

R&Dialogue

Energy and climate dialogue in Norway

Norway Discussion Paper



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This document was created in the framework of the European project R&Dialogue. It is the result of the work conducted by and with the Norway National Council. It contains all the issues discussed, conflicting perspectives and open issues that still remain and there is need for further and wider discussion.



R&Dialogue

National Discussion Paper - Norway

Contents

| | |
|---|-----------|
| R&Dialogue Norway – about the project | 3 |
| Introduction | 4 |
| From fossil fuels to low emissions | 5 |
| Norway's role, as a large hydrocarbon exporter, in a low-carbon Europe | 5 |
| The consumer's role | 6 |
| Need to focus more on unnecessary consumption. | 6 |
| Knowledge and business development | 8 |
| Politicians must prepare the market and future labourers for the transition now | 8 |
| More concrete political direction | 10 |
| Unclear whose responsibility it is to ensure that we reach our targets | 10 |
| Education and skills | 11 |
| It is necessary to look at what kind of competence our low-carbon society will need now | 11 |
| Participation | 12 |
| Who is involved, and not involved, in the public debate today? | 12 |
| The way forward | 14 |
| Reference list | 15 |

About this discussion document

This discussion document examines the themes which the Norwegian Council for a Low-Emission Society sees as challenging in the Norwegian debate. The document also indicates which areas require more discussion and clarification. The objective of the document is: a joint vision for Norway as a low-emission society, which will be submitted to the European Commission.

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R&Dialogue Norway – about the project

Dialogue between research and civil society, including NGOs, industry and public bodies, is essential for the transition to sustainable energy production. This dialogue is necessary in order to develop solutions that are supported by the people of Norway. The R&Dialogue is initiating this dialogue in an inclusive, democratic and open way.

R&Dialogue is a project funded by the European Commission's 7th Framework Programme for Research (FP7) under the theme 'Science in Society'. The purpose of R&Dialogue is to examine more closely the challenges associated with the dialogue between R&D organisations and other social actors. Results of the work that is being conducted across Europe are to be fed back to the European Commission. National participants decide for themselves which concrete themes and types of activity the project will address.

R&Dialogue Norway has brought together 18 Norwegian stakeholders from industry, public bodies, civil society and research to form a council that will work on a joint vision for a low-emission society.

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R&Dialogue

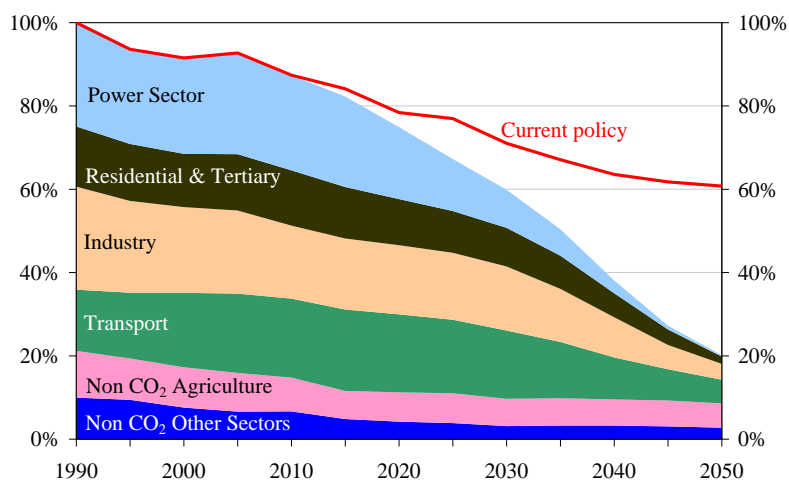
Introduction

Norway has no unified vision for what society should look like in terms of energy use and greenhouse gas emissions in the future, except that we shall be 'carbon neutral' by 2050. There is also no apparent consensus on what carbon neutrality or 'a low-emission society' mean. In light of this, it will be interesting to see what signals the Norwegian Government will give in its Roadmap for Future Energy Policy (*Energimeldingen*). However one defines these concepts, it has to be assumed that Europe will have a very different energy mix by 2050. This is a theme that the members of the Norwegian Council for a Low-Emission Society are having problems pinning down in any specific way. Different stakeholders disagree on what kind of emission reduction targets a low-emission society requires, what targets must be set for different sectors and what scenario analyses should be used. Top level politicians must be urged to clarify what these concepts mean, in the form of emission cuts, proportion of renewables and level of energy efficiencies.

The council deems it necessary to establish an understanding of the concept and how such a new society will affect people's lives at an individual level. Agreeing on targets for emission cuts, what types of energy we will produce and the amounts of energy we consume is all well and good, but not particularly appropriate if this is not followed up by real policy tools and action. In working on future scenarios, it is important to take account of what we believe is actually achievable. There has to be a consideration of how we want society to develop. This is necessary in order to produce the tools that can help us achieve the ambitions set out by the politicians. It is essential to agree on a good definition of what a low-emission society is, in order to ensure acceptance and understanding of the concept.

R&Dialogue is funded by the European Commission, and we thus take as our starting point the EU's target on low emissions: an 80-95% reduction in greenhouse gas emissions by 2050 in line with the EU's Roadmap for moving to a competitive low carbon economy in 2050 (European Commission, 2011). The Council believes this to be a reasonable starting point, since the EU constitutes Norway's most important energy market, and also has an important influence on Norwegian energy policy through the EEA agreement. The Energy Commission report (NOU 2012:9) on which the Roadmap for Future Energy Policy will be based also emphasises the significance of the EU's energy targets.

Figure 1 Necessary emission reductions, according to the EU's scenario analyses up until 2050. (Source: The EU's Roadmap for moving to a competitive low carbon economy)



R&Dialogue

From fossil fuels to low emissions

Norway's role, as a large hydrocarbon exporter, in a low-carbon Europe

The development and export of oil and gas has brought Norway jobs, technological expertise and greater prosperity. There is relatively broad acceptance within the Norwegian population that climate change is man-made (TNS Gallup, 2014), and that the use of fossil fuels is the primary cause of climate change. The International Energy Agency (IEA) has stated that without carbon capture and storage (CCS) being widely deployed, two-thirds of the world's fossil resources must remain untouched, if we are to achieve the two degree target (IEA, 2013). There is strong disagreement in the Norwegian social debate on what role oil and gas should play in the future. It is claimed that Norwegian oil and gas production is the least environmentally harmful in the world, which is put forward as an argument for continued and increased production. The biggest player on the Norwegian continental shelf has, for example, set a target of leading on carbon efficiency. On the other side of the debate, many environmental organisations and politicians believe that Norway must set a good example, and show the rest of the world how to live well without fossil fuels. The issues are complex, touching on industrial development, classic environmental conservation, morality and the climate change battle.

Since much of Norway's wealth is based on the large-scale export of hydrocarbons, and we are one of the world's richest nations, it is suggested that we have a greater responsibility, and better opportunities, than others to develop a low-emission society. Whether Norway has a greater moral responsibility than others to help combat climate change is a hotly debated question. Many believe it is better to focus on global initiatives, and to lobby countries with particularly high emission levels, such as China and India, to cut emissions. Furthermore, there are those who believe Norway does not need to do anything, since we are one of the countries in the world with the highest proportion of renewables.

A low-emission society means a seriously high proportion of renewables and climate technologies that ensure significantly lower emissions of CO₂. It will, however, be a long time before Europe reaches a point where the biggest importers of Norwegian oil and gas are anywhere close to 100% renewables. This means that there remains a market for Norwegian oil and gas in Europe. The transition to renewable energy sources must take place much more quickly, if we want a society that has no need for fossil fuels, before we have reached a catastrophic global rise in temperatures. Norway can play a part in this transition, and can find opportunities for new exports, but in this case we have to clearly define the way forward, and consider all the options right here and now. A host of studies show great potential for value creation in exploiting Norwegian renewable resources in combination with gas.

Some Norwegian stakeholders believe that carbon capture and storage (CCS) may be a necessary technology in cutting emissions from existing operations and emissions from energy intensive industry. With this technology, fossil fuels can continue to be used while ensuring a much lower concentration of atmospheric CO₂. CCS can thus make the transition to a low-emission society less polarised and help ensure that we do not end up stuck in a renewable versus fossil debate. The debate on CCS in Norway is highly polarised. There is disagreement about costs, where we should invest, and whether we should contribute to the development of this technology.

When it comes to the transition to a renewable society, it is necessary to think big. If the politicians are serious about their promises for the future of Norway, it must be understood that such seismic social changes require high ambitions and strong political will. Some stakeholders believe the first thing is to consider what we will live off in addition to oil. We have to start the transition before we reach a point where we have no choice. By then, the transition would be more difficult and more expensive than necessary. The development of technology and projects is subject to long lead times. Clearly defined ambitions for 2030 are therefore necessary to ensure that the industry can develop the associated projects, technologies and infrastructure.

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The consumer's role

Need to focus more on unnecessary consumption.

When we talk about a carbon-neutral future, and a changed society, this is not just about traditional energy use, but also about consumption in general. Energy transition is about more than simply reducing greenhouse gas emissions; energy transition must also take into account how we use our natural resources. In Norway, we have experienced an incredible rise in prosperity over the past century, and Norway is among the top consumers in Europe (Aftenposten, 2013). In the media, growth in retailing is reported as positive news, and it is seen as a sign of constant improvement in the economy. The production and shipping of goods accounts for considerable emissions of greenhouse gases and environmentally harmful chemicals, and threatens many species and ecosystems. Should we perhaps find other ways of measuring wealth, prosperity and quality of life?



Figure 2 Source: ndla.no

When talking about consumption and sustainability, it is important to remember that we are talking about two crises here: the climate and natural biodiversity. These crises must be dealt with simultaneously. WWF's most recent Living Planet Report states that since 1970, "the number of mammals, birds, reptiles, amphibians and fish with which we share our planet has fallen by half", putting the planet's biodiversity in its worst situation ever (WWF, 2014).

Consumers may have an important role to play in changing society. If consumers demand certain standards for the products they purchase and change the way they consume, the market and policy will follow their lead. Consumers have much more power than they realise. While it can be useful to make consumers more aware of this power, it is important to stress that the consumer and the individual do not bear all the responsibility. Politicians cannot transfer responsibility for ensuring a new world onto the consumers alone. This can alienate consumers and create a sense of conflict that does not actually exist. It is important to show consumers that they have choices, and that their choices help to shape the society in which we live.

Some level of consumption is necessary. It is the unnecessary consumption that is problematic. In the West, there are many people who have reacted to excessive, unnecessary consumption by going back to basics. In the USA, there is a movement that is building tiny houses (The Tiny Life, 2014) as a reaction to the construction of more and more 'McMansions' in parts of the country. In Norway, there has been more of a focus on fair trade/ethical products in recent years and flea markets are more popular than they have been for a long time. Good labelling of products may be a solution in raising awareness even more and giving a more holistic picture. Food and consumer items can be labelled with a simple symbol that shows, for example, the product's environmental and carbon footprint. There are already several labelling schemes that partly cover some of this, but there is great confusion and uncertainty among consumers about what the individual schemes stand for (Aftenposten, 2011). Perhaps products could be priced according to their footprint. If, for example, harmful chemicals have been used in the production, or the product has travelled an

R&Dialogue

(unnecessarily) long distance, this product should carry a higher price. Simplification of the whole labelling regime should, at least, be a goal and a priority.

An increased focus on experiences rather than things could also contribute to a better environment and a different take on prosperity. Norwegians are flying more and more, and this growth is expected to continue until 2040 (Miljøstatus, 2013). This is due, to some extent, to improved personal finances and ever cheaper flights. In addition, foreign travel, preferably to far-flung places, has also long been seen as a status symbol. However, ecotourism and responsible tourism are becoming increasingly popular, with strong indications that some people are adopting a more conscious approach to the environmental and climate impacts that traditional tourism entails (Framtiden li våre hender, 2014). A steady rise in the focus on services and experiences rather than consumption could contribute to a higher quality of life and fewer impacts on local environments and the climate. The Norwegian Trekking Association reports record growth in the use of its cabins, which perhaps indicates the emergence of changing consumption patterns (Den Norske Turistforening, 2014). This year, the Storting (the Norwegian Parliament) confirmed that the Norwegian environment has constitutional protection through the adoption of an amended constitution in May 2014. The preparatory work for this environmental provision (now section 112) from 1992 was based on the Storting seeing protection of the environment as a human right. The preparatory work also assumes that this provision will protect the principles of sustainable development. Confirmation of this right could be a good weapon in the environmental fight in years to come.

The Nordic region is moving towards a significant energy surplus which, without action on the consumption side, will lead to lower prices for electricity and reduce incentives for making energy efficiencies. There is, however, a great deal of disagreement about energy supplies and the energy market. Disputed areas include replacement of national fossil fuel consumption, facilitation of growth in energy intensive industries, electrification of the continental shelf and cross-border connections to European energy markets. There is a substantial need for clear political signals on what the energy should be used for and what decarbonisation measures the electricity sector should be contributing to nationally.

Knowledge and business development

Politicians must prepare the market and future labourers for the transition now

| GHG reductions compared to 1990 | 2005 | 2030 | 2050 |
|--|------|-------------|-------------|
| Total | -7% | -40 to -44% | -79 to -82% |
| Sectors | | | |
| Power (CO ₂) | -7% | -54 to -68% | -93 to -99% |
| Industry (CO ₂) | -20% | -34 to -40% | -83 to -87% |
| Transport (incl. CO ₂ aviation, excl. maritime) | +30% | +20 to -9% | -54 to -67% |
| Residential and services (CO ₂) | -12% | -37 to -53% | -88 to -91% |
| Agriculture (non-CO ₂) | -20% | -36 to -37% | -42 to -49% |
| Other non-CO ₂ emissions | -30% | -72 to -73% | -70 to -78% |

Figure 3: Data from the EU's 2050 Roadmap shows the scale of the sectoral changes required over the next 35 years

A transition to a low-emission society requires major changes and participation from all sectors. A green transition will not happen of its own accord; to ensure that it happens, there must be a concrete investment in new solutions. This requires the will and an agreed policy. The development of the Norwegian oil and gas industry came about due to concrete policy tools and frameworks for the industry. The same is required in order to establish a domestic market for renewable technology and energy. Politicians nationally and in the EU have to set the groundwork (and clarify the obligations) for a stable growth in renewable energy production in a better way than many in the industry feel is currently the case. Businesses in the cleantech field generally need better predictability. Uncertainty affects the ability of existing and new businesses to increase their capacity and to take part in the development of, and investment in, new technology. The Roadmap for Future Energy Policy should contribute to investment security for the relevant sectors. Despite a certain amount of disagreement about the contribution that the different sectors should make to decarbonisation, there is a broad consensus that measures in areas such as energy, energy efficiency and the petroleum industry are necessary. Norwegian policy for the period after 2020 must give incentives for all these sectors.

Norwegian actors in the renewables industry point out that, in the development of new renewable technologies or products, the commercialisation phase is particularly difficult. The lack of private capital and public support schemes for this phase means that many research projects are shelved or the projects are forced abroad to ensure their continued development. There is, however, disagreement about the terms on which research should be based and the degree to which social trends should inform the research. This raises difficult questions for research institutions, politicians and industry.

It is claimed by some stakeholders that the Norwegian state enterprises are failing in this development. They demand, or will only invest in, mature technologies. The question is thus raised as to why private businesses should risk investing in new technology when state enterprises do not. Perhaps state enterprises should lead by example. This issue relates, however, to the controversial topic of state ownership. It is also claimed that there are too few state incentives for innovation, although there is disagreement on how far it is the responsibility of public bodies to drive innovation and development. Some stakeholders point out that industry is also not fast enough in embracing new environmental technology.

To make investment in new renewable products and research less risky, it is important that the research institutions and industry are able to develop within predictable parameters. In Norway today we have yet to adopt emission cuts or renewables targets for 2050. This makes the market risky for any investors, which may lead them to choose more traditional sectors such as oil and gas. To ensure that Norway does not fall behind in the transition to a low emission society, it is important to establish a roadmap for 2030 and 2050. The responsibility for drawing this up naturally lies with the Ministry of Climate and Environment, but must be done in collaboration with the Ministry of Finance, the Ministry of Petroleum and Energy and the Ministry of Trade, Industry and Fisheries, to ensure support for development in the sectors that will provide the transition.

In Norway, we must also take account of how the EU shapes its policy and its support schemes in moving towards 2030 and 2050. The EU is our largest export market, and we are dependent on understanding and keeping up with

R&Dialogue

developments taking place there. There is a great deal of disagreement on how we should deal with the EU, and what the European energy market will look like over the next few decades. The Ministry of Petroleum and Energy claims that the EU will require Norwegian gas for the foreseeable future, while in light of the Ukrainian crisis many Europeans wish to be self-sufficient in energy. Others want to source their gas from a country with a stable supply and form of government. If the EU develops an energy union that is to be 100 percent self-sufficient, we in Norway will have to consider what our role in the EU will be.

In addition, major European nations are now establishing large-scale energy efficiency measures and high targets for renewables. Denmark is to have 100 percent renewables by 2050, while France is taking a leading role in work on efficiency targets for 2030 (Euractiv, 2014). A number of stakeholders believe that Europe will have as high a demand for Norwegian gas as is being predicted by our leading politicians, while others feel that we should consider opportunities for other energy and power exports to Europe in the years to come. Correspondingly, it is vital that the Norwegian authorities signal a clear willingness to play their part in providing flexible hydro power and increased expansion of renewables. Such an ambition must have broad political support nationally.

It is important to decide on the creation of other, new forms of economic development that will take us to 2050. Norway will have a very different labour market in the future, and the preparations for that cannot wait until we have sky-high unemployment and new graduates looking for jobs that no longer exist in the country. Out of consideration for future generations, it is necessary to consider new investments in infrastructure, and to plan what the society of the future will look like. This type of investment has extremely long lead times from development to realisation, and if it is not carried out, our children and grandchildren may have to pay a very high price.

R&Dialogue

More concrete political direction

Unclear whose responsibility it is to ensure that we reach our targets

As mentioned, here in Norway we have no shared understanding of what a low-emission society is. For the sake of predictability, it is important that we decide what this means for the Norway of the future. Top-level politicians need to set out the criteria that define what is meant by a low-emission society. In addition, a broad base of stakeholders should be invited to help establish the definition of what a low-emission society means, and how we get to one. The way we achieve this objective, through regulation or incentives, is however more contentious.

If the politicians decide on the objective of a low-emission society, many believe it is also the responsibility of the politicians to ensure green jobs, and good alternatives to oil and gas jobs. It is, however, industry which holds responsibility for employing the majority of the country's apprentices. This is only natural, since this is the same industry that wants to benefit from the skills these apprentices gain in the future. Yet reports suggest a major lack of apprenticeships in some professional areas (NRK, 2014). It is necessary to decide who has responsibility for ensuring that there are jobs for qualified applicants, and who is responsible for educating young people for the careers we actually need in the future.

Some stakeholders state that in the future we will need employees with a multidisciplinary background and education. Too great a focus on specialisation leads to a lack of the skills necessary to meet the challenges of the future. On the other hand, the renewables courses that currently exist also come in for criticism from the renewables industry (Teknisk Ukeblad, 2014) because they are not technical enough. It is up to the politicians to point the way towards a low-emission society, so that educational institutions and industry can follow up with concrete changes. There is a need for a certain amount of coordination between policy and sectoral investments so that everyone is pulling in the same direction, but the question of how great and direct this coordination should be is a difficult one.

The EU has a huge importance in shaping Norwegian policy. All the EU Directives regulating energy issues have been adopted as part of the internal market, and have been seen as relevant to the EEA. Norwegian politicians therefore have to take account of the signals coming out of Brussels when developing the energy and climate policy for the years to come. The fact that there is still strong antipathy towards the EU within the Norwegian population (NTB, 2014) may make this job more difficult for the politicians. This is a complicated balancing act at a time when Norway's ties to the EU are becoming steadily closer.

As mentioned above, different ministries need to work together to ensure a unified, concrete energy and climate policy that fosters future investment in new technology and new energy. This may be an inflammatory theme for many politicians and officials in the civil service, where there is a strong sense of ownership over a particular policy area. Ambitions must be followed up by action, something that the national Climate Agreement has shown us. Norwegian politicians now admit that we will not reach the targets that the majority of the parties in the Storting signed up to, since these have not been followed up with good enough policy tools. Perhaps we should look to Germany and their Green Shift for inspiration on large-scale restructuring.

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Education and skills

It is necessary to look at what kind of competence our low-carbon society will need now

Education and training are crucial in ensuring that the transition to a low-emission society runs as smoothly as possible. In a different society, we will need different skills from those we have today. Skills may come to mean something entirely different in 40 years time. A low-emission society requires solutions that are nothing like what we know today. It is argued that in the future we will need a workforce with a broader skill set. Education consequently needs to support the low-emission society. The current debate on education policy is, however, too narrow and single-minded to achieve such a major change. On the other hand, it is of course difficult to make long-term educational plans and set educational goals for a society that is developing so quickly.

At the same time, it is argued that there is a need to establish and maintain a strong focus on scientific disciplines within higher education. Traditional subjects such as physics and chemistry are essential for the development of solutions for the production, transport and storage of energy. It is believed that specialists will continue to be needed in the future, but they will have to be better equipped to work with specialists from other disciplines.

It is difficult to determine what knowledge will necessarily be in demand in 2050, but we know that innovation and technical expertise will be important. Perhaps we should already be considering what a PISA survey will look like 35 years from now, to ensure that we move in the right direction, and to understand the magnitude of the changes that need to be made. Lofty ambitions about what society will look like in the future must be followed by concrete action to ensure that employees are actually in a position to contribute to such a society.

It has been suggested that a different industrial landscape, and the need for new jobs that follows from that, will force a focus on new skills. The extent to which industry or politicians should take the lead can seem like something of a 'chicken and egg' question. Perhaps there needs to be a better dialogue between the education sector, politicians, research institutions and industry, to ensure that society has the skills that will be in demand.

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Participation

Who is involved, and not involved, in the public debate today?

Most people agree that a smooth transition requires the support and involvement of as many different stakeholders as possible.

Today, civil society in particular (NGOs, support groups, social movements/grassroots organisations) is taking the lead on projects to expand new energy and infrastructure. On several wind power projects and the decision to build the so-called monster masts in Sima-Samnanger, there has been a powerful expression of civil society's frustration about not being heard. This is a prime example of the 'conflict' between classic environmental conservation and the fight against climate change. Conservationists believe that nature is being sacrificed for the sake of lower costs and faster processes, while the climate change camp feels that conservationists are exaggerating the challenges of expanding renewables. Politicians are dependent on civil society agreeing to, and wanting, a low-emission society. It has so far proved difficult to find the balance between the desire for open processes and effective project development. This is underlined by Minister of Petroleum and Energy Tord Lien's declaration at the launch of Sima-Samnanger that "the debate taught us that early and strong local involvement is a precondition for a good licensing process." (Regjeringen, 2014).

To ensure that processes are as open as possible, it is important to check that communication with everyone involved is understandable, and that the arguments of the recipients are heard. Some players in the renewables field, however, state that as businesses, it makes more sense for them to complete the project as quickly as possible, since civil society is generally more positive towards a development after completion than it was before. This is supported by a TNS Gallup survey from 2009 (NVE, 2009). A similar challenge lies in the fact that management by objectives (for example via energy and environmental targets) is fragmented across the specialist directorates, with each directorate looking after 'their' targets, to some degree without focusing on how these are to be weighed up against each other. The Roadmap for Future Energy Policy should provide political signals that make management by objectives more effective.

The trade unions have the potential to be key players in the dialogue on a low-emission society. They, like civil society, represent a large number of people and many disparate interests. The four largest union confederations have over one and a half million members. These confederations often contribute to public hearings and have a visible presence in the media. As mentioned before, dialogue between research, industry, unions and politicians is essential in ensuring holistic solutions. Today, it is claimed that there are too few forums where different stakeholders can get together and discuss problems in depth.

The media can also be an obstacle on the path to finding solutions. It can, at times, appear as if the media wishes to create conflicts that do not exist for the sake of entertainment. This can lead to some stakeholders withdrawing from the debate, because they do not recognise themselves in their media persona, or because they find themselves in an environment where they are unable to express strong opinions publicly. Journalists who immerse themselves more deeply in the topic about which they write may perhaps be in a position to help make the debate more balanced. Some would say that circumstances outside the control of the individual journalists force them to peddle headline journalism that keeps things simple and only scrapes the surface of the subject (Nettavisen, 2014).



R&Dialogue

One example of this is the fact that climate sceptics are over-represented in the media. Perhaps it is up to the energy and climate stakeholders themselves to ensure better, more information-based, communication with the population and between themselves.

R&Dialogue

The way forward

This document highlights the main challenges identified by the Norwegian Council in its discussions on the path towards a low-emission society. The Council has identified the open issues as described in this document through plenary sessions and group work. The points that will require more deliberation are:

- The future of Norway's petroleum industry
- Norway's goals for energy production and use in 2050
- People's personal role in climate change and consumption
- How to involve people and all stakeholders in policy developments
- What kind of competence the low-carbon society will demand.

The points will be further addressed in the vision document, which will look at what the desired low-emission society will look like and how we can achieve it.

The solutions found through discussions in the council were:

- There is an obvious need for a definition of and a political commitment to a low-carbon society
- Authorities ought to work together, across specific sectors in ministries for example, in order to achieve a truly holistic approach to a low-carbon society
- The participation of as many stakeholders as possible is vital to achieving a smooth transition to a low-carbon society
- Norway needs a policy that ensures predictability in terms of what competence the country will demand in the future
- There is a need for a stronger focus on consumption in the Norwegian climate conversation.



R&Dialogue

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