HALDOR TOPSØE

Making **optimal** performance possible

Annual Report 2019

Table of contents

Letter from the Chairman

Strong results and progress in sustainable business

Topsoe delivered very good results in 2019. Revenue and net profit were record high, despite the loss of business due to US sanctions imposed in 2018. The increasing profitability reflects the extraordinary effort put in by the employees and management in 2019. Also, the strategic focusing of the Group in recent years has increased the value of Topsoe's offerings.

The Board is pleased to see that new, more sustainable products and services are beginning to play a significant role in Topsoe's business. This is especially true for the renewable fuels technology, HydroFlex™, that experienced a breakthrough in 2019. The strong pipeline of sustainable and energy-efficient technologies makes it likely that we will experience a similar development in other areas in the coming years.

A strong position

With its unique chemistry insights, Topsoe is very well positioned to support its customers in addressing some of the world's biggest challenges as defined in the UN Sustainable Development Goals (SDGs).

The Group supports the global sustainability agenda by helping its customers provide energy, air pollution control, and fertilizer for a growing population. Topsoe has a very important role to play in making today's industry more energy efficient as well as reducing greenhouse gases and air pollution.

At the same time, Topsoe develops innovative solutions that contribute to the green transformation of the chemical industry. The Group invests significantly in developing sustainable technologies within biomass, battery materials, and electrification. Some of these technologies have been matured to a stage where they are close to being commercialized.

The Group's significant sustainability impact is documented in the separate 2019 Sustainability Report, as well as in the sustainability sections of this report.

New minority shareholder

The global search for a strategic financial partner, initiated by the Topsøe family in 2018, attracted significant interest. The process was finalized when Temasek entered as shareholder with a 30% share of Haldor Topsoe A/S on July 3, 2019.

The Board welcomes Temasek as co-owner. Their culture, global network, and huge experience will contribute greatly to Topsoe's continued strategic development.

Employee share program

In 2019, the two owners decided to establish an employee share program. The program was very well received by the organization, and almost 40% of all employees globally signed up as shareholders in the first round of the program in February 2020. A second round will be rolled out in April and May this year.

In memoriam

Henrik Topsøe passed away on August 9, 2019, just one day before his 75th birthday. This sad occasion touched many people in and outside Topsoe. Henrik will be remembered first and foremost as an internationally acclaimed scientist, but also as a great colleague and friend as well as an extremely capable leader who made his unmistakable mark on the Group. He ended his long and productive career as Chairman of the Board from 2013 until his retirement in 2016. However, the Board enjoyed his company and huge insight for several years more, as he remained a member of the Innovation Committee. Henrik is sorely missed.

In Henrik's honor, a Henrik Topsøe Award was introduced in November 2019 to celebrate important innovations by the Group. The awards will be presented in a new exhibition area at the corporate headquarters to inspire employees and visitors.

Changes in Board and management

Upon closing of the co-ownership agreement, Temasek appointed two new members of the Board: Benoit Valentin, Vice Chairman, and Rohit Sobti, member.

In 2019, Anders Heine Jensen left the Board. I thank him for a dedicated contribution in his time as a member of the Board.

On June 1, 2020, Roeland Baan will take over as Chief Executive Officer (CEO). I am delighted to welcome Roeland to the Group. He has remarkable global experience, and I am convinced he will contribute to the continued strong performance of Topsoe. I also want to thank Topsoe's present CEO, Bjerne S. Clausen, for his exceptional contribution during an impressive forty-year career dedicated to the Group. He has been instrumental in making Topsoe the focused and profitable Group it is today.

Thanks

On behalf of the Board of Directors, I would like to thank the management and all Topsoe's employees for their excellent work and outstanding performance in 2019.

Jeppe Christiansen
Chairman of the Board of Directors

Letter from the CEO

Record results

DKK million	**2019**	**2018***	**Change 2018-2019**
Revenue	5,931	5,617	6%
EBITDA	1,200	964	24%
EBIT	855	708	21%
Net profit	**627**	**491**	**28%**

Lost time accident frequency (per one million working hours)	2.0	3.4**
R&D spend (of revenue)	8.0%	9.0%

* IFRS 16 was implemented using the modified retrospective approach, and 2018 comparative figures have not been restated. Please see note 1.

** An incident in 2018 was recategorized to be a lost time accident because it led to lost work time in 2019. Accordingly, the lost time accident frequency for 2018 was adjusted from 3.1 to 3.4.

Topsoe's continued drive to improve safety has led to a significant reduction in the frequency of lost time accidents (LTAs) per one million working hours. In 2019, we achieved a frequency of 2.0 compared to 3.4 in 2018 and 6.3 in 2017.

Record results

The financial results in 2019 were Topsoe's best ever. Revenue increased by 6%, and EBIT grew by 21%. We attribute the excellent results to volume increase for some products, relatively high gross margin on Topsoe's innovative solutions, and cost optimization initiatives.

Catalyst revenue grew by 13%, significantly above the average market growth. Technology revenue decreased by 11%, mainly due to significantly reduced business activities in the Middle East as a consequence of US sanctions.

At year-end, the order backlog had increased by 30% compared to one year before.

A decisive driver in achieving the overall result was a very strong performance in the refinery business. Hydroprocessing catalysts have seen very high demand, and Topsoe's renewable fuel solutions (HydroFlex™) made a breakthrough in the market with significant growth in the number of customers.

The chemical business catalyst revenue was satisfactory, and the number of signed technology licenses showed continued progress. In 2019 (as in 2018), Topsoe won the majority of the world's new licensing contracts for ammonia and methanol new builds. Some of these contracts are expected to lead to major hardware and catalyst orders in the coming years.

The refinery and chemical businesses make up Topsoe's very profitable core business. Their strong results allow us to continue making significant investments in developing new commercial solutions within our sustainable business.

The 2019 results are very satisfactory. Topsoe's global market position remains very strong, our order backlog is at a good level and improving, and our balance sheet is very solid.

Global market leader

As in previous years, Topsoe's global business was impacted by macroeconomic developments and geopolitical events in 2019. Importantly, Topsoe's business activities in the Middle East were reduced due to US sanctions. Yet, this impact was counterbalanced by growth in other markets. US-China trade tariffs fortunately had an insignificant effect on our business in 2019.

We aim to be a global leader in the markets we operate in. To support this ambition, we continuously introduce new innovative products addressing customer needs. Most of our revenue was generated in markets in which we are a global leader.

Strategic focus

Sustainability has been high on the strategic agenda, and Topsoe's offerings support several of the UN Sustainable Development Goals (SDGs) that address key global challenges. The Group's deep knowledge of chemistry and catalysis is a prerequisite for developing solutions that help industry become more energy-efficient and environmentally friendly. This knowledge will also be crucial for developing sustainable solutions for the future.

In 2019, Topsoe was invited to participate in four of the thirteen Climate Partnerships established by the Danish government to involve businesses in supporting the ambition of a 70% reduction in greenhouse gas emissions in Denmark by 2030.

As part of our ambition to increase employee engagement, we have focused on employee wellbeing in 2019. Quarterly employee surveys have been implemented to better monitor engagement in the organization. We will continue to monitor and take actions to facilitate a safe, engaging, and motivating working environment.

Significant events
Based on Topsoe's proprietary technologies, the world's first industrial size TIGAS™ plant was put into operation in Turkmenistan in 2019. This unique technology produces price-competitive ultra-clean gasoline from the country's huge natural gas reserves. We see a very significant interest for similar solutions in other regions across the globe which have abundant natural gas reserves.

Another noteworthy event was the agreement with SkyNRG to establish production of sustainable aviation fuel (SAF) in the Netherlands. SAF reduces CO_2 emissions by at least 85% compared to conventional jet fuel. The plant will use Topsoe's HydroFlex™ solution.

In 2019, Topsoe launched ClearView™ – a novel service to expand the benefits of digitalization and connected services to a broader range of the chemical and refining industries.

Topsoe welcomed Temasek as minority shareholder in July 2019, and Temasek's exceptional capabilities will help secure Topsoe's profitable growth in the future.

Continued focus on sustainability
In 2020, we foresee continued high demand for Topsoe's solutions.

We will continue to invest significantly in developing new sustainable solutions, and we will continue to be a driving factor in the global green transition.

I want to thank Topsoe's employees, who have been instrumental in producing the record results in 2019. Thank you for your dedicated effort. I also want to thank our customers and partners for excellent collaboration in the past year. Finally, I would like to thank the Board of Directors for our very productive teamwork.

Bjerne S. Clausen
President & Chief Executive Officer

Haldor Topsoe **at a glance**

Topsoe is a world leader in high-performance catalysts and proprietary technologies for the chemical and refining industries. Based on cutting-edge research and development, we help our customers achieve optimal performance in all phases from design to daily operations – in the most responsible way.
Topsoe is headquartered in Denmark.

1940

Established 1940 by Dr. Haldor Topsøe

15

Present in 15 countries across 5 continents

2,238

2,238 employees

150

More than 150 different catalysts

1,000

Over 1,000 Topsoe-designed units

8%

R&D spend is 8% of revenue

Topsoe solutions address **global megatrends**

Our catalytic solutions help tackle some of the most pressing challenges of our time within food supplies, energy, and pollution control.

Enhancing food production

Topsoe's catalysts and technology are used globally in the production of ammonia for fertilizers. Fertilizers increase productivity in agriculture and are absolutely necessary to feed the current world population.

Energy efficiency

All Topsoe solutions are designed for optimal energy efficiency to save fuel and reduce CO_2 emissions. Topsoe also provides technologies for producing renewable fuels that can replace fossil fuels.

Environmental protection

Topsoe offers a variety of solutions for producing clean fuels and removing sulfur, nitrogen oxides, and hazardous particles from industrial emissions. Clean air is essential for good health and the environment, not least in the large cities of the world.

Why is catalysis important?

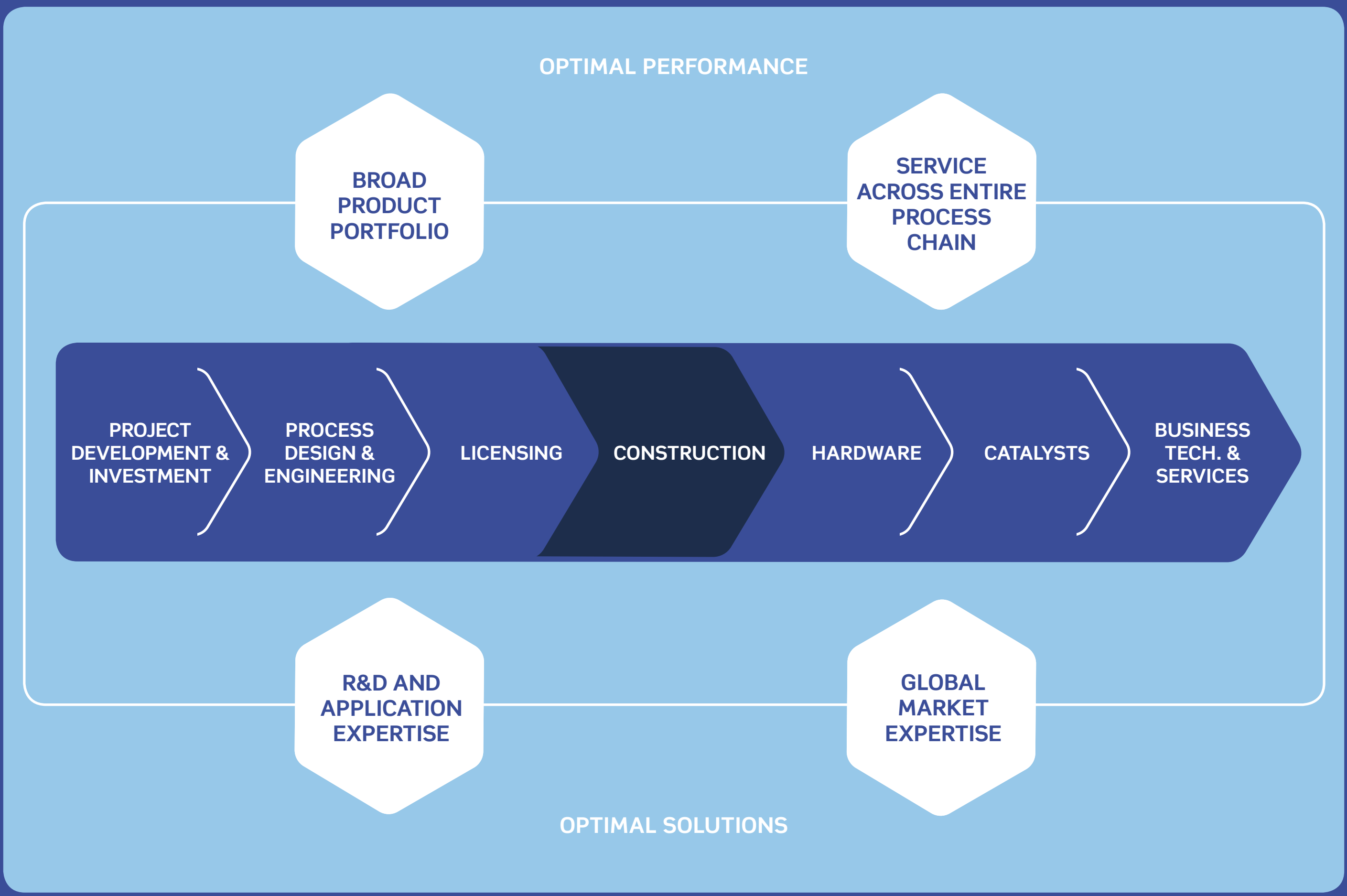
- A catalytic process converts one chemical component into another. For instance, hydrogen and nitrogen can be made into ammonia that can be used in fertilizer.
- Using a catalyst in a chemical process speeds up the reaction and allows it to take place under less severe conditions, which consumes much less energy. Production yield increases, and resources are saved.
- Catalytic processes are indispensable in industry today – and will also be vital for the utilization of sustainable energy to make chemicals and fuels in the future.
- Catalysis will be essential for using affordable clean energy for sustainable production of plastic, polyester, artificial fertilizer, and countless other products to cover people's needs.

Business model

Topsoe has a solution-focused business model covering the full value chain, based on unique chemical engineering competences.

In the early project phases, Topsoe provides project development and investments. As a next step, we supply process design, engineering, and licensing of technologies. For the realization of the project, Topsoe provides proprietary hardware, high-performance catalysts, and services.

Across our business areas, we are at the forefront of developing sustainable technologies.



TOPSOE OFFERINGS

CONSTRUCTION SERVICES ARE DELIVERED BY WORLD-CLASS ENGINEERING, PROCUREMENT & CONSTRUCTION COMPANIES (EPC).

Highlights

February

Braskem and Topsoe started up demo unit for developing renewable MEG

MEG (monoethylene glycol) is a key component of PET plastic used for food packaging and polyester fabrics. Currently, MEG is made from fossil-based feedstocks, but Braskem and Topsoe have partnered to validate the MOSAIK™ solution for production of cost-competitive bio-based MEG from sugar.

The partners reached the first milestone with the mechanical completion of the innovative first process step of the demonstration plant. Shortly after, the plant began operation. The global MEG market represents a value of close to 20 billion dollars.

https://blog.topsoe.com/braskem-and-haldor-topsoe-start-up-demo-unit-for-developing-renewable-meg

A Topsoe solid oxide electrolysis cell (SOEC) that produces hydrogen from water using green power.

February

Ammonia can become the CO_2-free fuel of the future

Topsoe is leading a new research project within power-to-x. The aim is to explore ammonia's potential as a sustainable fuel and as an excellent solution for storing green power from wind turbines and solar panels. Using electrolysis, ammonia can be produced from green power, water and air. It can then be used as a CO_2-free fuel instead of gasoline, diesel, and fuel oil.

https://blog.topsoe.com/ammonia-can-become-the-co2-free-fuel-of-the-future

March

Topsoe launched ClearView™ – a breakthrough connected service for optimal plant performance

Topsoe and Honeywell announced a technology alliance to expand the benefits of connected services to a broader range of the chemical and refining industries. As a product of this alliance, Topsoe launched ClearView™ – a breakthrough service that offers plant owners improved asset utilization, energy savings, and less unplanned downtime.

https://blog.topsoe.com/haldor-topsoe-launches-clearview-a-breakthrough-connected-service-for-optimal-plant-performance-in-the-chemical-and-refining-industries-and-announces-alliance-with-honeywell

March

The Topsøe family sold minority stake to Temasek

Haldor Topsøe Holding and Temasek signed an agreement for Temasek to purchase 30% of the shares in Haldor Topsoe A/S. Haldor Topsøe Holding A/S, which is 100% owned by the Topsøe family, will remain the long-term majority shareholder.

Haldor Topsøe Holding selected Temasek in recognition of the expected value that the global investment company will add through its deep insights and connections in Asian growth and other emerging markets.

https://blog.topsoe.com/haldor-tops%C3%B8e-holding-a/s-sells-minority-stake-to-temasek

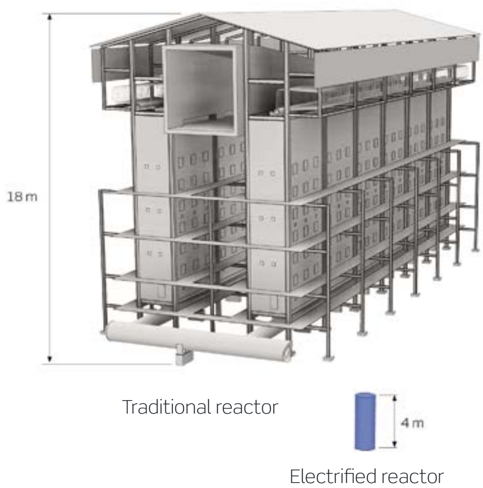
May

Extremely compact reactor has potential to reduce global CO_2 emissions significantly

An article in Science suggested that as much as one percent of global CO_2 emissions could be saved if an electrified, and significantly more compact, technology is applied across the chemical industry. This groundbreaking technology from Topsoe produces synthesis gas, an essential building block in the production of polymers and chemicals.

The eSMR™ technology reduces the size of the syngas reactor from a 30-meter-long six story building to a unit 100 times smaller. Together with the outstanding energy efficiency and low CO_2 emission, this makes the technology commercially attractive when fully developed.

https://blog.topsoe.com/article-in-science-extremely-compact-reactor-has-potential-to-reduce-global-co2-emissions-significantly



May

SkyNRG chose HydroFlex™ technology for Europe's first dedicated sustainable aviation fuel plant

SkyNRG chose Topsoe's world-leading renewable fuels technology for production of sustainable aviation fuel (SAF) at their planned facility in the Netherlands. SAF will be supplied directly to aircraft at the airport.

Flying on SAF reduces CO_2 emissions by over 85% compared to conventional jet fuel, and the 100,000 tons of SAF produced at the facility annually will reduce CO_2 emissions from aviation by more than 250,000 tons.

https://blog.topsoe.com/skynrg-chooses-topsoes-hydroflex-technology-for-europes-first-sustainable-aviation-fuel-plant

June

The world's only natural gas-to-gasoline plant in operation in Turkmenistan

A grand event, attended by His Excellency President Gurbanguly Berdimuhamedov, marked the official opening of the world's only natural gas-to-gasoline plant close to Ashgabat, the capital of Turkmenistan.

The new plant monetizes Turkmenistan's huge natural gas resources by producing 15,500 barrels per day (600,000 tonnes per year) of synthetic gasoline, which complies with gasoline standards and is sold at gas stations in Turkmenistan. It is based on Topsoe's advanced TIGAS™ technology.

https://blog.topsoe.com/worlds-only-natural-gas-to-gasoline-plant-in-operation-in-turkmenistan

July

Topsoe to build demonstration plant to produce cost-competitive, CO_2-neutral methanol from biogas and green electricity

Topsoe will demonstrate its electrified and extremely compact eSMR Methanol™ technology for cost-competitive production of sustainable methanol from biogas. The demand for sustainable methanol is increasing rapidly.

The eSMR Methanol™ technology utilizes the 40% CO_2 content in biogas, which is routinely separated and vented today. The technology heats the process using green electricity from wind turbines or solar panels instead of natural gas.

The demonstration plant is scheduled to be fully operational in 2022.

https://blog.topsoe.com/topsoe-to-build-demonstration-plant-to-produce-cost-competitive-co2-neutral-methanol-from-biogas-and-green-electricity

September

Nakhodka Mineral Fertilizer Plant selects Topsoe as licensor for world-scale methanol plant

Nakhodka Mineral Fertilizer Plant chose Topsoe's two-step technology for a new 5,400 tons-per-day methanol plant near Vladivostok in the Eastern part of Russia.

The world-scale methanol plant will be located near the major Russian seaport Nakhodka in the Primorsky region with the aim of exporting its products to the Asia-Pacific Region.

https://blog.topsoe.com/nahodka-mineral-fertilizer-plant-selects-topsoe-as-licensor-for-world-scale-methanol-plant

November

Topsoe won the 2019 IChemE Oil and Gas Global Award for its TIGAS™ gas-to-gasoline technology

Topsoe was awarded the prestigious 2019 IChemE Global Award in the category 'Oil & Gas' for its recently commercialized TIGAS™ technology at a black-tie event in Hull, UK. With this technology, Topsoe is the only company in the world that offers an end-to-end gas-to-gasoline solution.

TIGAS™ is based on industry-proven Topsoe technology platforms and catalysts, the key being Topsoe's proprietary SynCOR Methanol™ and gasoline synthesis technologies. Topsoe provides all catalysts and technology for the process, which allows for valuable process optimization.

https://blog.topsoe.com/haldor-topsoe-wins-the-2019-icheme-oil-and-gas-global-award-for-its-tigas-gas-to-gasoline-technology

Innovation to make industry more sustainable

Topsoe continuously strives to create sustainable solutions that make a positive difference in the world of today – and tomorrow. We adapt our business focus to be able to supply solutions that are relevant for climate change initiatives, particularly the need for reducing global carbon emissions, and the global energy system transformation.

Catalytic processes will be essential in the global energy system transformation and emission reduction. Topsoe's world-leading catalytic processes, catalysts and hardware designs combined with our ability to successfully upscale solutions from laboratory to industrial scale, earns us a unique position in supporting the transition of industries toward more sustainable operations.

Mitigating the negative impact on the environment, climate, and human health from fossil-based industry remains important. Topsoe will continue to develop and deliver advanced solutions which ensure that fossil resources are used in the most responsible, less environmentally harmful, and energy-efficient way.

New technologies must be developed to make alternative energy resources sustainable and commercially viable. For decades, Topsoe has been working on solutions for a future with a more diverse energy supply, including biomass, waste, and electricity from wind turbines and solar panels.

The result is a strong portfolio and pipeline of solutions geared for the industrial transition toward more sustainable energy sources for making fuels and chemicals.

Topsoe portfolio & pipeline examples

CONVENTIONAL INDUSTRIAL PRODUCTION

- Cleaning of fuels
- Reducing emissions (flue gas and off-gas cleaning)
- Production of chemicals: ammonia, methanol & sulfuric acid
- Hydrogen
- Methane/Synthetic Natural Gas

OPTIMIZED INDUSTRIAL PRODUCTION

- Partly renewable fuel (blended feedstocks)
- Conversion of CO_2 streams in chemical plants
- Partly electrified hydrogen, ammonia & methanol production

LOW-CARBON INDUSTRIAL PRODUCTION

- Renewable fuels
- Carbon capture & utilization
- Bio-gas to fuels & chemicals
- Power-to-X
- Battery materials

How our solutions impact the UN Sustainable Development Goals

Topsoe is making an extensive assessment of how our solutions impact the world's global challenges in the framework of the UN Sustainable Development Goals (SDGs).

Ammonia solutions

SDG 7 (Energy efficiency)

SDG 2 (Agricultural productivity)

Ammonia is mostly used as a key ingredient in fertilizers, which are a prerequisite for feeding the worlds' growing population.

Ammonia production is a very energy-intensive process with a significant contribution to the world's carbon emissions. However, modern ammonia plants consume only half of the energy compared to technologies of the 1950s, and Topsoe has been one of the few companies driving this huge improvement. Thus, Topsoe's solutions within ammonia production alone save an estimated 139 million tons CO_2 every year, equivalent to almost 4 times Denmark's annual CO_2 emissions.

Topsoe is working on solutions that could make it possible to produce ammonia based on water, air, and green electricity which could contribute to reducing the world's dependency on fossil fuels.

Emissions control

SDG 12 (Responsible production)

SDG 3 (Reduce air pollution)

SDG 14 (Prevent ocean acidification)

Topsoe's solutions benefit the environment and human health by reducing air emissions caused by industrial production.

Our SNOX™ technology removes SO_x, NO_x, and particulates from industrial processes and power generating facilities and converts it into commercial grade sulfuric acid. This solution eliminates the need for water and/or major absorbents and thereby reduces landfilling and ocean discharge.

Our wet gas sulfuric acid (WSA) technology removes sulfur dioxide (SO_2) emissions from industrial processes and converts it into commercial grade sulfuric acid. We estimate that this technology globally captured around 425,000 tons of SO_2 in 2019 – equivalent to 41 times Denmark's annual SO_2 emissions.

Cleaner fuels

SDG 7 (Renewable energy)

SDG 3 (Reduce air pollution)

Topsoe's hydrotreating processes enable refineries to remove potentially harmful substances from naphta, gasoline, kerosene, diesel, and heavier oil streams like, e.g., vacuum gas oil and marine fuels. These fuels are used in a large range of industries and for transportation. Fuels hydrotreated with Topsoe technologies emit less SO_x and NO_x (main components in smog) and lower the negative impact on the environment and human health.

In many regions of the world, an increasing volume of fossil fuels is replaced by fuels from alternative sources. The use of these biofuels is expected to grow significantly in the coming years.

Topsoe is at the forefront in this field and has developed HydroFlex™, a technology for production of renewable fuels from a vast variety of bio-feedstocks such as vegetable, tallow oils and waste.

Topsoe around **the globe**

Customers all over the world are serviced by our regional offices. Topsoe's global organization also encompasses production plants and engineering activities.

HQ Headquarters

Production plants

Regional offices

Engineering

North America

Customers in the refining, chemical and petrochemical industries in North America show great interest in Topsoe's catalysts and technologies, making this our largest market. The shale gas boom has spurred significant interest in solutions that convert shale gas into high-value products. Our portfolio of hydroprocessing technologies such as hydrocracking and especially renewable fuels technologies are also in high demand.

We employ 83 people at our main office in Houston, US, and at our offices in Los Angeles, US, and Edmonton, Canada. At our production plant in Bayport near Houston, 125 employees produce around 14,500 tons of high-performance catalysts annually.

Latin America

We continued to grow in Latin America in 2019 and increased our market share in the region, mainly in the refining and sulfuric acid catalyst segments. The Brazilian market has shown a significant increase in sales, and across the continent, several national oil companies are important customers for Topsoe.

Eight of nine hydrocrackers in Latin America use our catalysts, and customers continue to show great interest in our catalyst and technology solutions.

We employ 26 people at our offices in Buenos Aires, Argentina, Rio de Janeiro, Brazil, and Mexico City, Mexico.

Europe

HQ

Denmark is home to Topsoe's headquarters, where over 1,008 employees work in research & development, engineering, global sales, and support functions. The research conducted here has e.g. resulted in the eSMR™ technology that can dramatically reduce CO_2 emissions from chemical industry.

Topsoe's largest production plant is in Frederikssund, Denmark. Here, more than 559 highly skilled operators and other employees manufacture around 33,000 tons of catalysts to very high quality standards.

At the office in Essen, Germany, 13 specialists support Topsoe's customers in project development, structuring, and financing.

Russia and nearby countries

Russia and neighboring countries want solutions to capitalize on their rich oil and gas resources in an efficient way. This demand has led to a strong position for Topsoe's offerings, especially within gas monetization and in the refinery and fertilizer industries. Our catalyst and technology businesses have grown fast in recent years and represent a significant share of Topsoe's overall revenue.

Our office in Moscow, Russia, is the base for 75 employees who service customers in Russia, Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Turkmenistan, and Uzbekistan. Topsoe has enjoyed close collaboration with the Russian industrial and scientific community for decades.

Middle East

Customers in the petrochemical and refining industries of this region focus on downstream integration of fuel and petrochemicals production. This requires Topsoe catalysts, technologies, and services that support core processes within methanol, ammonia, hydroprocessing, and hydrogen production. We have strengthened our R&D collaboration with national oil companies across the region.

As fuel specifications and environmental regulations become stricter, our hydroprocessing and environmental solutions become increasingly in demand. Topsoe also offers technology upgrades to improve energy efficiency and production yield.

15 people are employed at our offices in Manama, Bahrain, and Khobar, Saudi Arabia.

India

Topsoe solutions are used to make most of the ammonia produced in India today. In the current drive toward a methanol economy, our technology to co-produce methanol and ammonia (IMAP+™) is well positioned.

We also focus on the Indian refinery market, especially hydroprocessing, hydrogen, and sulfur. In 2019, our technology was selected for new projects to produce diesel compliant with the latest environmental requirements. In addition, a viscose producer selected Topsoe's Wet gas Sulfuric Acid (WSA) technology to reduce sulfur emissions.

268 people are working in Topsoe's regional office in New Delhi, India, including an engineering unit, our IT competence center, finance service center, and procurement expediting.

Southeast Asia

Southeast Asia encompasses several emerging markets and is one of the most important drivers of global economic growth. Supported by a burgeoning middle class, a wealth of natural resources and rapid urbanization, Southeast Asia is expected to continue showing strong demand for Topsoe's expertise and solutions.

We have experienced a steady increase in demand for our technologies and catalysts for refining and emissions management. Also, the chemical industry offers more opportunities, particularly within revamping of existing units to achieve energy optimization, debottlenecking, and diversification.

Based in Jakarta, Indonesia, Kuala Lumpur, Malaysia, and Perth, Australia, 20 people support our customers in Southeast Asia, Bangladesh, Australia, and New Zealand.

China

The steady economic growth and accelerating urbanization in China increases the demand for oil products and chemicals. This brings business opportunities for Topsoe's refinery catalysts and technologies, e.g. within hydrotreating and hydrocracking. Solutions for the chemical industry like methanol catalyst and substitute natural gas technology also perform well.

Topsoe's sulfur management technologies maintain a high market share due to tighter emission standards. Stricter environmental regulations open the market for technologies such as tar hydrotreating and emission control filters.

Topsoe has 96 employees in China at the regional office in Beijing, the research center in Suzhou, and the newly opened office in Shanghai.

Accomplishments and **results**

Five-year summary

Income statement [1)]

DKK million	**2019**	**2018**	**2017**	**2016**	**2015** [3)]
Revenue	5,931	5,617	5,011	5,150	5,785
Gross profit	2,857	2,620	2,391	2,608	2,483
EBITDA	1,200	964	852	1,071	795
Depreciation and amortization	-345	-256	-257	-260	-293
EBIT	855	708	595	811	502
Net financial expenses etc.	-4	-16	-66	-24	-40
Profit from continuing operations	627	507	403	545	322
Loss from discontinuing operations	0	-16	-422	-53	0
Net profit	627	491	-19	492	322

Balance sheet

DKK million	**2019**	**2018**	**2017**	**2016**	**2015** [3)]
Balance sheet total	6,926	5,664	6,189	7,161	7,194
Equity	1,912	1,286	1,664	2,238	2,003
Net working capital	602	447	668	610	451
Net interest-bearing debt	871	756	855	1,191	1,152

Cash flow

DKK million	**2019**	**2018**	**2017**	**2016**	**2015** [3)]
Cash flows from operating activities	307	1,189	137	748	750
- Of which continuing operations	307	1,205	421	785	-
Cash flows from investing activities	-88	-220	690	-386	-638
- Of which investments in property, plant and equipment	-213	-251	-211	-393	-589
Cash flows from financing activities	-197	-1,194	-586	-530	-99
Change in cash and cash equivalents for the year	26	-230	201	-162	32

Employees

Number	**2019**	**2018**	**2017**	**2016**	**2015** [3)]
Average number of employees	2,238	2,246	2,527	2,543	2,688

Ratios

%	**2019**	**2018**	**2017**	**2016**	**2015** [3)]
Gross margin [2)]	48.2	46.6	47.7	50.6	42.9
EBITDA margin [2)]	20.2	17.2	17.0	20.8	13.7
EBIT margin [2)]	14.4	12.6	11.9	15.7	8.7
Return on invested capital (ROIC) [2)]	29.4	26.2	22.4	33.8	16.0
Equity ratio	27.6	22.7	26.9	31.3	27.8
Return on equity	39.2	33.3	-1.0	23.2	16.8
Leverage ratio	0.7	0.8	1.0	1.1	1.4

The ratios have been prepared in accordance with the Recommendations & Financial Ratios produced by the Danish Finance Society and CFA Society Denmark.
IFRS 16 was implemented using the modified retrospective approach, and comparative figures for 2015-2018 have not been restated. Please see note 1.

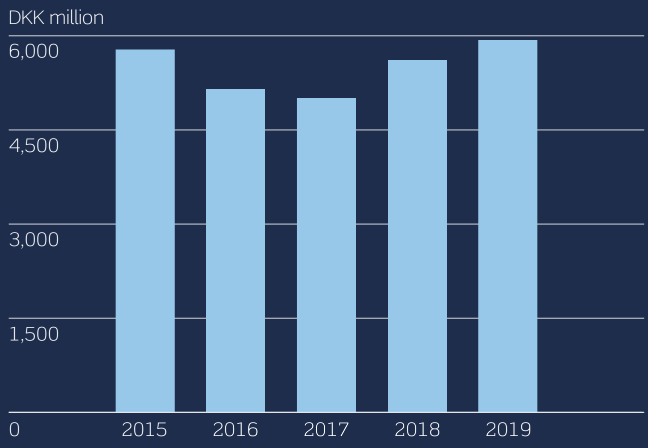
[1)] Income statements for 2016-2019 consist of continuing operations with discontinuing operations in a separate line.
[2)] Ratios for 2016-2019 apply to the continuing operations.
[3)] Figures for 2015 have not been restated with the sale of the emissions control business in 2017. Figures for 2015 are therefore not comparable to figures for 2016-2019, where the divested business is presented as discontinuing operations.

Profit before tax amounted to DKK 851 million in 2019 (2018: DKK 692 million). The increase in profit was mainly due to increased catalyst revenue in 2019 and generally improved profitability. The improved profitability can be attributed to consolidation of business activities, increased revenue from renewable fuel technology, organizational adjustments, and several other initiatives to increase business focus and cost optimization. Catalyst revenue increased by 13% mainly due to increased demand within the refinery business. Technology revenue decreased by 11% mainly due to Topsoe's business activities in the Middle East being adversely impacted by the reinstatement of US sanctions in late 2018.

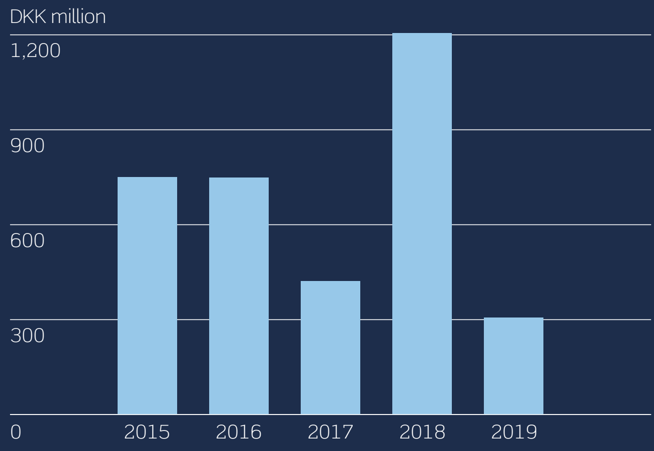
EBIT increased in 2019 by 21% to DKK 855 million corresponding to an EBIT margin of 14.4% (2018: 12.6%). Besides the generally improved EBIT margin, EBIT was positively impacted by special items of DKK 49 million, of which DKK 41 million relate to a gain from selling surplus land, DKK 34 million originate from a currently suspended Topsoe license and DKK -26 million goodwill impairment loss regarding restructuring. Adjusting for these special items, the adjusted EBIT was DKK 806 million, while the adjusted EBIT margin was 13.6%.

R&D expenses were maintained at a high although slightly lower level with a R&D-to-revenue-ratio of 8.0% (2018: 9.0%).

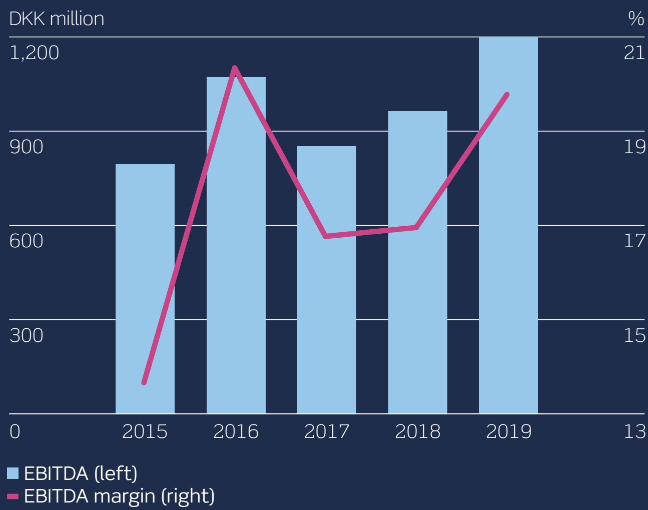
Revenue [1]



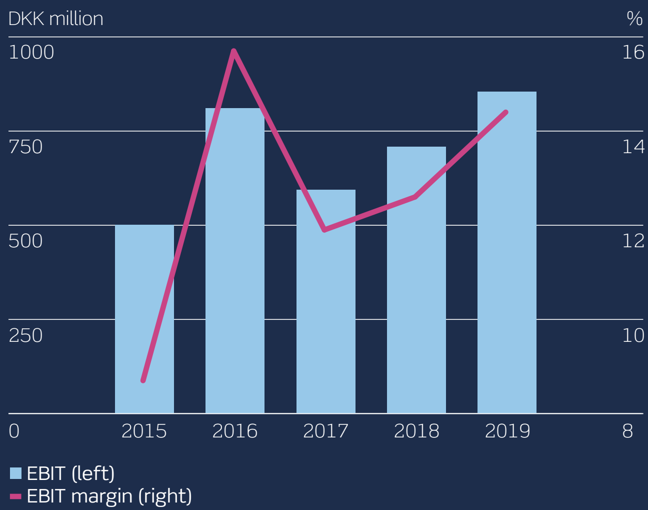
Cash flows from operating activities [1]



EBITDA [1]



EBIT [1]



[1] 2016-2019 figures reflect continuing business only. 2015 figures include discontinuing business.

Financial report

Income statement

Revenue and gross margin
Revenue increased by 6% to DKK 5,931 million (2018: DKK 5,617 million). Exchange rate developments from 2018 to 2019 had a positive impact of 2.1% on revenue. Catalyst revenue increased by 13% and technology revenue decreased by 11%.

Gross margin increased to 48.2% in 2019 compared to 46.6% in 2018.

Earnings before interest, tax, depreciation, and amortization (EBITDA)
EBITDA increased by 24% to DKK 1,200 million, corresponding to an EBITDA margin of 20.2% (2018: 17.2%).

Staff expenses amounted to DKK 1,657 million, which is at the same level compared with 2018. Staff expenses in 2018 were impacted by a redundancy cost of DKK 72 million. Employee bonus payment in 2019 (DKK 124 million) was higher than in 2018 (DKK 106 million).

Raw material costs incl. change in inventories increased by 15% to DKK 1,763 million, mainly as a consequence of increased catalyst volume.

Purchased equipment for contract work decreased by 11% to DKK 539 million due to decreased activity in technology business, as there has been no business activities in certain parts of the Middle East in 2019.

Other external expenses decreased by 8% to DKK 886 million, mainly due to implementation of IFRS 16, Leases (decreasing other external expenses by DKK 77 million in 2019; offset by higher depreciation and interest).

Earnings before interest and tax (EBIT)
EBIT increased by 21% to DKK 855 million corresponding to an EBIT margin of 14.4% (2018: 12.6%). Adjusting for special items (in total DKK 49 million), adjusted EBIT was DKK 806 million and adjusted EBIT margin was 13.6%. Depreciation increased by 35% to DKK 345 million (2018: DKK 256 million), mainly due to the implementation of IFRS 16, Leases which increased depreciation by DKK 71 million in 2019.

Net profit
Net profit increased by 28% to DKK 627 million (2018: DKK 491 million).

The increase in net profit is mainly explained by:

- An increase in EBIT to DKK 855 million in 2019 (2018: DKK 708 million).
- Improved result of investments in joint ventures and associated companies of DKK 19 million, mainly due to higher dividend payment received from KAFCO (Fertilizer facility in Bangladesh in which Topsoe owns 15.01% of the shares). Total dividend payment received from KAFCO amounted to DKK 43 million in 2019 (2018: DKK 16 million).
- Partly offset by an increase in tax to DKK 224 million (2018: DKK 185 million).

Implementation of IFRS 16 accounting standard
Topsoe has adopted IFRS 16, Leases as of January 1, 2019. The standard has been implemented using the modified retrospective approach. The effect of this new standard as of December 31, 2019 is:

- Balance sheet: Property, plant and equipment increased by DKK 488 million, Long-term lease liabilities increased by DKK 425 million, Short-term lease liabilities increased by DKK 73 million, Prepaid lease payments decreased by DKK 2 million, Deferred tax increased by DKK 3 million, and Equity decreased by DKK 9 million.
- Profit & loss: EBITDA increased by DKK 77 million, EBIT increased by DKK 6 million, and Profit before tax decreased by DKK 12 million.

All things being equal, the implementation of the new IFRS 16 accounting standard affects the financial ratios accordingly.

Cash flow and balance sheet

Cash flows from operating activities
Cash flows from operations amounted to DKK 307 million (2018: DKK 1,205 million). This decrease is due to higher tax payments and increased net working capital. Net working capital increased in 2019 by DKK 367 million (compared to a decrease of DKK 229 million in 2018) and made up 10.2% of revenue (2018: 8.0%). The increased net working capital is mainly due to increased inventory and trade receivables.

CAPEX
CAPEX decreased by 17% and amounted to DKK 308 million (2018: DKK 371 million). This includes equity investments in Ramagundam Fertilizers and Chemicals Ltd., India (of DKK 10 million) and investments in intangible assets, property, plant, and equipment of DKK 290 million in 2019.

The TK-611 HyBRIM™ catalysts help refiners produce diesel with ultra-low sulfur content.

Net indebtedness
Net indebtedness increased by 15% and amounted to DKK 871 million (2018: DKK 756 million), including the effect of IFRS 16 implementation. The leverage ratio (Net interest-bearing debt/EBITDA) amounted to 0.7 by the end of 2019 (2018: 0.8).

The interest-bearing debt at the end of 2019 was DKK 1,658 million (2018: DKK 1,517 million). This increase is due to the implementation of IFRS 16, Leases which increases the liabilities with DKK 498 million in 2019, offset by repayment of mortgage loan and credit institution loans which decrease liabilities with DKK 360 million in 2019.

The remaining tranche of corporate bonds (DKK 500 million) will expire in April 2020.

Return on invested capital (ROIC)
ROIC amounted to 29.4% (2018: 26.2%) driven by the 21% increase in EBIT and partly offset by increase in average invested capital (as a consequence of capitalized lease assets and increased net working capital).

Financial covenants

Financial covenants as of December 31, 2019, are all met.

Order backlog

The order backlog amounted to DKK 4,943 million at the end of 2019 an increase of 30% compared to the end of 2018. This was due to a high inflow of catalyst as well as technology orders. The order backlog at the end of 2019 is considered good.

Outlook for 2020

Revenue

In 2020, revenue development will depend on the level of new catalyst and technology orders obtained during 2020, and the progress of existing technology orders. In some markets, project development is impacted by the project owners' ability to finance projects. Also, the current COVID-19 virus epidemic could negatively impact business if it evolves into a pandemic or leads to significant or prolonged travel restrictions and/or quarantines. Exchange rate developments, most notably the DKK/USD exchange rate, will impact revenue. We expect that Group revenue will be in the range of DKK 5,900-6,300 million.

EBIT

The EBIT margin is expected to be in the range of 12-14% in 2020.

In 2020, we expect to maintain a high level of R&D and business development activities at approx. 8% of revenue.

Cash flow and funding

Operating cash flow (excluding working capital development) is expected to be at the same level in 2020 compared to 2019. Working capital is expected to be below 10% of revenue on average.

Topsoe's current funding position is strong, based on access to the corporate bond market, institutional banks as well as commercial banks. Committed revolving credit facilities are also available.

Topsoe intends to maintain a credit profile that will ensure compliance with all bank covenants at any time. When market terms are attractive and there is a need, Topsoe will consider issuing additional corporate bonds as well as obtaining other credit facilities. However, when the remaining tranche of corporate bonds expire in April 2020, no new corporate bonds are expected to be issued.

Forward-looking statements

Haldor Topsoe A/S' financial reports, whether in the form of annual reports or interim reports, as well as any presentations based on such financial reports, and any other written information released, or oral statements made, to the public based on this annual report or in the future on behalf of Haldor Topsoe A/S, may contain forward-looking statements.

These forward-looking statements are based on current plans, estimates and projections. By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific, which may be outside Haldor Topsoe A/S' influence, and which could materially affect such forward-looking statements.

Haldor Topsoe A/S cautions that a number of factors, including those described in the risk management part of this report, could cause actual results to differ materially from those contemplated in any forward-looking statements.

Risk management

Enterprise risk management

Topsoe operates an enterprise risk management program with quarterly reporting, followed up by reviews and mitigating activities. Executive Management and the Board of Directors receive an outline of the most significant risks on a quarterly basis, including an assessment of likelihood and potential impact. The mapping of risks is based on dialogue with management teams across the organization, and includes those risks that could cause significant disruption to the business within a timeframe of five years. The program seeks to identify risks early, assess them, and implement mitigating actions where feasible.

The Topsoe code of conduct is embedded throughout the organization, including policies covering anti-corruption, anti-money laundering, competition law, and other compliance issues. Our Code of Conduct is an example of a global mitigating action that is intended to prevent a series of potential risks related to business ethics and legal issues. Topsoe has a global compliance hotline (whistleblower solution), which is available at www.topsoe.com/Compliance-Hotline.

Topsoe's key risks and the associated mitigating actions are outlined below.

Strategic and operational risks

Customer demand
Catalysts are involved in the vast majority of industrial chemical processes today. We see no indication of disruption in our core markets in the short or medium term which will reduce demand or create substitute products, but we obviously cannot rule out such disruption in the long term. We mainly compete on the performance of our products quality, therefore significant resources are allocated to R&D to be able to continue producing high-performing products as requested by our customers. While a very significant part of our technical and catalytic solutions are based on fossil fuel feedstock (notably natural gas), we also work with a wide range of non-fossil based products and research projects, including: Renewable fuels, battery materials, making use of plastic waste, bio-to-chemicals, electrification, energy storage, and CO production using our electrolysis cells.

If cost-competitive alternative energy sources emerge, this could have a significant impact on our current business, and the level of market growth is, for some markets, impacted by the shift toward alternative energy sources. The demand for Topsoe products and services is driven by global macro trends, such as enhancing food production, increasing energy efficiency, and protecting the environment. In our Sustainable Business Unit, we continuously seek to develop new sustainable solutions that can cater for the future demand for new products, processes, and services.

Topsoe sells its products and services to a wide range of customers across the globe and is thus not dependent on a single customer or market.

Intellectual property (IP) protection
Being a highly innovative Group, Topsoe pursues IP protection through patents, trade secrets, trademarks, design, and copyright law. However, our IP could be challenged, invalidated, circumvented, or rendered unenforceable. Defending and prosecuting our IP rights are therefore of paramount importance and significant resources are allocated to this.

Cyber security
Being a knowledge-based and increasingly digitalized Group, Topsoe is exposed to information security risks. The threat of cyber attacks is increasing, and a major computer virus or malware attack could lead to severe business disruption. To mitigate the risk, Topsoe has developed and is consistently following an Information Security Roadmap, which enables the Group to identify risks, protect valuable information and adequately respond to an attack. Topsoe is continuously measuring the efforts within this area to ensure stable and secure digital environments. It is a key priority to stay on top of the threat landscape and continuously improve our digital safety.

Raw material prices and availability
Raw materials are a significant cost component in our products, and prices can fluctuate considerably. For products with a high raw material value, we seek to mitigate this risk through escalation clauses in customer contracts where delivery is more than 120 days into the future. The escalation clauses are linked to market indices of the most costly raw materials. In addition, we use financial hedging to a certain extent. We also seek to have multiple suppliers for each raw material. We are exposed to single-source risk on some raw material supplies, which makes us vulnerable to cost increases and which can potentially influence the supply chain. The single-source raw materials and suppliers are continuously assessed, and we work actively to mitigate and limit our single-source exposure.

Operations and Environment, Health & Safety
People, safety and environmental protection are of highest priority in Topsoe. A dedicated global Health, Safety and Environment organization coordinates and continuously develop our global efforts to protect our

people and the environment in which we operate.

Topsoe's production of catalysts takes place in Frederikssund (Denmark) and Houston (United States). If production is closed down for an extended period in one of our plants, e.g. due to damage to the production facilities, equipment failure or cyber attacks – or if commissioning of a new production line is substantially delayed, this could have a material impact on Topsoe's earnings. We seek to mitigate this risk by operating multiple production lines for key products and by enforcing a safety stock policy. We have also taken out business interruption insurance and property insurance.

Topsoe uses and produces chemicals. In our portfolio, we have hazardous chemicals that could potentially pose a risk if not handled with care. It is of highest priority that all our chemical operations are fully compliant with all chemical and environmental regulations in all jurisdictions where we operate or sell our products. We have processes in place for continuous monitoring of global chemical regulations in order to identify any relevant regulatory changes that might affect our products or operations.

Topsoe is exposed to project execution risk on technology projects. Systematic project management seeks to limit the risk of delayed deliveries, re-engineering, and cost overrun.

Also, the current COVID-19 virus epidemic could negatively impact business if it evolves into a pandemic or leads to significant or prolonged travel restrictions and/or quarantines.

Insurance

Besides property insurance and business interruption insurance, a number of other operational risks are insured, including general liability, product liability, professional indemnity, transportation and travel.

Geopolitical risks

Topsoe's global presence means that the Group's earnings are exposed to geopolitical events. Political actions, such as embargoes, sanctions, trade barriers, new taxes, currency restrictions, and changes in environmental legislation, etc., may impact results and cash flows. To a certain degree, this risk is mitigated by monitoring regulatory initiatives, geographical diversification, and by ensuring to the extent possible that cash flows for our individual technology contracts remain positive at all times. Our regulatory monitoring and business integrated compliance measures ensure that Topsoe is at all times compliant with applicable international sanctions. New political sanctions or cancellation of existing political sanctions could potentially have a significant impact on our business.

Financial risks

Currencies

As Topsoe operates globally, the income statement, balance sheet, and cash flows are subject to the risk of currency fluctuations, mainly in relation to Topsoe's flows of USD.

Part of this risk is mitigated through natural hedges arising from activities where Topsoe has both income and expenses in the same currency. However, the risk is not fully covered by natural hedges, and consequently Topsoe hedges certain future cash flows. A 5% change in the DKK/USD exchange rate is assessed to have an EBIT effect of DKK 15-20 million.

Interest rates

Topsoe's general interest rate policy is to maintain a loan portfolio where the fixed interest rate portion is kept within a range of 50-65%, while the floating interest rate portion is kept within a range of 35-50%. However, due to repayment of loans during 2019, Topsoe is currently outside of the interest rate policy range for its loan portfolio. By the end of 2019, the fixed rate portion stands at 77%, while the floating rate portion stands at 23%. As it would bring no financial benefit to enter into IRS transactions for the purpose of temporarily swapping fixed rate debt into floating rate debt, Topsoe has decided not to do so. On repayment of DKK 500 million corporate bonds in mid-April 2020, Topsoe will get back into the policy range (~55% fixed and ~45% floating). For the floating rate portion of our interest-bearing debt at end of 2019, an increase in the interest rate level of 1 percentage point will increase interest expenses by DKK 2.3 million p.a.

Credit

The credit risk of Topsoe is primarily related to trade receivables from state, public and privately-owned corporations. Where feasible, we seek to mitigate credit risk by applying instruments such as letters of credit and bank guarantees as well as selective structuring of payment terms, etc. On a quarterly basis, we assess whether the Group should make accruals for bad debt which is considered unlikely to be collected.

Trade finance

Issuance of bonds in support of contractual liabilities is an inherent and necessary part of Topsoe's business model, for instance in the form of bid bonds, advance payment bonds, and performance bonds issued by banks on behalf of Topsoe. Risk mitigation

includes thorough structuring of contracts and related bonds.

Counterparties

In this context, counterparty risk is defined as credit risk on financial institutions when dealing with them, either by placing deposits, entering into derivative financial instrument transactions, or otherwise. In order to reduce counterparty risk, Topsoe only deals with financial counterparties who, in the opinion of Management, have satisfactory financial strength (based on credit rating from a recognized international credit rating agency where feasible).

Liquidity

Topsoe must maintain sufficient liquidity to fund daily operations, debt service, and expansion. Topsoe's access to liquidity consists of cash and cash equivalents, including access to committed revolving credit facilities. The target is to maintain a minimum of DKK 500 million in unused committed revolving credit facilities at any time.

Restrictive covenants

Some of the financing arrangements of Topsoe are subject to financial covenants, and if violated, this could limit the ability to finance the Group's operations and capital needs for acquisitions and other business activities. Covenants include equity ratio (min. 20%), interest coverage (min. 5), and leverage (net debt/EBITDA) requirements (max. 3.5).

Tax

Topsoe conducts business in several countries globally and is thus subject to multiple tax regimes. The combination of complexity in our business and our business structure requires dedicated focus on tax management; a focus that always respects international tax principles and local tax law, while managing the tax cost and tax risk of Topsoe. As a member of the global community, Topsoe is obligated and committed to comply with the tax legislation of the countries in which Topsoe operates. In cases where legislation is unclear and/or inconsistencies exist between case law and legislation, we seek to clarify this by either obtaining an external opinion or in dialog with the relevant authorities. Topsoe's tax governance is documented in our global tax policy, available from www.topsoe.com/about/corporate-governance.

Sustainability performance

We are committed to ensuring that our solutions, as well as our conduct, are economically, environmentally, and socially sustainable. As stated in our code of conduct and in our sustainability policy, it is vital for us to conduct every aspect of our business with honesty, integrity, and openness, respecting human rights and the environment, as well as the interest of our employees, customers, and business partners.

Topsoe's business model and risk management are described on page 10 and pages 27-29, respectively.

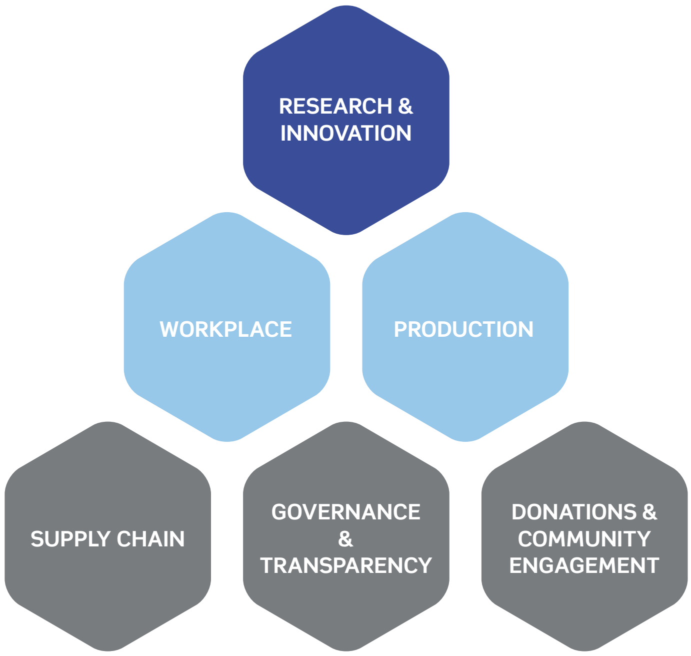
Topsoe's sustainability activities are driven by line of business, coordinated by the Corporate Compliance & Sustainability team and overseen by the Compliance & Sustainability Committee.

Engagement & well-being
A new, global employee survey on engagement and well-being was carried out in 2019 and showed an employee engagement score below our target. An action plan has been defined to address this. A follow-up survey done in January 2020 showed an improved engagement score. Topsoe also conducted well-being surveys in August and October 2019 that indicated some progress.

Safety
Topsoe has a vision of zero harm. We ended the year with the lowest lost time accident frequency ever of 2.0 per one million working hours, compared to 3.4 in 2018. Unfortunately, a couple of the accidents were more severe than in previous years. Our production plant in Frederikssund, Denmark, completed its ISO 45001 (former OHSAS 18001) audit in November 2019.

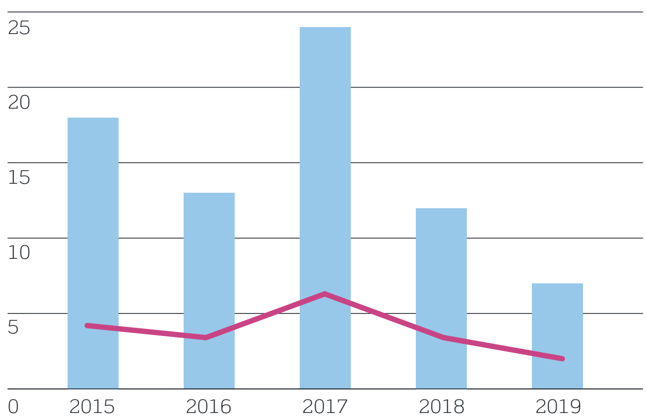
Diversity
At the end of 2019, the gender split across Topsoe was 27% female and

Six sustainability priorities - our sustainability framework



Through this framework, we monitor and drive progress and transparency on environmental, social, and governance efforts across Topsoe's global operations. Sustainability performance and progress is described in more detail in Topsoe's Sustainability Report 2019 and at www.topsoe.com/about/sustainability.

Lost time accidents



■ Lost time accidents*
■ Lost time accidents frequency per one million working hours*

* An incident in 2018 was recategorized to be a lost time accident because it led to lost work time in 2019. Accordingly, the lost time accident frequency for 2018 was adjusted from 3.1 to 3.4, and the number of lost time accidents was adjusted from 11 to 12.

73% male. In the senior leadership team, the gender split was 40% female and 60% male. Among managers, the gender split was 22% female and 78% male, unchanged from 2018. Our global diversity policy seeks to increase the gender diversity at all management levels, and we have set a target of 30% women in management positions by 2020. Topsoe seeks to strengthen gender diversity through talent acquisition, awareness initiatives, and passionate employee ambassadors promoting gender diversity. Gender split in Topsoe's Board of Directors is described on page 34.

Human & labor rights

Topsoe respects and strives to avoid infringing international human and labor rights in all our stakeholder relations. Our commitment is anchored in our code of conduct, sustainability policy, and global policies covering diversity, fair and equal treatment, non-discrimination, health & safety, freedom of association, acceptable working hours, and remuneration. Our new supplier code of conduct, developed in 2019, addresses labor standards and health & safety toward suppliers, and our conflict minerals policy addresses human rights concerns in conflict areas. During 2018 and 2019, we carried out our first human rights assessment covering the main areas of Topsoe's value chain to identify focus areas. Based on this insight, we plan to update our code of conduct to more explicitly reflect our human rights commitment in 2020.

Anti-corruption & bribery

We have policies in place for giving and receiving hospitality, gifts, and entertainment, and we have implemented third-party assurance processes to support the lawful conduct of our business. Our new supplier code of conduct emphasizes our standpoint on zero corruption toward our suppliers and others. Our intention is that all Topsoe employees are trained in business ethics, anti-corruption, and anti-bribery using our global e-learning course. 77% of employees had completed the training by the end of 2019. Topsoe's global compliance hotline provides employees and external stakeholders with a channel for reporting concerns of unethical or unlawful behavior, also beyond corruption. The compliance hotline is available on www.topsoe.com/Compliance-Hotline.

Environment

Our efforts to mitigate environmental impacts of our production plants are guided by our global environmental policy. Our plant in Frederikssund, Denmark, is certified according to ISO14001. Our plant in Bayport, US, is currently preparing for certification to Responsible Care® 14001. We have on-site Environmental, Health & Safety coordinators at both plants, who monitor environmental progress and compliance.

We had one major spill at our plant in Bayport which was filed with the authorities. Across our two plants, we received reports of 23 environmental non-conformities of which 21 have been addressed, and we are working on implementing corrective actions for the remaining two. Our plant in Frederikssund achieved total energy savings of 1,438 MWh through ten optimization projects. Our plant in Bayport identified ways to reduce waste by recycling off-specification material and feeding it back into the production process as recycled raw material, which is now standard procedure. In 2020, we will define environmental targets and take further action to reduce our environmental impact.

All policies and ISO certifications are available on www.topsoe.com/about/sustainability.

Our leadership


HALDOR TOPSØE

Corporate **Governance**

Topsoe's corporate governance structure specifies how the Group's business is led and controlled.

In 2018, the Topsøe family initiated a search process for a minority investor, and an agreement was reached with Temasek on March 12, 2019. The agreement was formally closed on July 3, 2019, where Temasek officially acquired 30% of Haldor Topsoe A/S through its investment company Dahlia Investment Pte. Ltd.

The introduction of Temasek as a minority shareholder resulted in changes to the composition of the Board of Directors of Haldor Topsoe A/S, as Temasek appointed two new members: Benoit Valentin, who became Vice Chairman alongside the current Vice Chairman Jakob Haldor Topsøe, and Rohit Sobti. Both Mr. Valentin and Mr. Sobti also joined the board committees. Anders Heine Jensen left the Board in connection with the changes.

A current list of all board members is available on our corporate website: www.topsoe.com/board-directors.

In 2019, Topsoe also launched an employee share program, giving employees the opportunity to invest in and become shareholders of the company.

By the end of 2019, Topsoe dissolved its non-Board Donation Committee. The important work of carrying on the values of Topsoe's founder and his wife will be done internally in the future. The collaboration between Mrs. Birgitte Øigaard and Mrs. Christina Topsøe and the Topsoe colleagues involved has established key insights and experiences enabling the Group to continue and optimize its support to children in need across the globe.

Shareholders

Haldor Topsoe A/S is owned by Haldor Topsøe Holding A/S (70%) and Dahlia Investment Pte. Ltd. (30%).

Haldor Topsøe Holding A/S is fully owned by the Topsøe family. The family's strong commitment to Topsoe's long-term growth strategy and continued development is fundamental to maintaining an innovative and sustainable company culture in line with the spirit of the company's founder.

Board of Directors

The Group has a two-tier management structure consisting of the Board of Directors and the Executive Committee. The Board directs and supervises the Executive Committee and has particular focus on formulating, revising, and reviewing the Group strategy. The two-tier management structure ensures complete separation of roles and responsibilities, where no person serves as a member of both.

Gender diversity in the Board
The Board of Directors has seven members, not counting employee representatives. There is one female (14%) and six male (86%) board members. The Board has set a target of two female Board members by the end of 2020. This target has been carefully considered when members have been replaced or added to the Board. However, it has not yet been possible to identify and appoint new female members of the Board. The Board will continue to focus on this target when evaluating its composition, competencies, and potential future candidates.

Board Committees

Audit Committee
In 2019, Topsoe renamed its Finance Committee to Audit Committee. The Committee continues to be responsible for assisting the Board with oversight of the Group's financial performance, auditing, accounting, project investments, and other relevant financial matters. The Audit Committee is appointed by the Board and consists of: Jakob Topsøe (Chairman), Jeppe Christiansen, and Benoit Valentin. The charter of the Audit Committee is available on www.topsoe.com/about/corporate-governance/board-committees.

Remuneration Committee
Topsoe's Remuneration Committee is tasked with ensuring appropriate policies for fair employee and Board pay. The Remuneration Committee is appointed by the Board and consists of: Jørgen Huno Rasmussen (Chairman), Jeppe Christiansen, Jakob Topsøe, and Benoit Valentin.

Innovation Committee
The Innovation Committee helps ensure that Topsoe remains a leader in catalytic innovation within its business areas. The Innovation Committee is appointed by the Board and consists of: Jens K. Nørskov (Chairman), Christina Topsøe and Rohit Sobti.

A current list of all members of the above committees is available on our corporate website: www.topsoe.com/about/corporate-governance.

Executive Committee

The responsibility for the overall day-to-day management of Topsoe lies with the Executive Committee. The team meets weekly and consists of the CEO, the Deputy CEO, who also heads up the Chemicals Business Unit, the CFO, and the EVPs of the Refinery and Sustainables Business Units. Responsibilities include overall business conduct, drafting, setting, and implementing strategies and policies, and ensuring sufficient reporting to the Board of Directors.

Compliance & behavior

Understanding external expectations, working diligently to meet these requirements, and staying true to the Topsoe Spirit is fundamental to Topsoe. Our code of conduct and underlying policies and procedures ensure that we comply with applicable international laws and regulations. The Topsoe Spirit defines our company values and guides our interactions, decisions, and actions.

Assurance & development

Operating in a financially responsible manner, improving and certifying processes to meet high business standards, and developing our people are important elements to ensure a sustainable business model. Both external and internal measures are taken to audit, review, and continuously develop our processes as well as our most valuable asset, our employees.

Compliance & behavior

Applicable laws & regulations

Code of conduct

Topsoe Spirit

Governance

Shareholders

Board of Directors

Remuneration Committee | Innovation Committee | Audit Committee

Executive Committee

Organization
Business, resource, and support units

Assurance & development

External audits of compliance, financials, and environmental obligations

Internal audits of compliance, financials, and quality procedures

Employee engagement and talent development

Board of Directors

Jeppe Christiansen
Chairman

Jeppe Christiansen is CEO of Maj Invest Holding A/S. Mr. Christiansen is Deputy Chairman of the Board of Directors of Novo Nordisk A/S. He is a member of the Boards of Novo Holdings A/S and KIRKBI A/S. In addition, Mr. Christiansen is a member of the Executive Management of Maj Invest Equity A/S, Det Kgl. Vajsenhus, and EMLIKA ApS. He has formerly been CEO of LD Pensions and Executive Director in Danske Bank. In 2016, Mr. Christiansen was appointed Adjunct Professor, Department of Finance, Copenhagen Business School. He holds an MSc in Economics from the University of Copenhagen.

Jakob Haldor Topsøe
Vice Chairman

Jakob Haldor Topsøe is Chairman of the Board of Haldor Topsøe Holding A/S and a member of the Boards of IGM Biosciences, Inc., A/S Motortramp, and Dampskibsselskabet Orients Fond A/S. Mr. Topsøe is Associated Partner at AMBROX Capital A/S. He has previously been Head of Equities at ABN AMRO Bank in Denmark. Mr. Topsøe holds a Graduate Diploma in Business Administration from the Copenhagen Business School.

Benoit Valentin
Vice Chairman

Benoit Valentin joined Temasek International (Europe) Limited in 2014 as a Senior Managing Director. Prior to this, Mr. Valentin was a Partner at Cinven, a European PE fund, for eight years. He worked for twelve years for Goldman Sachs in Europe and Asia, including a position as Managing Director for GS Capital Partners, the Private Equity arm of Goldman Sachs. Earlier positions include Analyst at Clinvest (Credit Lyonnais M&A arm) and First Lieutenant in the French Navy. Mr. Valentin holds an MSc in Business from HEC Paris (École des Hautes Études Commerciales de Paris).

Jens Kehlet Nørskov
Member

Jens K. Nørskov is the Villum Kann Rasmussen Professor, Catalysis Theory Center, Technical University of Denmark (DTU). Previously, he held the Leland T. Edwards professorship, School of Engineering, Stanford University. He is a member of the editorial board of several journals and has received numerous honors and awards. Dr. Nørskov is a member of several boards, advisory boards, and professional organizations. He holds a PhD from Aarhus University and honorary doctorates from Technical University of Eindhoven, Norwegian University of Science and Technology, and Technical University of Munich.

Jørgen Huno Rasmussen
Member

Jørgen Huno Rasmussen is Chairman of the Boards of LFI A/S and the Lundbeck Foundation. He is Vice Chairman of the Boards of Terma A/S and Rambøll Group A/S. He is a member of the Boards of Otto Mønsted A/S, Thomas B. Thriges Foundation, Aase and Jørgen Münters Foundation, and Bladt Industries A/S. Mr. Rasmussen has previously been CEO of FLSmidth & Co. A/S and Hoffmann A/S. He holds an MSc and a PhD from the Technical University of Denmark, and a Graduate Diploma in Business Administration from Copenhagen Business School, where he is Adjunct Professor.

Rohit Sobti
Member

Rohit Sobti is MD, Investments, in Temasek's Industrials cluster. He joined Temasek in 2007 as Director, Investments, in the TMT cluster and from 2010 to 2013, he was part of the Strategy Unit. Before joining Temasek, Mr. Sobti was regional telecom analyst for Asia at Citigroup and Prudential-Bache Securities for 11 years. Prior to becoming an equity analyst, Rohit was a manager at Afro-Asian Satellite Communications (ASC) and a telecoms industry consultant with AT Kearney Inc.

Christina Teng Topsøe
Member

Christina Teng Topsøe is a former lawyer and practiced law in London and Singapore for Allen & Overy and Simpson, Thacher and Bartlett. Ms. Topsøe is a member of the boards of Haldor Topsøe Holding A/S and IGM Biosciences, Inc. She studied Chinese at University of Copenhagen / Peking University and law at the University of London. She holds an MBA from London Business School and Columbia Business School.

Anders Broe Bendtsen
Employee representative

Anders Broe Bendtsen is Senior Patent Counsel in the Intellectual Property Department. He has been with Topsoe since 2010 and has been a member of the Works Council and Chairman of the Board of the Topsoe Engineers Company Group. Mr. Bendtsen holds a PhD in Chemical Engineering from the Technical University of Denmark and is a registered European Patent Attorney.

Christina Borch
Employee representative

Christina Borch is Senior Production Manager in Catalyst Production. She has been with Topsoe since 1992, working with R&D, product management and production. Ms. Borch holds an Academy Profession Degree in technology.

Jette Søvang Christiansen
Employee representative

Jette Søvang Christensen is EHS System Manager in Catalyst Production. Ms. Christiansen holds an Academy Profession Degree in technology. She has been with Topsoe since 1986.

Lis Ibsen
Employee representative

Lis Ibsen is Research Specialist in Research & Development, where she has been working with developing, testing, and characterization of catalysts since 1998. Ms. Ibsen holds a Professional Bachelor's Degree as a Laboratory Technician specializing in chemistry.

Executive Committee

Bjerne S. Clausen
President and CEO

Bjerne S. Clausen has been President and CEO since 2011. He joined the Executive Committee in 2006 as Director of Research & Development and became Executive Vice President of the Technology Division in 2008. Dr. Clausen joined Topsoe in 1979.

Dr. Clausen holds an MSc and a PhD in Materials Science from the Technical University of Denmark (DTU) and was awarded an honorary doctorate from DTU in 2014. Dr. Clausen is Adjunct Professor at both DTU and University of Aarhus, Denmark, and has been appointed Visiting Professor at the Business School of Nankai University, China.

Dr. Clausen has served on numerous research and industrial boards and committees. He is currently Chairman of the Board of iNANO, the Interdisciplinary Nanoscience Center, University of Aarhus, he is a member of the Advisory Board of the Department of Chemical Engineering, DTU as well as a member of the Confederation of Danish Industry's Committee on Business Policy.

Amy Hebert
Deputy CEO and EVP, Chemical Business Unit

Amy Hebert joined Topsoe as Deputy CEO and Executive Vice President, Chemical Business Unit, in February 2018. She has 25 years' experience in the chemical industry and has previously been Vice President Europe with Celanese and Global Vice President Catalysts with Albemarle. Ms. Hebert is responsible for the chemical catalysts and licensing business unit as well as the regional offices.

Ms. Hebert holds a B.S. in Chemical Engineering from Georgia Institute of Technology, Atlanta, Georgia.

Ms. Hebert has been a member of the Board of Cefic (the European Chemical Industry Council) and a number of joint venture companies.

Peter Rønnest Andersen
CFO

Peter Rønnest Andersen has been a member of the Executive Committee as Executive Vice President and Chief Financial Officer (CFO) since joining Topsoe in 2013. Before that, Mr. Andersen was with the A.P. Moller - Maersk Group for more than 20 years, including 15 years as CFO and member of the executive committee in various businesses, comprising 5 years as CFO of Maersk Line, 3 years as CFO of Maersk Drilling and 7 years as CFO of Maersk Tankers. Mr. Andersen has extensive board experience as a chairman and member of the boards of a number of companies and joint ventures in Denmark as well as in several other countries.

Mr. Andersen holds an MSc in Economics from the University of Aarhus, Denmark, and an Executive MBA from IMD, Switzerland. He has completed extensive leadership training at Cranfield School of Management (UK), Penn State University (US), and Harvard University (US).

Morten Schaldemose
EVP, Refinery Business Unit

Morten Schaldemose has been Executive Vice President and head of the Refinery Business Unit since 2013. Mr. Schaldemose is responsible for the Group's products and services to the refining industry as well as sulfur emission control technologies. He has held a number of positions in Topsoe centered on the refinery business, including Head of Marketing and Sales. Mr. Schaldemose joined Topsoe in 1997 after working at Kuwait Petroleum International. In an interim period, he served as COO and CEO of a number of cleantech companies before rejoining Topsoe.

Morten Schaldemose holds an MSc in Chemical Engineering from the Technical University of Denmark and an EMBA with distinction from INSEAD.

Kim Grøn Knudsen
EVP, Sustainables Business Unit

Kim Grøn Knudsen is Executive Vice President, Sustainables Business Unit. He has been a member of the Executive Management since 2012. He has held a number of positions within Topsoe's Research & Development unit, including Vice President. Mr. Knudsen joined Topsoe in 1996, leaving a position as Research Associate Professor at the Technical University of Denmark.

Mr. Knudsen holds a MSc and a PhD in Chemical Engineering from the Technical University of Denmark.

Mr. Knudsen holds several patents and is the author and co-author of more than 55 papers.

Financial **statements**

Consolidated income statement

DKK million	Note	2019	2018
Revenue	3	**5,931**	**5,617**
Change in inventories of finished goods and intermediate products		268	63
Other operating income	4	114	103
Purchased equipment for contract work		-539	-606
Raw materials and consumables used		-2,031	-1,599
Other external expenses		-886	-958
Gross profit		**2,857**	**2,620**
Staff expenses	5	-1,657	-1,656
EBITDA		**1,200**	**964**
Depreciation, amortization and impairment losses	6	-345	-256
EBIT		**855**	**708**
Result of investments in joint ventures and associated companies	7	9	-10
Financial income	8	88	71
Financial expenses	9	-101	-77
Profit before tax		**851**	**692**
Tax	10	-224	-185
Profit from continuing operations		**627**	**507**
Loss from discontinuing operations	41	0	-16
Net profit		**627**	**491**
Profit attributable to:			
Owners of the parent company		629	490
Non-controlling interest		-2	1
Net profit		**627**	**491**

Consolidated statement of comprehensive income

DKK million	Note	2019	2018
Net profit		**627**	**491**
Foreign currency translation adjustment	20	26	38
Derivative financial instruments used for hedging of future cash flows	20	2	-3
Realized derivative financial instruments transferred to financial income/expenses	20	0	-6
Tax on this	20	0	1
Fair value adjustment of financial assets available-for-sale	20	-65	-39
Tax on this	20	0	1
Other	20	3	-4
Revaluation of land	20	13	30
Tax on this	20	15	-7
Items that may be reclassified to the income statement		**-6**	**11**
Actuarial adjustments on pension obligations		5	-2
Tax on this		-1	0
Items that will not be reclassified to the income statement		**4**	**-2**
Other comprehensive income		**-2**	**9**
Total comprehensive income		**625**	**500**
Attributable to:			
Owners of the parent company		627	500
Non-controlling interests		-2	0
Total comprehensive income		**625**	**500**
Continuing operations		625	516
Discontinuing operations		0	-16
Total comprehensive income attributed to the owners of the parent company		**625**	**500**

Consolidated balance sheet

Assets

DKK million	**Note**	December 31 **2019**	December 31 **2018**
Goodwill		0	0
Rights		26	16
Patents		48	41
Software		33	15
Intangible assets under construction		19	4
Intangible assets	11	**126**	**76**
Land and buildings		1,228	782
Plant and machinery		710	740
Other fixtures and equipment		200	215
Property, plant and equipment under construction		336	345
Property, plant and equipment	12	**2,474**	**2,082**
Investments in associated companies		10	0
Investments in joint ventures		0	0
Finance lease receivables		7	8
Other securities and investments		255	344
Other receivables		26	21
Investments	13	**298**	**373**
Non-current assets		**2,898**	**2,531**
Inventories	14	**1,490**	**1,138**
Trade receivables	3,15	1,232	717
Contract work in progress	3,16	284	187
Receivables from the parent company	17	1	190
Finance lease receivables	13	1	1
Tax receivable		31	0
Other receivables	18	180	121
Prepayments		22	18
Receivables		**1,751**	**1,234**
Cash		**787**	**761**
Current assets		**4,028**	**3,133**
Assets		**6,926**	**5,664**

Consolidated balance sheet

Equity and liabilities

DKK million	Note	December 31 **2019**	December 31 **2018**
Share capital	19	376	376
Revaluation reserve	20	161	221
Foreign currency translation reserve	20	83	54
Reserve for unpaid share capital	20	0	241
Reserve for value adjustment of hedging instruments	20	0	-2
Reserve for financial assets measured at fair value	20	73	138
Retained earnings		1,219	258
Equity attributed to the owners of the parent company		**1,912**	**1,286**
Non-controlling interest		9	10
Total equity		**1,921**	**1,296**
Pension obligations and similar obligations	22	38	43
Deferred tax	23	455	381
Provisions	24	211	287
Bonds		0	499
Mortgage debt		0	27
Credit institutions		438	698
Lease liabilities		553	129
Other payables	25	36	2
Non-current liabilities		**1,731**	**2,066**
Bonds		499	0
Mortgage debt		0	3
Credit institutions		94	161
Lease liabilities		74	0
Prepayments from customers	3,26	495	418
Contract work in progress	3,16	961	492
Trade payables		514	395
Corporate income tax		0	216
Other payables	25	592	603
Deferred income		45	14
Current liabilities		**3,274**	**2,302**
Liabilities		**5,005**	**4,368**
Equity and liabilities		**6,926**	**5,664**

Consolidated statement of changes in equity

DKK million	Share capital	Reserves	Retained earnings	Total	Non-controlling interest	Total equity
Equity at January 1, 2019	**376**	**652**	**258**	**1,286**	**10**	**1,296**
Net profit	0	0	629	629	-2	627
Other comprehensive income	0	-94	92	-2	0	-2
Comprehensive income	**0**	**-94**	**721**	**627**	**-2**	**625**
Paid-in share capital	0	-241	241	0	0	0
Change in minority	0	0	-1	-1	1	0
Transactions with owners	**0**	**-241**	**240**	**-1**	**1**	**0**
Equity at December 31, 2019	**376**	**317**	**1,219**	**1,912**	**9**	**1,921**

DKK million	Share capital	Reserves	Retained earnings	Total	Non-controlling interest	Total equity
Equity at January 1, 2018	**376**	**642**	**646**	**1,664**	**0**	**1,664**
Net profit	0	0	490	490	1	491
Other comprehensive income	0	10	-2	8	0	8
Comprehensive income	**0**	**10**	**488**	**498**	**1**	**499**
Capital increase in subsidiaries	0	0	0	0	8	8
Change in minority	0	0	-1	-1	1	0
Dividend	0	0	-875	-875	0	-875
Transactions with owners	**0**	**0**	**-876**	**-876**	**9**	**-867**
Equity at December 31, 2018	**376**	**652**	**258**	**1,286**	**10**	**1,296**

Consolidated cash flow statement

DKK million	Note	2019	2018
Net profit		627	491
Adjustments for non-cash items	36	450	473
Change in working capital	37	-338	229
Change in working capital, parent company		-174	181
Cash flows from operating activities before financial items and tax		**565**	**1,374**
Interest received, etc.		45	50
Interest paid, etc.		-81	-77
Cash flows from ordinary activities		**529**	**1,347**
Corporation tax paid		-222	-158
Cash flows from operating activities		**307**	**1,189**
- Of which continuing operations		307	1,205
Purchase of intangible assets		-77	-20
Sale of intangible assets		0	45
Purchase of property, plant and equipment		-213	-251
Sale of property, plant and equipment		151	30
Purchase of non-current financial assets		-18	-134
Sale of fixed asset investments		16	60
Dividend received		43	16
Business combination		10	34
Cash flows from investing activities		**-88**	**-220**
Raising of long-term loans		0	299
Repayment of long-term loans		-360	-626
Principal elements of lease payments		-78	0
Received share capital, unpaid balance		241	0
Non-controlling interest's payment of share capital		0	8
Dividend paid		0	-875
Cash flows from financing activities		**-197**	**-1,194**
Change in cash and cash equivalents		**22**	**-225**
Cash and cash equivalents at January 1		761	991
Foreign currency translation adjustments		4	-5
Cash and cash equivalents at December 31		**787**	**761**
Cash		787	761
Cash and cash equivalents at December 31		**787**	**761**

Notes to the consolidated financial statements

List of notes

Notes to the consolidated financial statements

Note 1
Accounting policies

Basis of preparation

The consolidated financial statements of Haldor Topsoe A/S have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the EU, as well as additional Danish disclosure requirements applying to large enterprises of reporting class C.

The accounting policies are unchanged from last year, except from what is mentioned below.

New standards, amendments and interpretations adopted by Topsoe
The following amendments or standards have been implemented by Topsoe for the financial year 2019:

- IFRS 16, Leases: Going forward, the lessee is required to recognize all leases as a lease liability and a lease asset in the balance sheet with two exceptions: short-term leases (less than 12 months) and leases relating to low-value assets. It must furthermore be considered whether the agreement is a lease or a service arrangement. The effect of the implementation is described below.

  In the income statement, the lease expense is replaced by depreciation of the asset and an interest expense for the financial liability. The current rules remain largely unchanged for the lessor. Consequently, leases are still classified as finance leases and operating leases.

  The standard is implemented using the modified retrospective approach, where the lease liability is determined on that date and the right-of-use assets are measured at an amount equal to the lease liability. Comparative figures are not restated.

  The Group has chosen to exclude certain short-term contracts as well as low-value contracts. The Group applies a single discount rate to portfolios of leases with similar characteristics.

  In the balance sheet, right-of-use assets have been grossed up by DKK 488 million (January 1, 2019: DKK 550 million) while lease liabilities are grossed up by DKK 498 million (January 1, 2019: DKK 548 million), measured at the present value of the remaining lease payments discounted using the incremental borrowing rate per country. The discrepancy between right-of-use assets and lease liabilities as of January 1, 2019, is attributable to adjustment of the prepaid lease payments before the date of initial application. The income statement is impacted by an increased EBITDA of DKK 77 million, increased EBIT of DKK 6 million and decreased profit before tax of DKK 12 million.

  Furthermore, the implementation of IFRS 16 impacts disclosures.

- IFRS 9, Financial instruments: A minor amendment concerning the classification of receivables in situations where a borrower has a prepayment option and where such prepayment has negative consequences for the borrower. They are to be measured at amortized cost or fair value with adjustments through other comprehensive income if certain criteria are met.

- IAS 19, Employee benefits: The amendment consists of a minor clarification of IAS 19 regarding remeasurement of defined benefit plans. When pension obligations are remeasured due to an amendment, a curtailment or termination of a pension plan, service costs and net interest for the period after the remeasurement must be determined based on the assumptions used for the remeasurement.

  - The net interest for the remaining period is calculated on the basis of the remeasured defined benefit liability or asset.

  - However, the service costs and net interest for the financial period preceding such amendment, curtailment or termination of a pension plan are not affected by the remeasurement.

- IAS 28, Investments in associates and joint ventures: A clarification that enterprises are to apply IFRS 9, including the requirements for impairment of financial assets, on recognition of long-term investments even though such receivables are considered part of the net investment in the associate or joint ventures under IAS 21.

- IFRIC 23, Uncertainty over income tax treatments: The interpretation clarifies that it must be determined whether each tax position is to be treated individually or collectively with other uncertain tax positions. The assessment should be based on the assumption that the tax authorities have the same knowledge of the enterprise's circumstances and, therefore, the assessment should disregard any detection risk. This determination may be based on e.g. how tax statements are prepared, or how the enterprise expects the tax authorities to treat the uncertain tax positions. The uncertain tax position must be recognized if it is probable that the enterprise will have to pay or receive refunds. The uncertain tax position must be measured so as to better reflect the receivable/liability and the related uncertainty.

- Annual improvements (2015-2017): Include three minor clarifications:

  - IAS 12, Income taxes: Income tax consequences of dividends should be recognized in profit or loss, see IAS 12.

  - IAS 23, Borrowing costs: Borrowing costs incurred on specific-purpose borrowing may subsequently change into borrowing costs on general borrowing, see IAS 23.

  - IFRS 3, Business combinations: Clarifies that a step acquisition of a joint venture by which an enterprise obtains control must be treated in accordance with IFRS 3.

Notes to the consolidated financial statements

Note 1
Accounting policies (continued)

Topsoe has assessed the effect of the new standards, amendments and interpretations and concluded that all standards, amendments and interpretations, except IFRS 16 Leases, effective for financial years beginning on or after January 1, 2019, are either not relevant to Topsoe or have no significant impact on the consolidated financial statements of Topsoe.

New standards, amendments and interpretations not yet effective

The following new standards, amendments and interpretations have been adopted by the IASB and by the EU. Topsoe will adopt the standards when they become effective:

> Currently there are no new standards, amendments and interpretations which have been adopted by the IASB or the EU, which are relevant to Topsoe.

The IASB has issued the following new standards, amendments and new interpretations that are relevant to Topsoe, but which have not yet been adopted by the EU:

> IFRS 3, Business Combinations: A small amendment to the definition of a business. Previously, the definition focused on return by way of dividend, lower costs and other economic benefits for investors etc., whereas the new definition focuses on outputs from an entity being the production of goods or services to customers.

The amendment will be effective for financial years beginning on or after January 1, 2020.

The above standards and interpretations will be applied when they become effective. None of these are expected to have a significant impact on the consolidated financial statements of Topsoe.

General

The consolidated financial statements have been prepared in accordance with the historical cost convention, except for the following items that are stated at fair value:

> Land and buildings

> Financial assets measured at fair value through other comprehensive income

> Derivative financial instruments

Part of the information required by IFRS appears from Management's Review. The remaining information appears from the following sections.

Consolidation

The consolidated financial statements comprise the parent company, Haldor Topsoe A/S, and enterprises in which the parent company directly or indirectly holds the majority of the voting rights or in which the parent company through share ownership or otherwise exercises control.

Consolidation is performed by summarizing the financial statements of the parent company and Group enterprises, which have been prepared in accordance with the Group's accounting policies.

On consolidation, elimination is made of intercompany income and expenses, shareholdings, dividends and accounts as well as of realized and unrealized profits and losses on transactions between the consolidated enterprises.

The parent company's investments in consolidated Group enterprises are set off against the parent company's share of the net asset value of Group enterprises at the time of consolidation.

The non-controlling interest's share of profit for the year and of equity in subsidiaries which are not wholly owned is included as part of the Group's profit and equity, respectively, but shown as separate items.

Business combinations

On acquisition of new enterprises, the purchase method is applied. Cost is measured at fair value of the consideration. Identifiable assets and liabilities and contingent liabilities acquired in connection with the business combination are initially measured at fair value at the date of acquisition. Any positive differences between cost and fair value of the acquired identifiable net assets are recognized as goodwill. Goodwill is adjusted until 12 months after the date of acquisition if it turns out that the identifiable assets, liabilities and contingent liabilities have another fair value than determined at the date of acquisition.

Newly acquired enterprises are recognized from the date of acquisition and comparatives are not restated.

In stepwise acquisitions, value adjustments of previously recognized investments are recognized in the income statement. The effect of the purchase of non-controlling interests without change of control is included directly in equity.

Functional and presentation currency

Items in the financial statements of each of the Group's enterprises are presented in the currency used in the primary economic environment in which the enterprise operates. The consolidated financial statements are presented in Danish kroner (DKK), which is the functional and presentation currency of the parent company.

Translation policies

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the date of transaction on initial recognition. Foreign currency monetary items are translated into the functional currency at the exchange rates prevailing at the balance sheet date.

Financial statements of Group enterprises with another functional currency than Danish kroner are translated into Danish kroner using the exchange rates prevailing at the balance sheet

Notes to the consolidated financial statements

Note 1
Accounting policies (continued)

date for balance sheet items and average exchange rates for income statement items.

Realized and unrealized foreign exchange gains and losses are recognized in financial income and financial expenses, except for unrealized losses and gains arising from hedging of future cash flows, which are recognized through comprehensive income under reserve for value adjustment of hedging instruments. In addition, the following currency translation differences are recognized through comprehensive income under the foreign currency translation reserve, using the exchange rates prevailing at the balance sheet date:

- Translation of Group enterprises' net assets at the beginning of the financial year.
- Translation of Group enterprises' income statements from average exchange rates to the exchange rates prevailing at the balance sheet date.
- Translation of non-current intercompany balances that are considered an addition to the net investment in Group enterprises.

Derivative financial instruments
Derivative financial instruments are initially recognized in the balance sheet at fair value and are subsequently remeasured at their fair values. Positive and negative fair values of derivative financial instruments are recognized in 'Other receivables' and 'Other payables'.

Changes in the fair values of derivative financial instruments that qualify as hedges of expected future cash flow are recognized through comprehensive income. Amounts recognized through comprehensive income are transferred to the income statement in the period when the hedged item affects the income statement.

Changes in the fair values of derivative financial instruments that do not qualify as hedges are recognized in the income statement. The fair values of derivative financial instruments are determined based on prices obtained from stock exchanges or other reliable data sources.

Non-current assets (or disposal groups) held for sale and discontinuing operations
Non-current assets (or disposal groups) are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. They are measured at the lower of their carrying amount and fair value less costs to sell, except for assets such as deferred tax assets, assets arising from employee benefits and financial assets that are carried at fair value, which are specifically exempt from this requirement.

An impairment loss is recognized for any initial or subsequent write-down of the asset (or disposal group) to fair value less costs to sell. A gain is recognized for any subsequent increases in fair value less costs to sell of an asset (or disposal group), but not in excess of any cumulative impairment loss previously recognized. A gain or loss not previously recognized by the date of the sale of the non-current asset (or disposal group) is recognized at the date of sale or disposal.

Non-current assets (including those that are part of a disposal group) are not depreciated or amortized while they are classified as held for sale. Interest and other expenses attributable to the liabilities of a disposal group classified as held for sale continue to be recognized.

Non-current assets classified as held for sale and the assets of a disposal group classified as held for sale are presented separately from the other assets in the balance sheet. The liabilities of a disposal group classified as held for sale are presented separately from other liabilities in the balance sheet.

A discontinuing operation is a component of an entity that has been disposed of or is classified as held for sale and which represents a separate major line of business or geographical area of operations or is part of a single coordinated plan to dispose of such a line of business or area of operations. The results of discontinuing operations are presented separately in the income statement.

Income statement

Revenue
Revenue from the sale of finished goods is recognized in the income statement when control has been transferred to the customer, i.e. when goods are delivered. Revenue is recognized exclusive of VAT and net of discounts relating to sales.

Contract work in progress is recognized based on the stage of completion, which means that revenue equals the selling price of the work completed for the year (percentage-of-completion method). This method is applied when total revenue and expenses in respect of the contract and the stage of completion at the balance sheet date can be measured reliably, and it is probable that economic benefits, including payments, will flow to the Group.

Other operating income
Other operating income comprises income of a secondary nature to the Group's core activities, including government grants provided for research projects.

Purchased equipment for contract work
Purchased equipment for contract work comprises hardware etc. related to engineering projects.

Raw materials and consumables used
Raw materials and consumables used comprise raw materials and consumables consumed to achieve revenue for the year.

Other external expenses
Other external expenses comprise expenses for premises, sales and

Notes to the consolidated financial statements

Note 1
Accounting policies (continued)

distribution as well as office expenses, etc.

Government grants

Government grants received for research and development projects are recognized in 'Other operating income' as the projects progress. Grants received for investments in property, plant and equipment are set off against the related property, plant and equipment, if directly related. Otherwise grants are recognized as deferred income and systematically recognized in 'Other external expenses' over the useful life of the asset.

Leases

As explained in the first section 'New standards, amendments and interpretations adopted by Topsoe', the Group has changed its accounting policy for leases in cases where the Group is the lessee. The new policy and the impact of the change are described in the first section.

Until December 31, 2018, leases of property, plant and equipment where a significant portion of the risks and rewards of ownership were retained by the lessor were classified as operating leases. Payments made under operating leases were charged to the income statement on a straight-line basis over the lease term. The liability related to non-cancellable leases were disclosed in the notes.

Leases where the Group had substantially all the risks and rewards of ownership were classified as finance leases. Finance leases were capitalized at the lease's commencement at the lower of the fair value of the leased property and the present value of the minimum lease payments. The property acquired under finance leases was depreciated over the shorter of the useful life of the asset or the lease term. The corresponding lease obligation was included in liabilities.

Tax

Tax consists of current tax for the year, deferred tax as well as any adjustments to prior years. Tax attributable to the profit for the year is recognized in the income statement, whereas tax attributable to other comprehensive income transactions is recognized through other comprehensive income.

Haldor Topsoe A/S and Danish Group enterprises are jointly taxed. Tax for the individual companies is allocated fully on the basis of expected taxable income.

Balance sheet

Intangible assets

Goodwill
Goodwill consists of the positive difference between cost and fair value of identifiable net assets in the acquired enterprise. Goodwill is measured at historical cost less accumulated impairment losses. Goodwill is tested for impairment once a year and when there is an indication of impairment. Goodwill is written down to the recoverable amount. The recoverable amount is determined as the higher of net selling price and present value of expected cash flows of the cash-generating unit to which goodwill has been allocated. Impairment indicators comprise e.g.:

> Reduced earnings compared to expected future results

> Material negative development trends in the sector or the economy in the markets of the enterprise.

Impairment loss relating to goodwill is not reversed.

Development projects
Development projects that are clearly defined and identifiable and in respect of which technical feasibility, sufficient resources and a potential future market or development opportunity in the enterprise can be demonstrated, and where it is the intention to manufacture, market or use the project, are recognized as intangible assets. This applies if sufficient certainty exists that the value in use of future earnings can cover the cost of sales and distribution involved as well as the development costs.

Development projects that do not meet the Group's criteria for recognition in the balance sheet and research expenses are recognized as expenses in the income statement as incurred.

Other intangible assets
Rights and patents are measured at cost less accumulated amortization and impairment losses. Both rights and patents are amortized on a straight-line basis over the remaining patent term, but not exceeding 10 years, due to the notoriously fast development in applied technologies and related uncertainty about longer amortization period.

Internally developed software for major projects is measured at cost less accumulated amortization and impairment losses. Software is amortized on a straight-line basis over 4 years.

Other intangible assets are tested for impairment when there is an indication of impairment. Material impairment indicators which may lead to an impairment test are similar to those stated in the section on goodwill.

Impairment losses relating to other intangible assets are reversed if the recoverable amount subsequently increases.

Gains or losses from divestment of intangible assets are recognized in the income statement under 'Other external expenses'.

Property, plant and equipment

Plant and machinery and other fixtures and equipment are measured at cost less accumulated depreciation and impairment losses. Land and buildings are measured using the revaluation model at cost with the addition of revaluations less accumulated depreciation and impairment losses. Property, plant and equipment under construction are measured at cost.

Cost comprises the cost of acquisition and expenses directly related to

Notes to the consolidated financial statements

Note 1
Accounting policies (continued)

the acquisition up until the time when the asset is ready for use as well as costs of restoration to the extent that a provision is recognized at the same time.

In the case of assets of own construction, cost comprises direct and indirect expenses for labor, materials, components and sub-suppliers. Borrowing costs related to construction of major property, plant and equipment are recognized in cost over the period of construction.

Revaluations of land and buildings are performed on the basis of Management's estimate of fair value which is based on an independent valuation. Revaluations less depreciation and deferred taxes are transferred to the revaluation reserve under equity.

Property, plant and equipment are divided into sub-assets if the future useful life of the individual assets is different.

Depreciation based on cost and revaluations reduced by any residual value is calculated on a straight-line basis over the expected useful lives of the assets, which are:

Buildings	13–40 years
Plant and machinery	5–10 years
Other fixtures and equipment	4–20 years

Land is not depreciated.

The residual value and useful lives of the assets are assessed annually and adjusted if necessary at the balance sheet date.

Property, plant and equipment are tested for impairment when there is an indication of impairment. Impairment indicators are similar to those stated in the section on goodwill. Additionally, indicators comprise damage to the asset or changed use of the asset.

Impairment losses relating to property, plant and equipment are reversed if the recoverable amount subsequently increases.

Gains and losses from sale of property, plant and equipment are recognized in the income statement under 'Other external expenses'.

Investments in joint ventures
Investments in joint ventures are recognized and measured under the equity method.

The item 'Result of investments in joint ventures' in the income statement includes the proportionate share of the result after tax.

Other securities and investments
Investments are measured at fair value at the balance sheet date.

Fair value adjustments are recognized through other comprehensive income under the 'Reserve for financial assets measured at fair value'.

Securities in the form of loans are measured in the balance sheet at amortized cost less expected credit loss.

Inventories
Inventories are measured at cost under the FIFO method. Cost is determined using a standard cost method that includes direct and indirect production costs. Direct production costs comprise raw materials, consumables and direct labor costs, whereas indirect production costs comprise indirect materials and labor costs, maintenance and depreciation of machinery, production buildings and equipment used in the production process as well as the cost of plant administration and management.

Please refer to note 2 'Key accounting estimates and judgements' for information about write-downs.

Receivables
Receivables are measured in the balance sheet at amortized cost less expected credit loss.

Contract work in progress
Contract work in progress is measured at the selling price of the work completed calculated on the basis of the stage of completion. The stage of completion is determined on the basis of the share of contract costs incurred compared to the total expected contract costs. This method is found to be the best and most prudent method to reflect the progress. Where it is probable that total contract expenses will exceed the total revenue from a contract, the expected loss is recognized as an expense in the income statement.

Where the selling price cannot be measured reliably, the selling price is measured at the lower of expenses incurred and net realizable value.

Prepayments are set off against contract work in progress. Received payments on account exceeding the performed share of contracts are determined separately for each contract and recognized in 'Contract work in progress' under current liabilities.

Expenses relating to sales work and the winning of contracts are recognized in the income statement as incurred.

Reserves
The revaluation reserve includes a reserve for revaluation of land and buildings after depreciation and deferred tax.

The foreign currency translation reserve comprises all translation adjustments arising from the translation of financial statements of Group enterprises using another functional currency than Danish kroner as well as translation adjustments concerning non-current intercompany balances that are considered an addition to the net investment in such enterprises.

Reserve for unpaid share capital comprises the deviation between the amount by which the share capital has been increased and the amount paid.

Notes to the consolidated financial statements

Note 1
Accounting policies (continued)

Reserve for value adjustment of hedging instruments comprises the accumulated net change in the fair value of hedging transactions which meet the criteria of future cash flow hedges and where the hedged transaction has not yet been completed.

Reserve for financial assets measured at fair value comprises the accumulated net change in the fair value of financial assets classified as financial assets measured at fair value through other comprehensive income.

Dividend
Proposed dividend for the financial year is recognized in 'Retained earnings'.

Pension obligations and similar obligations
The costs of defined contribution plans are recognized in the income statement in the financial year to which they relate.

The costs and liabilities of defined benefit plans are determined in accordance with the projected unit credit method. The liability is calculated annually by an actuary. Actuarial gains and losses are recognized in full in 'Other comprehensive income'. Plan assets are only recognized to the extent that the Group is able to derive future economic benefits such as refunds from the plan or reductions of future contributions.

Costs related to other non-current staff benefits are accrued over the employees' expected average working life.

Deferred tax
Deferred income tax is measured using the balance sheet liability method in respect of temporary differences arising between the tax bases of assets and liabilities. Deferred tax is not recognized in respect of goodwill, unless it is deductible for tax purposes. The tax base of tax loss carryforwards is deducted from deferred tax when it is probable that the losses may be utilized. Deferred tax is measured on the basis of the tax rules and tax rates expected to be in force on elimination of temporary differences. Any changes in deferred tax due to changes in tax rates are recognized in the income statement with the share attributable to the results for the year, unless they relate to items recognized either in other comprehensive income or directly in shareholders' equity.

Provisions
Provisions are recognized when – in consequence of a previous event – the Group has a legal or constructive obligation and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are measured at Management's estimate of the discounted amount expected to be required to repay the obligation.

Financial liabilities
Loans such as bonds, mortgage loans and loans from credit institutions are recognized initially at the proceeds received net of transaction expenses incurred. Subsequently, the loans are measured at amortized cost, corresponding to capitalized value, using the effective interest rate; the difference between the proceeds and the nominal value is recognized in the income statement over the loan period. Other debts are measured at amortized cost, mainly corresponding to nominal value.

Deferred income
Deferred income comprises payments received in respect of income in subsequent years and is primarily related to government grants.

Other areas

Cash flow statement
The Group's cash flow statement, which is prepared according to the indirect method, shows the Group's cash flows for the year broken down by operating, investing and financing activities as well as the Group's cash and cash equivalents at the beginning and end of the year.

The Group's cash comprises the Group's cash and cash equivalents and cash deposits with Haldor Topsøe Holding A/S.

Financial highlights
The financial ratios have been prepared in accordance with the Recommendations & Financial Ratios produced by the Danish Finance Society and CFA Society Denmark.

The key figures and financial ratios have been calculated as follows:

$$\textbf{Gross margin} = \frac{\text{Gross profit x 100}}{\text{Revenue}}$$

$$\textbf{EBITDA margin} = \frac{\text{EBIT + depreciation, amortization etc. x 100}}{\text{Revenue}}$$

$$\textbf{EBIT margin} = \frac{\text{EBIT x 100}}{\text{Revenue}}$$

$$\textbf{Return on invested capital} = \frac{\text{EBIT x 100}}{\text{Average invested capital}}$$

$$\textbf{Equity ratio} = \frac{\text{Equity at year-end x 100}}{\text{Total assets}}$$

$$\textbf{Return on equity} = \frac{\text{Net profit x 100}}{\text{Average equity}}$$

$$\textbf{Leverage} = \frac{\text{Net interest-bearing debt}}{\text{EBITDA}}$$

Notes to the consolidated financial statements

Note 2
Key accounting estimates and judgements

In accordance with general accounting policies, determination of the carrying amount of certain assets and liabilities requires assessments and estimates of future events. Assessments and estimates are performed based on historical experience and other factors which Management considers reasonable under the circumstances. These assumptions may be incomplete or inaccurate and unexpected issues may arise, which implies that the assessments and estimates made are subject to some uncertainty. Special risks for the Group appear from the Risk management section.

Goodwill

Goodwill is tested for impairment once a year and if there is an indication of impairment. The impairment test requires that Management estimates various significant factors, including expected future cash flows, discount rates and growth rates for the period. The sensitivity of estimates made can, combined or individually, be significant. Please refer to note 11 for further information.

Land and buildings

The Group's land and buildings are measured in accordance with the revaluation model. Fair value is determined on the basis of a market-based estimate performed by an independent, qualified valuation expert. The frequency of an independent valuation depends on the extent to which Management assesses that the market development shows signs of significant difference between the carrying amount and fair value. Please refer to note 12 for further information.

Other investments

Other investments are measured at fair value at the balance sheet date. To the extent that fair value cannot be derived from an active market, it is required that Management assesses and selects an appropriate method for determination of the fair value. In this case, the fair value is measured at the discounted value of expected future cash flows. Material assumptions comprise expected future cash flows, discount rates and growth rates for the period. Please refer to note 13 for further information.

Inventory

The standard cost calculations are reviewed on a regular basis to ensure that all relevant assumptions such as prices, output and capacity utilization are incorporated correctly. Changes in the calculation method used to calculate indirect production costs may impact the gross margin and the overall measurement of inventories.

Inventories are written down to net realizable value if this is lower than cost. The need to write down inventories is primarily assessed based on negotiability and production quality. The net realizable value is calculated as the total of future revenue expected to be generated in the process of normal operations and determined by allowing for marketability, obsolescence and development in expected selling price less selling expenses. Please refer to note 14 for further information.

Revenue from engineering projects

In Management's opinion, the Group's sale of engineering projects is to a high degree individually adjusted, and contract work in progress is consequently measured at the selling price of the work completed based on the stage of completion. The stage of completion is determined on the basis of the share of contract costs incurred compared to the total expected contract costs. These costs are partly based on an estimate which to a high degree is based on historical experience. Expected income and costs of engineering projects may be adjusted along with the finalization of the projects and clarifications of uncertainties. Parallel changes to the engineering contract may occur and certain assumptions in the contract may not be met.

Warranty provision for engineering projects

The evaluation of the warranty provision for engineering projects is based on historical levels. Furthermore, the warranty provision also reflects the risks associated with bringing new technologies to the market as well as executing projects in countries with higher geopolitical risks. Please refer to note 24 for further information.

Contingent liabilities and lawsuits

As part of the Group's business, Topsoe may become party to a lawsuit and/or dispute. In such cases, the potential liabilities and their likelihood are evaluated. The evaluation is based on available information and legal assessment from advisors. Assessing the final outcome of lawsuits/disputes is difficult and the outcome may thus deviate from the evaluation made by Topsoe.

Research and development costs

Research costs are expensed when incurred. Development costs which do not meet the requirements of capitalization are expensed when incurred. Management assesses whether the capitalization requirements are met based on expectations of the technical possibility of completing the development project, expectations of the existence of a market for the product, etc.

Notes to the consolidated financial statements

Note 3
Revenue

The Group's revenue can be divided into two main categories: catalyst sales and technology sales. Catalyst sales comprise the sale of catalysts. Technology sales comprise basic engineering design, license fee and hardware.

Revenue from catalyst sales is recognized when control has been transferred, which typically takes place based on Incoterms. The majority of catalyst sales are paid after delivery with typically 30-60 days of credit, but in certain situations the Group receives prepayments.

Revenue from technology sales is recognized over time according to the percentage-of-completion method based on actual versus forecasted cost. Technology sales are paid in installments during the contract's life time. The Group strives to be cash flow positive on all technology contracts at any time during project execution.

The transaction price of a contract is allocated to performance obligations, e.g. delivered catalyst and delivered technology. Technology is considered to be one performance obligation, since the deliveries must be treated as a whole and not as distinct elements.

DKK million	**2019**	**2018**
Catalyst	4,361	3,851
Technology	1,570	1,766
Total disaggregation of revenue from contract with customers	**5,931**	**5,617**
Future revenue regarding unsatisfied or partially unsatisfied performance obligations. The majority will be recognized in 2020.	4,943	3,796
Revenue recognized that was included in contract liability balance at the beginning of the year	618	813
Revenue recognized from performance obligations satisfied in previous periods	23	7
Trade receivables	1,232	717
Contract work in progress	284	187
Contract assets at December 31	**1,516**	**904**
Prepayments from customers	495	418
Contract work in progress	961	492
Contract liabilities at December 31	**1,456**	**910**

Trade receivables and contract work in progress recognized under liabilities both increased during the year, mainly due to substantial invoicing activity regarding contract work in progress at year-end.

Note 4
Other operating income

Government grants for research and development amounting to DKK 15 million (2018: DKK 11 million) have been recognized in the income statement under 'Other operating income'.

Notes to the consolidated financial statements

Note 5
Staff expenses

DKK million	2019	2018
Wages and salaries	1,385	1,391
Pensions – defined contribution plans	139	137
Pensions – defined benefit plans	6	6
Other social security contributions	142	138
Total	**1,672**	**1,672**
Capitalization of work performed on property, plant and equipment	-15	-16
Total staff expenses	**1,657**	**1,656**
Executive Committee salary	30	22
Executive Committee pension	4	4
Fee to Board of Directors	6	7
Total remuneration to Executive Committee and Board of Directors	**40**	**33**
Average number of employees	2,238	2,246
Of which in Denmark	1,550	1,609

In 2019, the Group has launched an Employee Share Program with enrollment date in February 2020. Employees are offered the opportunity to acquire shares in Haldor Topsoe A/S at market value. Furthermore, for every four shares purchased at market value, a fifth share can be purchased for DKK 1. The Employe Share Program has no accounting impact in 2019.

In some countries, participation in the Employee Share Program is not possible due to local legislation. Instead, employees in these countries have been offered to participate in a bonus program.

Note 6
Depreciation, amortization and impairment losses

DKK million	2019	2018
Rights	4	3
Patents	7	7
Software	9	10
Goodwill	26	0
Land and buildings	85	18
Plant and machinery	140	136
Other fixtures and equipment	74	82
Total depreciation, amortization and impairment losses	**345**	**256**

Notes to the consolidated financial statements

Note 7
Result of investments in joint ventures and associated companies

DKK million	2019	2018
Share of result of joint ventures, net	0	-10
Share of result of associated companies, net	-7	0
Recognition of badwill	0	2
Fair value adjustment of investment in joint venture	13	-2
Dissolvement of previous year's purchase price allocation	3	0
Total result of investments in joint ventures	**9**	**-10**

Note 8
Financial income

DKK million	2019	2018
Dividend from other investments	43	16
Interest received from the parent company	0	2
Interest income	9	9
Gains on derivative financial instruments (currency)	0	5
Foreign currency translation adjustment	34	38
Other financial income	2	1
Total financial income	**88**	**71**

Note 9
Financial expenses

DKK million	2019	2018
Interest expenses	64	45
Foreign currency translation adjustment	32	32
Value adjustment of other receivables	2	0
Other financial expenses	3	0
Total financial expenses	**101**	**77**

Notes to the consolidated financial statements

Note 10
Tax

DKK million	2019	2018
Current tax for the year	120	275
Change in deferred tax for the year	96	-105
Adjustments to prior years	8	12
Total tax	**224**	**182**
Tax on continuing operations	224	185
Tax on discontinuing operations	0	-3
Total tax	**224**	**182**

%	2019	2018
Danish corporate tax rate	22.0	22.0
Non-deductible expenses	0.2	0.2
Income not subject to tax	-0.7	-0.2
Differences in foreign tax rates	4.9	0.0
Adjustments relating to prior years	0.1	3.4
Other adjustments	-0.2	1.4
Effective tax rate	**26.3**	**26.8**

Notes to the consolidated financial statements

Note 11
Intangible assets

DKK million	Goodwill	Rights	Patents	Software	Intangible assets under construction
Cost at January 1, 2019	0	25	87	173	4
Additions during the year	26	14	18	27	18
Disposals during the year	0	0	-6	-4	0
Transfers during the year	0	0	0	3	-3
Cost at December 31, 2019	**26**	**39**	**99**	**199**	**19**
Amortization and impairment losses at January 1, 2019	0	9	46	158	0
Foreign currency translation adjustment	0	0	0	0	0
Amortization for the year	0	4	7	9	0
Impairment losses for the year	26	0	0	0	0
Reversal of amortization and impairment losses on assets sold and scrapped	0	0	-2	-1	0
Amortization and impairment losses at December 31, 2019	**26**	**13**	**51**	**166**	**0**
Carrying amount at December 31, 2019	**0**	**26**	**48**	**33**	**19**
Research and development costs expensed in 2019					472

The goodwill originates from the acquisition at January 1, 2019, of the remaining 50% of the shares in Saturn FS Gas Chemicals LLC.

The Group has carried out an impairment test of goodwill, which resulted in a impairment loss of DKK 26 million. During the impairment test, the cash generating unit's discounted cash flow was compared to the unit's carrying amount. The cash generating unit is by Management defined as the activity in the company Saturn FS Gas Chemicals LLC. Cash flows are expected to be DKK 0 million, which result in a recoverable value of goodwill of DKK 0 million.

DKK million	Rights	Patents	Software	Intangible assets under construction
Cost at January 1, 2018	25	115	169	0
Additions during the year	0	16	1	3
Disposals during the year	0	-44	-1	0
Transfers during the year	0	0	4	1
Cost at December 31, 2018	**25**	**87**	**173**	**4**
Amortization and impairment losses at January 1, 2018	6	70	149	0
Amortization for the year	3	7	10	0
Reversal of amortization and impairment losses on assets sold and scrapped	0	-31	-1	0
Amortization and impairment losses at December 31, 2018	**9**	**46**	**158**	**0**
Carrying amount at December 31, 2018	**16**	**41**	**15**	**4**
Research and development costs expensed in 2018				505

Notes to the consolidated financial statements

Note 12
Property, plant and equipment

DKK million	Land and buildings	Plant and machinery	Other fixtures and equipment	Property, plant and equipment under construction
Cost at January 1, 2019	1,013	2,368	1,053	345
Lease assets at January 1, 2019 (see notes 1 and 27)	542	1	7	0
Restated opening cost	**1,555**	**2,369**	**1,060**	**345**
Foreign currency translation adjustment	7	11	1	4
Additions during the year	51	27	19	111
Disposals during the year	-40	-27	-10	0
Transfers during the year	8	84	32	-124
Cost at December 31, 2019	**1,581**	**2,464**	**1,102**	**336**
Revaluation at January 1, 2019	362	8	0	0
Foreign currency translation adjustment	4	0	0	0
Additions during the year	30	0	0	0
Disposals during the year	-92	0	0	0
Reversals during the year	-18	0	0	0
Revaluation at December 31, 2019	**286**	**8**	**0**	**0**
Depreciation and impairment losses at January 1, 2019	593	1,636	838	0
Foreign currency translation adjustment	1	7	0	0
Depreciation for the year	85	140	74	0
Reversal of depreciation and impairment losses on assets sold and scrapped	-40	-21	-10	0
Depreciation and impairment losses at December 31, 2019	**639**	**1,762**	**902**	**0**
Carrying amount at December 31, 2019	**1,228**	**710**	**200**	**336**
Carrying amount at December 31, 2019, under the depreciated cost model	995	710	200	336
Borrowing costs capitalized in 2019				0
Carrying amount of right-of-use assets	**599**	**1**	**7**	**0**

Where Management assesses that a revaluation is material, the properties in question have been revalued by an independent assessor in connection with closing of the accounts, latest in 2019.

Notes to the consolidated financial statements

Note 12
Property, plant and equipment (continued)

DKK million	Land and buildings	Plant and machinery	Other fixtures and equipment	Property, plant and equipment under construction
Cost at January 1, 2018	1,007	2,277	998	250
Foreign currency translation adjustment	4	21	0	6
Additions during the year	4	29	34	184
Disposals during the year	-2	-6	-2	-20
Transfers during the year	0	47	23	-75
Cost at December 31, 2018	**1,013**	**2,368**	**1,053**	**345**
Revaluation at January 1, 2018	326	8	0	0
Foreign currency translation adjustment	6	0	0	0
Additions during the year	30	0	0	0
Revaluation at December 31, 2018	**362**	**8**	**0**	**0**
Depreciation and impairment losses at January 1, 2018	574	1,494	757	0
Foreign currency translation adjustment	2	12	1	0
Depreciation for the year	18	136	82	0
Reversal of depreciation and impairment losses on assets sold and scrapped	-1	-6	-2	0
Depreciation and impairment losses at December 31, 2018	**593**	**1,636**	**838**	**0**
Carrying amount at December 31, 2018	**782**	**740**	**215**	**345**
Carrying amount at December 31, 2018, under the depreciated cost model	474	740	215	345
Borrowing costs capitalized in 2018				2
Carrying amount of finance leases	**122**	**0**	**0**	**0**

Notes to the consolidated financial statements

Note 12
Property, plant and equipment (continued)

DKK million	Level 1	Level 2	Level 3
Office buildings in Denmark	0	0	237
Production plants in Denmark and US	0	0	392
Distribution of assets stated at fair value at December 31, 2019	**0**	**0**	**629**

DKK million	Level 1	Level 2	Level 3
Office buildings in Denmark	0	0	232
Production plants in Denmark and US	0	0	329
Excess land in US	0	99	0
Distribution of assets stated at fair value at December 31, 2018	**0**	**99**	**561**

Level 1: Quoted prices (unadjusted) in an active market for identical assets.

Level 2: Input other than quoted prices included within level 1 that is observable for asset, either directly (i.e. as prices) or indirectly (i.e. derived from prices).

Level 3: Input for assets that are not based on observable market data (i.e. unobservable inputs).

There have been no transfers between levels 1 and 2 during the year.

The fair value of office buildings in Denmark has been derived using a market approach primarily based on rental per m^2 for comparable buildings and an interest rate. The rental per m^2 is set at DKK 700-1,400 for office buildings and DKK 300-700 for storage and laboratories. The fair value of Danish production plants and adjacent buildings has been derived using a market approach primarily based on rental per m^2 for comparable buildings and an appropriate interest rate. The average rental per m^2 is set at DKK 510-560. The fair value of US production plants has been derived using a reconstruction approach, which reflects the cost of constructing similar buildings at an equivalent age and use. The majority of the excess land in US has been disposed during the year.

The current use of land and buildings is considered to represent the highest and best use of the assets.

The valuation methods have not changed from last year.

DKK million	2019	2018
Fair value of level 3 assets at January 1	**561**	**567**
Additions	57	4
Disposals	0	-1
Revaluation	12	0
Included in the income statement as depreciation	-16	-15
Foreign currency translation adjustment	15	6
Fair value of level 3 assets at December 31	**629**	**561**

Notes to the consolidated financial statements

Note 13
Investments

DKK million	Investments in associated companies	Investments in joint ventures	Finance lease receivables	Other securities and investments	Other receivables
Cost at January 1, 2019	0	0	9	208	27
Additions during the year	0	0	0	10	8
Disposals during the year	0	0	-1	-4	-1
Transfers during the year	17	0	0	-17	-1
Cost at December 31, 2019	**17**	**0**	**8**	**197**	**33**
Value adjustment at January 1, 2019	0	0	0	136	-6
Net result for the year	-7	0	0	0	0
Disposals during the year	0	0	0	-15	0
Value adjustments for the year	0	-13	0	-63	-1
Transfers during the year to Group company	0	13	0	0	0
Value adjustment at December 31, 2019	**-7**	**0**	**0**	**58**	**-7**
Carrying amount at December 31, 2019	**10**	**0**	**8**	**255**	**26**
Of this, less than 1 year			1		

DKK million	Investments in joint ventures	Finance lease receivables	Other securities and investments	Other receivables
Cost at January 1, 2018	39	0	136	69
Foreign currency translation adjustment	0	0	0	1
Additions during the year	0	9	76	7
Disposals during the year	0	0	-2	-52
Transfers during the year	-39	0	-2	2
Cost at December 31, 2018	**0**	**9**	**208**	**27**
Value adjustment at January 1, 2018	-39	0	180	-15
Net result for the year	-10	0	0	0
Disposals during the year	0	0	-6	0
Value adjustments for the year	27	0	-38	-5
Investments with negative equity transferred to receivables	-14	0	0	14
Transfers during the year to Group company	36	0	0	0
Value adjustment at December 31, 2018	**0**	**0**	**136**	**-6**
Carrying amount at December 31, 2018	**0**	**9**	**344**	**21**
Of this, less than 1 year		1		

Notes to the consolidated financial statements

Note 13
Investments (continued)

Investment in joint ventures:

Saturn Ferrostaal Gas Chemicals LLC, Wilmington, Delaware, US
The joint venture was fully acquired on January 1, 2019, and is now 100% owned by the Group and fully consolidated in the Group from January 2019.

Investments in associated companies:

Faradion Ltd., United Kingdom
The Group has invested in Faradion Ltd., corresponding to 22.52% of the share capital.

Other securities and investments:

Karnaphuli Fertilizer Limited, Bangladesh (KAFCO)
The Group holds shares in KAFCO of nominally BDT 692 million, which equals 15.01% of the shares in KAFCO. The shares are measured at fair value based on a discounted cash flow calculation using the present budgets and forecasts of KAFCO. The calculation is moreover based on material assumptions in terms of growth rate and discount rate. The discount rate is determined based on Management's estimate of general capital market conditions and the specific risk profile and has been set at 11.4% (2018: 11.4%) after tax. The growth rate in the terminal period has by Management been estimated at 0% (2018: 0%). Based on these criteria, the KAFCO shares have been written down by DKK 31 million (2018: DKK 37 million).

A change in the discount rate of -1% or +1%, respectively, would impact the value by 7% or -5%, respectively. A change in the growth rate in the terminal period of -10% or +10%, respectively, would impact the value by -8% or +8%, respectively.

GTLA Holding LP, US
The Group has invested in GTLA Holding LP, corresponding to 2.86% of the share capital. The purpose of the company is to develop a project regarding construction of a gas-to-liquid plant.

Ramagundam Fertilizers and Chemicals Limited, India
The Group has invested in Ramagundam Fertilizers and Chemicals Limited, corresponding to 3.90% of the share capital. The company is constructing a fertilizer plant in India. The Group is obligated to invest an additional amount of up to INR 128 million (equal to DKK 12 million).

Notes to the consolidated financial statements

Note 14
Inventories

DKK million	2019	2018
Raw materials and consumables	358	273
Work in progress	209	135
Finished goods	923	730
Inventories at December 31	**1,490**	**1,138**
Cost of sales for the year	2,289	2,038
Impairment losses for the year	50	46
Reversed impairment losses for the year	-45	-34

Reversal of impairment losses is attributable to disposal or reuse of impaired goods in the production.

Note 15
Trade receivables

DKK million	2019	2018
Trade receivables, gross	**1,264**	**739**
Loss allowance at January 1	-22	-21
Increase in loss allowance for the year	-11	-22
Reversal of loss allowance, prior years	1	21
Loss allowance at December 31	**-32**	**-22**
Trade receivables at December 31	**1,232**	**717**
Of this, due after more than 1 year	3	4
Realized losses for the year	14	19

Receivables, gross, due at December 31 have the following aging in %:	2019	2018
Not due	68	65
1-90 days	24	20
91-180 days	4	4
181+ days	4	11

	Gross trade receivables DKK million	Expected loss rate %	Loss allowance DKK million
Not due	847	0	0
1-90 days	309	0	0
91-180 days	48	1	0
181-360 days	6	2	0
360+ days	54	59	32
At December 31, 2019	**1,264**		**32**

Notes to the consolidated financial statements

Note 15 (continued)
Trade receivables

	Gross trade receivables DKK million	Expected loss rate %	Loss allowance DKK million
Not due	476	0	0
1-90 days	150	0	0
91-180 days	30	0	0
181-360 days	47	32	15
360+ days	36	19	7
At December 31, 2018	**739**		**22**

Note 16
Contract work in progress

DKK million	**2019**	**2018**
Selling price of work performed at the balance sheet date	5,962	5,911
Payments received on account	-6,639	-6,216
Contract work in progress at December 31	**-677**	**-305**
Contract work in progress recognized in assets	284	187
Contract work in progress recognized in liabilities	-961	-492
Contract work in progress at December 31	**-677**	**-305**

Note 17
Receivables from the parent company

DKK million	**2019**	**2018**
Unpaid share capital	0	241
Declared, unpaid dividend	0	-241
Other receivables/payables	1	190
Receivables from the parent company at December 31	**1**	**190**

Note 18
Other receivables

DKK million	**2019**	**2018**
Receivable regarding VAT and tax	103	76
Other receivables	77	45
Other receivables at December 31	**180**	**121**
Of this, due after more than 1 year	21	32

Notes to the consolidated financial statements

Note 19
Share capital

Number of shares	2019	2018
Shares of a nominal value of DKK 376,000,000	**376,000,000**	**376,000**

The share capital consists of 376,000,000 shares with a nominal value of DKK 1 each or multiples thereof (2018: 376,000 shares with a nominal value of DKK 1,000 each). No shares carry any special right. As of February 19, 2020 the share capital consists of 379,013,647 shares. The capital increase is due to the launch of the Employee Share Program (see note 5 for further information).

Note 20
Reserves

DKK million	Revaluation reserve	Foreign currency translation reserve	Reserve for unpaid share capital	Reserve for value adjustment of hedging instruments	Reserve for finan-cial assets measured at fair value	Total
Reserves at January 1, 2019	221	54	241	-2	138	652
Foreign currency translation adjustment	0	26	0	0	0	26
Derivative financial instruments used for hedging of future cash flows	0	0	0	2	0	2
Fair value adjustment of financial assets	0	0	0	0	-65	-65
Other	0	3	0	0	0	3
Revaluation of land	13	0	0	0	0	13
Realized fair value adjustment of land trans-ferred to retained earnings	-88	0	0	0	0	-88
Tax	15	0	0	0	0	15
Paid-in share capital	0	0	-241	0	0	-241
Total reserves at December 31, 2019	**161**	**83**	**0**	**0**	**73**	**317**

DKK million	Revaluation reserve	Foreign currency translation reserve	Reserve for unpaid share capital	Reserve for value adjustment of hedging instruments	Reserve for finan-cial assets measured at fair value	Total
Reserves at January 1, 2018	198	20	241	6	177	642
Foreign currency translation adjustment	0	38	0	0	-1	37
Derivative financial instruments used for hedging of future cash flows	0	0	0	-3	0	-3
Realized derivative financial instruments transferred to financial income/expense	0	0	0	-6	0	-6
Fair value adjustment of financial assets	0	0	0	0	-39	-39
Other	0	-4	0	0	0	-4
Revaluation of land	30	0	0	0	0	30
Tax	-7	0	0	1	1	-5
Total reserves at December 31, 2018	**221**	**54**	**241**	**-2**	**138**	**652**

Notes to the consolidated financial statements

Note 21
Dividend

Proposed dividend constitutes DKK 314 million (2018: DKK 0 million) corresponding to DKK 0.84 per share of nominal value DKK 1 (2018: DKK 0 per share of nominal value DKK 1,000) based on the share capital as per December 31, 2019. Due to the Employee Share Program (see note 5 for further information), the dividend will be diluted to DKK 0.83 per share of nominal value DKK 1 as per the declaration date.

No interim dividend for 2019 or dividend for 2018 have been paid during 2019 (2018: DKK 650 million and DKK 225 million) corresponding to DKK 0 per share of nominal value DKK 1 (2018: DKK 2,327.13 per share of nominal value DKK 1,000).

Dividend policy
There is no formal dividend policy. On a yearly basis, the owners will consider what is the right level of dividend payment, based on profitability, equity ratio and future capital requirements.

Note 22
Pension obligations and similar obligations

The Group has entered into pension plans with a considerable number of its employees. Most of the plans are defined contribution plans and only a small part is defined benefit plans.

Defined contribution plans
The Group finances the plans by currently paying a premium to independent insurance companies that are responsible for the pension obligations. Once the pension contributions to the defined contribution plans have been paid, the Group has no further pension obligations to current or terminated employees.

Defined benefit plans
The Group has made agreements with specific groups of employees regarding payment of certain benefits, including pension. These pensions mainly relate to certain employees in the Group's US subsidiary where the plan partly consists of a basic pension and partly of an additional pension for selected members of US management. The pension obligations are partly hedged through an independent fund. Actuarial valuation is performed annually. In addition, employees in India and Germany are covered by defined benefit plans.

DKK million	**2019**	**2018**
Pension costs	4	4
Interest expenses	11	11
Interest income on plan assets	-9	-9
Total pension related to defined benefit recognized in staff expenses	**6**	**6**

Applied actuarial assumptions in %	**2019**	**2018**
Discount rate	1.00-7.12	2.00-7.63
Future pay increases	2.50-10.00	2.50-9.81

A change in the discount rate of -0.5% or +0.5%, respectively, would impact the defined benefit obligation by +5% or -4%, respectively. A change in the future pay increase of -0.5% or +0.5, respectively, would impact the defined benefit obligation by -1% or +1%, respectively.

The weighted average duration of the defined benefit obligation is 8.3-10.6 years (2018: 7.7-10.9 years).

Notes to the consolidated financial statements

Note 22
Pension obligations and similar obligations (continued)

%	2019	2018
US	38	32
International	29	28
Global	3	3
Shares	**70**	**63**
US investment grade	8	16
High yield	10	11
Inflation protected	0	1
Other	0	1
Bonds	**18**	**29**
Real estate	7	3
Commodities	4	4
Other	1	1
Distribution of plan assets at December 31	**100**	**100**

DKK million	2019	2018
Present value of pension obligations	331	294
Fair value of pension plan assets	-293	-251
Net obligation at December 31	**38**	**43**
Present value of pension obligations at January 1	294	288
Foreign currency translation adjustment	6	55
Pension costs	4	4
Interest expenses	11	11
Actuarial gains and losses, demographic assumption	-6	6
Actuarial gains and losses, financial assumption	43	-33
Pension paid	-21	-37
Present value of pension obligations at December 31	**331**	**294**
Fair value of pension plan assets at January 1	251	258
Foreign currency translation adjustment	7	19
Interest on pension assets	9	9
Return on plan assets excl. interest on pension assets	42	-22
Paid by the company	5	24
Pension paid	-21	-37
Fair value of pension plan assets at December 31	**293**	**251**

Expected defined benefit pension payments by the Group in 2020 amount to DKK 40 million.

Notes to the consolidated financial statements

Note 23
Deferred tax

DKK million	2019	2018
Deferred tax at January 1	381	522
Foreign currency translation adjustment	2	1
Tax on equity items	-18	7
Tax for the year	118	-149
Tax previous years	-28	0
Deferred tax at December 31	**455**	**381**
Intangible assets and property, plant and equipment	151	158
Inventories	17	12
Work in progress	345	294
Provisions	-31	-34
Other	-27	-49
Deferred tax at December 31	**455**	**381**
Of this, due after more than 1 year	317	258

Note 24
Provisions

DKK million	Warranty provision for engineering projects	Warranty provision for catalysts	Other	Total
Provisions at January 1, 2019	181	48	58	287
Provisions during the year	0	12	8	20
Reversals during the year	-16	-2	0	-18
Transferred to Other payables, current	0	0	-65	-65
Realized provision during the year	-10	-3	0	-13
Provisions at December 31, 2019	**155**	**55**	**1**	**211**

The majority of the provisions are potentially to be recognized after more than 1 year.

DKK million	Warranty provision for engineering projects	Warranty provision for catalysts	Other	Total
Provisions at January 1, 2018	165	40	50	255
Provisions during the year	20	13	12	45
Reversals during the year	0	-2	-4	-6
Realized provision during the year	-4	-3	0	-7
Provisions at December 31, 2018	**181**	**48**	**58**	**287**

The majority of the provisions are potentially to be recognized after more than 1 year.

Warranty provision can be impacted by unexpected quality issues on our catalyst or technology solutions.

Notes to the consolidated financial statements

Note 25
Other payables

DKK million	2019	2018
Employee holiday allowance	137	163
Other staff-related items	155	172
Fair value of derivative financial instruments	1	5
Tax-related items	5	4
Employee holiday fund, non-current	34	0
Other payables	296	261
Other payables at December 31	**628**	**605**
More than 1 year	36	2
Less than 1 year	592	603
Other payables at December 31	**628**	**605**

Note 26
Prepayments from customers

DKK million	2019	2018
Prepayments related to sale of goods	495	418
Prepayments from customers at December 31	**495**	**418**

Note 27
Leases

DKK million	2019
Land and buildings	69
Plant and machinery	1
Other fixtures and equipment	4
Total depreciation of right-of-use assets	**74**
Interest expense (included in financial expenses)	24
Expense relating to short-term leases (included in other external expenses)	4
Revenue from sub-lease	1
Total cash outflow for leases in 2019	84
Additions to the right-of-use assets during 2019	5

The majority of lease contracts relate to lease of office buildings. Please see note 12 for carrying amount of right-of-use assets at December 31, 2019, and note 35 for information about the lease liability.

Notes to the consolidated financial statements

Note 27 (continued)
Leases

The Group has entered into a lease contract under which the Group is obligated to purchase the property at a price of DKK 74 million after termination of the lease contract in 2036. The purchase obligation is included in the lease liability.

The Group has evaluated extension options related to office rentals. In most cases, extension options are not included, as the Group could replace the assets without significant costs or business disruption.

DKK million	**2019**
Measurement of lease liabilities	
Contractual obligations for leases at December 31, 2018	749
Discounting impact using the Group's incremental borrowing rate at January 1, 2019	-109
Contracts reassessed as lease contracts	-83
Short-term leases not recognized as a liability	-9
Lease liabilities due to implementation of IFRS 16 at January 1, 2019	**548**
Finance lease liabilities recognized at December 31, 2018	129
Lease liabilities recognized at January 1, 2019	**677**
Lease liability non-current at January 1, 2019	602
Lease liability current at January 1, 2019	75
Lease liabilities recognized at January 1, 2019	**677**

Weighted average incremental borrowing rate for lease liabilities initially recognized at January 1, 2019, was 3.6%.

Note 28
Assets provided as security

DKK million	**2019**	**2018**
Carrying amount of non-current assets (land and buildings) provided as security	0	23
Remaining balance of loans secured by non-current assets	0	30
Nominal value of the loans (real estate deeds and owners' mortgage deeds)	0	33

Note 29
Guarantees

DKK million	**2019**	**2018**
Guarantees given by banks and credit insurance institutions on the Group's behalf for contract work, etc.	1,135	1,040
Guarantees issued at December 31	**1,135**	**1,040**
Less than 1 year	769	507
Between 1 and 5 years	312	505
After 5 years	54	28
Guarantees issued at December 31	**1,135**	**1,040**

Notes to the consolidated financial statements

Note 30
Contractual obligations

DKK million	2019	2018
Less than 1 year	17	100
Between 1 and 5 years	11	297
After 5 years	0	352
Contractual obligations regarding leases at December 31	**28**	**749**
Payments for the year recognized as operating lease expenses	18	102

Contractual obligations relate to software and maintenance agreements running up to 4 years.

From January 1, 2019, the Group has recognized right-of-use assets for leases, except from short-term and low-value leases (see notes 1, 12, and 28 for further information).

The Group is obligated to invest an additional DKK 18 million (2018: DKK 29 million) in companies included under 'Other investments'.

Note 31
Contingent liabilities

The Group's property in Frederikssund, Denmark, has been found to be contaminated. Management assesses that the remediation costs will not be significant.

Through participation in joint taxation scheme with Haldor Topsøe Holding A/S, the Group is jointly and severally liable for taxes etc. payable in Denmark.

The Group is a party to ongoing litigation. Management assesses that the outcome of these lawsuits will not affect the Group's financial position.

Note 32
Fee to auditors appointed at the general meeting

Please refer to the note in the consolidated financial statements for the parent company, Haldor Topsøe Holding A/S.

Notes to the consolidated financial statements

Note 33
Related parties

Haldor Topsøe Holding A/S, Lyngby, Denmark – shareholder – control
Dahlia Investments Pte. Ltd., Singapore – shareholder – minority

DKK million	**2019**	**2018**
Interest received from the parent company	0	2
Receivables from the parent company at December 31	1	190

DKK million **Related parties**	**Transactions**	**2019**	**2018**
Companies under common control	Rent	2	2
	Deposit	2	2
Joint venture	Outstanding balance	0	15

For remuneration to Executive Committee and Board of Directors, please refer to note 5.

Intercompany transactions have been eliminated in the consolidated financial statements.

Note 34
Derivative financial instruments

DKK million	**Contract amount 2019**	**Fair value 2019**	**Contract amount 2018**	**Fair value 2018**
EUR interest rate swap (4.62%), matures on December 31, 2021	17	-1	24	-2
Interest rate swaps at December 31	**17**	**-1**	**24**	**-2**

The Group uses interest rate swaps to hedge against changes in interest rate levels and thus reduce the interest rate risk. Interest rate swaps are used on floating rate loans. The fair value of the swaps is recognized in the balance sheet through other comprehensive income. The Group thus applies the rules on hedge accounting.

DKK million	**Contract amount 2019**	**Fair value 2019**	**Contract amount 2018**	**Fair value 2018**
Aggregate amount of commodity swaps within metals, matures in 2020	24	0	5	0
Aggregate amount of commodity swaps within metals, matures in 2019	0	0	23	-3
Commodity swaps at December 31	**24**	**0**	**28**	**-3**

The Group uses commodity swaps to hedge against price fluctuations in raw materials, primarily base metals (nickel, copper, and zinc) of specific production contracts. Hedging duration depends on the specific underlying contract, but it is typically less than 24 months. The fair value of the swaps is recognized directly in the income statement.

The cost of raw materials is a significant cost component in our products, and costs can fluctuate considerably. The Group seeks to minimize the risk related to commodity price fluctuations through contractual escalation clauses. In addition, the Group uses financial hedging when quoting fixed contract prices.

Notes to the consolidated financial statements

Note 35
Financial assets and liabilities

DKK million	**2019**	**2018**
Other securities and investments	255	344
Trade receivables	1,232	717
Other financial receivables	214	151
Cash	787	761
Financial assets at December 31	**2,488**	**1,973**
Bonds, mortgage debt, debt to credit institutions	1,031	1,388
Finance obligations	627	129
Trade payables	514	395
Other financial liabilities	628	605
Financial liabilities at December 31	**2,800**	**2,517**
Financial assets measured at fair value through other comprehensive income	255	344
Financial assets measured at amortized cost	2,233	1,629
Classification of financial assets at December 31	**2,488**	**1,973**
Financial liabilities measured at amortized cost	2,799	2,512
Derivative financial instruments measured at fair value	1	5
Classification of financial liabilities at December 31	**2,800**	**2,517**
Bonds, mortgage debt and debt to credit institutions		
Payments:		
After 5 years	127	172
Between 1 and 5 years	323	1,094
Less than 1 year	617	192
Bonds, mortgage debt and debt to credit institutions at nominal value	**1,067**	**1,458**
Future finance charges	-36	-70
Bonds, mortgage debt and debt to credit institutions at present value	**1,031**	**1,388**
Lease liabilities		
Minimum lease payments:		
After 5 years	461	189
Between 1 and 5 years	260	30
Less than 1 year	83	7
Lease liabilities at nominal value	**804**	**226**
Future finance charges	-177	-97
Lease liabilities at present value	**627**	**129**

Notes to the consolidated financial statements

Note 35
Financial assets and liabilities (continued)

DKK million	2019	2018
Trade payables:		
Less than 1 year	514	395
Derivative financial instruments:		
After 5 years	0	0
Between 1 and 5 years	0	2
Less than 1 year	1	3
Other financial liabilities:		
After 5 years	0	0
Between 1 and 5 years	34	0
Less than 1 year	593	600

DKK million	Bonds, mortgage debt and credit institutions	Lease liability	Total
Interest-bearing debt at January 1, 2019	1,388	129	1,517
Lease liability due to implementation of IFRS 16 at January 1, 2019	0	548	548
Foreign currency translation adjustment	3	5	8
Raising loans	0	5	5
Installments	-360	-60	-420
Interest-bearing debt at December 31, 2019	**1,031**	**627**	**1,658**

DKK million	Bonds, mortgage debt and credit institutions	Lease liability	Total
Interest-bearing debt at January 1, 2018	1,716	130	1,846
Foreign currency translation adjustment	-2	0	-2
Raising loans	299	0	299
Installments	-625	-1	-626
Interest-bearing debt at December 31, 2018	**1,388**	**129**	**1,517**

Notes to the consolidated financial statements

Note 35
Financial assets and liabilities (continued)

DKK million	Level 1	Level 2	Level 3
Other securities and investments	1	0	254
Distribution of assets stated at fair value at December 31, 2019	**1**	**0**	**254**
Derivative financial instruments	0	1	0
Distribution of liabilities stated at fair value at December 31, 2019	**0**	**1**	**0**

Level 1: Listed prices in an active market for the same type of instrument.
Level 2: Listed prices in an active market for similar assets or liabilities or other valuation methods according to which all material input is based on observable market data.
Level 3: Valuation methods according to which material input is not based on observable market data.

Please refer to note 13 for information on input to valuation of investments in other enterprises stated at fair value in level 3.

Fair value of contingent considerations
In the event that the operations of the divested Automotive Business achieve certain performance criteria during the period from January 1, 2018 to December 31, 2020, as specified in a 'Volume earn-out' clause in the sales agreement, an additional cash consideration will be receivable from the buyer. At year-end, the fair value of the 'Volume earn-out' was determined to be DKK 0 million, as Management assesses that the performance criteria are unlikely to be met.

There have been no transfers between levels 1, 2 and 3 during the year.

DKK million	2019	2018
Fair value of level 3 assets at January 1	323	271
Addition	10	89
Transfer to associated companies	-17	0
Write-down recognized in other comprehensive income	-62	-37
Fair value of level 3 assets at December 31	**254**	**323**

Financial risks
Currencies
As Topsoe operates globally, the income statement, balance sheet, and cash flows are subject to the risk of currency fluctuations, mainly in relation to Topsoe's flows of USD.

Part of this risk is mitigated through natural hedges arising from activities where Topsoe has both income and expenses in the same currency. However, the risk is not fully covered by natural hedges, and consequently Topsoe hedges certain future cash flows. A 5% change in the DKK/USD exchange rate is assessed to have an EBIT effect of DKK 15-20 million.

Interest rates
Topsoe's general interest rate policy is to maintain a loan portfolio where the fixed interest rate portion is kept within a range of 50-65%, while the floating interest rate portion is kept within a range of 35-50%. However, due to prepayment of loans during 2019, Topsoe is currently outside of the interest rate policy range for its loan portfolio. By the end of 2019, the fixed rate portion stands at 77%, while the floating rate portion stands at 23%. As it would bring no financial benefit to enter into IRS transactions for the purpose of temporarily swapping fixed rate debt into floating rate debt, Topsoe has decided not to do so. On repayment of DKK 500 million corporate bonds in mid-April 2020, Topsoe will get back into the policy range (~55% fixed and ~45% floating). For the floating rate portion of our interest-bearing debt at end of 2019, a change in the interest rate level of 1 percentage point will increase interest expenses by DKK 2.3 million p.a.

Notes to the consolidated financial statements

Note 35
Financial assets and liabilities (continued)

Credit
The credit risk of Topsoe is primarily related to trade receivables from state, public and privately-owned corporations. Where feasible, we seek to mitigate credit risk by applying instruments such as letters of credit and bank guarantees as well as selective structuring of payment terms, etc. On a quarterly basis, we assess whether the Group should make accruals for bad debt which is considered unlikely to be collected.

Liquidity
Topsoe must maintain sufficient liquidity to fund daily operations, debt service, and expansion. Topsoe's access to liquidity consists of cash and cash equivalents, including access to committed revolving credit facilities. The target is to maintain a minimum of DKK 500 million in unused committed revolving credit facilities at any time.

Note 36
Adjustments for non-cash items

DKK million	**2019**	**2018**
Financial income	-88	-71
Financial expenses	101	77
Result of investments in joint ventures and associated companies	-9	10
Amortization, depreciation and impairment losses, including gains and losses from sale of assets	296	256
Tax	224	185
Other adjustments	-74	16
Total adjustments for non-cash items	**450**	**473**

Note 37
Change in working capital

DKK million	**2019**	**2018**
Increase (-) / decrease in inventories	-352	-79
Increase (-) / decrease in receivables	-516	297
Increase / decrease (-) in contract billing	372	-220
Increase / decrease (-) in suppliers, etc.	158	412
Total change in working capital	**-338**	**410**

Note 38
Subsequent events

No events materially affecting the Group's financial position at December 31, 2019 have occured after the balance sheet date.

Notes to the consolidated financial statements

Note 39
List of Group companies

Name	Registered office	Voting and ownership share
Haldor Topsøe International A/S	Lyngby, Denmark	100%
Subcontinent Ammonia Investment Company ApS	Lyngby, Denmark	100%
Haldor Topsøe Project Investment A/S	Lyngby, Denmark	100%
HT Ramagundam A/S	Lyngby, Denmark	100%
Haldor Topsøe Sustainables A/S	Lyngby, Denmark	100%
Haldor Topsoe Germany GmbH	Essen, Germany	100%
Haldor Topsoe Australia Pty. Ltd.	Perth, Australia	100%
OOO Haldor Topsøe	Moscow, Russia	100%
Haldor Topsoe, Inc.	Houston, USA	100%
Haldor Topsoe Project Development U.S., Inc.	Houston, USA	100%
Pacific Coast Fertilizer LLC	Seattle, USA	77%
Saturn Ferrostaal Gas Chemicals LLC,	Wilmington, USA	100%
Haldor Topsoe eCOs Inc.	Houston, USA	100%
Haldor Topsoe LFG Solutions Inc.	Houston, USA	100%
Haldor Topsoe Canada Limited	Vancouver, Canada	100%
Haldor Topsoe De Mexico, S. A. de C. V.	Mexico City, Mexico	100%
Haldor Topsoe do Brasil Tecnologia e Servicos em Catalisadores Eireli	Rio de Janeiro, Brazil	100%
Haldor Topsoe America Latina S.A.	Buenos Aires, Argentina	100%
Haldor Topsøe (Beijing) Co., Ltd	Beijing, China	100%
Jiangsu JITRI-Topsoe Joint R&D Center Co, Ltd.	Suzhou, China	60%
Haldor Topsoe India Pvt. Ltd.	New Delhi, India	100%
Haldor Topsoe Sdn. Bhd.	Kuala Lumpur, Malaysia	100%

Notes to the consolidated financial statements

Note 40
Business combinations

On January 1, 2019, the Group acquired the remaining 50% of the shares in the joint venture Saturn Ferrostaal Gas Chemicals LLC, whose activity is project development. The acquisition is a reorganization linked to the acquisition in 2018 described below.

On August 3, 2018, the Group acquired the remaining 50% of the shares in the joint venture Ferrostaal Topsoe Project GmbH, whose activity is project development. The acquisition expands the Group's project planning and development competencies. Ferrostaal Topsoe Project GmbH has changed name to Haldor Topsoe Germany GmbH.

DKK million	**2019**	**2018**
Investment in other companies	1	0
Deferred tax receivables	0	33
Other receivables	1	1
Cash	0	34
Assets	**2**	**68**
Pension obligation	0	-33
Non-current loan	-15	0
Other payables	-11	-33
Liabilities	**-26**	**-66**
Net identifiable assets acquired	**-24**	**2**
Goodwill	26	0
Negative goodwill	0	-2
Net assets acquired	**2**	**0**
Cash	0	0
Shares in Pacific Coast Fertilizer LLC	1	0
Fair value of previously owned shares in the company	1	0
Total consideration	**2**	**0**
Acquired cash	0	34
Cash consideration	**0**	**-34**

The Group's previous investment in the company has been adjusted to reflect the fair value of the shares, which has led to a fair value adjustment of DKK 13 million, which is included in 'Result of investments in joint ventures and associated companies'.

Goodwill arising from the transaction has been tested for impairment, which resulted in an impairment loss of DKK 26 million.

The acquired business contributed revenue of DKK 0 million and net profit of DKK 0 million to the Group for the period from January 1 to December 31, 2019.

Notes to the consolidated financial statements

Note 41
Discontinuing operations

On June 20, 2017, Topsoe announced that it had sold its emissions control business areas. The divestment was finalized on November 30, 2017. The divestment comprised the subsidiaries Haldor Topsøe Catalyst (Tianjin) Co., Ltd., Haldor Topsøe Automotive Catalyst Trading (Tianjin) Co., Ltd. and Haldor Topsoe Catalisadores e Technologias do Brasil Ltda. as well as business assets and liabilities in Denmark, the US, and China.

2018 was impacted by the finalization of the divestment of the emissions control business areas. 2019 has not been impacted by discontinuing operations.

DKK million	**2019**	**2018**
Revenue	0	50
Expenses	0	-51
Loss before tax	**0**	**-1**
Tax	0	0
Loss after tax on discontinuing operations	**0**	**-1**
Loss on sale of discontinuing operations	0	-15
Loss from discontinuing operations	**0**	**-16**
Value adjustment of net assets sold	0	-16
Transaction costs	0	-2
Loss on sale before income tax and reclassification of foreign currency translation reserve	**0**	**-18**
Income tax expense on loss	0	3
Loss on sale of discontinuing operations	**0**	**-15**

In the event that the operations of the divested Automotive Business achieve certain performance criteria during the period from January 1, 2018 to December 31, 2020, as specified in a 'Volume earn-out' clause in the sales agreement, an additional cash consideration will be receivable from the buyer. At year-end, the fair value of the 'Volume earn-out' was determined to be DKK 0 million, as Management assesses that the performance criteria are unlikely to be met.

Financial statements of Haldor Topsoe A/S

Income statement of Haldor Topsoe A/S

DKK million	Note	2019	2018
Revenue	2	**5,217**	**5,007**
Change in inventories of finished goods and intermediate products		142	35
Other operating income		49	67
Purchased equipment for contract work		-531	-592
Raw materials and consumables used		-1,773	-1,464
Other external expenses		-952	-986
Gross profit		**2,152**	**2,067**
Staff expenses	3	-1,215	-1,257
Depreciation, amortization and impairment losses		-250	-220
EBIT		**687**	**590**
Result of investments in Group enterprises, joint ventures, and associated companies	4	106	66
Financial income	5	35	47
Financial expenses	6	-123	-79
Profit before tax		**705**	**624**
Tax		-141	-157
Profit from continuing operations		**564**	**467**
Loss from discontinuing operations	27	0	-16
Net profit	7	**564**	**451**

Balance sheet of Haldor Topsoe A/S

Assets

DKK million	Note	December 31 **2019**	December 31 **2018**
Rights		27	17
Patents		48	41
Software		33	14
Intangible assets under construction		19	4
Intangible assets	8	**127**	**76**
Land and buildings		997	568
Plant and machinery		553	570
Other fixtures and equipment		177	196
Property, plant and equipment under construction		119	160
Property, plant and equipment	9	**1,846**	**1,494**
Investments in Group enterprises		1,279	1,240
Investments in associated companies		10	0
Receivables from Group enterprises		59	46
Finance lease receivables		7	8
Other securities and investments		3	73
Other receivables		19	14
Investments	10	**1,377**	**1,381**
Non-current assets		**3,350**	**2,951**
Inventories	11	**975**	**804**
Trade receivables		945	570
Contract work in progress	12	278	187
Receivables from Group enterprises	13	386	259
Finance lease receivables	10	1	1
Other receivables		161	197
Tax receivable		19	0
Prepayments		19	14
Receivables		**1,809**	**1,228**
Cash		**486**	**435**
Current assets		**3,270**	**2,467**
Assets		**6,620**	**5,418**

Balance sheet of Haldor Topsoe A/S

Equity and liabilities

DKK million	Note	December 31 2019	December 31 2018
Share capital		376	376
Revaluation reserve		136	112
Net revaluation reserve according to the equity method		18	0
Reserve for unpaid share capital		0	241
Reserve for development costs		44	33
Retained earnings		1,024	524
Proposed dividend		314	0
Equity		**1,912**	**1,286**
Deferred tax	14	465	369
Provisions	15	194	277
Bonds	16	0	499
Mortgage debt	16	0	27
Credit institutions	16	438	698
Lease liabilities	16	499	129
Other payables	16	37	1
Non-current liabilities		**1,633**	**2,000**
Bonds	16	499	0
Mortgage debt	16	0	3
Credit institutions	16	94	161
Lease liabilities	16	48	0
Deferred income		34	2
Prepayments from customers	17	375	356
Contract work in progress	12	909	463
Trade payables		417	333
Payables to Group enterprises		214	106
Corporate income tax		0	236
Other payables		485	472
Current liabilities		**3,075**	**2,132**
Liabilities		**4,708**	**4,132**
Equity and liabilities		**6,620**	**5,418**

Statement of changes in equity of Haldor Topsoe A/S

DKK million	Share capital	Revaluation reserve	Net revaluation reserve according to the equity method	Reserve for unpaid share capital	Reserve for develop-ment costs	Retained earnings	Dividend proposed	Total
Equity at January 1, 2019	376	112	0	241	33	524	0	1,286
Net profit	0	0	-16	0	0	266	0	250
Adjustments relating to separate foreign legal entities	0	0	8	0	0	0	0	34
Currency translation differences	0	0	26	0	0	0	0	0
Fair value adjustment of derivative financial instruments	0	0	0	0	0	1	0	1
Capitalized development projects	0	0	0	0	11	-11	0	0
Revaluation of land	0	24	0	0	0	0	0	24
Paid-in share capital	0	0	0	-241	0	241	0	0
Other adjustments	0	0	0	0	0	3	0	3
Net profit and income and expenses recognized under equity	**0**	**24**	**18**	**-241**	**11**	**500**	**0**	**312**
Dividend proposed	0	0	0	0	0	0	314	314
Transactions with owners	**0**	**0**	**0**	**0**	**0**	**0**	**314**	**314**
Equity at December 31, 2019	**376**	**136**	**18**	**0**	**44**	**1,024**	**314**	**1,912**

Notes to the financial statements of Haldor Topsoe A/S

List of notes

Notes to the financial statements of Haldor Topsoe A/S

Note 1
Accounting policies

Basis of preparation

The financial statements of Haldor Topsoe A/S have been prepared in accordance with the provisions of the Danish Financial Statements Act applying to large enterprises of reporting class C. IFRS 15 and IFRS 16 have been implemented in 2019 in the financial statements of Haldor Topsoe A/S. The effect of IFRS 16, Leases: In the balance sheet, right-of-use assets have been grossed up by DKK 409 million (January 1, 2019: DKK 449 million) while lease liabilities are grossed up by DKK 418 million (January 1, 2019: DKK 449 million), measured at the present value of the remaining lease payments discounted using the incremental borrowing rate per country. The discrepancy between right-of-use assets and lease liabilities as of January 1, 2019, is attributable to adjustment of the prepaid lease payments before the date of initial application. The income statement is not significantly impacted. However, the related key ratios in the financial statements are impacted, such as increased EBITDA of DKK 46 million, increased EBIT of DKK 4 million and decreased profit before tax of DKK 9 million.

The applied accounting policies are similar to those of the Group except for the following matters:

Other securities and investments
Other investments are measured at market value or estimated fair value. Unrealized value adjustments are included in the income statement in 'Financial income' or 'Financial expenses'.

Investments in Group enterprises
Investments in Group enterprises are recognized and measured under the equity method.

Group enterprises which have negative equity are measured at DKK 0, and receivables from these Group enterprises are written down by the parent company's share of the negative equity if it is estimated to be irrecoverable.

If the negative equity exceeds receivables, the remaining amount is recognized under provisions to the extent the parent company has a legal or constructive obligation to cover the Group enterprise's deficit.

The item 'Result of investments in Group enterprises, joint ventures, and associated companies' in the income statement includes the proportionate share of the result after tax.

Reserves
Reserve for development costs comprises development costs after depreciation and tax for self-constructed development projects.

Cash flow statement
No separate cash flow statement has been prepared for the parent company, as the parent company's cash flow statement is included in the consolidated cash flow statement.

Note 2
Revenue

The Company's revenue can be divided into two main categories: catalyst sales and technology sales. Catalyst sales comprise the sale of catalysts. Technology sales comprise basic engineering design, license fee and hardware.

The Company has not disclosed the revenue split by segments for competitive reasons, as disclosure of this information is assessed to be potentially harmful to the Company.

Notes to the financial statements of Haldor Topsoe A/S

Note 3
Staff expenses

DKK million	**2019**	**2018**
Wages and salaries	1,048	1,094
Pensions	115	115
Other social security contributions	65	61
Total	**1,228**	**1,270**
Capitalization of work performed on property, plant and equipment	-13	-13
Total staff expenses	**1,215**	**1,257**
Executive Management salary and pension	27	19
Fee to Board of Directors	6	7
Total remuneration to Executive Management and Board of Directors	**33**	**26**
Average number of employees	1,550	1,609

Note 4
Result of investments in Group enterprises, joint ventures, and associated companies

DKK million	**2019**	**2018**
Share of result of Group enterprises, net	101	87
Change in intercompany profit	12	-11
Share of result of joint ventures and associated companies, net	-7	-10
Total income from investments in Group enterprises, joint ventures, and associated companies	**106**	**66**

Note 5
Financial income

DKK million	**2019**	**2018**
Interest received from Group enterprises	1	2
Interest income	1	3
Foreign currency translation adjustment	31	41
Other financial income	2	1
Total financial income	**35**	**47**

Notes to the financial statements of Haldor Topsoe A/S

Note 6
Financial expenses

DKK million	**2019**	**2018**
Interest expenses	56	45
Foreign currency translation adjustment	28	31
Value adjustments of other investments	36	3
Other financial expenses	3	0
Total financial expenses	**123**	**79**

Note 7
Proposed distribution of profit

DKK million	**2019**	**2018**
Proposed dividend	314	0
Interim dividend paid during the year	0	650
Net revaluation reserve according to the equity method	-16	-154
Retained earnings	266	-45
Total proposed distribution of profit	**564**	**451**

Note 8
Intangible assets

DKK million	**Rights**	**Patents**	**Software**	**Intangible assets under construction**
Cost at January 1, 2019	26	87	167	4
Additions during the year	14	18	27	19
Disposals during the year	0	-6	-5	0
Transfers during the year	0	0	4	-4
Cost at December 31, 2019	**40**	**99**	**193**	**19**
Amortization and impairment losses at January 1, 2019	9	46	153	0
Amortization during the year	4	7	9	0
Reversal of amortization and impairment losses on assets sold	0	-2	-2	0
Amortization and impairment losses at December 31, 2019	**13**	**51**	**160**	**0**
Carrying amount at December 31, 2019	**27**	**48**	**33**	**19**

Notes to the financial statements of Haldor Topsoe A/S

Note 9
Property, plant and equipment

DKK million	Land and buildings	Plant and machinery	Other fixtures and equipment	Property, plant and equipment under construction
Cost at January 1, 2019	790	1,919	899	160
Adjustment for change in accounting policy (see note 1)	444	0	4	0
Restated opening cost	**1,234**	**1,919**	**903**	**160**
Reclassification	0	0	0	0
Additions during the year	2	8	11	83
Disposals during the year	-40	0	-9	0
Transfers during the year	8	84	32	-124
Cost at December 31, 2019	**1,204**	**2,011**	**937**	**119**
Revaluation at January 1, 2019	198	8	0	0
Revaluation for the year	30	0	0	0
Revaluation at December 31, 2019	**228**	**8**	**0**	**0**
Depreciation and impairment losses at January 1, 2019	420	1,357	703	0
Reversal of impairment losses	0	0	0	0
Impairment losses for the year	0	0	0	0
Depreciation for the year	56	109	65	0
Reversal of depreciation on assets sold and scrapped	-41	0	-8	0
Depreciation and impairment losses at December 31, 2019	**435**	**1,466**	**760**	**0**
Carrying amount at December 31, 2019	**997**	**553**	**177**	**119**
Carrying amount at December 31, 2019, under the depreciated cost model	822	553	177	119
Carrying amount of right-of-use assets	404	0	5	0

Borrowing costs capitalized in 2019 amounted to DKK 0 million (2018: DKK 2 million).

Notes to the financial statements of Haldor Topsoe A/S

Note 10
Investments

DKK million	Investments in Group enterprises	Investments in associated companies	Receivables from Group enterprises
Cost at January 1, 2019	1,005	0	46
Additions during the year	0	0	13
Disposals during the year	-753	0	0
Transfers during the year	0	17	0
Cost at December 31, 2019	**252**	**17**	**59**
Value adjustment at January 1, 2019	235	0	0
Foreign currency adjustments	27	0	0
Dividend	-110	0	0
Net profit for the year	113	-7	0
Disposals during the year	752	0	0
Other adjustments	10	0	0
Value adjustment at December 31, 2019	**1,027**	**-7**	**0**
Carrying amount at December 31, 2019	**1,279**	**10**	**59**

DKK million	Finance lease receivables	Other securities and investments	Other receivables
Cost at January 1, 2019	9	58	18
Additions during the year	0	0	7
Disposals during the year	-1	-5	0
Transfers during the year	0	-17	0
Cost at December 31, 2019	**8**	**36**	**25**
Value adjustment at January 1, 2019	0	15	-4
Value adjustment during the year	0	-34	-2
Disposals during the year	0	-14	0
Value adjustment at December 31, 2019	**0**	**-33**	**-6**
Carrying amount at December 31, 2019	**8**	**3**	**19**
Of this less than 1 year	1		

Notes to the financial statements of Haldor Topsoe A/S

Note 10
Investments (continued)

Investments in associated companies:

Faradion Ltd., United Kingdom
Haldor Topsoe A/S has invested in Faradion Ltd., corresponding to 22.52% of the share capital.

Other securities and investments:

GTLA Holding LP, US
Haldor Topsoe A/S has invested in GTLA Holding LP, corresponding to 2.86% of the share capital. The purpose of the company is to develop a project regarding construction of a gas-to-liquid plant.

Investments in Group enterprises:

Name	Registered office	Voting and ownership share
Haldor Topsøe International A/S	Lyngby, Denmark	100%
Subcontinent Ammonia Investment Company ApS	Lyngby, Denmark	100%
Haldor Topsøe Project Investment A/S	Lyngby, Denmark	100%
HT Ramagundam A/S	Lyngby, Denmark	100%
Haldor Topsøe Sustainables A/S	Lyngby, Denmark	100%
Haldor Topsoe Germany GmbH	Essen, Germany	100%
Haldor Topsoe Australia Pty Ltd.	Perth, Australia	100%
OOO Haldor Topsøe	Moscow, Russia	100%
Haldor Topsoe, Inc.	Houston, USA	100%
Haldor Topsoe Project Development U.S., Inc.	Houston, USA	100%
Pacific Coast Fertilizer LLC	Seattle, USA	77%
Saturn Ferrostaal Gas Chemicals LLC	Wilmington, USA	100%
Haldor Topsoe eCOs Inc.	Wilmington, USA	100%
Haldor Topsoe LFG Solutions Inc.	Houston, USA	100%
Haldor Topsoe Canada Limited	Vancouver, Canada	100%
Haldor Topsoe De Mexico, S. A. de C. V.	Mexico City, Mexico	100%
Haldor Topsoe do Brasil Tecnologia e Servicos em Catalisadores Eireli	Rio de Janeiro, Brazil	100%
Haldor Topsoe America Latina S.A.	Buenos Aires, Argentina	100%
Haldor Topsøe (Beijing) Co., Ltd	Beijing, China	100%
Jiangsu JITRI-Topsoe Joint R&D Center Co. Ltd.	Suzhou, China	60%
Haldor Topsoe India Pvt. Ltd.	New Delhi, India	100%
Haldor Topsoe Sdn. Bhd.	Kuala Lumpur, Malaysia	100%

Notes to the financial statements of Haldor Topsoe A/S

Note 11
Inventories

DKK million	**2019**	**2018**
Raw materials and consumables	213	153
Work in progress	171	112
Finished goods	591	539
Inventories at December 31	**975**	**804**

Note 12
Contract work in progress

DKK million	**2019**	**2018**
Selling price of work performed at the balance sheet date	5,439	5,686
Payments received on account	-6,070	-5,962
Contract work in progress at December 31	**-631**	**-276**
Contract work in progress recognized in assets	278	187
Contract work in progress recognized in liabilities	-909	-463
Contract work in progress at December 31	**-631**	**-276**

Note 13
Receivables from Group enterprises

DKK million	**2019**	**2018**
Unpaid share capital	0	241
Declared, unpaid dividend	0	-241
Other receivables	386	259
Receivables from Group enterprises at December 31	**386**	**259**

Notes to the financial statements of Haldor Topsoe A/S

Note 14
Deferred tax

DKK million	**2019**	**2018**
Deferred tax at January 1, 2018	369	479
Tax for the year	96	-110
Deferred tax at December 31	**465**	**369**
Intangible assets and property, plant and equipment	103	90
Inventories	21	18
Work in progress	345	294
Provisions	-24	-27
Other	20	-6
Deferred tax at December 31	**465**	**369**
Deferred tax	465	369
Deferred tax recognized in the balance sheet at December 31	**465**	**369**

Note 15
Provisions

DKK million	**2019**	**2018**
Warranty provision for technology projects and catalysts	193	219
Other provisions	1	58
Provisions at December 31	**194**	**277**
Of this, due after more than 1 year	194	277

Notes to the financial statements of Haldor Topsoe A/S

Note 16
Non-current liabilities

DKK million	2019	2018
Bonds		
After 5 years	0	0
Between 1 and 5 years	0	499
More than 1 year	**0**	**499**
Less than 1 year	499	0
Bonds at December 31	**499**	**499**
Amortization cost included under long-term liabilities, bonds	1	1
Mortgage debt		
After 5 years	0	15
Between 1 and 5 years	0	12
More than 1 year	**0**	**27**
Less than 1 year	0	3
Mortgage debt at December 31	**0**	**30**
Credit institutions		
After 5 years	125	157
Between 1 and 5 years	313	541
More than 1 year	**438**	**698**
Less than 1 year	94	161
Credit institutions at December 31	**532**	**859**
Lease liabilities		
More than 1 year	499	129
More than 1 year	**499**	**129**
Less than 1 year	48	0
Lease liabilities at December 31	**547**	**129**
Other payables		
More than 1 year	37	1
More than 1 year	**37**	**1**
Less than 1 year	1	1
Other payables at December 31	**38**	**2**

Other payables consist of employee holiday fund and derivative financial instruments.

Note 17
Prepayments from customers

DKK million	2019	2018
Prepayments related to sale of goods	375	356
Prepayments from customers at December 31	**375**	**356**

Notes to the financial statements of Haldor Topsoe A/S

Note 18
Assets provided as security

DKK million	**2019**	**2018**
Carrying amount of non-current assets (land and buildings) provided as security	0	23
Remaining balance of loans secured by non-current assets	0	30
Nominal value of the loans (real estate deeds and owners' mortgage deeds)	0	33

Note 19
Guarantees

DKK million	**2019**	**2018**
Guarantees given by banks and credit insurance institutions on the Company's behalf for contract work, etc.	1,106	974
Parent company guarantees issued by the Company for certain obligations in subsidiaries	28	66

Note 20
Contractual obligations

DKK million	**2019**	**2018**
Less than 1 year	14	67
Between 1 and 5 years	7	210
After 5 years	0	344
Contractual obligations at December 31	**21**	**621**

Contractual obligations relate to software and maintenance agreements running 6-24 months.

From January 1, 2019, the Company has recognized right-of-use assets for these leases, except from short-term and low-value leases (see note 1, changes in accounting policies, and note 9 for further information).

The Company has an obligation of DKK 6 million related to delivery of services toward Jiangsu JITRI-Topsoe Joint R&D Center Co. Ltd.

The Company is obligated to invest an additional DKK 6 million in companies included under 'Other investments'.

Note 21
Contingent liabilities

The Company's property in Frederikssund, Denmark, has been found to be contaminated. Management assesses that the remediation costs will not be significant.

Through participation in joint taxation scheme with Haldor Topsøe Holding A/S, the Company is jointly and severally liable for taxes etc. payable in Denmark.

Haldor Topsoe A/S is a party to ongoing litigation. Management assesses that the outcome of these lawsuits will not affect the Company's financial position.

Note 22
Fee to auditors appointed at the general meeting

Please refer to the note in the consolidated financial statements for the parent company, Haldor Topsøe Holding A/S.

Notes to the financial statements of Haldor Topsoe A/S

Note 23
Related parties

Haldor Topsøe Holding A/S, Lyngby, Denmark – shareholder – control
Dahlia Investments Pte. Ltd., Singapore – shareholder – minority

No transactions have been carried out with the Board of Directors, Executive Committee, key management staff, shareholders, Group enterprises or other related parties which have not been under normal market conditions.

Note 24
Derivative financial instuments

DKK million	Contract amount 2019	Fair value 2019	Contract amount 2018	Fair value 2018
EUR interest rate swap, matures on December 31, 2021	17	-1	24	-2
Interest rate swaps at December 31	**17**	**-1**	**24**	**-2**

The Company uses interest rate swaps to hedge against changes in interest rate levels and thus reduce the interest rate risk. Interest rate swaps are used on floating rate loans.

DKK million	Contract amount 2019	Fair value 2019	Contract amount 2018	Fair value 2018
Aggregate amount of commodity swaps within metals, matures in 2020	24	0	5	0
Aggregate amount of commodity swaps within metals, matures in 2019	0	0	23	-3
Commodity swaps at December 31	**24**	**0**	**28**	**-3**

The Company uses commodity swaps to hedge against price fluctuations in raw materials, primarily base metals of specific production contracts. Hedging duration depends on the specific underlying contract, but it is typically less than 24 months.

The cost of raw materials is a significant cost component in our products, and costs can fluctuate considerably. The Company seeks to minimize the risk related to commodity price fluctuations through contractual escalation clauses. In addition, the Company uses financial hedging when quoting fixed contract prices.

Note 25
Subsequent events

No events materially affecting the Company's financial position at December 31, 2019, have occured after the balance sheet date.

Notes to the financial statements of Haldor Topsoe A/S

Note 26
Consolidated financial statements

Haldor Topsøe Holding A/S prepares consolidated financial statements, which include the Company and its Group enterprises.

Note 27
Discontinuing operations

On June 20, 2017, Topsoe announced that it had sold its emissions control business areas. The divestment was finalized on November 30, 2017. The divestment comprised the subsidiaries Haldor Topsøe Catalyst (Tianjin) Co., Ltd., Haldor Topsøe Automotive Catalyst Trading (Tianjin) Co., Ltd. and Haldor Topsoe Catalisadores e Technologias do Brasil Ltda. as well as business assets and liabilities in Denmark, the US, and China.

2018 was impacted by the finalization of the divestment of the emissions control business areas. 2019 has not been impacted by discontinuing operations.

DKK million	**2019**	**2018**
Revenue	0	15
Expenses	0	-84
Loss before tax	**0**	**-69**
Tax	0	0
Loss after tax of discontinuing operations	0	-69
Profit on sale of discontinuing operations	0	53
Loss from discontinuing operations	**0**	**-16**
Value adjustment of net assets sold	0	73
Transaction costs	0	-2
Profit on sale before income tax	**0**	**71**
Tax on profit	0	-18
Profit on sale of discontinuing operations	**0**	**53**

In the event that the operations of the divested Automotive Business achieve certain performance criteria during the period from January 1, 2018 to December 31, 2020 as specified in a 'Volume earn-out' clause in the sales agreement, an additional cash consideration will be receivable from the buyer. At year-end, the fair value of the 'Volume earn-out' was determined to be DKK 0 million, as Management assesses that the performance criteria are unlikely to be met.

Statement by the Executive Committee and Board of Directors on the Annual Report

The Executive Committee and Board of Directors have today considered and approved the Annual Report 2019 of Haldor Topsoe A/S.

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards as adopted by the EU (IFRS), and the financial statements of the parent company have been prepared in accordance with the Danish Financial Statements Act.

In our opinion, the parent company financial statements and the consolidated financial statements give a true and fair view of the financial position at December 31, 2019, of the Group and the parent company and of the results of the Group and parent company operations and of the Group's cash flows for 2019 in accordance with the applied accounting policies.

In our opinion, the Management's review includes a true and fair account of the development in the operations and financial circumstances, of the results for the year and of the financial position of the Group and the parent company as well as a description of the most significant risks and elements of uncertainty facing the Group and the parent company.

We recommend that the Annual Report be adopted at the Annual General Meeting.

Lyngby, March 10, 2020

Executive Committee

Bjerne S. Clausen
President and CEO

Amy Hebert
Deputy CEO and Executive Vice President

Peter Rønnest Andersen
Executive Vice President and CFO

Board of Directors

Jeppe Christiansen
Chairman

Jakob Haldor Topsøe
Vice Chairman

Benoit Valentin
Vice Chairman

Jens Kehlet Nørskov
Member

Jørgen Huno Rasmussen
Member

Rohit Sobti
Member

Christina Teng Topsøe
Member

Anders Broe Bendtsen
Employee representative

Christina Borch
Employee representative

Jette Søvang Christiansen
Employee representative

Lis Ibsen
Employee representative

Independent Auditor's Report

To the Shareholders of Haldor Topsoe A/S

Opinion

In our opinion, the Consolidated Financial Statements give a true and fair view of the Group's financial position at December 31, 2019, and of the results of the Group's operations and cash flows for the financial year January 1 to December 31, 2019, in accordance with International Financial Reporting Standards as adopted by the EU and further requirements in the Danish Financial Statements Act.

Moreover, in our opinion, the Parent Company Financial Statements give a true and fair view of the Parent Company's financial position at December 31, 2019, and of the results of the Parent Company's operations for the financial year January 1 to December 31, 2019, in accordance with the Danish Financial Statements Act.

We have audited the Consolidated Financial Statements and the Parent Company Financial Statements of Haldor Topsoe A/S for the financial year January 1 - December 31, 2019, which comprise income statement, balance sheet, statement of changes in equity and notes, including a summary of significant accounting policies, for both the Group and the Parent Company, as well as statement of comprehensive income and cash flow statement for the Group ('financial statements').

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) and the additional requirements applicable in Denmark. Our responsibilities under those standards and requirements are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Group in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) and the additional requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Statement on Management's review

Management is responsible for Management's review.

Our opinion on the financial statements does not cover Management's review, and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read Management's review and, in doing so, consider whether Management's review is materially inconsistent with the financial statements or our knowledge obtained during the audit, or otherwise appears to be materially misstated.

Moreover, it is our responsibility to consider whether Management's review provides the information required under the Danish Financials Statements Act.

Based on the work we have performed, in our view, Management's review is in accordance with the Consolidated Financial Statements and the Parent Company Financial Statements and has been prepared in accordance with the requirements of the Danish Financial Statement Act. We did not identify any material misstatement in Management's review.

Management's responsibilities for the Financial Statements

Management is responsible for the preparation of Consolidated Financial Statements that give a true and fair view in accordance with International Financial Reporting Standards as adopted by the EU and further requirements in the Danish Financial Statements Act and for the preparation of Parent Company Financial Statements that give a true and fair view in accordance with the Danish Financial Statements Act, and for such internal control as Management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, Management is responsible for assessing the Group's and the Parent Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting in preparing the financial statements unless Management either intends to liquidate the Group or the Parent Company or to cease operations, or has no realistic alternative but to do so.

Auditor's responsibilities for the audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs and the additional requirements applicable in Denmark will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit conducted in accordance with ISAs and the additional requirements applicable in Denmark, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Parent Company's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management.

- Conclude on the appropriateness of Management's use of the going concern basis of accounting in preparing the financial statements and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Parent Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group and the Parent Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and contents of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that gives a true and fair view.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the Consolidated Financial Statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Copenhagen, March 10, 2020

PricewaterhouseCoopers
Statsautoriseret
Revisionspartnerselskab
CVR No 33 77 12 31

Michael Groth Hansen
State Authorized Public Accountant
mne33228

Maj-Britt Nørskov Nannestad
State Authorized Public Accountant
mne32198

Haldor Topsoe A/S
Haldor Topsøes Allé 1
2800 Kongens Lyngby
Denmark

Tel. +45 45 27 20 00
CVR no. 41 85 38 16

topsoe.com