

# Annual Report 2013



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○ Section 1  
Remembering our founder



*Haldor Topsøe at Stengaarden in Gentofte in 1946 together with the very first members of his staff.*



*Haldor Topsøe standing in front of the company's previous headquarters in Vedbæk in 1967.*



*Haldor Topsøe in a business meeting with a group of Indian colleagues*



*In 2007 Haldor Topsøe announces that the company is once again 100% owned by the family following many years of shared ownership with an Italian partner.*



# A tribute to ‘Engineer Topsøe’

## Haldor Frederik Axel Topsøe

(May 24, 1913 – May 20, 2013)

For many years, even after he had been honored with titles and awards, Haldor Frederik Axel Topsøe wished only to be called Engineer Topsøe. He was, after all, trained as an engineer. But his impact on the world was determined not so much by his education as by his character and by the company that is his legacy.

Haldor Topsøe made his company strong and established its leadership in the industry by creating a way of working that valued scientific curiosity and a restless but focused search for the next challenge. He made exceptional demands on his colleagues, but only after he had given everything he himself was able to give, which was quite a lot. And he always took a humanitarian approach to his dealings with other people.

He cared personally about his employees and demonstrated his concern and loyalty in acts of kindness. He talked to everybody about anything, based on an incredible bank of knowledge as well as an understanding of human nature. His curiosity was limitless, and his enthusiasm was infectious. When a milestone had been reached, the power of his own tenacity inspired colleagues to take the next steps to advance the technology, increase capacity, improve performance – or turn the whole project upside-down and come up with something entirely different.

He influenced many more people than those with whom he worked. Haldor Topsøe had a deep interest in global issues, building relationships with political leaders around the world. He discussed economic development with high-ranking Chinese leaders long before China was regarded as a promising market. He also advised and exchanged views with leaders in India, Bangladesh, Pakistan, Kuwait, South Africa and many other countries.

Haldor Topsøe's interest in global economics was clearly evidenced in one of his early books, *Production in Denmark around 1935*, in which he put forth the almost heretical notion that engineers should have an understanding of economics and societal issues. The book, which was published in 1943, was ahead of its time in other ways as well, presenting the principles of the input-output method of analysis decades before its development earned a Nobel Prize in economics for the Russian-American professor Wassily Leontief.

Haldor Topsøe will also be remembered for the impact he had on young countries that were just starting to find their place in the world. He worked tirelessly to help establish a modern fertilizer industry in India and Bangladesh. This effort played an important role in the ‘green revolution’ - a dramatic agricultural ramp-up that tripled crop production in many developing countries within a short period of time and enabled them to feed their growing populations.

For Haldor Topsøe, the pursuit of excellence was more than a business goal. It was a way to ensure that all of the knowledge and effort added up to something that improved the lives of people around the world.

Through his own generosity, he promoted a company culture of sharing that transcended naked ambition and competition. Knowledge and opportunity were shared, and it often seemed that those who did the best were the ones who shared the most. He expected everybody to contribute according to their ability. Results mattered, not titles. He practiced modesty, realism, compassion, humor, and a diamond-hard work ethic. He stretched himself and stretched his mind, and expected everyone else to do the same.

Haldor Topsøe passed away on May 20, 2013, four days short of his 100<sup>th</sup> birthday, and the responsibility for extending the limits and exploring unknown territories has fallen to those left behind. Upholding his standards will require us to ask ourselves if the maximum has been achieved. He taught us to question if our satisfaction is premature.

Looking back on his extraordinary life, the most fitting tribute to the founder of Haldor Topsøe A/S was perhaps the prestigious Hoover Medal, an international acknowledgement of non-technical services by engineers to humanity. It was awarded to him in 1991 in recognition of “his technical abilities and entrepreneurship, and his involvement with leaders in third world countries, which have significantly contributed to an increase in world food production through technology transfer.” ●

## Management's review

### ○ Section 1



The Board remains confident that the new strategy together with significant investments provides a good basis for the continued, successful development of Haldor Topsøe A/S

# Letter from the Chairman

It is both with sadness and optimism that I write this first letter as Chairman of Haldor Topsøe A/S. Sadness because of the passing of my father and company founder on May 20, only four days short of his 100<sup>th</sup> birthday. The optimism stems from our results and the many exciting new plans and products the company has in store.

My main task as Chairman of the Board of Directors is to oversee together with the board the implementation of the new ambitious growth strategy.

I am very fortunate to have an excellent and competent Board of Directors. During 2013 three new members have joined the Board of Directors: Jørgen Huno Rasmussen, Nils Bernstein, and Christina Topsøe. Together with the rest of the Board they have significantly strengthened our ability to provide guidance and family commitment to the company. Moreover, I am confident that Dr. Bjerne S. Clausen and his management team will continue to provide the leadership needed to execute the strategy and unleash the full potential of the company.

As described in the letter from the CEO, 2013 has been a satisfactory year for the Haldor Topsøe Group with profitable growth in all areas. One could therefore ask whether we need the new ambitious growth strategy. The main reason is that our markets are globalized and consolidating and therefore organic growth alone would lead to a decrease in our market share. We have therefore decided to pursue further growth, using both our existing innovation platform and a more active approach in areas such as partnering, investments, and acquisitions.

This year's annual report includes a number of articles about our key business units and the value-adding performance they created for customers around the world. We hope you will find this more detailed approach interesting.

Looking back on 2013, one event above all made a profound impact: the passing of my father. Haldor Topsøe was a lighthouse and a huge inspiration, and will be greatly missed by the family, our employees, business friends, and the many world leaders with whom he developed close personal relationships during his long life.

We will remember him for his perseverance and dedication, and for his many technological and scientific achievements that have improved the lives of millions of people around the world.

His strong values and unique way of basing innovation on science will continue to inspire the company for years to come.

Despite his advanced age, Haldor Topsøe remained active in the daily operations of the company as the Chairman of the Board until a few weeks before his death. He also played a visionary role in establishing the foundation for our new growth strategy.

We feel that we are in a unique position to build on our company's rich heritage and strong values and thereby expand our leading position in key markets and business areas and use this as a foundation on which to build and develop new businesses. Moving forward, special emphasis will be on how we best ensure optimal performance from all the projects we deliver to our partners and customers.

It is important also for me to emphasize that the entire Topsøe family continues to be enthusiastic about the growth strategy of the company and stands united in providing the necessary long-term support and commitment. Our first priority is to maintain the Topsøe values and provide the company with the best possible conditions for future growth.

We are very pleased to welcome the 273 new colleagues in Denmark and abroad that joined us in 2013. To make room for them, we expanded our physical facilities significantly. Together with the expansions we have made in our production facilities, this provides a better framework for efficiently implementing our new strategy and organization.

On behalf of the Board of Directors, I would like to thank all the employees of the entire Haldor Topsøe organization for their strong dedication during 2013 – a year with significant changes including the passing of our founder.



HENRIK TOPSØE  
Chairman of the Board of Directors

## Management's review

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### ○ Section 1



I am pleased to report that 2013 was a satisfactory year for Topsøe. In 2013 we made important progress with our '30 in 25' strategy in a number of key areas.

# Letter from the CEO

In 1944, four years after Topsøe was founded, the company delivered its first product to customers, making it possible to use catalysis to speed up the production of sulfuric acid. This product – the first in what would become our series of VK catalysts – was brought to life by combining fundamental scientific research results in catalysis with the concrete needs of industry in order to develop highly useful products. Today, 70 years later, this approach and the focus on catalysis remain the backbone of the company.

This is worth noting for several reasons: First and foremost, it shows how focused we have been as a company throughout our history. It also shows that the vision upon which our company was founded – to tap the potential of catalysis and scientific results and apply this to industry – has held true. Over the years, our researchers have continuously been able to improve the efficiency of our catalysts and process technologies and broaden their use to include new applications in a wide range of industries. Finally, it shows that while we have good reason to be proud of the results we have accomplished in recent years, we owe a lot to our predecessors. Particularly to our founder Haldor Topsøe, who passed away and will be greatly missed.

On this historical note, I am pleased to report that 2013 was a satisfactory year for Topsøe. In terms of EBIT, we realized a full-year result of DKK 701 million, which represents an 18% increase compared to 2012. Net profit amounted to DKK 553 million in 2013, an increase of 33% compared to 2012. These are solid results that reflect our success in improving the operational efficiency of our organization.

Compared to 2012, our 2013 revenue increased by 2%. This was somewhat lower than we had anticipated, but reflects the highly cyclical nature of the industry in which we operate. Catalyst revenue increased significantly compared to the previous year, but our overall revenue growth was offset by a decrease in technology revenue. This was specifically related to certain delays in order in-flow. Consequently, we expect a positive bounce-back in our technology sales in 2014, bringing us back on track in terms of our long-term strategic revenue growth objectives.

As reported in last year's annual report, Topsøe was reorganized in 2012 around four separate business units: Chemical, Environmental, Refinery, and New Business Unit. All are supported by shared functions such as research, engineering, production and

regional offices. The purpose of this was to build a faster, more flexible and efficient global organization, and over the past year, the new structure has clearly proved its worth. Collaboration and customer orientation have improved, and the profitability of the individual parts of our organization has increased.

Looking at our key geographies around the world, we experienced an increased interest in the solutions that we offer, primarily because they address pressing global challenges related to the environment, energy efficiency, and food supply. Especially in emerging economies in Asia, Latin America and, increasingly, Africa, the expansion and modernization of the chemical, refining, and power industries are creating new opportunities. Also, in North America, our single largest market, we are seeing major opportunities due to the shale gas boom that has swept across the region in recent years.

2013 was the second year of implementation of our '30 in 25' growth strategy, which describes how we plan to reach a revenue of DKK 8 billion by 2016 and DKK 30 billion by 2025. This is to be accomplished partly by expanding our existing business into new markets and business areas and partly by building entirely new business opportunities and capabilities. The successful execution of this strategy remains the single most important task for us in the years ahead.

In 2013 we made important progress with our '30 in 25' strategy in a number of areas. Meanwhile, we have begun implementing an operational framework based on what we call Group Strategic Themes (GST). The purpose of these cross-organizational themes is to support and prepare the company for our growth journey.

One of these themes, for example, is aimed at developing our competence base, since having the right people with the appropriate skills in place at the right time will be crucial for our success. Another is focused on building a fast, flexible, and efficient global organization, while a third is centered around how we can build stronger long-term customer relationships.

Other key strategy-related milestones were also reached in 2013. In April, for example, we issued corporate bonds in the amount of DKK 1 billion; the bonds were listed on NASDAQ First North Bond Market in Copenhagen. And in December 2013, ●●●

# Management's review

## ○ Section 1

we signed a long-term EUR 75 million loan agreement with the European Investment Bank, thereby significantly broadening and diversifying our funding base.

This is an important prerequisite for our strategic growth effort, which involves major investments in R&D, production capacity and business development and a ramp-up of our manpower and competence base. In line with this strategy, we significantly increased our capital expenditure and number of staff in 2013. Our capital expenditure has in fact more than doubled in 2013 compared to 2012, and globally we have increased our staff with 11%. About one-third of our new employees are based outside Denmark. The increased capital expenditure and staff expenses may negatively impact our EBIT margin in the short term, but these steps are necessary in order to support our growth ambition.

In 2013, the Board approved the largest single investment ever made by the company for the construction of an automotive catalyst plant in Tianjin, China. Construction is now underway, and we expect the facility to be ready for production by 2015. The plant in Tianjin will be focused on manufacturing catalysts to remove NOx from the engine exhaust of heavy diesel vehicles. These products are in very high demand in China. To meet future demand across our business, we also invested heavily in our existing primary production sites in 2013, expanding our refinery catalyst production capacity in Frederikssund, Denmark and our sulfuric acid catalyst production in Houston, Texas.

In 2013 our total investment in R&D amounted to 11.4% of our revenue - the highest level in the history of our company. This led to significant progress in terms of building and developing the new business capabilities that are crucial for our '30 in 25' strategy. Working together with our business units, R&D successfully managed to commercialize a large number of new products, including the first HyBRIM™ refinery catalyst, new syngas/chemicals catalysts and a technology for flue gas cleaning in the marine industry.

Our New Business Unit – the 'commercial arm' of our R&D efforts – has been working on a large number of different projects in various stages of development. These include TIGAS™, which is a process for creating synthetic gasoline. We also have several projects that are investigating the conversion of biomass to chemicals and transportation fuels. Another project example is development of advanced battery materials, some of which could be suitable for battery-electric vehicles and stationary energy storage. Related to this we have in February 2014 invested in co-ownership of a battery technology company in the UK named Faradion. Furthermore, a new research facility – the first outside of Denmark – was also established in Ulm, Germany. This facility will be devoted to research related to lithium-ion battery technology.

At present Haldor Topsøe A/S has not formulated a policy for corporate social responsibility (CSR) including human rights and climate effects, but we have initiated work on a Code of Conduct to strengthen the framework of our actions in line with our values. The Code of Conduct will be completed in the first half of 2014. Our policy for the gender composition of management can be found on [topsoe.com/investors/corporate\\_social\\_responsibility](http://topsoe.com/investors/corporate_social_responsibility).

Overall, 2013 has been an exciting year with significant progress in a number of areas. I am convinced that our dedicated and highly qualified employees have what it takes to unleash the full potential of Topsøe in the years to come.



BJERNE S. CLAUSEN  
President & Chief Executive Officer



## Topsøe rang the NASDAQ opening bell in New York

In December Haldor Topsøe A/S rang the NASDAQ stock market opening bell in New York. President and Chief Executive Officer Bjerne S. Clausen, Chief Financial Officer, Peter Rønnest Andersen, Chairman of the Board, Henrik Topsøe, and members from the Topsøe family took part in the ceremony to celebrate Topsøe's listing on the First North Bond Market, an alternative marketplace for Nordic corporate bonds launched in early 2013.

Speaking at the event, Bjerne S. Clausen noted that "Topsøe's scientific approach has generated significant contributions to the world of catalysis and generated ground-breaking knowledge of catalytic applications building the bridge between science and technology."

He also made it clear that the company's overall vision today is to contribute to solving pressing global challenges related to the environment, energy, and food supply.

During the entire ceremony, a video profiling Topsøe was simultaneously broadcasted at the seven story NASDAQ video tower outside in Times Square, providing New Yorkers a glimpse of what kind of company Topsøe is.

Haldor Topsøe A/S was listed on the NASDAQ First North Bond Market on June 28, 2013. Prior to the listing the company successfully closed a corporate bond offering of DKK 1 billion. The bond offering was split into DKK 500 million five-year bonds and DKK 500 million seven-year bonds. Haldor Topsøe's bond issue is part of an ongoing process to achieve a diversified and price competitive funding base that supports future growth plans.

## Awards and honors in 2013

### The Danish export canon

In September, Haldor Topsøe A/S was included in the first ever Danish 'export canon'. The export canon lists 30 companies that were chosen from a group of more than 300 nominees, based on their success in exporting products and services since 1989. The Danish Foreign Ministry commissioned the canon in order to inspire other businesses to grow in foreign markets.

### Lloyd's Award 2013

In September, Haldor Topsøe posthumously received the Lloyd's Award 2013 for his long-standing achievements in the Danish business community. The Chairman of FSR – Danish Auditors stressed that Haldor Topsøe still is a source of inspiration for young entrepreneurs, and that he represents a beacon in Danish industry. The award was accompanied by a check of DKK 35,000, which was donated to the children's charity, Børnenes Fællesråd.

### EY Entrepreneur of the Year

In November, Chairman of the Board Henrik Topsøe was elected Danish winner of the annual EY Entrepreneur of the Year, among a group of strong players. Haldor Topsøe A/S was also named the winner in the globalization-category, because of our world-leading position within the field of high-technology catalysts, and the technology that optimizes the processes during usage. As the Danish winner of EY Entrepreneur of the Year, Henrik Topsøe qualified for the EY World Entrepreneur Of The Year, which takes place in Monaco this summer.

### Foreign Associate of the NAE

In February, as one of only ten Danes ever, Chairman of the Board Henrik Topsøe was elected Foreign Associate of the National Academy of Engineering, which is part of the US' National Academy. The appointment is one of the highest professional honors in engineering, and with this election Henrik Topsøe follows in his father's footsteps since Haldor Topsøe was elected a member in 1984. Among the academy members over the years are more than 500 Nobel Prize laureates – with Albert Einstein being the most famous member.

# Accomplishments and results

The background of the page is a photograph of industrial machinery. It features several large, white, cylindrical tanks or vessels. In the foreground, there are vertical metal support columns and a horizontal metal railing. The machinery is complex, with various pipes, valves, and blue-colored components visible. The lighting is bright, suggesting an indoor industrial setting.



# Accomplishments and results

## Section 2 Financial highlights

Seen over a five-year period, the development of Topsøe is described by the following financial highlights.

<b>Profit</b>					
<i>DKK million</i>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Revenue	5,348	5,244	4,421	4,201	4,257
Gross profit	2,408	2,142	1,924	1,884	1,730
EBITDA	876	793	668	677	607
Depreciation and amortization	-175	-200	-201	-207	-197
EBIT	701	593	467	470	410
Financial income/expenses	-21	-28	63	-36	29
Net profit	553	415	402	301	331
<b>Balance sheet</b>					
<i>DKK million</i>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Balance sheet total	6,132	5,503	5,158	4,640	4,823
Equity	1,644	1,422	1,307	1,124	1,065
Net working capital	462	280	177	355	155
Net indebtedness	994	228	386	763	672
<b>Cash flow</b>					
<i>DKK million</i>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Cash flows from operating activities	483	786	796	418	504
Cash flows from investing activities	-721	-342	-238	-211	-190
Hereof investments in property, plant and equipment	-664	-307	-209	-210	-201
Cash flows from financing activities	163	-247	-389	-437	-381
Change in cash and cash equivalents for the year	-75	197	169	-230	-67
<b>Employees</b>					
<i>Number</i>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Total number of employees (average)	2,430	2,195	2,091	2,015	2,016
Hereof in Denmark (average)	1,886	1,733	1,689	1,656	1,667
<b>Ratios</b>					
<i>%</i>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Gross margin	45.0	40.8	43.5	44.8	40.6
EBITDA margin	16.4	15.1	15.1	16.1	14.3
EBIT margin	13.1	11.3	10.6	11.2	9.6
Return on invested capital (ROIC)	31.0	33.0	26.5	27.1	25.3
Equity ratio	26.8	25.8	25.3	24.2	22.1
Return on equity	36.1	30.4	33.1	27.5	31.0

The ratios have been prepared in accordance with the recommendations and guidelines issued by the Danish Society of Financial Analysts. For definitions, see under accounting policies.

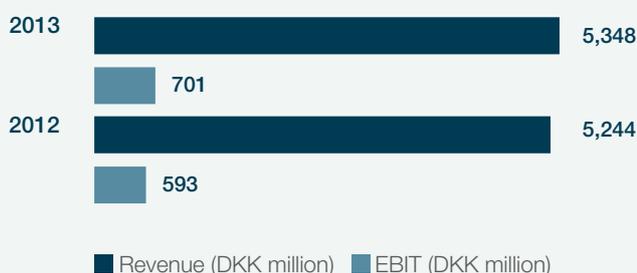
## Financial report

2013 was a satisfactory year for Haldor Topsøe A/S.

Our catalysts enjoyed significantly higher demand and volume increases in most segments, resulting in a 13% growth in catalyst revenue, whereas the technology part of our business was faced with certain delays in order inflow, resulting in a 17% reduction in revenue. In total, revenue increased by 2%.

EBIT increased 18% to DKK 701 million corresponding to an EBIT margin of 13.1%.

R&D expenses were further increased which resulted in a R&D-to-revenue-ratio of 11.4% (2012: 10.3%).



### Statement of profit and loss

#### Revenue

Revenue increased 2% to DKK 5,348 million (2012: DKK 5,244 million).

Catalyst revenue increased due to growth in deliveries in our refinery and chemical business areas, whereas revenue from environmental business area was lower after a high revenue related to project equipment deliveries in 2012. Topsøe still enjoys a balanced portfolio of profitable business areas with growth potential.

A change of estimate of warranty provisions related to technology projects

had a positive impact on revenue, EBITDA and EBIT (DKK 105 million) and net profit (DKK 79 million) in 2013.

#### Earnings before interest, tax, depreciation, and amortization (EBITDA)

EBITDA increased 10% to DKK 876 million, corresponding to an EBITDA margin of 16.4%.

The increase in staff, abroad and in Denmark, has resulted in an increase in staff expenses by 14% to DKK 1,532 million. Raw materials increased by 10% to 1,542 million, driven by the larger catalyst revenue.

Purchased equipment for contract work decreased by 34% to DKK 518 million due to exceptionally large equipment deliveries in 2012. Other external expenses decreased by 2% to DKK 1,015 million.

#### Earnings before interest and tax (EBIT)

EBIT increased 18% to DKK 701 million corresponding to an EBIT margin of 13.1% (2012: DKK 593 million and an EBIT margin of 11.3%).

Depreciation decreased by 13% to DKK 175 million resulting in a further increased EBIT and EBIT margin. ●●●

# Accomplishments and results

## Section 2 Financial report



### Net profit

Net profit increased 33% to DKK 553 million (2012: DKK 415 million).

In addition to the EBIT increase from 2012 to 2013, dividend from KAFCO increased by DKK 26 million to DKK 60 million and tax decreased by DKK 23 million, mainly due to the reduction of the Danish corporate tax rate and adjustments relating to previous years. This was partly offset by higher interest on loans of DKK 19 million and higher currency losses of DKK 16 million.

### Cash flow and balance sheet

#### Cash flows from operating activities

Cash flows from operations decreased by 39% and amounted to DKK 483 million (2012: DKK 786 million).

Cash flows from operating activities remained very high at DKK 665 million (2012: DKK 644 million), but working capital increased by DKK 182 million (2012: DKK -142 million). The working capital increase was mainly due to lower trade payable amounts and reduced prepayments from customers due to reduced technology activity.

#### CAPEX

CAPEX increased by 111% and amounted to DKK 721 million (2012: DKK 342 million). The increase reflects the investments being made to establish additional production lines in Frederikssund, Denmark and Houston, Texas – Topsøe's two

primary production sites - where two new production lines will be completed within the first half of 2014. Furthermore, investments in other production and R&D facilities have increased.

#### Net indebtedness

Net indebtedness increased and amounted to DKK 994 million (2012: DKK 228 million). Our net indebtedness increased by DKK 766 million during 2013, mainly due to the large investments (DKK 721 million) and distribution of dividends to Haldor Topsøe Holding A/S with the main purpose of refinancing.

The interest bearing debt at the end of 2013 was DKK 1.928 million (2012: DKK 1.237 million). During 2013 Topsøe issued corporate bonds for the amount of DKK 1 billion to a broad range of investors. Topsøe's balance sheet remains strong.

Surplus funds for an amount of DKK 550 million were placed with the holding company, Haldor Topsøe Holding A/S, as part of a cash pool arrangement (2012: DKK 698 million).

#### Return on invested capital (ROIC)

ROIC amounted to 31% (2012: 33%).

### Order backlog

The order backlog was at the end of 2013 at a satisfactory level covering a major part of our engineering and catalyst production capacity for 2014. ●

## Outlook for 2014



### Revenue

Revenue is expected to increase in 2014.

### EBIT

EBIT is expected to remain at a high level. In 2014, we expect to further increase our R&D and business development activities. We will also start to depreciate the two new production lines in Houston and Frederikssund, which will commence production during 2014. This may have a negative short term EBIT margin impact.

### Cash flow and funding

Operating cash flows are expected to continue to be strong. Topsøe's current funding position is strong, based on access to the corporate bond market, institutional banks as well as commercial banks.

As part of the corporate bond issuance in 2013, Topsøe was credit rated as an investment grade company in shadow ratings performed by two major Nordic banks.

Topsøe intends to maintain a credit profile that matches that of an investment grade company during a business cycle. Topsøe will consider, when market terms are attractive and there is a need, to issue further corporate bonds as well as to obtain other credit facilities.

### Forward-looking statements

Haldor Topsøe A/S' financial reports, whether in the form of annual reports or interim reports, filed with the Danish Business Authority and/or announced via the company's website, 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 Topsøe 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 Topsøe A/S' influence, and which could materially affect such forward-looking statements.

Haldor Topsøe 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. ●

# Accomplishments and results

## Section 2 Risk management



### Enterprise risk management

During 2013 Topsøe implemented an enterprise risk management program, with quarterly reporting from business and resource units to Executive Management, followed up by reviews and mitigating activities.

During 2013 Topsøe prepared a description of the various risks as part of the company's corporate bond issuance. This risk factor description can be found as part of the company description on [www.topsøe.com](http://www.topsøe.com).

Below are mentioned the general risk factors and the associated mitigating actions.

### Strategic operational risks

#### **Customer demand**

Based on our continued development of current as well as new products and processes, we expect demand to be strong. Catalysts are involved in 90% of the world's chemical processes today, and we see no indication of reduced demand or substitutes.

#### **Raw material costs and availability**

The cost of raw materials is a significant cost component in our products, and costs can fluctuate considerably. We seek to pass any increased raw material cost on to our customers through escalation clauses in contracts. In addition, we use financial hedging to a certain extent. We always seek to have multiple suppliers for each raw material.

**Operational risks**

Topsøe's production of catalysts takes place in Frederikssund, Denmark, and Houston, USA and from 2015 also in Tianjin, China. If production for some reason is closed down for an extended period in either of the operational plants, it will have a material impact on Topsøe's earnings. We seek to mitigate this risk by having multiple production lines for certain products as well as a safety stock policy. We have also taken out insurance against loss of contribution and property insurance, etc.

**Product liabilities and compliance**

The products and services supplied by Topsøe have to meet the highest standards in the industry. With complex processes being involved, Topsøe will always be subject to the risk of product liability. In order to reduce this risk, quality in all areas of the value chain is monitored on an ongoing basis. In addition, Topsøe never accepts unlimited liability in our contracts.

Besides property insurance and insurance against loss of contribution, a number of other operational risks are insured, e.g. general and product liability, professional indemnity, transportation etc.

**Political, social and economic instability**

Topsøe's presence across the globe exposes earnings to geopolitical events. Political actions, such as trade barriers, embargoes, new taxes, currency restrictions, environmental laws etc. may impact Topsøe's result and cash flows. This risk is to a certain degree mitigated through the monitoring of regulatory initiatives, geographical diversification, and when possible – that cash flows are positive for our individual contracts.

**Financial risks****Currency risks**

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

Part of the risk is mitigated through natural hedges arising from activities where Topsøe has both income and expenses in the same currency. However, the risk is not fully covered by natural hedges, and consequently, Topsøe hedges certain future cash flows. A 5% increase in the USD/DKK exchange rate is assessed to have a positive EBIT effect of DKK 20–25 million.

**Interest rate risk**

Long-term debt consists of loans and bonds with fixed and floating interest rates. In order to secure a distribution between fixed and

floating rate debt that matches the asset distribution, interest rate swaps are applied. For the floating rate portion of Topsøe's interest bearing debt, a change in the interest rate level of 1 percentage point will influence interest expenses by DKK 9 million.

**Credit risk**

Topsøe's credit risk is primarily related to trade receivables which to some extent consist of large, multinational or government-owned corporations. For other types of clients, and for most sales in emerging markets, we seek to mitigate credit risk by application of instruments such as, letters of credit and bank guarantees as well as through selective structuring of payment terms etc.

**Counterparty risk**

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, Topsøe only deals with financial counterparties, which – based on management's assessment – have a satisfactory credit rating from a recognized international credit rating agency.

**Liquidity risks**

Topsøe must maintain sufficient liquidity to fund daily operations, debt service, and for future expansion purposes. Topsøe's access to liquidity consists of cash and cash equivalents including access to credit facilities.

**Restrictive covenants**

Some of Topsøe's financing arrangements are subject to financial covenants, and if violated this could limit the ability to finance its operations and capital needs and pursue acquisitions and other business activities.

**Dividend policy**

In addition to servicing the loans in the Haldor Topsøe Group, the Group has since 2007 also financed the operations of Haldor Topsøe Holding A/S through dividend payments in order for this company to service its debt obligations and pay dividend to the ultimate shareholders. This dividend policy is expected to continue. The liquidity effect of the expected future dividend payments has been incorporated in Topsøe's cash flow forecasts.

**Tax**

Topsøe is exposed to a large number of different tax regimes across the countries in which we operate, and there is a risk of unexpected taxation due to uncertainty of the interpretation of local tax regulations. To mitigate this risk, Topsøe consults external advisors. ●

# Our business

A photograph of a complex industrial system featuring numerous large, silver-colored metal pipes and ducts. The pipes are interconnected with various fittings, elbows, and valves. In the foreground, a prominent pipe curves from the left towards the center. To its right, another pipe runs vertically. The background shows a dense network of similar pipes and structural supports, creating a sense of depth and scale. The lighting is bright, highlighting the metallic surfaces and casting soft shadows.



## Our business

### Section 3 Catalysis – the heart of Topsøe

# What is catalysis?



In popular terms, catalysis is a process that accelerates a chemical reaction which would otherwise be uselessly slow. Catalysis makes it possible to turn a great variety of resources into important and necessary products - quickly, efficiently and with a minimum of energy and waste.

The agent that makes all this happen is called a catalyst.

The importance of catalysis to industry, the environment and our everyday lives is huge. In one way or another, catalysis is involved in 90% of all commercially produced products – from fertilizer to furniture to the fuel in our cars. It can make expensive processes cheaper, or turn worthless waste into valuable commodities. It can clean the air we breathe.

Many of the most widely-used materials in the world could not be manufactured without a catalyst to speed things up. A good example of this is ammonia, which is a key ingredient in fertilizer and is also used to make everything from paper and plastic to vitamins and cosmetics. With the help of catalysis, an ammonia plant can typically produce about 2,000 tons a day. Without catalysis, it would take about a million days to produce the same amount.

Catalysis and related technologies are the heart of Topsøe's business. Our customers include the agricultural sector, the refining industry, power plants and a wide variety of manufacturers.

#### Molecules and microscopes

Catalysts have been used in industry for more than a century. In the beginning, discoveries about this phenomenon were mostly

made through trial and error, but today it is possible to design and manufacture catalysts for very specific tasks. To do this well, however, requires a deep understanding of the physics, chemistry, and kinetics that are involved in the process.

Topsøe works continuously to improve its understanding of catalysis, right down to the molecular level. In 1999, the company acquired the world's first specially manufactured electron microscope to perform in situ catalyst studies – an unheard-of investment for a private business.

Process design is another important aspect of catalysis. Production of a chemical usually requires many different catalysts, each with its own task, and Topsøe designs tailor-made processes, hardware and catalysts that work together to meet the individual requirements of customers. Staying tuned to market needs and working with customers to discover new solutions has helped us grow both our knowledge and our business.

#### Making things happen

We believe that our deep understanding of catalysis gives us a competitive edge that we can pass on to our customers. And like our catalysts, Topsøe makes things happen for our business partners, providing them optimal performance.

In the pages that follow, we'll show you examples of how our catalysts are used, and how we make a difference to customers in our various business units. You'll see how we use catalysis to create value - for our company, for our customers, and for millions of people around the world. ●



## How does a catalyst work?

When you introduce a catalyst, things begin to happen very quickly. Catalysts speed up a chemical reaction by lowering the amount of energy that is needed for the reaction to take place. Scientists have been working for centuries to understand more about exactly why and how this happens.

The shape and chemical make-up of a catalyst can vary greatly, depending on what it is used for. Topsøe catalysts are often made as a porous pellet that is covered with the catalyst substance. The catalyst pellets are arranged inside a container called a reactor, and the substances to be transformed (called 'reactants') are then passed through the reactor in gas and/or liquid form.

The reactants are transformed into the desired product on the catalyst surface.

The catalyst itself remains unchanged during this chemical reaction. This means that it can be reused again and again. Its 'life expectancy' depends, among other things, on process conditions, the quality of the catalyst, the way it is used and the quality of the reactants.

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## Our business

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Section 3

The world of Topsøe

# The world of Topsøe

## Our global activities



Regional offices



Production plants



Engineering



## North America



In the US, which is Topsøe's largest market in the world, the shale gas boom has led to new business opportunities. The petrochemical industry, which for many years focused on other continents for expansion, is now returning activities to the US. Topsøe's primary business in the US is catalysts and technology sales in areas such as hydrotreating and hydrocracking, ammonia, methanol, hydrogen, SCR, GTL (gas-to-liquid), and sulfuric acid. Significant interest is seen in the conversion of shale gas to various products such as ammonia, methanol, gasoline, and diesel. Furthermore, hydrocracking is a significant growth area as more units in the US move towards diesel-selective operation where Topsøe enjoys a strong catalyst portfolio. Moreover, Topsøe's environmental technologies, which are capable of removing harmful substances from industry off-gasses have become a significant business area with further growth potential. Topsøe established its business in the US in the early 1960's and opened a production facility in 1971 in Houston, Texas. In addition to the production plant, the US subsidiary, Haldor Topsøe Inc., has its main office in Houston and an office in Los Angeles employing more than 250 people in total.



## Latin America



Topsøe opened a subsidiary office in Buenos Aires in 2008 to facilitate Topsøe's increasing activities in Latin America. In 2012 we also opened a subsidiary office in Rio de Janeiro aimed at increasing our interaction with the Brazilian oil industry among several other objectives as well. Today, some 20 employees cover Topsøe's business activities in Latin America. Natural resources are abundant in the region, from minerals in the Andes, to shale gas in Argentina and large oil reserves in Brazil, Venezuela, and Mexico. This will form the basis of growth in the coming years, when the focus will shift from upstream to downstream activities as a means of creating employment. The largest ammonia plant on the Latin American continent is based on Topsøe technology and is located in central Argentina. Moreover, several of our technologies are included in the newest Latin American refinery, which is currently under construction in Brazil. Our technologies have also been selected for the ongoing modernization of several Mexican refineries, and in general, we have a significant presence in all major markets in the region. Environmental concerns in the region are growing and are consequently creating opportunities for Topsøe. Since 2012, for example, every Scania truck that leaves the assembly line in São Paulo has a Topsøe automotive catalyst installed to remove harmful substances from the engine exhaust.



## Africa



Africa is a continent of opportunities for Topsøe, and we expect that our activities in this part of the world will be an important contributor to growth in the years to come. An abundance of natural resources such as oil, gas, and coal, coupled with greater political stability and economic reforms have made businesses and investors take note of the continent's potential. With our technologies, Topsøe can help unleash Africa's potential in a cleaner and more efficient way, producing products such as ammonia and high quality liquid fuels and making use of the huge amounts of natural gas which are currently being flared and released into the atmosphere from oil wells in countries such as Nigeria. Ammonia is a key component in the production of fertilizer, and therefore it plays an important part in improving conditions for the agricultural sector in Africa - especially since farm productivity across Africa remains significantly lower than in other parts of the world, even though the majority of Africans depend on agriculture for their livelihood. In 2012, Topsøe opened a subsidiary in South Africa that covers Sub-Saharan Africa. The office currently employs eight people.

# Our business

## Section 3 The world of Topsøe



### Our global activities

 Regional offices

 Production plants

 Engineering



Moscow



Russia



China



Beijing



Tianjin



India

New Delhi

Manama



Kuala Lumpur

Cape Town

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## Russia



Topsøe is well positioned to capture the expected growth on the Russian market - not least when it comes to improving the environment with our products for diesel trucks and NOx removal, and also in regard to reducing worldwide gas flaring (an estimated 40% of this activity takes place in Russia). In 2013, we experienced a large increase in projects, particularly in relation to ammonia production in Russia, where we have a very strong market position for new plants. Our catalyst replacement sales, particularly for refinery-related applications, also increased in 2013. The reason for this is not only our technologically advanced products, but also our local presence and technical support. Beyond this, Topsøe has enjoyed close collaboration with the Russian industrial and scientific community for decades. Topsøe established business in 1991 in Moscow and currently employs 56 people in its Russian subsidiary. In 1995, Dr. Topsøe created the 'Topsøe Ph.D. Grant' to support young talented scientists in Russia.

## India



Even though India is known as an agricultural country around 25% of its nitrogenous fertilizer consumption is still being imported. The main challenge in this regard is the shortage of natural gas that is used to produce ammonia and thereby fertilizer production, and the high cost of importing LNG (liquefied natural gas). However, with a technology market share of more than 80%, Topsøe is the country's single largest technology supplier in the field of ammonia in India, and over 90% of all ammonia produced in the country is produced using our catalysts. Our office in New Delhi was established in 1982, and in 2007 an engineering subsidiary was added. In 2012 the engineering subsidiary was expanded with a global IT center and Topsøe now employs a total of 157 people in India. The engineering activities cover almost all disciplines required for delivering an engineering design package for a complete project, and is the largest engineering provider to Haldor Topsøe A/S outside Denmark.

## China



China is faced with major environmental challenges, and the government is taking action to address the problem. Improving air quality is an important focus area, and stricter emission standards for trucks and buses are being introduced. For the automotive industry, Topsøe offers catalytic solutions capable of removing harmful substances from the engine exhaust of diesel vehicles such as buses and trucks. A plant in Tianjin focused on manufacturing automotive catalysts for the Chinese market is currently under construction and will be ready by 2015. Topsøe also offers stationary catalytic solutions for cleaning off-gases from a wide range of industrial sources, including fossil-fuel and biomass-fired utility boilers, gas turbines, oil refining and chemical plants, stationary diesel engines, and waste incinerators. Catalytic solutions aimed at assisting Chinese oil refiners in upgrading their diesel to higher standards also represent a growing business. During 2013 Topsøe also made progress in other areas that are helping China to secure energy supplies and address key energy and environmental issues. In September, for example, the largest SNG (substitute natural gas) plant ever built in the world went on-stream in northwestern China. The plant, which uses technology from Topsøe, enables cost-effective production of SNG derived from coal. SNG based on coal gasification is a replacement for natural gas that can be used on-site, fed into a natural gas pipeline or liquefied into LNG. Due to the uneven balance between supply and demand of natural gas in China, coupled with the rising price of oil, coal-based SNG is an attractive alternative to secure energy and address key environmental issues. Topsøe has been present in China since 1984 and has a subsidiary in Beijing which currently employs 90 people.

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Topsøe is a global organization with production plants, regional offices, and engineering activities all over the world. Our catalysts and related process technologies can help solve some of the world's most pressing issues within environment, climate, and energy.

Especially in the world's emerging economies, growing regulation coupled with the expansion and modernization of the chemical, refining, and power industries are creating significant growth opportunities. In mature markets across North America and Europe, significant growth opportunities are also present.

On this world map we have provided an overview of our global footprint, including information related to our presence in selected key regions of the world.

# Our business

## Section 3 Environmental Business Unit



PETER THOFT KNUDSEN /  
Group Vice President, Environmental Business Unit

## Our customers and products



In the Environmental Business Unit, our primary focus is on reducing industrial and automotive air pollution in a cost-effective manner. Our customers include heavy industries, power plants, oil refineries, and truck and engine manufacturers. Our products include:

- Catalysts and waste-free technologies to transform hazardous sulfur pollutants into sulfuric acid
- Catalysts to clean the exhaust of heavy diesel vehicles
- Catalysts and technologies to remove nitrogen oxides from industrial flue gas
- Catalysts and technologies to treat volatile organic compounds, hydrocarbons, and particle pollution

# Clearing the air

Topsøe can provide solutions that help un-cloud the issues of economic growth and air pollution

Pop singer Katie Melua immortalized the image of nine million bicycles in Beijing – but the reality of life in the Chinese capital involves a lot of diesel trucks and heavy industry as well. Not to mention a great deal of smog. Automotive and industrial air pollution has begun to cloud the issue of economic growth in China and other rapidly expanding economies, and the problem is not likely to disappear of itself.

“Economic welfare is growing, and consumers want to use cars instead of bicycles. They are buying more electricity, which means they are also building more power plants. And they are consuming more products, so more goods are being produced and transported. All of this can of course create more air pollution,” says Group Vice President Peter Thoft Knudsen of Topsøe’s Environmental Business Unit.

“In recent years, many countries with strong growth rates have become increasingly interested in air pollution control,” he adds. “And those countries that already have laws to control air pollution are making them tougher.”

To live up to new and future air quality regulations, more and more industries around the world are searching for solutions that Topsøe can provide.

## From waste to value

Industrial sulfur emissions are a major industrial problem that Topsøe technology is helping solve. The solution begins with a product that has formed the backbone of the company since 1944: the VK catalyst, which was first marketed to create sulfuric acid for use in fertilizers. Years of development have made Topsøe’s VK catalyst portfolio increasingly efficient, and today Topsøe is the world’s leading suppliers of catalysts in this area.

Since the mid-eighties, the VK catalyst portfolio has been expanded for use in a Topsøe process called Wet Gas Sulfuric Acid (WSA) which not only desulfurizes toxic gases but also converts

the sulfur waste into sulfuric acid. For our customers, this is a definite advantage, because sulfuric acid is a widely used product that can be sold. Sulfuric acid is in fact one of the most-used bulk chemicals in the world.

The unique WSA technology has a wide range of applications within air pollution control. It is used at steel plants, in the mining industry, and in industries where coal is gasified and converted into petrochemical products. It accounts for a significant share of revenue, and it continues to win new market shares worldwide - not least in China, where there is a strong demand for sulfuric acid.

“More than 50% of the WSA plants we’ve sold around the world are placed in China,” says Jens Kristen Laursen, sales manager of sulfuric acid technologies. “China is at present our most important market for this technology.”

Oil refineries can use WSA technology as a cost-effective way of creating commercial-quality sulfuric acid from the sulfur that is removed from transportation fuels. Today this possibility looks more attractive than ever, due to the ever-increasing amount of sulfur that is found in crude oil.

## Trucks and buses

Within the automotive sector, the focus of the Environmental Business Unit is on treating the engine exhaust from heavy diesel vehicles. Devices using Topsøe’s SCR DeNOx catalysts are installed in the vehicle’s muffler to remove dangerous nitrogen oxides (also referred to as NOx) as well as particulates and hydrocarbons. Since the sale of these devices began in 2006, more than 250,000 heavy trucks and buses worldwide have been equipped with Topsøe’s SCR catalysts and technology.

New laws in Europe are gradually tightening the regulation of diesel vehicle emissions, and other countries – including the so-called BRIC nations (Brazil, Russia, India and China) – are beginning to enact laws modeled on European standards. ● ● ●

## Our business

### Section 3 Environmental Business Unit

Europe is currently Topsøe's most important automotive market, but the promising and complex Chinese market has by far the largest potential, notes Michael Dennis Knudsen, general manager for automotive sales and marketing. Expectations for future growth in that country are high, and Topsøe is currently building a catalyst plant in Tianjin, China.

Because of the increasing number of environmental laws now being enacted around the world, Michael Knudsen expects continued rapid growth in Topsøe's automotive section.

"We have grown this business almost tenfold in just four years," he says. "Right now we aren't the largest section of the Environmental Business Unit, but by 2025, I think we will be."

#### Vapor in the chimney

NOx pollution from power plants is also a problem in BRIC countries and elsewhere. Topsøe solutions have been successful in the US and Europe, and the strategy now is to bring these technologies to new and existing customers in other parts of the world.

These technologies include the SCR DeNOx catalyst, which was originally developed to treat flue gas from power plants. Thanks to DeNOx processes from Topsøe and other suppliers, much of the emissions seen from West European and US power plant chimneys today are not dangerous nitrogen oxides but water vapor and harmless elemental nitrogen.

The need to find new and cleaner sources of energy continues to create new markets for SCR DeNOx technology. To fuel power plants, for example, natural gas is becoming an increasingly popular alternative to coal, particularly in countries such as the US, where there are large natural gas reserves. Natural gas creates no sulfur pollution and helps countries become more energy-independent – but it does not solve the issue of NOx emissions,

which are created by any type of combustion. NOx emissions are also a problem with CO<sub>2</sub>-neutral fuels such as wood pellets.

Topsøe is the market leader within catalytic NOx removal for gas-fired power plants and has developed DeNOx solutions that are specifically adapted to many other types of industrial combustion. Peter Thoft Knudsen sees good market potential here:

"Our DeNOx technology is not the least expensive on the market, but we continue to gain new customers because our solutions perform so well. Our catalysts improve fuel economy and remain active longer, so they are actually less expensive to use over time."

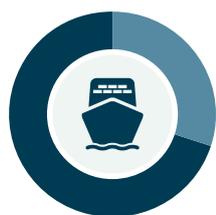
#### Integrated solutions

Topsøe's DeNOx processes can also be combined with WSA technology to produce tailor-made, integrated solutions that remove sulfur oxides, nitrogen oxides and particulates from flue gases, while at the same time producing valuable sulfuric acid.

This technology is well-suited to refineries that produce steam and power by burning the heaviest and most sulfurous petroleum compounds such as heavy fuel oil or coke. An example of this may be found at a refinery in Perambuco, Brazil, where an integrated Topsøe solution called SNOX™ is scheduled to go on-stream in 2014. The Brazilian refinery is located near a resort area with a need for particularly strict emission limits.

#### Fresh air and growth

Peter Thoft Knudsen expects that significant growth in emerging economies, coupled with tighter clean-air legislation worldwide, will continue to fuel the growth of Topsøe's Environmental Business Unit in the years to come. This in turn will move us towards the ultimate goal of clearing the air for everyone – including the bicyclists of Beijing. ●



18-30%

The maritime industry's estimated share of the world's total NOx pollution

### New rules for pollution at sea

In recent years, there has been increasing concern about sulfur oxide and nitrogen oxide emissions from the shipping industry. To tighten existing regulation, negotiators from the International Maritime Organisation, the EU, the US and Russia are working towards an international agreement that would require SOx- and NOx-reducing equipment on new ships that run on heavy petroleum products. The new rules would apply to vessels sailing in coastal areas of North America and the Baltic Sea. Meanwhile, Topsøe has prepared a series of solutions that will enable the industry to live up to the new requirements, which are expected to be implemented in 2015.

## An end to acid rain

Back in the early 1970s, acid rain caused by industrial sulfur dioxide and nitrogen oxide emissions was a major problem in Europe and North America. Waterways were acidified, forests were dying, buildings were being damaged and there were alarming health problems in the most polluted areas. Topsøe catalysts and technologies, together with stricter environmental laws, have played a major part in bringing the European and North American problem under control. But acid rain is still an issue in many of today's growth economies, where Topsøe is now marketing a range of solutions.



## Our business

### Section 3 Refinery Business Unit

# Building on a dream

Topsøe's refinery business is a success story born of long-term commitment, innovation and deep understanding



MORTEN SCHALDEMOOSE /  
Group Vice President, Refinery Business Unit

Haldor Topsøe A/S took its first steps into the refinery business in 1970, when a 57-year-old Haldor Topsøe decided to see if his business could discover and sell something a little bit better than what had been sold to the Kuwait National Petroleum Company.

Retired Group Vice President Barry Cooper, who began his career at Haldor Topsøe A/S that same year, recalls that the Kuwaitis had built a huge new refinery around that time. Its purpose was to process some of the heaviest and most difficult crude oil residuals – the products that are left over when all the lighter hydrocarbons have been distilled and refined. The idea was to transform these heavy, cheap byproducts into valuable fuels.

Haldor Topsøe's idea was to find some revolutionary new process that would perform this income-boosting alchemy more efficiently than the plant in Kuwait.

"That's when he started talking about 'the refinery of the future'," Barry recalls. "He was fired up by the idea of being able to find the best and least expensive process to turn heavy oil products into transportation fuel."

#### Laying the groundwork

The original project never did strike 'gold' for the company. But it marked the beginning of a learning process that ended up creating real, long-term value.

"We learned a whole lot about making catalysts for the refinery industry - and in doing so, we laid the groundwork for a new business area," says Barry, who retired in 2013 as head of the company's Refinery Business Unit.

## Our customers and products



In the Refinery Business Unit, we help the worldwide oil refining industry meet an ever-increasing demand for cleaner fuels and more cost-efficient operations. Our products include:

- Catalysts involved in converting crude oil into diesel, jet fuel, gasoline and other products
- Patented processes to optimize production and create fuels that are more environmentally friendly
- Patented hardware and plant designs to optimize production
- Basic and detailed engineering to provide tailor-made solutions
- Ongoing customer support



*40% of all ultra-low sulfur diesel in the world is currently produced using catalysts from Topsøe*

Today, this unit accounts for about a third of Topsøe's total revenue. And most of the refinery-related sales consist of hydro-processing catalysts involved in the production of diesel fuels, high-quality jet fuel, gasoline, and other products.

Topsøe also provides know-how, engineering, service and hardware, all of which enable us to compete with some of the largest refinery suppliers in the world. And the company has actually come a lot closer to solving the riddle of how to refine and purify the heaviest oil-based products.

#### **The market leader**

The foundation of today's refinery business is the sale of catalysts and technology involved in producing ultra-low sulfur diesel (ULSD). This environmentally friendly fuel is compatible with the catalyst devices that purify the exhaust of diesel vehicles. In recent years, ULSD has replaced conventional diesel throughout most of Europe and North America and is therefore an extremely important product.

With the help of Topsøe products and know-how, the company has catapulted itself ahead of competitors in this area.

"We have created a niche in which we are the market leader. A full 40% of all the ULSD in the world is manufactured with our catalysts," notes Morten Schaldemose, who took over this year as Group Vice President of the Refinery Business Unit.

The catalytic reactions involved in ULSD production usually take place in high-pressure reactors constructed especially for this purpose. But Topsøe has developed a method of revamping existing, low-pressure reactors for ULSD production. Each

revamped unit is an individual, tailor-made solution that reduces the refinery's expenses and enhances its bottom-line results. And as Morten Schaldemose points out, it also increases the demand for Topsøe catalysts.

"Our competitors said it couldn't be done," he says of Topsøe's revamping process. "But we could do this because of our fundamental understanding of catalysis."

#### **Sour crude and 'money makers'**

Morten Schaldemose points out that the worldwide demand for cleaner fuels is on the rise, driven by a pollution burden that has spread from the Western world to emerging economies in countries, such as China, Russia, India, and Brazil. Meanwhile, however, the supply of lighter and more easily-refined crude oil is diminishing.

"The crude oil that is pumped up from the underground today is getting heavier and heavier. This creates an increasing demand for upgrading," he says.

Crude supplies are also becoming more 'sour' - that is, they contain an increasing amount of sulfur.

To meet these challenges, Topsøe has developed its know-how within a catalytic process called hydrocracking - a technique that breaks up the large hydrocarbon molecules of heavy oil into smaller ones that can become lighter products, such as diesel fuel. The process takes place in a reactor called a hydrocracker - also known as a 'money maker' because of the way it can turn cheap, low-quality oil into high-quality products. ●●●

## Our business

### Section 3 Refinery Business Unit

Using our fundamental understanding of catalysis and our engineering expertise, Topsøe has created improvements to both the hydrocracking catalysts and the reactors involved in hydrocracking. The company has also developed a highly successful catalyst series called HyBRIM™ (see box) that is used to reduce the sulfur and in particular the nitrogen content of the heavy oil before it is hydrocracked. This pretreatment not only purifies the product, it also enhances the effectiveness of the costly hydrocracking catalysts.

And today, the sale of hydrocracking technology and catalysts is a major growth area for the company.

#### Growth in emerging markets

As the market for ULSD and other clean-fuel technologies matures in the developed world, Morten Schaldemose expects most of the future growth of the Refinery Business Unit to take place in emerging economies, where governments are beginning to recognize the seriousness of their pollution problems. Anti-pollution laws are being enacted that follow the lead of similar laws in the US and Europe, and as these laws take effect, the demand for low-sulfur fuel technologies will increase. “Our strategy is to grow our market share in growth markets. We want to have the same market shares

in these markets as we have in developed economies – this will be our contribution to the 30 in 25 strategy,” Morten Schaldemose says. “It will not be an easy task. But we have done well in technologically demanding markets, and I believe we can do just as well in the developing world.”

#### A new future

Topsøe’s hydrocracking technology, combined with the extremely effective HyBRIM™ pretreatment catalysts, has moved the company much closer to the dream that marked the beginning of our refinery business. And as these heavy-oil refining technologies move into the mainstream of the organization, the ‘refinery of the future’ concept has begun to change.

In Topsøe’s New Business Unit, catalyst technologies are now being developed to create transportation fuel from coal, natural gas, biomass, and even slaughterhouse waste. Whether these can become the basis of a future refinery business – or perhaps a completely new business unit – remains to be seen. But Topsøe believes in the power of deep understanding and long-term commitment.

Without that belief, today’s Refinery Business Unit would probably never have come into existence. ●



# 40%

The activity increase  
refiners can achieve  
with Haldor Topsøe’s  
HyBRIM™ catalyst

### High expectations for HyBRIM™ catalysts

In February 2013, the Refinery Business Unit introduced the first of a new generation of catalysts – the TK-609 HyBRIM™ – and expectations for its business potential in the area of hydrocracking are already running high.

“We have been market leaders in catalysts for the production of high quality diesel for many years, but have been one of the newcomers in the market for hydrocracking. This is going to change now,” says Refinery Marketing Manager Per Zeuthen.

Like the previous generations of BRIM™ catalysts, the TK-609 HyBRIM™ is designed to remove the sulfur and nitrogen from heavy oil products prior to hydrocracking. But the effectiveness, service life, and versatility of the new HyBRIM™ catalyst is dramatically better than previous generations, and it is already in high demand among refineries, Per says.

Moreover, the TK-609 is part of an entire series of HyBRIM™ catalysts now in the company’s pipeline. All of them will be manufactured according to an entirely new production procedure, and Topsøe is planning to apply this technology to other new products as well.



*Oil refineries around the world are striving to meet the ever-increasing demand for cleaner fuels while ensuring cost-efficient operations. Topsøe can help refiners meet both of these requirements.*

## Our business

### Section 3 Chemical Business Unit

# Beyond business as usual

The Chemical Business Unit is meeting the challenge of creating growth in a mature market

Topsøe's Chemical Business Unit's main customer base is large and well-established – a fact which is actually the greatest challenge facing this unit today. CBU Group Vice President Jørgen Gøl explains:

“To a great extent, we are operating in mature markets where the possibilities for further growth are limited,” he says. “To realize our share of the 30 in 25 growth strategy, we need to find new ways

of using the elements and competencies we have in our product portfolio.”

And so today, the Chemical Business Unit is addressing new issues, developing new ways of using its products, finding new ways of working with its customers, and still developing new products within these mature areas.



JØRGEN NERGAARD GØL  
Group Vice President, Chemical Business Unit

## Our customers and products



The Chemical Business Unit helps create some of the most basic and widely-used chemical building blocks in the world. Our customers are energy companies, the fertilizer and refining industries and a wide variety of manufacturers, and our products include:

- Catalysts and technologies to produce hydrogen, ammonia and methanol and synthesis gas
- Catalysts and technologies involved in converting synthesis gas to innovative fuels and chemicals
- Licensing and engineering to provide tailor-made solutions
- Ongoing customer support and providing services to optimize plant operation

### New potential

Historically, the core of the CBU portfolio is the catalysts and technologies needed to create four basic products: chemicals (such as methanol and formaldehyde), hydrogen, ammonia, and synthesis gas. In the industrialized world, each of these products is indispensable.

Methanol is a part of daily life in countless ways. It is used in the production of plastics, textiles, paint, formaldehyde, and furniture glue, to name just a few of its applications.

Hydrogen is essential to the refinery industry, where it is used to convert crude oil into a wide variety of petroleum products, which goes well in hand with Topsøe's refining technologies and catalysts. And ammonia is of similar importance to the fertilizer industry.

The fourth basic component of the CBU portfolio - the catalysts and technologies needed to create synthesis gas - has an even wider potential. And it is within this area that much of the CBU growth and development is taking place.

Synthesis gas is a so-called intermediate product that can be created from carbon-rich feedstocks such as natural gas, biomass, petcoke, and coal. It can then be further transformed into a great many useful products - among other things, it can be used to create all three of the other basic CBU products (methanol, hydrogen, and ammonia). But synthesis gas has many other uses as well.

In recent years, energy supply challenges, high oil prices, and a need for alternative fuels have been driving some significant, new developments related to synthesis gas. And thanks to our know-how in this area, these developments hold a great deal of growth potential for the Chemical Business Unit.

### Solving an energy supply problem

In western China, for example, synthesis gas derived from coal is becoming the basis for an industry that can transform large coal reserves in remote, mountainous areas into a cleaner energy source called substitute natural gas (SNG). SNG can be transported with relative ease by pipeline across thousands of miles to Beijing and other densely populated areas. ●●●

*In 2013, Qinghua, largest SNG plant ever built in the world, went on-stream in the north western China. SNG produced at the plant can be transported by pipeline to more densely populated areas of China, particularly in the eastern part of the country.*



## Our business

### Section 3 Chemical Business Unit

In October 2013, a Chinese SNG plant that Topsøe designed went onstream in the northwestern province of Xinjiang. The plant is the largest of its kind in the world and uses Topsøe catalysts and the Topsøe technology called TREMP™ to transform coal-derived synthesis gas into SNG.

SNG can take the place of coal as a source of heat for individual homes and energy for factories and power plants. Moreover, it is a cleaner fuel, as contaminants such as sulfur are removed during production. In China, where coal is a major contributor to the smog problem in large cities, and where the demand for natural gas far exceeds supplies, coal-based SNG is an attractive alternative.

#### Sulfur-free diesel

Yet another growth area for the Chemical Business Unit involves synthesis gas that is derived from natural gas for the production of gas to liquid (GTL) fuels. This type of synthesis gas is used in the GTL industry that is emerging in areas of the world where natural gas is plentiful and less costly – for example in the US, Qatar, Nigeria, Russia, and Uzbekistan.

As part of a global GTL partnership with the South African energy company Sasol, the Chemical Business Unit provides catalysts and proprietary synthesis gas technologies for the transformation of natural gas into a unique synthesis gas. Sasol then converts the synthesis gas into a sulfur-free fuel called GTL diesel.

GTL diesel is still very expensive to produce – but it is so pure that it can be blended with lower-grade diesel made from crude oil and thus enable the crude-based fuel to meet stricter environmental requirements. So far, Sasol has established GTL diesel facilities in Qatar and Nigeria, and more projects are planned in Uzbekistan and in the US. Topsøe is involved in all of these projects.

#### Win-win partnerships

Long-term partnerships with customers and other stakeholders are an important focus area in the CBU growth strategy. Some of these partnerships have existed for decades and are still growing in scope (see box, 'Growing with our customers'). Others are relatively new.

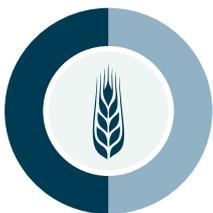
In Nigeria, entirely new kinds of partnerships are being forged that can grow the business unit and at the same time help create new industries and jobs based on Topsøe technology.

"Historically, natural gas in Nigeria has been brought up from the underground as associated gas along with crude oil and then simply burnt off. In other words, it was wasted and created pollution," says Jørgen Gøl.

"Now some of it is being converted to synthesis gas and used to create GTL diesel – but with the help of Topsøe technologies, natural gas can also be used to produce ammonia and methanol," he notes. "Ammonia production in Nigeria could become the basis of a fertilizer industry that can help the country feed its own population, and methanol production could become the starting point for many other types of locally-based industries."

To help Nigeria set up such projects, Topsøe is now actively involved in establishing partnerships with developers who can build the necessary facilities, investors who can provide the necessary capital and authorities who must grant the necessary authorizations. The ultimate goal is growth – not only for the Chemical Business Unit, but for our partners and for the Nigerian economy.

"Ideally, this kind of growth strategy should ensure that everybody wins," says Jørgen Gøl. ●



# 50%

Topsøe's share of the  
global ammonia-  
related catalyst and  
technology market

### New CBU products

Finding new ways of using existing technologies is an important aspect of CBU growth - but continued growth will also involve completely new products and technologies. Among the most promising of these is the TIGAS™ technology for creating synthetic gasoline from almost any carbon-based material.

This and many other products for CBU and other business areas are currently being developed in Topsøe's New Business Unit.



## Growing with our customers

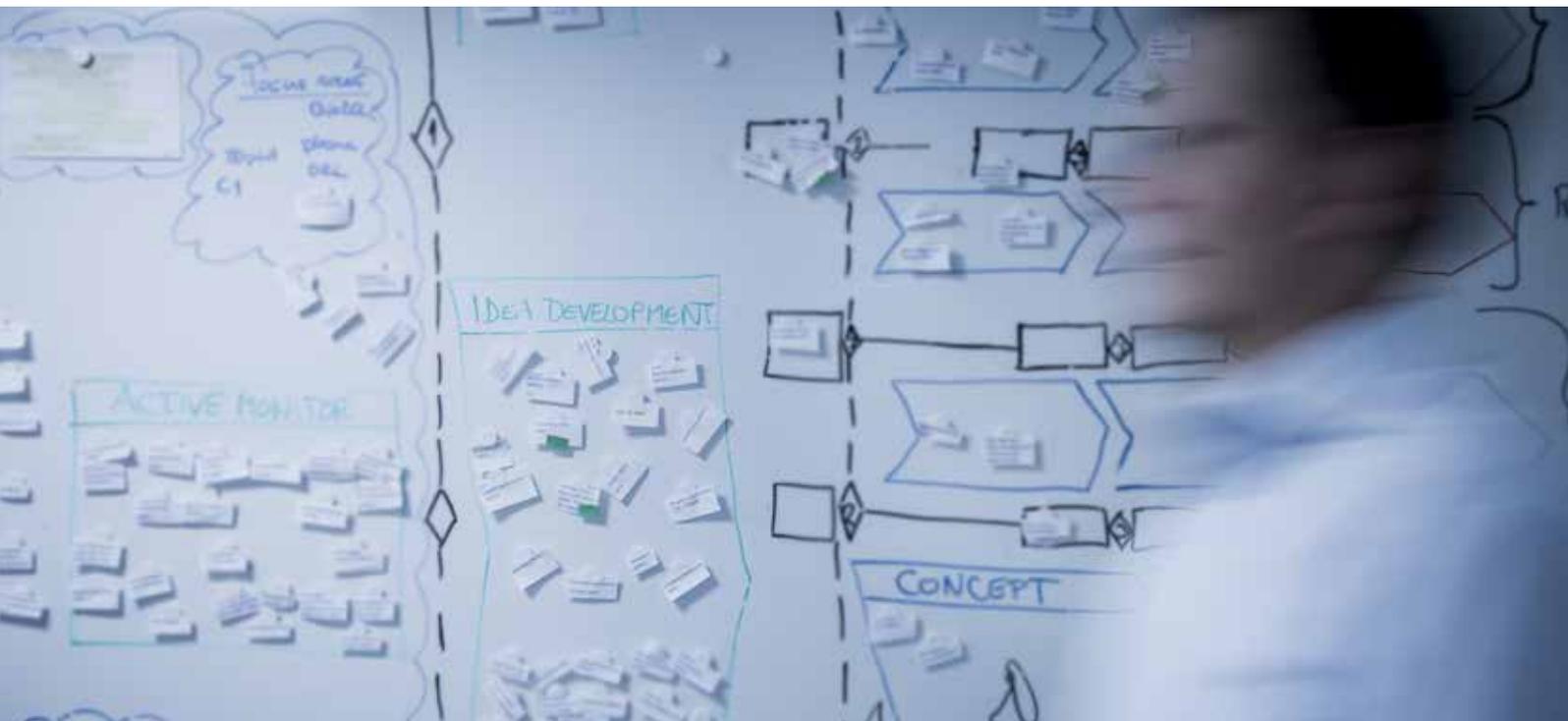
Topsoe's partnership with Petronas, Malaysia's state-owned oil and gas corporation, is a good example of how growth can be driven by long-term, mutually beneficial relationships.

Our cooperation with Petronas started about 30 years ago, when we began supplying the company with catalysts and services. In recent years, the relationship has expanded to include design and licensing agreements for an ammonia and methanol co-production facility as well as a synthesis gas and ammonia facility. Long-term agreements in which we supply both facilities with catalysts and services to ensure optimal operation have also been established, ensuring a win-win situation to the benefit of all parties.

When Petronas recently decided to build a new, world-scale ammonia plant, the natural choice was once again to use Topsoe technology and catalysts.

## Our business

### Section 3 New Business Unit



KIM KNUDSEN /  
Group Vice President, New Business Unit

## New customers, new products



The New Business Unit is dedicated to developing new businesses to fuel our '30 in 25' strategy. This means developing and marketing completely new products and technologies – and finding the customers for them. Currently, we are working with some 40 different projects in various stages of development. These include, for example:

- Advanced battery materials, some of which could be suitable for battery-electric vehicles and stationary energy storage
- The TIGAS™ process for creating synthetic gasoline
- Projects to convert biomass to chemicals and transportation fuels
- A project to enable the safe supply of toxic carbon monoxide gas
- Other projects that could expand existing activities or enable us to enter new markets

# Ideas from everywhere

Innovation with a Topsøe twist is key to the success of our new business development program

New ideas, new technologies and new business models are what Topsøe's New Business Unit is all about – and this unit is crucial to the company's future.

"The New Business Unit plays a major role in our '30 in 25' strategy, which involves an almost sixfold increase in revenue compared to today," says NBU Group Vice President Kim Knudsen. "To help achieve this goal, our ambition is that by 2025, a large part of our revenue will come from new products that are not on the market today."

To handle a development process on such a scale, Topsøe has established a corps of 20 business development managers created especially for the New Business Unit. Their job is to establish and lead teams that can turn a promising idea into a profitable business.

Business development managers work in a complex, company-wide matrix. Their permanent teams are small, but they draw on people and skills from any part of the organization as the need arises. And they must be able to weave a fine web of internal and external contacts and partners.

"They have to be good spidermen," as Kim Knudsen expresses it. "Right now the New Business Unit consists of around 25 full-time employees. But our network of partners is expanding rapidly."

## Scouting for new ideas

The New Business Unit is also exploring new innovation methods harvesting ideas and business cases from every imaginable source. "We need to systematize the way we find and analyze new project ideas," says Britt Hvolbæk Larsen, a business development

manager whose responsibilities include finding and implementing new methods to identify ideas with good potential.

"There will always be people who get good ideas while standing in the shower, and that's a perfectly valid way for it to happen," Britt says. "But we must also use some more structured approaches."

One of these approaches has been to establish a group of some 20 'regional scouts' from Topsøe's global network of regional offices. All of them have deep insight into local conditions, and their mission (alongside their daily duties) is to keep an eye on local trends, ideas, and customer needs that could develop into a good business case.

In addition to the regional scouting corps, Britt mentions a number of other idea-generating methods, among them such well-proven approaches as brainstorming and a virtual 'idea box' on the company intranet. Other methods include web-based forums, discussions with colleagues in non-competing companies, and 'idea harvesting' at professional conferences – in other words, asking employees who attend these gatherings to actively seek out inspiration for new business projects.

## Biomass and better batteries

At the moment, some 40 projects and ideas driven by the New Business Unit are circulating through the company in various stages of development. Among them are several projects that could expand Topsøe's activities in the refinery business. There are also projects to create a variety of chemicals and transportation fuels from biomass, projects that would enable Topsøe to enter the petrochemical market, and a project that will enable the safe supply of carbon monoxide gas to small consumers. ●●●

## Our business

### Section 3 New Business Unit

Most of these undertakings are in an early phase of exploration and have yet to achieve the status of a business project.

One early-phase project that could have a great deal of business potential - in spite of a relatively long timeline to commercialization - is called Battery Materials. It is headed up by another of Topsøe's business development managers, Ole A. Hansen.

A primary focus of this project is the rechargeable lithium-ion battery, which can store a greater amount of energy in a smaller space than other battery types. This type of battery is a well-known power source for laptops, smartphones and other electronic equipment. Many of today's battery-electric cars also use lithium-ion batteries - but as an automotive power source, there is still plenty of room to improve the balance between performance, range, lifetime, and price.

"This is where we fit in," Ole Hansen says.

#### New cathode materials

The primary aim of Battery Materials is to develop new cathode materials that would make the lithium-ion battery more suitable - for electronic equipment and stationary energy storage as well as for battery-electric cars and the various hybrid vehicles that can switch between fuel combustion and battery-electric drive.

"Cathode materials are crucial in determining how long it takes to recharge the battery and how far a battery-electric vehicle can go on a single charge," Ole says. "We want a battery that can recharge up to 80% in ten minutes and give the car a range of 500 kilometers before having to recharge."

Ole believes that he and the Battery Materials team will find the best solution to this challenge, not least because they can make

use of the company's deep knowledge of surface science and the decades it has spent perfecting its catalysts and processes. "We have the opportunity to become a leading player in this field, and the cathode market is going to be huge," he says.

Part of the Battery Materials team is now located at a battery research hub at the University of Ulm, Germany. As it happens, this is the first Topsøe research activity that has ever taken place outside the company's R&D facilities at Ravnholm, Denmark. Preliminary plans for a plant are also underway.

#### From wood to gasoline

Yet another of Topsøe's business development managers is Henrik Udesen, whose project is centered on a catalytic process called TIGAS™ - Topsøe Improved Gasoline Synthesis. The process is used to create synthetic gasoline from just about any carbon-based material. This type of gasoline is identical to what is sold at gasoline pumps and can therefore be used in the cars we have today without any modification.

The process is now ready for commercialization, Henrik says.

"TIGAS™ has a lot of growth potential," he notes. "Rising oil prices have made it profitable, and I believe that oil prices will continue to go up. So TIGAS™ can make a significant contribution to the '30 in 25' strategy."

In 2013 at a US plant near Chicago, Topsøe and three industrial partners successfully executed a large-scale demonstration project to produce synthetic gasoline from wood chips. But an even greater potential at present lies in making synthetic gasoline from natural gas. New mining and extracting techniques have made it profitable to retrieve this gas from massive deposits of shale in the US.

#### Our 'collective memory'

Synthetic gasoline is actually not a new concept, and competitors have also been working on conversion projects for some time. Topsøe began experimenting with the process during the energy crunch of the 1970s, but the project was shelved when oil prices once again dropped.

Which brings up a source of new business potential that Britt Hvolbæk Larsen refers to simply as 'the shelf'.

"At Topsøe, experience has taught us never to discard a project entirely," she says. "We just stop working on it and put it 'on the shelf'. Then we wait and see if it might become viable when conditions change. Everyone at Topsøe knows the meaning of 'the shelf'. It's a kind of collective memory that we never want to lose." ●



74  
YEARS

Passion for science and innovation has always been part of the Topsøe spirit



## Technology investment opens fresh perspectives

On February 12, 2014, Haldor Topsøe A/S announced that it has acquired 18% of the shares in the UK-based battery technology company Faradion Ltd. As part of the investment, Topsøe will collaborate with Faradion to further co-develop and scale up key parts of the company's sodium-ion technology. Furthermore, the investment provides Topsøe the right to manufacture and sell cathode materials for sodium-ion batteries under license from Faradion.

Faradion's technology is promising because it replaces the lithium in lithium-ion batteries with sodium, which is more commonly available, more sustainable and much less expensive. This technology does not adversely impact any of the key performance characteristics of current large-scale batteries which, from a cost point of view, makes it highly interesting in a wide range of industrial applications.

## Our business

### Section 3 R&D

*A microscopy image showing at micrometer level the surface of Topsøe's VK catalyst.*



JESPER NERLOV /  
**Executive Vice President**, Chief Technology Officer

## Research and development facts

15% of Topsøe's employees are engaged in R&D and in 2013, the company spent 11.4% of its revenue on R&D. A total of 14 new products were introduced and commercialized by Topsøe in 2013. Products of special interest that made their debut in 2013 include:

- The first HyBRIM™ catalysts
- A catalyst and technology for flue gas cleaning in the marine industry
- Eight new syngas/chemical catalysts

# Renewing the R&D vision

A sharpened strategic focus combines long-term thinking with an increasing awareness of current market needs

The research and development efforts of Haldor Topsøe A/S have always been distinguished by our focus on achieving fundamental, scientific understanding - and our ability to apply this knowledge to the needs of the marketplace. This unique combination of long-term thinking and market awareness is the essence of our founder's motto: "From science to dollars."

Today this expression has taken on renewed meaning after the reorganization of the company in 2012. While Topsøe continues to keep a sharp eye on the scientific horizon, our focus on market trends and customer needs has sharpened, making the organization even more agile and responsive to new possibilities.

"We want to be prepared and ready to move when new windows of opportunity appear," says Jesper Nerlov, executive vice president and chief technology officer. "The old R&D strategy was based on key performance indicators, such as the number of products developed each year, with a target revenue from new products. To some extent, that still makes sense in the new context, although more emphasis will be put on the market potential of the new products."

#### "A very interesting place"

The reorganization of the company into customer-oriented business units has increased the cooperation between the research and marketing arms of the company. By redefining Topsøe as a matrix organization, cross-functional teams can be created with the specific goal of expanding the existing business or developing entirely new capabilities and products.

"We have dedicated teams with multidisciplinary capabilities in many areas," Jesper says. "This increases the possibilities for R&D enormously. And it makes R&D a very interesting place to work."

#### The needs of today

The story of how Topsøe developed the TIGAS™ process for turning natural gas, biomass and other feedstocks into gasoline is a good example of the way in which the company has combined long-term research with immediate market needs. Research in this area began back in the 1970s, when rising oil prices created an interest in alternative fuels. The project was shelved when oil prices dropped in the 1990s – and renewed when prices recovered in the early years of the new millennium.

Today, in cooperation with Topsøe's New Business Unit, TIGAS™ is at the brink of commercialization. But research continues in an effort to advance the technology further.

"Today, our work is not only about providing a competitive technology – it's just as much about making it fit into a present context," Jesper says. "For instance, biomass and waste are 'new' resources that can be used in the TIGAS™ process. The same goes for the enormous amounts of gas that are being wasted by flaring in connection with oil production. Turning this resource into gasoline can benefit both the economy and the environment."

In 2013, Topsøe installed a new TIGAS™ pilot plant in the company's headquarters located in Lyngby. The plant simulates industrial conditions in a smaller and more advanced ●●●

## Our business

### Section 3 R&D

version of a much larger test facility in the US. The specific purpose of the Lyngby plant is to provide quick access to test new catalysts and improved process layouts, leading to better future design of industrial plants, while the test facility in the US has successfully demonstrated a bio-based version of the TIGAS™ technology.

#### A competitive edge

The relationship between R&D and the New Business Unit (NBU) could be described as a synergy in which NBU uncovers and develops new markets, while R&D leads the scientific discovery and development of the products that are needed by these markets.

But there are also highly effective synergies between R&D and Topsøe's existing businesses, represented by the Chemical, Environmental, and Refinery Business Units. One result of this cooperation is today's extremely successful HyBRIM™ catalyst series, which was launched in 2013 by the Refinery Business Unit.

The new series of refinery catalysts are used to remove pollutants such as sulfur and nitrogen and refine the oil into more valuable petroleum products. In terms of efficiency, the HyBRIM™ technology represents a significant step forward compared to the previous generation of hydroprocessing catalysts.

The product was developed in close cooperation between R&D, Catalyst Production, and the business unit. And the success of

this teamwork was demonstrated not only in the form of a highly marketable product, but also in terms of the speed with which the development took place.

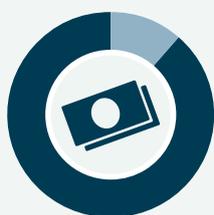
"Shortening the time from development to product launch gives us yet another important competitive edge," Jesper notes.

#### Strengthening our heritage

Synergies across organizational silos and borders are of course a time-honored tradition at Topsøe. Since its beginnings, the company has collaborated with universities, independent research institutions and other external partners. Meanwhile, engineers and scientists work together on combined catalysis and hardware solutions that ensure optimal product performance. And the company has always integrated follow-up customer service with catalyst and technology sales.

The new R&D strategy builds upon and strengthens this heritage – based on the idea that many sources of knowledge are better than one.

"No one person understands everything in every detail," says Jesper. "You need people with different capabilities, and they have to understand each other and benefit from close contact and collaboration. In this way, we can create something that nobody else can." ●



# 11.4%

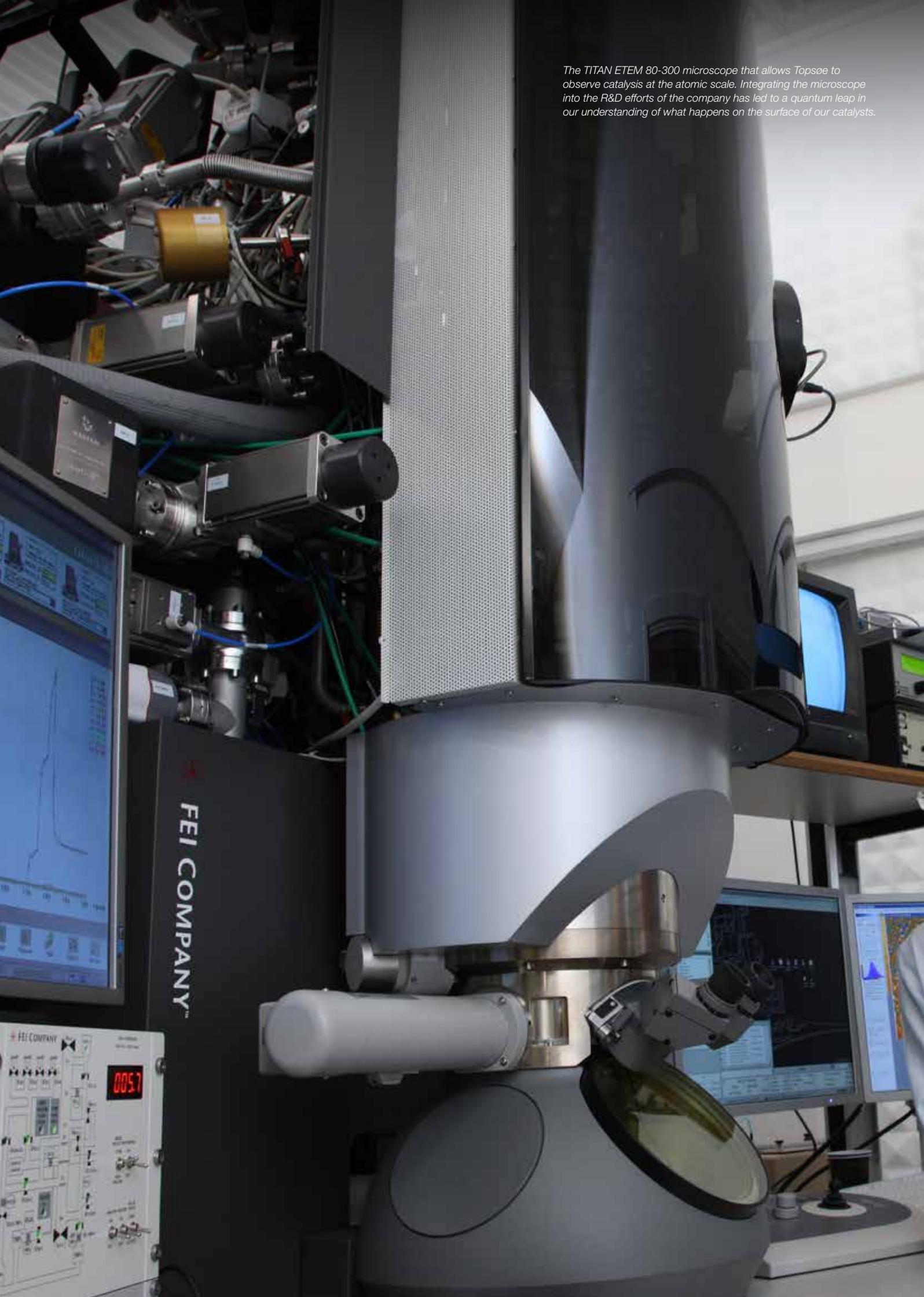
Share of revenue  
spent on R&D

### Small, smaller, smallest

Topsøe's installation of two state-of-the-art in situ transmission electron microscopes has attracted worldwide attention across the scientific communities. The microscopes cost DKK 20-30 million each, but have already made a huge impact on our understanding of catalysis.

Because of the microscopes, Topsøe is now capable of creating razor-sharp images with a resolution at the size of an atom, and can thereby achieve ground-breaking insights into our catalysts and their functional behavior. Furthermore, the microscopes allow us to advance our studies within catalytic reactions of both pure and sulfur-containing gases.

*The TITAN ETEM 80-300 microscope that allows Topsoe to observe catalysis at the atomic scale. Integrating the microscope into the R&D efforts of the company has led to a quantum leap in our understanding of what happens on the surface of our catalysts.*



## Our business

### Section 3 Topsøe Fuel Cell



LARS MARTINY /  
**Chief Executive Officer**, Topsøe Fuel Cell A/S

### New facilities to pave the way for commercialization

Fuel cell research began at Haldor Topsøe A/S more than 25 years ago; in 2004, this effort was channeled into Topsøe Fuel Cell A/S, a company within the Haldor Topsøe Group. Since then, Topsøe Fuel Cell has refined its focus, developed its stack technology and manufacturing methods and established new laboratory and production facilities. The company has developed and manufactures a proprietary solid oxide fuel cell and stack technology which is protected through patent applications covering nearly 100 patent families.

In 2013, Topsøe Fuel Cell inaugurated a state-of-the-art test center where the company and its partners can work together to develop large-scale, commercially viable SOFC systems. In addition, a new materials laboratory was also finalized in 2013 combined with a large pilot scale manufacturing plant for cells and stacks. This provides Topsøe Fuel Cell a solid foundation to enter the next phases of commercialization and industrialization.

# Fuelling an extraordinary vision

A subsidiary of Haldor Topsøe A/S is rethinking energy with a technology that is moving towards commercialization

A clean, energy-saving technology that could pave the way to a whole new energy infrastructure – this is the extraordinary vision that is being pursued by the 100 employees at Topsoe Fuel Cell A/S, a subsidiary of Haldor Topsøe A/S and neighbor to the parent company in Ravnholm, Denmark.

The basis for this vision is called a fuel cell - an electrochemical device that combines hydrogen and oxygen to produce electricity. The cell runs on a fuel that contains hydrogen, and its byproducts consist only of heat, CO<sub>2</sub> and water.

There are several types of fuel cells, but Topsoe Fuel Cell has chosen to focus its efforts on a particularly fuel- flexible and efficient type called a high-temperature solid oxide fuel cell (SOFC). More specifically, research and development is centered around the core of SOFC technology: a series of very thin, ceramic cells that are sandwiched together into a so-called stack. The stack is where the electricity is actually produced, as part of an electrochemical reaction across the cell between the hydrogen in the fuel and the oxygen in our atmosphere.

Since the process in a fuel cell is not based on combustion, the technology is more silent and is free of particle and NO<sub>x</sub> emissions; moreover, the energy efficiency of a fuel cell can be higher than 60%, compared to an efficiency of 25-35% for an internal combustion engine.

## A bridge to the future

A particularly interesting aspect of SOFC technology is that it integrates well with wind and solar energy. An SOFC can quickly ramp up and down without loss of efficiency to compensate for

the energy fluctuations of wind turbines and solar cells. Moreover, the SOFC can be reversed – that is, electricity and water can be combined to produce stored energy in the form of hydrogen fuel. “This could allow the storage of excess electricity for later use when production is low,” says CEO Lars Martiny of Topsoe Fuel Cell. “In other words, SOFC technology can build a bridge to a future in which renewable energy is a stable, practical alternative to the energy infrastructure we have today.”

## Efficient and stable

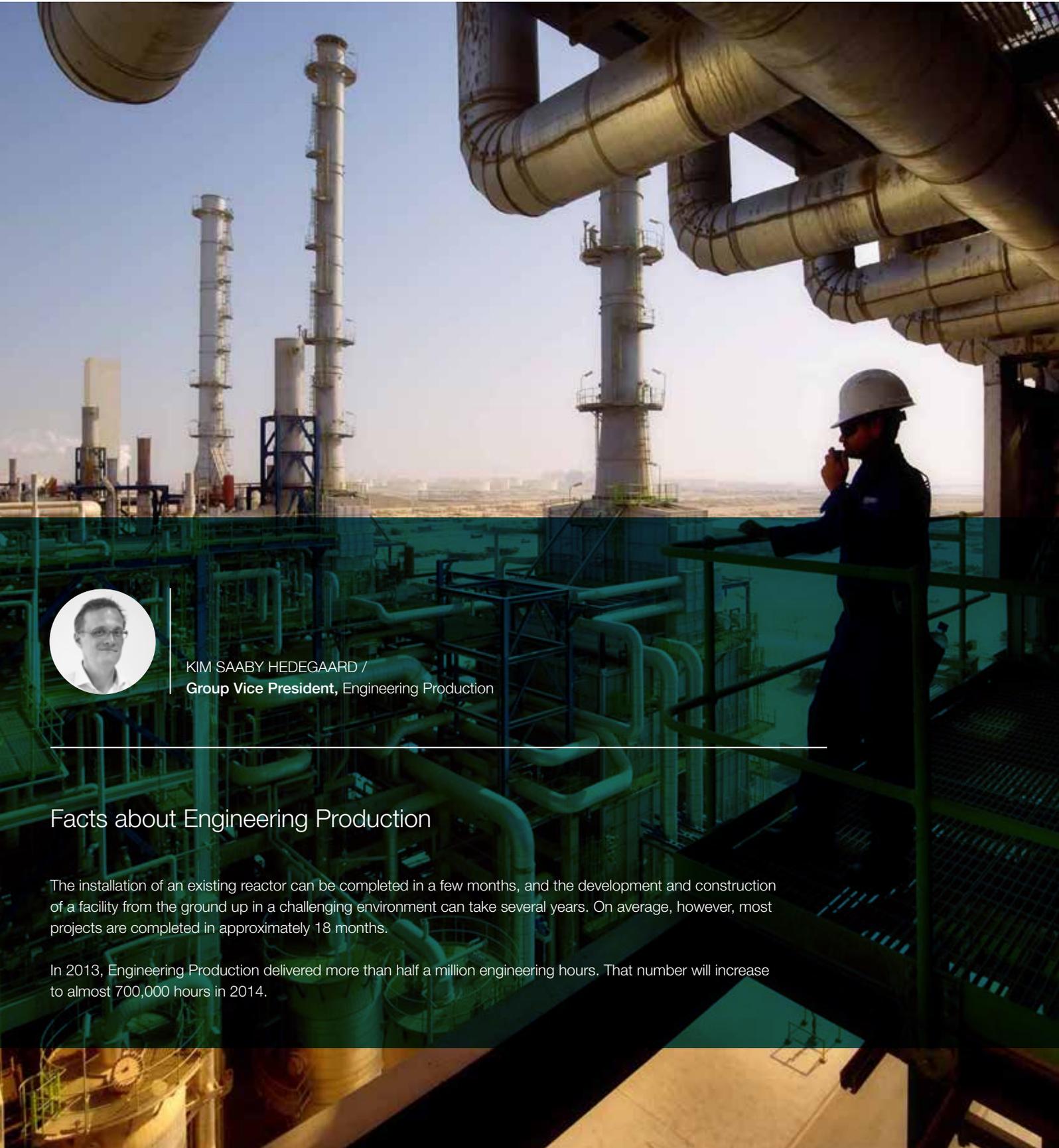
Working together with industrial and public partners, Topsoe Fuel Cell is developing SOFC stack technologies that can be integrated into a variety of systems, depending on the partners’ needs. Because this type of fuel cell produces heat as well as electricity, an appropriately dimensioned series of stacks can, for example, be integrated into a combined heat and power (CHP) unit to provide an efficient, decentralized and stable source of heat and power for an apartment building, a plant – or even a remote mountain village with no access to a centralized electrical grid.

Another application, using a smaller, mobile SOFC, relates to the trucking industry, where there is a great need for clean and efficient auxiliary power units.

This year, Topsoe Fuel Cell plans to launch a first-generation stack technology platform designed for easy integration into several different systems. The company is also developing a second-generation platform for high-volume production that will reduce manufacturing costs and prolong fuel cell life, making SOFC energy commercially competitive with electricity and heat from more conventional sources. ●

# Our business

Section 3  
Engineering Production



KIM SAABY HEDEGAARD /  
Group Vice President, Engineering Production

## Facts about Engineering Production

The installation of an existing reactor can be completed in a few months, and the development and construction of a facility from the ground up in a challenging environment can take several years. On average, however, most projects are completed in approximately 18 months.

In 2013, Engineering Production delivered more than half a million engineering hours. That number will increase to almost 700,000 hours in 2014.

# From Nigeria to Siberia

No environment is too challenging when Haldor Topsøe A/S designs facilities for customers around the world

When engineers in Topsøe's Engineering Production unit receive a new assignment, the project specifications can be anything from a detailed, formal project description to a sketchy idea about the product, the type of plant, and the required capacity and feedstock.

"Regardless of the scenario we are looking at, we can take it from there," says Kim Saaby Hedegaard, group vice president of Engineering Production.

"We assist our customers in turning the basic idea into something tangible. We do the rudimentary drawings, sketching the layout of the plant, including control systems, reactors, pumps, vessels, catalysts, and so on. Together with our colleagues from the business units, we scope the project, and as it progresses we always have the option of involving our R&D organization if we encounter special technical challenges."

## Up for a challenge

If that sounds easy enough, imagine planning a facility that can cope with Nigeria's tropical humidity as well as minus 36-degree Russian winters. Although most building projects are carried out by third-party contractors, designing plants that can function at full capacity anywhere in the world, for anything that Topsøe licenses, in any kind of environment will certainly stretch Topsøe's engineering capabilities. Luckily, Topsøe engineers like technical challenges. In fact in his

16 years at Topsøe, Kim Saaby Hedegaard has never seen a problem so big that it couldn't be solved. He attributes that to Topsøe's capacity to approach problems from the different angles provided by the availability of engineers from R&D, catalyst, and his own unit. The combined team allows Topsøe to outstrip companies whose viewpoint is limited to engineering.

"It's our approach to problem solving combined with strong competencies in many areas of expertise that sets us apart", he says.

## Across borders and continents

Currently, 457 people work in three engineering offices: 337 in Copenhagen, 112 in Delhi, and eight in Moscow. Reflecting on the national and cultural diversity represented by his staff, Kim Saaby Hedegaard says:

"We view ourselves as one organization, so when we assign people to a project, we select them across borders, assembling the best teams possible. Our departments are as integrated as you can get, even though they are separated by 7,500 kilometers."

The teams are careful to apply knowledge accumulated through the years and across continents by the many engineers and scientists, who have contributed to the company's success. ●●●

## Our business

### Section 3 Engineering

Kim Saaby Hedegaard is quick to point out that, in addition to the knowledge inherited from old Topsøe hands, “we also learn from our customers. Some of them commissioned their first plant before I was born. You can learn a lot from guys that have been operating a Topsøe plant for 40 years.”

#### The toughest customer

Engineering Production builds plants for third-party customers around the world, but one customer is the toughest of all: Haldor Topsøe A/S. Engineering Production never faces tougher challenges than when building catalyst production facilities for Topsøe.

Topsøe demands the highest standards, and our strategy requires us to do our very best. Engineering projects for Topsøe call for ultimate flexibility, cutting-edge innovation, and future expandability, while maintaining simplicity of design. All at a reasonable price.

“Of course, the business units are out there getting business, and R&D has to create the future,” says Kim Saaby Hedegaard. “And then there is this in-between kid that has to make a lot of projects happen and turn a lot of ideas into reality. It takes plenty of effort to build plants worthy of using and making Topsøe products.” ●

### New technology projects in the pipeline

Engineering Production is thinking as far ahead as 2025, but in the coming years, several interesting new technology projects are likely to reach completion. They include:

- Substitute natural gas (SNG) plants in China and South Korea, which produce fuel gas from biofuels or fossil fuels such as lignite coal.
- Gas to liquids (GTL) projects in Africa and in North America, which convert natural gas into gasoline or diesel fuel.
- Gasoline synthesis process (TIGAS™) plants, which convert synthesis gas to gasoline.



100

The approximate number of active projects handled by Engineering Production on an annual basis



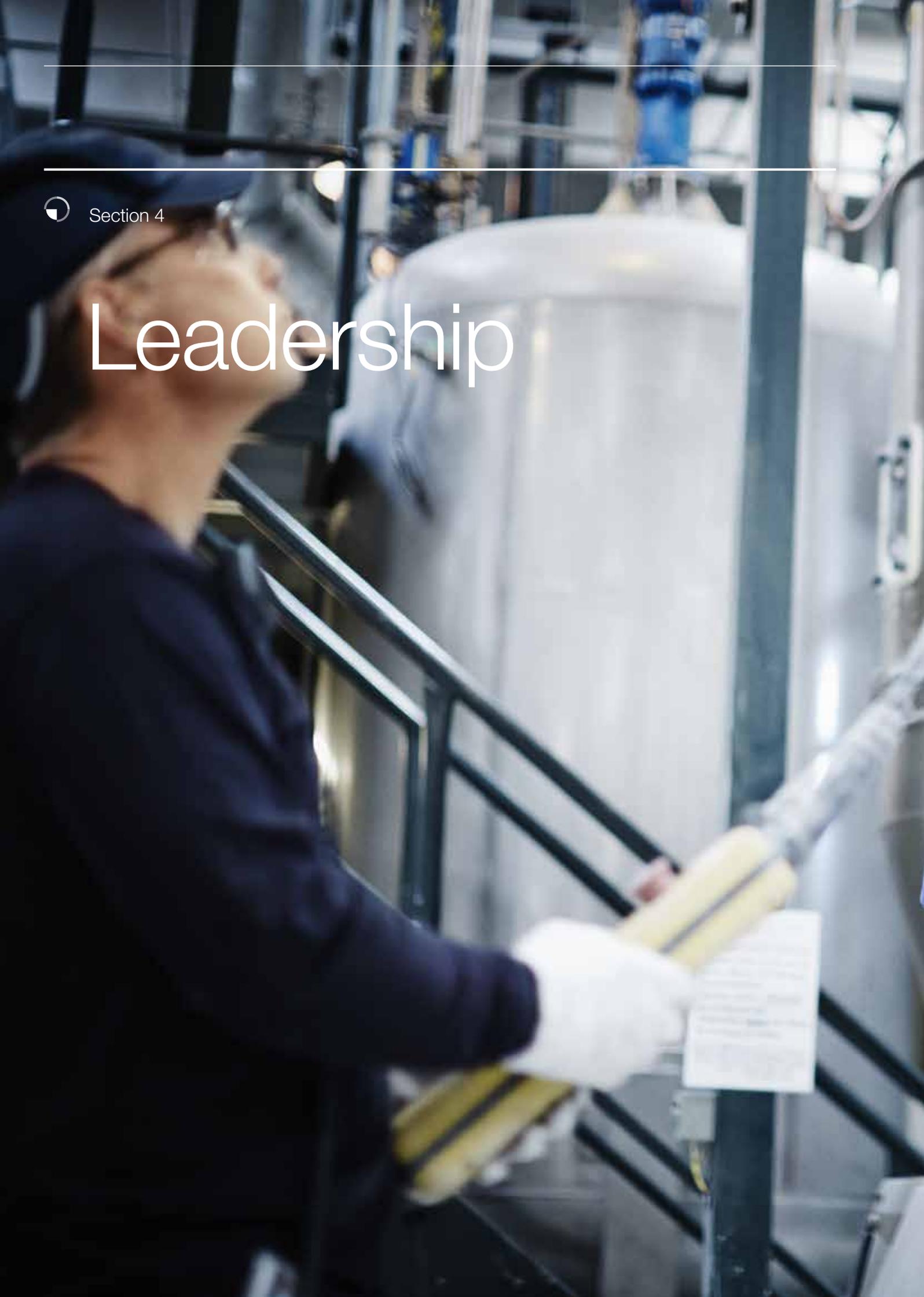
268

Number of customer installations designed by Topsøe from 2011 onwards. (Minimum of 500 man-hours per project)

*Engineering Production helps customers all around the world turn their basic ideas into reality. This includes the rudimentary drawings, sketching the layout of the plant, including for example control systems, reactors, pumps, vessels, and catalysts.*



# Leadership





# Leadership

## Section 4 Executive Management



### Bjerne S. Clausen

#### **PRESIDENT AND CHIEF EXECUTIVE OFFICER**

Bjerne S. Clausen is a Danish national / Born March 1952

Bjerne S. Clausen joined Haldor Topsøe A/S in 1979 and has worked extensively with R&D in the fields of surface science and heterogeneous catalysis. Bjerne S. Clausen was appointed member of the Executive Management in 2006 as director of the R&D Division.

In 2008, he was appointed Executive Vice President and head of the Technology Division. Bjerne S. Clausen was appointed President and CEO in 2011.

Bjerne S. Clausen is Chairman of the Board of iNANO, the Interdisciplinary Nanoscience Center at the University of Aarhus and member of the Advisory Board of the Department of Chemical Engineering at the Technical University of Denmark. He is also member of the Board of the Danish Energy Industries' Federation within the Confederation of Danish Industry as well as member of the Danish Academy of Technical Sciences (ATV). Bjerne S. Clausen has served on numerous research and industrial boards and committees.

Bjerne S. Clausen holds a M. Sc. in material physics and a Ph.D. in Materials Science from the Technical University of Denmark (DTU). He is adjunct professor in Surface Physics at the Institute of Physics and Astronomy, University of Aarhus, and adjunct professor in physics at DTU Physics, the Technical University of Denmark. In 2012, Bjerne S. Clausen was appointed visiting professor at Business School of Nankai University. ●



### Peter Rønne Andersen

#### **CHIEF FINANCIAL OFFICER**

Peter Rønne Andersen is a Danish national / Born September 1967

Peter Rønne Andersen joined Haldor Topsøe A/S in January 2013 to take over the position as CFO. Before joining Haldor Topsøe, Mr. Andersen worked for more than 20 years for the A. P. Moller-Maersk Group, including 15 years as CFO and member of the executive leadership team of various business units within A. P. Moller-Maersk, including Maersk Line.

At Topsøe, Peter Rønne Andersen is responsible for Finance, IT and Facility Service, and is part of the executive management team.

Peter Rønne Andersen has a M. Sc. in economics (cand. oecon) from the University of Aarhus and an executive MBA from IMD, Switzerland, and has obtained leadership training at Cranfield School of Management, Penn State University and Harvard University. ●





## Jesper Nerlov

### CHIEF TECHNOLOGY OFFICER

Jesper Nerlov is a Danish national / Born May 1968

Jesper Nerlov joined Haldor Topsøe A/S in 1998 as research specialist in R&D within the area of fundamental catalytic science. He has had several managerial responsibilities within Haldor Topsøe R&D over the years, and in 2006 he was appointed Vice President for Chemicals R&D.

In 2008 he was appointed Vice President for Chemicals & Environmental R&D. In 2008 Dr. Nerlov was appointed Executive Vice President and Chief Technology Officer. In this role, he is overall responsible for the global research and development activities at Haldor Topsøe.

Dr. Jesper Nerlov has a M. Sc. in chemistry from University of Copenhagen, Denmark from 1992, from where he also received his PhD in physical chemistry in 1996. Before joining Haldor Topsøe he held a position as assistant professor at the Center for Individual Nanoparticle Functionality at the Technical University of Denmark. ●



## Ulrik Federspiel

### CHIEF STRATEGY OFFICER / AMBASSADOR

Ulrik Federspiel is a Danish national / Born April 1943

Ambassador Ulrik Federspiel joined Haldor Topsøe A/S in 2009 as Vice President for Global Affairs and became Executive Vice President and Chief Strategy Officer in 2012.

Ulrik Federspiel is a member of the Board of Directors of the Karnapuli Fertilizer Company and a member of the Advisory Boards of the University of Copenhagen and the University of Aarhus. He is also chairman of the European DME association and a member of the Bilderberg Steering Committee, and the Nordic Energy Group on Climate and Energy.

Before joining Topsøe, Ambassador Federspiel held senior government positions for almost twenty years. As Permanent Secretary of State for Foreign Affairs (1991-93 and 2005-09), he has twice served as head of the Danish diplomatic service and Foreign Ministry. From 1993-97 he led the Danish Prime Minister's department as Permanent Secretary and Secretary to the Queen in Council, and he served as Danish Ambassador to the United States from 2000 to 2005.

Upon retirement from government service in 2009, H. M. the Queen decorated him with the Grand Cross of the Order of Dannebrog. He holds Grand Crosses from eleven other countries.

Ambassador Federspiel is M. Sc. in political science from Aarhus University and M. A. in international relations from University of Pennsylvania, Philadelphia. ● ● ●

# Leadership

## Section 4 Board of Directors



### Henrik Topsøe

#### CHAIRMAN OF THE BOARD

Henrik Topsøe is a Danish national / Born August 1944

Henrik Topsøe joined Haldor Topsøe A/S research laboratories in 1974 and became Manager of R&D Department in 1992. Over the years, Henrik Topsøe has received many honors and awards and in 2000, he was awarded the François Gault Lectureship from the European Federation of Catalysis Societies. In 2005, he received the Eugene J. Houdry Award in Applied Catalysis from the North American Catalysis Society and in 2010, he received the American Chemical Society Petroleum Division Distinguished Research Award.

Henrik Topsøe became a member of the Executive Managing Committee of Haldor Topsøe A/S in 1986 and in 2008, he was appointed Executive Vice President of Haldor Topsøe A/S. He became member of the Board of Haldor Topsøe A/S in 1993 and in 2012, he became Vice Chairman and was appointed Chairman of the Board in May 2013, following his father, Dr. Haldor Topsøe.

In 2007, he was appointed Chief Executive Officer of Haldor Topsøe Holding A/S.

Henrik Topsøe graduated as chemical engineer from the Danish Engineering Academy in January 1967 and holds a Ph.D. from Stanford University in November 1972.

Henrik Topsøe is the author of more than 180 scientific publications and in 2013, he was elected Foreign Associate of the National Academy of Engineering. ●



Mr. Nils Bernstein / Top left-1 – Mr. Jeppe Christiansen / Top left-2  
Mr. Martin Østberg / Top middle – Dr. Jens K. Nørskov / Top right-1  
Mr. Jørgen Huno Rasmussen / Top right-2 – Mr. Oluf Engell / Middle left  
Mr. Søren Toft / Middle – Ms Jette Søvang Christiansen / Middle right  
Ms Christina Topsøe / Bottom left – Mr. Jakob Haldor Topsøe / Bottom middle  
Dr. Henrik Topsøe / Bottom right



## Haldor Topsøe Board of Directors

Dr. Henrik Topsøe /  
**CHAIRMAN**

Mr. Oluf Engell /  
**MEMBER**

Dr. Jens Kehlet Nørskov /  
**MEMBER**

Mr. Jeppe Christiansen /  
**MEMBER**

Mr. Jakob Haldor Topsøe /  
**MEMBER**

Ms Christina Topsøe /  
**MEMBER**

Mr. Nils Bernstein /  
**MEMBER**

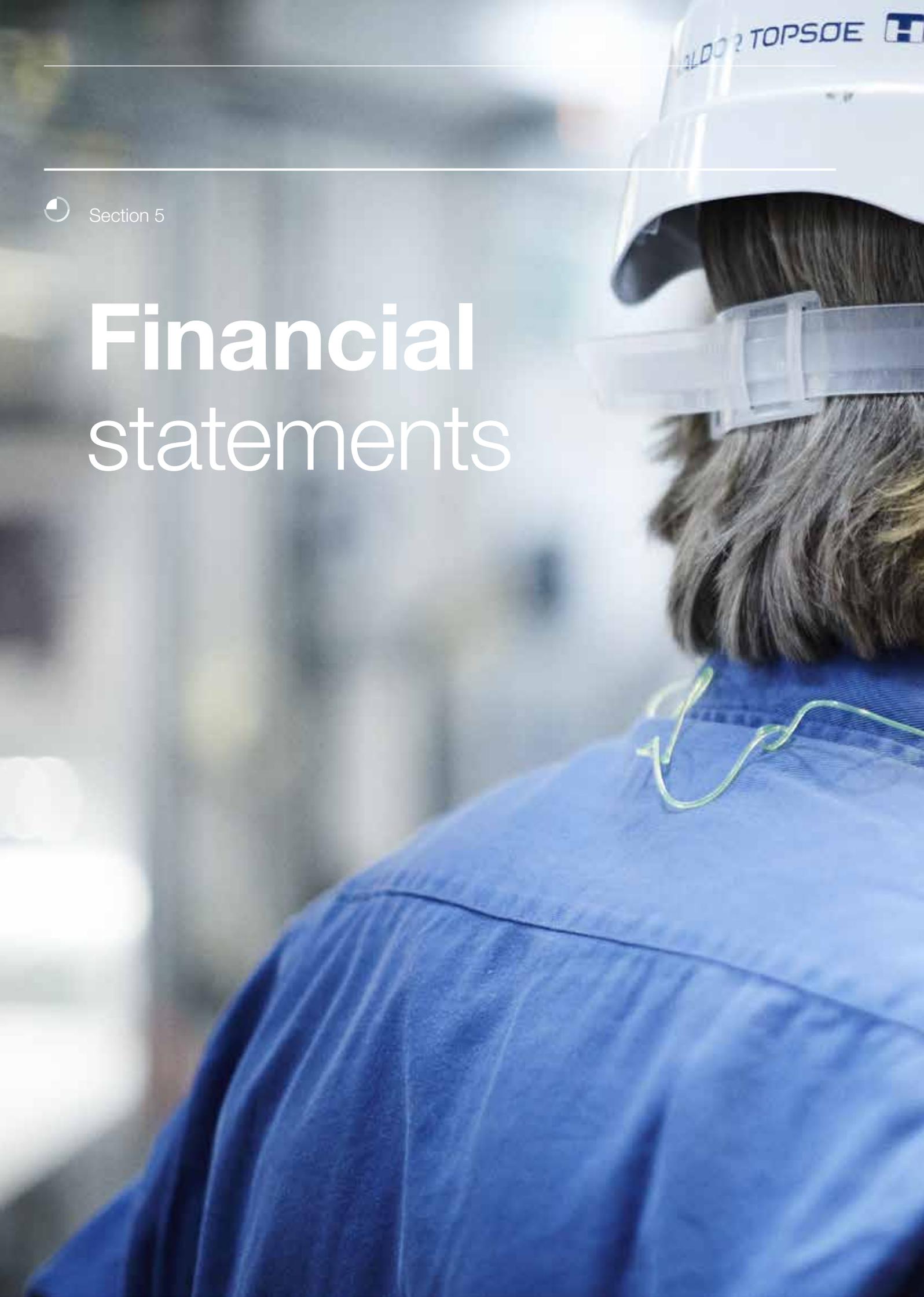
Mr. Jørgen Huno Rasmussen /  
**MEMBER**

Ms Jette Søvang Christiansen /  
**EMPLOYEE REPRESENTATIVE**

Mr. Søren Toft /  
**EMPLOYEE REPRESENTATIVE**

Mr. Martin Østberg /  
**EMPLOYEE REPRESENTATIVE**

# Financial statements





# Financial statements



## Section 5

### Consolidated statement of profit and loss

<i>DKK million</i>	Note	2013	2012
<b>Revenue</b>	2	<b>5,348</b>	<b>5,244</b>
Change in inventories of finished goods and intermediate products		39	39
Other operating income		96	76
Purchased equipment for contract work		-518	-780
Raw materials and consumables used		-1,542	-1,399
Other external expenses		-1,015	-1,038
<b>Gross profit</b>		<b>2,408</b>	<b>2,142</b>
Staff expenses	3	-1,532	-1,349
Depreciation, amortization and impairment losses for property, plant and equipment as well as intangible assets	4	-175	-200
<b>EBIT</b>		<b>701</b>	<b>593</b>
Financial income	5	106	90
Financial expenses	6	-127	-118
<b>Profit before tax</b>		<b>680</b>	<b>565</b>
Tax	7	-127	-150
<b>Net profit</b>		<b>553</b>	<b>415</b>

## Consolidated statement of other comprehensive income

<i>DKK million</i>	2013	2012
<b>Net profit</b>	<b>553</b>	<b>415</b>
Foreign currency translation adjustment	-30	-9
Derivative financial instruments used for hedging of future cash flows	7	-5
Tax on this	-4	-3
Realized derivative financial instruments transferred to the statement of profit and loss	8	14
Fair value adjustment of available-for-sale financial assets	-32	-2
Tax on this	2	0
<b>Items that may be reclassified to the statement of profit and loss</b>	<b>-49</b>	<b>-5</b>
Actuarial adjustments on pension obligations	28	-8
Tax on this	-10	3
<b>Items that may not be reclassified to the statement of profit and loss</b>	<b>18</b>	<b>5</b>
<b>Other comprehensive income</b>	<b>-31</b>	<b>-10</b>
<b>Total comprehensive income</b>	<b>522</b>	<b>405</b>

# Financial statements

## Section 5 Consolidated balance sheet

<b>Assets</b> <i>DKK million</i>	Note	December 31 2013	December 31 2012
Patents		44	39
Software		37	8
Intangible assets in progress		4	12
<b>Intangible assets</b>	8	<b>85</b>	<b>59</b>
Land and buildings		738	745
Plant and machinery		411	442
Other fixtures and equipment		203	130
Property, plant and equipment in progress		715	252
<b>Property, plant and equipment</b>	9	<b>2,067</b>	<b>1,569</b>
Other securities and investments		425	457
Other receivables		38	26
<b>Investments</b>	10	<b>463</b>	<b>483</b>
<b>Non-current assets</b>		<b>2,615</b>	<b>2,111</b>
<b>Inventories</b>	11	<b>1,195</b>	<b>1,200</b>
Trade receivables	12	734	859
Contract work in progress	13	170	234
Receivables from group enterprises	14	871	698
Other receivables	15	127	68
Prepayments		36	22
<b>Receivables</b>		<b>1,938</b>	<b>1,881</b>
<b>Cash</b>		<b>384</b>	<b>311</b>
<b>Current assets</b>		<b>3,517</b>	<b>3,392</b>
<b>Assets</b>		<b>6,132</b>	<b>5,503</b>

## Consolidated balance sheet

<b>Liabilities and equity</b> <i>DKK million</i>	<b>Note</b>	<b>December 31 2013</b>	<b>December 31 2012</b>
Share capital	16	376	55
Revaluation reserve	17	222	222
Foreign currency translation reserve	17	-41	-11
Reserve for unpaid share capital	17	241	0
Reserve for value adjustment of hedging instruments	17	-6	-17
Reserve for value adjustment of available-for-sale financial assets	17	303	333
Retained earnings		549	840
<b>Equity</b>		<b>1,644</b>	<b>1,422</b>
Pension obligations and similar obligations	19	43	78
Deferred tax	20	409	347
Provisions	21	208	307
Bonds	22	1,012	18
Mortgage debt	22	92	101
Credit institutions	22	624	904
Other payables	23	8	21
<b>Long-term liabilities</b>		<b>2,396</b>	<b>1,776</b>
Bonds	22	4	4
Mortgage debt	22	10	10
Credit institutions	22	186	200
Prepayments from customers	24	296	457
Contract work in progress	13	693	638
Trade payables		418	542
Corporation tax		20	9
Other payables	23	459	437
Deferred income		6	8
<b>Short-term liabilities</b>		<b>2,092</b>	<b>2,305</b>
<b>Liabilities</b>		<b>4,488</b>	<b>4,081</b>
<b>Liabilities and equity</b>		<b>6,132</b>	<b>5,503</b>

# Financial statements



## Section 5

### Consolidated statement of changes in equity

<i>DKK million</i>	Share capital	Reserves	Retained earnings	Total
<b>Equity at January 1, 2013</b>	<b>55</b>	<b>527</b>	<b>840</b>	<b>1,422</b>
Net profit	0	0	553	553
Other comprehensive income	0	-49	18	-31
<b>Comprehensive income</b>	<b>0</b>	<b>-49</b>	<b>571</b>	<b>522</b>
Increase of share capital	321	241	-241	321
Dividend	0	0	-621	-621
<b>Transactions with owners</b>	<b>321</b>	<b>241</b>	<b>-862</b>	<b>-300</b>
<b>Equity at December 31, 2013</b>	<b>376</b>	<b>719</b>	<b>549</b>	<b>1,644</b>

<i>DKK million</i>	Share capital	Reserves	Retained earnings	Total
<b>Equity at January 1, 2012</b>	<b>55</b>	<b>532</b>	<b>720</b>	<b>1,307</b>
Net profit	0	0	415	415
Other comprehensive income	0	-5	-5	-10
<b>Comprehensive income</b>	<b>0</b>	<b>-5</b>	<b>410</b>	<b>405</b>
Dividend	0	0	-290	-290
<b>Transactions with owners</b>	<b>0</b>	<b>0</b>	<b>-290</b>	<b>-290</b>
<b>Equity at December 31, 2012</b>	<b>55</b>	<b>527</b>	<b>840</b>	<b>1,422</b>

## Consolidated cash flow statement

<i>DKK million</i>	Note	2013	2012
Net profit		553	415
Adjustments for non-cash items	33	216	381
Change in working capital	34	-182	142
<b>Cash flows from operating activities before financial items and tax</b>		<b>587</b>	<b>938</b>
Interest received, etc.		106	90
Interest paid, etc.		-126	-103
<b>Cash flows from ordinary activities</b>		<b>567</b>	<b>925</b>
Corporation tax paid		-84	-139
<b>Cash flows from operating activities</b>		<b>483</b>	<b>786</b>
Purchase of intangible assets		-44	-25
Purchase of property, plant and equipment		-664	-307
Fixed asset investments, net		-13	-10
<b>Cash flows from investing activities</b>		<b>-721</b>	<b>-342</b>
Raising of long-term loans		1,000	250
Repayment of long-term loans		-296	-207
Increase of share capital		80	0
Dividend		-621	-290
<b>Cash flows from financing activities</b>		<b>163</b>	<b>-247</b>
<b>Change in cash and cash equivalents</b>		<b>-75</b>	<b>197</b>
Cash and cash equivalents at January 1		1,009	812
Exchange adjustment		0	0
<b>Cash and cash equivalents at December 31</b>		<b>934</b>	<b>1,009</b>
Cash		384	311
Deposits with Haldor Topsøe Holding A/S		550	698
<b>Cash and cash equivalents at December 31</b>		<b>934</b>	<b>1,009</b>

# Financial statements



## Section 5

### Notes to the consolidated statements

#### List of notes

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29	Fee to auditors appointed at the general meeting
30	Related parties
31	Derivative financial instruments
32	Financial assets and liabilities
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34	Change in working capital
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## Notes to the consolidated statements

### 1 Accounting policies

#### Basis of preparation

The Consolidated Financial Statements of Haldor Topsøe A/S have been prepared in accordance with International Financial Reporting Standards (IFRSs), as adopted by the EU, as well as additional Danish requirements applying to presentation of annual reports of large enterprises of reporting class C.

The Financial Statements are presented in DKK 1,000,000.

#### New and amended standards adopted by the Group

Haldor Topsøe has adopted new, amended standards, revised accounting standards and interpretations (IFRIC) as endorsed by the EU and which are effective for the financial year January 1, 2013 – December 31, 2013.

With effect from January 1, 2013, the following new and amended IFRSs and interpretations were implemented:

- IFRS 7 Financial instruments: Disclosure
- IFRS 13 Fair value measurement
- IAS 1 Financial statement presentation
- IAS 36 Impairment of assets
- IASB Annual improvements

Based on a thorough analysis, Haldor Topsøe has concluded that the standards, which are effective for financial years beginning on or after January 1, 2013 are either of no relevance to the Group or exert no material impact on the financial statements for the current or future years.

The amendment to IAS 19 Employee Benefits was early adopted in 2012.

Risk provision on technology projects amounting to DKK 163 million at December 31, 2013 (DKK 266 million at December 31, 2012) has been reclassified from “contract work in progress” under liabilities to “provisions”, since the Group finds this presentation more accurate. The comparative figures have been restated accordingly. The reclassification has no impact on the Group’s assets, liabilities, financial position or results.

The accounting policies applied remain unchanged from last year, except for implementation of new accounting standards cf. above.

#### New and amended standards not yet effective

In addition to the above, IASB has issued a number of IFRS standards, amended standards, and IFRIC interpretations which are effective for financial years beginning on or after January 1, 2014.

The major changes are:

- IFRS 9 – The number of categories of financial assets is reduced to two; amortized cost or fair value. The effect of changes in other credit risk on financial liabilities is recognized at fair value in other comprehensive income.
- IFRS 10 – Clarification of the definition of control over another entity. Control exists when the following conditions are met:
  - Control of the entity.
  - Exposure to variability in returns.
  - Ability to exercise control of the entity to affect returns.
- IFRS 11 – Joint arrangements are arrangements where joint control over a business activity exists and comprise two types: Joint operations and joint ventures.
- IFRS 12 – Disclosure requirements concerning interests in other entities, including subsidiaries, joint operations, joint ventures and associates.
- Amendment to IAS 27 – The consolidation rules are replaced by IFRS 10, and the standard then comprises the rules relating to parent company financial statements of the current IAS 27.
- Amendment to IAS 28 – Joint arrangements classified as joint ventures under IFRS 11 are recognized under the equity method of the standard. The guidance of SIC 13 on non-monetary contributions from enterprises has been incorporated into the standard.
- Amendments to IAS 32, ‘Financial Instruments: Presentation’. This amendment provides clarification regarding the presentation of the offsetting of financial assets and financial liabilities.

Haldor Topsøe has thoroughly considered the impact of the IFRS standards, amended standards and IFRIC interpretations not yet effective, and it is estimated that these standards and interpretations are deemed to exert no material impact on the Consolidated Financial Statements in the coming years.

#### 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 available-for-sale.
- 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 Annual Report comprises the Parent Company, Haldor Topsøe 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.

The Annual Reports included in the Consolidated Financial Statements have been presented in accordance with the Group’s accounting policies. The Consolidated Financial Statements have been prepared based on the Annual Reports of the Parent Company and group enterprises by combining items of a uniform nature.

# Financial statements

## Section 5 Notes to the consolidated statements

### 1 Accounting policies (continued)

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.

#### Functional currency 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 which is the functional currency and presentation currency of the Parent Company.

#### Translation policies

Transactions in foreign currencies are translated to the functional currency at the exchange rates at the dates of transaction. Foreign currency monetary items are translated to the functional currency at the exchange rates at the balance sheet date.

Financial statements of group enterprises with another functional currency than Danish kroner are translated to Danish kroner using the exchange rates of the balance sheet date for items of the balance sheet and average exchange rates for statement of profit and loss 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 hedge of future cash flows which are recognized in equity under reserve for value adjustment of hedging instruments. In addition, the following currency translation differences are recognized, translated into the exchange rates of the balance sheet date, directly in equity under the foreign currency translation reserve:

- Translation of group enterprises' net assets at the beginning of the financial year.
- Translation of group enterprises' statements of profit and loss from average exchange rates to the exchange rate at the balance sheet date.
- Translation of long-term 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 cost 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 directly in equity. Amounts recognized in equity are transferred to the statement of profit and loss in the period when the hedged item affects the statement of profit and loss.

Changes in the fair values of derivative financial instruments that do not qualify as hedges are recognized in the statement profit and loss.

The fair values of derivative financial instruments are determined based on prices obtained from stock exchanges or other reliable data sources.

## Statement of profit and loss

#### Revenue

Revenue from sale of finished goods is recognized in the statement of profit and loss when delivery and transfer of risk have been made before year end and when the income can be measured reliably and is expected to be received. Revenue is recognized exclusive of VAT and net of discounts relating to sales.

Contract work in progress is recognized at the rate 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 and expenses of a secondary nature to the Group's core activities, including government grants provided for research projects.

#### Raw materials and consumables used

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

#### Other external expenses

Other external expenses comprise expenses for premises, sales and distribution as well as office expenses, etc.

#### Staff expenses

Staff expenses comprise wages and salaries as well as other employee related expenses.

#### Amortization, depreciation and impairment losses

Amortization, depreciation and impairment losses comprise amortization, depreciation and impairment of intangible assets and property, plant and equipment.

#### Government grants

Government grants received for research and development costs are recognized in "other operating income" as the projects are completed. Grants received for investment in property, plant and equipment are recognized systematically over the useful life of the asset in the item "other operating income".

#### Leases

Rental expenses are recognized in the statement of profit and loss on a straight-line basis over the lease term. The liability related to non-cancellable leases is disclosed in the notes.

#### Financial income and expenses

Financial income and expenses comprise interest, dividends and realized and unrealized foreign currency translation adjustments.

## Notes to the consolidated statements

### 1 Accounting policies (continued)

#### Tax

Tax consists of current tax for the year, deferred tax as well as any adjustments to prior years. The tax attributable to the profit for the year is recognized in the statement of profit and loss, whereas the tax attributable to equity transactions is recognized directly in equity.

Haldor Topsøe A/S and Danish group enterprises are jointly taxed. The tax for the individual companies is allocated fully on the basis of expected taxable income.

### Balance sheet

#### Intangible assets

##### 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 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 statement of profit and loss as incurred.

##### Other intangible assets

Patents are measured at cost less accumulated amortization and impairment losses. 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 indication of impairment. Material impairment indicators which may lead to an impairment test are similar to those stated in the section on property, plant and equipment.

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 statement of profit and loss under other operating income and expenses.

#### Property, plant and equipment

Property, plant and equipment are measured at cost with addition of revaluations and less accumulated depreciation and impairment losses. Property, plant and equipment in progress are measured at cost.

Cost comprises the cost of acquisition and expenses directly related to 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. Interest expenses related to construction of major property, plant and equipment are recognized in cost over the period of construction.

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.

Revaluations which primarily concern the properties in Frederikssund, Ravnholm and Houston are performed on the basis of Management's estimate of fair value that is based on an independent valuation. Revaluations less deferred taxes are transferred to the revaluation reserve under equity.

Property, plant and equipment are tested for impairment when there is an indication of impairment. Impairment indicators comprise e.g.:

- Reduced earnings compared to expected future results.
- Material negative development trends in the sector or the economy in the enterprise's markets.
- 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 statement of profit and loss under other operating income and expenses.

#### Other securities and investments

Investments are measured at fair value at the balance sheet date.

Unrealized fair value adjustments are recognized directly in equity under the reserve for value adjustment of available-for-sale financial assets. On realization, value adjustments are transferred from equity to the statement of profit and loss. Impairment losses are recognized in the statement of profit and loss.

Securities in the form of loans are measured in the balance sheet at the lower of amortized cost and net realizable value, which corresponds to nominal value less write-down for bad and doubtful debts.

#### Inventories

Inventories are measured at the lower of cost under the FIFO method and net realizable value. The net realizable value of inventories is calculated as the total of future sales revenue expected to be

# Financial statements

## Section 5 Notes to the consolidated statements

### 1 Accounting policies (continued)

generated in the process of normal operations and determined by allowing for marketability, obsolescence and development in expected sales sum less selling expenses.

The cost of goods for resale, raw materials and consumables equals landed costs. The cost of finished goods and work in progress comprises the cost of raw materials, consumables and direct labor with addition of indirect production costs. Indirect production costs comprise the cost of indirect materials and labor, maintenance and depreciation of the machinery, factory buildings and equipment used in the manufacturing process as well as costs of factory administration and management. Any borrowing costs relating to the manufacturing period are not recognized.

#### Receivables

Receivables are measured in the balance sheet at the lower of amortized cost and net realizable value, which corresponds to nominal value less provisions for bad debts. Provisions for bad debts are determined on the basis of an individual assessment of each receivable.

#### Contract work in progress

Contract work in progress is measured at the selling price of the work performed calculated on the basis of the stage of completion. The stage of completion is measured by the proportion that the contract expenses incurred to date bear to the estimated total contract expenses. Where it is probable that total contract expenses will exceed total revenues from a contract, the expected loss is recognized as an expense in the statement of profit and loss.

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 short-term liabilities.

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

#### Prepayments

Prepayments comprise prepaid expenses concerning the subsequent financial year. They typically include rent, insurance premiums, subscriptions and interest.

#### Cash

Cash comprises cash in hand and bank deposits.

#### Share capital

The share capital constitutes the nominal value of the enterprise's share capital.

#### Reserves

The revaluation reserve includes reserve for revaluation of land and buildings.

The foreign currency translation reserve comprises all translation adjustments arising from the translation of financial statements of group enterprises with another functional currency than Danish kroner as well as translation adjustments concerning long-term intercompany

balances that are considered an addition to the net investment in such enterprises.

Unpaid share capital reserve comprises the deviation between the amount the share capital has been increased and the amount paid.

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 value adjustment of financial assets available-for-sale comprises the accumulated net change in the fair value of financial assets classified as financial assets available-for-sale. The reserve is dissolved as the financial assets in question are sold.

#### Dividend

Proposed dividend for the financial year is recognized in retained earnings.

#### Pension obligations and similar obligations

Costs of defined contribution plans are recognized in the statement of profit and loss 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 equity. Plan assets are only recognized to the extent that the Group is able to obtain future economic benefits by way of reimbursement from the plan or reduction of future contributions.

Costs related to other long-term 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. The tax base of tax loss carry-forwards is deducted from deferred tax when it is probable that the losses may be used. Deferred tax is measured on the basis of the tax rules and tax rates expected to be in force when temporary differences are reversed. Any changes in deferred tax due to changes to tax rates are recognized in the statement of profit and loss with the share attributable to the results for the year and directly in equity with the share attributable to entries to 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 economic benefits must be given up to settle the obligation. Provisions are measured at Management's estimate of the discounted amount expected required to repay the obligation.

#### Financial debts

Loans such as bonds, mortgage loans and loans from credit institutions which are expected held to maturity 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 statement of profit and loss over the loan period.

## Notes to the consolidated statements

### 1 Accounting policies (continued)

Other debts are measured at amortized cost, substantially 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.

Cash flows from operating activities are calculated as the net profit for the year adjusted for items with no cash flow effect, paid net financials, paid corporation taxes and changes in working capital.

Cash flows from investing activities comprise payments in connection with acquisition and divestment of enterprises and acquisition and disposal of property, plant and equipment as well as intangible assets.

Cash flows from financing activities comprise cash flows from the raising and repayment of loans, increase of share capital and payment of dividends.

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 Danish Society of Financial Analysts' "Recommendations and Financial Ratios 2010".

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

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

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

$$\text{EBIT margin} = \frac{\text{EBIT} \times 100}{\text{Revenue}}$$

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

$$\text{Equity ratio} = \frac{\text{Equity at year end} \times 100}{\text{Total assets}}$$

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

#### Material estimates and assessments

In accordance with general accounting policies, determination of the carrying amount of certain assets and liabilities requires assessments and estimates on 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.

The Group's properties 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.

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.

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 as well as maintenance and depreciation of machinery, factories and equipment used in the production process, in addition to administrative and management expenses related to the factories. 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.

In Management's opinion, the Group's sale of technology is to a high degree individually adjusted, and contract work in progress is consequently measured at the selling price of the performed work 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 is to a high degree based on historical experience.

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.

# Financial statements

## Section 5 Notes to the consolidated statements

### 2 Revenue

The Group's activities are in the business segment of providing catalytic processes for integrated solutions to industrial plants. The provision of these integrated solutions comprises fundamental and applied research, reaction engineering, process engineering, mechanical design and production and supply of catalysts. The Group's revenue can be specified as follows:

<i>DKK million</i>	<b>2013</b>	<b>2012</b>
Sale of products	4,815	4,881
Sale of services	533	363
<b>Total revenue</b>	<b>5,348</b>	<b>5,244</b>

Of the total revenue 22% (2012: 23%) derives from North America and 78% (2012: 77%) from the rest of the world.

Government grants amounting to DKK 94 million (2012: DKK 61 million) have been recognized in the statement of profit and loss.

### 3 Staff expenses

<i>DKK million</i>	<b>2013</b>	<b>2012</b>
Wages and salaries	1,291	1,144
Pensions – contribution plan	131	123
Pensions – defined benefit	10	6
Other social security expenses	128	96
<b>Total</b>	<b>1,560</b>	<b>1,369</b>

Capitalization of work performed on property, plant and equipment	-28	-20
<b>Total staff expenses</b>	<b>1,532</b>	<b>1,349</b>

Executive Management salary	13	16
Executive Management pension	2	2
Board members fee	2	2
<b>Total remuneration to Executive Management and Board members</b>	<b>17</b>	<b>20</b>

Average number of employees	2,430	2,195
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## Notes to the consolidated statements

### 4 Depreciation, amortization and impairment losses for property, plant and equipment as well as intangible assets

<i>DKK million</i>	2013	2012
Patents	9	7
Software	9	4
Land and buildings	25	26
Plant and machinery	85	80
Other fixtures and equipment	64	66
Assets in progress	-17	17
<b>Total depreciation, amortization and impairment losses</b>	<b>175</b>	<b>200</b>

### 5 Financial income

<i>DKK million</i>	2013	2012
Income from other investments	60	34
Interest received from group enterprises	15	12
Interest income	4	3
Gains on derivative financial instruments (currency)	5	5
Foreign currency translation adjustment	21	34
Other financial income	1	2
<b>Total financial income</b>	<b>106</b>	<b>90</b>

### 6 Financial expenses

<i>DKK million</i>	2013	2012
Interest expenses	59	36
Loss on derivative financial instruments (interest)	11	11
Loss on derivative financial instruments (currency)	2	8
Foreign currency translation adjustment	48	39
Value adjustment of other investments	0	17
Other financial expenses	7	7
<b>Total financial expenses</b>	<b>127</b>	<b>118</b>

# Financial statements



## Section 5

### Notes to the consolidated statements

#### 7 Tax

*DKK million*

	2013	2012
Current tax for the year	61	83
Change in deferred tax for the year	105	65
Change in corporate tax rate	-13	0
Adjustments to prior years	-26	2
<b>Total tax</b>	<b>127</b>	<b>150</b>

%	2013	2012
Danish corporation tax rate	25.0	25.0
Income not subject to tax	-1.7	-1.0
Differences in foreign tax rates	1.7	2.3
Adjustments relating to prior years	-3.9	0.2
Other adjustments	-2.5	0.1
<b>Effective tax rate</b>	<b>18.6</b>	<b>26.6</b>

## Notes to the consolidated statements

<b>8 Intangible assets</b> <i>DKK million</i>	Patents	Software	Intangible assets in progress
Cost at January 1, 2013	96	91	12
Additions for the year	14	24	6
Transfers for the year	0	14	-14
<b>Cost at December 31, 2013</b>	<b>110</b>	<b>129</b>	<b>4</b>
Amortization and impairment losses at January 1, 2013	57	83	0
Amortization for the year	9	9	0
<b>Amortization and impairment losses at December 31, 2013</b>	<b>66</b>	<b>92</b>	<b>0</b>
<b>Carrying amount at December 31, 2013</b>	<b>44</b>	<b>37</b>	<b>4</b>
Research and development costs expensed in 2013			607

<b>Intangible assets</b> <i>DKK million</i>	Patents	Software	Intangible assets in progress
Cost at January 1, 2012	92	90	0
Additions for the year	0	0	25
Disposals for the year	-8	0	0
Transfers for the year	12	1	-13
<b>Cost at December 31, 2012</b>	<b>96</b>	<b>91</b>	<b>12</b>
Amortization and impairment losses at January 1, 2012	56	79	0
Amortization for the year	7	4	0
Reversal of amortization and impairment losses on sold assets	-6	0	0
<b>Amortization and impairment losses at December 31, 2012</b>	<b>57</b>	<b>83</b>	<b>0</b>
<b>Carrying amount at December 31, 2012</b>	<b>39</b>	<b>8</b>	<b>12</b>
Research and development costs expensed in 2012			539

# Financial statements

## Section 5 Notes to the consolidated statements

<b>9 Property, plant and equipment</b> <i>DKK million</i>	<b>Land and buildings</b>	<b>Plant and machinery</b>	<b>Other fixtures and equipment</b>	<b>Property, plant and equipment in progress</b>
Cost at January 1, 2013	919	2,153	615	269
Foreign currency translation adjustment	-5	-28	-3	-1
Additions for the year	22	14	53	575
Disposals for the year	0	-3	-23	0
Transfers for the year	2	42	84	-128
<b>Cost at December 31, 2013</b>	<b>938</b>	<b>2,178</b>	<b>726</b>	<b>715</b>
Revaluation at January 1, 2013	315	8	0	0
Foreign currency translation adjustment	-5	0	0	0
<b>Revaluation at December 31, 2013</b>	<b>310</b>	<b>8</b>	<b>0</b>	<b>0</b>
Depreciation and impairment losses at January 1, 2013	489	1,719	485	17
Foreign currency translation adjustment	-4	-26	-3	0
Reversal of impairment losses	0	0	0	-17
Impairment losses for the year	0	3	0	0
Depreciation for the year	25	82	64	0
Reversal of depreciation on sold and scrapped assets	0	-3	-23	0
<b>Depreciation and impairment losses at December 31, 2013</b>	<b>510</b>	<b>1,775</b>	<b>523</b>	<b>0</b>
<b>Carrying amount at December 31, 2013</b>	<b>738</b>	<b>411</b>	<b>203</b>	<b>715</b>
Carrying amount at December 31, 2013 under the depreciated cost model	461	411	203	715
Interest expenses capitalized in 2013				0

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

## Notes to the consolidated statements

### 9 Property, plant and equipment (continued)

<i>DKK million</i>	Level 1	Level 2	Level 3
Office buildings in Denmark	0	0	251
Production plants in Denmark and US	0	0	429
Excess land in US	0	58	0
<b>Distribution of assets stated at fair value at December 31, 2013</b>	<b>0</b>	<b>58</b>	<b>680</b>

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

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

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

There has been no transfers between level 1 and 2 during the year.

Fair value of office buildings in Denmark have been derived using a market approach primarily based on rental per sq.m. for comparable buildings and an interest rate. The rental per sq.m. is set at DKK 400-850 depending on the use. Fair value of production plants have been derived using a cost approach, which reflects the cost of constructing similar buildings at an equivalent age and use. Excess land in US are valued using a sales comparison approach. Sales prices of comparable land in close proximity are adjusted for differences in key attributes such as property size. The sales price per acre is set at USD 105 thousands.

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

The valuation methods have not changed from last year.

<i>DKK million</i>	2013	2012
Fair value of level 3 assets at January 1	687	645
Additions	24	72
Disposals	0	-1
Included in Statement of profit and loss as depreciation	-25	-26
Foreign currency translation adjustment	-6	-3
<b>Fair value of level 3 assets at December 31</b>	<b>680</b>	<b>687</b>

# Financial statements

## Section 5 Notes to the consolidated statements

<b>9 Property, plant and equipment (continued)</b> <i>DKK million</i>	<b>Land and buildings</b>	<b>Plant and machinery</b>	<b>Other fixtures and equipment</b>	<b>Property, plant and equipment in progress</b>
Cost at January 1, 2012	850	2,093	564	181
Foreign currency translation adjustment	-2	-10	-1	0
Additions for the year	0	1	6	300
Disposals for the year	-1	-18	-2	-5
Transfers for the year	72	87	48	-207
<b>Cost at December 31, 2012</b>	<b>919</b>	<b>2,153</b>	<b>615</b>	<b>269</b>
Revaluation at January 1, 2012	317	8	0	0
Foreign currency translation adjustment	-2	0	0	0
<b>Revaluation at December 31, 2012</b>	<b>315</b>	<b>8</b>	<b>0</b>	<b>0</b>
Depreciation and impairment losses at January 1, 2012	464	1,666	423	0
Foreign currency translation adjustment	-1	-10	-2	0
Impairment losses for the year	0	2	0	17
Depreciation for the year	26	78	66	0
Reversal of depreciation on sold and scrapped assets	0	-17	-2	0
<b>Depreciation and impairment losses at December 31, 2012</b>	<b>489</b>	<b>1,719</b>	<b>485</b>	<b>17</b>
<b>Carrying amount at December 31, 2012</b>	<b>745</b>	<b>442</b>	<b>130</b>	<b>252</b>
Carrying amount at December 31, 2012 under the depreciated cost model	484	442	130	252
Interest expenses capitalized in 2012				0

## Notes to the consolidated statements

<b>10 Investments</b> <i>DKK million</i>	<b>Other securities and investments</b>	<b>Other receivables</b>
Cost at January 1, 2013	123	43
Foreign currency translation adjustment	0	-1
Additions for the year	0	16
Disposals for the year	0	-3
<b>Cost at December 31, 2013</b>	<b>123</b>	<b>55</b>
Value adjustment at January 1, 2013	334	-17
Value adjustments for the year	-32	0
<b>Value adjustment at December 31, 2013</b>	<b>302</b>	<b>-17</b>
<b>Carrying amount at December 31, 2013</b>	<b>425</b>	<b>38</b>

<b>Investments</b> <i>DKK million</i>	<b>Other securities and investments</b>	<b>Other receivables</b>
Cost at January 1, 2012	123	33
Additions for the year	0	15
Disposals for the year	0	-5
<b>Cost at December 31, 2012</b>	<b>123</b>	<b>43</b>
Value adjustment at January 1, 2012	336	0
Value adjustments for the year	-2	-17
<b>Value adjustment at December 31, 2012</b>	<b>334</b>	<b>-17</b>
<b>Carrying amount at December 31, 2012</b>	<b>457</b>	<b>26</b>

**Karnaphuli Fertilizer Limited, Bangladesh (KAFCO)**

The Group has a shareholding in KAFCO of nominally BDT 692 million, which equals 15.01% of the shares in KAFCO. The shares are measured at an estimated market value based on a discounted cash flow calculation on the basis of 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 determined at 13% after tax. The growth rate in the terminal period has by Management been estimated at 0%. The discount rate is slightly higher than in 2012 and the growth rate corresponds to the 2012 rate. Based on these criteria the KAFCO shares have been written down by DKK 25 million.

**Chambal Fertilizer and Chemical Ltd., India**

The Group has an investment in Chambal Fertilizer and Chemicals Ltd., India, corresponding to 0.5% of the share capital. The investment is measured at fair value based on listed market value.

**Fatima Fertilizer Co. Ltd., Pakistan**

The Group has an investment in Fatima Fertilizer Co. Ltd., Pakistan, corresponding to 0,05% of the share capital. The investment is measured at fair value based on listed market value.

# Financial statements

## Section 5 Notes to the consolidated statements

### 11 Inventories

<i>DKK million</i>	2013	2012
Raw materials and consumables	253	285
Work in progress	130	122
Finished goods	812	793
<b>Inventories at December 31</b>	<b>1,195</b>	<b>1,200</b>

Cost of sales for the year	2,112	1,831
Impairment losses for the year	68	73
Reversed impairment losses for the year	-42	-58

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

### 12 Trade receivables

<i>DKK million</i>	2013	2012
<b>Trade receivables, gross</b>	<b>747</b>	<b>880</b>
Provision for bad debts at January 1	-21	-19
Provision for bad debts for the year	-1	-9
Reversal of bad debts, prior years	9	7
<b>Provision for bad debts at December 31</b>	<b>-13</b>	<b>-21</b>

<b>Trade receivables at December 31</b>	<b>734</b>	<b>859</b>
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Realized losses for the year	0	0
Of this, due after more than 1 year	0	0

<i>Receivables due at December 31 have the following aging in %</i>	2013	2012
1-90 days	19	26
91-180 days	0	5
181+ days	4	3

## Notes to the consolidated statements

### 13 Contract work in progress

<i>DKK million</i>	2013	2012
Selling price of work performed at the balance sheet date	5,741	6,469
Payments received on account	-6,264	-6,873
<b>Contract work in progress at December 31</b>	<b>-523</b>	<b>-404</b>
Contract work in progress recognized in assets	170	234
Contract work in progress recognized in liabilities and equity	-693	-638
<b>Contract work in progress at December 31</b>	<b>-523</b>	<b>-404</b>

### 14 Receivables from group enterprises

<i>DKK million</i>	2013	2012
Deposit with the holding company	550	698
Other receivables	321	0
<b>Receivables from group enterprises at December 31</b>	<b>871</b>	<b>698</b>

Deposit with the holding company is part of a cash-pooling arrangement.

### 15 Other receivables

<i>DKK million</i>	2013	2012
VAT and tax receivable	88	46
Fair value of derivative financial instruments	5	2
Government grants	9	10
Other receivables	25	10
<b>Other receivables at December 31</b>	<b>127</b>	<b>68</b>
Of this, due after more than 1 year	0	0

### 16 Share capital

<i>Number of shares</i>	2013	2012
<b>Shares of a nominal value of DKK 376,000,000</b>	<b>376,000</b>	<b>55,000</b>

The share capital consists of 376,000 shares of a nominal value of DKK 1,000. No shares carry any special right.

The share capital was increased by DKK 321 million in 2013. There has been no change in the share capital from 2009-2012.

The following shareholder is recorded in the Parent Company's register of shareholders as holding at least 5% of the votes or at least 5% of the share capital:

Haldor Topsøe Holding A/S, Lyngby, Denmark

# Financial statements

## Section 5 Notes to the consolidated statements

<b>17 Reserves</b> <i>DKK million</i>	<b>Revaluation reserve</b>	<b>Foreign currency translation reserve</b>	<b>Unpaid share capital reserve</b>	<b>Reserve for value adjustment of hedging instruments</b>	<b>Reserve for value adjustment of available-for- sale financial assets</b>
Reserves at January 1, 2013	222	-11	0	-17	333
Foreign currency translation adjustment	0	-30	0	0	0
Derivative financial instruments used for hedging of future cash flows	0	0	0	7	0
Realized derivative financial instruments transferred to the statement of profit and loss	0	0	0	8	0
Fair value adjustment of financial assets available-for-sale	0	0	0	0	-32
Reserve for unpaid share capital	0	0	241	0	0
Tax on this	0	0	0	-4	2
<b>Reserves at December 31, 2013</b>	<b>222</b>	<b>-41</b>	<b>241</b>	<b>-6</b>	<b>303</b>

<b>Reserves</b> <i>DKK million</i>	<b>Revaluation reserve</b>	<b>Foreign currency translation reserve</b>	<b>Reserve for value adjustment of hedging instruments</b>	<b>Reserve for value adjustment of available-for- sale financial assets</b>
Reserves at January 1, 2012	222	-2	-23	335
Foreign currency translation adjustment	0	-9	0	0
Derivative financial instruments used for hedging of future cash flows	0	0	-5	0
Realized derivative financial instruments transferred to the statement profit and loss	0	0	14	0
Fair value adjustment of financial assets available-for-sale	0	0	0	-2
Tax on this	0	0	-3	0
<b>Reserves at December 31, 2012</b>	<b>222</b>	<b>-11</b>	<b>-17</b>	<b>333</b>

### 18 Dividend

Proposed dividend constitutes DKK 250 million (2012: DKK 300 million) corresponding to DKK 0,665 (2012: DKK 5,455) per share.

Dividend of DKK 321 million has been paid during the year (2012: DKK 190 million) corresponding to DKK 0,854 (2012: DKK 3,455) per share.

## Notes to the consolidated statements

### 19 Pension obligations and similar obligations

The Group has entered into pension plans with a considerable number of the Group's 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 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 relate to certain employees in the Group's American subsidiary where the plan partly consists of a basic pension and partly of an additional pension for selected members of management. The pension obligations are partly hedged through an independent fund. Actuarial valuation are performed annually.

<i>DKK million</i>	2013	2012
Pension costs	7	7
Net interest expenses	3	-1
<b>Total pension recognized in staff expenses</b>	<b>10</b>	<b>6</b>

<i>Applied actuarial assumptions in %</i>	2013	2012
Discount rate	4.50	3.50
Future pay increases	4.00	4.00

A change in the discount rate of -0.5% or + 0.5% respectively would impact the defined benefit obligation by +4% or -4% respectively. A change in the future pay increase of -0.5% or +0,5 respectively would impact the defined benefit obligation by -2% or +2% respectively.

The weighted average duration of the defined benefit obligation is 10 years.

%	2013	2012
US	37	34
International	29	28
Global	3	4
<b>Shares</b>	<b>69</b>	<b>66</b>
US investment grade	9	16
High yield	9	8
Inflation protected	2	1
Other	3	1
<b>Bonds</b>	<b>23</b>	<b>26</b>
Real estate	4	4
Other	4	4
<b>Distribution of assets to cover the obligation at December 31</b>	<b>100</b>	<b>100</b>

# Financial statements



## Section 5

### Notes to the consolidated statements

#### 19 Pension obligations and similar obligations (continued)

<i>DKK million</i>	2013	2012	
Present value of pension obligations	234	247	
Fair value of pension plan assets	-191	-169	
<b>Net obligation at December 31</b>	<b>43</b>	<b>78</b>	
Present value of pension obligations at January 1	247	217	
Foreign currency translation adjustment	-10	-3	
Pension costs	7	7	
Interest expenses	8	9	
Actuarial gains and losses, demographic assumption	-2	3	
Actuarial gains and losses, financial assumption	-9	21	
Pension paid	-7	-7	
<b>Present value of pension obligations at December 31</b>	<b>234</b>	<b>247</b>	
Fair value of pension assets at January 1	169	146	
Foreign currency translation adjustment	-7	-2	
Interest on pension assets	6	10	
Return on plan assets excl. amounts incl. in interest	19	11	
Paid by the company	11	11	
Pension paid	-7	-7	
<b>Fair value of pension plan assets at December 31</b>	<b>191</b>	<b>169</b>	
Expected pension payments by the Group in 2014		10	
	2011	2010	2009
Present value of pension obligations	217	191	149
Fair value of pension plan assets	-146	-149	-122
<b>Net obligation at December 31</b>	<b>71</b>	<b>42</b>	<b>27</b>

## Notes to the consolidated statements

**20 Deferred tax**

<i>DKK million</i>	<b>2013</b>	<b>2012</b>
Deferred tax at January 1	347	318
Foreign currency translation adjustment	0	0
Tax on equity items	15	1
Tax for the year	90	30
Tax previous years	-43	-2
<b>Deferred tax at December 31</b>	<b>409</b>	<b>347</b>
Intangible assets and property, plant and equipment	97	24
Inventories	8	-10
Work in progress	324	339
Provisions	-26	-42
Other	6	36
<b>Deferred tax at December 31</b>	<b>409</b>	<b>347</b>
Of this, due after more than 1 year	409	321

**21 Provisions**

<i>DKK million</i>	<b>2013</b>	<b>2012</b>
Provisions at January 1	307	308
Reversal in the year	-99	-5
Provisions for the year	0	4
<b>Provisions at December 31</b>	<b>208</b>	<b>307</b>
Warranty provision for catalysts and technology projects	201	299
Waste disposal	3	4
Other provisions	4	4
<b>Provisions at December 31</b>	<b>208</b>	<b>307</b>
Of this, due after more than 1 year	208	307

# Financial statements

## Section 5 Notes to the consolidated statements

### 22 Long-term liabilities

DKK million

	2013	2012
<b>Bonds</b>		
After 5 years	499	0
Between 1 and 5 years	513	18
<b>More than 1 year</b>	<b>1,012</b>	<b>18</b>
Less than 1 year	4	4
<b>Bonds at December 31</b>	<b>1,016</b>	<b>22</b>

### Mortgage debt

After 5 years	51	61
Between 1 and 5 years	41	40
<b>More than 1 year</b>	<b>92</b>	<b>101</b>
Less than 1 year	10	10
<b>Mortgage debt at December 31</b>	<b>102</b>	<b>111</b>

### Credit institutions

After 5 years	125	201
Between 1 and 5 years	499	703
<b>More than 1 year</b>	<b>624</b>	<b>904</b>
Less than 1 year	186	200
<b>Credit institutions at December 31</b>	<b>810</b>	<b>1,104</b>

### 23 Other payables

DKK million

	2013	2012
Staff related items	283	251
Fair value of derivative financial instruments	21	38
Tax related items	9	53
Other payables	154	116
<b>Other payables at December 31</b>	<b>467</b>	<b>458</b>
Less than 1 year	459	437
More than 1 year	8	21
<b>Other payables at December 31</b>	<b>467</b>	<b>458</b>

## Notes to the consolidated statements

### 24 Prepayments from customers

<i>DKK million</i>	2013	2012
Prepayments related to licence agreements	63	139
Prepayments related to sale of goods	233	318
<b>Prepayments from customers at December 31</b>	<b>296</b>	<b>457</b>

### 25 Assets provided as security

For the Group, non-current assets (land and buildings) with a carrying amount of DKK 390 million (2012: DKK 432 million) have been provided as security. The remaining balance of the loans secured by non-current assets as of December 31, 2013 was DKK 101 million for the Group (2012: DKK 207 million). Non-current assets are provided by means of real estate mortgage deeds and owners' mortgage deeds. The nominal value of these is DKK 127 million (2012: DKK 376 million) for the Group.

Furthermore, all assets of Haldor Topsoe Inc. have been provided as security for loan amounting to DKK 173 million (2012: DKK 223 million).

Assets are provided as security for mortgage debt and other long-term loans. In case of other debt to the secured creditor, the asset(s) provided as security may - until release thereof - serve as security for any present or future obligation that we may have towards such parties.

### 26 Guarantees

The outstanding balance as of December 31, 2013 for guarantees given by banks and credit insurance institutions on the Group's behalf for contract work, etc. amounted to DKK 712 million (2012: DKK 925 million). Other guarantees given by banks on the Group's behalf amounted to DKK 389 million (2012: 535 million) being guarantees for long-term loans from the European Investment Bank. Total bank and insurance guarantees given on the Group's behalf amounted to DKK 1,101 million (2012: DKK 1,460 million).

The outstanding balance as of December 31, 2013 for bank guarantees received by the Group from suppliers for contract work etc. amounted to DKK 99 million (2012: DKK 183 million).

The outstanding balance as of December 31, 2013 for letters of credit issued in favor of the Group as security for payment under various supply contracts amounted to DKK 472 million (2012: DKK 542 million).

<i>DKK million</i>	2013	2012
Less than 1 year	535	862
Between 1 and 5 years	550	568
After 5 years	16	30
<b>Guarantees at December 31</b>	<b>1,101</b>	<b>1,460</b>

# Financial statements

## Section 5 Notes to the consolidated statements

### 27 Contractual obligations

<i>DKK million</i>	2013	2012
Less than 1 year	82	81
Between 1 and 5 years	251	287
After 5 years	532	648
<b>Contractual obligations at December 31</b>	<b>865</b>	<b>1,016</b>

Payments for the year recognized as operating lease expenses	85	62
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Leases and rental agreements relate to premises and equipment, etc. and extend in some cases to 2032.

### 28 Contingent liabilities

The Group's property in Frederikssund, Denmark, is found to be contaminated. The Group has been ordered to prepare a proposal for remediation of the contamination. Management assesses that the remediation costs will not be significant.

### 29 Fee to auditors appointed at the general meeting

<i>DKK million</i>	2013	2012
Statutory audit fee	2	2
Other assurance statements	1	1
Tax assistance	2	1
Other assistance	2	2
<b>Total fee to auditors appointed at the general meeting</b>	<b>7</b>	<b>6</b>

### 30 Related parties

Control	Basis
Haldor Topsøe Holding A/S, Lyngby, Denmark	Shareholder

#### Other interests

Oluf Engell, Skodsborg, Denmark	Member of the Board, Lawyer
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#### Significant influence

Executive Management and Board of Directors

### Executive Management and Board of Directors

<i>DKK million</i>	2013	2012
Legal fees	4	0
Property rent	9	8
Outstanding at December 31	0	0

Intercompany transactions have been eliminated in the Consolidated Financial Statements.

## Notes to the consolidated statements

<b>31 Derivative financial instruments</b>	<b>Contract amount 2013</b>	<b>Fair value 2013</b>	<b>Contract amount 2012</b>	<b>Fair value 2012</b>
<i>DKK million</i>				
EUR forward exchange contract, matures in 2015	46	0	187	1
EUR forward exchange contract, matures in 2014	185	1	0	0
USD forward exchange contract, matures in 2014	162	4	0	0
EUR forward exchange contract, matures in 2013	0	0	234	1
USD forward exchange contract, matures in 2013	0	0	155	-1
<b>Forward exchange contracts at December 31</b>	<b>393</b>	<b>5</b>	<b>576</b>	<b>1</b>

The Group uses forward exchange contracts to hedge against changes in exchange rates. The fair value of concluded forward exchange contracts is recognized in the balance sheet in equity. The Group thus applies the rules on hedge accounting.

	<b>Contract amount 2013</b>	<b>Fair value 2013</b>	<b>Contract amount 2012</b>	<b>Fair value 2012</b>
<i>DKK million</i>				
EUR interest rate swap, matures on December 31, 2021	61	-8	67	-11
USD interest rate swap, matures on March 31, 2015	173	-7	223	-16
<b>Interest rate swaps at December 31</b>	<b>234</b>	<b>-15</b>	<b>290</b>	<b>-27</b>

The Group uses interest rate swaps to hedge changes in interest rate levels and to thus reduce the interest rate risk. The fair value of the swaps is recognized in equity in the balance sheet. The Group thus applies the rules on hedge accounting.

	<b>Contract amount 2013</b>	<b>Fair value 2013</b>	<b>Contract amount 2012</b>	<b>Fair value 2012</b>
<i>DKK million</i>				
Aggregate amount of commodity swaps within metals, matures in 2014	16	-6	15	-1
Aggregate amount of commodity swaps within metals, matures in 2013	0	0	72	-9
<b>Commodity swaps at December 31</b>	<b>16</b>	<b>-6</b>	<b>87</b>	<b>-10</b>

The Group uses commodity swaps to hedge against fluctuations in raw material prices of specific production contracts. The fair value of the swaps is recognized directly in the statement of profit and loss.

# Financial statements

## Section 5 Notes to the consolidated statements

### 32 Financial assets and liabilities

<i>DKK million</i>	2013	2012
Other securities and investments	425	457
Trade receivables	734	859
Other financial receivables	165	94
Cash	384	311
<b>Financial assets at December 31</b>	<b>1,708</b>	<b>1,721</b>
Bonds, mortgage debt and debt to credit institutions	1,928	1,237
Trade payables	418	542
Other financial liabilities	467	458
<b>Financial liabilities at December 31</b>	<b>2,813</b>	<b>2,237</b>
Assets available-for-sale	425	457
Financial assets measured at amortized cost	1,278	1,262
Derivative financial instruments	5	2
<b>Classification of financial assets at December 31</b>	<b>1,708</b>	<b>1,721</b>
Financial liabilities measured at amortized cost	2,792	2,199
Derivative financial instruments	21	38
<b>Classification of financial liabilities at December 31</b>	<b>2,813</b>	<b>2,237</b>
Bonds, mortgage debt and debt to credit institutions:		
Less than 1 year	200	214
Between 1 and 5 years	1,053	761
After 5 years	675	262
Trade payables:		
Less than 1 year	418	542
Derivative financial instruments:		
Less than 1 year	13	28
Between 1 and 5 years	5	5
After 5 years	3	5
Other financial liabilities:		
Less than 1 year	446	420
<b>Maturity analysis of financial liabilities at December 31</b>	<b>2,813</b>	<b>2,237</b>

## Notes to the consolidated statements

### 32 Financial assets and liabilities (continued)

<i>DKK million</i>	Level 1	Level 2	Level 3
Other securities and investments	9	0	416
Derivative financial instruments	0	5	0
<b>Distribution of assets stated at fair value at December 31, 2013</b>	<b>9</b>	<b>5</b>	<b>416</b>
Derivative financial instruments	0	21	0
<b>Distribution of liabilities stated at fair value at December 31, 2013</b>	<b>0</b>	<b>21</b>	<b>0</b>

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 10 for information on input to valuation of investments in other enterprises stated at fair value in level 3.

There have not been transfers between level 1, 2 and 3 during the financial year 2013.

<i>DKK million</i>	2013	2012
Fair value of level 3 assets at January 1	441	441
Write-down recognized in other comprehensive income	-25	0
Transfer	0	0
<b>Fair value of level 3 assets at December 31</b>	<b>416</b>	<b>441</b>

### 33 Adjustments for non-cash items

<i>DKK million</i>	2013	2012
Financial income	-106	-90
Financial expenses	127	120
Amortization, depreciation and impairment losses, including gains and losses from sale of assets	175	203
Tax	127	150
Other adjustments	-107	-2
<b>Total adjustments for non-cash items</b>	<b>216</b>	<b>381</b>

### 34 Change in working capital

<i>DKK million</i>	2013	2012
Change in inventories	-13	-69
Change in receivables	-199	295
Change in contract billing	118	-318
Change in suppliers, etc.	-88	234
<b>Total change in working capital</b>	<b>-182</b>	<b>142</b>

# Financial statements

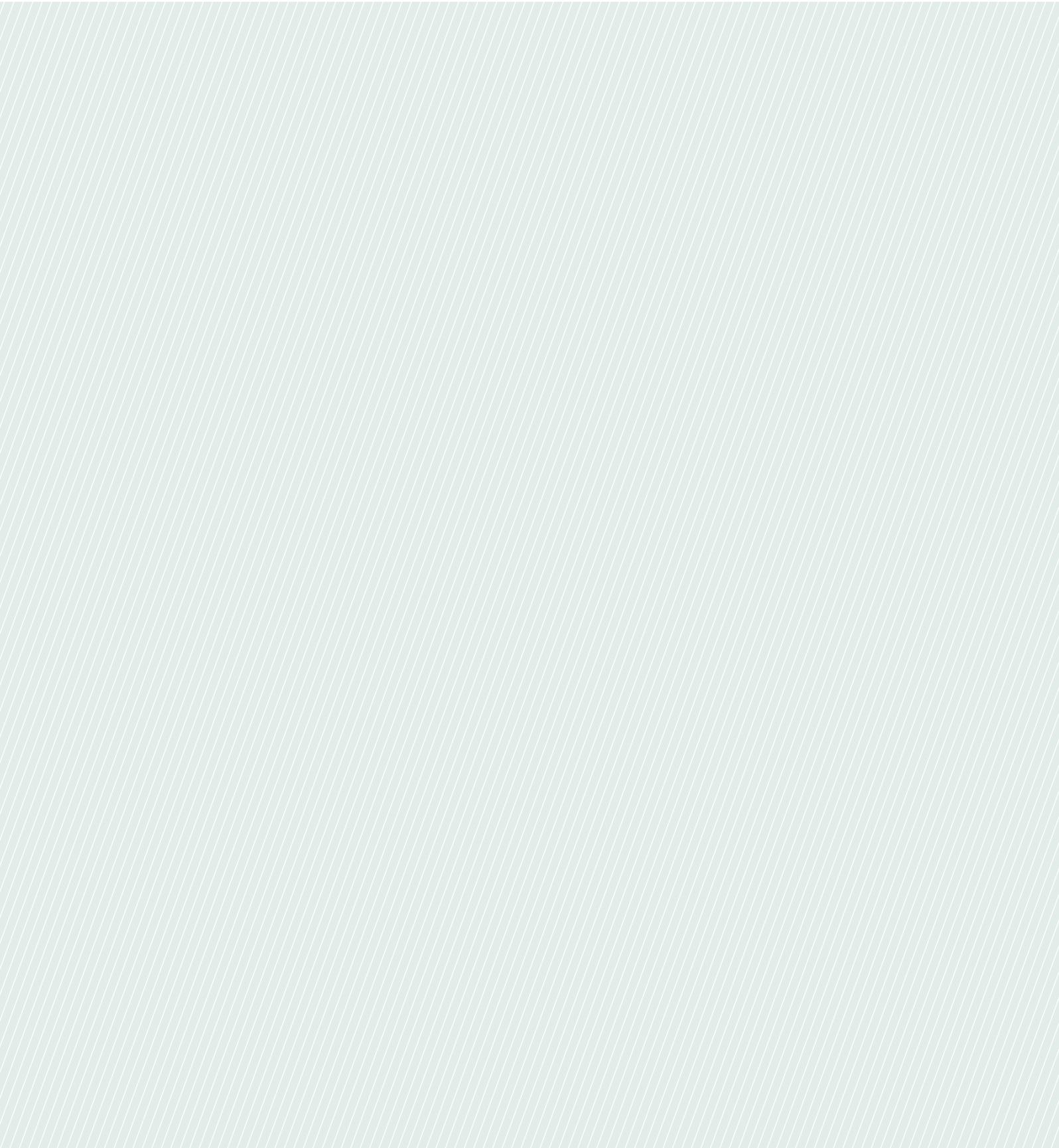


## Section 5

### Notes to the consolidated statements

#### 35 List of group companies

Name	Registered office	Share capital (thousands)	Voting and ownership share
Haldor Topsoe, Inc.	Houston, USA	USD 5,000	100%
Topsoe Fuel Cell A/S	Lyngby, Denmark	DKK 30,000	100%
Topsoe Energy Conv. & Storage A/S	Lyngby, Denmark	DKK 5,000	100%
Haldor Topsoe India Pvt. Ltd.	New Delhi, India	INR 131,063	100%
Haldor Topsøe (Beijing) Co., Ltd	Beijing, China	CNY 9,643	100%
Haldor Topsøe Catalyst (Tianjin) Co., Ltd.	Tianjin, China	CNY 40,000	100%
Haldor Topsøe International A/S	Lyngby, Denmark	DKK 500	100%
ZAO Haldor Topsøe	Moscow, Russia	RUB 3,500	100%
Haldor Topsoe America Latina	Buenos Aires, Argentina	ARS 300	100%
Haldor Topsoe Sdn. Bhd.	Kuala Lumpur, Malaysia	MYR 1,000	100%
Haldor Topsoe Canada Limited	Vancouver, Canada	CAD 100	100%
Haldor Topsoe Catalisadores e Tecnologias do Brasil	Rio de Janeiro, Brazil	BRL 1,243	100%
Subcontinent Ammonia Investment Company ApS	Lyngby, Denmark	DKK 1,000	100%
Haldor Topsoe S.A.	Cape Town, South Africa	ZAR 2,000	100%
Haldor Topsoe Ohio, Inc.	Wilmington, USA	USD 0	100%



# Financial statements

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## Statement of profit and loss of Haldor Topsøe A/S

<i>DKK million</i>	Note	2013	2012
<b>Revenue</b>	2	<b>4,889</b>	<b>4,527</b>
Change in inventories of finished goods and intermediate products		-35	90
Other operating income		10	16
Purchased equipment for contract work		-461	-708
Raw materials and consumables used		-1,031	-936
Other external expenses		-1,343	-1,234
<b>Gross profit</b>		<b>2,029</b>	<b>1,755</b>
Staff expenses	3	-1,181	-1,044
Depreciation, amortization and impairment losses for property, plant and equipment as well as intangible assets	4	-136	-163
<b>EBIT</b>		<b>712</b>	<b>548</b>
Income from investments in group enterprises	5	-3	41
Financial income	6	47	53
Financial expenses	7	-120	-104
<b>Profit before tax</b>		<b>636</b>	<b>538</b>
Tax	8	-113	-125
<b>Net profit</b>		<b>523</b>	<b>413</b>
<b>Proposed distribution of profit</b>			
Proposed dividend		250	300
Net revaluation reserve under the equity method		-33	-26
Retained earnings		306	139
<b>Total proposed distribution of profit</b>		<b>523</b>	<b>413</b>

# Financial statements



## Section 5

### Balance sheet of Haldor Topsøe A/S

Assets <i>DKK million</i>	Note	December 31 2013	December 31 2012
Patents		28	25
Software		35	5
Intangible assets in progress		4	12
<b>Intangible assets</b>	9	<b>67</b>	<b>42</b>
Land and buildings		488	483
Plant and machinery		378	404
Other fixtures and equipment		134	97
Property, plant and equipment in progress		515	185
<b>Property, plant and equipment</b>	10	<b>1,515</b>	<b>1,169</b>
Investments in group enterprises		1,034	982
Receivables from group enterprises		16	29
Other securities and investments		9	16
Other receivables		16	16
<b>Investments</b>	11	<b>1,075</b>	<b>1,043</b>
<b>Non-current assets</b>		<b>2,657</b>	<b>2,254</b>
<b>Inventories</b>	12	<b>770</b>	<b>802</b>
Trade receivables		566	692
Contract work in progress	13	164	211
Receivables from group enterprises	14	1,262	858
Other receivables		115	62
Prepayments	15	29	18
<b>Receivables</b>		<b>2,136</b>	<b>1,841</b>
<b>Cash</b>		<b>183</b>	<b>144</b>
<b>Current assets</b>		<b>3,089</b>	<b>2,787</b>
<b>Assets</b>		<b>5,746</b>	<b>5,041</b>

## Balance sheet of Haldor Topsøe A/S

<b>Liabilities and equity</b> <i>DKK million</i>	<b>Note</b>	<b>December 31 2013</b>	<b>December 31 2012</b>
Share capital	16	376	55
Revaluation reserve		155	155
Net revaluation reserve under the equity method		236	275
Reserve for unpaid share capital		241	0
Retained earnings		386	637
Proposed dividend		250	300
<b>Equity</b>		<b>1,644</b>	<b>1,422</b>
Deferred tax	17	417	366
Other provisions	18	204	303
<b>Provisions</b>		<b>621</b>	<b>669</b>
Bonds		1,012	18
Mortgage debt		49	56
Credit institutions		492	724
Other payables		7	10
<b>Long-term liabilities</b>	19	<b>1,560</b>	<b>808</b>
Bonds	19	4	4
Mortgage debt	19	7	7
Credit institutions	19	146	158
Prepayments from customers	20	251	434
Contract work in progress	13	677	628
Trade payables		326	463
Payables to group enterprises		82	33
Corporate taxes		42	36
Other payables	21	381	375
Deferred income		5	4
<b>Short-term liabilities</b>		<b>1,921</b>	<b>2,142</b>
<b>Liabilities</b>		<b>3,481</b>	<b>2,950</b>
<b>Liabilities and equity</b>		<b>5,746</b>	<b>5,041</b>

# Financial statements



## Section 5

### Statement of changes in equity of Haldor Topsøe A/S

<i>DKK million</i>	Share capital	Revaluation reserve	Net revaluation reserve under the equity method	Reserve for unpaid share capital	Retained earnings	Proposed dividend	Total
Equity at January 1, 2013	55	155	275	0	637	300	1,422
Paid dividend	0	0	0	0	0	-300	-300
Interim dividend	0	0	0	0	-321	0	-321
Increase of share capital	321	0	0	241	-241	0	321
Adjustments relating to separate foreign legal entities	0	0	-6	0	0	0	-6
Fair value adjustment of derivative financial instruments	0	0	0	0	5	0	5
Net profit	0	0	-33	0	306	0	273
Proposed dividend	0	0	0	0	0	250	250
<b>Equity at December 31, 2013</b>	<b>376</b>	<b>155</b>	<b>236</b>	<b>241</b>	<b>386</b>	<b>250</b>	<b>1,644</b>

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## Notes to the financial statements of Haldor Topsøe A/S

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# Financial statements



## Section 5

### Notes to the financial statements of Haldor Topsøe A/S

#### 1 Accounting policies

##### Basis of preparation

The Annual Report of Haldor Topsøe A/S for 2013 has been prepared in accordance with the provisions of the Danish Financial Statements Act applying to large enterprises of reporting class C.

Risk provision on technology projects amounting to DKK 163 million at December 31, 2013 (DKK 266 million at December 31, 2012) has been reclassified from "contract work in progress" under liabilities to "provisions", since the Company finds this presentation more accurate. The comparative figures have been restated accordingly. The reclassification has no impact on the Company's assets, liabilities, financial position or results.

Except for the above mentioned reclassification the applied accounting policies remain unchanged from previous years.

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

##### Financial income and expenses

Financial income and expenses comprise interest, fair value adjustments, realized and unrealized foreign currency translation adjustments, price adjustment of securities and amortization of mortgage loans.

##### Other securities and investments

Other investments are recognized at market value or estimated fair value. When the value of an investment cannot be assessed with reasonable certainty, the investment is measured at cost.

##### 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'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 has a legal or constructive obligation to cover the group enterprise's deficit.

The item "Income from investments in group enterprises" in the income statement includes the proportionate share of the profit after tax.

##### 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.

## Notes to the financial statements of Haldor Topsøe A/S

### 2 Revenue

The Company's activities are in the business segment of providing catalytic processes for integrated solutions to industrial plants. The provision of these integrated solutions comprises fundamental and applied research, reaction engineering, process engineering, mechanical design and production and supply of catalysts.

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

### 3 Staff expenses

<i>DKK million</i>	2013	2012
Wages and salaries	1,022	908
Pensions	111	101
Other social security expenses	73	53
<b>Total</b>	<b>1,206</b>	<b>1,062</b>
Capitalization of work performed on property, plant and equipment	-25	-18
<b>Total staff expenses</b>	<b>1,181</b>	<b>1,044</b>
Average number of employees	1,813	1,658
Executive management salary and pension	15	18
Board members fee	2	2
<b>Total remuneration to Executive management and Board members</b>	<b>17</b>	<b>20</b>

### 4 Depreciation, amortization and impairment losses for property, plant and equipment as well as intangible assets

<i>DKK million</i>	2013	2012
Patents	6	5
Software	8	3
Land and buildings	17	18
Plant and machinery	77	71
Other fixtures and equipment	45	49
Assets in progress	-17	17
<b>Total depreciation, amortization and impairment losses</b>	<b>136</b>	<b>163</b>

# Financial statements



## Section 5

### Notes to the financial statements of Haldor Topsøe A/S

#### 5 Income from investments in group enterprises

<i>DKK million</i>	2013	2012
Share of profit of group enterprises, net	19	40
Change in intercompany profit	-22	1
<b>Total financial income</b>	<b>-3</b>	<b>41</b>

#### 6 Financial income

<i>DKK million</i>	2013	2012
Income from other investments	1	1
Interest received from group enterprises	20	15
Interest income	3	2
Foreign currency translation adjustment	23	34
Other financial income	0	1
<b>Total financial income</b>	<b>47</b>	<b>53</b>

#### 7 Financial expenses

<i>DKK million</i>	2013	2012
Interest paid to group enterprises	1	1
Interest expenses	56	31
Foreign currency translation adjustment	49	46
Value adjustments of other investments	7	19
Other financial expenses	7	7
<b>Total tax</b>	<b>120</b>	<b>104</b>

#### 8 Tax

<i>DKK million</i>	2013	2012
Current tax for the year	45	56
Change in deferred tax for the year	108	67
Change in corporate tax rate	-13	0
Adjustments to prior years	-27	2
<b>Total tax</b>	<b>113</b>	<b>125</b>

## Notes to the financial statements of Haldor Topsøe A/S

<b>9 Intangible assets</b> <i>DKK million</i>	Patents	Software	Intangible assets in progress
Cost at January 1, 2013	75	85	12
Additions for the year	9	24	6
Transfers for the year	0	14	-14
<b>Cost at December 31, 2013</b>	<b>84</b>	<b>123</b>	<b>4</b>
Amortization and impairment losses at January 1, 2013	50	80	0
Amortization for the year	6	8	0
<b>Amortization and impairment losses at December 31, 2013</b>	<b>56</b>	<b>88</b>	<b>0</b>
<b>Carrying amount at December 31, 2013</b>	<b>28</b>	<b>35</b>	<b>4</b>

<b>10 Property, plant and equipment</b> <i>DKK million</i>	Land and buildings	Plant and machinery	Other fixtures and equipment	Property, plant and equipment in progress
Cost at January 1, 2013	635	1,510	501	202
Additions for the year	22	13	31	403
Disposals for the year	0	-3	-15	0
Transfers for the year	0	38	52	-90
<b>Cost at December 31, 2013</b>	<b>657</b>	<b>1,558</b>	<b>569</b>	<b>515</b>
Revaluation at January 1, 2013	198	8	0	0
<b>Revaluation at December 31, 2013</b>	<b>198</b>	<b>8</b>	<b>0</b>	<b>0</b>
Depreciation and impairment losses at January 1, 2013	350	1,114	404	17
Reversal of impairment losses	0	0	0	-17
Impairment losses for the year	0	3	0	0
Depreciation for the year	17	74	45	0
Reversal of depreciation on sold and scrapped assets	0	-3	-14	0
<b>Depreciation and impairment losses at December 31, 2013</b>	<b>367</b>	<b>1,188</b>	<b>435</b>	<b>0</b>
<b>Carrying amount at December 31, 2013</b>	<b>488</b>	<b>378</b>	<b>134</b>	<b>515</b>
Carrying amount at December 31, 2013 without revaluation	344	378	134	515

Interest expenses capitalized in 2013 amounted to DKK 0 million (2012: DKK 0 million).

# Financial statements

## Section 5 Notes to the financial statements of Haldor Topsøe A/S

<b>11 Investments</b> <i>DKK million</i>	<b>Other securities and investments</b>	<b>Other receivables</b>
Cost at January 1, 2013	8	33
Additions for the year	0	0
<b>Cost at December 31, 2013</b>	<b>8</b>	<b>33</b>
Value adjustment at January 1, 2013	8	-17
Value adjustment for the year	-7	0
<b>Value adjustment at December 31, 2013</b>	<b>1</b>	<b>-17</b>
<b>Carrying amount at December 31, 2013</b>	<b>9</b>	<b>16</b>

<b>Investments</b> <i>DKK million</i>	<b>Investments in group enterprises</b>	<b>Receivables from group enterprises</b>
Cost at January 1, 2013	706	28
Additions for the year	48	0
Disposals for the year	0	-12
<b>Cost at December 31, 2013</b>	<b>754</b>	<b>16</b>
Revaluations at January 1, 2013	276	1
Exchange adjustment	-29	-1
Dividend	-30	0
Net profit for the year	-3	0
Other adjustments	23	0
Investments with negative equity transferred to receivables	43	0
<b>Revaluations at December 31, 2013</b>	<b>280</b>	<b>0</b>
<b>Carrying amount at December 31, 2013</b>	<b>1,034</b>	<b>16</b>

### **Chambal Fertilizer and Chemical Ltd., India**

The Group has an investment in Chambal Fertilizer and Chemicals Ltd., India, corresponding to 0.5% of the share capital. The investment is measured at fair value based on listed market value.

### **Fatima Fertilizer Co. Ltd., Pakistan**

The Group has an investment in Fatima Fertilizer Co. Ltd., Pakistan, corresponding to 0,05% of the share capital. The investment is measured at fair value based on listed market value.

## Notes to the financial statements of Haldor Topsøe A/S

### 11 Investments (continued)

Investments in group enterprises are specified as follows:

	Registered office	Share capital (thousands)	Voting and ownership share
Haldor Topsoe, Inc.	Houston, USA	USD 5,000	100%
Topsoe Fuel Cell A/S	Lyngby, Denmark	DKK 30,000	100%
Topsoe Energy Conv. & Storage A/S	Lyngby, Denmark	DKK 5,000	100%
Haldor Topsoe India Pvt. Ltd.	New Delhi, India	INR 131,063	100%
Haldor Topsøe (Beijing) Co., Ltd	Beijing, China	CNY 9,643	100%
Haldor Topsøe Catalyst (Tianjin) Co.,Ltd.	Tianjin, China	CNY 40,000	100%
Haldor Topsøe International A/S	Lyngby, Denmark	DKK 500	100%
ZAO Haldor Topsøe	Moscow, Russia	RUB 3,500	100%
Haldor Topsoe America Latina	Buenos Aires, Argentina	ARS 300	100%
Haldor Topsoe Sdn. Bhd.	Kuala Lumpur, Malaysia	MYR 1,000	100%
Haldor Topsoe Canada Limited	Vancouver, Canada	CAD 100	100%
Haldor Topsoe Catalisadores e Tecnologias do Brasil	Rio de Janeiro, Brazil	BRL 1,243	100%
Subcontinent Ammonia Investment Company ApS	Lyngby, Denmark	DKK 1,000	100%
Haldor Topsoe S.A.	Cape Town, South Africa	ZAR 2,000	100%
Haldor Topsoe Ohio, Inc.	Wilmington, USA	USD 0	100%

### 12 Inventories

DKK million

	2013	2012
Raw materials and consumables	161	158
Work in progress	95	87
Finished goods	514	557
<b>Inventories at December 31</b>	<b>770</b>	<b>802</b>

### 13 Contract work in progress

DKK million

	2013	2012
Selling price of work performed at the balance sheet date	5,441	6,136
Payments received on account	-5,954	-6,553
<b>Contract work in progress at December 31</b>	<b>-513</b>	<b>-417</b>
Contract work in progress recognized in assets	164	211
Contract work in progress recognized in liabilities and equity	-677	-628
<b>Contract work in progress at December 31</b>	<b>-513</b>	<b>-417</b>

# Financial statements

## Section 5 Notes to the financial statements of Haldor Topsøe A/S

### 14 Receivables from group enterprises

<i>DKK million</i>	2013	2012
Deposit with the holding company	550	698
Other receivables	712	160
<b>Receivables from group enterprises at December 31</b>	<b>1,262</b>	<b>858</b>

Deposit with the holding company is part of a cash-pooling arrangement.

### 15 Prepayments

Prepayments mainly consist of prepaid property tax, licenses and office rent.

### 16 Share capital

<i>Number of shares</i>	2013	2012
<b>Shares of a nominal value of DKK 376,000,000</b>	<b>376,000</b>	<b>55,000</b>

The share capital consists of 376,000 shares of a nominal value of DKK 1,000. No shares carry any special right.

The share capital was increased by DKK 321 million in 2013. There has been no change in the share capital from 2009-2012.

The following shareholder is recorded in the Parent Company's register of shareholders as holding at least 5% of the votes or at least 5% of the share capital.

Haldor Topsøe Holding A/S, Lyngby, Denmark

### 17 Deferred tax

<i>DKK million</i>	2013	2012
Intangible assets and property, plant and equipment	60	-15
Inventories	24	0
Work in progress	324	340
Provisions	-9	-9
Other	18	50
<b>Deferred tax at December 31</b>	<b>417</b>	<b>366</b>
Deferred tax	417	366
<b>Deferred tax recognized in the balance sheet at December 31</b>	<b>417</b>	<b>366</b>

### 18 Other provisions

<i>DKK million</i>	2013	2012
Warranty provision for catalysts and technology projects	201	299
Other provisions	3	4
<b>Other provisions at December 31</b>	<b>204</b>	<b>303</b>
Of this, due after more than 1 year	204	303

## Notes to the financial statements of Haldor Topsøe A/S

### 19 Long-term liabilities

DKK million

	2013	2012
<b>Bonds</b>		
After 5 years	499	0
Between 1 and 5 years	513	18
<b>More than 1 year</b>	<b>1,012</b>	<b>18</b>
Less than 1 year	4	4
<b>Bonds at December 31</b>	<b>1,016</b>	<b>22</b>
<b>Mortgage debt</b>		
After 5 years	20	27
Between 1 and 5 years	29	29
<b>More than 1 year</b>	<b>49</b>	<b>56</b>
Less than 1 year	7	7
<b>Mortgage debt at December 31</b>	<b>56</b>	<b>63</b>
<b>Credit institutions</b>		
After 5 years	125	201
Between 1 and 5 years	367	523
<b>More than 1 year</b>	<b>492</b>	<b>724</b>
Less than 1 year	146	158
<b>Credit institutions at December 31</b>	<b>638</b>	<b>882</b>
<b>Other payables</b>		
After 5 years	3	5
Between 1 and 5 years	4	5
<b>More than 1 year</b>	<b>7</b>	<b>10</b>
Less than 1 year	1	1
<b>Other payables at December 31</b>	<b>8</b>	<b>11</b>
Other payables consist of derivative financial instruments.		
Amortization cost included under long-term liabilities, bonds.	6	0

# Financial statements

## Section 5 Notes to the financial statements of Haldor Topsøe A/S

### 20 Prepayments from customers

<i>DKK million</i>	2013	2012
Prepayments related to license agreements	63	139
Prepayments related to sale of goods	188	295
<b>Prepayments from customers at December 31</b>	<b>251</b>	<b>434</b>

### 21 Other payables

<i>DKK million</i>	2013	2012
Staff related items	249	219
Fair value of derivative financial instruments	7	13
Tax related items	8	53
Other payables	117	90
<b>Other payables at December 31</b>	<b>381</b>	<b>375</b>

### 22 Assets provided as security

Non-current assets (land and buildings) with a carrying amount of DKK 209 million (2012: DKK 317 million) have been provided as security. The remaining balance of the loans secured by non-current assets as of December 31, 2013 was DKK 56 million (2012: DKK 160 million). Non-current assets are provided by means of real estate mortgage deeds and owners' mortgage deeds. The nominal value of these is DKK 70 million (2012: DKK 320 million).

Assets are provided as security for mortgage debt and other long-term loans. In case of other debt to the security creditor, the asset(s) provided as security may - until release thereof - serve as security for any present or future obligation that we may have towards such parties.

### 23 Guarantees

The outstanding balance as of December 31, 2013 for guarantees given by banks and credit insurance institutions on the Company's behalf for contract work, etc. amounted to DKK 712 million (2012: DKK 925 million). Other guarantees given by banks on the Company's behalf amounted to DKK 389 million (2012: DKK 535 million), being guarantees for long-term loans from the European Investment Bank. Total bank/insurance guarantees given on the Company's behalf amounted to DKK 1,101 million (2012: DKK 1,460 million).

The Company has issued parent company guarantees of DKK 95 million (2012: DKK 103 million) for certain obligations in subsidiaries.

The outstanding balance as of December 31, 2013 for bank guarantees received by the Company from suppliers for contract work etc. amounted to DKK 99 million (2012: DKK 183 million).

The outstanding balance as of December 31, 2013 for letters of credit issued in favor of the Company as security for payment under various supply contracts amounted to DKK 472 million (2012: DKK 542 million).

## Notes to the financial statements of Haldor Topsøe A/S

### 24 Contractual obligations

<i>DKK million</i>	2013	2012
Less than 1 year	58	54
Between 1 and 5 years	207	221
After 5 years	525	615
<b>Contractual obligations at December 31</b>	<b>790</b>	<b>890</b>

### 25 Contingent liabilities

The Company's property in Frederikssund, Denmark, is found to be contaminated. The Company has been ordered to prepare proposal for remediation of the contamination. Management assesses that the remediation costs will not be significant.

### 26 Fee to auditors appointed at the general meeting

<i>DKK million</i>	2013	2012
Statutory audit fee	1	1
Tax assistance	2	1
Other assistance	1	1
<b>Total fee to auditors appointed at the general meeting</b>	<b>4</b>	<b>3</b>

### 27 Related parties

Control	Basis
Haldor Topsøe Holding A/S, Lyngby, Denmark	Shareholder

### Other interests

Oluf Engell, Skodsborg, Denmark	Member of the Board, Lawyer
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No transactions have been carried out with the Board, Executive Management, key management personnel, shareholders, group enterprises or other related parties which have not been under normal market conditions.

### 28 Consolidated financial statements

Haldor Topsøe Holding A/S prepares consolidated financial statement which include the Company and its group enterprises.

# Financial statements

## Section 5 Management's statement

### Statement by the Executive Management and Board of Directors on the Annual Report.

The Executive Management and Board of Directors have today considered and adopted the Annual Report 2013 of Haldor Topsøe 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, 2013 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 2013 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 Group and the Parent Company, and 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 19, 2014

#### Executive Management

**Peter Rønnest Andersen**  
CFO and Executive Vice President

**Bjerne S. Clausen**  
President and CEO

#### Board of Directors

**Henrik Topsøe**  
Chairman

**Jakob Haldor Topsøe**

**Christina Topsøe**

**Nils Bernstein**

**Jørgen Huno Rasmussen**

**Søren Toft**

**Oluf Engell**

**Jens Kehlet Nørskov**

**Jeppe Christiansen**

**Jette Søvang Christiansen**

**Martin Østberg**

## Independent auditor's report

### To the shareholder of Haldor Topsøe A/S.

#### Report on Consolidated Financial Statements and Parent Company Financial Statements

We have audited the Consolidated Financial Statements and the Parent Company Financial Statements for the financial year January 1 to December 31, 2013 which comprise statement of profit and loss, balance sheet, statement of changes in equity and notes, including summary of significant accounting policies as well as statement of comprehensive income and cash flow statement for the Group. The Consolidated Financial Statements are prepared in accordance with International Financial Reporting Standards as adopted by the EU, and the Parent Company Financial Statements are prepared under the Danish Financial Statements Act. Moreover the Consolidated Financial Statements are prepared in accordance with Danish disclosure requirements.

#### Management's responsibility for the Consolidated Financial Statements and the Parent Company 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 Danish disclosure requirements and for preparing 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 Consolidated Financial Statements and Parent Company Financial Statements that are free from material misstatement, whether due to fraud or error.

#### Auditor's responsibility

Our responsibility is to express an opinion on

the Consolidated Financial Statements and the Parent Company Financial Statements based on our audit. We conducted our audit in accordance with International Standards on Auditing and additional requirements under Danish audit regulation. This requires that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the Consolidated Financial Statements and the Parent Company Financial Statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the Consolidated Financial Statements and the Parent Company Financial Statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the Consolidated Financial Statements and the Parent Company Financial Statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation of Consolidated Financial Statements and Parent Company Financial Statements that give a true and fair view 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 Company's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by Management, as well as evaluating the overall presentation of the Consolidated Financial Statements and the Parent Company Financial Statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for an audit opinion. The audit has not resulted in any qualification.

#### Opinion

In our opinion, the Consolidated Financial Statements give a true and fair view of the Group's financial position at December 31, 2013 and of the results of the Group's operations and cash flows for the financial year January 1 to December 31, 2013 in accordance with International Financial Reporting Standards as adopted by the EU and Danish disclosure requirements.

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, 2013 and the results of the Parent Company's operations for the financial year January 1 to December 31, 2013 in accordance with the Danish Financial Statements Act.

#### Statement on Management's review

We have read Management's review (page 1-19) in accordance with the Danish Financial Statements Act. We have not performed any procedures additional to the audit of the Consolidated Financial Statements and the Parent Company Financial Statements. On this basis, in our opinion, the information provided in Management's review is consistent with the Consolidated Financial Statements and the Parent Company Financial Statements.

#### Copenhagen, March 19, 2014

PricewaterhouseCoopers  
Statsautoriseret Revisionspartnerselskab

Kim Fücksel  
State Authorized Public Accountant

Jesper Møller Christensen  
State Authorized Public Accountant



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HALDOR TOPSØE 