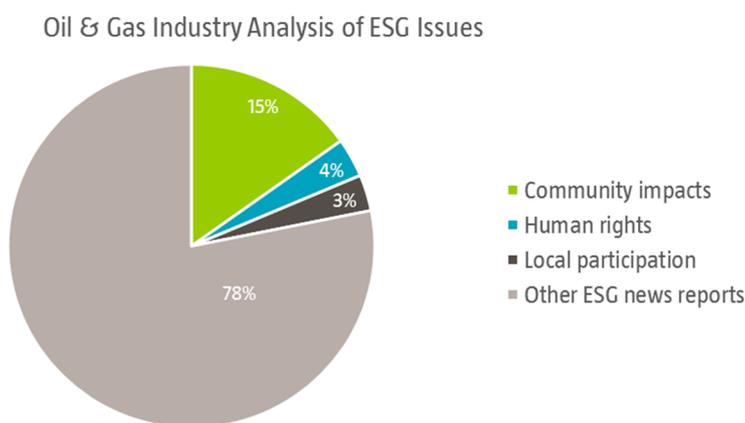
4. Community relations

Management of community relations risks is important to both the operation and development of energy assets. IPIECA, the upstream industry association for environmental and social considerations, notes that “understanding and addressing the interests of societies, different social groups and communities that may

affect, or be affected by, oil and gas operations, is often an important component of designing and executing successful and sustainable oil and gas projects.”⁵ In practice, community interaction is generally larger for onshore activities such as conventional and unconventional extraction activities, midstream pipelines and infrastructure projects, and downstream processing plants.

Noise, light, traffic, spills and perceived differences in cost vs benefits may all create tensions between operators and communities. The importance of community relations can be seen from the data of RepRisk⁶ the leading business intelligence provider specializing in ESG risk analytics and metrics. RepRisk identified impacts on communities as one of the top 5 ESG issues for the sector. Since tracking began in 2007 to the end of 2016, over 20% of the press articles on oil & gas companies related to impacts on communities, corporate complicity in human rights abuses, and local participation issues (Figure 5).

Figure 5: Press articles on Oil & Gas companies per ESG topic



Source: RepRisk

The community relation issue has mainly been associated with emerging markets. For instance, in Nigeria, sabotaged pipelines driven by complex social factors caused elevated spill rates for Shell, Total and Eni. However, community risk is increasingly stirring opposition in developed countries as well. In the US and Canada, community protests have caused delays to the proposed large-scale pipelines like the Dakota Access Pipeline, which only recently became operational but not before incurring delay costs running into the hundreds of millions.⁷

Why it Matters

In our analysis, we look for reassurance that companies are able to manage their community interactions and prevent reputational risks. Examples include incorporating community relations into operating management systems as well as including it into country-level stakeholder engagement programs. We also require companies to provide comprehensive disclosure on their exposure to community relations issues and their management of these issues at an incident level as well as on company-wide basis.

5. Bribery and corruption

In emerging markets, large energy companies must collaborate with national oil companies and state officials on large projects that require careful negotiation of production and return-sharing agreements. The resulting investment returns can be significant. In the energy sector, corruption may be associated particularly with access to resources as well as the procurement of service contracts.

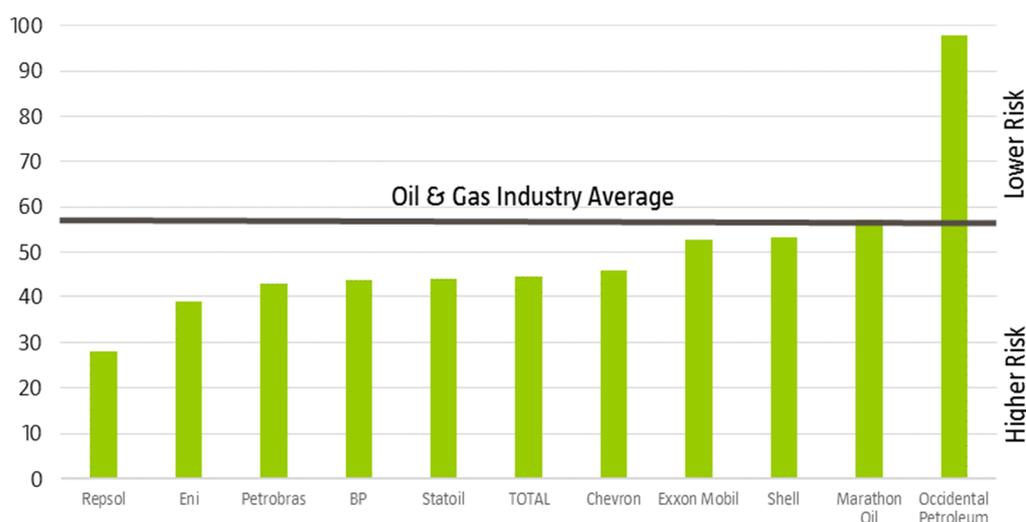
There have been a number of large corruption cases in the energy industry. While the absolute scale of such incidents is eye-catching, it is extremely rare for the penalties to be big enough to impair the credit quality of the companies involved. Nevertheless, such incidents point to risk exposure and weaknesses in management and internal governance. National oil companies are not immune. The largest corruption case in recent years has revolved around Petrobras in Brazil and the overpricing of procurement contracts.

Why it Matters

To generate more insight into corruption risks in the energy sector, we look at the exposure of energy companies to countries associated with higher levels of corruption. RobecoSAM's Country Sustainability Ranking is among the resources used for assessing this risk. To widen our analysis, we also combine company reported production data and the Transparency International Corruption Perception Index (TICPI) to develop a 'production-weighted TICPI score' for individual oil & gas companies.

An illustration of the outcomes of this calculation is given in Figure 6. We use this to understand how well companies diversify their general corruption risks and to identify specific risk exposures. We give important consideration towards how companies mitigate their corruption risk exposure through country selection, the standards they set in their codes of business ethics, and their implementation methods.

Figure 6: Assessing Risk – Upstream Production-weighted TICPI, 2014



Source: Company Data, Transparency International Corruption Perception Index, BP World Energy Statistics, RobecoSAM estimates. Country-based corruption: Higher scores constitute lower risk. Here, most companies have more risk exposure than the oil & gas industry average as indicated by their below average scores.

6. Corporate governance

As with all companies, good corporate governance is a means of aligning interests and ensuring optimum decision-making on strategy, investments, capital expenditures, and overall financial stability. National oil companies bring their own set of corporate governance challenges. In these instances company strategy and investment decisions risk being exploited as instruments of national policy –to the detriment of investors. A recent example involves Brazilian Petroleum producer, Petrobras, whose management manipulated domestic fuel prices in order to support government economic policies.⁸

Why it Matters

In order to understand corporate governance in the energy sector we look at:

- Company ownership structure, the presence of government or other shareholders with the power to influence management
- Board quality, degree of independence, and the diversity and skill set of its members
- Close alignment of the remuneration of executives with the interests of investors

We expect companies to follow standard industry practice on corporate governance based on the principles outlined in the International Corporate Governance Network (ICGN).

Conclusion

In this report we outline six key ESG issues that influence the creditworthiness of companies and the quality of debt they issue. We show some of the major factors Robeco credit analysts consider when constructing company valuations and credit profiles. ESG integration within the investment process provides analysts with a comprehensive view and deeper understanding of the risks companies face and management's response to those risks. In short, ESG information is often a proxy for how well companies are being managed.

Our view is that ESG matters for all investment classes as they have a material impact on a company's performance, growth prospects, financial stability and ability to create shareholder value. ESG research is a critical component for investments at RobecoSAM which offers clients a range of equity-based financial products spanning themes that address resource-efficiency, health & well-being, and human capital management, in addition to products covering regional and global equities. We source the same financially material ESG research and analysis described above and apply it to our fundamental analysis of publicly listed companies.

Furthermore, a keen understanding of these risks and their business impact guides Robeco's governance and active ownership engagement team as they work on behalf of Robeco and RobecoSAM's investment portfolios. The team helps company management in re-framing their mindset from one of mitigating risks to one of creating opportunities. More specifically, they identify key industry challenges and help companies to design internal policies and frameworks to constructively manage those challenges. Within the energy sector, the team has covered deepwater drilling, controversial regimes, unconventional operations, and climate change strategies.

The energy sector is changing at a rapid pace. New technologies are being developed aimed at discovering new hydrocarbon resources as well as at improving operational efficiency. At the same time, the sector faces formidable challenges from regulatory changes—most notably related to climate risks. The winds of change are accelerating. Investment analysts can use ESG factors as indicators of just how well a company is prepared to weather these changes as pressures mount and storms loom.



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¹ World Bank, Global Gas Flaring Reduction Partnership, <http://www.worldbank.org/en/programs/gasflaringreduction>

² Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources, June 2015

³ BP, HSE Charting Tool 2014

⁴ U.S. Geological Survey Lecture, August 2015, Justin Rubenstein, USGS Research Geophysicist, "Yes, Humans really are causing earthquakes, <https://online.wr.usgs.gov/calendar/2015/aug15.html>

⁵ IPIECA: Oil and Gas Industry Guidance on Voluntary Sustainability Reporting, 2015

<http://www.ipieca.org/news/third-edition-of-sustainability-reporting-guidance-for-the-oil-and-gas-industry/>

⁶ RepRisk ESG Business intelligence (www.reprisk.com) is a global research and business intelligence provider specialized in dynamic ESG risk analytics and metrics. To assess the risk, RepRisk's research focuses on capturing and analyzing data from media, stakeholders, and other third-party sources external to the company.

⁷ Business Insider UK, The Fight over the Dakota Access Pipeline has already cost its owner more than \$405 mm», December 2016

<http://uk.businessinsider.com/ap-pipeline-delays-cost-builder-millions-risking-contract-loss-2016-12?r=US&IR=T>

⁸ Reuters, "Brazil's Petrobras cuts fuel prices, pledges agile pricing", October 14, 2016

About RobecoSAM

Founded in 1995, RobecoSAM is an investment specialist focused exclusively on Sustainability Investing. It offers asset management, indices, impact analysis and investing, sustainability assessments, and benchmarking services. The company's asset management capabilities cater to institutional asset owners and financial intermediaries and cover a range of ESG-integrated investments, featuring a strong track record in resource efficiency-themed strategies. Together with S&P Dow Jones Indices, RobecoSAM publishes the globally recognized Dow Jones Sustainability Indices (DJSI) as well as the S&P ESG Factor Weighted Index series, the first index family to treat ESG as a standalone performance factor using the RobecoSAM Smart ESG methodology. Based on its Corporate Sustainability Assessment (CSA), an annual ESG analysis of over 3,900 listed companies, RobecoSAM has compiled one of the world's most comprehensive databases of financially material sustainability information. The CSA data is also included in USD 86.5 billion of assets under management by the subsidiaries of the Robeco Group.

RobecoSAM is a sister company of Robeco, the Dutch investment management firm founded in 1929. Both entities are subsidiaries of the Robeco Group, whose shareholder is ORIX Corporation. As a reflection of its own commitment to advancing sustainable investment practices, RobecoSAM is a signatory of the PRI and UN Global Compact, a member of Eurosif, Swiss Sustainable Finance, Carbon Disclosure Project (CDP), and Portfolio Decarbonization Coalition (PDC). As of December 31, 2016, RobecoSAM had client assets under management, advice and/or license of approximately USD 16.1 billion.

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