



Board of Director's Report 2015

SINTEF is a non-profit research institute, organised as a foundation with subsidiary companies. SINTEF utilises its outstanding solution-oriented research and knowledge production to generate significant value for its Norwegian and overseas clients, the public sector, and society as a whole.

SINTEF's head office is located in Trondheim and it conducts most of its activities in Trondheim and Oslo. SINTEF has operational centres in several locations in Norway under the umbrella of the SINTEF Foundation and its subsidiary companies.

SINTEF has established a partnership and joint strategy with the Norwegian University of Science and Technology (NTNU) in Trondheim. SINTEF also has close working relationships with the University of Oslo as well as a number of other Norwegian and overseas research institutes. These partnerships contribute to SINTEF's high levels of technical quality and strong international profile.

2015 was a year of crisis for many key Norwegian business sectors, and this has also impacted on many of our clients. SINTEF has a robust balance sheet and excellent financial solidity. However, the cancellation of some projects, combined with the necessity for write-downs linked to lower than anticipated revenues from EU research projects, has resulted in a very challenging year for SINTEF. The 2015 financial result for the SINTEF Foundation and SINTEF is not satisfactory. Personnel reductions and costs savings have been carried out by many of the institutes.

Substantial earnings over several years have enabled SINTEF to

make investments in laboratories, scientific equipment and office space, as well as in self-financed technical projects in high-priority research areas. In recent years, we have experienced pressure on our earning capacity. It is essential to achieve acceptable financial results if SINTEF is to make the future investments it has planned. For this reason, the Group has been taking substantial steps to safeguard continuing operations since 2014. A major change that occurred in 2015 has involved the discontinuation of the defined benefit pension scheme that operated at the SINTEF Foundation and four of its limited liability research companies. The change resulted in a one-off expenditure to cover obligations accrued in 2015. Starting in 2016, the change will entail a limited obligation and reductions in costs. All companies in the SINTEF Group have now changed their pension arrangements.

Strategy and our role in society

SINTEF's role is to assist in the development of society by means of contract research projects and innovation. Our main aim is to be a world-leading research institute which, together with its clients in the private and public sectors, develops solutions to some of the great challenges facing society today. Our overall strategy document outlines five joint areas of focus: Renewable energy, climate-related and environmental technologies, oil and gas, ocean space technology, health and welfare, together with enabling technologies such as ICT, advanced materials and biotechnology. This strategy is being followed up both at the eight institutes and at a variety of affiliated companies. It places great emphasis on the concept of "One SINTEF". This entails making use of the best skills and expertise available right

across the SINTEF organisation as a means of safeguarding our role in society and meeting our clients' needs.

A new Group President

In February 2015 Unni Steinsmo announced that she wished to resign her position as Group President on reaching her 62nd birthday. The Board has carried out a wide-ranging and thorough recruitment process involving several highly-qualified candidates for the post. On 1 July 2015 it was decided to appoint Alexandra Bech Gjørsvik as the new Group President. In the opinion of the Board, Bech Gjørsvik is the best person to lead SINTEF into the new era. She is very familiar with SINTEF and has the wide-ranging industrial and international experience, awareness of social issues, and the personal qualities needed to take SINTEF into the future.

Bech Gjørsvik was formally appointed from 15 September 2015, and took up her position as Group President on 2 January 2016.

The Board takes this opportunity to express its gratitude to Unni Steinsmo, who has headed SINTEF for 11 years. During this period, SINTEF has consolidated its position as a leading international research institute and has delivered excellent scientific and financial results.

Technology for a better society

By means of its high technical and scientific standards, combined with the excellent efforts of its employees, SINTEF continues to generate results for its clients and society at large, which in total contribute towards achieving its vision of 'Technology for a Better Society'. Here are some examples of our research activities carried out in 2015:

A three-year research project, completed in 2015, has resulted in major improvements in many aspects of Oslo municipality's water and sewage treatment services. This project has been a collaborative effort between SINTEF Building and Infrastructure and SINTEF ICT, and has contributed towards achieving greater reliability and robustness within the sewage network, as well as enhanced levels of IT security and better monitoring of pumping stations and water quality treatment facilities. Moreover, procedures and specifications have been established to enable better data management. This research has also resulted in a documented approach that can be implemented across the entire country, and Oslo municipality has applied the results in its new high-level sewage system and water treatment plan. An additional bonus has been the opening of new opportunities for the use of ICT in the water and sewage treatment sector. There can be no doubt that the growth in use of ICT in the water supply sector has the potential to contribute towards meeting some of the major challenges facing this sector today. Knowledge transfer between experts in water systems and ICT has also opened up new research directions with the potential to provide society at large with safer and more reliable urban water supply systems.

Chicken breast fillets are a highly sought-after food item. Currently, breast meat is removed from the carcass manually, but this is a laborious and time-consuming process. Researchers from SINTEF Fisheries and Aquaculture became the first in the world to develop a robot that can complete this procedure automatically. The robot, named the 'Gribbot', is designed to optimise utilisation of the raw material by ensuring that as much of the breast fillet as possible can be retained as premium product. In other words, by minimising the amount of meat left on the carcass. Reductions in production costs result in increased efficiency and better profitability for the industry. Development of the 'Gribbot' has taken place as part of the CYCLE project, where

the main aim has been to boost the earning capacity of Norwegian food production, and to make it more environmentally friendly and efficient.

Oil wells must remain stable at all times, during both drilling and production. Under normal circumstances steel casing is cemented into the well to prevent cave-ins. The oil industry currently has an increasing focus on costs, and SINTEF Petroleum Research has been looking into shooting nails into the walls of wellbores as a quicker and less expensive approach towards achieving stability. The concept is similar to the use of bolts to secure potential rockfalls and landslides, although in this case, the 'bolts' are nails that are shot into the wellbore walls. The project makes use of reinforcement mechanisms to determine which rock types are best suited to stabilisation using nails. Future plans involve the development of tools that can be sent into the well to shoot a network of nails precisely where they are needed, either during drilling or as part of preparing the reservoir section for production.

In 2015 the SINTEF spin-off companies GasSecure and Resman were sold on, bringing in more than NOK 1.5 billion in revenues. GasSecure, which manufactures gas detectors that help protect personnel and infrastructure from the risk of explosions on oil installations, was sold to the German company Dräger for more than NOK 500 million. Resman, which is based on technologies developed by SINTEF and the Norwegian Institute for Energy Technology (IFE), was sold for more than NOK 1 billion to the acquisitions fund company Nordic Capital.

SINTEF's interest in Resman was valued at NOK 93 million. Revenues from sales of this kind make it possible for SINTEF TTO to invest in new technology commercialisation projects, which is also a part of SINTEF's role in society. These successful sales enabled SINTEF to make a clean sweep of the awards presented at the Norwegian Investment Forum in October 2015. SINTEF TTO accepted the accolade of "Investor of the Year", while Resman and GasSecure won the awards "Exit of the Year" and "Entrepreneur of the Year", respectively. The Norwegian Venture Capital Association (NVCA) sponsors these awards, which represent the industry's tribute to best performance in the fields of entrepreneurship and venture capital.

During the course of several decades, and in collaboration with its oil and gas sector clients, SINTEF has built up unique expertise in the field of multi-phase flow and sediment build-up in pipelines. This expertise is currently being applied to increase our understanding of how blood circulates around the human body. The first application is being focused on cardiac surgery and cardiac valve replacement. As part of a broad-based partnership project, researchers are currently working with clinicians from the major hospitals in Norway and medical technology suppliers to develop a system to optimise the type and positioning of artificial cardiac valves. Flow simulation models are used to calculate and visualise flow patterns in the heart in question so that the selection of the valve and its positioning can be tailored to individual patients. The aim is to reduce the number of patients requiring repeat operations, reduce costs and promote patient involvement.

In September 2015, H.R.H Crown Prince Haakon opened the SINTEF Energy lab, which is one of the most advanced energy laboratories in Europe. Society at large relies on robust and reliable electricity supplies, and the new laboratory will be used to test and develop components for the renewable energy systems of the future – on land, offshore, and on the sea bed. The laboratory is a large structure. The high-voltage hall alone has a ceiling height of 24 metres. It is 24

metres wide, 30 metres long, and is the first building of its kind world-wide to be built on 'passive house' principles. No-one has previously attempted to comply with passive house standards for a building of this size. SINTEF's total investment in the Energy Lab is NOK 170 million, financed in its entirety by SINTEF Energy Research.

Digitisation and automation are universal factors currently driving changes in all aspects of working life. Norwegian industry is highly skilled in the field of human-centric automation, which exploits the complimentary attributes of humans and robots. While robots are able efficiently to carry out repetitive and hazardous tasks, skilled human workers contribute with their sensomotoric and cognitive skills. At the same time, businesses must be in a position to tackle complex problems as they arise. It is here that Norwegian working life culture possesses organisational advantages that open the door to opportunities for future industries. For several decades, SINTEF has been working closely with industry and public sector organisations on projects whose objectives extend beyond purely technological issues. An overall approach in which organisation, management, working environment, skills development and mutual collaboration are seen in the context of the introduction of new technology has proved to be a good platform for the development of competitive businesses. SINTEF and NTNU have established a so-called 'Gemini' centre, called TELL, which is looking into the application of game technologies as part of the training of both work trainees and experienced operators. As part of a BIA project called SKILLS, we are currently demonstrating how independent, responsible and skilled personnel are playing key roles in the digitisation of their companies.

Currently, as many as 80 per cent of all accidents at sea occur as a result of human error. Experts are now envisaging a future where unmanned vessels will be controlled from dedicated stations onshore by highly skilled operators piloting up to six vessels simultaneously. MUNIN (Maritime Unmanned Navigation through Intelligence in Networks) is an EU project which has for many years been conducting research and development into unmanned vessels. The SINTEF company MARINTEK has been acting as technical coordinator. The project's achievements have included an evaluation of where unmanned vessels can first be used safely in the future. One suggestion is that offshore supply vessels would be ideal first candidates. Such vessels can operate within a relatively restricted area and their movements are subject to regulations stipulated by a single state. There will be savings in operating costs because of reduced crew requirements and more space for cargo. Future research will focus on assessments of the various unmanned vessel concepts.

Health, Safety and the Environment (HSE)

At SINTEF, HSE issues are assigned the highest priority and the safety of our employees takes precedence over all other considerations. Our responsibility for our employees' occupational health, working environment and safety is taken very seriously. Employee participation, combined with responsible management, is crucial to the development of a sound and health-promoting working environment.

HSE issues have a prominent place in SINTEF's principal strategy, and SINTEF operates with the following four overall aims linked to its HSE-related work:

- *SINTEF shall have a sound and health-promoting working environment.*
- *SINTEF shall achieve zero levels of occupational sickness absence.*
- *SINTEF shall incur zero levels of accidents, injury and material loss.*
- *SINTEF shall operate with a clear environmental profile.*

SINTEF's working environment survey was carried out in January 2014. Among the key activities in 2015 has been the follow-up of the results and proposed actions. The follow-up work was assessed as part of the mid-term evaluation carried out in the spring of 2015, at which time the various institutes reported on the status of their action plans. Our impression is that the survey is being followed up in an effective manner and that managers are becoming increasingly competent at applying the results in their development work. The survey draws attention to significant aspects of the working environment and provides excellent motivation for making improvements. The evaluations demonstrate that the survey can be further developed to make an even better contribution towards consolidating the development of effective management teams at SINTEF. This has been taken into account in the 2016 working environment survey, in which members of the various institutes' management teams have been asked to evaluate key issues of relevance to the teams.

Our safety campaign "Bry deg" (Show Your Care) has been a major area of focus in 2015. The campaign was started as a result of negative trends in the occurrence of personal injuries and injuries requiring absence from work in the period leading up to 2013. The overall aim was to boost SINTEF's safety culture. A subsidiary aim has been to inspire managers and employees and make them feel responsible for conducting themselves correctly and to enhance safety awareness in day-to-day situations. The campaign has generated an enthusiastic response, provided new know-how, and increased individuals' awareness of risk factors in their work settings. A total of 63 meetings were held during 2015 involving about 1500 employees. The campaign was discontinued in February 2016 and is being followed up with measures set out in the various institutes' HSE plans.

In 2015 seven incidents occurred that resulted in sickness absence. Several measures have been put in place during the year to prevent personal injuries, including those to enhance awareness among managers, a safety campaign, investigations, audits and analyses. Supplementary measures have been taken following the most serious incidents by focusing on the factors that caused the injuries in question. Managers at local level have made detailed evaluations of what future actions and changes should be prioritised and implemented to improve matters and prevent incidents from occurring.

SINTEF's reporting and non-conformance system (*Synergi*) makes it possible for line managers and other relevant personnel to follow up incident reports. In order to enhance our safety culture, we rely on incidents being reported and followed up locally. Group Management is following developments closely, and positive trends are emerging in the handling and subsequent closing of specific cases.

In 2015 a total of 549 HSE-related reports were entered in the *Synergi* system. Of these, 430 involved reports of hazardous situations or observations, 63 involved near-misses, and 56 were actual accidents. Thirty-three of the incidents and observations were judged to constitute potential risks in critical areas. In spite of our active efforts during 2015 to prevent incidents, we recorded marked increases in both the H1 and H2 incident indices.

In 2015, the indices H1 (injuries resulting in sick leave) and H2 (personal injury frequency) were 1.9 and 4.3 respectively, compared with 0 and 1.6 in 2014. These increases show that we must adopt a long-term and targeted approach to these issues. It has been decided that measures and further actions will be put in place with the aim of increasing rates of incident reporting from employees conducting field work or on business travel. During 2015, work was begun to develop a

Synergi app to make it easier for employees to report incidents while in the field or on business travel. The app will be up and running during the spring of 2016.

The responsibility for ensuring that employees complete their HSE training rests with line managers, with support from HSE and HR personnel. Classroom training is arranged jointly with NTNU and the student welfare organisation in Trondheim. In 2015 it was decided to introduce a refresher deadline for mandatory HSE training at SINTEF. This decision was based on a joint assessment by representatives from the parties of the content of the courses with recommendations regarding a need for refresher courses. An important change is that mandatory HSE training must be completed within one year of employment or change in role.

The use of chemicals is an important aspect of SINTEF's research activities, and it is essential to have sound procedures in place. We are working continuously with risk assessments, substitution and the implementation of sound procedures in the field of chemicals handling. Based on the fact that many personal injuries incurred during 2014 and 2015 were caused by working with chemicals, Group Management has initiated a root cause analysis of these incidents where the aim is to investigate several incidents in which chemicals were involved. The findings will be followed up in 2016.

In 2015, levels of sickness absence were at 3.9 per cent, which is the same figure as for 2014. Levels of work-related sickness absence were at 0.4 per cent, representing an increase of 0.1 per cent on 2014. SINTEF is an "Inclusive Working Life" (IA) enterprise and both work-related and other sickness absences are systematically followed up by the relevant institutes. Line managers, supported by HR personnel, are jointly responsible for the follow-up of incidents of sickness absence.

In 2015 it was decided to establish a separate working environment committee (WEC) for the four institutes that constitute the SINTEF Foundation. The aim of this arrangement is to ensure that the WEC's statutory activities are carried out at local level, close to the personnel that are directly affected. The scheme is still in the process of being set up – the institutes are working to identify appropriate meetings arrangements. This year, the Foundation's WEC has agreed on a revised mandate by which the relationship between the institute WECs and the Foundation's WEC was defined in detail.

Clients

SINTEF creates opportunities for its private and public sector clients and contributes to their profitability, thus promoting the sound development of the community at large. This is one of our most important roles in society. In 2015, SINTEF completed 5,445 projects for a total of 3,792 clients of all sizes. Projects were carried out for both private and public sector clients in fields including renewable energy, oil and gas, the marine and industrial sectors, building and infrastructure, as well as enabling technologies, health and welfare and social science research.

An increasing number of projects are carried out across the various SINTEF institutes. Broad, cross-disciplinary approaches provide unique opportunities for the development of effective solutions. A multi-disciplinary focus is essential as a basis for delivering solutions to meet the great and complex challenges currently facing society, especially in connection with digitisation and the so-called "green shift".

SINTEF's participation in the large, long-term perspective research

centres also entails the extensive involvement of our Norwegian and overseas clients. SINTEF is currently participating in twelve Centres for Research-Based Innovation (SFIs) and nine Centres for Environmentally-Friendly Energy Research (CEERs). Taken together, these activities involve the participation of a little over 200 industrial enterprises. Participation in these centres provides the enterprises with long-term skills development in the forefront of international research, which will in turn contribute towards boosting their competitiveness.

Our relationship with our clients and our understanding of their needs is of crucial importance. This is why the process of facilitating effective and insightful communication with clients at all organisational levels is high on Group Management's list of priorities. This also involves increased levels of communication with the public authorities, primarily in Norway, but also in the EU and other countries. SINTEF has attended a series of high-level meetings with many international companies and institutions. From the beginning of 2016, representatives of SINTEF's Group Management have attended both the central regional and regional annual conferences of the Confederation of Norwegian Enterprise (NHO) in order to talk to clients and other decision-makers about the increased significance of new key technologies for Norwegian market competitiveness.

Contact between research scientists and their clients is important for the implementation and development of high-quality projects. Project management, effective implementation competence and teamwork are essential for effective project work.

In the spring of 2015 the Norwegian Parliament approved a long-term plan for research and higher education. This is the first time that such a plan has been presented in Norway and, for the most part, SINTEF is satisfied with the ambitions and priorities set out. It is important that SINTEF's Ocean Space Centre has been specifically assigned priority in the plan and has received unanimous commitment from Parliament in this way. Completion will open up the great potential inherent in the oceans.

It is positive that national research strategies such as the Energi21, Hav21 and OG21 programmes linked to a series of industrial sectors are being put in place. Joint research strategy platforms involving both industry and the public authorities are of great importance with regard to both technical quality and innovative ability. SINTEF has assigned high priority to its participation in these processes.

Research

The work to promote SINTEF's profile as a research centre continued during 2015. It is essential that SINTEF maintains an effective balance between academic publication and contract research projects. The most important means of disseminating our research results is when new technologies and systems are finally made use of by our clients and society at large. However, publication in the international arena is also assigned high priority, and the Board underlines the importance of SINTEF being actively involved in and contributing to the global development of new knowledge by means of publication. Publication promotes our profile as a high quality scientific centre. Our aim is to publish at least one peer-reviewed scientific publication per research scientist per year. In 2015 the figure was 0.69 publications per research scientist per year, compared with 0.73 and 0.71 in 2014 and 2013, respectively.

According to the Research Barometer published by the Norwegian Ministry of Education and Research, SINTEF is Norway's second

largest research organisation. Our participation in the EU's Framework Programmes are key to enhancing the quality of our technical output, enabling SINTEF to remain in the forefront of international research in fields such as ICT, biotechnology, nanotechnology and materials science.

Investment in laboratory facilities is crucial if Norway is to continue to develop as a country where know-how is produced, boost its global competitiveness and attract the best students and research scientists. Since 2007 SINTEF has invested more than NOK 1 billion in laboratories, scientific equipment and buildings. In September 2015 we opened our new Energy Lab following an investment of NOK 170 million. This is the largest investment that SINTEF has made since the launch of the MiNaLab in 2004.

Strategic collaboration with universities and other research institutes is vital if we are to maintain a robust national research arena. The strategic collaboration between NTNU and SINTEF is of considerable importance. It contributes towards keeping SINTEF's applied research in the international academic forefront, while enabling NTNU to carry on extensive research directed at identifying specific solutions to issues facing industry and society.

In 2015 we have been working actively on the joint project "Better together", which will be concluded with the publication of a new joint strategy setting out how we can extract even more value from our collaboration. Third party analyses of the project demonstrate that our 65-year collaboration has been highly significant for Norwegian research and innovation. The work has also highlighted the need to define and be aware of the differences in roles and terms of reference between the universities and research institutes, and to boost incentives that promote collaboration and effective work demarcation. Work connected with the "Better together" project will be concluded in 2016.

SINTEF is an active participant in international research projects. There has been much focus on our involvement in the European Energy Research Alliance (EERA), which has an important strategic role in the field of European energy research. Together with NTNU, we are engaged in a strategic collaboration with leading research centres in Japan and the USA in the fields of energy and materials science.

Priority is assigned to the SINTEF Group's main areas of focus – typically involving three-year cross-disciplinary research projects in fields that are of special importance to SINTEF. The following Group areas of focus were initiated in 2013 and are still ongoing: bio-based products from sustainable resources, ManageIT, SEATONOMY and Health and Welfare technologies. In total, SINTEF has invested NOK 180 million in twelve Group areas of focus since 2006.

In 2015, the Research Council of Norway established 17 new Centres for Research-Based Innovation (SFIs). The SFIs support innovation in the form significant investments in long-term research projects involving close collaboration between industrial enterprises with active R&D programmes and the leading research centres. SINTEF is involved in nine of the new centres, and has been assigned the role of coordinator for four of them. The centres in which SINTEF is participating involve the fields of exposed aquaculture operations, climate change adaptation, smart maritime technologies, fabrication, advanced materials, advanced ultrasound, the process industry and maritime operations.

In 2016 projects linked to new Centres for Environmentally-Friendly

Energy Research (CEERs) will be allocated. In November 2015 SINTEF submitted its applications regarding the new CEER centres, the majority of which in collaboration with NTNU. SINTEF is currently participating in 11 applications in the fields of hydropower, maritime transport, industrial energy efficiency, buildings and their neighbourhood communities, offshore wind power, CCS, geothermal energy, bioenergy, smart grids, solar energy and transport. The applications include about 150 partners from the industrial sector.

People

SINTEF's aim is to be an attractive workplace offering unique development opportunities for people with knowledge and enthusiasm. Whether or not SINTEF is viewed as such is monitored by means of our working environment survey which is conducted every second year. The work to learn lessons and apply the results from the 2014 survey continued during 2015.

The role of management is vital in this context. SINTEF works systematically to develop our managerial resources, both as individuals and collectively in teams, in accordance with our common management principles. It is important to improve the quality of our middle managers. We are placing increasing emphasis on the development of managers responsible for major, complex projects and on enhancing their aptitude for efficient teamwork across the scientific and organisational disciplines. This is essential if we are to address the major challenges of our times.

SINTEF continues to be successful in competition for the recruitment of skilled employees in the global marketplace. We place great emphasis on taking care of and fostering the development of our current staff, while at the same time working to safeguard future recruitment by means of brand development and promotional activities in the domestic and global markets. A joint project launched in 2013 to develop SINTEF's recruitment and profiling strategy was completed in 2015. It involved the greater use of internet-based communication, film, video and a new marketing and profiling concept, combined with a summer job project and a quality audit of the way in which we induct new employees. SINTEF's ranking has improved in the list of attractive workplaces compiled on the basis of student surveys.

2015 was the year in which SINTEF had to focus on safeguarding its operations in challenging economic times, while simultaneously exploiting its growth potential. Staff reductions were carried out in some of the research groups in order to adapt capacity to reduced activity in certain markets, most notably in the oil and gas sector.

We reduced our workforce by 107. This figure includes 32 employees at SINTEF NBL, in which SINTEF sold its majority shareholding to SP Fire Research. As of 31 December 2015, SINTEF had a total of 1,975 employees. Of these, 1,162 were employed by the SINTEF Foundation. Eighty new employees in the 'scientific personnel' category (5.9 per cent) were recruited in 2015 while 144 (7.3 per cent) left. Employees leaving SINTEF represent an important contribution to skills development in industry and the public sector.

Fifty-five per cent of our researchers have a Ph.D. degree, compared with 44 per cent in 2009. 412 of our employees (21 per cent) hail from a total of 71 countries outside Norway. This shows that SINTEF is attractive to international research scientists and that we are successful in bringing highly qualified researchers to Norway. SINTEF's foreign employees provide a valuable source of scientific and cultural expertise. The majority of employees from outside Norway are from Germany and France.

The "SINTEF Day" event is arranged at intervals of approximately five years. In 2015 the arrangement was held on 11 June and brought together 1600 employees, selected clients and business partners to a one-day assembly offering technical and social events. The aim was to make a contribution towards fulfilling our new principal strategy to promote SINTEF as a world-leading research institute with a key role in society, as well as generating pride and team spirit. The event was very successful.

Equal opportunity and family policy

The Board and Group Management are fully committed to promoting equal opportunity at SINTEF. One of SINTEF's objectives is to increase the proportion of women among both its research scientists and managers. The President of the SINTEF Group is a woman. When vacancies arise, SINTEF aims actively both to recruit women and to develop female managers from its own ranks. Structural imbalances in recruitment practices applied in the educational establishments are nevertheless reflected in SINTEF's staff.

Gender distribution within SINTEF is shown in the table below.

	Men	Women
The Board	44	56
Group Management	73	27
Research managers and middle managers	64	36
Research scientists	71	29
SINTEF	65	35

In 2013, the Research Council of Norway awarded SINTEF a three-year project (the so-called Balance Project) to promote a better gender balance among its high-level technical positions and research managers. The project was launched in 2014 and is expected to contribute towards increasing the proportion of female managers at SINTEF. It has already provided valuable know-how that can be applied both at SINTEF and other Norwegian research centres.

SINTEF is party to the NHO/Tekna, NHO/NITO, NHO/NAR, NHO-Abelia/LO-NTL and NHO-Abelia/Parat collective salary agreements. We conduct annual salary negotiations with employee representatives. Salaries and conditions of employment are determined by negotiation and discussion with employee representatives in the respective labour organisations. Women are considered on an equal footing with men. We carry out systematic monitoring to ensure that undesirable salary differentials do not arise.

82 per cent of our work force are full-time employees. 21 per cent of our female employees and 15 per cent of males work part-time. One reason for the part-time employment statistics is that employees are taking advantage of the opportunity to reduce their working hours while receiving an early negotiated pension. SINTEF makes little use of temporary employment arrangements. At the end of the year, 45 employees (2.3 per cent) were in temporary positions, 18 of them women and 27 men.

SINTEF's working environment survey for 2014 revealed no significant gender differences in terms of how employees felt about their work situation. We will continue to develop focused initiatives to ensure that SINTEF remains an attractive workplace for women.

It is one of SINTEF's aims to be successful in the global recruitment market. Many vacant research positions are advertised in English, and applicants worldwide have access to all job advertisements.

To ensure that foreign employees are well taken care of, SINTEF

has established an integration programme for personnel from other nations and their families. The programme offers expat services, free Norwegian lessons and teaching in English at the SINTEF School. Diversity management is one of the themes of the SINTEF School's manager development programme. Findings from the working environment study indicate that overseas employees enjoy working at SINTEF.

SINTEF goes to great lengths to meet the needs of employees with special adaptation requirements. As part of our IA objectives we are committed to adapting workplaces to those of our employees who either have, or develop, disabilities. This work takes place in close co-operation with the Norwegian Labour and Welfare Administration (NAV), and we make full use of available public support arrangements to facilitate this activity. It is also a defined IA objective that we pursue the current practice of focusing on skills and qualifications during the recruitment process, rather than on any limitations resulting from a disability.

SINTEF shall be an organisation with space to accommodate rounded individuals with a life outside the workplace. We therefore allow flexible arrangements to meet the individual's needs, such as flexible working hours for all employees and special arrangements for parents with young children. SINTEF makes a financial contribution towards the running of kindergartens in Trondheim and Oslo.

Internationalisation

One of our objectives at SINTEF is to be a world-leading research institute. Internationalisation is an integral part of SINTEF's business operations. We have been successful in the following fields of our globalisation strategy; the strengthening of our academic network, participation in the EU's research programmes, international sales of R&D services and international recruitment. At the same time, we must acknowledge that we have yet to find workable solutions to the problem of establishing a profitable presence outside Norway.

SINTEF was by far the best represented Norwegian participant in the EU's 7th Framework Programme for Research and Development, which was concluded at the close of 2013. As part of this programme, SINTEF was granted participation in 254 projects, and the role of coordinator in 55. The EU has awarded SINTEF a total of 149 million euros in support funding. Research linked to some of these projects will continue up until 2018. We are currently directing major focus on establishing our position in connection with the Horizon 2020 programme, which was launched in 2014. Up to now, SINTEF has been granted participation in 37 projects in this programme, with the role of coordinator in 15. To date, the EU has granted SINTEF 30 million euros in support funding.

SINTEF's competitive success in the EU's research market demonstrates that our expertise has achieved international recognition. In order for SINTEF to fulfil its role in society at large, it is essential for us to be able to develop global and competitive solutions and to bring state-of-the-art know-how and networks to our clients. The biggest challenge we face in connection with EU research projects has been that on occasion we have experienced a lack of clarity regarding the terms of reference set out for our participation. Moreover, the EU's compensation arrangements are tailored to research practices in other countries, by which the host nations cover the greater part of the costs. SINTEF is pleased that 2015 saw the establishment by the authorities of the "STIM-EU" support scheme, which provides funds to protect research institutes' resources from over-depletion during EU research

projects. However, it remains the case that in isolation, EU-funded research projects are not profitable to SINTEF. The Board emphasises that SINTEF relies on this investment in knowledge being rewarded with greater activity linked to industrial clients so that our overall research portfolio can deliver acceptable financial returns.

In 2015 SINTEF established an office in Brussels on the same premises as NTNU and the University of Bergen. The aim of establishing a presence here is to further consolidate our networks and participation in EU-funded research programmes.

The authorities have set out an ambitious EU-related research strategy, and this was followed up in the 2015 Norwegian budget with a considerable strengthening of the STIM-EU support. This has been further consolidated in the 2016 budget. Further increases in support, in step with the extended scope of the EU programme, is crucial if we are to meet the stated strategy aims and provide predictable terms of reference.

International sales in 2015 amounted to NOK 499 million, compared with NOK 504 million in 2014. This corresponds to 16% (17% in 2014) of SINTEF's total turnover. We have completed projects for clients in 54 countries, and EU projects represent about 38 per cent of our international activity.

The external environment

Based on our vision of "Technology for a better society", SINTEF aims to give due consideration to the external environment in all aspects of its business activities.

The aim of SINTEF's environmental policy is to ensure that both our research and the management of our business activities are carried out with due consideration for the external environment. It shall also ensure the continuous improvement of our own environmental performance.

(Extract from SINTEF's external environment policy)

SINTEF shall meet the international environmental management standard ISO 14001. By working systematically to reduce the pressure on the environment, SINTEF is assuming environmental responsibility and is meeting the expectations of its clients. Our efforts to meet the standard also promote increased levels of environmental awareness among our clients. SINTEF has established a joint environmental action plan in which energy efficient operations and sound waste management procedures are key components. SINTEF's external environment policy was revised in 2015 and published on our website together with SINTEF's environmental action plan. Moreover, the eight SINTEF institutes have all prepared their own environmental action plans. SINTEF Materials and Chemistry and SINTEF Building and Infrastructure were already certified in accordance with the ISO 14001 standard, and SINTEF ICT was certified in 2015.

In 2015 we experienced no unwanted incidents that impacted on the external environment that required mandatory reporting.

Our most important contributions to the environment are our world-leading research and development activities focused on renewable energy, climate-related and environmental technologies. These fields constitute significant areas of focus in SINTEF's new principal strategy document. Our environmental work is communicated actively to the outside world by means of the dissemination of our research and expertise in the field of environmental science.

Ethics

SINTEF operates on the basis of a clear ethical platform. "Ethics, values and leadership" are key aspects of SINTEF's principal strategy.

The scope of ethics-related work at SINTEF encompasses the fields of research, business and relational ethics. SINTEF's research ethics are based on regulations stipulated by the national ethics committees, on the principles promoted by the European Group on Ethics in Science and New Technologies, and on international conventions such as the Vancouver Convention.

SINTEF expects and requires its suppliers and business partners to share our ethical values. Suppliers and business partners involved in our activities are obliged to submit written acceptance of our code of ethics. Ethical matters are discussed in management team and departmental contexts, and it has been the practice for many years that HSE and ethical matters constitute the first item on the agenda of all internal meetings.

Following up ethical guidelines is the responsibility of management. In addition, SINTEF has an Ethics Council and its own Ethics Ombudsman. The Ethics Council consists of six members, all of them managers or elected employee representatives at SINTEF. Four council meetings were held in 2015. The Ethics Ombudsman acts as an advisor and discussion partner for SINTEF's entire organisation and also participates in connection with external matters. The Ethics Ombudsman arrangement means that SINTEF satisfies the requirements of the Norwegian Working Environment Act regarding an in-house notification channel.

In 2015 a minor revision of SINTEF's code of ethics was carried out, and new guidelines have been approved relating to notification. SINTEF has also provided input to several Norwegian research ethics processes. These include consultation statements in connection with the Norwegian Act relating to Research Ethics and guidelines for the research ethics committees. SINTEF personnel currently have seats on three Norwegian research ethics committees; Medicine and Health, Social Science and the Humanities, and Natural Sciences and Technology.

SINTEF's role in society

SINTEF's role in society is a key component of our principal strategy. Here it states that SINTEF contributes towards the development of society at large by means of research and innovation. We contribute towards wealth creation and develop solutions to meet the challenges facing society today. We also communicate know-how, solutions and our recommendations in a proactive and resolute manner.

A major part of SINTEF's research activities is linked to the development of solutions addressing some of the key issues currently facing society such as climate change and the environment, energy, food, health, pure water and future job creation. This research integrates our role in society as part of our core activities and corresponds with our vision of "Technology for a better society".

Our social responsibilities also address the way in which we administer our business activities and their links to issues such as human rights, employee rights and social conditions, the external environment and the battle against corruption. SINTEF has developed policies and guidelines linked to all these fields, which have been incorporated into our management system and code of ethics. Employee rights also are safeguarded by means of SINTEF's collective salary agreements and the follow-up of our responsibilities as an IA enterprise.



SINTEF is a member of the UN Global Compact, and actively applies its ten principles on human rights, work standards, the environment and anti-corruption. SINTEF submits annual reports on its status (Communication on progress) in relation to these principles in accordance with the requirements set out in the Compact. This status report is part of SINTEF's annual reporting process and is published on our website.

SINTEF is a member of Transparency International, an organisation dedicated to the elimination of domestic and global corruption. SINTEF adheres to the guidelines and advice provided by this organisation.

In 2015 SINTEF made a commitment to the EU Charter and Code, or the "European Statement on Researchers" and "Code of conduct for the recruitment of research scientists". From an EU perspective, this is both an obligation and an aid designed to create an attractive European research environment which enables research scientists to enjoy sound employment terms and conditions.

Financial independence

In 2015 SINTEF reported an ordinary operating profit (excluding the one-off pension expenditure) of NOK 52 million, compared with NOK 106 million in 2014. The pre-tax profit (also excluding the pension expenditure) was NOK 60 million, compared with NOK 143 million in 2014.

The discontinuation of the defined benefit pension scheme in 2015 resulted in a deficit of NOK -353 million. This impacted on the SINTEF Foundation and SINTEF Energy Research in particular, but SINTEF Petroleum Research, SINTEF Fisheries and Aquaculture, SINTEF Molab and SINTEF TTO were also affected. The discontinuation resulted in SINTEF reporting an extraordinarily weak financial result for 2015. Of the costs related to the discontinuation, NOK 214 million represents the liquidation of a receivable in the balance sheet that has no impact on liquidity. The issuance of paid-up policies and historical premiums for salary adjustments for all employees and pensioners have been entered in the accounts as one-off expenditure items amounting to NOK 89 and NOK 46 million respectively. The discontinuation has removed a previous liability of approximately NOK 280 million. Costs levels will be reduced from about NOK 270 million in 2015 to about NOK 190 million as the result of the new hybrid pension arrangement.

Another specific item that we wish to highlight from 2015 is the additional provision of about NOK -10 million set aside to cover EU project-related expenditures linked to unresolved issues regarding the interpretation of regulations governing costs coverage in connection with the 7th Framework Programme. We anticipate that this matter will be resolved during 2016. Furthermore, restructuring costs linked to workforce reductions and the closure of SINTEF's Brazilian subsidiary resulted in deficits of NOK -29 million and NOK -18 million respectively. Revenues have also been influenced by workforce reductions at many of the SINTEF institutes.

Net operating revenues in 2015 showed an increase of 4.3 per cent. A significant part of this increase resulted from the sale of SINTEF's interests in the companies GasSecure and Resman. The oil and gas, energy and maritime sector markets have remained challenging throughout 2015.

We are currently focusing on intensifying our sales efforts, cost

reductions and other measures designed to achieve acceptable results in markets where we are accustomed to operate. Cost-saving measures have been implemented in 2015 resulting in an overall effect of NOK 212 million. The institutes have all displayed improved project order books at the beginning of 2016.

At the close of 2015, SINTEF's overall liquidity situation can be described as satisfactory, and in the case of the four research companies, the situation can be described as very good. The Foundation does not hold a liquidity reserve corresponding to turnover rates, but has improved its liquidity throughout the course of 2015. SINTEF has established a joint arrangement within the Group for the investment of its liquidity reserves. The portfolio is invested in accordance with SINTEF's rules governing internal financial management, dated October 2015. In 2015, on average, NOK 313 million has been available for administration, compared with NOK 334 million in 2014. Our low-risk profile contributed to a positive yield of 8.4 per cent in 2015 (compared with 6.6 and 6.2 per cent in 2014 and 2013, respectively).

SINTEF is exposed to currency exchange fluctuations in that some of its project revenues are in foreign currencies, whereas project costs are entirely or in part in Norwegian kroner. To reduce this risk, we operate with future exchange contracts. We have specifically evaluated the potential risk and our freedom of action in the event of an escalation in the collapse of the Eurozone. During both 2014 and 2015 the Norwegian kroner has become remarkably weak in the foreign exchange markets. This has presented us with challenges during 2015 that will continue into 2016 in relation to EU-sourced revenues based on contracts entered into in 2012 and 2013. Budgeted revenues from completed work were prepared based on exchange rates projected at the projects' reporting milestones. For this reason, the total value of EU projects has been written down by NOK 40 million.

It is essential that SINTEF succeeds in creating a financial surplus which can be invested in new research and skills development. In 2015, SINTEF invested NOK 156.5 million in laboratories, scientific equipment and other fixed assets, and NOK 7.1 million in self-financed research linked to the Group's defined areas of focus. The corresponding amounts in 2014 were NOK 172.2 million and NOK 14.9 million respectively.

At the start of the year, the companies Resman and GasSecure were sold at a time when SINTEF's interests had a combined value of NOK 93 million. The revenues were allocated among the institutes SINTEF Materials and Chemistry, SINTEF ICT, SINTEF Petroleum Research and SINTEF TTO.

AS of 31 December 2015, SINTEF had an equity NOK 2,126 million (2,394 million), which represents 58 per cent (62 per cent) of its total assets. The corresponding figures for the SINTEF Foundation are NOK 1,875 million (NOK 2,106 million), which constitutes 65 per cent (70 per cent) of total assets.

The annual result for the Foundation in 2015 was a deficit of NOK -207 million, compared with a profit of NOK 78.4 million in 2014. This is allocated in its entirety to 'other equity'.

Our equity and operational status, combined with our cost-saving initiatives and a satisfactory order book, provide us with a good basis for declaring the organisation a going concern. The Boards of the subsidiary companies have made similar assessments, and all have concluded that we have the basis of a going concern. The Board is not aware of any circumstances that have arisen since the close of

the accounting year which affect its opinion regarding the financial position of either the Foundation or the Group. On this basis the Annual Accounts have been prepared under the going concern assumption.

Corporate governance at SINTEF

SINTEF wishes to be seen as professional in terms of its leadership and management practices, while also having innovative competence and non-bureaucratic decision-making structures.

SINTEF's central administrative bodies are the Board and the Council. The Board is the Foundation's principal administrative body, for which the Council acts in an advisory function, with authority as stipulated by the Act relating to Foundations and SINTEF's Articles of Association.

SINTEF's Council acts in a supervisory role to ensure that the Foundation's objectives are adhered to in accordance with the Articles of Association. It also appoints the Board, determines the remuneration of Board members and appoints an auditor. The Council is led by the Rector of NTNU and comprises 28 members including representatives from NTNU, the University of Oslo, the Research Council of Norway, the business sector, industry organisations and SINTEF's elected employee representatives.

The Board of the SINTEF Foundation also acts as Board of the SINTEF Group. The activities of the four limited companies are governed by their Articles of Association, shareholders' agreements, inter-Group agreements and instructions issued to their respective Boards. Principles for the Group's administration and coordination with affiliated organisations have been established in accordance with SINTEF's overall goals and strategy.

The Board is made up of nine persons. Two are principally employed at NTNU, four are from industry or public sector administration, and three are permanent employees at the SINTEF Foundation. The Board has responsibility and authority in all matters which are not assigned to the Council. The Board acts in accordance with SINTEF's Articles of Association, the Act relating to Foundations, and those parts of the Limited Liability Companies Act which apply to foundations. The Board appoints the Group President and determines his or her salary and other employment terms, as well as determining the terms and principles for remuneration of the Group management team. The Board held eight meetings in 2015.

SINTEF's Group management is responsible for the strategic administration of the entire scope of SINTEF's business activities. The Group President is responsible for day-to-day operations in accordance with the Articles of Association of the Foundation and Group agreements, and in all other respects in accordance with the Limited Liability Companies Act. The Group President has authority to act on behalf of the Foundation, except in connection with the purchase, sale and mortgaging of property and the purchase and sale of companies. The Group President or Vice President acts as Board Chair of all the research companies which constitute SINTEF.

SINTEF has established a system of financial risk reporting on a four-monthly basis. The risk environment is discussed by the management and Board of each of the research institutes, as well as at Group management and Board levels. Risk-reducing initiatives are identified and implemented on a continuous basis. A corresponding approach has been adopted for opportunities scenarios, at both institute and Group levels.

The management system is certified according to the ISO 9001:2000 standard and includes the implementation of a joint system for handling accident reports, unwanted incidents, other non-conformances and proposals for improvement. SINTEF is registered in Achilles, which is a joint qualification system for suppliers to the oil and gas industry.

Future prospects and challenges

With the assistance of its leading expertise centres, SINTEF intends to make an active contribution towards achieving the public authorities' goals within fields of key social importance.

New technology has major significance for the development of solutions to the key challenges currently facing society at large.

One of SINTEF's strengths is that we can offer multidisciplinary expertise and can combine technical teams working in collaboration across organisational boundaries. This facilitates the development of effective solutions for our clients and society as a whole.

Digitisation, automation and advanced robotic technology are exerting a major influence on the changes taking place in all aspects of the workplace and community life. Such changes and developments are often referred to as the fourth industrial revolution, and generate both challenges and new opportunities. SINTEF possesses high levels of skills and expertise in these fields, and aims to make an active contribution towards a successful restructuring of the business and public sectors.

The so-called "green shift" represents another key motivation for restructuring. SINTEF intends to concentrate its efforts on climate change technologies and adaptation, renewable energy, energy efficiency and carbon capture and storage (CCS). We are assigning high priority to our future research activities in these fields. At the same time, petroleum research remains an important field because oil and gas continue to be key components in the global energy supply mix and will be important elements in other industrial processes for many decades to come.

In order to develop solutions that will contribute towards a better society, it is crucial to be fully aware of people and the communities in which they live and work. Our aim is to achieve a close integration of research in the fields of technology and the natural and social sciences.

The dramatic falls in oil and energy prices are having a dramatic impact on the Norwegian economy, resulting in declining levels of activity and increased unemployment in many sectors and geographical areas. We note that clients linked to the oil and gas and supply sectors have cancelled or postponed planned research projects. At the same time there is a growing need for projects that can contribute to rapid and significant costs savings. This situation also presents some significant challenges for SINTEF. It is essential to intensify our focus on financial management, effective operations and our ability to implement the rapid restructuring of our own activities.

This situation brings to the fore the need for a drastic restructuring of Norwegian business and community life, and in doing so offers SINTEF both challenges and opportunities. It is essential to maintain a targeted focus on our clients, not only to safeguard our own revenues, but also so that we can provide them with timely assistance in these challenging times. Major structural changes within society also generate a growing need for research and innovation. Here, SINTEF

is ready and equipped with the skills and expertise required to play a major role.

It is crucial that Norway achieves a position from which it can regenerate its domestic stock of laboratories and scientific equipment, so that Norwegian contract research can remain competitive in the international market place. At the same time we recognise that the

development and operation of large and advanced laboratory facilities such as our MiNaLab, the multi-phase laboratory and the marine engineering laboratories are demanding tasks.

The Board extends its thanks to all SINTEF employees and business partners for their collaborative efforts and contributions during 2015.

Trondheim, 18 April 2016


Marit Reitan


R. Rasmus Sunde
Chairman


Ingrid Selseth


Tor Grande


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Grete Aspelund


Rune Garen


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