

Publics in the Pipeline

On Bioenergy and its Imagined Publics in Norway and Sweden

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In 2009, I attended the Norwegian Bioenergy Days – a conference where the bioenergy industry gathered to discuss the state of their bioenergy fuels, technology and markets.¹ Recurring themes at the conference were red numbers, difficult markets and bankruptcies. Many participants had a bleak outlook because they were unable to generate profits. One presenter asked: “Is something going to happen soon, or should we find another industry?”² The discussions circled around flawed policy, but also around the relationship between bioenergy and competing technologies.³ The conference participants claimed that other renewable energy technologies like wind and solar power were seen as better alternatives to bioenergy. This, they claimed, was reflected in the media coverage on bioenergy and in the way politicians spoke of it. Most importantly, they pointed to a broader

1 | The Norwegian bioenergy industry is quite small, but includes players working with many fuels and technologies like pellets, wood chips, biogas, biodiesel and ethanol. See Norsk Bioenergiforening: *Bioenergi i Norge*. Oslo: Nobio, 2010.

2 | Geir Skjervak: “Kvar Blir det av det Store Pelletsloftet i Noreg?”, Conference paper, “Bioenergidagene 2009”, Rica Nidelven Hotell, 23.-24.11.2009.

3 | ‘Bioenergy’ refers to energy derived from biological sources. It is considered a renewable form of energy and often highlighted in policies, meant to increase the share of renewable energy technologies. See e.g. European Parliament: “Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources”, in: *Official Journal of the European Union*, 05.06.2009.

collective referred to as ‘the public’⁴ as either unaware of the possibilities offered by bioenergy or holding negative attitudes towards it.

From an industry perspective, bioenergy had an image problem. The industry’s concerns about public ignorance and negative attitudes paved the way for presentations about how they could engage the public to improve the perception of bioenergy. As an outsider observing from a science and technology studies perspective, I found this illuminating. The bioenergy industry’s efforts to improve the reputation of bioenergy are examples of what Bruno Latour and others refer to as translation; that is strategies to enlist and interest others to their technology.⁵ Thus, the conference participants had moved beyond the ideas postulated in the linear models of innovation and diffusion where the success or failure of technologies is largely seen as determined by the technology’s technical and economic properties.⁶ Rather, the participants proposed translation strategies that sought to attach bioenergy to positive symbolic universes, for example through presenting it as a futuristic, simple, climate friendly or economically sound competitor to other energy technologies.⁷

4 | ‘The public’ as a concept has a long tradition in philosophy and political science. See e.g. Jürgen Habermas: *The Structural Transformation of the Public Sphere*. Cambridge, MA: MIT Press, 1989. In my paper, I use the notion of ‘the public’ as it appears in the literature on ‘Public Understanding of Science and Technology’. Here, ‘the public’ is used pragmatically, to describe actors implicated by scientific or technological activity. For more, see the section entitled “From Publics to Imagined Publics” in this paper.

5 | Bruno Latour: *Science in Action*. Cambridge, MA: Harvard University Press, 1987, 132.

6 | The linear model of innovation’s origin is unclear. See Benoit Godin: “The Linear Model of Innovation. The Historical Construction of an Analytical Framework”, in: *Science, Technology & Human Values* 36:4 (2006), 639-67 for a discussion of how the model has shaped thinking on innovation and technology diffusion over the last 50 years.

7 | E. g. Anne Jordal: “Korleis Utvikle og Lansere Meir Konkurransedyktige Pelletskammarer?”, Conference paper, “Bioenergidagene 2009”, Rica Nidelven Hotell, 23.-24.11.2009, discussed framing pellet ovens as ‘future heat’ or ‘automated stoves’ arguing that this would convince ‘the public’ about the environmental potential and convenience of pellet heaters. These symbolic frames would bring customers to pellets who would otherwise buy air-to-air heat pumps.

Inspired by this, the point of departure for this paper is an interest in the development of such strategies. Specifically, I am interested in the rationale behind their formulation. In most presentations at the conference this rationale was anchored in beliefs about the nature of the collective referred to as ‘the public’ and beliefs about ‘public’ perception of bioenergy. In this paper, I examine the relationship between the bioenergy industry and this collective from the perspective of industry actors, policy and decision makers. Empirically, I will examine two questions:

1. How do the actors who work to improve the position of bioenergy perceive this collective? How do they imagine ‘the public’?
2. How do such imagined publics influence the formulation of strategies of public engagement?

I pursue these questions comparatively, looking at Norway and Sweden. The paper is based on fieldwork from these countries conducted in 2009-2010, and on studies of newspapers from 2007-2009.

The paper is structured as follows. I set out to outline the theoretical foundations of the concept ‘imagined publics’, before looking at earlier studies of imagined publics of renewable energy. I proceed to present the paper’s methodology before examining the context for this discussion: Norway and Sweden as energy regimes, focusing on bioenergy. Also, a brief analysis of how Norwegian and Swedish newspapers have covered bioenergy is presented. I then move on to the discussion on bioenergy and its imagined publics in Norway and Sweden.

FROM PUBLICS TO IMAGINED PUBLICS

For the last 25-30 years a body of literature has been engaged with what has been labelled ‘public understanding of science and technology’ (PUS).⁸ This line of thought emerged in response to the influence of ‘the

8 | Steve Miller: “Public Understanding of Science at the Crossroads”, in: *Public Understanding of Science* 10:1 (2001), 115-20 dates the start of this intellectual tradition to a publication by the Royal Society in the UK entitled “The Public Understanding of Science” from 1985.

deficit model of public understanding'.⁹ Here, public opposition to and concerns about scientific and technological development is rooted in a lack of public knowledge or understanding of science and technology.¹⁰ Thus, technologies or science are not seen as problems, 'the public' is. A typical policy response to this understanding of public agency has been to employ top-down approaches to by-pass public concerns.¹¹

This has been criticized by the PUS literature, first by a call for attention to possible 'public' participation in science and technology¹², a critique highlighting "opposition between technocracy and public participation."¹³ Now the idea of public participation has been refined to the point where 'participation' is no longer necessarily a goal, but one of many forms of 'public engagement' with science and technology.¹⁴ Recently, scholars have found 'engagement' with the public to be an industry and government norm, particularly for those working with controversial science or technology.¹⁵

9 | See Alan G. Gross: "The Role of Rhetoric in the Public Understanding of Science", in: *Public Understanding of Science* 3:1 (1994), 3-23 for a discussion on this model's influence.

10 | Steve Rayner: "Democracy in the Age of Assessment: Reflections on the Roles of Expertise and Democracy in Public-Sector Decision Making", in: *Science and Public Policy* 30:3 (2003), 163-70.

11 | E.g. John Durant: "Participatory Technology Assessment and the Democratic Model of the Public Understanding of Science", in: *Science and Public Policy* 26:5 (1999), 313-19.

12 | E.g. Edna F. Einsiedel/Erling Jelsøe/Thomas Breck: "Publics at the Technology Table: The Consensus Conference in Denmark, Canada and Australia", in: *Public Understanding of Science* 10:1 (2001), 83-98 or Heather Dietrich/Renato Schibeci: "Beyond Public Perceptions of Gene Technology: Community Participation in Public Policy in Australia", in: *Public Understanding of Science* 12:3 (2003), 381-401.

13 | Noortje Marres: "The Issues Deserve More Credit", in: *Social Studies of Science* 37:5 (2007), 766.

14 | Gene Rowe/Lynn J. Frewer: "A Typology of Public Engagement Mechanisms", in: *Science, Technology and Human Values* 30:2 (2005), 251-90.

15 | Related to renewable energy see Julie Barnett/Kate Burningham/Gordon Walker/Noel Cass: "Imagined Publics and Engagement around Renewable Energy Technologies in the UK", in: *Public Understanding of Science*, published

A related question deals with how industry and policy makers formulate strategies of public engagement – and further, about the rationale behind their formulation. These are the questions that primarily interest me in this paper. One way to address this is to look for subtle and indirect links between collectives like ‘the public’, the industry and policy makers. Inspired by what Allesandro Maranta and colleagues coined ‘imagined laypersons’¹⁶ in a discussion of how experts think non-experts relate to their activity, a recent strain of literature has studied such matters via the idea of ‘imagined publics’.¹⁷ Their premise is simple. These authors claim that ‘the public’ does not only carry agency through action. Rather, ‘the public’ is also powerful as an idea. When industrialists and policy makers make decisions, they do so in light of an imagined public response.¹⁸ Imagined publics give life to “shared repertoires and expectations amongst actors in technical-industrial networks”, expectations which are “anticipated and internalised into organisational practices and working practices.”¹⁹ Thus, there is reason to believe that while studying the Norwegian and Swedish

online before print on June 30, 2010, <http://pus.sagepub.com/content/early/2010/06/21/0963662510365663.abstract>, Accessed: 15.12.2011.

16 | Allesandro Maranta/Michael Guggenheim/Priska Gisler/Christian Pohl: “The Reality of Experts and the Imagined Lay Person”, in: *Acta Sociologica* 46:2 (2003), 150-65.

17 | E.g. Brian Wynne: “Reflexing Complexity. Post-genomic Knowledge and Reductionist Returns in Public Science”, in: *Theory, Culture and Society* 22:5 (2005), 67-94.

18 | These ideas are not entirely new. In 1927, John Dewey wrote that political orders “impute a public only to support and substantiate the behaviour of officials” – thus, publics are imagined to legitimate and give substance to government systems. Dewey cited in Rebecca Ellis/Claire Waterton: “Environmental Citizenship in the Making: The Participation of Volunteer Naturalists in UK Biological Recording and Biodiversity Politics”, in: *Science and Public Policy* 31:2 (2004), 103.

19 | Gordon Walker/Noel Cass/Kate Burningham/Julie Barnett: “Renewable Energy and Sociotechnical Change: Imagined Subjectivities of ‘the Public’ and Their Implications”, in: *Environment and Planning* 42:4 (2010), 943.

bioenergy industry, I will find links between their imagined publics and their actual practice of public engagement.²⁰

Studies of imagined publics are particularly pertinent if the science or technology is controversial. Earlier studies show that renewable energy projects generally²¹ and bioenergy projects particularly²² are prone to controversy; frequently surrounded by supporters, protesters and debate. This is probably why there already exist a number of studies dealing with the imagined publics of renewable energy technology. What can be learned from these studies?

Most existing literature is concerned with the imagined publics of the renewable energy industry in the UK. Gordon Walker and Noel Cass argue that prior to the liberalisation of the UK energy utilities and infrastructure in 1989, ‘the public’ was imagined as “‘end-of-wire’ captive consumers.”²³ Following the liberalisation and the tailing variety in modes of energy production, the importance of ‘the public’ has increased and its roles have multiplied. The authors identify publics imagined as captive consumers, active consumers, service users, green investors, local beneficiaries, project protestors, project supporters, project participants, technology hosts and energy producers.²⁴ This plurality is reflected elsewhere. Kate Burningham and colleagues found publics imagined as ‘users’ or as

20 | Several studies dealing with ‘public perception’ of bioenergy exist. Typically, they use quantitative methods to measure ‘public attitudes’ towards bioenergy. E.g. Henrik Karlstrøm: *Den Deregulerte Forbruker*. Trondheim: Institutt for Tverrfaglige Kulturstudier, 2010 finds roughly 70 percent of Norwegians to be positive towards bioenergy. A focus on ‘imagined publics’ complements this approach, by showing how public imaginaries inform industrial behaviour.

21 | Gordon Walker: “Renewable Energy and the Public”, in: *Land Use Policy* 12:1 (1995), 49-59.

22 | Bishnu Raj Upreti/Dan van der Horst: “National Renewable Energy Policy and Local Opposition in the UK: The Failed Development of a Biomass Electricity Plant”, in: *Biomass and Bioenergy* 26:1 (2004), 61-69.

23 | Gordon Walker/Noel Cass: “Carbon Reduction, ‘the Public’ and Renewable Energy: Engaging With Socio-Technical Configurations”, in: *Area* 39:4 (2007), 466.

24 | Walker: “Carbon Reduction, ‘the Public’ and Renewables”, 465.

'neighbours'.²⁵ Julie Barnett and colleagues²⁶ found publics imagined as ignorant or concerned about renewable energy developments and that the renewable energy industry imagined the public through the 'deficit model of public understanding'.²⁷ This public imaginary, the authors claim, led to the formulation of strategies of public engagement meant to educate the public, and to rectify public concerns. Similarly, Gordon Walker and colleagues²⁸ found the renewable energy industry to imagine its publics as opposed to renewable energy based on the NIMBY ('not in my back yard') concept.²⁹ Thus, the industry sees publics mostly as hostile obstacles to their development. To summarize past research on imagined publics of renewable energy, Dandy Norman's words seem fitting: "The actors in the renewable energy industry have a strong tendency to define 'the public' as 'concerned'". Further, he notes that this has "strong impacts on the 'engagement' activities" of the actors involved.³⁰

Based on the studies from the UK cited above, it is likely that the study of the Norwegian and Swedish bioenergy players will reveal a plurality of imagined publics. One way to categorise this plurality is Mike Michael's differentiation between 'publics in particular' (PiPs) and 'publics in general' (PiGs).³¹ While discussing publics in relation to science, his argument

25 | Kate Burningham/Julie Barnett/Anna Carr/Roland Clift/Walter Wehrmeyer: "Industrial Constructions of Publics and Public Knowledge: A Qualitative Investigation of Practice in the UK Chemicals Industry", in: *Public Understanding of Science* 16:1 (2008), 23-43.

26 | Barnett: "Imagined Publics and Engagement in the UK".

27 | Gross: "The Role of Rhetoric in the Public Understanding".

28 | Walker: "Renewable Energy and Sociotechnical Change".

29 | The NIMBY concept has been criticised as a theoretical model for explaining negative attitudes towards renewable energy. However, empirical research suggests that NIMBYism is still understood by industrial players and policy makers as the main obstacle to renewable energy developments. See e.g. Patrick Devine-Wright: "Beyond NIMBYism: Towards an Integrated Framework for Understanding Public Perceptions of Wind Energy", in: *Wind Energy* 8:2 (2005), 125-39.

30 | Dandy Norman: *Stakeholder Perceptions of Short-Rotation Forest for Energy*. Farnham: Forrest Research, 2010, 11.

31 | Mike Michael: "Publics Performing Publics: Of PiGs, PiPs and Politics", in: *Public Understanding of Science* 18:5 (2009), 617-31.

*Bioenergi*³⁵ and six issues of the Swedish equivalent journal³⁶ (also named *Bioenergi*). The interviewees were players in the bioenergy industry, public employees and decision makers working with bioenergy as well as scientists working with bioenergy. The interviews were 40 minutes to two hours long and recorded and transcribed before they were coded and analysed. The analysis and coding were inspired by Grounded Theory.³⁷ Here, pieces of data are compared with each other and with the emergence of similarities and differences, groups of categories are formed. These categories form the basis for the analysis of how the Norwegian and Swedish bioenergy actors imagine the publics of bioenergy.

THE NEED TO INTRODUCE BIOENERGY: NORWAY AND SWEDEN AS ENERGY REGIMES

Norway and Sweden are ideal contrasts since they represent different 'energy regimes'. In Norway, almost all electricity is hydropower.³⁸ Much of this is used for space heating.³⁹ In principle, this stationary energy base is 'green', which could indicate that there is little need to introduce bioenergy. Two aspects complicate this. First, Norway is actually a net importer of electricity in a 'normal' year⁴⁰, which means that the consumed electricity

35 | *Bioenergi*: 3-6, 2009 and 1-3, 2010. Professional journal published by the Norwegian bioenergy association.

36 | *Bioenergi*: 3-6, 2009 and 1-3, 2010. Professional journal published by the Swedish bioenergy association.

37 | Anshelm Strauss/Juliet M. Corbin: *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage, 1990.

38 | IEA Energy Statistics: "Electricity/Heat in Norway in 2008", 2008, http://iea.org/stats/electricitydata.asp?COUNTRY_CODE=NO, Accessed: 01.09.2011.

39 | Norway uses the largest share of electricity for space heating of all countries studied by the IEA. See Fridtjof Unander/Ingunn Ettestøl/Mike Ting/Lee Schipper: "Residential Energy Use: An International Perspective on Long-Term Trends in Denmark, Norway and Sweden", in: *Energy Policy* 32:12 (2004), 1395-1404.

40 | Marit Tyholt/Anne Grete Hestnes: "Heat Supply to Low-Energy Buildings in District Heating Areas: Analysis of CO₂ Emissions and Electricity Supply Security", in: *Energy and Buildings* 40:2 (2008), 131-39.

is not necessarily 'green'. Second, there has been an increased focus on energy efficiency and energy quality. In this perspective, it is better to use electricity for purposes other than space heating.⁴¹ Thus, bioenergy has primarily been given political attention in Norway as a potential replacement for space heating based on hydroelectricity.⁴² Parliament representative Trond Martin Sæterhaug summarized this notion in 2009 stating that "using electrical power for space heating is like bathing in champagne."⁴³

Despite its 'green' and 'efficient' qualities, bioenergy is a marginal technology in Norway with an annual consumption of 14.5 TWh⁴⁴ or around 6 percent of all energy consumed.⁴⁵ Even if the goal of doubling this by 2020⁴⁶ is met, it will remain a niche, a modest addition to the Norwegian energy total. Instead, the major Norwegian energy-political effort over the last years has been geared towards developing carbon capture and storage (CCS) and the employment of this in gas power plants.⁴⁷

The Swedish situation is different with a historically more diverse energy production. Fossil fuels, hydroelectricity, and nuclear power have

41 | Ivar S. Ertesvåg/Michael Mielnik: "Exergy Analysis of the Norwegian Society", in: *Energy* 25:10 (2000), 957 say: "The notion of energy quality follows from the second law of thermodynamics. Some forms of energy can be converted into any other form, whereas other forms cannot. Electricity can be converted into mechanical work or into heat. For practical purposes, hot-water thermal energy can most often only be used for heating. On the other hand, for space heating hot waste-water suffices, whereas an aluminium plant requires electrical energy."

42 | Olje og Energidepartementet: *Strategi for økt utbygging av bioenergi*, Olje- og Energidepartementet, 2008, <http://www.regjeringen.no/upload/OED/Bioenergi/strategien2008w.pdf>, Accessed: 04.07.2011.

43 | Håkon Arntsen/Sivert Rossing: "Fikk 15 Millioner til Strømsparing i Fylket", in: *Trønderavisa*, 15.09.2009.

44 | Olje og Energidepartementet: *Strategi for økt utbygging av bioenergi*, 7.

45 | This number includes the transport sector. See Statistisk Sentralbyrå: "Energi". <http://www.ssb.no/energi/>, Accessed: 01.09.2011.

46 | Olje og Energidepartementet: *Strategi for økt utbygging av bioenergi*, 12.

47 | Andreas Tjernshaugen: "Fossil Interests and Environmental Institutions: The Politics of CO₂ Capture and Storage" (Unpublished Ph.D diss. Universitetet i Oslo, 2009).

all been important.⁴⁸ Today, Sweden has one of the highest consumption rates of bioenergy in the world.⁴⁹ Bioenergy started to receive attention in Sweden in the 1970s. It was first seen as a means to rid Sweden of its dependence on foreign fossil fuels and nuclear power, and later as a tool to mitigate climate changes.⁵⁰ Bioenergy broke through to the mainstream of Swedish energy technologies in the early 1990s⁵¹, a decade characterised by a ‘greening’ of the Swedish welfare state. It has been at the core of Swedish energy policy since 1997⁵², acting as a ‘politically harmonizing technology’ by bridging a gap that existed between advocates of nuclear power and renewable energy technologies.⁵³ Today, bioenergy accounts for roughly one third of the total Swedish consumption. Its share is larger than fossil fuels, nuclear power and hydroelectricity.⁵⁴

Thus, the roles of bioenergy in Norway and Sweden are substantially different. In Norway, it is a niche technology, primarily introduced to replace electricity for space heating. In contrast, it is at the core of Swedish energy policy and is currently the largest energy-producing technology in this setting. How will these circumstances influence the imagined publics of bioenergy in Norway and Sweden? To generate hypotheses about this, I will now look briefly at how Norwegian and Swedish newspapers have covered bioenergy.

48 | See e.g. Arne Kaijser/Marika Hedin: *Nordic Energy Systems. Historical Perspectives and Current Issues*. Canton, MA: Watson Publishing International, 1995.

49 | Energimyndigheten: *Energiförsörjningen i Sverige*. Energimyndigheten, 2009.

50 | Jonas Anshelm: *Att ersätta kärnkraften med bioenergi – om en omstridd idé i den offentliga energipolitiska debatten i Sverige 1979-2000*. Linköping: Tema T, Linköpings Universitet, 2009; Ann-Sofie Kall: “Förnyelse med förhinder” (Unpublished Ph.D diss. Linköpings Universitet, 2011).

51 | Kall: *Förnyelse med förhinder*, 143-99.

52 | E.g. Atle Midttun/Mari Hegg Gundersen/Anne Louise Koefoed: “Greening of Nordic Electricity Industry: Policy Convergence and Diversity”, in: *Energy & Environment* 15:4 (2004), 633-56.

53 | Kall: *Förnyelse med förhinder*, 172.

54 | Energimyndigheten: *Energiförsörjningen i Sverige*, 35.

BROADENING THE CONTEXT: NORWEGIAN AND SWEDISH MEDIA COVERAGE OF BIOENERGY

The reading of the analysed newspapers shows substantial differences between the coverage of bioenergy in Norway and Sweden. In summary, the Swedish newspapers are more supportive of bioenergy than the Norwegian. The Swedish newspapers support bioenergy through presenting it as 'green' or 'environmentally friendly'⁵⁵, but also as competitive in other ways. Bioenergy is presented as a safe and comfortable technology⁵⁶ that has brought wealth and prosperity to local communities.⁵⁷ It is frequently described in patriotic terms, as a 'Swedish' way of being green, an area where the rest of the world seeks Swedish aid.⁵⁸ In summary, the technology is presented as good for the wallet, good for the climate, and good for Sweden.

The Norwegian press is less supportive. It does not portray bioenergy negatively, but with ambiguity and ambivalence. Bioenergy is presented as 'green'⁵⁹, but this is not sufficient, because it is always compared with other energy technologies that are seen as technically and economically superior.⁶⁰ In other words, the Norwegian story about bioenergy is a story

55 | Svenska Dagbladet: *Satsar Stenhårt på att Förse Polen med Miljövennlig Fjärrvarme*, 29.07.2009 is a typical example highlighting the 'green' aspect of the technology.

56 | E.g. Svenska Dagbladet: *Elda snyggt och säkert*, 12.12.2009 notes how bioenergy heating solutions are better than other solutions at providing heat, but also in terms of aesthetics and safety.

57 | E.g. Östgöta Correspondenten: *Linköpingsföretag gör Milliardaffär*, 05.06.2010 discusses bioenergy primarily as a local-industrial stimulant and generator of wealth.

58 | E.g. Östgöta Correspondenten: *Sydkoreansk Stad vill Lära av Linköping*, 12.05.2010 shows how a South-Korean town wants to learn from a Swedish town, while Östgöta Correspondenten: *Världsnaturfonden Lyfter Fram Linköpingsföretag*, 30.09.2010 highlights how the World Wildlife Fund praised a Swedish bioenergy company.

59 | E.g. Aftenposten: *Lover mer enn Enoksen*, 22.09.2007 portrays bioenergy as the 'green coal of the future'.

60 | Adresseavisen: *Spår Vannkraft-Boom i Norge*, 25.09.2009 suggests that hydroelectricity and gas power-plants are the future while Adresseavisen: *Søker*

about a 'green' technology, but as energy technology it is seen as falling short based on technical and economic arguments.

Furthermore, bioenergy was described in the newspapers with a third set of arguments in both countries. The production of bioenergy was cast against the production of food, resulting in bioenergy being framed as a controversial symbol of the North's dominance over the South.⁶¹

How does all of this influence the investigation of imagined publics of bioenergy in Norway and Sweden? First, earlier research has found publics imagined as 'concerned' about or opposed to renewable energy developments⁶², framed through the deficit model of public understanding.⁶³ In the following, I expect to find such imagined publics in both Norway and Sweden. Second, the role of bioenergy differs in Norway and Sweden. As a marginal Norwegian technology, its expansion will be accompanied by the construction of facilities changing landscapes, creating noise and smell, increasing traffic and creating other controversial side-effects. The ambivalent Norwegian newspaper coverage might be a hint of such controversy. There is less of this in Sweden, since much infrastructure needed to distribute bioenergy is already in place. Thus, I expect publics explicitly imagined through mobilisation of the NIMBY concept in Norway while I believe there will be less of this in Sweden. Third, the patriotic coverage of bioenergy in Swedish newspapers and the position of bioenergy in Sweden suggest publics to be imagined more positively.

om forlengelse, 22.12.2008 writes that compared to competing technologies bioenergy is 'unsuitable'.

61 | Verdens Gang: *Matvaregiganter i Heftig Krangel*, 10.08.2007, Aftenposten: *Det Sier seg Selv at vi har et Problem*, 11.09.2009, Aftenbladet, *Etanolen Skövlar Naturen*, 28.07.2007 and Svenska Dagbladet, *Världensbanken Pekar på Bio-brensle*, 07.07.2008 are all examples of coverage presenting bioenergy primarily as a competitor to food production.

62 | Barnett: "Imagined Publics and Engagement"; Walker: "Carbon Reduction, 'the Public' and Renewable Energy"; Walker: "Renewable Energy and Sociotechnical Change"; Norman: *Stakeholder Perceptions*.

63 | Gross: "The Role of Rhetoric in the Public Understanding".

IMAGINING THE PUBLICS OF BIOENERGY IN NORWAY AND SWEDEN

The interviewees in both countries had clear ideas about ‘the publics’ of bioenergy. Altogether five ideal typical domestic imagined publics were found; two Swedish and three Norwegian. Further, many Norwegian actors related their stories so explicitly to Sweden that they ended up imagining a Swedish public. As we shall see, the imagined publics frequently informed the bioenergy players’ strategies of public engagement.

The Local Publics

In both countries, the most prominent imagined publics were ‘local’ publics. In Norway, local publics were imagined as ‘neighbours’ or ‘protesters’ of specific projects. Local publics were imagined as PiPs⁶⁴ (publics in particular) with strong interests related to particular facilities, products or companies. As expected, these publics were regarded in light of the NIMBY concept and understood by the interviewees as selfishly concerned about how bioenergy developments would disturb local communities in terms of aesthetics and safety. This was related to issues like visual pollution, increased traffic, reduced air quality, foul smell, and so forth. One example was given by the manager of one of the largest Norwegian biogas facilities. He imagined the public in relation to the companies’ experiences with the construction of a biogas plant a few years back:

“Well, we were not allowed to build the plant where we wanted. It was a political decision. [...] Basically the decision was based on fear. Fear of birds [and other vermin that the plant might attract, T. S.], smell, all kinds of stuff. The public was very much against us. There were demonstrations and we didn’t really get the message across. It’s not so easy when everyone is against you, and this is quite typical for our kind of operation.”⁶⁵

While some imagined the publics based on earlier interaction with groups of opponents, other accounts were anchored in what appeared as an industrial mode of ‘common sense’ regarding how publics of bioenergy act.

64 | Michael: “Publics Performing Publics: Of PiGs and PiPs”.

65 | Interview with manager Andre Jørgensen in his office, 30.09.2009.

For example, the head of a district heating company imagined the public as responding to their technology instinctively based on NIMBY logic:

“I think it’s the same everywhere, at least for the technology we work with. Every time someone has a new project, there are these reactions, especially from the neighbours who begin with their protests as soon as they hear about it. It’s not simple, of course. The public suddenly doesn’t care so much about the climate and the environment when it comes to this.”⁶⁶

The development of a bioenergy industry in Norway will affect local communities substantially through construction work. In many cases the result will be an altered landscape with new industrial facilities. As in the quotes above, the bioenergy industry imagines the publics as opposed to such development. This view often leads the industry to craft strategies of public engagement meant to limit the impacts of opposition. The manager of the district heating department of a large energy utility explained how engaging with the public was vital prior to announcing the construction of a new facility:

“Well, you can’t just go ahead and say that you have decided about the location of a plant. For us, we take preliminary rounds with different departments at the administrative level, and we have meetings with the boards of various cooperative housing associations nearby, very lively meetings. Then we inform the municipal opposition, and then the board of the neighbourhood. We do all this before officially saying what we have decided, because keeping a dialogue with the public is considered important. Although all this takes some time, it minimizes the risk of having the regulation application thrown back in our faces with an answer of finding an alternative location.”⁶⁷

The quote illustrates how ‘public engagement’ through communication at various levels is considered an industry norm. However, it is not done for the sake of the public. The goal is not public participation in the decision

66 | Interview with manager Bernt Knutsen at district heating facility, 20.10.2009.

67 | Interview with department manager Christian Haugen in his office, 12.10.2009.

making process, the engagement is meant to limit the impact of expected opposition.

The local imagined publics in Sweden were different. These were not imagined as neighbours or protesters, but as passive consumers. As such, however, they were imagined as a group without a direct relationship to bioenergy. Instead, they were considered consumers of services, hooked up to an infrastructure where bioenergy was important. In other words, this public was imagined to buy heat, electricity, bus fares and cars, while bioenergy was imagined as 'invisible' to the public. The Swedish interviewees did not imagine publics via the NIMBY concept found in Norway or the UK.⁶⁸ A manager at a large Swedish wood chips and pellet producer described the situation in this manner:

"The Swedish public, I guess, is largely positive towards bioenergy, or perhaps more precisely: it is ignorant about it. I mean, I don't think most people are aware of how important it is, and that it heats their homes and actually provides the light in their light bulbs. And I think this is a good sign - as long as it works, people don't care where the energy comes from."⁶⁹

Similar sentiments were expressed by a market trader for stationary biofuels:

"The average Swede [...] does not care about bioenergy. He has a vague idea about it being something other than coal and fossil fuels, and the label 'bio' suggests that it is green. As long as it works, the Swede is quite happy."⁷⁰

It is noteworthy that the interviewees did not see the imagined public's ignorance as a problem; in fact some respondents interpreted it as a seal of approval. A senior employee at the transport office of Linköping Municipality highlighted this by showing that the ignorance and approval had not always been there. When bioenergy was introduced, it was associated with occasional problems, resulting in bioenergy becoming the scapegoat:

68 | E.g. Walker: "Renewable Energy and Sociotechnical Change".

69 | Interview with manager Dan Eklund in his office, 07.04.2010.

70 | Interview in market trader Einar Carlström in his office, 20.04.2010.

“People are not riding the bus because it is powered by biogas; they ride the bus because they need to go somewhere. And today, biogas works as well as any other fuel, and the air quality is much better now than when the buses used diesel. But in the beginning, there were some problems with the biogas buses. They did not work properly in the winter, and as you know it can be quite cold in Linköping during those months. And then some people certainly raised their voices against biogas.”⁷¹

This illustrates the difference between imagining publics of novel, potentially controversial technology and of a smoothly working infrastructure. This point might seem trivial, but it suggests that while the technology improves, the nature of the relationships between ‘publics’ and industry changes. The imagined public is altered from active complainers to ignorant and unaware consumers. This also seems to have had an influence on how the industry players reflect on the need for public engagement. One interviewee highlighted that the most important thing they could do was to “produce as good services as we possibly can so that they stay happy.”⁷² Another said it was important to “listen if the public reported any concerns.”⁷³ In other words, public engagement appeared less important when the publics were not imagined as problems.

In summary, bioenergy in Sweden has been described as invisible and the publics imagined as blissfully ignorant. For the majority of bioenergy players, this was unproblematic. As we will see, however, there was one deviation from this way of framing the relationship between bioenergy and its publics. Here too, bioenergy was seen as an invisible aspect of daily life, but this was considered a democratic deficiency problem. The argument was that the public needed to know and understand the energy technology if they were to make informed decisions, a concern that was first and foremost raised by the Swedish bioenergy association through the industry journal *Bioenergi*. One article stated:

71 | Interview with senior employee Frederica Jansson in her office, 24.04.2010.

72 | Interview with manager Gunnar Lögnés in his office, 13.04.2010.

73 | Interview with senior employee of company producing wood chips, Harald Ström at production site, 17.04.2010.

“Ask your neighbour, your cousin or a large share of the Swedish public [...] and most will completely have missed the remarkable development that has happened and that continues today.”⁷⁴

A similar article highlighted that the public should “wake up and realise how important bioenergy is.”⁷⁵ This image of deficiency on behalf of the public was accompanied by voices highlighting that the public needed to be engaged through information. An editorial stated:

“First and foremost we want the energy authorities to do a better job when they present statistics so that journalists and others can do a good job when informing the public [...] [I]f this is not done we have to fill that gap [...] [I]n a democracy it is important that the public gets relevant or accurate information, or they cannot produce informed opinions.”⁷⁶

Thus, where some saw the imagined publics’ ignorance as unproblematic; others saw it as a problematic call for public engagement, primarily through strategies of information.

The Public as Customers

In both countries, I also discovered publics imagined as customers. These are examples of publics in particular, imagined in relation to specific bioenergy products. In Norway, such publics were understood via the deficit model of public understanding as ignorant and disinterested in relation to the products offered by the bioenergy industry. Here, the disinterest was seen as a problem for the industry since it was understood to result in non-consumption.

This articulation of the public was particularly prominent amongst respondents working with pellets. These actors imagined their public as people in the market for a new heating solution. The interviewees claimed that this group was uninformed about the possibilities of bioenergy and

74 | Anders Haaker: “År Bioenergi Något Nytt?”, in: *Bioenergi* 1 (2010), 9.

75 | Jan Ridfeldt/Gun Blomquist Bergman: “Underskatta Inte Bioenergins Betydelse!”, in: *Bioenergi* 3 (2010), 44-45.

76 | Gustav Melin: “Kylan, Värmen och Elen”, in: *Bioenergi* 1 (2010), 11.

therefore chose competing solutions. The manager of a leading pellets company framed the problem in the following way:

“We have tried everything to increase the sales, but it feels as difficult as cracking the DaVinci code. The problem for us is that people don’t know about pellet heaters. The sales persons have to spend a lot of time explaining how they work, and the consumers take a long time to decide. For us, branding and information towards the public are prioritised tasks.”⁷⁷

Similar sentiments were presented by a senior representative of a company that shortly before I interviewed them had decided to abandon the private market in favour of the municipal heating market. Public ignorance and lack of knowledge were highlighted as integral to the decision:

“Selling to municipalities and public agencies is one thing. They are professionals. They have engineers that make decisions and personnel such as janitors that can be trained. Individuals and normal households do not have this, so they generally tend to choose other solutions such as heat pumps – often because of misunderstandings.”⁷⁸

Several respondents related the perceived knowledge deficit to aspects like lack of trust, familiarity or experience with the technology. Thus, they engaged the public to increase its knowledge of the technology. This was done through standard information and advertisement campaigns, but also through more direct engagement. In one case, a company tried to establish a new network of pellet users by providing the public with technology free of charge:

“We are trying to get the information directly to the customers. And we think that if they know someone who uses a pellet heater and is happy with it they might consider it themselves. So what we did was to produce flyers that we gave to every household in the region where we highlighted the benefits of pellets and promised that we would install pellet heaters and allow people to use them – free

77 | Interview with manager Ingrid Johnsen over the telephone, 22.07.2009.

78 | Interview with senior representative Jan Andresen in company sales hall, 19.05.2009.

of charge – for a period of time. If they were not happy, we would also collect the heater, free of charge.”⁷⁹

When Swedish respondents imagined the public as customers, they did so differently. Their imagined public was quite local in character, probably due to the situation in the area where the interviews were conducted. The public as customers were not the imagined publics of ‘bioenergy’, but rather the imagined public of a cluster of companies and research institutions that worked with biogas.

This public was imagined as supportive of bioenergy both by politicians and companies with a regional profile. They clearly imagined the publics outside the deficit model of public understanding as a proud group of customers with a preference for ‘green’ products. The head of one large regional biogas company explained:

“The public is very interested in what we do, and I actually think they are somewhat proud of this company. This is one of the few things that we here at this little place are best at in the world, and I have the feeling they appreciate that.”⁸⁰

The public was imagined as a resource, a source of opportunity and potential. A representative of the environmental office in Linköping municipality elaborated:

“Bioenergy is popular, absolutely. Take biogas as an example. More and more customers are buying biogas cars, more and more people are thinking about it. There is a great public acceptance of the technology, and I will also claim – a pride in it.”⁸¹

Many actors highlighted an appreciation for the public support, and that their engagement with the public was aimed at maintaining the positive relationship. A senior employee at the traffic department of Linköping municipality gave an example:

79 | Interview with manager Kristine Vold over the telephone, 03.08.2009.

80 | Interview with manager Lars Knutson in his office, 20.04.2010.

81 | Interview with environmental office representative Monica Fall in municipal office, 15.04.2010.

“A few times a year we have these events that we call ‘open municipality’. Basically, what happens is that the different offices of the municipality set up stands at town square, and then people can come chat with us about whatever they want. And this has been important, for instance in relation to the biogas projects, to avoid any confusion. I mean, there have been instances when someone has been concerned, but through these events there is a direct line of sorts, and most of the times we are able to cool down the worries.”⁸²

In other words, the respondents still deemed public engagement through conveying positive images of bioenergy important, despite the unproblematic relationship with the public, and maintained that this was best done through two-way communication.

THE STRANGE NORWEGIAN PIG AND ITS SWEDISH COUSIN

So far, the publics have been imagined as publics in particular in relation to specific bioenergy projects or specific bioenergy products. In Norway, I also discovered an imagined public in general (PiG), primarily imagined by ‘experts’ – scientists, employees of public agencies, and others more indirectly related to the bioenergy industry. They imagined ‘the public’ as less tangible and locatable than ‘neighbours’, ‘protesters’ or ‘customers’. Instead, they imagined an abstract ‘Norwegian public’ that was opposed to bioenergy because it was incompatible with the idea of ‘pure nature’, an idea believed to be cherished by the Norwegian public. An employee of a public agency working with bioenergy in Sør-Trøndelag explained how this mentality differed between Sweden and Norway:

“There is a difference in mentality between Sweden and Norway. I mean, hacking away on the forests with the goal of extracting as much as possible biomass would be politically very difficult here. Take this thing with stumps. People wouldn’t accept the kinds of large scale interventions into nature that we would need to extract them at any reasonable scale here in Norway. That would be extremely controversial.”⁸³

82 | Interview with senior employee Nils Åkerfeldt in traffic office, 13.04.2010.

83 | Interview with employee Ola Nordmann in his office, 30.09.2009.

The imagined publics' reaction to bioenergy was a question of bioenergy vs. nature; a battle lost by bioenergy. As in the quote above, many interviewees contrasted the Swedish public to the Norwegian. The Swedish public was seen as an 'ideal public', readily accepting issues seen as problematic in Norway. Thus, the respondents not only imagined a Norwegian PiG, but also a Swedish PiG, more positive towards bioenergy than reported by the Swedes. Another example of the public imagined this way was presented by a Swedish professor working at a Norwegian university:

"It is a sort of strange thing this bioenergy here in Norway. In many ways it has become something negative, something bad. Take the environmental movement, for example. You can almost say that in Sweden, they are pro bioenergy, whereas they are basically against it here in Norway. And if you go to an industry conference here in Norway and look at the average age of the participants, you will not exactly see a young crowd. And this says something about the position of bioenergy with the general public, I think."⁸⁴

IMAGINED PUBLICS – REAL EFFECTS

In the last paragraphs, I have studied how bioenergy in Norway and Sweden have imagined their respective 'publics'. This exercise has illustrated that technology developments are not value-free processes of diffusion, but that the adoption of energy technologies occurs in a complex setting where the agency of multiple actors influences the outcome. 'The public' in its various guises can be a player who can protest, participate and support. The notion of 'imagined publics' illustrates that 'the public' may appear in these processes more indirectly. The public does not actually have to protest a development in order to influence the process, if those trying to implement the technology believe protests to be likely.

In Norway and Sweden, the publics were imagined differently. The Swedish publics were imagined either as ignorant consumers or supportive customers. In Norway, they were imagined as concerned about or opposed to bioenergy based on NIMBY logic, as ignorant non-customers or opponents to bioenergy because it interfered with the idea of 'pure nature'. These ways of imagining the publics resulted in different strategies of

84 | Interview with Professor Pär Vargas over the telephone, 07.10.2009.

public engagement. Some Swedish players saw public ignorance as a democratic problem and concluded it would be their task to enlighten the public. The Swedes who imagined the public as supporters wanted to preserve the situation and considered the best way to be open two-way dialogue. In Norway, the industry pre-emptively responded to expected NIMBY responses through meetings with perceived stakeholders, mainly to limit the consequences of protests. The ignorant non-consumers were engaged through information campaigns as well as more active attempts to bring them on board as trustworthy users of the technology.

The ways that the publics of bioenergy are imagined in Norway and Sweden also tells us something about the role of bioenergy in Norwegian and Swedish culture. In particular, the notion of bioenergy as invisible to the Swedish publics even though it is the major energy technology in the country stands out as a contrast to the Norwegian situation where bioenergy, a marginal technology, appears controversial. It is likely that this can be attributed to the historical circumstances by which bioenergy was introduced in Sweden, that is through familiar infrastructure for district heating and combined heat and power.

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