

# Curb your enthusiasm: on media communication of bioenergy and the role of the news media in technology diffusion

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**Curb your enthusiasm: on media communication of bioenergy and the role of the news media in technology diffusion**

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*There is widespread agreement that the mitigation of climate changes requires societies across the globe to speed up the diffusion of renewable energy technologies. This paper pursues an interest in the diffusion of one such technology: bioenergy. It does so through a study of how bioenergy is covered and communicated in the news media of Norway and Sweden, countries where the diffusion of this technology looks radically different. Mobilizing a domestication perspective, it finds that the news media in the two countries ascribe diverging meaning to the technology, offering audiences clearly varied images of what bioenergy “is”. In other words, the technology is domesticated in different ways, suggesting that media coverage plays a role in systems of innovation and diffusion. How this affects the public, however, is an under analysed element in the innovation and diffusion literature, and the paper calls for further investigation into this matter.*

**Key words:** domestication, media analysis, bioenergy, diffusion, Norway, Sweden

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Policy discussions about increasing the use of renewable energy tend to focus on technical and economic aspects of current and future technologies (e.g. Hoogwijk & Graus, 2008). What is the potential for wind power in Europe? What are the costs related to photovoltaic power plants? How much energy could tidal power generate? Answers to such questions facilitate scenario making, and provide valuable information for actors who seek involvement

in renewables. However, explanations of diffusion or non-diffusion cannot be based solely on the understanding of technical and economic properties. As technologies mature, the public ascribes meaning to makes sense of, and attaches symbolic universes to them. They undergo domestication processes, where outcomes as diffusion or non-diffusion cannot be taken for granted (Sørensen, 2005). Wind power is a good example. It has become symbolically entangled with bird life (and death!), natural landscapes and aesthetics, aspects that are entirely disconnected from technical and economic calculations (Solli, 2010).

In this paper I pursue an interest for a related technology; bioenergy. I will comparatively explore how bioenergy is ascribed meaning through coverage in Norwegian and Swedish newspapers. How different is the press coverage of bioenergy, and how does this affect what bioenergy 'is' in the two countries? Such attribution of meaning can take many forms. David E. Nye's (1994) notion of the technological sublime is one possibility, where technologies symbolize dreams – visions of future greatness. Another example is the idea that media actors cover energy technologies in so-called 'hype cycles', where some become shooting stars, while others pass into oblivion (Kårstein, 2008). For bioenergy, some have been concerned that its heterogeneous character is a communication challenge that leads to confusion and negative images (McCormick, 2010; Rohracher, 2010). Beyond being a generic category, bioenergy is a set of technologies varied in matters like production, size and application. This could complicate communication about bioenergy compared to e.g. wind or solar power. Can the press coverage of bioenergy be read as expressions of the technological sublime, is it subject to hype, or is the coverage of bioenergy of a more critical nature?

Given the prominence of bioenergy in Sweden and its marginal position in Norway, the two countries are interesting as contrasts. The contrasts might stem from diverging transition-strategies for reaching post-carbon societies. Three ideal-typical lines of such transition have been suggested: replacement, increasing efficiency and continuity (Sørensen, 2007). Replacement literally means replacing fossil fuels with renewables, while a continuity path involves increasing fossil fuel consumption while reducing emissions through the application of cleaning technology. Does the Norwegian and Swedish data reflect such strategies?

News media actors are important public sources of information about energy technology (Delshad, Raymond, Sawicki, & Wegener, 2010; Gamson & Modigliani, 1989; Krohn & Damborg, 1999). Here, three newspapers from both countries are analyzed. I focus on the content and on how the newspapers produce meaning of bioenergy. This meaning is sought through the identification of story-lines, an important aspect of the argumentative approach to discourse (Hajer, 1995), where politics is considered "a struggle for discursive hegemony in which actors try to secure support for their definition of reality" (Hajer, 1995, p. 59). Story-lines reduces complexity, often closing controversies through evoking one-liners, metaphors, analogies, clichés, historical references, appeals to collective fears or a sense of guilt (Hajer, 1995, pp. 62-63). Thus, the newspapers are likely to evaluate bioenergy normatively, ascribing meaning that contains judgement. The newspaper coverage can be read as part of the collective domestication of bioenergy; as producers of meaning and sites of domestication, the newspapers take part in the technology diffusion process. What story-lines emerge around the topic of bioenergy in the newspaper data, and how can this illuminate the domestication and diffusion processes in the two countries?

### **The media as a site of domestication**

Technology diffusion can be studied as a process of *domestication* (Brosveet & Sørensen, 2000). This approach assumes that technology users construct their own technological practices in interaction with others (Sørensen, 2005). Despite a tendency to apply domestication in the study of individual technology practices “at home” (Silverstone & Hirsch, 1992), Sørensen (2005) points to a broader potential than its apparent situatedness in the moral economy of the household (p.45-46). Typically, domestication studies focus on three features: a) the construction of a set of practices related to artefacts, b) the construction of meaning of artefacts and c) the cognitive processes related to learning of practice and meaning. The newspaper data primarily provide access to the second of these elements: the construction of meaning of artefacts. This meaning, however, will probably be rooted in established practices and processes of learning, suggesting that these aspects might be observed more indirectly. The features of the domestication process can be identified at different sites, and in collectives of different sizes: from patterns of individual use to the establishment of institutions to support or regulate use.

This means that ‘users’ in principle is a broad category. Here, bioenergy ‘users’ are larger collectives than households. Regions are ‘users’ and so are Norway and Sweden. This echoes Østby’s (1995, 2004) studies of the historical integration of the car in Norway where co-production of national institutions, national discourse and individual auto mobile practices were central elements. Hence, domestication is “a multi-sited process that transcends the household space, and in which the sites interact” (Sørensen, 2005, p. 47).

In this article, newspapers are the sites of domestication. When newspapers report on technologies, they undoubtedly produce and ascribe meaning to them. However, newspapers are not just ‘any actors’ producing and ascribing meaning. Newspapers share intimate relationships with the public as disseminators of information (Gamson & Modigliani, 1989; Krohn & Damborg, 1999). Further, the newspapers ‘as sites’ extend towards their sources. When reporting on science and technology, media actors serve as links between experts, politicians and ‘the public’ (Boykoff, 2009; Stephens, Wilson, & Peterson, 2008). Since the newspapers meaning production involve multiple actors, they produce meaning in a collective way. Newspapers are multi-sited arenas, and probably good places to start when searching for what bioenergy ‘is’ in collectives like Norway and Sweden. Empirically, I seek to contrast the countries in terms of meaning ascription. Is bioenergy evaluated differently, ascribed different meanings and values? And if so - how?

Many metaphors can be used to describe the news media. A common example is the image of the ‘watchdog’. Here, the news media actors’ prime rationale is to guard public interest from government or industry abuse, critically regulating public activities (Schultz, 1998). An alternative view is the ‘lapdog’ image of the media. Here, the media are submissive to the interests of governments or industry (Whitten-Woodring, 2009). Introspectively, media actors often highlight ‘balance’ – providing equal space for arguments and counter-arguments. In reporting on climate science, it has been argued that this journalistic norm has led to distorted coverage (Boykoff & Boykoff, 2004).

Several studies have engaged with media coverage of renewable energy technology. Without stating so explicitly, most describe the media as a watchdog, siding with the public

on controversial issues where authorities and industry are adversaries whose interests are questioned by the news media. Sengers, Raven and Venrooj (2010), for example, highlight that Dutch newspapers amplify voices of organized resistance against new developments, and that groups of protesters can successfully use the newspapers to get their message across to the public. Similarly, Wüstenhagen, Wolsink and Bürer (2007) claim that the media are increasingly picking up on and communicating local resistance to wind power developments in Germany. While studying the failed development of a biomass electricity plant in the UK, Upreti and van der Horst (2004) show how local newspapers frequently amplified arguments about social and environmental risks tied to the plant. A study by Stephens and colleagues (2009) on how newspapers in different US states cover wind power demonstrates the importance of local circumstance and context. While they find wind power to be entangled with benefits, e.g. climate change mitigation, they also explain how newspapers in areas with controversial wind power projects convey negative images, focusing on risks related to aesthetics, nature etc. On the other hand – states with a strong energy industrial history are likely to see coverage of economic benefits. In a study of the New York Times coverage of biofuels, Wright and Reed (2011) also show how the technology is subject of ambiguity, portrayed as an economic and climatic miracle in some periods, but with negative aspects like the competition with food on centre stage in other periods.

The examples above display a potential for media controversy around renewable energy. This potential seems particularly potent in coverage of specific development projects. The news media actors assume a watchdog role, highlighting how the actions of industry and authorities are problematic from what is considered public interest. There is also potential for positive coverage through linking bioenergy to climate change mitigation and economic adventures. The watchdog metaphor will likely be fruitful in controversial stories, resulting in negative coverage of bioenergy. However, the watchdog metaphor could also illuminate positive press coverage. In such cases, ‘public interest’ will not be protected, but rather ‘environmental interest’. Boykoff (2009) hinted at this when he pointed out that the mass media “effectively speak for the trees as they give voice to environmental problem formulations” (p. 435). The question, then, is whether or not the studied newspapers speak for, or against bioenergy – and how bioenergy is understood to be a matter in relation to the climate, the environment, the public, the economy, politics etc. How is meaning attributed to bioenergy in the newspaper data?

In light of the examples above, I expect many stories to gravitate towards controversy. In a watchdog manner, I expect the media to pick a side – most likely the publics, and provide value-laden stories of good and evil. Based on strong journalistic norms, I also expect to find stories balancing pros and cons. A third possibility is the discovery of ‘lapdog’ type coverage. If so – whose lap will the dog be sitting on? To gain a better understanding of how these questions can be answered for Norway and Sweden, I will now briefly examine the energy regimes of the two countries, with a particular focus on the role of bioenergy.

### **The Swedish and Norwegian energy regimes**

Sweden has one of the world’s highest consumption rates of bioenergy (Energimyndigheten, 2009). Bioenergy started to receive attention as an alternative to nuclear power and as a means to limit the dependence on foreign fossil fuels in the 1970’s (Anshelm, 2009). A

definitive breakthrough came in the early 1990's (Kall, 2011), a decade characterized by a 'greening' of the Swedish welfare state (Lundqvist, 2004; Midttun, Gundersen, & Koefoed, 2004). Since 1997, bioenergy has been at the core of Swedish energy policy (Anshelm, 2009), with much of the power to act delegated to municipalities who have responded by making district heating a key element in their efforts (e.g. Magnusson, 2011). In these endeavours, the climate issue and the idea of energy self-sustenance were important rhetorical tools. Bioenergy could facilitate both (Hektor, 2002). Since bioenergy is meant to replace fossil alternatives in a post-carbon Sweden, its introduction is an example of what Sørensen (2007) labels a replacement transition strategy. The existence of many combined heat and power plants and an infrastructure for district heating, previously powered by fossil fuels, helped ease the process of bioenergy implementation (Magnusson, 2011; Midttun, et al., 2004). Thus, much bioenergy in Sweden has been introduced through existing infrastructure. Consequently bioenergy is a 'familiar' technology for most Swedes (Kall, 2011).

Kall (2011) shows that the breakthrough of bioenergy in Sweden was a political relief. The 1970's and 1980's were characterized by conflicts between protagonists of nuclear power and renewables. Many saw renewables as small scale, backward and utopian challenges for the energy intensive industry. Bioenergy blurred the lines between these approaches because it could be employed as a large scale solution in systems of combined heat and power. Kall (2011) writes: "Bioenergy has proved a suitable technology. Through being both large scale and renewable, it created a common ground for an otherwise divided energy politics" (p. 172 my translation). The idea of bioenergy as a harmonizing technology suggests that current controversy surrounding stationary bioenergy systems in Sweden should be miniscule. Other technologies, such as bioenergy for the transport sector, could provide more room for controversy.

The Norwegian situation is different. Bioenergy is a marginal part of Norway's energy mix, which diverges from the Swedish. There is no nuclear power in Norway. Instead stationary energy production is dominated by hydroelectricity (SSB, 2010). Because it is a large scale, clean and quite cheap way of generating power, hydroelectricity has been dubbed the Norwegian 'gold standard' of energy production. Thus, competing technologies will be measured against hydroelectricity (Sørensen, 2007).

Recently, the authorities formulated a goal of doubling the production of bioenergy by 2020 (OED, 2008). Reaching this target will involve substantial construction work, but bioenergy will remain a modest element in the Norwegian energy mix. Instead, Norwegian energy policy has circled around large scale national projects. Hydroelectric power generation is one example, another is the focus on oil and gas since the 1970's (Tamnes, 1997). Finally, the Norwegian energy-political response to the climate issue has been massive efforts to develop carbon capture and storage technology (CCS) (van Alphen, van Ruijven, Kasa, Hekkert, & Turkenburg, 2009). It has been suggested that in Norway, CCS has found a politically harmonizing role, as a 'necessary compromise' between environmental and industrial interests. This limits the friction between climatic concerns and oil production, and allows for expanding the country's stationary energy production through introducing natural gas power plants without compromising the goal of emission reductions. With this as a backdrop, Norwegian politicians have embraced CCS with an "unusually strong" enthusiasm (Tjernshaugen, 2009). Thus, whereas Sweden follows a 'replacement' transition strategy with

bioenergy at its core, Norway appears to pursue a continuity-path (Sørensen, 2007), with the 'greening' of natural gas as its prime motive.

The massive focus on CCS in Norway, combined with the marginal position of bioenergy could result in bioenergy being overshadowed by other energy technologies in the press. Buhr and Hansson (2011) highlight that the Norwegian media has covered CCS extensively, and that this coverage has been quite consensus oriented. Further, the Norwegian situation suggests that implementing more bioenergy will be a quite disruptive process in many local communities. Where Sweden already had an infrastructure for district heating and combined heat and power, this will have to be constructed in Norway, which might lead to controversy.

Local circumstances, such as those of the Swedish and Norwegian energy regimes, are likely to influence the production of news. Such links have been demonstrated in the past, for instance, in research on environmental reporting. There are clear links between national climate policies and the ways that the press covers climate issues (Boyce & Lewis, 2009). There is little suggesting that this should not be the case for environmental technology, like bioenergy.

Thus, there is reason to expect less coverage of bioenergy in Norway than in Sweden, and that the Norwegian newspaper coverage will be more prone to controversy than the Swedish. We have also seen that local and regional newspapers are sensible not only to a national context, but also to local circumstances (Sengers, et al., 2010; Stephens, et al., 2009; Upreti & van der Horst, 2004). This should be kept in mind while studying the reporting of regional newspapers.

## **Methodology**

The data analyzed consists of 437 Norwegian and 598 Swedish newspaper articles about bioenergy. These were collected from three Norwegian and three Swedish newspapers published from 2007-2009. The sample was designed to provide rich, comparable data and a relatively comprehensive picture of how newspapers from the two countries covered bioenergy.

The Swedish newspaper market is strong. On average, 80 percent of the adult population reads newspapers daily. The Swedish newspaper market can be divided into three major segments. These are a) the metropolitan morning newspapers or quality newspapers, b) the tabloid newspapers, and c) the regional and local newspapers (Weibull & Jönsson, 2007). The newspapers analyzed in this paper were selected to provide data from these three categories. The Swedish newspapers analyzed were:

- *Svenska Dagbladet* is one of the 'quality' newspapers in Sweden. It is published from Stockholm, but circulated throughout the country. In 2007, its circulation was 196,600. *Svenska Dagbladet* is described as liberal, and has specialized writers in fields like health (Catalán Matamoros, Axelsson, & Strid, 2007), and has been shown to report positively on controversial science (Elam & Glimmel, 2004).
- *Aftonbladet* is Sweden's largest tabloid newspaper. In 2008 its circulation was 278,400 (Westerberg, 2009). Content-wise, it displays many of the typical traits associated with tabloids. It covers politics as a 'game' or 'horserace' (Strömbäck & van Aelst, 2010), and focuses on sports and entertainment (Weibull & Jönsson,

2007). In relation to the climate, Højjer (2010) found the paper to focus on fear, guilt and hope – generally very emotional coverage.

- *Östgöta Correspondenten* is one of Sweden's largest regional or provincial newspapers (Hadenius & Weibull, 1999). In 2008, it had a circulation of 56,200 (Ollauson, 2009). It describes itself as independently conservative, and is devoted to non-socialist ideals. *Östgöta Correspondenten* has also been described as dedicated to critical scrutiny of regional politics (Liedberg, 2010).

The Norwegian newspaper market is also strong; the newspaper readership in Norway has been characterized as the strongest in the world with 550-600 newspaper copies sold per 1,000 inhabitants. The Norwegian newspaper market can roughly be divided into two segments: a) the regional or local newspapers and b) the national tabloids (Østbye, 2007). In addition there is one newspaper that can be referred to as a national 'quality'. As in the Swedish case, the Norwegian newspaper data was sampled to reflect this situation:

- *Aftenposten* is the only Norwegian quality newspaper with a substantial national audience. It has traditionally been conservative, but is now independent. The paper reports extensively on science, and as part of this it has specialized journalists who have worked with climate issues for more than 20 years (Eide & Ytterstad, 2011). In 2007, the paper sold 252,000 copies daily (Østbye, 2007). In a study of how Norwegian newspapers covered the Bali climate summit in 2007, *Aftenposten* was shown to report critically on Norway as an 'oil nation' – while praising other Norwegian climate efforts (Eide & Ytterstad, 2011).
- *Verdens Gang* is the most read tabloid in Norway, selling 344,000 copies on a daily basis in the period studied (Østbye, 2007). It has been characterized as 'less serious' than *Aftenposten*. However, it aims at providing both popular and serious content. Since 2007, the paper has covered climate issues quite prominently. This coverage has often been framed in industrial terms (Eide & Ytterstad, 2011).
- *Adresseavisen* is Norway's oldest newspaper, founded in 1776. It is one of the largest regional newspapers in the country, selling on average 79,000 daily copies in the period studied (Østbye, 2007). It has traditionally supported the conservative party and is still considered a conservative voice, but is now politically independent (Allern, 2007).

The selection of newspapers provides a good and comparable cross-section of the Swedish and Norwegian newspaper landscapes. In terms of implications for the coverage of bioenergy, I expect the regional newspapers to provide supportive coverage of commercial bioenergy developments. The tabloids may be prone to conflict, potentially providing coverage highlighting controversy, while the qualities could be expected to provide more balance and in-depth analysis. Beyond this there is little in the profile of the newspapers suggesting bias for or against bioenergy.

The newspapers were accessed via the database Retriever which was searched for the Norwegian and Swedish equivalents to the terms "bioenergy", "bio heat", "biofuels", "bio gas" and "pellets". While this search could exclude some relevant articles, the data should provide a fair overview of how bioenergy was covered in the newspapers. One limitation of this approach is that the time-span of the data limits the possibility of generalisation beyond the period studied. It would be interesting to see how a longitudinal study would compare.

That being said, Kårstein (2008, p. 15) reports that the Norwegian media hardly covered bioenergy prior to 2005. The situation in Sweden, of course, may have been different.

The search gave a higher number of articles than analyzed in this paper. The Swedish database contained advertisements, which were deleted manually. Further, 68 articles were excluded, because they were too short to give any meaningful information or because they did not really deal with bioenergy. During the reading, the articles were coded. Loosely inspired by Grounded Theory (GT) (see e.g. Strauss & Corbin, 1990) a simple database containing the article headlines was created. GT postulates that data collection and analysis are interrelated processes. The main task is to discover concepts which make up the main unit of analysis. As the reading unfolded, the articles were labelled. In line with what GT refers to as open coding (constantly comparing data to discover grouped clusters to form categories and subcategories), the labels were constantly changed and updated in light of new insight, and not completed until all data was read. The initial categories were quite abstract (e.g. positive vs. negative images), but later refined with increased understanding of the material. In its final form, the categories correspond to the categories described in detail later in this paper (see e.g. table 1).

### **Norwegian and Swedish newspapers on bioenergy**

In terms of numbers, discovering quite similar amounts of coverage of bioenergy in Norway and Sweden was surprising. The marginal position of bioenergy as a technology ‘in use’ in Norway was not reflected in the newspapers analyzed. In both countries, the regional newspapers were the type of newspaper that covered bioenergy most extensively, followed by the quality newspapers. It was hardly touched by the tabloids.

Three major categories of story-lines about bioenergy were derived from the newspaper data. These addressed local, national and global issues. They concerned different debates, indicating the inherent heterogeneity of bioenergy as a set of technologies (McCormick, 2010; Rohrer, 2010). This dynamic was found in both countries, but the content of the categories differed between the two. Table 1 specifies what the most prominent story-lines in the three categories were for both countries while highlighting the characteristics of each story-line.

TABLE 1 HERE

Bioenergy was generally covered positively in both countries, but the press was more supportive in Sweden than in Norway. Norwegian stories on local and national issues were ambivalent, while the equivalent Swedish stories were purely positive. Global issues were covered more critically in both countries, with a focus on the relationship between energy and food production.

### **Local story-lines**

A category of story-lines dealing with local issues was identified in both countries, primarily in the regional newspapers. These stories dealt with specific places, companies, or people. Thus, ‘local’ has a geographical component, but may also refer to other localizable collectives.

In Norway, the dominant story-line about local issues was ‘economic ambivalence’. Bioenergy was portrayed positively – as a tool to mitigate climate changes and a potential source of income, particularly in rural areas. Such stories were fronted by different actors, with the Ministry of agriculture and food, the forest industry, farmers, various entrepreneurs as well as public agencies as the main protagonists. Thus, the controversy did not draw attention, the environmental and economic potential of bioenergy did. Given the conservative and business friendly profile of Adresseavisen, this was expected.

However, these stories were not dramatic tales of climate change and poverty where bioenergy emerged in a light of pure, green optimism. Instead, they were stories about the future; might-be histories about technologies with a potential. Many actors wanted to improve the position of bioenergy in Norway, and this was given attention in the press. However, these actors also had reservations about other criteria that needed to be fulfilled before bioenergy could become a satisfactory alternative. In stories about local issues, these reservations were economic in character. An article from 2008, entitled “Climate possibilities”<sup>1</sup> illustrates this. Here, bioenergy was cast as an opportunity for a struggling rural industry. Actors in the forest industry, however, highlighted the need for economic subsidies:

“The forest industry is one of the largest industries in Trøndelag (...) Its annual turnover is 6 billion kroner [approximately 1 billion USD], and it employs 4300 people (...) Allskog claims that the possibilities of increased logging are tremendous, because the growth is higher than what is logged. ‘If the potential had been fully exploited we could at least double the logging. This could give thousands of new jobs’ says Jarle E. Holberg. To strengthen the role of the forest as carbon storage and to increase deliveries of bioenergy, the industry points out that they need economic support”

A more explicit statement of this type was found in an article from 2009 dealing with bioenergy based on local wood chips.<sup>2</sup> The technology was presented positively, as a way to mobilize local resources and reduce CO<sub>2</sub> emissions. The main focus, however, was on the difficulties of profiting as an entrepreneur from this technology. While describing the regional situation, a local authority-representative was quoted: “I don’t know anyone who makes money from bioenergy based on wood chips”. In another account the Norwegian Minister of energy and petroleum was interviewed.<sup>3</sup> Metaphorically, she praised bioenergy, referring to it as “the green coal of the future”. When asked about specific projects, however, she quickly admitted that the technology was associated with severe economic difficulties.

As exemplified in the articles above, there were few stories in the local category of story lines which provided an enthusiastically positive image of bioenergy. There was a persistence in the story about it being good, “*but...*” – and the actors who highlighted the deficiencies were often the same as those who advocated bioenergy. The image created was one of a technology which was not ready for large scale employment, hinting at the benefits of non-use rather than use. The fact that Adresseavisen traditionally has been a conservative newspaper may have played a role here – conservatives are seldom fond of subsidies. That being said, there were few very negative stories. There were, quite surprisingly, few stories

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<sup>1</sup> Klimamuligheter. [Climate possibilities] Adresseavisen, 10.12.2009

<sup>2</sup> Bioenergi er dårlig butikk. [Bioenergy is poor business] Adresseavisen, 17.11.2009

<sup>3</sup> Lover mer enn Enoksen. [Promises more than Enoksen]Aftenposten, 22.09.2007

dealing with controversy, and few stories where bioenergy was presented as an aesthetic, moral or practical problem.

The expressions of ambivalence in the newspapers were rooted in collective practical experience, and the ambivalence seems to reflect the experience of many actors in and around the Norwegian bioenergy industry. The ambivalence can be read as an expression of the societal domestication of bioenergy, of a collective learning process, where bioenergy combined with local Norwegian circumstances leads to a replacement of enthusiasm with a more cautious approach.

Some articles without ambivalence were found, and here bioenergy was treated uniformly positive, such as in the story “agricultural bioenergy boom”<sup>4</sup> or “makes our city a better place to live”.<sup>5</sup> Here, it was enthusiastically embraced both as a climatic hero and a bringer of industrial activity. These, however, were exceptions from the image of bioenergy as too expensive to be fully embraced.

On the Swedish side of the border, the ambivalence was not present. Instead, the local story-lines about bioenergy were positive. Bioenergy was presented as a technological miracle, largely brought about by Swedish, or local entrepreneurs, policy makers and experts. These were also the actors whose voices frequently were heard in the stories. Again, this is unsurprising in light of the conservative, presumably business friendly attitudes of the regional newspaper, Östgöta Correspondenten.

Stories about bioenergy in the local category often dealt with particular companies, scientists or people in the industry. Bioenergy was praised as a green technology and a technology that has brought prosperity to local communities. The technology was cheered on by journalists who were present to report when foreigners sought the aid of the Swedish industry and experts. Tailing this were many stories about technology export suggesting that the world was finally following the Swedish example. In turn, this was seen as greatly benefiting the local Swedish industry. If read as stories about technology diffusion, the Swedish coverage showed widespread diffusion, whereas the Norwegian coverage expressed slow or non-diffusion. Already, we see the contours of the media as a site of domestication, where Norwegian ambivalence and Swedish enthusiasm provided radically different ideas about what bioenergy ‘is’.

One Swedish story about technology export dealt with the company Rindi, a company primarily providing towns and municipalities in Sweden with district heating. In the story, executives at Rindi expressed an interest in the emerging markets of Poland, Belarus and other eastern European countries. Under the headline: “wants to deliver environmentally friendly district heating to Poland”<sup>6</sup> Swedish competence was presented as central to the process: “Sweden is 20 years ahead when it comes to forest know-how (...) They use old fashioned technology; chain saws, and pull the wood with tractors. We want to transfer Swedish knowledge and technology”.

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<sup>4</sup> Bioenergi-boom i landbruket. [Bioenergy boom in agriculture] Aftenposten, 12.12.2008

<sup>5</sup> Gjør byen vår bedre å leve i. [Makes our city a better place to live], Adresseavisen, 14.09.2009

<sup>6</sup> Satsar stenhårt på att förse Polen med miljövänlig fjärrvarme. [Pursues environmentally friendly district heating in Poland] Svenska Dagbladet, 29.07.2008

Headlines like “South Korean town learns from Linköping”;<sup>7</sup> “World nature fund points to Linköping company”;<sup>8</sup> “Linköping company creates billion-industry”;<sup>9</sup> “The hottest companies: 13 Swedish”;<sup>10</sup> and “Swedish environmental technology conquers China”<sup>11</sup> illustrated the same. Bioenergy was not only the ‘Swedish’ way of being green, but entangled with a sense of local communalism, presented as a green achievement by ‘us’. Again, the positive meanings attributed to bioenergy were rooted in technology experiences ‘on the ground’ by Swedish actors. For instance, decades of experience with district heating (a domestication process worth exploring in itself) seem to have resulted in a technological confidence, manifested both at aggregate levels and in individual companies. This could have resulted in a positive cycle of technological learning where collective and individual achievements reinforce each other.

Further, very few negative stories were found with respect to local issues. The negative stories were scattered accounts of difficulties related to particular bioenergy projects. For instance, a biogas shortage in Stockholm in 2009 was given considerable attention in Svenska Dagbladet. The technology or fuels, however, were not vilified. Instead, the reports became stories of policy analysis and human actors. This was nicely summarized under the headline “Everybody blames everybody in the gas question”.<sup>12</sup>

### **National story-lines**

The second category of story-lines identified dealt with national issues. Here, bioenergy was treated more generally than in the local category, for example, through stories about its role in the national energy mix, its role as a set of consumer products, or its role in national policy, such as in stories about the so-called Norwegian electricity crisis. These stories were mostly found in the ‘quality’ newspapers, but also in the regional papers.

The differences between the countries from the category of local story-lines were, in many ways, recognizable here. The Norwegian ambivalence and the Swedish technological pride, however, were expressed differently. When dealing with local issues, the Norwegian ambivalence related to bioenergy was rooted in economic arguments. There was also an element of this in the national stories, but more prominently, the ambivalence was anchored in comparisons with other energy technologies. Again, bioenergy was presented positively from a climate and rural-industrial perspective. As a source of *energy*, however, other technologies were presented as more suited. This was particularly prominent in coverage of the so-called Norwegian electricity crisis. In short, these were stories about rising electricity prices and what many actors perceived as a shortage of electricity in Norway (Karlstrøm, forthcoming). Many potential remedies were debated in the press. Amongst these were bioenergy, e.g. in the

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<sup>7</sup> Sydkoreansk stad vill lära av Linköping linköping. [South Korean town wants to learn from Linköping] Östgöta Correspondenten, 12.05.2010.

<sup>8</sup> Världsnaturfonden lyfter fram Linköpingsföretag. [World nature fund points to Linköping] Östgöta Correspondenten, 30.09.2010

<sup>9</sup> Linköpingsföretag gör milliardaffär. [Linköping company creates billion-business] Östgöta Correspondenten, 05.06.2010

<sup>10</sup> De hetaste företagen: 13 svenska. Svenska. [The hottest companies: 13 Swedish] Dagbladet, 07.04.2009

<sup>11</sup> Svensk Miljöteknik intar Kina.[Swedish environmental technology conquers China] Svenska Dagbladet, 27.06.2008

<sup>12</sup> Alla skylder på alla i gasfrågan. [Everybody blames everybody in the gas question] Svenska Dagbladet, 16.12.2009

form of district heating, or combined heat and power plants (CHP). When compared to competitors - mainly gas power plants and hydroelectric power, however - it was seen as falling short. A reasonable explanation for this can be found through mobilizing Sørensen's (2007) notion of hydroelectricity as the Norwegian gold standard for energy production. Bioenergy does not meet the standard, while gas power plants with CCS almost do. Thus, it appears that the collective domestication of one technology in the press is somewhat path dependent on earlier domestication processes of other technologies. This might have been strengthened by the fact that both *Aftenposten* and *Adresseavisen* have conservative roots and are probably prone to well-established solutions. New technologies are expected to meet the practices and principles established by other technologies – anything else would be a regressive step. The actors highlighting this perspective were first and foremost industrial actors involved in energy intensive industry and various political actors.

One article in this vein declared that while more environmentally friendly than natural gas; bioenergy was “unsuitable”<sup>13</sup> as a fuel in the large scale power plants that were needed. A similar story contrasted bioenergy with hydroelectricity. Under the headline “Predicts hydroelectric boom in Norway”<sup>14</sup> bioenergy was once again seen as falling short, despite its relative novelty and green profile. In another article on the electricity crisis, the reporter pointed to bioenergy and renewables as unrealistic options in terms of delivering the needed energy: “With all the industrial development we are seeing, all plans in the fields of bioenergy, wind power, micro power plants etc can only cover at most half of the needed power”.<sup>15</sup> As such, the national Norwegian ambivalence was related to a miss-match between the green promise of the technology, and what it can deliver in terms of ‘hard core’ energy.

In Sweden, stories about national issues concerning bioenergy often dealt with markets. Bioenergy was treated as a set of products available for individual consumers, industry actors and public agencies. This type of consumer-oriented coverage was, with the exception of one or two articles, not found in Norway. As in Norway, national stories often compared bioenergy with competing technologies, but in Sweden bioenergy frequently benefitted from comparison. Bioenergy products were presented as equal to the competitors, but with a greener profile.

A typical example was found under the headline “environmentally friendly gas car wins Volvo duel”.<sup>16</sup> Here, a biogas fuelled Volvo was described: “Fast, safe and fuelled with biogas, this car is a true friend of the environment (...) this is the obvious choice for company cars, while owner-drivers are freed from the car tax for five years”. A similar story was entitled “light a fire beautifully and safely”<sup>17</sup> – a story highlighting the comfort, beauty, environmental and economic benefits of using bioenergy as a source of heating. In another example, a customer scrutinizing a Volkswagen biogas car was interviewed. When asked if he

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<sup>13</sup> Søker om forlengelse. [Applies for extension] *Adresseavisen*, 22.12.2008

<sup>14</sup> Spår vannkraft-boom i Norge. [Predicts hydroelectric boom in Norway] *Adresseavisen*, 25.09.2009

<sup>15</sup> Kraftkrisen i Midt-Norge. [The electricity crisis in mid-Norway] *Adresseavisen*, 18.1.2008

<sup>16</sup> Miljövenliga gasbilen vinner Volvoduell. [Environmentally friendly Volvo wins gas duel] *Svenska Dagbladet*, 12.12.2009

<sup>17</sup> Elda snyggt och säkert. [Light a fire beautifully and safely] *Svenska Dagbladet*, 12.12.2009

considered buying one he answered: “Maybe the next time I’m buying a car, yes. It’s good for the environment and my personal economy”.<sup>18</sup>

The focus on products and markets in Sweden was mostly positive. When counter-examples emerged, they dealt with fluctuations – market anomalies. In the Norwegian local category, bioenergy was presented as expensive. This was a more or less a permanent state of bioenergy solutions. In Sweden, the market focus also resulted in some stories about high prices. However, these were tied to market dynamics and presented as temporary phenomena.

### **Global story-lines**

This study also identified a third set of stories which dealt with global issues. Here, bioenergy was related to global, moral debates about the relationship between the North and the South and about links between food and energy production. The actors heard in these stories were others than we have seen so far. When dealing with local and national issues we have heard industrialists, policy makers, experts, consumers and a few others. They spoke surprisingly unified about relatively mundane issues. Bioenergy was almost never controversial. In stories about global issues, the floor was given to a set of, what we can call, moral actors. Environmental NGOs and development NGOs are examples, as are representatives of the UN and the World Bank. In both countries, moral discussions of this type were mainly found in the national quality newspaper. This is not surprising; such newspapers are known for more in-depth analysis and a focus on international issues.

In the Norwegian setting, the stories of this kind took two forms. First, and most importantly, bioenergy was presented as leading to hunger in the poor regions of the world. Second, it was seen as a cause of rising Norwegian food prices. In a story dealing with escalating prices in the Norwegian food sector, bioenergy was presented as the major cause: “biofuels occupy areas which would otherwise be used for food crops”.<sup>19</sup> In other stories, bioenergy production was linked to hunger in the world. One article stated: “Contrary to the UN millennium goals, the number of people who live in starvation will increase over the following years (...) this year we have seen an increased demand for biofuels, something which means that the prices of corn, grains and oat increases”.<sup>20</sup> Another story turned this relatively complex issue into a simple one liner – a question of either/or: “increased production of food, or more biofuels?”.<sup>21</sup> Thus, this was an instance where a quite complicated topic was broken down to a one-liner, and bioenergy was vilified.

The same basic story-line was present in Sweden. The production of bioenergy was cast against the production of food. A difference between the Swedish and Norwegian coverage, was that the Swedes - perhaps in light of their own high consumption of bioenergy, reflected more on the global power structures behind the situation. Thus, in Sweden, this was not only a story-line of bioenergy vs. food, but a broader story-line where bioenergy represented a new form of colonialism. Here, Sweden was seen as morally responsible as a nation with relatively high bioenergy consumption. Aftonbladet reported: “Destroyed

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<sup>18</sup> Stort interesse för VW:s nya biogasbil. [Great interest for VW’s new biogas car] Östgöta Correspondenten, 16.03.2009

<sup>19</sup> Matvaregiganter i heftig kranjel. [Fierce fight between food giants] VG, 10.08.2007

<sup>20</sup> ”Det sier seg selv at vi har et problem”. [”it is given that we have a problem] Aftenposten, 11.09.2007

<sup>21</sup> Brenner for bilen. [Burns for the car] Aftenposten, 04.05.2008

wetlands, chopped down rain forests, and destroyed savannas. This is how several countries are left by the bioenergy efforts (...) the thirst for this energy was too strong in the industrial world, wrestling its greenhouse gas emissions”.<sup>22</sup> Stories like “The world bank points to biofuels”<sup>23</sup> and “Biofuels behind poverty”<sup>24</sup> were examples of stories with the same dynamics. From time to time arguments emerged which tried to balance the rhetoric, stressing that bioenergy produced in Sweden was something entirely different, and exogenous to the global debate on bioenergy as neo-colonialism. One interviewee in an article from 2008 was quoted saying: “As a Swedish consumer, you should not allow yourself to become confused by this circus”.<sup>25</sup> Such voices were marginal, however, and did not manage to establish a particularly visible story-line.

### **Newspapers’ domestication of bioenergy: potential implications**

At the beginning of this paper, I asked what story-lines we would find around bioenergy in the Norwegian and the Swedish press. Based on published research (e.g Sengers, et al., 2010; Upreti & van der Horst, 2004; Wüstenhagen, et al., 2007), I expected the coverage to gravitate around controversy. This, I assumed, would lead the newspapers to take a watchdog role in relation to bioenergy, positioning their coverage as protecting the public from authorities and industry. Alternatively, a positive coverage could emerge from the press taking the role of the industry’s lapdog, or perhaps the journalistic norm of balanced coverage would lead to extreme neutrality.

My findings were different. Articles highlighting controversy were exceptions. There was not much watchdog-type coverage, nor was there much typical lapdog-type coverage. In fact, the low degree of explicit interest formulation found in the data was quite peculiar. Instead, the newspapers’ domestication practice took the form of quite anonymous reporting. This reporting produced a variety of sense-making or meanings about bioenergy. In the Norwegian data, domestication led to three main interpretations of bioenergy emphasizing economic ambivalence, technological ambivalence and the potentially troubled relationship between food and energy, respectively. In Sweden, newspapers domesticated bioenergy by bringing forward mundane techno-optimism and green consumption as dominant features of what bioenergy meant. In addition, also in Sweden, some emphasis was put on the potentially troublesome issue of food vs. energy. Behind this plurality, ambivalence was the dominant characteristic in the Norwegian data, while optimism dominated the Swedish. If the ambivalence and optimism were not formulations of peculiar interests, what were they and what did the coverage *do* in relation to bioenergy?

First, meaning ascription is the main domestication practice of journalists in the newspapers. The newspapers’ are situated in what we with Giddens (1993) could call a double hermeneutic circle of domestication: the newspapers interpret, but are also interpreted. Thus, newspapers may contribute to public domestication (or non-domestication) of bioenergy by supplying ready-made interpretations to be appropriated by the public. Such reception has not

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<sup>22</sup> Etanolen Skövlar natur. [Ethanol destroys nature] Aftonbladet, 28.07.2008

<sup>23</sup> Världsbanken pekar på biobränsle. [World bank points to biofuels] Svenska Dagbladet, 07.07.2008

<sup>24</sup> Biobränslen bakom fattigdom. [Biofuels behind poverty] Svenska Dagbladet, 26.06.2008

<sup>25</sup> Etanolbil? Jag skulle inte tväka. [Ethanol car? I would not doubt] Svenska Dagbladet, 18.06.2008

been studied here, but the newspapers show no traces that suggest that the public actively take on very different interpretations of bioenergy.

Based on the accounts above it is possible to distil three ideal-typical modes of newspaper domestication:

- *Mundane techno-optimistic domestication* results in a positive attitude towards the technology; describing it by using positive connotations, related to everyday aspects. This coverage furthers the public domestication process in collectives such as regions or nations. Mundane techno-optimistic domestication was largely found in Sweden, particularly in the coverage of national or local issues. This could suggest lapdog coverage by the Swedish press in relation to the bioenergy industry, but this interpretation is not well supported by the data. Instead the coverage was positive in a more principled way. Coverage was without reference to specific actors, companies or interests, but rather concerned with the construction of local or national pride.
- *Techno-ambivalent domestication* was prevalent in the Norwegian data. This interpretation of bioenergy does not provide a clearly positive or negative image of the technology. Instead it is vaguer, without particular enthusiasm. The technology is measured against other technologies or through economic calculations. The reservations reported were not articulations of competing interests, but anchored in the practical experience of those speaking of it and the particularities of the Norwegian energy regime, such as hydroelectricity as a ‘gold standard’ for energy production (Sørensen, 2007) and the political ambitions tied to CCS (Tjernshaugen, 2009). It is somewhat unclear how the ambivalent news media domestication affects the public domestication of bioenergy since there was little public debate appearing in the newspapers.
- *Techno-resisting domestication* is critical towards technological developments, highlighting social, economic, moral or aesthetic problems associated with the technology. It highlights conflict and controversy, protecting the public in a watchdog-manner from what is perceived as violations by industry and governments. In this paper, this mode of domestication was not very prominent, with the exception of global stories. Past research, however, suggests that that this type of coverage has been quite widespread in relation to renewable energy technologies (cf. Sengers, et al., 2010; Upreti & van der Horst, 2004; Wüstenhagen, et al., 2007).

The different modes of domestication found in the two countries highlight the importance of understanding technologies beyond their technical and economic properties. The accounts discussed in the paper shows that local history and practice, as well as the political strategies mobilized to mitigate climate changes, are important to understand how the press gives meaning to what bioenergy ‘is’. But how are we to understand the role of the press in a broader context? Should news media be considered as part of a national (e.g., Nelson, 1993) or a regional (e.g., Cooke, 1998) system of innovation, facilitating or hampering innovations in a field like bioenergy?

The data analyzed in this paper cannot be used to answer such questions, since it is what Olausson (2011) calls “media-centric”. However, the fact that news media domesticates

bioenergy to provide interpretations of what this technology means suggest that the press does play a role. For example, it seems obvious that mundane techno-optimistic domestication facilitate the development of positive views of bioenergy, something that may stimulate or support innovations in the field. Similarly, techno-resisting domestication could be expected to provide checks on innovation activities, while the techno-ambivalent domestication is more likely to have small effects, providing neither support nor checks. There has been a lack of interest in the role that news media actors might play in processes of innovation and technology diffusion, and its role in innovation systems (e.g. Fagerberg et al., 2005). Maybe this is a concern that deserves more attention in the future?

## References

- Allern, S. (2007). From Party Press to Independent Observers? *Nordicom Review, Jubilee issue 2007*, 63-79.
- Anshelm, J. (2009). *Att ersätta kärnkraften med bioenergi - om en omstridd idé i den offentliga energipolitiska debatten i Sverige 1979-2000*. Linköping: Tema T, Linköpings Universitet.
- Boyce, T., & Lewis, J. (2009). *Climate Change and the Media*. New Yourk: Peter Lang Publishing.
- Boykoff, M. T. (2009). We Speak for the Trees: Media Reporting on the Environment. *Annual Review of Environment and Resources*, 34(1), 431-457.
- Boykoff, M. T., & Boykoff, J. M. (2004). Balance as bias: global warming and the US prestige press. *Global Environmental Change Part A*, 14(2), 125-136.
- Brosveet, J., & Sørensen, K. H. (2000). Fishing for Fun and Profit? National Domestication of Multimedia: The Case of Norway. *The Information Society: An International Journal*, 16(4), 263 - 276.
- Buhr, K., & Hansson, A. (2011). Capturing the stories of corporations: A comparison of media debates on carbon capture and storage in Norway and Sweden. *Global Environmental Change*, 21(2), 336-345.
- Catalán Matamoros, D. J., Axelsson, R., & Strid, J. (2007). How do newspapers deal with health in Sweden? A descriptive study. *Patient Education and Counseling*, 67(1-2), 78-83.
- Delshad, A. B., Raymond, L., Sawicki, V., & Wegener, D. T. (2010). Public attitudes toward political and technological options for biofuels. *Energy Policy*, 38(7), 3414-3425.
- Eide, E., & Ytterstad, A. (2011). The Tainted Hero: Frames of Domestication in Norwegian Press Representation of the Bali Climate Summit. *The International Journal of Press/Politics*, 16(1), 50-74.
- Elam, M., & Glimmel, H. (2004). Knowledge Society as the Republic of Science Enlarged: The Case of Sweden. Gothenburg University, Section for Science and Technology Studies.
- Energimyndigheten. (2009). *Energiförsörjningen i Sverige*.
- Fagerberg, J., Mowery, D. C., Nelson, R. R., Asheim, B. T., Bruland, K., & Grodal, S. (2005). *The Oxford handbook of innovation*. Oxford: Oxford University Press.
- Gamson, W. A., & Modigliani, A. (1989). Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach. *The American Journal of Sociology*, 95(1), 1-37.

- Giddens, A. (1993). *New rules of sociological method* (Second, revised ed.). Stanford, CA: Stanford University Press.
- Hadenius, S., & Weibull, L. (1999). The Swedish Newspaper System in the Late 1990s. Tradition and Transition. *Nordicom Review*, 1, 121-152.
- Hajer, M. A. (1995). *The politics of environmental discourse: ecological modernization and the policy process*. Oxford: Clarendon Press.
- Hektor, B. (2002). *Socio-economic management models for the bioenergy sector*: International Energy Agency.
- Hoogwijk, M., & Graus, W. (2008). *Global potential of renewable energy sources: a literature assesment*. Background report by order of REN21 - Renewable Energy Policy Network for the 21st Century. London: Ecofys.
- Höijer, B. (2010). Emotional anchoring and objectification in the media reporting on climate change. *Public Understanding of Science*, 19(6), 717-731.
- Kall, A.-S. (2011). *Förnyelse med förhinder*. Linköping University, Linköping.
- Karlström, H. (forthcoming). When a deregulated electricity market faces a supply deficit: A never-ending story of inaction?
- Krohn, S., & Damborg, S. (1999). On public attitudes towards wind power. *Renewable Energy*, 16(1-4), 954-960.
- Kårstein, A. (2008). *HyNor - den norske hydrogenveien*. Norwegian University of Science and Technology, Trondheim.
- Liedberg, G. (2010). *En Amerikans Slavjakt*. Linköpings Universitet, Linköping.
- Lundqvist, L. J. (2004). 'Greening the People's Home': The Formative Power of Sustainable Development Discourse in Swedish Housing. *Urban Studies*, 41(7), 1283-1301.
- Magnusson, D. (2011). Between municipal and regional planning: the development of regional district heating systems in Stockholm from 1978 to 2010. *Local Environment*, 16(4), 319-337.
- McCormick, K. (2010). Communicating bioenergy: a growing challenge. *Biofuels, Bioproducts and Biorefining*, 4(5), 494-502.
- Midttun, A., Gundersen, M. H., & Koefoed, A. L. (2004). Greening of Nordic Electricity Industry: Policy Convergence and Diversity. *Energy & Environment*, 15(4), 633-656
- Nye, D. E. (1994). *American Technological Sublime*. Cambridge, MA: The MIT Press.
- OED. (2008). *Strategi for økt utbygging av bioenergi*: Olje- og Energidepartementet
- Olausson, U. (2011). We're the Ones to Blame: Citizens' Representations of Climate Change and the Role of the Media. *Environmental Communication: A Journal of Nature and Culture*, 5(3), 281-299.
- Ollauson, N. (2009, 20.02). Upplagan minskar men Corren når fler. *Östgöta Correspondenten*
- Rohracher, H. (2010). Biofuels and their publics: the need for differentiated analyses and strategies. *Biofuels*, 1, 3-5.
- Schultz, J. (1998). *Reviving the fourth estate. Democracy, accountability & the media*. Cambridge, UK: Cambridge University Press.
- Sengers, F., Raven, R. P. J. M., & Van Venrooij, A. (2010). From riches to rags: Biofuels, media discourses, and resistance to sustainable energy technologies. *Energy Policy*, 38(9), 5013-5027.

- Silverstone, R., & Hirsch, E. (1992). *Consuming technologies: media and information in domestic spaces*. London: Routledge.
- Solli, J. (2010). Where the eagles dare? Enacting resistance to wind farms through hybrid collectives. *Environmental Politics*, 19(1), 45 - 60.
- SSB. (2010). Energi. from <http://www.ssb.no/energi/>
- Stephens, J. C., Rand, G. M., & Melnick, L. L. (2009). Wind Energy in US Media: A Comparative State-Level Analysis of a Critical Climate Change Mitigation Technology. *Environmental Communication: A Journal of Nature and Culture*, 3(2), 168 - 190.
- Stephens, J. C., Wilson, E. J., & Peterson, T. R. (2008). Socio-Political Evaluation of Energy Deployment (SPEED): An integrated research framework analyzing energy technology deployment. *Technological Forecasting and Social Change*, 75(8), 1224-1246.
- Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: grounded theory procedures and techniques*. Newbury Park, Calif.: Sage.
- Strömbäck, J., & van Aelst, P. (2010). Exploring Some Antecedents of the Media's Framing of Election News: A Comparison of Swedish and Belgian Election News. *The International Journal of Press/Politics*, 15(1), 41-59.
- Sørensen, K. H. (2005). Domestication: The enactment of technology. In T. B. Maren Hartman, Yves Puni, Katie Ward (Ed.), *Domestication of Media and Technology*. Maidenhead: Open University Press.
- Sørensen, K. H. (2007). Fra "hvite kull" til grønn varme? Utfordringer for energi. In K. H. S. Margrethe Aune (Ed.), *Mellom Klima og komfort. Utfordringer for en bærekraftig teknologiutvikling*. Trondheim: Tapir Akademisk Forlag.
- Tammes, R. (1997). *Oljealder. 1965-1995*. Oslo: Universitetsforlaget.
- Tjernshaugen, A. (2009). *Fossil interests and environmental institutions: The politics of CO2 capture and storage*. University of Oslo, Oslo.
- Upreti, B. R., & van der Horst, D. (2004). National renewable energy policy and local opposition in the UK: the failed development of a biomass electricity plant. *Biomass and Bioenergy*, 26(1), 61-69.
- van Alphen, K., van Ruijven, J., Kasa, S., Hekkert, M., & Turkenburg, W. (2009). The performance of the Norwegian carbon dioxide, capture and storage innovation system. *Energy Policy*, 37(1), 43-55.
- Weibull, L., & Jönsson, A. M. (2007). The Swedish Media Landscape. In G. Terzis (Ed.), *European media governance: national and regional dimensions* (pp. 169-180). Bristol: Intellect Books.
- Westerberg, E. (2009, 31.03). Aftonbladet minskar upplagan. *Dagens Media*.
- Whitten-Woodring, J. (2009). Watchdog or Lapdog? Media Freedom, Regime Type, and Government Respect for Human Rights. *International Studies Quarterly*, 53(3), 595-625.
- Wright, W., & Reid, T. (2011). Green dreams or pipe dreams?: Media framing of the U.S. biofuels movement. *Biomass and Bioenergy*, 35(4), 1390-1399.
- Wüstenhagen, R., Wolsink, M., & Bürer, M. J. (2007). Social acceptance of renewable energy innovation: An introduction to the concept. *Energy Policy*, 35(5), 2683-2691.

- Østby, P. (1995). *Flukten fra Detroit. Bilens integrasjon i det norske samfunnet*. Norwegian University of Science and Technology, Trondheim.
- Østby, P. (2004). Educating the Norwegian Nation. Traffic Engineering and Technological Diffusion. *Comparative Technology Transfer and Society*, 2(3).
- Østbye, H. (2007). The Norwegian Media Landscape. In G. Terzis (Ed.), *European media governance: national and regional dimensions*  
Bristol: Intellect Books.