

Evaluation of Norwegian Technical Industrial Research Institutes

Facts report – Key R&D indicators

Evaluation
Division for Science

Evaluation of Norwegian Technical Industrial Research Institutes

Facts report – Key R&D indicators

Public version

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Oslo, February 2016
ISBN 978-82-12-03473-0 (pdf)

The report can be ordered and downloaded at
www.forskningsradet.no/publikasjoner

Design: Design et cetera AS
Photo/illustration: Shutterstock

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1 Background

1.1 Background for the evaluation of the technical-industrial institutes

The Research Council of Norway has a strategic responsibility for the research institute sector in Norway¹. In this sector approximately 50 research institutes receive basic funding from the Research Council. The strategic responsibility means that the Research Council is charged with organising the evaluation of Norwegian research activities. On this ground an evaluation of the Norwegian research institutes in the technical-industrial arena is conducted. The evaluation will take place during 2015.

The Norwegian guidelines for public basic funding of research institutes² states that the Research Council has to "ensure, through measures such as allocation of basic funding and implementation of evaluations and assessments of the R&D system, that the institutes conduct high-quality research".

The most recent government white paper on research³ mandates the Research Council to conduct evaluations of research institutes for the purpose of policy making and design of funding instruments. Norwegian research institutes are suppliers of high-quality research for trade, industry, the public administration and society at large. It is the Research Council's responsibility to help the research institutes to strengthen and further develop their special role within the Norwegian research and innovation system.

1.2 The institute sector

The institute sector is an important part of the Norwegian research system, and is almost as big as the university and university college (higher education) sector in terms of resources allocated to research. In 2012, the institute sector accounted for 11,8 billion Norwegian kroner, or one quarter of Norway's total R&D efforts. More than 40 per cent of the Research Council's funding (including basic funding) goes to the institute sector.

The overarching aim for the research institutes is to serve as suppliers of high-quality research of relevance for application within trade and industry, the public administration, and society at large through a market of commissioned research. The institute sector is also responsible for developing knowledge on nationally prioritized areas, and to have a role in innovation, especially related to link basic research to applied research. The institutes compete (and collaborate) with institutions in the higher education sector, the consultancy sector and industry in performing these tasks.

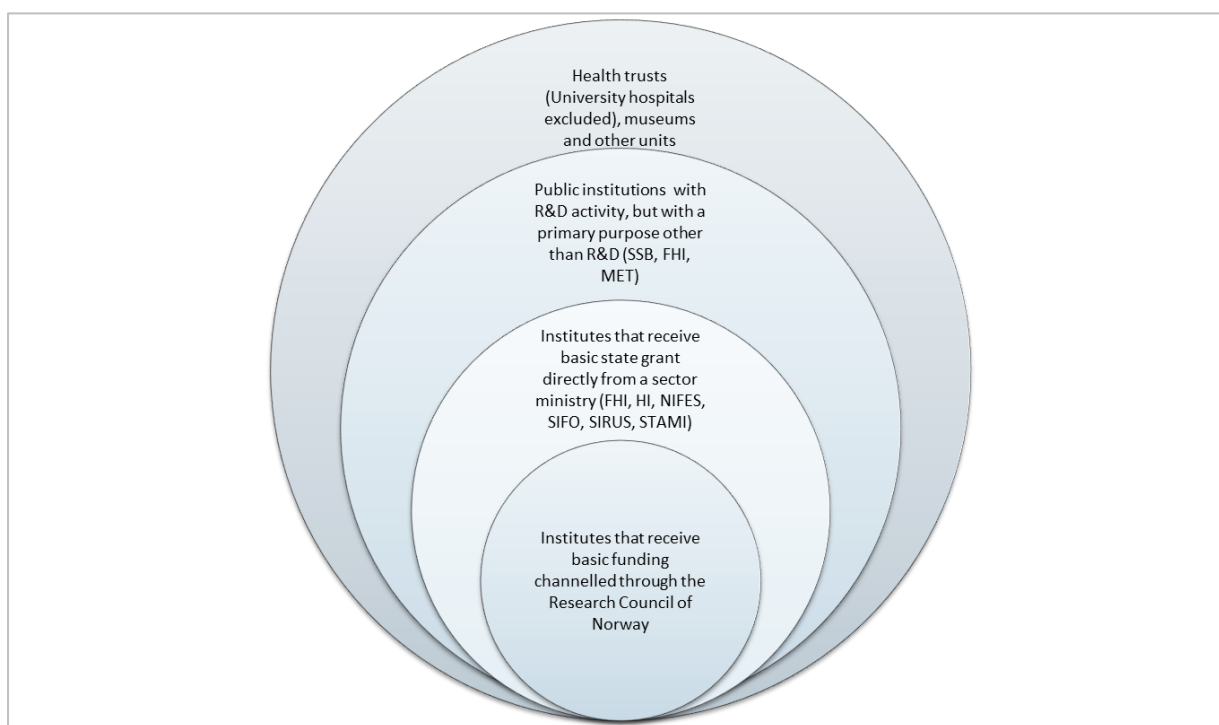
¹ Statutes for the Research Council of Norway

² Norwegian guidelines for public basic funding of research institutes laid down by Royal Decree of 19 December 2008, amended guidelines approved on 1 July 2013.

³ Meld. St. 18 (2012–2013) Long-term perspectives – knowledge provides opportunity, white paper from the Ministry of Education and Research.

In terms of number of units, the institute sector in Norway is large compared to other countries⁴. The research institutes are different with respect to tasks and responsibilities, scientific orientation, costumers and users, financial sources, ownership, relation to authorities and form of organisation. While some institutes are large, cross-disciplinary organisations with several hundred employees, others are small, scientifically narrow and with few employees.

In the national R&D-statistics, the institute sector counts more than hundred units which all are allowed to apply for the funding instruments of the Research Council. The units can be divided into the following groups:



1.2.1 Governmental basic funding system

The basic funding scheme for the institute sector was established by Royal resolution December 19th 2008 with effect from 2009. The objective of the basic funding scheme is to ensure that there is a strong institute sector capable of offering the industry and the public administration relevant competence and research services of high international quality. The public basic funding is to be used for long-term knowledge- and competence building, and to stimulate scientific quality, internationalisation and collaboration in the institutes.

The scheme was evaluated in 2012. In the revised guidelines, established by the Department of Education and Research July 1st 2013, there are some changes that are intended to make the scheme simpler and more geared towards future challenges, and also with clear incentives to the institutes. The simplified

⁴ Other countries have comparable institutions even though the term "institute sector" is not used in comparative international statistics.

scheme was turned into action in 2014. This report presents facts about the institutes up until 2013, that is according to the "old" scheme for basic funding.

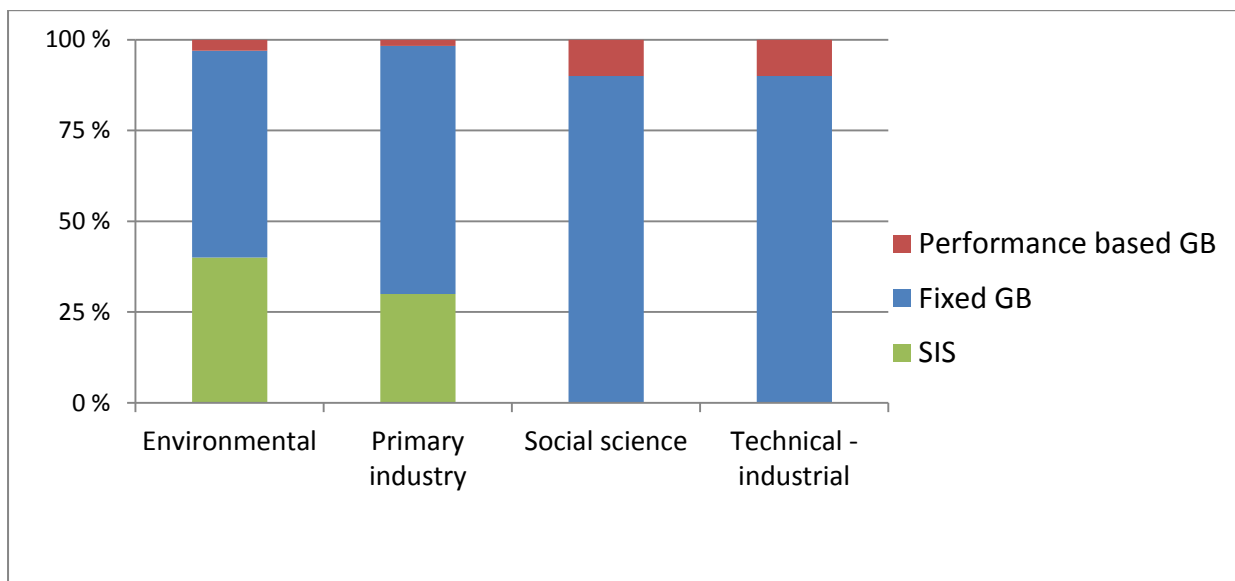
Four institute arenas

The institutes that receive basic funding through the Research Council according to the guidelines are divided into four different arenas: 1) Technical and industrial institutes, 2) Environmental institutes, 3) Primary industry institutes and 4) Social science institutes. Different ministries are responsible for the basic funding to the institutes on the different arenas. The basic funding for the technical-industrial institutes is financed by the Department of Trade, Industry and Fisheries.

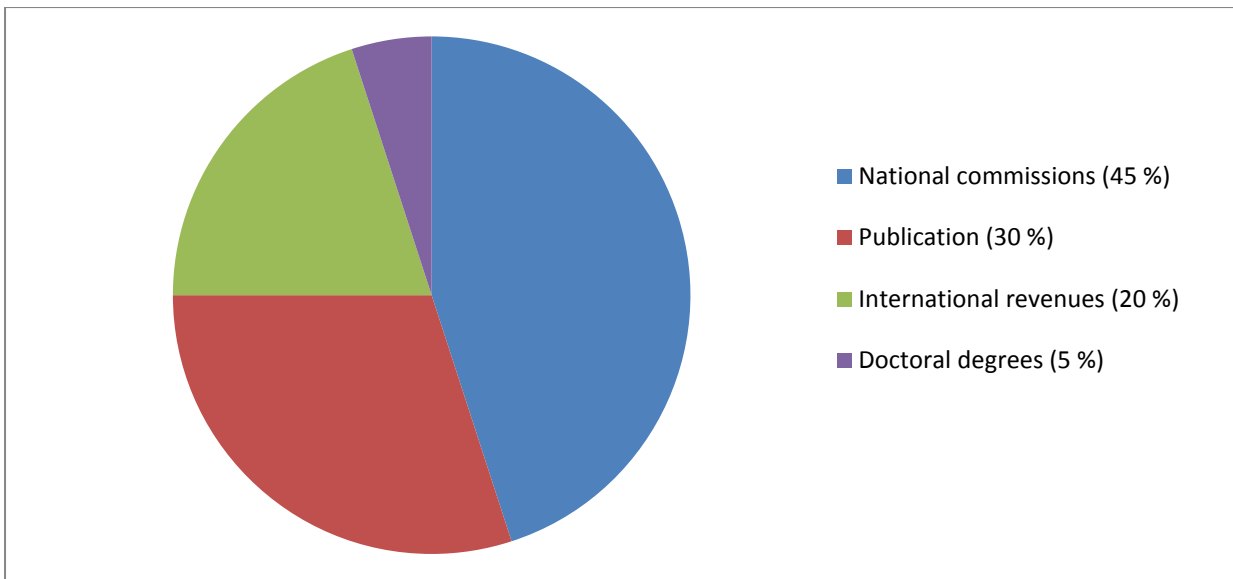
The basic funding consists of a basic allocation (GB) and funding for strategic institute-based programmes (SIS). For the technical-industrial institutes there are no strategic institute programs, so the whole basic funding is given as a basic allocation intended to be used for long-term knowledge and competence development activities.

Performance based basic allocation

A part of the basic allocation is distributed between the institutes in the arena on basis of performance. For the technical-industrial institutes the performance-based part of the basic allocations was 10 per cent in both 2013 and 2014. The figure below shows how the basic funding is distributed between the performance-based part of the basic allocation, the fixed part of the basic allocation and the strategic institute based programmes on the different arenas in 2014.



The performance-based part is (from 2014) distributed on the basis of the results achieved in the previous three years according to four indicators. These are; revenues from nationally commissioned research , scientific publication, international revenues and completed doctoral degrees. The figure below shows how the performance-based part of the basic allocation is distributed on the basis of the results on each indicator.



Every sector of the pie chart represents the part of the performance based allocation that is distributed between the institutes on the arena. The amount is distributed according to the score each institute achieves on the indicator, in relation to the total score on the indicator for all institutes on the arena. For each institute the score is calculated from the performance on the indicator over the last three years with double counting for the last year. The performance based amount allocated to each institute is the sum of the single amounts for each indicator.

This means that for each institute, the performance based part is depending on both the institute's results on the different indicators, and the results achieved by the other institutes on the same indicators.

Appendix 1 shows how the institutes scored on the indicators in the period 2009-2013. In this period there were two additional indicators, namely funding from the Research Council and collaboration with the higher education sector in terms of part-time positions.

1.2.2 The technical-industrial institutes

The technical-industrial institutes is the largest of the groups of institutes under the basic funding scheme with 51 per cent of the total revenues⁵ of all institutes under the scheme.

These institutes are especially important when it comes to offering R&D-services to trade and industry in Norway, but they do also have a significant amount of commissioned research for the public administration. Nearly half the total revenues for the technical-industrial institutes in 2013 came from national commissioned research. Looking at the total revenues from commissioned research for trade and industry for all institutes on the basic funding scheme, the technical-industrial institutes represent 75 per cent, while the corresponding figure for commissioned research for the public administration is 36 per cent.

The technical-industrial institutes are also significant receivers of grants from the different funding schemes of the Research Council. Nearly half the funding from the Council (excl. basic funding) to the institutes under the scheme is given to the technical-industrial institutes. In terms of basic funding these institutes receive the lowest portion of their revenues (less than 6 per cent) compared to the other institute groups.

⁵ These numbers do not include Uni Research who did not receive basic funding until 2015

The technical-industrial institutes are also the largest group in terms of international revenues. 74 per cent of the international revenues for all institutes under the scheme are due to the technical institutes.

The table below sums up key figures from the last two years for the total group of the 14 technical-industrial institutes included in the evaluation. Most figures are stable, with the most significant differences between the two years being the increase in basic funding due to the departments decision to include funding (45,15 mill. NOK) that was previously dedicated to nuclear research at Kjeller as a part of the general basic funding to the institute, and the increase in operating profit. The total operating profit in 2014 for the institutes as a whole is 3,1 per cent of the operating revenues which is on a normal level compared to the years before 2013. In 2013 the operating profit margin was 0,8 per cent and 7 of the 14 institutes had a negative result.

| Key figures for all the technical-industrial institutes in 2014 (compared to 2013) | | | | | | | |
|---|-----------|---------------|-------------|---------------|------------------------------------|------|-------------|
| | 2013 | | 2014 | | | 2013 | 2014 |
| Economy | Mill. NOK | Fracti on (%) | Mill. NOK | Fracti on (%) | Personnel | | |
| Operating revenues | 4526 | | 4651 | | Total full-time equivalents (FTEs) | 2866 | 2846 |
| Basic funding | 260 | 5,7 | 320 | 6,8 | Researchers FTEs | 1889 | 1873 |
| Governmental services | 103 | 2,3 | 44 | 0,9 | Women | 484 | 498 |
| <i>Contribution revenues:</i> | | | | | Fraction researchers FTEs (%) | 66 | 66 |
| The Research Council | 722 | 16,0 | 717 | 15,4 | Number of employees with PhD | 1010 | 1013 |
| Other sources | 134 | 3,0 | 230 | 4,9 | Resignations per researchers FTE | 0,10 | 0,10 |
| <i>National comm. research:</i> | | | | | Innovation results | | |
| Trade and industry | 1756 | 38,8 | 2008 | 43,2 | Number of patent applications | 31 | 39 |
| Public administration | 390 | 8,6 | 226 | 4,9 | Revenues from lisencing (mill NOK) | 22,7 | 11,2 |
| Other sources | 14 | 0,3 | 18 | 0,4 | Number of new spin-off companies | 0 | 5 |
| <i>International revenues:</i> | | | | | Publication / reporting | | |
| EU research funding | 236 | 5,2 | 211 | 4,5 | Publ. points per researchers FTE | 0,46 | 0,47 |
| Other sources | 672 | 14,8 | 740 | 15,9 | Number of reports to commissioners | 2021 | 2636 |
| Other operating revenues | 239 | 5,3 | 151 | 3,2 | Researcher education | | |
| Operating profit | 37 | 0,8 | 143 | 3,1 | Number of PhD candidates | 166 | 179 |
| Equity | 3291 | 57,5 | 3695 | 61,5 | PhD disputations* | 27 | 32 |
| | | | | | Women | 9 | 11 |

* With at least half the work performed at the institute

A short presentation of the institutes included in the evaluation, and their form of organisation is given in the next chapter.

1.3 About this report

The purpose of this report is to present the basic facts about the 14 technical-industrial institutes included in the Research Council's evaluation. By numbers and words the report summarizes factors that are relevant for the panel that is going to evaluate the institutes individually and as a group. In most tables and figures the last five-year period (2009-2013) is presented to catch up the development over several years. In this revised, public version, some figures up to 2014 are included.

1.3.1 Sources

Key figures from NIFU

The report is primarily based on key numbers collected by NIFU (**Nordic Institute for Studies in Innovation, Research and Education**) on behalf of the Research Council. The key figures are collected from the institutes that receive basic funding from the Council, in addition to institutes that have asked the Council to assess whether they satisfy the requirements for inclusion in the basic funding scheme. The data includes financing, economic conditions, personnel data, collaboration with other R&D institutions, user contact, results from research and other professional activities. Chapters 3,4 and first part of 5 are primarily based on these key figures.

The Research Council data warehouse

Application statistics are collected from the database at the Research Council for the years 2009 to 2013. Information about number of submitted applications, number of accepted applications, total cost applied for and total grants for accepted applications, are collected, in addition to information about which funding instrument that has been used. This is reported in Section 5.2.

E-Corda (External COmmon Research Data Warehouse)

From this database information about applications and contracts for the institute's participation in EU's research programmes is extracted. These figures are presented in Chapter 6.

Other sources

Indikatorrapporten (NIFU), the Research Council's yearly report for the research institutes and the institute's homepages.

2 The institutes

2.1 Ownership and legal status

The table below provides information on legal status and ownership for each individual institute, as it occurs January 2015.

Tabular summaries for a wide range of key indicators for the technical-industrial institutes are included in Appendix 2.

| Institute | | Legal status | Founders/owners |
|--|-----------------------------|---------------------------------|---|
| Christian Michelsen Research AS (CMR) | | Ltd Company | Established in 1992 by University of Bergen (UoB). Owners: UoB (50%), Uni Research AS (35%), Statoil Techn. Invest Ltd. (5%), Sparebanken Vest (5%) and Seabed Geosolutions R&D (5%). |
| Institute for Energy Technology (IFE) | Nuclear research activities | Independent research foundation | Founded in 1948, separated from Norwegian Defence Research Establishment (FFI). Foundation from 1953 |
| | Other research activities | | |
| International Research Institute of Stavanger AS (IRIS) | | Ltd Company | Established in 2006. Equally owned by the foundation Rogalandsforskning and the University of Stavanger (50 %). |
| Norwegian Marine Technology Research Institute AS (MARINTEK) | | Ltd Company | Established in 1985. A company in the SINTEF Group, majority owned by the SINTEF Foundation (56 %) |
| Norwegian Geotechnical Institute (NGI) | | Independent research foundation | Officially established in 1953 by the Royal Norwegian Council for Industrial and Scientific Research (NTNF) |
| NORSAR | | Independent research foundation | Established in 1970. 1970-1993: A section of the Royal Norwegian Council for Industrial and Scientific Research (NTNF), 1993-1999: A section of the Norwegian Research Council. Became an independent research foundation in 1999 |
| Northern Research Institute AS – Norut Tromsø | | Ltd Company | Established in 2007. One of five companies in the Norut Group. The majority share-holder is the University of Tromsø. |
| Northern Research Institute AS – Norut Narvik | | Ltd Company | Established in 1991. The Norut Group has a 50 % shareholding in the company, while Narvik University College/ForteNarvik has a 50 % shareholding. |
| Norwegian Computing Center (NR) | | Independent research foundation | Established in 1952. Independent from 1958. Under the Royal Norwegian Council for Industrial and Scientific Research (NTNF) until 1985. |
| SINTEF Energy Research AS | | Ltd Company | Established in 1998. A company in the SINTEF Group. Majority owned by the SINTEF Foundation (61 %). Other owners are Energi Norge (33,4 %) and Norsk Industri (5,6 %) |
| SINTEF Petroleum Research AS | | Ltd Company | Established in 1975. A company in the SINTEF Group, wholly owned by the SINTEF Foundation. |
| SINTEF | SINTEF | Independent research | Established in 1950 by the Norwegian Institute of |

| | | | |
|-----------------|--------------------------------|---------------------------------|---|
| Foundation | Building and infrastructure | foundation | Technology (NTH), which now forms part of the Norwegian University of Science and Technology (NTNU). Part of the SINTEF Group and majority owner of three of the other technical-industrial institutes. |
| | SINTEF ICT | | |
| | SINTEF Materials and chemistry | | |
| | SINTEF Technology and society | | |
| Tel-Tek | | Independent research foundation | Established in 1986. |
| UNI Research AS | | Ltd Company | Established in 2003 as a limited company growing out of the Foundation for University Research in Bergen. Owned by University of Bergen (85%) and the Foundation for University Research in Bergen (15%). |

2.2 Links

Each institute's website provide in depth information about research activities and research topics. In addition information is available at NIFU's institute catalogue. Links to both sources are given in the table below.

| Institute: | Official website: | NIFUs institute catalogue: |
|-------------------|---|---|
| CMR | http://www.cmr.no/ | http://www.nifu.no/en/institutes/christian-michelsen-research-as/ |
| IFE | http://www.ife.no/en | http://www.nifu.no/en/institutes/institutt-for-energiteknikk/ |
| IRIS | http://www.iris.no/home | http://www.nifu.no/en/institutes/international-research-institute-of-stavanger-as/ |
| MARINTEK | http://www.sintef.no/home/MARINTEK-out-MARINTEK/ | http://www.nifu.no/en/institutes/norsk-marinteknisk-forskningsinstitutt-as/ |
| NGI | http://www.ngi.no/en/ | http://www.nifu.no/en/institutes/norges-geotekniske-institutt/ |
| NORSAR | http://www.norsar.no/norsar/home/ | http://www.nifu.no/en/institutes/norsar/ |
| Norut Narvik | http://norut.no/en/norut-narvik | http://www.nifu.no/en/institutes/northern-research-institute-narvik-as/ |
| Norut Tromsø | http://norut.no/en/norut-tromso | http://www.nifu.no/en/institutes/northern-research-institute-tromso-as/ |
| NR | https://www.nr.no/en | http://www.nifu.no/en/institutes/norsk-regnesentral/ |
| SINTEF Energy | http://www.sintef.no/home/SINTEF-Energy/About-SINTEF-Energy-Research/ | http://www.nifu.no/en/institutes/sintef-energi-as/ |
| SINTEF Petroleum | http://www.sintef.no/home/SINTEF-Petroleum-Research/About-us/ | http://www.nifu.no/en/institutes/sintef-petroleum-as/ |
| SINTEF Foundation | https://www.sintef.no/home/ | http://www.nifu.no/en/institutes/sintef-stiftelsen/ |
| Tel-Tek | http://eng.tel-tek.no/ | http://www.nifu.no/en/institutes/telemark- |

| | | |
|--------------|---|--|
| | | teknisk-industrielle-utviklingssenter/ |
| Uni Research | http://uni.no/en/ | http://www.nifu.no/en/institutes/uni-research-as/ |

2.3 Financial data for the institutes

Appendix 3 gives detailed information about the financial situation and development for each of the institutes for the period 2009 – 2013. Both income statements and balance sheets are given, based on official accounting data.

2.4 Details about some of the institutes

Most of the institutes that are included in the evaluation are purely technical-industrial, and most of them also constitute only one unit with respect to the evaluation. For five of the institutes, however, some further details are needed. These institutes are SINTEF, IFE, IRIS, Norut Tromsø and Uni Research.

2.4.1 SINTEF

The SINTEF group, with the SINTEF foundation ("stiftelsen") as the mother institution, consists of eight research institutes in addition to SINTEF Holding which operates as the owner of spin-off companies and other activities apart from the core activities. Three of the research institutes within the group (SINTEF Energy Research AS, SINTEF Petroleum Research AS and MARINTEK AS) are limited companies belonging to the technical-industrial arena with the SINTEF Foundation as wholly or majority owner as indicated in the table in Section 2.1. The fourth research institute organised as a limited company is SINTEF Fisheries and Aquaculture AS, which belongs to the arena for primary industry. The remaining four institutes are all directly organised within the foundation and are included as separate units in this evaluation. These institutes are listed in the table in Section 2.1. One of these institutes, SINTEF Technology and society, also have activities that belong to the social science arena and this part of the institute receive their basic grant from that arena. For this evaluation, only the technical-industrial part of this institute's activities is included.

2.4.2 IFE

IFE is the second largest of the technical-industrial institutes. For the purpose of this evaluation the activities have been divided into two units, the nuclear research and the other research. The division between these activities is not clear-cut, and does not reflect the internal organisation at the institute directly. Most of the nuclear activities are centred around the reactors at Kjeller and in Halden, but both places have a mix of nuclear and non-nuclear activities. IFE has clarified the division in a separate letter attached to their self-assessment form.

2.4.3 IRIS and Norut Tromsø

Both these institutes are mainly technical-industrial, but do perform research within the social sciences. This means that both these institutes have activities that belong to the arena for social sciences, and receive part of their basic funding from that arena. Only the technical-industrial activities are included in this evaluation.

2.4.4 Uni Research

Uni Research has not been a part of the basic funding scheme for the technical-industrial institutes up to date. One of the six departments, Uni Research Rokkan Centre, has received basic funding on the social science arena for some years. In 2014, the Research Council made an assessment of the activities in five other departments (Uni Research CIPR, Uni Research Computing, Uni Research Health, Uni Research Climate, Uni Research Environment) to evaluate if they satisfy the requirements to be included in the basic funding scheme. The conclusion of this process was that the Council recommended that Uni Research, with the five above mentioned departments, should be included in the scheme in addition to Uni Research Rokkan Centre. This recommendation is followed up and the six departments of Uni Research are included in the scheme from 2015. The departments are distributed on three different arenas, with Uni Research CIPR and Uni Research Computing belonging to the technical-industrial arena. Only the activities in these two departments are included in this evaluation.

Since Uni Research has not been a part of the basic funding scheme in the previous years, some of the key figures referred to in the remainder of this report are missing for this institute.

3 Human resources

3.1 Full-time equivalents (FTE)

In 2014, a total of 2845 full-time equivalents (FTEs) were performed by the technical-industrial institutes. A proportion of 66 per cent (1873 FTEs) was performed by researchers. This amounts to an average of 134 FTEs. IFE has a considerably lower proportion of researchers FTEs than the others. This is probably due to a higher proportion of technical staff at the nuclear reactors.

The number of researchers FTEs varies considerably across institutes, from 16 (Norut Narvik) to 748 (Stiftelsen SINTEF). IFE and NGI hold second and third place.

Table 3.1. Total FTEs and researchers FTEs performed in the institute sector, 2014.

| Institute | Total FTEs | Researchers FTEs | Researchers FTEs as a share of total FTEs (%) |
|--|-------------|------------------|---|
| CMR | 69 | 61 | 88 |
| IFE | 573 | 179 | 31 |
| IRIS | 157 | 105 | 67 |
| MARINTEK | 200 | 125 | 63 |
| NGI | 220 | 190 | 86 |
| NORSAR | 42 | 27 | 64 |
| Norut Narvik | 20 | 16 | 80 |
| Norut Tromsø | 39 | 34 | 87 |
| NR | 62 | 53 | 85 |
| Sintef Energi | 225 | 176 | 78 |
| Sintef Petroleum | 86 | 77 | 90 |
| Stiftelsen SINTEF | 1050 | 748 | 71 |
| Tel-Tek | 25 | 22 | 88 |
| UNI Research | 77 | 60 | 78 |
| Total Technical-industrial institutes | 2845 | 1873 | 66 |
| <i>Average FTEs, Technical-industrial institutes</i> | <i>203</i> | <i>134</i> | |
| Total Social science institutes | 940 | 754 | 80 |
| <i>Average FTEs, Social science institutes</i> | <i>41</i> | <i>33</i> | |
| Total Environmental institutes | 899 | 653 | 73 |
| <i>Average FTEs, Environmental institutes</i> | <i>112</i> | <i>82</i> | |
| Total Primary industry institutes | 1421 | 774 | 54 |
| <i>Average FTEs, Primary industry institutes</i> | <i>203</i> | <i>111</i> | |
| Total Institute sector | 6105 | 4054 | 66 |

Source: NIFU, key R&D statistics for the institute sector

The technical-industrial institutes account for 47 per cent of the total FTEs among the institutes in the basic funding scheme. Thus, the technical-industrial arena constitutes the largest institute group both in terms of total numbers and average FTEs. We need to bear in mind though, that Stiftelsen SINTEF weighs rather heavily in these overall figures.

For all institute groups, the number of researchers FTEs has remained fairly stable during the time-period covered (2009-2013(-14)).

3.2 Researchers with doctoral degrees

In 2013, researchers in a main position with a doctoral degree counted a number of 1010 in the technical-industrial institutes. This gives 0.53 employees with PhD per researchers FTEs.

Table 3.2 shows that the PhD intensity varies between the institutes. In 2013 the highest ratio is found at IRIS (0.69) and NORSAR (0.66), and the lowest at IFE (0.35) and NGI (0.36).

The institute sector has experienced a growth in the proportion of researchers FTEs performed by employees with a PhD during the period 2009-2013.

The primary industry institutes, with a ratio of 0.74, have the highest concentration of researchers with PhD.

Table 3.2. Number of employees in main position with a doctoral degrees and proportion of researcher with doctoral degree 2009 - 2013

| | Number of employees with PhD | | | | | PhD intensity among research staff* | | | | | 2009-2013 |
|--|------------------------------|------------|------------|--------------|--------------|-------------------------------------|-------------|-------------|-------------|-------------|-----------|
| | 2009 | 2010 | 2011 | 2012 | 2013 | 2009 | 2010 | 2011 | 2012 | 2013 | |
| CMR | 19 | 18 | 23 | 27 | 26 | 0,39 | 0,39 | 0,47 | 0,53 | 0,49 | |
| IFE | 78 | 79 | 83 | 101 | 75 | 0,37 | 0,37 | 0,39 | 0,45 | 0,35 | |
| IRIS | 61 | 58 | 64 | 65 | 64 | 0,54 | 0,56 | 0,64 | 0,69 | 0,69 | |
| MARINTEK | 42 | 45 | 45 | 48 | 55 | 0,36 | 0,40 | 0,38 | 0,41 | 0,46 | |
| NGI | 55 | 57 | 55 | 65 | 67 | 0,31 | 0,32 | 0,31 | 0,36 | 0,36 | |
| NORSAR | 16 | 16 | 16 | 18 | 16 | 0,55 | 0,55 | 0,56 | 0,69 | 0,66 | |
| Norut Narvik | 8 | 9 | 13 | 13 | 11 | 0,41 | 0,42 | 0,46 | 0,46 | 0,46 | |
| Norut Tromsø | 12 | 11 | 14 | 21 | 19 | 0,50 | 0,42 | 0,53 | 0,70 | 0,61 | |
| NR | 31 | 31 | 35 | 37 | 35 | 0,54 | 0,56 | 0,63 | 0,64 | 0,61 | |
| Sintef Energi | 77 | 82 | 85 | 88 | 97 | 0,51 | 0,50 | 0,52 | 0,53 | 0,58 | |
| Sintef Petroleum | 61 | 61 | 55 | 58 | 53 | 0,64 | 0,62 | 0,55 | 0,63 | 0,65 | |
| Stiftelsen SINTEF | 382 | 393 | 418 | 433 | 441 | 0,46 | 0,52 | 0,56 | 0,56 | 0,60 | |
| Tel-Tek | 12 | 11 | 7 | 8 | 10 | 0,41 | 0,32 | 0,22 | 0,30 | 0,39 | |
| UNI Research | | | 52 | 50 | 41 | | | 0,59 | 0,65 | 0,58 | |
| Total Technical-industrial institutes | 854 | 871 | 965 | 1 032 | 1 010 | 0,45 | 0,47 | 0,50 | 0,53 | 0,53 | |
| Total Social science institutes | 410 | 427 | 438 | 441 | 447 | 0,45 | 0,45 | 0,47 | 0,49 | 0,5 | |
| Total Environmental institutes | 323 | 338 | 361 | 393 | 388 | 0,48 | 0,49 | 0,52 | 0,59 | 0,57 | |
| Total Primary industry institutes | 541 | 555 | 582 | 596 | 602 | 0,71 | 0,7 | 0,7 | 0,74 | 0,74 | |

*) Number of employees with PhD divided by number of researchers FTEs.

Source: NIFU, key R&D statistics for the institute sector

Table 3.3 shows that over the five-year period an increasing number of PhDs have been completed in the institutes. The figures in the left columns show the number of PhD candidates that have completed their PhD within the respective year, while the right columns only count the number of candidates where the institute has been the main contributor to the work. The numbers show that SINTEF Energi contributes highly to the doctoral education as well as some of the institutes closely linked to universities, like IRIS and Uni Research. MARINTEK, which has a very high degree of revenues from commissioned research, has zero PhD candidates with more than 50 % contribution

from the institute over the five years, and CMR, NORSAR, Norut Tromsø and Tel-Tek have only one each.

Table 3.3. PhDs completed by staff in the institute sector, 2009-2013.

| | Number of completed PhDs | | | | | Completed PhDs with > 50 % institute contribution* | | | | |
|--|--------------------------|-----------|-----------|-----------|-----------|--|-----------|-----------|-----------|-----------|
| | 2009 | 2010 | 2011 | 2012 | 2013 | 2009 | 2010 | 2011 | 2012 | 2013 |
| CMR | 1 | | 1 | | | | | 1 | | |
| IFE | 2 | 1 | 5 | 3 | 3 | | 1 | 5 | 3 | 3 |
| IRIS | 2 | 2 | 6 | 2 | 5 | 1 | 1 | 5 | 1 | 5 |
| MARINTEK | | | | 3 | 4 | | | | | |
| NGI | 5 | 2 | | 5 | | 5 | 2 | | 4 | |
| NORSAR | | | 1 | | | | | 1 | | |
| Norut Narvik | | 2 | 2 | 1 | | | 2 | | 1 | |
| Norut Tromsø | | | 1 | | | | | 1 | | |
| NR | 2 | | 2 | 2 | 2 | | | 2 | 2 | 2 |
| Sintef Energi | 4 | 6 | 6 | 6 | 7 | 4 | 4 | 4 | 6 | 7 |
| Sintef Petroleum | 2 | | | | 2 | | | | | 2 |
| Stiftelsen SINTEF | 13 | 11 | 9 | 11 | 14 | 3 | 8 | 5 | 5 | 4 |
| Tel-Tek | | 2 | 2 | 1 | 3 | | | | 1 | |
| UNI Research | | | 8 | 5 | 4 | | | 8 | 5 | 4 |
| Total Technical-industrial institutes | 31 | 26 | 43 | 39 | 44 | 13 | 18 | 32 | 28 | 27 |
| Total Social science institutes | 38 | 33 | 40 | 39 | 36 | 27 | 25 | 31 | 21 | 26 |
| Total Environmental institutes | 11 | 18 | 16 | 16 | 20 | | 12 | 12 | 13 | 17 |
| Total Primary industry institutes | 32 | 19 | 25 | 28 | 32 | 32 | 16 | 23 | 27 | 31 |

*) Includes number of completed PhDs where at least 50 per cent of the work is performed at the institute or where the institute has financed at least 50 per cent of the work.

Source: NIFU, key R&D statistics for the institute sector

3.3 Cooperation with higher education sector

3.3.1 Researchers in the institutes with part-time positions in the higher education sector

The institutes cooperate with the higher education (HE) sector in several ways. Cooperation is expressed through joint projects, co-publications, doctorates, affiliations and other types of formal and informal contact. In this section we take a closer look at researchers FTEs performed in part-time positions, either in the institutes or in the higher education sector.

Researchers can have a main position at the institute, and a part-time position in the higher education sector, or vice versa.

Table 3.4 shows that around 1 per cent of the researchers FTEs in the technical-industrial institute group were performed in the HE sector. This is at about the same level as for the environmental and primary industry institutes, but considerably lower than in the social science institutes. Since a typical part-time position is 20 per cent, this means that on average one of twenty researchers in the technical-industrial institutes has a part-time position in the HE sector.

Looking at the individual institutes, the proportion varies from zero (Norut Narvik) to 1.7 per cent (NORSAR). Note that this table counts formal positions and does not catch up more informal project-based collaboration.

Table 3.4. Researchers in the institutes with part-time positions in higher education sector. Technical-industrial institutes and other research groups. 2013

| Institute | Researchers FTEs at the institute | Institute researchers FTEs performed in HE-sector | FTEs in HE-sector as % of researchers FTEs in the institutes |
|--|-----------------------------------|---|--|
| CMR | 54 | 0,2 | 0,4 % |
| IFE | 214 | 2,7 | 1,3 % |
| IRIS | 93 | 1,6 | 1,7 % |
| MARINTEK | 120 | 0,4 | 0,3 % |
| NGI | 186 | 2,0 | 1,1 % |
| NORSAR | 24 | 0,4 | 1,7 % |
| Norut Narvik | 24 | 0,0 | 0,0 % |
| Norut Tromsø | 31 | 0,3 | 1,0 % |
| NR | 58 | 0,6 | 1,0 % |
| Sintef Energi | 167 | 1,7 | 1,0 % |
| Sintef Petroleum | 82 | 1,0 | 1,2 % |
| Stiftelsen SINTEF | 740 | 7,7 | 1,0 % |
| Tel-Tek | 26 | 0,2 | 0,8 % |
| UNI Research | 71 | 1,0 | 1,4 % |
| Total Technical-industrial institutes | 1889 | 19,8 | 1,0 % |
| Social science institutes | 887 | 19,5 | 2,2 % |
| Environmental institutes | 679 | 5,6 | 0,8 % |
| Primary industry institutes | 815 | 6,6 | 0,8 % |

Source: NIFU, key R&D statistics for the institute sector

3.3.2 Researchers from the higher education sector with part-time positions in the technical-industrial institutes

Table 3.5 shows that the proportion of researchers FTE that the institute is "buying" from the higher education sector is equal to the proportion they are "selling" to the same sector. This represents one 20 per cent position from a researcher in the HE sector for every twenty researchers FTEs in the institute.

The variation between the institutes is considerable, with Tel-Tek having nearly four per cent researchers FTEs from the HE sector and three institutes having zero (MARINTEK, NGI, SINTEF Energi).

As for collaboration with the HE sector discussed in the previous section, also this type of collaboration is much more common in the social science institutes than in the other arenas.

Table 3.5. Researchers from the higher education sector with part-time positions in the technical-industrial institutes and other institute research groups. 2013.

| Institute | Researchers FTEs at the institute | Researchers FTEs from HE-sector performed at the institute | HE-researchers FTEs as % of researchers FTEs at the institutes |
|--|-----------------------------------|--|--|
| CMR | 54 | 0,8 | 1,5 % |
| IFE | 214 | 0,6 | 0,3 % |
| IRIS | 93 | 0,6 | 0,7 % |
| MARINTEK | 120 | 0,0 | 0,0 % |
| NGI | 186 | 0,0 | 0,0 % |
| NORSAR | 24 | 0,2 | 0,8 % |
| Norut Narvik | 24 | 0,5 | 2,1 % |
| Norut Tromsø | 31 | 0,8 | 2,6 % |
| NR | 58 | 0,9 | 1,6 % |
| Sintef Energi | 167 | 0,0 | 0,0 % |
| Sintef Petroleum | 82 | 1,1 | 1,3 % |
| Stiftelsen SINTEF | 740 | 11,0 | 1,5 % |
| Tel-Tek | 26 | 1,0 | 3,9 % |
| UNI Research | 71 | 1,2 | 1,7 % |
| Total Technical-industrial institutes | 1889 | 18,7 | 1,0 % |
| Social science institutes | 887 | 29,9 | 3,4 % |
| Environmental institutes | 679 | 4,4 | 0,6 % |
| Primary industry institutes | 815 | 7,7 | 0,9 % |

Source: NIFU, key R&D statistics for the institute sector

4 Revenues and funding

There are four main sources for the technical-industrial institutes operating revenues: Basic funding, revenues from national research funding, revenues from national markets for commissioned research and financing from abroad. Tables 4.1a and 4.1b show that the total operating revenues for the technical-industrial institutes in 2013 and 2014 is higher than the revenues for all the other institute groups together. They also show that more than 60 per cent of the institute's revenues from national commissioned research come from the technical-industrial institutes and the corresponding figure is around 75 per cent for revenues from abroad.

Another important observation in Table 4.1a is that the total operating profit in 2013 was only 37.3 mill. NOK, i.e. 0.8 per cent of the operating revenues, and that 7 of the 14 institutes had a negative profit. Most significant in the negative direction is IFE with a result of – 5.6 per cent of the operating revenue. Stiftelsen SINTEF had a profit of 2.5 per cent which is a little higher than the inflation in Norway in the same period (2.1 % - consumer price index). Including the other institute groups shows even worse figures in terms of profit as a share of operating revenues (0.2 %).

Table 4.1a Economic data for technical-industrial institutes and other institute groups, 2013. Mill. NOK.

| | Operating revenue | Operating profit | Basic funding | Revenues from national research funding | Revenues from national markets for commissioned research | Abroad |
|--|-------------------|------------------|---------------|---|--|---------|
| CMR | 145,9 | 0,7 | 6,6 | 51,3 | 61,6 | 4,5 |
| IFE | 807,6 | -45,3 | 33,3 | 85,2 | 313,4 | 266,7 |
| IRIS | 255,7 | 18,1 | 13,0 | 56,8 | 171,6 | 8,9 |
| MARINTEK | 310,1 | 13,8 | 15,3 | 25,7 | 172,7 | 96,3 |
| NGI | 367,9 | -1,3 | 22,0 | 17,7 | 250,0 | 77,2 |
| NORSAR | 71,4 | -0,4 | 6,0 | 10,0 | 38,2 | 16,9 |
| Norut Narvik | 27,9 | -1,7 | 3,1 | 16,1 | 6,3 | 2,0 |
| Norut Tromsø | 41,2 | -1,5 | 4,9 | 14,6 | 11,1 | 9,8 |
| NR | 80,5 | 0,2 | 11,7 | 19,2 | 36,3 | 12,3 |
| Sintef Energi | 399,0 | 24,4 | 20,0 | 197,4 | 134,2 | 46,3 |
| Sintef Petroleum | 171,6 | -15,3 | 13,4 | 28,0 | 92,2 | 38,0 |
| Stiftelsen SINTEF | 1 726,4 | 43,6 | 106,5 | 289,4 | 810,5 | 321,5 |
| Tel-Tek | 32,0 | -0,6 | 3,7 | 7,9 | 18,1 | 0,0 |
| UNI Research | 89,4 | 2,5 | | 37,5 | 44,0 | 7,8 |
| Total Technical-industrial institutes | 4 526 | 37,3 | 259,6 | 856,7 | 2160 | 908,2 |
| Social science institutes | 1 336,9 | 0,3 | 200,1 | 490,1 | 488,1 | 92,2 |
| Primary industry institutes | 1 768,6 | 6,9 | 274,6 | 598,9 | 411,0 | 81,0 |
| Environmental institutes | 1 113,6 | -30,8 | 167,1 | 369,0 | 399,5 | 143,1 |
| Total Institute sector | 8 745,0 | 13,7 | 901,4 | 2 314,7 | 3 458,7 | 1 224,5 |

Source: NIFU, key R&D statistics for the institute sector

Table 4.1b shows that the financial results in terms of operating profit improved considerably in 2014. The total operating profit was 141.3 mill. NOK, which represents 3.1 per cent of the operating revenues. Only two institutes had a negative profit (CMR -8.5 % and Norut Tromsø -0.4 %), while IFE changed a very negative result in 2013 to a small positive result in 2014. SINTEF Petroleum had the highest relative profit with 12.3 per cent, as a contrast to a negative profit of 8.9 per cent in 2013. Also the three other institute arenas had better total result in 2014 than in 2013.

Table 4.1a Economic data for technical-industrial institutes and other institute groups, 2014. Mill. NOK.

| | Operating revenue | Operating profit | Basic funding | Revenues from national research funding | Revenues from national markets for commissioned research | Abroad |
|--|-------------------|------------------|---------------|---|--|---------|
| CMR | 137,8 | -11,7 | 6,8 | 46,7 | 60,4 | 3,9 |
| IFE | 900,9 | 6,9 | 81,6 | 86,5 | 360,6 | 324,2 |
| IRIS | 265,8 | 9,4 | 13,8 | 65,2 | 168,0 | 14,0 |
| MARINTEK | 328,3 | 22,6 | 16,6 | 34,5 | 194,7 | 82,3 |
| NGI | 392,7 | 4,9 | 23,3 | 20,6 | 235,6 | 111,0 |
| NORSAR | 61,7 | 0,6 | 6,2 | 10,1 | 32,0 | 12,3 |
| Norut Narvik | 22,7 | 0,1 | 3,1 | 11,7 | 5,9 | 1,9 |
| Norut Tromsø | 47,1 | -0,2 | 4,9 | 21,6 | 5,5 | 14,4 |
| NR | 80,4 | 2,1 | 11,8 | 19,0 | 37,0 | 11,7 |
| Sintef Energi | 399,3 | 17,2 | 22,2 | 246,1 | 74,9 | 56,1 |
| Sintef Petroleum | 187,8 | 23,1 | 13,8 | 47,0 | 92,7 | 27,6 |
| Stiftelsen SINTEF | 1 708,2 | 61,1 | 111,9 | 290,0 | 919,7 | 277,4 |
| Tel-Tek | 31,5 | 1,6 | 3,8 | 13,7 | 10,9 | 3,1 |
| UNI Research | 86,5 | 4,6 | | 30,2 | 46,1 | 9,8 |
| Total Technical-industrial institutes | 4 650,4 | 142,3 | 319,8 | 943,0 | 2 244,0 | 949,7 |
| Social science institutes | 1 295,8 | 33,9 | 170 | 535,4 | 442,0 | 94,0 |
| Primary industry institutes | 1 761,5 | 16,8 | 265 | 576,8 | 439,0 | 86,5 |
| Environmental institutes | 1 203,1 | 26,5 | 169,8 | 416,2 | 427,0 | 137,1 |
| Total Institute sector | 8 910,7 | 219,5 | 924,6 | 2 471,4 | 3 552,2 | 1 267,3 |

Source: NIFU, key R&D statistics for the institute sector

4.1 Operating revenues

Since 2010, the institutes that receive basic funding through the RCN (that means excl. Uni Research), have experienced a total nominal growth in operating revenues of 11 per cent.

Table 4.2 shows that in 2014, the total operating revenue for the technical-industrial institutes amounted to 4 651 mill. NOK. This represents more than half of the total operating revenues for all institute groups as a whole. Since 2011 (the first year with figures for all 14 institutes), this institute group has experienced a total nominal growth of 9 per cent. Looking at the whole period (2009 – 2014), all institutes, except Uni Research and Tel-Tek, has had an increase, but to a very varying degree. Norut Tromsø and CMR are ranking highest with an increase of 59 and 48 per cent respectively. Some of the institutes with little growth have not kept in step with the growth in prices over this period (8.9 per cent according to Statistics Norway). This applies to MARINTEK, Norut Narvik, SINTEF Energi, SINTEF Petroleum, Stiftelsen SINTEF, Tel-Tek and Uni Research.

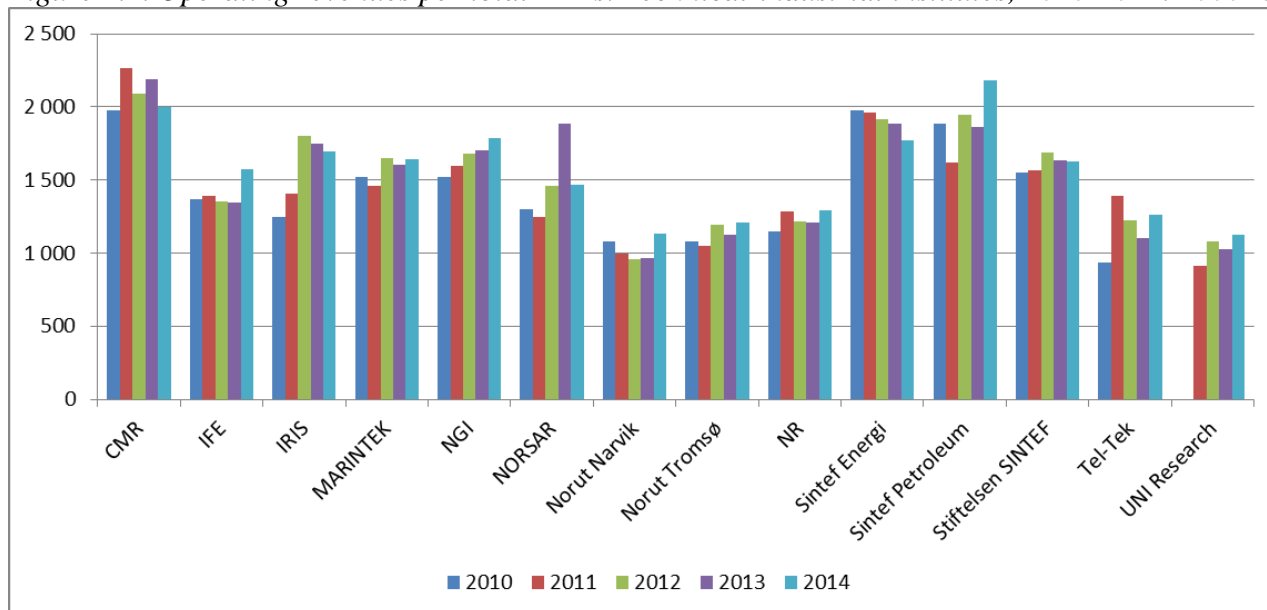
Table 4.2. Total operating revenue. Technical-industrial institutes and other institute groups. Mill. NOK. 2009-2014

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | | Change 2009-2014 | |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--|------------------|-------------|
| | | | | | | | | mill. NOK | percent |
| CMR | 93,4 | 121,6 | 149,3 | 140,0 | 145,9 | 137,8 | | 44,4 | 48 % |
| IFE | 656,1 | 724,7 | 756,9 | 785,5 | 807,6 | 900,9 | | 244,8 | 37 % |
| IRIS | 203,7 | 186,1 | 204,9 | 255,4 | 255,7 | 265,8 | | 62,1 | 30 % |
| MARINTEK | 303,3 | 287,2 | 287,7 | 312,2 | 310,1 | 328,3 | | 25,0 | 8 % |
| NGI | 309,1 | 316,9 | 331,9 | 356,6 | 367,9 | 392,7 | | 83,6 | 27 % |
| NORSAR | 53,9 | 56,2 | 53,7 | 59,3 | 71,4 | 61,7 | | 7,8 | 14 % |
| Norut Narvik | 21,4 | 27,7 | 33,1 | 31,6 | 27,9 | 22,7 | | 1,3 | 6 % |
| Norut Troms | 29,7 | 33,0 | 32,7 | 41,5 | 41,2 | 47,1 | | 17,4 | 59 % |
| NR | 71,6 | 74,6 | 83,7 | 81,7 | 80,5 | 80,4 | | 8,8 | 12 % |
| Sintef Energi | 375,8 | 401,3 | 404,2 | 400,9 | 399,0 | 399,3 | | 23,5 | 6 % |
| Sintef Petrol | 183,5 | 207,0 | 179,2 | 199,0 | 171,6 | 187,8 | | 4,3 | 2 % |
| Stiftelsen SII | 1 593,5 | 1 626,2 | 1 619,8 | 1 724,6 | 1 726,4 | 1 708,2 | | 114,7 | 7 % |
| Tel-Tek | 31,9 | 33,8 | 47,0 | 36,7 | 32,0 | 31,5 | | -0,4 | -1 % |
| UNI Research | | | 96,5 | 99,9 | 89,4 | 86,5 | | -10,0 | -10 % |
| Total Techni | 3 927 | 4 096 | 4 281 | 4 525 | 4 526 | 4 651 | | 723,8 | 18 % |
| Social scienc | 1 299 | 1 291 | 1 320 | 1 342 | 1 337 | 1 296 | | -3,0 | 0 % |
| Primary indu | 1 641 | 1 659 | 1 729 | 1 734 | 1 769 | 1 761 | | 120,0 | 7 % |
| Environmen | 1 041 | 1 076 | 1 113 | 1 125 | 1 114 | 1 203 | | 162,0 | 16 % |
| Total Institut | 7 908 | 8 122 | 8 443 | 8 725 | 8 745 | 8 911 | | 1 003,0 | 13 % |

Source: NIFU, key R&D statistics for the institute sector

Figure 4.1 shows the operating revenue per FTE in the institutes for the period 2010-2014. Most institutes have an increase over the period. This is expected due to rising salaries, but it is not the case for all. SINTEF Energi is on a lower level in 2014 than in 2010, while IFE and SINTEF Petroleum have shown a significant increase from 2013 to 2014 and NORSAR from 2012 to 2013. The level between the institutes varies also a lot, from Norut Narvik with around 1,1 mill. NOK in 2014 to SINTEF Petroleum with 2.2 mill. NOK the same year. The differences are probably due to regional variations, different profile in terms of educational level and harder competition on salaries in some sectors (e.g. oil and gas). It is also a fact that institutes with heavy research infrastructures need to price the operating costs for the equipment in the hourly rates. This will also lead to higher operating revenues per FTE.

Figure 4.1. Operating revenues per total FTEs. Technical-industrial institutes, 2010-2014. 1000 NOK.

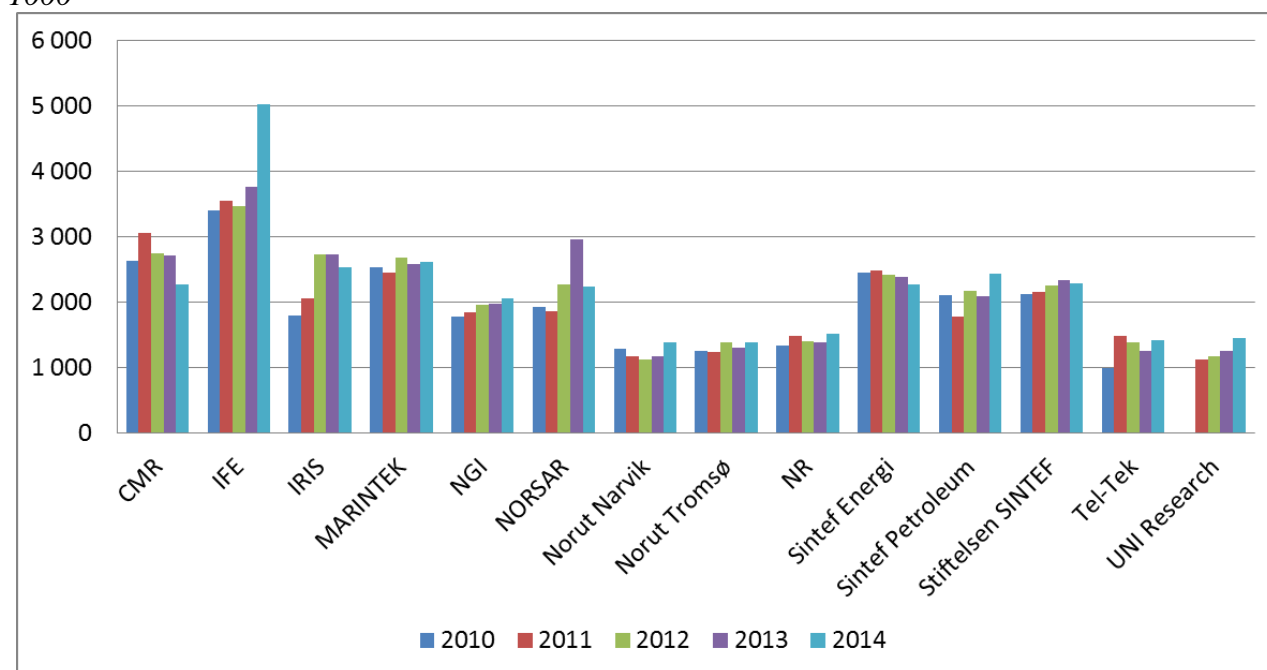


Source: NIFU, key R&D statistics for the institute sector.

*) Operating revenues divided by total FTEs.

The same pattern as described above is seen in figure 4.2 which shows operating revenues per researchers FTEs. On this graph, however, IFE is on the highest level. This is correlated to the fact that this institute has the lowest proportion of researchers FTEs.

Figure 4.2. Operating revenues per researchers FTEs. Technical-industrial institutes, 2010-2014. NOK 1000



Source: NIFU, key R&D statistics for the institute sector.

*) Operating revenues divided by number of researchers FTEs

Table 4.3 shows that the operating revenues per researchers FTEs are higher among the technical-industrial institutes than the other institute groups. It is significantly lower for the social science and environmental institutes and a little lower among the primary industry institutes. This reflects that the technical-industrial and the primary industry arenas are the most research infrastructure intensive arenas. The trend shows a steady increase from year to year for the technical-industrial institutes, as for the other institute groups.

Table 4.3. Operating revenues per researchers FTEs by institute arena, 2010-2014. 1000 NOK.

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-------|-------|-------|-------|-------|
| Total Technical-industrial institutes | 2 218 | 2 272 | 2 379 | 2 441 | 2 483 |
| Social science institutes | 1 391 | 1 427 | 1 520 | 1 526 | 1 719 |
| Primary industry institutes | 2 080 | 2 076 | 2 155 | 2 171 | 2 275 |
| Environmental institutes | 1 559 | 1 611 | 1 661 | 1 639 | 1 843 |

Source: NIFU, key R&D statistics for the institute sector.

4.2 Operating result

Table 4.4 shows that in 2014, the technical-industrial institutes as a whole made an operating profit of 142.2 mill. NOK, compared to 37.3 mill. NOK in 2013.

The four institutes in the SINTEF Group had the highest operating profits, ranging from 17 to 61 mill. NOK. Two institutes had a negative result in 2014, CMR with -11,7 mill. NOK and Norut Tromsø with -0,2 mill. NOK. These two institutes, as well as NGI and Tel-Tek have had a negative operating result in three of the last five years.

Compared to the previous year, 2014 gave a much better overall result for the institute group. 2013 sticks out as a special negative year with a operating result of just 0,8 per cent for the whole group and with 7 of the 14 institutes showing a negative result. The overall result in 2014 represents three per cent of the operating result. That is around the same level as in 2011 and 2012.

As for the technical-industrial institutes, all the other three institute groups had a better overall result in 2014 than in 2013, even if the figures are much smaller.

Table 4.4. Operating profit for technical-industrial institutes and other institute groups. Mill. NOK. 2009-2014

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2009-2014 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|-----------|
| CMR | -4,2 | 6,0 | -4,2 | -6,7 | 0,7 | -11,7 | |
| IFE | 7,6 | 17,9 | 21,5 | 15,7 | -45,3 | 6,9 | |
| IRIS | 7,1 | 7,1 | 12,8 | 22,9 | 18,1 | 9,4 | |
| MARINTEK | 18,4 | 12,3 | 11,1 | 11,7 | 13,8 | 22,6 | |
| NGI | 7,4 | 12,2 | -5,5 | -4,0 | -1,3 | 4,9 | |
| NORSAR | 2,8 | 6,6 | -3,1 | 1,0 | -0,4 | 0,6 | |
| Norut Narvik | 0,0 | 0,4 | 1,1 | 0,0 | -1,7 | 0,1 | |
| Norut Tromsø | 0,7 | 1,0 | -2,9 | -0,6 | -1,5 | -0,2 | |
| NR | 1,9 | 2,5 | 9,2 | 1,4 | 0,2 | 2,1 | |
| Sintef Energi | 20,3 | 40,7 | 30,2 | 22,0 | 24,4 | 17,2 | |
| Sintef Petroleum | 8,3 | 5,2 | -5,3 | 0,1 | -15,3 | 23,1 | |
| Stiftelsen SINTEF | 55,9 | 68,7 | 56,2 | 63,4 | 43,6 | 61,1 | |
| Tel-Tek | 1,7 | 1,1 | -0,5 | -0,2 | -0,6 | 1,6 | |
| UNI Research | | | -0,5 | 1,6 | 2,5 | 4,6 | |
| Total Technical-industrial institutes | 127,9 | 181,7 | 120,1 | 128,3 | 37,3 | 142,2 | |
| Social science institutes | 19,3 | 15,8 | 20,8 | 12,7 | 0,3 | 33,9 | |
| Primary industry institutes | 4,1 | 20,0 | 31,2 | -27,5 | 6,9 | 16,8 | |
| Environmental institutes | 14,8 | 48,3 | 23,6 | -7,5 | -30,8 | 26,4 | |

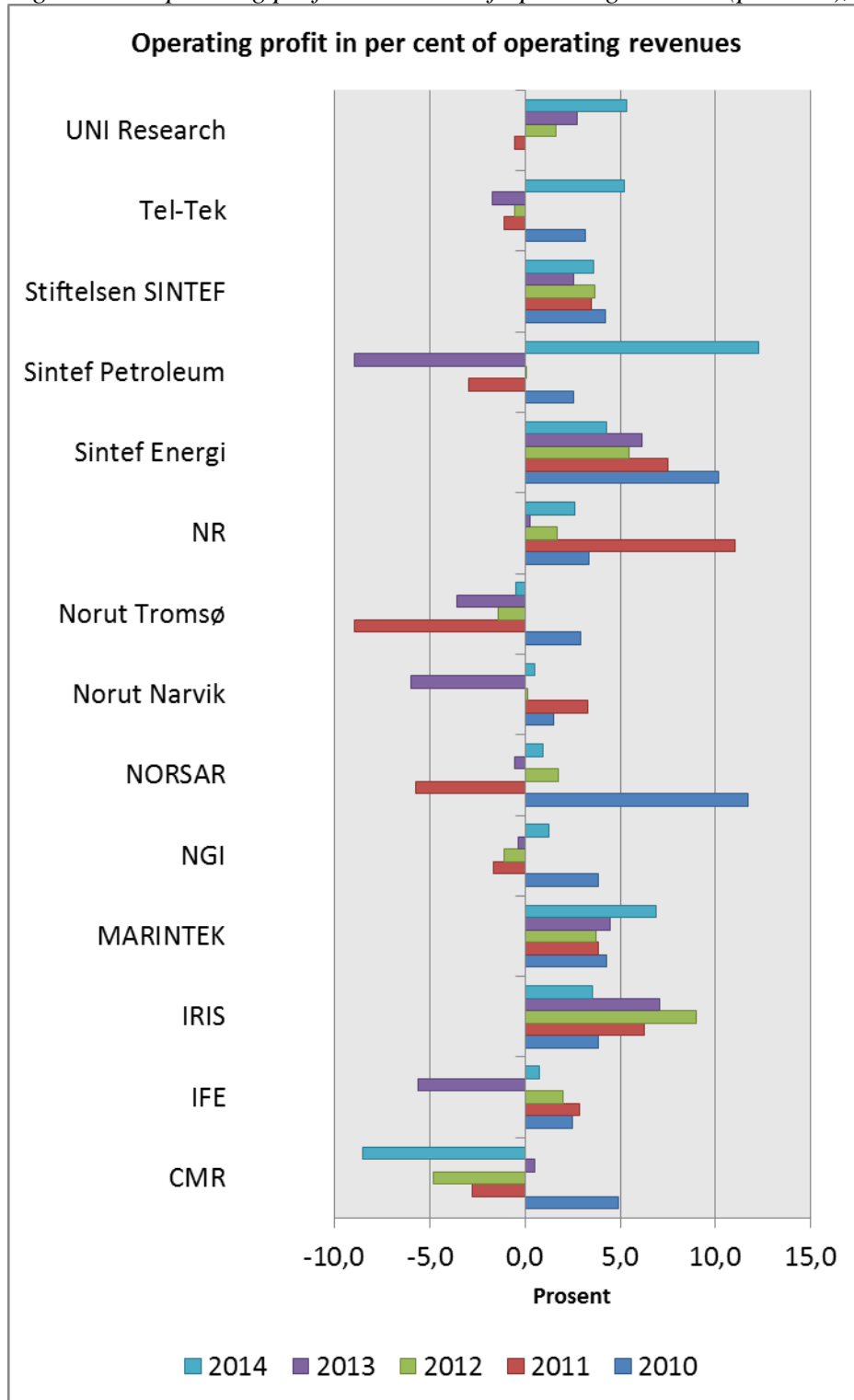
Source: NIFU, key R&D statistics for the institute sector.

In 2013, the operating profit of the technical-industrial institute group corresponds to 0.8 per cent of the total operating revenues. The loss for SINTEF Petroleum, Norut Narvik and IFE represents between 9 and 6 per cent of their operating revenues. At the other end of the scale we find IRIS with a profit of 7 per cent.

The RCN annual report for the research institutes in 2013, argues that poor operating profit can be seen in the context of a decline in revenues from the RCN, and fewer assignments from public sector (government sources) and the industrial sector. Other proposed explanations are increased pension costs, shortfall in EU projects and a growth in number of small projects.

Figure 4.4 shows the yearly operating profit as a share of the operating revenue for the period 2010 to 2014. If one assumes that a profit of around 3 per cent is a rule of thumb for defending the equity, there are few institutes that have managed that every year. It is worth noting that the institutions in the SINTEF Group shows sound financial results (with an exception for SINTEF Petroleum in the years 2011-2013) and the same applies to IRIS and NR.

Figure 4.3. Operating profit as a share of operating revenue (per cent), 2010-2014



Source: NIFU, key R&D statistics for the institute sector.

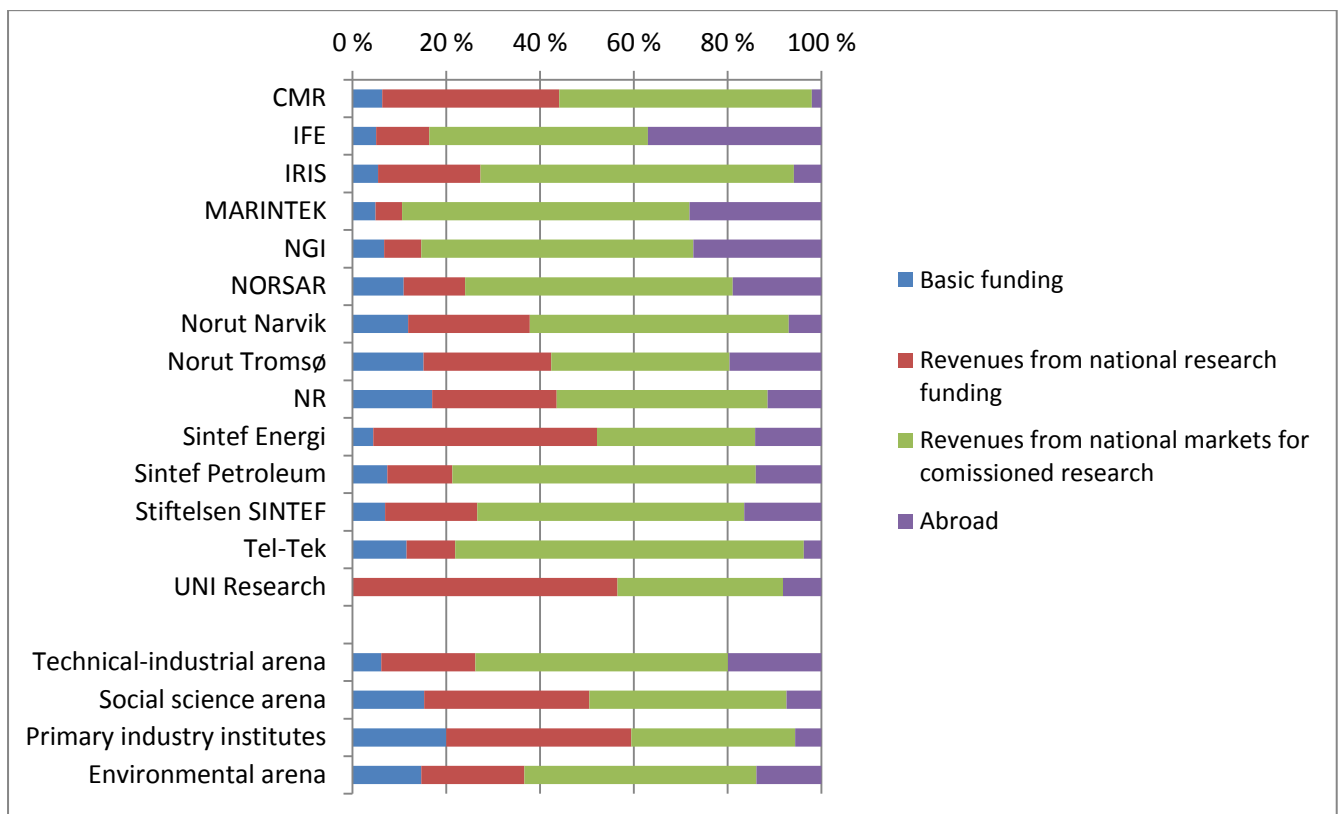
4.3 Sources of revenues

The technical-industrial institutes serve both public and private sector at home and abroad, thus their financing derives from different sources of funds: Basic funding and project revenues from the Research Council of Norway, revenues from governmental and public administration sources, revenues from national markets for commissioned research, and financing from abroad, including income from EU-projects (cf. table 4.5).

Figure 4.4 shows the total operating revenues for the institutes in the period 2009-2013 (2011-2013 for Uni Research) distributed on four main sources of income. The four different sources will be presented, and details given, in the next sections. An overall observation is that there are big differences in funding profile between the institutes. Two institutes, SINTEF Energi and Uni Research, have more than 50 per cent of their revenues from basic and national research funding, that is mainly through the Research Council. For three other institutes, IFE, MARINTEK and NGI, these categories account for less than 20 per cent. In terms of international revenues there is great variation between CMR and Tel-Tek on one hand, with very small proportions, and IFE, MARINTEK and NGI with more than 20 per cent revenues from abroad. In the case of IFE, the international Halden project is a major contributor to these figures.

All institutes have a large proportion of their revenues from national commissioned research, but it varies from 33 per cent for SINTEF Energi to 75 per cent for Tel-Tek.

Figure 4.4. Operating revenue by source of funds. Technical-industrial institutes, 2009-2013



Source: NIFU, key R&D statistics for the institute sector

Apart from the basic funding of nearly 6 per cent, the technical-industrial institutes received approximately 16 per cent of their operating revenues from the RCN. Revenues from the national markets for commissioned research, count for 47 per cent of the total revenues, where the industrial sector is by far the largest source. Revenues from abroad make up 20 per cent. This distribution has remained stable for the last five years.

Table 4.5 shows a detailed picture of the different sources for the institute's revenues in 2013. The different sources are discussed in more details in the following sections. Corresponding tables for the years 2012 and 2011 are presented in Appendix 5.

Table 4.5. Revenues by source of funds. Technical-industrial institutes and other institute groups Mill. NOK 2013

| | Basic funding | Govern-mental services | Revenues from national research funding | | Revenue from national markets for comissioned research | | | | Abroad | Other operating-related revenues | Financial revenues | Total revenues |
|--|---------------|------------------------|---|----------------------------|--|--------------------|-------|---------|---------|----------------------------------|--------------------|----------------|
| | | | RCN | Governm. sources excl. RCN | Public administr-ation | Indust-rial sector | Other | Total | | | | |
| CMR | 6,6 | | 51,3 | | 4,7 | 56,9 | | 61,6 | 4,5 | 21,9 | 10,2 | 156,0 |
| IFE | 33,3 | 103,3 | 80,2 | 5,0 | 66,5 | 235,8 | 11,0 | 313,4 | 266,7 | 5,8 | 8,4 | 816,0 |
| IRIS | 13,0 | | 53,7 | 3,1 | 4,7 | 164,0 | 2,9 | 171,6 | 8,9 | 5,5 | 6,0 | 261,7 |
| MARINTEK | 15,3 | | 8,8 | 16,9 | 2,5 | 170,2 | | 172,7 | 96,3 | 0,1 | 5,1 | 315,2 |
| NGI | 22,0 | | 11,7 | 5,9 | 58,9 | 191,1 | | 250,0 | 77,2 | 1,1 | 2,9 | 370,8 |
| NORSAR | 6,0 | | 8,7 | 1,2 | 19,0 | 19,2 | | 38,2 | 16,9 | 0,3 | 0,8 | 72,2 |
| Norut Narvik | 3,1 | | 5,6 | 10,5 | 2,6 | 3,7 | | 6,3 | 2,0 | 0,4 | 0,1 | 27,9 |
| Norut Tromsø | 4,9 | | 12,6 | 2,1 | 8,4 | 2,5 | 0,2 | 11,1 | 9,8 | 0,8 | 1,0 | 42,2 |
| NR | 11,7 | | 16,2 | 3,1 | 6,1 | 30,2 | | 36,3 | 12,3 | 0,9 | 6,4 | 86,8 |
| Sintef Energi | 20,0 | | 129,9 | 67,4 | 16,1 | 118,1 | | 134,2 | 46,3 | 1,0 | 12,0 | 411,0 |
| Sintef Petroleum | 13,4 | | 28,0 | | 5,7 | 86,4 | | 92,2 | 38,0 | | 6,2 | 177,8 |
| Stiftelsen SINTEF | 106,5 | | 277,3 | 12,1 | 177,5 | 633,0 | | 810,5 | 321,5 | 198,5 | 26,7 | 1 753,1 |
| Tel-Tek | 3,7 | | 3,0 | 4,9 | | 18,1 | | 18,1 | 0,0 | 2,3 | | 32,0 |
| UNI Research | | | 35,3 | 2,2 | 17,1 | 26,8 | 0,0 | 44,0 | 7,8 | 6,0 | | 95,3 |
| Total Technical-industrial institutes | 259,6 | 103,3 | 722,3 | 134,4 | 390 | 1755,9 | 14,1 | 2160 | 908,2 | 244,5 | 85,8 | 4618 |
| Social science institutes | 200,1 | 28,8 | 360,4 | 129,7 | 311,6 | 156,0 | 20,5 | 488,1 | 92,2 | 37,5 | 20,5 | 1 357,4 |
| Primary industry institutes | 274,6 | 361,1 | 250,4 | 348,5 | 60,9 | 349,1 | 1,0 | 411,0 | 81,0 | 42,0 | 4,3 | 1 772,9 |
| Environmental institutes | 167,1 | 28,9 | 195,2 | 173,8 | 293,6 | 99,2 | 6,8 | 399,5 | 143,1 | 6,0 | 12,7 | 1 126,3 |
| Total Institute sector | 901,4 | 522,1 | 1 528,2 | 786,4 | 1 056,1 | 2 360,2 | 42,3 | 3 458,7 | 1 224,5 | 330,0 | 123,2 | 8 874,5 |

Source: NIFU, key R&D statistics for the institute sector.

4.3.1 Basic funding from The Research Council of Norway

In 2013, the institute groups as a whole received 901 mill. NOK through basic funding. The technical-industrial group accounts for a share of 29 per cent, which, as outlined earlier, accounts for 6 per cent of the group's operating revenues.

Table 4.6 shows that for the technical-industrial group, there have been an increase in the basic funding from 2009 to 2011, and then a decline until 2013. This is not due to a decrease in the allocations from RCN (which has been constant over the last three years), but reflects the accounting procedures in the institutes. Due to the redistribution of a share (approx. 10 %) of the basic funding (described in Section 1.2.1) the development in the basic funding over the five year period varies between the institutes. The main pattern is that the institutes either gain from year to year or loose from year to year. This has two explanations. One reason for gaining or loosing is the performance based redistribution. Some institutes perform well compared to the others, and some perform not so well. These trends are quite constant. But this is not the whole explanation. When the performance based system was introduced in 2009, the institutes got an

initial basic funding based on the size of former grants from RCN and not necessarily on the size of the institute's research activities. These meant that some smaller institutes started out with high basic funding, and some larger institutes started out with low funding. The institutes in the former category are not able of defending their high basic funding even though they might score well compared to the size, and institutes in the latter category increase their funding due to their size even if they not necessarily score so well. Over time, the redistribution system will ensure that the basic funding converges to the "correct" level. NR is an example of an institute that loose every year, not due to bad performance, but high initial level, while SINTEF Energi is an example of the opposite. They started out on a low level and gain every year.

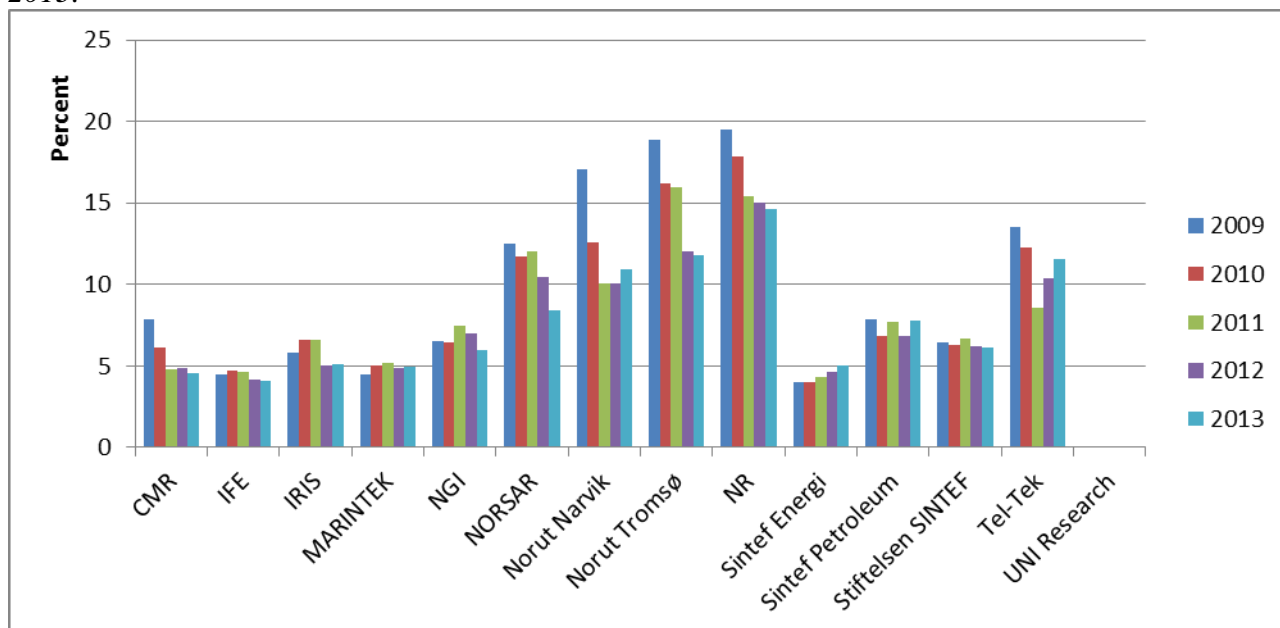
Table 4.6. Basic funding. Technical-industrial institutes and other institute groups. Mill. NOK 2009–2013

| Institute | Basic funding | | | | | 2009-2013 |
|--|---------------|------------|------------|------------|------------|-----------|
| | 2009 | 2010 | 2011 | 2012 | 2013 | |
| CMR | 7,4 | 7,4 | 7,2 | 6,8 | 6,6 | |
| IFE | 29,3 | 34,1 | 35,0 | 32,9 | 33,3 | |
| IRIS | 11,8 | 12,2 | 13,5 | 12,8 | 13,0 | |
| MARINTEK | 13,5 | 14,5 | 15,0 | 15,2 | 15,3 | |
| NGI | 20,1 | 20,5 | 24,9 | 24,8 | 22,0 | |
| NORSAR | 6,7 | 6,6 | 6,5 | 6,2 | 6,0 | |
| Norut Narvik | 3,7 | 3,5 | 3,3 | 3,2 | 3,1 | |
| Norut Tromsø | 5,6 | 5,4 | 5,2 | 5,0 | 4,9 | |
| NR | 14,0 | 13,3 | 12,9 | 12,2 | 11,7 | |
| Sintef Energi | 14,9 | 16,2 | 17,5 | 18,7 | 20,0 | |
| Sintef Petroleum | 14,5 | 14,1 | 13,9 | 13,7 | 13,4 | |
| Stiftelsen SINTEF | 102,6 | 102,7 | 107,9 | 107,2 | 106,5 | |
| Tel-Tek | 4,3 | 4,2 | 4,0 | 3,8 | 3,7 | |
| UNI Research | | | | | | |
| Total Technical-industrial institutes | 248 | 255 | 267 | 263 | 260 | |
| Social science institutes | 182 | 179 | 183 | 194 | 200 | |
| Environmental institutes | 138 | 149 | 145 | 163 | 167 | |
| Primary industry institutes | 249 | 259 | 271 | 268 | 275 | |

Source: NIFU, key R&D statistics for the institute sector

Figure 4.5 illustrates the differences between the institutes in terms of basic funding as proportion of the total operating revenues, and also the development of this proportion over the five year period. IFE has the lowest share of their operating revenues from the basic funding with approximately 4 per cent. From 2014 this is radically changed as the Department for Industry, Trade and Fisheries has decided to include funding (45.15 mill. NOK) that was previously dedicated to nuclear research at Kjeller as a part of the general basic funding to the institute. NR has the highest proportion basic funding, due to a very high level at the origin of the new system in 2009. The tendency in the figure shows that many of the smaller institutes (Tel-Tek, Norut Narvik, Norut Tromsø and Norsar) started out with a high level in 2009 and experience a decline that moves them towards the average for the total group of institutes in the arena (6 per cent).

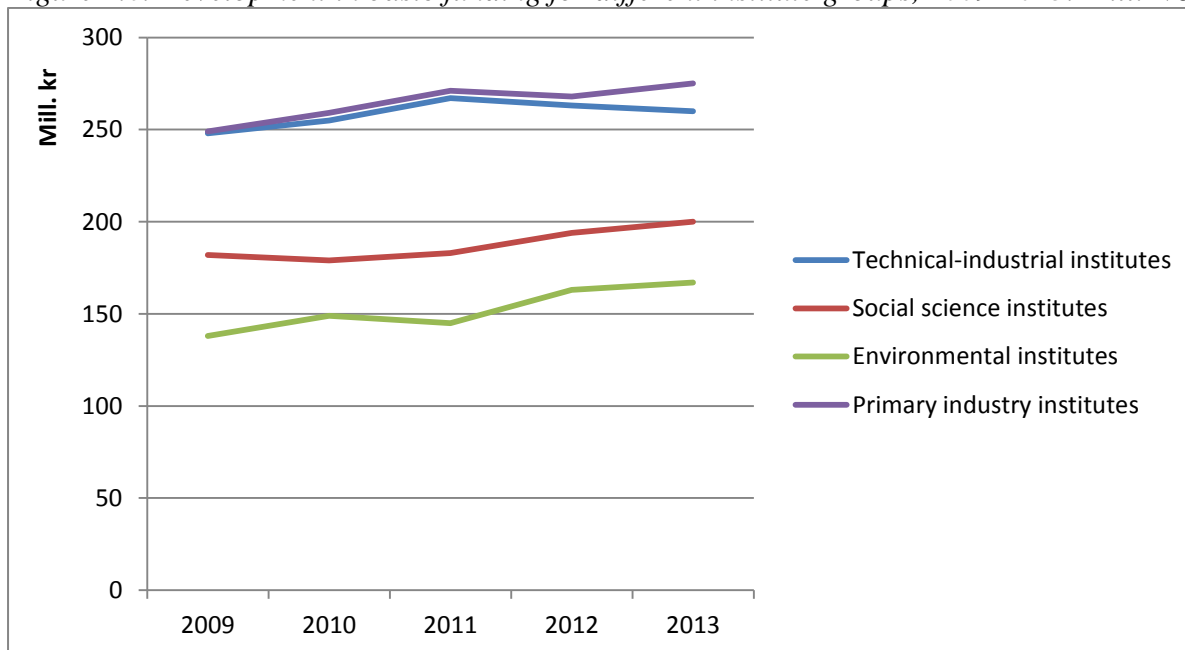
Figure 4.5. Basic funding as a share of total operating revenues. Technical-industrial institutes, 2009 – 2013.



Source: NIFU, key R&D statistics for the institute sector

Figure 4.6 shows that the basic funding, at current prices, has increased for all institute groups from 2009 to 2013. The technical-industrial institutes show the lowest growth (5 %), while the largest increase applies to the environmental institutes (21 %). The two other institute groups have a growth of 10 per cent each.

Figure 4.6. Development in basic funding for different institute groups, 2009-2013. Mill. NOK.

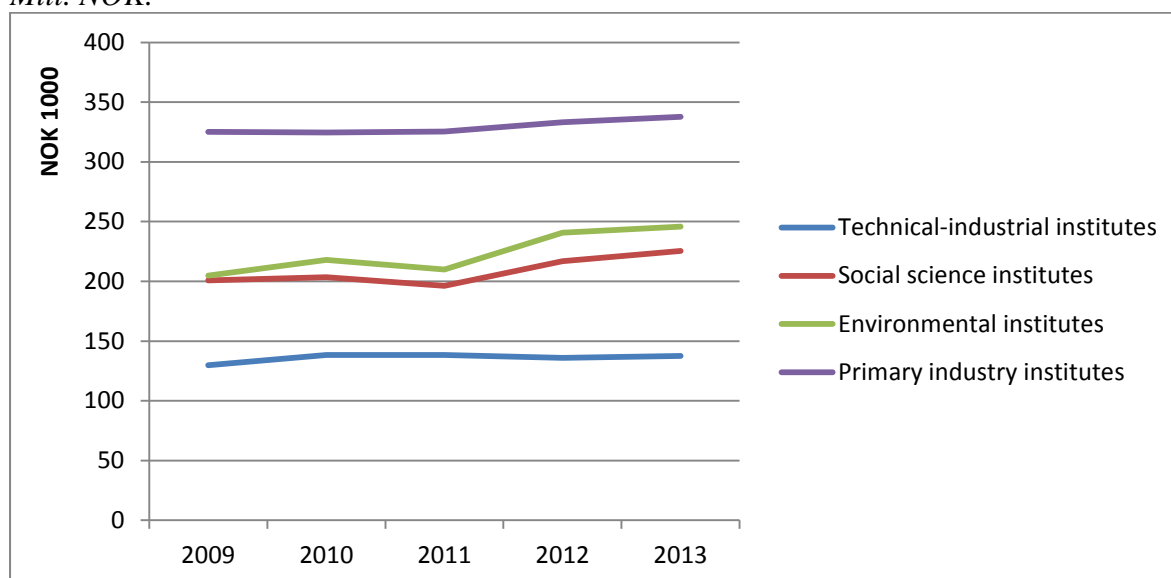


Source: NIFU, key R&D statistics for the institute sector

Figure 4.7 shows that in terms of basic funding per researchers FTE, the technical-industrial institutes are significantly lower than the other institute groups in the period 2009 - 2013. The amount is around 140

mill. NOK per researchers FTE, and this amount has been stable over the period. The other institute groups are on a much higher level and show an increasing trend. This difference is even higher when the fact that man-hours, on average, are more expensive in the technical-industrial institute, so the time available for research financed by the basic funding is lower.

Figure 4.7. Development in basic funding per researchers FTEs for different institute groups, 2009-2013. Mill. NOK.



Source: NIFU, key R&D statistics for the institute sector

Appendix 1 gives an overview of how the institutes perform on the different indicators used for the calculation of the performance based part of the basic funding, as described in Section 1.2.1.

4.3.2 Revenues from national research funding and funding of research infrastructure

The main source for revenues from national research funding is the Research Council. Revenues from the Council are treated separately in Section 5.2, so this section will refer to this category of revenues as a whole. Other sources are the Regional research funds, departmental sources, different types of funds from interest organisations, industry funds etc. In some cases also private companies give contribution to long-term competence development in the institutes without a claim for delivery as is the case for commissioned research.

Table 4.7 shows that there was a significant increase in national research funding to the technical-industrial institutes in the years 2010 and 2011, followed by funding on a lower level the two next years. This is probably due to periodization in the most significant programs in the Research Council. Approximately 80-90 per cent of the sum for this category is due to project allocations from the Research Council. For the other institute groups, the effect of periodization is not similar.

Table 4.7. Revenues from national research funding. Technical-industrial institutes and other institute groups. Mill. NOK 2009–2013

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2009-2013 |
|--|----------------|----------------|----------------|----------------|----------------|-----------|
| CMR | 21,5 | 37,9 | 53,5 | 47,2 | 51,3 | |
| IFE | 52,2 | 61,8 | 89,2 | 80,2 | 85,2 | |
| IRIS | 74,0 | 38,0 | 37,5 | 46,2 | 56,8 | |
| MARINTEK | 17,7 | 20,1 | 14,5 | 7,1 | 25,7 | |
| NGI | 18,8 | 42,8 | 26,6 | 27,0 | 17,7 | |
| NORSAR | 5,4 | 6,5 | 6,5 | 10,1 | 10,0 | |
| Norut Narvik | 1,6 | 4,6 | 9,0 | 5,3 | 16,1 | |
| Norut Tromsø | 4,9 | 8,0 | 9,0 | 10,4 | 14,6 | |
| NR | 9,4 | 21,5 | 23,5 | 26,5 | 19,2 | |
| Sintef Energi | 176,1 | 196,7 | 209,2 | 169,8 | 197,4 | |
| Sintef Petroleum | 22,1 | 27,8 | 21,8 | 30,7 | 28,0 | |
| Stiftelsen SINTEF | 278,1 | 295,7 | 323,7 | 306,3 | 289,4 | |
| Tel-Tek | 0,8 | 0,5 | 3,9 | 4,9 | 7,9 | |
| UNI Research | | | 63,2 | 59,5 | 37,5 | |
| Total Technical-industrial institutes | 682,6 | 761,8 | 891,0 | 831,2 | 856,7 | |
| Social science institutes | 375,8 | 461,3 | 396 | 425,5 | 490,1 | |
| Primary industry institutes | 482,2 | 480,2 | 516,6 | 526,3 | 598,9 | |
| Environmental institutes | 156,8 | 175,8 | 234 | 203,8 | 369 | |
| Total Institute sector | 1 697,4 | 1 879,1 | 2 037,6 | 1 986,8 | 2 314,7 | |

Source: NIFU, key R&D statistics for the institute sector

The Research Council has since several years established a scheme to fund research infrastructures through their *National Funding Initiative for Research Infrastructures* and today grants have been allocated in many different fields including databases, advanced scientific equipment and high performance computing and storage. Also support to and thus access to international infrastructures is given by the initiative. The granted infrastructures are not only intended to support one institution but are aimed at providing infrastructures that can be used by several institutions in Norway. However, normally one or a few institutions are responsible for the project. The overall objective with the initiative is to ensure that the Norwegian research community and trade and industry have access to relevant up-to date infrastructures that facilitates high-calibre research which in turn helps to solve major knowledge challenges facing society. The strategy for the initiative was updated by RCN in 2012 and the current strategy is valid through 2017.

Table 4.8 shows that TI institutes take part in close to half of the research infrastructure investments granted in the national initiative in the period 2009 - 2014. There have been four calls (2009, 2010, 2012 and 2014) in this period receiving a total of 547 applications. A TI institute has been in lead in one of five applications, representing 20 per cent of the applied amounts. In terms of number of grants the share is almost the same, but the granted amounts to TI-lead projects are 15 per cent of the total.

For the two first calls (2009, 2010) information about partners in the applications that did not go through to a grant is not available. In the two calls in 2012 and 2014, the number of applications was considerably lower than in the two first calls. In the 2009 call a high number of applications, mainly small ones, were submitted even if they did not qualify as having a character of a national research infrastructure. In the calls following after 2009 the applicants have been more aware of the conditions for funding, so the number of applications has been considerably lower. It is also worth mentioning that on the calls after 2009 several applications are repeated applications of previously rejected projects. This means that the number of unique infrastructures having applied for funding is considerably lower than 547.

Table 4.8. The technical-industrial institutes in the National Financing Initiative for research infrastructure calls 2009 - 2014

| | Applications | | Grants | |
|-----------------------------|----------------|-----------------------|------------|----------------------|
| | # applications | NOK | # grants | NOK |
| Total 2009 - 2014 | 547 | 17 097 499 000 | 100 | 3 084 300 017 |
| TI as responsible applicant | 114 | 3 646 075 000 | 19 | 470 458 176 |
| % of applications/grants | 21 | 21 | 19 | 15 |
| TI only as partner | NA | NA | 27 | 974 376 334 |
| % of grants | | | 27 | 32 |

Tables 4.9 and 4.10 show the participation of the technical-industrial institutes in applications from the National Financing Initiative for research infrastructure in the period from 2009 up to the present day. Table 4.9 shows that for the two first calls, around 20 percent of the applications had a TI institute in lead, representing 20 per cent of the total applied amount. Around one in five of the granted infrastructures had a TI institute in lead, representing 17 per cent of the granted amount. In addition the same share of granted infrastructures had one or more TI institutes as partner (but not in lead) representing 23 per cent of the granted amounts. Thus, TI institutes took part in 40 per cent of the research infrastructure investments granted in 2009 and 2010.

Table 4.9. The technical-industrial institutes in the National Financing Initiative for research infrastructure calls in 2009 and 2010

| | Applications | | Grants | |
|-------------------------------------|----------------|----------------------|-----------|--------------------|
| | # applications | NOK | # grants | NOK |
| 2009 TOTAL TI participations | 255 | 6 749 647 000 | 34 | 424 496 619 |
| TI as responsible applicant | 58 | 1 317 458 000 | 7 | 52 009 177 |
| | 23 % | 20 % | 21 % | 12 % |
| TI only as partner | NA | NA | 9 | 142 945 334 |
| | | | 26 % | 34 % |
| 2010 TOTAL TI participations | 138 | 3 818 551 000 | 18 | 502 299 999 |
| TI as responsible applicant | 21 | 828 267 000 | 4 | 108 199 999 |
| | 15 % | 22 % | 22 % | 22 % |
| TI only as partner | NA | NA | 2 | 73 000 000 |
| | | | 11 % | 15 % |

From Table 4.10 it can be seen that for the two calls in 2012 and 2014 taken together, 21 per cent of applications had a TI institute in lead, and 18 per cent had another type of institution in lead (mainly from the higher education sector) with one or more TI institutes as partners. The corresponding shares of applied amounts were 21 and 26 per cent. In terms of granted infrastructures a TI institute has been in lead in one of six, representing 14 per cent of the granted amounts. In addition one of three granted infrastructures had a responsible applicant from an other sector, but with one or more TI institutes as partner, representing 35 per cent of granted amounts. This means that TI institutes are

involved in half the resources allocated by these two calls. Note that for the grants from the 2014 call, the exact amounts are not decided yet.

Table 4.10. The technical-industrial institutes in the National Financing Initiative for research infrastructure calls in 2012 and 2014

| | Applications | | Grants* | |
|-------------------------------------|----------------|---------------|----------|---------------|
| | # applications | NOK | # grants | NOK |
| 2012 TOTAL TI participations | 68 | 2 395 054 000 | 18 | 575 705 399 |
| TI as responsible applicant | 17 | 603 038 000 | 3 | 94 459 000 |
| | 25 % | 25 % | 17 % | 16 % |
| TI only as partner | 7 | 370 185 000 | 7 | 261 735 000 |
| | 10 % | 15 % | 39 % | 45 % |
| 2014 TOTAL TI participations | 86 | 4 134 247 000 | 30 | 1 581 798 000 |
| TI as responsible applicant | 16 | 761 312 000 | 5 | 215 790 000 |
| | 19 % | 18 % | 17 % | 16 % |
| TI only as partner | 20 | 1 326 596 000 | 9 | 496 696 000 |
| | 23 % | 32 % | 30 % | 31 % |

Tables 4.11 and 4.12 shows the collaboration patterns in research applications and grants. Table 4.11 relates to applications for the two last calls, since these are the only calls with partner information in all applications available. In the applications where TI institutes are partners (and not in lead), all except five have an institution in the higher education sector as responsible applicant and all except one include cooperation with another institution in the higher education sector. Almost one third include collaboration with other TI institutes (meaning that two or more TI institutes are partners), and a little higher proportion applies to research institutes from other sectors. Collaboration with industry or public sector is less frequent. Note that this only means that a moderate number of institutions in industry or public sector are partners in the applications, but that there are obviously many more users of the infrastructure from these sectors.

Table 4.12 shows that a majority of applications with TI institutes in lead had partners from the higher education sector, but only one had partner from industry or public sector. All granted infrastructures with TI institute(s) as partner(s) had involved collaboration with at least one institution in the HE-sector, almost one of three involved several TI institutes and a little higher share involved industry or public sector.

Table 4.11 Collaboration patterns in applications to the National Financing Initiative for research infrastructures in 2012 and 2014

| | N (number of applications) | Organisations collaborating in the application | | | |
|-------------------------------|----------------------------|--|--------------------------|----------------|---------------------------|
| | | Other TI | Other institute (not TI) | HE-institution | Industry or public sector |
| TI in lead | 33 | 10 | 3 | 19 | 7 |
| TI as partner (other in lead) | 28 | 8 | 10 | 27 | 7 |

Table 4.12. Collaboration patterns in grants from the National Financing Initiative for research infrastructures 2009 to 2014

| | N (number of grants) | Organisations collaborating in the grant | | | |
|-------------------------------|----------------------|--|--------------------------|----------------|---------------------------|
| | | Other TI | Other institute (not TI) | HE-institution | Industry or public sector |
| TI in lead | 19 | 5 | 2 | 12 | 1 |
| TI as partner (other in lead) | 27 | 8 | 6 | 27 | 9 |

All TI institutes have at least one application for research infrastructure from the National Financing Initiative for Research Infrastructure in the period 2009-2014, with eleven of them being granted support. The SINTEF foundation has been granted six projects where they are in lead, and IFE four. In the case where other types of institutions are in lead and TI institutes are partners, ten of the TI institutes are represented among the granted projects. The SINTEF foundation is part of 12 such partnerships, while SINTEF Energy, CMR and Uni Research are the three others that participate in most granted projects.

4.3.3 Revenues from national markets for commissioned research

Revenues from national markets for commissioned research means reward for delivery of applied research as defined by a Norwegian principal, and which has been announced as an open procedure competition. For companies in the private sector, the market mechanism is equivalent to open competition.

Revenues from national markets for commissioned research constitute almost 40 per cent of the research institutes' total revenues (8874 mill. NOK) in 2013. 46 per cent of the technical-industrial institutes' operating revenues come from the national markets for commissioned research. Corresponding figures for the other institute arenas are 36 per cent for the environmental institutes and the social science institutes, and 23 per cent for the primary industry institutes.

In 2013, the technical-industrial institutes had 2160 mill. NOK from national markets for commissioned research, a decline of 207 mill. NOK as to 2012. There is also a decline for the other institute groups. The decline must be seen partly in the context of that the Norwegian Research Council in 2013 made a clarification of the conditions that must be met when the institute sector specify and report their revenues from commissioned research.

Looking at the total revenues from commissioned research for the technical-industrial institute group in 2013, 390 mill. NOK comes from public administration and 1 756 mill. NOK comes from the industrial sector. This implies that this institute group has performed 74 per cent of the total commissions from the industrial sector to the institutes, and 37 per cent of the total commissions from the public administration.

Table 4.13 shows the development in revenues from nationally commissioned research over the last five years for each of the institutes and for the four arenas. There is no obvious trend in these numbers, neither on institute level or from the total group of technical-industrial institutes. There is no reason to be surprised that these figures vary considerably from year to year as the private sector is most vulnerable to shifting market conditions and that this also will influence their willingness and ability to buy research services from the institutes.

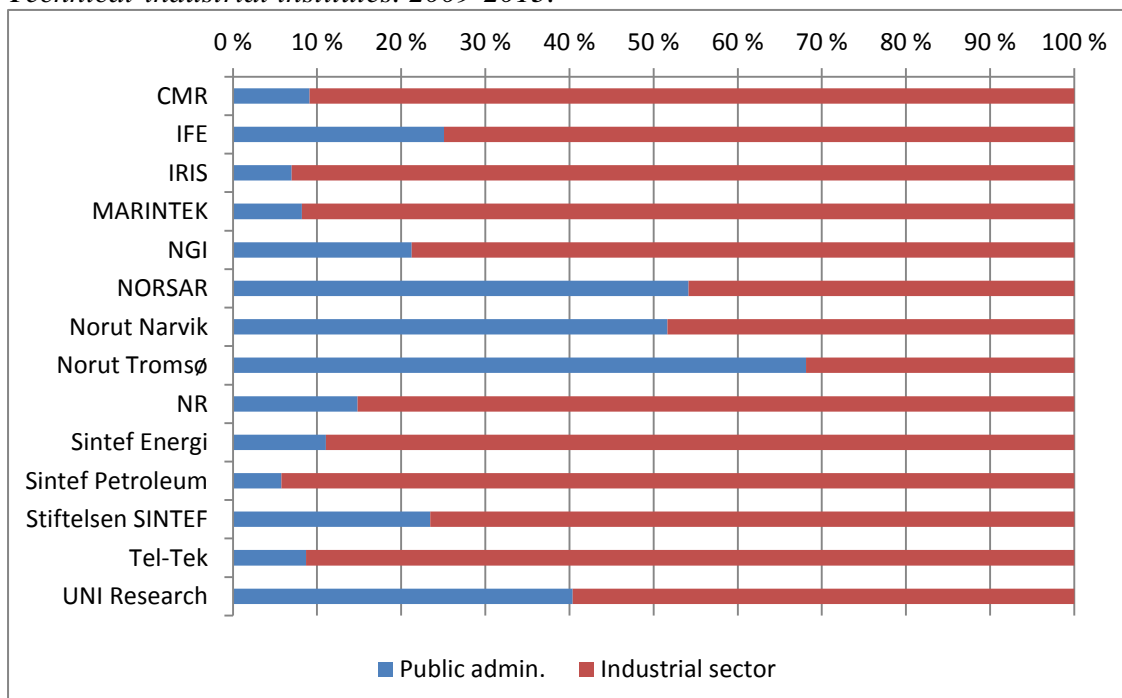
Table 4.13. Revenues from national markets for commissioned research. Technical-industrial institutes and other institute groups. Mill. NOK 2009–2013

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2009-2013 |
|--|----------------|----------------|----------------|----------------|----------------|-----------|
| CMR | 48,8 | 57,4 | 68,1 | 65,3 | 61,6 | |
| IFE | 241,5 | 282,7 | 324,9 | 352,9 | 313,4 | |
| IRIS | 165,8 | 123,9 | 134,4 | 178,5 | 171,6 | |
| MARINTEK | 188,0 | 171,3 | 194,2 | 192,6 | 172,7 | |
| NGI | 159,0 | 138,1 | 181,9 | 241,7 | 250,0 | |
| NORSAR | 29,5 | 30,4 | 32,8 | 36,6 | 38,2 | |
| Norut Narvik | 15,0 | 18,9 | 19,0 | 18,6 | 6,3 | |
| Norut Tromsø | 12,7 | 12,9 | 11,5 | 17,3 | 11,1 | |
| NR | 38,3 | 27,5 | 31,3 | 36,2 | 36,3 | |
| Sintef Energi | 125,0 | 127,5 | 132,1 | 150,9 | 134,2 | |
| Sintef Petroleum | 127,3 | 139,0 | 117,7 | 131,2 | 92,2 | |
| Stiftelsen SINTEF | 1 001,9 | 823,1 | 804,9 | 888,5 | 810,5 | |
| Tel-Tek | 24,7 | 24,9 | 35,4 | 25,8 | 18,1 | |
| UNI Research | | | 25,6 | 30,7 | 44,0 | |
| Total Technical-industrial institutes | 2 177,6 | 1 977,5 | 2 113,8 | 2 367,0 | 2 160,0 | |
| Social science institutes | 450,8 | 521,7 | 526,2 | 582,9 | 488,0 | |
| Primary industry institutes | 448,9 | 450,4 | 469,8 | 523,4 | 411,0 | |
| Environmental institutes | 538,8 | 526,2 | 531,6 | 576,2 | 400,0 | |
| Total Institute sector | 3 616,1 | 3 475,8 | 3 641,4 | 4 049,5 | 3 459,0 | |

Source: NIFU, key R&D statistics for the institute sector

Figure 4.4 above showed that all institutes had a large proportion of their revenues from commissioned research (at least 33 per cent) in the period 2009 - 2013. Figure 4.8 shows the distribution of these revenues between public administration and industry sources. CMR, IRIS, MARINTEK, SINTEF Petroleum and Tel-Tek obtain more than 90 per cent of their revenues from commissioned research from the industrial sector. Norut Tromsø, NORSAR and Norut Narvik are among the institutes obtaining the majority from public administration.

Figure 4.8. Revenues from national markets for commissioned research by source of fund (per cent). Technical-industrial institutes. 2009-2013.

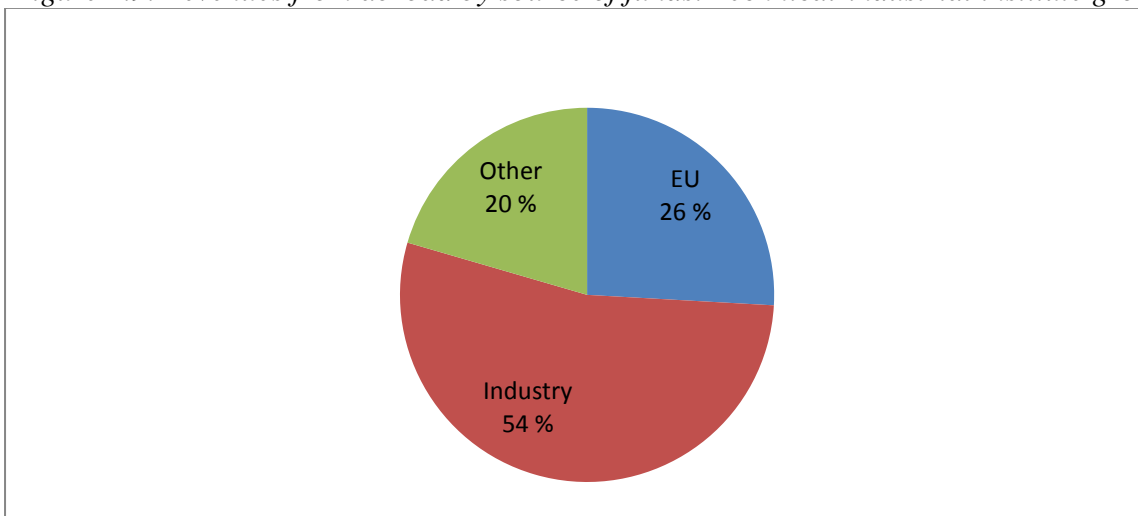


Source: NIFU, key R&D statistics for the institute sector

4.3.4 Financing from abroad

Compared to the other institute groups, the technical-industrial institutes are largely internationally oriented. The foreign contribution in 2013 amounted to 908.2 mill. NOK, from which 54 per cent come from industry, 26 per cent from EU, and 20 per cent from other sources (other institutions and organizations).

Figure 4.9. Revenues from abroad by source of funds. Technical-industrial institute group. 2013

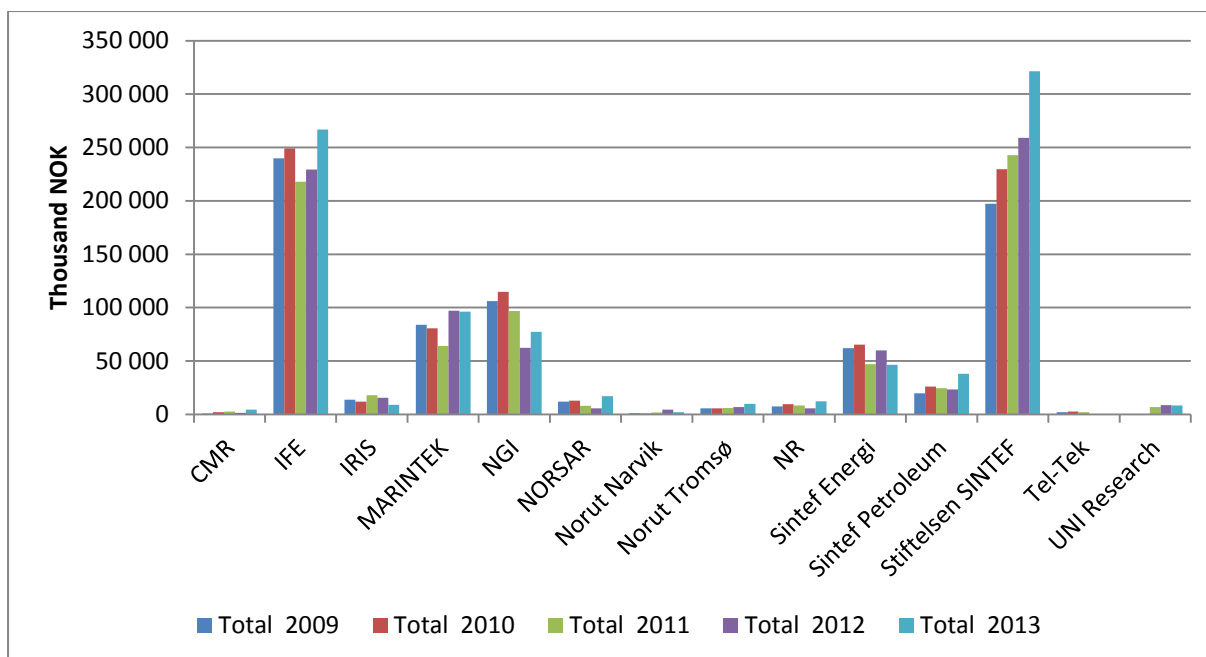


Source: NIFU, key R&D statistics for the institute sector

The four institute groups as a whole have accounted for a total of 1 224 mill. NOK from abroad, where the technical-industrial group is the largest contributor, with a share of 74 per cent.

Figure 4.10 shows the figures for the individual institutes over the period from 2009-2013. The total picture shows that Stiftelsen SINTEF and IFE stands out with the highest revenues from abroad, respectively representing 30 per cent of the total. A major contribution to the high figures for IFE is the international OECD Halden project (see Table 4.9 below). As a group, the SINTEF institutions stand out as a major contributor to the financing from abroad to Norwegian institutes.

Figure 4.10. Revenues from abroad. Technical-industrial institutes, 2009-2013. kNOK.



Source: NIFU, key R&D statistics for the institute sector

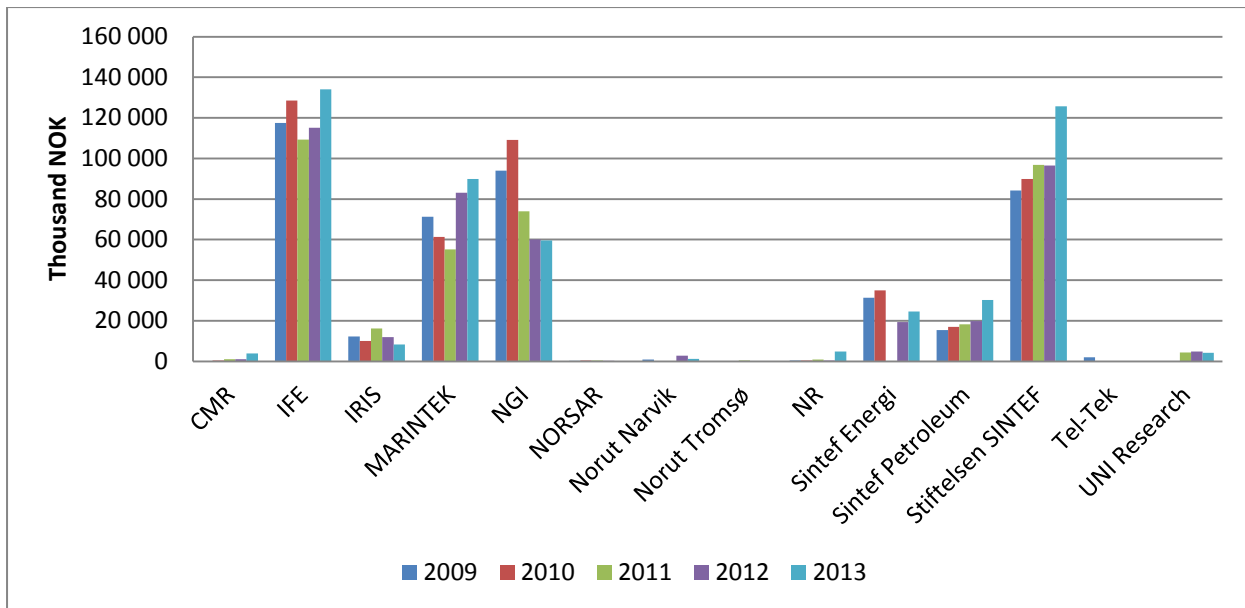
In order to distinguish between the international revenues for IFE related to the activities in the Halden reactor and other activities some figures are presented in Table 4.14. They show that approximately one third of IFEs total revenues from abroad, origin from the multinational OECD Halden Reactor Project (HRP). In addition to this project, IFE performs commissioned research projects on bilateral basis with the partners in HRP and with others. These revenues varies largely from year to year. Roughly, nearly 75 per cent of the international revenues to IFE are related to the activities in the Halden reactor, varying from 88 per cent in 2011 to 60 per cent in 2013.

Table 4.14. International revenues related to IFEs nuclear reactor in Halden, 2009 – 2013. Mill. NOK.

| | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|----------------|----------------|----------------|----------------|----------------|
| International contribution to OECD Halden Reactor Project | 76,585 | 81,504 | 83,623 | 87,914 | 87,644 |
| International revenues from commissioned research in the Halden reactor | 83,776 | 101,177 | 109,201 | 96,452 | 71,763 |
| Total international revenues | 160,361 | 182,681 | 192,824 | 184,366 | 159,407 |

Figure 4.11 shows the revenues from abroad industry. Four institutes are responsible for a significant share of these revenues, namely IFE, Stiftelsen SINTEF, NGI and MARINTEK.

Figure 4.11. Revenues from abroad industry. Technical-industrial institutes, 2009-2013. kNOK.



Source: NIFU, key R&D statistics for the institute sector

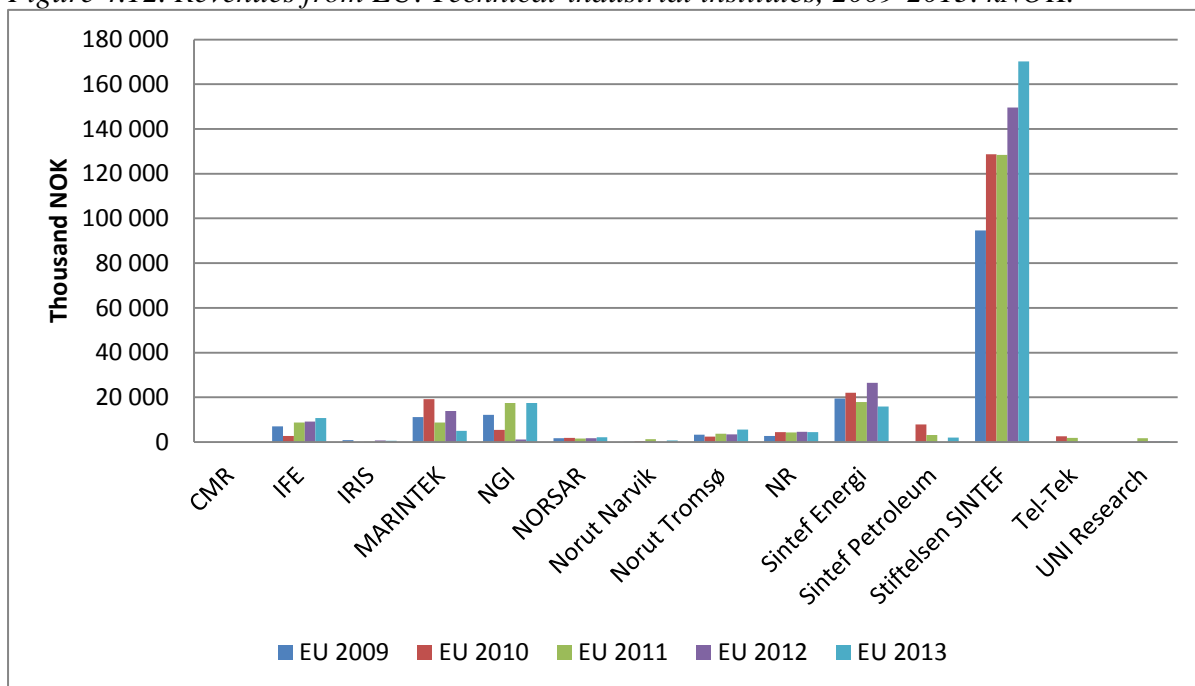
EU's framework programmes is becoming an increasingly important funding source for the institute sector.

The research institutes included in the guidelines for public basic funding, received 370 mill. NOK in revenues from EU in 2013, an increase of 17 mill. NOK (nearly 5 per cent) compared to 2012.

The technical-industrial institutes represented 64 per cent of the total EU revenues for all institutes in 2013. Stiftelsen SINTEF is clearly the largest single actor with 170 mill. NOK in revenues from EU in 2013. Also emerging with relatively large revenues in 2013, are NGI and IFE.

Figure 4.12 shows the revenues from EU framework programme over the period 2009-2013. The individual institutes show different patterns regarding payoff from the EU sources in the period. MARINTEK and NGI display fluctuations, while Stiftelsen SINTEF shows a clear growth curve. For the remaining institutes, the situation is rather stable.

Figure 4.12. Revenues from EU. Technical-industrial institutes, 2009-2013. kNOK.



Source: NIFU, key R&D statistics for the institute sector

Chapter 6 provides a description of proposals and project data from eCORDA (the External Common Research Datawarehouse) for the technical-industrial institutes.

4.3.5 Project portfolio

The institutes do report the size of the projects they have been working on during the year. There is reason to believe that there is some uncertainty related to these numbers due to different routines for reporting within the institutes. The projects are categorized into four different sizes: 0 – 0.1 mill. NOK; 0.1 – 0.5 mill. NOK; 0.5 – 2.0 mill. NOK and above 2.0 mill. NOK. The project size relates to the total frame of the project, so a project with a frame of 3.0 mill. NOK lasting three years with 1,0 mill. NOK each year will be categorized in the 'above 2.0 mill. NOK' -category. On the other hand it will be counted in this category each of the three years. This means that in Figure 4.13 there is a bias towards larger projects being counted more times than smaller projects. Unfortunately there is no numbers available on the size of new projects generated each year.

The definition of 'project' is not totally clear, but there is reason to believe that the institutes are reporting both commissioned projects and nationally and internationally funded research projects. Since the institutes internally might divide larger projects into smaller parts with different project numbers, this can influence the reliability of the figures.

Figure 4.13. Distribution of size of projects for the individual institutes over the years 2011-2013 (columns), together with total number of projects worked on each year (lines – numbers on right axis)

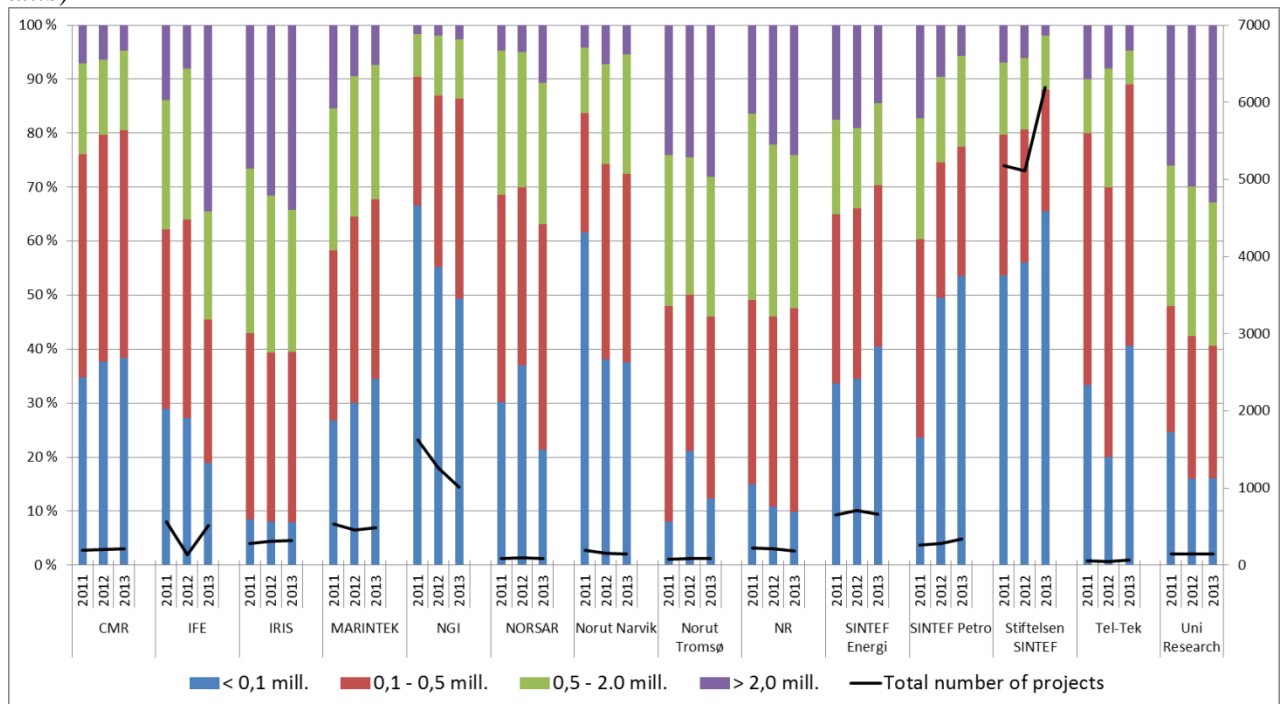


Figure 4.13 shows the total number of projects (black line) the institutes have registered that they were working on for each of the years 2011-2013. In addition the columns show the distribution of these projects on the four size categories (total size of project). The SINTEF Foundation and NGI have the highest number of projects, and also the highest proportion of projects of size less than 0.1 mill. NOK (more than 50 %). On the other hand, IRIS has around 30 % of the projects categorized to the size > 2.0 mill. NOK, and less than 10 % in the smallest category.

5 Other indicators of academic performance, competition and cooperation

5.1 Business ventures, Patents and Licenses

An important aspect of the innovation related activities in the institutes is to which degree new businesses are established as spin-offs from the institutes. Table 5.1 shows the number of such establishments over the last years as reported to NIFU. The most significant finding in the table is that the total number for 2009 is equal to the total number for all the other years together. There is some uncertainty related to these figures, and this aspect will probably be better covered by the institutes' self-assessments and the impact analysis.

Table 5.1 Number of business ventures. Technical-industrial institutes, 2009-2013

| Institutes | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------------------------|-----------|----------|----------|----------|----------|
| CMR | 1 | | 1 | 1 | 2 |
| IFE | 1 | 3 | | | |
| IRIS (tekn. Ind.) | 2 | | | | |
| MARINTEK | | | | | |
| NGI | 1 | | | | 1 |
| NORSAR | 2 | | | | |
| Norut Narvik | | | | 1 | |
| Norut Tromsø (tekn. Ind.) | 1 | | | | |
| NR | | | | 1 | |
| Sintef Energi | | | | | |
| Sintef Petroleum | | | | | |
| Stiftelsen SINTEF (tekn. Ind.) | 5 | 3 | 1 | | |
| Tel-Tek | 1 | | | | |
| UNI Research | | | | | |
| SUM | 14 | 6 | 2 | 3 | 3 |

Kilde: NIFU, nøkkeltall for forskningsinstitutter.

Patenting is a subtype of industrial property rights that gives the patent holder exclusive rights on an invention or technical solution for a certain period. Such protection can stimulate innovation through a combination of time-limited exclusive rights to inventions and publication of information on the same inventions. Herein lies a balance between respect to the patent applicant and the community. There may be significant development behind a patent. The willingness to invest in development is expected to be greater when the exclusive rights can be secured, so that innovation is stimulated. Patent applications are therefore used as an indicator of innovative activity, and hence as an indicator of the results of innovation. A high degree of patenting is considered a sign of high innovation capability.

Table 5.2 shows the number of patent applications and granted patents, both in Norway and abroad, for the last five years. The last two years has a higher number of patents granted than the previous years even if the number of applications has not increased. There are big differences between the institutes in terms of

patenting, with Stiftelsen SINTEF as a major contributor together with IFE and SINTEF Petroleum. Large institutes like SINTEF Energi and NGI have a relatively low number of patents.

Table 5.2. Numbers of patent applications and granted patents. Technical-industrial institutes, 2009-2013

| Institutes | 2009 | | | 2010 | | | 2011 | | | 2012 | | | 2013 | | |
|--------------------------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|
| | No. Applic. Norway | No. Applic. Abroad | No. Granted | No. Applic. Norway | No. Applic. Abroad | No. Granted | No. Applic. Norway | No. Applic. Abroad | No. Granted | No. Applic. Norway | No. Applic. Abroad | No. Granted | No. Applic. Norway | No. Applic. Abroad | No. Granted |
| CMR | 1 | 1 | | 2 | 2 | 1 | 1 | 2 | | 2 | | 1 | | | |
| IFE | 10 | 3 | 4 | 9 | 3 | 4 | 9 | 5 | 4 | 11 | 6 | 1 | | | 2 |
| IRIS (tekn. Ind.) | | 1 | | 3 | 2 | 1 | 2 | 2 | | | | | | | |
| MARINTEK | | | | | | | | | | | | | | | |
| NGI | 4 | 4 | 2 | 2 | 2 | | 1 | | | | | 1 | | | |
| NORSAR | | 1 | 2 | | | | 1 | | | | | | | 4 | 1 |
| Norut Narvik | 1 | 1 | | 1 | | 1 | | | | | | | | | 1 |
| Norut Tromsø | | | | | | | | | | | | | | | |
| NR | | | | | | | | | | | | 1 | | | |
| SINTEF Energi | 1 | | | | | | 1 | 1 | | 1 | 1 | 1 | | | |
| SINTEF Petroleumsforskning | 1 | | | 1 | 2 | 4 | | 10 | 2 | 11 | 2 | 10 | | 6 | 5 |
| Stiftelsen SINTEF (tekn. Ind.) | 8 | 26 | 2 | 6 | 13 | 2 | 5 | 23 | 10 | 8 | 15 | 6 | 2 | 17 | 14 |
| Tel-tek | | | | | | | | | | | | | | | |
| UNI Research | | | | | | | | | | | | | | | |
| SUM | 26 | 37 | 10 | 24 | 24 | 13 | 20 | 43 | 16 | 32 | 24 | 21 | 2 | 29 | 21 |

Kilde: NIFU, nøkkeltall for forskningsinstitutter.

Licensing and revenues from licensing is of particular interest for the technical-industrial institutes. Table 5.3 shows that for many of the institutes this is not a part of their activities at all, or at least just marginally, while for others it is a considerable source of income. Stiftelsen SINTEF shows small numbers on this parameter, while SINTEF Energi, SINTEF Petroleum and IFE are the most active. Among the smaller institutes NORSAR and CMR do get revenues from licensing on a regular basis.

Table 5.3. Numbers of licenses and revenue from licenses. Technical-industrial institutes, 2009-2013

| Institutes | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | |
|--------------------------------|------------|---------------|------------|--------------|-----------|--------------|-----------|--------------|-----------|---------------|
| | Number | Revenue | Number | Revenue | Number | Revenue | Number | Revenue | Number | Revenue |
| CMR | 2 | 245 | 7 | 935 | 4 | 600 | 3 | 450 | 7 | 825 |
| IFE | 171 | 548 | 97 | 1 603 | 68 | 2 040 | 56 | 1 775 | 63 | 2 861 |
| IRIS (tekn. Ind.) | 1 | 330 | | | 2 | 72 | 4 | 151 | | |
| MARINTEK | | | | | | | | | | |
| NGI | | 1 600 | 1 | 2 000 | | | | | 1 | 15 300 |
| NORSAR | | | 3 | 216 | 8 | 444 | 3 | 300 | | |
| Norut Narvik | | | | | | | | | | |
| Norut Tromsø | | | | | | | | | | |
| NR | | | | | | | | | | |
| SINTEF Energi | 14 | 2 180 | 2 | 547 | 2 | 1 434 | 7 | 883 | 9 | 2 160 |
| SINTEF Petroleumsforskning | 6 | 2 277 | 15 | 1 863 | 5 | 2 053 | 3 | 1 013 | | 1 545 |
| Stiftelsen SINTEF (tekn. Ind.) | 2 | 4 052 | 1 | | 1 | 1 000 | 2 | 970 | | |
| Tel-tek | | | | | | | | | | |
| UNI Research | | | | | | | | | | |
| Total | 196 | 11 232 | 126 | 7 164 | 90 | 7 643 | 78 | 5 542 | 80 | 22 691 |

Kilde: NIFU, nøkkeltall for forskningsinstitutter.

5.2 Allocations from the Research Council of Norway

In this section we take a look at the overall scope of applications for research funding submitted to the RCN from the research institutes in the period 2009-2013. Table 5.4 shows the total number of applications, the number of grant applications that received allocations, funds applied and appropriated amounts, and finally, success rates (i.e. percentage of grant applications that receive funding and percentage of funds applied). We cover the technical-industrial institutes and the other institute groups in aggregated numbers.

For the period 2009-2013, the RCN has registered a total of 1358 applications for research funding from the technical-industrial institutes. Of these, 29 per cent were awarded allocations. The technical-industrial institutes applied for a total of 13 704 mill. NOK, and 17 per cent (2 332 mill. NOK) of the amount was granted.

Table 5.4 Number of applications, applied amount, granted amount and success rates, 2009-2013. Amounts in mill. NOK

| | Applications | | Allocations | | Success rates | |
|---------------------------------------|--------------|----------|-------------|---------|-------------------|------------------|
| | Number | Amount | Number | Amount | Appli- cations | Funds applied |
| Total Techn-indust. institutes | 1 358 | 13 704,2 | 399 | 2 332,1 | 29 % | 17 % |
| <i>Share of researchers FTEs</i> | 0,7 | 7,2 | 0,2 | 1,2 | | |
| Total Soc. sci institutes | 1 219 | 8 145,3 | 294 | 1386,1 | 24 % | 17 % |
| <i>Share of researchers FTEs</i> | 1,4 | 9,0 | 0,3 | 1,54 | | |
| Total Environm. institutes | 858 | 5 111,5 | 224 | 994,6 | 26 % | 19 % |
| <i>Share of researchers FTEs</i> | 1,3 | 7,5 | 0,3 | 1,46 | | |
| Total Primary ind. institutes | 655 | 5 487,8 | 181 | 1226,2 | 28 % | 22 % |
| <i>Share of researchers FTEs</i> | 0,8 | 6,8 | 0,2 | 1,53 | | |

Source: The Research Council of Norway

The social science institutes submitted a total of 1219 applications, or 1.4 applications per researchers FTEs⁶. The primary industry institutes submitted 655 applications, giving 0.8 applications per researchers FTEs. They were assigned 1.5 mill. NOK per researchers FTEs⁷. The environmental institutes submitted 1.3 applications per researchers FTEs, and was awarded 19 per cent of the amount applied for, which gives 1.46 mill. NOK per researchers FTEs⁸.

According to the success rate for number of applications approved, there are small differences between the institute arenas. There is only a difference of 5 percentage points between the lowest (the social science institutes) and the highest rate (the technical-industrial institutes).

Table 5.5 shows statistics for grant applications (number of applications, percentage of applications that have received funding, and funds awarded) for selected research programs by performing sector. The figures applies to the period 2009-2013, and give an indication on how the technical-industrial institutes competes with other research environments, and to what extent they succeed.

⁶ Number of applications divided by an average of 900 researchers FTEs.

⁷ Number of applications/amount divided by an average of 803 researchers FTEs.

⁸ Number of applications/amount divided by an average of 681 researchers FTEs.

Tabell 5.5. Statistics for grant applications for selected research programs by performing sector. 2009-2013.

| Application statistics for selected programmes | Technical-industrial institutes | Other institutes | Higher educ. sector | Other (incl. industry) |
|--|---------------------------------|------------------|---------------------|------------------------|
| RENERGI/ENERGIX | | | | |
| No. of applications | 323 | 98 | 166 | 442 |
| Percentage awarded | 41 | 26 | 29 | 33 |
| Amount awarded (mnok) | 445.9 | 152.5 | 224.4 | 693.4 |
| PETROMAKS/PETROMAKS2 | | | | |
| No. of applications | 182 | 40 | 131 | 219 |
| Percentage awarded | 27 | 28 | 33 | 26 |
| Amount awarded (mnok) | 451 | 50.5 | 276.3 | 383.9 |
| NANOMAT/NANO2021 | | | | |
| No. of applications | 43 | 9 | 91 | 61 |
| Percentage awarded | 19 | 22 | 11 | 41 |
| Amount awarded (mnok) | 95.9 | 35.5 | 124.8 | 130.0 |
| RESEARCH INFRASTRUCTURE | | | | |
| No. of applications | 89 | 81 | 274 | 16 |
| Percentage awarded | 16 | 20 | 13 | 25 |
| Amount awarded (mnok) | 254.8 | 228.1 | 904.5 | 69.3 |
| FRIPRO (FRINATEK)⁹ | | | | |
| No. of applications | 99 | 159 | 930 | 21 |
| Percentage awarded | 9 | 11 | 15 | 14 |
| Amount awarded (mnok) | 55.4 | 94.4 | 657.4 | 14.1 |
| SFF/SFI/FME¹⁰ | | | | |
| No. of applications | 20 | 26 | 150 | 2 |
| Percentage awarded | 5 | 15 | 13 | 0 |
| Amount awarded (mnok) | 80 | 286.4 | 2 619.8 | 0 |

RENERGI/ENERGIX is a programme designed to provide support for the long-term, sustainable restructuring of the energy system in order to accommodate a greater supply of new renewable energy, improve efficiency and flexibility, and facilitate closer energy integration with Europe, with due consideration given to environmental perspectives. This activity normally accepts grant applications from R&D groups (within universities, university colleges and/or independent research institutes), and from companies, groups of companies or trade and industry organisations, as a general rule in collaborative projects between companies and/or R&D groups. From 2009 to 2013 it is granted an amount of 1 516 mill. NOK from this programme. The Industry sector received the largest proportion (46 per cent) of the project funding. The technical-industrial institutes (with SINTEF Energi and SINTEF Materials and Chemistry as dominating institutes) received the second largest share (29 per cent). In the higher education sector, NTNU and UoO was awarded the largest amount. In terms of approved applications, the technical-industrial institutes have the highest success rate.

PETROMAKS 2 is a large scale programme for Petroleum, and a continuation of the PETROMAKS programme. The programme aims at promoting knowledge creation and industrial development to enhance value creation for society by ensuring the development and optimal management of

⁹ Independent projects. In this context limited to projects related to the disciplines mathematics, natural sciences and technology (FRINATEK).

¹⁰ Centres of Excellence (SFF), Centres for research-based Innovation (SFI) and Centres for Environment-friendly Energy Research (FME).

Norwegian petroleum resources within an environmentally sustainable framework. This activity normally accepts grant applications from trade and industry, independent research institutes, universities and university colleges. The RCN has granted a total of 1 161 mill. NOK from this activity in the period 2009-2013. A share of 39 per cent is allocated to the technical-industrial institutes, with IRIS, SINTEF Energi and SINTEF Petroleum as prevalent receivers. The industry sector represents a share of 33 per cent. The higher education sector represents 24 per cent, with NTNU as the leading recipient.

NANOMAT/NANO2021: The programme NANOMAT was concluded in 2011 and replaced by NANO2021, a new 10-year large-scale programme. The programme encompasses the areas of nanoscience, nanotechnology, microtechnology and advanced materials. The primary objectives are to develop sustainable technological solutions as a basis for innovation and to address central societal challenges. A total of 386 mill. NOK is allocated from this programme. The Industry sector accounts for 34 per cent. This is somewhat larger than the higher education sectors share (32 per cent), where UoO and also NTNU stand out with the highest funding. The technical-industrial institutes hold a share of 25 per cent, with SINTEF Materials and Chemistry as a notable example. The largest success rate applies to the industry-related 'Other'-group.

INFRASTRUCTURE (The National Financing Initiative for Research Infrastructure): The types of research infrastructure encompassed under the initiative are: Advanced scientific equipment, electronic infrastructure (eInfrastructure), scientific databases and collections, and large-scale research facilities. Funding may be sought to cover establishment costs or costs for upgrading existing research infrastructure of national character. Funding may be sought for investment costs of more than 2 mill. NOK and a maximum of 200 mill. NOK. This activity normally accepts grant applications from universities, university colleges and research organisations, and other publicly funded administrators of research infrastructure who cooperate closely with Norwegian research institutions. The total allocation from this programme amounts to 1 456.7 mill. NOK, and the higher education sector outperforms the other R&D environments when it comes to funding. NTNU, UoB and UoO represent the largest shares. A quantum of 254.8 mill. NOK (17%) is allocated to the technical-industrial institutes, where the SINTEF Foundation and MARINTEK have the best outcome. In the 'Other institutes'-category we notice the Institute of Marine Research (IMR) and Norwegian Social Science Data Services (NSD), who together represent 8 per cent of the total amount allocated from the Infrastructure activity.

FRIPRO (FRINATEK): The funding scheme for independent projects (FRIPRO) comprises a national competitive arena for research funding for projects in all fields and disciplines. In this context we count projects related to the disciplines mathematics, natural sciences and technology (FRINATEK). Activities under the FRIPRO scheme are to promote research of internationally leading scientific quality, pioneering and innovative research, careers for talented young researchers and mobility among researchers in the early stage of their careers.

This activity normally accepts grant applications from Norwegian research institutions, Nordic research-performing institutions funded by the Nordic Council of Ministers, and research institutions that receive public funding from at least three Nordic countries, including Norway. A total of 821.3 mill. NOK is allocated from the FRINATEK activity in the period 2009-2013, and a relatively small share (7 %) is assigned to the technical-industrial institutes (primarily the SINTEF Foundation with Mat&Chem in the lead). The higher education sector is allocated the largest share of funds by far (UoO, NTNU and UoB in essence). Nevertheless, the success rate is still roughly on par with the other R&D groups.

SFF/SFI/FME: The Research Council administers several funding schemes for establishment and operation of specially designated centres of research. The Centres of Excellence (CoE) scheme have the intention of bringing more Norwegian researchers and research groups up to a high international standard. The centres are affiliated with Norway's top universities and premier independent research institutes. The Centres for Research-based Innovation scheme (SFI) aims to establish or strengthen Norwegian research groups working in close alliances with innovative enterprises. The scheme promotes long-term research that fosters innovation and enhances industrial competitiveness. The Centres for Environment-friendly Energy Research scheme (FME) has been established to finance time-limited centres which conduct concentrated, focused and long-term research of high international calibre in order to solve specific challenges in this field. As much as 88 per cent of the total amount (2986.2 mill. NOK) is allocated to the higher education sector (again dominated by NTNU, UoO and UoB), leaving the technical-industrial institutes a share of 3 per cent (represented by IRIS). Among institutes outside the basic-funding scheme, IMR and Simula research laboratory are awarded funds.

The figures in Table 5.5 are a bit misleading in showing the role of the technical-industrial institutes part in the center schemes, as it shows that only one application has been awarded. At present there are 11 FME-centres. 8 of these started in 2009 with application before 2009. Of these, 6 have a technical-institute as host institution (SINTEF Energi 3, CMR 2 and IFE 1) and the last two have technical-industrial institutes as research partners. In the period 2009-2013 only three centres have been established and they all had a social science profile. New centres are planned for start-up in 2016 with application deadline in 2015. There is reason to believe that the technical-industrial institutes will submit several applications in this round.

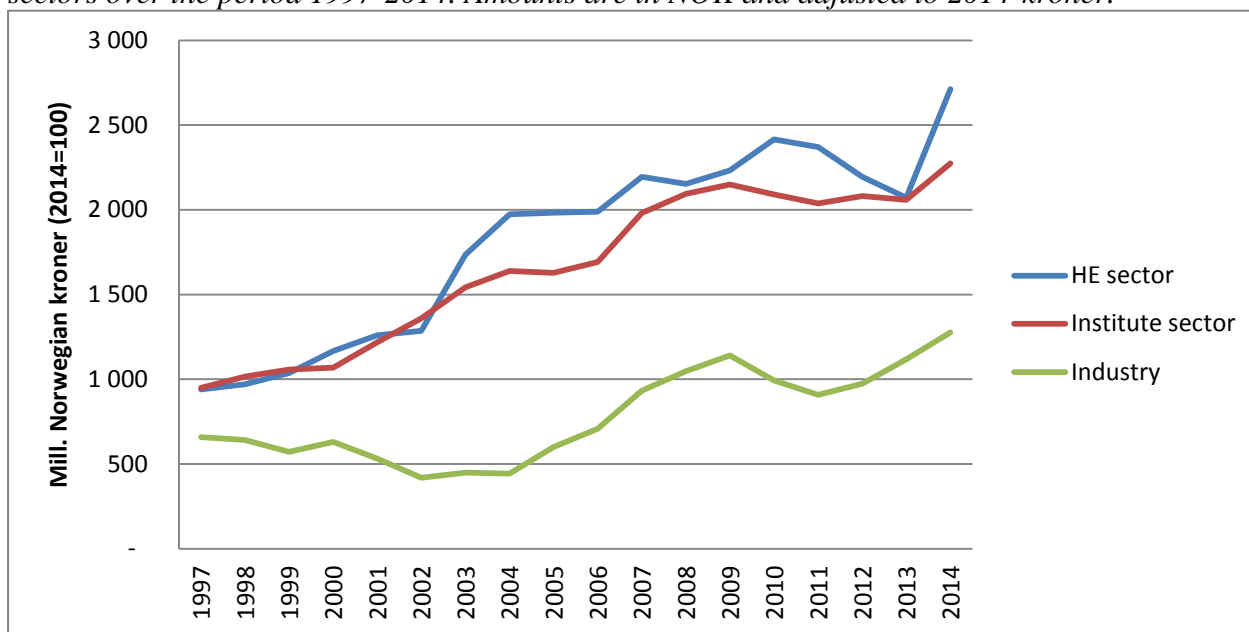
Of the 14 SFI-centres that were established in 2006 and ended in 2014, five had technical-industrial institutes as host institutions (SINTEF 2, IFE 1, CMR 1 and NR 1). In six of the other centres, technical-industrial institutes were research partners. Seven new centres were established in 2011. One of these is hosted by a technical-industrial institute (IRIS). Twelve other applications for SFI were submitted from technical-industrial institutes in that same round.

The SFF scheme is highly geared towards scientific quality and represents a challenge for the research institute in competition with universities. Of the 13 SFF-centres established in 2002 (ended in 2012), one had a technical-industrial institute as host institution (NGI), while two others had technical-industrial institutes as partners. None of the eight centres established in 2007 have participation from technical-industrial institutes. Seven applications from technical-industrial institutes were submitted for the 13 new centres that started in 2013. None were approved, but one of them have technical-industrial institutes as partners

5.2.1 Comparison between different sectors

In this section we want to show the R&D funding, both from the Research Council and from other sources in different sectors that the institutes sometimes compete with and other times collaborate with. In some figures three sectors are included; the higher education sector, the institute sector and the industry and in other figures only the two first. The institutions included in what is named as the institute sector in this section are all institutes that receive basic funding and also some other research performing entities.

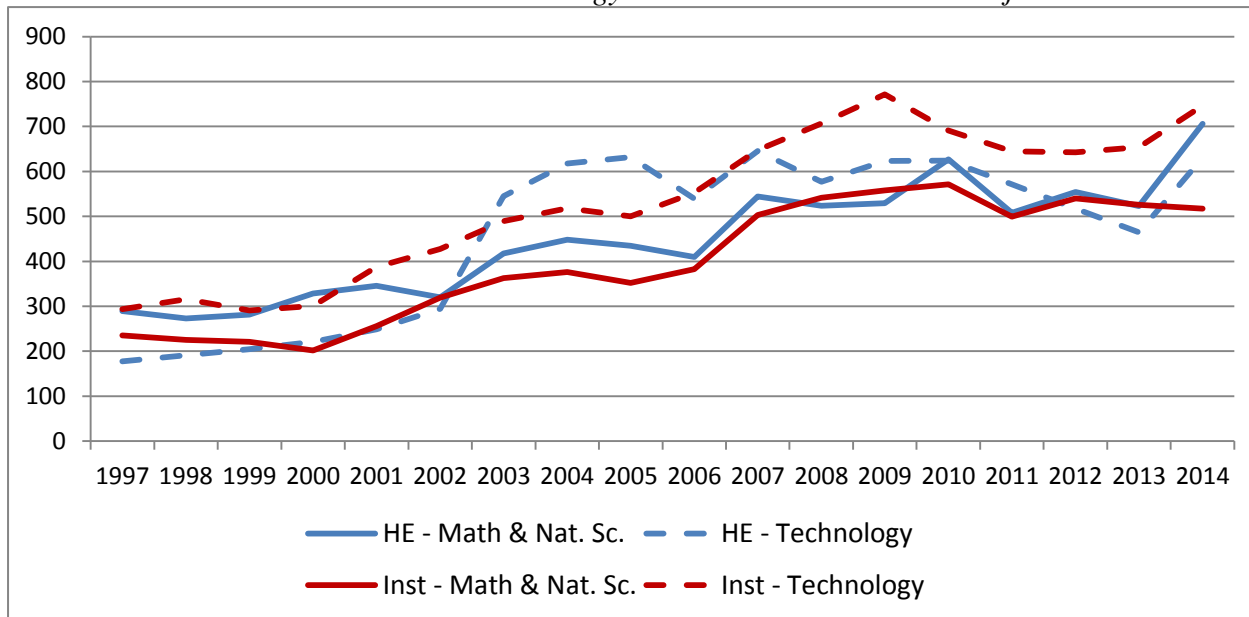
Figure 5.1. Fundings from the Research Council (excl. basic funding) distributed on three different sectors over the period 1997-2014. Amounts are in NOK and adjusted to 2014-kroner.



Source: The Research Council, data ware house

Figure 5.1 shows that for the first five years, the allocation to the higher education sector and the institute sector were almost equal, but since 2003 the HE sector has received more than the institute sector all years even if there have been fluctuations in the difference. Note especially the increase for in 2014 for all sectors, but most for the HE sector. The overall picture for the last 10+ years is that the distribution between the HE- and institute-sector is quite stable. The basic funding to the institutes is not included, so the figure shows funding achieved through competition between institutions, also from different sectors.

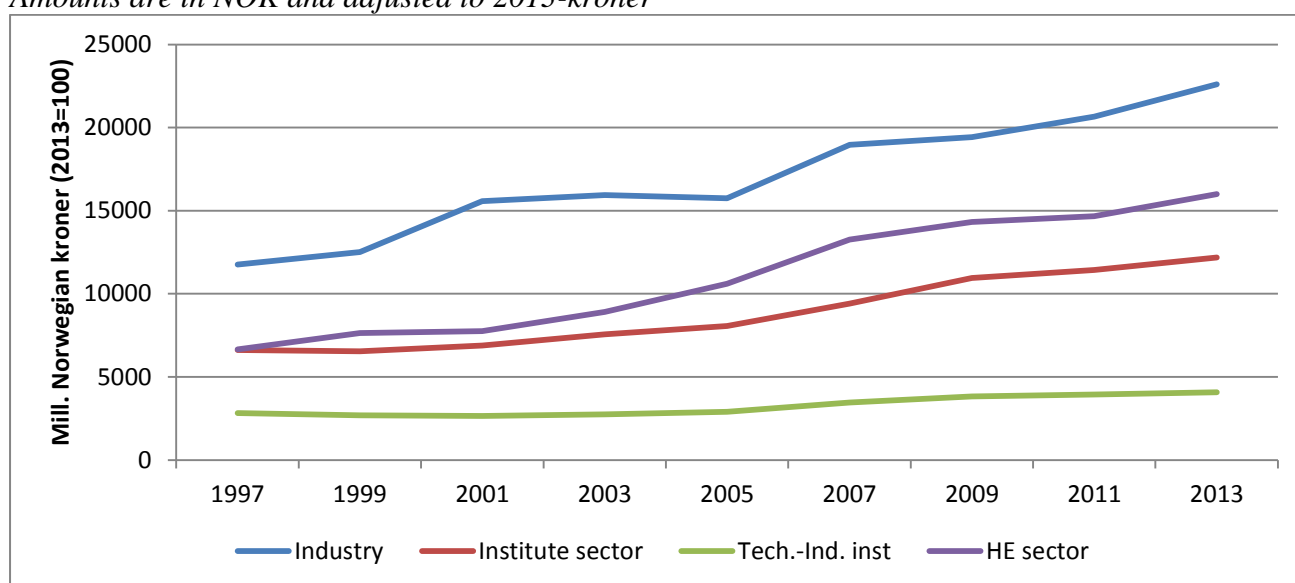
Figure 5.2. Fundings from the Research Council (excl. basic funding) to the HE sector (blue lines) and the institute sector (red lines) in the period 1997 – 2014 distributed on the two subject areas: mathematics & natural sciences and technology. Amounts are in NOK and adjusted to 2014-kroner.



Source: The Research Council, data ware house

Figure 5.2 shows the development of the funding from the Research Council to the higher education sector and the institute sector broken down to the two subject areas that are most dominant within the technical-industrial institutes, namely mathematics & natural sciences and technology. In this figure the basic funding to the institutes is not included. Fundings to technological research in the period has been higher to the institute sector than to the HE sector for all years except 2003-2006. When it comes to funding to mathematics and natural sciences, it has been higher to the HE sector than to the institute sector for the whole period except two years (2008-2009), but the difference has been small for the recent years, except 2014. The high increase in funding to the HE-sector in 2014 is also evident for these subject areas.

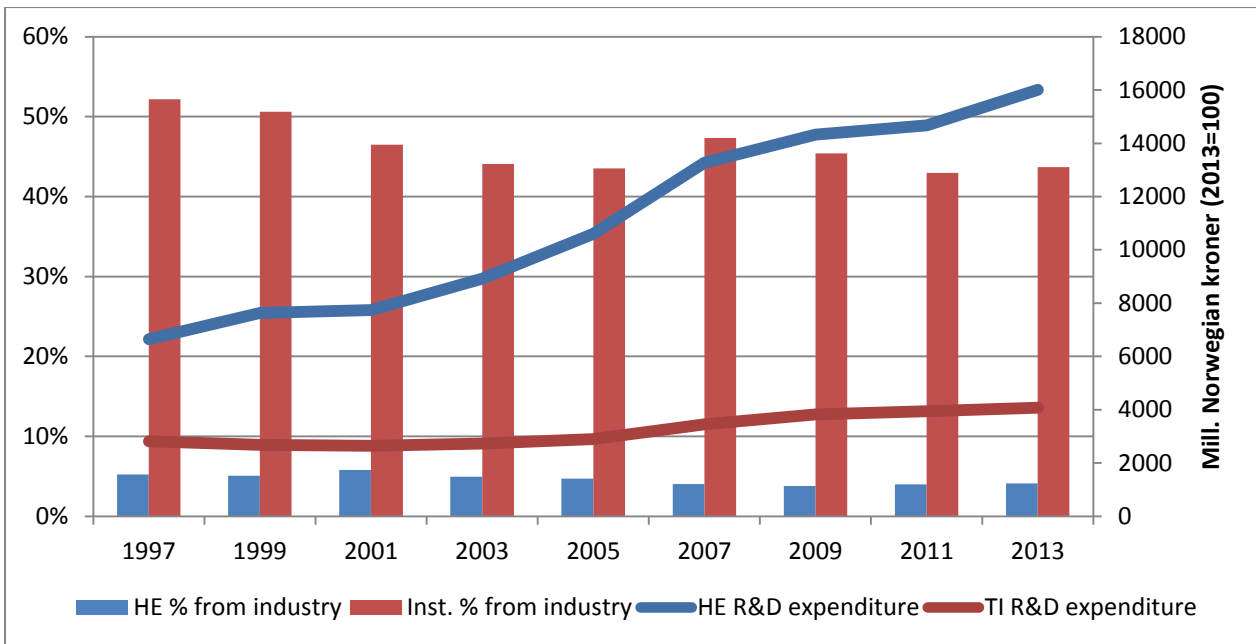
Figure 5.3. Total expenditure on R&D for different sectors based on the national R&D statistics. Amounts are in NOK and adjusted to 2013-kroner



Source: NIFU

Figure 5.3 shows the development in R&D expenditure in the three main sectors: higher education, institutes and industry as well as for the technical-industrial institutes under the basic funding scheme. The amounts are price adjusted to 2013-kroner. In these numbers the basic funding to the institutes is included. Over the total period the difference between the HE sector and the institute has increased from around zero to a level of around 30 % higher in the HE sector than in the institute sector. Over the last six to seven years this difference has been constant. Note also that the technical-industrial institute show a much lower increase than the other groups.

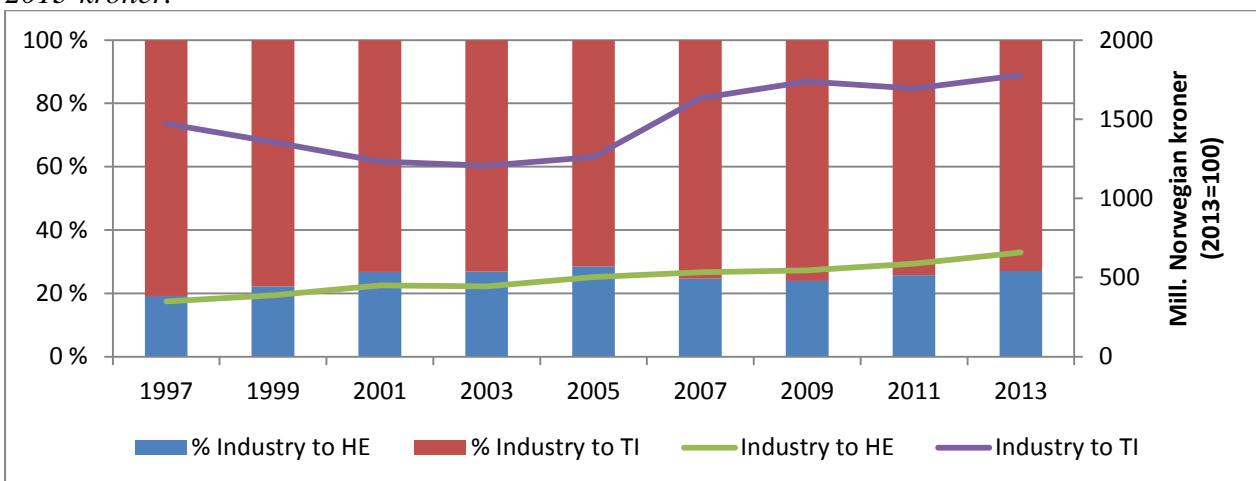
Figure 5.4. Total expenditure on R&D for the higher education sector (HE) and the technical-industrial institutes sector together with the percentage of the expenditure that origins from national industry. Amounts are in NOK and adjusted to 2013-kroner.



Source: NIFU

Figure 5.4 shows the same numbers as the previous figure for the total R&D expenditure in the higher education sector and the technical-industrial institutes (including basic funding). Additionally, the percentage of these expenditures that originates from the national industry is included. As the graph shows, this percentage has decreased slowly over the period 1997 – 2013 for both sectors, but with the relative ratio being quite constant. This does not indicate that the HE sector is a stronger competitor for the institutes in terms of commissioned research for the industry now than before. It should be noted that these numbers do not distinguish between funding for commissioned research or other kind of funding, it just identifies the source to be the industry.

Figure 5.5. Total expenditure on R&D that originates from the industry sector (lines) directed to the HE sector and the technical-industrial (TI) institutes in the period 1997-2013, together with the percentage wise distribution between these two sectors (columns). Amounts are in NOK adjusted to 2013-kroner.



Source: NIFU

Figure 5.5 shows the relative distribution of the R&D expenditure that originates from the industry between the HE sector and the technical-industrial institutes. The lines show that the HE sector has had a steady increase in R&D resources from the industry over the period while the technical-

industrial institutes have periods with decrease and increase and, for the recent years, nearly constant development. The balance between the two sectors has changed a little in favour of the higher education sector over the whole period, but has been quite constant since 2001.

5.3 Incentives for collaboration and competition in the funding instruments from the Research Council

Few of the Research Council's funding instruments explicitly states that collaboration between institutes will be given extra credit in the evaluation of the applications. The most common application types that are used by the institutes are Researcher project ("Forskerprosjekt"), Knowledge-building Project for Industry ("KPN") and Research infrastructure ("Forskningsinfrastruktur"). In all of these application types, international cooperation is mentioned as an assessment criterion. For Researcher project and Research infrastructure, national cooperation is also listed as an assessment criterion, specified as: "This criterion gives an indication of the extent to which the project will make use of national research expertise and help to promote national network-building." No further reference to type of cooperation or between whom, is given. Another application type that often involve the technical-industrial institutes is Innovation Project for the Industry sector ("IPN"). This type of application can not have an institute as project-owner, but often the institutes are partners or service-providers for industry companies in such projects. In this application type international cooperation is an assessment criterion, but there is no reference to national cooperation between research institutions.

The specific programmes may add criterias in the announcements. The programme for User-driven Research-based innovation (BIA) normally focus on the level of innovation and the quality of research in industry based on cooperation between companies and research institutions. A non-comprehensive search to recent announcements in the programmes ENERGIX, PETROMAKS2, MAROFF, NANO2021 and IKTPLUSS does not show any evidence that cooperation between institutes are explicitly encouraged. In the case of the center schemes that are used by the institutes, namely Centres for Environmental-friendly Energy Research (FME) and Centres for Research-based Innovation (SFI), international cooperation is encouraged as well as cooperation between industry and research institutions. However the schemes is constructed in such a way that it will normally involve both industry partners and research partners. No specific credit is given to collaboration between several institutes. In the case the host institution is not degree-giving, such an institution must be included as a partner in the center.

6 Revenues from the EU's seventh framework programme (FP7)

This chapter presents figures for Norwegian participation under the EU Seventh Framework Programme (FP7). The figures represent the aggregated results in the period from 1 January 2007 to 31 December 2014.

The data source is E-corda (External COmmon Research DAta Warehouse), the EU database for Framework Programmes (FP) proposals and projects. The database contains information on applicants/proposals and signed grants/beneficiaries with regards to FP7. For example, there is information on the outcome of concluded FP7 calls for proposals and also participation and performance statistics such as signed contracts and signed grant agreements.

Note that application statistics regarding individual institutes is confidential, thus information on applications is given only at institute group level.

The outcome of participation in FP7 is here looked upon as an indication of quality and impact of research performed in the institute sector. The EU framework programme is a large, open competitive arena, where approvals can be seen as a sign of quality and relevance (Report on Science & Technology Indicators for Norway 2013, RCN /NIFU 2013).

6.1 Applications

Table 6.1 shows that as of 31 December 2014, the Norwegian institute sector had a total of 2 805 participations in applications. This resulted in 754 participations in projects set for funding, which gives a participation success rate of nearly 27 per cent. The success rate for the Technical-industrial institutes is at the same level.

Table 6.1. Institute sector participation in FP7 by institute group. Applications, approved projects and rate of success.

| Institute group | Number of participations | | |
|---------------------------------|--------------------------|-------------|--------------|
| | In applications | In projects | Success rate |
| Technical-industrial institutes | 1217 | 330 | 27% |
| Other institutes | 449 | 142 | 32% |
| Environmental institutes | 432 | 122 | 28% |
| Primary industry institutes | 448 | 117 | 26% |
| Social science institutes | 259 | 42 | 16% |
| Total | 2805 | 754 | 26,9% |

Source: E-Corda (Commission)

Looking at the technical-industrial institutes' presence in applications for thematic programmes in Table 6.2, we find the highest number of participations in the ICT-programme. There is also a notable engagement in the Energy and NMP (Nano, Materials & Production Technologies) programmes. The corresponding success rates are respectively 20 per cent, 38 per cent and 34 per cent. The highest success rates are related to the Joint Technology Initiatives (JTI) programme (55 per cent) and the Research Infrastrucure (RI) programme (50 per cent).

Table 6.2. Technical-industrial institutes participation in FP7 by program. Applications, approved projects and rate of success.

| Programme | PARTICIPATIONS | | |
|-------------------------|-----------------|-------------|--------------|
| | In applications | In projects | Success rate |
| HEALTH | 14 | 4 | 29 % |
| BIO | 44 | 7 | 16 % |
| ICT | 416 | 82 | 20 % |
| NMP | 104 | 35 | 34 % |
| ENERGY | 133 | 50 | 38 % |
| ENVIRONMENT | 68 | 23 | 34 % |
| TRANSPORT | 88 | 28 | 32 % |
| SSH | 10 | 1 | 10 % |
| SPACE | 23 | 9 | 39 % |
| SECURITY | 78 | 19 | 24 % |
| ERA-NET | 1 | 1 | 100 % |
| JTI | 65 | 36 | 55 % |
| Sum Cooperation: | 1 044 | 295 | 28 % |
| RI | 28 | 14 | 50 % |
| SME | 43 | 8 | 19 % |
| REGIONS | 6 | 2 | 33 % |
| SiS | 2 | 1 | 50 % |
| INCO | 1 | | |
| POTENTIAL | 1 | | |
| Sum Capacities: | 81 | 25 | 31 % |
| ERC | 16 | | |
| Sum Ideas: | 16 | | |
| MCA | 75 | 10 | 13 % |
| Sum People: | 75 | 10 | 13 % |
| FISSION | 1 | | |
| Sum EURATOM: | 1 | | |
| Total: | 1 217 | 330 | 27 % |

Source: E-Corda (Commission)

6.2 Approved Projects

Table 6.3 shows the overall picture for Norwegian participation in approved projects. It shows that the institute sector has the highest engagement and the largest share of funding. However, the highest number of project coordinators is found in the higher education sector.

Table 6.3. Norwegian participation in FP7 by sector.

| | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|-------------------------|--------------------------|-----------------------------|------------------------|
| Other | 233 | 45,93 | 20 |
| Industry | 630 | 155,57 | 59 |
| Institute sector | 769 | 296,29 | 121 |
| Higher education sector | 548 | 255,49 | 150 |
| Sum: | 2 180 | 753,28 | 350 |

Source: E-Corda (Commission)

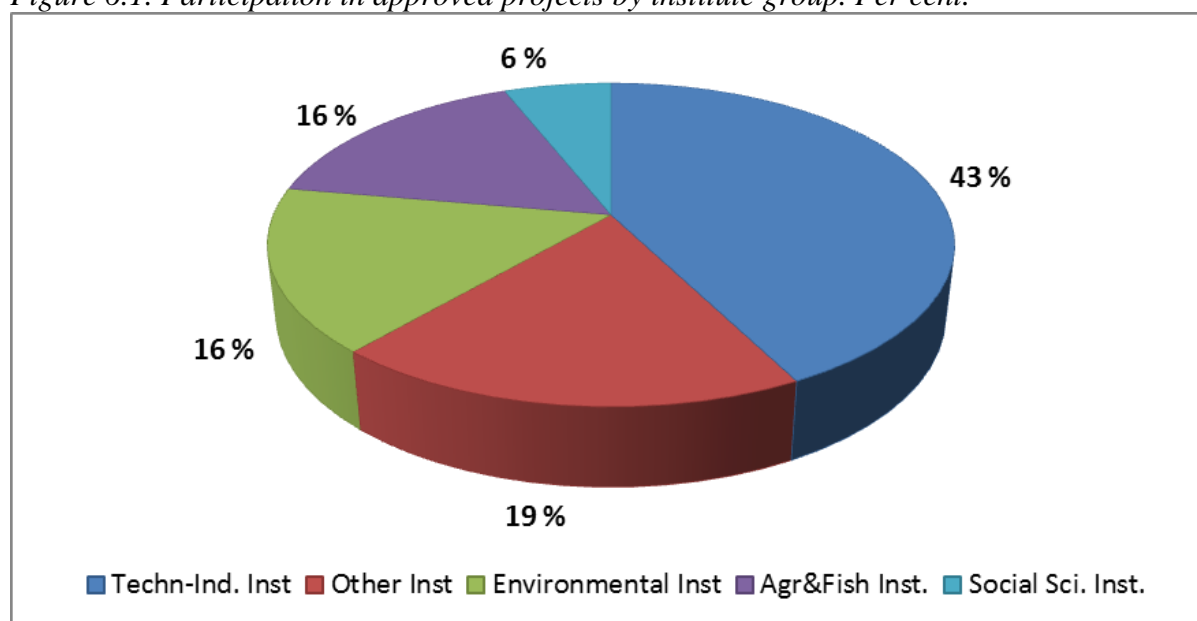
From the figures in Table 6.4 below, we can infer that approximately two out of five participations from the institute sector is covered by the technical-industrial institutes, and that these institutes receive 57 per cent of the total granted amount. Hence, the technical-industrial institutes are doing far better than the other institute groups. This also applies to number of project coordinators, where they represent half of the occurrences for the institute sector as a whole. The distribution of participation on the different institute groups is shown in Figure 6.1.

Table 6.4. FP7: Norwegian participation in FP7 by institute group.

| | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|---------------------------------|--------------------------|-----------------------------|------------------------|
| Technical-industrial institutes | 325 | 168,1 | 60 |
| Other institutes | 148 | 38,4 | 15 |
| Environmental institutes | 125 | 41,6 | 19 |
| Primary industry institutes | 125 | 35,4 | 18 |
| Social science institutes | 46 | 12,8 | 9 |
| Total: | 769 | 296,3 | 121 |

Source: E-Corda (Commission)

Figure 6.1. Participation in approved projects by institute group. Per cent.



Source: E-Corda (Commission)

Table 6.5 shows that considering the outcome in FP7, the SINTEF Foundation ranks far ahead of the other technical-industrial institutes. This of course reflects the size of the foundation in terms of both human and financial resources. Two more institutes from the SINTEF Group; SINTEF Energi and MARINTEK, show relatively good results.

Table 6.5. Technical-industrial institutes participation in FP7.

| Institute | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|---------------------|--------------------------|-----------------------------|------------------------|
| Stiftelsen SINTEF | 204 | 117,1 | 46 |
| SINTEF Energi | 30 | 17,5 | 6 |
| MARINTEK | 19 | 7,8 | |
| IFE | 14 | 5,0 | 1 |
| FFI | 13 | 5,7 | 2 |
| NGI | 12 | 4,7 | 2 |
| NR | 10 | 4,1 | 2 |
| NORUT Tromsø | 10 | 3,2 | 1 |
| SINTEF Petroleum AS | 5 | 1,3 | |
| NORSAR | 4 | 0,9 | |
| IRIS | 3 | 0,5 | |
| CMR | 1 | 0,1 | |
| Total: | 325 | 168,1 | 60 |

Source: E-Corda (Commission)

To get a more balanced picture, the figures are normalized by calculating participations and granted amount per researchers FTEs (cf. Table 6.6 below). Still, the SINTEF foundation ranks as number one regarding funds obtained. However, Norut Tromsø stands out with the highest participation rate, and the related results for NORSAR and NR is also noteworthy.

Table 6.6. Technical-industrial institutes in FP7. Participations and granted amount per researchers FTEs.

| Institute | Participations per researchers FTEs | Granted amount (mill. Euro) per researchers FTEs |
|---------------------|-------------------------------------|--|
| Stiftelsen SINTEF | 0,28 | 0,16 |
| SINTEF Energi | 0,18 | 0,11 |
| MARINTEK | 0,16 | 0,07 |
| IFE | 0,07 | 0,07 |
| FFI | 0,03 | 0,01 |
| NGI | 0,06 | 0,03 |
| NR | 0,17 | 0,07 |
| NORUT Tromsø | 0,32 | 0,10 |
| SINTEF Petroleum AS | 0,06 | 0,02 |
| NORSAR | 0,17 | 0,04 |
| IRIS | 0,03 | 0,01 |
| CMR | 0,02 | 0,00 |
| Total | 0,14 | 0,07 |

Source: E-Corda (Commission)

Looking at the participation of the technical-industrial institutes in thematic programmes in Table 6.7, we see that they are doing well in several fields. However, the technical-industrial institutes' count is particularly good in the ICT and Energy programmes. A share of nearly 54 per cent of the total amount granted to this institute group stems from the two above-mentioned programmes. In addition, about 52 per cent of all the project coordinators are connected to these fields. NOTE: There are some differences between the number of participations in Table 6.2 and Table 6.7. This is due to the fact that the application data (Table 6.2) counts number of nominated projects, while the list of approved projects (Table 6.7) counts the number of projects with contract. Not all projects that are nominated result in a project, and sometimes other partners are added to the project between nomination and contract signing, or a project on the reservelist is approved for contract.

Table 6.7. Technical-industrial institutes participation in FP7 by program.

| Programme | Programme acronym | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|--|-------------------------|--------------------------|-----------------------------|------------------------|
| 1.01 Health | HEALTH | 5 | 2,0 | |
| 1.02. Food, Agriculture and Fisheries, and Biotechnology | BIO | 8 | 4,0 | 2 |
| 1.03 Information and Communication Technologies | ICT | 77 | 54,3 | 21 |
| 1.04 Nano, Materials & Production Technologies | NMP | 35 | 22,4 | 7 |
| 1.06 Environment (including Climate Change) | ENVIRONMENT | 23 | 10,3 | 3 |
| 1.07 Transport (including Aeronautics) | TRANSPORT | 22 | 8,6 | 3 |
| 1.08 Socio-economic Sciences and Humanities | SSH | 1 | 0,4 | |
| 1.10 Security | SECURITY | 20 | 11,8 | 3 |
| 1.09 Space | SPACE | 10 | 2,7 | |
| 1.05 Energy | ENERGY | 55 | 36,2 | 10 |
| 1.11 General Activities (Annex IV) | ERA-NET | 1 | 0,3 | |
| 1.12 Joint Technology Initiatives (Annex IV-SP1) | JTI | 36 | 8,9 | 7 |
| | Sum Cooperation: | 293 | 162,0 | 56 |
| 4.02 Research for the benefit of SMEs | SME | 8 | 0,1 | 1 |
| 4.03 Regions of Knowledge | REGIONS | 1 | 0,1 | |
| 4.05 Science in Society | SiS | 1 | 0,2 | |
| 4.01 Research Infrastructures | RI | 14 | 3,9 | |
| | Sum Capacities: | 24 | 4,4 | 1 |
| 3.01 Marie Curie Actions | MCA | 7 | 1,6 | 3 |
| | Sum People: | 7 | 1,6 | 3 |
| 5.02 Nuclear Fission and Radiation Protection | FISSION | 1 | 0,1 | |
| | Sum EURATOM: | 1 | 0,1 | |
| | Total: | 325 | 168,1 | 60 |

Source: E-Corda (Commission)

Table 6.8 presents the top 20 Norwegian institutes (from the institute sector) in FP7 in regard to number of participations in approved projects. The technical-industrial institutes are shown in bold. Seven out of the 20 top institutes belongs to the technical-industrial institute group. It should be pointed out that NR is ranked as number 21 (with 10 participations in approved projects).

Table 6.8. Top 20 Norwegian institutes in FP7. Approved projects.

| Participant | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|------------------------------|--------------------------|-----------------------------|------------------------|
| Stiftelsen SINTEF | 204 | 117,1 | 46 |
| Teknologisk institutt | 47 | 1,2 | 6 |
| IMR Havforskningsinstituttet | 42 | 12,8 | 5 |
| NILU | 41 | 12,0 | 5 |
| Nofima | 38 | 7,3 | 7 |
| SINTEF Energi | 30 | 17,5 | 6 |
| Folkehelseinstituttet | 28 | 11,1 | 1 |
| Meteorologisk institutt | 28 | 9,5 | 2 |
| NERSC | 25 | 10,9 | 7 |
| Uni Research | 24 | 10,2 | 3 |
| PRIO | 23 | 7,0 | 5 |
| NIVA | 22 | 7,8 | |
| MARINTEK | 19 | 7,8 | |
| Bioforsk | 18 | 6,2 | 2 |
| NINA | 15 | 4,8 | 5 |
| IFE | 14 | 5,0 | 1 |
| FFI | 13 | 5,7 | 2 |
| NGI | 12 | 4,7 | 2 |
| TØI | 12 | 3,5 | 2 |
| NORUT Tromsø | 10 | 3,2 | 1 |

Source: E-Corda (Commission)

Including the higher education sector in the ranking list, results in the top 20 participants presented in Table 6.9. Not surprisingly, The SINTEF foundation is still in the leading position, and we know from E-Corda that the SINTEF foundation is by far the largest Norwegian participant in FP7, all sectors taken in to consideration.

Table 6.9. Top 20 Norwegian participants in FP7 from the institute and the higher education sector. Approved projects.

| Participant | Number of participations | Granted amount (mill. Euro) | Number of Coordinators |
|--------------------------------|--------------------------|-----------------------------|------------------------|
| Stiftelsen SINTEF | 204 | 117,1 | 46 |
| UiO | 154 | 89,3 | 53 |
| NTNU | 128 | 66,0 | 36 |
| UiB | 102 | 54,1 | 38 |
| TI (Teknologisk Institutt AS) | 47 | 1,2 | 6 |
| IMR (Havforskningsinstituttet) | 42 | 12,8 | 5 |
| NILU | 41 | 12,0 | 5 |
| UMB | 40 | 10,4 | 7 |
| UiT | 39 | 14,8 | 5 |
| Nofima | 38 | 7,3 | 7 |
| SINTEF Energi | 30 | 17,5 | 6 |
| Folkehelseinstituttet | 28 | 11,1 | 1 |
| Meteorologisk institutt | 28 | 9,5 | 2 |
| NERSC | 25 | 10,9 | 7 |
| Uni Research | 24 | 10,2 | 3 |
| PRIØ | 23 | 7,0 | 5 |
| NIVA | 22 | 7,8 | |
| MARINTEK | 19 | 7,8 | |
| Bioforsk | 18 | 6,2 | 2 |
| UiS | 17 | 5,7 | 4 |

Source: E-Corda (Commission)

6.3 Collaboration

This section presents figures about the collaboration between the technical-industrial institutes and others, mainly Norwegian, partners in FP7 programmes.

Table 6.10 shows the occurrences of Norwegian partners from different sectors collaborating with technical-industrial institutes in FP7 programmes. This is not the number of unique partners, as a partner may participate in several projects. Typically, each project also has several partners.

The table shows that Stiftelsen SINTEF is the driving force in partnership with the industry in the European research programs. It is also obvious that outside the SINTEF Group (Stiftelsen, SINTEF Energi, SINTEF Petroleum and MARINTEK) the total number of collaborating partners is low (no institutes with more than 10 partners).

Table 6.10. Number of registered Norwegian partners in FP7 programmes by sector

| | Industry | Institute sector | Other TI institutes* | HEI** | Public adm. | Other org. | Total |
|-------------------|----------|------------------|----------------------|-------|-------------|------------|-------|
| Stiftelsen SINTEF | 92 | 22 | 11 | 31 | 16 | 5 | 166 |
| SINTEF Energi | 11 | 10 | 10 | 8 | 3 | 1 | 33 |
| MARINTEK | 13 | 4 | 4 | 2 | 2 | 1 | 22 |
| IFE | 2 | 3 | 3 | 1 | | | 6 |
| NGI | | 1 | 1 | 3 | | | 4 |
| NR | 5 | 3 | 1 | 1 | | | 9 |
| NORUT Tromsø | 1 | 2 | 1 | | | | 3 |
| SINTEF Petroleum | 6 | 2 | 1 | 1 | | 2 | 11 |
| Norsar | 1 | | | | | | 1 |
| IRIS | 2 | 2 | 1 | 2 | 2 | | 8 |
| CMR | 1 | 2 | | | | | 3 |
| UNI Research*** | 2 | 12 | 1 | 7 | | | 21 |

Source: E-Corda (Commission)

*) Subcategory of the Institute sector column

***) HEI includes university hospitals

****) Figures for Uni Research includes all departments of the institute

Table 6.11 shows the number of FP7 projects where the technical-industrial institutes are partners and where the project also includes collaboration with other Norwegian partners (from all sectors). For the SINTEF foundation approximately half the projects involve Norwegian partners. This means, on the other hand, that half of the projects that the foundation participate in, do not involve any other Norwegian partners. Overall the SINTEF institutes participate in more than 80 per cent of the projects that involves technical-industrial institutes and other Norwegian partners. It is also obvious from the figures that very few projects manage to involve partners from both industry and public administration in Norway.

Table 6.11. Total numbers of FP7 projects together with numbers for collaboration with Norwegian partners

| Institute | Number of projects with at least one Norwegian partner | Number of projects with Norwegian partner from both industry and public administration | Total number of FP7 projects |
|-------------------|--|--|------------------------------|
| Stiftelsen Sintef | 106 | 6 | 204 |
| SINTEF Energi | 17 | 0 | 30 |
| SINTEF Marintek | 14 | 2 | 19 |
| IFE | 5 | 0 | 14 |
| NGI | 2 | 0 | 12 |
| NR | 6 | 0 | 10 |
| NORUT Tromsø | 2 | 0 | 10 |
| SINTEF Petroleum | 4 | 0 | 5 |
| Norsar | 1 | 0 | 4 |
| IRIS | 3 | 0 | 3 |
| CMR | 1 | 0 | 1 |
| UNI R | 11 | 0 | 24 |

Source: E-Corda (Commission)

Table 6.12 shows how the participation from Norwegian industry and public administration together with technical-industrial institutes in FP7 programs is distributed on the different programs. The industry partners are most involved in ENERGY, ICT, JTI (Joint Technology Initiatives) and NMP (Nano, Materials and Production Technologies). When it comes to the public sector, the few participations are mainly in ENERGY and ICT.

Table 6.12. Number of Norwegian partners from industry and public administration in different FP7 programs

| Programme | Stiftelsen Sintef | | SINTEF Energi | | MARINTEK | | IFE | | NGI | | NR | | NORUT Tromsø | | SINTEF Petrol. | | Norsar | | IRIS | | CMR | | UNI Research | |
|--------------|-------------------|-----------|---------------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|--------------|----------|----------------|----------|----------|----------|----------|----------|----------|----------|--------------|----------|
| | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. | Ind. | Publ. |
| BIO | 3 | | 1 | | 1 | | | | | | | | | | | | | | | | | | 1 | |
| ENERGY | 5 | 3 | 8 | 1 | | | 2 | | | | | | | 6 | 1 | 1 | 2 | | | | | | | |
| ENVIRONMENT | 8 | 3 | | | | | | | | | | | | | | | | | 1 | | | 1 | | |
| ICT | 19 | 5 | | | 3 | 1 | | | | | | | | | | | | | | | | | | |
| JTI | 25 | | | | | | | | | | | | | | | | | | | | | | | |
| MCA | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | |
| NMP | 18 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| SECURITY | 2 | | | | 1 | | | | | | | | | | | | | | | | | | | |
| SME | 7 | | | | | | | | | | 1 | | | | | | | | 1 | | | | | |
| TRANSPORT | 4 | 1 | 2 | | 8 | 1 | | | | | | | | | | | | | | | | | | |
| SPACE | | | | | | | | | | | 3 | | 1 | | | | | | | | | | | |
| ERA-NET | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| RI | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | |
| Total | 92 | 16 | 11 | 3 | 13 | 2 | 2 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 6 | 0 | 1 | 0 | 2 | 2 | 1 | 0 | 2 | 0 |

Source: E-Corda (Commission)

Explanations for the programme acronyms in Table 6.12:

- BIO (Food, Agriculture and Fisheries, and Biotechnology)
- ENVIRONMENT (including climate change)
- ICT (Information and Communication Technologies)
- JTI (Joint Technology Initiatives)
- MCA (Marie Curie Actions)
- NMP (Nano, Materials and Production Technologies)
- SME (Research for the benefit of SMEs)
- TRANSPORT (including Aeronautics)
- ERA-NET (General Activities)
- RI (Research infrastructures)

Table 6.13 shows the distribution of all partners (national and foreign) in all FP7 programs on geographical areas. 80 per cent of the partners are from the EU/EEA countries (except Scandinavia), while 12 per cent are Scandinavian partners. The other parts of the world represent very low proportions as collaborating partners. This pattern is almost the same for all the individual institutes, although NGI and Norsar have a higher proportion of partners from Asia than the others, and the same for Norut Tromsø in relation to Latin-America.

Table 6.13. Number of registered partners for the technical-industrial institutes in FP7 projects by geographical areas

| | Norway, Sweden, Denmark | EU/EEA (Scand. excl.) | Other Europe | Asia (incl. Turkey) | Latin america | Africa | Australia | USA | Canada | JRC* | Total number of partners | N (projects) | Average number of partners per project |
|-------------------|-------------------------------|-----------------------------|-----------------|---------------------------|------------------|--------|-----------|-----|--------|------|-----------------------------------|-----------------|--|
| Stiftelsen Sintef | 334 | 2413 | 76 | 45 | 2 | 18 | 8 | 4 | 2 | 15 | 2917 | 204 | 14,3 |
| SINTEF Energi | 76 | 378 | 11 | 6 | 1 | 11 | 1 | 2 | | 3 | 489 | 30 | 16,3 |
| MARINTEK | 46 | 285 | 4 | 10 | | 1 | | 2 | 1 | 1 | 350 | 19 | 18,4 |
| IFE | 13 | 135 | 11 | 5 | 1 | | | | | 3 | 168 | 14 | 12,0 |
| NGI | 9 | 130 | 8 | 13 | | 2 | | 4 | 1 | 2 | 169 | 12 | 14,1 |
| NR | 17 | 65 | 2 | 2 | | | | | 2 | | 88 | 10 | 8,8 |
| NORUT Tromsø | 10 | 62 | 3 | 1 | 4 | | | | | | 80 | 10 | 8,0 |
| SINTEF Petroleum | 17 | 44 | 1 | | | | 1 | 3 | 1 | 1 | 68 | 5 | 13,6 |
| Norsar | 2 | 56 | 5 | 4 | | 1 | | | | | 68 | 4 | 17,0 |
| IRIS | 8 | 43 | 1 | | | | | | | | 52 | 3 | 17,3 |
| CMR | 3 | 16 | | | | | | | | | 19 | 1 | 19,0 |
| UNI Research | 42 | 238 | 10 | 8 | 2 | 15 | 1 | 1 | 3 | 2 | 322 | 24 | 13,4 |
| Total | 577 | 3865 | 132 | 94 | 10 | 48 | 11 | 16 | 10 | 27 | 4790 | 336 | 14,3 |

Source: E-Corda (Commission)

*) Joint Research Centre (JRC), the in-house science service of the European Commission

Appendix 1: Figures for performance-based basic funding

The following table show the amount, in 1000 NOK, that each institutes have been given in performance based basic funding over the period 2009-2013. In this period there were six indicators counting in the redistribution, with different shares on each of them. These were:

- Publication points (30 %)
- Doctoral degrees (5 %)
- Part-time positions with the higher education sector (5 %)
- International revenues (15 %)
- Revenues from the Research Council (10 %)
- Revenues from national commissioned research (35 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|---------------|---------------|---------------|---------------|---------------|
| CMR | 218 | 238 | 417 | 351 | 468 |
| IFE | 1 942 | 2 618 | 3 517 | 3 447 | 3 640 |
| IRIS | 895 | 979 | 1 382 | 1 280 | 1 466 |
| MARINTEK | 909 | 1 199 | 1 760 | 1 677 | 1 651 |
| NGI | 1 590 | 1 737 | 2 603 | 2 552 | 2 389 |
| NORSAR | 382 | 340 | 421 | 383 | 437 |
| Norut Narvik | 34 | 60 | 116 | 200 | 188 |
| Norut Tromsø | 122 | 177 | 317 | 303 | 350 |
| NR | 322 | 345 | 671 | 640 | 726 |
| SINTEF Energi | 1 322 | 1 637 | 2 645 | 2 959 | 3 202 |
| SINTEF Petroleum | 563 | 777 | 1 131 | 1 188 | 1 094 |
| Stiftelsen SINTEF | 5 552 | 7 525 | 10 774 | 10 781 | 10 111 |
| Tel-Tek | 152 | 150 | 215 | 208 | 248 |
| TOTAL | 14 003 | 17 782 | 25 970 | 25 970 | 25 970 |

The following tables show the proportion of the performance based part of the basic funding the institutes received on the basis of each indicator. This shows on which indicators the institutes have their respective strengths and weaknesses.

Publication points (30 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|-------------|-------------|-------------|-------------|-------------|
| CMR | 10 % | 14 % | 14 % | 11 % | 11 % |
| IFE | 26 % | 31 % | 31 % | 28 % | 27 % |
| IRIS | 26 % | 18 % | 23 % | 23 % | 25 % |
| MARINTEK | 9 % | 12 % | 15 % | 15 % | 14 % |
| NGI | 43 % | 31 % | 24 % | 20 % | 20 % |
| NORSAR | 62 % | 49 % | 48 % | 39 % | 42 % |
| Norut Narvik | 0 % | 17 % | 29 % | 15 % | 20 % |
| Norut Tromsø | 34 % | 37 % | 59 % | 62 % | 55 % |
| NR | 48 % | 33 % | 52 % | 51 % | 53 % |
| SINTEF Energi | 37 % | 30 % | 33 % | 33 % | 40 % |
| SINTEF Petroleum | 21 % | 20 % | 26 % | 21 % | 20 % |
| Stiftelsen SINTEF | 29 % | 34 % | 32 % | 35 % | 33 % |
| Tel-Tek | 34 % | 20 % | 27 % | 28 % | 29 % |
| TOTAL | 30 % | 30 % | 30 % | 30 % | 30 % |

Doctoral degrees (5 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|-------------|-------------|-------------|-------------|-------------|
| CMR | 18 % | 11 % | 13 % | 0 % | 7 % |
| IFE | 2 % | 3 % | 2 % | 3 % | 5 % |
| IRIS | 11 % | 11 % | 9 % | 7 % | 14 % |
| MARINTEK | 2 % | 1 % | 0 % | 0 % | 0 % |
| NGI | 3 % | 4 % | 9 % | 8 % | 5 % |
| NORSAR | 0 % | 0 % | 0 % | 0 % | 8 % |
| Norut Narvik | 0 % | 12 % | 10 % | 38 % | 17 % |
| Norut Tromsø | 19 % | 11 % | 8 % | 0 % | 9 % |
| NR | 11 % | 17 % | 11 % | 7 % | 8 % |
| SINTEF Energi | 4 % | 7 % | 8 % | 10 % | 8 % |
| SINTEF Petroleum | 3 % | 1 % | 1 % | 0 % | 0 % |
| Stiftelsen SINTEF | 5 % | 5 % | 4 % | 5 % | 3 % |
| Tel-Tek | 27 % | 18 % | 12 % | 0 % | 0 % |
| TOTAL | 5 % | 5 % | 5 % | 5 % | 5 % |

Part-time positions (5 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|------------|------------|------------|------------|------------|
| CMR | 3 % | 4 % | 4 % | 6 % | 6 % |
| IFE | 1 % | 1 % | 1 % | 1 % | 1 % |
| IRIS | 5 % | 6 % | 5 % | 5 % | 6 % |
| MARINTEK | 4 % | 2 % | 2 % | 1 % | 1 % |
| NGI | 7 % | 9 % | 14 % | 19 % | 16 % |
| NORSAR | 2 % | 2 % | 2 % | 2 % | 2 % |
| Norut Narvik | 21 % | 17 % | 11 % | 6 % | 8 % |
| Norut Tromsø | 3 % | 4 % | 2 % | 2 % | 4 % |
| NR | 4 % | 4 % | 3 % | 3 % | 4 % |
| SINTEF Energi | 3 % | 4 % | 4 % | 3 % | 3 % |
| SINTEF Petroleum | 4 % | 4 % | 3 % | 3 % | 4 % |
| Stiftelsen SINTEF | 7 % | 6 % | 5 % | 4 % | 5 % |
| Tel-Tek | 9 % | 11 % | 10 % | 9 % | 6 % |
| TOTAL | 5 % | 5 % | 5 % | 5 % | 5 % |

International revenues (15 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|-------------|-------------|-------------|-------------|-------------|
| CMR | 9 % | 5 % | 2 % | 2 % | 2 % |
| IFE | 36 % | 33 % | 34 % | 33 % | 30 % |
| IRIS | 6 % | 6 % | 6 % | 6 % | 6 % |
| MARINTEK | 29 % | 31 % | 29 % | 26 % | 24 % |
| NGI | 15 % | 20 % | 21 % | 23 % | 23 % |
| NORSAR | 10 % | 13 % | 13 % | 16 % | 11 % |
| Norut Narvik | 15 % | 12 % | 6 % | 2 % | 4 % |
| Norut Tromsø | 11 % | 11 % | 8 % | 9 % | 8 % |
| NR | 3 % | 6 % | 4 % | 6 % | 6 % |
| SINTEF Energi | 7 % | 9 % | 10 % | 10 % | 9 % |
| SINTEF Petroleum | 12 % | 12 % | 10 % | 11 % | 12 % |
| Stiftelsen SINTEF | 11 % | 9 % | 10 % | 10 % | 12 % |
| Tel-Tek | 1 % | 1 % | 3 % | 5 % | 5 % |
| TOTAL | 15 % | 15 % | 15 % | 15 % | 15 % |

RCN revenues (10 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|-------------|-------------|-------------|-------------|-------------|
| CMR | 17 % | 22 % | 23 % | 16 % | 13 % |
| IFE | 8 % | 6 % | 6 % | 5 % | 6 % |
| IRIS | 14 % | 15 % | 14 % | 12 % | 9 % |
| MARINTEK | 4 % | 3 % | 4 % | 5 % | 4 % |
| NGI | 5 % | 5 % | 4 % | 3 % | 3 % |
| NORSAR | 4 % | 5 % | 5 % | 6 % | 5 % |
| Norut Narvik | 6 % | 5 % | 4 % | 6 % | 12 % |
| Norut Tromsø | 4 % | 3 % | 5 % | 8 % | 8 % |
| NR | 12 % | 13 % | 8 % | 10 % | 10 % |
| SINTEF Energi | 16 % | 18 % | 22 % | 22 % | 21 % |
| SINTEF Petroleum | 9 % | 11 % | 9 % | 10 % | 9 % |
| Stiftelsen SINTEF | 12 % | 11 % | 10 % | 10 % | 11 % |
| Tel-Tek | 3 % | 4 % | 3 % | 2 % | 4 % |
| TOTAL | 10 % | 10 % | 10 % | 10 % | 10 % |

National commissions (35 %)

| Institute | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|-------------|-------------|-------------|-------------|-------------|
| CMR | 44 % | 45 % | 44 % | 65 % | 60 % |
| IFE | 27 % | 25 % | 26 % | 30 % | 31 % |
| IRIS | 39 % | 44 % | 44 % | 47 % | 41 % |
| MARINTEK | 53 % | 52 % | 49 % | 53 % | 56 % |
| NGI | 25 % | 30 % | 28 % | 28 % | 32 % |
| NORSAR | 22 % | 31 % | 32 % | 37 % | 32 % |
| Norut Narvik | 56 % | 75 % | 40 % | 33 % | 40 % |
| Norut Tromsø | 29 % | 21 % | 18 % | 18 % | 15 % |
| NR | 21 % | 26 % | 21 % | 22 % | 19 % |
| SINTEF Energi | 33 % | 31 % | 23 % | 21 % | 19 % |
| SINTEF Petroleum | 50 % | 52 % | 50 % | 56 % | 55 % |
| Stiftelsen SINTEF | 37 % | 35 % | 38 % | 36 % | 36 % |
| Tel-Tek | 26 % | 47 % | 46 % | 57 % | 56 % |
| TOTAL | 35 % | 35 % | 35 % | 35 % | 35 % |

Appendix 2: Financial data for the institutes

Source: Proff.no

Note that these figures are related to the whole company. For those companies with activities in other arenas than the technical-industrial, these activities are also included. It also turns out that there are some discrepancies between the official accounting data for the proff database and the figures reported in the key figures which are used otherwise in this report. The reason for this is not obvious.

| CMR | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 145 853 | 140 060 | 149 341 | 121 585 | 93 372 | |
| Operating result | 695 | -6 720 | -4 178 | 5 954 | -4 230 | |
| Ordinary result before tax | 10 803 | -1 969 | -5 411 | 12 291 | 7 496 | |
| Ordinary result | 10 803 | -1 969 | -5 411 | 12 291 | 7 496 | |
| Total assets | 210 697 | 204 855 | 227 831 | 198 724 | 186 202 | |
| Total equity | 133 101 | 122 298 | 124 267 | 129 678 | 117 314 | |
| Total liabilities | 77 596 | 82 557 | 103 565 | 69 046 | 68 888 | |
| Solidity % | 63 % | 60 % | 55 % | 65 % | 63 % | |

| IFE | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 807 594 | 785 515 | 756 876 | 724 718 | 656 142 | |
| Operating result | -45 256 | 15 731 | 21 465 | 17 907 | 7 587 | |
| Ordinary result before tax | -41 081 | 11 555 | 17 365 | 18 201 | 5 837 | |
| Ordinary result | -41 081 | 11 555 | 17 365 | 18 258 | 5 064 | |
| Total assets | 491 244 | 519 009 | 509 019 | 505 432 | 463 867 | |
| Total equity | -87 497 | 265 154 | 253 599 | 236 235 | 217 977 | |
| Total liabilities | 578 743 | 253 854 | 255 420 | 269 197 | 245 891 | |
| Solidity % | -18 % | 51 % | 50 % | 47 % | 47 % | |

| IRIS | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 310 901 | 320 327 | 268 772 | 251 752 | 273 855 | |
| Operating result | 24 106 | 24 002 | 13 476 | 13 566 | 4 374 | |
| Ordinary result before tax | 25 219 | 25 676 | 14 861 | 14 749 | 4 330 | |
| Ordinary result | 19 760 | 19 472 | 10 256 | 13 267 | 3 856 | |
| Total assets | 287 511 | 269 933 | 217 736 | 195 553 | 197 001 | |
| Total equity | 120 855 | 101 095 | 81 624 | 71 368 | 73 696 | |
| Total liabilities | 166 655 | 168 838 | 136 112 | 124 185 | 123 305 | |
| Solidity % | 42 % | 37 % | 37 % | 36 % | 37 % | |

| MARINTEK | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-----------|
| Operating income | 310 052 | 312 238 | 287 730 | 287 162 | 303 344 | ■ ■ ■ ■ ■ |
| Operating result | 13 795 | 11 650 | 11 134 | 12 339 | 18 427 | ■ ■ ■ ■ ■ |
| Ordinary result before tax | 15 290 | 14 949 | 14 229 | 13 811 | 19 449 | ■ ■ ■ ■ ■ |
| Ordinary result | 9 004 | 10 406 | 9 666 | 9 899 | 13 422 | ■ ■ ■ ■ ■ |
| Total assets | 380 923 | 368 323 | 361 730 | 343 967 | 296 395 | ■ ■ ■ ■ ■ |
| Total equity | 238 520 | 229 515 | 219 110 | 209 444 | 151 454 | ■ ■ ■ ■ ■ |
| Total liabilities | 142 403 | 138 808 | 142 620 | 134 523 | 144 941 | ■ ■ ■ ■ ■ |
| Solidity % | 63 % | 62 % | 61 % | 61 % | 51 % | ■ ■ ■ ■ ■ |

| NGI | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-----------|
| Operating income | 367 939 | 356 588 | 331 892 | 316 912 | 309 133 | ■ ■ ■ ■ ■ |
| Operating result | -1 267 | -4 011 | -5 499 | 12 183 | 7 411 | ■ ■ ■ ■ ■ |
| Ordinary result before tax | 869 | -5 068 | -3 945 | 11 723 | 2 082 | ■ ■ ■ ■ ■ |
| Ordinary result | -270 | 688 | -2 527 | 12 242 | 2 082 | ■ ■ ■ ■ ■ |
| Total assets | 266 288 | 269 220 | 251 565 | 251 424 | 211 406 | ■ ■ ■ ■ ■ |
| Total equity | 120 814 | 121 084 | 120 396 | 133 211 | 99 383 | ■ ■ ■ ■ ■ |
| Total liabilities | 145 474 | 148 135 | 131 169 | 118 213 | 112 023 | ■ ■ ■ ■ ■ |
| Solidity % | 45 % | 45 % | 48 % | 53 % | 47 % | ■ ■ ■ ■ ■ |

| NORSAR | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-----------|
| Operating income | 68 454 | 59 271 | 53 737 | 56 184 | 53 861 | ■ ■ ■ ■ ■ |
| Operating result | 197 | 1 020 | -3 080 | 6 564 | 3 167 | ■ ■ ■ ■ ■ |
| Ordinary result before tax | 879 | 1 042 | -3 238 | 6 481 | 3 189 | ■ ■ ■ ■ ■ |
| Ordinary result | 293 | 664 | -2 389 | 6 481 | 3 189 | ■ ■ ■ ■ ■ |
| Total assets | 71 002 | 71 496 | 70 729 | 76 853 | 62 850 | ■ ■ ■ ■ ■ |
| Total equity | 50 041 | 49 748 | 49 083 | 51 472 | 37 808 | ■ ■ ■ ■ ■ |
| Total liabilities | 20 961 | 21 748 | 21 645 | 25 381 | 25 042 | ■ ■ ■ ■ ■ |
| Solidity % | 70 % | 70 % | 69 % | 67 % | 60 % | ■ ■ ■ ■ ■ |

| Norut Narvik | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-----------|
| Operating income | 27 857 | 31 641 | 33 053 | 27 738 | 21 385 | ■ ■ ■ ■ ■ |
| Operating result | -1 669 | 45 | 1 096 | 410 | -39 | ■ ■ ■ ■ ■ |
| Ordinary result before tax | -1 629 | 122 | 1 230 | 558 | 25 | ■ ■ ■ ■ ■ |
| Ordinary result | -1 629 | 114 | 895 | 488 | -73 | ■ ■ ■ ■ ■ |
| Total assets | 24 715 | 23 013 | 22 423 | 19 496 | 17 226 | ■ ■ ■ ■ ■ |
| Total equity | 9 287 | 10 916 | 10 802 | 9 907 | 9 419 | ■ ■ ■ ■ ■ |
| Total liabilities | 15 429 | 12 097 | 11 621 | 9 588 | 7 807 | ■ ■ ■ ■ ■ |
| Solidity % | 38 % | 47 % | 48 % | 51 % | 55 % | ■ ■ ■ ■ ■ |

| Norut Tromsø | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 56 091 | 62 828 | 50 269 | 50 189 | 48 512 | |
| Operating result | -4 424 | 677 | -3 048 | 491 | 1 773 | |
| Ordinary result before tax | -4 034 | -4 837 | -3 113 | 2 168 | 3 493 | |
| Ordinary result | -4 034 | -5 103 | -2 483 | 2 011 | 2 888 | |
| Total assets | 80 760 | 93 627 | 93 571 | 89 585 | 87 174 | |
| Total equity | 58 787 | 63 127 | 68 231 | 70 714 | 68 702 | |
| Total liabilities | 21 973 | 30 500 | 25 341 | 18 871 | 18 472 | |
| Solidity % | 73 % | 67 % | 73 % | 79 % | 79 % | |

| NR | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 80 452 | 81 667 | 83 676 | 74 634 | 71 565 | |
| Operating result | 197 | 1 378 | 9 203 | 2 513 | 1 902 | |
| Ordinary result before tax | 6 294 | 3 521 | 7 578 | 6 025 | 4 462 | |
| Ordinary result | 5 803 | 3 521 | 7 474 | 6 075 | 4 462 | |
| Total assets | 102 115 | 93 264 | 91 880 | 88 197 | 79 146 | |
| Total equity | 73 214 | 67 412 | 63 891 | 56 417 | 50 342 | |
| Total liabilities | 28 900 | 25 852 | 27 989 | 31 780 | 28 804 | |
| Solidity % | 72 % | 72 % | 70 % | 64 % | 64 % | |

| Sintef Energy | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 398 973 | 400 609 | 404 166 | 401 326 | 375 553 | |
| Operating result | 24 382 | 21 616 | 30 226 | 40 668 | 20 069 | |
| Ordinary result before tax | 35 464 | 33 226 | 38 972 | 47 872 | 31 871 | |
| Ordinary result | 26 184 | 24 937 | 30 082 | 45 675 | 32 721 | |
| Total assets | 603 744 | 555 129 | 533 444 | 524 819 | 473 471 | |
| Total equity | 385 166 | 358 982 | 334 046 | 303 964 | 258 288 | |
| Total liabilities | 218 578 | 196 147 | 199 398 | 220 855 | 215 183 | |
| Solidity % | 64 % | 65 % | 63 % | 58 % | 55 % | |

| Sintef Petroleum | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 171 581 | 199 018 | 177 884 | 206 854 | 183 454 | |
| Operating result | -15 344 | 120 | -6 617 | 5 247 | 8 284 | |
| Ordinary result before tax | -9 984 | 6 465 | -2 824 | 9 467 | 15 105 | |
| Ordinary result | -8 486 | 5 313 | -2 854 | 56 980 | 15 175 | |
| Total assets | 315 057 | 320 100 | 311 620 | 312 398 | 254 289 | |
| Total equity | 228 889 | 237 373 | 232 061 | 234 915 | 177 935 | |
| Total liabilities | 86 169 | 82 728 | 79 559 | 77 483 | 76 355 | |
| Solidity % | 73 % | 74 % | 74 % | 75 % | 70 % | |

| SINTEF Foundation | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 1 808 103 | 1 794 256 | 1 687 630 | 1 694 447 | 1 679 029 | |
| Operating result | 46 443 | 63 778 | 58 864 | 69 696 | 53 246 | |
| Ordinary result before tax | 65 034 | 96 506 | 110 897 | 216 417 | 109 618 | |
| Ordinary result | 65 034 | 78 369 | 81 225 | 494 654 | 110 618 | |
| Total assets | 2 968 893 | 2 685 702 | 2 620 081 | 2 507 160 | 2 034 786 | |
| Total equity | 2 026 059 | 1 987 212 | 1 908 843 | 1 827 619 | 1 339 109 | |
| Total liabilities | 942 833 | 698 490 | 711 240 | 679 542 | 695 675 | |
| Solidity % | 68 % | 74 % | 73 % | 73 % | 66 % | |

| Tel-Tek | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 31 941 | 36 665 | 46 963 | 33 840 | 31 067 | |
| Operating result | 1 576 | -206 | -551 | 1 079 | 946 | |
| Ordinary result before tax | 1 077 | -898 | -923 | 625 | 522 | |
| Ordinary result | 695 | -653 | -714 | 436 | 359 | |
| Total assets | 22 913 | 19 671 | 22 350 | 20 575 | 16 427 | |
| Total equity | 1 934 | 1 238 | 1 891 | 2 606 | 2 170 | |
| Total liabilities | 20 980 | 18 433 | 20 458 | 17 969 | 14 258 | |
| Solidity % | 8 % | 6 % | 8 % | 13 % | 13 % | |

| Uni Research | 2013 | 2012 | 2011 | 2010 | 2009 | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|
| Operating income | 367 908 | 393 198 | 388 822 | 390 069 | 433 562 | |
| Operating result | -9 433 | -897 | 2 176 | 4 000 | -430 | |
| Ordinary result before tax | -933 | 7 048 | 7 299 | 7 980 | 4 577 | |
| Ordinary result | -933 | 7 048 | 7 299 | 7 980 | 4 577 | |
| Total assets | 262 479 | 287 166 | 308 605 | 324 392 | 307 558 | |
| Total equity | 113 660 | 114 593 | 107 545 | 100 246 | 79 369 | |
| Total liabilities | 148 818 | 172 573 | 201 059 | 224 146 | 228 189 | |
| Solidity % | 43 % | 40 % | 35 % | 31 % | 26 % | |

Appendix 3: Revenues by source of funds

The next two tables correspond to Table 4.5 in Section 4.3, but are given for the years 2012 and 2011.

| 2012 | Basic funding | Governmental services | Revenues from national research funding | | Revenue from national markets for commissioned research | | | | | Other operating-related revenues | Financial revenues | Total revenues |
|--|---------------|-----------------------|---|----------------------------|---|-------------------|-------------|----------------|----------------|----------------------------------|--------------------|----------------|
| | | | RCN | Governm. sources excl. RCN | Public administration | Industrial sector | Other | Total | Abroad | | | |
| CMR | 6,8 | | 47,2 | | 3,4 | 61,9 | | 65,3 | 1,3 | 19,4 | 4,9 | 145,0 |
| IFE | 32,9 | 87,5 | 80,2 | | 78,8 | 261,4 | 12,7 | 352,9 | 229,3 | 2,7 | 1,0 | 786,5 |
| IRIS | 12,8 | | 46,0 | 0,6 | 7,6 | 170,9 | | 178,5 | 15,4 | 2,5 | 5,3 | 260,7 |
| MARINTEK | 15,2 | | 7,1 | | 15,2 | 177,4 | | 192,6 | 97,1 | 0,2 | 7,1 | 319,3 |
| NGI | 24,8 | | 22,1 | 4,1 | 57,8 | 183,9 | | 241,7 | 62,2 | 0,8 | 1,6 | 358,1 |
| NORSAR | 6,2 | | 9,8 | | 19,1 | 17,5 | | 36,6 | 5,7 | 0,6 | 1,2 | 60,5 |
| Norut Narvik | 3,2 | | 5,3 | | 11,6 | 6,9 | 0,1 | 18,6 | 4,3 | 0,2 | 0,1 | 31,7 |
| Norut Tromsø | 5,0 | | 10,4 | | 13,0 | 3,9 | 0,4 | 17,3 | 6,7 | 2,1 | 0,2 | 41,8 |
| NR | 12,2 | | 26,5 | | 4,8 | 31,5 | | 36,2 | 5,6 | 1,1 | 2,7 | 84,4 |
| Sintef Energi | 18,7 | | 142,3 | 26,7 | 22,2 | 128,7 | | 150,9 | 59,8 | 1,7 | 13,6 | 414,5 |
| Sintef Petroleum | 13,7 | | 30,7 | | 0,0 | 131,2 | | 131,2 | 23,4 | | 7,0 | 206,0 |
| Stiftelsen SINTEF | 107,2 | | 297,6 | 14,9 | 211,4 | 640,9 | 36,2 | 888,5 | 258,9 | 163,6 | 36,2 | 1 760,7 |
| Tel-Tek | 3,8 | | 4,9 | | 3,1 | 22,7 | | 25,8 | | 2,2 | 0,0 | 36,7 |
| UNI Research | | | 51,5 | 8,1 | 12,9 | 16,6 | 1,3 | 30,7 | 8,5 | 1,1 | | 99,9 |
| Total Technical-industrial institutes | 262,7 | 87,5 | 781,5 | 54,3 | 460,9 | 1 855,4 | 50,7 | 2 367,0 | 778,4 | 198,3 | 80,8 | 4 605,9 |
| Social science institutes | 193,9 | 27,4 | 378,0 | 47,5 | 421,5 | 149,0 | 12,5 | 582,9 | 97,3 | 16,7 | 13,3 | 1 356,9 |
| Primary industry institutes | 267,6 | 347,1 | 271,6 | 254,7 | 145,3 | 377,8 | 0,3 | 523,4 | 76,1 | 49,0 | 4,6 | 1 794,1 |
| Environmental institutes | 162,8 | 26,1 | 186,5 | 17,3 | 424,6 | 131,5 | 20,0 | 576,1 | 149,1 | 6,7 | 12,5 | 1 137,2 |
| Total Institute sector | 887,0 | 400,7 | 1 617,7 | 373,8 | 1 452,3 | 2 513,7 | 83,5 | 4 049,5 | 1 100,8 | 270,6 | 111,2 | 8 894,1 |

| 2011 | Basic funding | Governmental services | Revenues from national research funding | | Revenue from national markets for commissioned research | | | | | Other operating-related revenues | Financial revenues | Total revenues |
|--|---------------|-----------------------|---|----------------------------|---|-------------------|-------------|----------------|----------------|----------------------------------|--------------------|----------------|
| | | | RCN | Governm. sources excl. RCN | Public administration | Industrial sector | Other | Total | Abroad | | | |
| CMR | 7,2 | | 52,7 | | 7,7 | 60,3 | | 68,1 | 2,7 | 17,9 | 0,9 | 150,2 |
| IFE | 35,0 | 87,4 | 89,2 | | 73,3 | 234,3 | 17,3 | 324,9 | 217,9 | 2,4 | 1,6 | 758,4 |
| IRIS | 13,5 | | 36,9 | 0,1 | 12,9 | 121,5 | | 134,4 | 17,9 | 1,6 | 1,4 | 206,3 |
| MARINTEK | 15,0 | | 14,5 | | 20,8 | 173,4 | | 194,2 | 64,0 | 0,1 | 6,4 | 294,1 |
| NGI | 24,9 | | 22,5 | 4,9 | 39,1 | 142,8 | | 181,9 | 96,7 | 1,8 | 2,4 | 334,3 |
| NORSAR | 6,5 | | 6,5 | 0,3 | 19,0 | 13,8 | | 32,8 | 8,0 | | 0,3 | 54,0 |
| Norut Narvik | 3,3 | | 9,0 | | 9,8 | 9,1 | | 19,0 | 1,7 | | 0,1 | 33,2 |
| Norut Tromsø | 5,2 | | 9,0 | | 8,0 | 3,5 | | 11,5 | 6,0 | 0,9 | 1,0 | 33,7 |
| NR | 12,9 | | 23,5 | | 4,9 | 26,4 | | 31,3 | 8,3 | 7,6 | 0,9 | 84,6 |
| Sintef Energi | 17,5 | | 182,5 | 27,5 | 16,9 | 115,2 | | 132,1 | 44,0 | 1,4 | 10,0 | 414,2 |
| Sintef Petroleum | 13,9 | | 21,8 | | 9,7 | 108,1 | | 117,7 | 24,5 | 1,4 | 4,1 | 183,3 |
| Stiftelsen SINTEF | 107,9 | | 308,8 | 8,8 | 188,6 | 583,7 | 32,7 | 804,9 | 242,9 | 140,5 | 53,1 | 1 672,9 |
| Tel-Tek | 4,0 | | 3,9 | | 4,1 | 31,3 | | 35,4 | 1,9 | 1,8 | 0,0 | 47,0 |
| UNI Research | | | 53,2 | 10,0 | 10,0 | 15,5 | 0,1 | 25,6 | 6,9 | 0,8 | | 96,5 |
| Total Technical-industrial institutes | 266,8 | 87385 | 834,0 | 51,6 | 424,7 | 1 639,0 | 50,1 | 2 113,8 | 743,4 | 178,1 | 82,3 | 4 362,9 |
| Social science institutes | 184,5 | 27,6 | 379,6 | 73,4 | 407,4 | 140,0 | 16,0 | 563,4 | 80,3 | 13,3 | 11,7 | 1 333,8 |
| Primary industry institutes | 270,6 | 364,0 | 287,0 | 229,7 | 120,2 | 349,7 | | 469,8 | 60,9 | 52,5 | 4,7 | 1 739,2 |
| Environmental institutes | 144,9 | 20,3 | 182,6 | 51,4 | 383,3 | 140,9 | 7,4 | 531,6 | 122,1 | 10,3 | 13,0 | 1 076,2 |
| Total Institute sector | 866,8 | 499,3 | 1 683,1 | 406,1 | 1 335,6 | 2 269,5 | 73,5 | 3 678,6 | 1 006,7 | 254,1 | 111,7 | 8 512,0 |



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Cover design: Design et cetera AS
Cover photo: Shutterstock

Oslo, February 2016

ISBN 978-82-12-03473-0 (pdf)

This publication may be downloaded from
www.forskningsradet.no/publikasjoner