University of Stavanger,
Faculty of Science and Technology

University of
Stavanger

Strategy for the Department of Energy Resources, 2022-2030

Contents

Introduction

This document outlines the strategy for the Department of Energy Resources (IER) at the Faculty of Science and Technology at the University of Stavanger from 2022 to 2030. The document is in line with the strategy of the Faculty of Science and Technology, especially regarding their focus area Energy. It also links to the general strategy of the University of Stavanger in several aspects, particularly to the priority area *Energy*, but also *Green transition*, *Learning for life* and *A good learning and working environment*.

The document was developed by a committee with permanent IER staff (representing geosciences, computational engineering, risk analysis, reservoir, energy transition, and the IER management) and a laboratory engineer. In addition to the committee's work, the strategy draft, split up into three parts, was on hearing among all employees at the department, the related engineering working group, and the student organization Synergy to capture further opinions and to make sure that the strategy represents the vision of the department as a whole.

The document's main objective is to have measureable strategic goals to reach during the next 9 years, with specified actions and measures of success. The document aims to provide the department management (i. e., head of department, study program leaders and office manager) with guidelines for making IER a leading education and research department within its field. In this regard, IER will have an established pathway that may minimize drastic strategic changes when changes occur in the department management.

The strategy is divided into three main areas – Education, Research, and Communication and Working Environment. For each of the areas, 3-year, 6-year and 9-year goals, actions and measurements of success have been defined. The 3-year goals set the stage with the longest lists of goals and actions. These are to be continued over the complete strategy period in addition to the higher-level 6-year and 9-year goals that should secure maintenance and further improvement of research, education, and communication and working environment.

The strategy and its success should be evaluated every 1.5-2 years. Modifications should be done based on the achievements at the time of evaluation in order to be more likely to reach the goals, or to modify them to realistic levels of achievements. For this, a committee represented by the permanent staff will be defined by the head of department.

Summary and way forward

IER's main goal for Education is to be the preferred study place for subsurface competence and energy educations at 2030 in Norway and to be attractive for international students. The goal has grown partly based on the expected need of competence in the construction and energy industry during the next 10 years. Per today, this may necessitate graduates and professionals in industry with broad knowledge of different subsurface tools, programming skills and competence on different scientific /technical / energy systems that can operate across traditional professions (e. g., geosciences, reservoir engineering, programming) toward the energy transition and digitalization. We see the need to be flexible regarding the educational needs at each given time and be sure that the competence is both maintained and transformed simultaneously. The goal mainly is hampered by the scientific competence of the staff, as most permanent staff members in 2021 still had many years until retirement, making quick competence changes in the department challenging. Instead, this document may help us to use the present competence as strategically as possible and to use open positions to fill competence gaps.

In the field of Research, IER aims to have a good reputation both nationally and internationally. The field of research is unspecified in this document but needs to be linked to the educational direction, as we are more likely to develop top-quality educational offers in subsurface and energy educations with staff that are active researchers on the field. Thus, the general research focus of the department is likely to have a higher focus on other energy resources than on petroleum in 2030 if the present energy trend in society is continued. Based on the current staff competence and resources, the immediate strategy within the field of energy resources leans towards improved subsurface understanding for a holistic utilization of the subsurface for the energy transition.

For the topic of Communication and Working Environment, we aim to be well known for our expertise in both industry and the general public. To reach this goal, and the main educational and research goals, it is vital that all staff enjoy a good working environment and that we market ourselves strongly. Thus, a strategy for outreach via social media and other public channels is needed. Today, we are only at the start of using social media as our main information channel. An appropriate strategy for the media use is expected to grow during this 9-year strategy period. Furthermore, it is of strategic importance to reach all levels of society to increase the visibility of IER, the role of our studies and our research. Therefore, schools, public in general and other policy makers are included as part of the targets in the strategy.

The implementation of actions to reach the listed goals relies on participation from all scientific staff. The department manager and a strategy group that will be set up by the head of department will make a plan for the implementation and suggest how to encourage staff to follow the proposed actions. The strategy group also will monitor the success of the actions in terms of the goals to reach. The suggested measures of success will preferably be used, but other measures also may be taken into account if they can evaluate the department's way towards the specified goals (e. g., during mid-term evaluations) and how well we eventually reach the goals. The strategy group and the department management also can suggest modifications of actions if the department seems to deviate from the path towards specified goals despite following the proposed actions. In case that some goals are considered highly unlikely to reach (e. g., during a mid-term evaluation), modification of the goals may be suggested by the strategy group. It will be the responsibility of the department management to inform the staff about progress in the strategy work. See the table below for a summarizing roadmap.

Roadmap for the IER strategy with the strategic goals in brief.

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Strategy working group	Action plan, inform new HoD	Mid-term eval.	3-year eval.		Mid-term eval., inform new HoD	6-year eval.		Mid-term eval.	9-year eval.
Dep. man.	Implement 3-year actions				Implement 6-year actions			Implement 9-year actions	
Staff	Focus on education, research, communication and working environment towards the targeted goals								
Students	Actively participate in social, research and educational activities								
Actions	3-year actions				3- & 6-year actions			3-, 6- & 9-year actions	
Education goals			Unique offer			Good students			Preferred study place
			High applicant number			Graduates get relevant jobs			
			Energy-transition offer						
Research goals			Unique competence			Top research			Good reput.
			Attractive working place			External funding			
			Attractive research partner						
			Publishes master theses						
Comm. & WE goals			Good WE			Well known study programs			Well known experts
			Satisfied students						
			Frequent seminars						
			Active in media outlets						
			Established study programs						
			Forefront in dissem. & education methods						

Abbreviations: **Com.** Communication, **Dep. man.**: department management, **dissem.**: dissemination, **eval.**: evaluation, **HoD**: Head of Department, **reput.**: reuputation, **WE**: Working Environment.

3-Year Goals, Actions, and Measures

Summary of 3-Year Goals

Area	3-Year Goal
Education	• GE3Y-1: Have a unique and high-quality educational offer in subsurface sciences that is relevant for students, industry and society on all educational levels, including EVU. • GE3Y-2: Have at least 2:1 ratio of applicants per study place and have a graduation rate of at least 80 % students for all programs. • GE3Y-3: Have BSc and MSc programs in subsurface competence for the energy transition (e. g., petroleum, CO_2 and H_2 storage, geothermal energy, technologies for near-surface and surface geology, and other areas where subsurface competence is applicable).
Research	• GR3Y-1: The department has complementary and unique competence; a broad scientific impact in different energy-resource, climate, CO2-sequestration, digitalization, decision and data analysis, and energy-transition research, and knowledge transfer into other disciplines. • GR3Y-2: IER is an attractive working place for scientific staff (including PhD students and post-doctoral fellows) from large parts of the world (not mainly few specific countries). • GR3Y-3: IER is an attractive research partner for industry and other institutions and IER staff collaborates scientifically internally, externally and internationally, and across disciplines. • GR3Y-4: IER is strong in publishing of master-thesis work as journal or conference papers.
Communication & Working Environment	• GC3Y-1: IER has a good working environment for all staff. • GC3Y-2: IER has satisfied students. • GC3Y-3: IER has a tradition with frequent staff and guest seminars. • GC3Y-4: IER makes active use of media outlets. • GC3Y-5: IER's study programs are established with a stable number of students. • GC3Y-6: IER is in the forefront at the University of Stavanger regarding innovation in research dissemination and educational methods

Education: 3-Year Goals, Actions, and Measures

Goal	GE3Y-1: Have a unique and high-quality educational offer in subsurface sciences that is relevant for students, industry and society on all educational levels, including EVU.
Actions	• AE3Y-1.1: Offer educational courses or program for professionals and graduated students for updating or conversion (EVU courses). • AE3Y-1.2: Properly follow up the educational quality system to capture areas of improvement specific for IER courses and programs. • AE3Y-1.3: Involve industry in defining knowledge and competence needs, supervision and training: be adaptable and react quickly to changes in society in regard to subsurface competence and quality. • AE3Y-1.4: Train students in up-to-date methods, experimental techniques, software and cases applied by the energy industry and research community, e. g., uncertainty and machine learning - without losing the domain and basic knowledge. • AE3Y-1.5: Improve the students' communication skills via presentations and reports, and defences of BSc- and MSc thesis projects. • AE3Y-1.6: Company visits for students every semester. • AE3Y-1.7: Invite energy-companies to share relevant short-term and long-term problems and skills that industry is dealing with and need, and that may be considered for modifications of the programs. • AE3Y-1.8: Establish competitions, hackathons, graduation-topic forum for industry, etc. among students based on current needs in industry and with support from relevant energy companies to increasing potential employment among IER students.
Measures	• ME3Y-1.1: Average number of industrial lecturers involved per course (target: 1 / course). • ME3Y-1.2: Alumni / Tekna / KD / IER, or other surveys to find out how many students get relevant jobs after graduation (target: 60 %). • ME3Y-1.3: Compare the profiles of our programs with programs elsewhere in Norway and internationally (target: not to find comparable program profiles). • ME3Y-1.4: *Studiebarometeret*, course evaluations (target: best in Norway in *Studiebarometeret*, critical but positive course evaluations). • ME3Y-1.5: Number of students per course in EVU courses (target: at least 15 students per EVU course). • ME3Y-1.6: Funding of and number of EVU courses (target: industry funding each year, 60 ECTS of EVU-relevant courses).

Goal	GE3Y-2: Have at least 2:1 ratio of applicants per study place and have a graduation rate of at least 80 % students for all programs.
Actions	• AE3Y-2.1: Promote study programs and exchange programs nationally and internationally for instance by building good external profiles in social media (e. g., LinkedIn, Youtube, TikTok), and by appearing in more traditional, local media (TV, radio, magazines, newspapers). • AE3Y-2.2: Visit schools, educational fairs, arrange webinars, etc., invite secondary-school and high-school classes to lab tours anytime. • AE3Y-2.3: Improve teaching quality, physical facilities and student engagement. Teaching quality can be improved for instance by including more practical aspects in the teaching (e. g., field trips, laboratory work, real data analysis, programming, field models). • AE3Y-2.4: Establish better flexible educational approach to reach a broader audience, e.g., including remote teaching. • AE3Y-2.5: Have student ambassadors and alumni to promote and motivate students. • AE3Y-2.6: Include industry more in our courses and programs (e. g., guest lectures, industry-related practical tasks, thesis topics). • AE3Y-2.7: Have dialog with the industry to promote summer jobs / interns of IER students. • AE3Y-2.8: Arrange more frequent joint social activities for both students and staff, scientific talks, professional events for students, etc. • AE3Y-2.9: Use students as teaching and research assistants for research-based education and ongoing research projects. • AE3Y-2.10: Staff and student mentorship from the first year for finding appropriate elective pathways and thesis projects for each student, and guiding the BSc students to appropriate master programs. • AE3Y-2.11: Figure out how to enter relevant study-program ranking lists and take actions accordingly.
Measures	• ME3Y-2.1: Graduation rates for the past 3 years (target: 80 %). • ME3Y-2.2: Number of national and international applicants and applicant-to-places ratio (target: increasing number of applicants for each year, 2:1 ratio of applicants per study place). • ME3Y-2.3: Number of national and international followers, posts and hits in social media (UiS web page, Instagram, Twitter, Facebook, YouTube, TikTok, LinkedIn, …; target: 500 followers on Facebook, 1000 on Instagram, 100 on Twitter; Facebook: 80 persons entering per 4 weeks ("28 days total reach"), 1000 number of entries per 4 weeks ("28 days total impressions"); 2-5 social-media posts per week; open TikTok, YouTube, etc., and start posting there; 50 % increase in the unique number of visits per year on the IER and related program homepages compared to 2020 - increase to these numbers: 1500 + 2300 / year on IER page [Norwegian + English], 6000 on BSc page [Norwegian], 2200 + 7500 on MSc in Geosciences / Reservoir [N + E], 3000 + 11000 on MSc in Computational Engineering [N + E]).

Goal	**GE3Y-3: Have BSc and MSc programs in subsurface competence for the energy transition (e. g., petroleum, CO2 and H2 storage, geothermal energy, technologies for near-surface and surface geology, and other areas where subsurface competence is applicable).**
Actions	- AE3Y-3.1: Adapt course and program contents towards subsurface competence in general instead of petroleum: Energy transition with renewable sources, CCUS, programming, etc. - AE3Y-3.2: Open course(s) in geotechniques. - AE3Y-3.3: Encourage academic staff to take courses in energy transition, CCUS, CO_2 and H_2 sequestration, geothermal energy, digitalization and data analytics, etc. - AE3Y-3.4: Strategically hire academic and adjunct staff and include guest lectures in key areas outside present competence. - AE3Y-3.5: Invite professionals from industry and from other universities who successfully deal with energy-transition problems to share their experience by online, hybrid, or physical courses.
Measures	ME3Y-3.1: Courses and study programs include a balance between petroleum and other topics (target: 50/50 balance between petroleum and other topics).

Research: 3-Year Goals, Actions, and Measures

Goal	GR3Y-1: The department has complementary and unique competence; a broad scientific impact in different energy-resource, climate, CO2-sequestration, digitalization, decision and data analysis, and energy-transition research, and knowledge transfer into other disciplines.
Actions	- AR3Y-1.1: Build competence in other energy resources and CO_2 storage: re-education via courses, webinars, cooperation, etc. - AR3Y-1.2: Apply for interdisciplinary and inter-departmental research grants (e. g., in reservoir, geosciences, modelling and decision making): transfer competence. - AR3Y-1.3: Evaluate strategic competence need when hiring new staff with new research specialisations; hire only scientific staff with international scientific impact. - AR3Y-1.4: Encourage the use of petroleum-related research to other fields, both in student projects (e. g., MSc-thesis projects) and other research projects. - AR3Y-1.5: Include more research in education.
Measures	- MR3Y-1.1: Participation in relevant conferences with impact talks in energy mix, climate, etc. (target: 10 participations to relevant conferences per year for IER staff). - MR3Y-1.2: Participation of scientific staff in projects that are relevant beyond the petroleum industry (but not necessarily irrelevant for the petroleum industry) or towards the energy transition (target: 30 % of the IER projects are relevant beyond petroleum). - MR3Y-1.3: Number of PhD projects that are relevant beyond petroleum (target: 30 %). - MR3Y-1.4: Portion of publications that are relevant beyond petroleum (target: 50 %).

Goal	GR3Y-2: IER is an attractive working place for scientific staff (including PhD students and post-doctoral fellows) from large parts of the world (not mainly few specific countries).
Actions	- AR3Y-2.1: Promote open positions better in or for Norway, Western Europe and North America, etc. that we barely get applications from; directly encourage qualified candidates to apply (particularly if it increases staff diversity, e. g., gender balance); post open positions in relevant social channels, such as ResearchGate. - AR3Y-2.2: Yearly promote how our laboratory facilities can be used, update homepage / social media with a list of them, contact persons and how to book them. - AR3Y-2.3: Promote IER research at other universities and abroad (e. g., in social media such as ResearchGate, pamphlets, contacts, visiting scholars). - AR3Y-2.4: Support and encourage promotion to full professor for all associate professors.
Measures	- MR3Y-2.1: Geographical background of applicants (target: 15 % applicants from the Americas, 15 % from Western Europe, 15 % Norwegian, < 40 % Asian, 15 % rest of the world). - MR3Y-2.2: Number of social media hits and good information packages reaching out key places (targets: 500 followers on Facebook, 1000 on Instagram, 100 on Twitter; Facebook: 80 users entering per 28 days, 1000 number of entries per 28 days; 2-5 social-media posts per week; open TikTok, YouTube, etc., and start posting there).

Goal	GR3Y-3: IER is an attractive research partner for industry and other institutions and IER staff collaborates scientifically internally, externally and internationally, and across disciplines.
Actions	• AR3Y-3.1: Publish primarily in highly ranked international journals. • AR3Y-3.2: Find collaboration partners that include IER researchers in external research-application projects and in running projects that are led by other institutions, and find external partners, e. g., NORCE and IFE, for IER-led applications and projects. • AR3Y-3.3: Get industry funding for 4-year PhDs (including a 4th year on KD positions) to build reputation in research and industry, involve the PhD students in teaching, etc. • AR3Y-3.4: Offer more scientific talks and webinars to potential collaborators and invite potential collaborators to give talks and attend webinars, etc. to build networks. • AR3Y-3.5: Involve industry more in IER research (e. g., as co-supervisors, including for industry PhDs), and by encouraging research-project cooperation for adjunct staff. • AR3Y-3.6: Increase mobility of PhD students and associated staff. • AR3Y-3.7: Initiate collaborations from different disciplines, departments, and countries. • AR3Y-3.8: Involve and motivate technical staff in the research and as co-authors.
Measures	• MR3Y-3.1: Projects with internal collaboration versus external projects; theses with collaboration from industry or other institutions (target: > 50 % with each of internal and industry collaboration; 70 % external collaboration). • MR3Y-3.2: Average amount of external research funding per year and academic staff (target: 75 % of the state funding). • MR3Y-3.3: Fractions of PhD students going abroad for research visits to other institutions for at least 3 months (target: 70 % of all PhD students during the PhD period). • MR3Y-3.4: Fractions of scientific staff (other than PhD students) going abroad for research visit to one institution (not conferences) for one continuous full working week per year (target: 30 % of permanent scientific IER staff per year). • MR3Y-3.5: Number of partnerships in research projects (targets: 50 % of the staff participating or collaborating in projects from other institutions; one own project or fund application includes other institutions or companies at any time). • MR3Y-3.6: Publications per scientific and technical staff per year (targets: on average 3.5 per permanent scientific employee and 1 technical staff is co-author per year). • MR3Y-3.7: Number of publications with external and international co-authors (targets: 30 % publications with external co-authors, 20 % with international co-authors). • MR3Y-3.8: Number of publications per PhD student and PostDoc (targets: 0.75 paper per year per PhD student, 2 papers per year per PostDoc as mean values). • MR3Y-3.9: Number of reads in ResearchGate, etc. (target: Research Gate – increase by 10 % per year for the complete department; average number of reads in weeks 28-33 2021: 734).

Goal	GR3Y-4: IER is strong in publishing of master-thesis work as journal or conference papers.
Actions	• AR3Y-4.1: Prompt all master students to format their thesis as a journal paper. • AR3Y-4.2: Invite master students to present their thesis-work in international conferences preferably during the thesis period. • AR3Y-4.3: Motivate master students to publish their thesis work as peer-reviewed journal papers.
Measures	• MR3Y-4.1: Fraction of master theses being published 3 years after graduation (target: 25 %).

Communication & Working Environment: 3-Year Goals, Actions, and Measures

Goal	GC3Y-1: IER has a good working environment for all staff.
Actions	• AC3Y-1.1: Improve ownership to work activities by encouragement of staff groups (leading to e. g., increased involvement in university processes, higher responsibility feeling, more scientific collaboration, and outreach, e. g., school visits and meeting the general public). • AC3Y-1.2: Support the freedom for individual staff of all categories to focus on different tasks in the frame of the core activities of a university, and to minimise time spent on distracting tasks. • AC3Y-1.3: Introduce a mechanism that encourage the continuous use of representative for PostDocs and PhD students as a spokesman, coordinator for social events, surveys, etc. • AC3Y-1.4: Arrange frequent social gatherings (e. g., excursions, follow-up workshop of *medarbeiderundersøkelsen*, barbecue) to encourage collegial and social collaboration between different scientific fields and categories of staff. • AC3Y-1.5: Secure good communication with the administration and be proactive when new staff, including PhD students, begins (e. g., regarding office, keys, e-mail, Canvas access). • AC3Y-1.6: Encourage and support continued social organisation of the PhD community. • AC3Y-1.7: All staff take turns on required administrative tasks. • AC3Y-1.8: Keep staff-related information up to date (e. g., IER-internal posters and pin board in a central geographical IER position to advertise upcoming events, activities, etc.). • AC3Y-1.9: Strive for stability or growth of number of IER staff. • AC3Y-1.10: PhD-student and staff surveys with IER-specific questions (e. g., How does communication with the colleagues / supervisors work? How long does it take for you to get lab time? How often do you see your supervisor? How long into your PhD period did you submit your first paper?).
Measures	• MC3Y-1.1: *Medarbeiderundersøkelsen* (biannual staff survey; target: being in the "green field" in the overall topics of "*arbeidsglede*" and "*jobbtilfredshet*"). • MC3Y-1.2. Graduation rates for PhD students; targets: 70 % finish within 4 years, 90% graduate.

Goal	GC3Y-2: IER has satisfied students.
Actions	• AC3Y-2.1: Encourage students to apply for summer jobs in companies and study-exchange opportunities by actively providing them with summer job and exchange information. • AC3Y-2.2: Arrange combined social activities with staff and students, focusing on 1st-year bachelor and master students. • AC3Y-2.3: Facilitate improved communication between educators in individual courses and between courses to avoid content overlap, knowledge gaps for the students, etc. (e. g. annual meetings with all staff involved in a study program to discuss results from the quality system). • AC3Y-2.4: Use student assistants in key department activities (e. g., YouTube, semester welcome, school visits, social media, and to influence the teaching and student-evaluation style).
Measures	• MC3Y-2.1: Drop out numbers (target: < 20 %). • MC3Y-2.2: Number of students going on exchange, getting relevant summer job, etc. (targets: 10 % students going on exchange, 30 % Master students getting relevant summer jobs). • MC3Y-2.3: Rating in *Studiebarometeret* (target: rating > 4 for all study programs).

Goal	GC3Y-3: IER has a tradition with frequent staff and guest seminars.
Actions	• AC3Y-3.1: Invite research visitors to give scientific presentations. • AC3Y-3.2: Arrange seminars with local (scientific, engineering, administrative staff, including PhDs and PostDocs approximately 50 % into their contract time) and external presenters (including scientific staff from other UiS departments) that are open for students, staff, and an external audience. • AC3Y-3.3: Arrange a mid-spring "IER Research Day" with PostDoc, PhD, and MSc-thesis-student posters / presentations that are open for industry or introduce end-of-thesis presentations for MSc students. Clearly differentiate MSc-student-presentation activities from IER620 (or similar course if it exists) to encourage student and industry participation. Encourage external IER-board representative to participate, e. g., in an introductory presentation.
Measures	• MC3Y-3.1: Number of staff and guest seminars (targets: one seminar every 2 weeks; two IER-external presenters every semester). • MC3Y-3.2: Number of PhD and PostDocs who present their topic in a seminar ca 50 % of their contract time (target: 100 %). • MC3Y-3.3: Number of IER posters or presentations and industry audience at "IER Research Day" (target: 30 posters or presentations, 20 persons from industry in the audience).

Goal	GC3Y-4: IER makes active use of media outlets.
Actions	• AC3Y-4.1: Use the newsrooms of UiS and IER for all activities that may be of interest for others. • AC3Y-4.2: Contact media (e. g., newspapers, digital platforms, NRK) for publicity of news in research and education. Secure support from the UiS system for this type of actions. • AC3Y-4.3: Research groups at IER frequently contribute with social media news.
Measures	• MC3Y-4.1: Average number of contacts from media (e. g., radio, TV, newspapers) per year (target: six media contacts per year). • MC3Y-4.2: Number of social-media news (target: one per week in addition to information about new publications).

Goal	GC3Y-5: IER's study programs are established with a stable number of students.
Actions	• AC3Y-5.1: Better promotion of exchange opportunities, and more use of educational funding (e.g., NORPART, Erasmus). • AC3Y-5.2: Improve and update the IER profile in social media with student-exchange opportunities, all IER-funded research projects and joint supervision. • AC3Y-5.3: Outreach activities at school associations, and other social arenas (e. g., museums) to promote the programs to possible students, parents and society in general. • AC3Y-5.4: Involve IER students in study-program promotion to secure that used channels and formats attract attention among pupils. • AC3Y-5.5: Offer a course package to professional (EVU courses). • AC3Y-5.6: Promote activities and research towards energy transition when marketing IER programs; lean on the UN sustainable goals, and other relevant issues at each given time. • AC3Y-5.7: Participate in the annual National Research Day to promote both programs and IER's scientific competence.
Measures	• MC3Y-5.1: Number of students (targets: 20-25 incoming students in all study programs). • MC3Y-5.2: Articles in newspapers, radio, TV, and magazines that are related to the study programs (e. g., *Teknisk Ukeblad*; target: one media activity every year). • MC3Y-5.3: Number of outreach activities at schools and museums (targets: 7 schools and 2 other social arenas per year).

Goal	GC3Y-6: IER is in the forefront at the University of Stavanger regarding innovation in research dissemination and educational methods.
Actions	• AC3Y-6.1: Use ResearchGate or other relevant social-media channels to promote related ideas. • AC3Y-6.2: Make science- and education-related videos (e. g., on YouTube). • AC3Y-6.3: Participate in relevant university and faculty committees and positions (e.g., prodean). • AC3Y-6.4: Post all scientific publications in scientific and work-related (e. g., LinkedIn, ResearchGate) and relevant shorter-term social-media channels. • AC3Y-6.5: Encourage all teaching staff to take the UniPed course and further pedagogical courses during the complete teaching career. • AC3Y-6.6: Participate in national and international educational forums (e. g., science-educational conferences).
Measures	• MC3Y-6.1: Participation in research-dissemination and educational arenas with other UiS organisations, e. g., departments, faculties, UniPed (target: one participation per year). • MC3Y-6.2: Number of publications in science-educational journals (target: one per year). • MC3Y-6.3: Implementation of new teaching and dissemination methods (targets: one new teaching or dissemination method per year).

6-Year Goals, Actions, and Measures

Summary of 6-Year Goals

Area	6-Year Goal
Education	• GE6Y-1: Have a steady number of national and international high-quality students in each program, in and out. • GE6Y-2: Have students and graduates that are attractive for relevant professional working life.
Research	• GR6Y-1: Externally funded projects (NFR, EU, industry, etc.) dominate IER's research portfolio. • GR6Y-2: IER is strong both in general research, and in applied research that is applied by industry.
Communication & Working Environment	• GC6Y-1: IER has nationally and internationally known study programs.

Education: 6-Year Goals, Actions, and Measures

Goal	GE6Y-1: Have a steady number of national and international high-quality students in each program, in and out.
Actions	• AE6Y-1.1: Offer hybrid and digital top quality and worldwide courses that increase flexibility to students selecting IER programs (incl. EVU courses and single subjects). • AE6Y-1.2: Give outreach lectures to schools and other relevant arenas (other universities, associations, etc). • AE6Y-1.3: Offer online seminars and talks by ourselves and invited experts, attended by large international audiences (50-100++). • AE6Y-1.4: Strengthen the interaction with industry such that it promotes our study programs. • AE6Y-1.5: Encourage our students more actively to take an exchange semester.
Measures	• ME6Y-1.1: Stability of student intake (target: 20-30 incoming students per study program the last 3 years; the number of students is not drastically impacted by the market / the oil price). • ME6Y-1.2: Drop-out rates for the past 3 years (target: < 15 % on BSc level, < 10 % on MSc level). • ME6Y-1.3: Application ratio compared to number of study places (target: 4:1 on BSc level; 2:1 for national applicants on MSc level; 8:1 for international applicants on MSc level). • ME6Y-1.4: Number of exchange students out (and in; target: 20 %). • ME6Y-1.5: Intake grades (target: 50 points for the BSc study, 3.5 for MSc programs). • ME6Y-1.6: 80 % international master students coming from top universities (target: 80 % students from universities ranked either in QS ranking [fields of Petroleum Engineering, Geology, and Geophysics], or in Shanghai ranking [fields of Energy Science & Engineering or Earth Sciences]). • ME6Y-1.7: The education meets the expectations of the students and what they have learnt is useful in their jobs (target: 80 % positive answers in survey). • ME6Y-1.8: Student-course evaluations, comparisons with other Norwegian universities (target: satisfied students, more students get relevant jobs than at other Norwegian universities).

Goal	GE6Y-2: Have students and graduates that are attractive for relevant professional working life.
Actions	• AE6Y-2.1: Keep the study programs up to date in terms of societal and industrial needs, topics and method. • AE6Y-2.2: Include more research in education (use of others and own research results, small research projects, laboratory student assistants, …).
Measures	• ME6Y-2.1: Number of students getting relevant summer jobs and post-educational jobs (target: 50 % summer jobs on MSc level, 70 % post-educational jobs).

Research: 6-Year Goals, Actions, and Measures

Goal	GR6Y-1: Externally funded projects (NFR, EU, industry, etc.) dominate IER's research portfolio.
Actions	- AR6Y-1.1: Increase number of high-quality applications for research funding particularly to channels that we use to a limited degree, e. g., EU and industry. - AR6Y-1.2: Aim for and increase rate of success for centres, SFI, EU, and NFR funds - AR6Y-1.3: Increase the amount of research and industrial funding. - AR6Y-1.4: Encourage scientific staff to include salary for 100 % research positions in fund applications to promote more funding in the future.
Measures	- MR6Y-1.1: Number of research-fund applications per year and scientific staff, and success rate (target: one application per staff per year as main or co-applicant; highest success rate at the TN faculty; one centre or large project runs at any time). - MR6Y-1.2: Number of externally funded projects with permanent scientific IER staff as project or work-package leaders (target: one project per staff). - MR6Y-1.3: Number of PhD students and post-doctoral fellows per permanent scientific staff as main supervisor (target: 2 PhD students and 1 PostDoc per staff as a mean value). - MR6Y-1.4: Externally funded PhD students and PostDocs, excluding KD positions (target: at least 60 % of PhD students and PostDocs are externally funded).

Goal	GR6Y-2: IER is strong both in general research, and in applied research that is applied by industry.
Actions	- AR6Y-2.1: Actively dedicate specific time for research for permanent scientific staff (e. g., offering "shut-up-and-write" sessions, focussed teaching periods, more balanced distribution of work among staff). - AR6Y-2.2: Encourage publishing of general-science research. - AR6Y-2.3: Increase the number of publications in journals with high Impact Factor. - AR6Y-2.4: Expand and keep IER-relevant laboratory facilities and advanced top instruments (e. g., related to expanded research on CO_2, H_2, and geothermal energy, as well as other key areas for IER) up to date and unique for UiS and Norway; inform staff yearly about them. - AR6Y-2.5: Encourage commercialisation of research results. - AR6Y-2.6: Use open access and make your research applicable for others. - AR6Y-2.7: Give all permanent IER-related staff groups Vipro for co-authorships to encourage participation. - AR6Y-2.8: Establish externally funded 100 % research positions (excluding PhD and PostDoc positions) and secure administrative support that has experience with research positions.
Measures	- MR6Y-2.1: Number of peer-reviewed publications per year; publications in high-ranking scientific journals (targets: 65 publication points for IER per year; 4 publications per permanent scientific staff, excluding the Head of Department; 2 technical staff should be co-authors in IER-publications each year). - MR6Y-2.2: H index (target: on average the H index in Scopus is at least 1.3 times higher than the number of years in academia after PhD graduation for the permanent scientific staff). - MR6Y-2.3: Publications with industry partners as co-authors (target: on average one per scientific staff every two years). - MR6Y-2.4: Number of publications in journals with high Impact Factor (target: on average, one journal with Impact Factor > 3 per scientific staff and year). - MR6Y-2.5: Number of new, Norway-unique instruments or combinations of instruments (targets: one > 500 kNOK instrument every 3 years from the TN-faculty infrastructure fund, one smaller instrument every 2 years from other funds). - MR6Y-2.6: Internal and external use of laboratory instruments (targets: all instruments are in use every year; on average one external laboratory visitor per year per active instrument). - MR6Y-2.7: Number of permanent 100 % research staff that is hired on externally funded positions (target: more than 10 %).

Communication & Working Environment: 6-Year Goals, Actions, and Measures

Goal	GC6Y-1: IER has nationally and internationally known study programs.
Actions	• AC6Y-1.1: Maintain a good and up-to-date profile in social media. • AC6Y-1.2: Establish or enhance relationships with national and international institutions with similar activities (joint supervision, fund applications, etc.). • AC6Y-1.3: Benchmark and update the IER programs to be competitive with programs delivered by top ranked universities without copying them.
Measures	• MC6Y-1.1: Number of followers and unique visits in social media (e. g., UiS web page, Instagram, Twitter, Facebook, YouTube, TikTok, LinkedIn; targets: 10-fold increase in followers compared to spring 2021: from 103 on Facebook, 181 on Instagram, 14 on Twitter; double the yearly unique number of visits on program-related homepages compared to 2020 from 900 + 1400 on the IER page [Norwegian + English], 3800 on the BSc page [Norwegian], 1400 + 5000 on the MSc in Geosciences / Reservoir page [N + E], 2000 + 7000 on the MSc in Computational Engineering page [N + E]). • MC6Y-1.2: Number of videos (e. g., on YouTube) on topics related to the scientific fields and educational programs at IER. Keep the video content up to date (target: at least one video per semester per research group). • MC6Y-1.3: Articles in local newspapers, radio and TV, as well as national newspapers and magazines that are related to the study programs (e. g., *Teknisk Ukeblad*; target: one media activity every semester).

9-Year Goals, Actions, and Measures

Summary of 9-Year Goals

Area	6-Year Goal
Education	• GE9Y-1: Be the preferred study place for subsurface competence and energy educations (or similar): listed on the world-wide top universities for relevant subjects.
Research	• GR9Y-1: Both academic and technical staff have good national and international research reputations.
Communication & Working Environment	• GC9Y-1: IER staff is well known for their expertise on scientific subsurface themes in academia, industry and public in general.

Education: 9-Year Goals, Actions, and Measures

Goal	GE9Y-1: Be the preferred study place for subsurface competence and energy educations (or similar): listed on the world-wide top universities for relevant subjects.
Actions	(actions for 3 and 6-year goals)
Measures	• ME9Y-1.1: Be ranked by QS ranking (top 200 universities by subject) in relevant fields, and in any other relevant lists (target: be ranked in the fields of Petroleum Engineering, Geology, or Geophysics by QS ranking; enter other relevant lists).

Research: 9-Year Goals, Actions, and Measures

Goal	GR9Y-1: Both academic and technical staff have good national and international research reputations.
Actions	(actions for 3 and 6-year goals)
Measures	• MR9Y-1.1: Citations (target: on average, the H index in Scopus is at least 1.5 times higher than the number of years in academia after PhD graduation for the permanent scientific staff). • MR9Y-1.2: Engagement in editorial boards of recognised journals (target: all permanent scientific staff should have been in an editorial board during the 9-year period). • MR9Y-1.3: Number of peer-reviewed publications per year per technical staff (target: maintain the 6-year-goal target - 2 technical staff should be co-authors in IER-publications each year).

Communication & Working Environment: 9-Year Goals, Actions, and Measures

Goal	GC9Y-1: IER staff is well known for their expertise on scientific subsurface themes in academia, industry and public in general.
Actions	• AC9Y-1.1: Demonstrate and communicate IER's value-creation focus in research and public with industry and the public for improving economic and social impact (e. g., sustainability).
Measures	• MC9Y-1.1: Number of contacts from media and media reports (target: on average two media contacts per year per permanent scientific staff). • MC9Y-1.2: Number of companies that each permanent scientific IER staff collaborates with per year (target: on average 2 companies per permanent scientific staff). • MC9Y-1.3: Number of social-media news (target: research groups at IER contribute with at least two social-media news per week). • MC9Y-1.4: Be visible in recognized arenas, panels, committees etc., e. g., NFR, climate and energy panels, conference or journal panels, and scientific boards (target: be represented in the board, panel, etc. of one recognized organisation at any time).

Appendix: Tabular overview over all Goals, Actions and Measures of success

Area	3 Years			6 Years			9 Years		
	Goals	Measures	Actions	Goals	Measures	Actions	Goals	Measures	Actions
Education	GE3Y-1	ME3Y-1.1	AE3Y-1.1	GE6Y-1	ME6Y-1.1	AE6Y-1.1	GE9Y-1	ME9Y-1.1	Same as for years 3 and 6
		ME3Y-1.2	AE3Y-1.2		ME6Y-1.2	AE6Y-1.2			
		ME3Y-1.3	AE3Y-1.3		ME6Y-1.3	AE6Y-1.3			
		ME3Y-1.4	AE3Y-1.4		ME6Y-1.4	AE6Y-1.4			
		ME3Y-1.5	AE3Y-1.5		ME6Y-1.5	AE6Y-1.5			
		ME3Y-1.6	AE3Y-1.6		ME6Y-1.6				
			AE3Y-1.7		ME6Y-1.7				
			AE3Y-1.8		ME6Y-1.8				
	GE3Y-2	ME3Y-2.1	AE3Y-2.1	GE6Y-2	ME6Y-2.1	AE6Y-2.1			
		ME3Y-2.2	AE3Y-2.2			AE6Y-2.2			
		ME3Y-2.3	AE3Y-2.3						
			AE3Y-2.4						
			AE3Y-2.5						
			AE3Y-2.6						
			AE3Y-2.7						
			AE3Y-2.8						
			AE3Y-2.9						
			AE3Y-2.10						
			AE3Y-2.11						
	GE3Y-3	ME3Y-3.1	AE3Y-3.1						
			AE3Y-3.2						
			AE3Y-3.3						
			AE3Y-3.4						
			AE3Y-3.5						

Area		3 Years			6 Years			9 Years	
	Goals	Measures	Actions	Goals	Measures	Actions	Goals	Measures	Actions
Research	GR3Y-1	MR3Y-1.1	AR3Y-1.1	GR6Y-1	MR6Y-1.1	AR6Y-1.1	GR9Y-1	MR9Y-1.1	Same as for years 3 and 6
		MR3Y-1.2	AR3Y-1.2		MR6Y-1.2	AR6Y-1.2		MR9Y-1.2	
		MR3Y-1.3	AR3Y-1.3		MR6Y-1.3	AR6Y-1.3		MR9Y-1.3	
		MR3Y-1.4	AR3Y-1.4		MR6Y-1.4	AR6Y-1.4			
			AR3Y-1.5	GR6Y-2	MR6Y-2.1	AR6Y-2.1			
	GR3Y-2	MR3Y-2.1	AR3Y-2.1		MR6Y-2.2	AR6Y-2.2			
		MR3Y-2.2	AR3Y-2.2		MR6Y-2.3	AR6Y-2.3			
		MR3Y-2.3	AR3Y-2.3		MR6Y-2.4	AR6Y-2.4			
			AR3Y-2.4		MR6Y-2.5	AR6Y-2.5			
	GR3Y-3	MR3Y-3.1	AR3Y-3.1		MR6Y-2.6	AR6Y-2.6			
		MR3Y-3.2	AR3Y-3.2		MR6Y-2.7	AR6Y-2.7			
		MR3Y-3.3	AR3Y-3.3			AR6Y-2.8			
		MR3Y-3.4	AR3Y-3.4						
		MR3Y-3.5	AR3Y-3.5						
		MR3Y-3.6	AR3Y-3.6						
		MR3Y-3.7	AR3Y-3.7						
		MR3Y-3.8	AR3Y-3.8						
		MR3Y-3.9							
	GR3Y-4	MR3Y-4.1	AR3Y-4.1						
			AR3Y-4.2						
			AR3Y-4.3						

Area	3 Years			6 Years			9 Years		
	Goals	Measures	Actions	Goals	Measures	Actions	Goals	Measures	Actions
Communication and Working Environment	GC3Y-1	MC3Y-1.1	AC3Y-1.1	GC6Y-1	MC6Y-1.1	AC6Y-1.1	GC9Y-1	MC9Y-1.1	AC9Y-1.1
		MC3Y-1.2	AC3Y-1.2		MC6Y-1.2	AC6Y-1.2		MC9Y-1.2	
			AC3Y-1.3		MC6Y-1.3	AC6Y-1.3		MC9Y-1.3	
			AC3Y-1.4					MC9Y-1.4	
			AC3Y-1.5						
			AC3Y-1.6						
			AC3Y-1.7						
			AC3Y-1.8						
			AC3Y-1.9						
			AC3Y-1.10						
	GC3Y-2	MC3Y-2.1	AC3Y-2.1						
		MC3Y-2.2	AC3Y-2.2						
		MC3Y-2.3	AC3Y-2.3						
			AC3Y-2.4						
	GC3Y-3	MC3Y-3.1	AC3Y-3.1						
		MC3Y-3.2	AC3Y-3.2						
		MC3Y-3.3	AC3Y-3.3						
	GC3Y-4	MC3Y-4.1	AC3Y-4.1						
		MC3Y-4.2	AC3Y-4.2						
			AC3Y-4.3						
	GC3Y-5	MC3Y-5.1	AC3Y-5.1						
		MC3Y-5.2	AC3Y-5.2						
		MC3Y-5.3	AC3Y-5.3						
			AC3Y-5.4						
			AC3Y-5.5						
			AC3Y-5.6						
			AC3Y-5.7						
	GC3Y-6	MC3Y-61	AC3Y-6.1						
		MC3Y-62	AC3Y-6.2						
		MC3Y-63	AC3Y-6.3						
			AC3Y-6.4						
			AC3Y-6.5						
			AC3Y-6.6						